

# Drawing Index

These sheets are a document set and should not be separated. Electrical information and references are contained on all sheets.

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These equipment IS drawings indicate the placement and interconnection of the listed equipment components. These drawings are not construction or site preparation drawings. Customer remains ultimately responsible for preparing the site to accommodate the IS and operation of such equipment in compliance with GE Healthcare's written specifications and all applicable federal, state, and/or local requirements.

**\* REQUIRED REFERENCE \***  
 Signa 1.5T HDx  
 Twinspeed  
 Pre Installation Manual  
 5159902

A mandatory component of this drawing set is the GE Healthcare Pre Installation manual. Failure to reference the preIS 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](http://www.gehealthcare.com/siteplanning)

# GE Healthcare



## MRi Site Planning



imagination at work

## Customer Site Readiness Requirements

- 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. Capability for image analysis, 4. Restrooms.
- Provide for refuse removal and disposal (e.g. crates, cartons, packing)
- It is the customer's responsibility to contract a vibration consultant/engineer to implement site design modifications to meet the GE vibration specification. Refer to the system preinstallation manual for the vibration specification.

## GE Equipment Delivery Requirements

The items on the GE Healthcare Site Readiness Checklist are REQUIRED to facilitate equipment delivery to the IS site. Equipment will not be delivered if these requirements are not satisfied.

GE Healthcare Site Readiness Checklist Rev 18					
Before using this document ensure you have the latest Rev from MyWorkshop on DCCC42769					
GEHC Global Order # : _____		Customer: _____			
GEHC PM # : _____		FE / Installer: _____			
The customer is responsible for proper site preparation regardless of any GEHC measurements/inspections/assessments.					
Item #	Inspection Date:	Storage: Is it ready?	PM: Is it ready?	FE: Is it ready?	Comments If "N", enter comments or action plan
1					<b>MR Magnet Delivery Requirements:</b> Ensure cryogen venting system is designed and installed with objective evidence that it is compliant with the GEHC Pre-Installation Manual (PIM) requirements, exhaust fan system is installed and operational, 480V power, and chilled water supply is available 24/7 that meets system cooling requirements. External connectivity is available for magnet control and phone service is available during delivery.
2					<b>MR Screen Room Requirements:</b> MR Screen Room to be sealed with objective evidence that it is compliant with GEHC specifications. Dock lock installed using 2 port anchors. For HDx systems, blower beam stubs to be installed by vendor using 2 port anchors.
3					<b>State Regulatory Requirements:</b> Site Drawing Requirements: Final version of equipment installation drawings (including red lined version) verified to match actual room and has been provided to installer. X-ray shielding plan and state acknowledgment letter provided to installer for AR, DC, NC, SC, CO & WA.
4					<b>Site Drawing Requirements:</b> Final version of equipment installation drawings (including red lined version) verified to match actual room and has been provided to installer.
5					<b>Surface Penetration Requirements:</b> Customer/Contractor scheduled to provide required drilling or cutting into floors, ceilings, and walls; OR surface penetration permit available and posted in the room when GEHC will perform the work.
5					<b>Delivery Route Requirements:</b> The equipment delivery route from the truck to the final destination within the facility has been reviewed with all key stakeholders to safely meet the minimum requirements for equipment access, and all communications/notifications have occurred. Arrangements have been made for special handling (elevator, rigging, floor protectors, work lift, block truck, etc).
5					<b>Finished Room Requirements:</b> Rooms that will contain equipment, including storage areas not in scan suite, are dust free. Precautions must be taken to prevent dust from entering rooms containing equipment when construction is incomplete in adjacent areas. All walls primed (final coat not needed on Day 1). No contractor work being done during or after the installation that will cause dust in the installation area or potential equipment damage. Room security to prevent unauthorized access and theft has been discussed with customer. The customer is aware of these security issues, implications and responsibility. For Storage Room must meet PIM requirements for storage.
5					<b>Electrical Requirements:</b> Main Disconnect Panel (MDP) is installed and system power is available. Conducts, electrical cable ducting/dividers/cable trays and access flooring is installed in proper location and height. Surface floor duct and lead-side wires can be installed at time of system installation.
5					<b>HVAC Requirements:</b> The HVAC/Chilled Water systems designed to maintain the environment are running and appear to provide the desired environmental conditions temperature and humidity for system operation.
5					<b>Flooring Requirements:</b> Floor is clean and prepared for final floor covering. Floor levelness/flatness is measured and within tolerance, and there are no visible defects per GEHC specifications.
5					<b>Ceiling Requirements:</b> Structure for equivalent/cotton, levelness and spacing is measured for vendor confirmed and consistent with the requirement of the installation drawings. Ceiling grids installed. Permanent lighting is installed and operational. HVAC Diffusers are installed and connected to ductwork. Ceiling tiles installed per PIM discretion.

**GE Healthcare**  
 IS Services Design Center  
 Milwaukee, WI  
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SHEET TITLE: SITE READINESS  
 MODALITY TYPE: 1.5T SIGNA TWINSPEED HDX  
 THIS PLAN IS SUBMITTED TO CURRENT LOCATION OF HEALTHCARE EQUIPMENT AND ASSOCIATED ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS. IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM DETAILS TO THE LATEST REVISED DRAWING INFORMATION TO BE USED FOR CONSTRUCTION PURPOSES. THE CUSTOMER CANNOT ACCEPT RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
 8-210F  
 TYPICAL LAYOUT

PROJECT	REVISION
8-210F	02
DATE:	11 Apr. 11
DRAWN BY:	PMM
CHECKED BY:	TMS

REVISION HISTORY:


SHEET  
 C1

PIM R7  
 RQ - 117460

**GE EQUIPMENT LISTING**

EQUIPMENT ON ORDER FROM GE HEALTHCARE, INSTALLED BY GE HEALTHCARE, PER : NEITHER A QUOTE OR CON WAS ISSUED AT THE DATE OF THESE DRAWINGS

NOTE: LOCAL CONDITIONS MAY DICTATE THAT ITEMS IDENTIFIED IN THIS CATEGORY BE INSTALLED BY OTHERS.

ITEM NO.	QUANTITY ORDERED	REFER TO SHEET "D"	ITEM DESCRIPTION (* = EXISTING/REINSTALL)	WEIGHT	HEAT OUTPUT (PER HOUR)	DETAIL NO.	STRC PLAN	ELEC PLAN
1	1		1.5 TESLA LCC ACTIVE SHIELD MAGNET	13489 lbs	8191 btu	M6515 M3300A M3000B M3000C	M6615A	MS1 C
2	1		PATIENT TRANSPORT TABLE (DOES NOT INCLUDE PATIENT)	279 lbs		M2315		S
3	1		SHIELD COOLER CABINET	275 lbs		M1615B		MS5 C
4	1		BLOWER BOX	19 lbs	1365 btu	M3000F	M3000D	MG6 S
5	1		TWINSPEED ACCESSORY CABINET	601 lbs	2354 btu	M3000A		TAC S
6	1		RFS CABINET	899 lbs	2778 btu	M5015F		MR2 S
7	1		HFD/PDU CABINET	1805 lbs	34129 btu	M5015D		MR3 S
8	1		RF PENETRATION PANEL	88 lbs	324 btu	M5615 M5515 M4515B		PP1 S
9	2		PENETRATION PANEL COVERS			M4715B		S
10	1		OPERATOR WORKSPACE W/COLOR LCD MONITOR	125 lbs	4948 btu	M0516A		OW
11	1		SPT PHANTOM CABINET	350 lbs		M6115		
12	1		OPERATOR WORKSPACE CABINET	198 lbs		M0615D		L C
13	1		PATIENT ALERT CONTROL BOX			M4815		PA S
14	1		MAGNET RUNDOWN UNIT	8 lbs		M1715A		MS4 C
15	1		MAGNET MONITOR	22 lbs	204 btu	M1615C		MSM1 C

THE FOLLOWING ITEMS, WHICH HAVE BEEN ORDERED FROM GE HEALTHCARE, ARE TO BE INSTALLED BY THE CUSTOMER OR HIS CONTRACTOR.

60	2		REMOTE CONTROL FOR CHILLER SYSTEM	2 lbs		M3088R		RCP
61	2		MR COMMON CHILLER SYSTEM	683 lbs		M3088TL		MRCC

**EQUIPMENT LAYOUT** RECOMMENDED CEILING HEIGHT = 8'-9"

SCALE: 1/4" = 1'-0" This equipment layout indicates the placement and interconnection of the indicated equipment components. There may be federal, state, and/or local requirements that could impact the placement of these components. It remains the Customer's responsibility for ensuring the site and final equipment placement complies with all applicable federal, state, and/or local requirements.

**MRI SITE PLANNING REMINDERS**

- PLEASE REFER TO PRE-INSTALLATION CHECKLIST IN PRE-INSTALLATION MANUAL LISTED ON SHEET C1 FOR ITEMS CRITICAL TO IMAGE QUALITY.
  - THE LAYOUT SHOULD BE ARRANGED SO THAT THE 5G LINE IS CONTAINED TO THE MAGNET ROOM. IF NOT POSSIBLE, A BARRIER IS RECOMMENDED TO PREVENT ENTRY TO THE 5G FIELD AREA.
  - FOR MOVING METAL, THE RESTRICTION LINES TYPICALLY EXTEND OUTSIDE OF THE MRI SPACE. PLEASE CONFIRM THERE ARE NO MOVING METAL CONCERNS WITHIN THESE AREAS. AN EMI STUDY IS RECOMMENDED IF THE RESTRICTION LINES ARE VIOLATED.
  - FOR VIBRATION ANALYSIS TO BE COMPLETED AS REQUIRED PER PRE-INSTALLATION MANUAL.
  - FOR EMI, REVIEW THE SITE FOR THE LOCATION OF THE MAIN ELECTRICAL FEEDERS, AC DEVICES, OR DISTRIBUTION SYSTEMS. AN EMI STUDY IS RECOMMENDED IF LARGE AC SYSTEMS ARE NEARBY.
  - DETAILS OF THE FLOOR BELOW THE MAGNET MUST BE REVIEWED. THE STRUCTURAL ENGINEER MUST VERIFY THAT THE QUANTITY OF STEEL IN THE VOLUME 10FT [3.1M] X 10FT [3.1M] X 1FT [.3M] DEEP (BELOW THE MAGNET) DOES NOT EXCEED THE ALLOWABLE STEEL CONTENT AS GIVEN IN THE MR PRE-INSTALLATION MANUAL REFERENCED ON SHEET C1.
- RESPONSIBILITY FOR THE COORDINATION, DESIGN, ENGINEERING, AND SITE PREPARATION RESIDES WITH THE CUSTOMER AND THEIR PROJECT ARCHITECTS AND CONTRACTORS. GE DOES NOT, BY PROVIDING REVIEWS AND FURNISHING COMMENTS AND ASSISTANCE, ACCEPT ANY RESPONSIBILITY BEYOND ITS OBLIGATIONS AS DEFINED IN THE MR SYSTEM, SALE/PURCHASE AGREEMENT.

**IMAGE QUALITY CONSIDERATIONS**

- BROADBAND RF NOISE IS A SINGLE TRANSIENT OR CONTINUOUS SERIES OF TRANSIENT DISTURBANCES CAUSED BY AN ELECTRICAL DISCHARGE. LOW HUMIDITY ENVIRONMENTAL CONDITIONS WILL HAVE HIGHER PROBABILITY OF ELECTRICAL DISCHARGE. THE ELECTRICAL DISCHARGE CAN OCCUR DUE TO ELECTRICAL ARCING (MICRO ARCS) OR MERELY STATIC DISCHARGE. SOME POTENTIAL SOURCES CAPABLE OF PRODUCING ELECTRICAL DISCHARGE INCLUDE:
- LOOSE HARDWARE/FASTENERS VIBRATION OR MOVEMENT (ELECTRICAL CONTINUITY MUST ALWAYS BE MAINTAINED)
  - FLOORING MATERIAL INCLUDING RAISED ACCESS FLOORING (PANELS & SUPPORT HARDWARE) AND CARPETING
  - ELECTRICAL FIXTURES (i.e. LIGHTING FIXTURES, TRACK LIGHTING, EMERGENCY LIGHTING, BATTERY CHARGERS, OUTLETS)
  - DUCTING FOR HVAC AND CABLE ROUTING
  - RF SHIELD SEALS (WALLS, DOORS, WINDOWS ETC.)
- FOR ADDITIONAL INFORMATION REGARDING IMAGE QUALITY, REFER TO THE PRE-INSTALLATION MANUAL LISTED ON SHEET C1.

NOTE: VERIFY DELIVERY ROUTE FOR MAGNET, EQUIPMENT, AND SERVICE EQUIPMENT PRIOR TO DELIVERY.

**CRITICAL ITEMS FOR MAGNET DELIVERY**

- 24/7 CHILLED WATER AND 480V POWER FOR SHIELD/CRYO COOLER
  - 24/7 120V POWER FOR THE MAGNET MONITOR
  - PHONE LINES FOR MAGNET MONITORING AND EMERGENCY USE
  - MAGNET ROOM EXHAUST FAN
  - CRYOGEN VENTING (IF ROOF HATCH, COMPLETED WITHIN 24 HRS)
  - MAGNET ANCHORS INSTALLED AND TESTED
- THIS IS ONLY A PARTIAL LIST OF ITEMS REQUIRED FOR DELIVERY OF THE MAGNET. FOR A COMPLETE CHECKLIST REFER TO THE PRE-INSTALLATION MANUAL REFERENCED ON SHEET C1.

\* THE ISOGAUSS CONTOUR PLOTS DEPICTED ON THIS DRAWING REPRESENT MAGNETIC FRINGE FIELDS RESULTING FROM THE NORMAL OPERATION OF THE MAGNET PROVIDED WITH THE MR SYSTEM. THE ACTUAL MAGNETIC FIELD INTENSITY AT ANY POINT IN THE VICINITY OF THE MAGNET WHEN INSTALLED MAY VARY FROM THE CONTOUR PLOTS DUE TO FACTORS SUCH AS THE CONCENTRATING EFFECTS OF NEARBY FERROUS OBJECTS. AMBIENT MAGNETIC FIELDS, INCLUDING THE EARTH'S MAGNETIC FIELD, THEREFORE, THE CONTOURS SHOWN ARE ONLY APPROXIMATIONS OF ACTUAL FIELD INTENSITIES FOUND AT A CORRESPONDING DISTANCE FROM THE MAGNET'S ISOCENTER.

**ANCILLARY ITEMS**

**CUSTOMER/CONTRACTOR SUPPLIED AND INSTALLED ITEMS**

ITEM NO.	ITEM DESCRIPTION (* INDICATES EXISTING)
60	MINIMUM DOOR OPENING FOR EQUIPMENT DELIVERY IS 96 IN. (2438mm) CLEARANCE, 2830mm, CONTINGENT ON A 96 IN. (2438mm) DOOR DOOR WIDTH
61	NON-METAL ACCESS FLOOR WITH 2' x 2' (610 x 610mm) REMOVABLE PANELS & SUPPORT HARDWARE REQUIRED WITHIN MAGNET ROOM
62	VALVES AND HOSE BARBS FOR COOLING SYSTEM
63	RF FILTERS - LOCATE WITHIN 24 IN. (610 mm) OF THE RF COMMON GROUND STUD
64	MAGNET ROOM EXHAUST FAN
65	MINIMUM 9 FT. -0 IN. (2743 mm) X 9 FT. -0 IN. (2743 mm) REMOVABLE WALL SECTION FOR MAGNET DELIVERY/REMOVAL
66	RF SCREEN, INCLUSIVE OF WALLS, FLOOR, DOOR, ETC. GROUNDING/CHASSIS GREATER THAN 1000 OHMS ATTENUATION 100dB AT 10-100MHZ PLANEWAVE.
67	COUNTERTOP WITH DRAWERS FOR MISCELLANEOUS ITEMS.
68	BASE CABINET FOR STORAGE OF SURFACE COILS, PATIENT POSITIONING PADS, PHANTOMS, ETC.
69	ACCESS FLOOR WITH 2' x 2' (610 x 610mm) REMOVABLE PANELS
70	AIR CONDITIONING. < VIBRATION ISOLATION IS RECOMMENDED AT SUPPORTS OF EACH UNIT TO BE INSTALLED. >

THE FOLLOWING ITEMS ARE AVAILABLE FROM GE HEALTHCARE TECHNOLOGIES. CONTACT YOUR LOCAL GE HEALTHCARE SERVICE REPRESENTATIVE FOR PRICING AND AVAILABILITY.

90	MAGNET MONITOR UPS GE CAT. NO. E4504AG 50 LBS. / 450 BTU
91	DC LIGHTING CONTROL PANEL 150 lbs / 720 BTU/HR (300W) CAT. NO. E4502S2/SE - BASIC SYSTEM
92	DC LIGHTING AUTO TRANSFORMER 60 lbs (27 kg) 171 btu/hr (90W) < PART OF VARIABLE DIMMER SYSTEM > CAT. NO. E4502S2/SF INCLUDES BASIC SYSTEM
93	WORKSTATION TABLE CAT. NO. M1000MW
94	OPERATOR'S CHAIR CAT. NO. E8803BE
95	MULTIPLEXER BOX (MUX)
96	METAL DETECTOR (HAND HELD)
97	MAIN DISCONNECT CONTROL 900 BTU (264 W) 350 lbs (159kg) CAT NO. M3088TM

**GENERAL SPECIFICATIONS**

- o THE REQUIRED CEILING HEIGHT INDICATED ON THESE PLANS IS TO ENSURE EQUIPMENT FUNCTION IS NOT INHIBITED. CONSULT WITH YOUR LOCAL GEHC SPECIALIST REGARDING ACCEPTABILITY OF OTHER CEILING HEIGHTS.
- o CHECK ALL DOOR OPENINGS AND HALLWAYS FROM DELIVERY LOCATION TO WHERE EQUIPMENT IS TO BE INSTALLED TO ENSURE THE ROUTE PHYSICALLY AND STRUCTURALLY WILL ACCOMMODATE THE EQUIPMENT AS SHIPPED.
- o RADIATION PROTECTION REQUIREMENTS ARE NOT INDICATED ON THIS PLAN. WHERE NEEDED PER NATIONAL OR LOCAL CODE THEY SHALL BE SPECIFIED BY A QUALIFIED RADIOLOGICAL PHYSICIST.
- o THE DEVELOPMENT OF THE EQUIPMENT LAYOUT, ROOM DIMENSIONS, MECHANICAL AND ELECTRICAL SUGGESTIONS IS PREDICATED UPON THE BEST INFORMATION OBTAINABLE FROM THE SITE, COUPLED WITH THE CUSTOMER'S KNOWN DESIRES. ARCHITECTURAL OR ELECTRICAL CHANGES INCLUDING RELOCATION OF EQUIPMENT ILLUSTRATED ON THIS DRAWING IS ALLOWED ONLY WITH NOTIFICATION, IN WRITING, AND REVIEW BY GEHC SERVICE DEPARTMENT. EQUIPMENT OPERATION, SERVICEABILITY, AND RESTRICTING CABLE LENGTHS, ETC., MAKE THIS ESSENTIAL FOR A PROPER IS. GEHC RESERVES THE RIGHT TO MAKE ON THE JOB CHANGES BECAUSE OF CUSTOMER REQUIREMENTS AND/OR OBSTACLES IN CONSTRUCTION, ETC..
- o ALL WORK TO BE IN COMPLIANCE WITH NATIONAL AND LOCAL BUILDING SAFETY CODES.
- o DIMENSIONS ARE TO FINISHED SURFACES OF ROOM

