



COMUNE DI VENTASSO

Provincia di Reggio nell'Emilia

"FONDO SPORT E PERIFERIE" Anno 2018

ADEGUAMENTO AI FINI DELLA PREVENZIONE INCENDI E DELLA SICUREZZA, DEGLI IMPIANTI ELETTRICI ED IGIENICO SANITARIO DEL PALAGHIACCIO DI CERRETO LAGHI IN COMUNE DI VENTASSO (RE)



PROGETTO ESECUTIVO

ELABORATO: 9

TITOLO: CALCOLI ILLUMINOTECNICI

IL RESPONSABILE DEL PROCEDIMENTO E PROGETTISTA:

Responsabile del Servizio Lavori Pubblici, Ambiente e Patrimonio
(Ing. Laura Felici)

I PROGETTISTI

Ing. Andrea Dallari (ditta MASFOR SRL) – Prevenzione incendi

Per. Ind. Marco Gregori – Impianti elettrici

Per. Ind. Paolo Burani (STUDIO BURANI E NOCETTI) – Impianti meccanici



Busana, 09.01.2019

04-19rev8 PALAGHIACCIO

Note Installazione: PISTA PALAGHIACCIO CERRETO
Cliente: STUDIO GREGORI
Codice Progetto: 04-19rev8
Data: 09/01/2019

Note

ILLUMINAZIONE PISTA PALAGHIACCIO CERRETO

area pista 60,10mt x 29,90mt

altezza installazione da 8 a 12mt

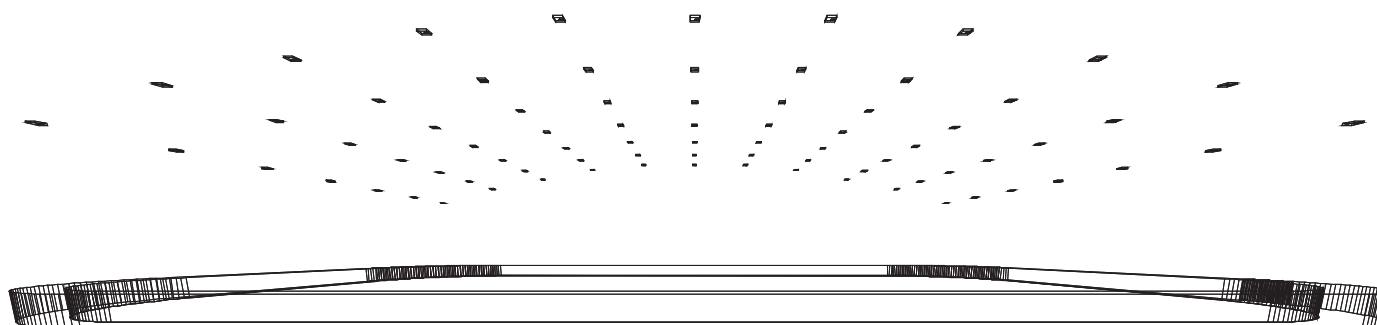
n. 77 DRACO EVO TOTALI (11 file da 7 cad)

n. 22 DRACO EVO 180w 4000k

ottica 60° 33300 lumen nominali

n. 55 DRACO EVO 150w 4000k

ottica 60° 27750 lumen nominali



Avvertenze:
RISULTATI RICHIESTI
750 lux medi richiesti
0,7 Uniformità

1.1 Informazioni Area

Superficie	Dimensioni [m]	Angolo°	Colore	Coefficiente Riflessione	Illum.Medio [lux]	Luminanza Media [cd/m²]
Suolo	61.49x31.19	Piano	RGB=217,255,255	70%	790	176.07

Dimensioni del Parallelepipedo Contenente l'Area [m]:
Reticolo Punti di Calcolo del Parallelepipedo [m]:

60.10x29.80x0.00
direzione X 1.39 - Y 1.39

1.2 Calcolo Energetico (Suolo)

Area	1732.15 m2
Illuminamento Medio	790.19 lx
Potenza Specifica	7.05 W/m2
Potenza Specifica Illuminotecnica	0.89 W/(m2 * 100lx)
Efficienza Energetica	112.10 (m2*lx)/W
Potenza Totale Utilizzata	12210.00 W

1.3 Parametri di Qualità dell'Impianto

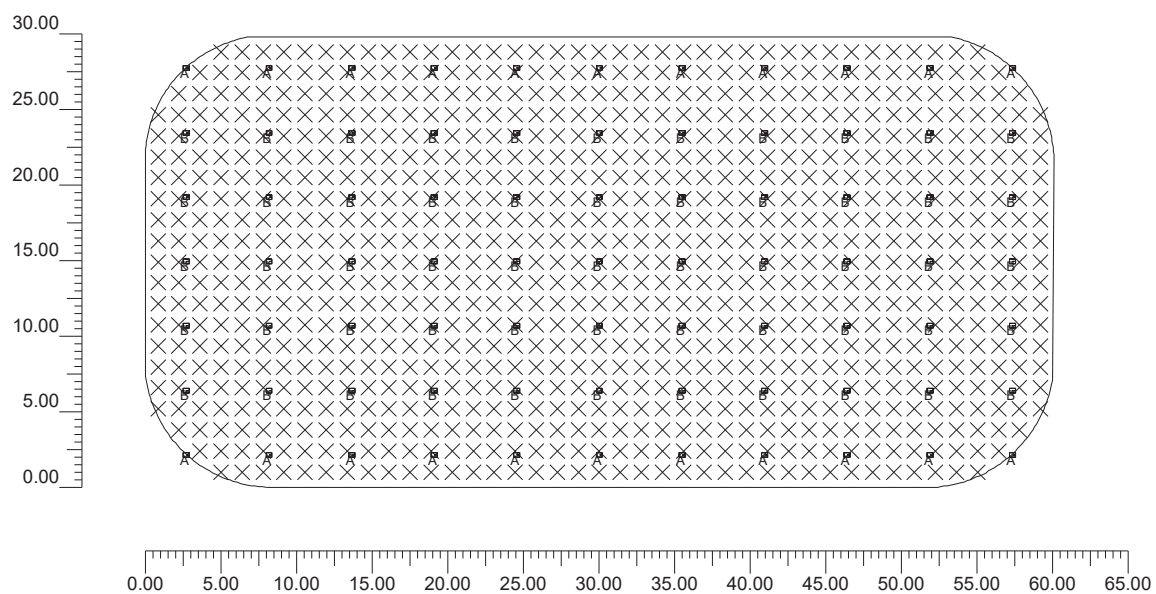
Superficie	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
Piano di Lavoro (h=0.00 m)	Illuminamento Orizzontale (E)	790 lux	562 lux	922 lux	0.71	0.61	0.86
					1:1.41	1:1.64	1:1.17
Suolo	Illuminamento Orizzontale (E)	790 lux	561 lux	922 lux	0.71	0.61	0.86
					1:1.41	1:1.64	1:1.17

