

## 2.3 Typical Room Configuration

Provide a minimum 4'-0" x 7'-0" (1219 x 2134) clear opening for equipment clearance at radiation shielded entrance doors to treatment rooms. This clearance allows proper access for rigging Varian equipment.

The amount and type of shielding on treatment room entrance doors have varying requirements based on the presence and length of the maze, and the energy of the TrueBeam. Generally, low energy Accelerators will require wood doors with a lead core and manual operation. Dual Energy Accelerators usually require steel doors with a lead and borated polyethylene core and motorized operation. Specific door shielding requirements are dependent on maze and shielding configuration. See typical minimum suggested door shielding.

Vertical communication with the patient is required. The two speakers should be located as shown in Figure 3-18.

The TrueBeam Couch with IGRT couch top is standard with TrueBeam. The maximum Couch Arc clearance is 9'-0" (2743) - recommended. The minimum REQUIRED Full Couch Arc clearance is 8'-4 1/2" (2553).

The recommended couch arc clearance allows complete rotation of the Couch at its maximum radius (retracted). Obstructions inside the minimum required couch arc are unacceptable. However, obstructions between the minimum required couch arc and the maximum couch arc may be acceptable provided they are reviewed and approved by Varian and the Customer. In specific situations, such as dynamic stereotactic treatment, a larger area may be required.

Varian-provided CCTV cameras are Contractor-installed. See Figure 3-16 for installation details.

Verify adequate equipment access into room and around maze.

The sagittal laser positioning light is located on the wall at the end of the longitudinal couch axis. Unlike the side lasers, which are at isocenter height, the sagittal laser is typically mounted at a laser output height of 7'-5" (2286) above the floor.

Live View camera. This special radiation-hardened CCTV camera is Varian-furnished, Contractor-installed. For installation details, see Figure 3-15.

There are no recognized acoustical standards for therapy rooms. The primary sound source on low energy TrueBeam systems is the Modulator Cabinet. Varian has no acoustical problems when the Modulator is located in the treatment room. The patients are in the room for a very short time and some seem reassured by the changing sound levels as the machine goes through its cycles. Noise is a concern, however, when the Modulator Cabinet is located next to therapists or others who are exposed to it often. Placing the Modulator in a nearby closet is acceptable. Consult with the Customer regarding preferred location. The use of acoustically absorbent materials is recommended.

This dimension is provided for illustrative purposes only. Actual dimensions will vary with shielding requirements and construction practices.

The layouts shown on DPR drawings represent typical plans only. Clearances and wall thickness may vary.

A sink with running hot and cold water is highly recommended in TrueBeam rooms. A hose spigot is necessary to fill the water phantom and a drain is necessary to service the TrueBeam's internal cooling system and drain the water phantom. Floor drains and floor sinks should not be located in the room to avoid possible backup into the equipment floor recesses. Do not run water lines directly above the TrueBeam components or control console.

The In-Room Monitors should be located where the operator can observe it without turning away from either the machine or patient on the couch. The monitors provide information during patient setup and it is unsafe to turn away from the patient while the machine is moving and the patient is on the couch. See Section 3.4.2 for more information.

Extent of primary beam. The total beam angle is 28 degrees (14 degrees either side of isocenter). Primary barrier shielding should extend a minimum 1'-0" (305) beyond edge of the primary beam. Do not locate sensitive electronic equipment (for example, In Room Monitor) in the primary beam path.

Customer-provided casework for storing accelerator accessories. See Figure 5-5 for suggested storage details.

Line of Baseframe pit.

This is the recommended dimension to concrete for typical procedures. Recommended face of concrete dimensions assume up to 6" (152) of wall furring. Approximately 16'-8" (5029) isocenter to wall distance may be required at one side of Couch. Consult with Customer.

This dimension is provided for illustrative purposes only. Actual dimensions will vary with shielding requirements and construction practices.

This is the recommended dimension to concrete. Recommended face of concrete dimensions assume up to 6" (152) of wall furring.

Secondary shielding

Isocenter - This is the primary reference point for Varian equipment. Show the isocenter location clearly on all relevant drawings. Maintain the isocenter location on site by extending perpendicular axis lines along slab and up walls in all four directions. The standard isocenter height for TrueBeam is 4'-3" (1295).

