
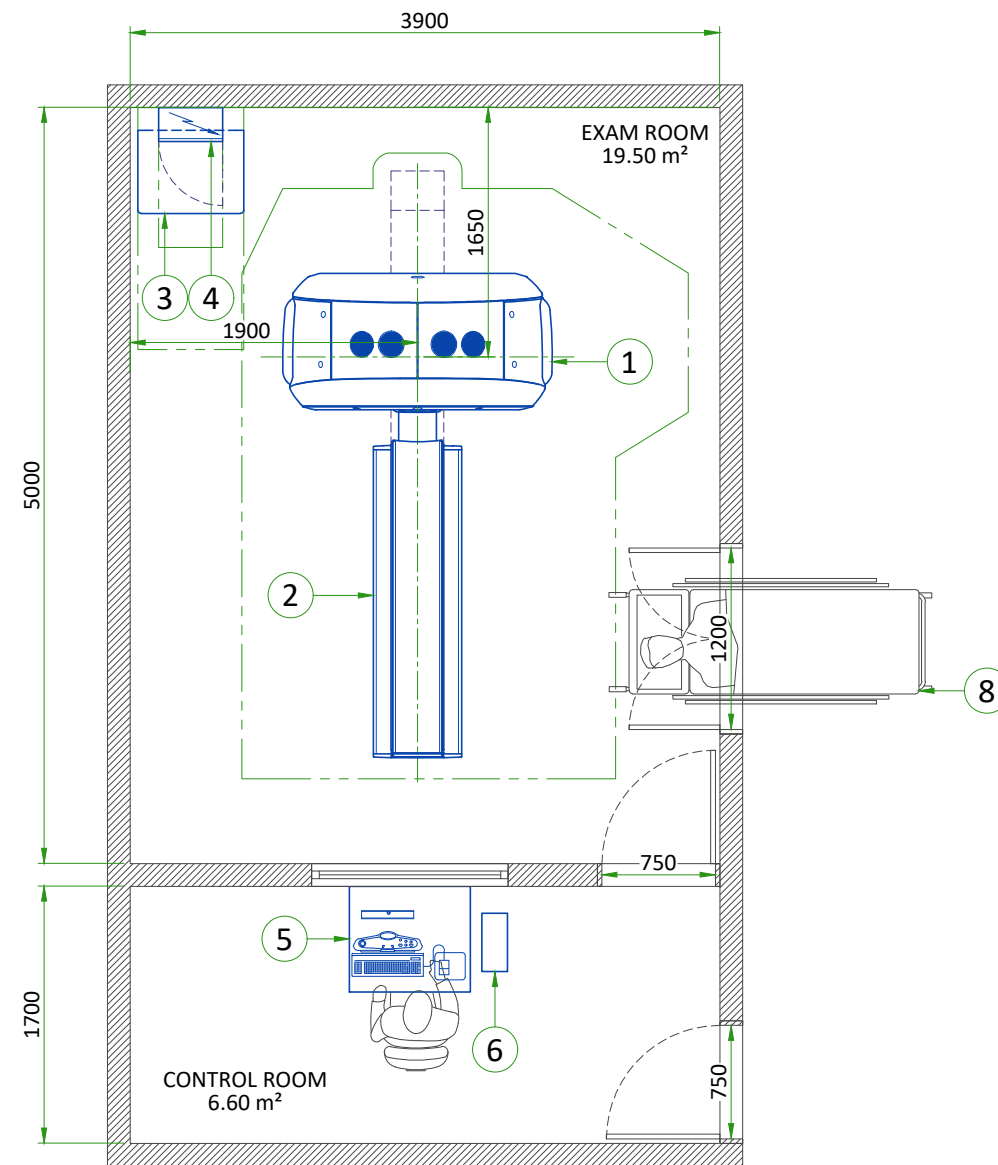




			SITE NAME  CITY  COUNTRY				
D	23/FEB/2021	Initial release per PIM revision 6					
C	19/SEP/2019	Update to revision 5					
B	20/JUN/2019	Update to revision 4					
A	07/Jan/2019	Initial release per PIM revision 3	<div> <b>GE Healthcare</b></div> <div>GE Contact Name</div> <div>Phone number</div> <div>Email address</div>				
REV	DATE	MODIFICATIONS					
01 - Cover Sheet 02 - Equipment Layout 03 - Structural - Electrical Layout 04 - Floor Structural Details 05 - Radiation Protection Layout 06 - Radiation Protection Details 07 - Power Requirements - Distribution 08 - HVAC 09 - Environment - Interconnections		10 - Equipment Dimensions 11 - Delivery 12 - Disclaimer - Site Readiness					
A mandatory component of this drawing set is the GE Healthcare Pre Installation manual. Failure to reference the Pre Installation manual will result in incomplete documentation required for site design and preparation. Pre Installation documents for GE Healthcare products can be accessed on the web at: <a href="http://www.gehealthcare.com/siteplanning">www.gehealthcare.com/siteplanning</a>			REVOLUTION ACTs TYPICAL STUDY				
Drawn by		Verified by	Concession	S.O. (GON)	PIM Manual	Rev	
Drawn by		Verified by	-	-	5487112-1EN	6	
Format	Scale	File Name			Date	Sheet	
A3	1:50	EN-CT-TYP-REVOLUTION_ACTS.DWG			08/NOV/2021	01/12	
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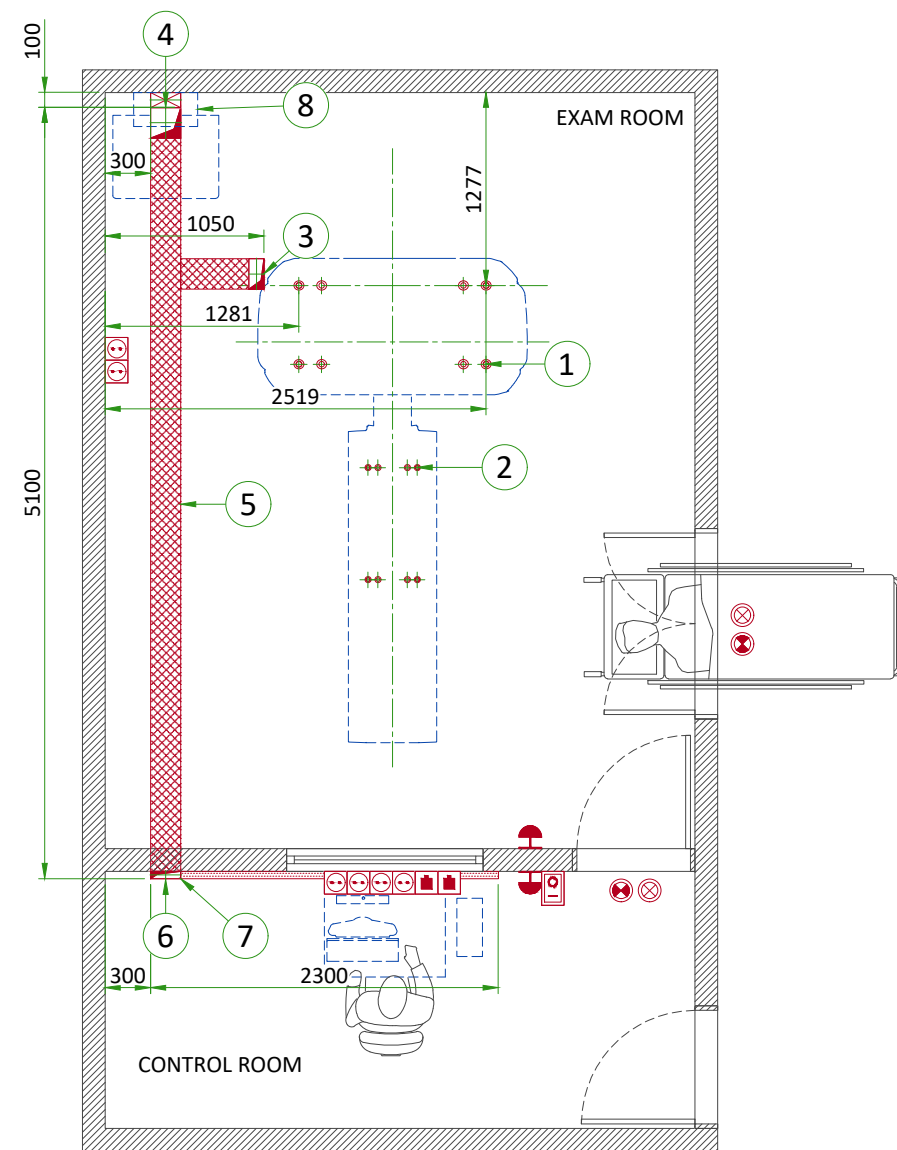
## EQUIPMENT LAYOUT

