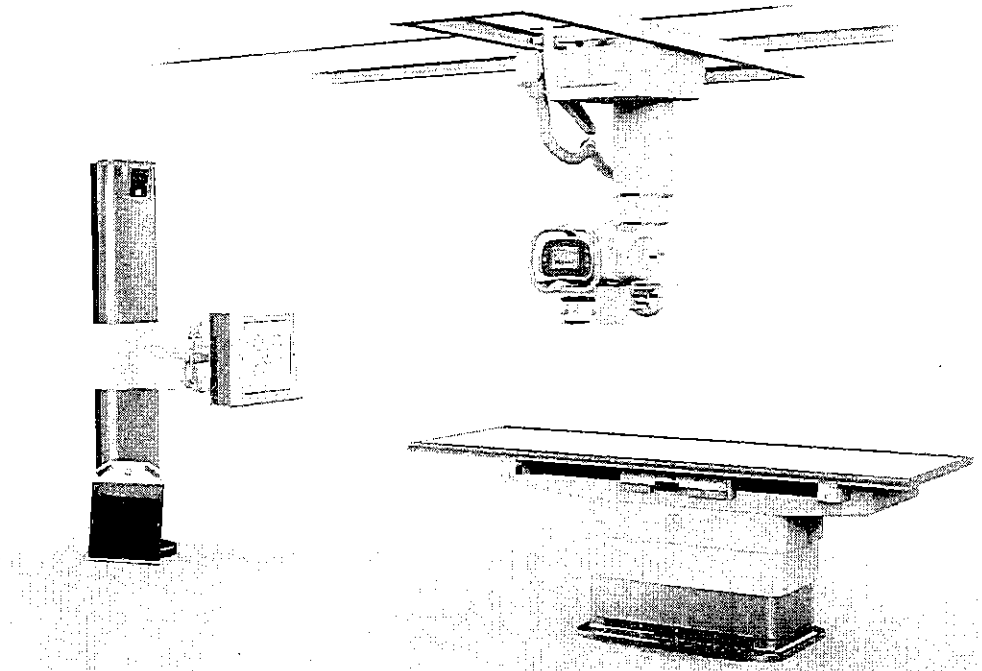

Warning : Do not scale from printed pdf files. GE accepts no responsibility or liability for defective work due to scaling from these drawings.

REV	DATE	MODIFICATIONS
A	30/OCT/2015	First issue drawing

This plan is made to suggest a typical location of GE equipment and associated devices, electrical wiring details and room arrangements.
While preparing this layout, every effort has been made to meet the installation requirements of the actual equipment and of a site.
GE does not take responsibility for any damages resulting from changes on drawings made by others. This drawing shall not be used for construction purposes.

01 - Cover Sheet
02 - Equipment Layout
03 - Equipment Layout Sections
04 - Detailed Floor and Electrical Layout
05 - Floor Structural Details
06 - Detailed Ceiling Layout
07 - Ceiling Structural Details
08 - Ceiling Structural Section
09 - Power and Network Requirements
10 - HVAC and Environment
11 - Delivery
12 - Room and Equipment Dimensions
13 - Interconnections and Disclaimer

Errors may occur by not referring to the complete set of final issue drawing.
GE cannot accept responsibility for any damage due to the partial use of GE final issue drawings, however caused.

SZENT RÓKUS KÓRHÁZ
BUDAPEST
HUNGARY

GE Healthcare

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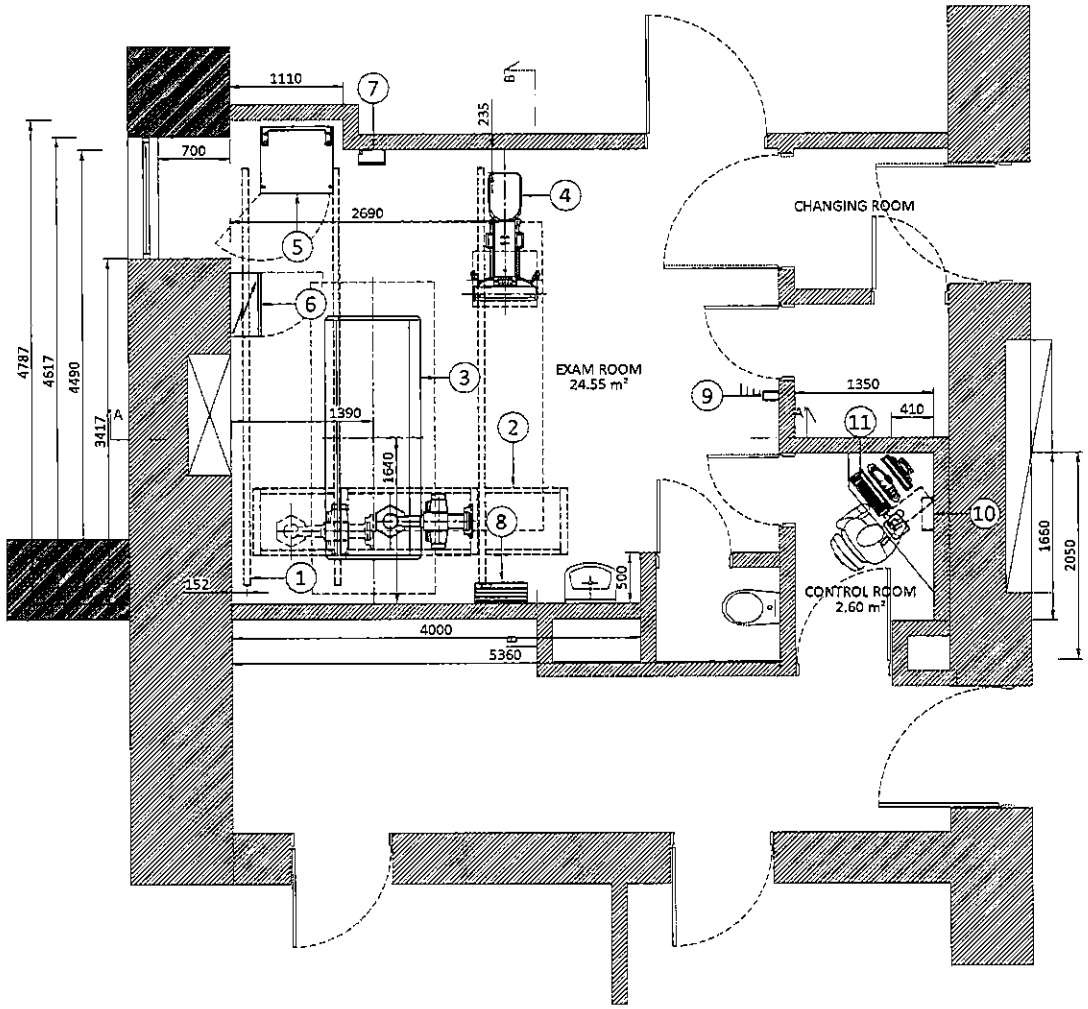
PRE-INSTALLATION REQUIREMENTS FOR OPTIMA XR 646 FINAL STUDY

