

PENETRATION PANEL WALL OPENING

WALL OPENING (EQUIPMENT ROOM SIDE)

PENETRATION PANEL MOUNTED

SECTION A-A

RF shielded wall (magnet room side)

GE-supplied mounting block

Qty. 26 M6 or M8 fasteners supplied by customer

Penetration panel

82.6mm [3.25 in] Clearance required around opening for mounting penetration panel

PENETRATION PANEL PLAN VIEW

Magnet room

Equipment room

Minimum closet height: 1900mm [74.8 in]

Penetration Panel service clearance area

Finished wall

RF Shield must wrap around all edges of the penetration wall opening.

The minimum RF shield overlay in the Equipment Room is 70 mm [2.4 in].

If the closet depth is less than 1000mm [39.4 in], the closet must have door(s) configured to clear the service area for the Penetration Panel.

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PENETRATION PANEL CLOSET

An enclosure (i.e. closet) must be provided to restrict access to the PEN panels and for storage of excess interconnections.

- The PEN closet must have a mechanical locking mechanism to restrict access to the PEN panels
- The PEN closet must maintain the minimum service area outside the 200 Gauss in the magnet room.
- PEN closet must allow free air exchange of 400CFM (680 m³/hour) between the Magnet room and PEN closet for MR system blowers. Airflow may be achieved through door louvers or other openings in the PEN closet that meet all other PEN closet requirements

MINIMUM MAGNET CEILING HEIGHT (TOP VIEW)

Shaded area indicates floor to ceiling minimum height of 2500 mm [98.42 in]. Special service procedures are required if ceiling height is between 2500 mm [98.42 in] and 2667 mm [105 in].

MAGNET GEOMETRIC ISOCENTER

FRONT OF MAGNET

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MAGNET ENCLOSURE

TOP VIEW

SIDE VIEW

Note:
Center of gravity is approximate and includes the GE Healthcare supplied VibroAcoustic Dampening Kit, but does not include cryogenics, gradient assembly, side mounted electronics, or enclosures.
Enclosure dimensions are for reference only, NOT FOR SITE PLANNING USE.

PENETRATION PANEL

SIDE VIEW

FRONT VIEW

TOP VIEW

Center of Gravity

SCALE 1:20

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PATIENT TRANSPORT TABLE (PT)

TOP VIEW

SIDE VIEW

GLOBAL OPERATORS CABINET (GOC)

TOP VIEW

SIDE VIEW

FRONT VIEW

Center of Gravity

SCALE 1:10

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POWER, GRADIENT, RF CABINET (PGR)

TOP VIEW

FRONT VIEW

SIDE VIEW

A: Airflow clearance
B: Dolly installation clearance
C: Service clearance
D: Cable strain relief
E: Cable clearance
F: Seismic bracket mounting holes (all M12 x 1.75mm)

Center of gravity

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MAGNET MONITOR AND MAGNET RUNDOWN UNIT (MRU)

MAGNET MONITOR

Mounting: 152 [6 in] x 152 [6 in]

Front view: 381 [15 in] x 113 [4.4 in]

Side view: 127 [5 in] x 76 [3 in]

MAGNET RUNDOWN UNIT (MRU)

Mounting: 210 [8.3 in] x 142 [5.6 in]

Front view: 381 [15 in] x 113 [4.4 in]

Side view: 142 [5.6 in] x 30 [1.2 in]

The bottom edge of the MRU must be mounted 1524 ± 25 mm (60 ± 1 in) above the magnet room floor.

SCALE 1:20

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GRADIENT COIL REPLACEMENT

Front view of the IRMW Gradient

Side view of the IRMW Gradient

EQUIPMENT	DIMENSIONS		WEIGHT		NOTE
	mm	in	kg	lbs	
Replacement IRMW gradient coil assembly on a shipping cradle/cart	910x2444x1499	35.8x96.2x59	1449	3194	Initial gradient coil assembly is shipped installed in the magnet. Shipping/installation cart is used to install replacement coil assembly only.

The weight bearing structure of the site should support any additional weight of the main replacement parts occurring during maintenance of the magnet, throughout the whole lifecycle of the MR.

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PLATFORM INTEGRATED COOLING CABINET (PICC)

TOP VIEW

SIDE VIEW

FRONT VIEW

PICC WATER SUPPLY AND RETURN CONNECTIONS

Item	Description
1	Facility return
2	Facility supply
3	City Water Return for Cryocooler compressor backup
4	City Water Supply for Cryocooler compressor backup

Center of gravity

NOT TO SCALE

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MAIN DISCONNECT PANEL (MDP)

MDP FRONT VIEW

MDP SIDE VIEW

Center of gravity

SCALE 1:20

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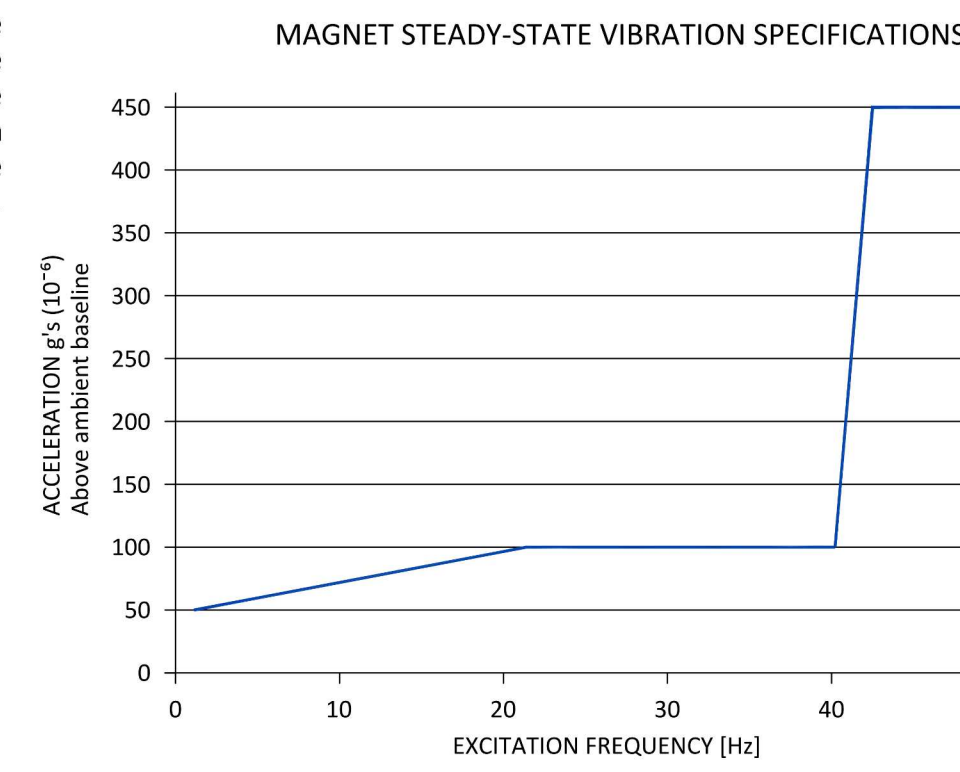
STRUCTURAL NOTES

- 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.
- Dimensions are to finished surfaces of room.
- Certain MR procedures require an extremely stable environment to achieve high resolution image quality. Vibration is known to introduce field instabilities into the imaging system. The vibration effects on image quality can be minimized during the initial site planning of the MR suite by minimizing the vibration environment. See PROXIMITY LIMITS, PATIENT TABLE DOCK ANCHOR MOUNTING REQUIREMENTS AND VIBROACOUSTIC DAMPENING KIT details for additional information.
- Standard steel studs, nails, screws, conduit, piping, drains and other hardware are acceptable if properly secured. Any loose steel objects can be violently accelerated into the bore of the magnet. Careful thought should be given to the selection of light fixtures, cabinets, wall decorations, etc. To minimize this potential hazard. For safety, all removable items within the magnet room such as faucet handles, drain covers, switch box cover plates, light fixture components, mounting screws, etc. must be non-magnetic. If you have a specific question about material, bring it to the attention of your GE project manager of installations.
- Floor levelness refer to MAGNET ROOM FLOOR SPECIFICATIONS DETAIL, this floor levelness requirement is important for accurate patient table docking.
- Non-movable steel such as wall studs or hvac components will produce negligible effect on the active shield magnet.
- Customer's contractor must provide all penetrations in post tension floors.
- Customer's 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.
- Customer's 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.
- Customer's contractor to provide and install appropriate supports for the storage of excess cables.
- 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"

