

# 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 installation 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 installation 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 Excite HD  
Preinstallation Manual

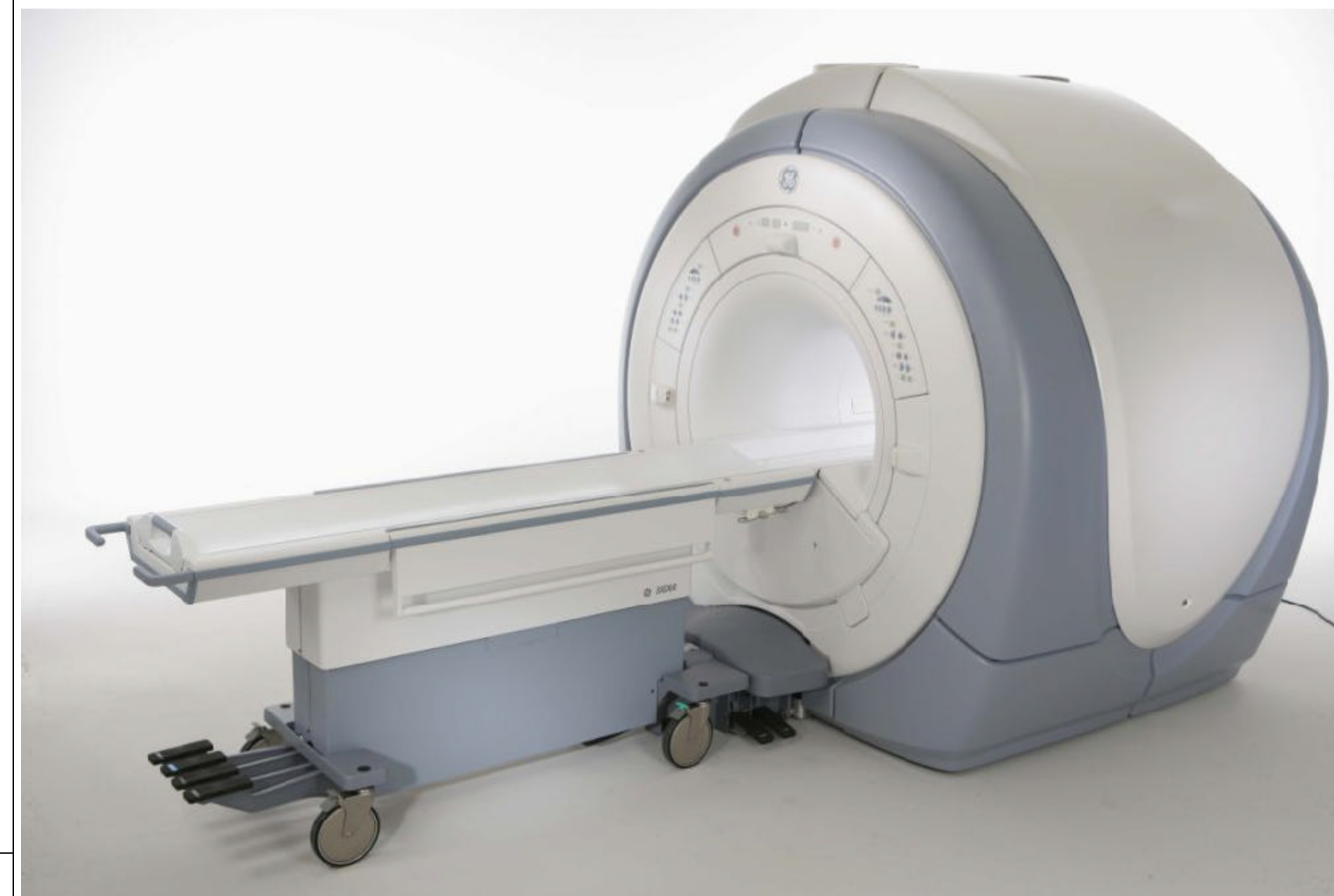
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A mandatory component of this drawing set is the GE Healthcare Preinstallation manual. Failure to reference the preinstallation manual will result in incomplete documentation required for site design and preparation.

Preinstallation documents for GE Healthcare products can be accessed on the web at:

<http://www.gehealthcare.com/company/docs/siteplanning.html>

# 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

Items 1 through 8 on the GE Healthcare Site Readiness Checklist are REQUIRED to facilitate equipment delivery to the installation site. Equipment will not be delivered if these requirements are not satisfied.

GE Healthcare Site Readiness Checklist						
GEHC Global Order # : _____		Customer: _____				
GEHC On-site Representative : _____		MI Supplier: _____				
Name of customer reviewed with : _____		Lead Installer: _____				
GEHC PMI : _____		Phone Number: _____				
Target Site Prep Completion Date: _____		Helper: _____				
<b>The customer is responsible for proper site preparation and site readiness regardless of any GEHC inspections/assessments.</b>						
<b>For MR Magnet Delivery:</b> Ensure cryogen vents, power for the cooling system and exhaust fan system are installed and operational (0.7T, 1.5T & 3T) and chilled water supply is available 24x7 that meets system cooling equipment requirements.						
Item #	GEHC Minimum Requirements	Storage: Is item ready?	Predict (Pre-ship) Will item be ready?	Verify (Delivery): Is item ready?	Validate (Mech Install): Is item ready?	Comments
1	Equipment installation drawings must match actual room size and must meet clearance requirements. Deviations that meet installation requirements may be red-lined, if red-lining is allowed by local code. Seismic requirements are identified on construction drawings.					
2	Delivery route to installation or storage area meets requirements and has been discussed and scheduled with the customer. Ensure floor protection is discussed, requirements identified, and will be available at time of delivery and installation.					
3	Rooms that will contain equipment, including storage areas, are dust free. Room security to prevent unauthorized access and theft has been discussed with customer. The customer is aware of these security issues, implications and responsibility.					
4	In room HVAC ductwork and units (in room) must be mechanically installed and dust free. Installation rooms appear to meet environmental conditions (see Further Definitions) and observed issues have been communicated to the customer. If being stored, storage area must meet PM storage criteria.					
5	Callout grid is installed, Unistrut is located per the installation drawings, and permanent lighting is installed and operational.					
6	Floor is clean and prepared for final floor covering. Customer has verified floor leveling meets the equipment installation drawings and PIM specs and no visible defects are observed. Gantry and table baseplate are installed prior to delivery (if applicable)					
7	Access to a working phone at the facility for emergency use, including MR magnet delivery.					
8	All walls primed (final coat not needed on Day 1), and counter tops that will support equipment must be installed. No dust-producing cabinetry work in installation areas.					
9	Mechanical supplier has been provided with a set of equipment installation drawings for reference. For California, permitted construction drawings or PMI-specified installation drawings are required.					
10	Conduit/electrical cable ducting/dividers/ access flooring installed, with the exception of surface-mounted floor ducting. Wiring to the main disconnect panel is installed and compliant with equipment installation drawings or pre-installation manual.					

Issued Date: 7/9/07 Rev 11

**GE Healthcare Technologies**  
Installation Services Design Center  
Milwaukee, Wisconsin

SHEET TITLE: SITE READINESS  
MODALITY TYPE: 1.5T SIGNA EXCITE HD  
THIS PLAN IS SUBMITTED TO SUGGEST 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 ACTUAL CONSTRUCTION PRACTICES. IT IS NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF GE HEALTHCARE. GE HEALTHCARE ACCEPTS NO RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
8-186f  
TYPICAL LAYOUT

PROJECT	REVISION
8-186F	02
DATE: 10-10-07	
DRAWN BY: SDB	
CHECKED BY: PMM	

REVISION HISTORY:


SHEET  
C1

This drawing is based on Sketch No.: 8-206

GE EQUIPMENT LISTING				EQUIPMENT CROSS REFERENCE CHART				
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		SHIELD COOLER CABINET	275 lbs		M1615B M1615E		MS5 C
2	1		WATER CHILLER FOR BRM BODY COIL	295 lbs	13993 btu	M6015B		WC1 S
3	1		BLOWER BOX	46 lbs	3412 btu	MS715	MSB 15	MG6 S
4	1		1.5 TESLA LCC ACTIVE SHIELD MAGNET	12608 lbs	8191 btu	M6515 M01130P M01130G M01130D M0315D	M66 15A	MS1 C
5	1		PATIENT TRANSPORT TABLE (CRIES NOT INCLUDE PATIENT)	279 lbs		M2315		S
6	1		SPT PHANTOM CABINET	350 lbs		M6115		-
7	1		RFS CABINET	780 lbs	27071 btu	M0815F		MR2 S
8	1		HFD/PDU CABINET	1805 lbs	34129 btu	M5015D		MR3 S
9	1		RF PENETRATION PANEL	88 lbs	324 btu	M56110 M5115 M4315B		PP1 S
10	2		PENETRATION PANEL COVERS			M4715B		S
11	1		OPERATOR WORKSPACE W/COLOR LCD MONITOR	176 lbs	4948 btu	M0515J	M05 15F	OW C
12	1		OPERATOR'S CHAIR					-
13	1		OPERATOR WORKSPACE CABINET	198 lbs		M0615D		C
14	1		PATIENT ALERT CONTROL BOX			M4815		PA S
15	1		MAGNET RUNDOWN UNIT	8 lbs		M1715A		MS4 C
16	1		MAGNET MONITOR	22 lbs	204 btu	M1615C		MM C
17	0		ADVANTAGE WORKSTATION WITH TWO LCD MONITORS (OPTION)	81 lbs	1109 btu	M1013AV		S
18	0		CONTROL ROOM UNIT (OPTION)	15 lbs		E8804S		ICC -
19	0		BATTERY CHARGING UNIT (OPTION)	4 lbs		E8804S		-
20	0		INJECTOR HEAD ON PEDESTAL (OPTION)	59 lbs		E8804S		IH -

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

ITEM NO.	QUANTITY ORDERED	REFER TO SHEET "D"	ITEM DESCRIPTION (* = EXISTING/REINSTALL)	WEIGHT	HEAT OUTPUT (PER HOUR)	DETAIL NO.	STRC PLAN	ELEC PLAN
60	1		WATER CHILLER BY OTHERS TO BE LOCATED IN FIELDS OF LESS THAN 10 GAUSS. (FINAL LOCATION TO BE DETERMINED BY OTHERS.) - OR HOSPITAL CHILLED WATER SUPPLY.					

SCALE: 1/4" = 1'-0" EQUIPMENT LAYOUT RECOMMENDED CEILING HEIGHT = 8'-9"

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.

**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.

**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 ARCING) OR MERELY STATIC DISCHARGE. SOME POTENTIAL SOURCES CAPABLE OF PRODUCING ELECTRICAL DISCHARGE INCLUDE:

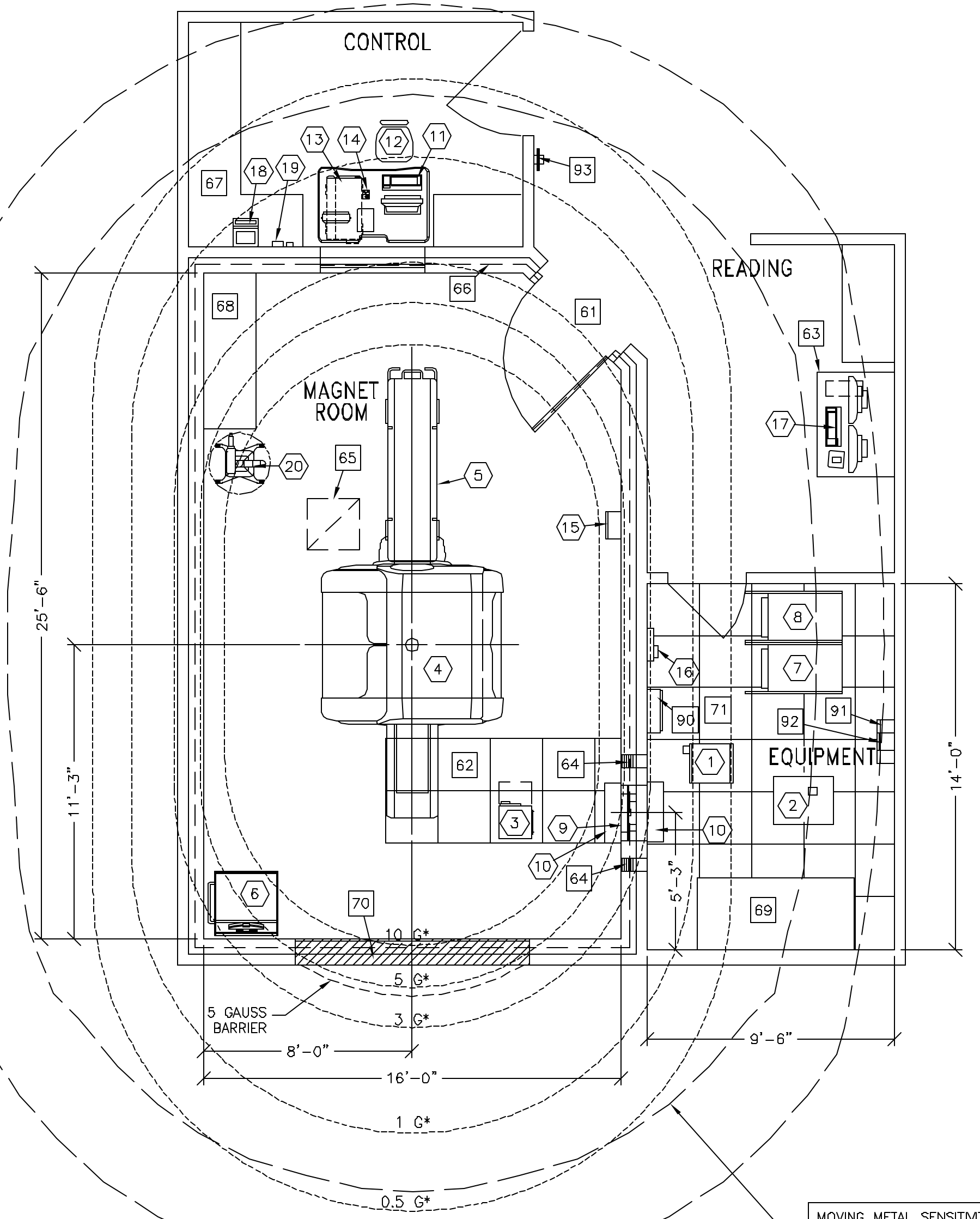
- LOOSE HARDWARE/FASTENERS VIBRATION OR MOVEMENT (ELECTRICAL CONTINUITY MUST ALWAYS BE MAINTAINED)
- FLOORING MATERIAL INCLUDING RAISED ACCESS FLOORING (PANELS & SUPPORT HARDWARE) AND CARPETING
- ELECTRICAL FIXTURES (i.e. LIGHTING FIXTURES, TRACK LIGHTING, EMERGENCY LIGHTING, BATTERY CHARGERS, OUTLETS)
- 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.

\* THE (50)GAUSS 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 AMBENT 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.

**MRI SITE PLANNING REMINDERS**

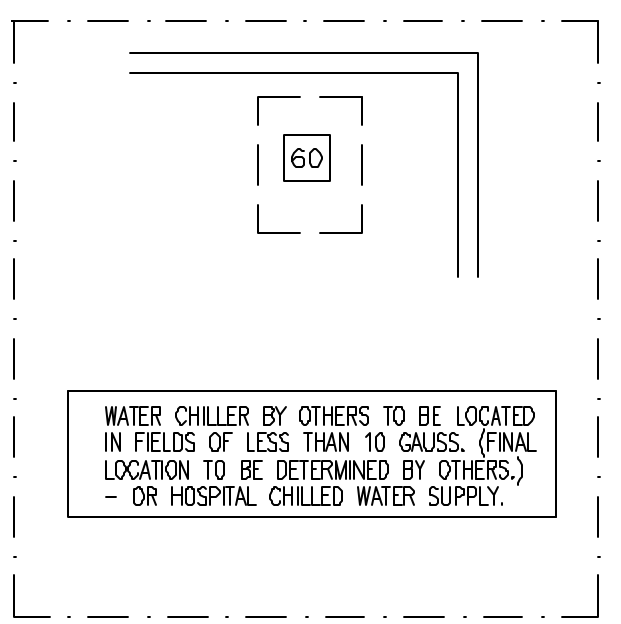
- PLEASE REFER TO PRE-INSTALLATION CHECKLIST IN PRE-INSTALLATION MANUAL LISTED ON SHEET C1 FOR ITEMS CRITICAL TO IMAGE QUALITY.
- THE LAYOUT SHOULD BE ARRANGED SO THAT THE 5G LINE IS CONTAINED TO THE MAGNET ROOM. IF NOT POSSIBLE, A BARRIER IS RECOMMENDED TO PREVENT ENTRY TO THE 5G FIELD AREA.
  - THE SPACES AROUND, ABOVE, AND BELOW THE MAGNET MUST BE REVIEWED FOR EFFECTS OF THE 5G, 3G, 1G, AND .5G FIELDS. REFER TO THE PROXIMITY LIMIT CHART IN THE MR PRE-INSTALLATION MANUAL REFERENCED ON C1.
  - FOR MOVING METAL, THE RESTRICTION LINES TYPICALLY EXTEND OUTSIDE OF THE MR SPACE. PLEASE CONFIRM THERE ARE NO MOVING METAL CONCERNS WITHIN THESE AREAS. AN EM STUDY IS RECOMMENDED IF THE RESTRICTION LINES ARE VIOLATED.
  - FOR VIBRATION, PLEASE CONFIRM THAT A VIBRATION STUDY HAS BEEN RECOMMENDED AND/OR SUCCESSFULLY COMPLETED.
  - FOR EM, REVIEW THE SITE FOR THE LOCATION OF THE MAIN ELECTRICAL FEEDERS, AC DEVICES, OR DISTRIBUTION SYSTEMS. AN EM 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.



MOVING METAL SENSITIVITY LINE FOR CARS, MINIVANS, PICKUP TRUCKS, AND AMBULANCES.

NOTE: FERROUS OBJECTS MUST NOT MOVE INTO OR INSIDE OF THE MOVING METAL SENSITIVITY LINE DURING SCANS.

MOVING METAL SENSITIVITY LINE FOR BUSES AND TRUCKS (DUMP, TRACTOR TRAILER, UTILITY, FIRE TRUCKS)



**ANCILLARY ITEMS**

**CUSTOMER/CONTRACTOR SUPPLIED AND INSTALLED ITEMS**

ITEM NO.	ITEM DESCRIPTION (* INDICATES EXISTING)
60	WATER CHILLER
61	MINIMUM DOOR OPENING FOR EQUIPMENT DELIVERY IS 43 IN. W X 82 IN. H (1092mm X 2083mm). CONTINGENT ON A 96 IN. (2438mm) CORRIDOR WIDTH
62	NON-METAL ACCESS FLOOR WITH 2" X 2" (610 X 610mm) REMOVABLE PANELS. MIN. 0" (0mm) DEEP. NON-METAL ACCESS FLOORING (PANELS & SUPPORT HARDWARE) REQUIRED WITHIN MAGNET ROOM.
63	WORKSTATION TABLE
64	RF FILTERS - LOCATE WITHIN 24 IN. (610 mm) OF THE PENETRATION PANEL.
65	MAGNET ROOM EXHAUST FAN
66	RF SCREEN, INCLUSIVE OF WALLS, FLOOR, DOOR, ETC. GROUND IMPEDANCE GREATER THAN 1000 OHMS ATTENUATION LOSS @ 10-100MHz PLANEWAVE.
67	COUNTERTOP WITH DRAWERS FOR MISCELLANEOUS ITEMS.
68	BASE CABINET FOR STORAGE OF, SURFACE COILS, PATIENT POSITIONING PADS, PHANTOMS, ETC.
69	AIR CONDITIONING (VIBRATION ISOLATION IS RECOMMENDED AT SUPPORTS OF EACH UNIT TO BE INSTALLED.)
70	MINIMUM 9 FT.-0 IN. (2743 mm) X 9 FT.-0 IN. (2743 mm) REMOVABLE WALL SECTION FOR MAGNET DELIVERY/REMOVAL
71	ACCESS FLOOR WITH 2" X 2" (610 X 610mm) REMOVABLE PANELS. MIN. 0" (0mm) DEEP.

