

# REV **MODIFICATIONS** DATE

- 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 Equipment Details (3)
- 09 A7 Delivery
- 10 S1 Structural Notes
- 11 S2 Structural Layout
- 12 S3 Structural Details (1) 13 - S4 - Structural Details (2)
- 14 S5 Structural Details (3) 15 S6 Structural Details (4)

- 16 M1 HVAC 17 - E1 - Electrical Notes
- 18 E2 Electrical Layout
- 19 E3 Electrical Elevations
- 20 E4 Power Requirements
- 21 E5 Power Distribution 22 - E6 - Interconnections



**GE Healthcare** 

# **INNOVA IGS 620-630 FINAL STUDY**

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

GE 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 drawing. GE cannot accept responsibility for any damage due to the partial use of GE final issue drawings, however caused. All dimensions are in millimeters unless otherwise specified. Do not scale from printed pdf files. GE accepts no responsibility or liability for defective work due to scaling from these drawings.

Dra	wn by	Verified by Concession S.O. (GON)		S.O. (GON)	PIM Manual	Rev	
Р	MM	TST	-		5694389-1-1EN	2	
Format	Scale		File Name		Date	Sheet	
A3	1/4"=1'-0"	EN-VAS	S-TYP-IGS-6X0-NF	.DWG	17/Apr/2025	01/22	

#### **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 S	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,
    - Power for drills and other test equipment,
    - Restrooms.
  - Provide for refuse removal and disposal (e.g. crates, cartons, packing)

TYPICAL | INNOVA IGS 620-630 | EN-VAS-TYP-IGS-6X0-NF.DWG | Rev A|Date 17/Apr/2025 | C2 - Disclaimer - Site Readiness | 02/22

# **MAGNETIC INTERFERENCE SPECIFICATIONS**

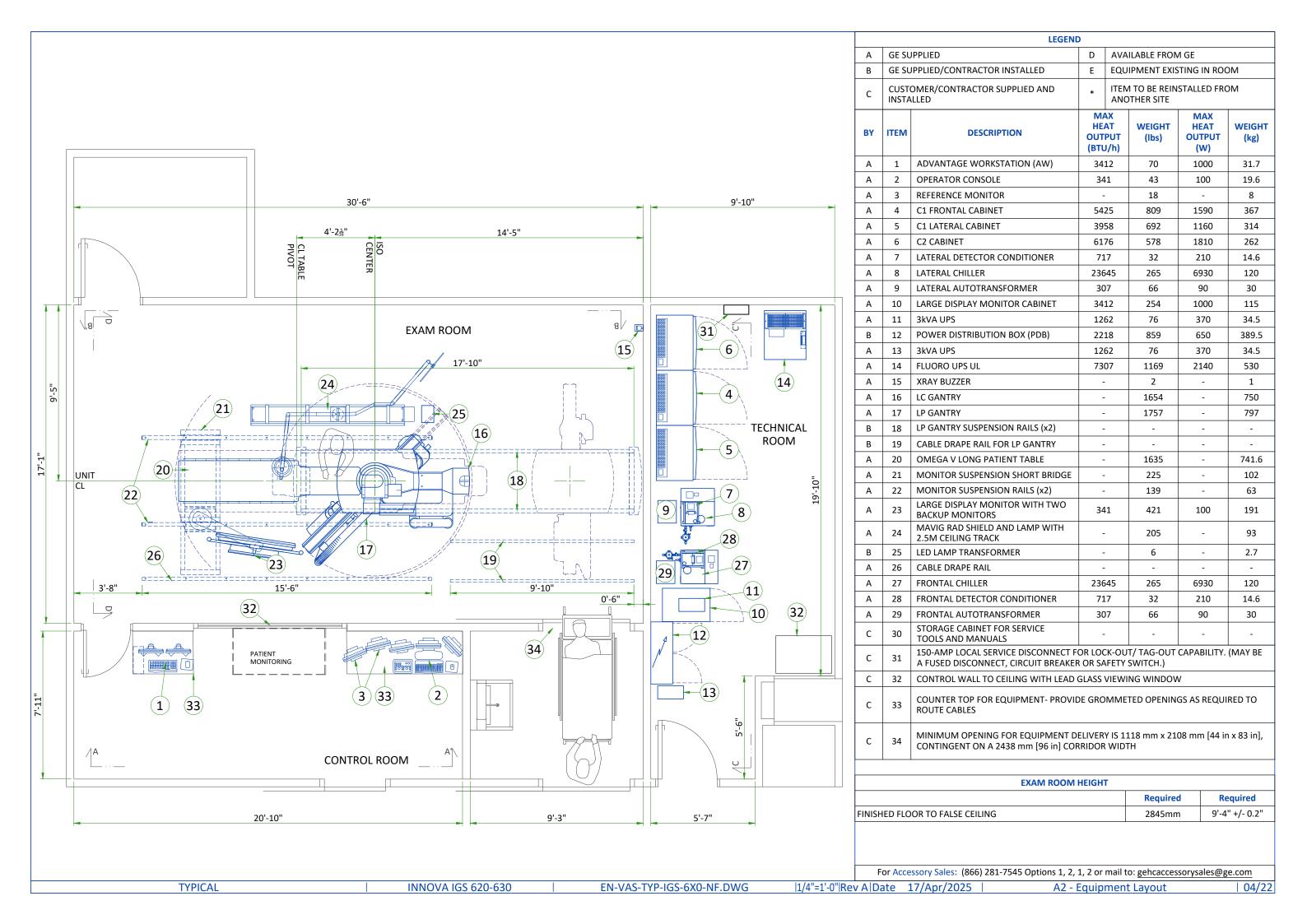
- Image intensifiers must be located in ambient static magnetic fields of less than 1 gauss to guarantee specified imaging performance.
- X-ray tubes must be located in ambient static magnetic fields of less than 10 gauss to guarantee specified performance.
- System electronics must be located in ambient 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:

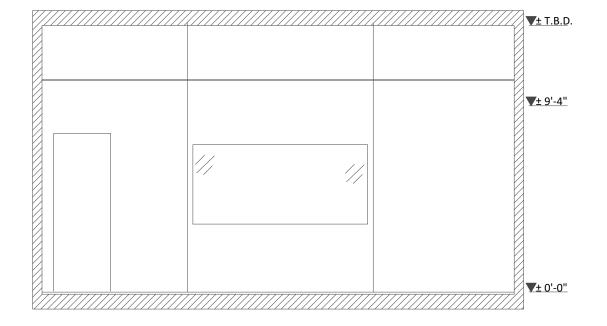
EMISSIONS	TEST COMPLIANCE	ELECTROMAGNETIC ENVIRONMENT
Radio–Frequency Emissions	Group1 Class A limits	The system is suitable for use in all establishments other than domestic and those directly connected to the low voltage power supply network that supplies buildings used for domestic purposes.
CISPR11	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.

TYPICAL INNOVA IGS 620-630 EN-VAS-TYP-IGS-6X0-NF.DWG Rev A|Date 17/Apr/2025 A1 - General Notes 03/22



