REV	DATE	MODIFICATIONS

01 - C1 - Cover Sheet
02 - C2 - Disclaimer - Site Readiness
03 - A1 - General Notes
04 - A2 - Equipment Layout
05 - A3 - Section Views
06 - A4 - Equipment Details (1)
07 - A5 - Equipment Details (2)
08 - A6 - Delivery
09 - S1 - Structural Notes
10 - S2 - Structural Layout
11 - S3 - Structural Details (1)
12 - S4 - Structural Details (2)
13 - S5 - Structural Details (3)
14 - M1 - HVAC
15 - E1 - Electrical Notes
16 - E2 - Electrical Layout (2)
17 - E3 - Electrical Elevations
18 - E4 - Power Requirements
19 - E5 - Interconnections
20 - E6 - Power requirements (Light Signaling)
21 - E7 - Power requirements (Light Signaling) (2)

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: www.gehealthcare.com/siteplanning

TYPICAL

GE Healthcare

INNOVA IGS 520-530-540
FINAL STUDY

Drawn by	Verified by	Concession	S.O. (GON)	PIM Manual	Rev
PMM	TST	-	-	5730939-1EN	3

Format	Scale	File Name	Date	Sheet
A3	1/4"=1'-0"	EN-VAS-TYP-IGS-5-NF.DWG	12/Mar/2024	01/21

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**

CUSTOMER SITE READINESS REQUIREMENTS

REQUIRED MANUALS FOR SYSTEM PRE-INSTALLATION	
Description	**Document Number***
Product specific Pre-installation Manual	Refer to cover page
*documents can be accessed in multiple languages at *https://www.gehealthcare.com/support/manuals*	

- 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.
- The items on the GE HealthCare Site Readiness Checklist **DOC2949062** and Worksheet **DOC2949068** are REQUIRED to facilitate equipment delivery to the site. Equipment will not be delivered if these requirements are not satisfied.
  - Any deviation from these drawings must be communicated in writing to and reviewed by your local GE HealthCare installation project manager prior to making changes.
  - Make arrangements for any rigging, special handling, or facility modifications that must be made to deliver the equipment to the installation site. If desired, your local GE HealthCare installation project manager can supply a reference list of rigging contractors.
  - New construction requires the following;
    1. Secure area for equipment,
    2. Power for drills and other test equipment,
    3. Restrooms.
  - Provide for refuse removal and disposal (e.g. crates, cartons, packing)

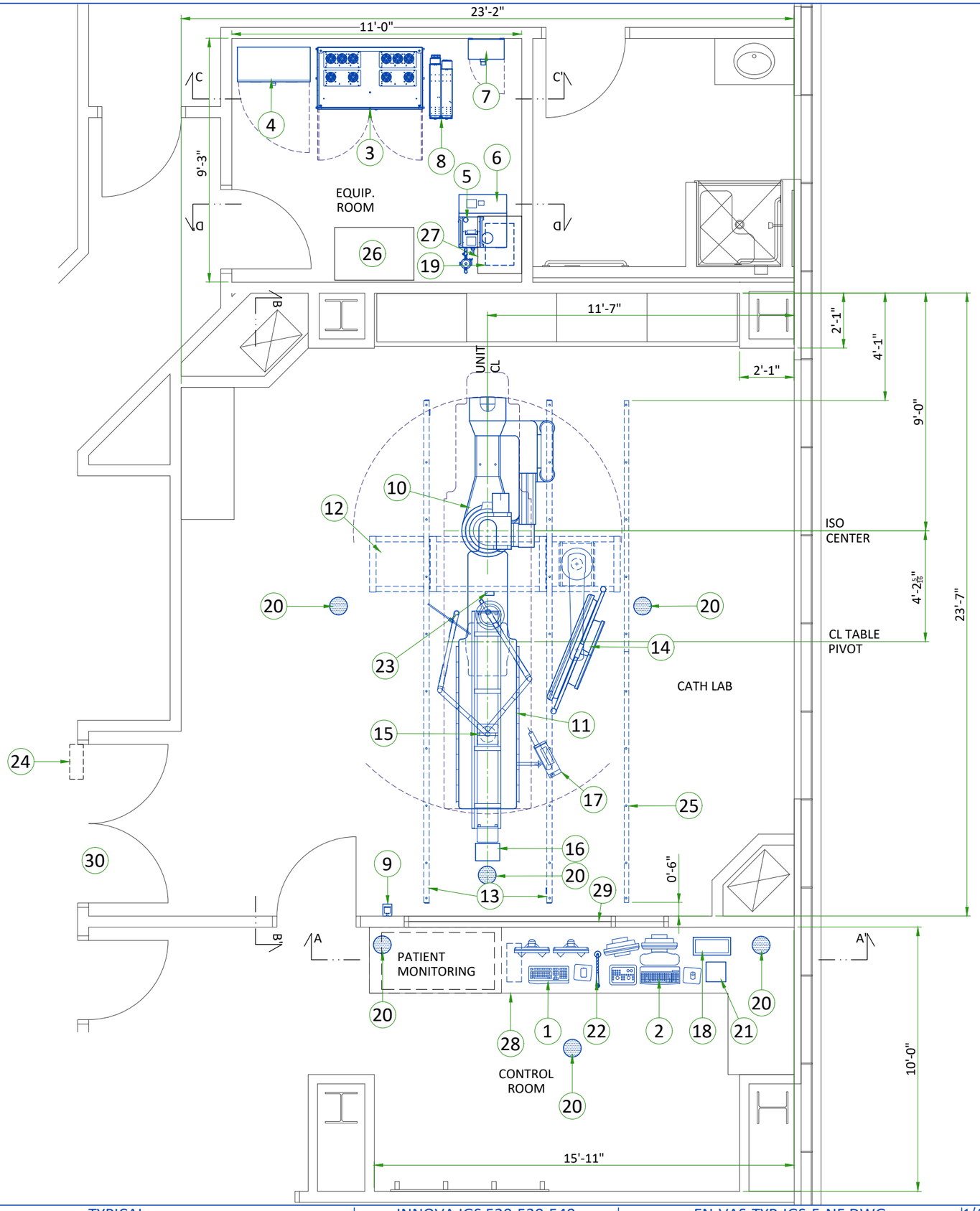
MAGNETIC INTERFERENCE SPECIFICATIONS

- Image intensifiers must be located in ambient static magnetic fields of less than 1 gauss to guarantee specified imaging performance.
- X-ray tubes must be located in ambient static magnetic fields of less than 10 gauss to guarantee specified performance.
- System electronics must be located in ambient static magnetic fields of less than 10 gauss to guarantee data integrity.
- Operators console equipment must be located in ambient static magnetic fields of less than 10 gauss to obtain specified geometric linearity.

ELECTROMAGNETIC INTERFERENCE

The system is suitable for use in the specified electromagnetic environment. The purchaser or user of the system should assure that it is used in an electromagnetic environment as described below:

EMISSIONS	TEST COMPLIANCE	ELECTROMAGNETIC ENVIRONMENT
Radio–Frequency Emissions CISPR11	Group1 Class A limits	The system is suitable for use in all establishments other than domestic and those directly connected to the low voltage power supply network that supplies buildings used for domestic purposes.
	Group1 Class A limits	The system uses RF energy only for its internal function. Therefore, the RF emission is very low and not likely to cause any interference in nearby electronic equipment.
Harmonic emissions IEC 61000–3–2	Not applicable	The system is suitable for use only in establishments not directly connected to a public low voltage power supply network.
Voltage fluctuations/ flicker emissions IEC 61000–3–3	Not applicable	The system is suitable for use only in establishments not directly connected to a public low voltage power supply network.



LEGEND			
A	GE SUPPLIED	D	AVAILABLE FROM GE
B	GE SUPPLIED/CONTRACTOR INSTALLED	E	EQUIPMENT EXISTING IN ROOM
C	CUSTOMER/CONTRACTOR SUPPLIED AND INSTALLED	*	ITEM TO BE REINSTALLED FROM ANOTHER SITE

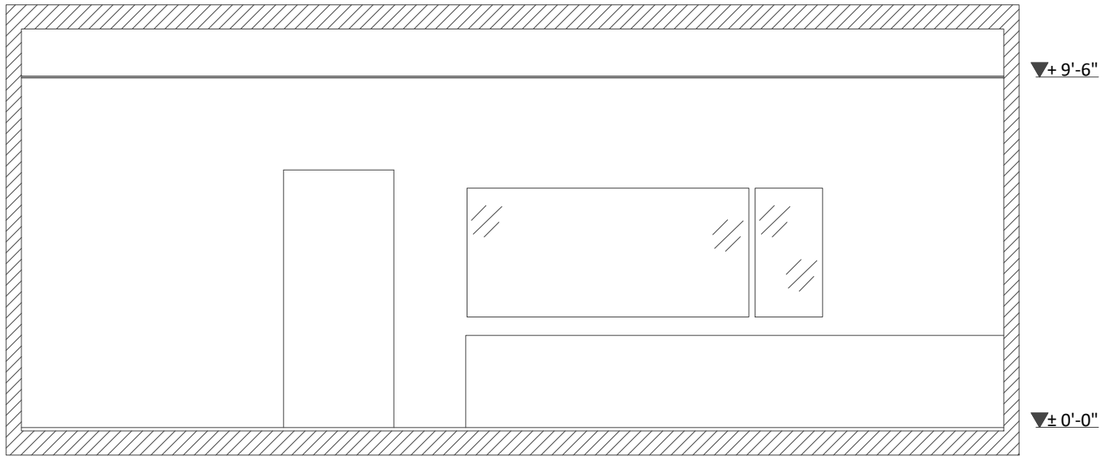
BY	ITEM	DESCRIPTION	MAX HEAT OUTPUT (BTU/h)	WEIGHT (lbs)	MAX HEAT OUTPUT (W)	WEIGHT (kg)
A	1	ADVANTAGE WORKSTATION (AW)	3412	70	1000	31.7
A	2	OPERATOR CONSOLE	341	43	100	19.6
A	3	C-FRT CABINET	7370	-	2160	536/541
A	4	SYSTEM INTERFACE CABINET	1706	642	500	291
A	5	DETECTOR CONDITIONER	717	32	210	14.6
A	6	COOLIX 4100 CONDITIONER	23645	265	6930	120
B	7	MAIN DISCONNECT PANEL (MDP)	-	42	-	19
A	8	8kVA UPS	1774	185	520	84
A	9	XRAY BUZZER	-	2	-	1
A	10	LC GANTRY	-	1654	-	750
A	11	OMEGA V LONG PATIENT TABLE	-	1635	-	741.6
A	12	MONITOR SUSPENSION LONG BRIDGE	-	225	-	102
A	13	MONITOR SUSPENSION RAILS (x2)	-	139	-	63
A	14	LARGE DISPLAY MONITOR WITH TWO BACKUP MONITORS	341	421	100	191
A	15	MAVIG RAD SHIELD AND LAMP WITH 2.5M CEILING TRACK	-	205	-	93
B	16	LED LAMP TRANSFORMER	-	6	-	2.7
A	17	INJECTOR HEAD	-	-	-	-
A	18	REMOTE CONTROL FOR INJECTOR	-	4	-	2
A	19	INJECTOR ELECTRONICS	-	37	-	17
B	20	VITALINQ SPEAKER (x6)	-	-	-	-
B	21	VITALINQ CONSOLE	-	-	-	-
B	22	VITALINQ MICROPHONE	-	-	-	-
B	23	VITALINQ MICROPHONE (ONE ON MONITOR BRIDGE IN EXAM ROOM)	-	-	-	-
D	24	ELECTRICAL BOX (LIGHT SIGNALING - NOT SUPPLIED BY GE)	-	-	-	-
A	25	CABLE DRAPE RAIL	-	-	-	-
C	26	STORAGE CABINET FOR SERVICE TOOLS AND MANUALS	-	-	-	-
C	27	SHELF				
C	28	COUNTER TOP FOR EQUIPMENT- PROVIDE GROMMETED OPENINGS AS REQUIRED TO ROUTE CABLES				
C	29	CONTROL WALL TO CEILING WITH LEAD GLASS VIEWING WINDOW				
C	30	MINIMUM OPENING FOR EQUIPMENT DELIVERY IS 1118mm x 2108 mm [44 in x 83 in], CONTINGENT ON A 2438 mm [96 in] CORRIDOR WIDTH				

EXAM ROOM HEIGHT	
FINISHED FLOOR TO SLAB HEIGHT	TBD
FALSE CEILING HEIGHT	Rec. 9'-6"

For Accessory Sales: (866) 281-7545 Options 1, 2, 1, 2 or mail to: gehcaccessorysales@ge.com

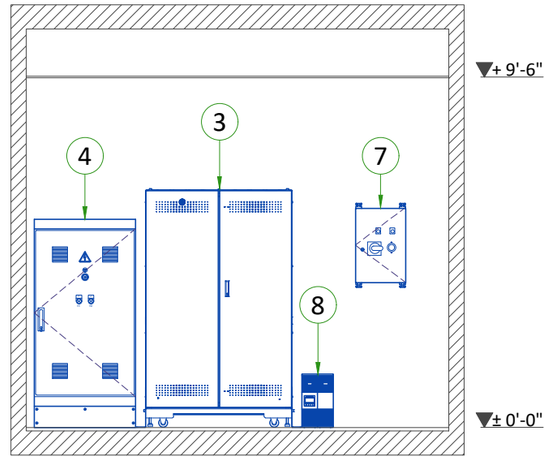
CONTROL ROOM VIEW

SECTION A-A'