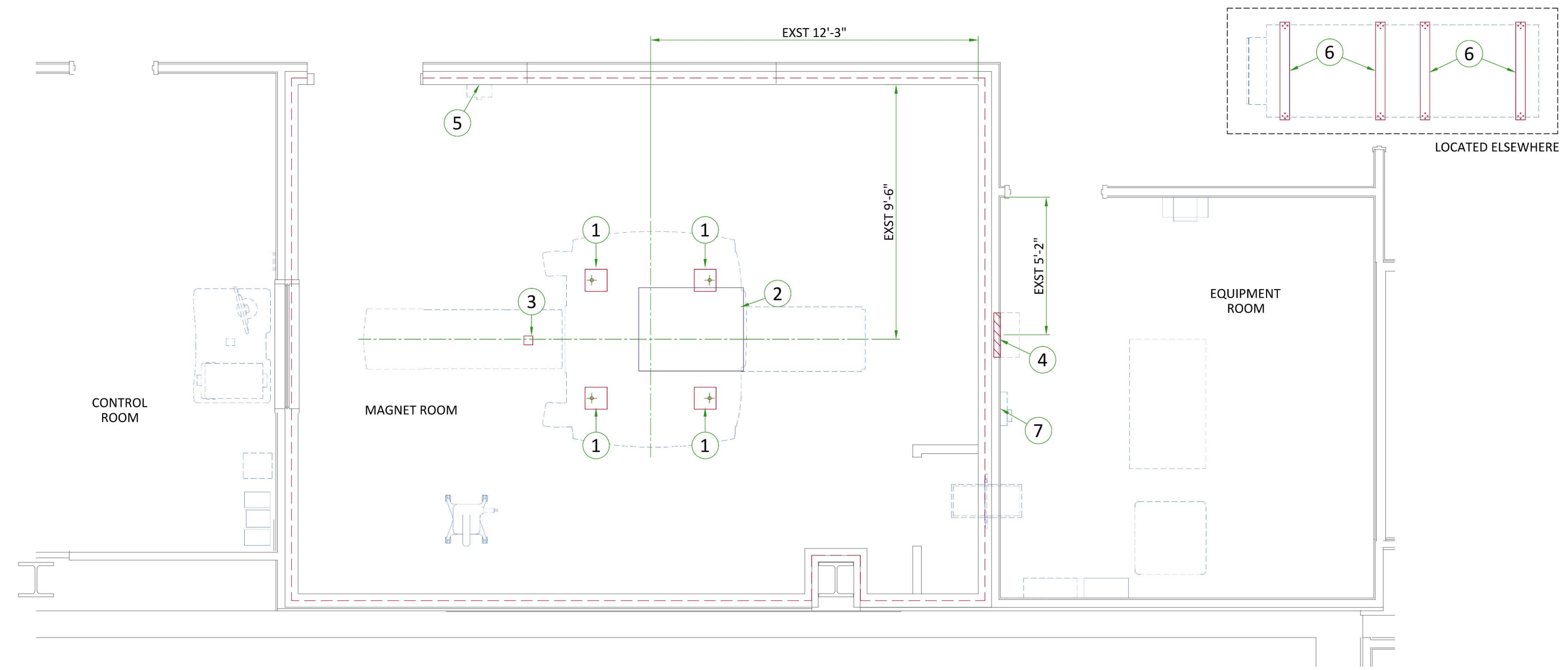
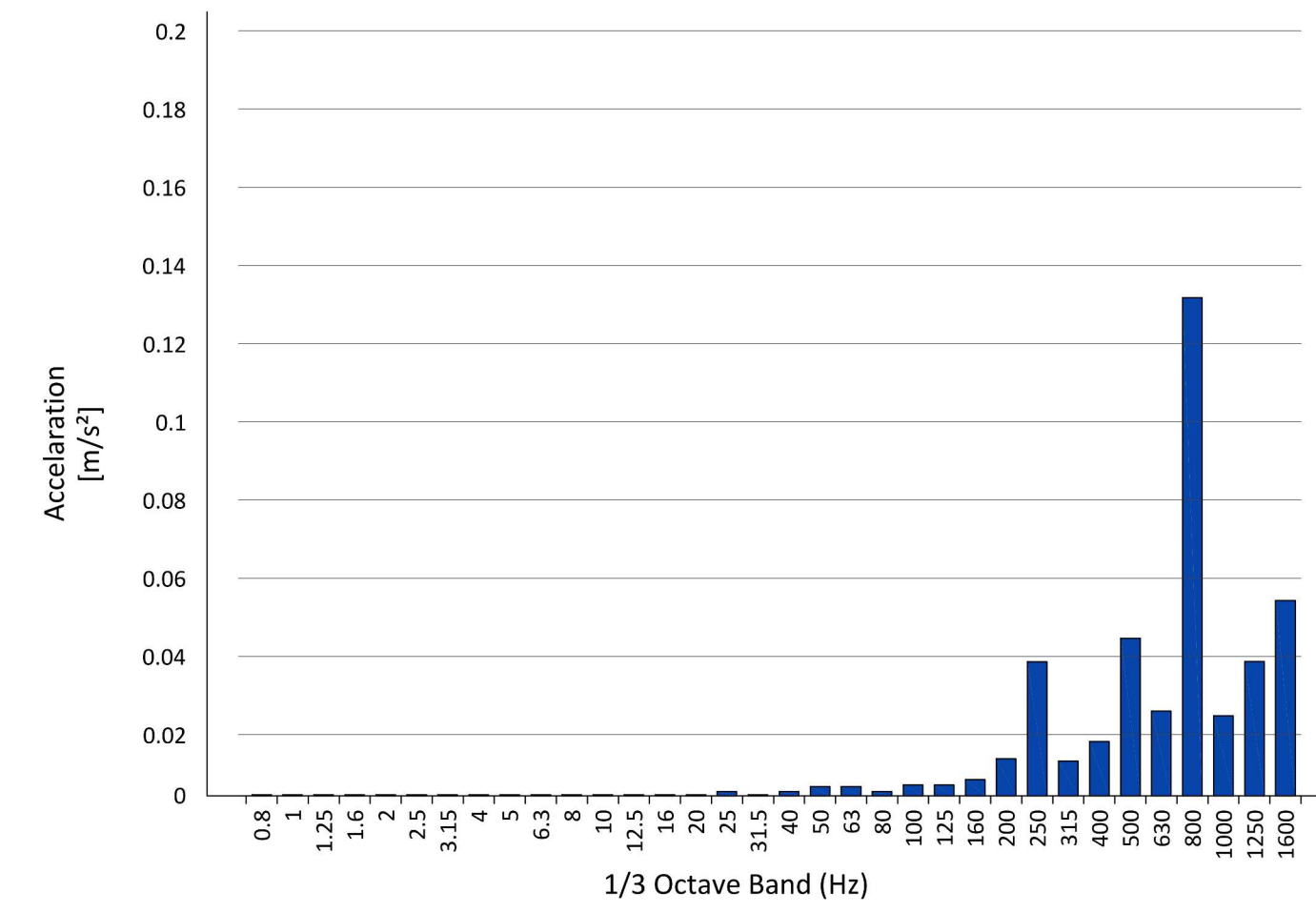
VIBRATION SPECIFICATIONS

Excessive vibration can affect MR image quality. Vibration testing must be performed early in the site planning process to ensure vibration is minimized. Both steady state vibration (exhaust fans, air conditioners, pumps, etc.) and transient vibrations (traffic, pedestrians, door slamming, etc.) must be assessed. The magnet cannot be directly isolated from vibration. Any vibration issue must be resolved at the source.

Transient vibration levels above the specified limits in the MR Site Vibration Test Guidelines must be analyzed. Any transient vibration that causes vibration to exceed the steady-state level must be mitigated.

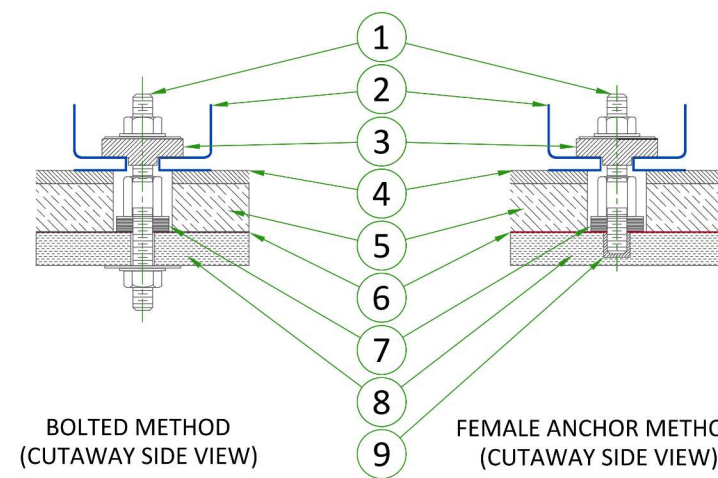


VIBRATION TRANSMITTED THROUGH VIBROACOUSTIC MAT



ITEM	DESCRIPTION
(GE SUPPLIED / CONTRACTOR INSTALLED)	
1	Vibroacoustic dampening kit (see floor structural detail)
2	Magnet cable concealment kit
(CONTRACTOR SUPPLIED & INSTALLED)	
3	Patient table dock rebar free area
4	Structural wall backing for Main Disconnect Panel (verify existing location and review structural support to be reused if adequate)
5	Structural wall backing for Magnet Shutdown Unit (reuse existing)
6	Structural floor support for chiller
7	Structural wall backing for Magnet Monitor (reuse existing)

PATIENT TABLE DOCK ANCHOR MOUNTING REQUIREMENTS



- The RF Shield vendor must design and install the dock anchor bolt
- The dock anchor hole must be drilled after the Magnet is installed
- The dock anchor must not contact floor rebar or other structural steel
- The dock anchor must electrically contact the RF shield at point of entry
- The RF shield vendor must perform a pull test on the anchor (equal to the clamping force).

The dock anchor properties must comply with the following requirements:

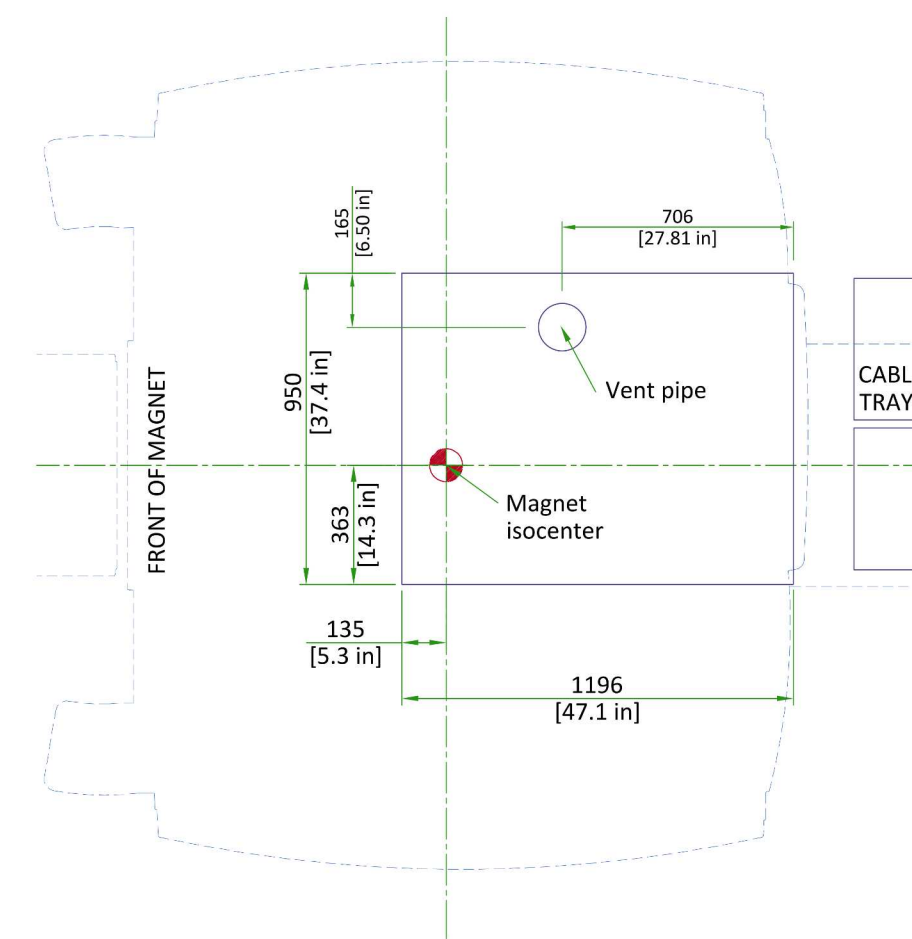
- Anchors must be two-part assembly (male/female)
- Female side must be expansion or epoxy-type
- Male side must be a bolt or threaded rod with appropriate sized nut (bolt or rod must be removable - not epoxied or cemented in place)
- Anchors must be electrically conductive
- Anchors must be non-magnetic
- Anchors must not induce galvanic corrosion with the RF shield
- Anchors must be commercially procured
- The anchor rod hole clearance in the table frame anchor base is 11mm (0.43 in). The anchor rod diameter must be sized appropriately.
- Anchors must meet the following clamping force: 2,669 N (600 lb)
- The anchor rod must extend 60 mm ± 13 mm (2.25 in ± 0.5 in) above the finished floor
- The anchor rod must be less than 152 mm (6 in) in total length (length above the floor plus embedded length)
- If underside of deck is metallic, then insulating bushing must be added to through bolt hardware to prevent grounding of shield at this point.