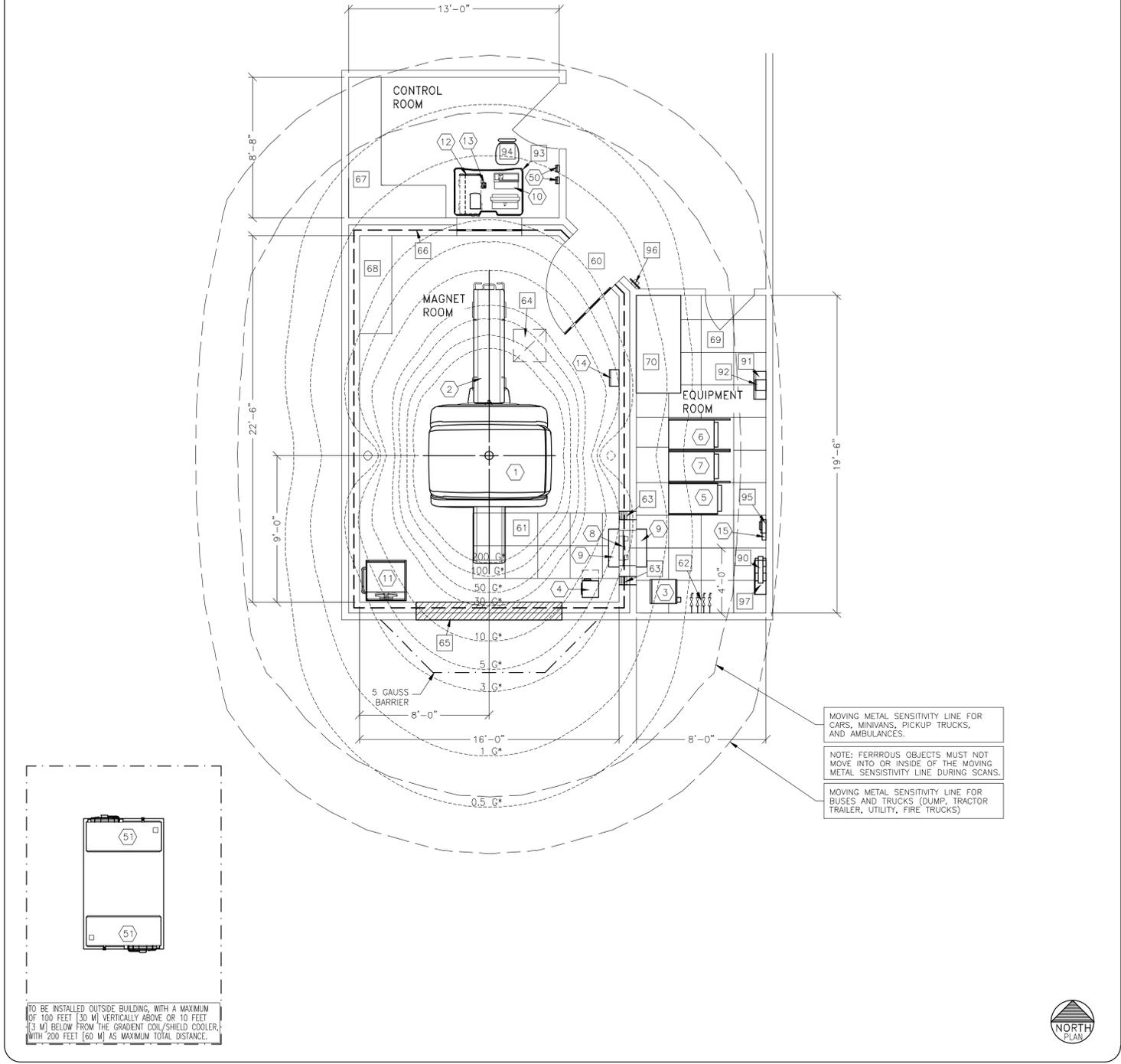
**SITE ENVIRONMENT SPECIFICATIONS**

- o AMBIENT OPERATING TEMPERATURE: 59-89.6 DEG (F) [15-32 (C)] FOR THE CONTROL AND EQUIPMENT AREAS, 59-69.8 DEG (F) [15-24 (C)] FOR THE MAGNET ROOM. MAXIMUM ALLOWABLE TEMPERATURE CHANGE OF 5 DEG (F) [3 (C)]/HR.
- o HUMIDITY: 30 TO 75 (30-80 FOR THE MAGNET ROOM) PERCENT NON-CONDENSING, MAXIMUM ALLOWABLE CHANGE OF 5 PERCENT/HOUR.
- o ENVIRONMENTAL RESTRICTIONS ABOVE MUST NOT BE EXCEEDED FOR THE ELECTRONICS.
- o DO NOT RESTRICT THE AIR INTAKE OR AIR EXHAUST OF THE SYSTEM COMPONENTS.
- o ENVIRONMENTAL CONDITIONS LISTED ABOVE MUST BE MAINTAINED AT ALL TIMES INCLUDING FOR EXAMPLE OVERNIGHT, WEEKENDS, AND HOLIDAYS.
- o 24 HOUR POWER AND HVAC MUST BE AVAILABLE UPON MAGNET DELIVERY. [THIS WILL INCLUDE FACILITY CHILLED WATER SUPPLY IF REQUIRED.]
- o CRYOGEN VENTING AND EMERGENCY EXHAUST SYSTEMS MUST BE COMPLETED IN THE MAGNET ROOM PRIOR TO DELIVERY.
- o FLUORESCENT LIGHTING IS NOT ALLOWED IN THE MAGNET ROOM DUE TO RF NOISE.

**MAGNETIC INTERFERENCE SPECIFICATIONS**

- o THE CUSTOMER MUST ESTABLISH PROTOCOLS TO PREVENT PERSONS WITH CARDIAC PACEMAKERS, NEUROSTIMULATORS, AND BIOSTIMULATION DEVICES FROM ENTERING MAGNETIC FIELDS OF GREATER THAN 5 GAUSS (EXCLUSION ZONE).
- o MAIN POWER TRANSFORMERS MUST REMAIN OUTSIDE THE 3 GAUSS LINE.
- o POTENTIAL EXISTS UNDER FAULT CONDITIONS THAT THE 5 GAUSS LINE MAY EXPAND RADIALLY TO 16.4 FT. (5.0 m) AND AXIALLY TO 22.96 FT. (7.0 m) FOR 2 SECONDS OR LESS. IT SHOULD BE NOTED THAT NORMAL RAMPDOWNS OR MRU (MAGNET RUNDOWN UNIT) INITIATED QUENCHES WILL NOT CAUSE THE MAGNETIC FIELD TO EXPAND.
- o IT IS RECOMMENDED EVERY SITE CONSIDER THE EVENT OF A QUENCH AND PLAN ACCORDINGLY (SUCH AS PLACING 5 GAUSS WARNING SIGNS AT EXPANDED LOCATIONS).
- o THE FERROUS METAL OBJECTS LISTED BELOW MUST NOT MOVE INTO OR INSIDE OF THE MOVING METAL SENSITIVITY LINE DURING SCANS.

TYPICAL MOVING MAGNETIC MASS	DISTANCE RADIALLY	DISTANCE AXIALLY
CARTS, GURNEYS 100-400 lbs [45-182 kg]	3 GAUSS LINE	3 GAUSS LINE
FORKLIFTS, SMALL ELEVATOR, CARS, MINIVANS VANS, PICKUP TRUCKS, AMBULANCES (OBJECTS GREATER THAN 400 lbs [182 kg])	15.5 ft. [4.72 m]	21.0 ft. [6.4 m]
BUSES AND TRUCKS (DUMP, TRACTOR TRAILER, UTILITY, FIRE TRUCKS)	18.1 ft. [5.52 m]	24.5 ft. [7.47 m]



TO BE INSTALLED OUTSIDE BUILDING, WITH A MAXIMUM OF 100 FEET (30 M) VERTICALLY ABOVE OR 10 FEET (3 M) BELOW FROM THE GRADIENT COIL/SHIELD COOLER, WITH 200 FEET (60 M) AS MAXIMUM TOTAL DISTANCE.



**GE Healthcare**  
IS Services Design Center  
Milwaukee, Wisconsin

SHEET TITLE: EQUIPMENT LAYOUT  
MODALITY TYPE: 1.5T SIGNA TWINSPEED HDX

THIS PLAN IS SUBMITTED TO SUBMIT LOCATION OF GE HEALTHCARE EQUIPMENT AND ASSOCIATED APPARATUS. ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM TO DETAILS AND DIMENSIONS SHOWN. TO BE INSTALLED TO THE BEST OF THE COMPANY'S KNOWLEDGE. THE COMPANY ASSUMES NO LIABILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
**8-210F**  
TYPICAL LAYOUT

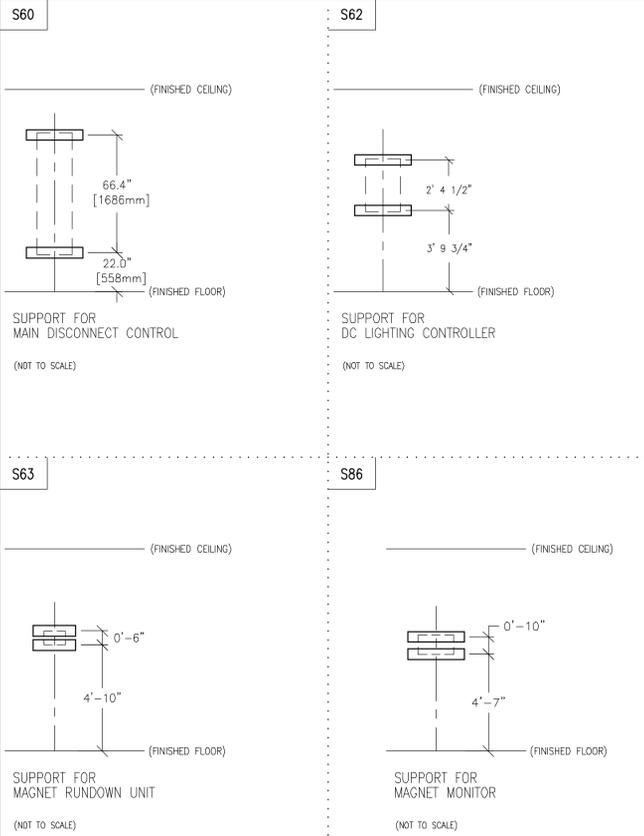
PROJECT	REVISION
8-210F	02

DATE: 11.Apr.11  
DRAWN BY: PMM  
CHECKED BY: TMS

REVISION HISTORY:


SHEET  
**A1**

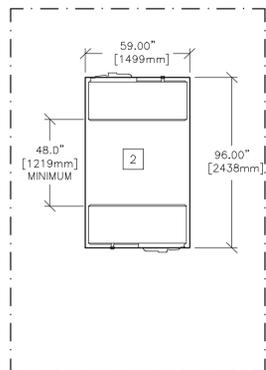
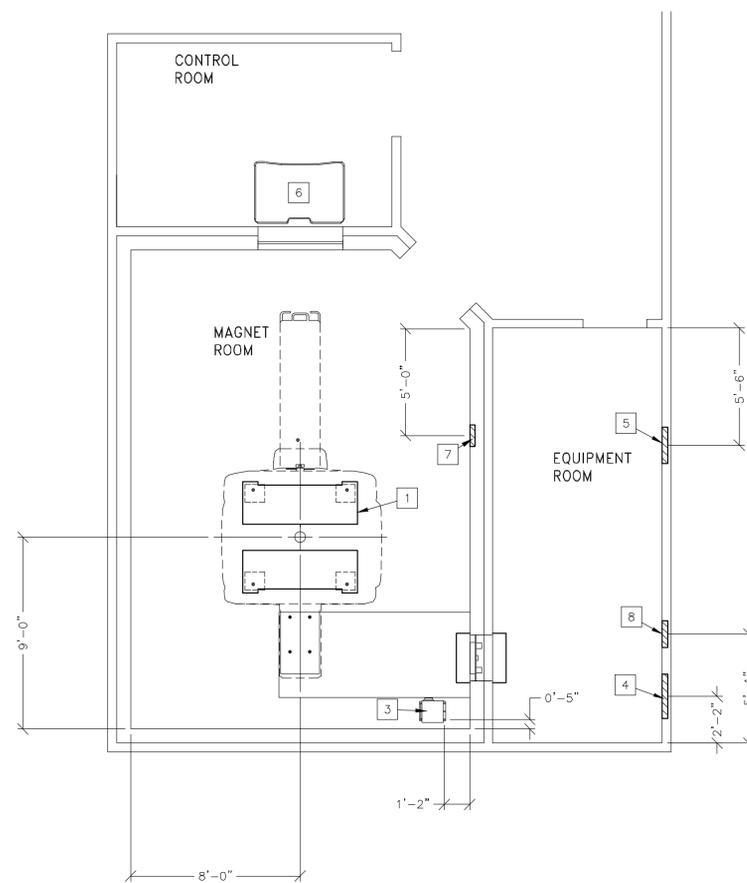
TYPICAL WALL SUPPORT ELEVATIONS



SCALE: 1/4" = 1'-0"

STRUCTURAL LAYOUT

RECOMMENDED CEILING HEIGHT = 8'-9"



STRUCTURAL SUPPORT METHODS

CUSTOMER/CONTRACTOR SUPPLIED AND INSTALLED ITEMS

ITEM NO.	ITEM DESCRIPTION (* INDICATES EXISTING)
1	MAGNET FLOOR MOUNTING, SEE DETAIL M6615A2 ON SHEET S2 FOR MORE INFORMATION
2	96 IN. (2438 MM) X 59 IN. (1500 MM) CONCRETE PAD WITH A MINIMUM 4 IN. (100 MM) DEPTH AND 2500 PSI IS REQUIRED FOR GROUND LEVEL INSTALLATION. ADDITIONAL CONCRETE DEPTH MAY BE REQUIRED BY LOCAL CODES. THE UNIT MAY ALSO BE ROOF MOUNTED. UNIT MUST BE MOUNTED ON A LEVEL AREA WITH A MAXIMUM DEVIATION ON THE LEVELNESS OF 3/8" OVER 10 FEET (10MM OVER 3050MM). FOR BOLT MOUNTING LOCATIONS SEE DETAIL M30-88S
3	FLOOR MOUNTING AREA FOR BLOWER BOX. SEE DETAIL M30-000 ON SHEET S2.
4	SUPPORT BACKING, LOCATE AS SHOWN, REFER TO ELEVATION DETAIL S60, FOR MAIN DISCONNECT CONTROL.
5	SUPPORT BACKING, LOCATE AS SHOWN, REFER TO ELEVATION DETAIL S62, FOR DC LIGHTING CONTROL.
6	SEE DETAIL M05-150 ON SHEET S2 FOR FLOOR MOUNTING OF OPERATOR WORKSPACE.
7	SUPPORT BACKING, LOCATE AS SHOWN, REFER TO ELEVATION DETAIL S63, FOR MAGNET RUNDOWN UNIT.
8	SUPPORT BACKING, LOCATE AS SHOWN, REFER TO ELEVATION DETAIL S66, FOR MAGNET MONITOR.

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. SEE PLAN AND DETAIL SHEETS FOR SUGGESTED LOCATIONS AND MOUNTING HOLE LOCATIONS.
- 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 MOUNTING DETAIL ON SHEET S2 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 IN THE MAGNET ROOM SHOULD NOT EXCEED 0.3125 in. (8 mm) WHEN MEASURING BETWEEN DEPRESSIONS AND HIGH SPOTS OVER ANY 120 in. (3048 mm) DISTANCE WITHIN THE 87.5 in. (2178 mm) BY 139.3 in. (3539 mm) AREA OF THE MAGNET ENCLOSURE AND THE AREA IN FRONT OF THE ENCLOSURE. THIS FLOOR LEVELNESS REQUIREMENT IS IMPORATANT FOR ACCURATE PATIENT TABLE DOCKING.
- NON-MOVABLE STEEL SUCH AS WALL STUDS OR HVAC COMPONENTS WILL PRODUCE NEGLIGIBLE EFFECT ON THE ACTIVE SHIELD MAGNET.
- 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.
- CUSTOMERS 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"

GE Healthcare  
IS Services Design Center  
Minneapolis, Minnesota  
Wisconsin

SHEET TITLE: STRUCTURAL LAYOUT  
MODALITY TYPE: 1.5T SIGNA TWINSPEED HDX  
THIS PLAN IS SUBMITTED TO SUBMIT LOCATION OF GE HEALTHCARE EQUIPMENT AND ASSOCIATED APPARATUS, ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM DETAILS TO THE LATEST REVISIONS OF THE GE DRAWINGS. IT IS THE USER'S RESPONSIBILITY TO VERIFY THAT ALL CONSTRUCTION PROCESSES, INCLUDING THE COMPANY CANNOT ACCEPT RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

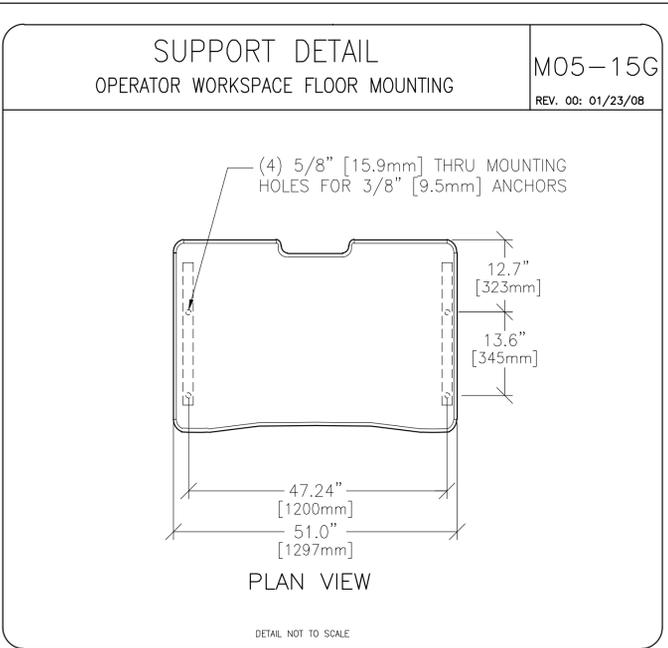
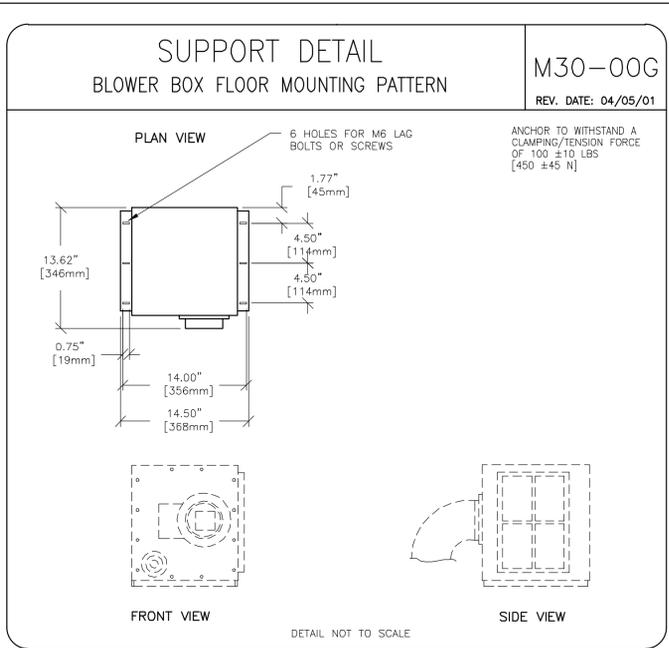
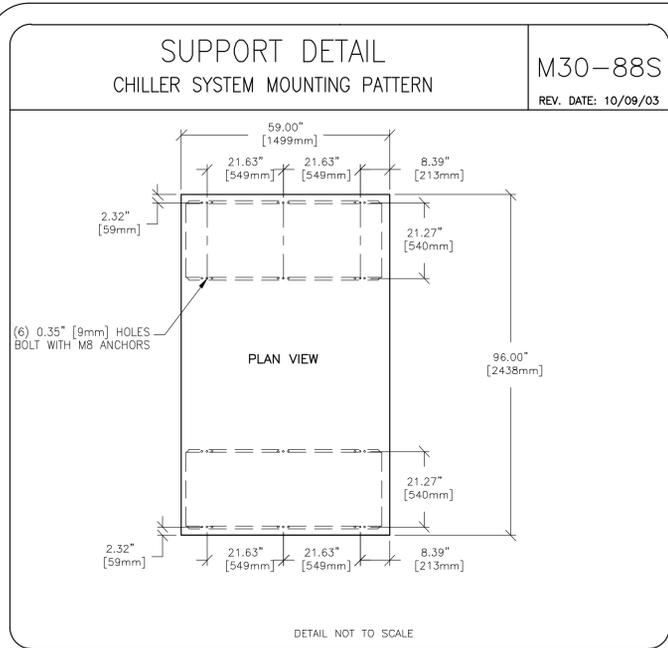
PROJECT TITLE:  
8-210F  
TYPICAL LAYOUT

PROJECT	REVISION
8-210F	02
DATE:	11.Apr.11
DRAWN BY:	PMM
CHECKED BY:	TMS

REVISION HISTORY:


SHEET  
S1

PIM R7  
RQ - 117460



## ACCOUSTICS AND VIBRATION GUIDELINES: SIGNA LCC MAGNET - (CXK4)

M66-15G1  
REV. DATE: 10/03/02

#### SYSTEM ACOUSTIC NOISE LEVELS

ANY GE FACTORY-INSTALLED PROTOCOL CAN BE MODIFIED BY OPERATORS, WHICH CAN INCREASE OR DECREASE ACOUSTIC SPL (SOUND PRESSURE LEVEL); OR OPERATORS MAY CREATE THEIR OWN PROTOCOL WHICH COULD PRODUCE A HIGHER OR LOWER ACOUSTIC SPL AS STATED UNDER OPERATING CONDITIONS CONDITION 1 BELOW. TYPICAL SCANS GENERATE ACOUSTIC LEVELS AS STATED UNDER OPERATING CONDITIONS CONDITION 2 BELOW. IN ADDITION, THE EXPOSURE TIMES ARE COMPLETELY UNDER OPERATOR CONTROL. CONSEQUENTLY, HEARING PROTECTION IS REQUIRED FOR ALL PEOPLE IN THE MAGNET ROOM DURING SCANS TO PREVENT HEARING IMPAIRMENT, ACOUSTIC LEVELS MAY EXCEED 99 dBA. AGAIN, FOR MORE INFORMATION ABOUT RECOMMENDED SAFETY PROCEDURES REGARDING PATIENT EXPOSURE TO MR-GENERATED ACOUSTIC NOISE, SEE THE MR SYSTEM OPERATOR MANUAL.