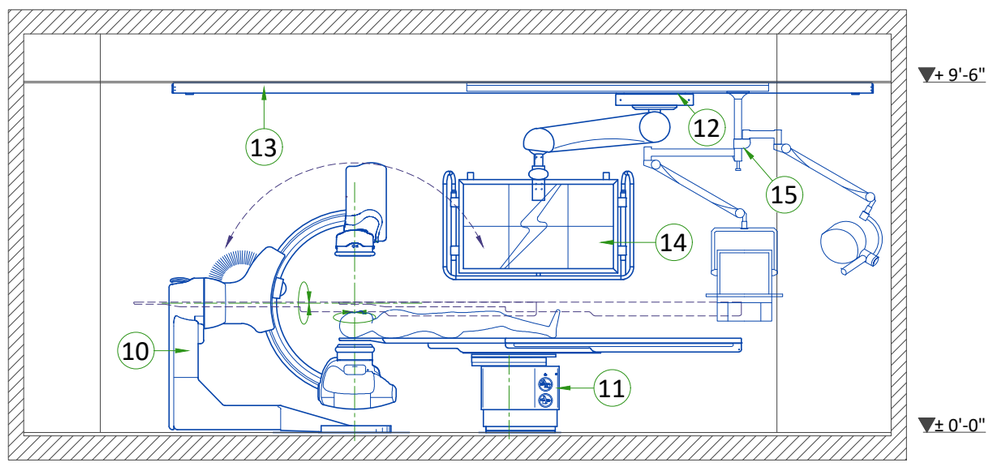
TECHNICAL ROOM VIEW

SECTION C-C'



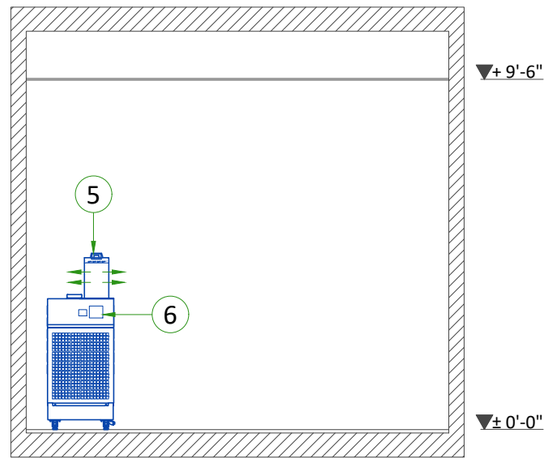
EXAM ROOM VIEW

SECTION B-B'



TECHNICAL ROOM VIEW

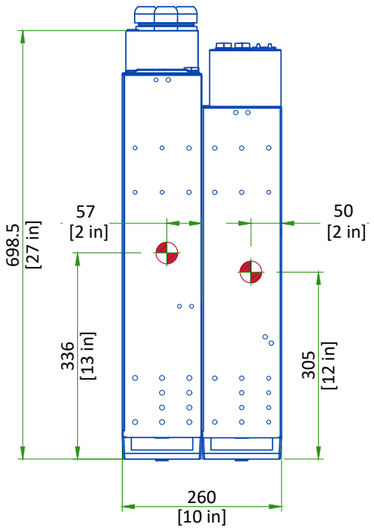
SECTION D-D'



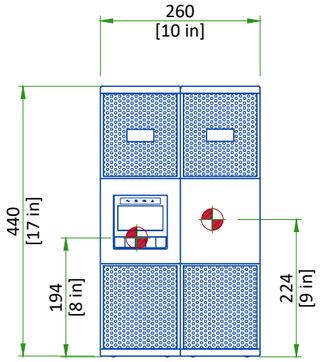
The ballons in the sections are the same as in the description in the equipment layout (page A2)

