LEO Cancer Care

PAR-MAN-0111-V1

MARIE™

SITE PLANNING OVERVIEW

Introduction

This document provides an overview of the site planning requirements for Leo Cancer Care's, MARIE™ Particle Therapy Solution. This includes information on minimum space requirements, mechanical services, electrical services, HVAC services and construction features for the treatment room.

Customer Responsibilities:

1. The customer must ensure that they read and understand the full MARIE™ Site Planning Guide prior to commencing any construction or design work and implemented their responsibilities in full.
2. The customer is responsible for ensuring that all installation spaces are compliant to local regulations.

System Overview & Layout Options

The MARIE™ system requires a **TREATMENT ROOM**, a **TECHNICAL ROOM**, and a **CONTROL ROOM**. Further space is also required to house supporting services and plant equipment such as HVAC units.

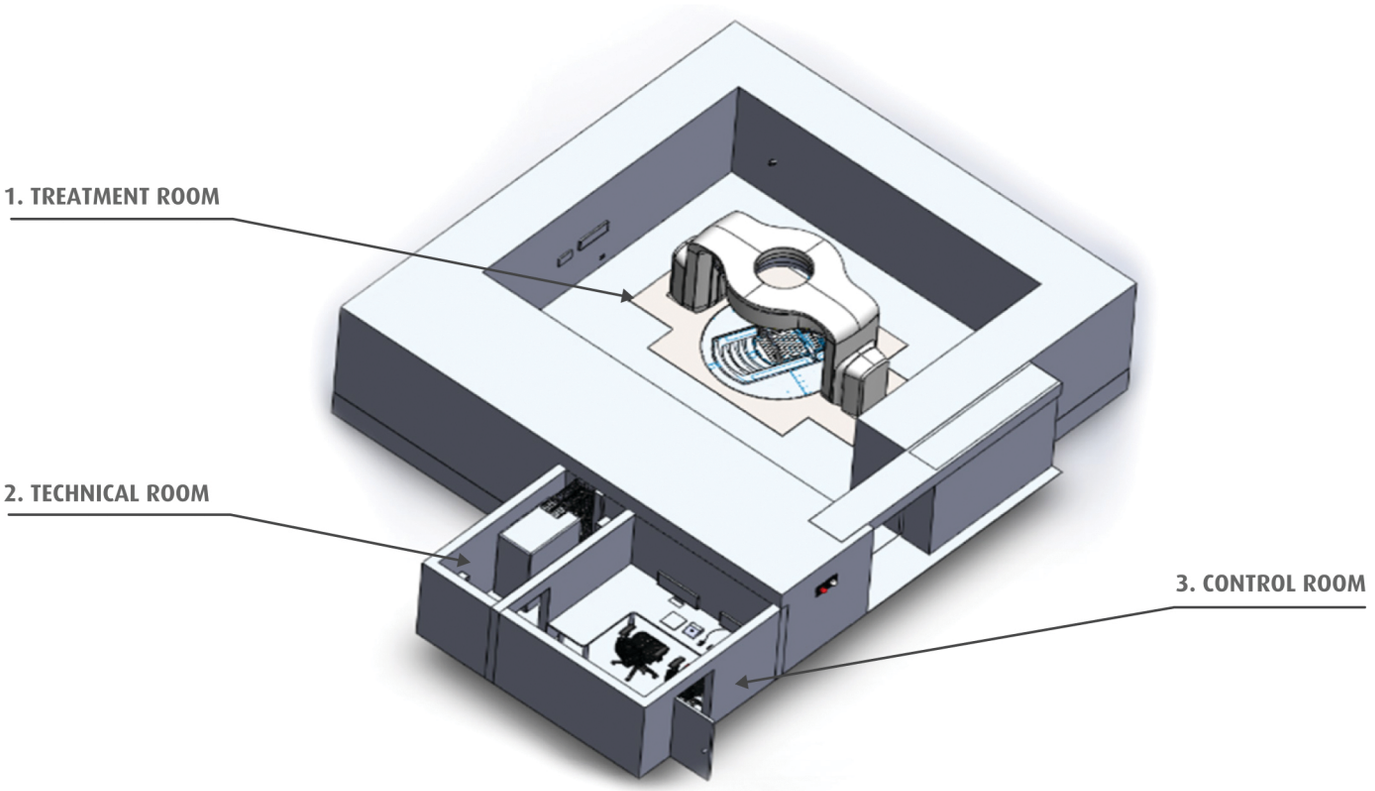

Figure 1 - Example layout option with sliding radiation door

1. The **TREATMENT ROOM**, houses the upright patient positioning system and CT scanner supplied and installed by Leo Cancer Care. This can be accessed via a labyrinth/maze or a direct access design using a radiation sliding door.