#### AMBIENT CONDITIONS

TO REDUCE ANY BACKGROUND NOISE DUE TO CABINET BLOWERS, ETC., ACOUSTICAL CEILINGS, WALLS, AND FLOORS ARE RECOMMENDED. THE FOLLOWING ARE TYPICAL NOISE LEVEL READINGS:

- OPERATOR AREA ..... 55 dBA
- EQUIPMENT ROOM ..... 75 dBA
- OUTDOOR TSCC (TWIN SYSTEM COOLING CABINET) ... 75 dBA
- OUTDOOR TWC (TWIN GRADIENT WATER COOLER) ... 75 dBA

#### OPERATING CONDITIONS

CONDITION 1  
MR SCANNERS UNDER "WORST-CASE" OPERATING CONDITIONS, COULD GENERATE ACOUSTIC LEVELS (AS MEASURED AT THE MAGNET ISO-CENTER) AS FOLLOWS:

AVERAGE SPL 115 dBA      SPL = SOUND PRESSURE LEVEL  
PEAK 120 dB  
FREQUENCY RANGE 20 TO 20K Hz

CONDITION 2  
MR SCANNERS FOR MANY TYPICAL CLINICAL SCANNING SCENARIOS THOUGH, GENERATE ACOUSTIC LEVELS (AS MEASURED AT THE MAGNET ISO-CENTER) SOMEWHAT LOWER AS FOLLOWS:

AVERAGE SPL 85 TO 95 dBA  
PEAK 105 TO 112 dB  
FREQUENCY RANGE 20 TO 20K Hz

AS RECENT HISTORY HAS SHOWN AN EVOLUTION TOWARDS MORE POWERFUL (AND HENCE LOUDER) GRADIENT SUBSYSTEMS, ARCHITECTS SHOULD CONSIDER THE ACOUSTIC LEVELS STATED IN THE "WORST CASE" CONDITION 1, MENTIONED ABOVE. NOTE THAT HIGH-FIELD SIGNA SYSTEMS HAVE THE ABILITY TO RUN SCANNING PROTOCOLS WHICH CAN GENERATE ACOUSTIC LEVELS OVER THE ENTIRE HUMAN PERCEPTIBLE FREQUENCY RANGE (20 TO 20K Hz), THEREFORE ATTENUATION OVER THIS ENTIRE RANGE MUST BE CONSIDERED FOR SITE DESIGN.

#### TEST MEASUREMENTS (A-1)

VIBRATION MEASUREMENTS ARE IN THE RANGE OF  $10^{-6}$  g. TEST EQUIPMENT MUST HAVE THE REQUIRED SENSITIVITY TO THESE LEVELS.

INSTRUMENTATION IS RECOMMENDED TO HAVE A LOW TOLERANCE TO TEMPERATURE EFFECTS AS MANY TIMES THE LOW FREQUENCY THERMAL DRIFT MAY INFLUENCE THE MEASUREMENTS.

IT IS HIGHLY RECOMMENDED ALL MEASURED DATA IS REAL TIME DATA ACQUISITION. RECORDING THE VIBRATION DATA WILL NOT ALLOW FOR A PROPER SITE SURVEY, SPECIFICALLY WHEN STUDYING TRANSIENT VIBRATION AND WHEN SEARCHING FOR SPECIFIC VIBRATION SOURCES.

ALL ANALYSES ARE TO BE NARROWBAND FAST FOURIER TRANSFORMS (FFT'S) OVER THE FREQUENCY BANDS LISTED BELOW:

FREQUENCYBAND	FREQUENCY RESOLUTION
0.2 TO 50 HZ	$\Delta f = 0.125$ HZ

TIME HISTORIES OF THE VIBRATION MUST BE RECORDED AS ACCELERATION LEVELS VS. TIME. THE RESOLUTION OF THE TIME HISTORY MUST BE ADJUSTED TO CLEARLY CAPTURE THE TRANSIENT EVENT. THE ANALYZER SET-UP WILL BE SITE DEPENDENT AND, IN SPECIAL CASES, VIBRATION RESPONSE DEPENDENT. IT IS THE RESPONSIBILITY OF THE VIBRATION CONSULTANT TO STUDY THE TRANSIENT ENVIRONMENT, CAPTURE DATA TO CONFIRM TRANSIENT ACTIVITY EXCEEDS THE TRIGGER LEVEL, THEN EXPAND THE TIME HISTORY DATA TO EXHIBIT THE STRUCTURAL RESPONSE.

#### EQUIPMENT (SPECTRAL ANALYZER) SET-UP (A-2)

- FREQUENCY AVERAGE A MINIMUM OF 20 LINEAR AVERAGES (DO NOT USE PEAK HOLD OR 1/3 OCTAVE ANALYSIS)
- AVERAGE AND STORE A MINIMUM OF 10 PLOTS TO SUPPORT THE SITE VIBRATIONS CONSISTENCY.
- HANNING WINDOW MUST BE APPLIED TO THE ENTIRE SPECTRA

SPECTRUM ANALYZERS CAPABLE OF THESE MEASUREMENTS ARE READILY AVAILABLE FOR PURCHASE OR RENTAL. MODELS SUCH AS THE HP 3560A, NICOLET PHASZER, B&K PULSE, AND HP 35670 ARE ALL CAPABLE OF MAKING THE SITE VIBRATION MEASUREMENTS. ACCELEROMETERS MUST HAVE THE CAPABILITY TO MEASURE FROM 0.2 Hz BEYOND 50 Hz. TIME HISTORIES CAN BE RECORDED USING ANY OF THE ANALYZERS LISTED ABOVE. PLEASE NOTE THAT THE EQUIPMENT MENTIONED ARE FOR EXAMPLE ONLY. IT IS THE RESPONSIBILITY OF THE ENGINEERING TEST FIRM TO PROVIDE EQUIPMENT THAT WILL ALLOW MEASUREMENTS COMPLIANT WITH THIS GUIDELINE.

#### DATA COLLECTIONS (A-3)

#### AMBIENT BASELINE CONDITION:

ALL OF THE MEASUREMENTS DEFINED IN A-1 AND A-2 (ABOVE) MUST BE MADE IN A "QUIET" ENVIRONMENT, THAT IS, IN AREAS WHERE EXCESSIVE TRAFFIC, SUBWAY TRAINS, ETC. EXISTS. A VIBRATION MEASUREMENT MUST ALSO BE MADE DURING PERIODS WITHOUT TRAFFIC OR DURING PERIODS OF LIGHT TRAFFIC. MEASUREMENTS MUST DEFINE THE LOWEST LEVELS OF VIBRATION POSSIBLE AT THE SITE.

THE SOURCE OF ANY STEADY STATE VIBRATION WHOSE LEVELS EXCEED THE SPECIFICATIONS MUST BE IDENTIFIED AS TO THE SOURCE OF THE VIBRATION DISTURBANCE. A SECOND MEASUREMENT SHOULD BE MADE WITH ALL OF THE IDENTIFIED CONTRIBUTORS POWERED DOWN IF POSSIBLE. IN SITUATIONS WHERE IT IS NOT POSSIBLE TO POWER DOWN EQUIPMENT, VIBRATION DATA MUST BE COLLECTED TO IDENTIFY SPECIFIC SOURCE OF THE VIBRATION CONCERN. THE MAJORITY OF STEADY STATE VIBRATION PROBLEMS CAN BE NEGATED BY ISOLATING THE VIBRATION SOURCE.

#### NORMAL CONDITION

ALL OF THE VIBRATION MEASUREMENTS LISTED ABOVE MUST BE REPEATED DURING PERIODS OF "NORMAL" ENVIRONMENTAL CONDITIONS INCLUDING THE FFT'S AND TIME HISTORIES. THE TRANSIENT MEASUREMENTS MUST BE PROVIDED TO DEFINE THE DYNAMIC DISTURBANCES THE MR SYSTEM MIGHT BE EXPOSED TO. TRANSIENT ANALYSIS IS REQUIRED FOR A TRUE ASSESSMENT OF THE SITE.

SPECIAL ATTENTION MUST BE PAID TO THE SITE ASSESSMENT DURING THE ENTIRE ANALYSIS. SINCE TRANSIENT VIBRATION IS NOT EASILY ADDRESSED ONCE THE MR SUITE IS FULLY CONSTRUCTED, THE TEST CONSULTANT MUST FULLY UNDERSTAND THE NEEDS FOR THIS ANALYSIS. THE SOURCE OF ANY TRANSIENT MUST BE IDENTIFIED AND SUPPORTED WITH VIBRATION PLOTS. IF THE SOURCE OF ANY TRANSIENT IS NOT ABLE TO BE LOCATED, IT IS RECOMMENDED THAT THE CUSTOMER SHOULD HAVE AN ALTERNATE LOCATION IDENTIFIED AND VIBRATION STUDIED.

TRANSIENT VIBRATION IS DIFFICULT TO ASSESS IF THE DETAILS OF THE TRANSIENT VIBRATION IS NOT UNDERSTOOD. THE 0.0005 g, ZERO TO PEAK TRIGGER LEVEL IS A STARTING POINT TO BEGIN UNDERSTANDING THE VIBRATION STABILITY. THE TRANSIENT VIBRATION PEAK AMPLITUDE, STRUCTURAL (TIME VARIANT) RESPONSE, DECAY RATE AND AN ESTIMATE OF THE NUMBER OF EVENTS PER UNIT TIME WOULD CONSTITUTE A COMPLETE TRANSIENT ANALYSIS. ALL TRANSIENT FAILURES MUST BE SUPPORTED BY TIME HISTORY PLOTS. THE PLOTS MUST CLEARLY SHOW THE STRUCTURAL RESPONSE, THE FREQUENCY OF THE SIGNATURE AND THE DECAY RATE. FROM THIS DATA, GE CAN HELP DETERMINE COMPLIANCE TO THE VIBRATION GUIDELINES.

TEST CONSULTANT MUST PROVIDE DESIGN RECOMMENDATIONS FOR ALL SITES/BUILDING STRUCTURES WHICH ARE FOUND TO EXCEED THE SPECIFICATIONS.

#### PRESENTATION/INTERPRETATION OF RESULTS (A-4)

THE RECOMMENDED FORMAT FOR SITE VIBRATION DATA COLLECTION, PRESENTATION, AND ANALYSIS IS ILLUSTRATED IN THE EXAMPLES SHOWN IN ILLUSTRATIONS A-1 THROUGH A-4. IN THE PRE-INSTALLATION PLANNING DIRECTION, PRESENTATION OF THE DATA IN ANY OTHER FORMAT (LINEAR UNITS ONLY) MAY RESULT IN AN INCORRECT INTERPRETATION AND DIAGNOSIS OF THE SITE. ADDITIONAL DATA COLLECTION OR PRESENTATION METHODS IS AT THE OPTION OF THE VIBRATION TESTING SERVICE.

IT IS THE RESPONSIBILITY OF THE CUSTOMER'S VIBRATION TESTING SERVICE TO INTERPRET THE RESULTS AND DETERMINE IF THAT SITE MEETS GE'S SPECIFICATIONS. ILLUSTRATIONS A-1 AND A-2 ARE EXAMPLES PROVIDED TO ASSIST A TEST CONSULTANT IN THE USE OF GE STEADY STATE SPECIFICATIONS (VIBRATION SPECIFICATIONS ABOVE AMBIENT BASELINE). IF THE VIBRATION LEVELS ARE TOO HIGH, ADDITIONAL DATA ACQUISITION MAY BE NECESSARY TO:

- DETERMINE THE SOURCE OF THE VIBRATION
- PROPOSE A SOLUTION TO THE PROBLEM
- FIND AN ALTERNATE SITE LOCATION.

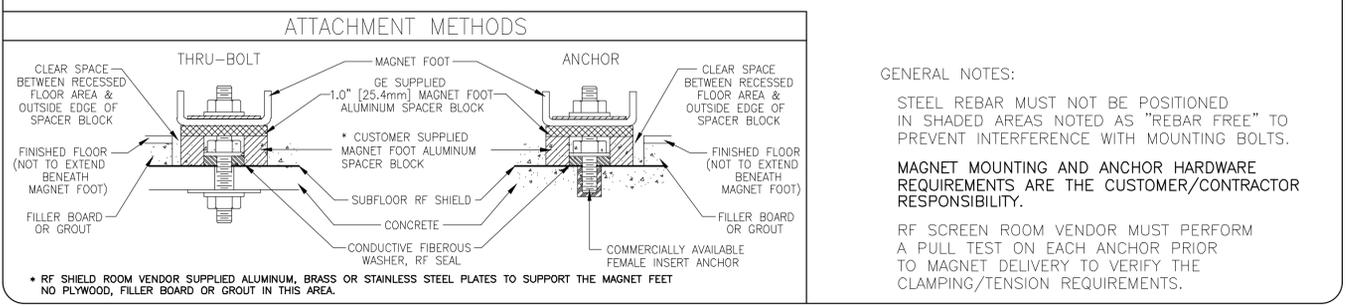
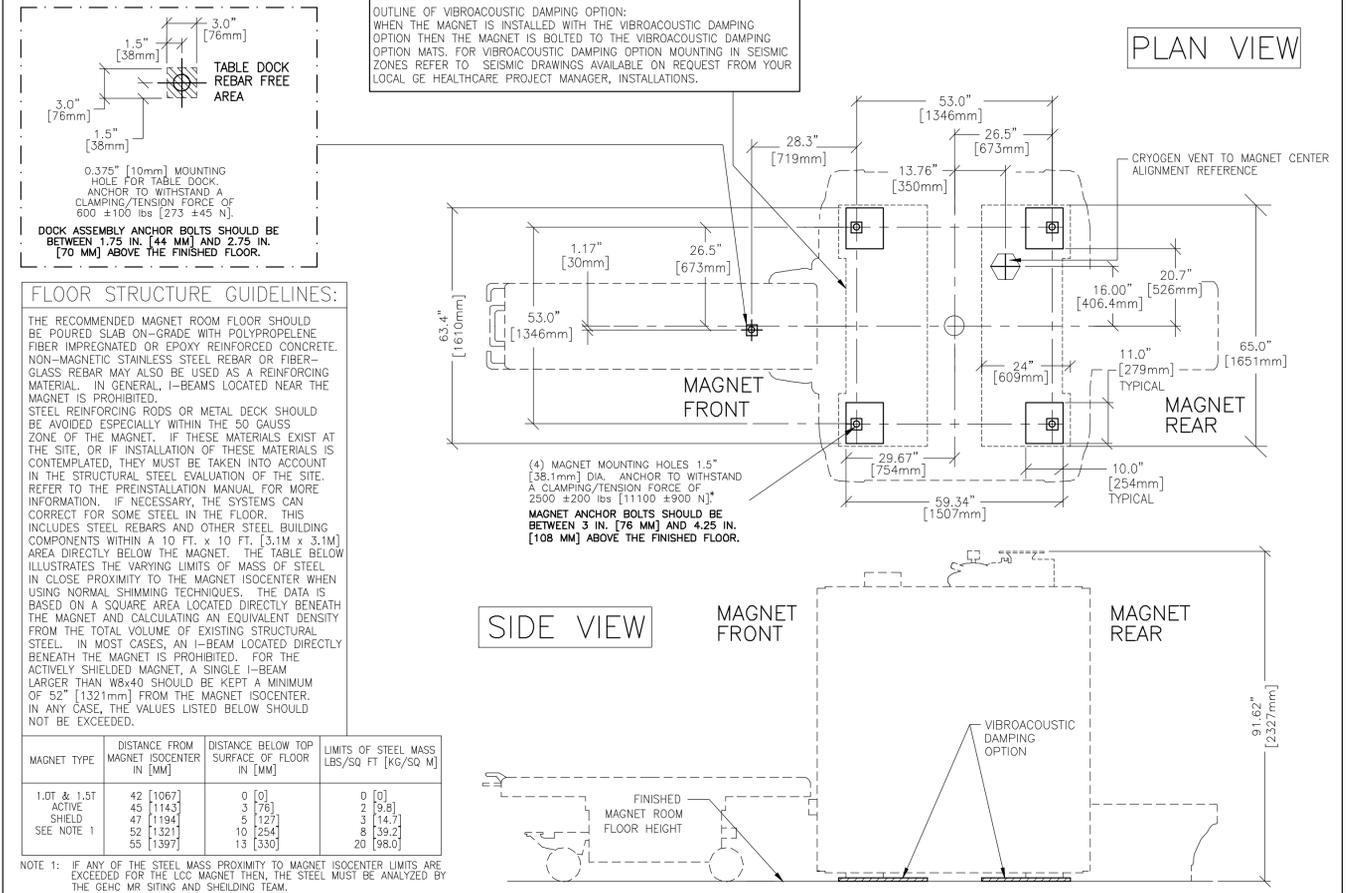
ILLUSTRATIONS A-3 AND A-4 IN THE PRE-INSTALLATION MANUAL ARE EXAMPLES PROVIDED TO ASSIST A TEST CONSULTANT IN THE USE OF GE TRANSIENT SPECIFICATIONS. THE 0.0005 g, ZERO TO PEAK TRIGGER LEVEL IDENTIFIES DATA COLLECTION TO BEGIN ASSESSMENT OF THE SITE VIBRATION ANALYSIS. THE RESPONSE OF THE TRANSIENT MUST BE ASSESSED RELATIVE TO THE STEADY STATE VIBRATION SPECIFICATIONS IN SECTION SPECIFICATIONS.

ANY QUESTIONS REGARDING TEST EQUIPMENT REQUIREMENTS, TEST PARAMETERS, OR GENERAL QUESTIONS SHOULD BE DISCUSSED WITH YOUR GE INSTALLATION SPECIALIST.