8kVA UPS

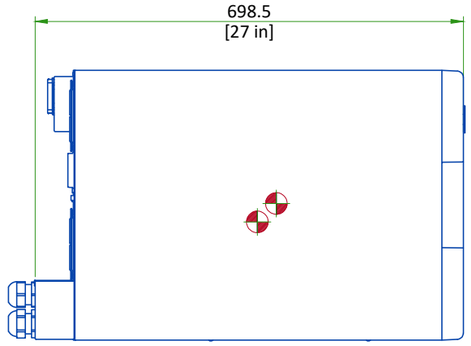
TOP VIEW



FRONT VIEW



SIDE VIEW

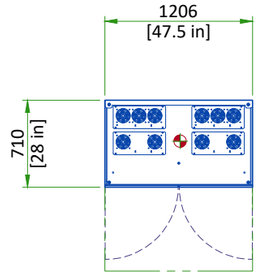


Center of Gravity

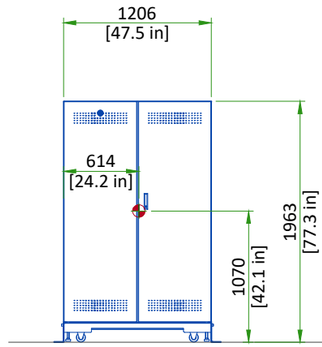
Scale 1:10

C-FRT CABINET

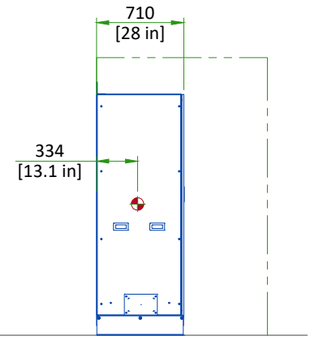
TOP VIEW



FRONT VIEW



SIDE VIEW

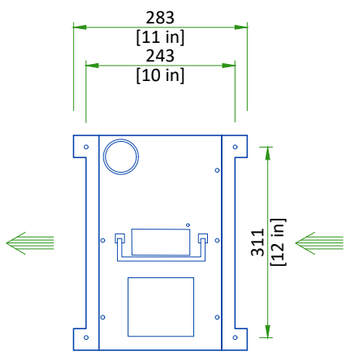


Center of Gravity

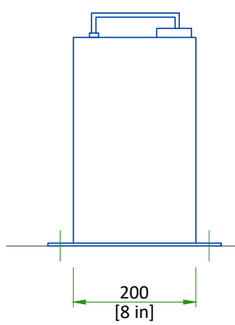
SCALE 1:50

DETECTOR CONDITIONER

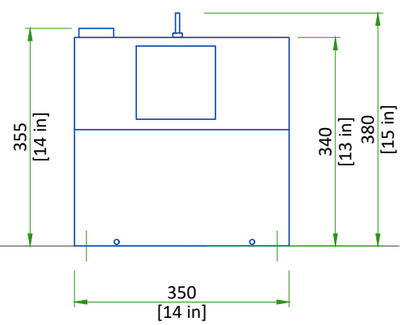
TOP VIEW



FRONT VIEW



SIDE VIEW

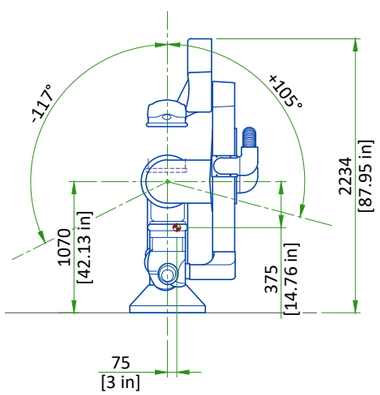


Indicates air flow

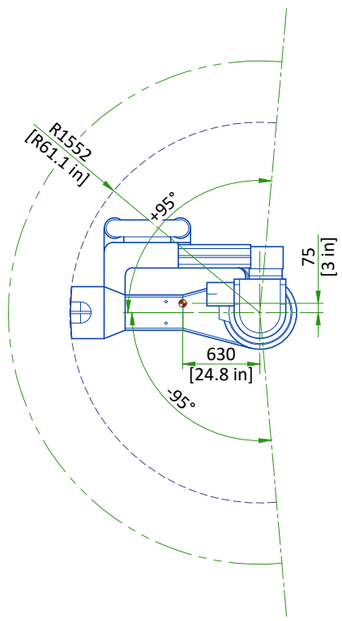
Scale 1:10

GANTRY

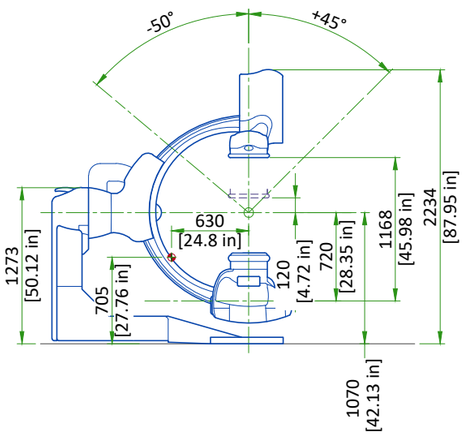
FRONT VIEW



TOP VIEW



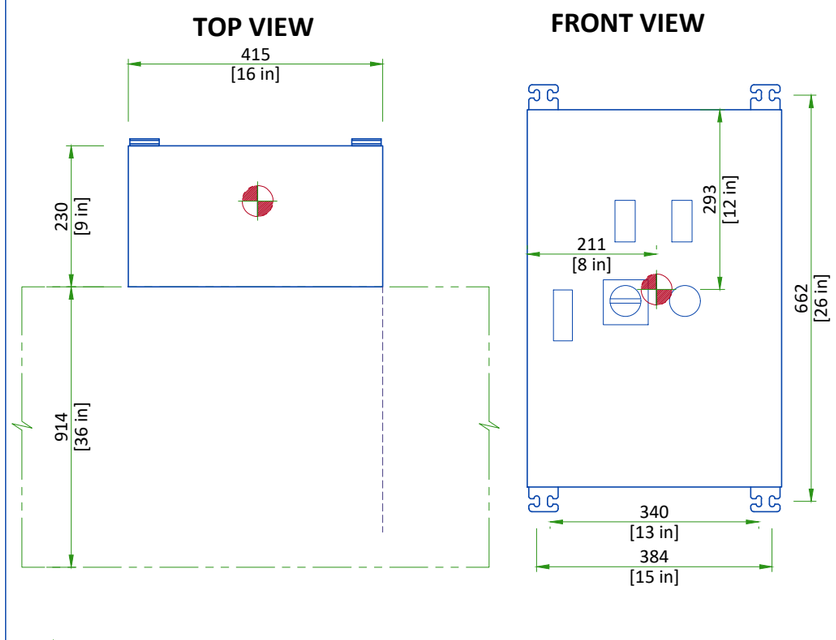
SIDE VIEW



Center of Gravity

SCALE 1:50

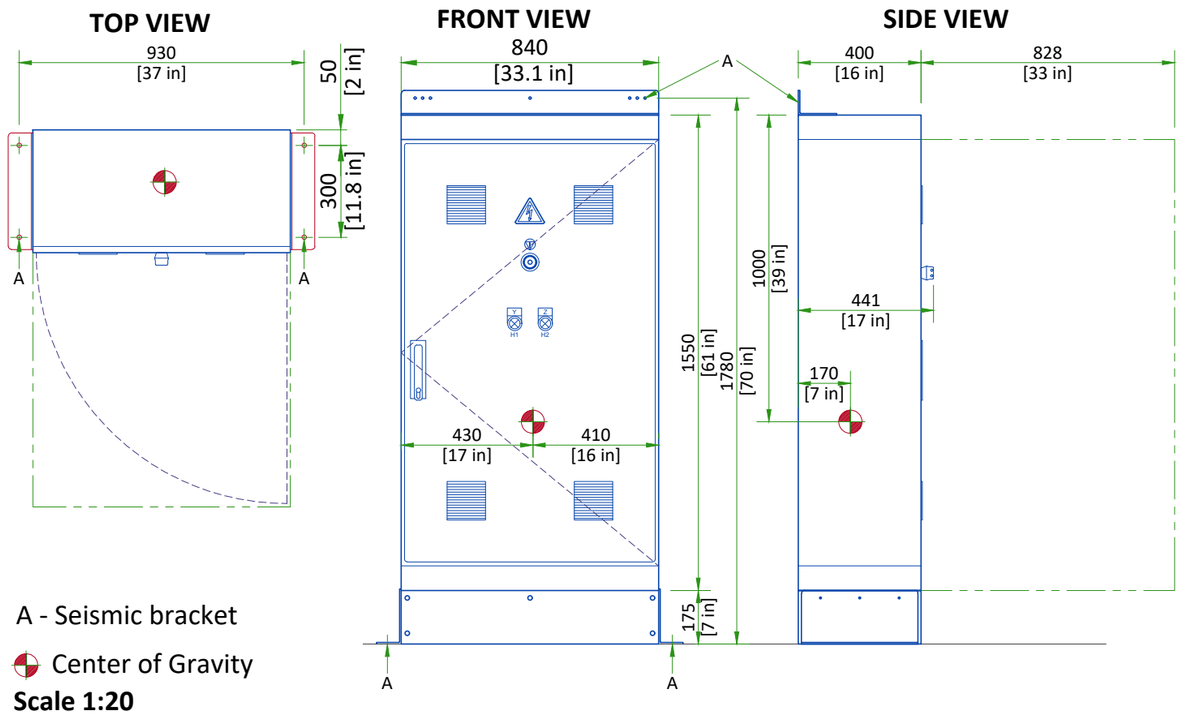
MAIN DISCONNECT PANEL



Center of Gravity

Scale 1:10

SYSTEM INTERFACE CABINET

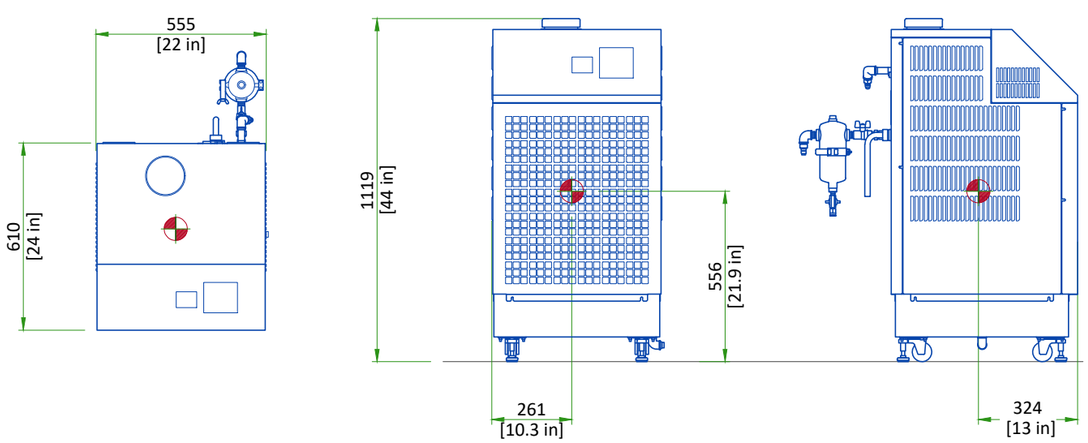


A - Seismic bracket

Center of Gravity

Scale 1:20

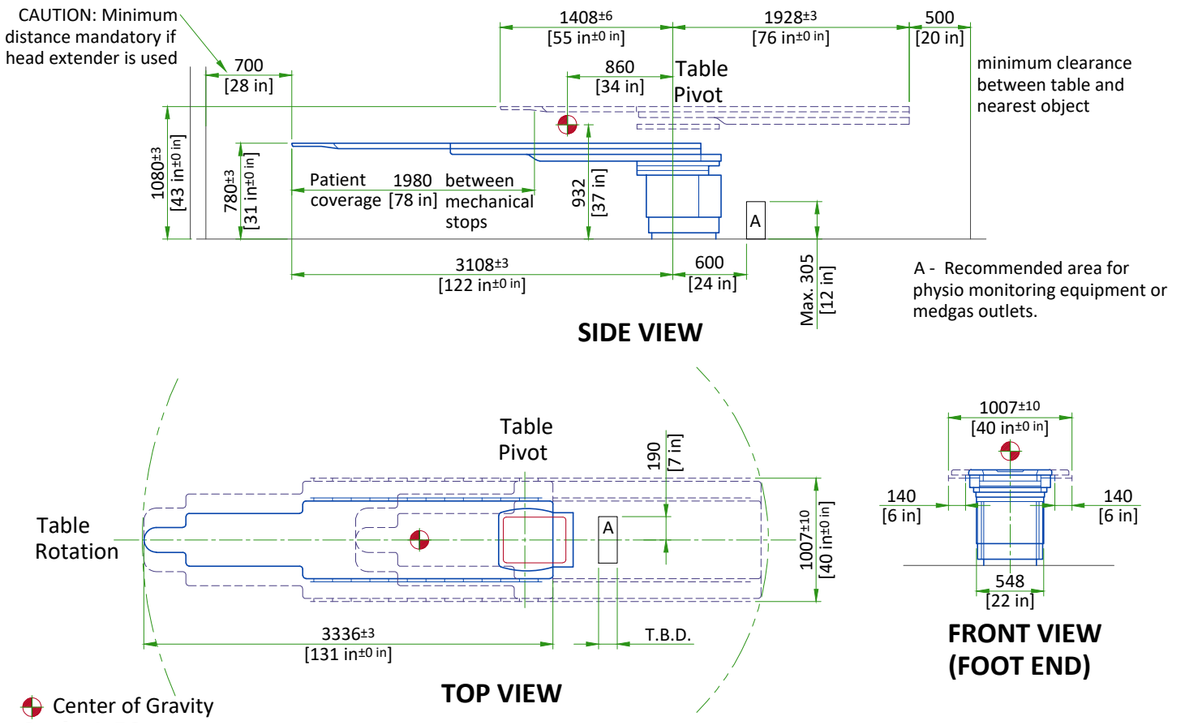
X-RAY TUBE CONDITIONER



Center of Gravity

Scale 1:20

OMEGA V PATIENT TABLE



Center of Gravity

Scale 1:50

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.

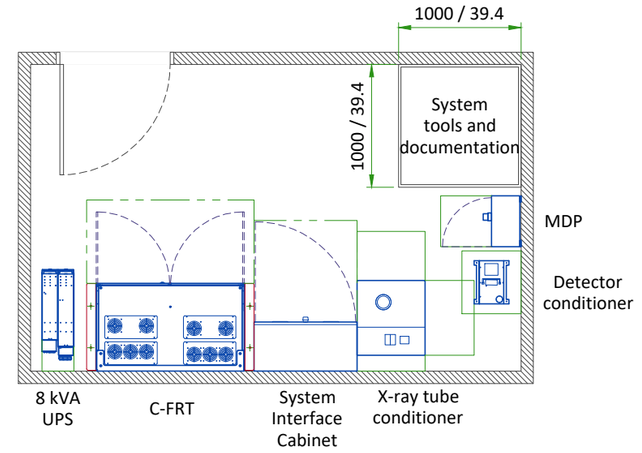
DIMENSIONS OF DELIVERY

EQUIPMENT	DIMENSIONS (mm)		WEIGHT (kg)
OMEGA TABLE BASE ASSEMBLY (ON PALLET)	LENGTH	2140 [84.2 in]	585 [1290 lb]
	WIDTH	960 [38 in]	
	HEIGHT	1240 [49 in]	
OMEGA TABLE TOP ASSEMBLY (ON PALLET)	LENGTH	840 [33 in]	70 [155 lb]
	WIDTH	3470 [137 in]	
	HEIGHT	220 [9 in]	
GANTRY (SHIPPING DOLLY)	LENGTH	2820 [111 in]	1060 [2340 lb]
	WIDTH	1230 [48.4 in]	
	HEIGHT	2000 [79 in]	

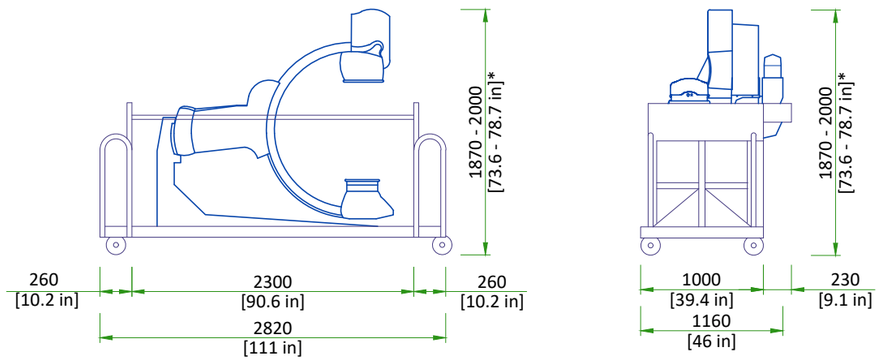
RECOMMENDED AREA IN THE TECHNICAL ROOM

THE TECHNICAL ROOM NEED EXTRA SPACE FOR TOOLS AND DOCUMENTATION

- GE recommend an extra area of 1.0 x 1.0 m (39.4 x 39.4 in) for storage of tools and documentation for the system
- This area doesn't need to be inside the technical room, but in a closer space from the system



SHIPPING DOLLY FOR LC GANTRY



SHIPPING WEIGHT: 1060 kg [2337 lb].

DIMENSIONS

	HEIGHT	WIDTH	LENGTH
Full configuration	1870-2000 mm [73.6 - 78.7 in]*	1230 mm [48.4 in]	2820 mm [111.0 in]
Left top handle removed and right top handle inside	1870-2000 mm [73.6 - 78.7 in]*	1160 mm [45.7 in]	2820 mm [111.0 in]
Short lifts configuration	2000 mm [78.7 in]	1160 mm [45.7 in]	2300 mm [90.5 in]
NOTE	* Height can be adjusted: ONLY when necessary on delivery path and IF floor rolling surface is flat and leveled (no obstacle), Dolly can be lowered down by 120-130 mm (it means dolly horizontal bars are at 10 mm from floor surface, to prevent any damage on gantry).		

SCALE 1:50

STRUCTURAL NOTES

- All steel work and parts necessary to support ceiling mounted tube hanger or other equipment are to be supplied by the customer or his contractors. The structural support should run continuous with no fittings extending below face of structural support channel, run wall to wall, be parallel, square and in the same horizontal plane flush with finished ceiling. The system is to be cross braced vertically, horizontally and diagonally to allow no movement and a maximum of 1,58mm (1/16") deflection. **12,7mm (1/2") dia. X 38,1mm (1 1/2") long bolts with unistrut 12,7mm (1/2") nuts with springs are to be provided by customer or his contractors for each stationary and auxillary support rail. Closure strips shall be provided for areas of unistrut exposed and without mounting units.**

- Methods of support for the steelwork that will permit attachment to structural steel or through bolts in concrete construction should be favored. Do not use concrete or masonry anchors in direct tension.

- All units that are wall mounted or wall supported are to be provided with supports where necessary. Wall supports are to be supplied and installed by the customer or his contractors. See plan and detail sheets for suggested locations and mounting hole locations.

- All ceiling mounted fixtures, air vents, sprinklers, etc. To be flush mounted, or shall not extend more than 6,35mm (1/4") below the finished ceiling.

- Control walls with tube hanger passage above shall be constructed to 2130mm (7'-0") high.

- Floor slabs on which equipment is to be installed must be level to 3,17mm (1/8") in 3050mm (10'-0")

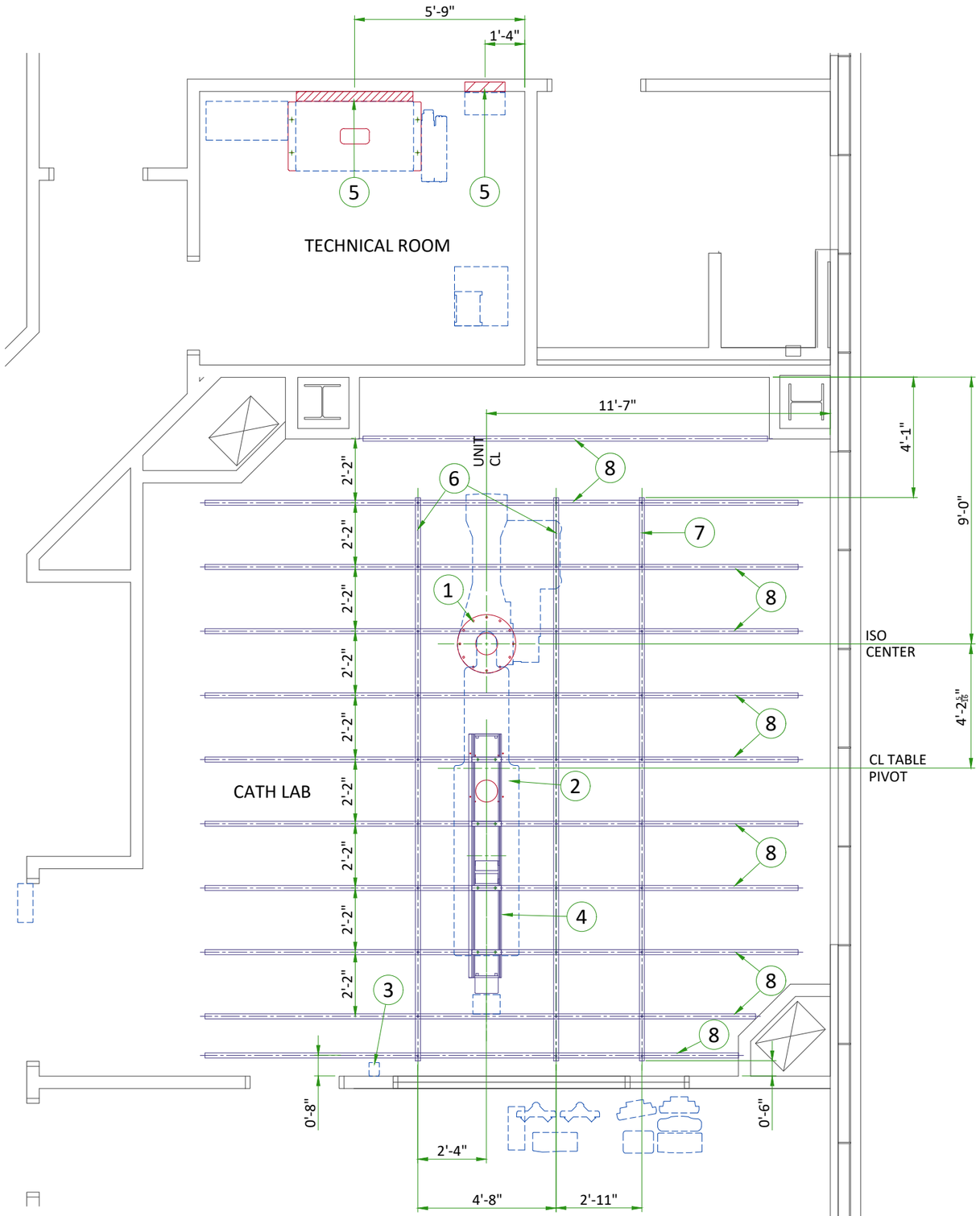
- Dimensions are to finished surfaces of room.

- Customers contractor must provide all penetrations in post tension floors.

- Customers contractor must provide and install any non-standard anchoring. Documents for standard anchoring methods are included with GE equipment drawings for geographic areas that require such documentation.

- Customers contractor must provide and install hardware for "through the floor" anchoring and/or any bracing under access floors. This contractor must also provide floor drilling that cannot be completed because of an obstruction encountered while drilling by the GE installer such as rebar etc.