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

90	MAIN DISCONNECT CONTROL - 94 lbs (43 kg), 900 BTU/HR (E64W) - CAT NO. E4802SP FOR 480-3 WYE.
91	DC LIGHTING CONTROL PANEL 155 lbs (70 kg) 1004 BTU/HR (CAT. NO. E4502SC/SE BASIC SYSTEM)
92	DC LIGHTING AUTO TRANSFORMER 60 lbs (27 kg) (PART OF VARIABLE DIMMER SYSTEM) (CAT. NO. E4502SS/SE INCLUDES BASIC SYSTEM)
93	METAL DETECTOR (HAND HELD)

**GENERAL SPECIFICATIONS**

- THE REQUIRED CEILING HEIGHT INDICATED ON THESE PLANS IS TO ENSURE EQUIPMENT FUNCTION IS NOT INHIBITED. CONSULT WITH YOUR LOCAL GEHC INSTALLATION SPECIALIST REGARDING ACCEPTABILITY OF OTHER CEILING HEIGHTS.
- 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.
- 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.
- 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 INSTALLATION. GEHC RESERVES THE RIGHT TO MAKE ON THE JOB CHANGES BECAUSE OF CUSTOMER REQUIREMENTS AND/OR OBSTACLES IN CONSTRUCTION, ETC..
- ALL WORK TO BE IN COMPLIANCE WITH NATIONAL AND LOCAL BUILDING SAFETY CODES.
- DIMENSIONS ARE TO FINISHED SURFACES OF ROOM

**SITE ENVIRONMENT SPECIFICATIONS**

- AMBIENT OPERATING TEMPERATURE: 59-89.6 DEG (F) [15-32 (C)] FOR THE CONTROL AND EQUIPMENT AREAS, 159-69.8 DEG (F) [15-24 (C)] FOR THE MAGNET ROOM; MAXIMUM ALLOWABLE TEMPERATURE CHANGE OF 5 DEG (F)/HR [3 (C)/HR]; MAXIMUM ROOM TEMPERATURE GRADIENT 5 DEG (F) [3 (C)]
- HUMIDITY: 30 TO 75 (30-60 FOR THE MAGNET ROOM) PERCENT NON-CONDENSING, MAXIMUM ALLOWABLE CHANGE OF 5 PERCENT/HOUR
- ALTITUDE: 100 FT [30.5M] BELOW SEA LEVEL TO 11,808 FT. [3600M] ABOVE SEA LEVEL.
- ENVIRONMENTAL RESTRICTIONS ABOVE MUST NOT BE EXCEEDED FOR THE ELECTRONICS.
- DO NOT RESTRICT THE AIR INTAKE OR AIR EXHAUST OF THE SYSTEM COMPONENTS.
- ENVIRONMENTAL CONDITIONS LISTED ABOVE MUST BE MAINTAINED AT ALL TIMES INCLUDING FOR EXAMPLE OVERNIGHT, WEEKENDS, AND HOLIDAYS.
- THE SHIELD COOLER COMPRESSOR CABINET REQUIRES WATER COOLING TO DISSIPATE THE HEAT OUTPUT. HEAT DISSIPATION TO AIR IS NEGLIGIBLE. 24 HOUR POWER AND WATER COOLING MUST BE AVAILABLE UPON MAGNET DELIVERY.
- CRYOGEN VENTING AND MAGNET ROOM EXHAUST FAN SYSTEMS MUST BE COMPLETED IN THE MAGNET ROOM PRIOR TO DELIVERY.
- FLUORESCENT LIGHTING IS NOT ALLOWED IN THE MAGNET ROOM DUE TO RF NOISE.

**MAGNETIC INTERFERENCE SPECIFICATIONS**

- 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).
- MAIN POWER TRANSFORMERS MUST REMAIN OUTSIDE THE 3 GAUSS FIELD. EMI < 40mG AC. EMI < 4.43mG DC.
- 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.
- IT IS RECOMMENDED EVERY SITE CONSIDER THE EVENT OF A QUENCH AND PLAN ACCORDINGLY (SUCH AS PLACING 5 GAUSS WARNING SIGNS AT EXPANDED LOCATIONS).
- 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]

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

**GE Healthcare Technologies**  
Installation Services Design Center  
Milwaukee, Wisconsin

SHEET TITLE: EQUIPMENT LAYOUT  
MODALITY TYPE: 1.5T SIGNA EXCITE HD

THIS PLAN IS SUBMITTED TO SUBJECT LOCATION OF GE HEALTHCARE EQUIPMENT AND ASSOCIATED APPLIANCES. ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM TO DETAILS OF THE EQUIPMENT MANUFACTURER'S LATEST PUBLISHED LITERATURE. GEHC ACCEPTS NO RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE: 8-186f  
TYPICAL LAYOUT

PROJECT NO.: 8-186f  
REVISION: 02

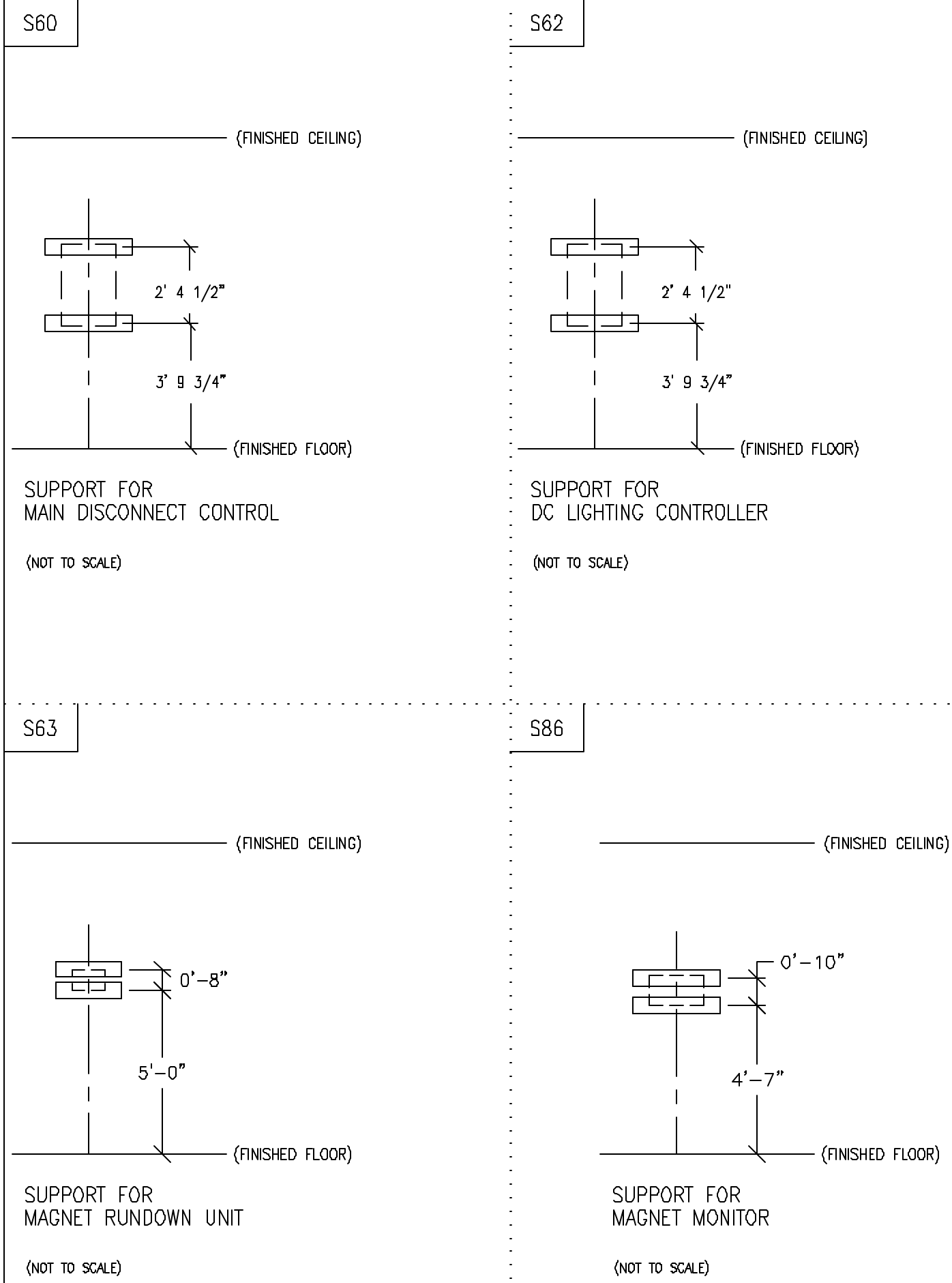
DATE: 10-10-07  
DRAWN BY: SDB  
CHECKED BY: PMM

REVISION HISTORY:

NO.	DESCRIPTION

SHEET  
A1

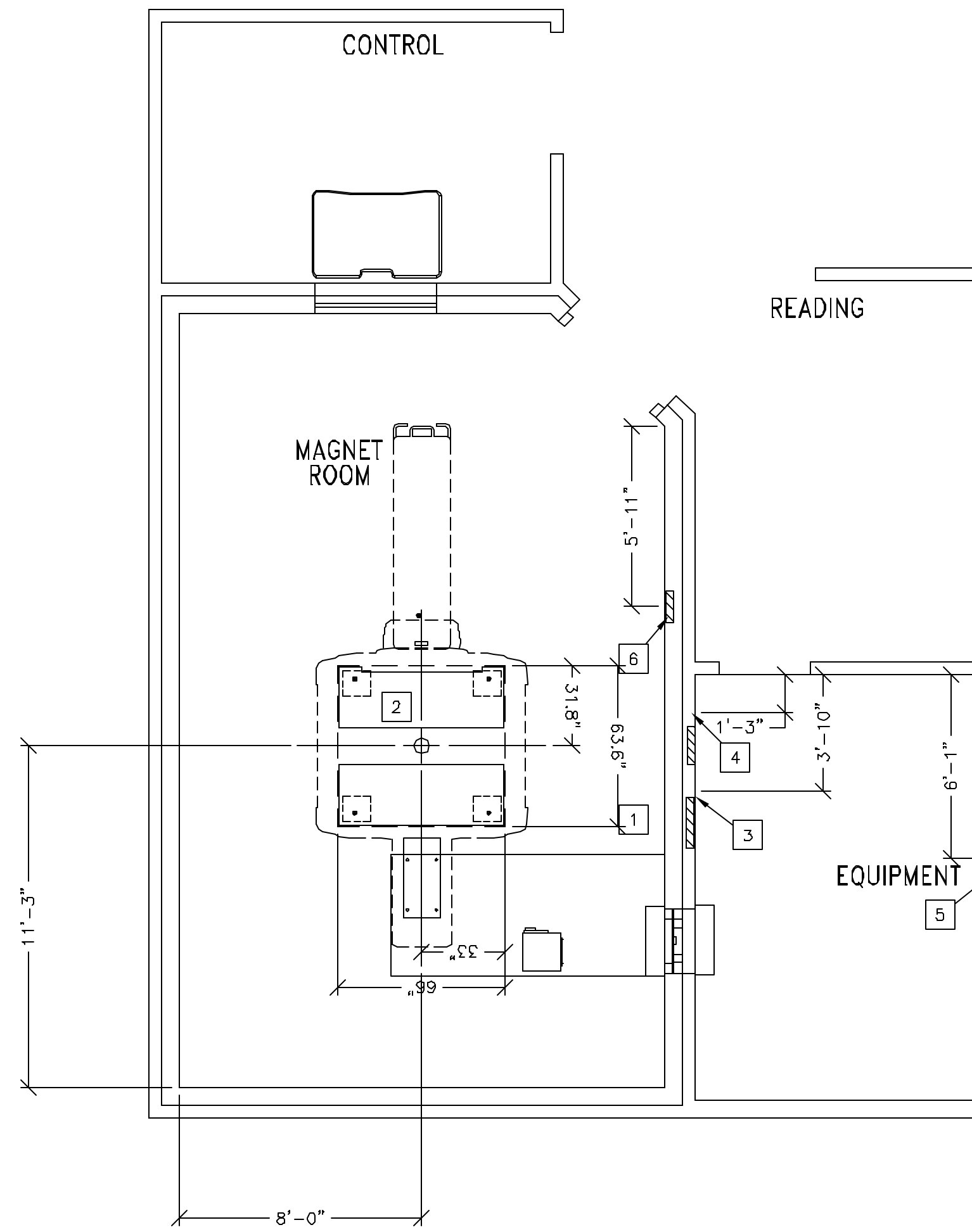
TYPICAL WALL SUPPORT ELEVATIONS



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	FLOOR MOUNTING AREA FOR BLOWER BOX. SEE DETAIL MSB-15 ON SHEET S2.
2	REQUIRED MAGNET FLOOR RECESS: 1 1/2" (+0, -1/8" TOL) x 38mm (+0mm, -38mm). SEE MAGNET FLOOR MOUNTING DETAIL ON SHEET S2 FOR MORE INFORMATION.
3	SUPPORT BACKING, LOCATE AS SHOWN, REFER TO ELEVATION DETAIL S66, FOR MAGNET MONITOR.
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 CONTROLLER.
6	SUPPORT BACKING, LOCATE AS SHOWN, REFER TO ELEVATION DETAIL S63, FOR MAGNET RUNDOWN UNIT.

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 INSTALLATION SPECIALIST.
- 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 IMPORANT 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.

This drawing is based on Sketch No.: B-206

SHEET TITLE: STRUCTURAL LAYOUT  
MODALITY TYPE: 1.5T SIGNA EXCITE HD

THIS PLAN IS SUBMITTED TO SUGGEST LOCATION OF HEAVY DUTY EQUIPMENT AND ASSOCIATED APPARATUS, ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS. IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM DETAILS TO THE MANUFACTURER'S RECOMMENDATIONS. HOWEVER, IT MAY BE USED FOR INSTALLATION PURPOSES WITHOUT THE LIABILITY OF GE HEALTHCARE. GE HEALTHCARE ACCEPTS NO RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
8-186f  
TYPICAL LAYOUT

PROJECT	REVISION
8-186f	02

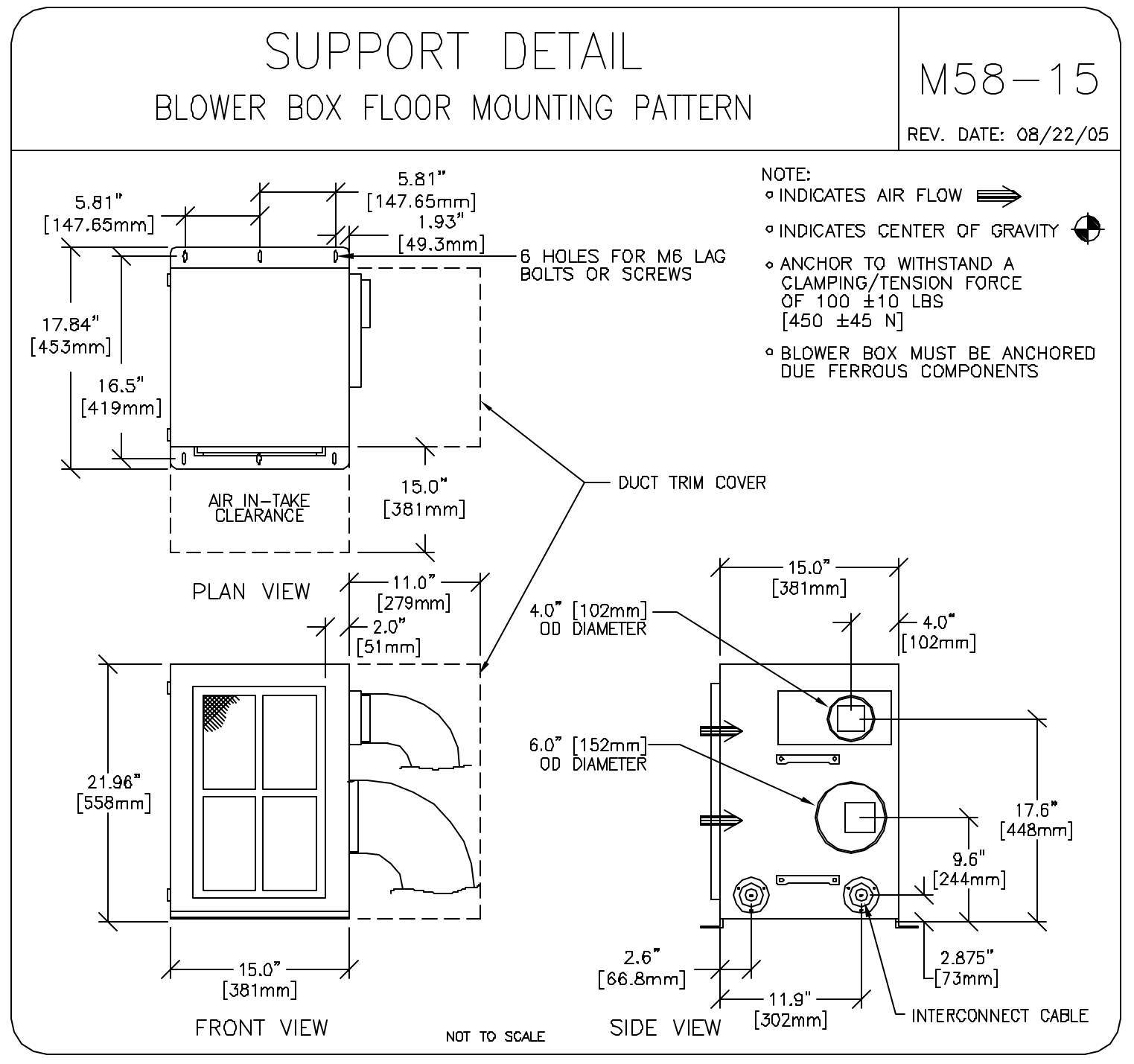
DATE: 10-10-07  
DRAWN BY: SDB  
CHECKED BY: PMM

REVISION HISTORY:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SHEET  
S1

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

**GE Healthcare Technologies**  
Installation Services Design Center  
Milwaukee, Wisconsin



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

M66-15G  
REV. DATE: 08/22/05

### 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 SAFETY GUIDE INCLUDED IN THE USER 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:

- o OPERATOR AREA .....55 dBA
- o EQUIPMENT ROOM .....75 dBA
- o MRCC (MR COMMON CHILLERS).....69.1 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 118 dBA      SPL = SOUND PRESSURE LEVEL  
 PEAK 128 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 95 TO 110 dBA  
 PEAK 110 TO 120 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.

### VIBRATION

- o 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 TO 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.

- o 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, TRAINS, SUBWAYS, 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.

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

- o 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

- o 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

- o THE MAXIMUM STEADY STATE VIBRATION TRANSMITTED THROUGH THE FLOOR MUST NOT EXCEED THE FOLLOWING MAXIMUM SINGLE FREQUENCY COMPONENTS ABOVE AMBIENT BASELINE:
  - o 5 x 10<sup>-5</sup> g rms at 0 Hz ramping to 10 x 10<sup>-5</sup> g at 20 Hz
  - o 10 x 10<sup>-5</sup> g rms 20-40 Hz
  - o 45 x 10<sup>-5</sup> 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.

### TEST MEASUREMENTS (1.1)

VIBRATION MEASUREMENTS ARE IN THE RANGE OF 10<sup>-8</sup> 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:

FREQUENCY BAND	FREQUENCY RESOLUTION
0.2 TO 50 HZ	Δt = 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 (1.2)

- o FREQUENCY AVERAGE A MINIMUM OF 20 LINEAR AVERAGES. DO NOT USE PEAK HOLD OR 1/3 OCTAVE ANALYSIS.
- o AVERAGE AND STORE A MINIMUM OF 10 PLOTS TO SUPPORT THE SITE VIBRATIONS CONSISTENCY.
- o 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 3569A, BAK BULKIE AND HP 35670 ARE 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 (1.3)

#### AMBIENT BASELINE CONDITION:

ALL OF THE MEASUREMENTS DEFINED IN 1.1 AND 1.2 (ABOVE) MUST BE MADE IN A "QUIET" ENVIRONMENT, THAT IS, IN AREAS WHERE EXCESSIVE 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 AND TIME HISTORIES. THE TEST 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 PROVE DESIGN RECOMMENDATIONS FOR ALL SITES/BUILDING STRUCTURES WHICH ARE FOUND TO EXCEED THE SPECIFICATIONS.