ITEM	DESCRIPTION	DIMENSIONS LxWxH (mm)	WEIGHT (kg)
1	GANTRY	1783x921x1741	830
2	AAKASH TABLE	583x3620x854	150
3	POWER DISTRIBUTION UNIT (PDU)	700x550x1062	275
4	POWER DISTRIBUTION BOX (PDB)	225x424x929	33
5	CONSOLE DESK	800x700x700	25
6	OPERATOR CONSOLE	386x169x445	10.2

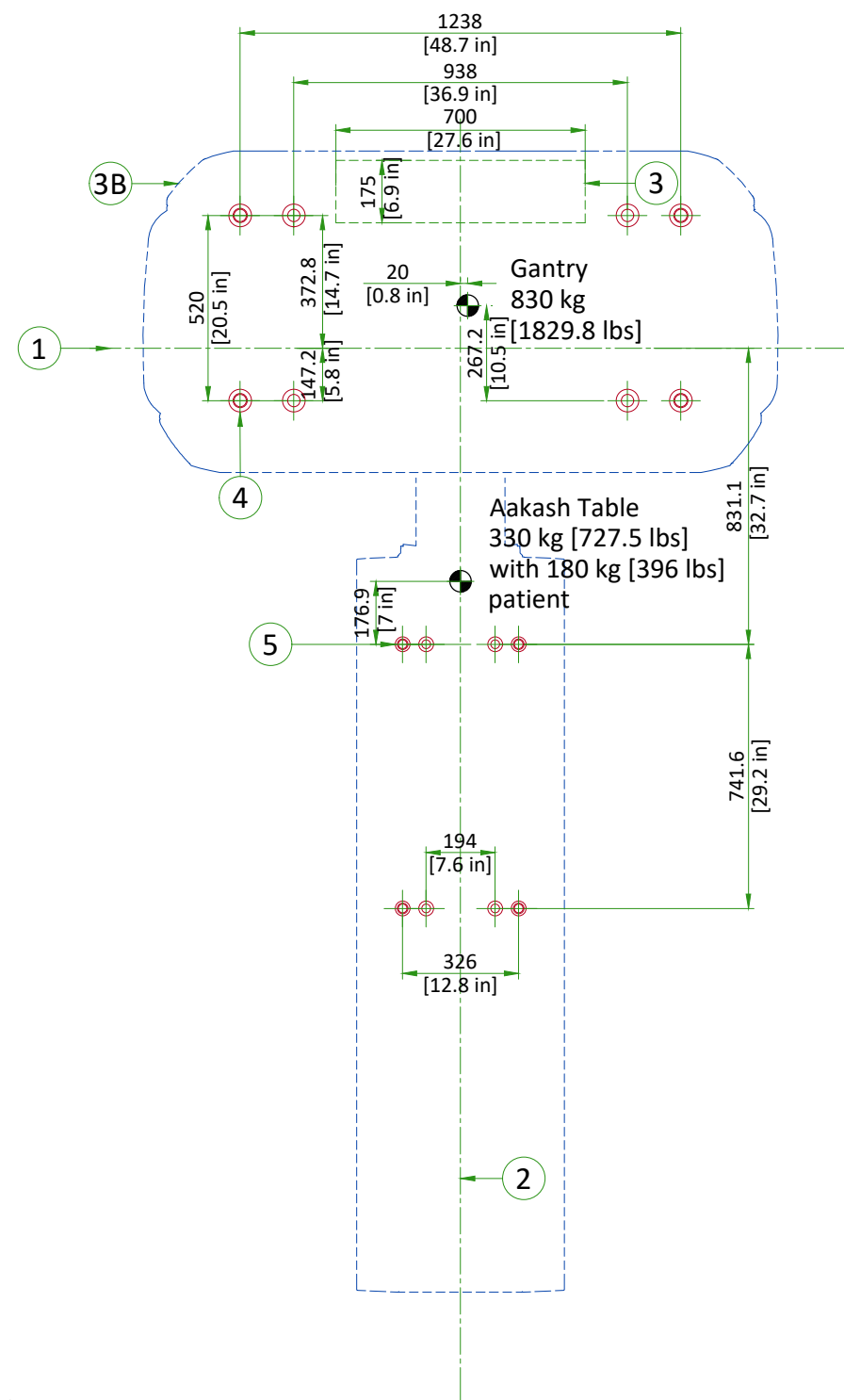
WALL - ACCORDING TO RECEIVED DRAWING

### EXAM ROOM HEIGHT

FINISHED FLOOR TO SLAB HEIGHT	-
FALSE CEILING HEIGHT	min. 2.40 m



ANCHORING/LOADING DISTRIBUTION TO THE FLOOR

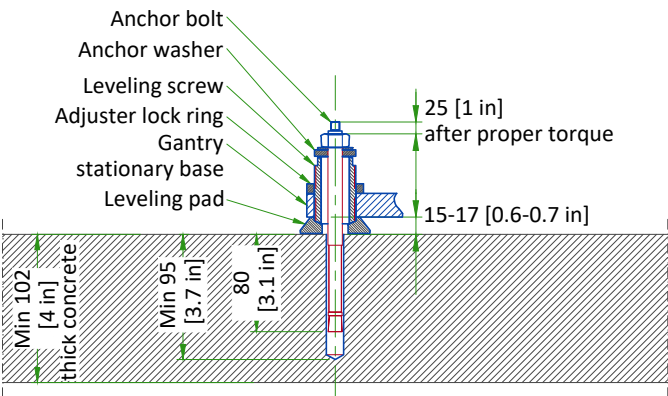


- (1) Scan Plane
- (2) Longitudinal axis
- (3) Cable inlet area (700x175 mm [28x7 in])
- (3B) Alternative cable inlets area
- (4) 8 Gantry anchoring points
- (5) 8 Table anchoring points
- Center of gravity
- Main anchoring point
- Backup anchoring point

SCALE 1:20

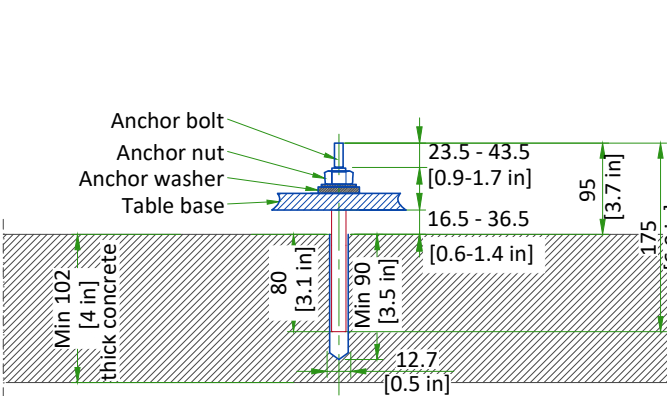
FLOOR REQUIREMENTS

GE SUPPLIED GANTRY ANCHORS (5479997)



- NOTES:
- Torque anchor to 50 Nm

GE SUPPLIED TABLE ANCHORS (5535487)



- NOTES:
- Torque anchor to 50 Nm

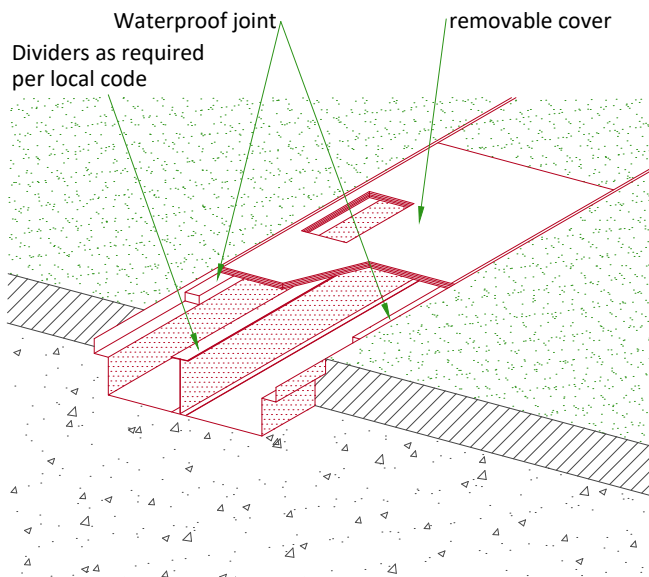
FINISHED FLOOR REQUIREMENTS

- Installation requires a finish floor in the scan and control rooms.
- If a customer does not have concrete floor for the system installation, then the required anchoring must be approved by customer's structural engineer. Floor is customer's responsibility.
- The floor surface in the scan room directly under the gantry and table must be level.
- The floor levelness tolerance of the floor surface that the gantry and table will rest on is 6 mm [0.25 in] over a 3048 mm [10 ft] distance.
- Shims should not be used to compensate for a floor that does not meet this requirement.
- Eight or more floor covering openings that are 102 mm in diameter are made to ensure the table and gantry rest on a solid surface. These floor penetrations can be sealed if required.
- The distance from central line of anchor to edge of concrete basement of Gantry/table should not be less than 155 mm.
- These requirements apply to all installation types.