## FLOOR MOUNTING DETAIL: SIGNA LCC MAGNET (CXK4)

REFER TO SHEET A1 FOR ACTUAL MAGNET ORIENTATION

M6615A2  
REV. DATE: 10/03/08



#### VIBRATION

- THE MAGNET MAY BE SENSITIVE TO VIBRATIONS IN THE FREQUENCY RANGE OF 0.5 TO 45 Hz DEPENDING ON THE AMPLITUDE OF THE VIBRATION. IN THE PHYSICAL AREA WHERE THE MR SYSTEM IS TO BE LOCATED, EVERY PRECAUTION MUST BE TAKEN TO ENSURE THAT THE VIBRATION IS MINIMIZED. IN THE MAGNET SITING AREA, THE STRUCTURAL STABILITY AND BEHAVIORAL CHARACTERISTICS CAN BE ASSESSED. THE VIBRATION TESTS OUTLINED CAN BE USED TO ASSESS THE VIBRATION ENVIRONMENT. SITES WHICH CURRENTLY PASS THE VIBRATION STABILITY CRITERIA MAY PROCEED WITH INSTALLATION. SITES WHICH HAVE MARGINAL VIBRATION STABILITY REQUIRE SOURCE ISOLATION OR STRUCTURAL MODIFICATIONS. THEN IT IS THE CUSTOMER'S RESPONSIBILITY TO CONTRACT A VIBRATION CONSULTANT OR QUALIFIED ENGINEER TO IMPLEMENT DESIGN MODIFICATIONS TO MEET THE SPECIFIED LIMITS. WITH THE VIBRATION CONSULTANT PRESENT, LOCAL GE FIELD SERVICE AND/OR INSTALLATION SPECIALIST MUST VERIFY THE ELIMINATION/REDUCTION OF ALL IDENTIFIED SOURCES DO IMPROVE THE VIBRATION ENVIRONMENT. GE CAN ASSIST IN INTERPRETING MARGINAL SITE TEST RESULTS AND PREDICTING THE IMPACT ON SYSTEM PERFORMANCE. HOWEVER IT IS ULTIMATELY THE CUSTOMER/ARCHITECT/ENGINEER RESPONSIBILITY TO DESIGN SITE SOLUTION.
- TO MINIMIZE THE INTERFERENCE, THE MAGNET SHOULD BE PLACED ON A SOLID FLOOR, LOCATED AS FAR AS POSSIBLE FROM THE VIBRATION SOURCES, SUCH AS PARKING LOTS, ROADWAYS, SUBWAYS, TRAINS, HALLWAYS, ELEVATORS, HELIPORTS AND HOSPITAL PHYSICAL PLANTS CONTAINING PUMPS, MOTORS, AIR HANDLING EQUIPMENT, OR AIR CONDITIONING EQUIPMENT.

PLEASE NOTE THAT OTHER ITEMS NOT LISTED COULD ALSO BE POTENTIAL SOURCES OF VIBRATION.

VIBRATION ISOLATION IS RECOMMENDED AT FLOOR CONNECTION POINTS OF THE AIR CONDITIONING UNIT(S) TO BE INSTALLED FOR THE PURPOSE OF COOLING THE MR SUITE.

ISOLATION OF THE MR MAGNET IS NOT A RECOMMENDED SOLUTION FOR REDUCING ENVIRONMENTAL VIBRATION.

- VIBRATION MEASUREMENTS SHOULD BE MADE WHEN THE PROPOSED SITE IS LOCATED NEAR ANY OF THE SOURCES LISTED HERE. MEASUREMENTS SHOULD BE MADE USING A SPECTRUM ANALYZER CAPABLE OF PERFORMING THE TEST GUIDELINES.

#### MAGNET SITING REQUIREMENT

- THE MAGNET MUST BE RIGIDLY BOLTED TO THE FLOOR. VIBRATION MEASUREMENTS ON THE MAGNET SUPPORT MUST MEET THE GUIDELINES BELOW. CUSTOMER/CONTRACTOR IS RESPONSIBLE FOR THE PROPER MAGNET ANCHORING.

#### TRANSIENT VIBRATION

- TIME HISTORY VIBRATION LEVELS (WITH ALL STEADY STATE VIBRATION SOURCES POWERED DOWN) EXCEEDING TRIGGER OF 0.0005 g, ZERO TO PEAK MUST BE FULLY ANALYZED TO ASSESS THE POTENTIAL IMPACT TO THE BUILDING STRUCTURE. THE BUILDING (SPECTRAL) RESPONSE IMMEDIATELY FOLLOWING THE 0.0005 g, ZERO TO PEAK TRIGGER LEVEL (ENDING AT THE DECAY OF THE VIBRATION SIGNAL) MUST NOT CAUSE THE SITE ENVIRONMENT TO EXCEED THE STEADY STATE VIBRATION LEVELS DEFINED BELOW.

#### STEADY STATE VIBRATION

- THE MAXIMUM STEADY STATE VIBRATION TRANSMITTED THROUGH THE FLOOR MUST NOT EXCEED THE FOLLOWING (ABOVE AMBIENT BASELINE):
  - $5 \times 10^{-5}$  g rms at 0 Hz ramping to  $10 \times 10^{-5}$  g at 20 Hz
  - $10 \times 10^{-5}$  g rms 20-40 Hz
  - $45 \times 10^{-5}$  g rms 40-50 Hz

IN ORDER TO ENSURE THAT ANY DISCRETE SIGNAL REPRESENTS A REAL MECHANICAL VIBRATION SOURCE, THE SIGNAL MUST HAVE A BANDWIDTH THAT TYPICALS DYNAMIC SYSTEM RESPONSE.

THIS SHEET IS PART OF THE DOCUMENT SET LISTED ON SHEET C1 AND SHOULD NOT BE SEPARATED

GE Healthcare  
IS Services Design Center  
Milwaukee, Wisconsin

SHEET TITLE: STRUCTURAL DETAILS  
MODALITY TYPE: 1.5T SIGNA TWIN SPEED HDX  
THIS PLAN IS SUBMITTED TO CORRECT LOCATION OF HEALTHCARE EQUIPMENT AND ASSOCIATED ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS. IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM TO ALL APPLICABLE CODES AND REGULATIONS. THE COMPANY SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
8-210F  
TYPICAL LAYOUT

PROJECT	REVISION
8-210F	02

DATE: 11.Apr.11  
DRAWN BY: PMM  
CHECKED BY: TMS

REVISION HISTORY:


SHEET  
S2

PIM R7  
RQ - 117460

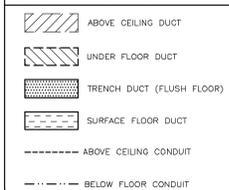
SCALE: 1/4" = 1'-0"

ELECTRICAL PLAN

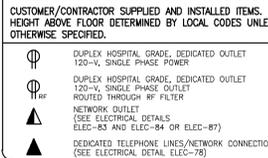
RECOMMENDED CEILING HEIGHT = 8'-9"

JUNCTION POINT DESCRIPTIONS

DUCT HATCHING LEGEND



ELECTRICAL OUTLET LEGEND



**FEEDER TABLE - SIGNA TWINSPPEED**

o CALCULATIONS BASED UPON NOMINAL VOLTAGE, WIRE SIZE IN AWG.  
o RECOMMENDED FEEDER SIZES FROM DIST. TRANS. TO MDP. ALL CALCULATIONS BASED UPON A 20 FT. (6.1m) RUN FROM MDP TO PD USING NO.2 AWG (35 SQ mm).  
o THE GROUNDING CONDUCTOR WILL BE THE SAME SIZE AS THE POWER FEEDER AND SHALL BE COPPER AND WILL RUN IN THE SAME CONDUIT AS THE FEEDERS FROM EQUIPMENT BACK TO THE ROOM POWER SOURCE GROUNDING POINT.  
o IF THE GENERAL ELECTRIC EQUIPMENT IS BEING FED BY A DELTA SECONDARY, IT IS RECOMMENDED THAT THE B PHASE ON THE SECONDARY BE CONNECTED TO GROUND TO PREVENT DAMAGE TO THE SYSTEM.  
o NEUTRAL MUST BE TERMINATED PRIOR TO OR INSIDE THE MAIN DISCONNECT PANEL AND NOT BROUGHT INTO THE ACCESS/FLOOR CABINET.  
o FOR A FULL SYSTEM UPS REFER TO ELECTRICAL DETAILS FOR UPS FEEDER WIRES.  
o THE MAXIMUM POWER DEMAND FOR THE OUTDOOR MRCC WAS USED FOR THESE CALCULATIONS. IF SO DESIRED THE CUSTOMER'S CONTRACTOR CAN DETERMINE EXACT SIZES BASED UPON MAXIMUM DEMAND FOR THE COOLING SYSTEM TO BE INSTALLED FROM THE TABLE IN POWER SPECIFICATIONS.

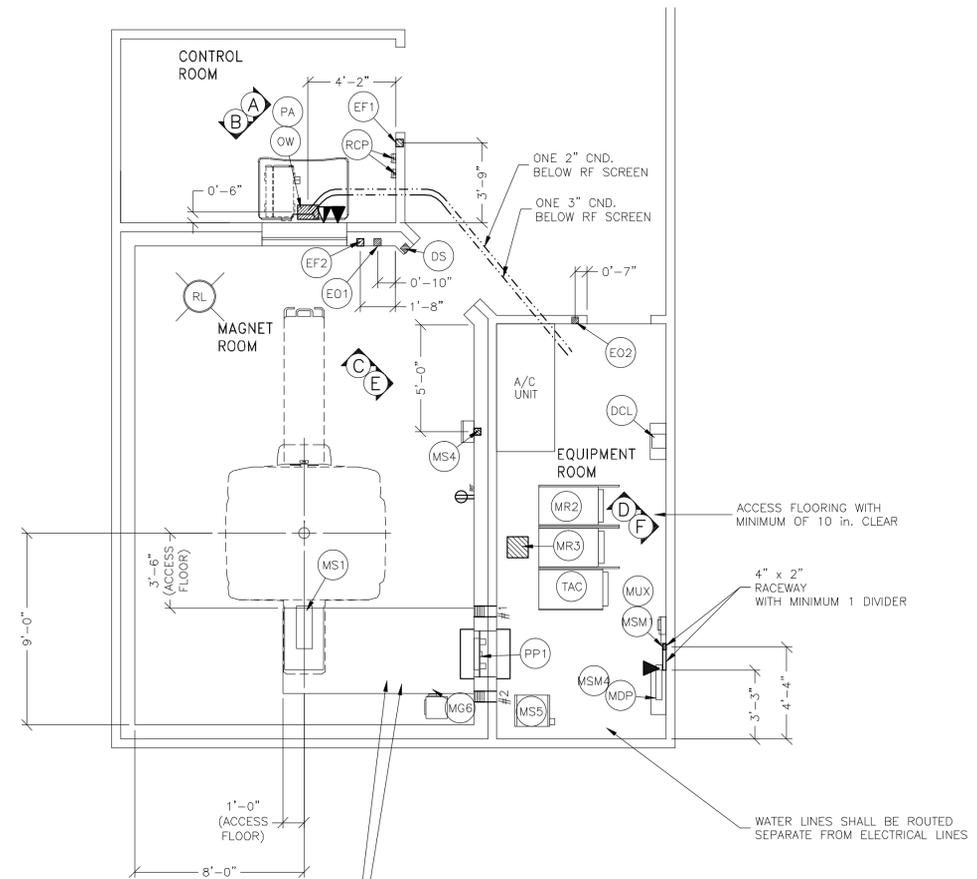
RUN LENGTH IN FEET	POWER SUPPLY VOLTAGE							
	342-418 380		360-440 400		374-456 410		432-528 480	
	FEEDER	GROUND	FEEDER	GROUND	FEEDER	GROUND	FEEDER	GROUND
100	1/0	6	1/0	6	1/0	6	1/0	6
150	1/0	6	1/0	6	1/0	6	1/0	6
200	1/0	6	1/0	6	1/0	6	1/0	6
250	2/0	4	2/0	4	2/0	4	1/0	6
300	3/0	4	3/0	4	3/0	4	2/0	4
350	4/0	2	4/0	2	4/0	2	3/0	4
400	300M	2	250M	2	250M	2	4/0	2
450	300M	2	300M	2	300M	2	4/0	2

REV. DATE: 09/24/08

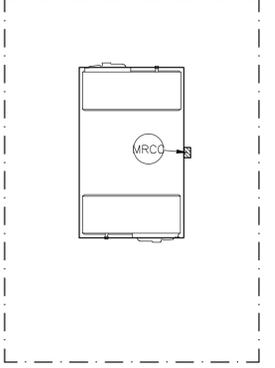
JUNCTION POINT NOTES

- o ALL JUNCTION BOXES, CONDUIT, DUCT, DUCT DIVIDERS, SWITCHES, CIRCUIT BREAKERS, ETC., ARE TO BE SUPPLIED AND INSTALLED BY CUSTOMER'S ELECTRICAL CONTRACTOR.
- o CONDUIT AND DUCT RUNS SHALL HAVE SWEEP RADIUS BENDS.
- o CONDUITS AND DUCT ABOVE CEILING OR BELOW FINISHED FLOOR MUST BE INSTALLED AS NEAR TO CEILING OR FLOOR AS POSSIBLE TO REDUCE RUN LENGTH.
- o CEILING MOUNTED JUNCTION BOXES ILLUSTRATED ON THIS PLAN MUST BE INSTALLED FLUSH WITH FINISHED CEILING.
- o 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.
- o ALL OPENINGS IN ACCESS FLOORING ARE TO BE CUT OUT AND FINISHED OFF WITH GROMMET MATERIAL BY THE CUSTOMER'S CONTRACTOR.
- o GENERAL CONTRACTOR TO INSERT PULL CORDS FOR ALL CABLE RUN CONDUITS BETWEEN THE EQUIPMENT ROOM AND THE OPERATORS CONTROL ROOM.
- o 10 FOOT PIGTAILS AT ALL JUNCTION POINTS.
- o ALL WIRING MUST BE THIN OR TFFN STRANDED COPPER THERMOPLASTIC 600 VOLT OR EQUIVALENT INSULATION. ALUMINUM OR SOLID WIRES ARE NOT ALLOWED.
- o GROUNDING IS CRITICAL TO EQUIPMENT FUNCTION AND PATIENT SAFETY. SITE MUST CONFORM TO WIRING SPECIFICATIONS SHOWN ON THIS PLAN.

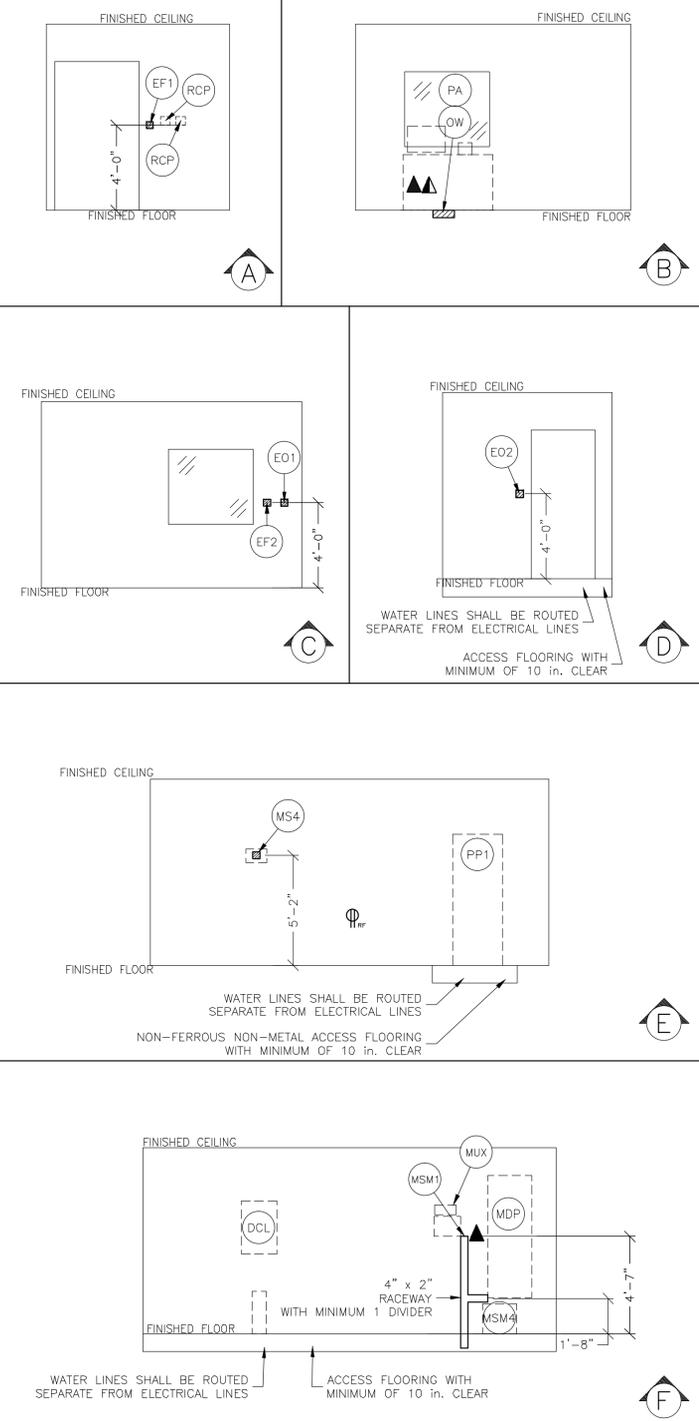
PLEASE SEE BELOW FOR ADDITIONAL REQUIRED CONDUIT RUNS AND SIZES.



