REV	DATE	MODIFICATIONS

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01 - C1 - Cover Sheet
02 - C2 - Disclaimer - Site Readiness
03 - A1 - General Notes
04 - A2 - Equipment Layout
05 - A3 - Movement Layout
06 - A4- Section Views
07 - A5 - Equipment Details (1)
08 - A6 - Equipment Details (2)
09 - A7 - Equipment Details (3)
10 - A8 - Delivery
11 - S1 - Structural Notes
12 - S2 - Structural Layout
13 - S3 - Structural Details (1)
14 - S4 - Structural Details (2)
15 - S5 - Structural Details (3)

16 - S6 - Structural Details (4)
17 - M1 - HVAC
18 - E1 - Electrical Notes
19 - E2 - Electrical Layout
20 - E3 - Electrical Elevations
21 - E4 - Electrical Details
22 - E5 - Power Requirements
23 - E6 - Interconnections
24 - E7 - Light Signaling (1)

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: *https://www.gehealthcare.com/support/manuals*

GE HealthCare does not take responsibility for any damages resulting from changes on drawings made by others. Errors may occur by not referring to the complete set of final issue drawings. GE HealthCare cannot accept responsibility for any damage due to the partial use of GE HealthCare final issue drawings, however caused. All dimensions are in millimeters unless otherwise specified. Do not scale from printed pdf files. GE HealthCare accepts no responsibility or liability for defective work due to scaling from these drawings.

GE HealthCare

ALLIA MOVEO
FINAL STUDY

Drawn by	Verified by	Concession	GON/Quote	PIM Manual	Rev
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Format	Scale	File Name	Date	Sheet
A3	1/4"=1'-0"	EN-VAS-TYP-ALLIA_MOVEO-NF.DWG	23/Apr/2026	01/24

DISCLAIMER

GENERAL SPECIFICATIONS

- GEHC 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 GEHC 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 GEHC, 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. GEHC 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 GEHC 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 GEHC 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 GEHC. 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 GEHC 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. GEHC 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)

CONNECTIVITY REQUIREMENTS

Service Connectivity for new systems will be based on the Insite-RSvP Platform which allows to configure a direct Internet connection to the RSvP Server (routers/VPN tunnel no more mandatory). Communication with the RSvP server will be outbound only and require using Transport Layer Security (TLS) over TCP port 443. This is commonly known as an HTTPS (HTTP-Secure) connection.

There will be several ways to connect the system to the RSvP Enterprise Server. See below the main options that might not be all available or authorized at your site depending on actual network constraints or local regulations.:

- The system allows for DNS configuration or proxy server-based connection to the Internet.
- Connection thru a GE Proxy will be possible in the future.
- In the case the customer does not accept the above connection protocol or regulatory reasons prevent using these types of configurations, the local/regional connectivity teams can provide help to connect through SSL/TLS proxy IP over the site-to-site VPN.

To make the system connectivity operational before the system installation is finished, ensure the connectivity solution is defined as early as possible during the pre-installation process and proper information are exchanged between the customer Network Administrators and GEHC Sales and/or Service representatives.

For more information please refer to the latest version of the Pre Installation Manual.

ELECTROMAGNETIC INTERFERENCE

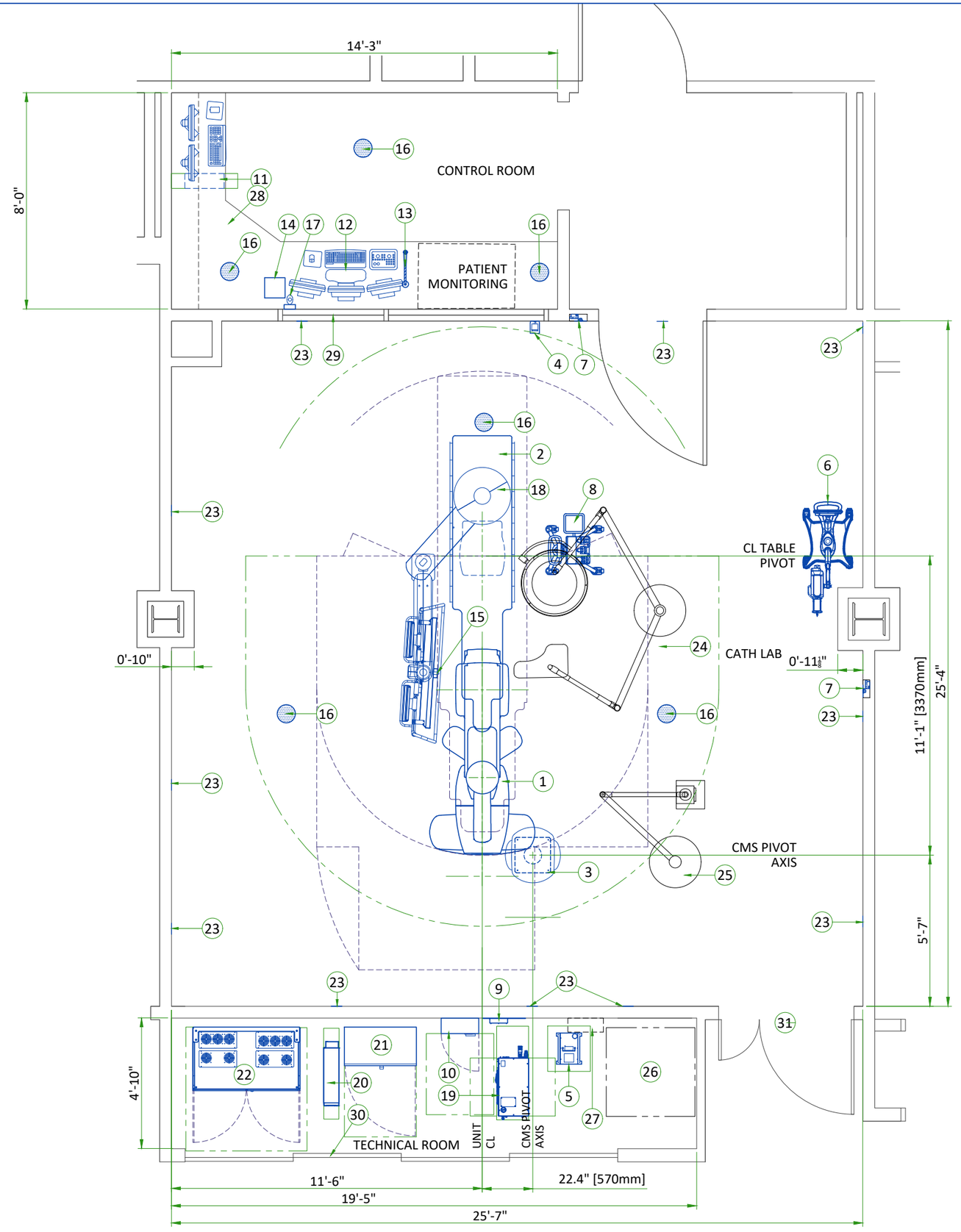
The IGS System is intended for use in the electromagnetic environment specified below.
The Customer or the user of the System should assure that it is used in such an environment.

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

RADIATION PROTECTION

Because X–ray equipment produces radiation, special precautions may be needed or special site modifications may be required. GE HealthCare does not make recommendations regarding radiation protection. It is the customer's responsibility to consult a radiation physicist for advise on radiation protection in x–ray rooms.

PERFORMIX PULSAR X-RAY TUBE SPECIFICATIONS	
Anode diameter	160 mm brazed graphite
Anode rotation	9600 rpm / 160 Hz
Anode target angle	11.25°
Anode heat storage capacity	12.3 MHUeff
Anode steady state heat dissipation	1100 KHU/min (13.5 kW)
Cathode	Tri-filament design
Coincidental focal spot sizes	0.3, 0.5 and 0.8
Fluoroscopic power	• 3200 W (continuous) • 4500 W (during 10 minutes)
Maximum casing heat storage	5.8 MJ (7.8 MHU)
Continuous casing heat storage	3200 W
Maximum anode cooling rate	1100 KHU/min (13.5 kW)
Permanent filtration	1.2 mm Al / 75 IEC 60522-1-2020
Leakage radiation (IEC 60601-1-3)	< 50 mR/hr at 125 kV and 25.6 mA



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

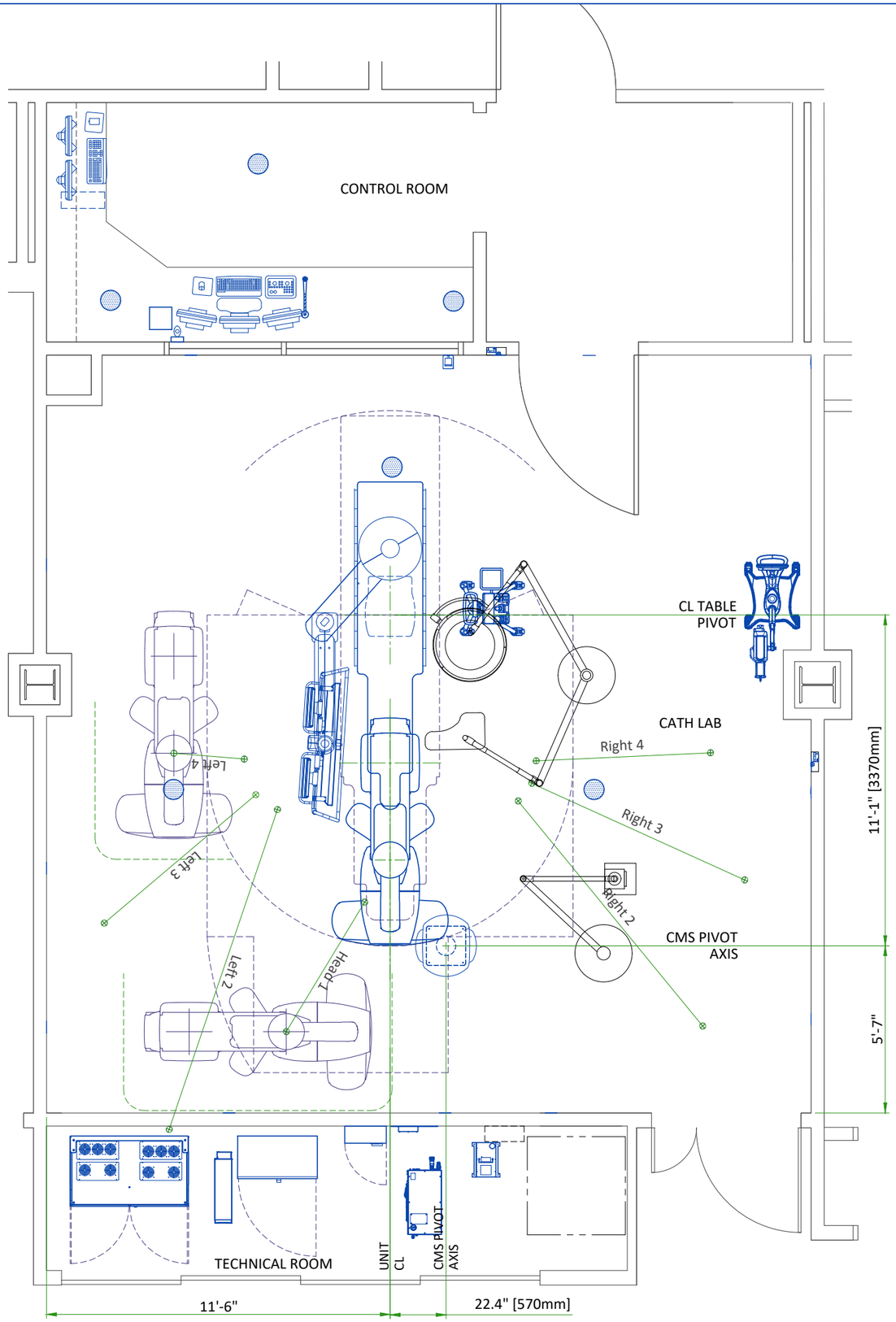
BY	ITEM	DESCRIPTION	MAX HEAT OUTPUT (BTU/h)	WEIGHT (lbs)	MAX HEAT OUTPUT (W)	WEIGHT (kg)
A	1	GANTRY	5527	2073	1620	940
A	2	TILTING TABLE	-	1691	-	767
A	3	CABLE MANAGEMENT SYSTEM (CMS)	-	-	-	-
A	4	XRAY BUZZER	-	2	-	1
A	5	DETECTOR CONDITIONER	717	32	210	14.6
A	6	MARK 7 ARTERION INJECTOR ON PEDESTAL	-	146	-	66.2
A	7	IPOINT (x2)	-	-	-	-
A	8	IGS CONTROL CENTER	-	-	-	-
A	9	I-BOX	-	7	-	3
B	10	MAIN DISCONNECT PANEL (MDP)	-	49	-	22
A	11	ADVANTAGE WORKSTATION (AW)	3412	70	1000	31.7
A	12	OPERATOR CONSOLE	341	45	100	20.2
B	13	VITALINQ MICROPHONE	-	-	-	-
B	14	VITALINQ CONSOLE	-	-	-	-
B	15	VITALINQ MICROPHONE (ONE ON MONITOR BRIDGE IN EXAM ROOM)	-	-	-	-
B	16	VITALINQ SPEAKER (x6)	-	-	-	-
A	17	BOLUS CHASE HANDSWITCH	-	2	-	1
A	18	MAVIG LDM SUSPENSION WITH TWO BACKUP MONITORS	341	676	100	306.6
A	19	TUBE COOLING UNIT	11840	144	3470	65.5
A	20	11 kVA UPS	1774	174	520	78.8
A	21	SYSTEM INTERFACE CABINET (SIC)	1706	540	500	245
A	22	C-FRT CABINET	7370	1153	2160	523
A	23	POSITIONING TARGETS (x11)	-	-	-	-
C	24	SUSPENSION WITH SHIELD AND LAMP (NOT SUPPLIED BY GE)	-	-	-	-
C	25	ANESTHESIA SUSPENSION (NOT SUPPLIED BY GE)	-	-	-	-
C	26	1000 x 1000 [39.4" x 39.4"] AREA REQUIRED FOR SYSTEM TOOLS AND DOCUMENTATION	-	-	-	-
C	27	ELECTRICAL BOX (LIGHT SIGNALING - NOT SUPPLIED BY GE)	-	-	-	-
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	DOORS TO BE EASILY REMOVABLE AND CLEAR OF ANY FLOOR MOUNTED OBSTRUCTIONS				
C	31	MINIMUM OPENING FOR EQUIPMENT DELIVERY IS 1200mm x 2200mm [47.2 in x 80.7 in], CONTINGENT ON A 2430mm [95.7 in] CORRIDOR WIDTH				