Scale	Drawn by	Verified by	S.O.	PIM Ref & Rev	Date	Drawing Rev
1:50	A. Bleicher	Cs. Czene	-	5643854-1EN Rev 2	30/OCT/2015	A
			RAD-02376-001.DWG			01 / 13

EQUIPMENT LAYOUT

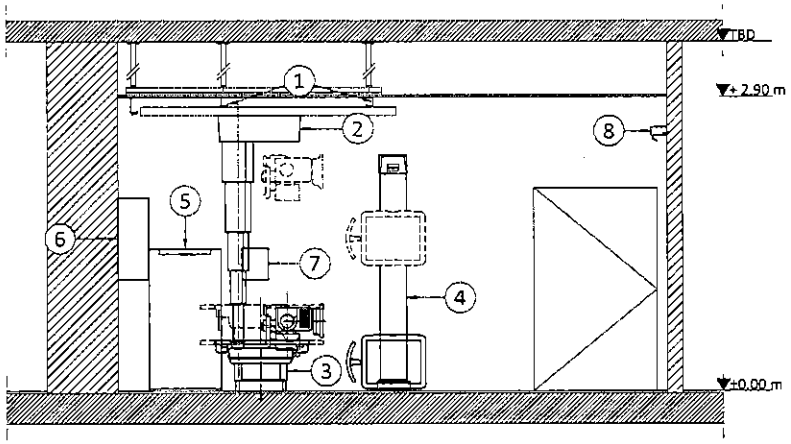


ITEM	DESCRIPTION	DIMENSIONS LxWxH (mm)	WEIGHT (kg)
1	4115 mm RAILS FOR 3 m BRIDGE	4115x2365x95	137.4
2	OTS WITH 3 m BRIDGE	3077x659x169	350
3	ELEVATING TABLE G2	2400x933x850	440
4	EXTENDED WALL STAND		
5	SYSTEM CABINET	847x662.2x1475	320
6	POWER DISTRIBUTION BOX (PDB)	835x635x300	40
7	TETHER INTERFACE BOX	255x110x310	7
8	GRID HOLDER	511.8x202.4x504.5	13.8
9	DONGLE ASSEMBLY	83.5x155x83	0.8
10	WALL BOX	370x170x112	5
11	OPERATOR CONSOLE	1200x750x1204	36

WALL - ACCORDING TO RECEIVED DRAWINGS

EXAM ROOM HEIGHT	
SLAB TO SLAB HEIGHT	-
FALSE CEILING HEIGHT	rec. 2.90 m

EXAM ROOM SIDE VIEW A-A'

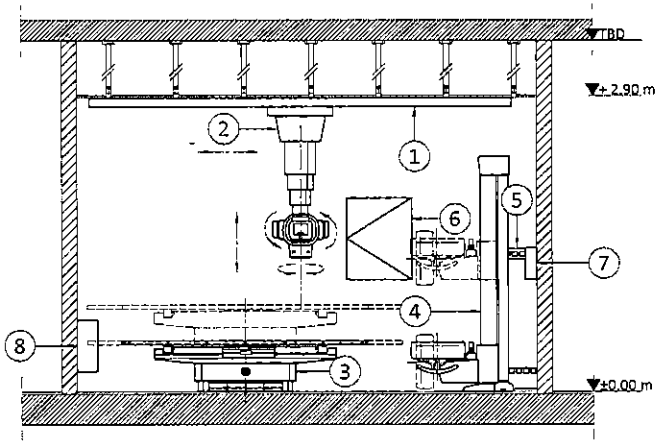


EXAM ROOM CEILING HEIGHTS

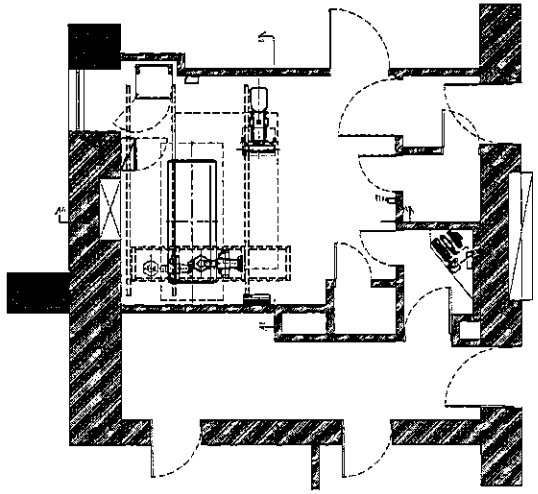
RECOMMENDED AND MINIMUM ROOM HEIGHTS		
CONFIGURATION	SPECIFICATIONS	CEILING HEIGHT
2M or 3M Bridge	Recommended	2980 mm
2M or 3M Bridge	Minimum	2686 mm
2M or 3M Bridge with Extended Wallstand at Foot Position	Recommended	2775 mm
2M or 3M Bridge with Extended Wallstand at Foot Position	Minimum	2750 mm
3M with Wallstand at Front Position	Minimum	2870 mm

Note : measured from the floor to the top of the longitudinal rails

EXAM ROOM FRONT VIEW B-B'