### PRESENTATION/INTERPRETATION OF RESULTS (1.4)

THE RECOMMENDED FORMAT FOR SITE VIBRATION DATA COLLECTION, PRESENTATION, AND ANALYSIS IS ILLUSTRATED IN THE EXAMPLES SHOWN IN ILLUSTRATIONS 1.1 THROUGH 1.4. IN THE PRE-INSTALLATION MANUAL. 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:

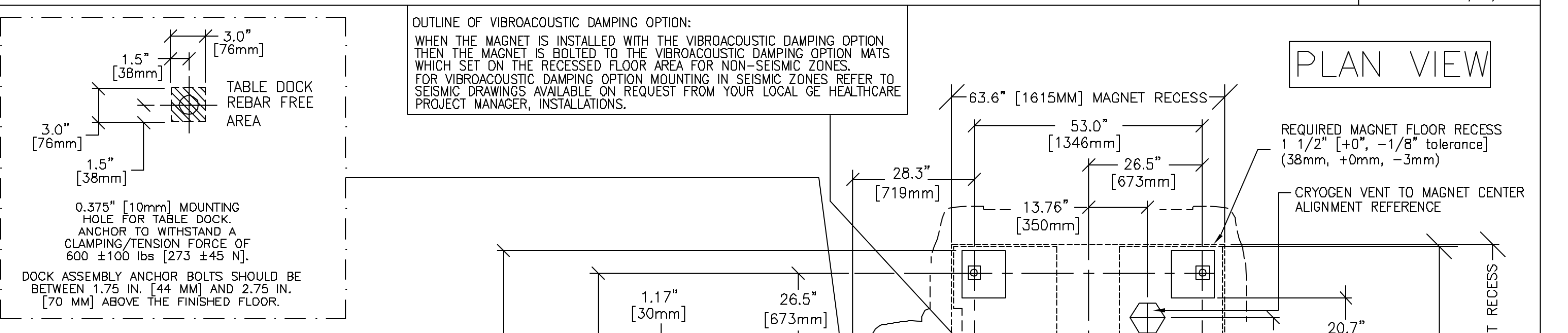
- o DETERMINE THE SOURCE OF THE VIBRATION
- o PROPOSE A SOLUTION TO THE PROBLEM
- o FIND AN ALTERNATE SITE LOCATION.

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 500 MICRO-G, ZERO TO PEAK TRIGGER LEVELS ARE 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  
M6615A1  
REV. DATE: 04/03/07

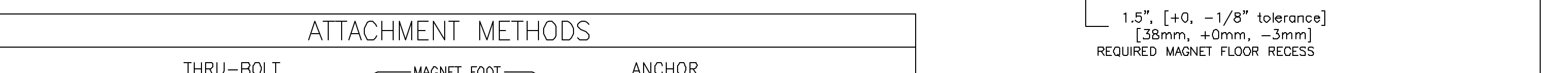


### FLOOR STRUCTURE GUIDELINES:

THE RECOMMENDED MAGNET ROOM FLOOR SHOULD BE POURED SLAB ON-GRADE WITH POLYPROPYLENE FIBER IMPREGNATED OR EPOXY REINFORCED CONCRETE. NON-MAGNETIC STAINLESS STEEL REBAR OR FIBER-GLASS REBAR MAY ALSO BE USED AS A REINFORCING MATERIAL. IN GENERAL, I-BEAMS LOCATED NEAR THE MAGNET IS PROHIBITED. STEEL REINFORCING RODS OR METAL DECK SHOULD BE AVOIDED ESPECIALLY WITHIN THE 50 GAUSS ZONE OF THE MAGNET. IF THESE MATERIALS EXIST AT THE SITE, OR IF INSTALLATION OF THESE MATERIALS IS CONTEMPLATED, THEY MUST BE TAKEN INTO ACCOUNT IN THE STRUCTURAL STEEL EVALUATION OF THE SITE. REFER TO THE PREINSTALLATION MANUAL FOR MORE INFORMATION. IF NECESSARY, THE SYSTEMS CAN CORRECT FOR SOME STEEL IN THE FLOOR. THIS INCLUDES STEEL REBARS AND OTHER STEEL BUILDING COMPONENTS WITHIN A 10 FT. x 10 FT. [3.1M x 3.1M] AREA DIRECTLY BELOW THE MAGNET. THE TABLE BELOW ILLUSTRATES THE VARYING LIMITS OF MASS OF STEEL IN CLOSE PROXIMITY TO THE MAGNET ISOCENTER WHEN USING NORMAL SHIMMING TECHNIQUES. THE DATA IS BASED ON A SQUARE AREA LOCATED DIRECTLY BENEATH THE MAGNET AND CALCULATING AN EQUIVALENT DENSITY FROM THE TOTAL VOLUME OF EXISTING STRUCTURAL STEEL. IN MOST CASES, AN I-BEAM LOCATED DIRECTLY BENEATH THE MAGNET IS PROHIBITED. FOR THE ACTIVELY SHIELDED MAGNET, A SINGLE I-BEAM LARGER THAN W8x40 SHOULD BE KEPT A MINIMUM OF 52" [1321mm] FROM THE MAGNET ISOCENTER. IN ANY CASE, THE VALUES LISTED BELOW SHOULD NOT BE EXCEEDED.

MAGNET TYPE	DISTANCE FROM MAGNET ISOCENTER IN [MM]	DISTANCE BELOW TOP SURFACE OF FLOOR IN [MM]	LIMITS OF STEEL MASS LBS/SQ FT [KG/SQ M]
1.0T & 1.5T	42 [1067]	0 [0]	0 [0]
ACTIVE	45 [1143]	3 [76]	2 [9.8]
SHIELD	47 [1194]	5 [127]	3 [14.7]
SEE NOTE 1	52 [1321]	10 [254]	8 [39.2]
	55 [1397]	13 [330]	20 [98.0]

NOTE 1: IF ANY OF THE STEEL MASS PROXIMITY TO MAGNET ISOCENTER LIMITS ARE EXCEEDED FOR THE LCC MAGNET THEN, THE STEEL MUST BE ANALYZED BY THE GEHC MR SITING AND SHIELDING TEAM.



\* IF MAGNET IS NOT INSTALLED WITH THE VIBROACOUSTIC DAMPING OPTION THEN THE RF SHIELD ROOM VENDOR MUST SUPPLY 1.5" [38mm] ALUMINUM SPACER BLOCKS. NO PLYWOOD OR FILLER BOARD IN THIS AREA.

### GENERAL NOTES:

STEEL REBAR MUST NOT BE POSITIONED IN SHADED AREAS NOTED AS "REBAR FREE" TO PREVENT INTERFERENCE WITH MOUNTING BOLTS.

MAGNET MOUNTING AND ANCHOR HARDWARE REQUIREMENTS ARE THE CUSTOMER/CONTRACTOR RESPONSIBILITY.

RF SCREEN ROOM VENDOR MUST PERFORM A PULL TEST ON EACH ANCHOR PRIOR TO MAGNET DELIVERY TO VERIFY THE CLAMPING/TENSION REQUIREMENTS.

SHEET TITLE: STRUCTURAL DETAILS  
MODALITY TYPE: 1.5T SIGNA EXCITE HD

THIS PLAN IS SUBMITTED TO SUBMIT LOCATION OF HEALTHCARE EQUIPMENT AND ASSOCIATED APPROVALS. ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM DETAILS TO THE RELEVANT CODES. THE USER SHALL BE RESPONSIBLE FOR VERIFYING ALL PERMITS AND REGULATORY REQUIREMENTS. GE HEALTHCARE SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
8-186f  
TYPICAL LAYOUT

This drawing is based on Sketch No.: B-206

PROJECT	REVISION
8-186f	02

DATE: 10-10-07  
 DRAWN BY: SDB  
 CHECKED BY: PMM

REVISION HISTORY:

NO.	DESCRIPTION

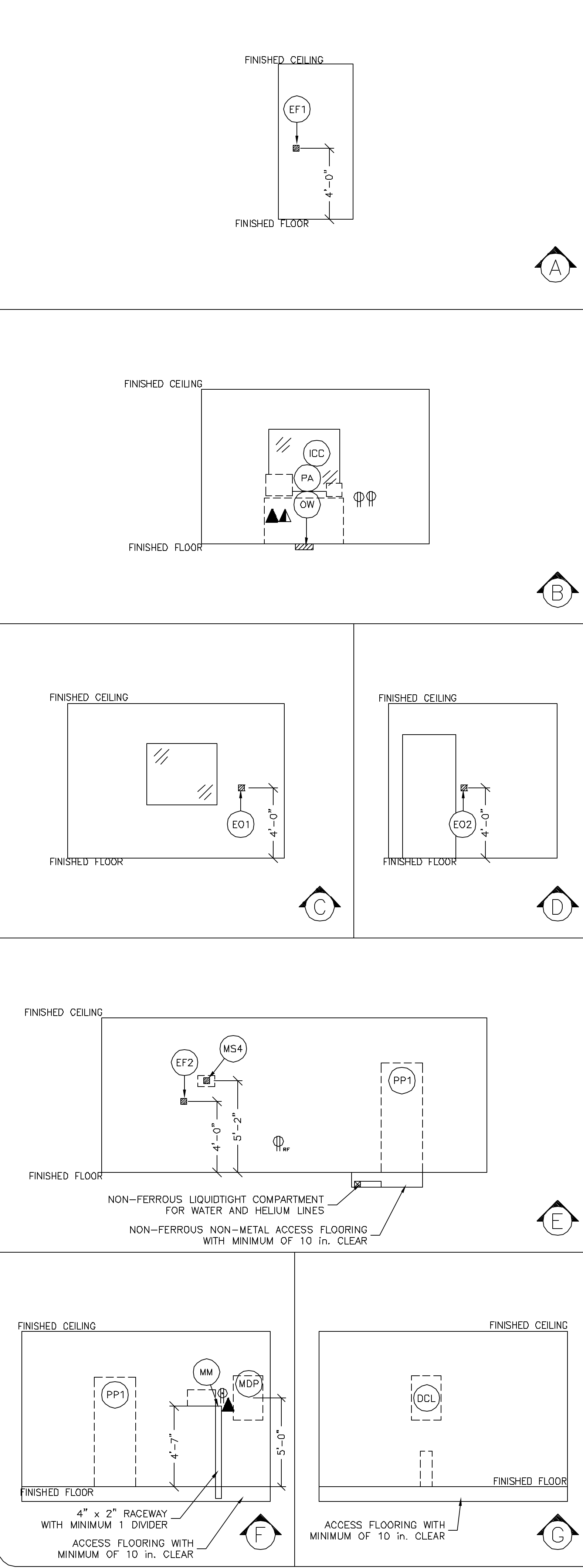
SHEET  
S2

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

ELECTRICAL PLAN

RECOMMENDED CEILING HEIGHT = 8'-9"

JUNCTION POINT DESCRIPTIONS



**ELECTRICAL OUTLET LEGEND**  
CUSTOMER/CONTRACTOR SUPPLIED AND INSTALLED ITEMS HEIGHT ABOVE FLOOR DETERMINED BY LOCAL CODES UNLESS OTHERWISE SPECIFIED.

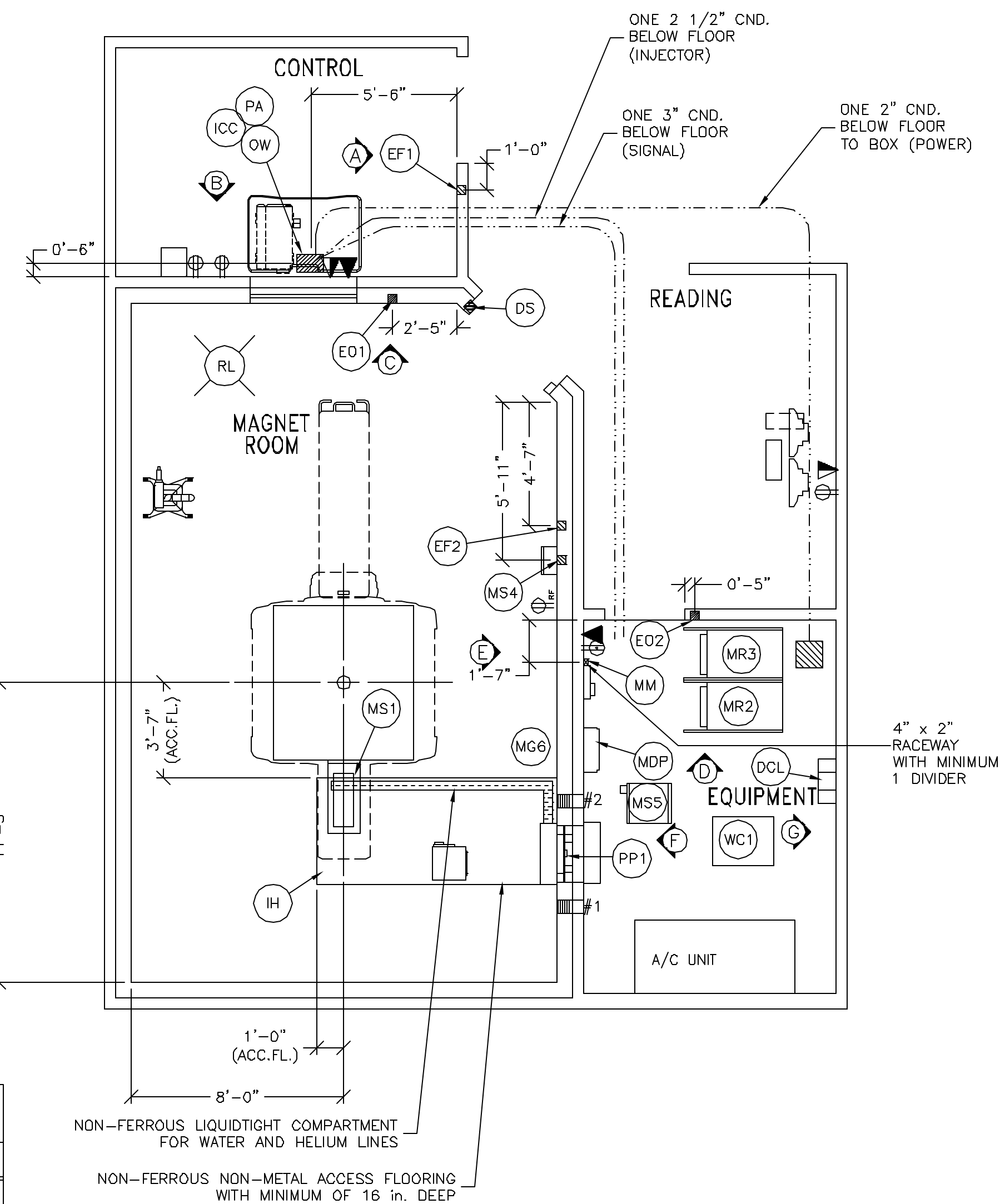
- ⊕ DUPLEX HOSPITAL GRADE, DEDICATED OUTLET 120-V, SINGLE PHASE POWER
- ⊕ DUPLEX HOSPITAL GRADE, DEDICATED OUTLET 120-V, SINGLE PHASE OUTLET ROUTED THROUGH RF FILTER
- ⊕ DUPLEX HOSPITAL GRADE, DEDICATED OUTLET 120-V EMERGENCY, SINGLE PHASE POWER, 15A
- ⊕ NETWORK OUTLET (SEE ELECTRICAL DETAILS ELEC-83 AND ELEC-84 OR ELEC-87)
- ⚡ DEDICATED TELEPHONE LINES/NETWORK CONNECTION (SEE ELECTRICAL DETAIL ELEC-70)

**DUCT HATCHING LEGEND**

- ▨ ABOVE CEILING DUCT
- ▩ UNDER FLOOR DUCT
- ▨ TRENCH DUCT (FLUSH FLOOR)
- ▨ SURFACE FLOOR DUCT OR LIQUDTIGHT COMPARTMENT
- ABOVE CEILING CONDUIT
- BELOW FLOOR CONDUIT

- JUNCTION POINT NOTES**
- ALL JUNCTION BOXES, CONDUIT, DUCT, DUCT DIVIDERS, SWITCHES, CIRCUIT BREAKERS, ETC., ARE TO BE SUPPLIED AND INSTALLED BY CUSTOMER'S 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 ACCESS FLOORING ARE TO BE CUT OUT AND FINISHED OFF WITH GROMMET MATERIAL BY THE CUSTOMER'S CONTRACTOR.
  - GENERAL CONTRACTOR TO INSERT PULL CORDS FOR ALL CABLE RUN CONDUITS BETWEEN THE EQUIPMENT ROOM AND THE OPERATORS CONTROL ROOM.
  - 10 FOOT PICKETS AT ALL JUNCTION POINTS. NO ALUMINUM OR SOLID WIRES.
  - ALL WIRING MUST BE THIN OR TFFN STRANDED COPPER THERMOPLASTIC 600 VOLT OR EQUIVALENT UNLESS OTHERWISE STATED.
  - GROUNDING IS CRITICAL TO EQUIPMENT FUNCTION AND PATIENT SAFETY. SITE MUST CONFORM TO WIRING SPECIFICATIONS SHOWN ON THIS PLAN.

POINT	DESCRIPTION	QTY.	HARDWARE	DETAIL NO., SHT. E3
DCL	DC LIGHTING	1	SEE DETAILS AVAILABLE FROM GEMS, CALL: 800-558-5102 OR LOCAL GE INSTALLATION PROJECT MGR.	ELEC-51 ELEC-54
DS	RF DOOR SWITCH	1	SINGLE GANG BOX RF DOOR SWITCH RATED FOR 24 VOLTS AND 750 MILLIAMPERES, NORMALLY OPEN (OFF) WHEN DOOR IS OPEN	ELEC-55
EF1	RF EXHAUST FAN SWITCH	1	COVERPLATE SINGLE GANG BOX SINGLE POLE SWITCH	ELEC-55
EF2	RF EXHAUST FAN SWITCH	1	COVERPLATE SINGLE GANG BOX SINGLE POLE SWITCH	ELEC-16
EO1	EMERGENCY OFF BUTTON	1	SINGLE GANG BOX	ELEC-16
EO2	EMERGENCY OFF BUTTON	1	SINGLE GANG BOX	ELEC-16
ICC	INJECTOR DISPLAY	1	SAME ROUTING AS OW	
IH	INJECTOR HEAD	1	18 IN. OF GROMMET MATERIAL FOR A 3 X 3 IN. OPENING IN ACCESS FLOOR	ELEC-10
MDP	MAIN DISCONNECT * AVAILABLE FROM GEMS, CALL: 800-558-5102 OR LOCAL GE INSTALLATION PROJECT MGR.	1	3-POLE 480V DEVICE IN NEMA 1 ENCLOSURE, GEMS CAT. NO. E4503SP TWO PUSHBUTTONS AND COVERS INCLUDED 18 IN. GROMMET MATERIAL FOR OPENING IN DUCT OR ACCESS FLOOR	ELEC-10 ELEC-57 ELEC-140
MGG	BLOWER BOX	1	40 IN. OF GROMMET MATERIAL FOR A 12 X 8 IN. OPENING IN ACCESS FLR	ELEC-10
MM	MAGNET MONITOR	1	FITTINGS AS REQUIRED	ELEC-78
MR2	RF'S CABINET	1	28 IN. OF GROMMET MATERIAL FOR ONE 10 X 4 IN. OPENING IN ACCESS FLR	ELEC-10
MR3	HF/PDU CABINET	1	SPLIT COVERPLATE 2 1/2 IN. DIA. CHASE NIPPLE 15 X 12 X 6 IN. BOX 55 IN. OF GROMMET MATERIAL FOR A 16 X 10 IN. OPENING IN ACCESS FLR	ELEC-10 ELEC-139
MS1	MAGNET	1	66 IN. OF GROMMET MATERIAL FOR A 24 X 9 IN. OPENING IN ACCESS FLR.	ELEC-10
MS4	MAGNET RUNDOWN UNIT	1	COVERPLATE 4 X 4 X 4 IN. BOX 1 IN. DIA. CHASE NIPPLE	ELEC-8
MS5	SHIELD COOLER CABINET	1	32 IN. OF GROMMET MATERIAL FOR AN 8 X 8 IN. OPENING IN ACCESS FLOOR	ELEC-10
OW	OPERATOR WORKSPACE	1	SPLIT COVERPLATE 3 1/2 IN. DIA. CHASE NIPPLE 12 IN. X 8 IN. X 6 IN. BOX	ELEC-13
PA	PATIENT ALERT CONTROL BDX	1	SAME ROUTING AS OW	
PP1	RF PENETRATION PANEL	1	100 IN. OF GROMMET MATERIAL FOR (2) 18 IN. X 6 IN. OPENINGS IN ACCESS FLOOR.	ELEC-10 ELEC-52
RL	MAGNET ROOM LIGHTS	1	LOCKNUT BOX AS REQUIRED INCANDESCENT LIGHT FIXTURE	
WC1	WATER CHILLER	1	18 IN. OF GROMMET MATERIAL FOR A 3 X 3 IN. OPENING IN ACCESS FLOOR	ELEC-10



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

CONDUITS REQUIRED FOR BASE SYSTEM

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

**FEEDER TABLE - 1.5T SIGMA SYSTEMS**

Calculations based upon nominal voltages, wire size in AWG. Recommendations based upon nominal voltages, wire size in AWG. All calculations based upon a 20 ft. [6.1m] run from MDC to PD using MDZ AWG [35 SQ mm]. The grounding conductor (G) shall be copper and will run in the same conduit as the feeders from equipment back to the room power source grounding point.