EXAM ROOM HEIGHT

FINISHED FLOOR TO SLAB HEIGHT	T.B.D.
FALSE CEILING HEIGHT	10'-0"

Note:
- Reflectors to be located above cabinet top; minimum height from finished floor 2302 [90.6 in]
- Ensure the surfaces to be non-reflective and non-mobile for the positioning targets

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



MOVEMENT LAYOUT

PARKING POSITIONS

All dimensions in mm

NAME	RIRP* 1508		FEASIBLE DISTANCE	PROPOSED
	min	max		
Park Head 1	500	3555	2043	YES
Park Left 2	500	3940	3940	NO
Park Left 3	500	2523	2523	NO
Park Left 4	500	1219	1219	YES
Park Right 2	500	3465	3465	NO
Park Right 3	500	2883	2883	NO
Park Right 4	500	2278	2278	NO

A maximum of two parking positions can be selected.

BACKOUT POSITIONS (CMS unlocked)

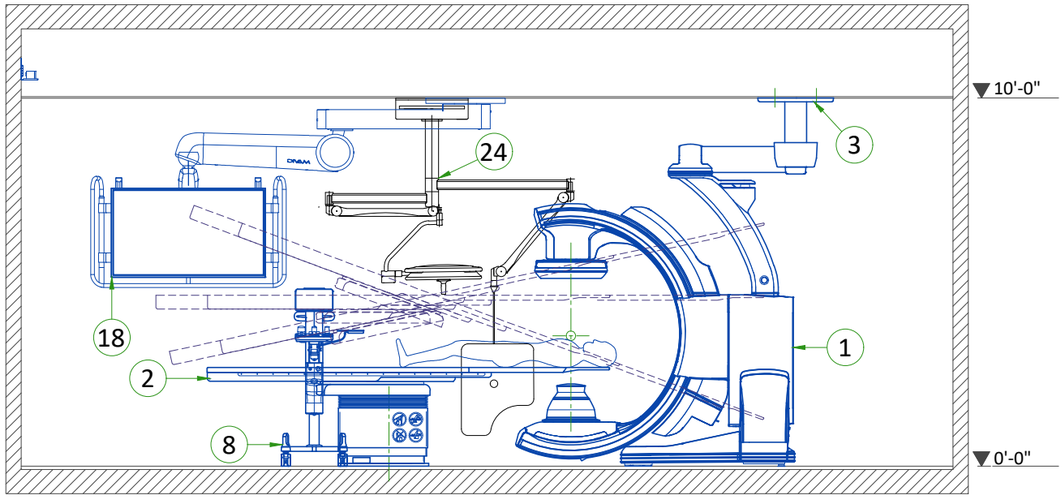
All dimensions in mm

TYPE	NAME	RIRP* 1508		TYPICAL
		min	max	
Backouts	**Head Long**	1492	NA	4315
	Head Left	1000	2698	2698
	Head Right	1000	3596	3596
	Left Lat	1000	1399	1399
	Right Lat	1000	2037	2037
	Tan Left H	1492	2928	3995
Smart Move	**Left**	1268		
	Right	1268		

* RIRP: Room Interventional Reference Point

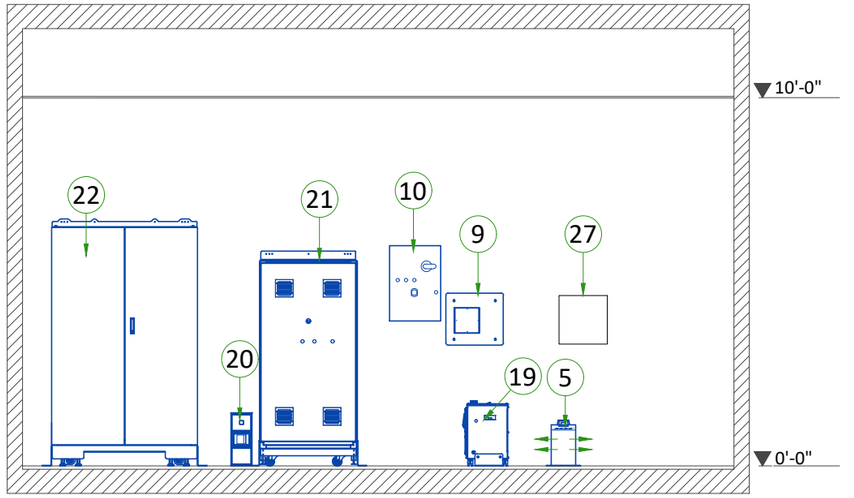
EXAM ROOM VIEW

SECTION A-A'



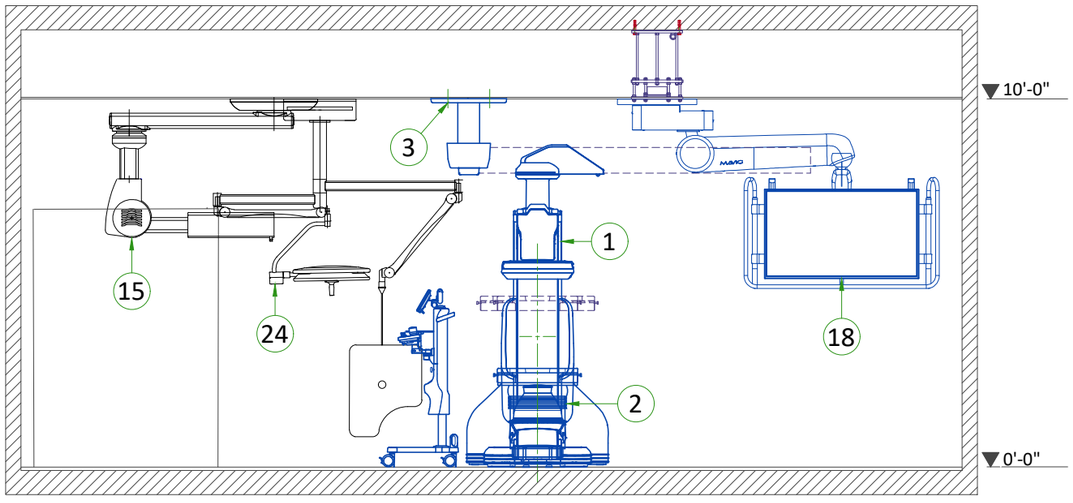
TECHNICAL ROOM VIEW

SECTION C-C'



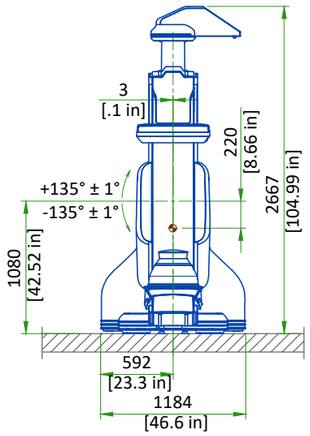
EXAM ROOM VIEW

SECTION B-B'

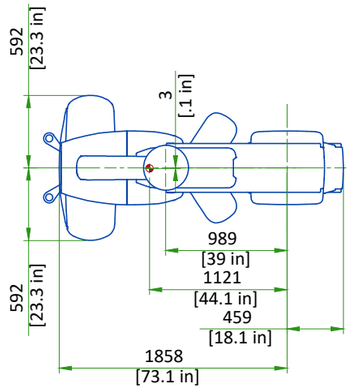


GANTRY

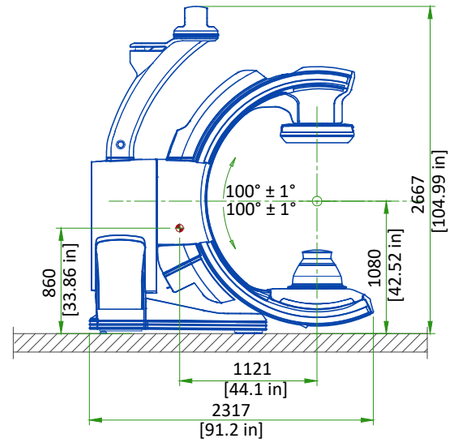
FRONT VIEW



TOP VIEW



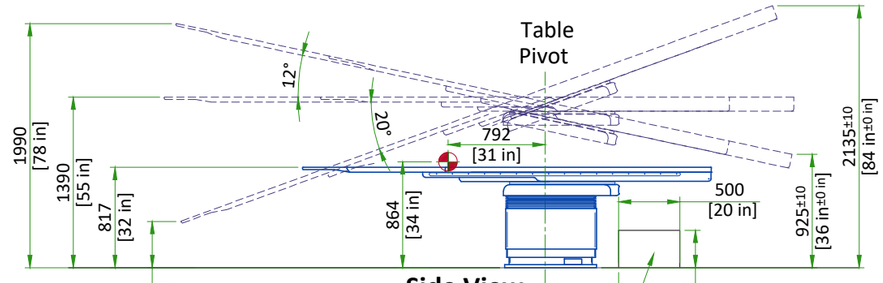
SIDE VIEW

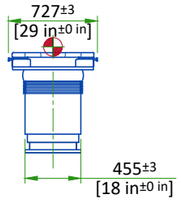


Center of Gravity

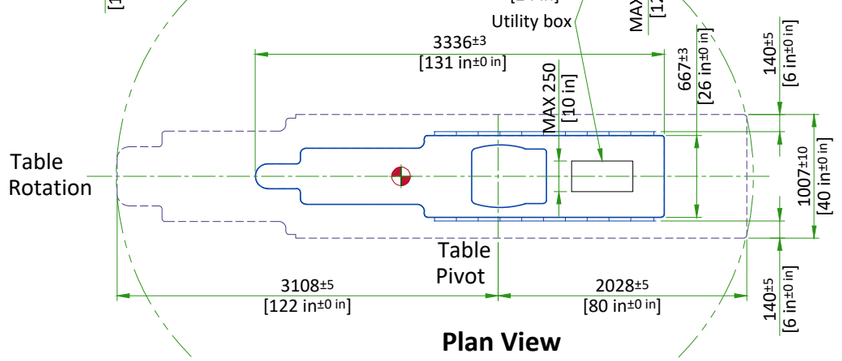
SCALE 1:50

PATIENT TABLE





Front View (foot end)



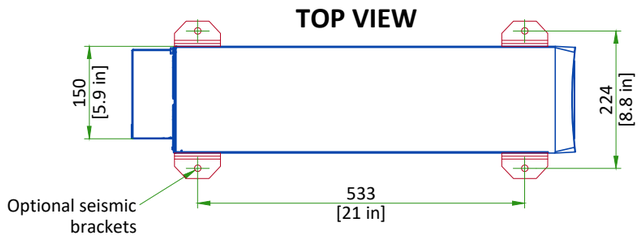
Center of Gravity

Scale 1:50

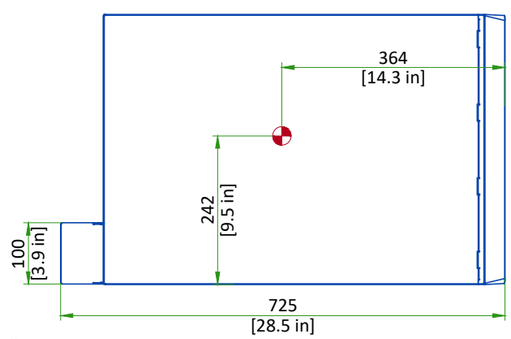
The Utility box under the table is not recommended for the surgical configuration.
It is forbidden to place or install objects under the head end of the table that could interfere with AGV motion.