Tipo Calcolo

Dir.+Indir.(7 Interriflessioni)

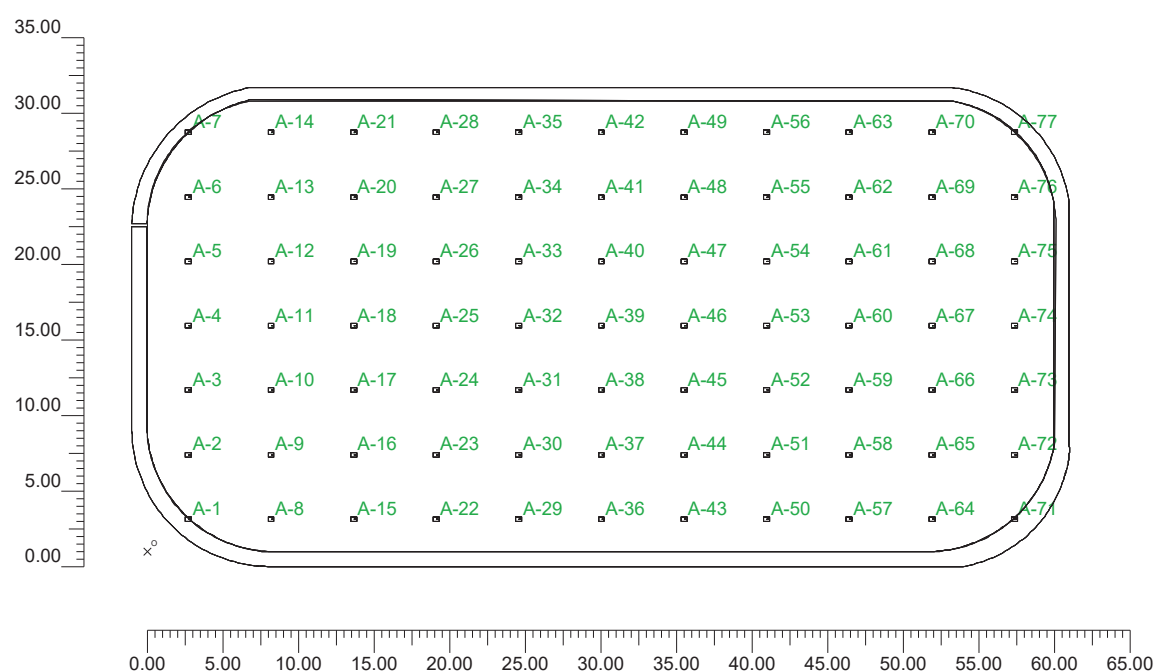
2.1 Vista 2D Piano Lavoro e Griglia di Calcolo