\* A DEDICATED COPPER GROUND WIRE THE SAME SIZE AS THE FEEDER WIRES OR 1/0 AWG (WHICH EVER IS LARGER) MUST BE RUN FROM THE MR SYSTEM MDP TO THE PDU.

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.

NEUTRAL MUST BE TERMINATED PRIOR TO OR INSIDE THE MAIN DISCONNECT PANEL AND NOT BROUGHT INTO THE ACCO/PDU CABINET.

FOR A FULL SYSTEM UPS REFER TO ELECTRICAL DETAILS FOR UPS FEEDER WIRES.

RUN LENGTH IN FEET	342-418 3Ø		360-440 4Ø		374-456 415		432-528 480	
	FEEDER	GROUND	FEEDER	GROUND	FEEDER	GROUND	FEEDER	GROUND
100	1	6	3	4	3	4	3	8
150	1	6	3	4	3	4	3	8
200	1	6	2	4	2	4	3	8
250	1/0	6	1/0	6	1	6	2	8
300	2/0	4	2/0	6	1/0	6	1	6
350	3/0	4	2/0	6	2/0	6	1	6
400	4/0	4	3/0	4	3/0	4	1/0	6
450	4/0	2	4/0	2	3/0	4	2/0	4

REV. DATE: 04/05/06

**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)
MR3 > RF GROUND STUD	1-GREEN (NO. 1/0 MINIMUM)
MDP > MR3	3-NO. 2 BLACK, 1-NO. 1/0 GREEN (MAX. 20 FT. [6095MM])
MDP > A/C UNIT	1-NO. 12 BLACK, 1-NO. 12 WHITE, 1-NO. 12 GREEN
MDP > EOB	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)

**GE Healthcare Technologies**  
Installation Services Design Center  
Milwaukee, Wisconsin

SHEET TITLE: ELECTRICAL LAYOUT  
MODALITY TYPE: 1.5T SIGMA EXCITE HD

THIS PLAN IS SUBMITTED TO SUBMIT LOCATION OF HEALING EQUIPMENT AND ASSOCIATED APPARATUS, ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS. IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM TO ALL LOCAL, STATE AND FEDERAL REQUIREMENTS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING ALL LOCAL, STATE AND FEDERAL REQUIREMENTS. GE HEALTHCARE TECHNOLOGIES SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE: 8-186f  
TYPICAL LAYOUT

PROJECT: 8-186f  
REVISION: 02  
DATE: 10-10-07  
DRAWN BY: SDB  
CHECKED BY: PMM

REVISION HISTORY:

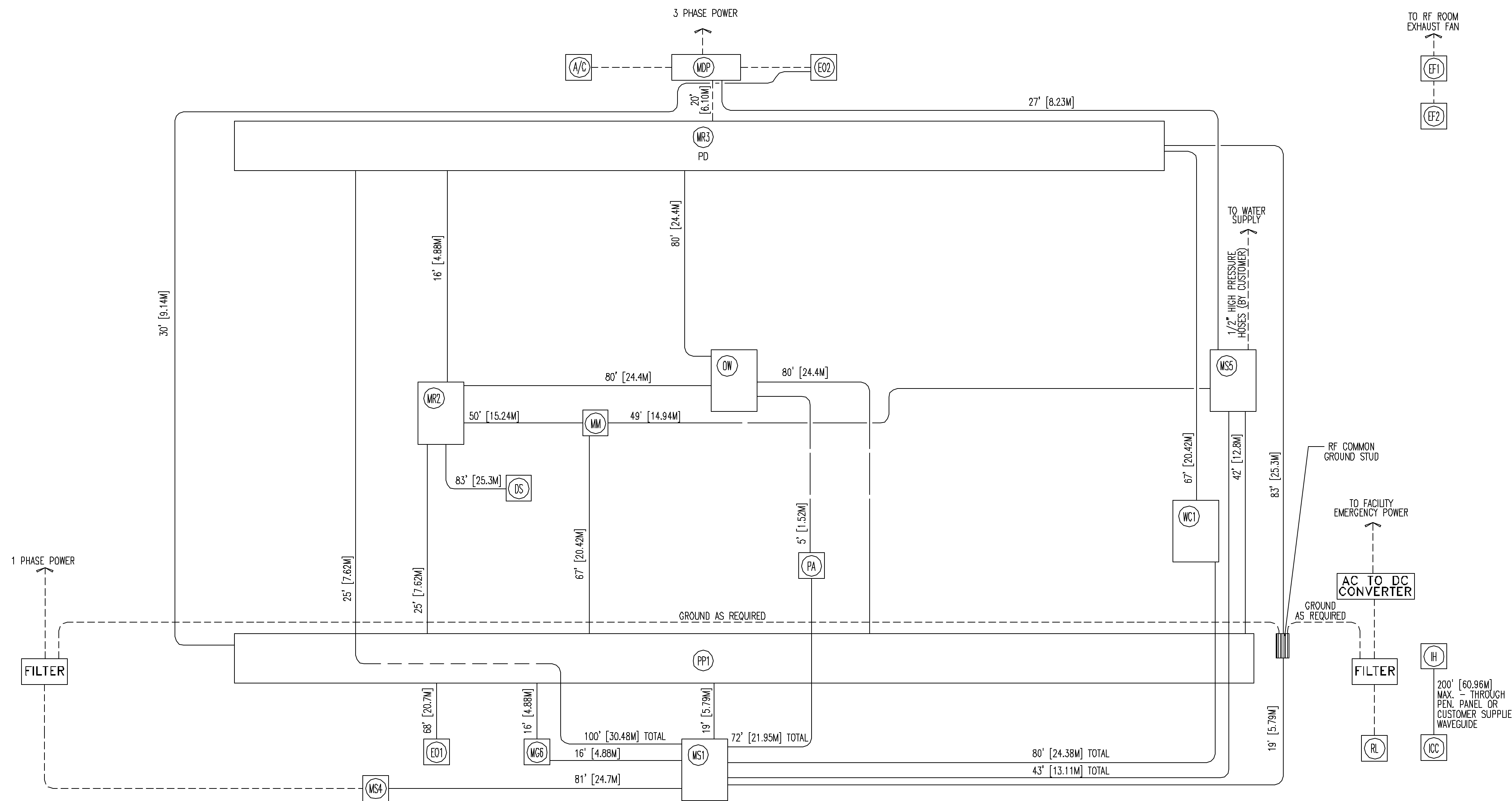
SHEET  
E1

This drawing is based on Sketch No.: 8-206

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

NF5H-1002

INTERCONNECT DIAGRAM



NOTE: CABLE LENGTH DATA

THE USABLE LENGTHS OF CABLES DISPLAYED ARE FOR CABLE KIT M3143PE. 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 M3143PE WILL NEED TO BE ORDERED.

INTERCONNECTS		RELATIVE LENGTHS BY CATALOG		
LOCATION	DESCRIPTION	M3143PE	M3144PE	M3145PE
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 MR 1.5/3.0T SYSTEMS (REV. DATE 06/11/07)

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	113	82	125-A
400	360-440	107	78	100-A
415	374-456	103	75	100-A
480	432-528	89	65	90-A

PHASE-BALANCE.

PHASE-TO-PHASE VOLTAGES MUST BE WITHIN 2 PERCENT OF THE LOWEST PHASE-TO-PHASE VOLTAGE. MAXIMUM ALLOWABLE TRANSIENT VOLTAGE EXCURSIONS ARE 1.8 PERCENT OF RATED LINE VOLTAGE AT A MAXIMUM DURATION OF 1 CYCLE AND FREQUENCY OF 10 TIMES PER HOUR.

POWER DEMAND

MAXIMUM POWER DEMAND = 74 KVA.  
 74 KVA CONSISTING OF 65 KVA FOR PDU + 9 KVA (CONTINUOUS OPERATION) FOR SHIELD/CRYO COOLER CABINET.

TABLE B MAXIMUM POWER DEMAND.

DEMAND	SIGNA SYSTEM
kVa *	74
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 HOUR OR LONGER.  
 REFER TO DIRECTION LISTED ON C1 FOR ADDITIONAL INFORMATION.

ELECTRICAL NOTES

- NOTE 1: ALL WIRES SPECIFIED SHALL BE STRANDED, FLEXIBLE, THERMO-PLASTIC, COLOR CODED, COPPER ONLY, CUT 10 FOOT LONG AT OUTLET BOXES, DUCT TERMINATION POINTS OR STUBBED CONDUIT ENDS, UNLESS OTHERWISE SPECIFIED. ALL CONDUCTORS, POWER, SIGNAL AND GROUND, MUST BE RUN IN CONDUIT OR DUCT SYSTEM. ELECTRICAL CONTRACTOR SHALL RING OUT AND TAG ALL WIRES AT BOTH ENDS. WIRE RUNS MUST BE CONTINUOUS COPPER AND FREE FROM SPLICES.
- 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., OTHER THAN SHOWN ON THIS DRAWING 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.

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

**GE Healthcare Technologies**  
 Installation Services Design Center  
 Milwaukee, Wisconsin

SHEET TITLE: ELECTRICAL SPECIFICATIONS  
 MODALITY TYPE: 1.5T SIGNA EXCITE HD  
 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 EQUIPMENT MANUFACTURER'S REQUIREMENTS. IT IS NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF GE HEALTHCARE. GE HEALTHCARE ACCEPTS NO RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
 8-186f  
 TYPICAL LAYOUT

PROJECT	REVISION
8-186f	02

DATE: 10-10-07  
 DRAWN BY: SDB  
 CHECKED BY: PMM

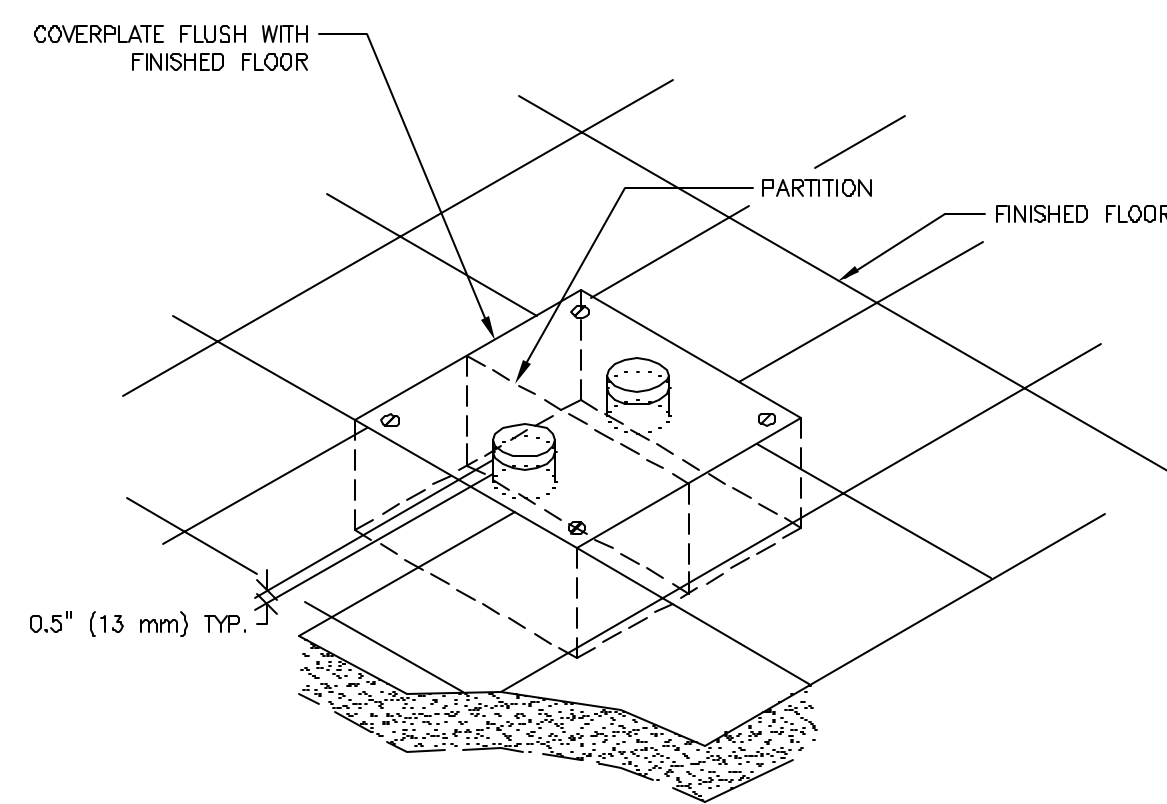
REVISION HISTORY:


SHEET  
 E2

This drawing is based on Sketch No.: B-206

ELECTRICAL DETAIL  
FLOOR BOX WITH NIPPLES (TYPICAL)

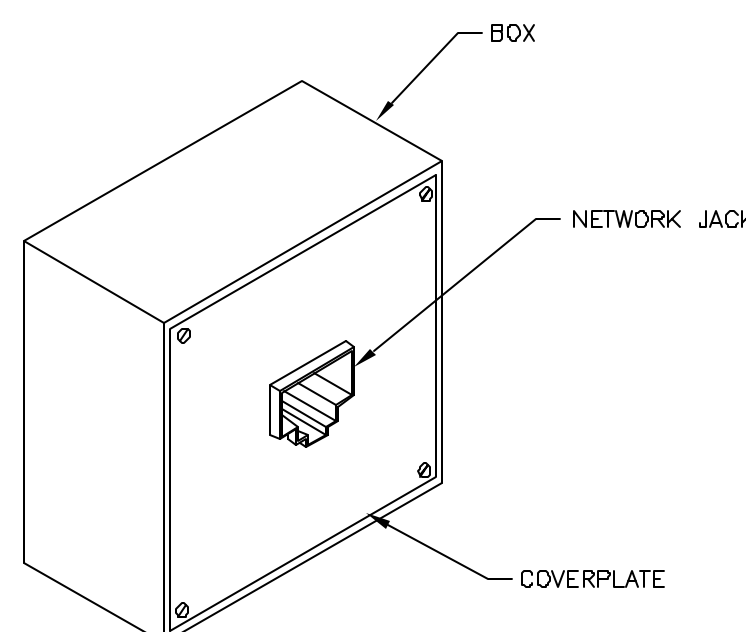
ELEC-13  
REV. DATE: 09/30/94



DETAIL NOT TO SCALE

ELECTRICAL DETAIL  
BOX WITH COVERPLATE AND NETWORK JACK

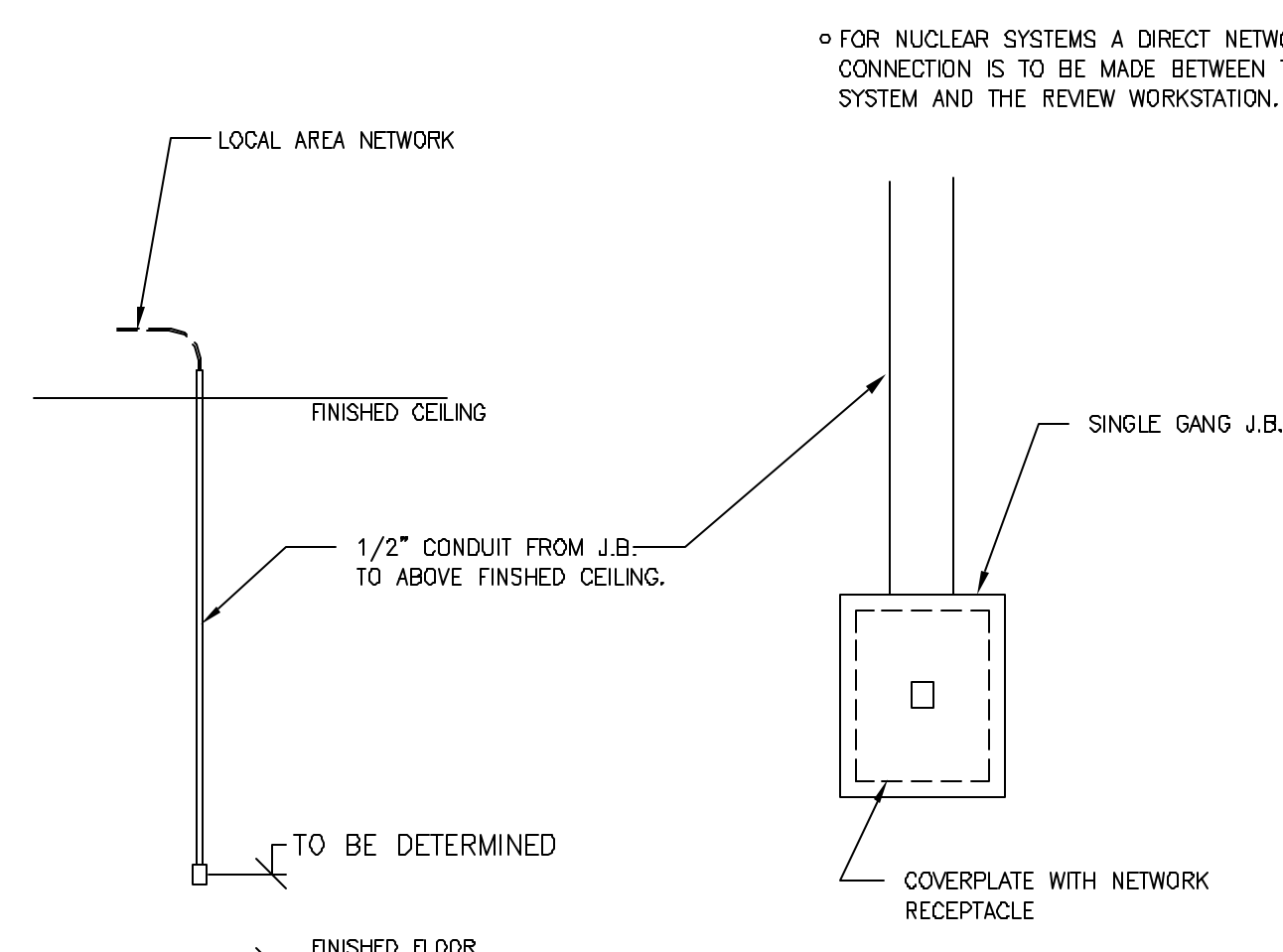
ELEC-83  
REV. DATE: 10/06/98



DETAIL NOT TO SCALE

ELECTRICAL DETAIL  
NETWORK CONNECTION (TYPICAL)