NOT TO SCALE

CABLE CONCEALMENT

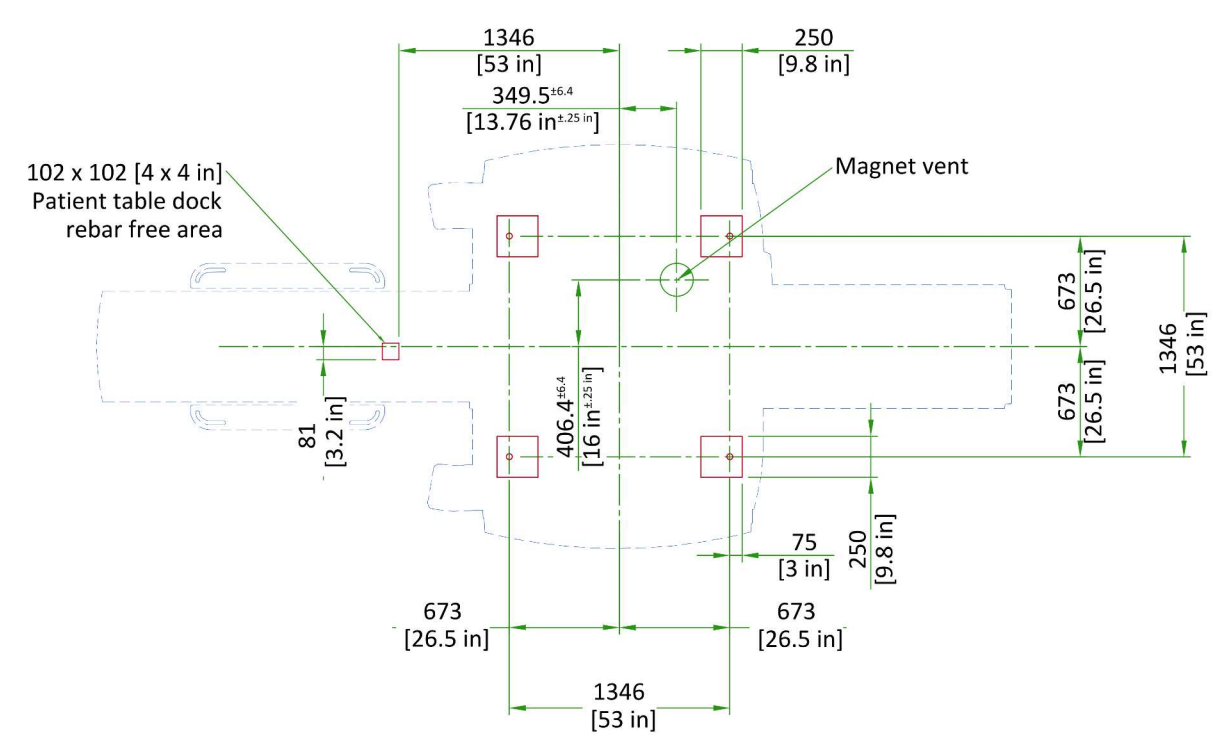
This drawing gives two methods of locating this assembly in the room.

- Measure to isocenter
- Measure to vent pipe

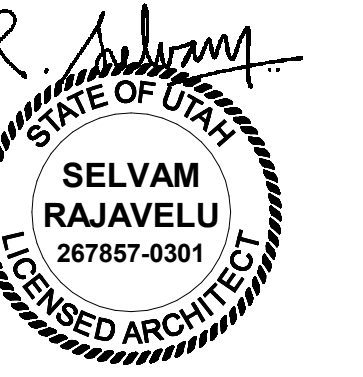


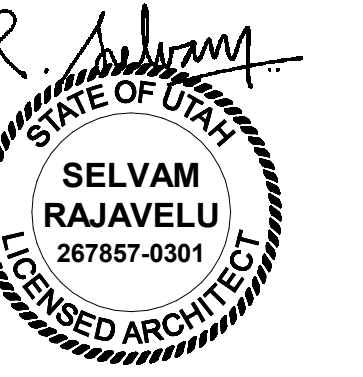
SCALE 1:25

MAGNET MOUNTING



NOT TO SCALE





TEMPERATURE AND HUMIDITY SPECIFICATIONS

IN-USE CONDITIONS	MAGNET ROOM	CONTROL ROOM	EQUIPMENT ROOM
Temperature	15-21°C 59-69.8°F	15-32°C 59-89.6°F	15-32°C [3] 59-89.6°F [3]
Temperature gradient [1]	≤ 3°C/h ≤ 5°F/h	≤ 3°C/h ≤ 5°F/h	≤ 3°C/h ≤ 5°F/h
Relative humidity	30% to 60%	30% to 70%	30% to 70%
Humidity gradient [2]	≤ 5%/h	≤ 5%/h	≤ 5%/h

NOTE
1) Operating temperature gradient limits shall be between -3°C/hr [-5°F/hr] and 3°C/hr [5°F/hr], when averaged over 1 hour
2) Operating humidity gradient limits shall be between -5% RH/hr and 5% RH/hr, when averaged over 1 hour
3) Maximum ambient temperature is derated by 1°C per 300 m above 2000 m (not to exceed 2600 m).

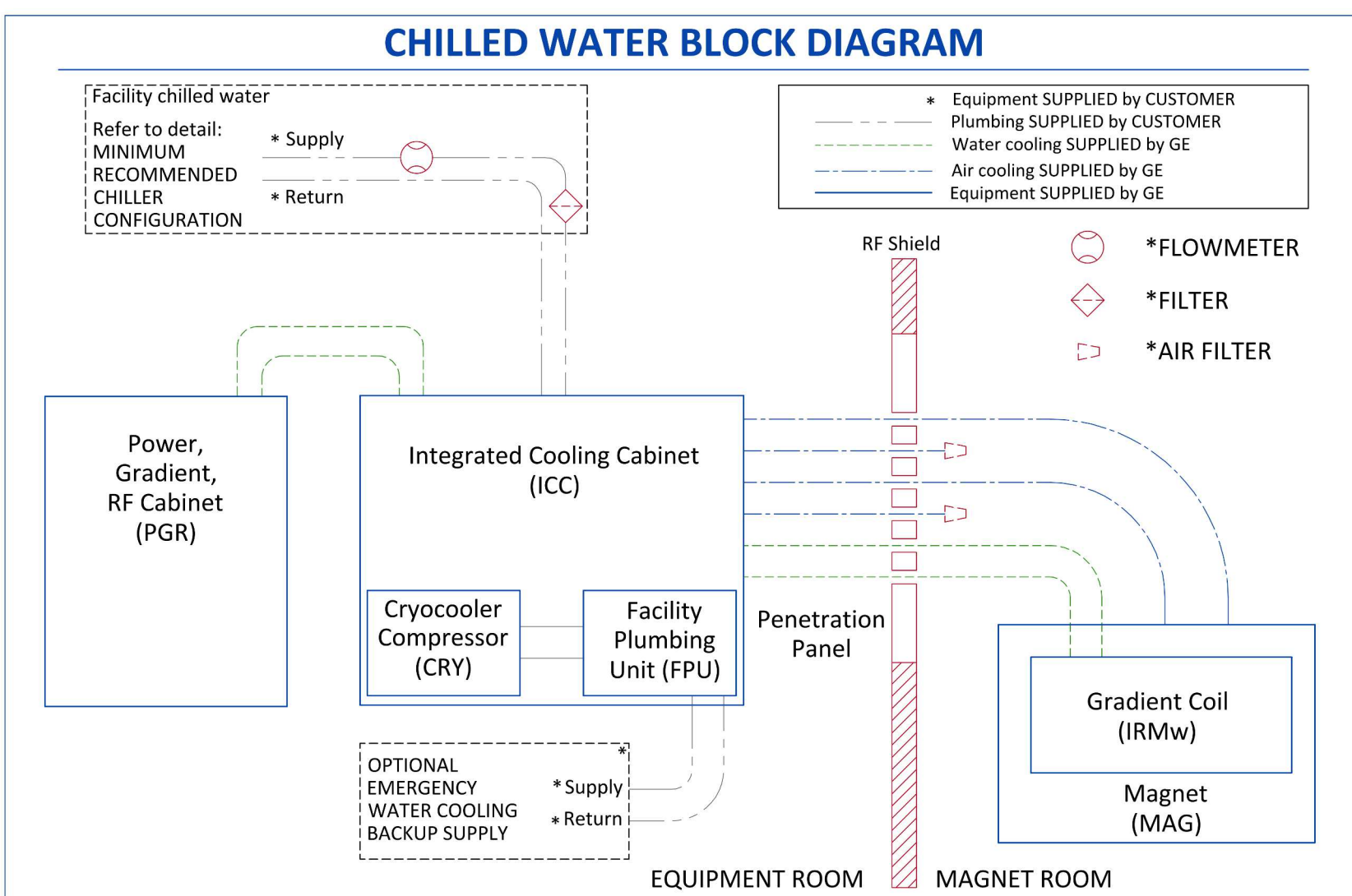
AIR RENEWAL
According to local standards.

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.