Scala 1/500



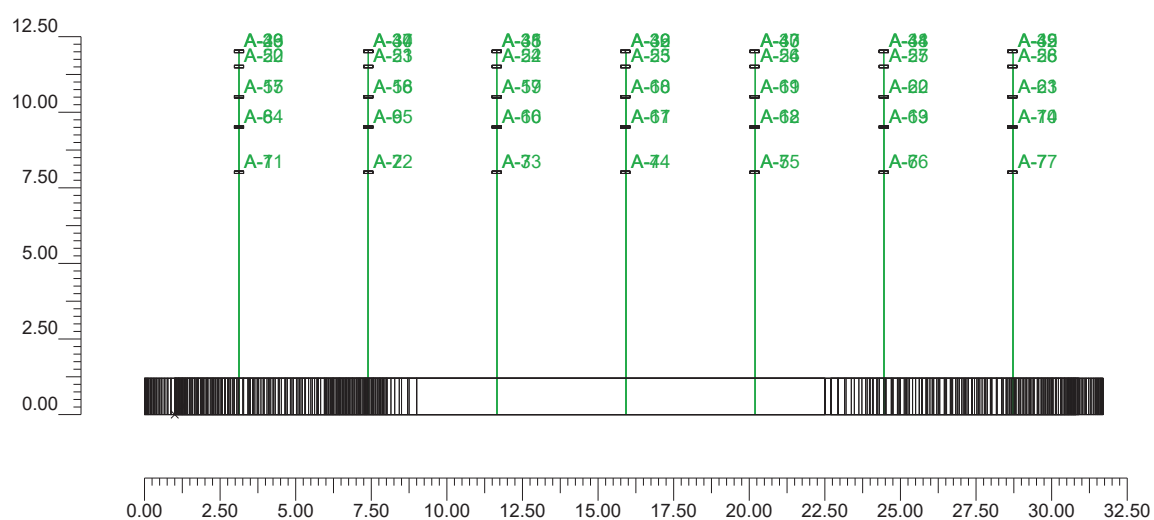
2.2 Vista 2D in Pianta

Scala 1/500



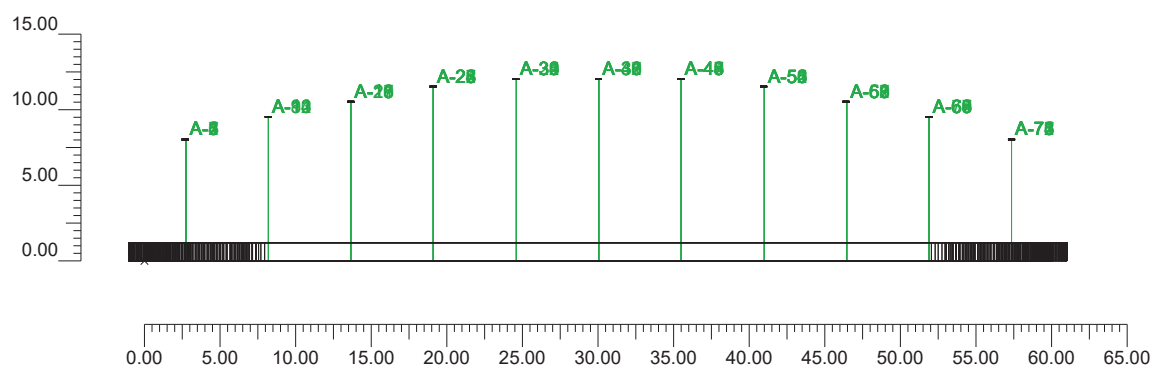
2.3 Vista Laterale

Scala 1/250



2.4 Vista Frontale

Scala 1/500



3.1 Informazioni Apparecchi/Rilievi

Rif.	Linea	Nome Apparecchio (Nome Rilievo)	Codice Apparecchio (Codice rilievo)	Apparecchi n.	Rif.Lamp.	Lampade n.
A	1 DRACO EVO	DRACO_EVO180 OTTICA 60° (DRACO_EVO180 OTTICA 60°)	180Watt Led (DRACO_EVO180_60)	22	LMP-A	1
B	1 DRACO EVO	DRACO_EVO180 OTTICA 60° (DRACO_EVO180 OTTICA 60°)	180Watt Led (DRACO_EVO180_60)	55	LMP-B	1

3.2 Informazioni Lampade

Rif.Lamp.	Tipo	Codice	Flusso lm	Potenza W	Colore K	n.
LMP-A	F	dracoEVO180w	30969	180	4000	22
LMP-B	F	draco EVO 150w	25110	150	4000	55

3.3 Tabella Riepilogativa Apparecchi

Rif.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
A	1	X	2.73;2.13;8.00	0.0;0.0;0.0	180Watt Led	0.90	dracoEVO180w	1*30969
	2	X	2.73;27.72;8.00	0.0;0.0;0.0		0.90		
	3	X	8.20;2.13;9.50	0.0;0.0;0.0		0.90		
	4	X	8.20;27.72;9.50	0.0;0.0;0.0		0.90		
	5	X	13.66;2.13;10.50	0.0;0.0;0.0		0.90		
	6	X	13.66;27.72;10.50	0.0;0.0;0.0		0.90		
	7	X	19.12;2.13;11.50	0.0;0.0;0.0		0.90		
	8	X	19.12;27.72;11.50	0.0;0.0;0.0		0.90		
	9	X	24.59;2.13;12.00	0.0;0.0;0.0		0.90		
	10	X	24.59;27.72;12.00	0.0;0.0;0.0		0.90		
	11	X	30.05;2.13;12.00	0.0;0.0;0.0		0.90		
	12	X	30.05;27.72;12.00	0.0;0.0;0.0		0.90		
	13	X	35.52;2.13;12.00	0.0;0.0;0.0		0.90		
	14	X	35.52;27.72;12.00	0.0;0.0;0.0		0.90		
	15	X	40.98;2.13;11.50	0.0;0.0;0.0		0.90		
	16	X	40.98;27.72;11.50	0.0;0.0;0.0		0.90		
	17	X	46.44;2.13;10.50	0.0;0.0;0.0		0.90		
	18	X	46.44;27.72;10.50	0.0;0.0;0.0		0.90		
	19	X	51.91;2.13;9.50	0.0;0.0;0.0		0.90		
	20	X	51.91;27.72;9.50	0.0;0.0;0.0		0.90		
	21	X	57.37;2.13;8.00	0.0;0.0;0.0		0.90		
	22	X	57.37;27.72;8.00	0.0;0.0;0.0		0.90		
B	1	X	2.73;6.40;8.00	0.0;0.0;0.0	180Watt Led	0.90	draco EVO 150w	1*25110
	2	X	2.73;10.66;8.00	0.0;0.0;0.0		0.90		
	3	X	2.73;14.92;8.00	0.0;0.0;0.0		0.90		
	4	X	2.73;19.19;8.00	0.0;0.0;0.0		0.90		
	5	X	2.73;23.45;8.00	0.0;0.0;0.0		0.90		
	6	X	8.20;6.40;9.50	0.0;0.0;0.0		0.90		
	7	X	8.20;10.66;9.50	0.0;0.0;0.0		0.90		
	8	X	8.20;14.92;9.50	0.0;0.0;0.0		0.90		
	9	X	8.20;19.19;9.50	0.0;0.0;0.0		0.90		
	10	X	8.20;23.45;9.50	0.0;0.0;0.0		0.90		
	11	X	13.66;6.40;10.50	0.0;0.0;0.0		0.90		
	12	X	13.66;10.66;10.50	0.0;0.0;0.0		0.90		
	13	X	13.66;14.92;10.50	0.0;0.0;0.0		0.90		
	14	X	13.66;19.19;10.50	0.0;0.0;0.0		0.90		
	15	X	13.66;23.45;10.50	0.0;0.0;0.0		0.90		
	16	X	19.12;6.40;11.50	0.0;0.0;0.0		0.90		
	17	X	19.12;10.66;11.50	0.0;0.0;0.0		0.90		
	18	X	19.12;14.92;11.50	0.0;0.0;0.0		0.90		
	19	X	19.12;19.19;11.50	0.0;0.0;0.0		0.90		