11kVA FLURO UPS

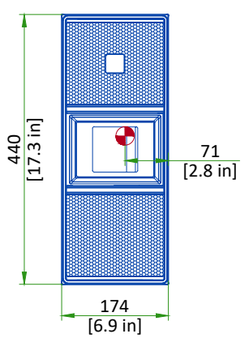
TOP VIEW



SIDE VIEW



FRONT VIEW

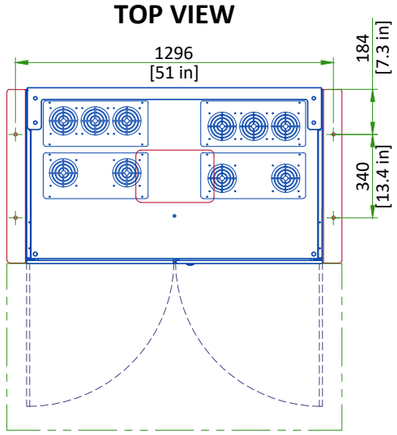


Center of Gravity

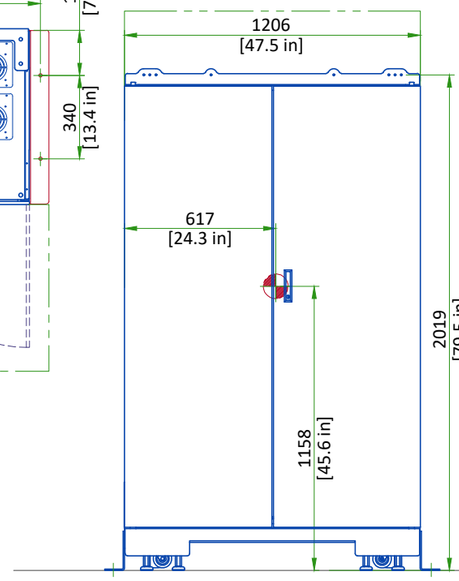
SCALE 1:10

C-FRT CABINET

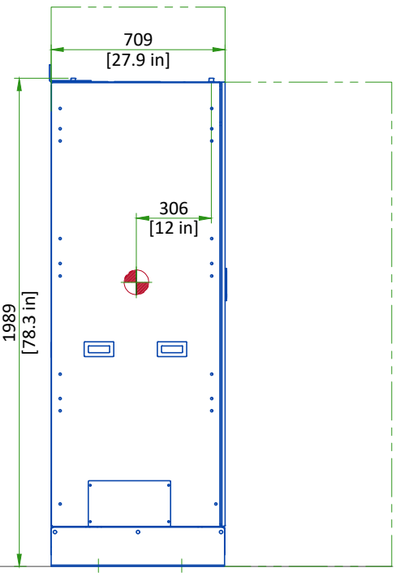
TOP VIEW



FRONT VIEW



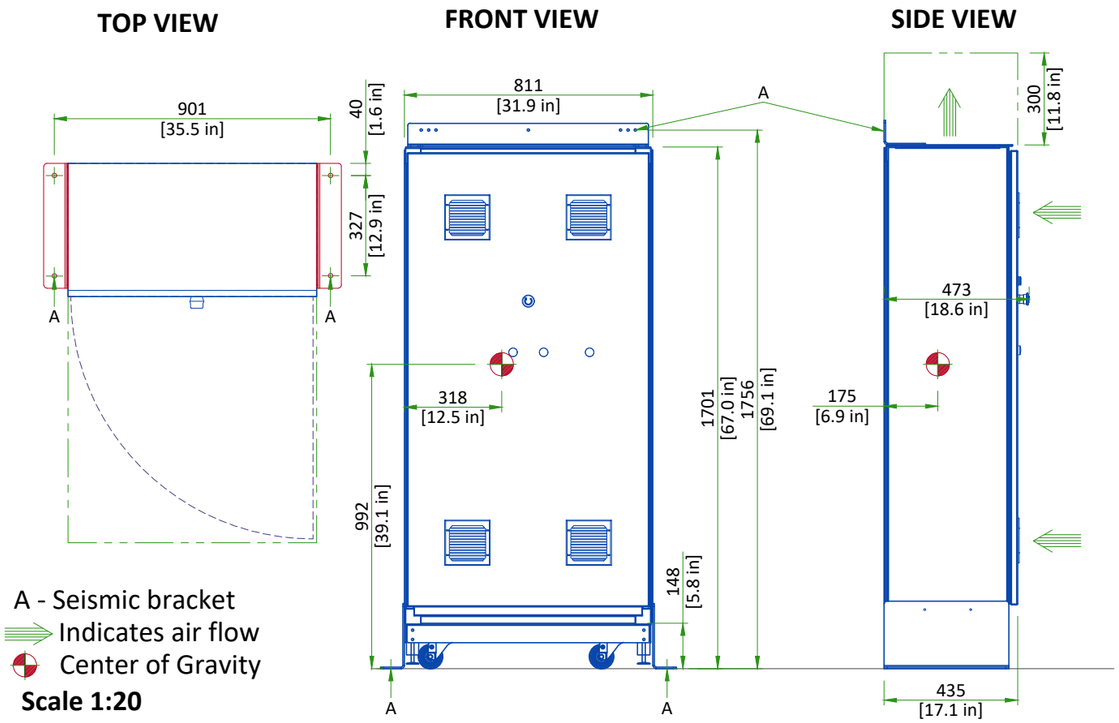
SIDE VIEW



Center of Gravity

SCALE 1:25

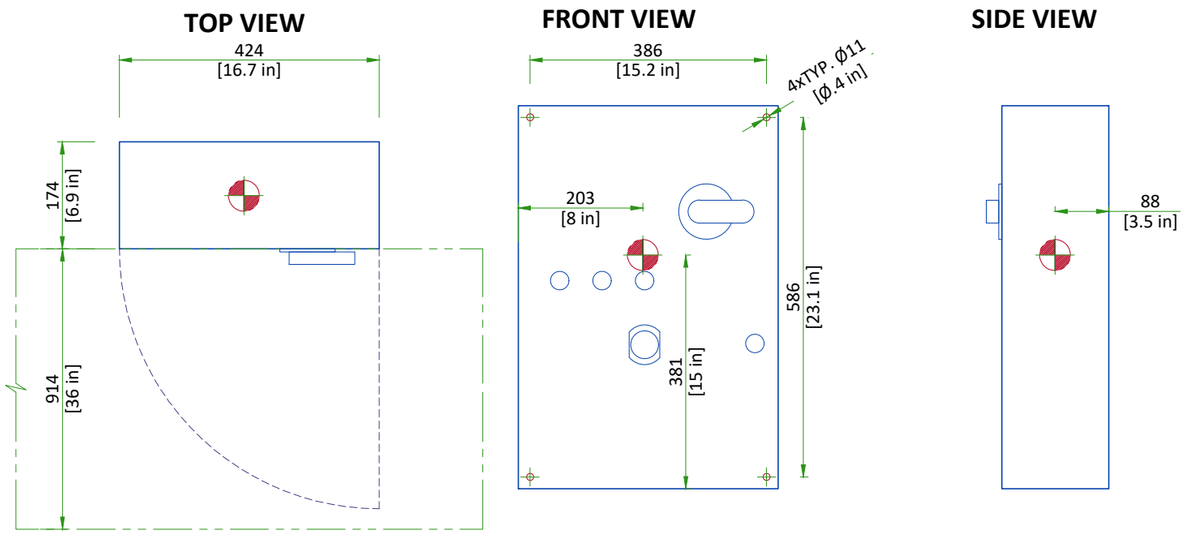
SYSTEM INTERFACE CABINET



A - Seismic bracket
Indicates air flow
Center of Gravity

Scale 1:20

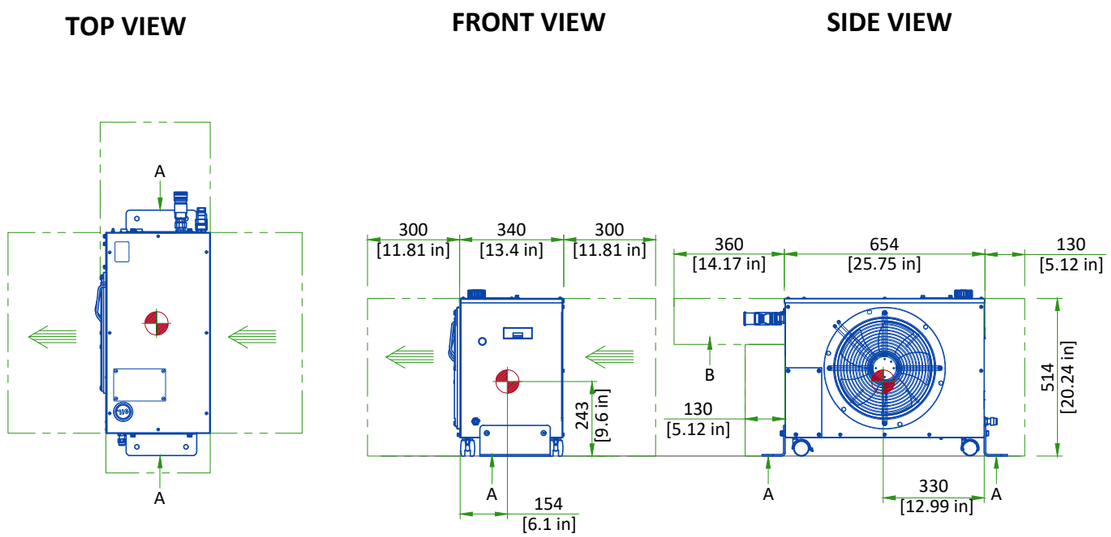
MAIN DISCONNECT PANEL



Center of Gravity

Scale 1:10

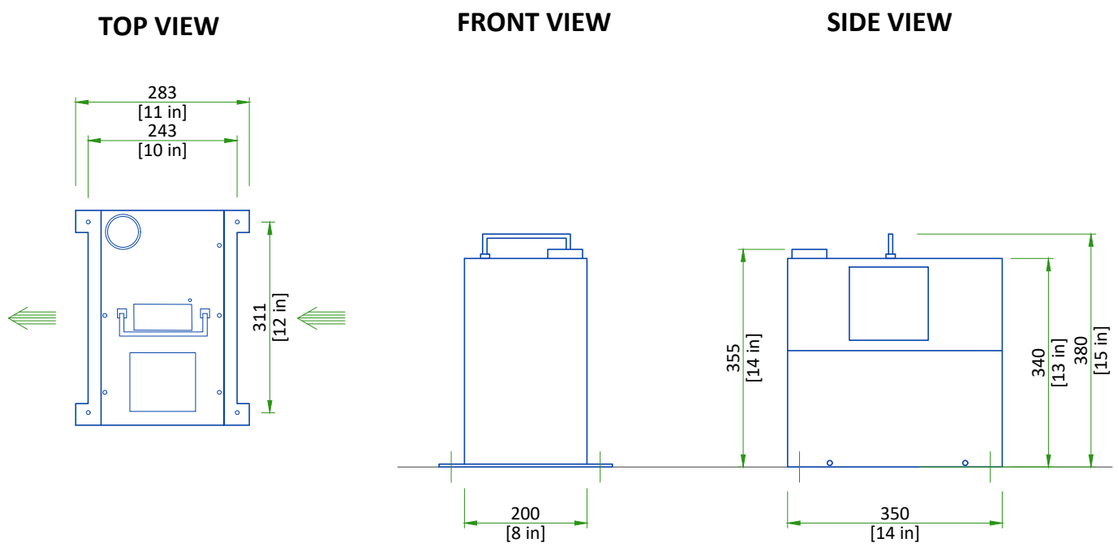
TUBE COOLING UNIT



A - Seismic bracket
B - Hydraulic connection
Indicates air flow
Center of Gravity

Scale 1:20

DETECTOR CONDITIONER



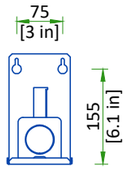
Indicates air flow

Scale 1:10

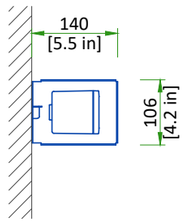
I-BOX AND X-RAY BUZZER

X-RAY BUZZER

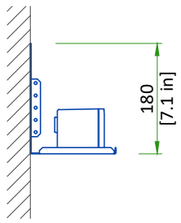
Mounting:



Top view:

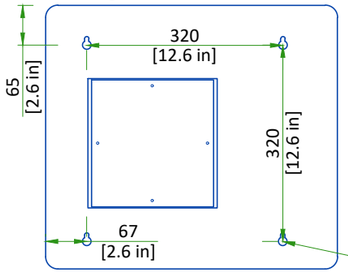


Side view:



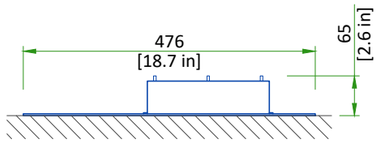
I-BOX

Mounting:

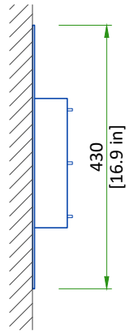


Fasteners supplied by customer and shall support a load of 15 kg [33 lb].