The patient's position on the Couch is fixed by body markings that are aligned with "cross hairs" cast by the laser lights. Two wall laser positioning lights at isocenter height, a ceiling laser and the sagittal laser are powered by a common circuit controlled via the user interface in the Control Room or Couch Pendant or Couch Side Panels, through a relay. Lasers are usually distributed and installed, at the Customer's option, by Varian. The Customer is responsible for verification of laser types and mounting configurations.

The two side laser positioning lights are located on the side walls at isocenter height.

This is the recommended dimension to concrete. Recommended face of concrete dimensions assume up to 6" (150) of wall furring.

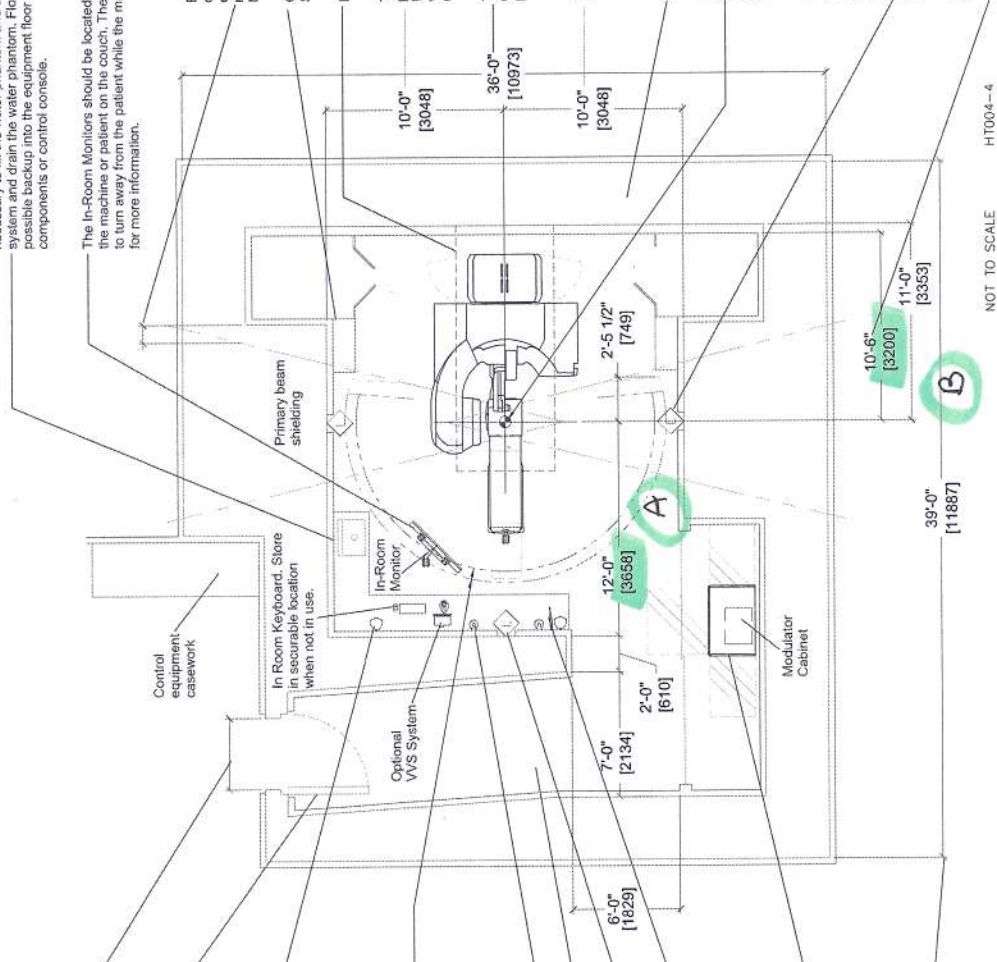


Figure 2-2 Typical (Intermediate) Room Plan View





La lunghezza verticale raccomandata da Varian e' qui denominata "D" per uniformità con quella raccomandata da Elekta ed e' da confrontarsi con quella "D" del bunker di Piacenza (vedere ultima pagina per stime)