Rif.	App.	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Codice Apparecchio	Coeff. Mant.	Codice Lampada	Flusso lm
B	20	X	19.12;23.45;11.50	0.0;0.0;0.0	180Watt Led	0.90	draco EVO 150w	1*25110
	21	X	24.59;6.40;12.00	0.0;0.0;0.0		0.90		
	22	X	24.59;10.66;12.00	0.0;0.0;0.0		0.90		
	23	X	24.59;14.92;12.00	0.0;0.0;0.0		0.90		
	24	X	24.59;19.19;12.00	0.0;0.0;0.0		0.90		
	25	X	24.59;23.45;12.00	0.0;0.0;0.0		0.90		
	26	X	30.05;6.40;12.00	0.0;0.0;0.0		0.90		
	27	X	30.05;10.66;12.00	0.0;0.0;0.0		0.90		
	28	X	30.05;14.92;12.00	0.0;0.0;0.0		0.90		
	29	X	30.05;19.19;12.00	0.0;0.0;0.0		0.90		
	30	X	30.05;23.45;12.00	0.0;0.0;0.0		0.90		
	31	X	35.52;6.40;12.00	0.0;0.0;0.0		0.90		
	32	X	35.52;10.66;12.00	0.0;0.0;0.0		0.90		
	33	X	35.52;14.92;12.00	0.0;0.0;0.0		0.90		
	34	X	35.52;19.19;12.00	0.0;0.0;0.0		0.90		
	35	X	35.52;23.45;12.00	0.0;0.0;0.0		0.90		
	36	X	40.98;6.40;11.50	0.0;0.0;0.0		0.90		
	37	X	40.98;10.66;11.50	0.0;0.0;0.0		0.90		
	38	X	40.98;14.92;11.50	0.0;0.0;0.0		0.90		
	39	X	40.98;19.19;11.50	0.0;0.0;0.0		0.90		
	40	X	40.98;23.45;11.50	0.0;0.0;0.0		0.90		
	41	X	46.44;6.40;10.50	0.0;0.0;0.0		0.90		
	42	X	46.44;10.66;10.50	0.0;0.0;0.0		0.90		
	43	X	46.44;14.92;10.50	0.0;0.0;0.0		0.90		
	44	X	46.44;19.19;10.50	0.0;0.0;0.0		0.90		
	45	X	46.44;23.45;10.50	0.0;0.0;0.0		0.90		
	46	X	51.91;6.40;9.50	0.0;0.0;0.0		0.90		
	47	X	51.91;10.66;9.50	0.0;0.0;0.0		0.90		
	48	X	51.91;14.92;9.50	0.0;0.0;0.0		0.90		
	49	X	51.91;19.19;9.50	0.0;0.0;0.0		0.90		
	50	X	51.91;23.45;9.50	0.0;0.0;0.0		0.90		
	51	X	57.37;6.40;8.00	0.0;0.0;0.0		0.90		
	52	X	57.37;10.66;8.00	0.0;0.0;0.0		0.90		
	53	X	57.37;14.92;8.00	0.0;0.0;0.0		0.90		
	54	X	57.37;19.19;8.00	0.0;0.0;0.0		0.90		
	55	X	57.37;23.45;8.00	0.0;0.0;0.0		0.90		

3.4 Tabella Riepilogativa Puntamenti

Struttura	Fila	Colonna	Rif. 2D	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Puntamenti X[m] Y[m] Z[m]	R.Asse °	Coeff. Mant.	Rif.
			A-1	X	2.73;2.13;8.00	0.0;0.0;0.0	2.73;2.13;0.00	0	0.90	A
			A-2	X	2.73;6.40;8.00	0.0;0.0;0.0	2.73;6.40;0.00	0	0.90	B
			A-3	X	2.73;10.66;8.00	0.0;0.0;0.0	2.73;10.66;0.00	0	0.90	B
			A-4	X	2.73;14.92;8.00	0.0;0.0;0.0	2.73;14.92;0.00	0	0.90	B
			A-5	X	2.73;19.19;8.00	0.0;0.0;0.0	2.73;19.19;0.00	0	0.90	B
			A-6	X	2.73;23.45;8.00	0.0;0.0;0.0	2.73;23.45;0.00	0	0.90	B
			A-7	X	2.73;27.72;8.00	0.0;0.0;0.0	2.73;27.72;0.00	0	0.90	A
			A-8	X	8.20;2.13;9.50	0.0;0.0;0.0	8.20;2.13;0.00	0	0.90	A
			A-9	X	8.20;6.40;9.50	0.0;0.0;0.0	8.20;6.40;0.00	0	0.90	B
			A-10	X	8.20;10.66;9.50	0.0;0.0;0.0	8.20;10.66;0.00	0	0.90	B
			A-11	X	8.20;14.92;9.50	0.0;0.0;0.0	8.20;14.92;0.00	0	0.90	B
			A-12	X	8.20;19.19;9.50	0.0;0.0;0.0	8.20;19.19;0.00	0	0.90	B
			A-13	X	8.20;23.45;9.50	0.0;0.0;0.0	8.20;23.45;0.00	0	0.90	B
			A-14	X	8.20;27.72;9.50	0.0;0.0;0.0	8.20;27.72;0.00	0	0.90	A
			A-15	X	13.66;2.13;10.50	0.0;0.0;0.0	13.66;2.13;0.00	0	0.90	A
			A-16	X	13.66;6.40;10.50	0.0;0.0;0.0	13.66;6.40;0.00	0	0.90	B
			A-17	X	13.66;10.66;10.50	0.0;0.0;0.0	13.66;10.66;0.00	0	0.90	B
			A-18	X	13.66;14.92;10.50	0.0;0.0;0.0	13.66;14.92;0.00	0	0.90	B
			A-19	X	13.66;19.19;10.50	0.0;0.0;0.0	13.66;19.19;0.00	0	0.90	B
			A-20	X	13.66;23.45;10.50	0.0;0.0;0.0	13.66;23.45;0.00	0	0.90	B
			A-21	X	13.66;27.72;10.50	0.0;0.0;0.0	13.66;27.72;0.00	0	0.90	A
			A-22	X	19.12;2.13;11.50	0.0;0.0;0.0	19.12;2.13;0.00	0	0.90	A
			A-23	X	19.12;6.40;11.50	0.0;0.0;0.0	19.12;6.40;0.00	0	0.90	B
			A-24	X	19.12;10.66;11.50	0.0;0.0;0.0	19.12;10.66;0.00	0	0.90	B