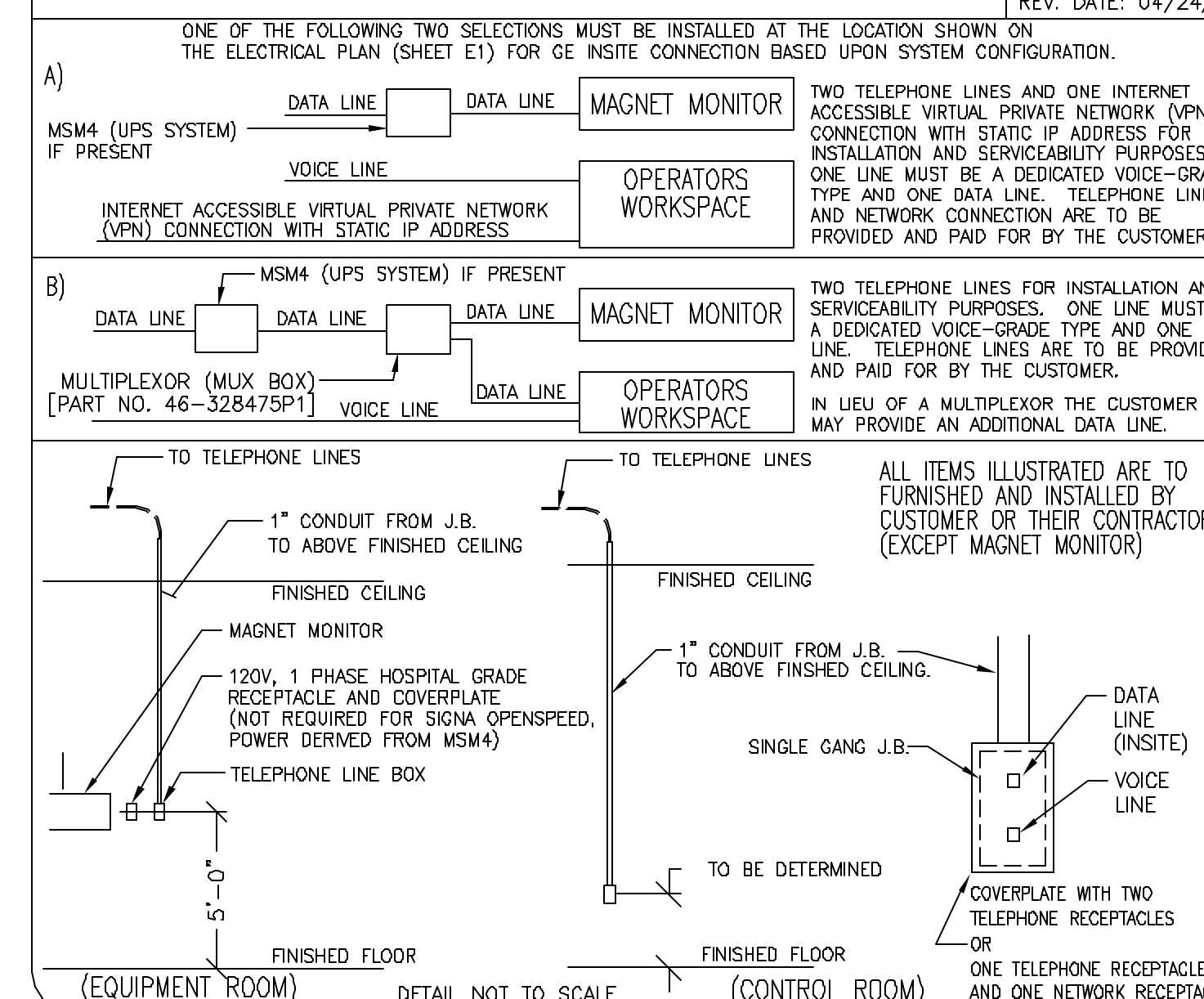
ELEC-84  
REV. DATE: 03/06/04



DETAIL NOT TO SCALE

ELECTRICAL DETAIL  
MAGNET MONITOR/INSITE CONNECTION

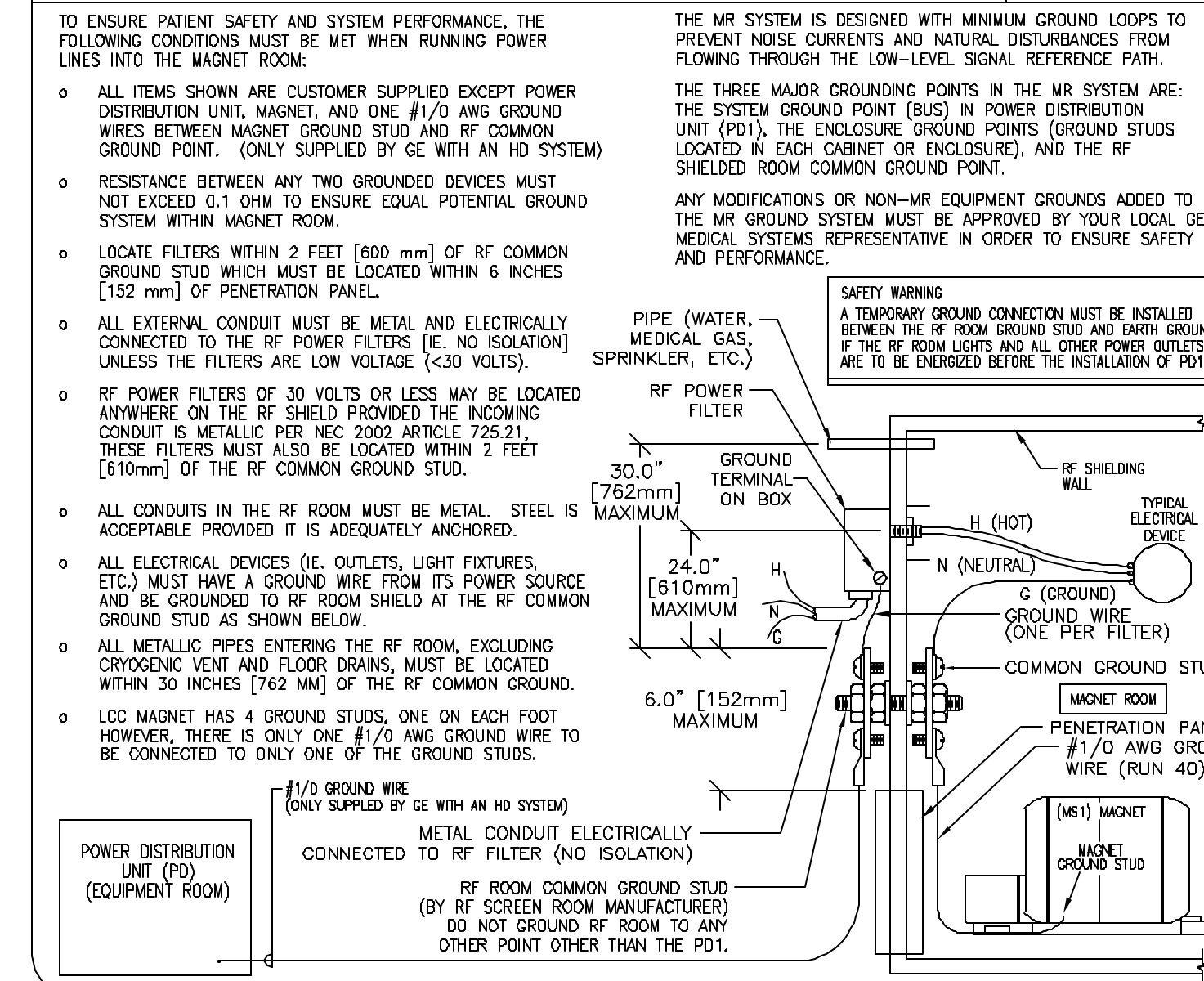
ELEC-78  
REV. DATE: 04/24/01



DETAIL NOT TO SCALE

ELECTRICAL DETAIL  
TYPICAL MAGNET ROOM GROUNDING

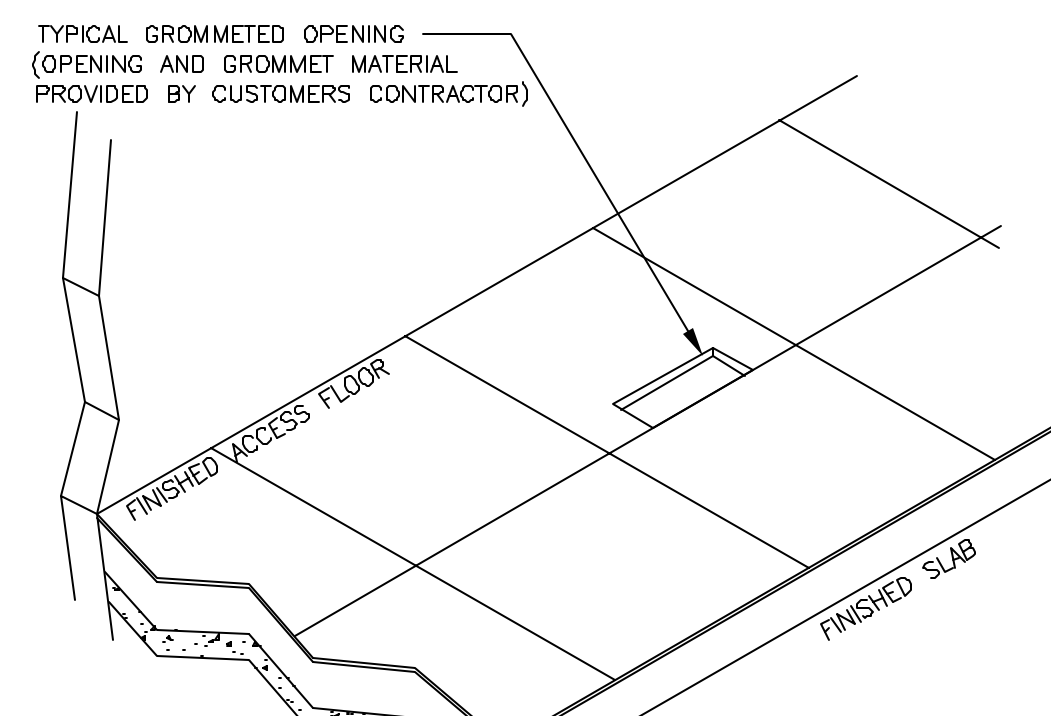
ELEC-140  
REV. DATE: 08/23/05



DETAIL NOT TO SCALE

ELECTRICAL DETAIL  
GROMMETED OPENING - ACCESS FLOORING (TYPICAL)

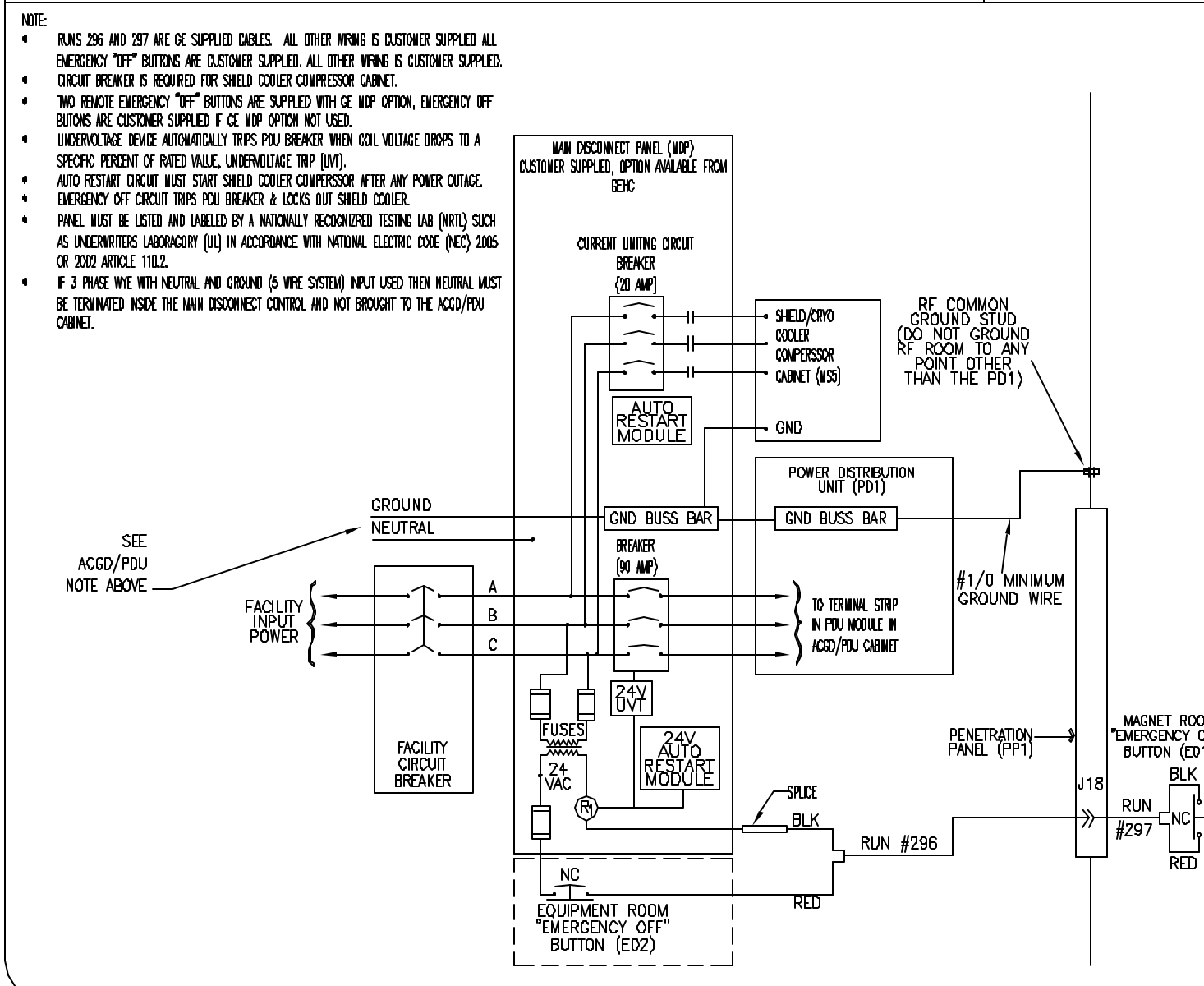
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REV. DATE: 04/21/05



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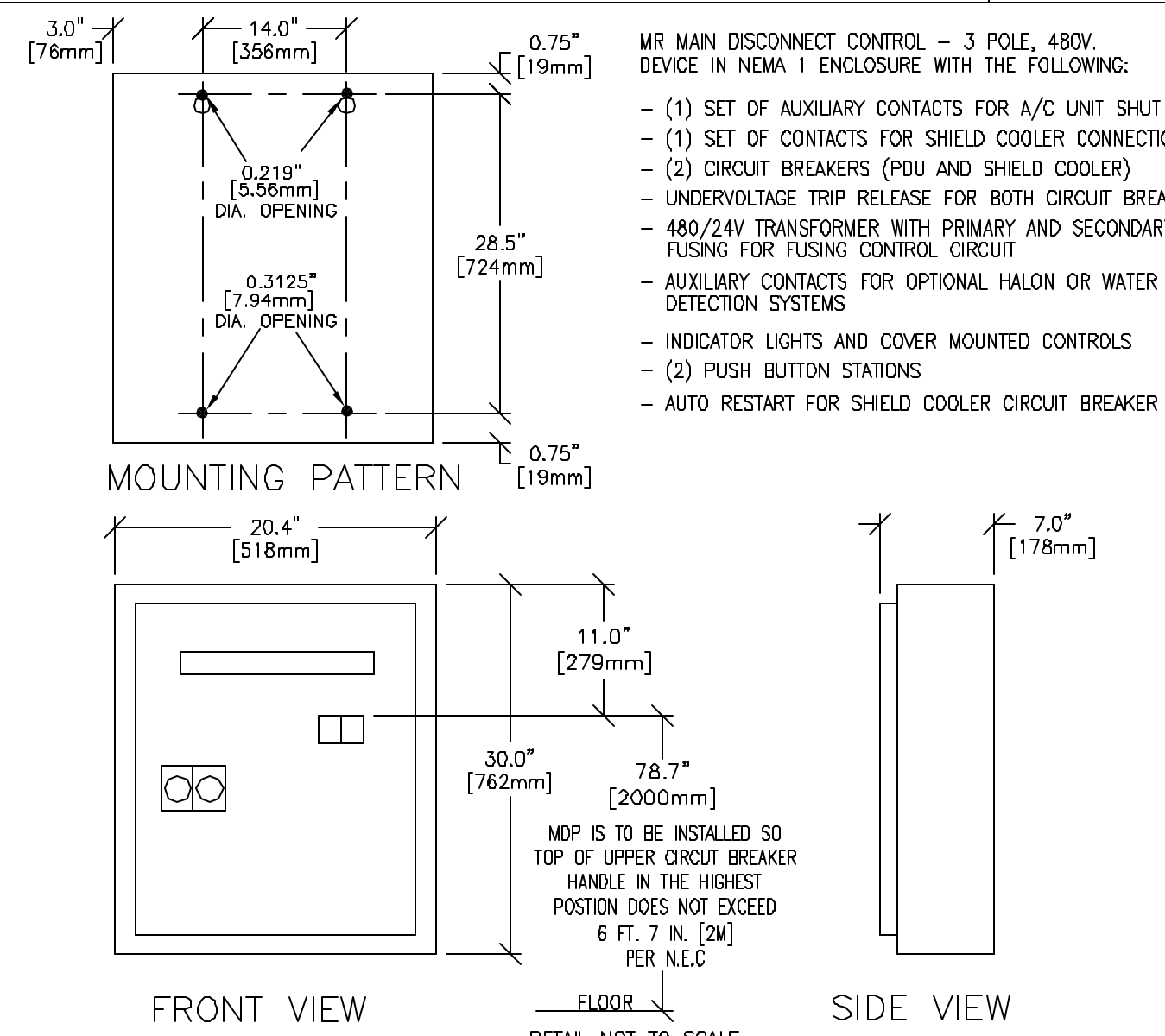
ELECTRICAL DETAIL  
PROTECTIVE DISCONNECT SETUP