- It is the customer's responsibility to perform any floor or wall penetrations that may be required. The customer is also responsible for ensuring that no subsurface utilities (e.g., electrical or any other form of wiring, conduits, piping, duct work or structural supports (i.e. post tension cables or rebar)) will interfere or come in contact with subsurface penetration operations (e.g. drilling and installation of anchors/screws) performed during the installation process. To ensure worker safety, GE installers will perform surface penetration operations only after the customer's validation and completion of the "GE surface penetration permit"

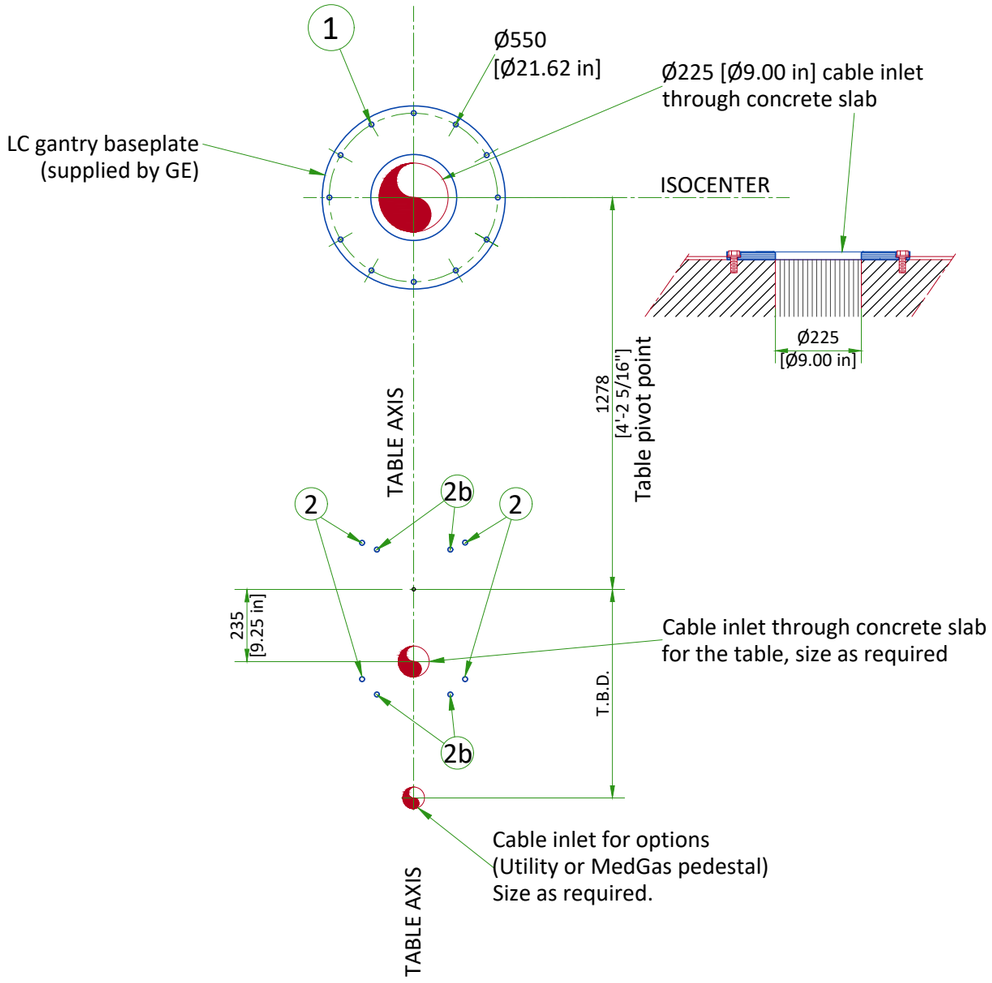


IF ACCESS IS NOT READILY AVAILABLE IT IS RECOMMENDED TO PROVIDE A TRAPDOOR IN THE CEILING TO ALLOW SERVICE ACCESS FOR CABLE MANAGEMENT.

STRUCTURAL LAYOUT ITEM LIST

	(GE SUPPLIED / CONTRACTOR INSTALLED)
1	Area occupied by GE supplied positioner baseplate
2	Area occupied by GE supplied table baseplate
3	Mount X-Ray buzzer bracket on wall below ceiling
	(CUSTOMER SUPPLIED / CONTRACTOR INSTALLED)
4	Area of radiation shield mounted to unistrut grid in ceiling
5	Support backing, locate as shown.
6	Stationary rails attached to gridded support in ceiling.
7	Cable drape rail attached to gridded support in ceiling.
8	Structural support in ceiling for fastening ceiling supported equipment. Supports to run continuous with no fittings extending below face of channel, run wall to wall, be parallel, square, and in the same horizontal plane, flush with the finished ceiling. Rails are mounted to these supports every 2'-2" and require 350 lbs. (597 lbs. In seismic regions) per bolt load. Methods of support that permit attachment to structural steel or through bolts in concrete should be favored. Do not use screw anchors in direct tension.

LC GANTRY AND TABLE ANCHORING WITH NO BASEPLATE



1 LC baseplate mounting location : 12 bolts
Pullout strength on each bolt 736 daN
- M20 Through-Bolts recommended (supplied by GE)
Alternates:
- M16 Mechanical anchors (supplied by GE)
- Chemical anchors (not supplied by GE):
HILTIHVU adhesive capsule + HAS Anchor rod

2 Table mounting location : 4 bolts required
Pullout strength on each bolt 4432 daN
- M20 Through-Bolts recommended (supplied by GE)
Alternates:
- M16 Mechanical anchors (supplied by GE)
- Chemical anchors (not supplied by GE):
HILTIHVU adhesive capsule + HAS Anchor rod

2b Alternate bolt holes for seismic zones 1 and 2

FLOOR REQUIREMENTS AND CABLE MANAGEMENT

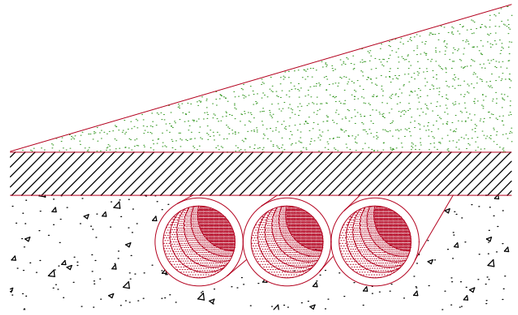
FLOOR REQUIREMENTS

- The maximum pullout force per GE supplied anchor was calculated assuming :

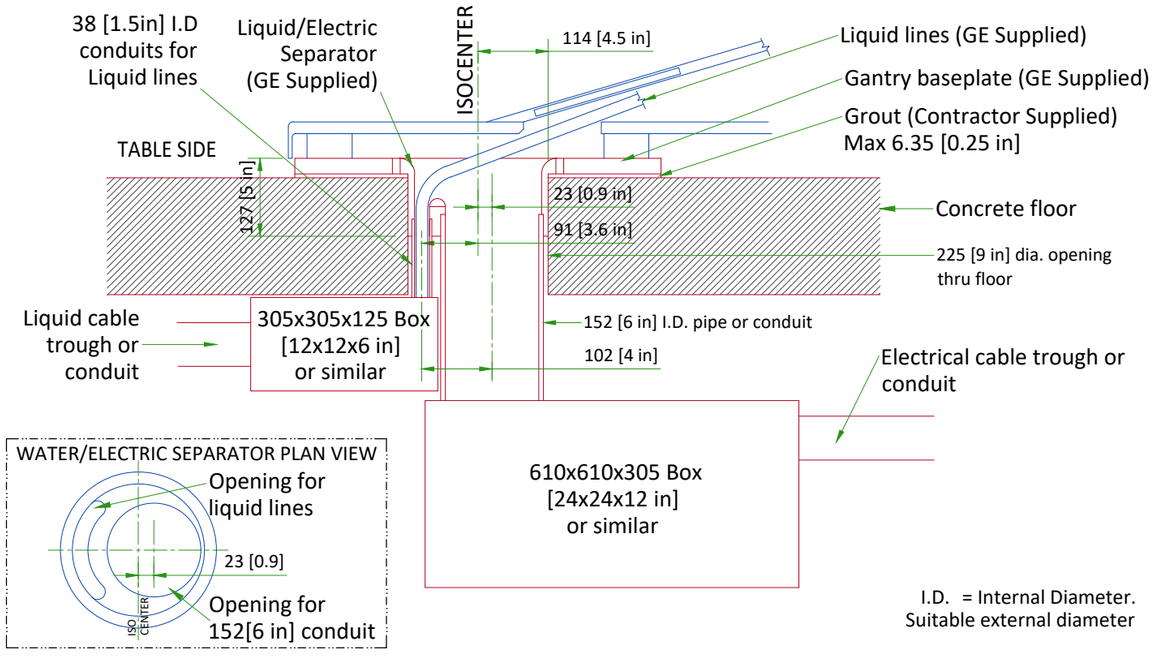
  - A concrete compression strength of **17.24 MPa** at 28 days (which is the minimum required compression stength).
  - Anchors installed to the required hole depth of **165.1 mm [6.5 in] minimum**.
  - Center of anchor hole to concrete edge distance **79.4 mm [3.1 in]**.
  - Make sure to obtain data on compression strength of the concrete before using floor anchors.

- The floor slab on which the equipment is to be installed must be flat and level (1 mm [0.04 in]/1 m [40 in] where equipment is installed and 5 mm [0.2 in]/2 m [79 in] general levelness).
- Anchoring to the floor is intended to the structural elements and not to common screed.
- Do not glue the floor covering in the gantry zone.