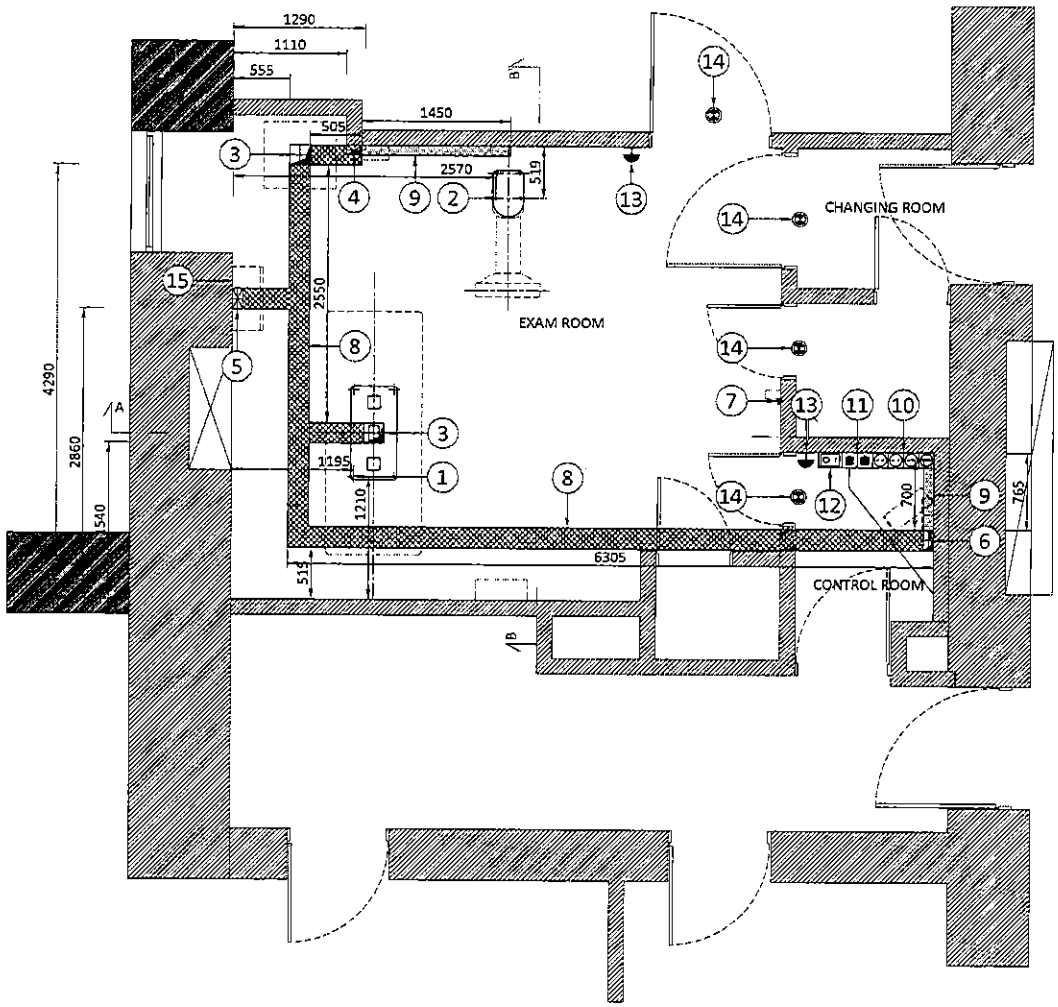


EXAM ROOM TOP VIEW



SCALE 1:100

FLOOR AND ELECTRICAL LAYOUT



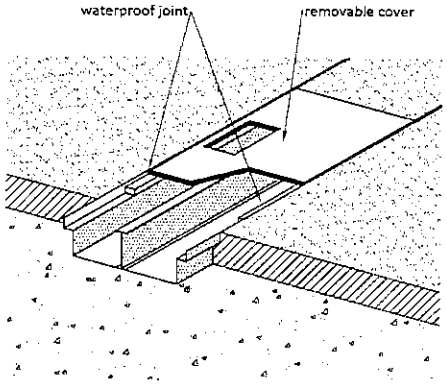
ITEM		QTY	DESCRIPTION
1			Table anchoring (see Structural Details)
2			Wall Stand anchoring (see Floor Structural Details)
3			200x200 opening in the floor
4			150x100 opening in the floor and 150x100 vertical duct on the wall
5			200x100 opening in the floor and vertical duct for PDB cabling (h = 1.1m)
6			200x100 opening in the floor and 100x50 vertical duct on the wall from ceiling
7			50x30 vertical duct on the wall
8			200x100 flush floor duct
9			200x100 vertical duct on the floor
10		4	Electrical outlet for service in the control area: 10/16A 230V + G
11		2	RJ 45 network socket for main system
12		1	System remote control (Y), locked when power OFF "ON" and "OFF" Impulse buttons with indicator lamps red=ON / green=OFF located at 1.50m above floor
13		2	System emergency off (SEO), 1.50m above floor near access doors
14		4	XR ON lamp (L1) - 24V, located near access doors
15			Power Distribution Box (PDB)