WATER LINES SHALL BE ROUTED SEPARATE FROM ELECTRICAL LINES  
NON-FERROUS NON-METAL ACCESS FLOORING WITH MINIMUM OF 10 in. CLEAR



POINT	DESCRIPTION	QTY.	THE FOLLOWING MATERIALS ARE TO BE SUPPLIED AND INSTALLED BY THE CUSTOMER'S ELECTRICAL CONTRACTOR	
			HARDWARE	DETAIL NO., SHT. E3
DCL	DC LIGHTING	1	SEE DETAILS AVAILABLE FROM PROJECT MGR.	ELEC-54
DS	RF DOOR SWITCH	1	SINGLE GANG BOX RF DOOR SWITCH RATED FOR 750 MILLIAMPERES, NORMALLY OPEN (OFF) WHEN DOOR IS OPEN	ELEC-55
EF1	RF EXHAUST FAN SWITCH	1	SINGLE GANG BOX COVERPLATE SINGLE POLE SWITCH	ELEC-55
EF2	RF EXHAUST FAN SWITCH	1	SINGLE GANG BOX COVERPLATE SINGLE POLE SWITCH	ELEC-55
EO1	EMERGENCY OFF BUTTON	1	SINGLE GANG BOX	ELEC-16
EO2	EMERGENCY OFF BUTTON	1	SINGLE GANG BOX	ELEC-16
MDP	MAIN DISCONNECT AVAILABLE FROM GROUND CALL 800-558-5102 OR LOCAL PROJECT MGR.	1	12 IN. GROMMET MATERIAL FOR OPENING IN DUCT 3-POLE 480V DEVICE IN NEMA 1 ENCLDURE (GEN CAT. NO. M3088TM. SEE INSTALLATION AND COVERS INCLUDED)	ELEC-10 ELEC-107 ELEC-128 ELEC-140
MG6	BLOWER BOX	1	40 IN. OF GROMMET MATERIAL FOR A 12 X 8 IN. OPENING IN ACCESS FLR	ELEC-10
MR2	RFS CABINET	1	88 IN. OF GROMMET MATERIAL FOR ONE 10 X 4 IN. OPENING IN ACCESS FLR	ELEC-10
MR3	HFD/PDU CABINET	1	SPLIT COVERPLATE 1 1/2 IN. DIA. CHASE NIPPLE 18 X 12 X 6 IN. BOX 88 IN. OF GROMMET MATERIAL FOR A 16 X 10 IN. OPENING IN ACCESS FLR.	ELEC-10
MRCC	COOLING SYSTEM	1	1 1/2 IN. DIA. BUSHING & LOCKNUT 3/4 IN. DIA. BUSHING & LOCKNUT 6 X 6 X 4 IN. BOX 10 FT. LENGTH OF 3/4 IN. DIA. FLEXIBLE METAL CONDUIT COVERPLATE	ELEC-8
MS1	MAGNET	1	66 IN. OF GROMMET MATERIAL FOR A 84 X 9 IN. OPENING IN ACCESS FLR.	ELEC-10
MS4	MAGNET RUNDOWN UNIT	1	COVERPLATE WITH 1 IN. KNOCKOUT IN CENTER 4 X 4 X 2 IN. BOX	ELEC-8
MS5	SHIELD COOLER CABINET	1	32 IN. OF GROMMET MATERIAL FOR AN 8 X 8 IN. OPENING IN ACCESS FLOOR	ELEC-10
MSM1	MAGNET MONITOR	1	FITTINGS AS REQUIRED	ELEC-78
MSM4	MAGNET MONITOR UPS	1	EXTERNALLY CONNECTED	
MUX	MULTIPLEXER	1	EXTERNALLY CONNECTED	
DW	OPERATOR WORKSPACE	1	SPLIT COVERPLATE 1 1/2 IN. DIA. CHASE NIPPLE 12 IN. X 8 IN. X 6 IN. BOX	ELEC-13
PA	PATIENT ALERT CONTROL BOX	1	SAME ROUTING AS DW	
PP1	RF PENETRATION PANEL	1	100 IN. OF GROMMET MATERIAL FOR (2) 18 IN. X 6 IN. OPENINGS IN ACCESS FLOOR	ELEC-58 ELEC-10
RCP	REMOTE CONTROL FOR CHILLER SYSTEM	1	CONNECT TO CONDUIT USING PROVIDED CONNECTION	
RL	MAGNET ROOM LIGHTS	1	LOCKNUT BOX AS REQUIRED INCANDESCENT LIGHT FIXTURE	
TAC	ACCESSORY CABINET	1	88 IN. OF GROMMET MATERIAL FOR A 10 X 4 IN. OPENING IN ACCESS FLR.	ELEC-10



**ADDITIONAL CONDUIT RUNS (CONTRACTOR SUPPLIED AND INSTALLED)**

CONDUITS REQUIRED FOR BASE SYSTEM

FROM	TO	CONDUIT SIZE
MDP	FEEDER	ONE CND. AS REQ'D
MDP	PD	ONE CND. AS REQ'D
MDP	EO2	ONE 1/2" CND.
MDP	PP1	ONE 3/4" CND.
MDP	A/C	ONE 1/2" CND.
DS	MR2	ONE 3/4" CND.
EO1	PP1	ONE 3/4" CND.
MS4	PP1	ONE 1" CND.
MS4	RF #1 FILTER	ONE CND. AS REQ'D
RF #1 FILTER	120-V 1Ø POWER	CONDUIT AS REQ'D
RL	RF #2 FILTER	ONE CND. AS REQ'D
RF #2 FILTER	FACILITY EMERGENCY POWER	CONDUIT AS REQ'D

NOTE: SEE E2 PAGE FOR STANDARD RUN LENGTHS

CONDUITS REQUIRED FOR MRCC OPTION

FROM	TO	CONDUIT SIZE
MRCC	RCP	ONE 3/4" CND.
MRCC	MDP	CONDUIT AS REQUIRED

**CONTRACTOR SUPPLIED AND INSTALLED WIRING**  
ELECTRICAL CONTRACTOR SHALL RING OUT AND TAG ALL WIRES AT BOTH ENDS.

WIRE RUN, FROM - TO	QUANTITY, WIRE SIZE/COLOR
120-V > RF FILTER	1-BLACK, 1-WHITE, 1-GREEN - (SIZE AS REQUIRED)
RF FILTER > RL	1-BLACK, 1-WHITE, 1-GREEN - (SIZE AS REQUIRED)
CONVERTER > RF FILTER	1-BLACK, 1-WHITE, 1-GREEN - (SIZE AS REQUIRED)
EMERG PWR > CONVERTER	1-BLACK, 1-WHITE, 1-GREEN - (SIZE AS REQUIRED)
RF GND STUD > RF FILTER	1-GREEN (SIZE AS REQUIRED FOR EACH FILTER)
MDP > MRCC	3-ND 10 BLACK, 1-ND 10 GREEN (1 SET FOR EACH UNIT)
MR3 > RF GROUND STUD	1-GREEN (ND 1/0 MINIMUM)
MDP > MR3	3-ND 2 BLACK, 1-ND 1/0 GREEN (MAX 20 FT. (6.098M))
MDP > A/C UNIT	1-ND 12 BLACK, 1-ND 12 WHITE, 1-ND 12 GREEN
MDP > EO2	1-BLACK, 1-RED, 1-GREEN - (SIZE AS REQUIRED)
480-V > MDP	3-BLACK, 1-WHITE, 1-GREEN - REFER TO FEEDER TABLE
RF FAN > EF1	1-BLACK, 1-WHITE - (SIZE AS REQUIRED)
EF1 > EF2	1-BLACK, 1-WHITE - (SIZE AS REQUIRED)
RF FILTER > MS4	1-BLACK, 1-WHITE, 1-GREEN - (SIZE AS REQUIRED)

PROJECT TITLE: ELECTRICAL LAYOUT  
MODALITY TYPE: 1.5T SIGNA TWINSPPEED HDX

PROJECT TITLE: 8-210F  
TYPICAL LAYOUT

PROJECT: 8-210F  
REVISION: 02

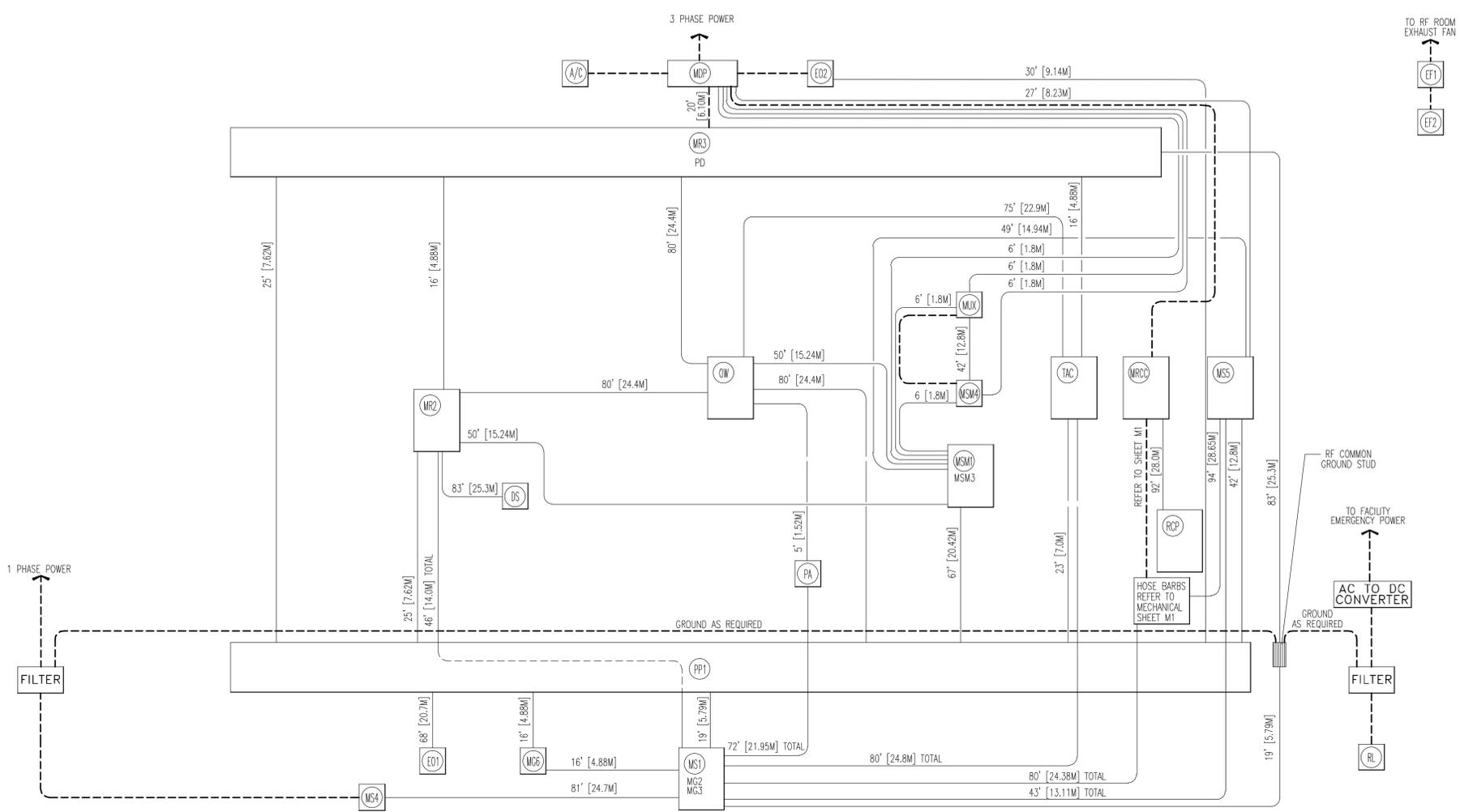
DATE: 11.Apr.11  
DRAWN BY: PMM  
CHECKED BY: TMS

REVISION HISTORY:

SHEET E1

GE Healthcare  
IS Services Design Center  
Milwaukee, Wisconsin

INTERCONNECT DIAGRAM



**NOTE: CABLE LENGTH DATA**

THE USEABLE LENGTHS OF CABLES DISPLAYED ARE FOR CABLE KIT M3143TD. IF A DIFFERENT CABLE KIT IS REQUIRED, REFER TO THE PRE-INSTALLATION DIRECTION LISTED ON SHEET C1 FOR THE LENGTHS OF CABLES IN THAT KIT.

**MINIMUM BENDING RADIUS EXISTS FOR CERTAIN CABLE GROUPS. PLEASE REFER TO THE PREINSTALLATION MANUAL FOR SPECIFICATIONS FOR ALL CABLES.**

A PARTIAL LIST INCLUDES:  
 10" BETWEEN THE MR1 AND PP1  
 10" BETWEEN PP1 AND MS1  
 8" BETWEEN THE MS5 AND MS1  
 7" BETWEEN SYSTEM COOLING CABINET AND MS1.

**CABLE SELECTION**

**BASED UPON THE EQUIPMENT LAYOUT, CABLE KIT M3335NP WILL NEED TO BE ORDERED.**

INTERCONNECTS		RELATIVE LENGTHS BY CATALOG		
LOCATION	DESCRIPTION	M3335NP	M3335NR	M3335NS
L1	INTERCONNECTS BETWEEN PENETRATION PANEL (PP1) AND COMPONENTS IN THE MAGNET ROOM AND WITHIN MAGNET ROOM BETWEEN COMPONENTS	SHORT	SHORT	LONG
L2	INTERCONNECTS BETWEEN PENETRATION PANEL (PP1) AND COMPONENTS IN THE EQUIPMENT ROOM	SHORT	LONG	SHORT
L1/L2	INTERCONNECTS BETWEEN MAGNET ROOM AND EQUIPMENT ROOM COMPONENTS. INCLUDES INTERCONNECTS ROUTED THROUGH PP1 WAVEGUIDES AND INTERCONNECTS WHICH LENGTH PROVIDED IS CUT AT SITE AND SHARED BETWEEN MAGNET AND EQUIPMENT ROOMS	SHORT	LONG	MEDIUM
L3	INTERCONNECTS BETWEEN COMPONENTS WITHIN EQUIPMENT ROOM	SAME LENGTH FOR ALL CATALOGS		
L4	INTERCONNECTS BETWEEN OPERATORS WORKSPACE AND PENETRATION PANEL	SAME LENGTH FOR ALL CATALOGS		
L5	INTERCONNECTS BETWEEN OPERATORS WORKSPACE AND COMPONENTS IN THE EQUIPMENT ROOM	SAME LENGTH FOR ALL CATALOGS		

POWER SPECIFICATIONS

SIGNA TWINSPEED (REV. DATE 06/16/09)

**VOLTAGE**

PRIMARY SOURCE IS REQUIRED FOR ALL INSTALLATIONS. RANGE OF LINE VOLTAGES: NOMINAL LINE VOLTAGE OF 380 TO 480, 3 PHASE, 50 OR 60 HZ.

RECOMMENDED POWER SUPPLY: WYE-CONNECTED OR DELTA-CONNECTED (GROUNDED DELTA).

MAXIMUM DAILY VOLTAGE VARIATION MUST FALL WITHIN ONE OF THE RANGES IN TABLE A.

TABLE A ALLOWABLE INPUT VOLTAGES/CURRENT DEMAND

NOMINAL VOLTAGE	ABSOLUTE RANGE	CURRENT (AMPS)		MINIMUM STANDARD OVERCURRENT PROTECTION **
		MAX MOMENTARY	CONTINUOUS	
380	342-418	143	113	150-A
400	360-440	136	107	150-A
415	374-456	131	103	150-A
<b>480</b>	<b>432-528</b>	<b>114</b>	<b>89</b>	<b>150-A</b>

\*\* OVERCURRENT PROTECTION SIZED FOR 125% CONTINUOUS CURRENT (CALCULATIONS BASED UPON NOMINAL VOLTAGE).

**PHASE-BALANCE.**

PHASE-TO-PHASE VOLTAGES MUST BE WITHIN 2 PERCENT OF THE LOWEST PHASE-TO-PHASE VOLTAGE. MAXIMUM ALLOWABLE TRANSIENT VOLTAGE EXCURSIONS ABOVE OR BELOW NOMINAL WAVESHAVE FORM NOT TO EXCEED 200V AT A MAXIMUM DURATION OF 1 CYCLE AND FREQUENCY OF 10 TIMES PER HOUR. VOLTAGE TRANSIENT OR IMPULSE ON THE INCOMING POWER MUST BE HELD TO A MINIMUM. TRANSIENTS CAUSED BY LIGHTNING, SURGES, LOAD SWITCHING, STATIC ELECTRICITY ETC. CAN CAUSE SCAN ABORTS OR IN EXTREME INSTANCES, COMPONENT FAILURE IN THE COMPUTER SUBSYSTEM.

**POWER DEMAND**

MAXIMUM POWER DEMAND AVERAGED OVER 5 SECONDS = 90.5 KVA. 90.5 KVA CONSISTING OF 61.2 KVA FOR PDU + 15.8 KVA CONTINUOUS OPERATION) FOR MRCC + 9 KVA (CONTINUOUS OPERATION) FOR SHIELD/CRYO COOLER + 4.5 KVA FOR MAGNET MONITOR EQUIPMENT.

TABLE B MAXIMUM POWER DEMAND.

DEMAND	SIGNA TWINSPEED
kva*	94.3
POWER FACTOR AT	0.9

\* DEMAND INCLUDES POWER FOR ENTIRE MR SYSTEM. LINE VOLTAGE REGULATION AT MAXIMUM POWER DEMAND MUST BE LESS THAN OR EQUAL TO 2 PERCENT OR 4 PERCENT FROM POWER SOURCE.

**DISTRIBUTION TRANSFORMER**

FOR A SINGLE UNIT INSTALLATION, THE MINIMUM TRANSFORMER SIZE IS 150 KVA. REGULATED TRANSFORMER IS NOT REQUIRED UNLESS VOLTAGE CHANGES EXCEED ±10% OVER A PERIOD OF 1 HOUR OR LONGER.

**NOTE:**

THE MAXIMUM POWER DEMAND FOR THE OUTDOOR MRCC/GWHX WAS USED FOR THESE CALCULATIONS. IF SO DESIRED THE CUSTOMER'S CONTRACTOR CAN DETERMINE EXACT WIRE SIZES BASED UPON MAXIMUM DEMAND FOR THE COOLING SYSTEM TO BE INSTALLED FROM THE TABLE BELOW.

CONFIGURATION	TOTAL DEMAND	COOLING SYSTEM
2 MRCC UNITS	94.3 kVA	15.8 kVA
1 MRCC UNIT	86.4 kVA	7.9 kVA
1 GWHX UNIT	78.5 kVA	0 kVA

REFER TO DIRECTION LISTED ON C1 FOR ADDITIONAL INFORMATION.

ELECTRICAL NOTES

- NOTE 1: ALL WIRES SPECIFIED SHALL BE COPPER STRANDED, FLEXIBLE, THERMO-PLASTIC, COLOR CODED, CUT 10 FOOT LONG AT OUTLET BOXES, DUCT TERMINATION POINTS OR STUBBED CONDUIT ENDS. ALL CONDUCTORS, POWER, SIGNAL AND GROUND, MUST BE RUN IN A CONDUIT OR DUCT SYSTEM. ELECTRICAL CONTRACTOR SHALL RING OUT AND TAG ALL WIRES AT BOTH ENDS. WIRE RUNS MUST BE CONTINUOUS COPPER STRANDED AND FREE FROM SPLICES. ALUMINUM OR SOLID WIRES ARE NOT ALLOWED.
- NOTE 2: WIRE SIZES GIVEN ARE FOR USE OF EQUIPMENT. LARGER SIZES MAY BE REQUIRED BY LOCAL CODES.
- NOTE 3: IT IS RECOMMENDED THAT ALL WIRES BE COLOR CODED, AS REQUIRED IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.
- NOTE 4: CONDUIT SIZES SHALL BE VERIFIED BY THE ARCHITECT, ELECTRICAL ENGINEER OR CONTRACTOR, IN ACCORDANCE WITH LOCAL OR NATIONAL CODES.
- NOTE 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.
- NOTE 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.
- NOTE 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).
- NOTE 8: CONDUIT TURNS TO HAVE LARGE, SWEEPING BENDS WITH MINIMUM RADIUS IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.
- NOTE 9: A SPECIAL GROUNDING SYSTEM IS REQUIRED IN ALL PROCEDURE ROOMS BY SOME NATIONAL AND LOCAL CODES. IT IS RECOMMENDED IN AREAS WHERE PATIENTS MIGHT BE EXAMINED OR TREATED UNDER PRESENT, FUTURE, OR EMERGENCY CONDITIONS. CONSULT THE GOVERNING ELECTRICAL CODE AND CONFER WITH APPROPRIATE CUSTOMER ADMINISTRATIVE PERSONNEL TO DETERMINE THE AREAS REQUIRING THIS TYPE OF GROUNDING SYSTEM.
- NOTE 10: THE MAXIMUM POINT TO POINT DISTANCES ILLUSTRATED ON THIS DRAWING MUST NOT BE EXCEEDED.
- NOTE 11: PHYSICAL CONNECTION OF PRIMARY POWER TO GE EQUIPMENT IS TO BE MADE BY CUSTOMERS ELECTRICAL CONTRACTOR WITH THE SUPERVISION OF A GE REPRESENTATIVE. THE GE REPRESENTATIVE WOULD BE REQUIRED TO IDENTIFY THE PHYSICAL CONNECTION LOCATION, AND INSURE PROPER HANDLING OF GE EQUIPMENT.