Struttura	Fila	Colonna	Rif. 2D	On	Posizione Apparecchi X[m] Y[m] Z[m]	Rotazione Apparecchi X° Y° Z°	Puntamenti X[m] Y[m] Z[m]	R.Asse °	Coeff. Mant.	Rif.
			A-25	X	19.12;14.92;11.50	0.0;0.0;0.0	19.12;14.92;0.00	0	0.90	B
			A-26	X	19.12;19.19;11.50	0.0;0.0;0.0	19.12;19.19;0.00	0	0.90	B
			A-27	X	19.12;23.45;11.50	0.0;0.0;0.0	19.12;23.45;0.00	0	0.90	B
			A-28	X	19.12;27.72;11.50	0.0;0.0;0.0	19.12;27.72;0.00	0	0.90	A
			A-29	X	24.59;2.13;12.00	0.0;0.0;0.0	24.59;2.13;0.00	0	0.90	A
			A-30	X	24.59;6.40;12.00	0.0;0.0;0.0	24.59;6.40;0.00	0	0.90	B
			A-31	X	24.59;10.66;12.00	0.0;0.0;0.0	24.59;10.66;0.00	0	0.90	B
			A-32	X	24.59;14.92;12.00	0.0;0.0;0.0	24.59;14.92;0.00	0	0.90	B
			A-33	X	24.59;19.19;12.00	0.0;0.0;0.0	24.59;19.19;0.00	0	0.90	B
			A-34	X	24.59;23.45;12.00	0.0;0.0;0.0	24.59;23.45;0.00	0	0.90	B
			A-35	X	24.59;27.72;12.00	0.0;0.0;0.0	24.59;27.72;0.00	0	0.90	A
			A-36	X	30.05;2.13;12.00	0.0;0.0;0.0	30.05;2.13;0.00	0	0.90	A
			A-37	X	30.05;6.40;12.00	0.0;0.0;0.0	30.05;6.40;0.00	0	0.90	B
			A-38	X	30.05;10.66;12.00	0.0;0.0;0.0	30.05;10.66;0.00	0	0.90	B
			A-39	X	30.05;14.92;12.00	0.0;0.0;0.0	30.05;14.92;0.00	0	0.90	B
			A-40	X	30.05;19.19;12.00	0.0;0.0;0.0	30.05;19.19;0.00	0	0.90	B
			A-41	X	30.05;23.45;12.00	0.0;0.0;0.0	30.05;23.45;0.00	0	0.90	B
			A-42	X	30.05;27.72;12.00	0.0;0.0;0.0	30.05;27.72;0.00	0	0.90	A
			A-43	X	35.52;2.13;12.00	0.0;0.0;0.0	35.52;2.13;0.00	0	0.90	A
			A-44	X	35.52;6.40;12.00	0.0;0.0;0.0	35.52;6.40;0.00	0	0.90	B
			A-45	X	35.52;10.66;12.00	0.0;0.0;0.0	35.52;10.66;0.00	0	0.90	B
			A-46	X	35.52;14.92;12.00	0.0;0.0;0.0	35.52;14.92;0.00	0	0.90	B
			A-47	X	35.52;19.19;12.00	0.0;0.0;0.0	35.52;19.19;0.00	0	0.90	B
			A-48	X	35.52;23.45;12.00	0.0;0.0;0.0	35.52;23.45;0.00	0	0.90	B
			A-49	X	35.52;27.72;12.00	0.0;0.0;0.0	35.52;27.72;0.00	0	0.90	A
			A-50	X	40.98;2.13;11.50	0.0;0.0;0.0	40.98;2.13;0.00	0	0.90	A
			A-51	X	40.98;6.40;11.50	0.0;0.0;0.0	40.98;6.40;0.00	0	0.90	B
			A-52	X	40.98;10.66;11.50	0.0;0.0;0.0	40.98;10.66;0.00	0	0.90	B
			A-53	X	40.98;14.92;11.50	0.0;0.0;0.0	40.98;14.92;0.00	0	0.90	B
			A-54	X	40.98;19.19;11.50	0.0;0.0;0.0	40.98;19.19;0.00	0	0.90	B
			A-55	X	40.98;23.45;11.50	0.0;0.0;0.0	40.98;23.45;0.00	0	0.90	B
			A-56	X	40.98;27.72;11.50	0.0;0.0;0.0	40.98;27.72;0.00	0	0.90	A
			A-57	X	46.44;2.13;10.50	0.0;0.0;0.0	46.44;2.13;0.00	0	0.90	A
			A-58	X	46.44;6.40;10.50	0.0;0.0;0.0	46.44;6.40;0.00	0	0.90	B
			A-59	X	46.44;10.66;10.50	0.0;0.0;0.0	46.44;10.66;0.00	0	0.90	B
			A-60	X	46.44;14.92;10.50	0.0;0.0;0.0	46.44;14.92;0.00	0	0.90	B
			A-61	X	46.44;19.19;10.50	0.0;0.0;0.0	46.44;19.19;0.00	0	0.90	B
			A-62	X	46.44;23.45;10.50	0.0;0.0;0.0	46.44;23.45;0.00	0	0.90	B
			A-63	X	46.44;27.72;10.50	0.0;0.0;0.0	46.44;27.72;0.00	0	0.90	A
			A-64	X	51.91;2.13;9.50	0.0;0.0;0.0	51.91;2.13;0.00	0	0.90	A
			A-65	X	51.91;6.40;9.50	0.0;0.0;0.0	51.91;6.40;0.00	0	0.90	B
			A-66	X	51.91;10.66;9.50	0.0;0.0;0.0	51.91;10.66;0.00	0	0.90	B
			A-67	X	51.91;14.92;9.50	0.0;0.0;0.0	51.91;14.92;0.00	0	0.90	B
			A-68	X	51.91;19.19;9.50	0.0;0.0;0.0	51.91;19.19;0.00	0	0.90	B
			A-69	X	51.91;23.45;9.50	0.0;0.0;0.0	51.91;23.45;0.00	0	0.90	B
			A-70	X	51.91;27.72;9.50	0.0;0.0;0.0	51.91;27.72;0.00	0	0.90	A
			A-71	X	57.37;2.13;8.00	0.0;0.0;0.0	57.37;2.13;0.00	0	0.90	A
			A-72	X	57.37;6.40;8.00	0.0;0.0;0.0	57.37;6.40;0.00	0	0.90	B
			A-73	X	57.37;10.66;8.00	0.0;0.0;0.0	57.37;10.66;0.00	0	0.90	B
			A-74	X	57.37;14.92;8.00	0.0;0.0;0.0	57.37;14.92;0.00	0	0.90	B
			A-75	X	57.37;19.19;8.00	0.0;0.0;0.0	57.37;19.19;0.00	0	0.90	B
			A-76	X	57.37;23.45;8.00	0.0;0.0;0.0	57.37;23.45;0.00	0	0.90	B
			A-77	X	57.37;27.72;8.00	0.0;0.0;0.0	57.37;27.72;0.00	0	0.90	A