CONDUIT IN THE FLOOR



JUNCTION BOX BELOW FLOOR

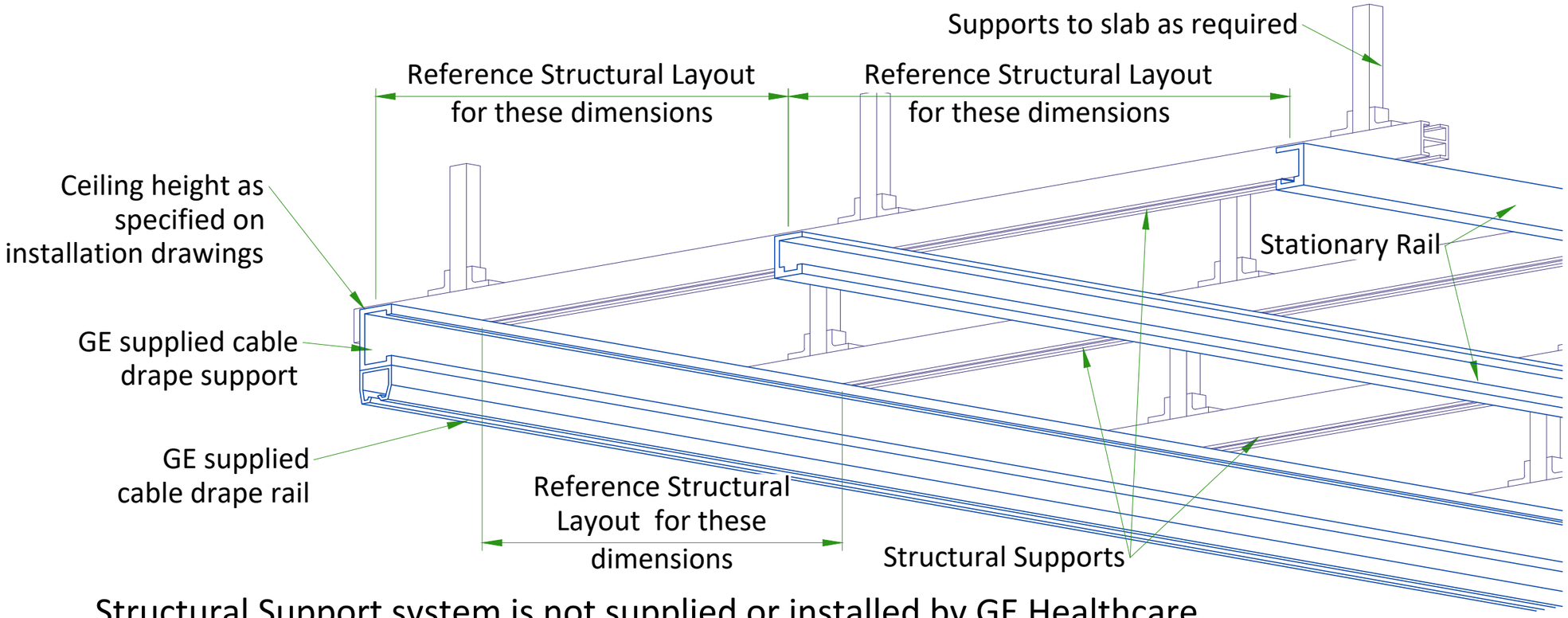


I.D. = Internal Diameter.
Suitable external diameter

NOTE: PIPE, JUNCTION BOX, AND DUCT OR CONDUIT ARE TO BE SUPPLIED AND INSTALLED BY CUSTOMER OR CUSTOMER'S CONTRACTOR

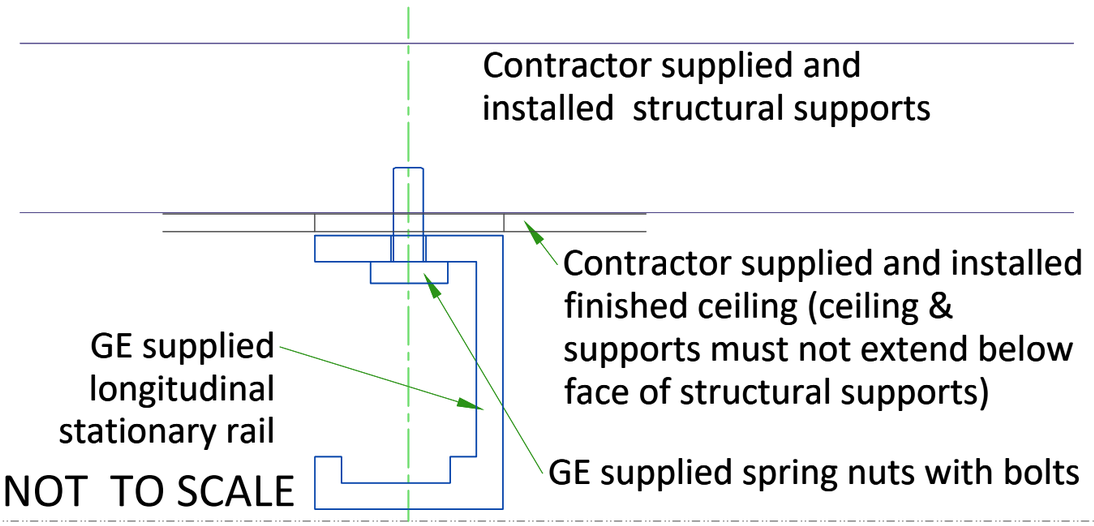
NOT TO SCALE

XT RADIOGRAPHIC SUSPENSION, INBOARD MOUNTING



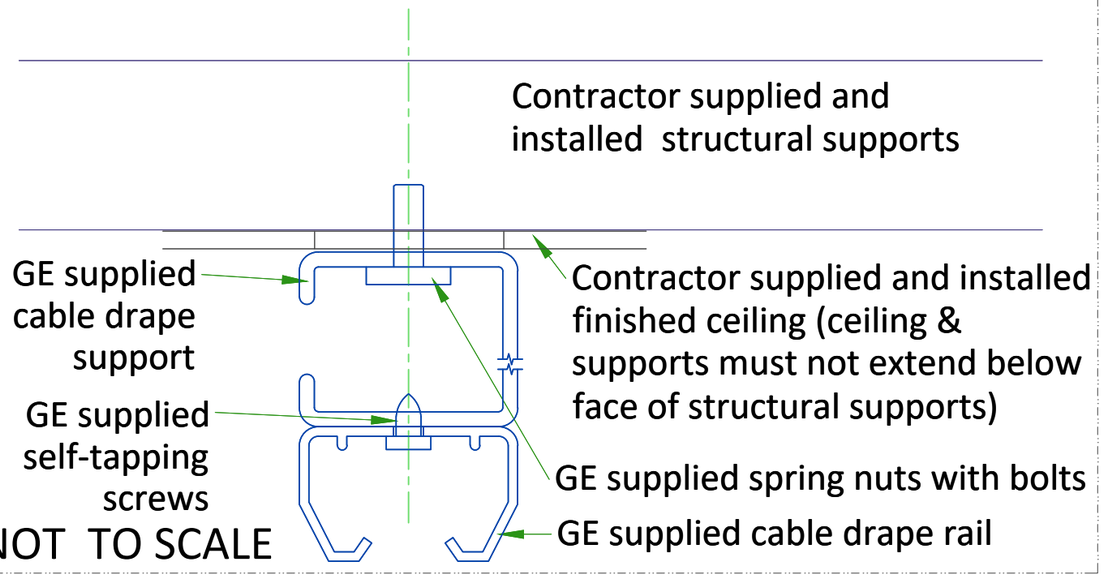
Structural Support system is not supplied or installed by GE Healthcare

DETAIL 1



NOT TO SCALE

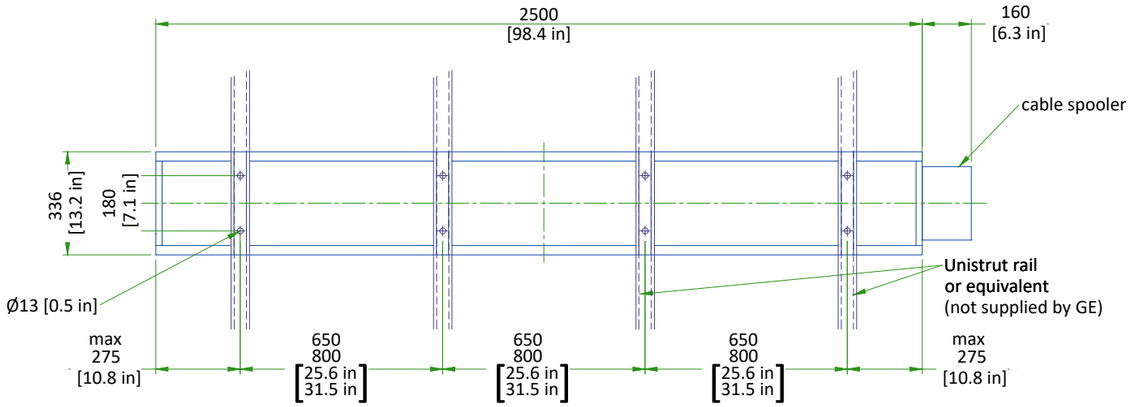
DETAIL 2



NOT TO SCALE

MAVIG SUSPENSION MOUNTING METHOD

2.5m CEILING TRACK

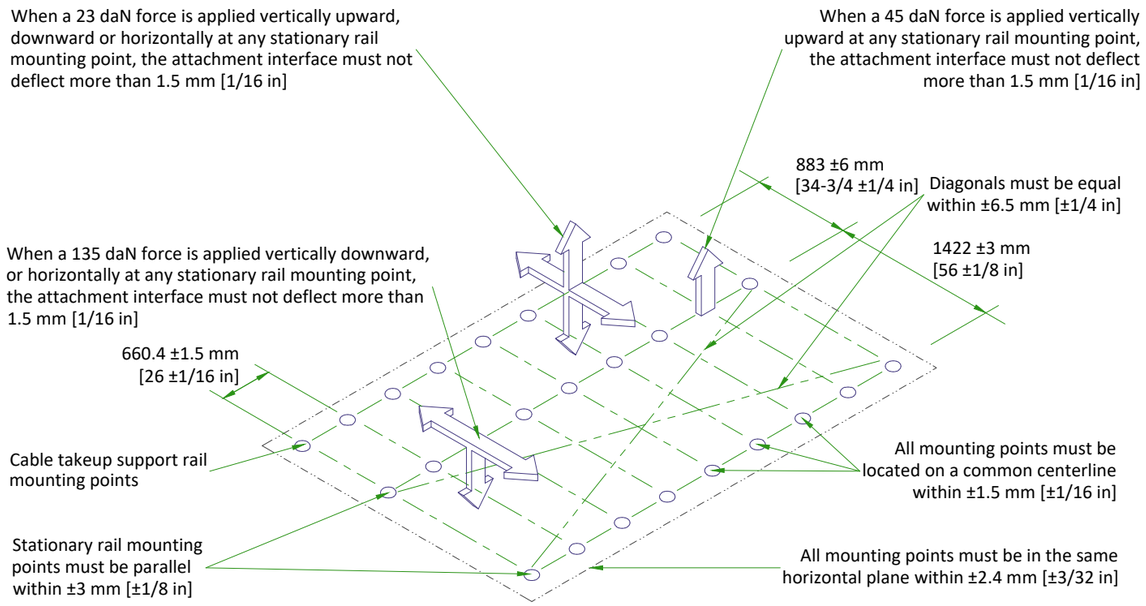


- Weight up to: 94 kg [207 lb] (75 kg [165 lb] system + 19 kg [42 lb] track)
- The required factor of safety is "4" for attaching to Unistrut or equivalent rails and "6" for attaching to the concrete ceiling.

CONSULT MAVIG INSTALLATION MANUAL REV: POR03001 TO DESIGN AND MOUNT THE CEILING SUPPORT.

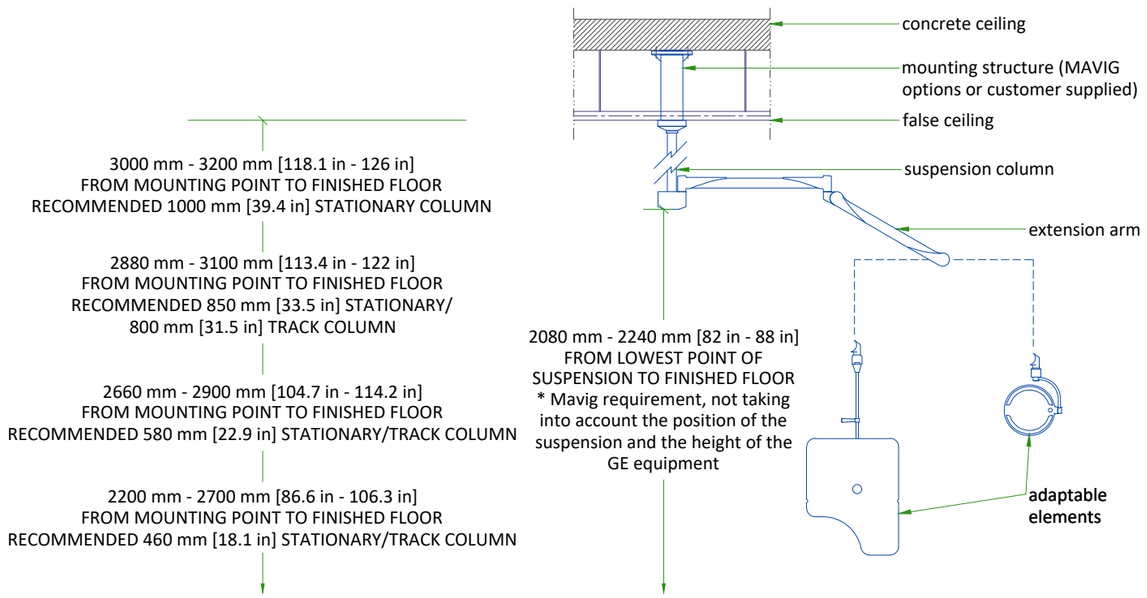
SCALE 1:20

MONITOR SUSPENSION RAIL MOUNTING SPECIFICATIONS



Each stationary rail must be mounted by bolts supplied or by 12 mm [1/2 in] as metric bolts. The maximum load per bolt must not exceed 1557 N [350 lbs] and each mounting bolt must not "PULL OUT" or otherwise fail under a vertically downward dead load of 6228 N [1400 lbs].

SUSPENSION COLUMN LENGTHS AND INSTALLATION DETAILS



- Available column lengths might differ, please refer to the GE commercial catalog for current selection options
- For rooms with higher mounting point than 3200 mm [126 in], a ceiling construction between structural ceiling and vertical column is suggested which needs to be designed by a structural engineer
- All design and pre-installation activity must be done in accordance of the MAVIG Installation manual
- Contact your GE Project Manager for OEM documentation
- Installation of mounting plate performed by GE or a GE sub-contractor

NOT TO SCALE

CEILING SUSPENSION DISCLAIMER

Safety and precautionary comments:

Only qualified, licensed technicians can perform electrical connections, installation, removal and repair. It is strongly recommended that at least two persons perform the installation.

Installing the system: Prior to installation, a structural engineer must confirm that the mounting structure is strong enough to provide proper support for the entire system and any attached end devices. Installation must be completed according to local building codes.

Determination of required installation hardware and torque values for installation of the ceiling column and ceiling track is the sole responsibility of the structural engineer.

Ceiling mounted systems must be installed properly. Failure to follow the instructions provided may lead to a potentially dangerous and unstable condition of the system.

GE and/or MAVIG is not responsible for unauthorized modifications made to the system or use of the system for unintended purposes. GE and/or MAVIG cannot be held liable for improper operation and modifications. Since improper modifications may impair proper operation, safety or reliability of the system, product modifications require written authorization from MAVIG.

Under GE responsibility or under Customer responsibility, for all pre-installations, whatever is the supporting structure (bridge, chair, Unistrut channel, other channels, direct anchorage in concrete, transversal beam, etc. …) a certificate must be obtained from a structural engineer.

This certificate shall include the definition of fasteners and of their tightening torque, especially for the non-standard cases described in MAVIG PIM and for which the standard anchoring/screws delivered with product shall not be used but shall be defined (and implemented in most cases) by the structural company.

WARNING:

It is prohibited to alter the length of the ceiling column or remove any securing screws.

TEMPERATURE AND HUMIDITY SPECIFICATIONS

IN-USE CONDITIONS

	EXAM ROOM			CONTROL ROOM			TECHNICAL ROOM		
Temperature	Min	Recommended	Max	Min	Recommended	Max	Min	Recommended	Max
	15 °C [59 °F]	22 °C [72 °F]	32 °C [90 °F]	15 °C [59 °F]	22 °C [72 °F]	35 °C [95 °F]	15 °C [59 °F]	20 °C [68 °F]	25 °C [77 °F]
Temperature gradient	**≤ 10 °C/h**			**≤ 10 °C/h**			**≤ 10 °C/h**		
RH (1) non condensing	30% to 70%			30% to 75%			30% to 75%		
Humidity gradient	**≤ 10%/h**			**≤ 10%/h**			**≤ 10%/h**		

STORAGE CONDITIONS

Temperature	+10 °C [50 °F] to +40 °C [104 °F]
RH (1) non condensing	10% to 80%
Pressure	700 hPa to 1030 hPa
Overall storage time shall be less than 6 months.	

(1) Relative humidity

AIR RENEWAL

According to local standards.

8 kVA UPS

Systems with 8 kVA UPS shall be stored for less than 14 weeks if the storage temperature is above +30°C, and less than 25 weeks if storage temperature is above +25 °C.