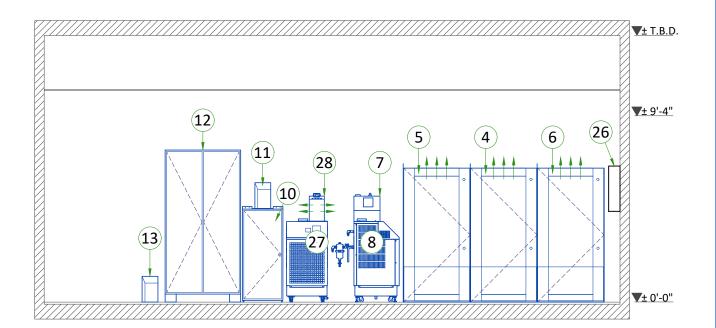
# **CONTROL ROOM VIEW**

# SECTION A-A'



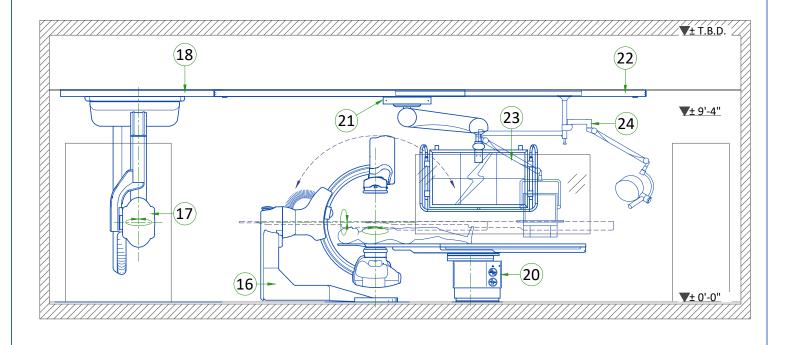
# **TECHNICAL ROOM VIEW**

# SECTION C-C'



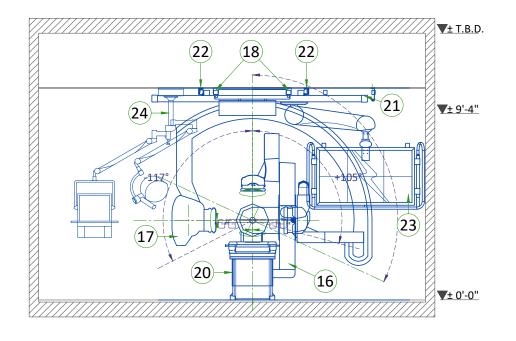
# **EXAM ROOM VIEW**

# SECTION B-B'

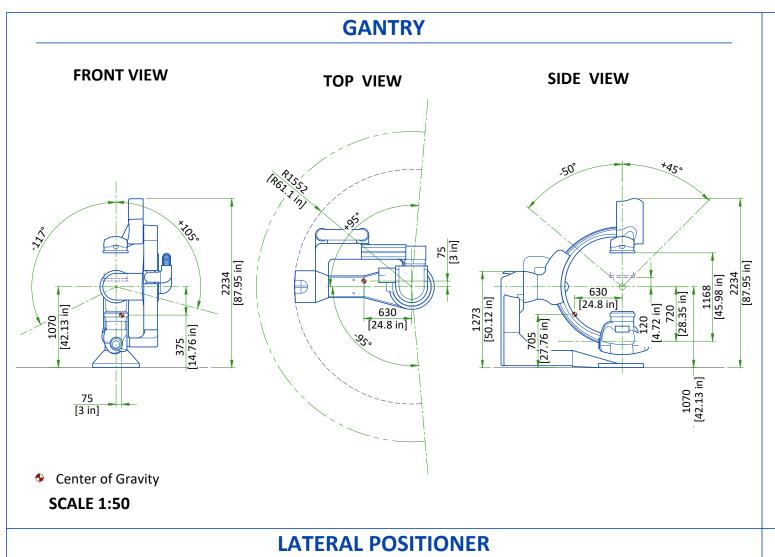


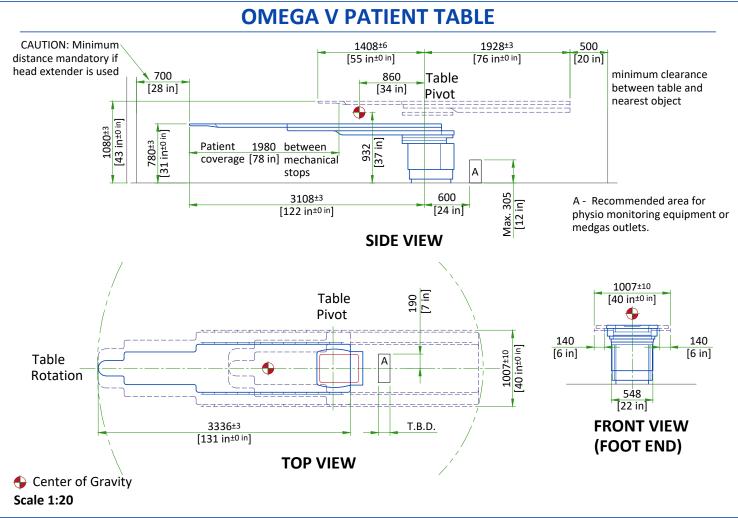
# **TECHNICAL ROOM VIEW**

# SECTION D-D'



TYPICAL | INNOVA IGS 620-630

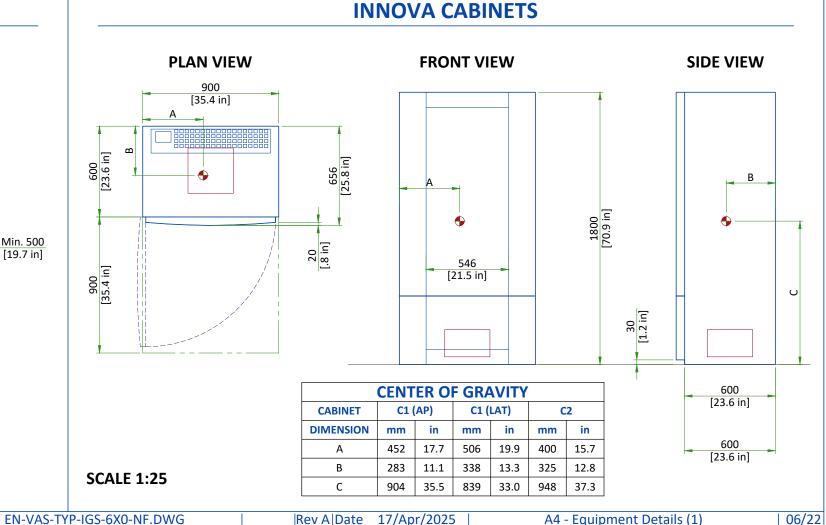


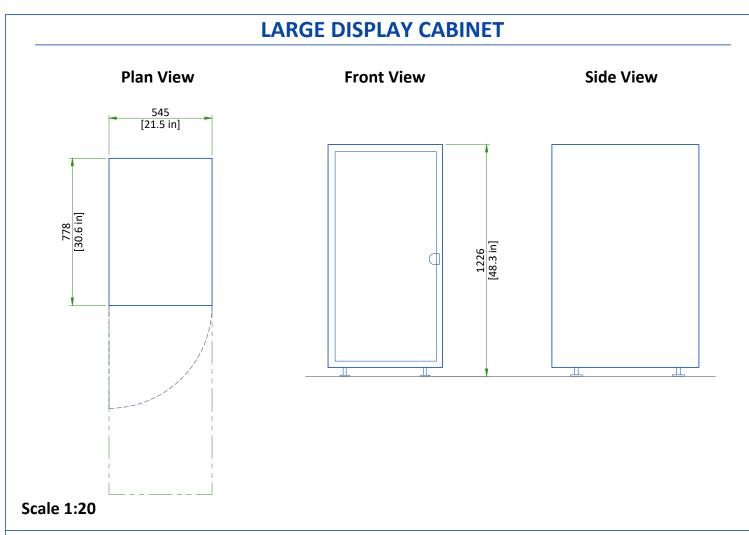


# Min. 4184 720 620 [28.3 in] [24.4 in] [164.7 in] Min. 150 978 [5.9 in] [38.5 in] 1125 S [44.3 i 84] Parking Min. 500 Min. 500 [19.7 in] [19.7 in] Head Wall 1070 [42.1 in] 400 [15.7 in] **Side View Front View Scale 1:50**