NOT TO SCALE

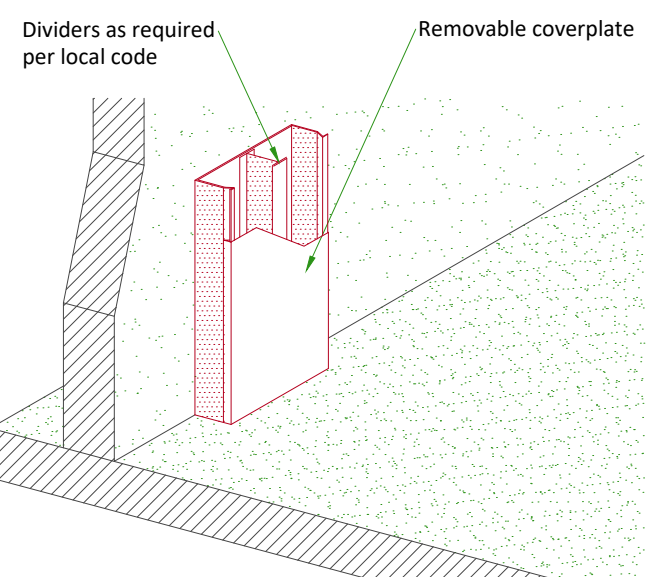
TYPICAL CABLE MANAGEMENT

FLUSH FLOOR DUCT

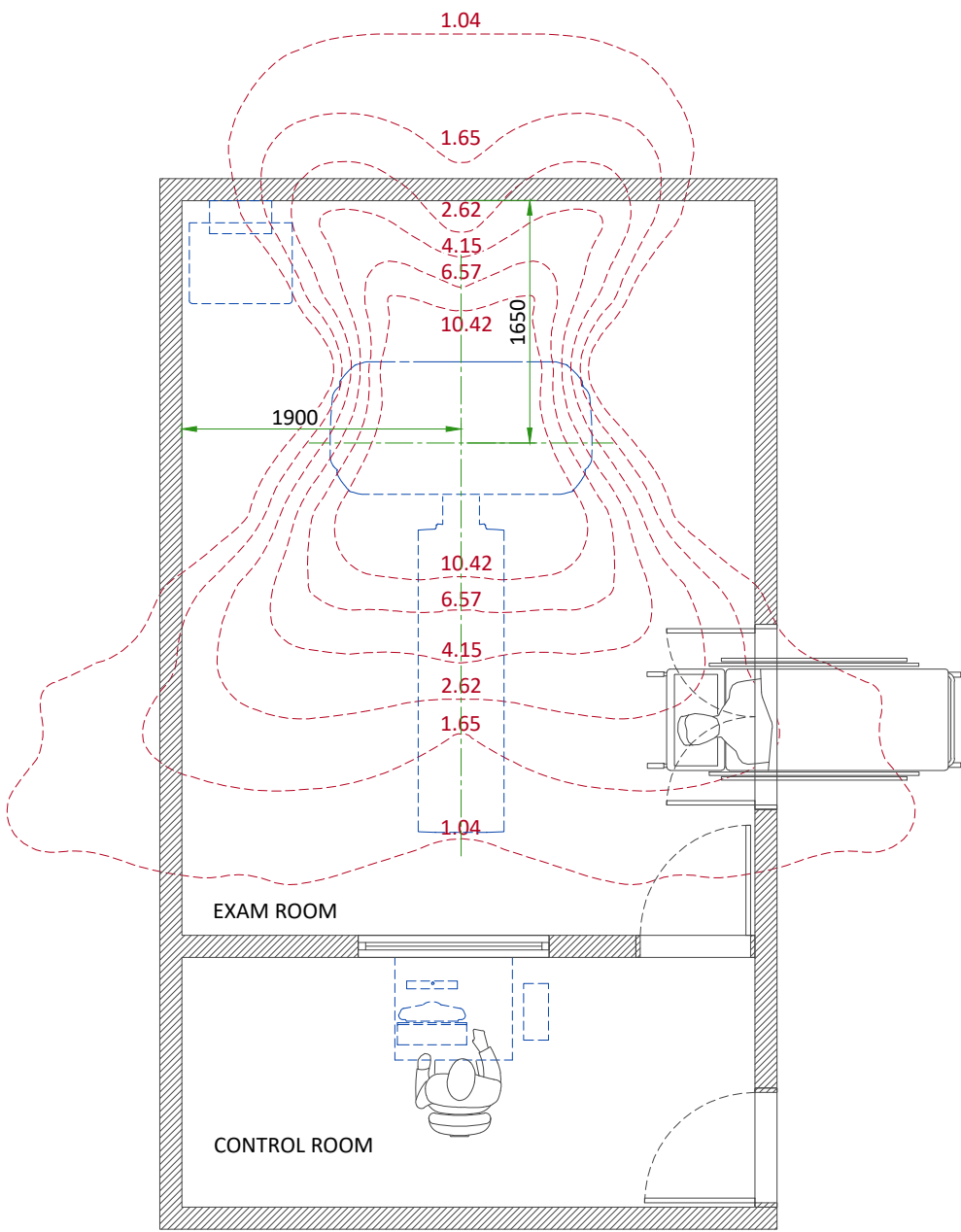


NOT TO SCALE

VERTICAL DUCT ON WALL



RADIATION PROTECTION LAYOUT



SHIELDING REQUIREMENTS SCALING

CHANGED PARAMETER	MULTIPLICATION FACTOR
mAs	new mAs/100
80 kV	0.24
100 kV	0.45
120 kV	0.71
140 kV	1.00
1.25 mm aperture	0.09
5 mm aperture	0.34
10 mm aperture	0.56
15 mm aperture	0.81
20 mm aperture	1.00

SHIELDING REQUIREMENTS:

- Engage a qualified radiological health physicist to review your scan room shielding requirements, taking into consideration:
- Scatter radiation levels within the scanning room
  - Equipment placement.
  - Weekly projected work-loads (number of patients/day technique (kvp\*ma))
  - Materials used for construction of walls, floors, ceiling, doors, and windows.
  - Activities in surrounding scan room areas.
  - Equipment in surrounding scan room areas (e.g., film developer, film storage)
  - Room size and equipment placement within the room relative to room size.