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 OUTPUT (kW)				HEAT OUTPUT (BTU/hr)			
		STAND BY	MODERATE[1]	TYPICAL[2]	MAX[3]	STAND BY	MODERATE[1]	TYPICAL[2]	MAX[3]
Exam room	Gantry and Table	0.41	0.55	0.89	1.62	1399	1877	3037	5528
	Large Display Monitor (LDM) with 2 backups	0.50	0.50	0.50	0.50	1706	1706	1706	1706
	Typical Injector	0.09	0.09	0.09	0.09	307	307	307	307
	TOTAL	**1.00**	**1.14**	**1.48**	**2.21**	**3412**	**7541**	**5050**	**7541**
Control room	DL console and Live monitor	0.10	0.10	0.10	0.10	341	341	341	341
	Advantage workstation (AW)	-	-	-	1.00	-	-	-	3412
	TOTAL	**0.10**	**0.10**	**0.10**	**1.10**	**341**	**3753**	**341**	**3753**
Technical room	C-FRT Cabinet	0.7	0.7	0.7	0.7	2388	2388	2388	2388
	System Interface Cabinet	0.4	0.4	0.4	0.4	1365	1365	1365	1365
	Tube Conditioner	2.53	4.49	5.49	6.93	8633	15321	18733	23646
	Detector Conditioner	0.21	0.21	0.21	0.21	717	717	717	717
	UPS 8 kVA	0.52	0.52	0.52	0.52	1760	1760	1760	1760
	TOTAL	**4.36**	**6.32**	**7.32**	**8.76**	**14863**	**21551**	**24963**	**29876**

WARNING
The list contains only the principal components of the system and doesn't contain any non-GE supplied equipment.

[1] Moderate Use corresponds to 8 cases in 10 hours.

[2] Typical Use corresponds to 11 cases in 10 hours.

[3] Maximum Use is during the case.

ELECTRICAL NOTES

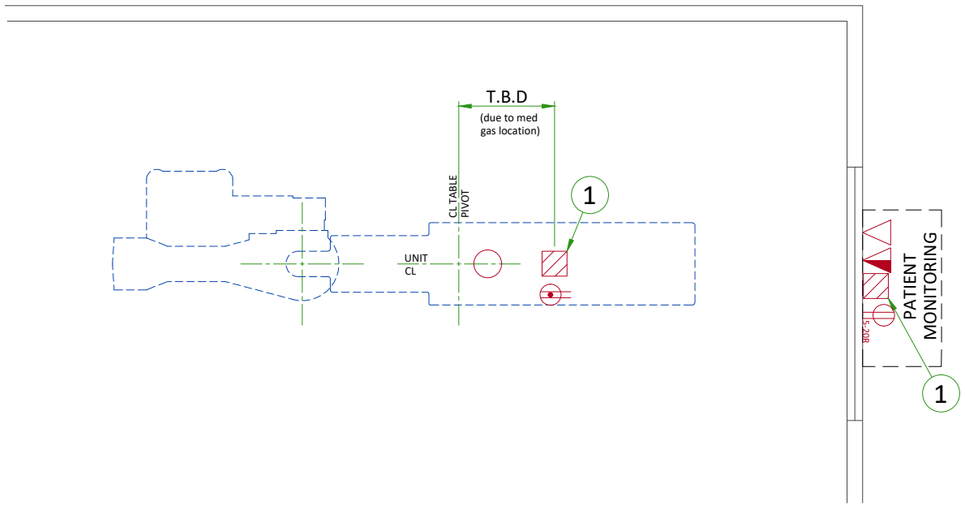
1. All wires specified shall be copper stranded, flexible, thermo-plastic, color coded, cut 10 foot long at outlet boxes, duct termination points or stubbed conduit ends. All conductors, power, signal and ground, must be run in a conduit or duct system. Electrical contractor shall ring out and tag all wires at both ends. Wire runs must be continuous copper stranded and free from splices.
   1.1. Aluminum or solid wires are not allowed.
2. Wire sizes given are for use of equipment. Larger sizes may be required by local codes.
3. It is recommended that all wires be color coded, as required in accordance with national and local electrical codes.
4. Conduit sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or national codes.
5. Convenience outlets are not illustrated. Their number and location are to be specified by others. Locate at least one convenience outlet close to the system control, the power distritbution unit and one on each wall of the procedure room. Use hospital approved outlet or equivalent.
6. General room illumination is not illustrated. Caution should be taken to avoid excessive heat from overhead spotlights. Damage can occur to ceiling mounting components and wiring if high wattage bulbs are used. Recommend low wattage bulbs no higher than 75 watts and use dimmer controls (except MR). Do not mount lights directly above areas where ceiling mounted accessories will be parked.
7. Routing of cable ductwork, conduits, etc., must run direct as possible otherwise may result in the need for greater than standard cable lengths (refer to the interconnection diagram for maximum usable lengths point to point).
8. Conduit turns to have large, sweeping bends with minimum radius in accordance with national and local electrical codes.
9. A special grounding system is required in all procedure rooms by some national and local codes. It is recommended in areas where patients might be examined or treated under present, future, or emergency conditions. Consult the governing electrical code and confer with appropriate customer administrative personnel to determine the areas requiring this type of grounding system.
10. The maximum point to point distances illustrated on this drawing must not be exceeded.
11. Physical connection of primary power to GE equipment is to be made by customers electrical contractor with the supervision of a GE representative. The GE representative would be required to identify the physical connection location, and insure proper handling of GE equipment.
12. GEHC conducts power audits to verify quality of power being delivered to the system. The customer's electrical contractor is required to be available to support this activity.

- All junction boxes, conduit, duct, duct dividers, switches, circuit breakers, cable tray, etc., are to be supplied and installed by customers electrical contractor.
- Conduit and duct runs shall have sweep radius bends
- Conduits and duct above ceiling or below finished floor must be installed as near to ceiling or floor as possible to reduce run length.
- Ceiling mounted junction boxes illustrated on this plan must be installed flush with finished ceiling.
- All ductwork must meet the following requirements:
  1.Ductwork shall be metal with dividers and have removable, accessible covers.
  2.Ductwork shall be certified/rated for electrical power purposes.
  3.Ductwork shall be electrically and mechanically bonded together in an approved manner.
  4.PVC as a substitute must be used in accordance with all local and national codes.
- All openings in raceway and access flooring are to be cut out and finished off with grommet material by the customers contractor.
- General contractor to insert pull cords for all cable run conduits between the equipment room and the operators control room.
- 10 foot pigtails at all junction points.
- Grounding is critical to equipment function and patient safety. Site must conform to wiring specifications shown on this plan.

TYPICAL PHYSIO MONITORING

ITEM	Outlet Legend for Physio Equipment
	Duplex hospital grade, dedicated outlet 120-v emergency, single phase power, 15a
5-15R	5-15R NEMA Receptacle, dedicated outlet 120-v, single phase power
	Dedicated telephone line(s)
	Network outlet

	ELECTRCAL LAYOUT ITEM LIST
1	J-Box or area of conduit stubs for patient monitoring - Size per local code



CONNECTIVITY REQUIREMENTS

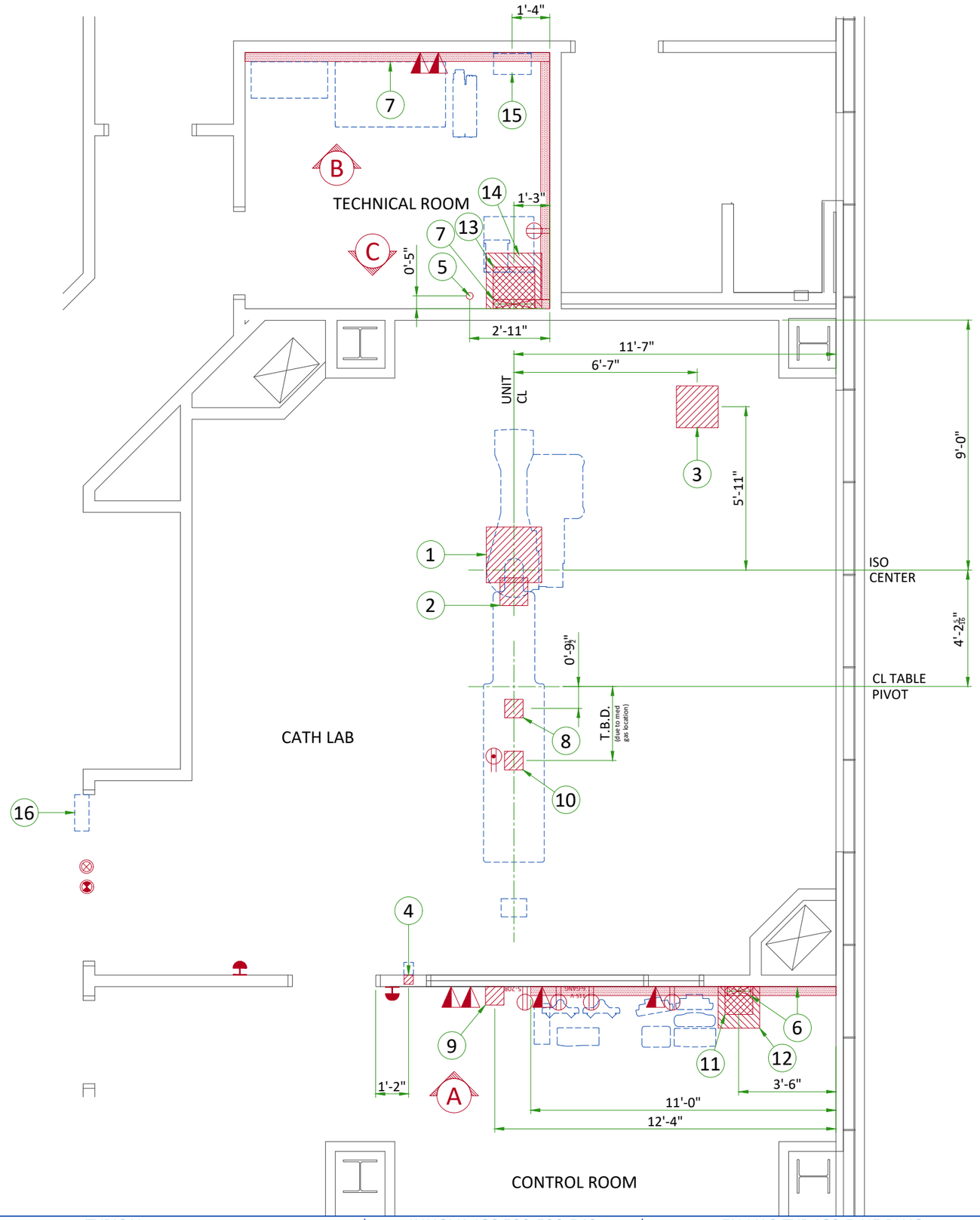
Your new GE Healthcare imaging modality will require local and remote connectivity to enable our full range of digital support:

- Local connectivity - This allows your system to connect to local devices such as PACS and modality worklist. We will require network information to configure the system(s), and a live ethernet port(s) prior to the delivery of the system(s).
- Remote connectivity - Your GE Healthcare service warranty includes InSite™ (applicable to InSite capable products), a powerful broadband-based service which enables digital tools that can help guard your hospital against equipment downtime and revenue loss by quickly connecting you to a GE Healthcare expert.

Depending on product family and software version, imaging systems can be connected in one of the following methods:

1. TLS over TCP Port 443 (Preferred method for new products) via:
   a. DNS resolution
   b. Customer-provided Proxy or
   c. GE Proxy (Available in some regions)
2. Site-to-Site IPsec VPN tunnel

Please provide the GE project manager with the contact information for the resource that can provide information required to set up these connections. GEHC will send out communication to these contacts, which will include the project's Connectivity requirements, and a Connectivity form. This form will need to be completed and returned to GEHC prior to delivery of the system to ensure the system is tested and connectivity is enabled prior to the completion of the installation.