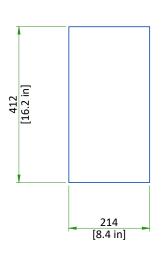
INNOVA IGS 620-630

**TYPICAL** 

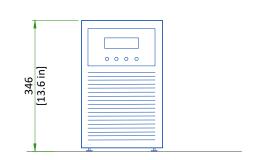




# **3kVA UPS**

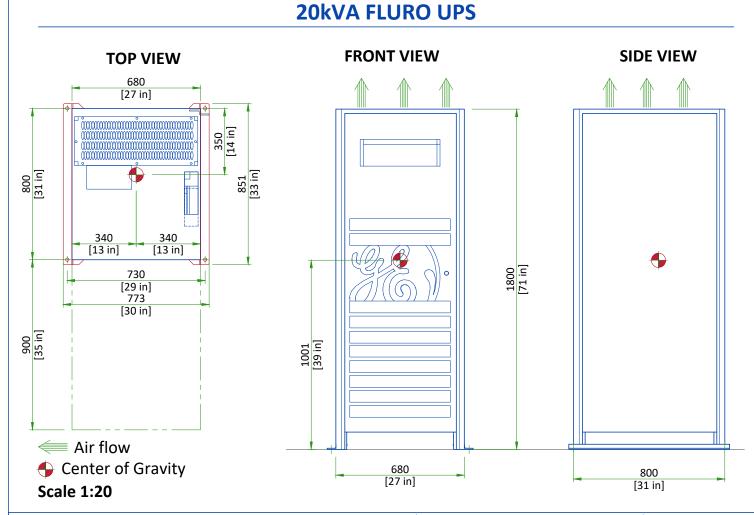


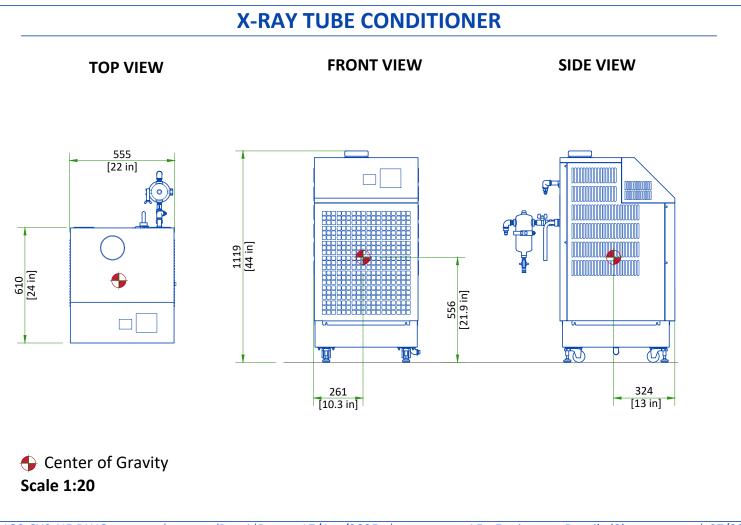
**Plan View** 



**Front View** 

**Scale 1:10** 

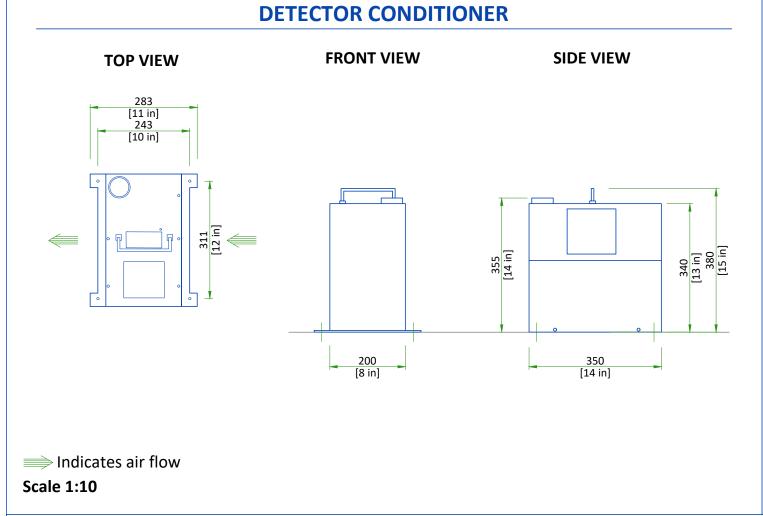




TYPICAL INNOVA IGS 620-630 EN-VAS-TYP-IGS-6X0-NF.DWG Rev A|Date 17/Apr/2025 A5 - Equipment Details (2) 07/

# Plan View Front View Side View

Scale 1:10



TYPICAL INNOVA IGS 620-630 EN-VAS-TYP-IGS-6X0-NF.DWG Rev A|Date 17/Apr/2025 A6 - Equipment Details (3) 08/22

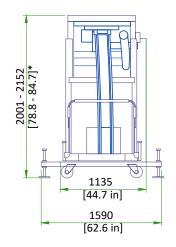
# **DELIVERY**

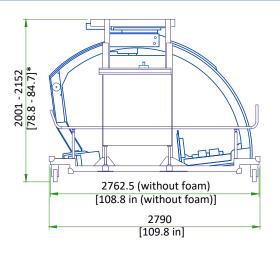
#### The customer should:

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

EQUIPMENT		DIMENSIONS		WE	IGHT
	LENGTH	2820 mm	111 in		
LC GANTRY	WIDTH	1230 mm	48.4 in	1060 kg	2340 lbs
	HEIGHT	2000 mm	79 in		
	LENGTH	2790 mm	109.8 in		
LP GANTRY	WIDTH	1135 mm	44.7 in	1225 kg	2700 lbs
	HEIGHT	2152 mm	84.7 in		
	LENGTH	6070 mm	239 in		
LP RAILS (BOX)	WIDTH	260 mm	10 in	95 kg	209 lbs
	HEIGHT	300 mm	11.8 in		

# SHIPPING DOLLY FOR LP GANTRY

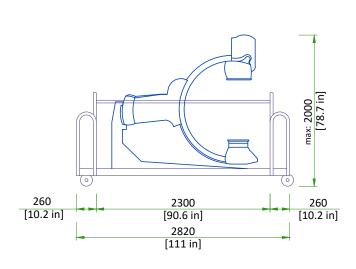


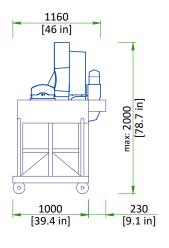


SHIPPING WEIGHT: 1225 kg [2700 lb]

DIMENSIONS						
HEIGHT WIDTH LENGTH						
Delivery configuration	2001-2152 mm [78.8 - 84.7 in]*	1135 mm [44.7 in]	2762.5 mm [108.8 in]			
Shipping configuration	2152 mm [84.7 in]	1135 mm [44.7 in]	2790 mm [109.8 in]			
NOTE	* Height can be adjusted (by removing wooden blocks): ONLY when necessary on delivery path and IF floor rolling surface is flat and leveled (no obstacle).					

# SHIPPING DOLLY FOR LC GANTRY





SHIPPING WEIGHT: 1060 kg [2337 lb].

Both ends of the dolly can be removed which will shorten the LC gantry dolly to 2300 mm [90 in], also the right and left top handles can be removed which will make the width 1160 mm [46 in].

**SCALE 1:50** 

TYPICAL INNOVA IGS 620-630 EN-VAS-TYP-IGS-6X0-NF.DWG Rev A|Date 17/Apr/2025 A7 - Delivery 09/22

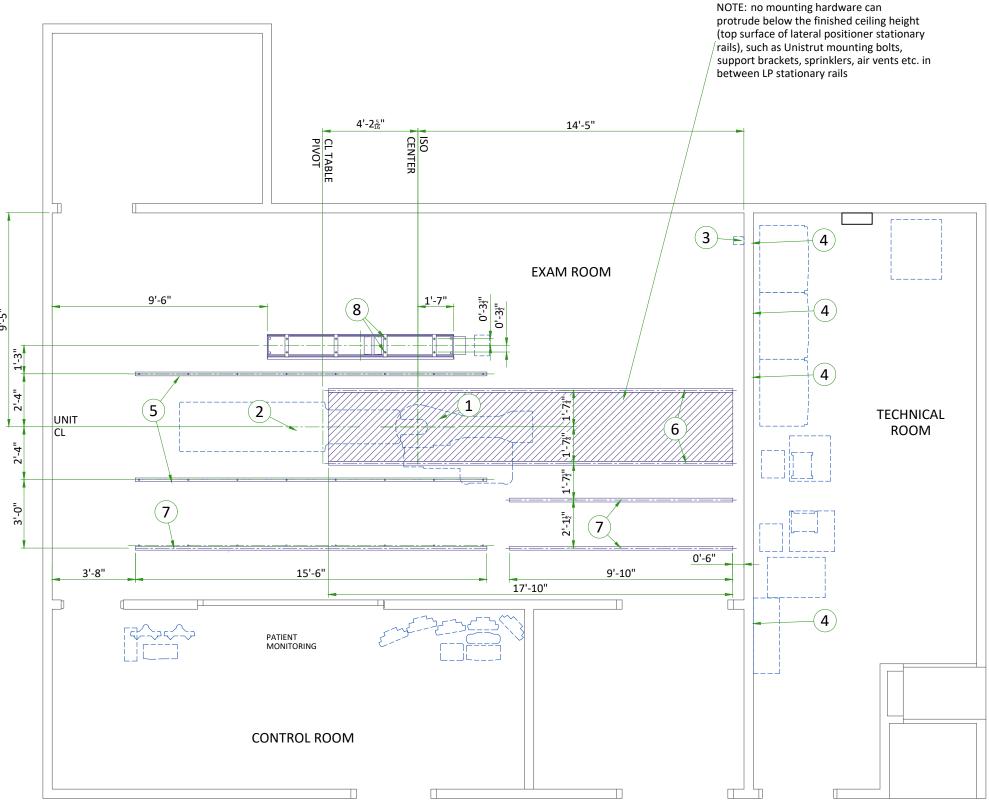
### **STRUCTURAL NOTES**

- 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"

TYPICAL INNOVA IGS 620-630 EN-VAS-TYP-IGS-6X0-NF.DWG Rev A|Date 17/Apr/2025 S1 - Structural Notes 10/22