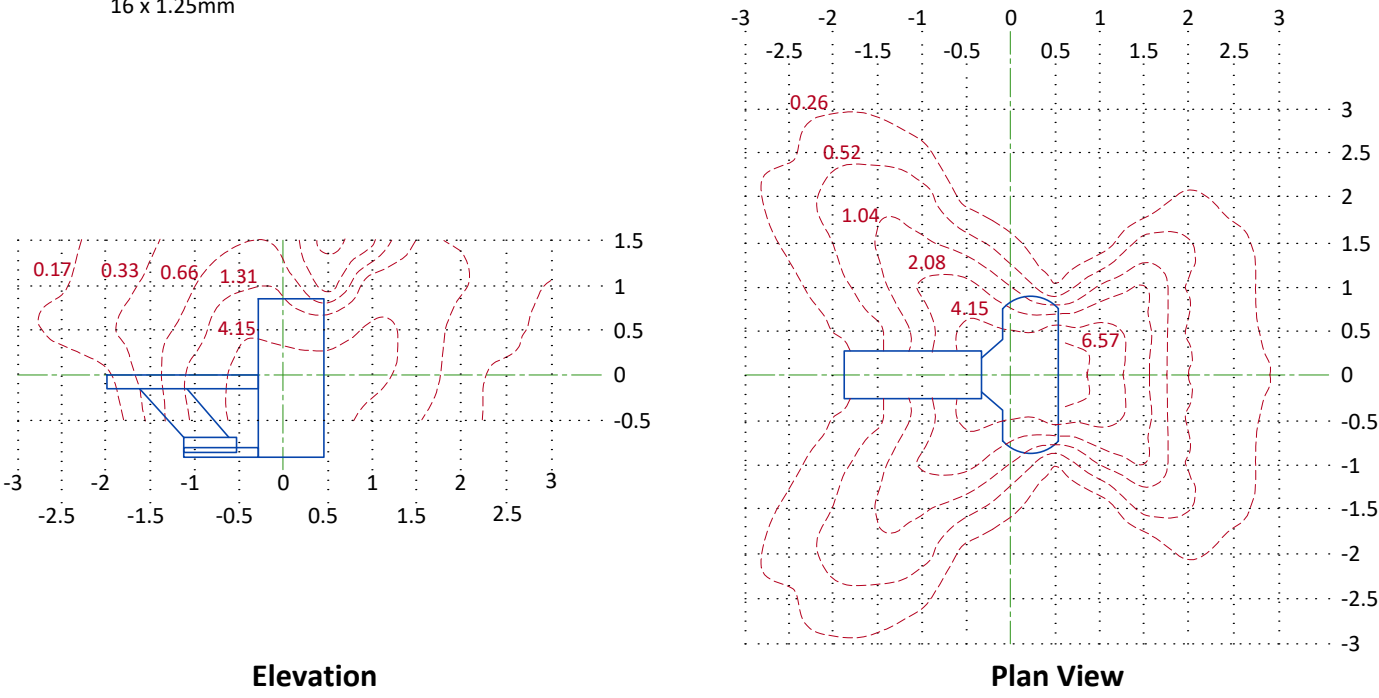
The Illustrations on this page depict measured radiation levels within the scanning room, while scanning a 32 cm CTDI phantom (body), with the technique shown:

- 140 kV
- 100 mA
- 1 sec
- 16x1.25 mm

**NOTE:** Actual measurements can vary. Expected deviations equals ±15%, expect for the 5 mA and 1 mm techniques, where variations may be greater (up to a factor of 2), due to the inherent deviation in small values. The maximum deviation anticipated for tube output equals ±40%.

RADIATION SCATTER - HEAD PHANTOM

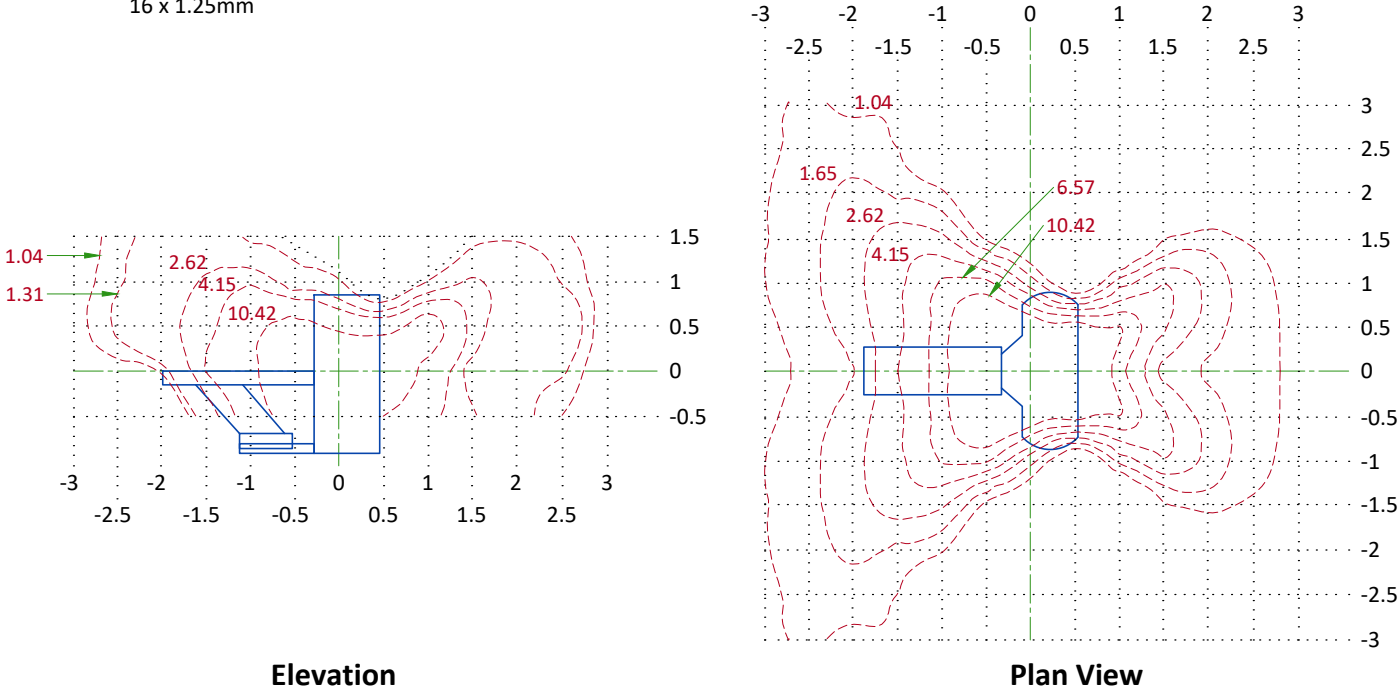
NOTE: 140 kV  
100 mAs/scan  
1 sec  
16 x 1.25mm



DETAIL NOT TO SCALE

RADIATION SCATTER - BODY PHANTOM

NOTE: 140 kV  
100 mAs/scan  
1 sec  
16 x 1.25mm



DETAIL NOT TO SCALE



POWER REQUIREMENTS

POWER SUPPLY	3 PHASES+G 200/220/240/380/400/415/420/440/460/480 V ±10%
FREQUENCIES	50/60 Hz ± 1Hz
MAXIMUM POWER DEMAND	40 kVA
AVERAGE (CONTINUOUS) POWER DEMAND	6.3 kVA
POWER FACTOR	0.85

- Power Distribution Adapter (PDA) to be used for the input voltages 200V, 220V, 240V, 420V, 440V, 460V and 480V along with the PDU.
- Power Distribution Unit (PDU) to be used for input voltages 380V, 400V and 415V with the transformer tap setting (refer to the Installation manual).
- Power supply should come into a power distribution box (PDB) containing the protective units and controls.
- The section of the supply cable should be calculated in accordance with its length and the maximum permissible voltage drops.
- There must be discrimination between supply cable protective device at the beginning of the installation (main low-voltage transformer side) and the protective devices in the PDB.

SUPPLY CHARACTERISTICS

- Power input must be separate from any others which may generate transients (elevators, air conditioning, radiology rooms equipped with high speed film changers...).
- All equipment (lighting, power outlets, etc...) installed with GE system components must be powered separately.
- Phase imbalance 2% maximum.
- Transients must be less than 1500V peak. (on a 400V line)

GROUND SYSTEM

- System of equipotential grounding.
- Equipotential: The equipotential link will be by means of an equipotential bar. This equipotential bar should be connected to the protective earth conductors in the ducts of the non GE cableways and to additional equipotential connections linking up all the conducting units in the rooms where GE system units are located.

CABLES

- Power and cable installation must comply with the distribution diagram.
- All cables must be isolated and flexible, cable color codes must comply with standards for electrical installation.
- The cables from signaling and remote control (Y, SEO, L...) will go to PDB with a pigtail length of 1.5m, and will be connected during installation. Each conductor will be identified and isolated (screw connector).

CABLEWAYS

The general rules for laying cableways should meet the conditions laid down in current standards and regulations, with regard to:

- Protecting cables against water (cableways should be waterproof).
- Protecting cables against abnormal temperatures (proximity to heating pipes or ducts).
- Protecting cables against temperature shocks.
- Replacing cables (cableways should be large enough for cables to be replaced).
- Metal cableways should be grounded.