Flush floor duct

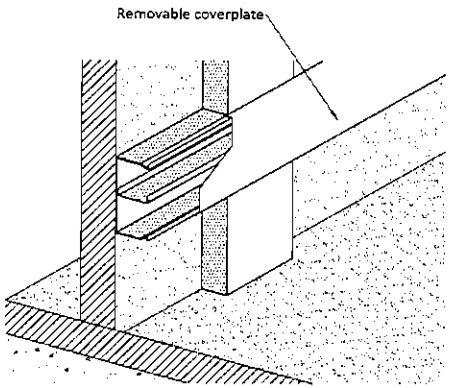
Wall duct

CABLE MANAGEMENT

FLUSH FLOOR DUCT



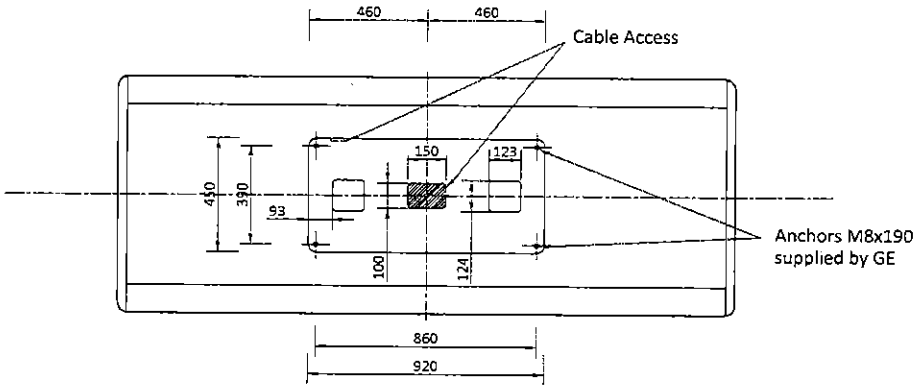
WALL DUCT



NOT TO SCALE

TABLE ANCHORING

TABLE STAND

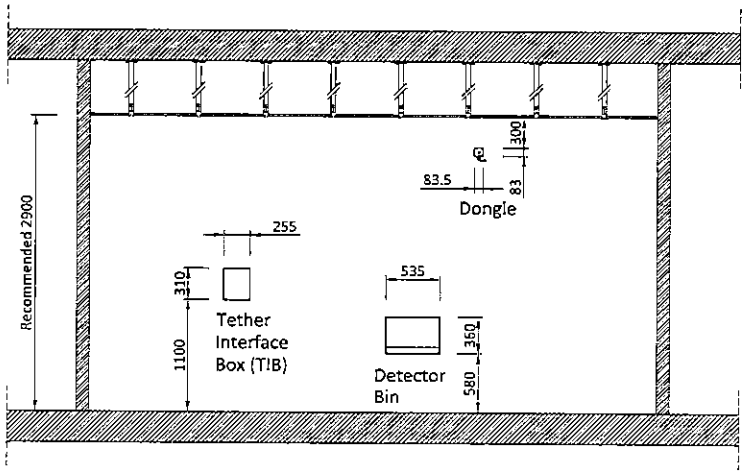


The floor bearing the system is recommended to be concrete and the thickness to be determined by a Structural Engineer to properly support the equipment loads. The supplied anchors require a minimum embedment of 90 mm into the concrete. If the floor thickness is less than 95 mm, it is recommended that the unit be secured using a through-bolt method with a reinforcement plate on the back side.

SCALE 1:20

WALL REQUIREMENTS

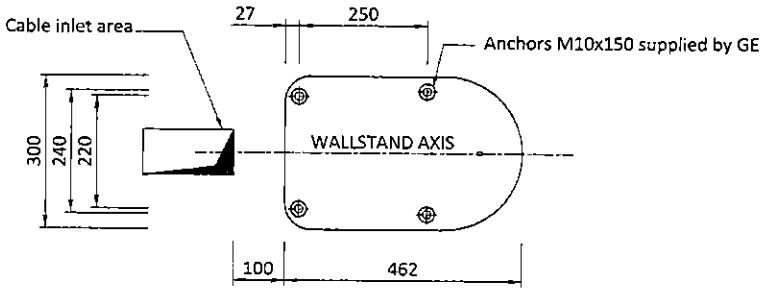
WALL MOUNTED EQUIPMENTS



SCALE 1:50

WALLSTAND ANCHORING

WALLSTAND BASE

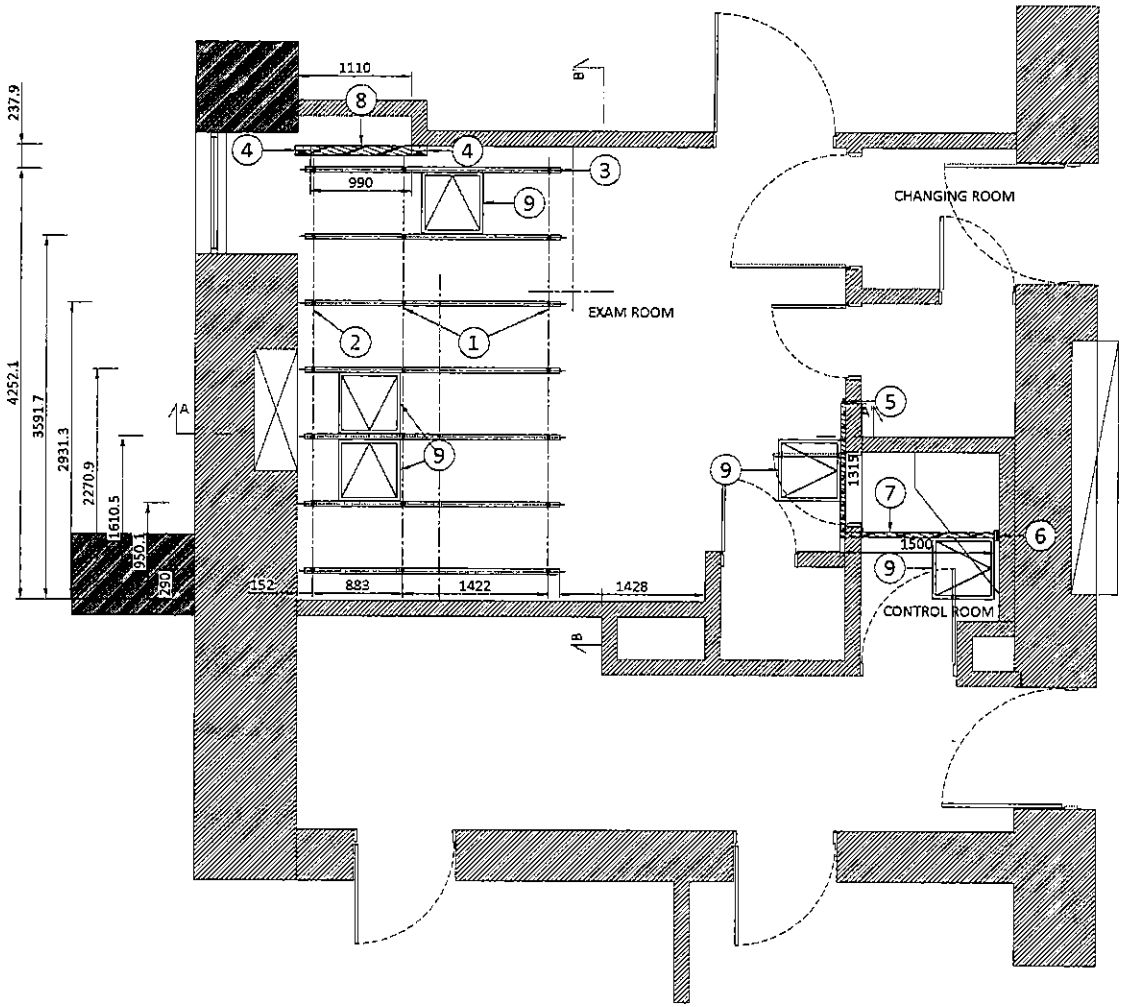


Concrete area for wall stand installation should be 1 m².