ELEC-139  
REV. DATE: 10/20/06



ELECTRICAL DETAIL  
MAIN DISCONNECT CONTROL

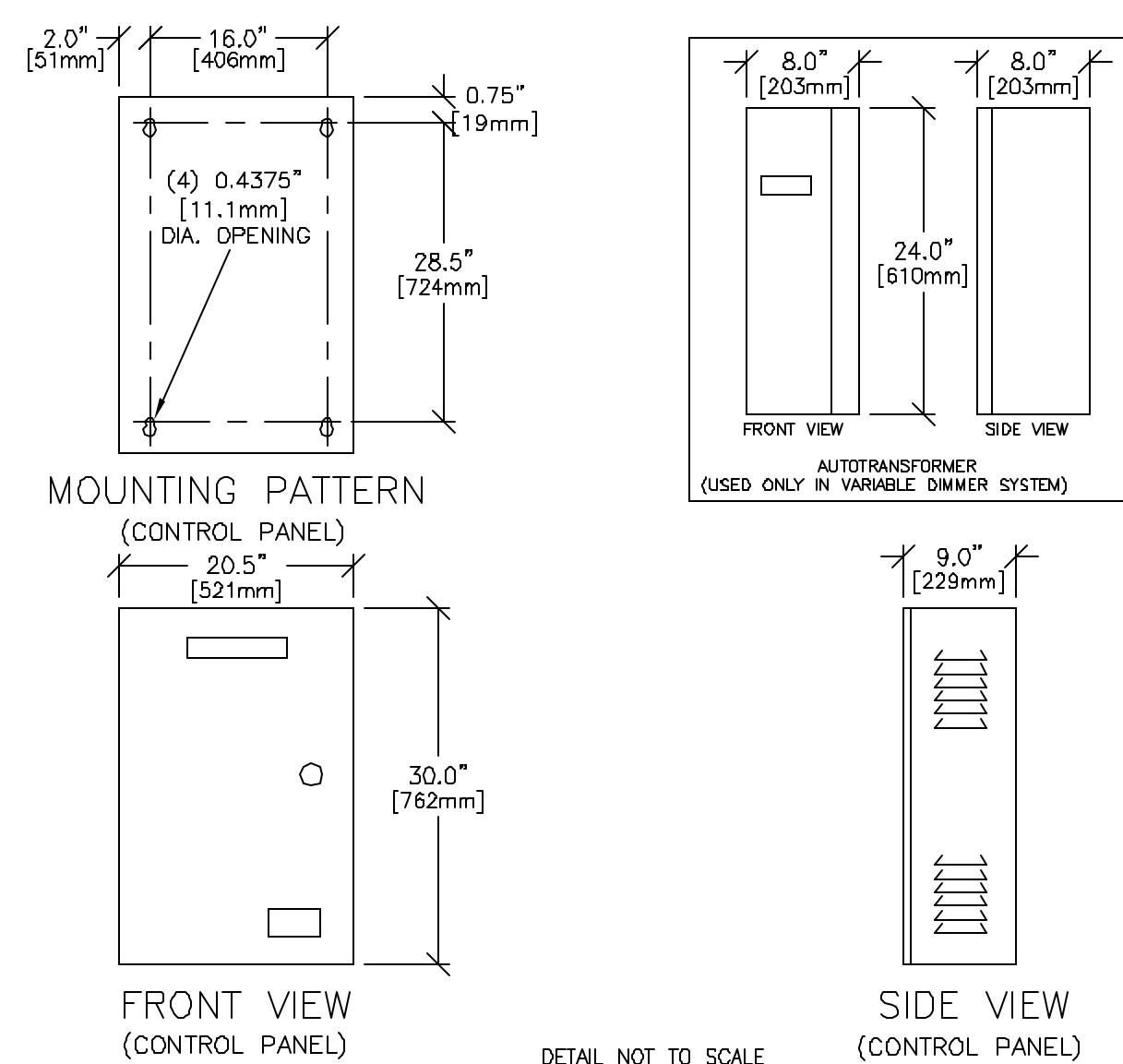
ELEC-57  
REV. DATE: 08/22/05



DETAIL NOT TO SCALE

ELECTRICAL DETAIL  
DC LIGHTING CONTROLLER

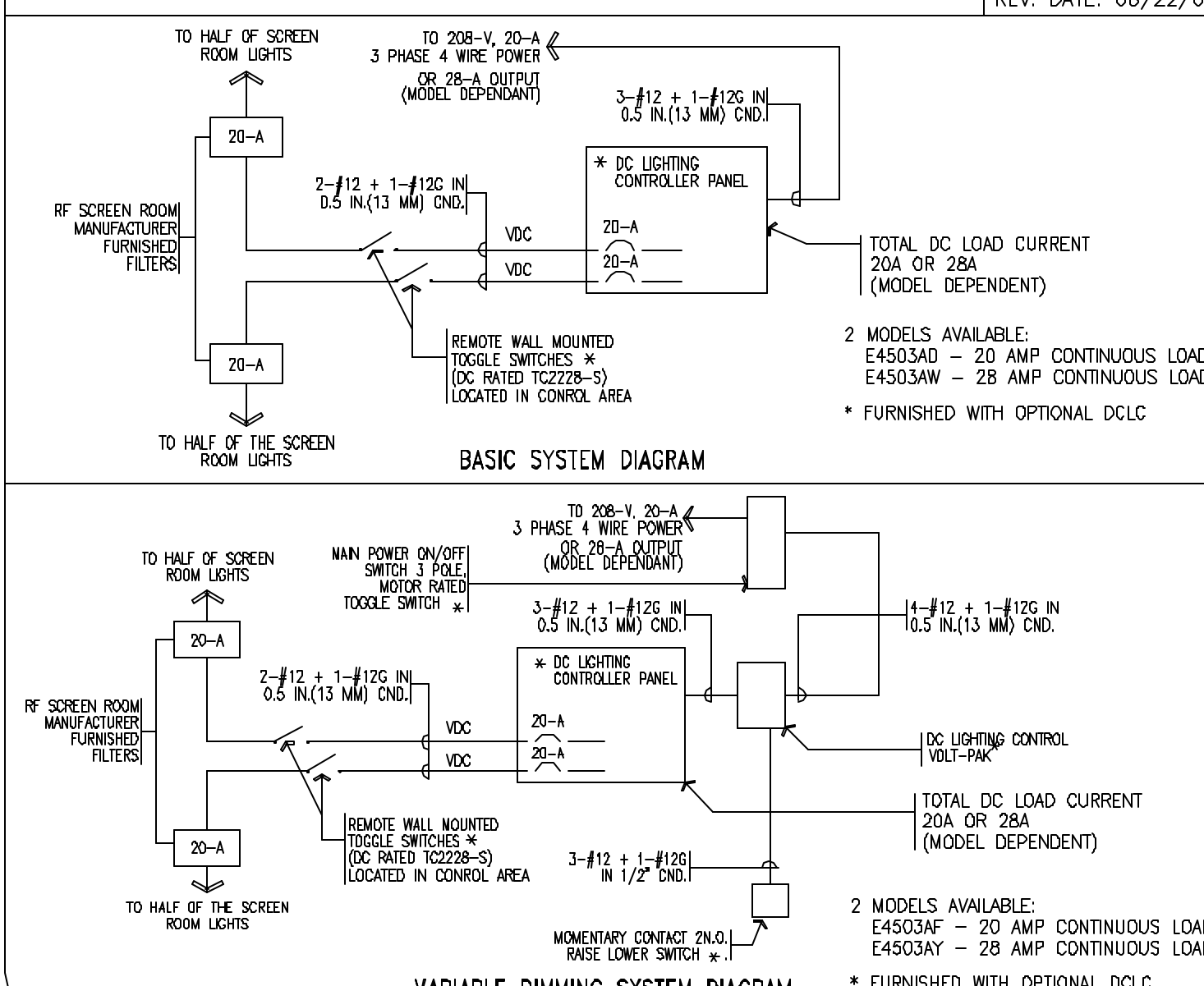
ELEC-51  
REV. DATE: 08/22/05



DETAIL NOT TO SCALE

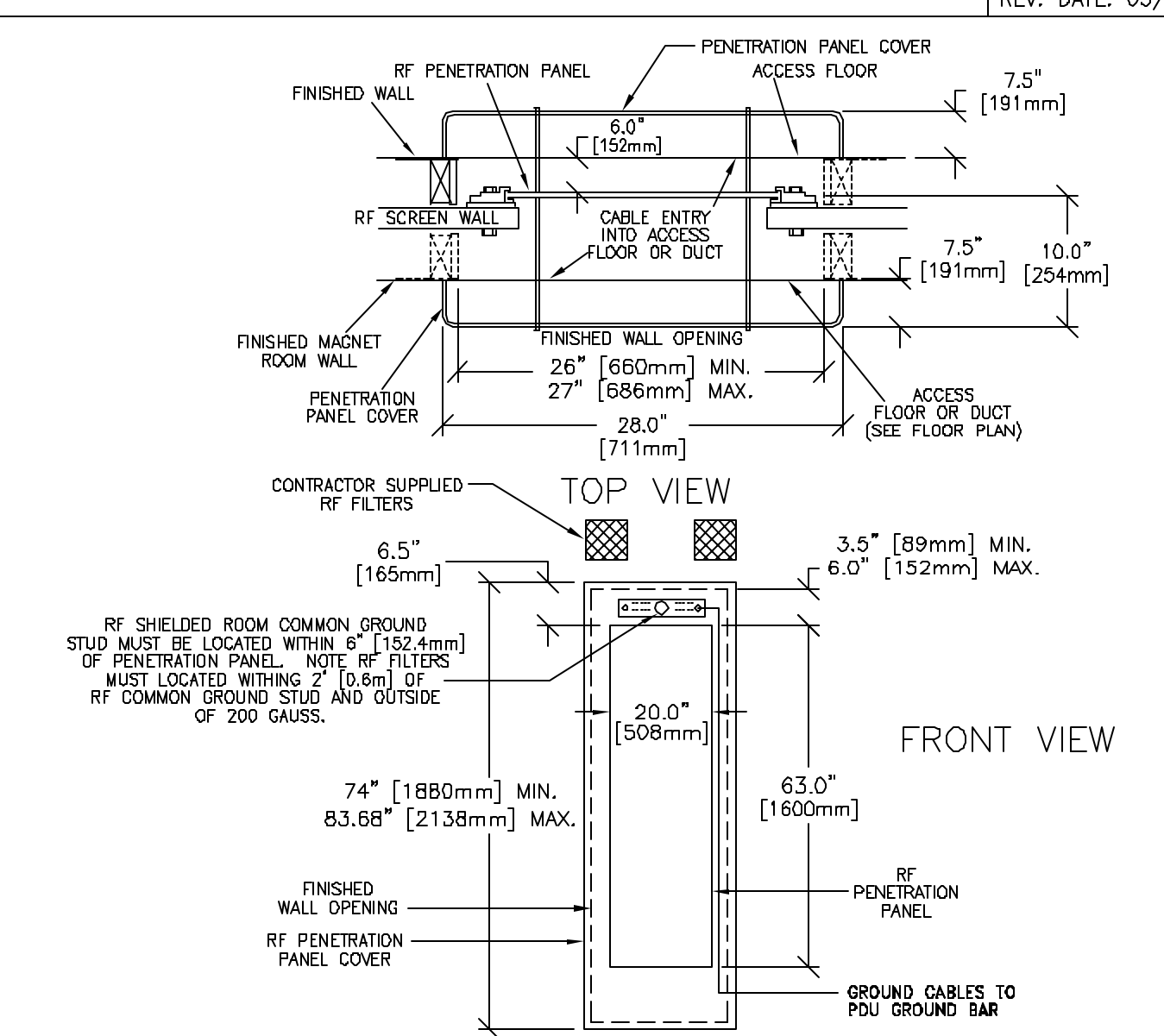
ELECTRICAL DETAIL  
DC LIGHTING CONTROLLER SYSTEM DIAGRAM

ELEC-54  
REV. DATE: 08/22/05



ELECTRICAL DETAIL  
PENETRATION PANEL COVER MOUNTING REQUIREMENTS

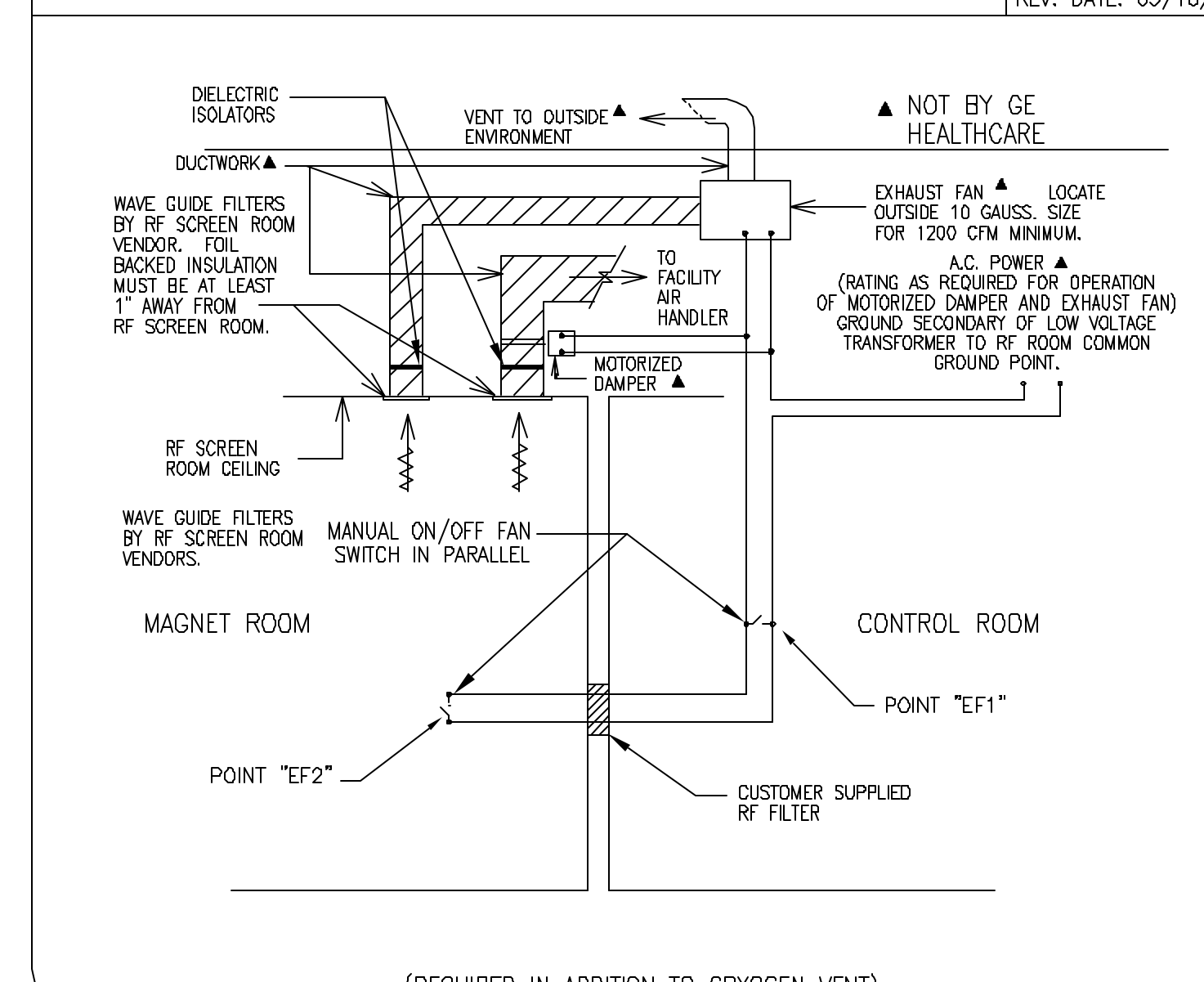
ELEC-52  
REV. DATE: 03/01/96



DETAIL NOT TO SCALE

ELECTRICAL DETAIL  
TYPICAL RF SCREEN ROOM EXHAUST FAN SET-UP

ELEC-55  
REV. DATE: 03/18/05



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

**GE Healthcare Technologies**  
Installation Services Design Center  
Milwaukee, Wisconsin

SHEET TITLE: ELECTRICAL DETAILS  
MODALITY TYPE: 1.5T SIGNA EXCITE HD

THIS PLAN IS SUBMITTED TO SUBJECT LOCATION OF GE HEALTHCARE EQUIPMENT AND ASSOCIATED APPLIANCE. ELECTRICAL WORKING DETAILS AND ROOM ARRANGEMENTS IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM TO DETAILS IN THE DRAWING. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE INFORMATION PROVIDED HEREIN. GE HEALTHCARE TECHNOLOGIES SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
8-186f  
TYPICAL LAYOUT

PROJECT	REVISION
8-186f	02

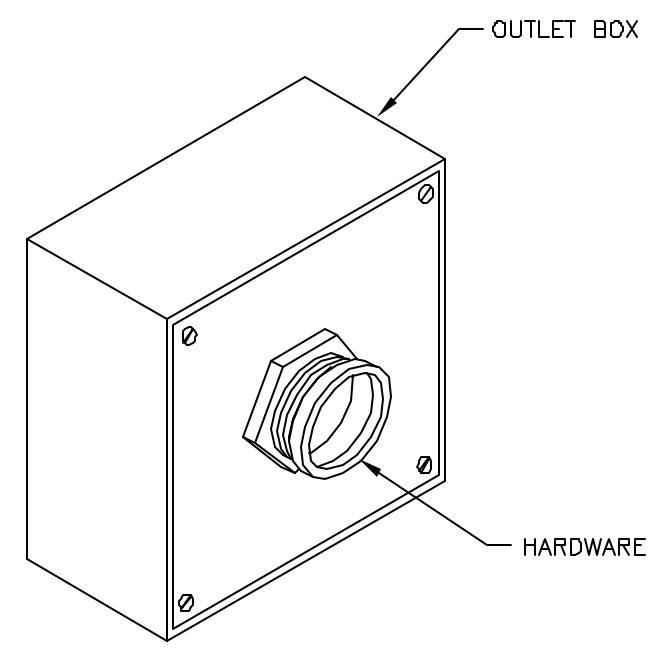
DATE: 10-10-07  
DRAWN BY: SDB  
CHECKED BY: PMM

REVISION HISTORY:


SHEET  
E3

ELECTRICAL DETAIL  
BOX WITH COVERPLATE (TYPICAL)

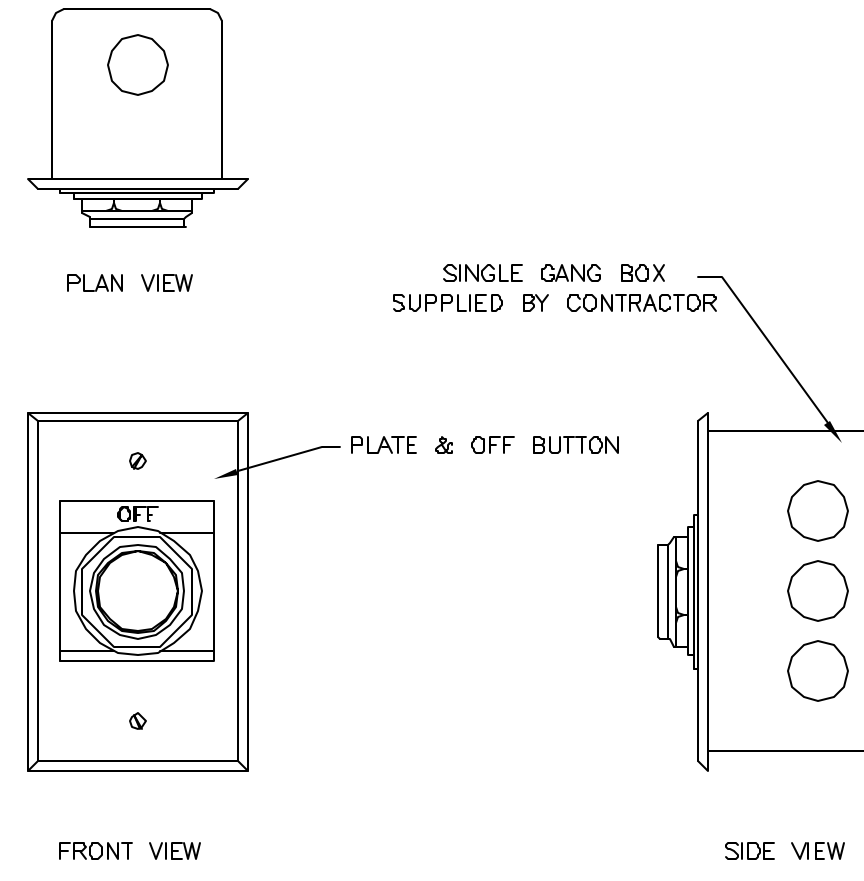
ELEC-8  
REV. DATE: 09/30/94



DETAIL NOT TO SCALE

ELECTRICAL DETAIL  
EMERGENCY OFF BUTTON

ELEC-16  
REV. DATE: 08/22/05



DETAIL NOT TO SCALE

This drawing is based on Sketch No.: 8-206

PROJECT TITLE:

8-186f  
TYPICAL LAYOUT

SHEET TITLE: ELECTRICAL DETAILS  
MODALITY TYPE: 1.5T SIGNA EXCITE HD

THIS PLAN IS SUBMITTED TO SUGGEST LOCATION OF HEALTHCARE EQUIPMENT AND ASSOCIATED APPARATUS. ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM DETAILS TO STANDARD EQUIPMENT DIMENSIONS. HOWEVER, IT MAY BE USED FOR OTHER THAN INTENDED PURPOSES. THE USER SHALL BE RESPONSIBLE FOR VERIFYING DIMENSIONS AND ACCEPT RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT	REVISION
8-186F	02
DATE:	10-10-07
DRAWN BY:	SDB
CHECKED BY:	PMM

REVISION HISTORY:

SHEET  
E4



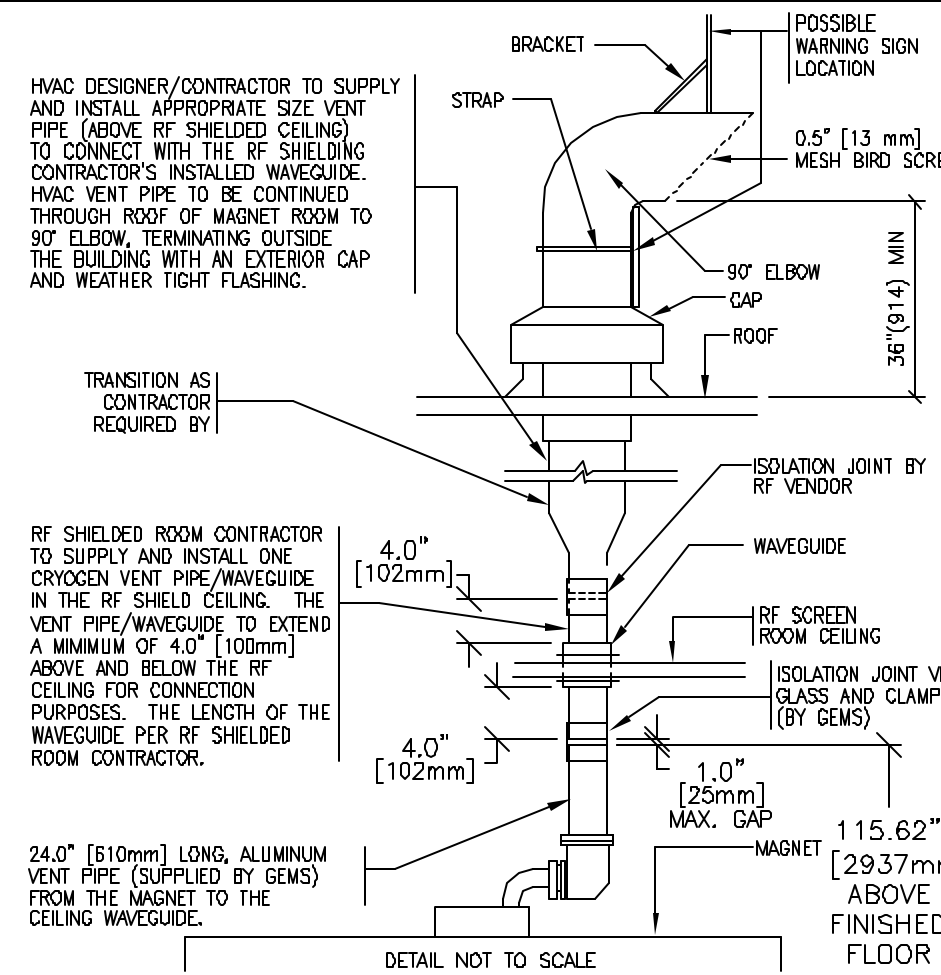
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Installation Services Design Center  
Milwaukee, Wisconsin



TYPICAL CRYOGEN VENT PIPE DETAIL

MECH-01

REV. DATE: 10/26/05



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.