4.1 Valori di Illuminamento Orizzontale sul Piano di Lavoro

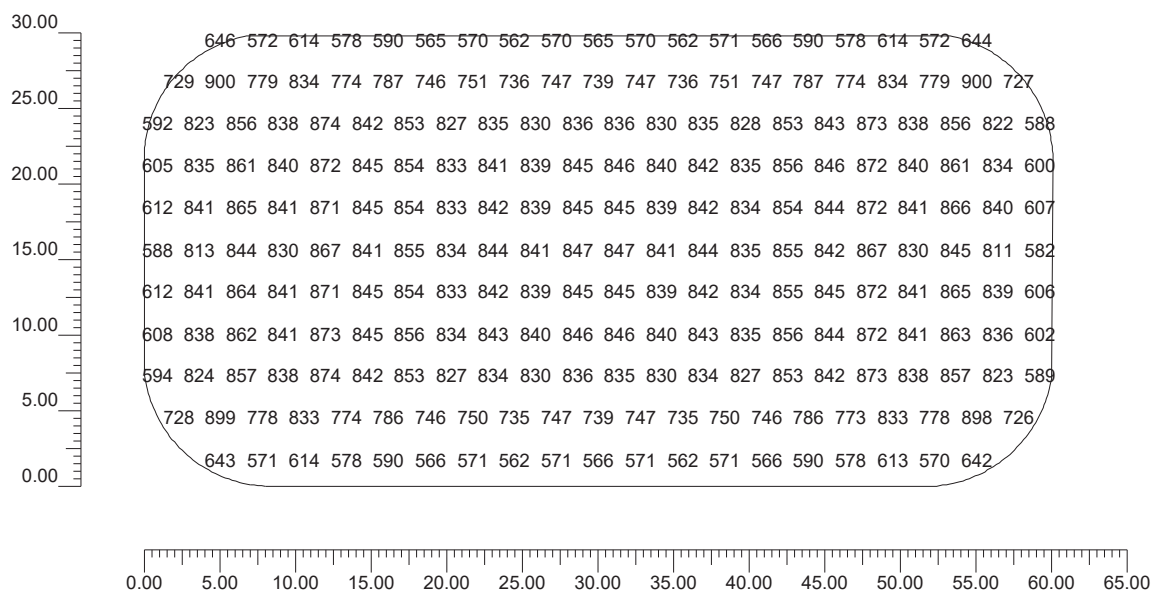
O (x:0.00 y:0.00 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:1.39 DY:1.39	Illuminamento Orizzontale (E)	790 lux	562 lux	922 lux	0.71 1:1.41	0.61 1:1.64	0.86 1:1.17

Tipo Calcolo

Dir.+Indir.(7 Interriflessioni)

Scala 1/500

Non tutti i punti di calcolo sono visibili



4.2 Valori di Illuminamento su: Suolo

O (x:0.00 y:0.00 z:0.00)	Risultati	Medio	Minimo	Massimo	Min/Medio	Min/Max	Medio/Max
DX:1.39 DY:1.39	Illuminamento Orizzontale (E)	790 lux	561 lux	922 lux	0.71 1:1.41	0.61 1:1.64	0.86 1:1.17