Top view:



Side view:



Scale 1:10

DELIVERY

THE CUSTOMER/CONTRACTOR SHOULD:

- Provide an area adjacent to the installation site for delivery and unloading of the GEHC equipment.
- Ensure that the dimensions of all doors, corridors, ceiling heights are sufficient to accommodate the movement of GEHC 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.

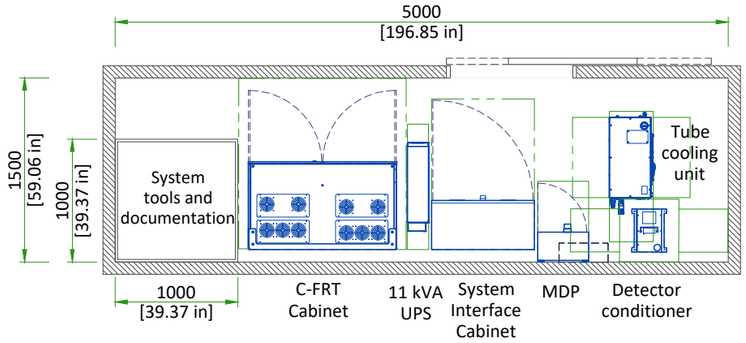
DIMENSIONS OF DELIVERY

EQUIPMENT	DIMENSIONS			WEIGHT	
GANTRY ON PALLET	LENGTH	2330 mm	91.7 in	930 kg	2050 lb
	WIDTH	1326 mm	52.2 in		
	HEIGHT	2450 mm	96.5 in		
TILTING TABLE (ON PALLET)	LENGTH	2150 mm	84.6 in	700 kg	1534 lb
	WIDTH	1000 mm	39.4 in		
	HEIGHT	1160 mm	45.7 in		
CMS PALLET ASSEMBLY	LENGTH	2010 mm	79.1 in	343 kg	756 lb
	WIDTH	946 mm	37.2 in		
	HEIGHT	1670 mm	65.8 in		
C-FRT CABINET (ON PALLET)	LENGTH	850 mm	34 in	618.6 kg	1362 lb
	WIDTH	1500 mm	59 in		
	HEIGHT	2200 mm	87 in		

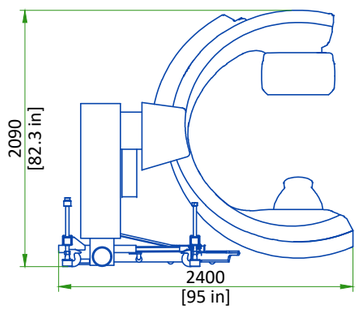
RECOMMENDED AREA IN THE TECHNICAL ROOM

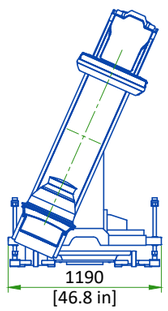
THE TECHNICAL ROOM NEED EXTRA SPACE FOR TOOLS AND DOCUMENTATION

- GEHC recommends 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 and can be located nearby.



GANTRY DELIVERY MODES





DIMENSIONS

DOLLY MODE	NOTE	HEIGHT	WIDTH	LENGTH
Floor mode ***(shown above)***	Allows dolly to be installed or removed from the gantry	2090 mm [82.3]	1190 mm [46.8 in]	2400 mm [94.5 in]
Corridor mode	Enables gantry to traverse 5° slopes in hallways	2140 mm [84.2 in]	1190 mm [46.8 in]	2400 mm [94.5 in]
Short doorway mode		2050 mm [80.7 in]	1190 mm [46.8 in]	2400 mm [94.5 in]

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.

- Dimensions are to finished surfaces of room.

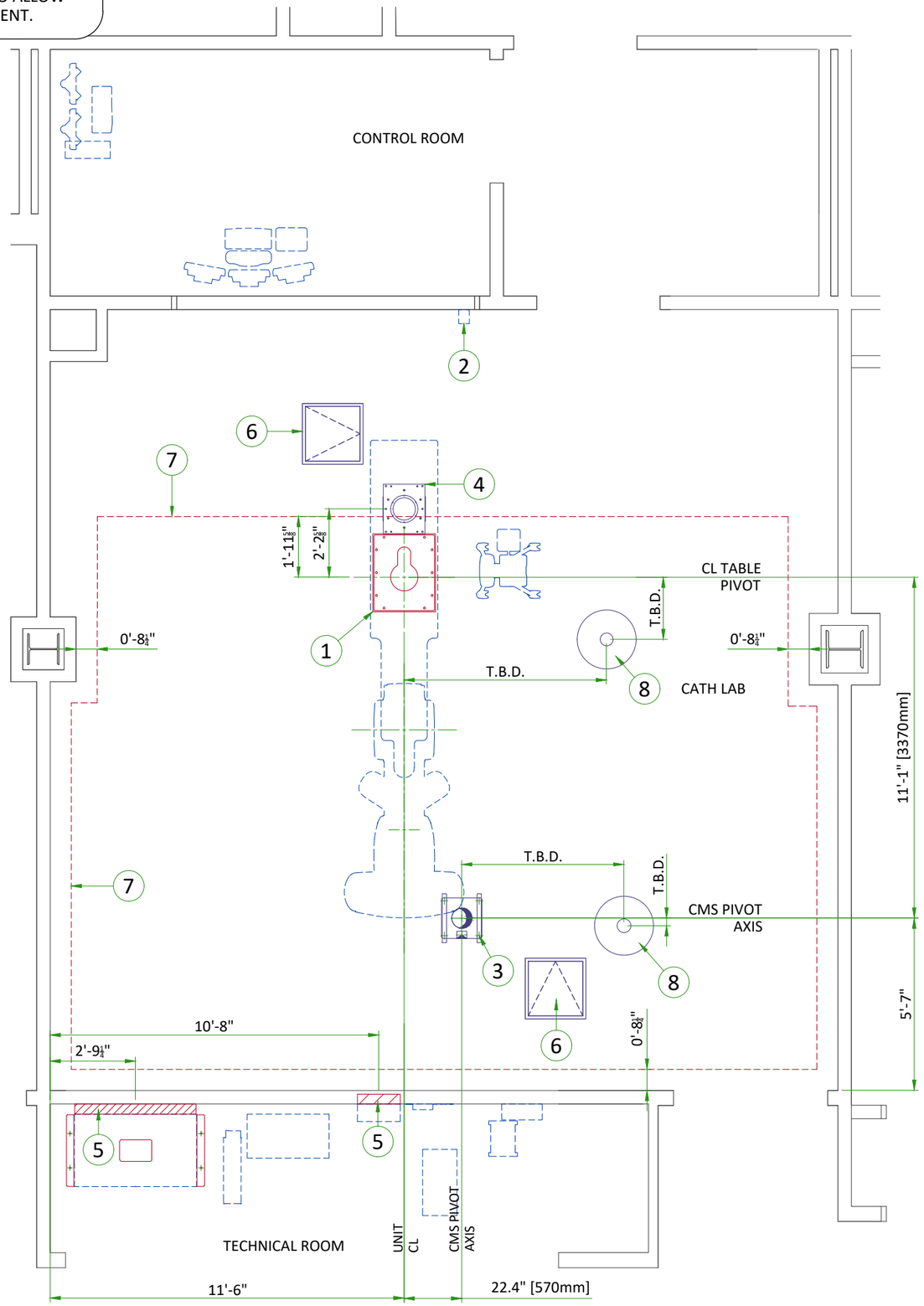
- Customers contractor must provide all penetrations in post tension floors.

- Customers contractor must provide and install any non-standard anchoring. Documents for standard anchoring methods are included with GEHC 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 GEHC 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, GEHC installers will perform surface penetration operations only after the customer's validation and completion of the "GEHC 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	
(GEHC SUPPLIED / CONTRACTOR INSTALLED)	
1	Area occupied by GEHC supplied table baseplate
2	Mount X-Ray buzzer bracket on wall below ceiling
3	CMS mounting location. Refer to recommended CMS structural support detail on page S4.
4	Structural support in ceiling for Mavig dual-arm suspension. Maximum Ø620mm [24.4 in] opening required in finished ceiling for lifting fixture access. Refer to Structural Detail.
(CUSTOMER SUPPLIED / CONTRACTOR INSTALLED)	
5	Support backing, locate as shown.
6	600 x 600 [24" x 24"] Service access in ceiling
7	Floor specification control area for vinyl flooring. Refer to Exam Room Floor Specifications detail on page S3.
8	Structural support in ceiling for vendor boom.

EXAM ROOM FLOOR SPECIFICATION

IMPORTANT

The Allia IGS system is compatible with a floor in vinyl, which consists in **Self-Levelling Underlayment (SLU) + Flooring adhesive (glue) + Vinyl**

- (Bare) Floor preparation and vinyl flooring application falls under Customer's responsibility
- Application of each product (SLU, glue, vinyl sheet) must be done as per product Manufacturer's recommendations
- Finished Vinyl floor must be protected by Contractor. These protections will maintain floor integrity and allow heavy load traffic during system delivery and install
- Control reports must be provided by Contractor and archived by PMI for all Acceptance specifications listed below (This page can be used as the report)

SUBSTRATE CONCRETE/SUBFLOOR

Table 1. FLOOR ACCEPTANCE FOR SUBSTRATE (before vinyl flooring system)		
Controls	**Specifications**	**Results**
PULL-OFF STRENGTH (i.e. Elcometer Adhesion tester)	**> 1.5 MPa [> 218 PSI]**	
HARDNESS (i.e. Schmidt Hammer Sclerometer)	**> 20 MPa [> 3000 PSI]**	

SLU SPECIFICATION:

- Compressive strength > 20 MPa , or Class >C20 (> 3000 PSI)

Table 2. FLOOR ACCEPTANCE FOR SLU (before vinyl application)		
Controls	**Specifications**	**Results**
PULL-OFF STRENGTH (i.e. Elcometer Adhesion tester)	**> 1.5 MPa [> 218 PSI]**	
HARDNESS (i.e. Schmidt Hammer Sclerometer)	**> 20 MPa [> 3000 PSI]**	
SLU THICKNESS	**> 3 mm [> 1/8 in]**	
LEVELNESS	**< 1 mm/m [< 1/8 in over 10 ft]**	
FLATNESS	**< 6 mm under 2 m straightedge [< 1/4 in under 10 ft straightedge]**	

FLOORING ADHESIVE:

- It must be one of those recommended by the Vinyl manufacturer for heavy load (ie hospital beds, heavy traffic)
- For conductive floor (if required by Customer), copper strips can be added In this layer, they should not cross Allia IGS traffic area – for example, they can be located close to the walls

Optional measurement	**Records**
Conductivity	

VINYL:

- Seams processed as per Manufacturer recommendations
- No specific requirement on seams position
- Avoid seams as much as possible in gantry movement area
- DOC2499483 - List of Vinyl products compatible with Allia™ IGS system. Latest version of this list is available on Customer Documentation Portal: *https://www.gehealthcare.com/support/manuals*

Vinyl reference used :

- ☐ Medintone (Armstrong)
- ☐ Biospec MD (Mannington)
- ☐ IQ Toro SC (Tarkett)
- ☐ IQ Optima (Tarkett)
- ☐ IQ Granit SD (Tarkett)
- ☐ Acczent Excellence 4 (Tarkett)
- ☐ Acczent Excellence 80 (Tarkett)
- ☐ Acczent / Acczent Flourish (Tarkett)
- ☐ Linha Flourish (Tarkett)
- ☐ Mipolam Biocontrol EL5 (Gerflor)

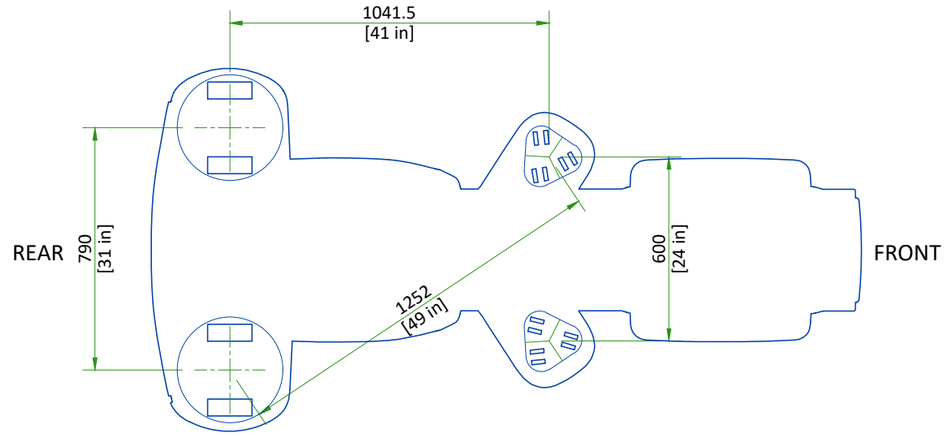
(either conductive or static-dissipative references)