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 DWV.M OR L

CRYOGENIC VENT SYSTEM PRESSURE DROP MATRIX (A)

MECH-04

REV. DATE: 10/04/02

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

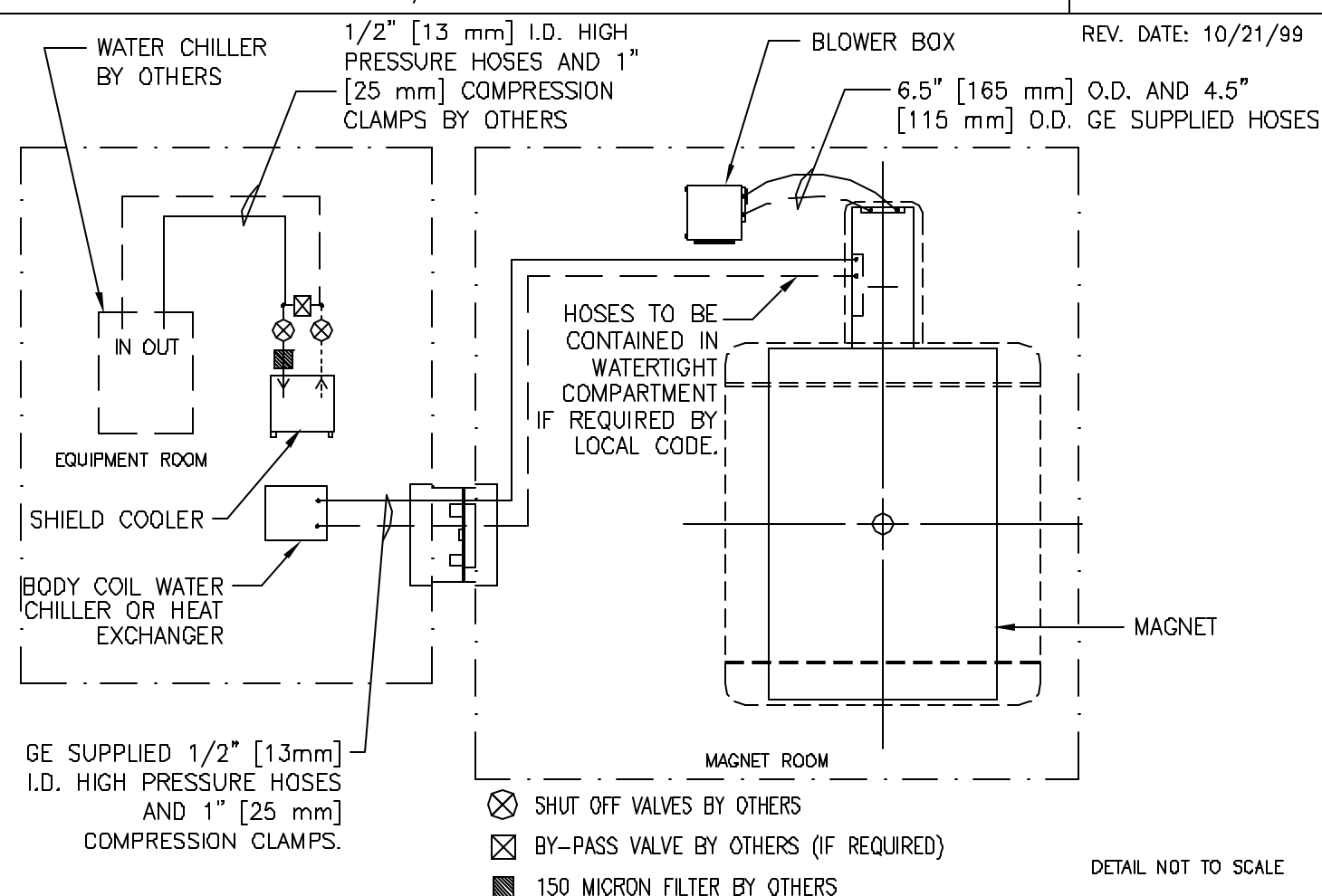
INLET DIAMETER OF VENT PIPE (in./mm)	CRYOGENIC VENT SYSTEM PRESSURE DROP MATRIX FOR A MAGNET WITH 8" (203mm) VENT.		PRESSURE DROP PER ELBOW USED ANYWHERE WITHIN 20 ft. VENT SEGMENT			
	DISTANCE OF VENT SYSTEM COMPONENT FROM MAGNET SURFACE (ft./m)	PRESSURE DROP WITH SMOOTH INSIDE SURFACE (psi/ft. (KPa/m))	STANDARD SWEEP 45° ELBOW (psi) (KPa)	STANDARD SWEEP 90° ELBOW (psi) (KPa)	LONG SWEEP 45° ELBOW (psi) (KPa)	LONG SWEEP 90° 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 (12.78)
	40-60 (12.2-18.3)	0.38 (8.60)	3.80 (26.51)	6.71 (46.27)	1.85 (12.78)	3.36 (23.17)
	60-100 (18.3-30.5)	0.57 (10.63)	4.92 (31.17)	8.22 (56.68)	2.26 (15.98)	4.11 (28.34)
10(254)	0-20 (0-6.1)	0.16 (3.70)	0.83 (5.82)	1.51 (10.41)	0.41 (2.83)	0.75 (5.17)
	20-40 (6.1-12.2)	0.32 (7.40)	1.66 (11.64)	3.02 (20.82)	0.82 (5.74)	1.50 (10.34)
	40-60 (12.2-18.3)	0.49 (10.90)	2.49 (17.46)	4.54 (31.77)	1.23 (8.48)	2.25 (15.51)
	60-100 (18.3-30.5)	0.74 (16.38)	3.71 (26.17)	6.71 (46.27)	1.85 (12.78)	3.36 (23.17)
12(305)	0-20 (0-6.1)	0.21 (4.75)	1.10 (7.58)	2.06 (14.20)	0.55 (3.79)	1.03 (7.10)
	20-40 (6.1-12.2)	0.42 (9.50)	2.20 (15.16)	4.12 (28.34)	1.10 (7.58)	2.10 (14.48)
	40-60 (12.2-18.3)	0.63 (14.20)	3.30 (23.17)	6.22 (43.48)	1.66 (11.64)	3.22 (22.51)
	60-100 (18.3-30.5)	0.94 (20.82)	4.92 (31.17)	9.14 (63.25)	2.49 (17.46)	4.75 (33.11)

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 4.2 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 ft.  
E. 90° STANDARD SWEEP ELBOW K = 30 ft.  
F. 45° LONG SWEEP ELBOW K = 7.5 ft.  
G. 90° LONG SWEEP ELBOW K = 15 ft.  
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 18 IN. (456mm) VENT PIPE DIAMETERS REFER TO PRE-INSTALLATION MANUAL REFERENCED ON SHEET C1.

TYPICAL WATER/AIR COOLING CONNECTIONS

MECH-06

REV. DATE: 10/21/99



WATER COOLING SPECIFICATIONS

MECH-07

REV. DATE: 06/13/07

A CLOSED LOOP WATER COOLING SYSTEM IS REQUIRED FOR THE SHIELD COOLER COMPRESSOR. OPEN LOOP CITY WATER IS UNACCEPTABLE.

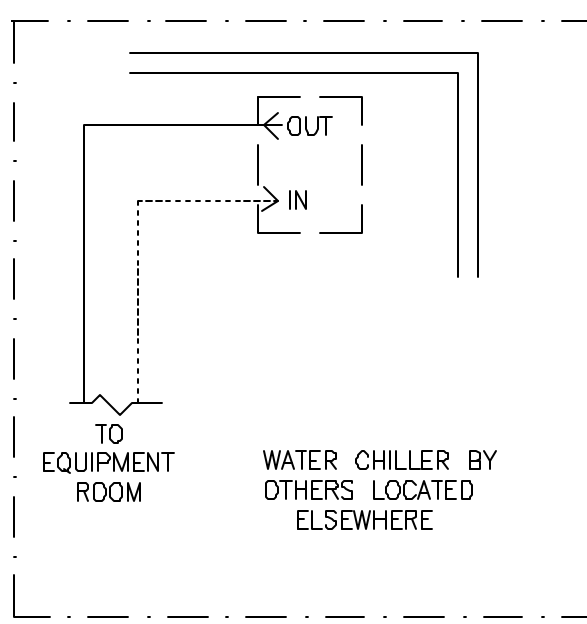
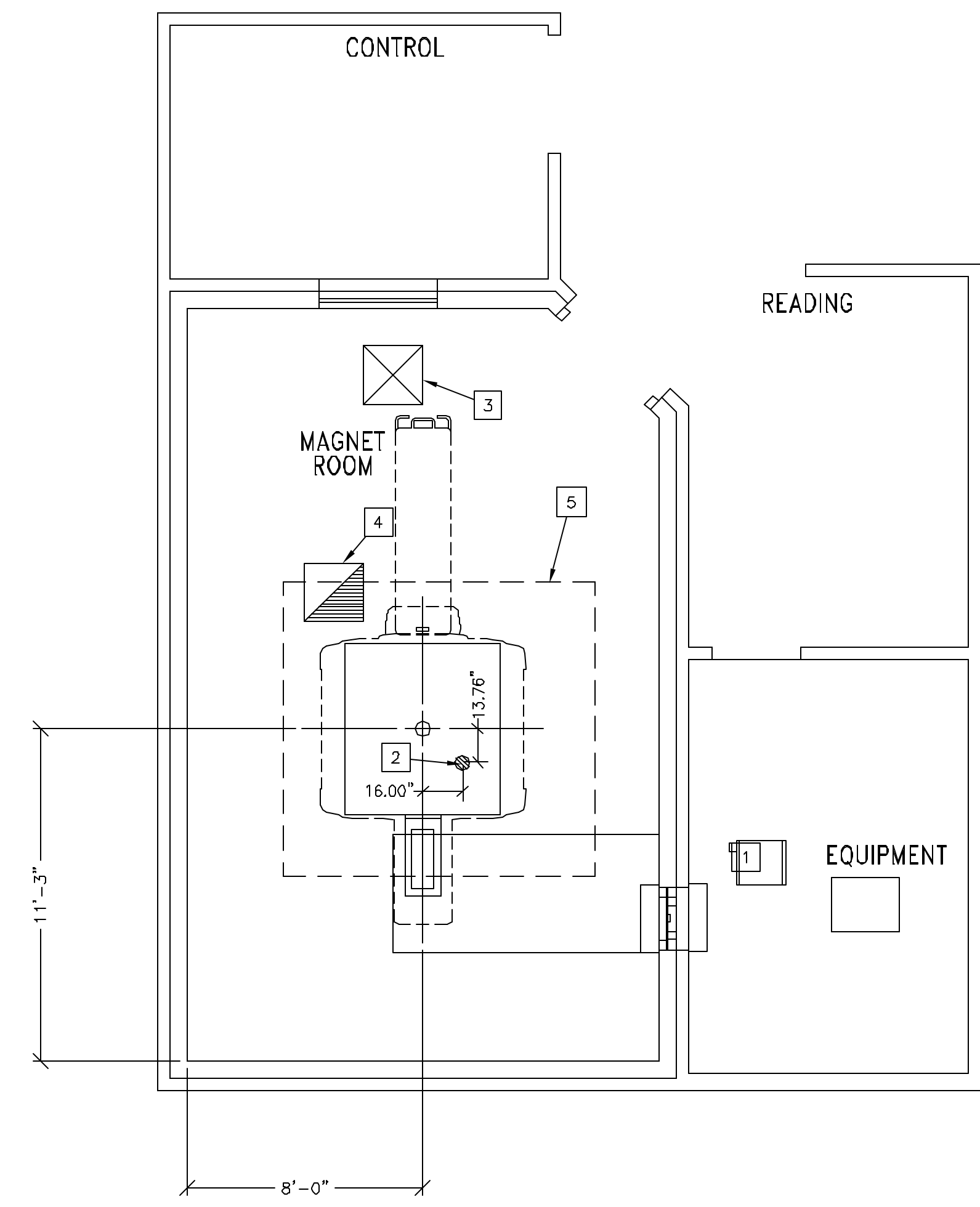
EQUIPMENT	INLET TEMPERATURE RANGE °F (°C)	INLET PRESS. psi (KPa)	RECOMMENDED FLOW RATE gal/min (liters/min)	PRESS. DROP psi (KPa)	TEMPERATURE RISE ΔT °F (°C)	TYPICAL HEAT OUTPUT BTU/Hr (WATTS)	MAXIMUM HEAT OUTPUT BTU/Hr (WATTS)
SHIELD/CRYO COOLER COMPRESSOR **	39.2-82.4 (4-28)	29(200)	MINIMUM 1.1 (4) AT MIN FLOW RATE 7.5 (52) See Notes 2, 3, 9	MINIMUM 1.1 (4) AT MIN FLOW RATE 7.5 (52) See Notes 2, 5, 9	AT MIN FLOW RATE 48.4 (26.9)	25590 (7500)	28320* (8300)
		MAX. 100(690)	MAXIMUM 2.6 (10.0) AT MAX FLOW RATE 17 (33.4) See Notes 2, 3, 9	MAXIMUM 17 (33.4) AT MAX FLOW RATE 19.4 (10.8) See Notes 2, 5, 9	AT MAX FLOW RATE 19.4 (10.8)	See Note 6	See Note 6

NOTES:  
\* ENSURE WATER COOLING SYSTEM CAPACITY IS CAPABLE OF DISSIPATING MAXIMUM HEAT OUTPUT.  
\*\* THESE WATER COOLING SPECIFICATIONS ARE THE REQUIREMENTS AT THE EQUIPMENT. THE COOLING SYSTEM DESIGN MUST HAVE ALLOWANCES FOR PRESSURE/TEMPERATURE CHANGES DUE TO DISTANCE THE CHILLER IS LOCATED FROM THE EQUIPMENT.  
1. PRESSURE DROP AND WATER TEMPERATURE RISE ACROSS EQUIPMENT IS GIVEN FOR MINIMUM AND MAXIMUM RECOMMENDED FLOW RATES AS INDICATED. PRESSURE DROP IS MEASURED BETWEEN COOLANT INLET AND OUTLET AT COMPRESSOR UNIT.  
2. WATER FLOWMETER KIT (46-294DS201) IS AVAILABLE TO CHECK/MONITOR FLOW RATE FOR THE SHIELD COOLER COMPRESSOR. ADD 2 psi TO TOTAL SYSTEM PRESSURE DROP IF FLOWMETER IS PERMANENTLY INSTALLED IN SYSTEM.  
3. RECOMMEND A FLOWMETER BE PERMANENTLY INSTALLED IN SYSTEM, INCLUDE FLOWMETER DROP IN TOTAL SYSTEM PRESSURE DROP.  
4. SHIELD COOLER COMPRESSOR WATER FLOW RATE IS BASED ON INLET WATER TEMPERATURE OF 82.4° F (28° C). LOWER TEMPERATURE PERMITS LOWER FLOW. SEE DETAIL M16-15E FOR GRAPHIC WATER TEMPERATURE AND FLOW RATE ADMISSIBLE RANGE.  
5. MINIMUM FLOW RATE IS FOR CLEAN WATER WITHOUT ANTI-FREEZE, MAXIMUM FLOW RATE IS ANY MIXTURE OF WATER/ANTI-FREEZE.  
6. WATER FLOW RATE AND TEMPERATURE RISE VALUE ARE BASED ON WATER. LABORATORY GRADE ETHYLENE GLYCOL OR PROPYLENE GLYCOL ANTI-FREEZE MAY BE USED (DO NOT MIX ETHYLENE GLYCOL WITH PROPYLENE GLYCOL). PREFERRED CONCENTRATION IS 50% WATER AND 50% GLYCOL TO MINIMIZE ORGANIC GROWTH. CONCENTRATION OF 50/50 IS ACCEPTABLE WITH A HEAT OF 0.8 IN SPECIFIC HEAT CALCULATIONS AND A 20% INCREASE IN FLOW WITH A RESULTANT INTERNAL PRESSURE INCREASE OF 40%.  
7. PRESSURE DROP VALUES BASED ON NEW SYSTEM, MAY RISE DUE TO CALCIFICATION.  
8. SHIELD/CRYO COOLER TEMPERATURE RISE, TYPICAL AND MAXIMUM HEAT OUTPUT ARE REDUCED BY 18% AT 50 Hz OPERATION.  
9. WATER COOLING CIRCUIT TYPICAL VALUES:  
- WATER INLET FLOW 1.8 TO 2.1 GAL/MINUTE (7 TO 8 LITER/MINUTE)  
- WATER INLET TEMPERATURE 55.6 TO 59°F (12 TO 15°C)  
THERE IS A RISK OF DAMAGING THE SHIELD/CRYO COOLER COMP. WITH WATER INLET LOW TEMPERATURE AND LOW FLOW RANGE.

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	(2) 1/2" (13 mm) I.D. HIGH PRESSURE HOSES AND (4) 1" (25 mm) COMPRESSION CLAMPS, 150 MICRON FILTER, SHUT OFF VALVES AND BY-PASS VALVE AS REQUIRED. SEE DETAIL MECH-06. WATER QUALITY MUST BE 6.5-8.8 pH, A HARDNESS OF LESS THAN 200 ppm, SUSPENDED MATTER OF 10 mg PER LITER AND LESS THAN 150 MICRON PARTICLE SIZE. ANTI-FREEZE MINIMUM OF 25 PER CENT, MAXIMUM OF 50 PER CENT BY VOLUME. FOR WATER SPECIFICATIONS SEE DETAIL MECH-07 AND EQUIPMENT DETAIL M16-15E ON THE EQUIPMENT DETAIL SHEETS. 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 MR 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 (1 E. OFFSET CEILING EXITS, WALL EXITS, AND GEODESIC DOME) THE CUSTOMER'S CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF THE CRYOGENIC VENT SYSTEM AND VENT SUPPORTS WITHIN THE MAGNET ROOM. MINIMUM 8 FT. x 8 FT. (2.4 m x 2.4 m) PRESSURE EQUALIZING WAVEGUIDE VENT IN THE MAGNET ROOM CEILING. EXHAUST FAN AND AIR INLET MUST BE SIZED FOR A MINIMUM OF 1200 CFM (34 M <sup>3</sup> /MINUTE) AND A MINIMUM OF 18 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. MINIMUM CEILING HEIGHT REQUIREMENT AREA. REFER TO MAGNET EQUIPMENT DETAILS FOR MORE INFORMATION.