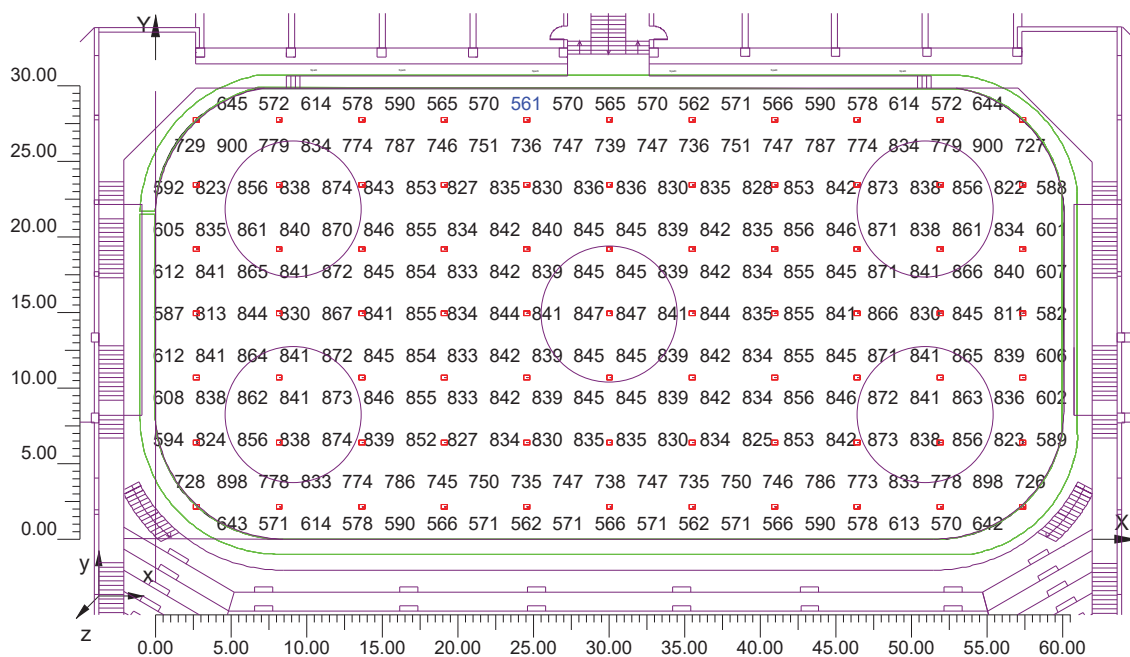
Tipo Calcolo

Dir.+Indir.(7 Interriflessioni)