SCALE 1:10

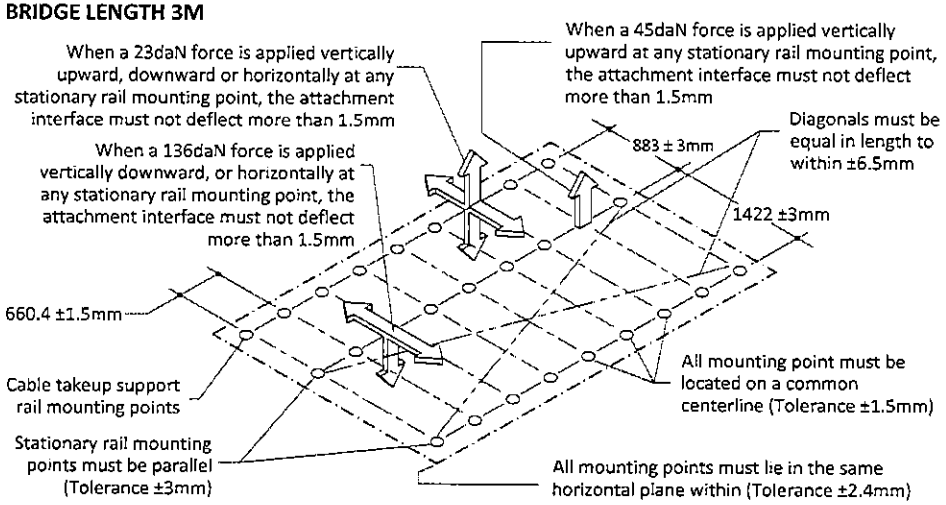
CEILING LAYOUT

ITEM	DESCRIPTION
1	OTS suspension rail axis - Anchoring with 14 M12 screws
2	OTS suspension cable rail axis - Anchoring with 7 M12 screws
3	2500x41x41 "UNISTRUT" or similar support anchored at 2.90 m from floor level (see Ceiling Structural Details)
4	150x100 opening in the false ceiling
5	50x30 opening in the false ceiling
6	100x50 opening in the false ceiling
7	100x50 cabletray in false ceiling
8	100x100 cabletray in false ceiling
9	600x600 service access in false ceiling
	CEILING DUCT



OTS SUSPENSION RAILS MOUNTING SPECIFICATIONS

BRIDGE LENGTH 3M



Distance between holes axis 660.4 mm, Maximum load per screw is 160 daN, however each mounting screw must not "PULL OUT" or otherwise fail under a vertically downward dead load of 635 daN.
Bolts for mounting stationary rails on Unistrut or equivalent supplied by GE (1/2" - 13 headed bolts)

CEILING REQUIREMENTS

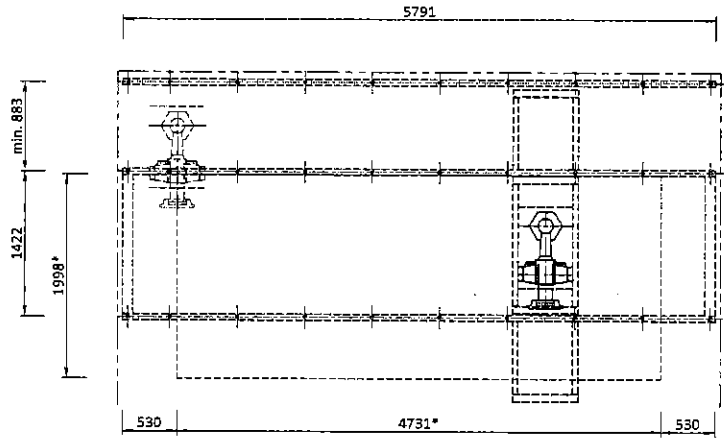
To allow installation of the stationary rail cross-members, clearance is required between the ends of the stationary rails and the walls.

It is recommended that sprinkler heads not be placed between the stationary rails. All sprinkler heads should be mounted so they do not extend downward more than 6.35 mm from the ceiling while in the 'resting' position.

In addition, there should not be anything mounted in the ceiling (i.e. lights, A/C returns, etc) between the stationary rails. This is because the OTS longitudinal drive belt assembly is located on the movable bridge, approximately centered between the two stationary rails, and may come into contact with those ceiling-mounted items during normal use.

Stationary rails are designed for top (ceiling) mounting. Rails can be ordered and are supplied in 10.2 cm increments between 3.4 m and 5.64 m, plus a 5.79 m length totaling 10 different sizes. The choice of length depends on room size, configuration and the possible presence of obstructions.