POWER DISTRIBUTION

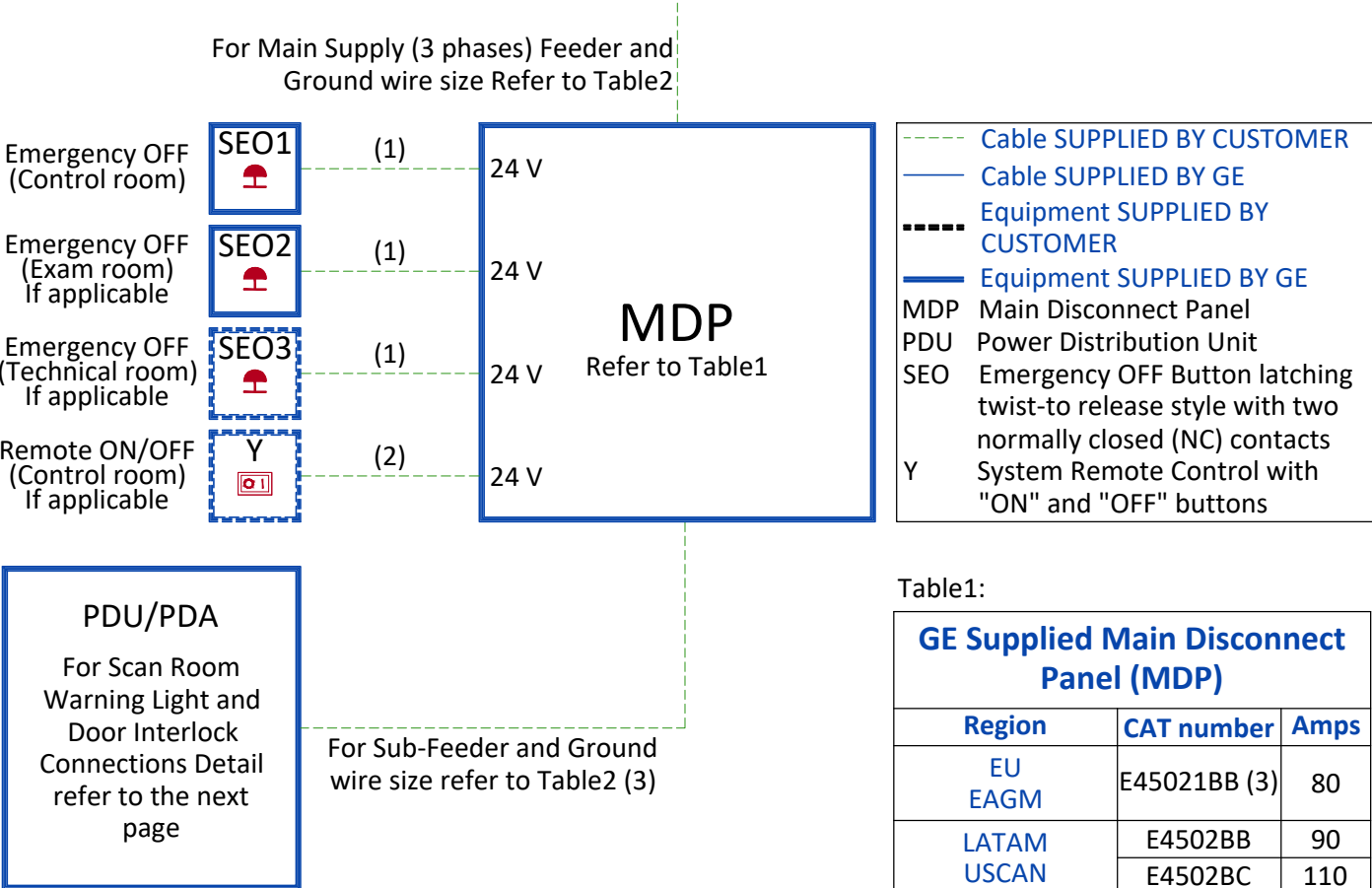


Table1:

GE Supplied Main Disconnect Panel (MDP)		
Region	CAT number	Amps
EU EAGM	E45021BB (3)	80
LATAM USCAN	E4502BB	90
	E4502BC	110
Asia	E4502BC	110

Table2:

Feeder Table									
The information below assumes the use of copper wire, rated 75 C and run in steel conduit. All ampacity is determined in accordance with the National Electrical Code (NFPA 70), Table 310-16 (2002). The ampacity of the circuit protection device listed above determines the minimum feeder size, except where total source regulation limits require a larger size.									
Feeder length from Power Substation to MDP - ft (m)	Minimum Wire Size, AWG or MCM (mm²)/VAC								
	200 VAC	220 VAC	240 VAC	380 VAC	400 VAC	420 VAC	440 VAC	460 VAC	480 VAC
50 (15)	3 (30)	3 (30)	3 (30)	4 (22)	4 (22)	4 (22)	4 (22)	4 (22)	4 (22)
100 (30)	1/0 (55)	1 (45)	1 (45)	4 (22)	4 (22)	4 (22)	4 (22)	4 (22)	4 (22)
150 (46)	3/0 (85)	2/0 (70)	2/0 (70)	4 (22)	4 (22)	4 (22)	4 (22)	4 (22)	4 (22)
200 (61)	5/0 (125)	4/0 (100)	3/0 (85)	3 (30)	4 (22)	4 (22)	4 (22)	4 (22)	4 (22)
250 (76)	6/0 (170)	5/0 (125)	4/0 (100)	3 (30)	3 (30)	3 (30)	4 (22)	4 (22)	4 (22)
300 (91)	6/0 (170)	5/0 (125)	5/0 (125)	1 (45)	2 (35)	3 (30)	3 (30)	3 (30)	3 (30)
350 (107)	7/0 (215)	6/0 (170)	5/0 (125)	1 (45)	1 (45)	2 (35)	2 (35)	3 (30)	3 (30)
400 (122)	7/0 (215)	6/0 (170)	6/0 (170)	1/0 (55)	1 (45)	1 (45)	1 (45)	1 (45)	3 (30)
Sub-Feeder length from MDP to PDU - ft (m)									
32 (9.7536)	2 (35)	2 (35)	2 (35)	4 (22)	4 (22)	4 (22)	4 (22)	4 (22)	4 (22)
Grounding									
Run a dedicated 1/0 [50 mm²] or larger insulated copper ground wire from the power source to the MDP and from MDP to the PDU. Run the ground wire in the same raceway with the three-phase wires.									

Notes :

- (1) Wire size: 2x2mm² [14AWG] and 1x2mm² [14AWG] GND
- (2) Wire size: 6x2mm² [14AWG] and 1x2mm² [14AWG] GND
- (3) GE supplied MDP option E45021BB includes a 10 meter long power cable (H07RN-F) with wire size 4x50mm² and a 50 meter long control cable with wire size 2x1.5mm².

TEMPERATURE AND HUMIDITY SPECIFICATIONS

IN-USE CONDITIONS

	EXAM ROOM			CONTROL ROOM		
	Min	Recommended	Max	Min	Recommended	Max
Temperature	18°C	22°C	26°C	18°C	22°C	26°C
Temperature gradient	≤ 3°C/h			≤ 3°C/h		
Relative humidity (1)	30% to 60%			30% to 60%		
Humidity gradient	≤ 5%/h			≤ 5%/h		

STORAGE CONDITIONS

Temperature	0°C to +30°C
Temperature gradient	≤ 3°C/h
Relative humidity (1)	< 70%
Humidity gradient	≤ 5%/h

Storage longer than 6 months is not recommended.

(1) Non-condensing

AIR RENEWAL

According to local standards.

NOTE

In case of using air conditioning systems that have a risk of water leakage it is recommended not to install it above electric equipment or to take measures to protect the equipment from dropping water.