2. The **TECHNICAL ROOM** houses the MARIE™ power cabinet and the systems facilities interface cabinet, which will be the interface point for most of the Hospital to MARIE™ services, such as radiation warning lights and emergency off buttons.
3. The **CONTROL ROOM** houses the MARIE™ workstation and is where the clinicians will operate the system from during clinical use. The MARIE™ system can support an imaging station in the TREATMENT ROOM in addition to the CONTROL ROOM station.

Minimum Bunker Internal Dimensions

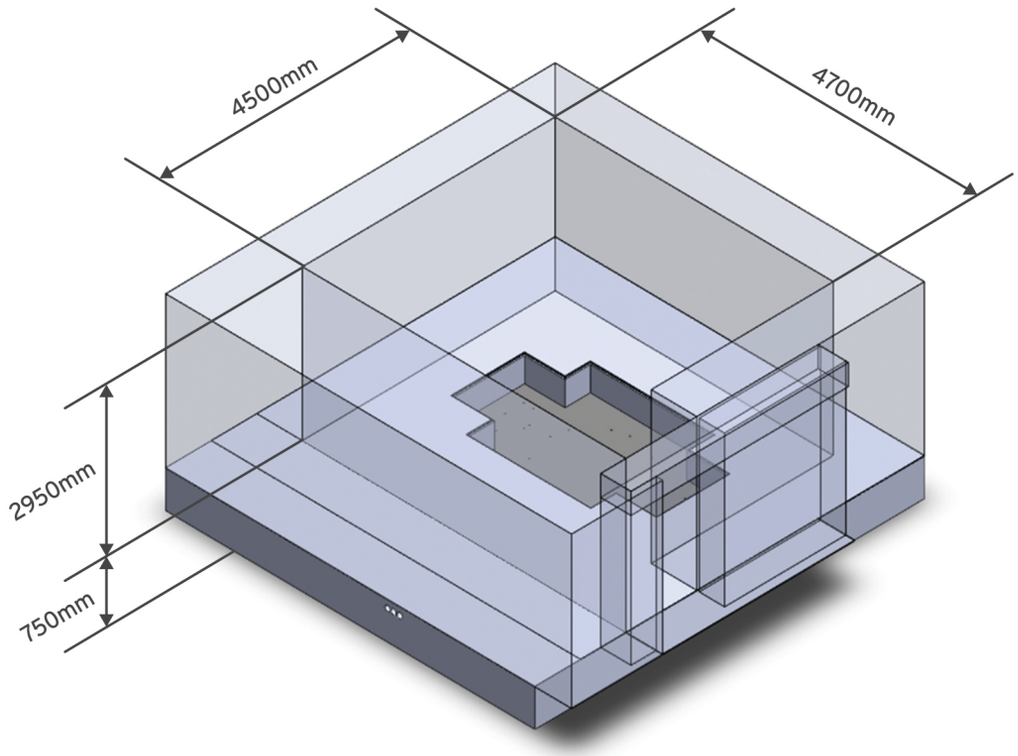

Figure 2 - Minimum bunker internal dimensions

	Length (mm)	Width (mm)	Height (mm)	Pit Depth (mm)
Treatment Room	4500	4700	2950	-750
Technical Room*	2500	1500	2400	
Control Room*	2500	2500	2400	

**The MARIE™ TECHNICAL and CONTROL rooms can be combined with the particle vendors rooms. The sizes given are recommended and the dimensions will depend on the space available.*

The interbay cabling lengths for both the TREATMENT to TECHNICAL room and the TECHNICAL to CONTROL room is 70m. These lengths must be considered during the facility design phase to ensure that the connecting cable length limitations are satisfied.

Pit Construction features

MARIE™ requires the construction of a pit in the TREATMENT ROOM. This includes three 100mm diameter floor cable ducts back to the TECHNICAL ROOM.