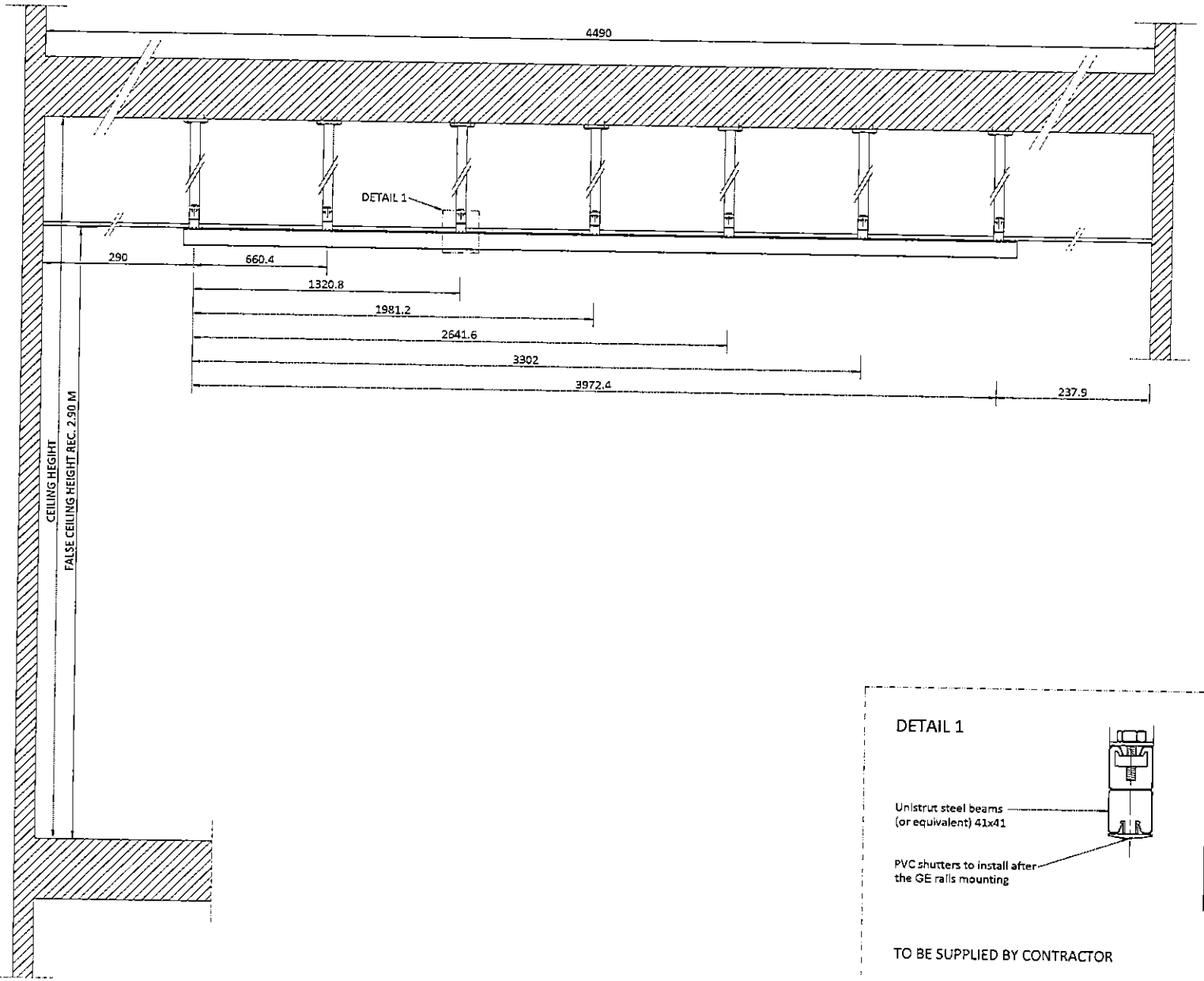
FOCAL SPOT TRAVEL WITH 3M BRIDGE



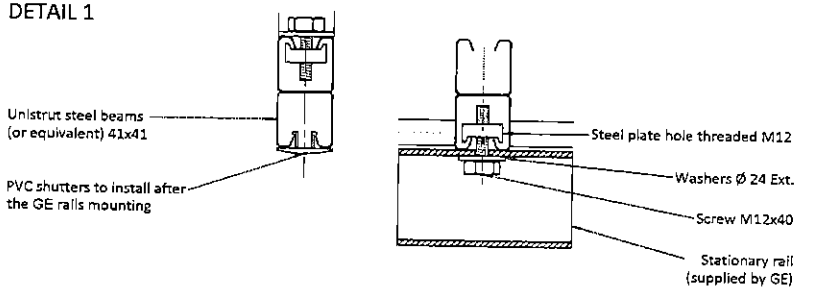
SCALE 1:50

*Focal Spot Travel depends on the length of the bridge and rails.

SECTION B-B'



DETAIL 1



TO BE SUPPLIED BY CONTRACTOR

POWER AND NETWORK REQUIREMENTS

POWER SUPPLY

POWER SUPPLY	**380/400/415/440/460/480V ±10%, THREE-PHASE + G**
FREQUENCIES	**50/60Hz ± 3Hz**
MAXIMUM INPUT POWER (5 sec MAX)	**125kVA**
STAND-BY POWER	**11kVA**
MAXIMUM LINE RESISTANCE PER 2 PHASES (Ohm)	**380V : 0.096/ 400V : 0.100 / 415V : 0.113** **440V : 0.125 / 480V : 0.150**

- 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 material at the beginning of the installation (main low-voltage transformer side) and the protective devices in the PDB.

SUPPLY CHARACTERISTICS

- Power input must be separated 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.

GROUND SYSTEM

- 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 units are located.

CABLES

- Power and cable installation must comply with the distribution diagram below.
- All cables must be isolated and flexible.
- Cable color codes must comply with standards for electrical installation.

Case PDB furnished by GE : The cables for signals 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

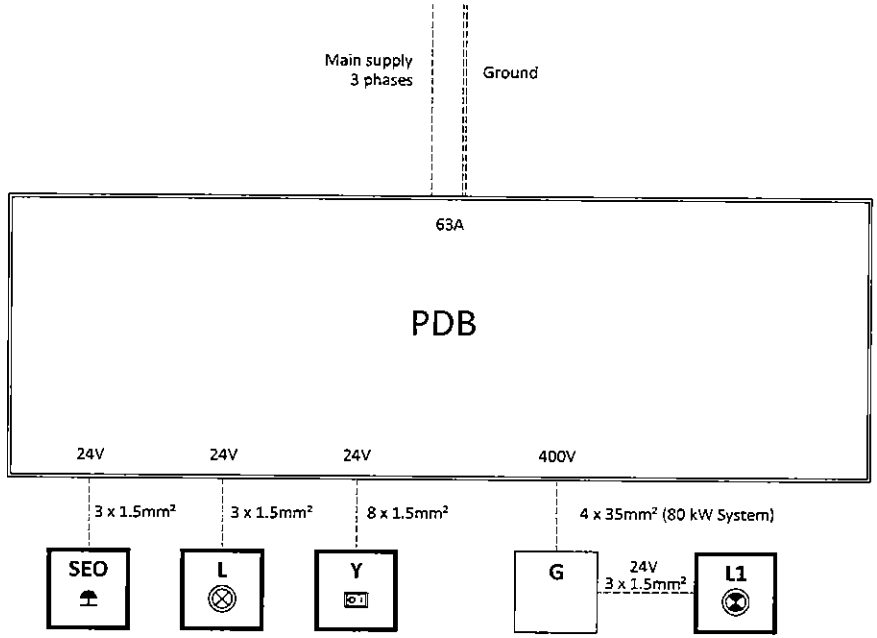
The general rules for laying cableways should meet the conditions laid down in current standards and regulations, with regard to:

- 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.

NETWORK REQUIREMENTS

1 RJ 45 socket is required. The network connection is made at the Operator Console. 100BaseT network connection is preferred. 10BaseT network connection is acceptable.

POWER DISTRIBUTION



PDB	Power distribution box for XR equipment (Can be ordered as an option from GE)
Y	System remote-control locked when power OFF, "ON" and "OFF" impulse buttons with indicator lamps red=on / green=off
L	System ON light - 24V - Located near access doors
L1	XRay ON light - 24V - Located near access doors
SEO	Emergency OFF located near to the access door.
G	Generator cabinet : cables inlet on the floor with 2.50m extra length.