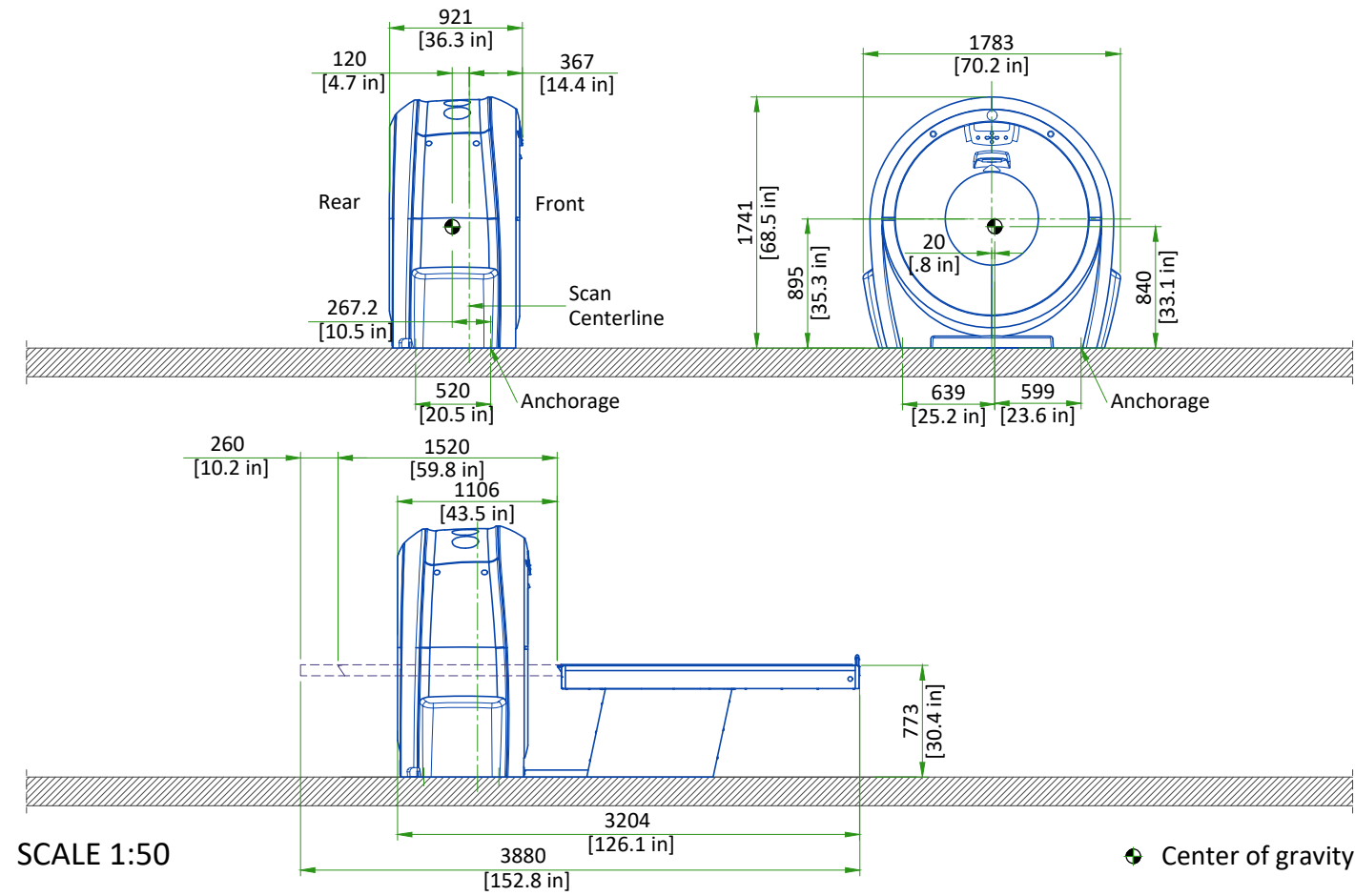
HEAT DISSIPATION

ROOM	DESCRIPTION	HEAT DISSIPATION (kW)	HEAT DISSIPATION (BTU)
		MAX	MAX
Exam Room	Gantry	3.50	11945
	Aakash Table	0.20	700
	TOTAL	3.70	12645
Exam/Technical Room*	Power Distribution Unit (PDU)	0.70	2389
	TOTAL	0.70	2389
Control Room	Operator Console with Z4G4 Host PC	0.75	2559
	LCD Monitor	0.03	102
	TOTAL	0.78	2661
*Technical Room is not mandatory, the placements of these elements are recommended in the Exam Room.			