References of all materials used :

• Primer for SLU	
• SLU	
• Glue	

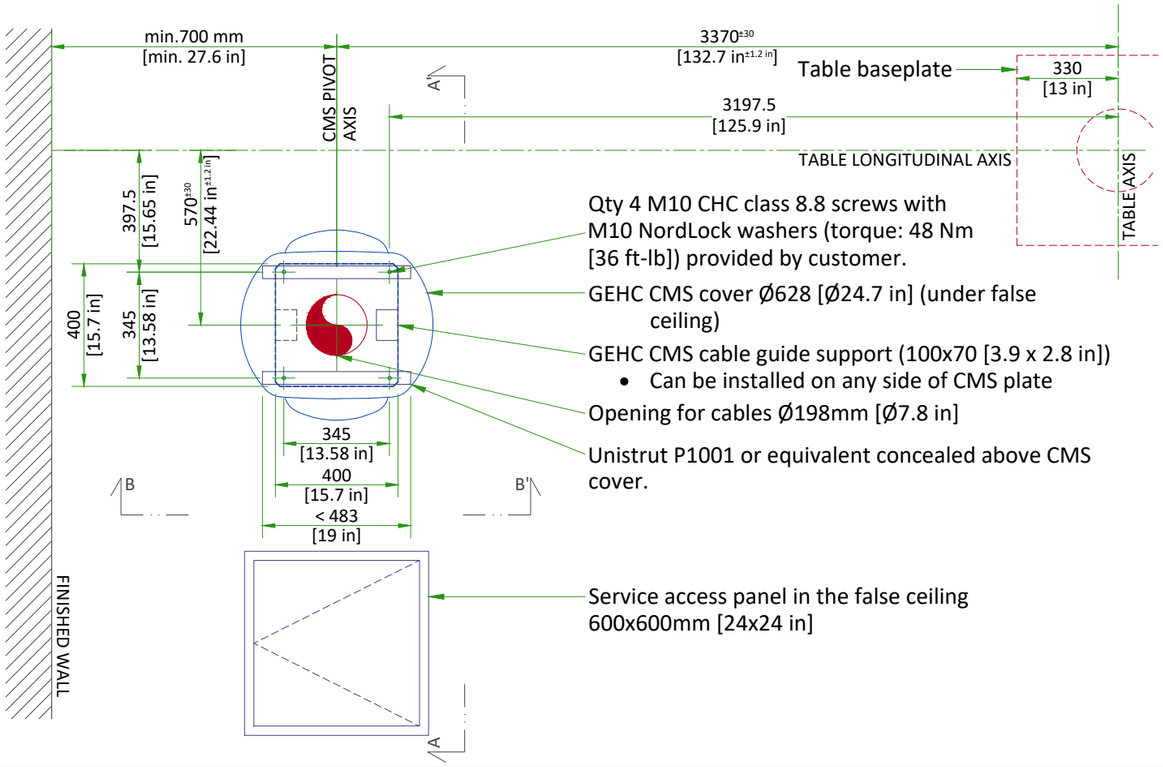
GANTRY WEIGHT

COMPONENT	NET WEIGHT		WEIGHT/OCCUPIED AREA
GANTRY	TOTAL WEIGHT (40 cm detector)	940 kg [2072 lb]	950 kg/m² [195 lb/ft²]
	REAR MAX ISOLATED LOAD	300 kg [661 lb]	5 MPa [725 lb/in²]
	FRONT MAX ISOLATED LOAD	230 kg [507 lb]	6 MPa [870 lb/in²]

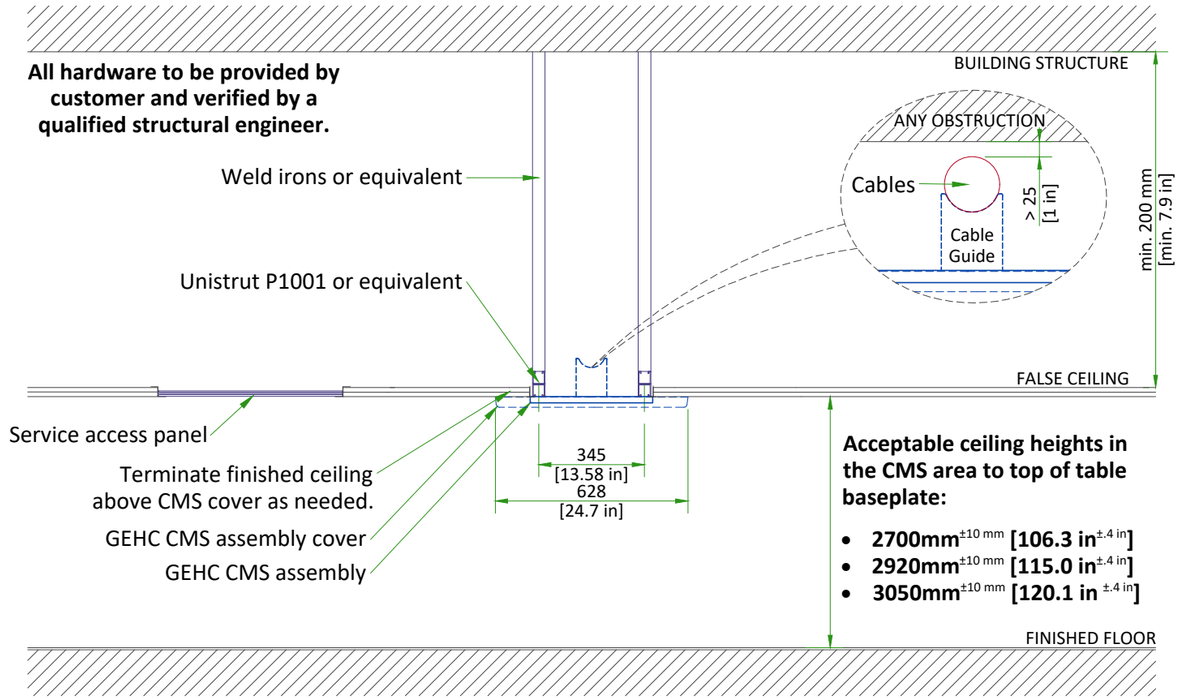


SCALE 1:20

CABLE MANAGEMENT SYSTEM (CMS) CEILING PLAN



SECTION A-A'



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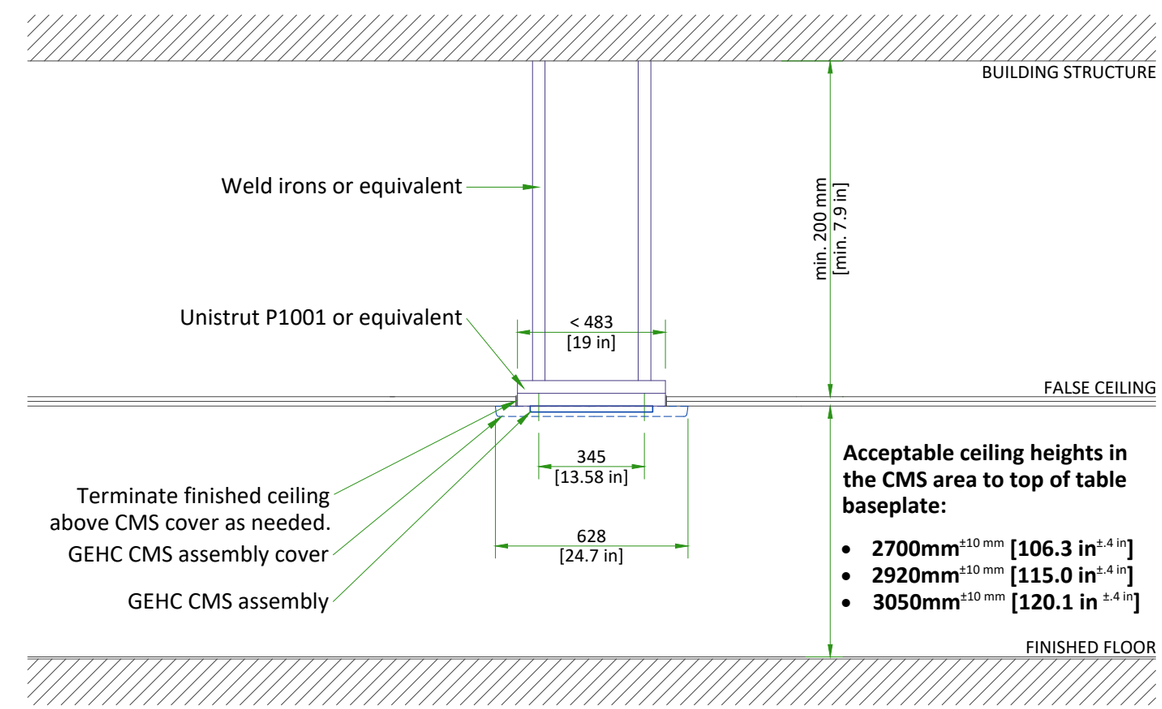
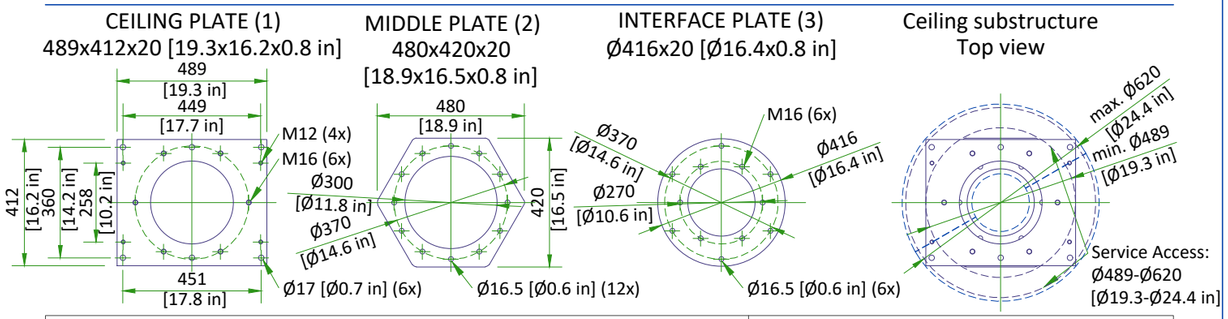


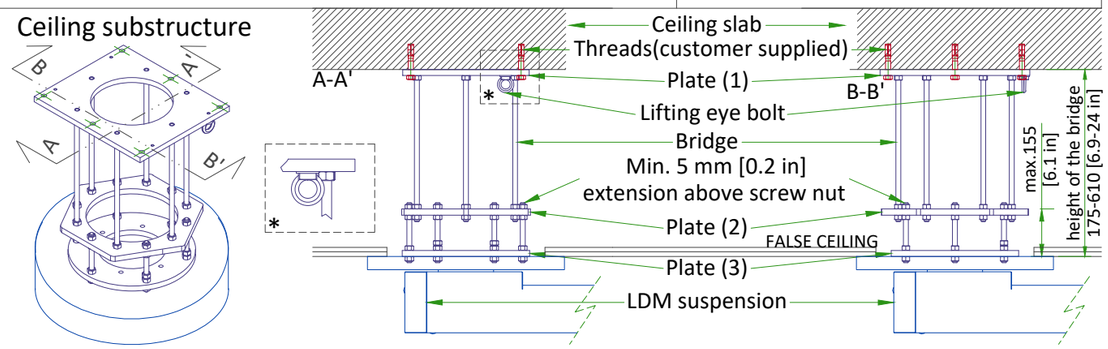
IMPORTANT NOTES

- **Cable Management System (CMS) support structure depicted on this page is only a typical example.**
- The CMS support structure shall be designed by a structural engineer and is installed by the customer/contractor. Final design of structure may differ from this page. Refer to documentation provided by structural engineer.
- No elements (lighting, vent, smoke detector etc.) shall protrude below the false ceiling.
- Special attention is required to ensure that the CMS Pivot Axis is the main installation reference point

MAVIG FIX MONITOR SUSPENSION MOUNTING METHOD



CAUTION	NOTE
• The maximum axial load per bolt : 7210 N • The maximum shear load per bolt : 957 N • The max. pull out force is defined in accordance with local codes	• steel threaded pins & nuts • threads (supplied by customer) • screws secured with Loctite 270 glue



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.