Additional power requirements:

Detector bin (option): 230V+G 10/16A wall outlet from hospital power network

Cable SUPPLIED BY CUSTOMER

Equipment SUPPLIED BY CUSTOMER

Equipment SUPPLIED BY GE

Equipment CAN BE ORDERED FROM GE

TEMPERATURE AND HUMIDITY SPECIFICATIONS

IN-USE CONDITIONS

	EXAM ROOM			CONTROL ROOM		
Temperature	Min	Recom.	Max	Min	Recomm.	Max
	15°C	25°C	35°C	15°C	25°C	35°C
Temperature gradient	≤ 10°C/h			≤ 10°C/h		
Relative humidity (1)	30% to 60%			30% to 60%		
Humidity gradient	≤ 30%/h			≤ 30%/h		
System heat dissipation	Stand by	Max	Average	Stand by	Max	Average
	0.896 kW	2.432 kW	1.664 kW	0.173 kW	0.253 kW	0.213 kW

STORAGE CONDITIONS

Temperature	-5°C to +50°C
Temperature gradient	≤ 20°C/h
Relative humidity (1)	10% to 85%
Humidity gradient	≤ 30%/h

Storage longer than 90 days 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.

CONNECTIVITY REQUIREMENTS

Broadband Connections are necessary during the installation process and going forward to ensure full support from the Engineering Teams for the customers system. Maximum performance and availability for the customers system is maintained and closely monitored during the lifetime of the system. Proactive and reactive maintenance is available utilising the wide range of digital tools using the connectivity solutions listed below:

- Site-to-Site VPN/GE Solution
- Site-to-Site VPN/Customer Solution
- Connection through Dedicated Service Network
- Internet Access - connectivity for InSite 2.0

The requirements for these connectivity solutions are explained in the broadband solutions catalogue (separate document).

HEAT DISSIPATION DETAILS

ROOM	DESCRIPTION	STANDBY (kW)	IN-USE (kW)
Exam Room	Table	0.092	0.666
	Table Detector power	0.017	0.017
	Wall Stand / Extended Wall Stand	0.023	0.094
	WS Detector power	0.017	0.017
	System Cabinet	0.714	1.427
	OTS & Collimator	0.031	0.031
	Tube Rotor	0	0.160
	TIB	0.002	0.020
Control Room	Z420 PC + Monitor (in control room)	0.176	0.253

ENVIRONMENTAL SPECIFICATIONS

MAGNETIC INTERFERENCE

To guarantee specified imaging performance :
X-ray tubes and control console equipment must be located in ambient static field of less than 10 gauss.

LIGHT REQUIREMENTS

For the electronic ballast of fluorescent lamp in exam room, the operating frequency should be above 42KHz.

ACOUSTIC OUTPUT

Measured 1 m from any point in system.
In-use: less than 55 dBA
Stand-by: less than 55 dBA

DELIVERY

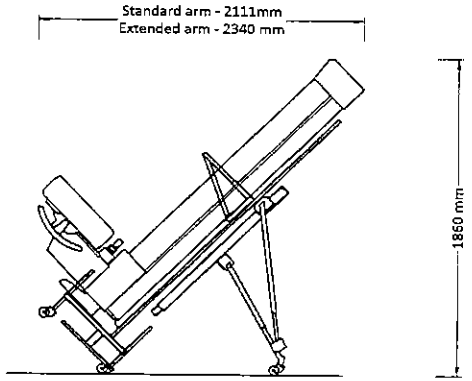
THE CUSTOMER / CONTRACTOR SHOULD:

- Provide an area adjacent to the Optima XR 646 suite 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.

RIGGING INFORMATION		
DIMENSIONS OF WALLSTAND (STANDARD / EXTENDED)		WEIGHT
LENGTH	2111 mm / 2340 mm	270 kg / 280 kg
WIDTH	910 mm	
HEIGHT	1860 mm	
DIMENSIONS OF TABLE		WEIGHT
LENGTH	-	450 kg
WIDTH	933 mm	
HEIGHT	-	

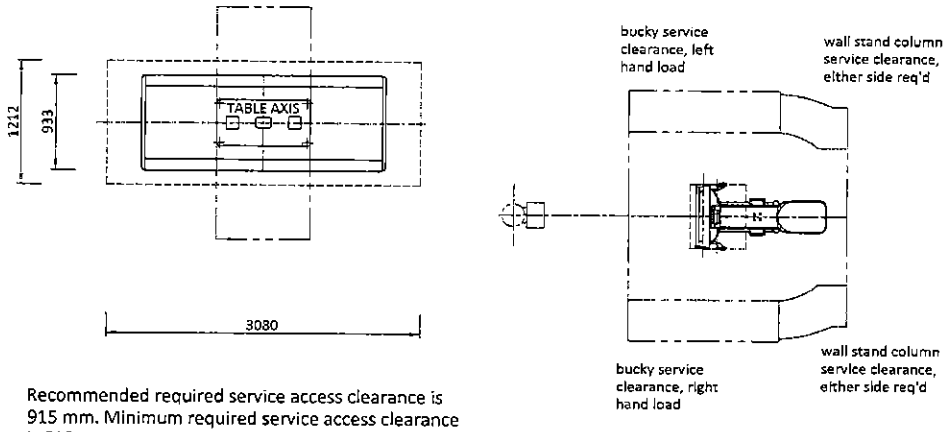
Pay attention to the lengths of the rails! They can be also 6m!

DISCOVERY WALL STAND (STANDARD / EXTENDED) (ON FIXTURE)



NOT TO SCALE

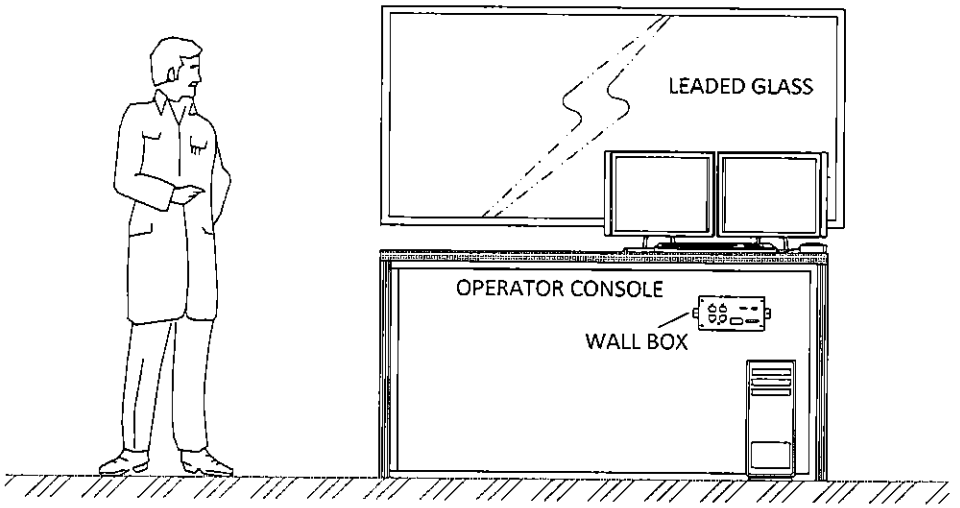
EXAM ROOM CLEARANCE AREAS



Recommended required service access clearance is 915 mm. Minimum required service access clearance is 610 mm.