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

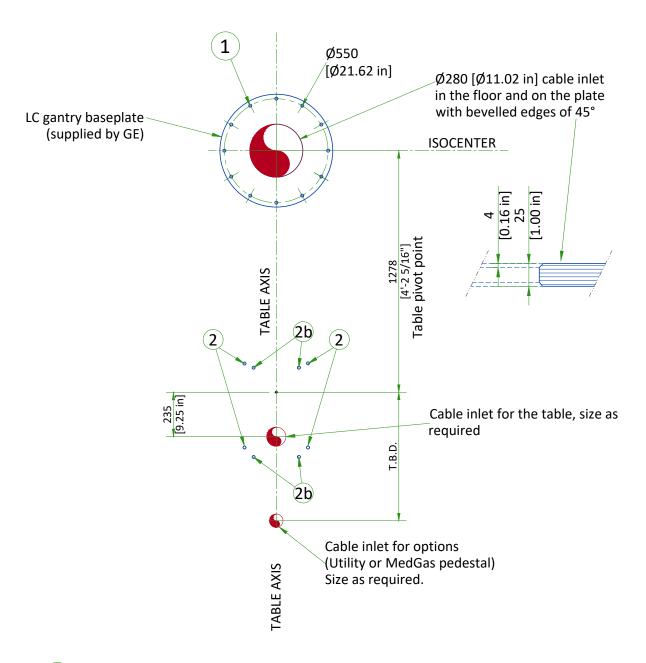
**TYPICAL** 



#### STRUCTURAL LAYOUT ITEM LIST (GE SUPPLIED / CONTRACTOR INSTALLED) Area occupied by GE supplied positioner baseplate 1 2 Area occupied by GE supplied table baseplate 3 Mount X-Ray buzzer bracket on wall above ceiling (CUSTOMER SUPPLIED / CONTRACTOR INSTALLED) Support backing, locate as shown. 4 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. 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 430 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. >>Components flush with ceiling<< Structural support in ceiling for fastening cable drape rail. 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 50 lbs. 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. Structural supports for fastening the overhead counterpoised suspension. Support to be located as shown. Support should run continuous with no fittings extending below face of channel, be parallel, square, and in the same horizontal plane, flush with finished ceiling. Suspension requires 102 lbs/bolt support. Methods of support that will permit attachment to structural steel or through bolts in concrete construction should be favored. Do not use screw anchors in direct tension.

| INNOVA IGS 620-630 | EN-VAS-TYP-IGS-6X0-NF.DWG |1/4"=1'-0"|Rev A|Date | 17/Apr/2025 | S2 - Structural Layout | 11/22

#### LC GANTRY AND TABLE ANCHORING WITH NO BASEPLATE



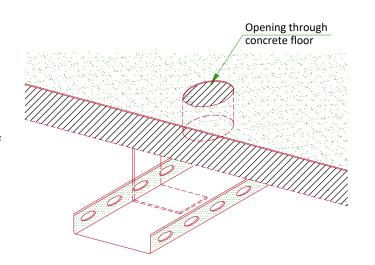
- 1 LC baseplate mounting location: 12 bolts Pullout strength on each bolt 736 daN
  - M20 Through-Bolts recommended (supplied by GE) Alternates:
  - M16 Mechanical anchors (supplied by GE)
  - Chemical anchors (not supplied by GE):
  - HILTIHVU adhesive capsule + HAS Anchor rod
- 2 Table mounting location: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

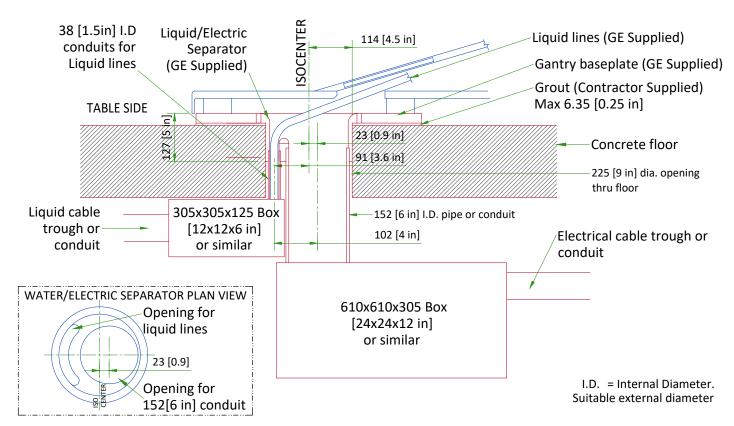
#### FLOOR REQUIREMENTS

- 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.
- $\bullet$  Do not glue the floor covering in the gantry zone.

CABLEWAYS UNDER FLOOR SLAB



# JUNCTION BOX BELOW FLOOR

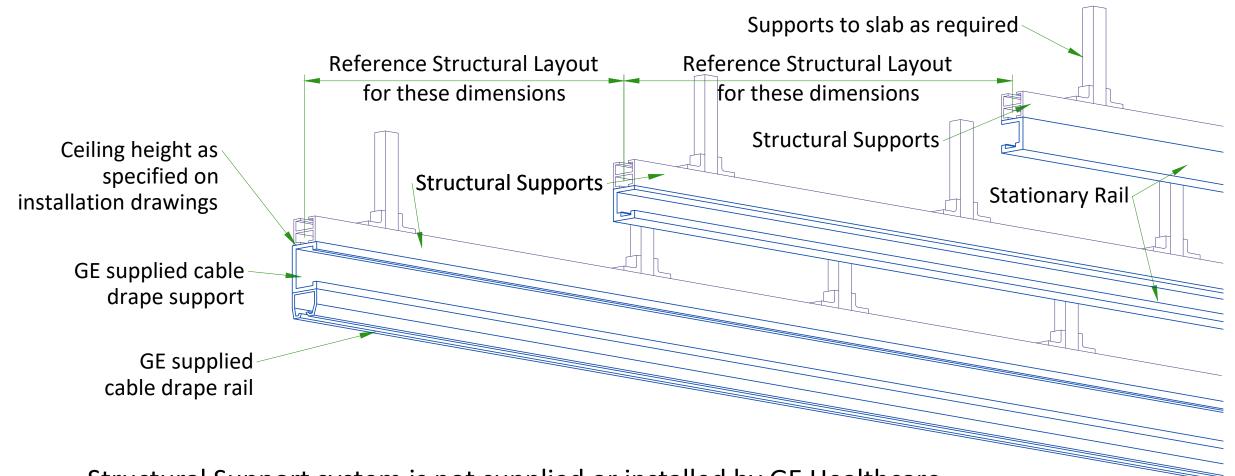


NOTE: PIPE, JUNCTION BOX, AND DUCT OR CONDUIT ARE TO BE SUPPLIED AND INSTALLED BY CUSTOMER OR CUSTOMER'S CONTRACTOR

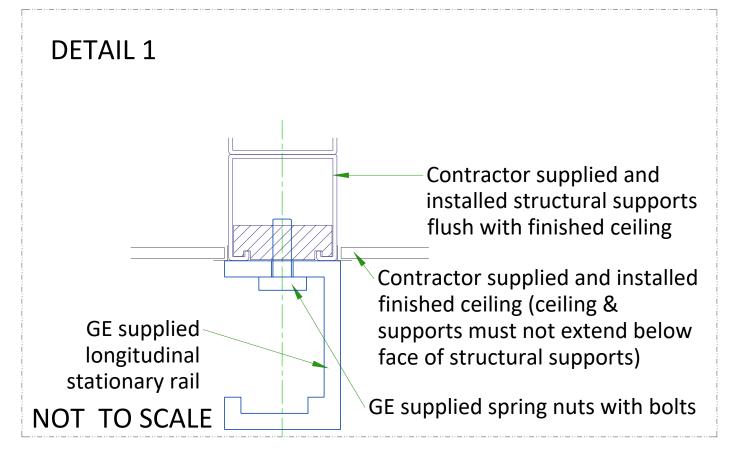
NOT TO SCALE

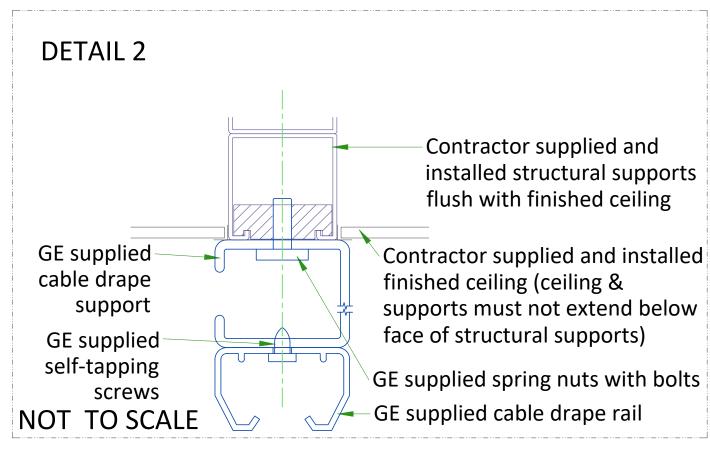
TYPICAL | INNOVA IGS 620-630 | EN-VAS-TYP-IGS-6X0-NF.DWG | Rev A|Date 17/Apr/2025 | S3 - Structural Details (1) | 12/