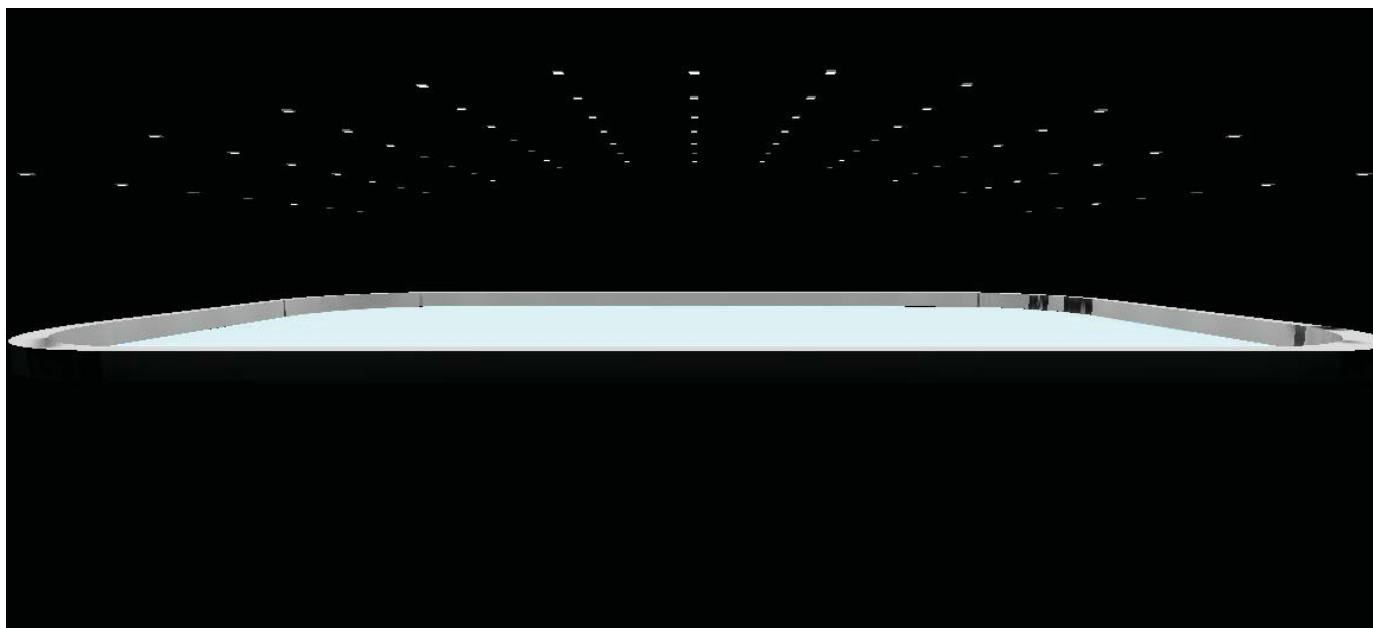
Scala 1/500

CV= 0.118

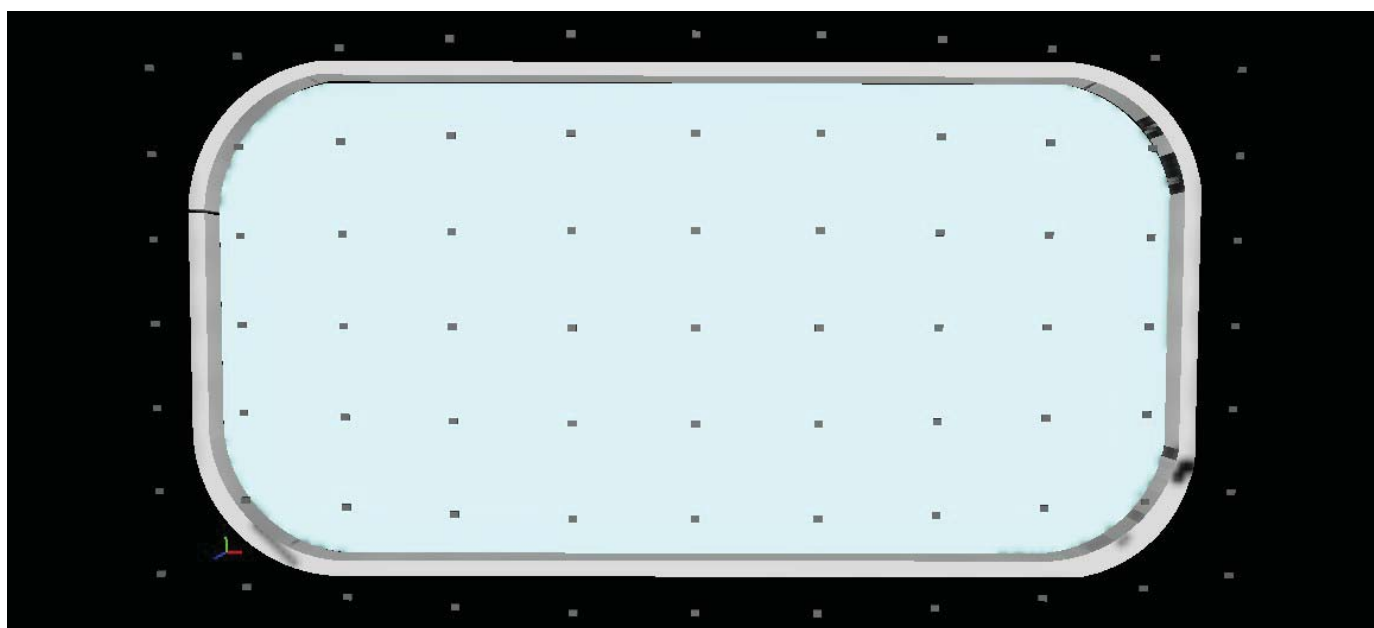
Non tutti i punti di calcolo sono visibili



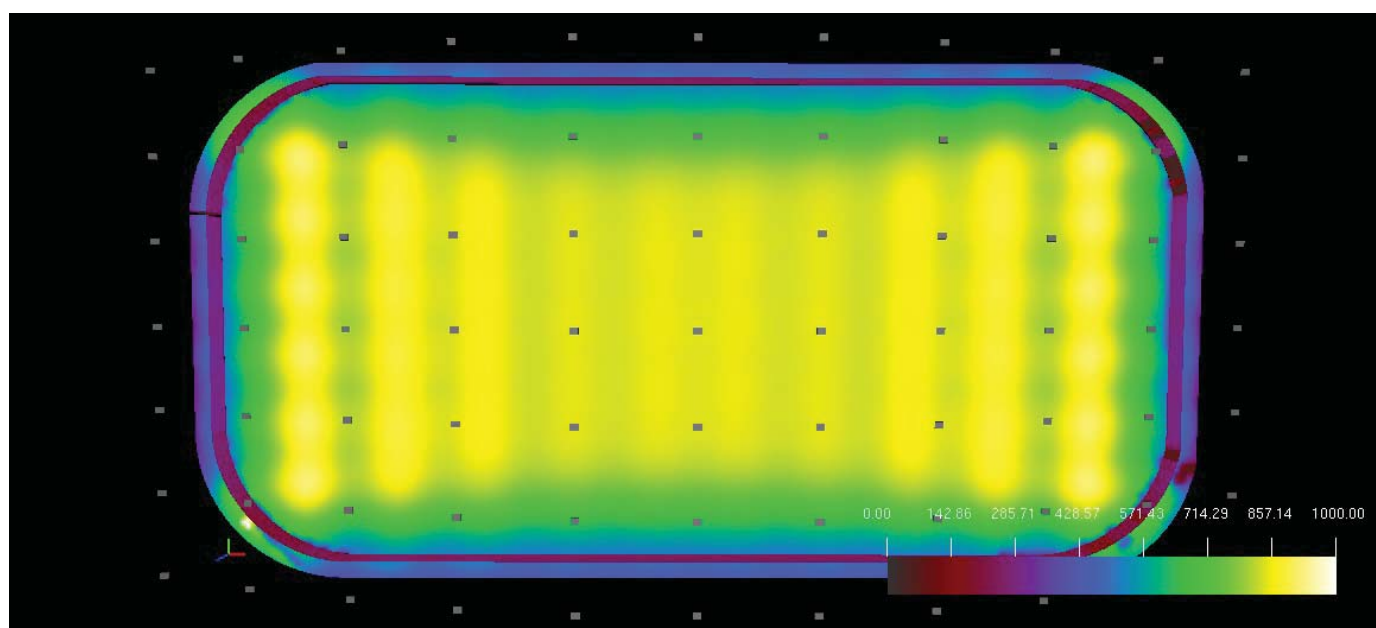
5.1 Immagine: Screenshot_001



5.2 Immagine: Screenshot_002



5.3 Immagine: Screenshot_003



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