Minimum bunker internal dimensions

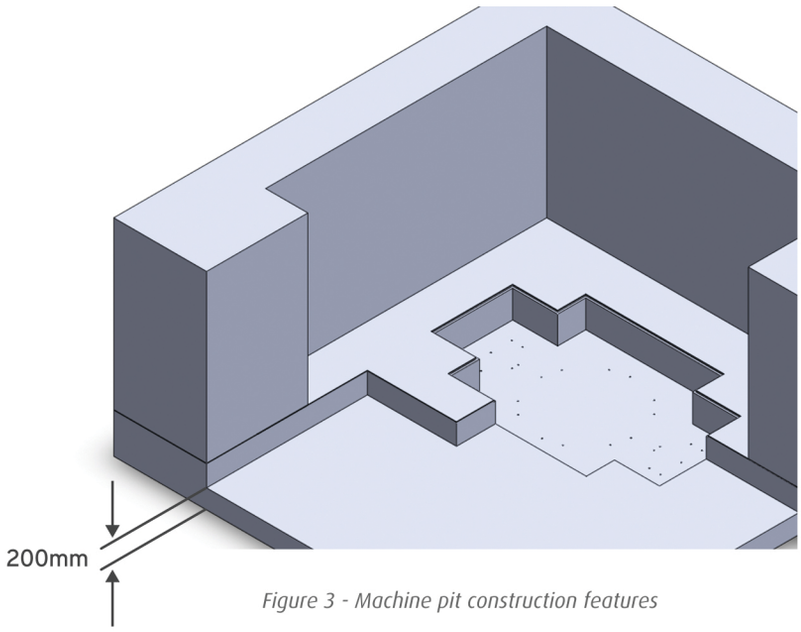

Figure 3 - Machine pit construction features

The pit has a minimum concrete slab thickness of 200mm using C30/37 grade concrete. MARIE™ will be fixed to the base of the pit using mechanical fixings. Details of positions and loads are stated in the full MARIE™ Site Planning Guide.

Radiation Protection

The MARIE™ system needs to be installed in a TREATMENT ROOM that has suitable radiation protection.

Please note: It is the customers responsibility to ensure that the shielding is in line with local regulations and the applicable Particle Therapy delivery system guidance.

Services

Electrical Supply

The incoming electrical supply should comply with the data in the table below:

Permissible Operating Voltages (V)	380 / 400 / 418 / 440 / 480 / 500
Peak Power (kVa)	100
Nominal Frequency (Hz)	50-60
Current (A)	90

Environmental Conditions

The TREATMENT ROOM, TECHNICAL ROOM and CONTROL ROOM require air conditioning supplies to the specification below:

	Treatment Room	Technical Room	Control Room
Ambient Temperature	18-24 °C	18-24 °C	18-24 °C
Relative Humidity	30-70%	30-70%	30-70%
Air Changes	Local Rules	Min 2/hour	Min 2/hour

Equipment Delivery requirements

The access route from the delivery bay to the TREATMENT ROOM must be suitable for the weights and dimensions of the heaviest component for each installation stage.

Leo Cancer Care offer a full Site Suitability Study to evaluate potential customer sites. Please contact your local sales representative to arrange this.

Delivery Route Sizes

Install Stage	Minimum Delivery Openings		
	Opening Width (mm)	Opening Height (mm)	Turning Circle (mm)
Installation Stage 1	1400	1800	2600
Installation Stage 2	700	1800	2600

Weights and Floor Loading

Install Stage	Maximum Crate Weight (kg)
Installation Stage 1	1500
Installation Stage 2	500

Integration with Particle Therapy Delivery Systems

The Leo Control System can be configured according to the customer's choice of 3rd party Oncology Information System (OIS) and Particle Treatment Delivery System (TDS).

As part of the installation, Leo Cancer Care can configure the Leo Control System interface to meet the specific requirements and workflow needs of the TDS and OIS combination. Documentation describing the final implementation of the interface and a test report demonstrating the implementation will be provided with the system.

Services Provided by Leo Cancer Care

- A Regional Customer Project Manager will support every customer project from presales support through to clinical readiness.
- Leo Cancer Care will produce a detailed and dimensioned equipment layout for the Leo Cancer Care equipment within the customers facility. This includes the detailing of the service locations.
- Leo Cancer Care will undertake a Site Suitability Study to evaluate the environment, the site, and the equipment delivery route prior to installation start.
- Leo Cancer Care will provide the full Site Planning Guide complete with all specifications, please contact your Leo Cancer Care representative to obtain a copy.
- Leo Cancer Care will support the integration with the Treatment Delivery System supplier.

LEO
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