# XT RADIOGRAPHIC SUSPENSION, INBOARD MOUNTING



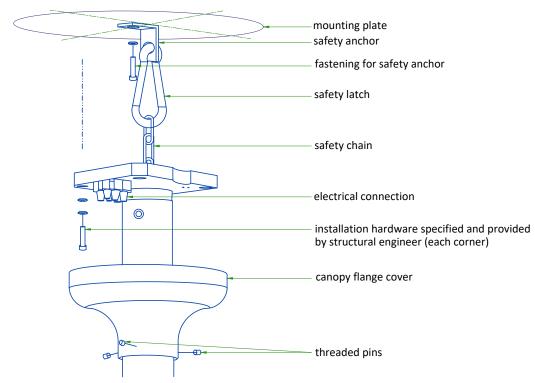
Structural Support system is not supplied or installed by GE Healthcare





#### MAVIG SUSPENSION MOUNTING METHOD 2.5m CEILING TRACK SIDE VIEW 101 [4 in] 82 [3 in] 2.5m CEILING TRACK TOP VIEW Ground terminal Cable spooler (lamp only) 240 [9 in] Unistrut rail Ø13 [0.5 in] or equivalent for perpendicular support 650-800 650-800 650-800 275 (not supplied by GEHC) [25.6-31.5 in] [25.6-31.5 in] [25.6-31.5 in] [11 in] 2500 [98 in] Unistrut rail Weight up to: 94 kg [207 lb] (75 kg [165 lb] system + 19 kg [42 lb] track) or equivalent The required factor of safety is "4" for attaching to Unistrut or equivalent (not supplied by GEHC) rails and "6" for attaching to the concrete ceiling. CONSULT MAVIG INSTALLATION MANUAL REV: POR03011 TO DESIGN AND MOUNT THE CEILING SUPPORT.

# **PORTEGRA2 COLUMN ASSEMBLY**



PARALLEL SUPPORT

[7.1 in]

- Safety chain shall be always attached.
- Do not use shims between column and mounting surface.

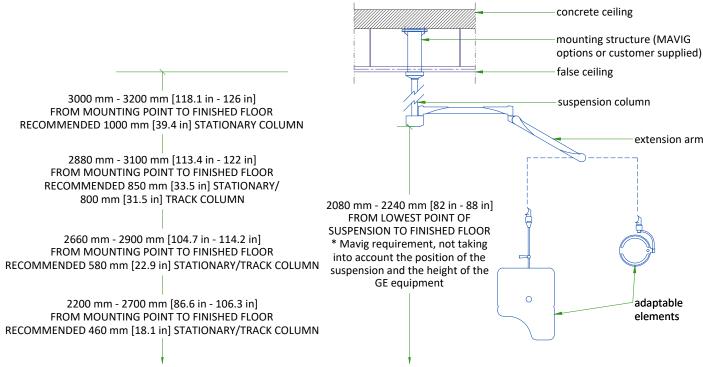
All design and pre-installation activity must be done in accordance of the MAVIG Installation manual.

Contact your GE Project Manager for OEM documentation. Installation of mounting plate performed by GE or a GE sub-contractor.

#### **NOT TO SCALE**

**SCALE 1:20** 

#### 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.

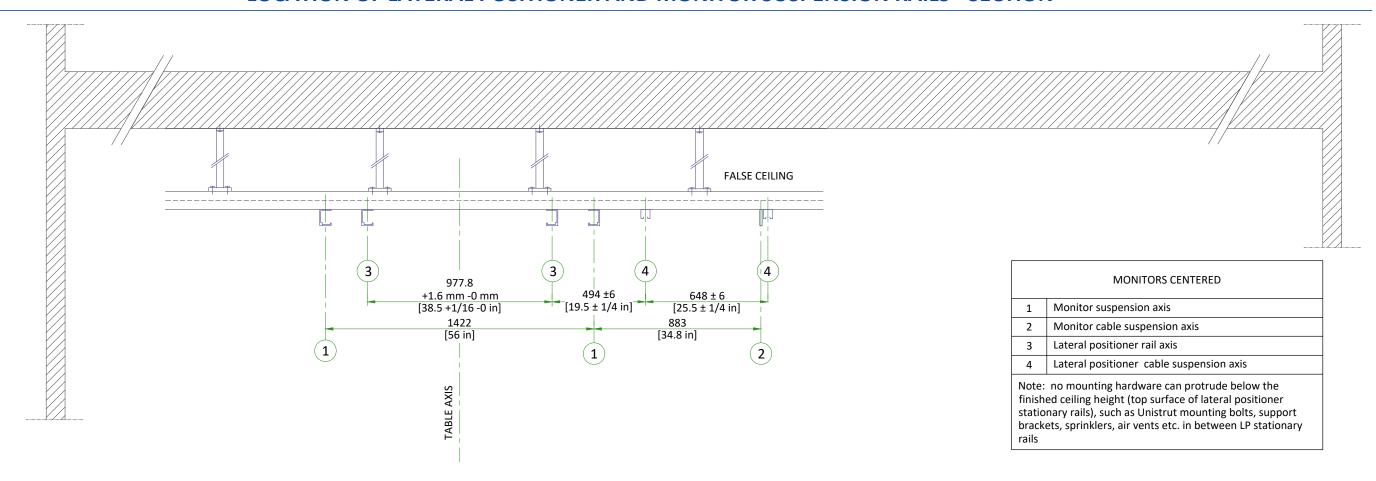
This certificate shall include the definition of fasteners and of their tightening torque, especially for the non-standard cases described in MAVIG PIM and for which the standard anchoring/screws delivered with product shall not be used but shall be defined (and implemented in most cases) by the structural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

#### **WARNING:**

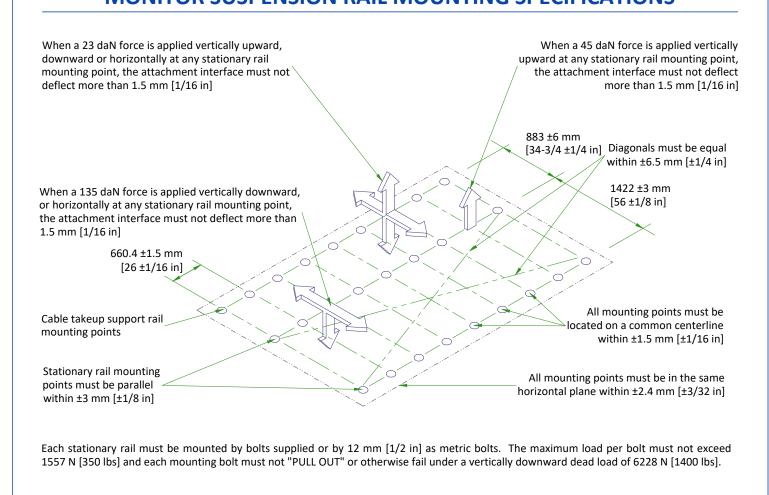
It is prohibited to alter the length of the ceiling column or remove any securing screws.

TYPICAL INNOVA IGS 620-630 EN-VAS-TYP-IGS-6X0-NF.DWG Rev A Date 17/Apr/2025 S5 - Structural Details (3) 14/22

## LOCATION OF LATERAL POSITIONER AND MONITOR SUSPENSION RAILS - SECTION



## MONITOR SUSPENSION RAIL MOUNTING SPECIFICATIONS



**TYPICAL** 

# LATERAL POSITIONER RAIL MOUNTING SPECIFICATIONS

WARNING: STRUCTURE SHOULD NOT ALLOW VIBRATIONS TRANSMISSION EQUAL OR LOWER THAN 10Hz

When a 445 N [100 lb] force is applied When a 1912 N [430 lb] force is applied vertically upward at any stationary rail vertically downward or horizontally to any mounting point, the attachment interface stationary rail mounting point, the must not deflect more than 1.6 mm [1/16 in]. attachment interface must not deflect more than 1.6 mm [1/16 in]. When a 222 N [50 lb] force is applied vertically upward, vertically downward or 648 ± 6 mm [25.5 ± 1/4 in] 494 ±6 mm horizontally to any support rail mounting 494 ±0 .... [19.5 ± 1/4 in] 977.8 point, the attachment interface must not deflect more than 1.6 mm [1/16 in]. `+1.6 mm -0 mm 660.4 ± 1.6 mm [38.5 + 1/16 - 0 in][26 ± 1/16 in] > Center-lines of cable take-up support rail mounting points Center-lines of lateral positioner stationary rail mounting point The height of each mounting point must Stationary rail mounting points must be be within +1.6 mm [1/16 in] of the height parallel within -0,+3.2 mm [-0,+1/8 in]. of its neighbour, but the difference between the highest and lowest must not CAUTION exceed 2.4 mm [3/32 in]. The maximum load per bolt will not exceed 1912 N

15/22

| INNOVA IGS 620-630 | EN-VAS-TYP-IGS-6X0-NF.DWG | Rev A|Date 17/Apr/2025 | S6 - Structural Details (4)

[430 lb].