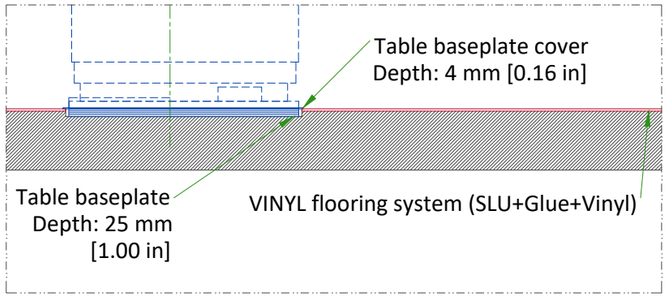
This certificate shall include the definition of fasteners and of their tightening torque, especially for the non-standard cases described in MAVIG PIM and for which the standard anchoring/screws delivered with product shall not be used but shall be defined (and implemented in most cases) by the structural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

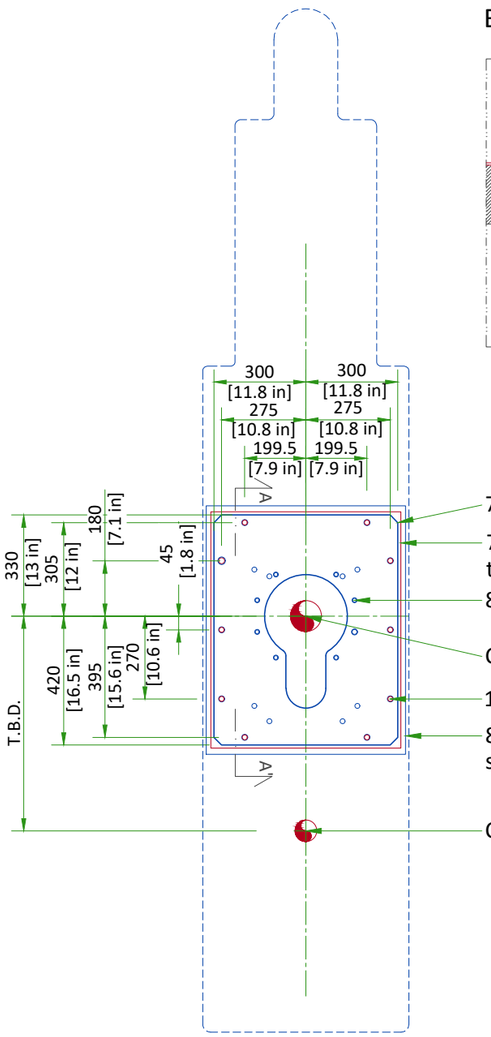
WARNING:

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

TABLE MOUNTING WITH TABLE BASEPLATE

BASEPLATE COVER - SECTION A-A'





750x600x25 mm [29.53x23.62x1 in] baseplate - supplied by GEHC

770x620 mm [30.31x24.41 in], 25 mm [1 in] deep floor cut for table base plate flush mounting

8 bolts for table mounting **(1)**

Cable inlet for the table, size as required

10 bolts for baseplate mounting **(2)**

810x650x4 mm [31.89x25.59x0.16 in] baseplate cover - supplied by GEHC

Cable inlet for options, size as required

ANCHOR SPECIFICATIONS

(1) GEHC supplied tilting table anchors: qty. 8 M16x40 mm bolts

(2) GEHC suppled table baseplate anchors:

- Through floor anchors: qty. 10 M20 bolts
- On-floor anchors: qty. 10 18mm bolt M12 and associated large washer
- Pull out strength for each bolt type: 1120 daN

BASEPLATE MOUNTING REQUIREMENTS

- The maximum pullout force per provided anchor was calculated assuming:
  - A concrete compression strength of **30 MPa** at 28 days (which is the minimum required compression strength).
  - Anchors installed to the required hole depth of **165.1 mm [6.50 in]** minimum.
  - The distance between the center of anchor hole and the edge of the concrete is **79.4 mm [3.13 in]**.
- Make sure to obtain data on compression strength of the concrete before using floor anchors.
- Chemical anchors can be used as well: HILTIHVU adhesive capsule + HAS Anchor rod.
- The fixation screws shall not jut out of the table baseplate, plate has to be level.

TEMPERATURE AND HUMIDITY REQUIREMENTS

IN-USE CONDITIONS

	EXAM ROOM			CONTROL ROOM			TECHNICAL ROOM		
Temperature	Min	Recommended	Max	Min	Recommended	Max	Min	Recommended	Max
	15 °C [59 °F]	20 °C [68 °F]	32 °C [90 °F]	15 °C [59 °F]	20 °C [68 °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	20% to 70%			20% to 75%			20% 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

(1) Relative humidity

It is recommended that the temperature for storage does not exceed +25°C [+77°F]. The lowest permissible temperature and humidity is preferred to prevent damage to the detector.
Systems with the Fluoro UPS (11 kVA) shall be stored for less than 14 weeks if the storage temperature is above 30°C [86°F], and less than 25 weeks if the storage temperature is above +25°C [+77°F].
The overall storage time for the system shall be less than 6 months.

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 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	0.10	0.10	0.10	0.10	341	341	341	341
	Typical injector	0.09	0.09	0.09	0.09	307	307	307	307
	TOTAL	**0.60**	**0.74**	**1.08**	**1.81**	**2047**	**2525**	**3685**	**6176**
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**	**341**	**341**	**3753**
Technical room	C-FRT Cabinet	0.70	1.02	1.53	2.16	2388	3480	5221	7370
	System Interface Cabinet	0.50	0.50	0.50	0.50	1706	1706	1706	1706
	Tube Cooling Unit	0.56	2.57	2.77	3.47	1927	8769	9482	11857
	Detector Conditioner	0.21	0.21	0.21	0.21	717	717	717	717
	Fluoro 11 kVA UPS	0.33	0.33	0.33	0.33	1137	1137	1137	1137
	TOTAL	**2.30**	**4.63**	**5.34**	**6.67**	**7875**	**15809**	**18263**	**22787**

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

CONNECTIVITY REQUIREMENTS

Service Connectivity for new systems will be based on the Insite-RSvP Platform which allows to configure a direct Internet connection to the RSvP Server (routers/VPN tunnel no more mandatory). Communication with the RSvP server will be outbound only and require using Transport Layer Security (TLS) over TCP port 443. This is commonly known as an HTTPS (HTTP-Secure) connection.

There will be several ways to connect the system to the RSvP Enterprise Server. See below the main options that might not be all available or authorized at your site depending on actual network constraints or local regulations.:

- The system allows for DNS configuration or proxy server-based connection to the Internet.
- Connection thru a GE Proxy will be possible in the future.
- In the case the customer does not accept the above connection protocol or regulatory reasons prevent using these types of configurations, the local/regional connectivity teams can provide help to connect through SSL/TLS proxy IP over the site-to-site VPN.

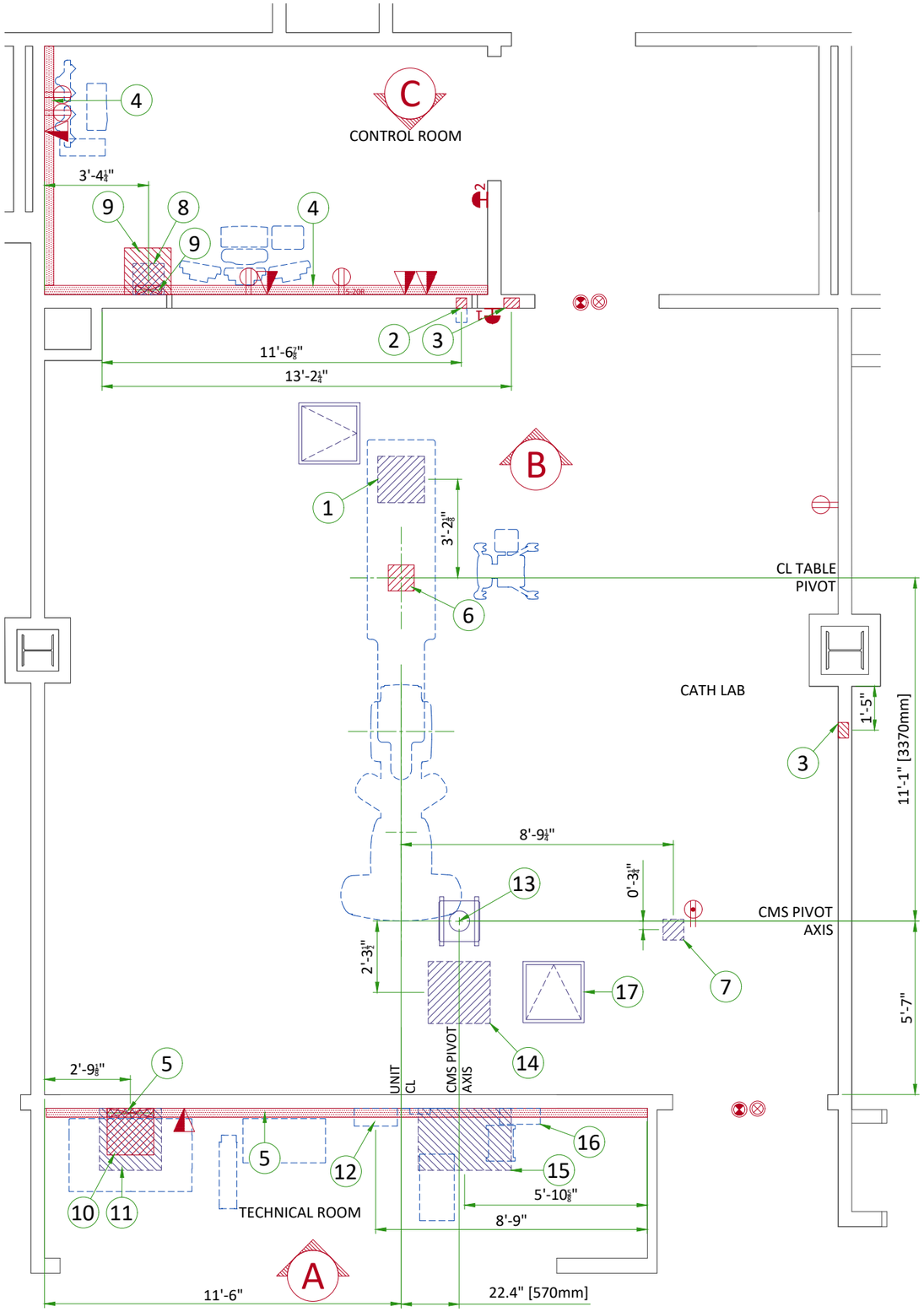
To make the system connectivity operational before the system installation is finished, ensure the connectivity solution is defined as early as possible during the pre-installation process and proper information are exchanged between the customer Network Administrators and GEHC Sales and/or Service representatives.

For more information please refer to the latest version of the Pre Installation Manual.

ELECTRICAL NOTES

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 distribution 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. In some cases GEHC will specify ground wires to be sized larger than code. In these situations, the GEHC specification must be followed.
10. 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.
11. The maximum point to point distances illustrated on this drawing must not be exceeded.
12. Physical connection of primary power to GEHC equipment is to be made by customers electrical contractor with the supervision of a GEHC representative. The GEHC representative would be required to identify the physical connection location, and insure proper handling of GEHC equipment.
13. 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.
14. Every installation is unique. The electrical contractor will be required to support the installation of the GEHC equipment by providing knockouts, grommeted openings, bushings, etc. as required. All power connections to be performed by the electrician.

- All junction boxes, conduit, duct, duct dividers, switches, circuit breakers, cable tray, etc., are to be supplied and installed by customers electrical contractor. All junction boxes shall be provided with covers.
- Conduit and duct runs shall have gradual 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.
- Electrical contractor to provide measured pull strings in all conduit and raceway runs.
- Provide 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.