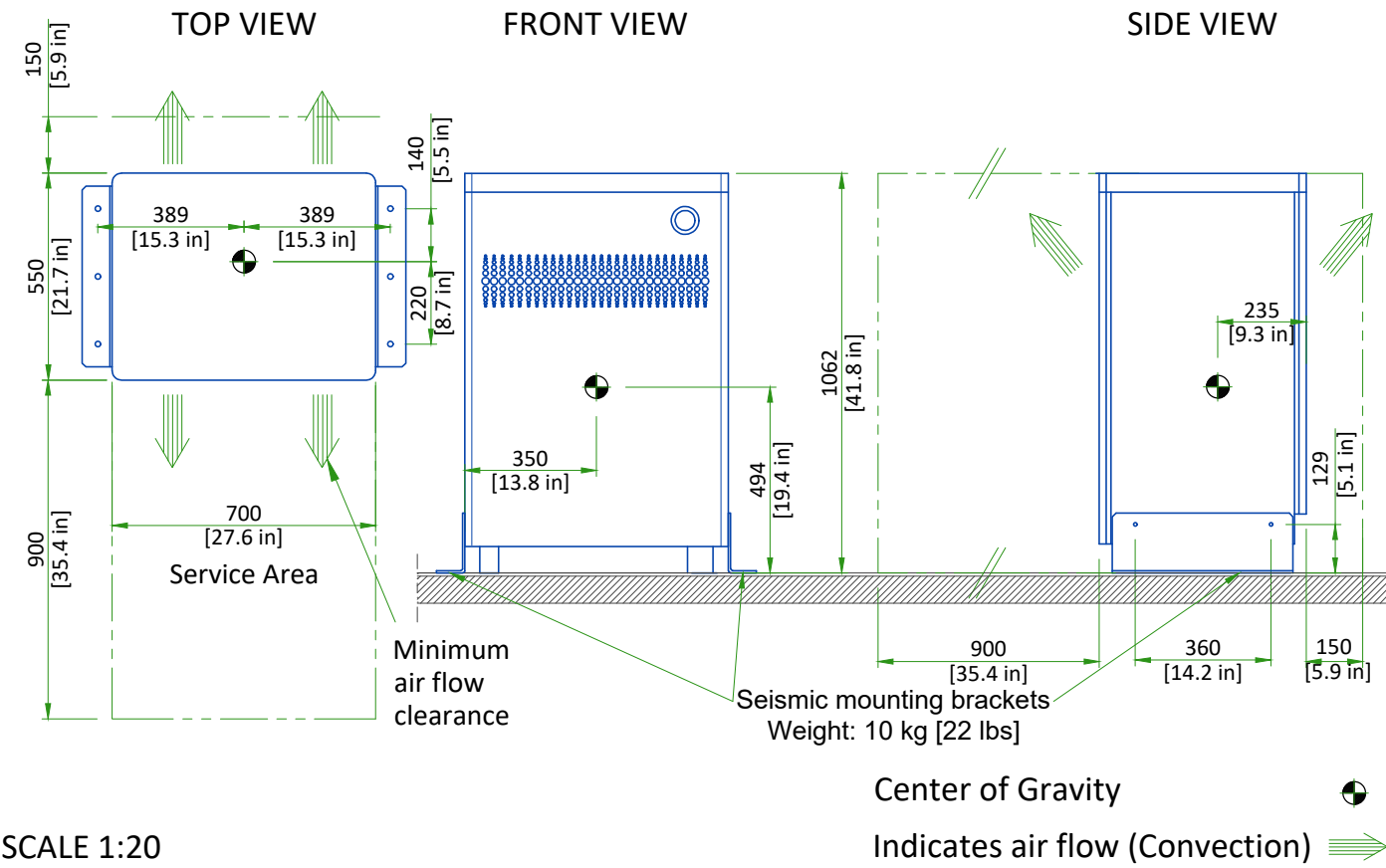




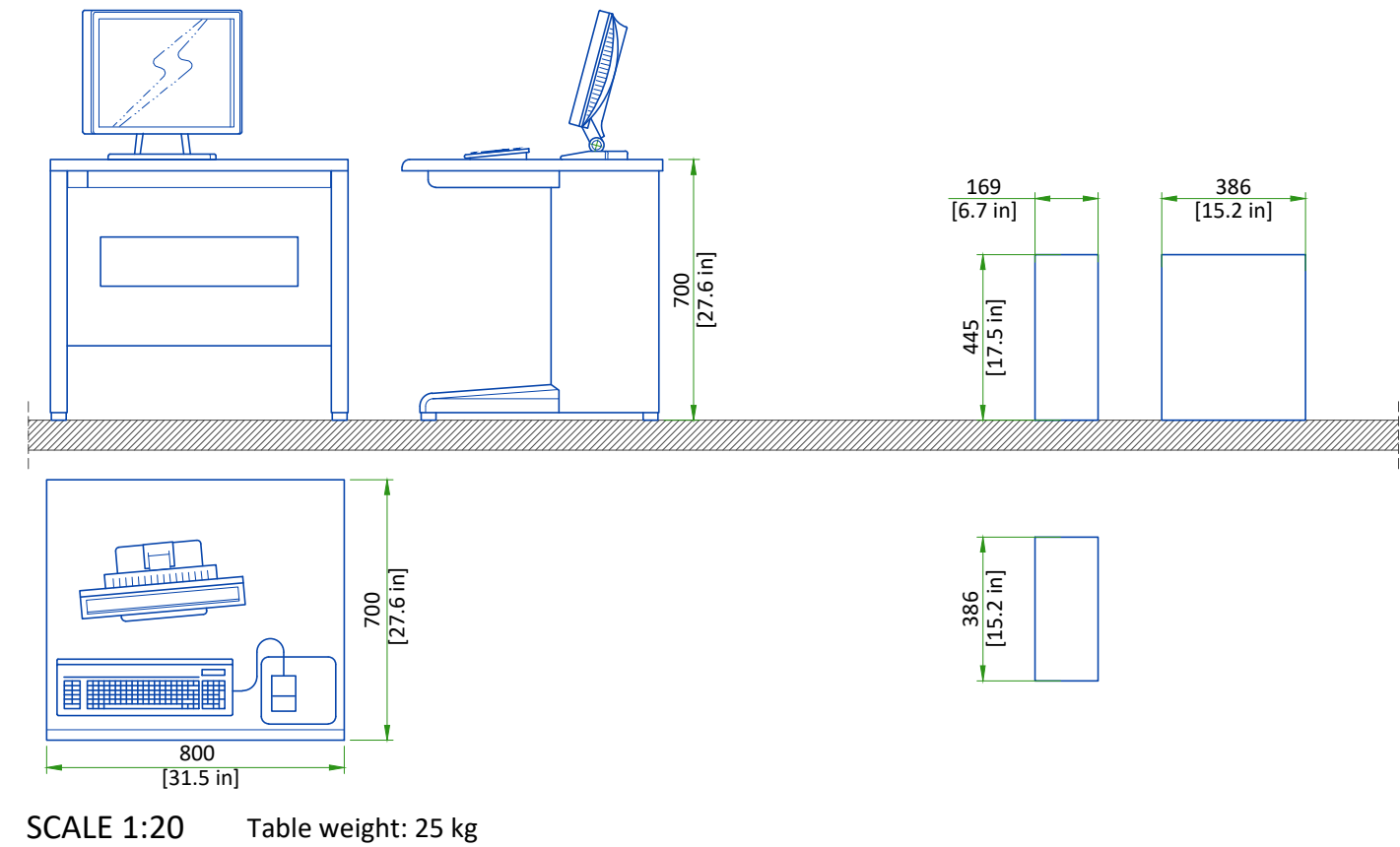
GANTRY WITH PATIENT TABLE



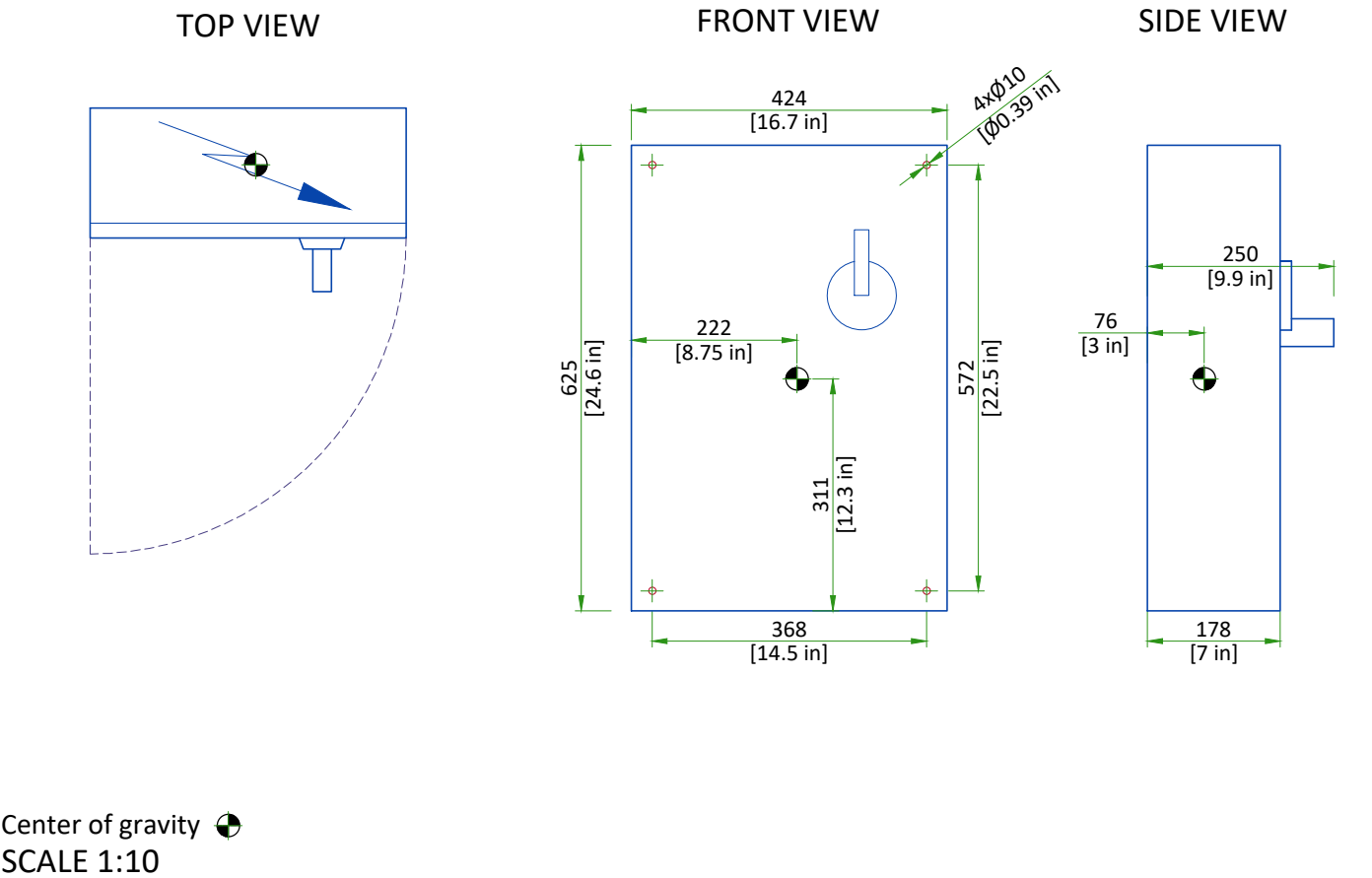
POWER DISTRIBUTION UNIT (PDU)