Each bolt must not "pull out" otherwise fail under a

vertically downward "dead" load of 7633 N [1717 lb].

# **TEMPERATURE AND HUMIDITY SPECIFICATIONS**

#### **IN-USE CONDITIONS**

_	EXAM ROOM			C	CONTROL ROOM			TECHNICAL ROOM		
	Min	Recommended	Max	Min	Recommended	Max	Min	Recommended	Max	
Temperature	15 °C [59 °F]	22 °C [72 °F]	32 °C [90 °F]	15 °C [59 °F]	22 °C [72 °F]	35 °C [95 °F]	20 °C [68 °F]	22 °C [72 °F]	25 °C [77 °F]	
Temperature gradient	≤ 10 °C/h [50 °F/h]			≤ 10°C/h [50 °F/h]			≤ 10 °C/h [50 °F/h]			
Relative humidity (1)	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]				
Relative humidity (1)	10% to 80%				
Material should not be stored for more than 90 days.					

<sup>(1)</sup> Non-condensing

#### 20 kVA FLUORO UPS IN INDEPENDENT ROOM

Systems with 20 kVA UPS shall be stored for less than 6 weeks if the storage temperature is above +30  $^{\circ}\text{C}$ , and less than 12 weeks if storage temperature is above +25  $^{\circ}\text{C}$  .

#### **AIR RENEWAL**

According to local standards.

#### NOTE

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

# **HEAT DISSIPATION**

ROOM	DESCRIPTION	HEAT	DISSIPATION	(kW)	HEAT D	DISSIPATION (B	BTU/hr)
		STAND BY	AVERAGE*	MAX	STAND BY	AVERAGE*	MAX
	LC Gantry / LP Gantry	0.61	1 21	1.62	2076	4120	FF17
Examination room	Patient table	0.61	1.21	1.62	2076	4128	5517
	Large Display Monitor (LDM)	0.50	0.50	0.50	1706	1706	1706
	Typical injector	0.09	0.09	0.09	320	320	320
	TOTAL	1.20	1.80	2.21	4102	6154	7543
		•			•		
	DL user area with 1 TFT monitor	0.16	0.16	0.16	546	546	546
	Advantage Workstation (AW)	-	-	1.00	-	-	3412
	Additional LCD monitor(s)	0.12	0.12	0.12	409	409	409
	TOTAL	0.28	0.28	1.28	79'-7"	79'-7"	363'-11"
		•			•		
	C1 Frontal cabinet	0.71	1.29	1.59	2421	4412	5435
	C1 Lateral cabinet	0.31	0.86	1.16	1057	2946	3969
	C2 Cabinet	0.29	1.34	1.81	989	4571	6171
	Coolix 4100 chiller Frontal & Lateral @ 60Hz (x2)	4.64	6.88	12.60	15832	23474	42991
	Chiller autotransformer @60Hz(x2)	0.12	0.14	0.18	410	478	614
Technical room	Detector conditioner (x2)	0.42	0.42	0.42	1418	1418	1418
100111	Power Distribution Box (PDB)	0.6	0.65	0.65	2216	2216	2216
	UPS 3 KVA	0.37	0.37	0.37	1257	1257	1257
	UPS 3 KVA for LDM	0.37	0.37	0.37	1257	1257	1257
	LD cabinet	1.00	1.00	1.00	3412	3412	3412
	Fluoro UPS UL	1.38	1.38	1.38	4720	4720	4720
	TOTAL	10.21	14.70	21.53	2915'-9"	4180'-1"	6121'-8"

#### WARNING

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

TYPICAL | INNOVA IGS 620-630 | EN-VAS-TYP-IGS-6X0-NF.DWG | Rev A|Date 17/Apr/2025 | M1 - HVAC | 16/22

<sup>\*</sup> This average corrisponds to 11 cases in 10 hours.

# **ELECTRICAL NOTES**

- 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.
- 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.
- 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.

# **CONNECTIVITY REQUIREMENTS**

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

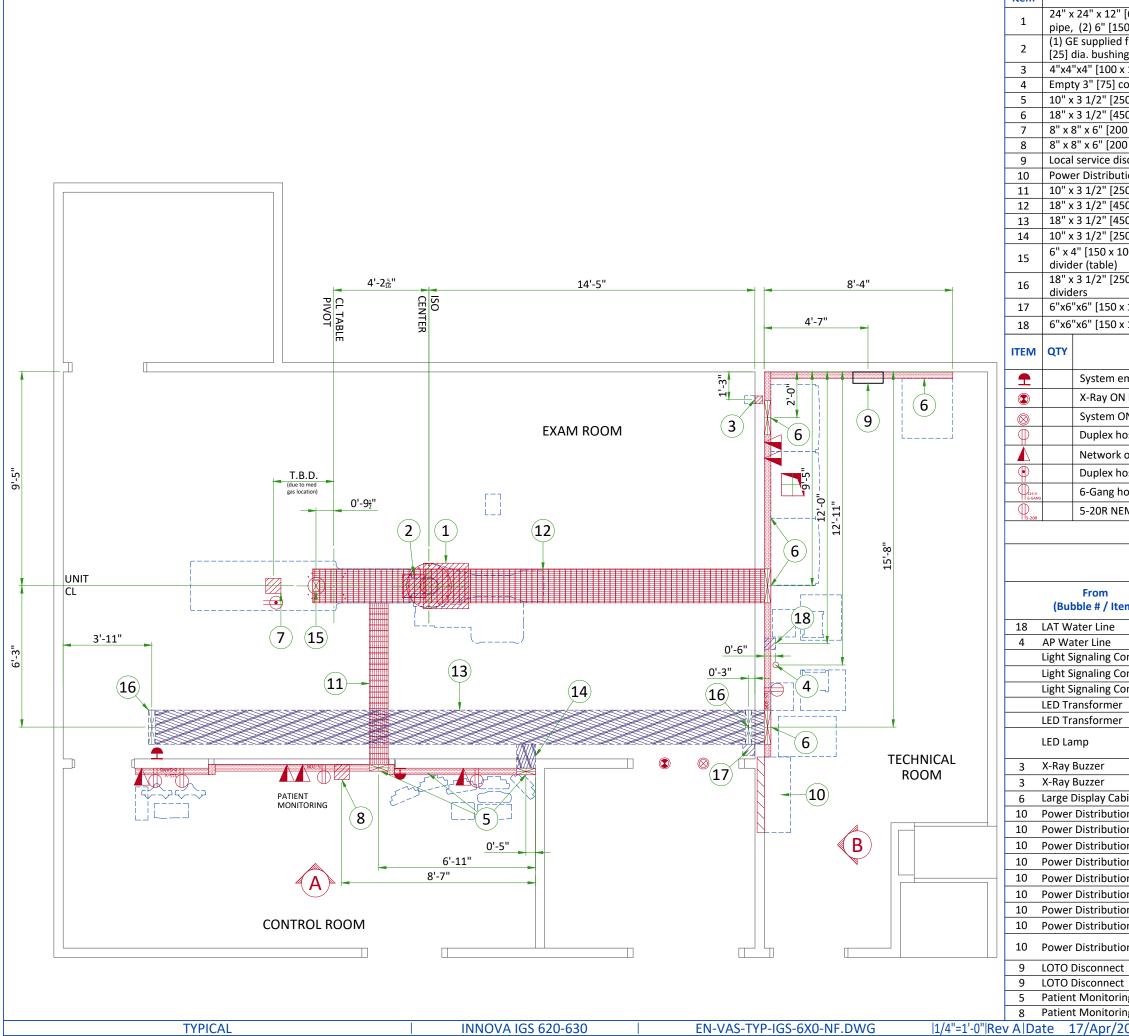
- Local connectivity This allows your system to connect to local devices such as PACS and modality worklist. We will require network information to configure the system(s), and a live ethernet port(s) prior to the delivery of the system(s).
- Remote connectivity Your GE Healthcare service warranty includes 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.