DESCRIPTION	ROOM	IDLE W	AVERAGE	MAX	
Magnet (MAG) and Patient Table (PT)	Magnet	561	1915	1200	4095
Main Disconnect Panel (MDP)	Equipment	132	450	132	450
Power, Gradient, RF Cabinet (PGR)	Equipment	4298	14665	4866	16603
Integrated Cooling Cabinet (ICC)	Equipment	250	853	600	2046
Cryocooler Compressor (CRY) (Inside ICC)	Equipment	500	1706	500	1706
Magnet Monitor (MCN)	Equipment	240	819	240	819
Operator Workspace equipment (OW)	Control	1450	4947	1450	4947
Penetration Panel (PP)	Equipment	0	0	0	0

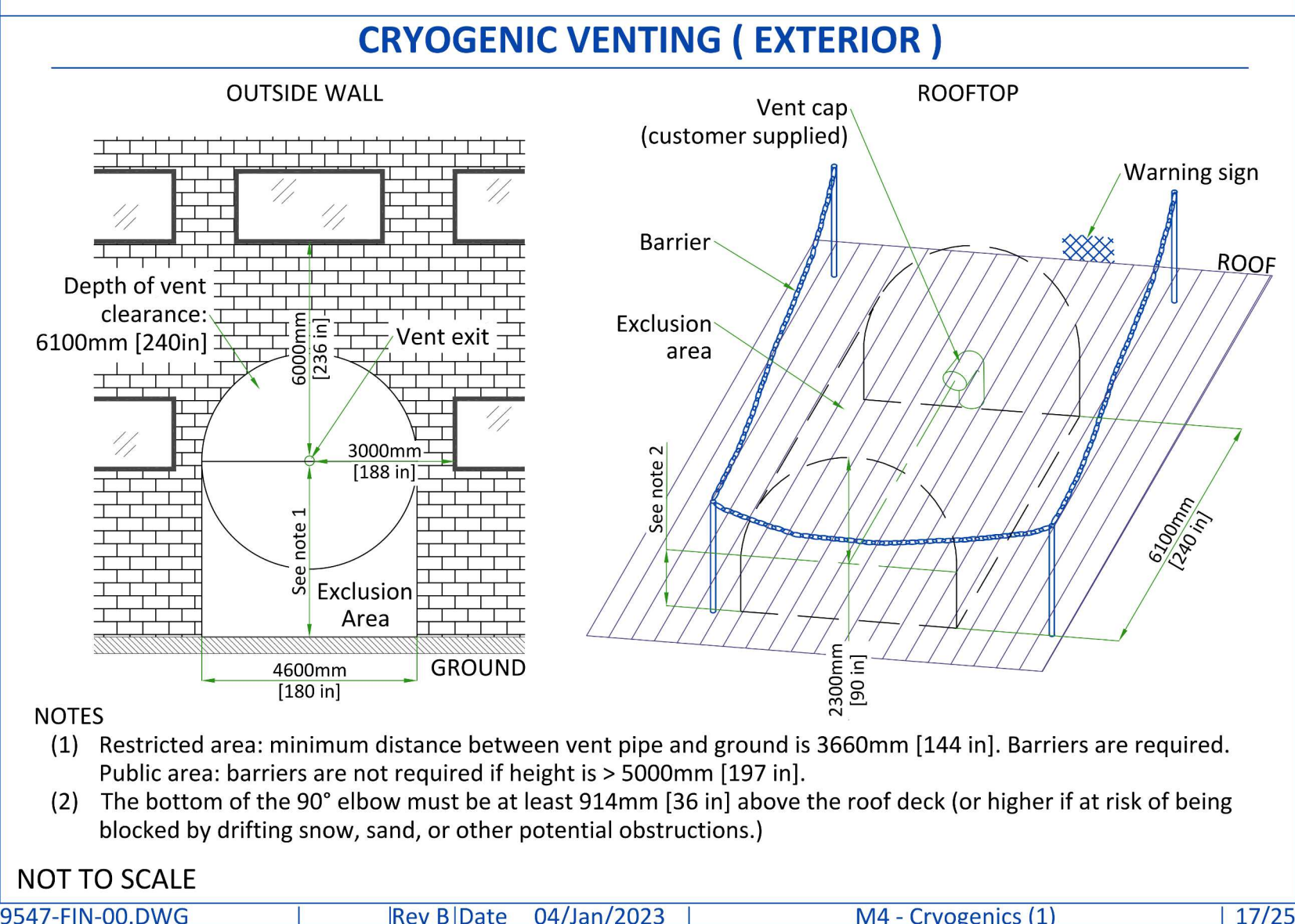
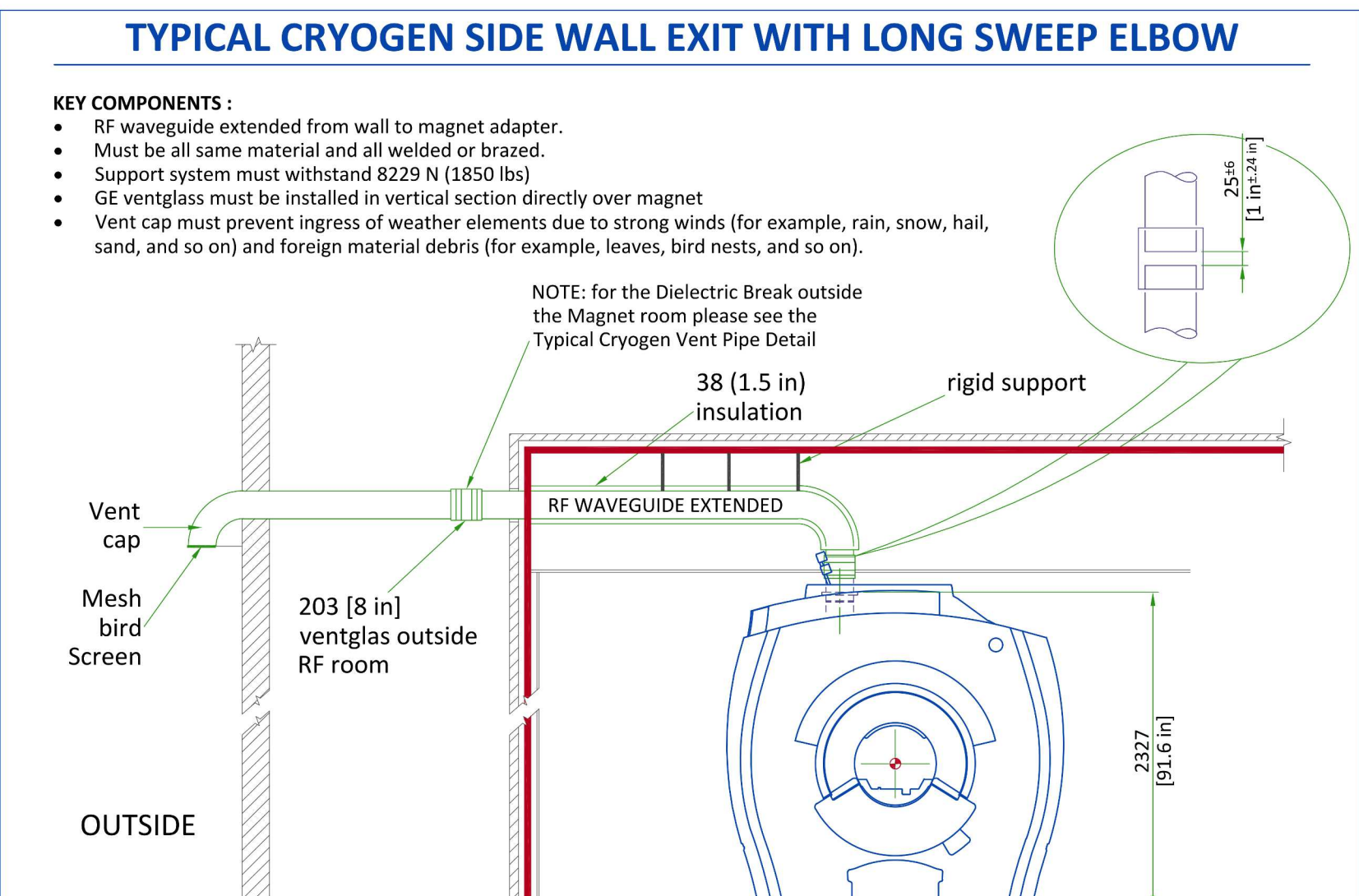
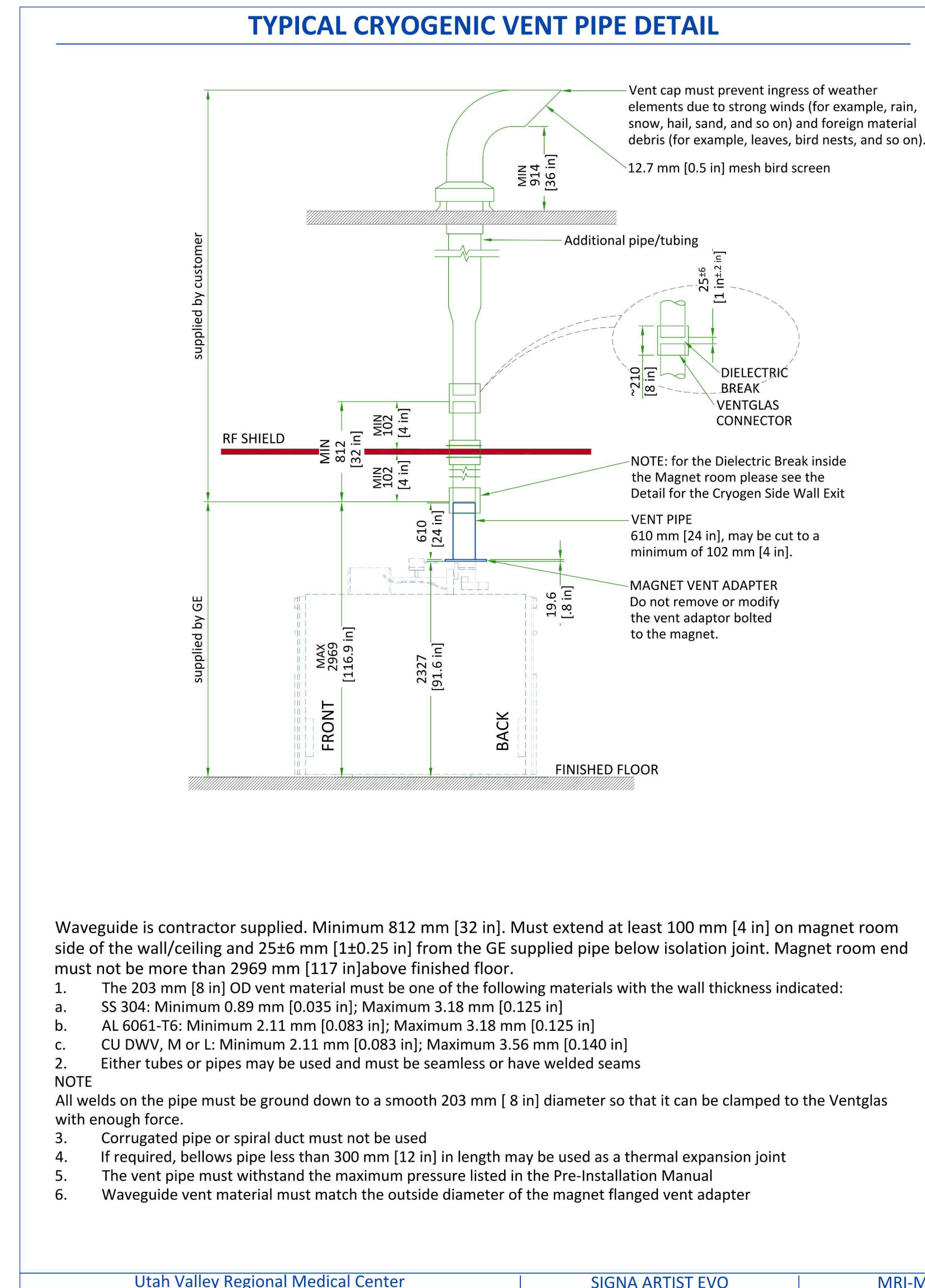
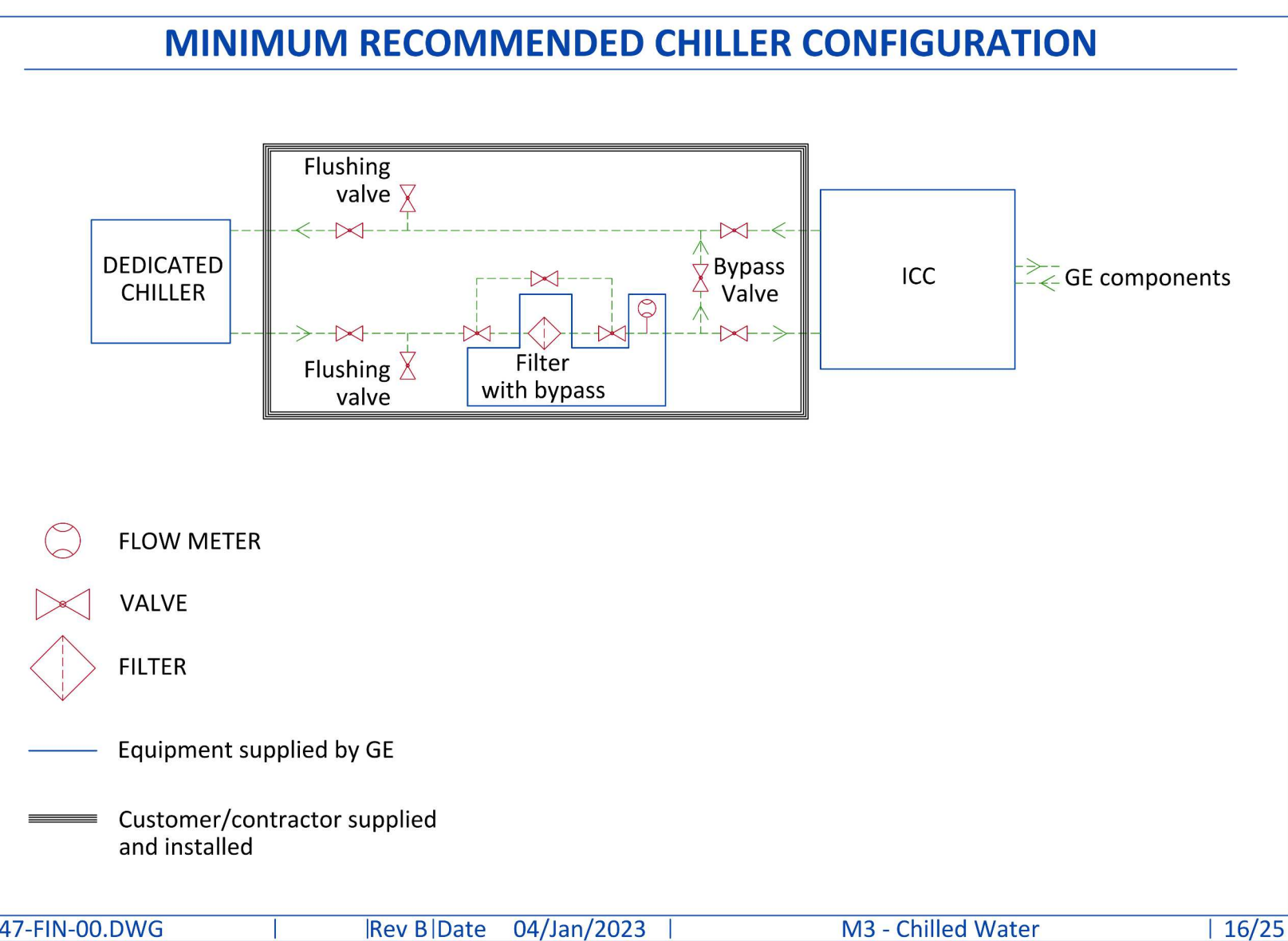
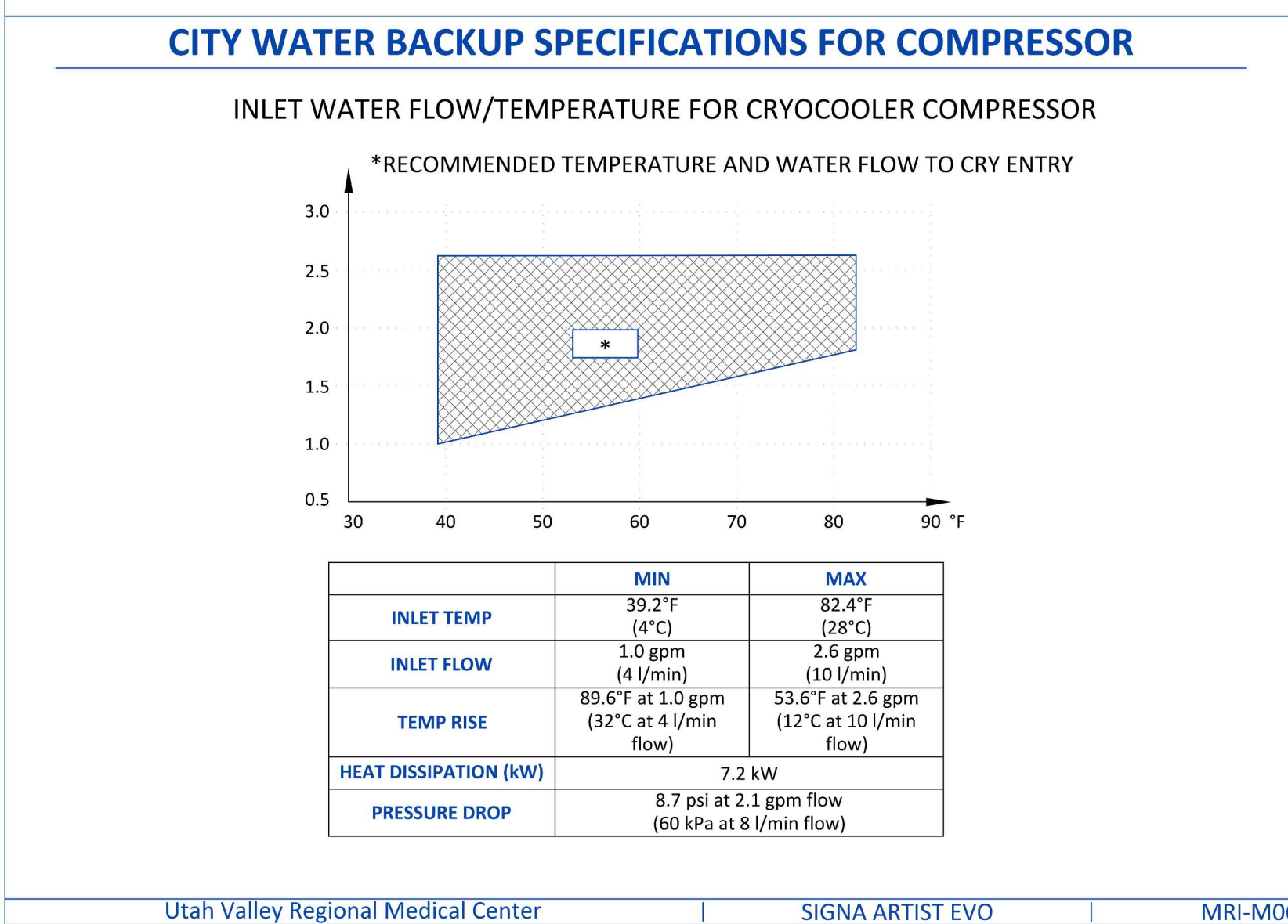
ITEM	DESCRIPTION	MECHANICAL/PLUMBING NOTES
1	Cryogen vent (200mm [8"] O.D.)	<ul style="list-style-type: none"> All piping, fittings, supports, hoses, clamps, ventilation systems, etc. are to be supplied and installed by the customer or his contractors. For complete design and requirements, specifications and guidelines refer to the pre-installation manual: system cooling, cryogen venting, waveguides and exhaust venting. An emergency water cooling back-up supply is recommended for continuous cryogen compressor operation. If using an open loop back-up design, ensure a drain is provided, please refer to the pre-install manual for optional back-up coolant supply requirements.
2	Emergency exhaust vent - refer to magnet room vent requirements (reuse existing location)	
3	(2) 50mm [2"] I.D. High pressure hoses and (2) 50mm [2"] to 38mm [1.5"] Reducers	
4	38mm [1.5"] NPT Male connectors, (2) 38mm [1.5"] copper lines (insulated) and (2) shut off valves. Refer to chilled water block diagram.	
5	Closet must allow free air exchange of 400 CFM between magnet room and closet	
6	Provide as needed - low pressure rubber multipurpose hose, inside dia. 1/2" working pressure range: 250 to 499 PSI - refer to the manual city water back-up system detail	