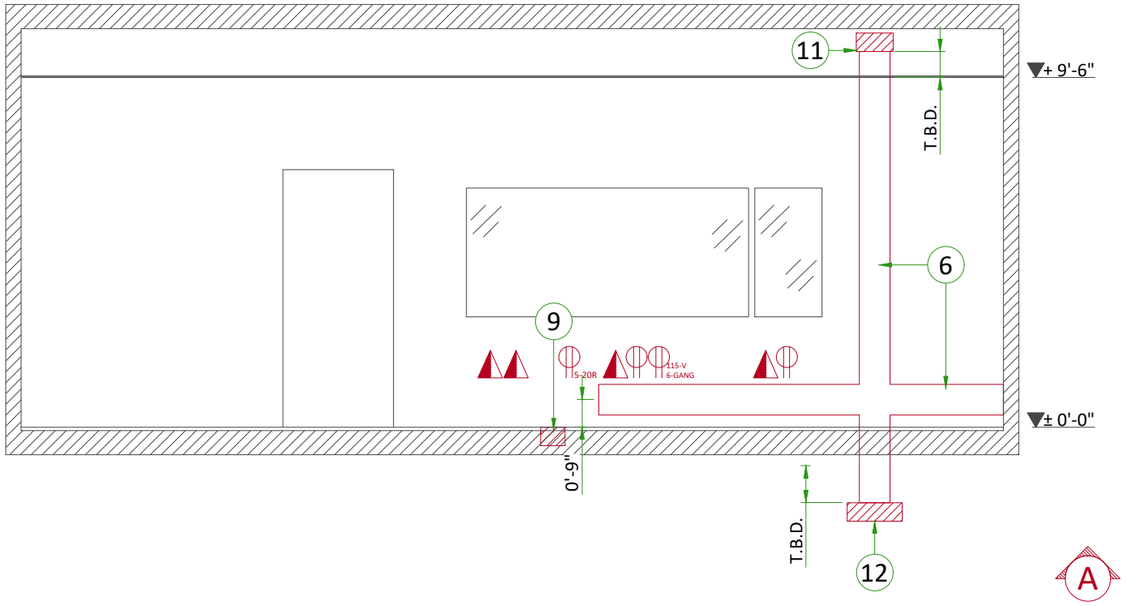


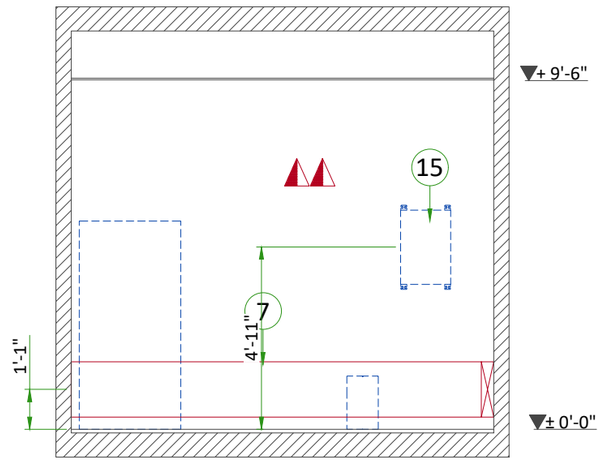
Item	Electrical Layout Item List
1	24" x 24" x 12" [600 x 600 x 300] Box below floor, (1) 6" [150] dia. suitable length threaded pipe, (2) 6" [150] dia. locknuts and (4) 1" [25] dia. locknuts. (LC Gantry)
2	(1) GE supplied fitting. (1) 12" x 12" x 6" [300 x 300 x 150] Box, (1) 6" [150] dia. bushing, (4) 1" [25] dia. bushing for water lines
3	18"x18"x6" [450 x 450 x 150] flush ceiling box with split coverplate (monitors)
4	4"x4"x4" [100 x 100 x 100] flush wall junction box 12" [300] below finished ceiling (x-ray buzzer)
5	Empty 3" [75] conduit below floor for waterlines
6	10" x 3 1/2" [250 x 89] surface wall duct with minimum 2 dividers
7	18" x 3 1/2" [450 x 89] surface wall duct with minimum 2 dividers
8	8" x 8" x 6" [200 x 200 x 150] box below floor (table)
9	8" x 8" x 6" [200 x 200 x 150] box below floor (patient monitoring equipment)
10	8" x 8" x 6" [200 x 200 x 150] box under table (PDM/TRAM)
11	12"x12"x6" [300 x 300 x 150] box above ceiling in control room
12	18" x 18" x 6" [450 x 450 x 150] box below floor in control room
13	18"x18"x6" [450 x 450 x 150] box above ceiling in equipment room
14	24"x24"x12" [600 x 600 x 300] box below floor in equipment room
15	Main disconnect panel (MDP)
16	Light Signaling Electrical Box

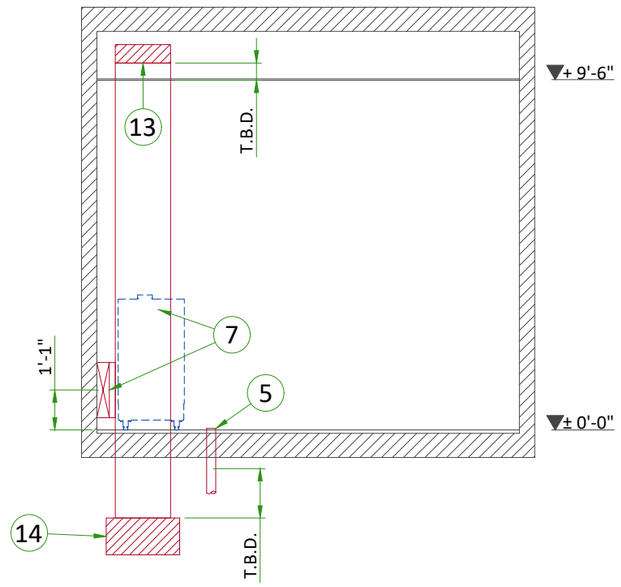
ITEM	QTY	Electrical Outlet Legend Customer/contractor supplied and installed items unless otherwise specified. Height above floor determined by local codes unless otherwise specified.
		System emergency off (SEO), (recommended height 1.2m [48"] above floor)
		X-Ray ON lamp (L1) - 24 V
		System ON lamp (L) - 24 V (only if needed per local codes)
		Duplex hospital grade, dedicated wall outlet 120-v, single phase power
		Network outlet
		Duplex hospital grade, dedicated outlet 120-v emergency, single phase power, 15a
115-V 6-GANG		6-Gang hospital grade, dedicated wall outlet 115-V, single phase power
5-20R		5-20R NEMA Receptacle, dedicated outlet 120-v, single phase power

Additional Conduit Runs (Contractor Supplied and Installed)

From (Bubble # / Item)		To (Bubble # / Item)		Qty	Usable length	Size (in)
1	Gantry	14	CFRT Cabinet	4	52 ft.	4
1	Gantry	8	Table	1	13 ft.	4&2
12	Control Room	14	CFRT Cabinet	1 & 2	59 ft.	$3\frac{1}{2}$&$2\frac{1}{2}$
5	Water Line	2#	Gantry	1	59 ft.	3
16	Light Signaling Electrical Box		Warning light	1	-	$\frac{1}{2}$
16	Light Signaling Electrical Box	13	System Interface Cabinet	1	-	$\frac{1}{2}$
16	Light Signaling Electrical Box		120-V 1 phase power	1	-	As Req'd
	LED Transformer		Spooler	1	-	As Req'd
	LED Transformer		120-V 1 phase power	1	-	As Req'd
	LED Lamp		Spooler	1	-	Cables come with spooler
4	X-Ray Buzzer	13	CFRT Cabinet	1	90 ft.	$1\frac{1}{2}$
4	X-Ray Buzzer	11	Control Room	1	90 ft.	$1\frac{1}{2}$
3	Monitor Bridge / Boom	11	Control Room	1	88 ft.	$2\frac{1}{2}$
3	Large Display Monitor	11	CFRT Cabinet (LDM server)	1	88 ft.	3&$\frac{3}{4}$
14	CFRT Cabinet (LDM server)	12	Control Room	1	59 ft.	3
14	CFRT Cabinet (LDM server)	10	TRAM/PDM	1	-	3
14	System Interface Cabinet		Emergency off	1	-	$\frac{1}{2}$
13	System Interface Cabinet		Emergency off	1	-	$\frac{1}{2}$
13	Main Disconnect Panel	7	System Interface Cabinet	1	14-44 ft.	1
13	Main Disconnect Panel		480-V 3 phase power	1	-	As Req'd
14	Injector Electronics	8	Injector Head	1	-	3
14	Injector Electronics	12	Injector Control	1	-	3
8	Table	10	TRAM/PDM	1	-	3
9	Patient Monitoring Console	3	Monitor Bridge / Boom	1	-	3
9	Patient Monitoring Console	10	TRAM/PDM	2	-	3


11
+ 9'-6"
T.B.D.
6
9
15-V
5-20R
6-GANG
± 0'-0"
0'-9"
T.B.D.
12
A


+ 9'-6"
15
7
4'-11"
1'-1"
± 0'-0"
B


+ 9'-6"
13
T.B.D.
7
1'-1"
5
± 0'-0"
14
T.B.D.
C

POWER REQUIREMENTS

POWER SUPPLY	**3 PHASES+G 380/400/415/480 V ±10%**
FREQUENCIES for 380/400/415V	**50/60 Hz ± 3 Hz**
FREQUENCY for 480V	**60 Hz ± 3Hz**
PEAK POWER CONSUMPTION	**150 kVA**
MOMENTARY POWER CONSUMPTION	**100 kVA**
LONG TIME POWER CONSUMPTION	**18 kVA**
MINIMUM PROTECTION	**100 A (D curve or equivalent)**
MAXIMUM LINE IMPEDANCE PHASE TO PHASE	**380 V : 0.09 Ω / 400 V : 0.096 Ω / 415 V : 0.102 Ω / 480 V : 0.12 Ω**

- Power supply should come into a Mains Disconnect Panel (MDP) containing the protective units and controls.
- The section of the supply cable should be calculated in accordance with its length and the maximum line impedance phase to phase and rating of protection.

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 installed with IGS system components must be powered separately (e.g. lighting, power outlets)
- Transients must be less than 2,000 V peak in common mode and 1,000 V in differential mode, with a duration limited to a few microseconds.

GROUND SYSTEM

- At least 35 mm² [2 AWG] copper from main ground point to the MDP.
- 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 IGS cableways and to additional equipotential connections linking up all the conducting units in the rooms where IGS units are located.

CABLES

- Power and cable installation must comply with the distribution diagram.
- MDP to System Interface Cabinet cable shall be copper cable and cable insulation temperature shall be 90°C.
- All cables must be isolated and flexible, cable color codes must comply with standards for electrical installation.
- The cables from signaling and remote control (SEO, L...) will go to System Interface Cabinet with a pigtail length of 2.0 m [6.5 ft], and will be connected during installation.
- Each conductor will be identified and isolated (screw connector).

CABLEWAYS

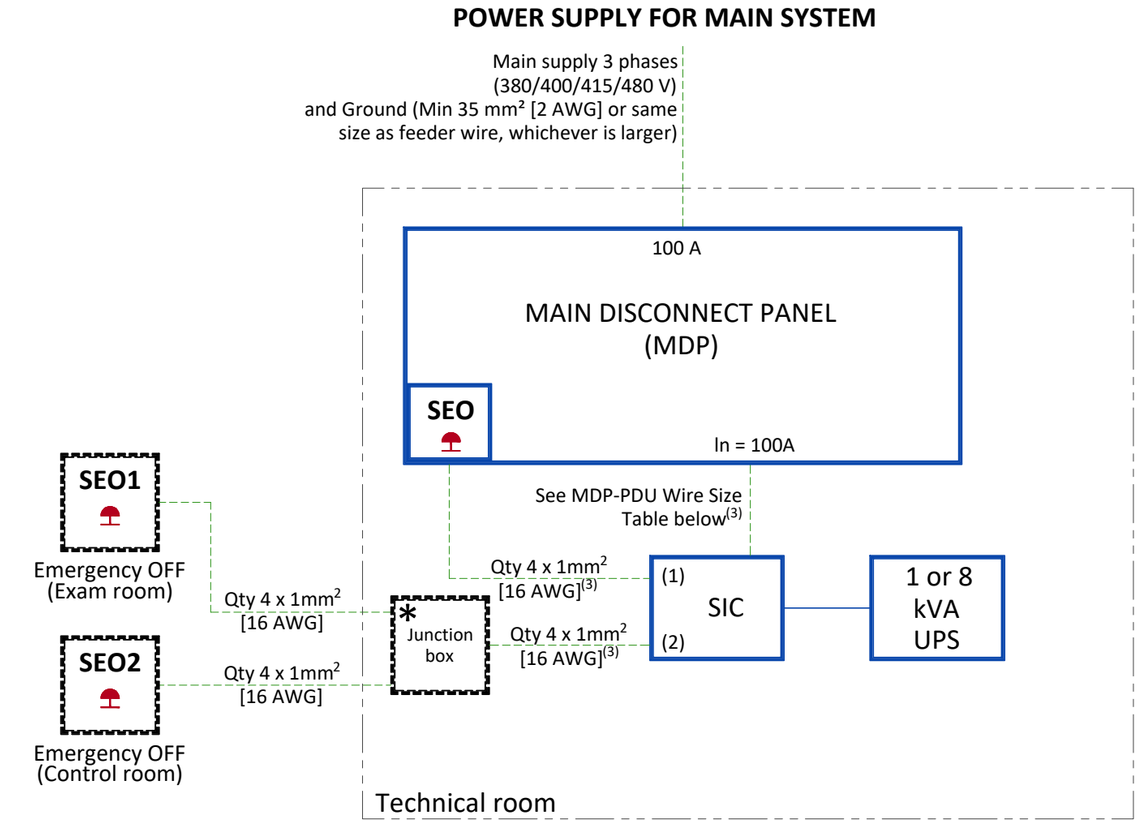
The general rules for laying cableways should meet the conditions laid down in current standards and regulations, with regard to :

- 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) ,
- Only GE cables are running inside cableways.
- Metal cableways should be grounded.

MANDATORY LOTO REQUIREMENTS

- The MDP shall provide means of disconnecting the mains power from the system, with LOTO capability to ensure safe service operation. It can be done by the input breaker if it has disconnecting capability, or by a separate disconnection device.
- An operator should be able to apply LOTO without opening the MDP box. When a LOTO device is installed on the MDP input breaker or on the disconnecting device, there shall be no voltage at the output of the MDP.