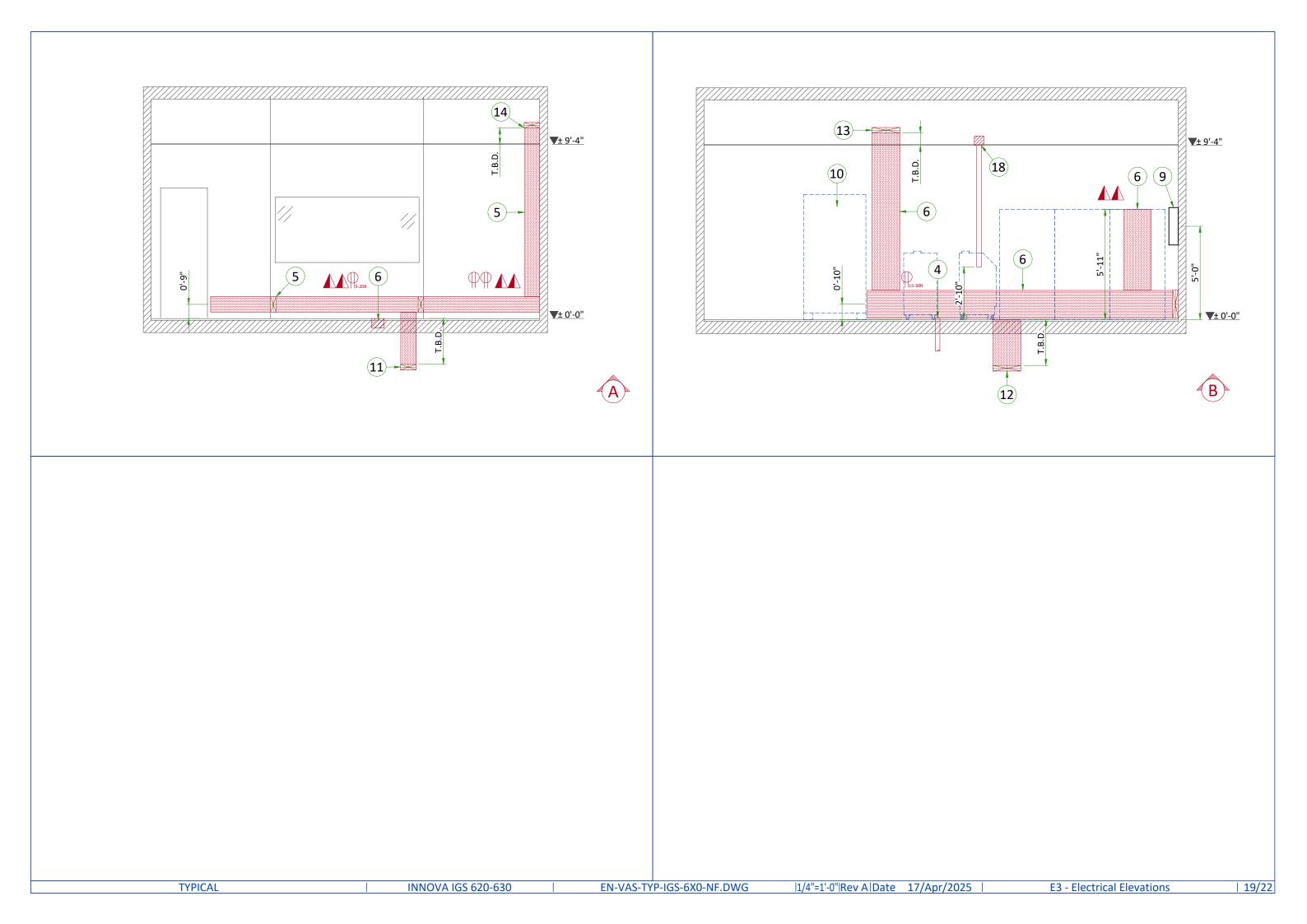
TYPICAL INNOVA IGS 620-630 EN-VAS-TYP-IGS-6X0-NF.DWG Rev A|Date 17/Apr/2025 E1 - Electrical Notes 17/22



Item		Electrical Layout Item List							
	24" v	24" x 12" [600 x 600 x 300] Box below floor, (1) 6" [150] dia. suitable length threaded							
1	pipe,	(2) 6" [150] dia. locknuts and (4) 1" [25] dia. locknuts. (LC Gantry)							
2	(1) G [25] (	supplied fitting. (1) 12" x 12" x 6" [300 x 300 x 150] Box, (1) 6" [150] dia. bushing, (4) 1" lia. bushing for water lines							
3	4"x4	"x4" [100 x 100 x 100] flush box 12" [300] below finished ceiling (X-ray buzzer)							
4		ry 3" [75] conduit below floor for waterlines (LC chiller)							
5	10" x	3 1/2" [250 x 89] surface wall duct with minimum 2 dividers							
6	18" x	3 1/2" [450 x 89] surface wall duct with minimum 2 dividers							
7		3" x 6" [200 x 200 x 150] box below floor under table (PDM/TRAM)							
8	8" x 8	B" x 6" [200 x 200 x 150] box below floor (patient monitoring equipment)							
9	Local	service disconnect (LOTO)							
10	Powe	er Distribution Box (PDB)							
11	10" x	3 1/2" [250 x 89] below floor duct with minimum 2 dividers							
12	18" x	3 1/2" [450 x 89] below floor duct with minimum 2 dividers							
13	18" x	3 1/2" [450 x 89] above ceiling duct with minimum 2 dividers							
14		3 1/2" [250 x 89] above ceiling duct with minimum 2 dividers							
15		" x 4" [150 x 100] riser duct from duct below to $\frac{1}{2}$ " [13] above finished floor with minimum 1 ivider (table)							
16	1	18" x 3 1/2" [250 x 89] vertical duct from duct above ceiling to finished ceiling with minimum 2 dividers							
17	6"x6'	6"x6" [150 x 150 x 150] flush ceiling box for waterlines (LP gantry)							
18	6"x6'	'x6" [150 x 150 x 150] flush ceiling box for waterlines (LP chiller)							
	OTV	Electrical Outlet Legend							
ITEM	QTY	Customer/contractor supplied and installed items unless otherwise specified.  Height above floor determined by local codes unless otherwise specified.							
<b>1</b>		System emergency off (SEO), (recommended height 1.2m [48"] above floor)							
<b>②</b>		X-Ray ON lamp (L1) - 24 V							
<b>⊗</b>		System ON lamp (L) - 24 V (only if needed per local codes)							
		Duplex hospital grade, dedicated wall outlet 120-v, single phase power							
Φ		Network outlet							
O <sub>115-V</sub> 6-GANG		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)
18	LAT Water Line	17	LAT Gantry	1	59 ft.	3
4	AP Water Line	2	AP Gantry	1	59 ft.	3
	Light Signaling Control Box		Warning light	1	-	<u>1</u>
	Light Signaling Control Box	6	C2 Cabinet	1	-	<u>1</u>
	Light Signaling Control Box		120-V 1 phase power	1	-	As Req'd
	LED Transformer		Spooler	1	ı	As Req'd
	LED Transformer		120-V 1 phase power	1	ı	As Req'd
	LED Lamp		Spooler	1	-	Cables come with spooler
3	X-Ray Buzzer	6	C1F Cabinet	1	90 ft.	$1\frac{1}{2}$
3	X-Ray Buzzer	5	Control Room	1	90 ft.	1 <sup>1</sup> / <sub>2</sub>
6	Large Display Cabinet	7	TRAM/PDM	2	-	3
10	Power Distribution Box	6	20 kVA UPS	2	68 ft.	As Req'd
10	Power Distribution Box		Emergency off	1	-	<u>1</u>
10	Power Distribution Box		Emergency off	1	-	<u>1</u>
10	Power Distribution Box	6	C1F Cabinet	2	68 ft.	$2\frac{1}{2}$
10	Power Distribution Box	6	C1F Cabinet	2	68 ft.	1 <u>1</u>
10	Power Distribution Box	6	C2 Cabinet	1	68 ft.	$1\frac{1}{2}$
10	Power Distribution Box	6	C2 Cabinet	1	68 ft.	As Req'd
10	Power Distribution Box	6	C1L Cabinet	2	68 ft.	$2\frac{1}{2}$
10	Power Distribution Box	15	Table (Table Power)	1	=	2; As Req'd
9	LOTO Disconnect		480-V 3 phase power	1	-	As Req'd
9	LOTO Disconnect	10	Power Distribution Box	1	ı	As Req'd
5	Patient Monitoring Console	16	Monitor Bridge / Boom	1	-	3
8	Patient Monitoring Console	7	TRAM/PDM	2	-	3
√ A   D	ate 17/Apr/2025		E2 - Electrical Layo	ut		18/22



## **POWER REQUIREMENTS**

POWER SUPPLY	3 PHASES+N+G 380/400/415/480 V ±10%
FREQUENCIES for 380/400/415 V	50/60 Hz ± 3 Hz
FREQUENCY for 480 V	60 Hz ± 3Hz
MAXIMUM INPUT POWER (0.1 sec max)	150 kVA
NOMINAL LOAD (at 125 kV, 100 ms, 640 mA):	60 kVA
MAXIMUM LINE RESISTANCE PER 2 PHASES WIRES (Ohm)	380 V : 0.09 Ω / 400 V : 0.096 Ω / 415 V : 0.102 Ω / 480 V : 0.12 Ω

- An EMI filter, provided by GE, is inside the PDB when Fluoro UPS CE is used.
- Neutral is mandatory for UPS control.
- TNS neutral point connection must be used.
- In case of IT or delta configuration without neutral, an isolation transformer is needed (supplied by customer)
- Three-phase, 5 conductors (3 phase conductors, 1 neutral and 1 protective earth conductor)
- Power supply should come into a power distribution box (PDB) containing the protective units and controls.
- The section of the supply cable should be calculated in accordance with its length and the maximum line resistance per 2 phases.