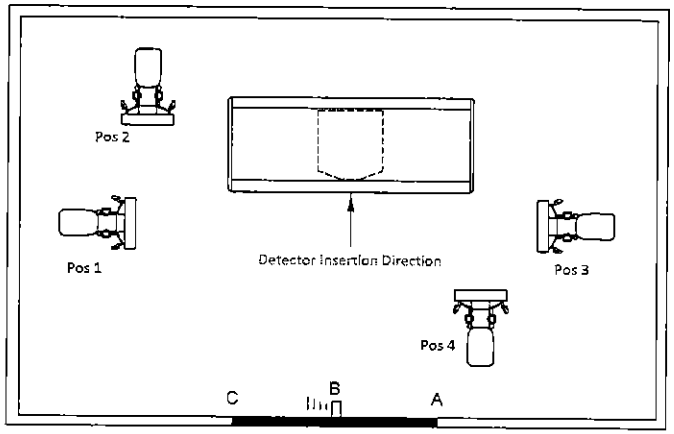
SCALE 1:50

EXAMPLE FOR CONTROL ROOM FRONT VIEW



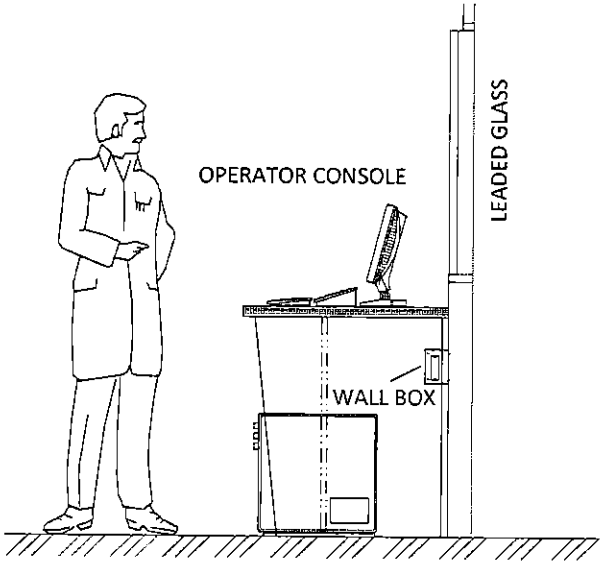
NOT TO SCALE - TYPICAL ARRANGEMENT

DONGLE INSTALLATION POSITION (RECOMMENDED)



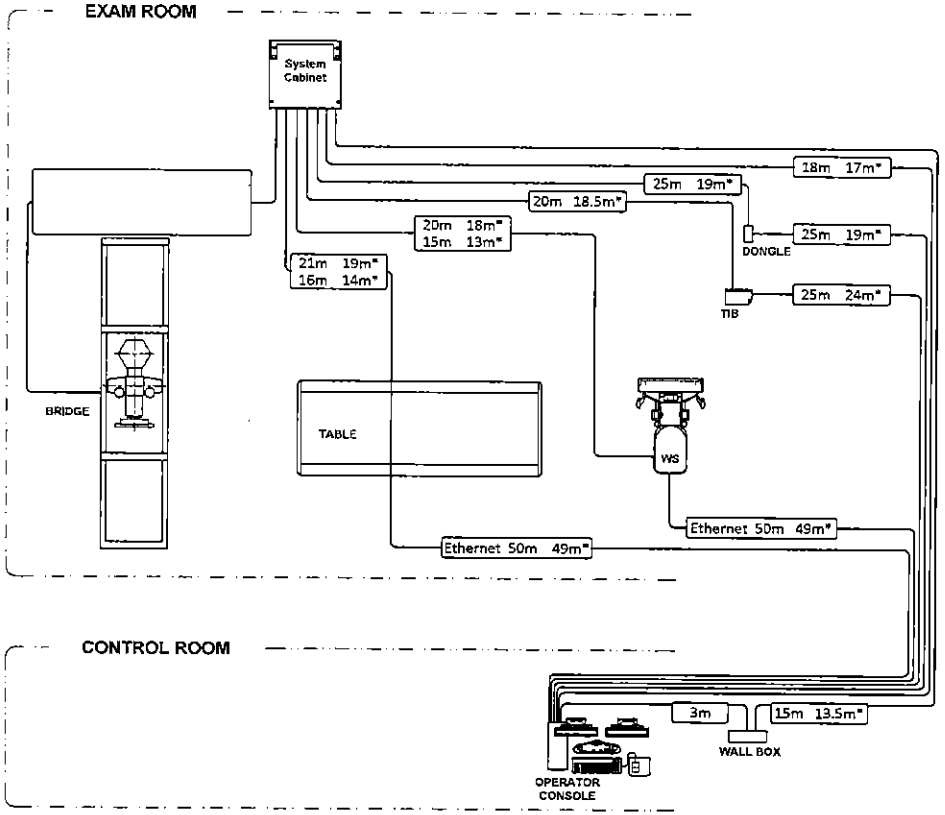
- Dongle shall be positioned at the wall of detector insertion direction.
- B is the best position which is in the middle of the wall.
- The height requirement of dongle is 30cm lower than the ceiling.
- Position "A" to "C" (around ±1m) are acceptable locations for dongle.
- There shall be no obstructions in the path between dongle and detector applications.

EXAMPLE FOR CONTROL ROOM SIDE VIEW



NOT TO SCALE - TYPICAL ARRANGEMENT

INTERCONNECTIONS LENGTH



....m - Total length

.....m* - Usable length

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 structrual 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