**DIAGRAM KEY**

---	CUSTOMER/CONTRACTOR SUPPLIED WIRING. ROUTE IN ADEQUATE CONDUIT OR RACEWAY.
—	GE FURNISHED CABLE RUNS. ROUTE IN EMPTY CONDUIT OR RACEWAY.
59' [18M]	MAXIMUM RUN LENGTH BETWEEN JUNCTION POINTS. Feet, [Meters]

**GE Healthcare**

IS Services Design Center

Minneapolis, Wisconsin

SHEET TITLE: ELECTRICAL SPECIFICATIONS  
 MODALITY TYPE: 1.5T SIGNA TWINSPEED HDX

THIS PLAN IS SUBMITTED TO SUBMIT LOCATION OF GE HEALTHCARE EQUIPMENT AND ASSOCIATED APPARATUS, ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS. IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM TO ALL APPLICABLE CODES AND REGULATIONS. THE COMPANY SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
**8-210F**  
 TYPICAL LAYOUT

PROJECT	REVISION
8-210F	02

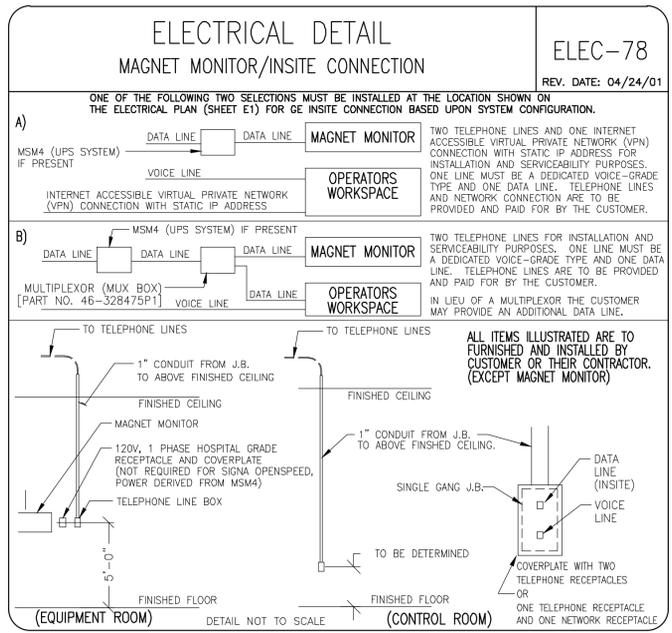
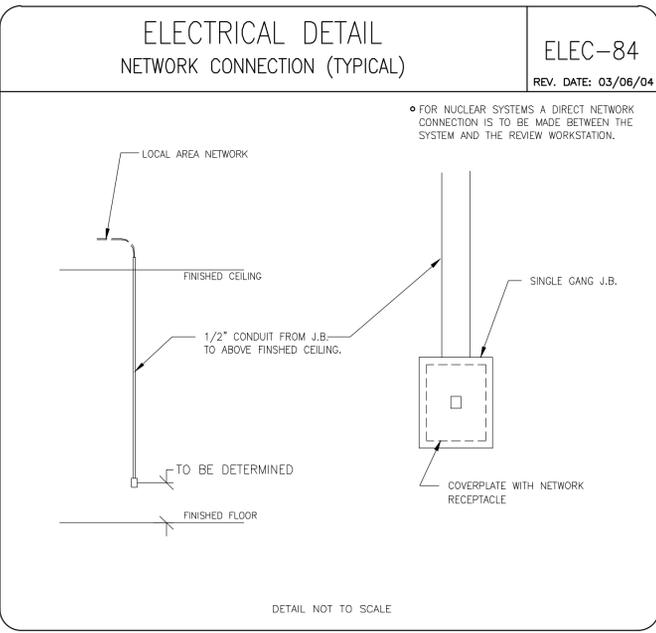
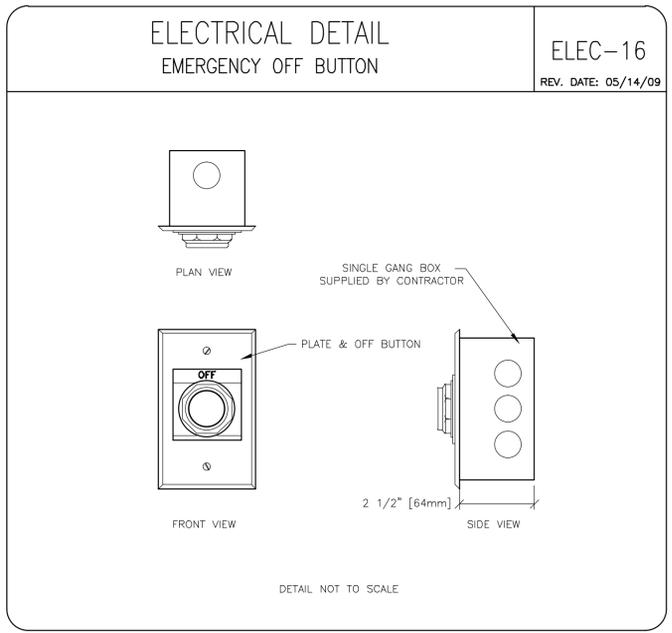
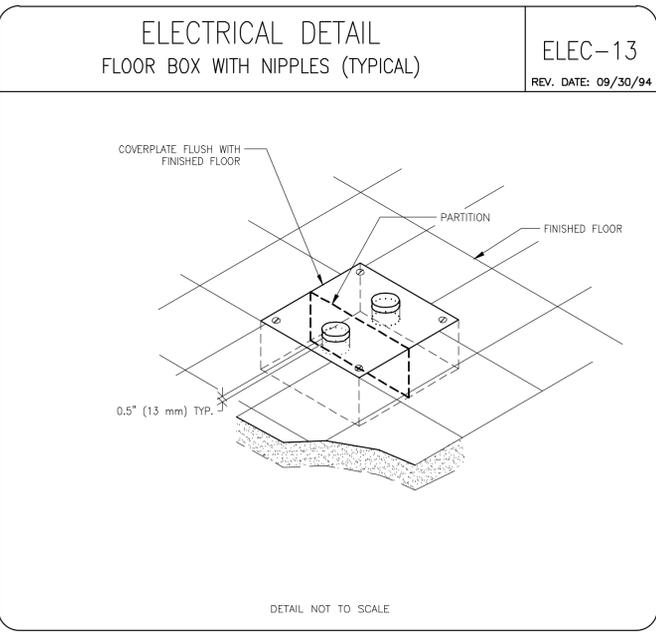
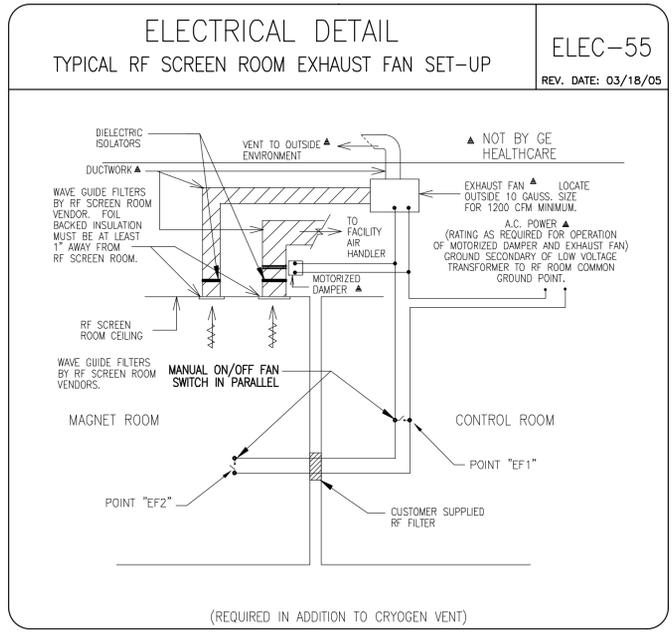
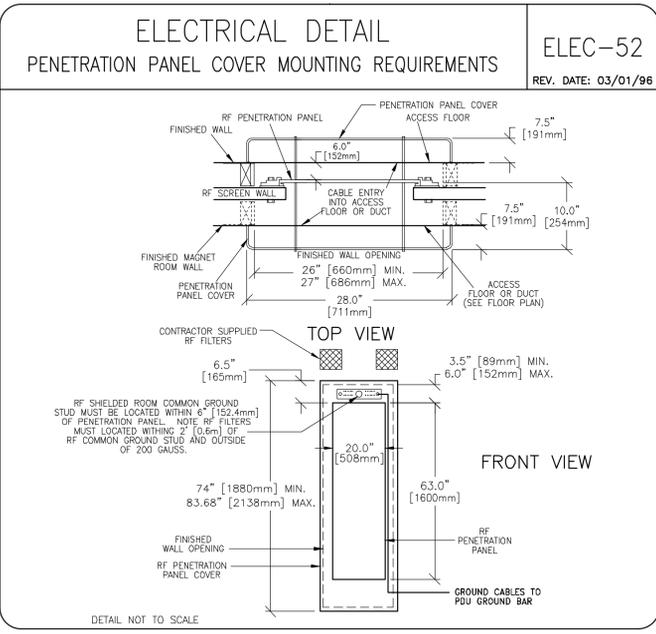
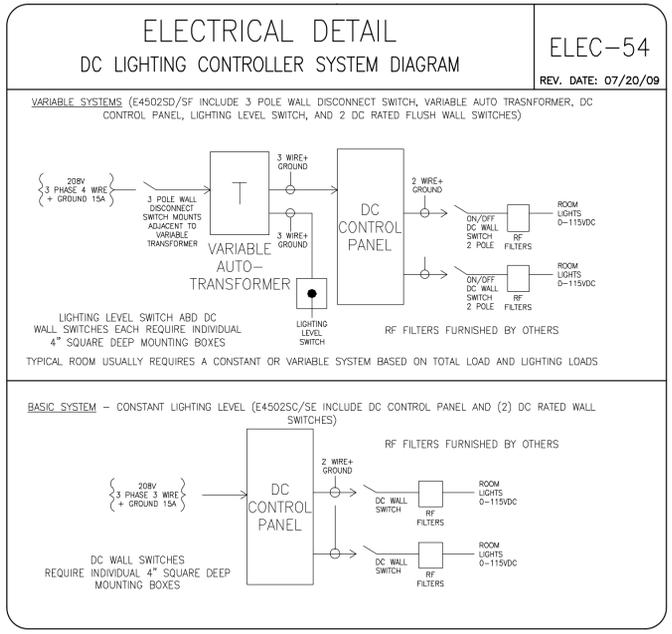
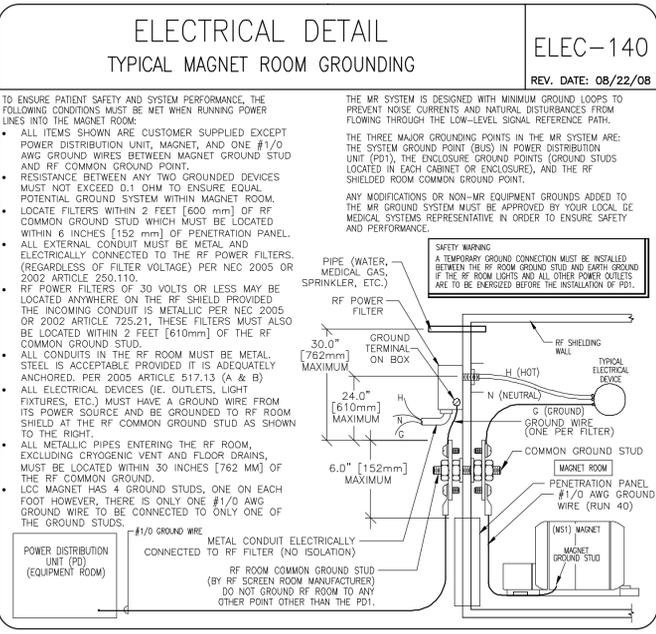
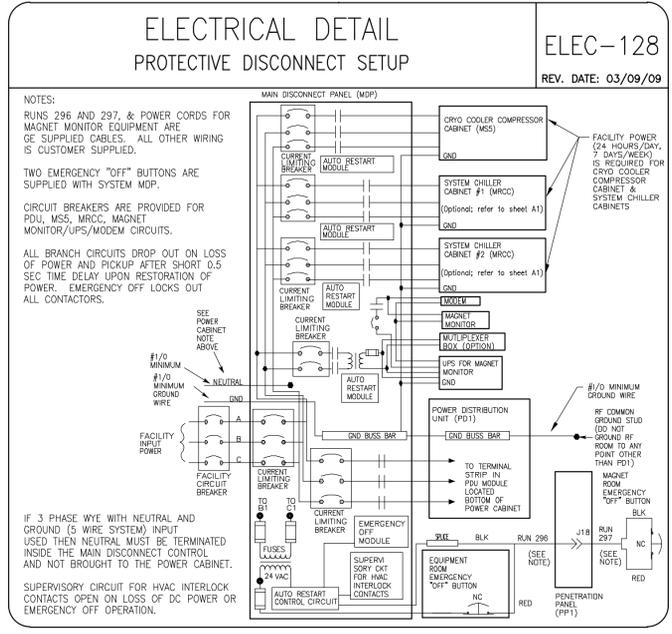
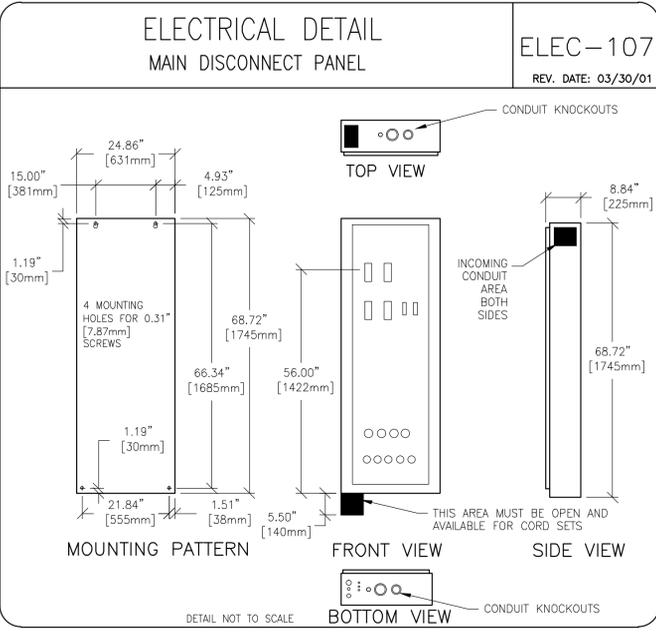
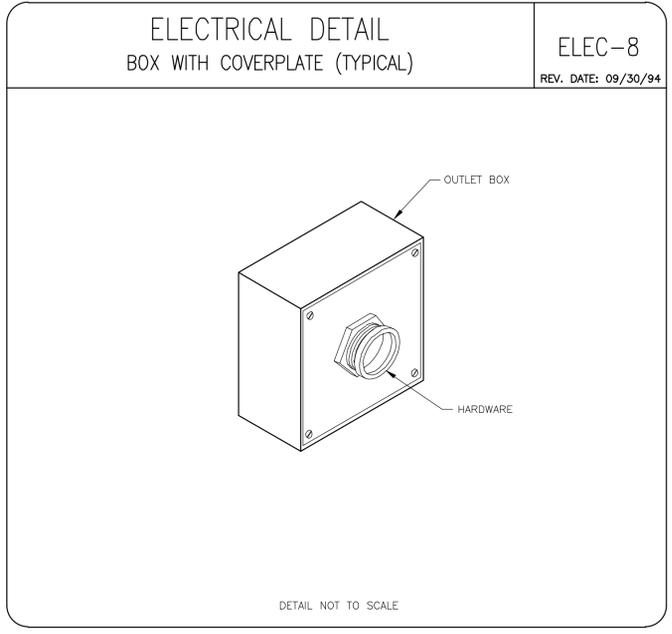
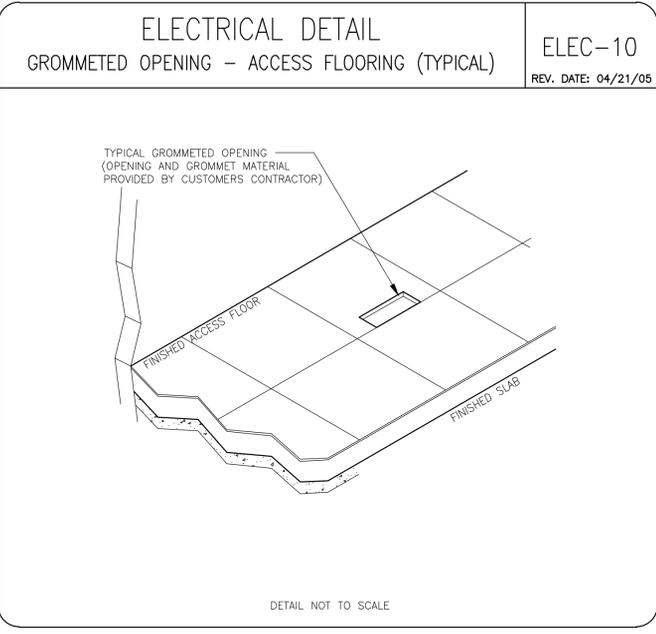
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 CHECKED BY: TMS

REVISION HISTORY:

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SHEET  
**E2**

PIM R7 RQ - 117460



GE Healthcare  
IS Services Design Center  
Milwaukee, Wisconsin

SHEET TITLE: ELECTRICAL DETAILS  
MODALITY TYPE: 1.5T SIGNA TWINSPEED HDX

8-210F  
TYPICAL LAYOUT

PROJECT	REVISION
8-210F	02

DATE: 11.Apr.11  
DRAWN BY: PMM  
CHECKED BY: TMS

REVISION HISTORY:

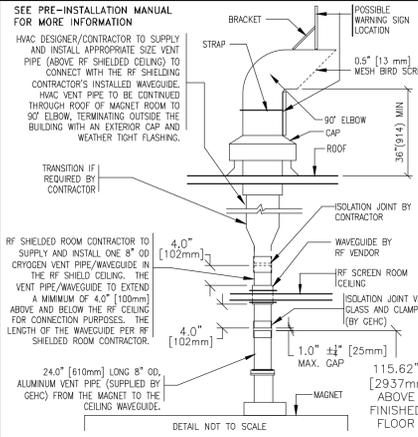
SHEET  
E3

PIM 87  
RQ - 117460

THIS SHEET IS PART OF THE DOCUMENT SET LISTED ON SHEET C1 AND SHOULD NOT BE SEPARATED

TYPICAL CRYOGEN VENT PIPE DETAIL

MECH-01



REV. DATE: 05/04/10

CUSTOMER SUPPLIED WARNING SIGN TO READ:

**CAUTION**  
FREEZING GASES AND SMALL OBJECTS MAY BE DISCHARGED WITHOUT NOTICE. STAY AT LEAST 20 FT (6.1 m) AWAY. \*35FT (10.7M) FOR 3T

THIS SIGN MUST BE PLACED AT THE EXTERIOR EXIT POINT OF THE CRYOGEN VENT FOR THIS FACILITY. SEE TYPICAL CRYOGEN VENT PIPE DETAIL FOR POSSIBLE WARNING SIGN LOCATIONS.

THE FOLLOWING ARE MATERIALS THAT MUST BE USED FOR CONSTRUCTION OF THE VENT INSIDE THE MAGNET ROOM.

SS 304  
AL 6061-T6  
CU DWVM OR L

NOTE:  
VENTGLASS AND CLAMPS FOR 8 IN. (203mm) DIAMETER PIPE SUPPLIED BY GEHC.

NOTE:  
THE VENT GLASS ISOLATION JOINT INSIDE THE MAGNET ROOM MUST BE A MAXIMUM OF 114" (2951) ABOVE THE FINISHED FLOOR.

NOTE:  
DO NOT SUPPLY VENTGLASS & CLAMPS WHICH CAN BE USED FOR 8 IN. (203mm) DIAMETER PIPE ONLY. THESE MATERIALS MAY BE USED FOR ISOLATION JOINT OUTSIDE OF ROOM AT THE CONTRACTOR'S OPTION IF THE MATERIALS MEETS THE CONTRACTOR'S DESIGN REQUIREMENTS.