#### **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 35mm<sup>2</sup> copper from main ground point to the PDB.
- 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.
- All cables must be isolated and flexible, cable color codes must comply with standards for electrical installation.
- The cables from signalling and remote control (Y, SEO, L...) will go to PDB with a pigtail length of 1.5 m, and will be connected during installation.
- Each conductor will be identified and isolated (screw connector).

#### **CABLEWAYS**

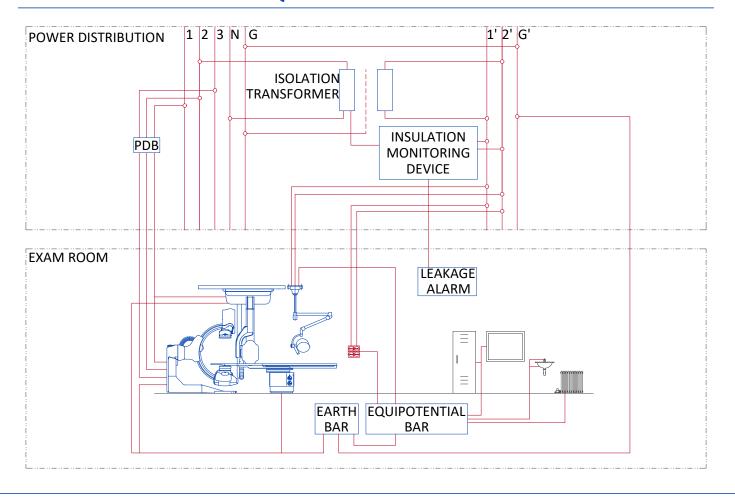
The general rules for laying cableways should meet the conditions laid down in current standards and regulations, with regard to :

- 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

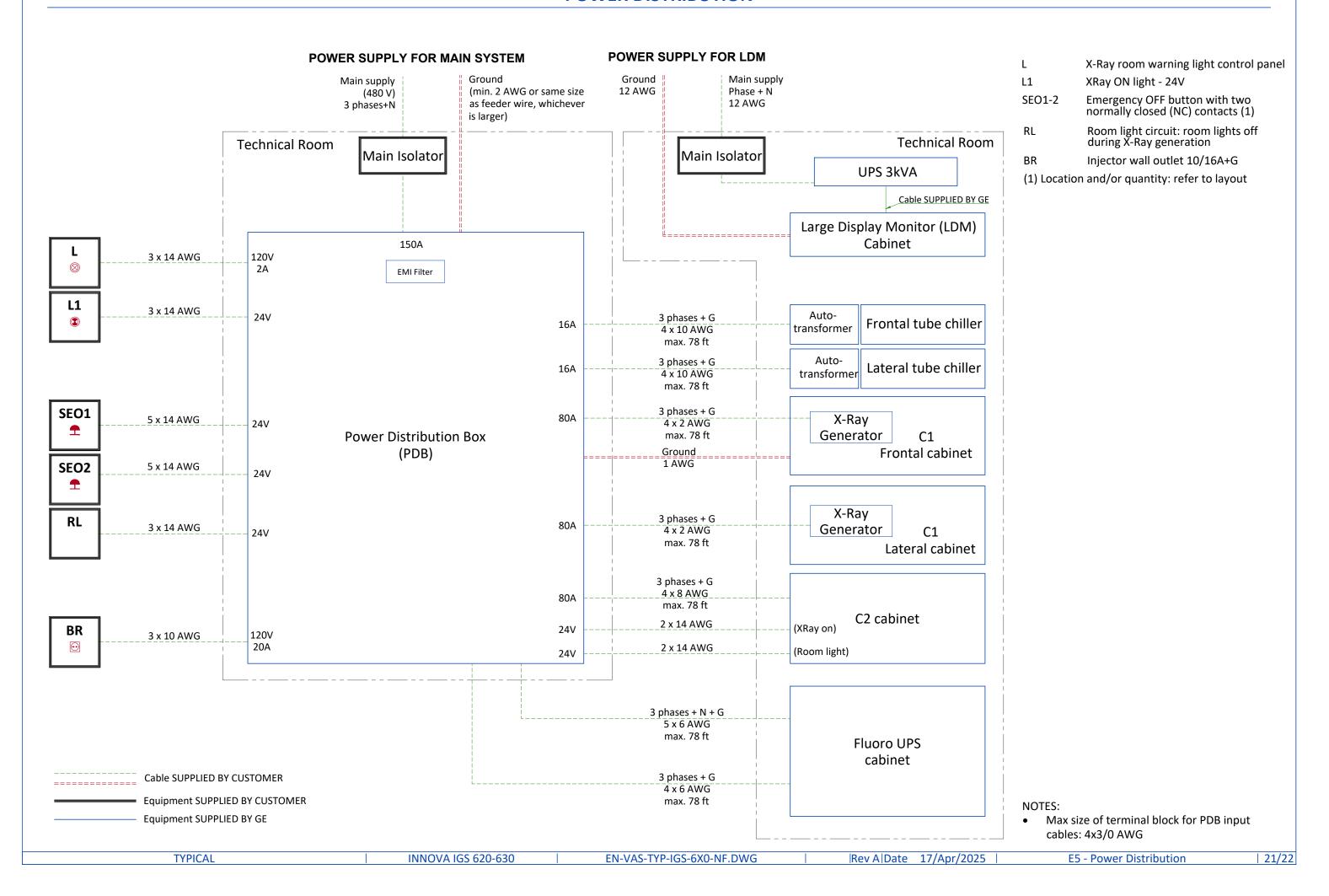
- Core system: A wall circuit breaker or equivalent device with LOTO capability must be installed on the mains line to the PBD. This device must be compatible with the power input specifications of the system. The customer is responsible for the procurement, delivery and installation of this breaker.
- LDM option: A wall circuit breaker or equivalent device with LOTO capability must be installed on the mains line to the LDM UPS. The rating of this device shall be 30A for UL and 16A for CE configurations. The customer is responsible for the procurement, delivery and installation of this breaker.

# TYPICAL EQUIPOTENTIAL CONNECTIONS



TYPICAL | INNOVA IGS 620-630 | EN-VAS-TYP-IGS-6X0-NF.DWG | Rev A|Date 17/Apr/2025 | E4 - Power Requirements

## **POWER DISTRIBUTION**



# **FEEDER TABLE**

MIN. FEEDER WIRE SIZE, AWG OR MCM (sq. mm)/VAC	MINIMUM FEEDER WIRE LENGTH - ft (m)									
	50 (15)	100 (30)	150 (46)	200 (61)	250 (76)	300 (91)	350 (107)	400 (122)		
480 VAC	*1/0 (55)	*1/0 (55)	*1/0 (55)	1/0 (55)	3/0 (85)	4/0 (107)	4/0 (107)	300M (150)		
GENERAL NOTES										

IN ALL CASES QUALIFIED PERSONNEL MUST VERIFY THAT THE FEEDER (AT THE POINT OF TAKE-OFF) AND THE RUN TO THE GE SYSTEM MEET ALL THE REQUIREMENTS STATED IN THE PIM

FOR A SINGLE UNIT INSTALLATION, THE MINIMUM TRANSFORMER SIZE IS 225KVA, WITH 2.4% RATED REGULATION AT UNITY POWER FACTOR. RESULTANT MAXIMUM ALLOWABLE FEEDER REGULATION IS 3.6%

THE GROUND WIRE TO EARTH SHALL BE A MINIMUM OF AWG #2 (UL) OR 35 MM² (CE) OR THE SAME SIZE (100%) AS FEEDER WIRES, WHICH EVER IS LARGER.

WHEN A FLUORO UPS IS OR WILL BE INSTALLED, A NEUTRAL LINE IS MANDATORY. IF IT SCHEME AS EARTHING SYSTEM IS USED, AN ISOLATION TRANSFORMER IS REQUIRED WITH DELTA-WYE OR DELTA-STAR CONNECTION.

\* MINIMUM WIRE SIZE FOR CIRCUIT BREAKER, BASED ON RECOMMENDED OVERCURRENT PROTECTION.

**TYPICAL** 

INNOVA IGS 620-630