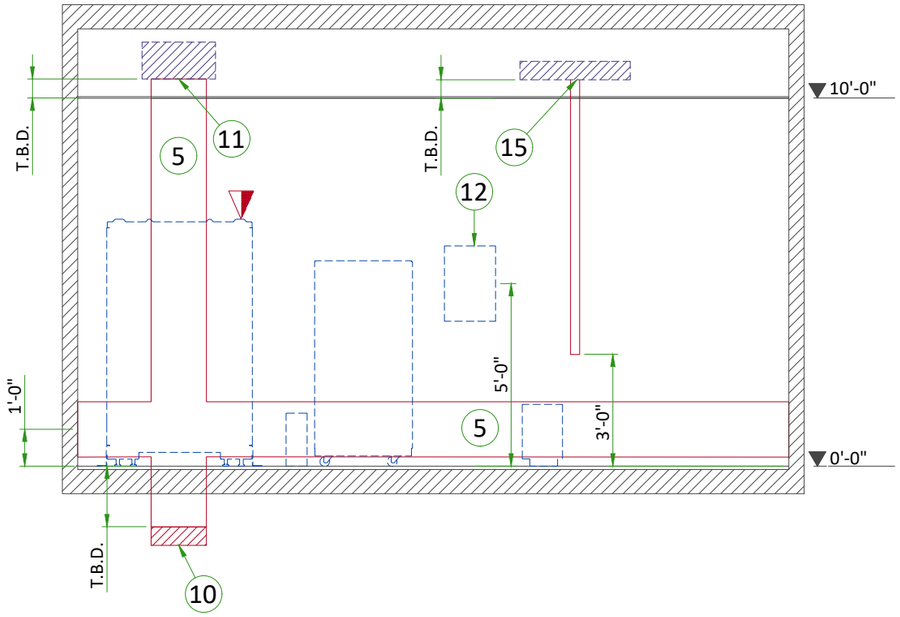


Item	Electrical Layout Item List
1	18"x18"x6" [450 x 450 x 150] box above ceiling (monitors)
2	4"x4"x4" [100 x 100 x 100] flush wall junction box 12" [300] below finished ceiling (x-ray buzzer)
3	10"x6"x4" [250x150x100] flush wall box (I-Point, refer to detail on E4)
4	10" x 3 1/2" [250 x 89] surface wall duct with minimum 2 dividers
5	18" x 3 1/2" [450 x 89] surface wall duct with minimum 2 dividers
6	8" x 8" x 6" [200 x 200 x 150] box below floor with 5" [127] bushing and locknut (table)
7	8" x 8" x 6" [200 x 200 x 150] box above ceiling (PDM/TRAM)
8	12"x12"x6" [300 x 300 x 150] box above ceiling in control room
9	18" x 18" x 6" [450 x 450 x 150] box below floor in control room
10	18"x18"x6" [450 x 450 x 150] box below floor in equipment room
11	24"x24"x12" [600 x 600 x 300] box above ceiling in equipment room
12	Main disconnect panel
13	Cable management system (CMS)
14	24"x24"x12" [600 x 600 x 300] box above ceiling in exam room with 5" [127] grommeted opening facing towards CMS cable guide
15	24"x36"x6" [300 x 450 x 150] box above ceiling for waterlines and hose storage
16	Light signaling control box
17	24"x24" [600 x 600] service access panel in ceiling

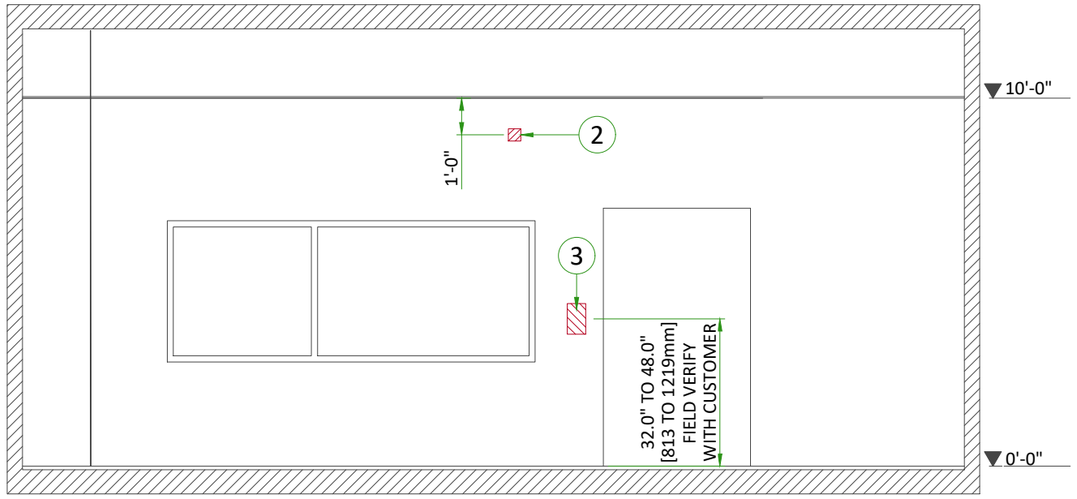
ITEM	QTY	Electrical Outlet Legend Customer/contractor supplied and installed items unless otherwise specified. Height above floor determined by local codes unless otherwise specified.
		System emergency off (SEO), (recommended height 1.2m [48"] above floor)
		X-Ray ON lamp (L1) - 24 V
		System ON lamp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

Additional Conduit Runs
(Contractor Supplied and Installed)

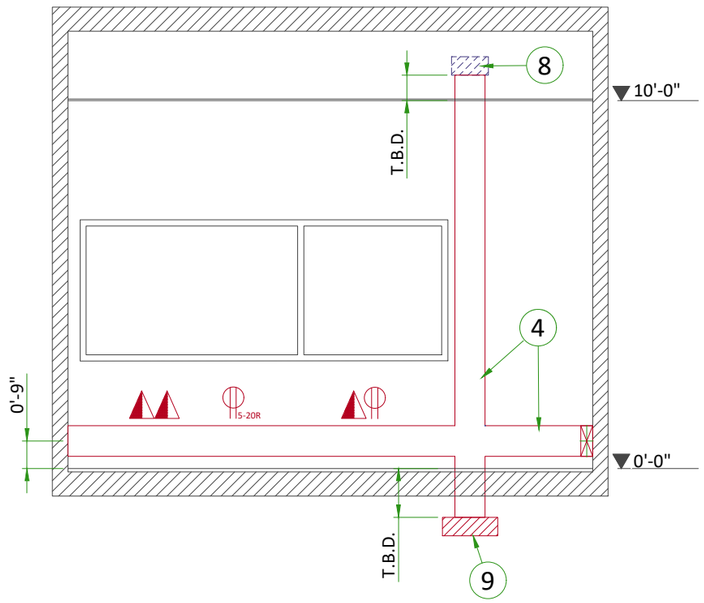
From (Bubble # / Item)		To (Bubble # / Item)		Qty	Usable length	Size (in)
14	Cable Management System	11	CFRT Cabinet	2&2	47.2 ft.	4 & 3
6	Table	10	CFRT Cabinet	1	71.2 ft.	4
9	Control Room	10	CFRT Cabinet	1&3	78.7 ft.	3½"&2½"
9	Bolus Chase	6	Table	1	98.4 ft.	2½
15	Cooling Line	13	Cable Management System	1	56.7 ft.	3
16	Light Signaling Electrical Box		Warning light	1	-	½
16	Light Signaling Electrical Box	11	System Interface Cabinet	1	-	½
16	Light Signaling Electrical Box		120-V 1 phase power	1	-	As Req'd
2	X-Ray Buzzer	11	CFRT Cabinet	1	98.4 ft.	1½
2	X-Ray Buzzer	8	Control Room	1	98.4 ft.	1½
#	Monitor Bridge / Boom	8	Control Room	1	88 ft.	2½
1	Large Display Monitor	11	CFRT Cabinet (LDM)	1 & 1	92.5 ft.	3&¾
11	CFRT Cabinet (LDM)	7	TRAM/PDM	1	-	3
12	Main Disconnect Panel	5	20 kVA UPS	2	-	As Req'd
11	System Interface Cabinet		System Emergency Off 1	1	-	½
	System Emergency Off 1		System Emergency Off 2	1	-	½
11	System Interface Cabinet		System Emergency Off 2	1	-	½
12	Main Disconnect Panel	5	System Interface Cabinet	1	49.5 ft.	1
6	Table	7	TRAM/PDM	1	-	3
8	Patient Monitoring Console	1	Monitor Bridge / Boom	1	-	3
8	Patient Monitoring Console	7	TRAM/PDM	2	-	3
3	I-Point (#1)	11	I-Box	1	98.4 ft.	2½
3	I-Point (#2)	11	I-Box	1	98.4 ft.	2½


10'-0"
T.B.D.
11
5
T.B.D.
15
12
5'-0"
3'-0"
1'-0"
5
0'-0"
T.B.D.
10

A


10'-0"
1'-0"
2
3
32.0" TO 48.0"
[813 TO 1219mm]
FIELD VERIFY
WITH CUSTOMER
0'-0"

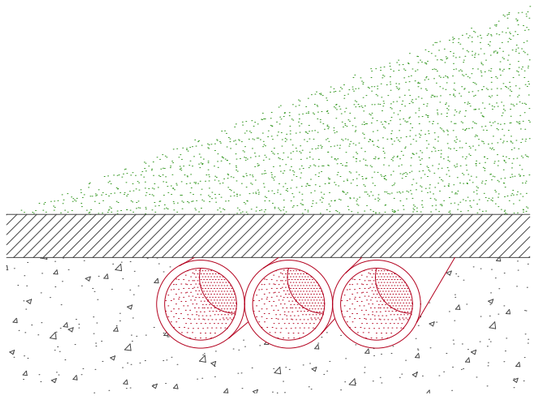
B


8
10'-0"
T.B.D.
4
0'-9"
15-20R
0'-0"
T.B.D.
9

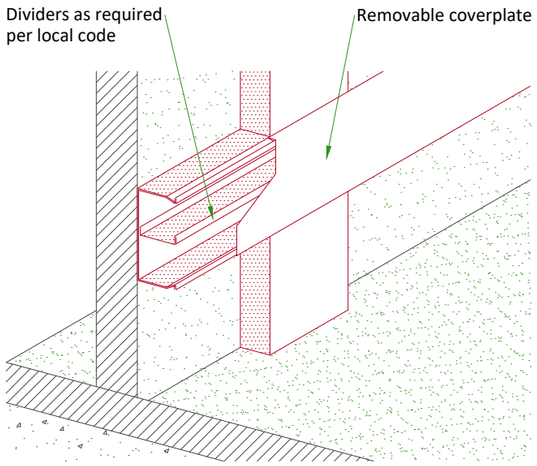
C

TYPICAL CABLE MANAGEMENT

CONDUIT IN THE FLOOR



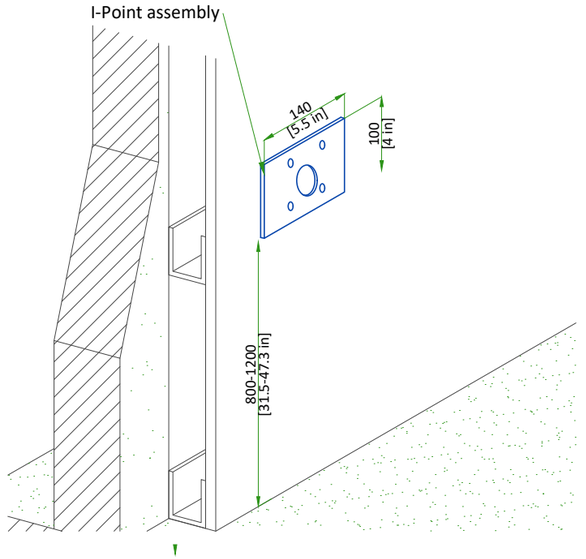
WALL DUCT



NOT TO SCALE

I-POINT

PLASTER WALL



I-POINT INSTALLATION

- The I-Point is the component which allows the connection of the Discovery Control Center in the exam room.
- The I-Point position in the room is determined by the customer during the layout consideration, however it should be located in the rear part of the table column to avoid impacts with the AGV during motion.
- Cable ducts and optional holder/supportive box for the Ipoint is not supplied by GE and must be designed, calculated and supplied locally.

	I-POINT
FIXATION	To the wall
QUANTITY IN EXAM ROOM	2
CABLE OPENING	Ø90 mm [Ø3.5 in] or 100x70 mm [5.5x2.8 in]
INSTALL HEIGHT FROM FINISHED FLOOR	800-1200 mm [31.5-47.3 in]

POWER REQUIREMENTS

POWER SUPPLY	**3 PHASES+G 380/400/415/440/480 V ±10%**
FREQUENCIES for 380/400/415V	**50/60 Hz ± 3 Hz**
FREQUENCY for 440 /480V	**60 Hz ± 3Hz**
PEAK POWER CONSUMPTION	**150 kVA**
MOMENTARY POWER CONSUMPTION	**100 kVA**
LONG TIME POWER CONSUMPTION	**15 kVA**
STANDBY	**3.1 kVA**
SYSTEM OFF	**0.4 kVA**
MINIMUM PROTECTION	**100 A (D curve or equivalent)**
MAXIMUM LINE IMPEDANCE PER PHASE	**380 V : 0.085 Ω / 400 V : 0.085 Ω / 415 V : 0.090 Ω/ 440 V : 0.100 Ω / 480 V : 0.120 Ω**

- The section of the supply cable should be calculated in accordance with its length and the maximum line impedance per phase and rating of protection minimum 35mm2 [2 AWG]
- The Protective Earth cables shall not be smaller than the power cables.
- Hospital shall provide Equipotential busbar in the exam room. Connections shall be so arranged that they are accessible, labeled, clearly visible.
- Governing electrical codes may require a neutral wire. If present, neutral must be terminated in MDP.

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.