- THE MATING DIAMETERS MUST MATCH WITHIN ±0.125 IN (3mm)
- THE VENTGLASS MUST NOT BE USED FOR STRUCTURAL SUPPORT

CRYOGENIC VENT SYSTEM PRESSURE DROP MATRIX (A)

MECH-04

(THIS TABLE MUST BE USED FOR CRYOGENIC VENT SYSTEM DESIGN)

INSIDE DIAMETER OF VENT PIPE (in./mm)	DISTANCE OF VENT SYSTEM COMPONENT FROM MAGNET SURFACE (ft./m)	PRESSURE DROP STRAIGHT VENT PIPE WITH SMOOTH INSIDE SURFACE (psi/ft. (KPa/m))	PRESSURE DROP PER ELBOW USED ANYWHERE WITHIN 20 FT. VENT SEGMENT			
			STANDARD SWEEP 90° ELBOW (psi (KPa))	STANDARD SWEEP 45° ELBOW (psi (KPa))	LONG SWEEP 90° ELBOW (psi (KPa))	LONG SWEEP 45° ELBOW (psi (KPa))
8(203)	0-20 (0-6.1)	0.10 (2.26)	1.10 (7.58)	2.06 (14.20)	0.55 (3.79)	1.03 (7.10)
	20-40 (6.1-12.2)	0.21 (4.75)	2.10 (14.48)	3.70 (25.51)	1.03 (7.10)	1.85 (12.76)
	40-60 (12.2-18.3)	0.30 (6.79)	2.88 (19.86)	5.21 (35.92)	1.44 (10.33)	2.60 (17.92)
	60-80 (18.3-24.4)	0.38 (8.60)	3.70 (25.51)	6.71 (46.27)	1.85 (12.76)	3.36 (23.17)
	80-100 (24.4-30.5)	0.47 (10.63)	4.52 (31.17)	8.22 (56.66)	2.26 (15.58)	4.11 (28.34)
10(254)	0-20 (0-6.1)	0.03 (0.68)	0.55 (3.79)	0.82 (5.50)	0.27 (1.86)	0.41 (2.83)
	20-40 (6.1-12.2)	0.07 (1.28)	0.82 (5.50)	1.51 (10.41)	0.41 (2.83)	0.76 (5.17)
	40-60 (12.2-18.3)	0.10 (2.26)	1.23 (8.48)	2.19 (15.10)	0.62 (4.27)	1.10 (7.58)
	60-80 (18.3-24.4)	0.12 (2.71)	1.51 (10.41)	2.74 (18.89)	0.76 (5.17)	1.37 (9.45)
	80-100 (24.4-30.5)	0.16 (3.62)	1.92 (13.24)	3.43 (23.65)	0.96 (6.62)	1.71 (11.79)
12(305)	0-20 (0-6.1)	0.013 (0.29)	0.27 (1.86)	0.41 (2.83)	0.14 (0.97)	0.21 (1.45)
	20-40 (6.1-12.2)	0.027 (0.51)	0.41 (2.83)	0.82 (5.50)	0.27 (1.86)	0.41 (2.83)
	40-60 (12.2-18.3)	0.041 (0.93)	0.55 (3.79)	1.10 (7.58)	0.41 (2.83)	0.55 (3.79)
	60-80 (18.3-24.4)	0.054 (1.22)	0.69 (4.75)	1.37 (9.45)	0.54 (3.79)	0.69 (4.75)
	80-100 (24.4-30.5)	0.069 (1.56)	0.86 (5.95)	1.51 (10.41)	0.68 (4.75)	0.86 (5.95)
	100-120 (30.5-36.6)	0.08 (1.81)	1.09 (7.52)	1.77 (12.20)	0.82 (5.50)	1.09 (7.52)
	120-140 (36.6-42.7)	0.10 (2.26)	1.27 (8.78)	2.07 (14.27)	0.93 (6.45)	1.27 (8.78)
	140-160 (42.7-48.8)	0.11 (2.49)	1.43 (9.86)	2.36 (16.27)	1.04 (7.17)	1.43 (9.86)
	160-180 (48.8-54.9)	0.12 (2.71)	1.60 (11.03)	2.53 (17.44)	1.10 (7.58)	1.60 (11.03)
	180-200 (54.9-61.0)	0.13 (2.85)	1.75 (12.07)	2.83 (20.20)	1.17 (8.20)	1.75 (12.07)

NOTE 1: ELBOWS WITH ANGLES GREATER THAN 90° MUST NOT BE USED.

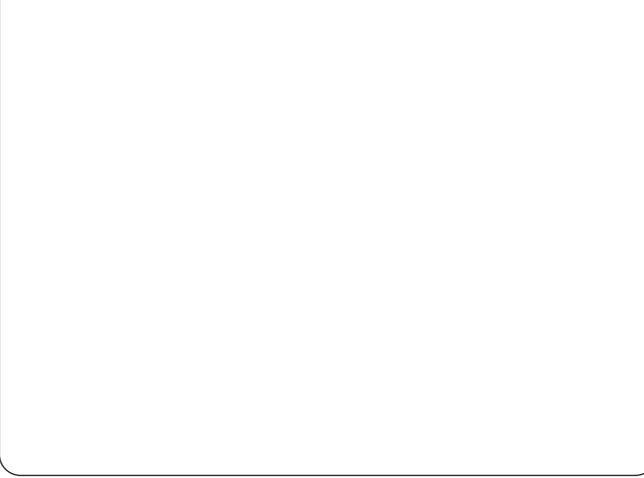
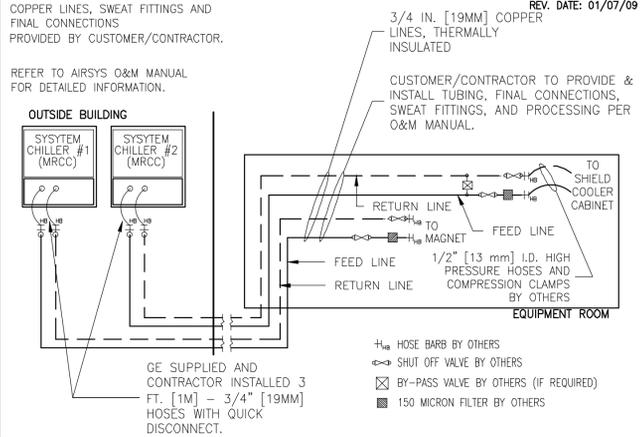
NOTE 2: THE TABLE DATA IS BASED ON THE FOLLOWING:  
A. INITIAL FLOW CONDITIONS AT MAGNET INTERFACE.  
B. GAS TEMPERATURE STARTING AT 4.5 KELVIN (-452 F OR -268 C).  
C. HELIUM GAS FLOW RATE OF 2.737 CUBIC FEET (77.5 CUBIC METERS) PER MINUTE.  
D. 45° STANDARD SWEEP ELBOW K = 15 F.  
E. 90° STANDARD SWEEP ELBOW K = 30 F.  
F. 45° LONG SWEEP ELBOW K = 7.5 F.  
G. 90° LONG SWEEP ELBOW K = 15 F.

NOTE 3: THE TOTAL PRESSURE DROP OF THE ENTIRE CRYOGENIC VENT SYSTEM MUST BE LESS THAN 17 PSI (117.2 KPa). THE CALCULATION STARTS AT THE MAGNET VENT INTERFACE AND ENDS AT THE TERMINATION POINT OUTSIDE THE BUILDING.

NOTE 4: FOR 14 IN. (356mm) AND 16 IN. (406mm) VENT PIPE DIAMETERS REFER TO PRE-INSTALLATION MANUAL REFERENCED ON SHEET C1.

SYSTEM CHILLER PIPING

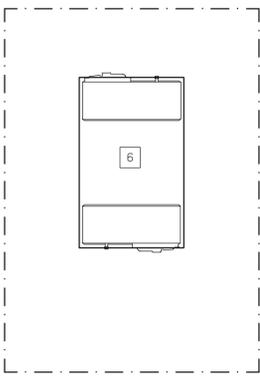
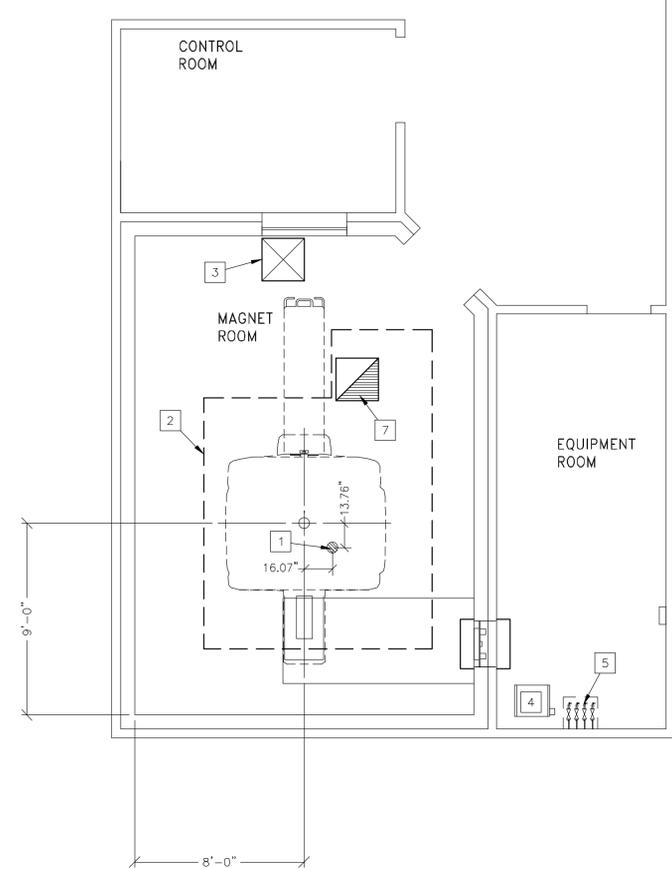
MECH-35



SCALE: 1/4" = 1'-0"

MECHANICAL/PLUMBING LAYOUT

RECOMMENDED CEILING HEIGHT = 8'-9"



MECHANICAL/PLUMBING ITEMS

CUSTOMER/CONTRACTOR SUPPLIED AND INSTALLED ITEMS

ITEM NO.	ITEM DESCRIPTION (* INDICATES EXISTING)
1	REFER TO PRE-INSTALLATION MANUAL LISTED ON SHEET C1 FOR CRYOGEN VENT REQUIREMENTS. SEE SHEET S-2 FOR CRYOGEN VENT LOCATION. 8" (203 mm) CRYOGEN VENT - TOLERANCE FOR VENT LOCATION +/- 0.25" (6 mm). SEE DETAILS MECH-04 AND MECH-01. THE CUSTOMER'S DESIGNER IS RESPONSIBLE FOR SELECTING VENT MATERIALS AND HARDWARE CAPABLE OF SAFELY HANDLING THE PRESSURES AND COLD TEMPERATURE GENERATED WITHIN THE VENT AT EACH MRJ SITE. THE CUSTOMER'S CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING THE CRYOGEN VENT FROM THE MAGNET VENT ADAPTER TO THE BUILDING'S EXTERIOR. FOR NON-STANDARD VENT CONFIGURATIONS (I.E. OFFSET CEILING EXITS, WALL EXITS, AND GEODESIC DOMES) THE CUSTOMER'S CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF THE CRYOGENIC VENT SYSTEM AND VENT SUPPORTS WITHIN THE MAGNET ROOM.
2	MINIMUM CEILING HEIGHT REQUIREMENT AREA. REFER TO MAGNET EQUIPMENT DETAILS FOR MORE INFORMATION
3	MINIMUM 2 FT. x 2 FT. (0.61m x 0.61m) PRESSURE EQUALIZING WAVEGUIDE VENT IN THE MAGNET ROOM CEILING
4	SEE PRE-INSTALLATION MANUAL FOR RECOMMENDED BACK-UP WATER SPECIFICATIONS.
5	FOUR (4) 3/4 IN. (19MM) COPPER LINES (INSULATED). SIX (6) 1/2 IN. (13MM) HOSE BARBS. FOUR (4) 3/4 IN. (19MM) BALL VALVES. TWO (2) 3/4 IN. (19MM) TO 1/2 IN. (13MM) REDUCERS. TWO (2) 150 MICRON FILTER. FOUR (4) SHUT OFF VALVES. TWO (2) BY-PASS VALVES. REFER TO DETAIL MECH-35.
6	PLEASE REFER TO THE PRE-INSTALLATION MANUAL FOR COMPLETE SITE PREPARATION REQUIREMENTS. CUSTOMER/CONTRACTOR RESPONSIBLE FOR RIGGING AND INSTALLATION OF SYSTEM COOLING CABINET. THERE IS A MAXIMUM OF 100 FEET (30.5 M) VERTICAL DIFFERENCE ABOVE OR 10 FEET (3.0 M) BELOW BETWEEN THE OUTDOOR CHILLER CABINET (MRCC) AND BOTH THE MAGNET AND THE CRYO COMPRESSOR. A TOTAL MAXIMUM DISTANCE OF 800 FEET (244 M) EXISTS BETWEEN THE OUTDOOR CHILLER CABINET (MRCC) AND CRYO COMPRESSOR OR THE MAGNET.
7	PLEASE REFER TO THE PRE-INSTALLATION MANUAL FOR COMPLETE SITE PREPARATION REQUIREMENTS. EXHAUST FAN AND AIR INLET MUST BE SIZED FOR A MINIMUM OF 120 CFM (34 M <sup>3</sup> /MINUTE) AND A MINIMUM OF 16 AIR EXCHANGES PER HOUR. SEE DETAIL ELEC-55 ON THE ELECTRICAL DETAIL SHEETS. MAGNET ROOM EXHAUST FAN INTAKE VENT MUST BE LOCATED AT THE HIGHEST CEILING PLANE NEAR THE MAGNET CRYOGEN VENT.

MECHANICAL/PLUMBING NOTES

- 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 IS REQUIREMENTS, SPECIFICATIONS AND GUIDELINES REFER TO THE PRE-IS MANUAL REFERENCED ON SHEET C1 FOR:  
MR SYSTEMS - SYSTEM COOLING, CRYOGEN VENTING, WAVEGUIDES AND EXHAUST VENTING.  
CYCLOTRON SYSTEMS - CHEMISTRY LINES, GAS LINES, AND SYSTEM COOLING.

GE Healthcare  
IS Services Design Center  
Milwaukee, Wisconsin

SHEET TITLE: MECHANICAL LAYOUT  
MODALITY TYPE: 1.5T SIGNA TWINSPEED HDX

THIS PLAN IS SUBMITTED TO CURSEY LOCATION OF GE HEALTHCARE EQUIPMENT AND ASSOCIATED ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS. IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM TO ALL APPLICABLE CODES AND REGULATIONS. GE HEALTHCARE SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE: 8-210F TYPICAL LAYOUT

PROJECT	REVISION
8-210F	02

DATE: 11.Apr.11  
DRAWN BY: PMM  
CHECKED BY: TMS

REVISION HISTORY:

SHEET M1

### EQUIPMENT DETAIL

#### TYPICAL ON-SITE CRYOGEN STORAGE REQUIREMENTS/RECOMMENDATIONS

**M65-15**  
REV. DATE: 06/29/04

**GENERAL CRYOGEN REQUIREMENTS**

- USE OF A STANDARD VALVED HELIUM TRANSFILL LINE AND A 250 LITER DEWAR, NOT MORE THAN 70 IN. [1778mm] HIGH, REQUIRES A CEILING HEIGHT OF 135.5 IN. [3442mm]. NOTE: THAT THIS NEED ONLY BE A 24IN. [610mm] SQUARE CEILING RECESS LOCATED EITHER IN THE MAGNET ROOM OR IN AN ACCESSIBLE AREA NEAR THE MAGNET ROOM.
- A 500 LITER DEWAR, NOT MORE THAN 73 IN. [1854mm] HIGH, REQUIRES A CEILING HEIGHT OF 138 IN. [3505mm].
- IF THE HELIUM TRANSFILL REQUIREMENTS CANNOT BE SATISFIED IN OR NEAR THE MAGNET ROOM, CONSIDER A LOCATION OUTSIDE THE BUILDING OR ON A LOADING DOCK. THE STANDARD VALVED TRANSFILL LINE, AFTER INSERTION INTO EITHER A 500 OR 250 LITER DEWAR, WILL FIT THROUGH 79 IN. [2007mm] BY 43 IN. [1092mm] WIDE HIGH DOORWAYS AND HALLWAYS. PROVIDE FREE ACCESS FROM THE DEWAR LOCATION TO THE MAGNET.
- IF ELEVATORS ARE TO BE USED FOR CRYOGEN DELIVERY ROUTE, VERIFY THAT ELEVATOR DIMENSIONS AND WEIGHT CAPACITY IS SUFFICIENT TO HANDLE THE CRYOGEN DEWARS. ALSO, ELEVATOR MUST BE DEDICATED WITH RESTRICTED ACCESS DURING CRYOGEN TRANSPORT (WILL NOT ALLOW STOPS BETWEEN INITIAL START AND FINAL FLOOR DESTINATION).
- AN OPTIONAL CRYOGEN REFILL SERVICE IS OFFERED BY GEMS. (CHECK WITH CRYOGEN SUPPLIER FOR EXACT SIZES AND WEIGHT).
- MINIMUM ACCEPTABLE INCLINE IS 5° AND RECOMMENDED MINIMUM DOOR SIZE IS 45" [1143mm] ALONG THE ENTIRE DEWARS DELIVERY ROUTE.

**ON-SITE CRYOGEN STORAGE ROOM RECOMMENDATIONS (IF NECESSARY)**

- CRYOGEN STORAGE TO BE LOCKABLE, WELL LIT, WELL VENTILATED WITH TEMPERATURES NOT TO EXCEED 100° F (37.8° C).
- WALLS IN CRYOGEN STORAGE ROOM SHOULD BE 3/4" PAINTED PLYWOOD OR SUITABLE FINISH (NOT PLASTERBOARD) TO AVOID DAMAGE WHEN MOVING DEWARS.
- ADEQUATE VENTILATION TO ENSURE 18% OXYGEN LEVEL IS MAINTAINED.
- MEANS MUST BE PROVIDED TO SECURE CRYOGEN GAS CYLINDERS IN AN UPRIGHT POSITION USING A REMOVABLE CHAIN OR STRAP. THIS IS TO PREVENT THE CYLINDERS FROM FALLING, WHICH MAY CAUSE INJURY OR DAMAGE. PROVIDE WALL HOOKS FOR TRANSFER LINES AS REQUIRED.
- CRYOGEN DEWARS MUST NOT BE STORED WITHIN THE MAGNET ROOM.

### EQUIPMENT DETAIL

#### MAGNET - MINIMUM SERVICE/CEILING AREA

**M03-30A**  
REV. DATE: 11/10/08

**PLAN VIEW**

DETAIL NOT TO SCALE

### EQUIPMENT DETAIL

#### MAGNET ENCLOSURE (FRONT AND REAR VIEWS)

**M03-00B**  
REV. DATE: 10/16/07

**REAR VIEW**

**FRONT VIEW**

DETAIL NOT TO SCALE

NOTE:  
• FINISHED FLOOR TO MAGNET CENTER LINE HEIGHT DIMENSION MUST BE 42.125" ± 0.25" [1070mm ± 6.35mm] TO ALLOW ENCLOSURE COVERS TO MOVE FREELY.