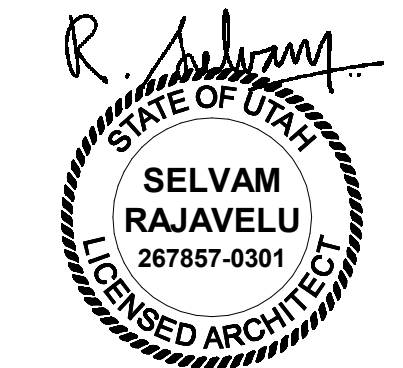
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LIQUID COOLANT SPECIFICATIONS

PARAMETER	REQUIREMENTS
Availability	Continuous
Antifreeze	No more than 50% propylene glycol water or ethylene glycol water
Minimum Flow	134 L/min [35 gpm]
Maximum Flow	132 L/min [35 gpm]
Maximum Pressure Drop in ICC at Minimum Flow	2.2 bar (32.0 psi) with 50% propylene glycol-water; 1060 kg/m³ density 1.4 bar (20.3 psi) with pure water; 994 kg/m³ density
Maximum Pressure Drop in ICC at Maximum Flow	2.9 bar (42 psi) with 50% propylene glycol-water; 1060 kg/m³ density 1.9 bar (27.6 psi) with pure water; 994 kg/m³ density
Temperature rise at Minimum Flow	7.3°C (13°F) with 50% propylene glycol-water; 3346 J/(kg K) specific heat; 1060 kg/m³ density; 49 kW heat
Temperature rise at Maximum Flow	6.3°C (11.3°F) with 50% propylene glycol-water; 3346 J/(kg K) specific heat; 1060 kg/m³ density; 49 kW heat
Maximum inlet pressure to ICC	6 bar [87 psi]
Chiller size	Minimum 49 kW
Condensation protection	Facility plumbing to the ICC must be properly routed and insulated to prevent equipment damage or safety hazards
Minimum continuous heat load	7.5 kW
Inlet temperature to ICC	5 to 15°C [41 to 59°F]
Customer supplied feeder hose (from main water supply to ICC)	38.1 mm [1.5 in] minimum hose inside diameter
Water quality	Refer to pre-installation manual for detailed specifications





LIGHTING REQUIREMENTS

- All lighting fixtures and associated components must meet all RF shielded room and RF grounding requirements (e.g., track lighting is not recommended due to possible RF noise).
- All removable lighting fixtures and associated components must be non-magnetic.
- All lighting must use direct current (the DC must have less than 5% ripple).
- 300 lux must be provided at the front of the magnet for patient access and above the magnet for servicing.
- Fluorescent lighting must not be used in the magnet room.
- Lighting must be adjusted using a discrete switch or a variable DC lighting controller.
- SCR dimmers or rheostats must not be used.
- DC LED lighting may be used if the DC power converter and RF sources are all located outside the magnet room RF shield.

NOTE: LED lighting could cause image quality issues due to RF interference. Make sure a MR-compatible LED lighting solution is chosen.

- Battery chargers (e.g., used for emergency lighting) must be located outside the magnet room.
- LED Lighting or short filament length incandescent bulbs are recommended.
- Linear lamps are not recommended due to the high burnout rate.

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:

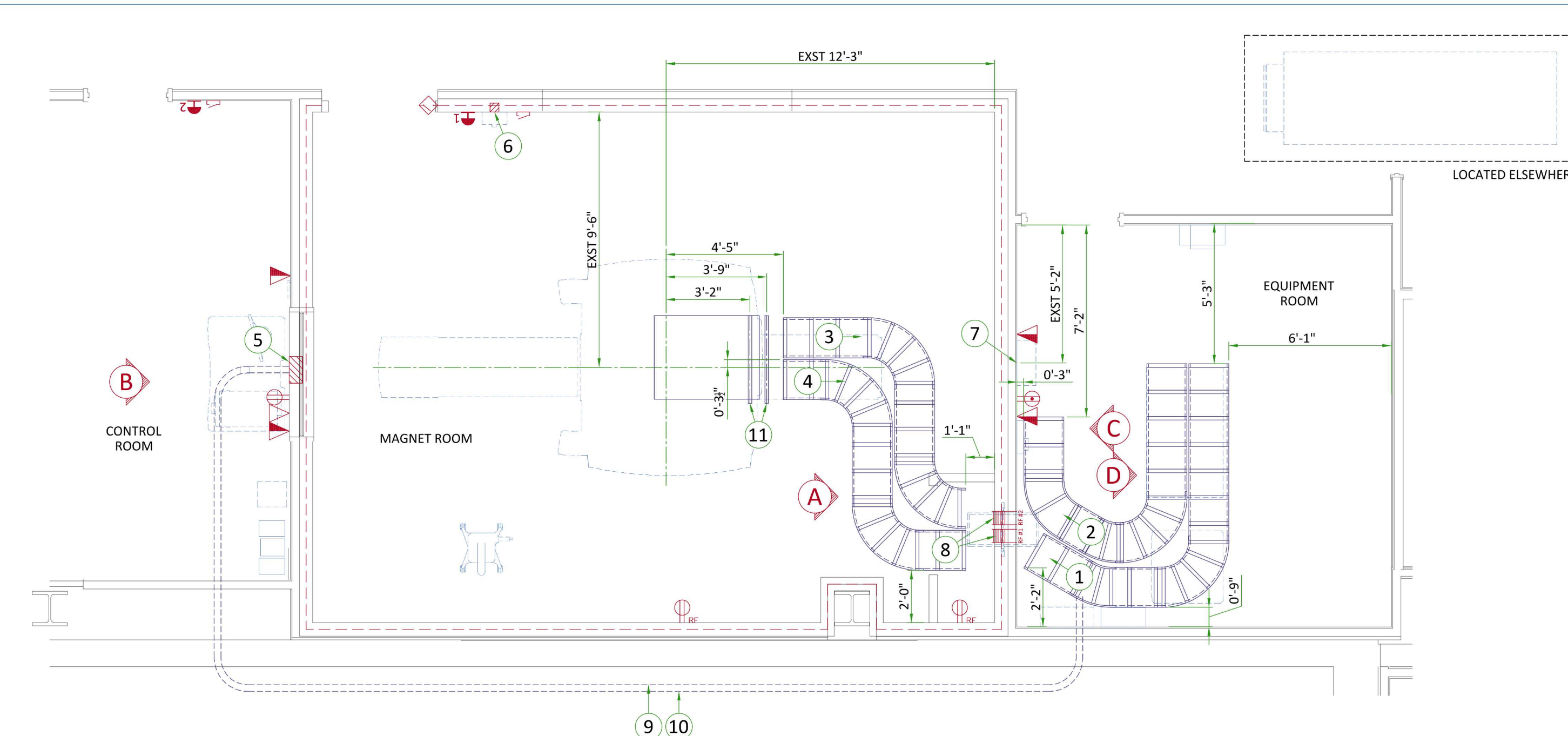
- TLS over TCP Port 443 (Preferred method for new products) via:
 - DNS resolution
 - Customer-provided Proxy or
 - GE Proxy (Available in some regions)
- Site-to-Site IPsec VPN tunnel

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.

ELECTRICAL NOTES

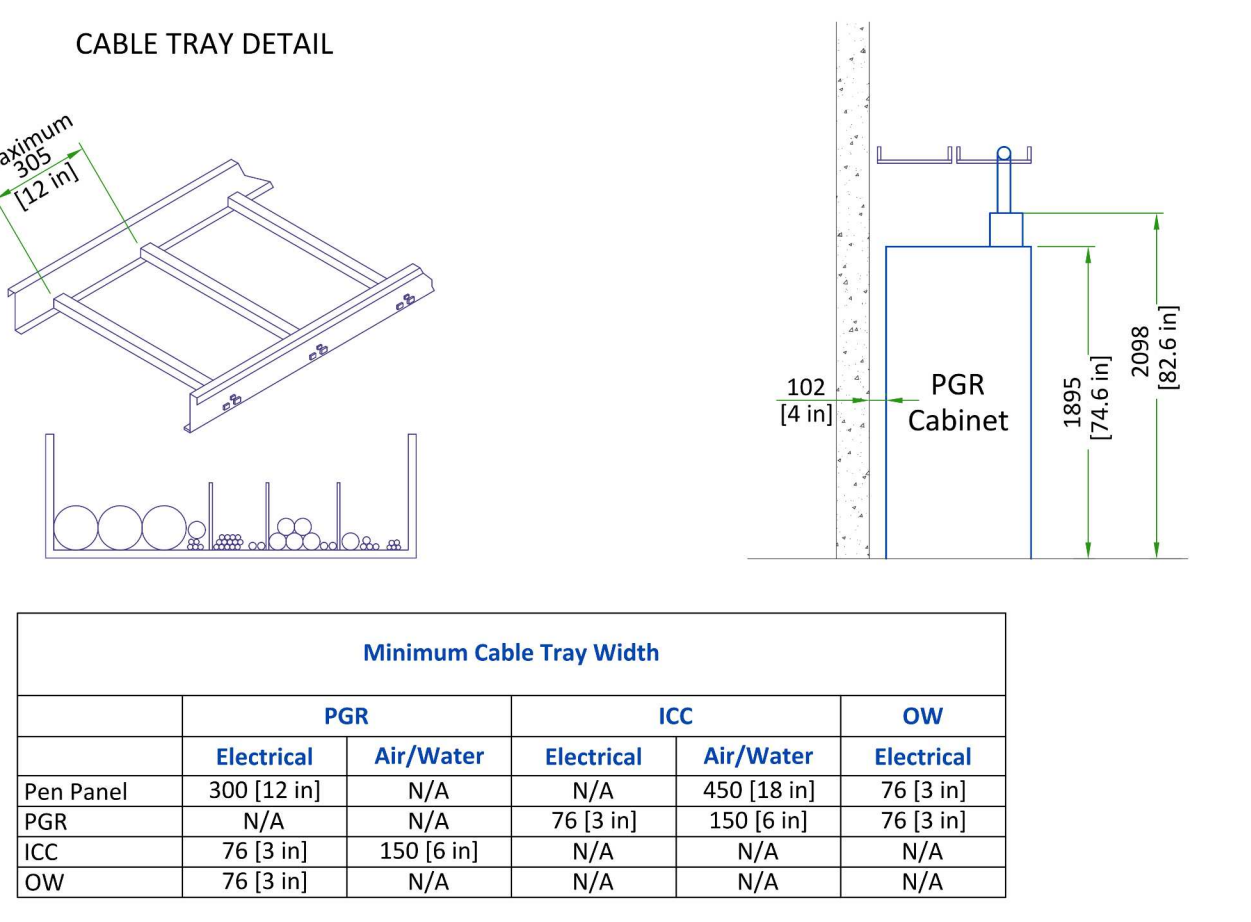
- All wires specified shall be copper stranded, flexible, thermo-plastic, color coded, cut 10 foot long at outlet boxes, duct termination points or stubbed conduit ends. All conductors, power, signal and ground, must be run in a conduit or duct system. Electrical contractor shall ring out and tag all wires at both ends. Wire runs must be continuous copper stranded and free from splices.
 - Aluminum or solid wires are not allowed.
 - Wire sizes given are for use of equipment. Larger sizes may be required by local codes.
 - 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.
 - 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.
 - 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.
 - 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).
 - Conduit turns to have large, sweeping bends with minimum radius in accordance with national and local electrical codes.
 - 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.
 - The maximum point to point distances illustrated on this drawing must not be exceeded.
 - Physical connection of primary power to GE equipment is to be made by customers electrical contractor with the supervision of a GE representative. The GE representative would be required to identify the physical connection location, and insure proper handling of GE equipment.
 - GEHC conducts power audits to verify quality of power being delivered to the system. The customer's electrical contractor is required to be available to support this activity.