POWER DISTRIBUTION FOR IGS SYSTEM



SEO Emergency OFF button with two normally closed (NC) contacts in the door of MDP

SEO 1-2 Emergency OFF button with two NC contacts located 1.50 m [5 ft] above floor.
The EPO button shall be protected against accidental activation.
*Series connection of SEO1 and SEO2 NC contacts

SIC System Interface Cabinet

NOTES:

(1) Emergency power off : MDP EPO

(2) Emergency power off : Remote EPO

(3) Cable with 2 m [6.6 ft] extra length on the floor behind the SIC

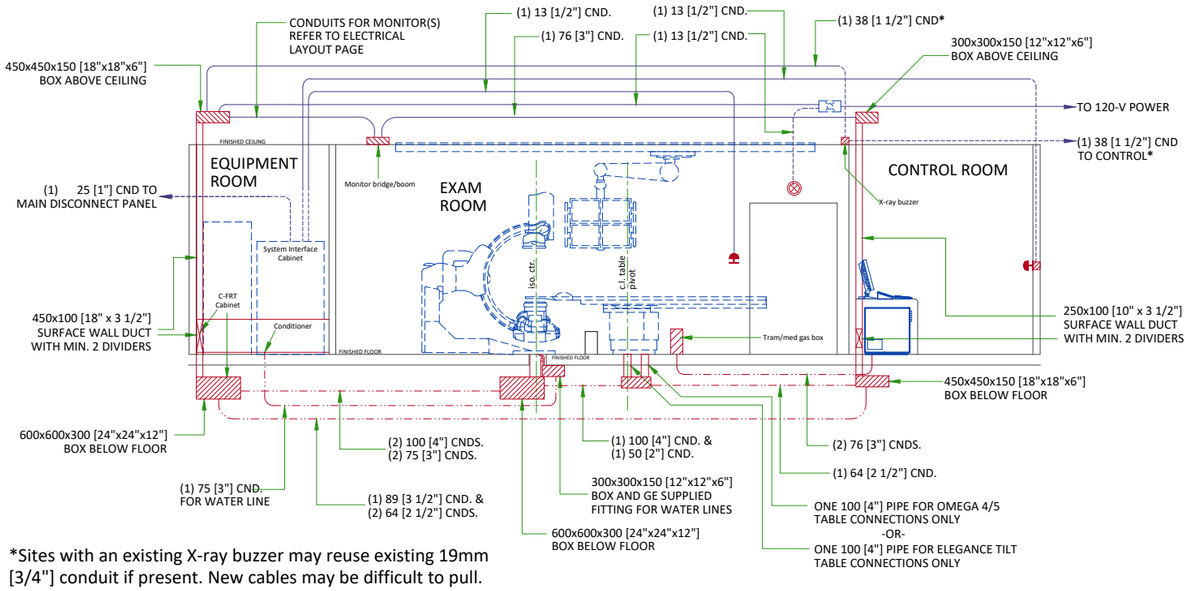
MDP-PDU Wire Size	
LENGTH	<6 m [20 ft]
GAUGE	Qty 1x2 AWG
GAUGE	Qty 1x35 mm²

Cable SUPPLIED BY CUSTOMER
Cable SUPPLIED BY GE
Equipment SUPPLIED BY CUSTOMER
Equipment SUPPLIED BY GE

TYPICAL ELECTRICAL SECTION VIEW

ITEM	Outlet Legend for Equipment
	System emergency off (SEO), (recommended height 1.2m [48"] above floor)
	Light Signaling Control Box (above ceiling or in equipment room)
	X-Ray ON lamp (L1) - 24V

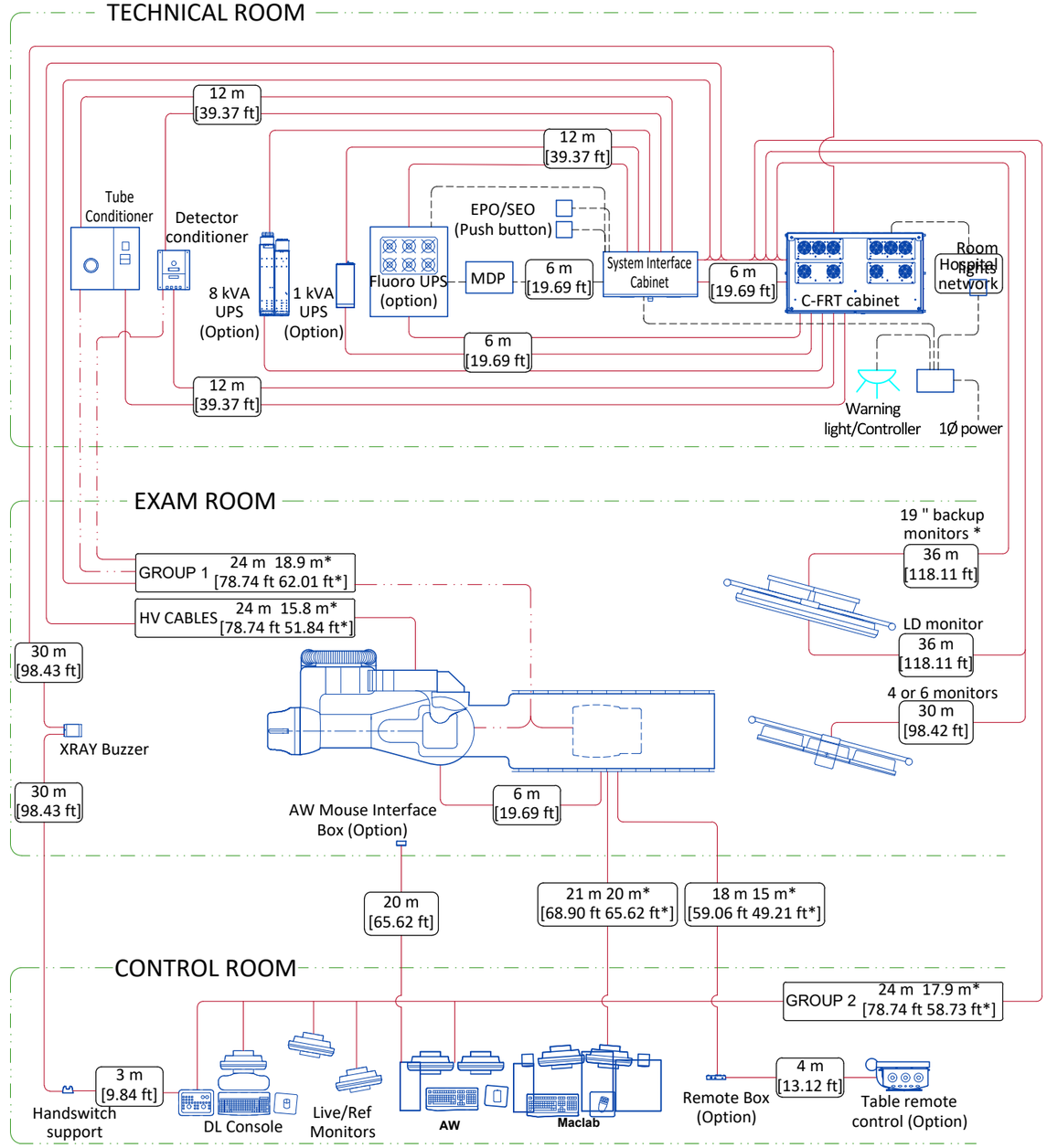
NOTE:
This diagram displays a typical interconnection method for GE equipment and should be used to determine electrical routing per local site conditions and regulatory requirements.
Refer to Electrical Layout page for site-specific planning information.



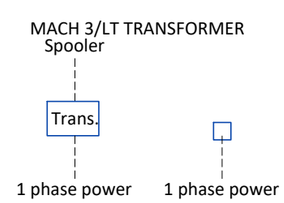
*Sites with an existing X-ray buzzer may reuse existing 19mm [3/4"] conduit if present. New cables may be difficult to pull.

DETAIL NOT TO SCALE

INTERCONNECTIONS



	Cable supplied by the client
	Cable supplied by GE
	Cable supplied by GE (contains water hoses)
	Room wall
.....m / .....ft	Total length
.....m* / .....ft*	Usable length
*	Can be positioned on the back of LDM or on separate suspension boom

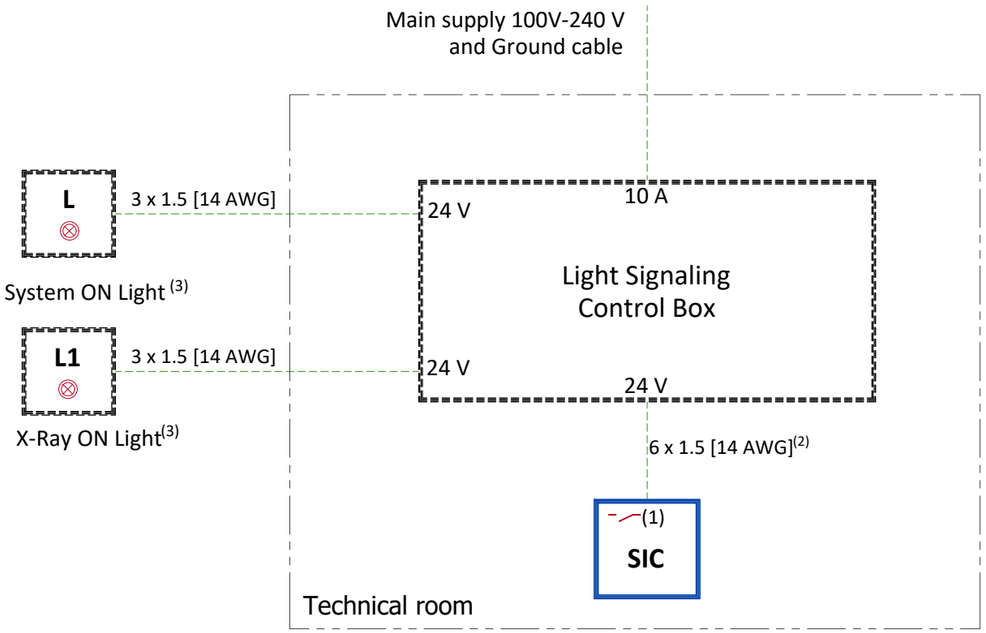


POWER REQUIREMENTS (LIGHT SIGNALING)

SPECIFICATIONS OF POWER INPUT

FOR ELECTRICAL BOX LIGHT SIGNALING	
POWER DEMAND	**10 A**
VOLTAGE	**Single Phase 100V - 240V ± 10%**
FREQUENCY	**50/60 Hz ± 3Hz**

POWER DISTRIBUTION (LIGHT SIGNALING)



L System ON light - Located near access doors (3)(4)

L1 XRay ON light - 24 V, Located near access doors and inside the exam room (3)(4)

SIC System Interface Cabinet

NOTES:

(1) Three dry contacts: "System ON", "X-Ray ON" and Room lights control are released by SIC. Max. voltage = 24 V

(2) Cable with 2m [6.6ft] extra length on the floor behind the back of SIC

(3) Location and/or quantity: refer to layout

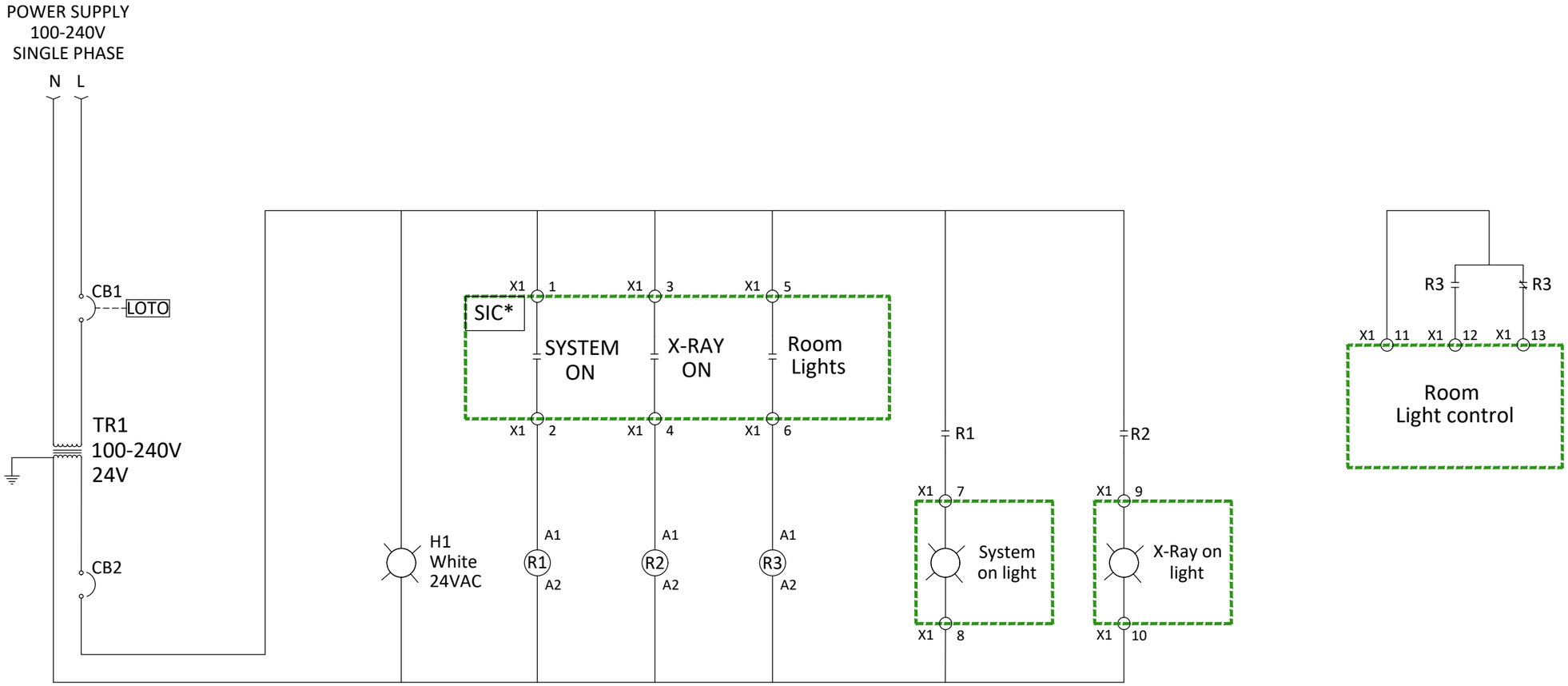
Cable SUPPLIED BY CUSTOMER

Cable SUPPLIED BY GE

Equipment SUPPLIED BY CUSTOMER

Equipment SUPPLIED BY GE

DETAILED SCHEMATICS ELECTRICAL BOX (LIGHT SIGNALING)



CB1/CB2: Circuit breaker
H1: System ON lamp voltage control
IG: Lockable interruptor
L: System ON Lamp

L1: X-Ray ON Lamp
R1/R2/R3: 24 VAC 50/60 Hz auxiliary relay
SIC: System Interface Cabinet
TR1: Transformer

*

TERMINAL X1	SYSTEM ON		X-RAY ON		ROOM LIGHTS	
	1	2	3	4	5	6
PDU ON/OFF BOARD	1	2	1	2	1	2
	J15		J6		J10	

SYMBOLS LEGEND

- Circuit breaker
- Relay coil
- Relay contact - normally open (de-energized state)
- Relay contact - normally closed (de-energized state)
- Control power transformer
- Indication light (H1)
- Cable/conductor termination
- LOTO External lock-out/tag-out capability
- Ground