### EQUIPMENT DETAIL

#### MAGNET CABLE ACCESS

**M03-00C**  
REV. DATE: 10/15/07

**SIDE VIEW**

**REAR PEDESTAL (REAR VIEW)**

**REAR PEDESTAL (FLOOR CONTACT VIEW)**

DETAIL NOT TO SCALE

NOTE:  
• INDICATES MAGNET ISOCENTER

### EQUIPMENT DETAIL

#### PATIENT TRANSPORT TABLE

**M23-15**  
REV. DATE: 06/21/86

**TOP VIEW**

**FRONT VIEW**

**SIDE VIEW**

DETAIL NOT TO SCALE

### EQUIPMENT DETAIL

#### SHIELD/CRYO COOLER COMPRESSOR CABINET

**M16-15B**  
REV. DATE: 04/29/99

**TOP VIEW**

**FRONT VIEW**

**SIDE VIEW**

**REAR VIEW**

DETAIL NOT TO SCALE

NOTE:  
• INDICATES CENTER OF GRAVITY

### EQUIPMENT DETAIL

#### REMOTE CONTROL PANEL FOR CHILLER

**M30-88R**  
REV. DATE: 03/09/09

**TOP VIEW**

**FRONT VIEW**

**SIDE VIEW**

DETAIL NOT TO SCALE

NOTE:  
• ALL DIMENSIONS ARE IN INCHES  
• ALL BRACKETED [ ] DIMENSIONS ARE IN MILLIMETERS  
• APPROXIMATE WEIGHT 1.7lbs [0.8kg]  
• DETAIL NOT TO SCALE

### EQUIPMENT DETAIL

#### WATER CHILLER CABINET

**M30-88TL**  
REV. DATE: 03/09/09

**REAR VIEW**

**PLAN VIEW**

**SIDE VIEW**

DETAIL NOT TO SCALE

NOTE:  
• INDICATES AIR FLOW  
• INDICATES CENTER OF GRAVITY

### EQUIPMENT DETAIL

#### BLOWER BOX

**M30-00F**  
REV. DATE: 03/09/09

**PLAN VIEW**

**FRONT VIEW**

**SIDE VIEW**

DETAIL NOT TO SCALE

NOTE:  
• INDICATES AIR FLOW  
• INDICATES CENTER OF GRAVITY

### EQUIPMENT DETAIL

#### TAC CABINET

**M30-00A**  
REV. DATE: 03/09/09

**PLAN VIEW**

**FRONT VIEW**

**SIDE VIEW**

DETAIL NOT TO SCALE

NOTE:  
• INDICATES AIR FLOW  
• INDICATES CENTER OF GRAVITY  
• INDICATES [ ] MILLIMETERS

### EQUIPMENT DETAIL

#### 1.5T HDx RFS CABINET

**M50-15F**  
REV. DATE: 11/04/07

**FRONT VIEW**

**SIDE VIEW**

DETAIL NOT TO SCALE

NOTE:  
• INDICATES AIR FLOW  
• INDICATES CENTER OF GRAVITY  
• FAN MODULE IS INSTALLED ON THE CABINET AFTER CABINET IS POSITIONED AT SITE. FAN MODULE IS NOT INSTALLED DURING SHIPMENT FOR EASE OF HANDLING AND LOCATING OF THE CABINET.

### EQUIPMENT DETAIL

#### HFD / PDU CABINET

**M50-15D**  
REV. DATE: 10/15/07

**FRONT VIEW**

**SIDE VIEW**

DETAIL NOT TO SCALE

NOTE:  
• INDICATES AIR FLOW  
• INDICATES CENTER OF GRAVITY  
• FAN MODULE IS INSTALLED ON THE CABINET AFTER CABINET IS POSITIONED AT SITE. FAN MODULE IS NOT INSTALLED DURING SHIPMENT FOR EASE OF HANDLING AND LOCATING OF THE CABINET.

GE Healthcare  
IS Services Design Center  
Milwaukee, Wisconsin

SHEET TITLE: EQUIPMENT DETAILS  
MODALITY TYPE: 1.5T SIGNA TWINSPEED HDX

THIS PLAN IS SUBMITTED TO SUBMIT LOCATIONS OF HEALTHCARE EQUIPMENT AND ASSOCIATED ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS. IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM TO ALL APPLICABLE CODES AND REGULATIONS. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS. THE COMPANY CANNOT ACCEPT RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
8-210F  
TYPICAL LAYOUT

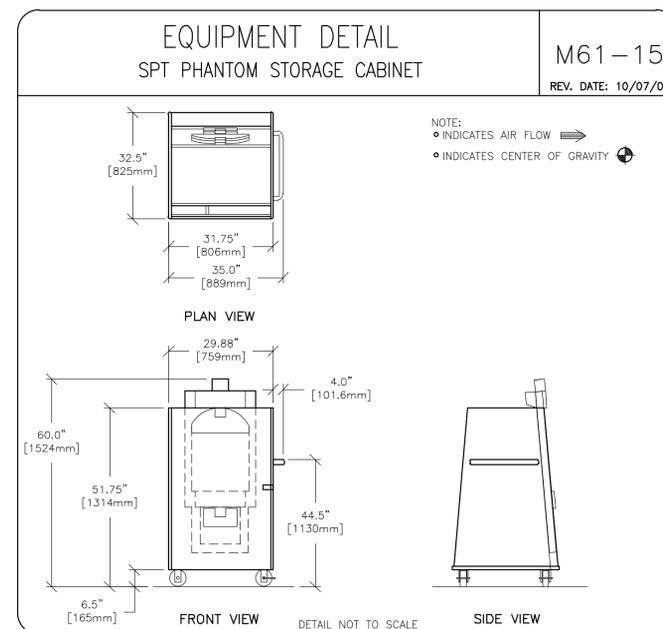
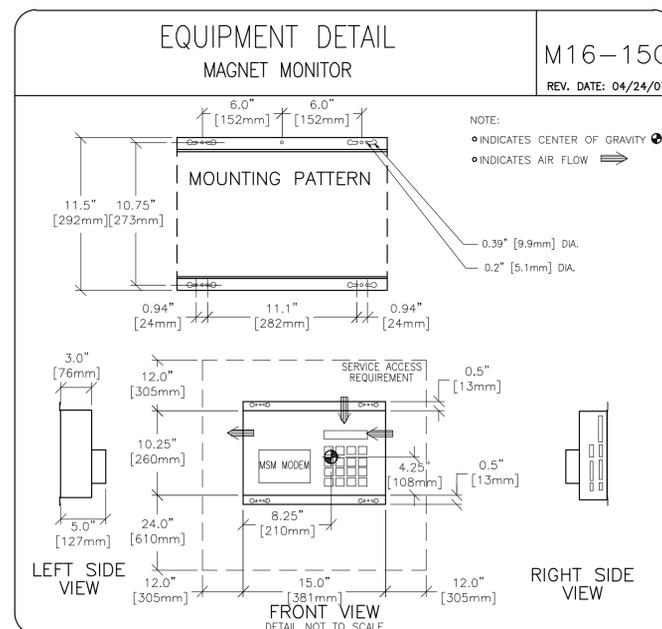
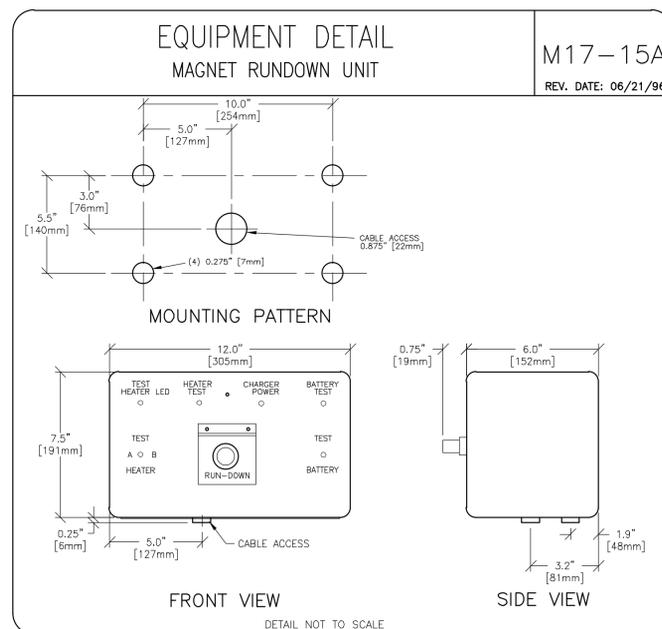
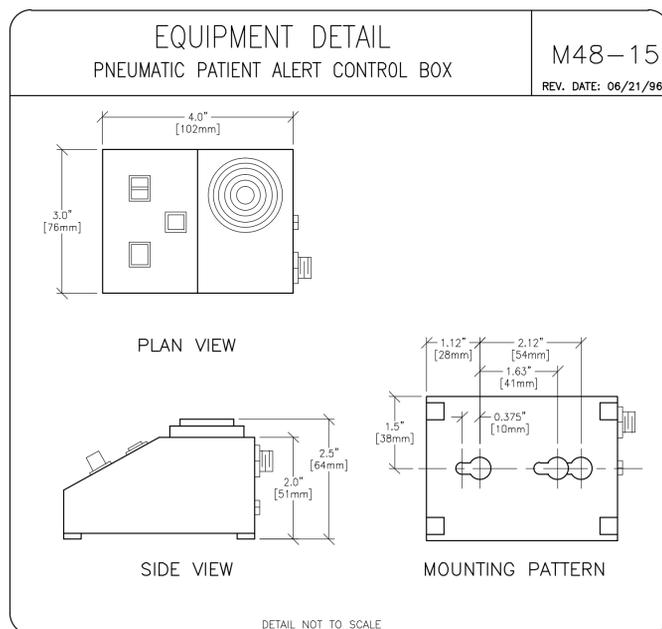
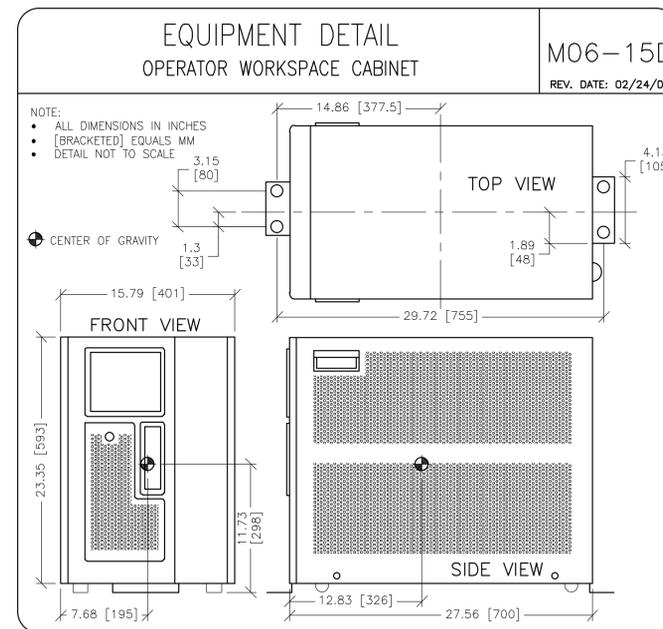
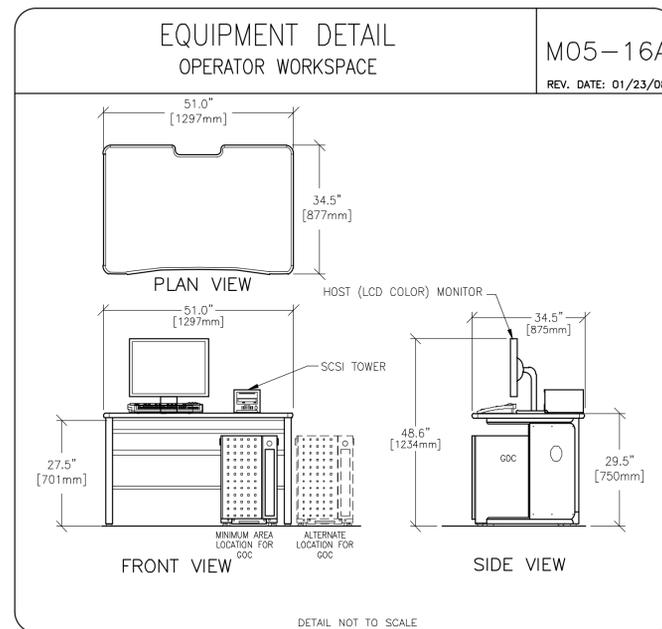
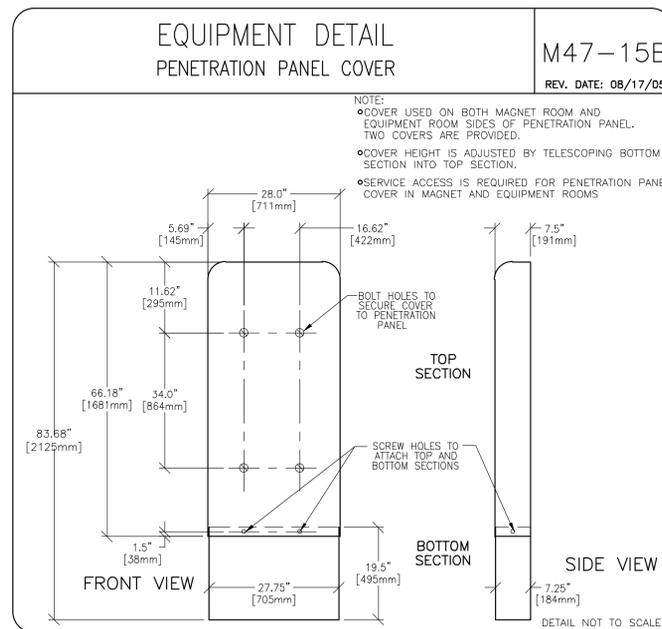
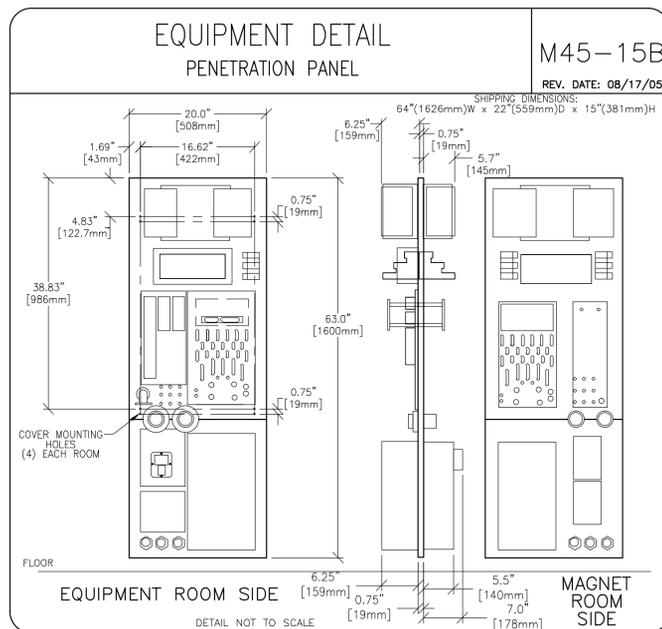
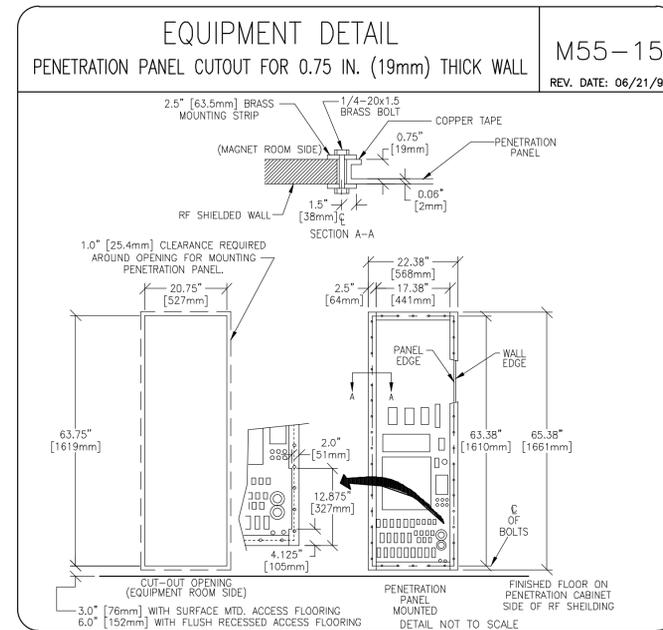
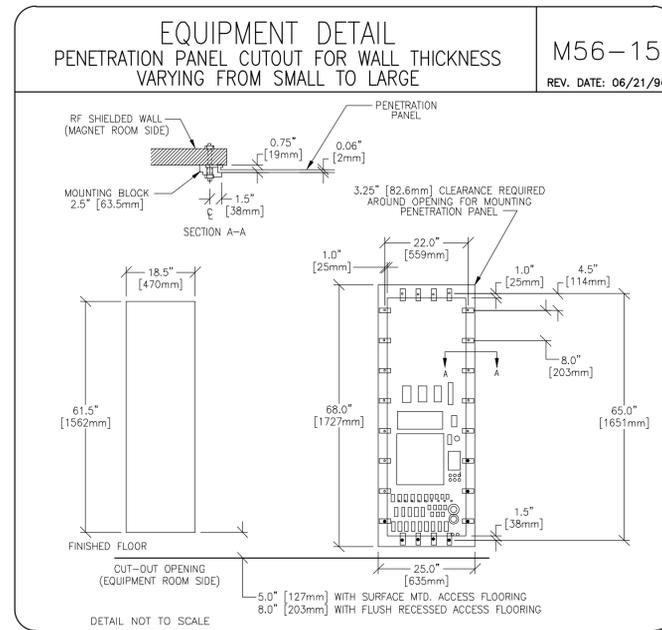
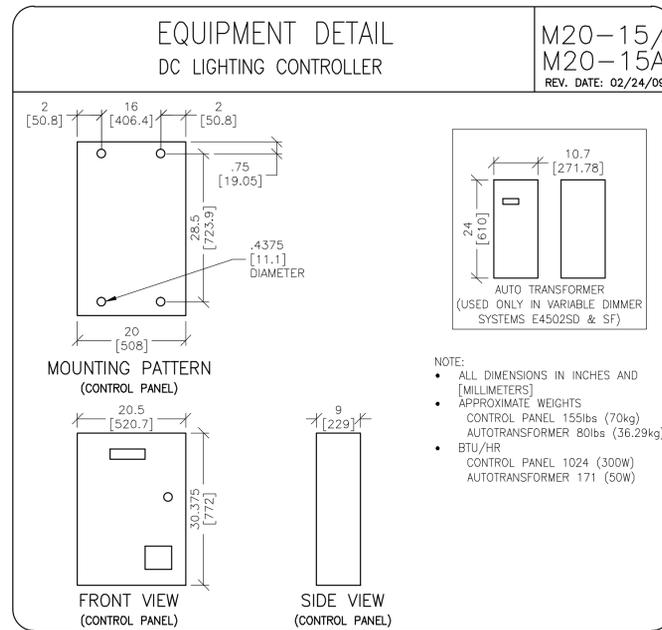
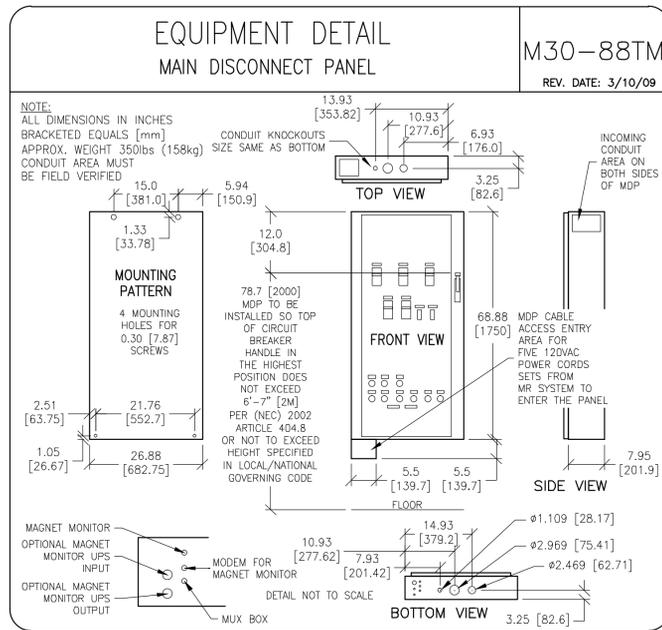
PROJECT	REVISION
8-210F	02

DATE: 11.Apr.11  
DRAWN BY: PMM  
CHECKED BY: TMS

REVISION HISTORY:

NO.	DESCRIPTION

SHEET  
D1



PROJECT	REVISION
8-210F	02

DATE: 11.Apr.11  
DRAWN BY: PMM  
CHECKED BY: TMS

REVISION HISTORY:


PIM R7  
RQ - 117460