DESK AND CONSOLE



MAIN DISCONNECT PANEL



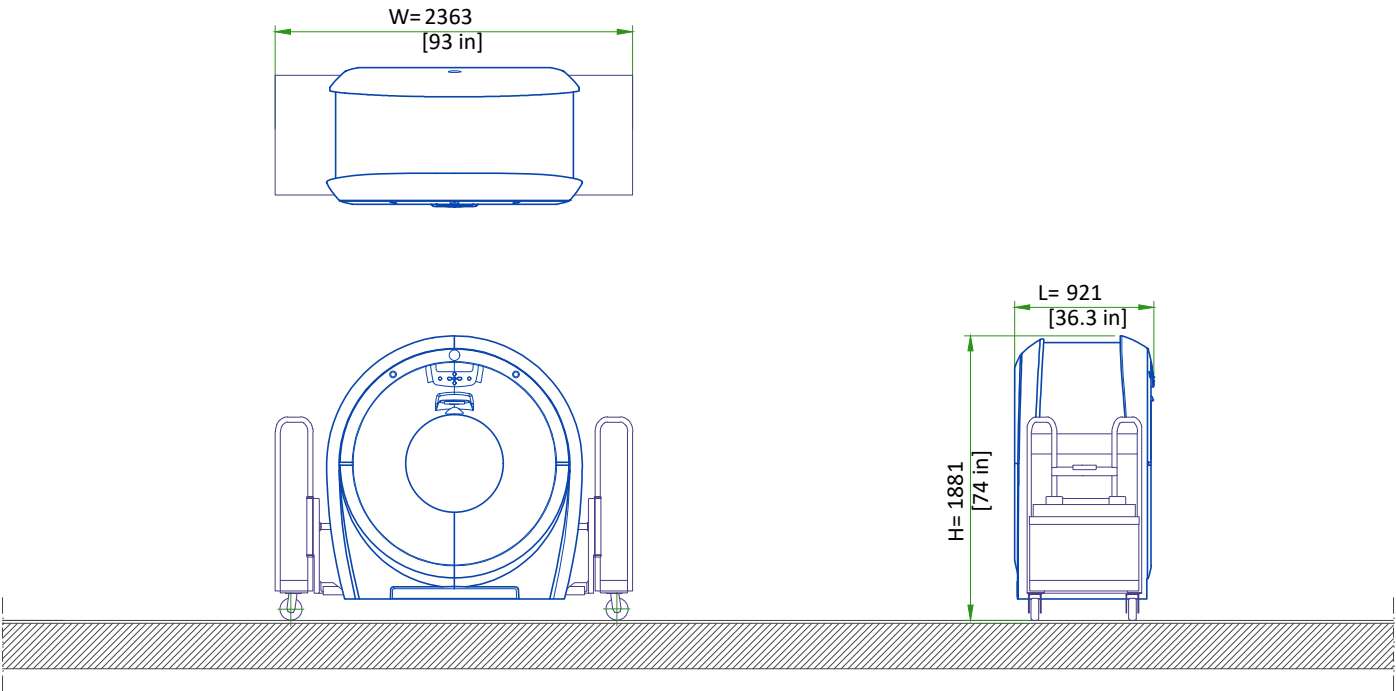
DELIVERY

THE CUSTOMER/CONTRACTOR SHOULD:

- Provide an area adjacent to the installation site for delivery and unloading of the GE equipment.
- Ensure that the dimensions of all doors, corridors, ceiling heights are sufficient to accommodate the movement of GE equipment from the delivery area into the definitive installation room.
- Ensure that access routes for equipment will accommodate the weights of the equipment and any transportation, lifting and rigging equipment.
- Ensure that all necessary arrangements for stopping and unloading on public or private property not belonging to the customer have been made.

DIMENSIONS OF DELIVERY WITH DOLLY TRANSPORT EQUIPMENT					
EQUIPMENT	DIMENSIONS			WEIGHT	
GANTRY	LENGTH	2363 mm	93.1 in	1125 kg	2480 lbs
	WIDTH	921 mm	36.3 in		
	HEIGHT	1881 mm	74 in		
AAKASH TABLE	LENGTH	2098 mm	82.6 in	150 kg	332 lbs
	WIDTH	583 mm	23 in		
	HEIGHT	855 mm	33.7 in		

GANTRY DELIVERY



- The gantry is shipped on a dolly equipped with elevating casters (normal shipping configuration).

NOT TO SCALE

DISCLAIMER

GENERAL SPECIFICATIONS

- GE is not responsible for the installation of developers and associated equipment, lighting, cassette trays and protective screens or derivatives not mentioned in the order.
- The final study contains recommendations for the location of GE equipment and associated devices, electrical wiring and room arrangements. When preparing the study, every effort has been made to consider every aspect of the actual equipment expected to be installed.
- The layout of the equipment offered by GE, the dimensions given for the premises, the details provided for the pre-installation work and electrical power supply are given according to the information noted during on-site study and the wishes expressed by the customer.
- The room dimensions used to create the equipment layout may originate from a previous layout and may not be accurate as they may not have been verified on site. GE cannot take any responsibility for errors due to lack of information.
- Dimensions apply to finished surfaces of the room.
- Actual configuration may differ from options presented in some typical views or tables.
- If this set of final drawings has been approved by the customer, any subsequent modification of the site must be subject to further investigation by GE about the feasibility of installing the equipment. Any reservations must be noted.
- The equipment layout indicates the placement and interconnection of the indicated equipment components. There may be local requirements that could impact the placement of these components. It remains the customer's responsibility to ensure that the site and final equipment placement complies with all applicable local requirements.
- All work required to install GE equipment must be carried out in compliance with the building regulations and the safety standards of legal force in the country concerned.
- These drawings are not to be used for actual construction purposes. The company cannot take responsibility for any damage resulting therefrom.

CUSTOMER RESPONSIBILITIES

- It is the responsibility of the customer to prepare the site in accordance with the specifications stated in the final study. A detailed site readiness checklist is provided by GE. It is the responsibility of the customer to ensure all requirements are fulfilled and that the site conforms to all specifications defined in the checklist and final study. The GE Project Manager of Installation (PMI) will work in cooperation with the customer to follow up and ensure that actions in the checklist are complete, and if necessary, will aid in the rescheduling of the delivery and installation date.
- Prior to installation, a structural engineer of record must ensure that the floor and ceiling is designed in such a way that the loads of the installed system can be securely borne and transferred. The layout of additional structural elements, dimensioning and the selection of appropriate installation methods are the sole responsibility of the structural engineer. Execution of load bearing structures supporting equipment on the ceiling, floor or walls are the customer's responsibility.

RADIO-PROTECTION

- Suitable radiological protection must be determined by a qualified radiological physicist in conformation with local regulations. GE does not take responsibility for the specification or provision of radio-protection.

THE UNDERSIGNED, HEREBY CERTIFIES THAT I HAVE READ AND APPROVED THE PLANS IN THIS DOCUMENT.		
DATE	NAME	SIGNATURE

GLOBAL SITE READINESS CHECKLIST (DI)

DOC1809666 Rev. 7

Site Ready Checks at Installation
EHS Site Requirements
Overall access route to the scan room free from obstruction / high hazards.
Enough space to store tools, equipment, parts, install waste and the general area free from obstruction and trip hazards.
Enough necessary facilities for the GE employees available.
No 3rd parties working in the area that may affect the safety of the installation activity.
Area free from any chemical, gas, dust, welding fume exposure and has painting been completed and dry.
All emergency routes identified, signed and clear from obstruction.
Accessible single source lockable panel that LOTO can be applied to for GE equipment installation (MDP and/or PDU).
There are no other conditions or hazards that you have observed or have been made aware of by the customer or contractors on site.
Required for Mechanical Install start
Room dimensions, including ceiling height, for all Exam, Equipment/Technical & Control rooms meets GE specifications.
Ceiling support structure, if indicated on the GE drawing, is in the correct location and at the correct height according to the Original Equipment Manufacturer specifications.
Levelness and spacing has been measured, and is ready for the installation of any GE supplied components.
Overhead support Structure (unistrut) has been confirmed with customer/contractor to meet required GE provided criteria.
Finished ceiling is installed. If applicable ceiling tiles installed per PMI discretion.
Floor levelness/flatness is measured and within tolerance, and there are no visible defects per GEHC specifications.
Entry door threshold meets PIM requirement.
Rooms that will contain equipment, including staging areas if applicable, are construction debris free. Precautions must be taken to prevent debris from entering rooms containing equipment.
Cable ways (floor/wall/ceiling/Access Flooring) are available for installation of GE cables are of correct length and diameter.
Cable ways routes per GE Final drawings and cable access openings areas installed at a time determined by GEHC PM. Surface floor duct can be installed at time of system installation.
Adequate room illumination installed and working.
Customer supplied countertops where GE equipment will be installed are in place.
Required for Calibration Start
HVAC systems Installed, and the site meets minimum environmental operational system requirements.
System power & grounding (PDB/MDP) is available as per GE specifications.
System power & grounding (PDB/MDP) is installed at point of final connection and ready to use. Lock Out Tag Out is available.
PMI to confirm all feeder wires and breaker are size appropriately. EPO installed if needed.
PMI to confirm with electrician all power and signal cables are well terminated ensuring there are no loose connections.
Network outlets installed.
Computer network available and working.
Lead doors and windows complete or scheduled to be installed. If applicable, radiation protection (shielding) finished & radioprotection regulatory approval for installation obtained.

Note: The details shown here are only an extract from DOC1809666. For the complete document please contact your PMI.