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



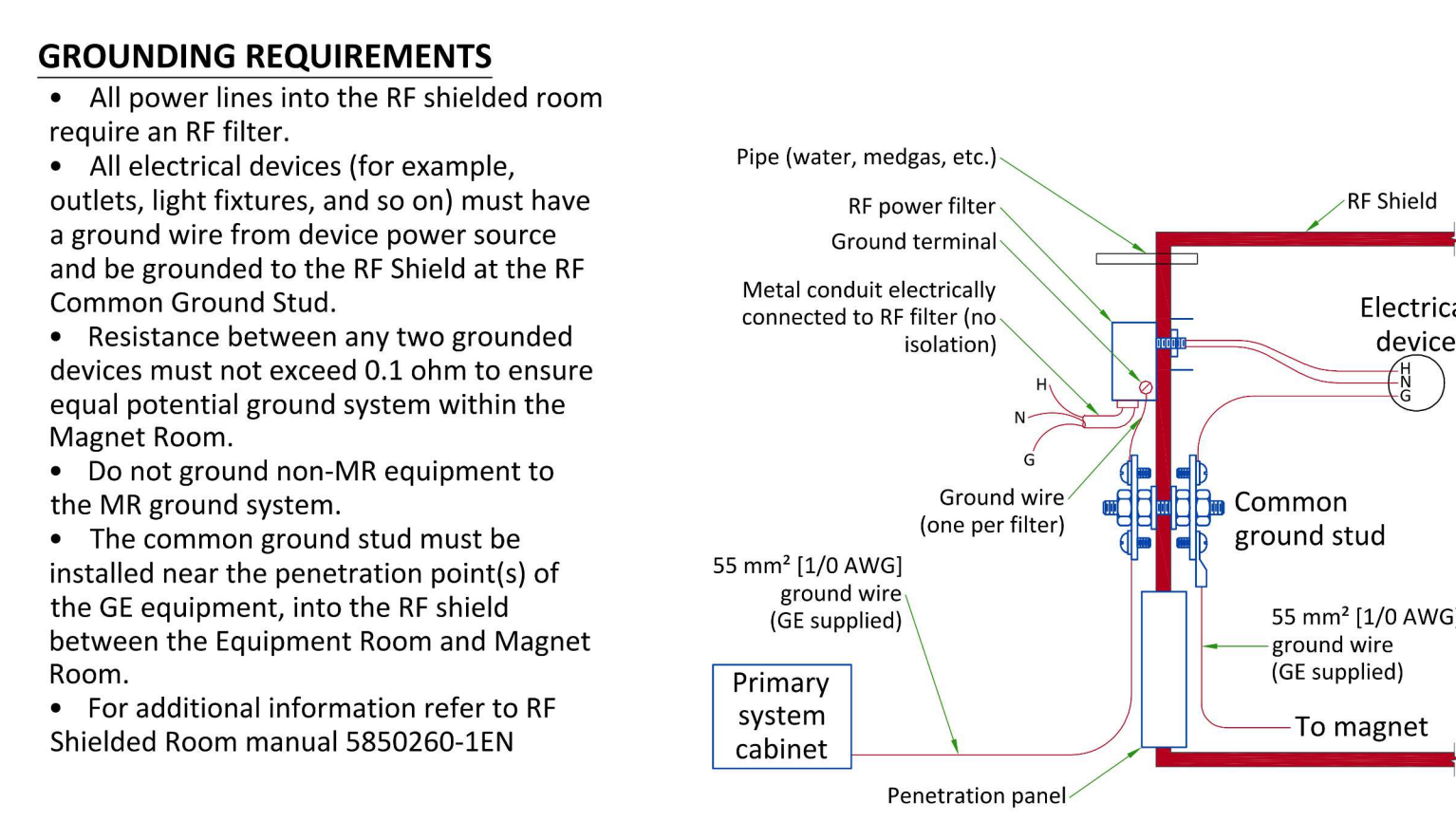
ITEM		Electrical Layout Item List	ITEM		Electrical Outlet Legend	Additional Conduit Runs (Contractor Supplied and Installed)			
1	Cable ladder 18" x 6" [450 x 150]		System emergency off (EO1-2), (recommended height 1.2m [48"] above floor)	From	To	Qty	Size		
2	Cable ladder for gradient cables 18" x 6" [450 x 150]		Door interlock switch	(Bubble # / Item)	(Bubble # / Item)		In.	mm	
3	Non-ferrous cable ladder 18" x 6" [450 x 150]		Emergency exhaust fan switch 1.2m [48"] height (recommended)	7	Main Disconnect Panel	1	as req'd	as req'd	
4	Non-ferrous cable ladder for gradient cables 18" x 6" [450 x 150]		Duplex hospital grade, dedicated wall outlet 120-v, single phase power	7	Main Disconnect Panel	1	as req'd	as req'd	
5	Existing Box in wall 12" x 8" x 6" [300 x 200 x 150] (Operators console)		Network outlet						
6	Existing Box in wall 4" x 4" x 2" [100 x 100 x 50] (Magnet rundown unit)		Dedicated telephone lines/network connection						
7	Main disconnect panel (MOP)		Duplex hospital grade, dedicated outlet 120-v emergency, single phase power, 15a						
8	RF Filters - grounded to RF shield at Common Ground Stud		Duplex hospital grade, dedicated outlet 120-v, single phase outlet routed through RF filter						
9	Conduit above RF screen 2" [50]								
10	Conduit above RF screen 3" [75]								
11	Non-ferrous unistrut cable support 36" [915]								

CABLE TRAYS IN EQUIPMENT ROOM



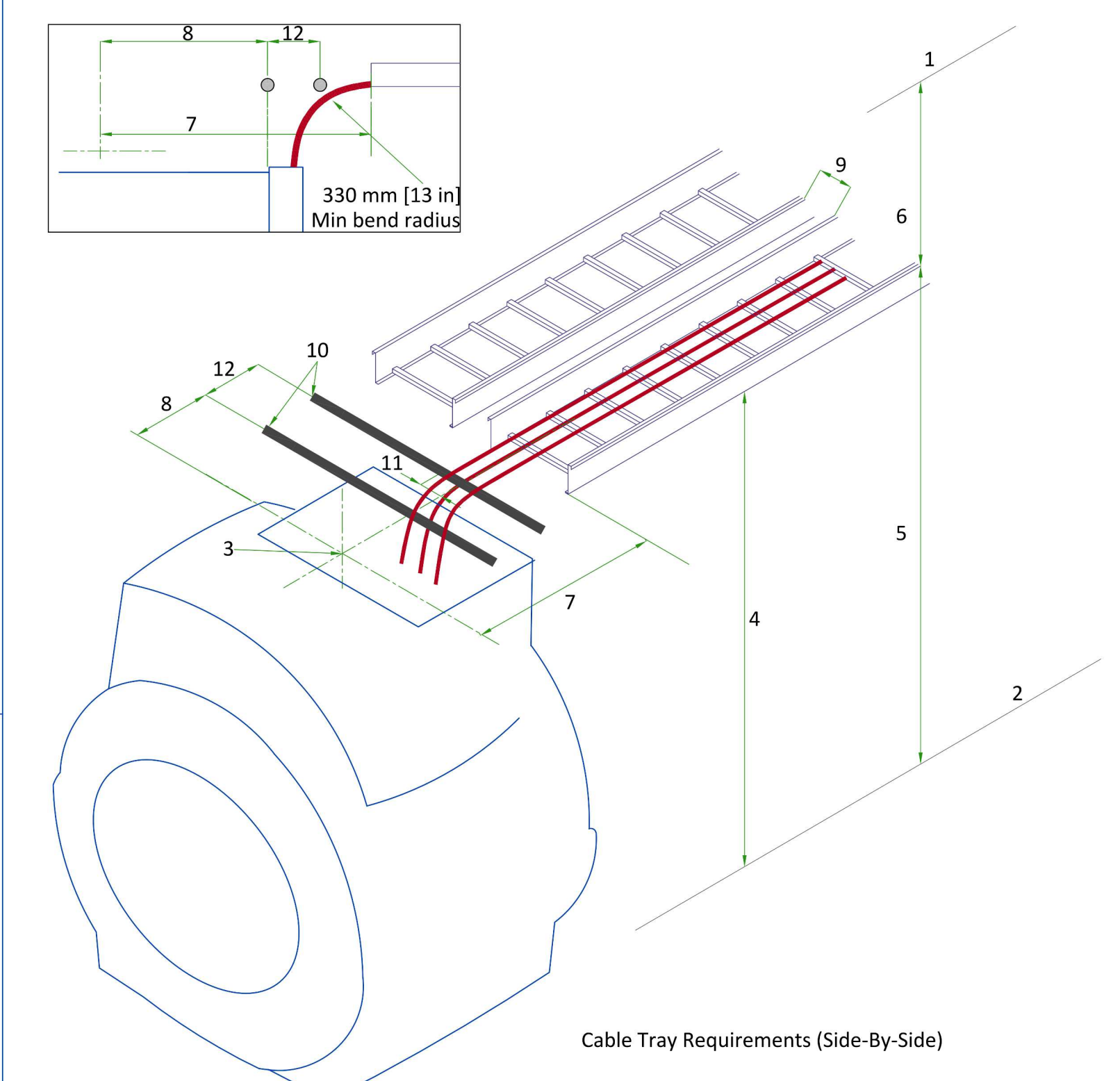
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TYPICAL MAGNET ROOM GROUNDING