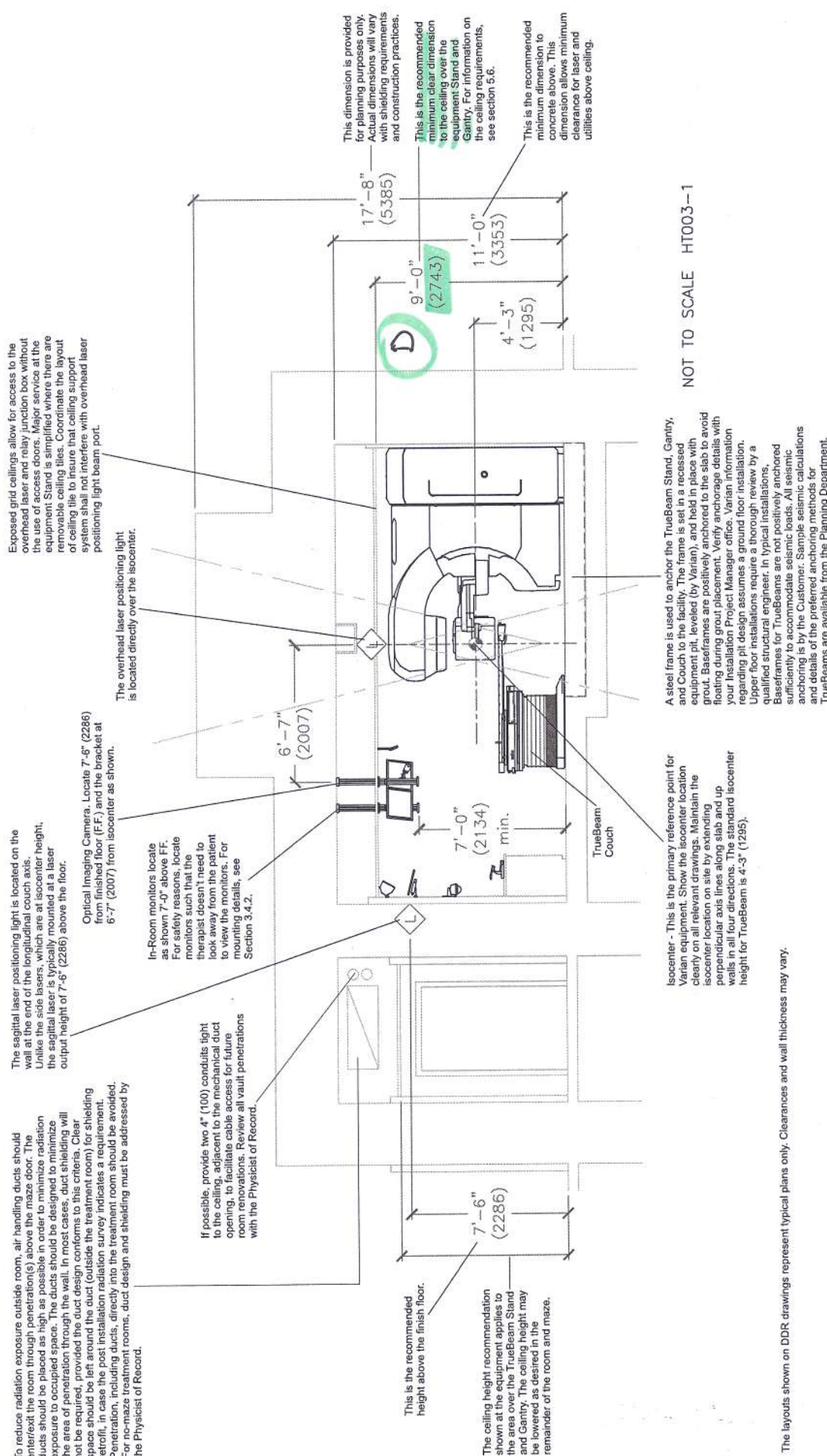
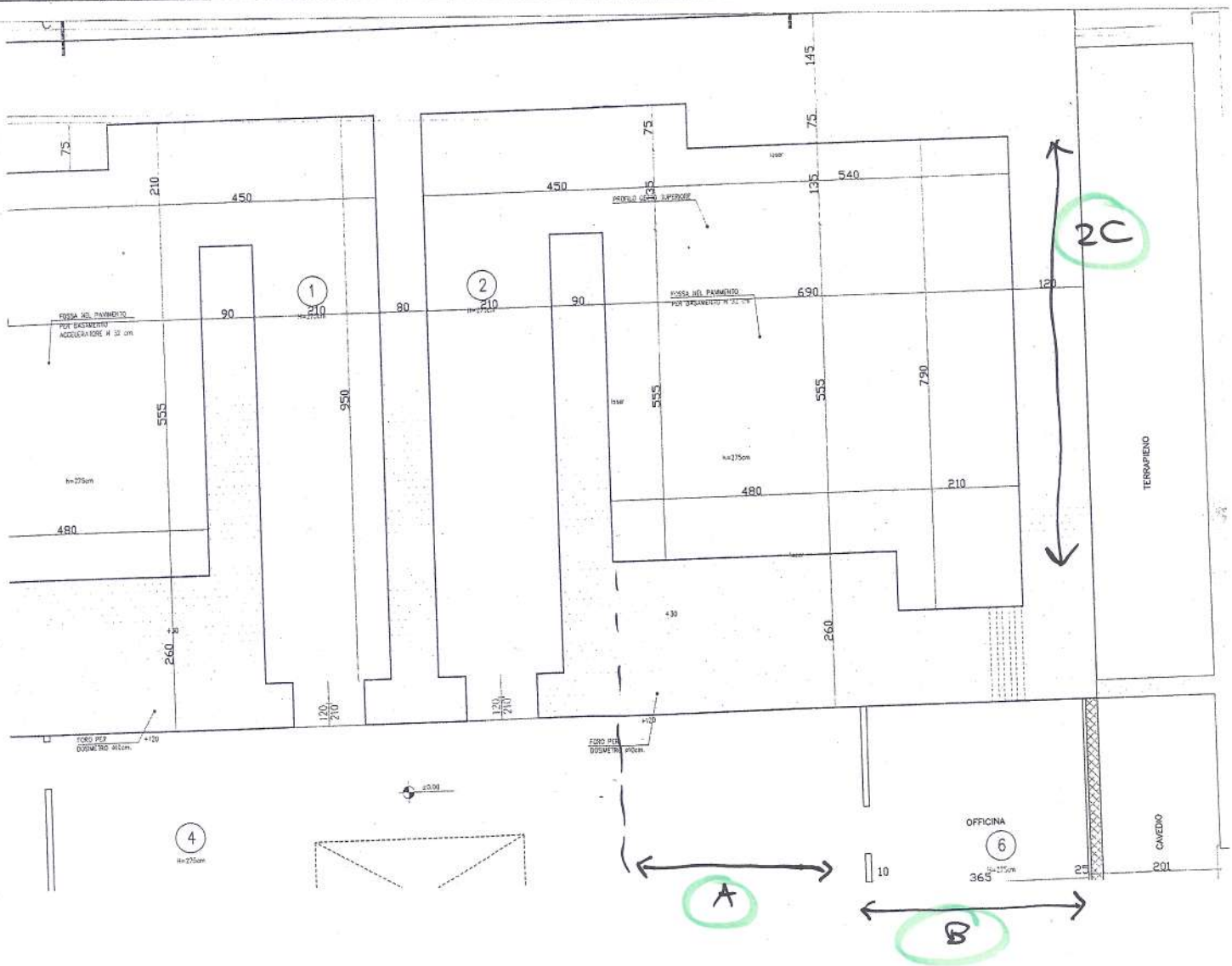


Figure 2-3 Typical (Intermediate) Room Section

The layouts shown on DDR drawings represent typical plans only. Clearances and wall thickness may vary.

Attuale Bunker Piacenza - Stima Varian



$$\left. \begin{array}{l} A_{\text{varian}} = 3658 \\ B_{\text{varian}} = 3200 \end{array} \right\}$$

$$(A+B) = 6858$$

$(A+B) = 6900$   
Piacenza

$$C_{\text{Varian}} = 2946$$

$$C_{\text{piacenza}} = 3450$$

$$D_{\text{varian}} = 2743$$

D Piacenza =  $\begin{cases} 2730 \\ \text{ZONA} \\ \text{CENTRALE} \end{cases}$   
 $\begin{cases} 2500 \\ \text{AREA} \\ \text{AERAZIONE} \\ + \\ \text{LABIRINTO} \end{cases}$

Le attuali barriere in calcestruzzo del bunker sono progettate per fotoni 18 MV; la porta per fotoni 6MV