CABLES

- MDP to System Interface Cabinet cable shall be copper cable and cable insulation temperature shall be 90°C.
- 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

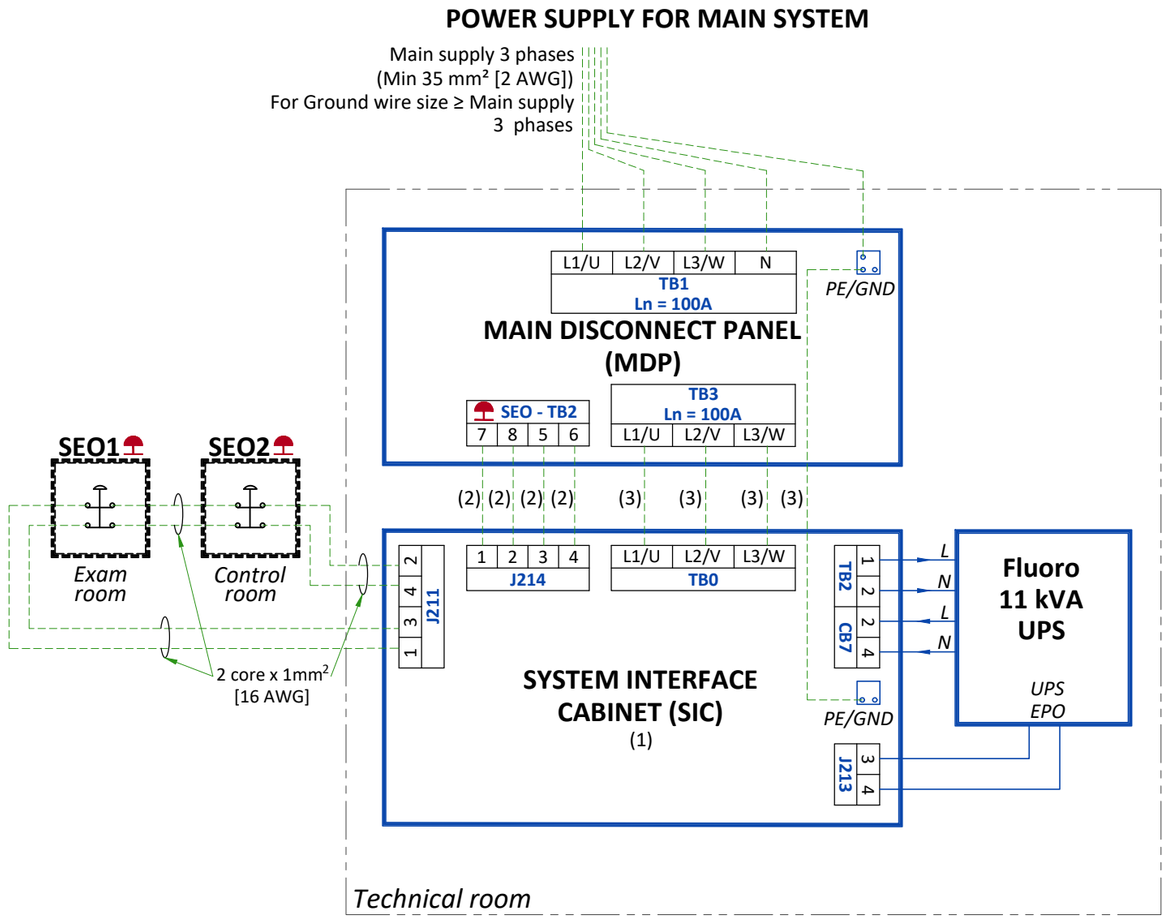
The general rules for laying cableways should meet the conditions laid down in current standards and regulations, with regard to :

- 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 GEHC 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 buttons shall not be of momentary type.
- The EPO buttons shall be protected against accidental activation.

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

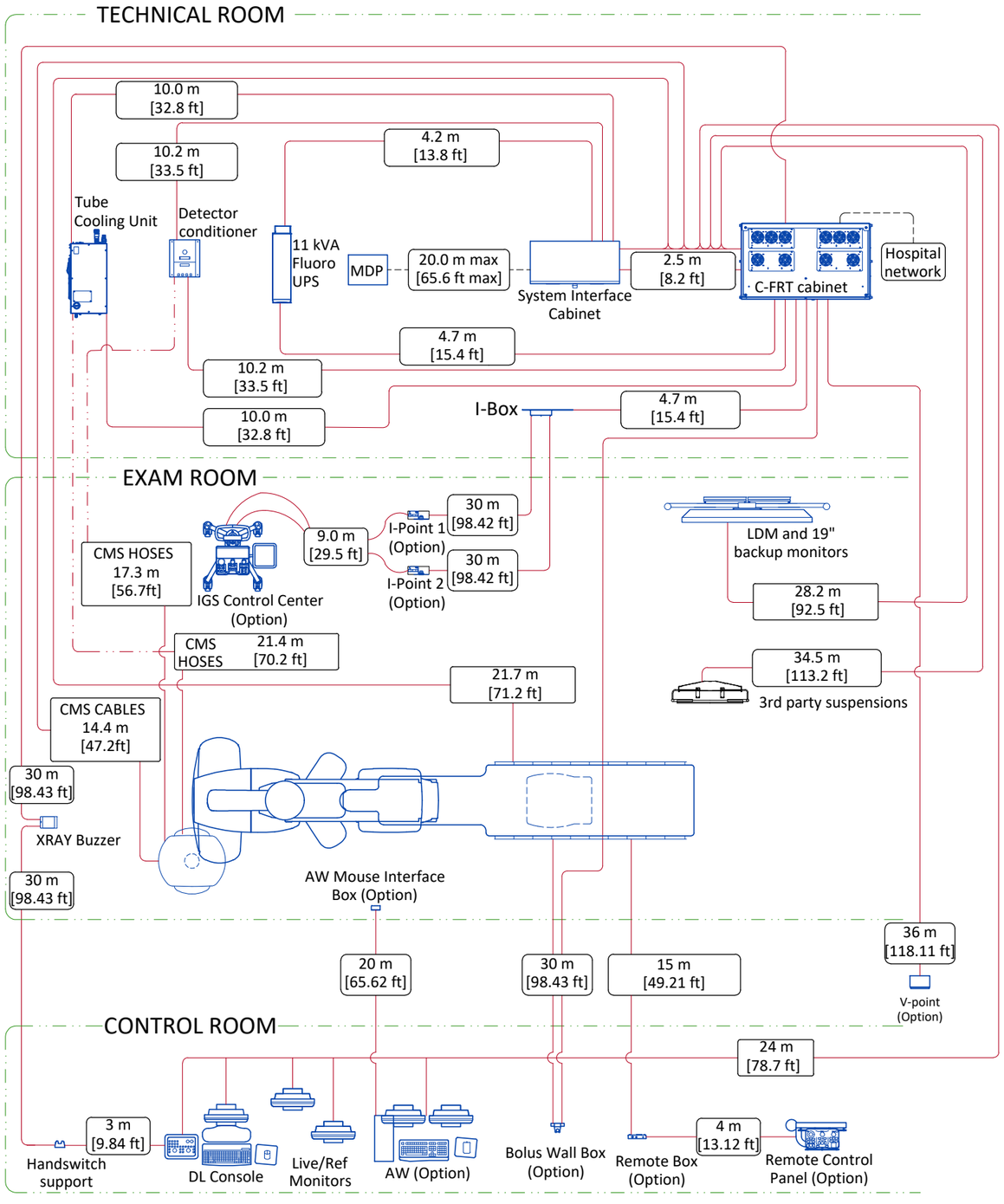
NOTES:

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

(2) SEO cable: 4 core x 1mm² [16 AWG]

(3) Power cable: Min 35 mm² [2 AWG]. For Ground wire size ≥ Main supply 3 phases

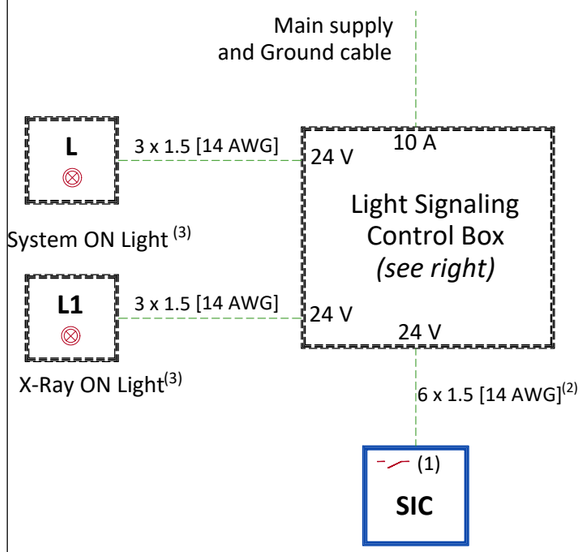
INTERCONNECTIONS

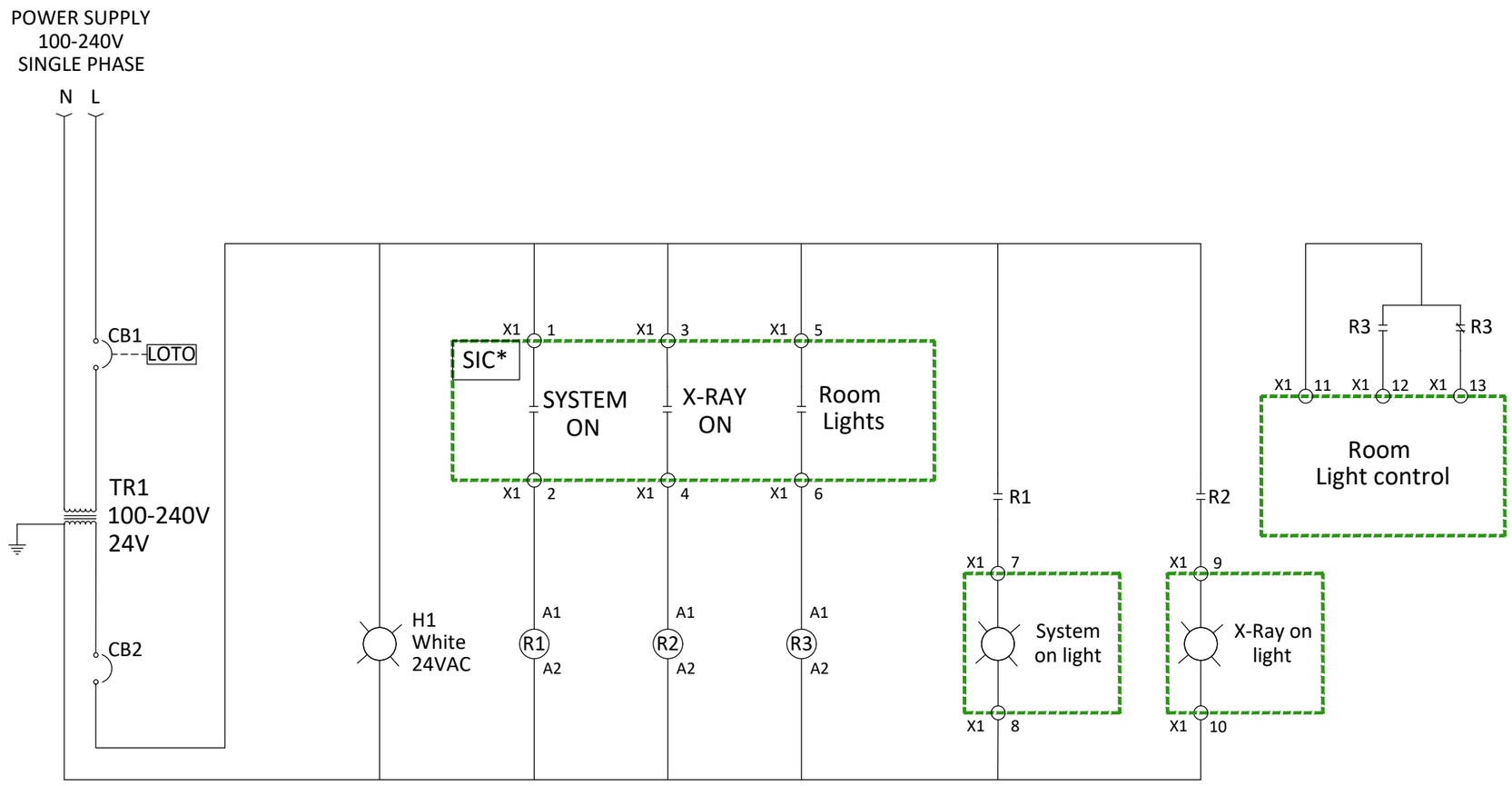


----------	Cable supplied by the client
	Cable supplied by GEHC
	Cable supplied by GEHC (contains water hoses)
	Room wall
.....m / .....ft	Cable length

DETAILED SCHEMATICS ELECTRICAL BOX (LIGHT SIGNALING)

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





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

*

TERMINAL X1	SYSTEM ON		X-RAY ON		ROOM LIGHTS	
	1	2	3	4	5	6
SIC ON/OFF BOARD	1	2	1	2	1	2
	J155		J106		J110	

LEGEND:

CB1/CB2: Circuit breaker

H1: System ON lamp voltage control

IG: Lockable interruptor

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

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

R1/R2/R3: 24 VAC 50/60 Hz auxiliary relay

SIC: System Interface Cabinet

TR1: Transformer

SYMBOLS LEGEND:

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