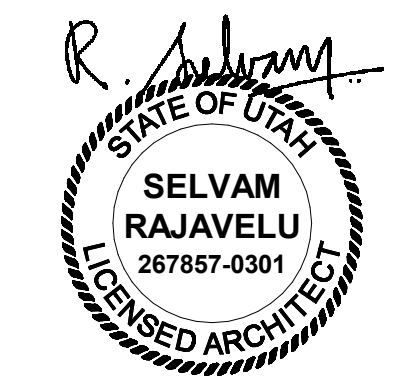


- GROUNDING REQUIREMENTS**
- All power lines into the RF shielded room require an RF filter.
 - All electrical devices (for example, outlets, light fixtures, and so on) must have a ground wire from device power source and be grounded to the RF Shield at the RF Common Ground Stud.
 - Resistance between any two grounded devices must not exceed 0.1 ohm to ensure equal potential ground system within the Magnet Room.
 - Do not ground non-MR equipment to the MR ground system.
 - The common ground stud must be installed near the penetration point(s) of the GE equipment, into the RF shield between the Equipment Room and Magnet Room.
 - For additional information refer to RF Shielded Room manual 5850260-1EN

CABLE TRAYS REQUIREMENTS IN MAGNET ROOM



- Cable Tray Requirements (Side-By-Side)
- Ceiling
 - Finished Floor
 - Magnet isocenter. Gradient cables must be centered on magnet isocenter.
 - Minimum cable tray height required at back of Magnet: 2578 mm [101.5 in]. Tray height may be lower at other points to avoid obstructions.
 - Maximum height from floor to top of tray (anywhere in Magnet room): 3251 mm [128 in].
 - Minimum distance from top of cable tray to ceiling or other obstruction: 254 mm [10 in].
 - Tray end to isocenter: 1336 ±12 mm [52.60 ±0.5 in].
 - Other cable termination to isocenter: 955 ±12 mm [37.60 ±0.5 in] (IPM series).
 - Minimum distance between trays: 12 mm [0.5 in].
 - Non-ferrous cable support
 - The center of the gradient cable group is 89 mm [3.5 in] from magnet center.
 - Distance between non-ferrous cable support: at least 305 mm [12 in].



POWER REQUIREMENTS

SPECIFICATIONS OF MAIN POWER INPUT

POWER SUPPLY	380/400/415/480V ±10%, 3 PHASE + GND
FREQUENCIES	380/400/415V at 50Hz ± 3Hz, 480V at 60Hz ± 3Hz
TOTAL SYSTEM 50ms PEAK POWER	129 kVA
TOTAL SYSTEM CONTINUOUS POWER	88 kVA
STAND-BY POWER	< 17 kVA

- Power input must be separated from any others which may generate transients (elevators, air conditioning, radiology rooms equipped with high speed film changers...).
- If a neutral conductor is present, it can be terminated on the neutral bus provided in the GE-supplied MDP.
- Total voltage harmonic distortion less than 2.5%. Phase imbalance must not exceed 2%.
- Lock-out/tag-out: The Main Disconnect Panel (MDP) shall provide an external single point lock-out/tag-out feature for the entire system and a means to externally lock-out/tag-out each output breaker independently. Each lock-out/tag-out feature shall accommodate a standard sized lock hasp.

SPECIFICATIONS OF OPTIONAL BACK-UP POWER SUPPLY

MAGNET MONITOR REQUIRES A 100-240 VAC, 50/60 HZ, 3.0 A FACILITY SUPPLIED OUTLET. POWER AT THE OUTLET MUST BE CONTINUOUSLY AVAILABLE.

FOR CRYOCOOLER COMPRESSOR

POWER INPUT	380/400/415/480V, THREE-PHASE + G
POWER REQUIREMENT	MIN 9KVA
POWER CONSUMPTION	MAX 7.2kW / STEADY STATE 6.5kW at 50Hz MAX 8.3kW / STEADY STATE 7.5kW at 60Hz
FREQUENCY	380/400/415V at 50Hz ± 3Hz, 480V at 60Hz ± 3Hz

Power to Cryocooler Compressor must be removed when emergency off circuit is actuated.

CABLES

- Power and cable installation must comply with the distribution diagram.
- Size of the Main power input cable is determined by the customer, taking its length and admissible voltage drops into consideration.
- All cables must be isolated and flexible, cable color codes must comply with standards for electrical installation.
- The cables from signaling and remote control (V, Emergency Off Buttons, ...) will go to Main Panel with a pigtail length of 1.5m [60in], and will be connected during installation.
- Each conductor will be identified and isolated (screw connector).

GROUND SYSTEM

- The equipotential link will be by means of an equipotential bar.
- The grounding point of MDP is directly connected to the building's ground by an isolated copper cable.
- The impedance of the earth bar should be less than or equal to 2 ohms.

GUIDANCE ON SELECTION OF FEEDER AND TRANSFORMER FOR MR SYSTEM	
Direct Feed From Facility to MR system	MR system fed by dedicated facility distribution transformer
Prerequisite Conditions	
MR System Incoming Voltage	480V 3-phase
Minimum Source short-circuit kVA	7,300 kVA (at source of feeder to MDP) / 8,325 kVA (at input to distribution transformer)
Minimum No-Load Voltage	460V / 475V (transformer secondary tapped accordingly)

Feeder and Transformer Recommendations	
Dedicated Distribution Transformer Recommendations	Site: 225 kVA
Impedance (Z): 5%	Impedance (Z): 5%
K-Factor: ≤ K-20	K-Factor: ≤ K-20
200A overcurrent protection on secondary*	200A overcurrent protection on secondary*

* NOTE: Recommendations shown apply only to cases defined exactly as shown in this table and when not in conflict with local electrical codes. For all other cases, refer to the local codes and the System Voltage Regulation Calculator located on the GE Healthcare Site Planning Website

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POWER DISTRIBUTION

Facility input power (380, 400, 415, 480 VAC) 3 Phase + GND

Notes:

- Cryocooler Compressor (CRY) must operate 24 hours per day, 7 days per week.
- Runs E0009, E3030 and M3030 are GE supplied cables. All other wiring is customer supplied and installed.
- Two remote Emergency Off Maintained Buttons are supplied with the MDP. Emergency Off removes power from all outputs when activated.
- All MDP output circuits drop out on loss of power, the Cryocooler (CRY) circuit will automatically restart upon restoration of power.
- MDP Short circuit current rating is 25,000 amperes at 480 VAC.
- MDP is NRTL labeled.
- All feeder circuits require dedicated ground wires.

GE MDP M71002A 380V-480V				
Item	Phase	sq mm	AWG/kcmil	
A	6-120	10-250	16-120	6-250
B	10-120	8-250	35-120	2-250
C	2.5-70	14-2/0	2.5-70	14-2/0
D	2.5-4	14-10	2.5-16	14-10
E	2.5-6	14-10	2.5-6	14-10
F	0.5-10	22-10	-	-

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FACILITY SUPPLIED WIRING

This diagram displays minimum power requirements for GE equipment and should be used as a guide to determine appropriate wire sizes per local regulatory requirements.

CRY: Cryocooler Compressor (Inside ICC)
ICC: Integrated Cooling Cabinet
PDU: Power Distribution Unit (Inside PGR)
PGR: Power, Gradient, RF Cabinet
PP: Penetration Panel

Notes:

- Refer to Power Distribution detail for more information
- Size incoming wires from GE equipment according to conductor sizes listed on Power Distribution detail. A network connection must be provided near the MDP to support power quality monitoring.
- Refer to Lighting Requirements detail
- This group contains water lines which shall be routed separate from electrical lines (i.e. power and signal)
- A cable is supplied by GE but may be extended if needed.

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INTERCONNECTIONS

GRADIENT CABLE LENGTH OPTIONS

Length Identifier	Available lengths m (ft)	Proposed
L5	3.7 (12.9)	-
	5.7 (18.7)	-
	7.7 (25.3)	-
	9.7 (31.8)	-
	11.7 (38.4)	-
	13.7 (45.0)	-
L15	15.7 (51.5)	-
	4.6 (15.1)	-
	6.6 (21.6)	-
	8.6 (28.2)	-
	10.6 (34.7)	-
	12.6 (41.3)	-

CABLE ROUTING FOR ACCESSORIES

OPTION	FROM	TO	CABLE LENGTH m (ft)
Magnetic Resonance Elastography (MRE)	MRE	Magnet (Isocenter)	Nominal: 7.31 (24) Maximum: 10.06 (33)
	MRE	PP	15.24 (50)
	MRE	Ethernet Hub in PGR	15.24 (50)
	MRE	Customer Supplied Outlet	60Hz: 6.10 (20) 50Hz: 7.62 (25)
Multi-Nuclear Spectroscopy (MNS)	MNS	PGR	9.85 (32.3)
	MNS	PGR	7.85 (25.7)/14 (45.9)
	PP	PGR	8.2 (26.9)/14.35 (47)
Brainwave (BW)	BW	PP	18.3 (60)

GENERAL NOTE: PMI must validate proposed selectables and send confirmation to OTR. Refer to MyProjects if Proposed field is blank.
GOLDSEAL/SILVER PREFERRED NOTE: Cable lengths listed may differ from what is shipped with the system. Contact the Goldseal group for actual lengths to be delivered.
ROOM MOVE NOTE: Cable lengths listed may differ from what is included with reinstalled system. Contact the local field engineer for actual lengths to be delivered.

Order Configuration Options

Configuration	Equipment Room - site option	Magnet Room - site option	Proposed
A	Short	Short	-
B	Long	Short	-
C	Short	Long	-

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