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 INSTALLATION REQUIREMENTS, SPECIFICATIONS AND GUIDELINES REFER TO THE PRE-INSTALLATION 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 Technologies**  
Installation Services Design Center  
Milwaukee, Wisconsin

SHEET TITLE: MECHANICAL LAYOUT  
MODALITY TYPE: 1.5T SIGNA EXCITE HD  
THIS PLAN IS SUBMITTED TO SUBMIT LOCATION OF THE HEALING 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. HOWEVER, THE USER SHALL BE RESPONSIBLE FOR VERIFYING ALL CODES AND REGULATIONS. THE USER SHALL BE RESPONSIBLE FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE: 8-186f  
TYPICAL LAYOUT

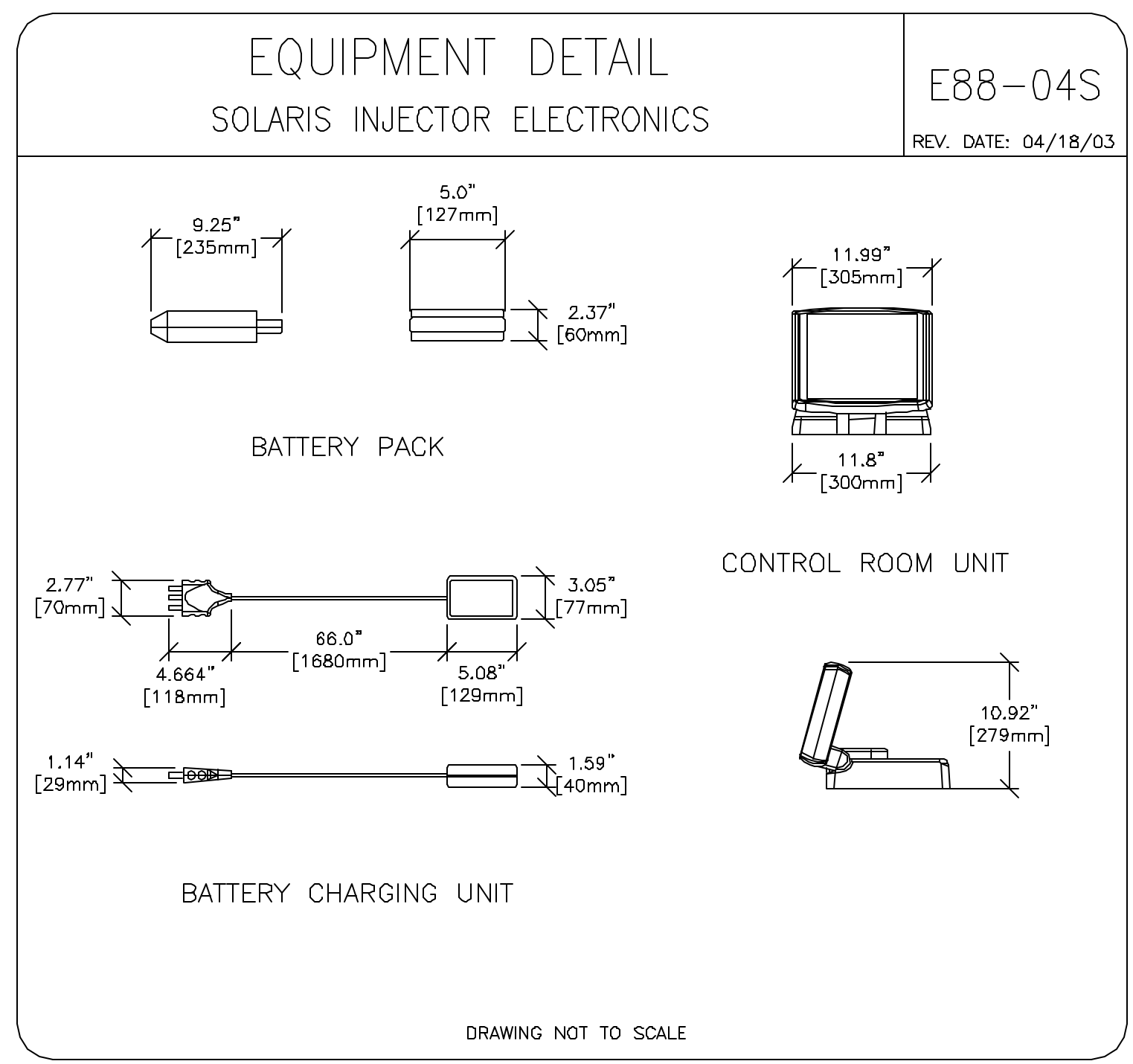
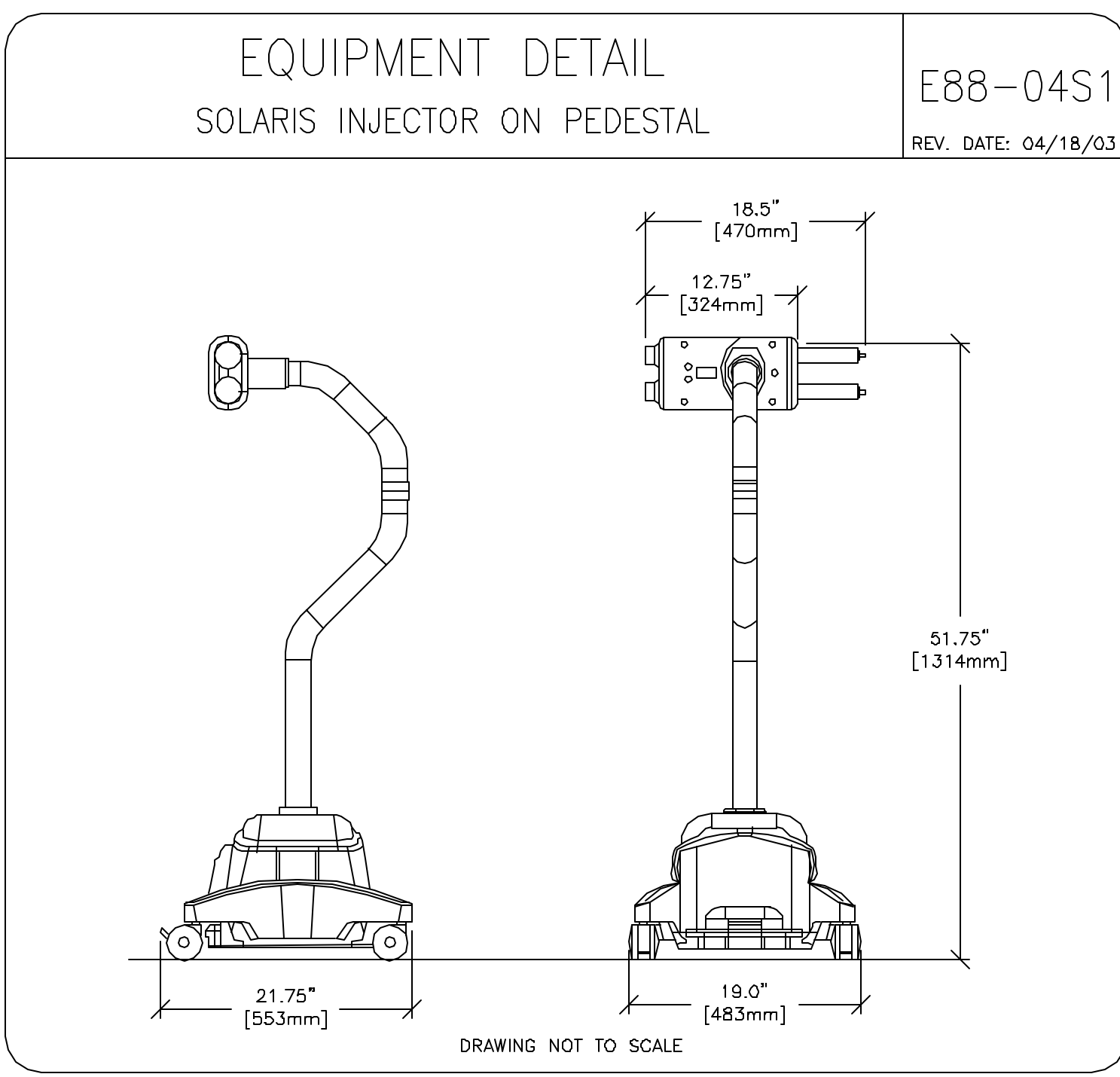
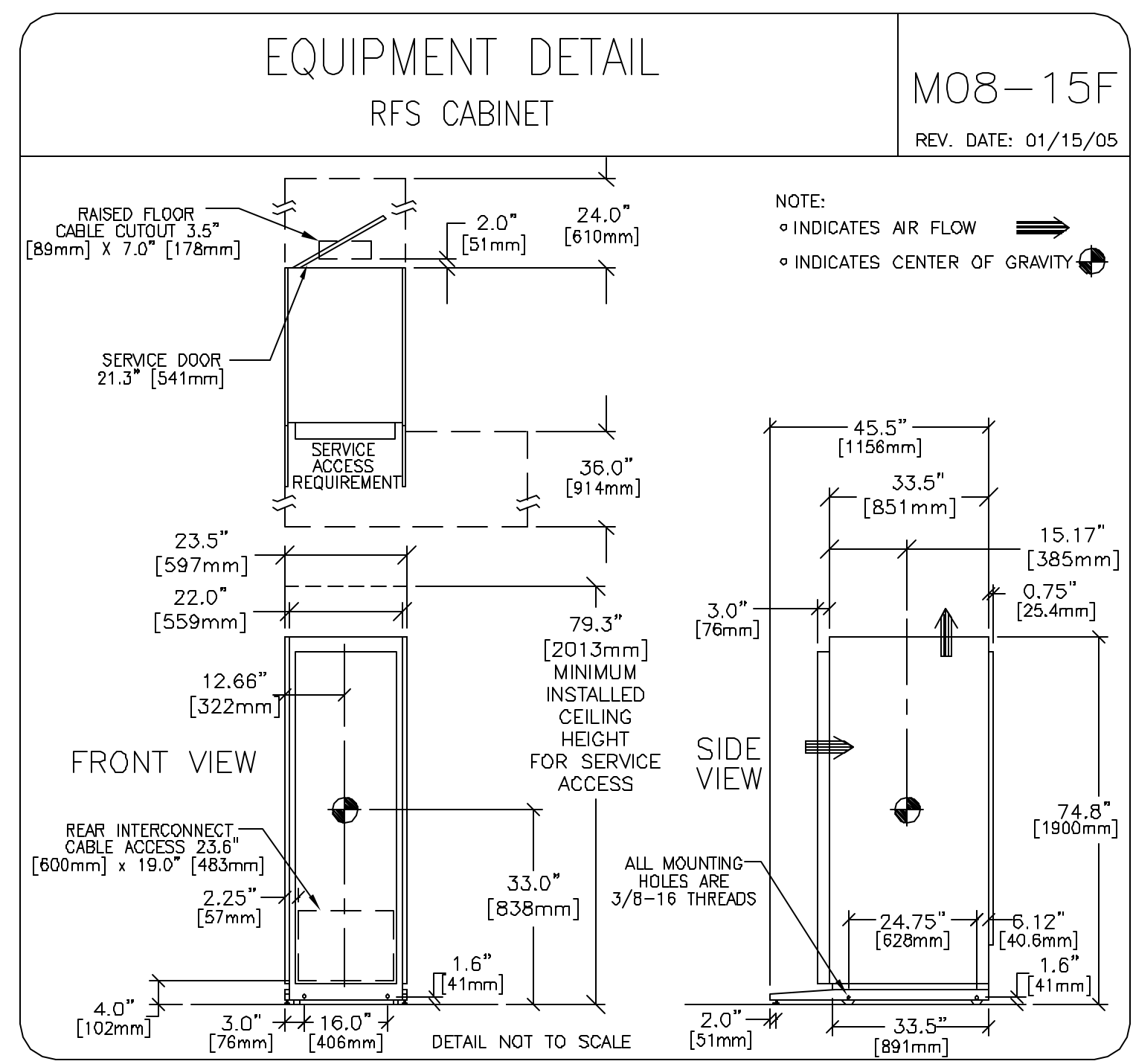
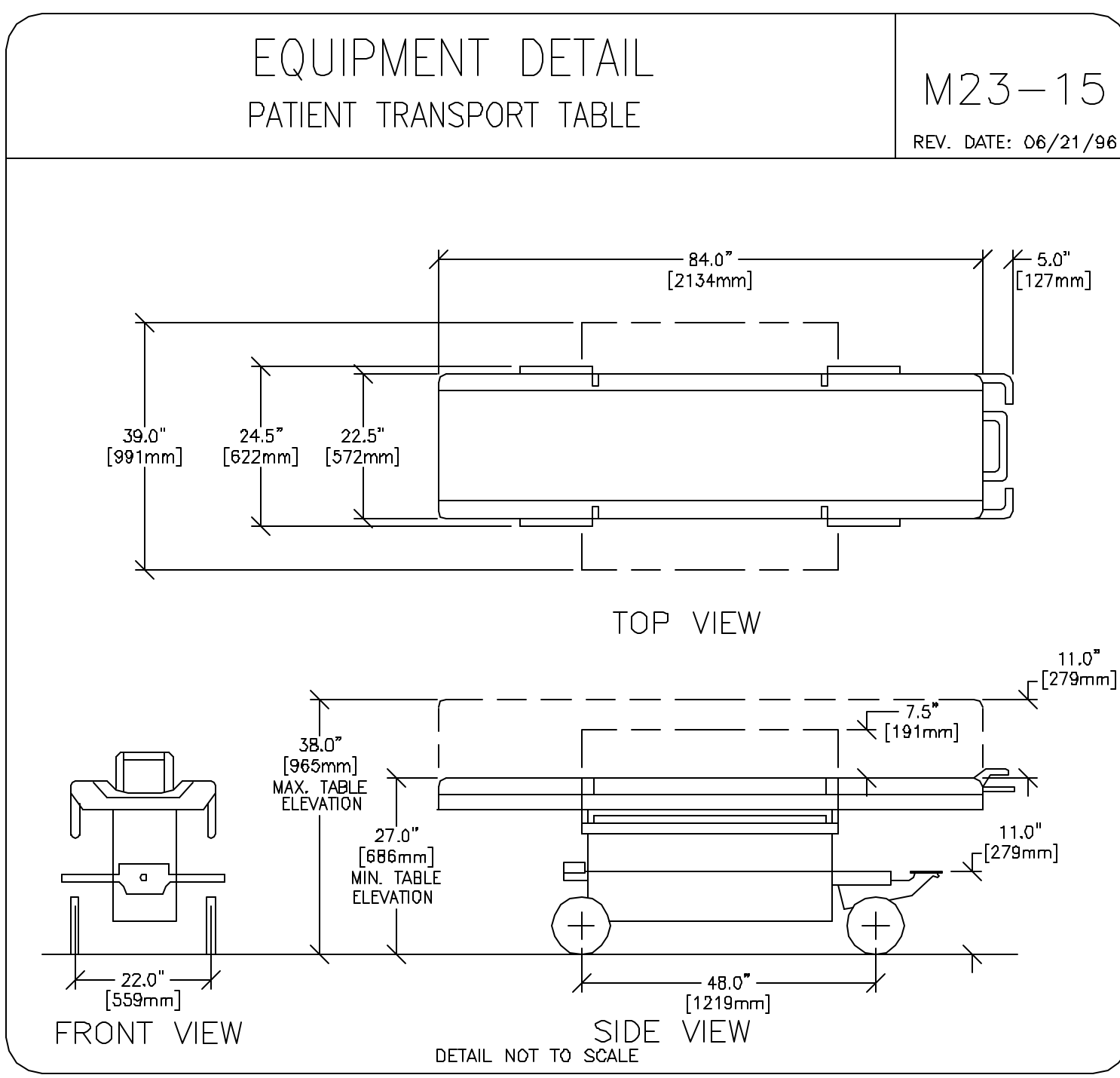
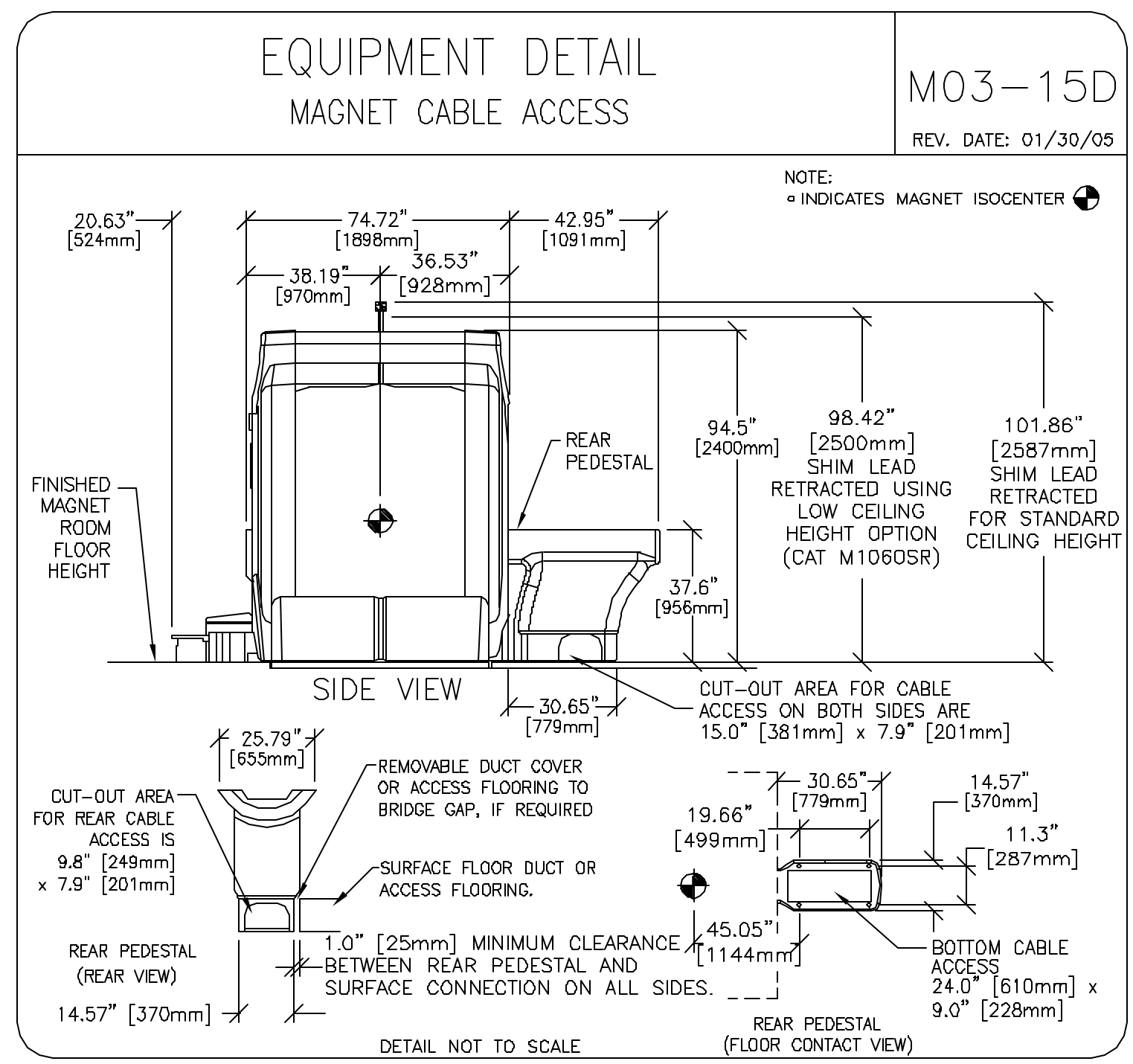
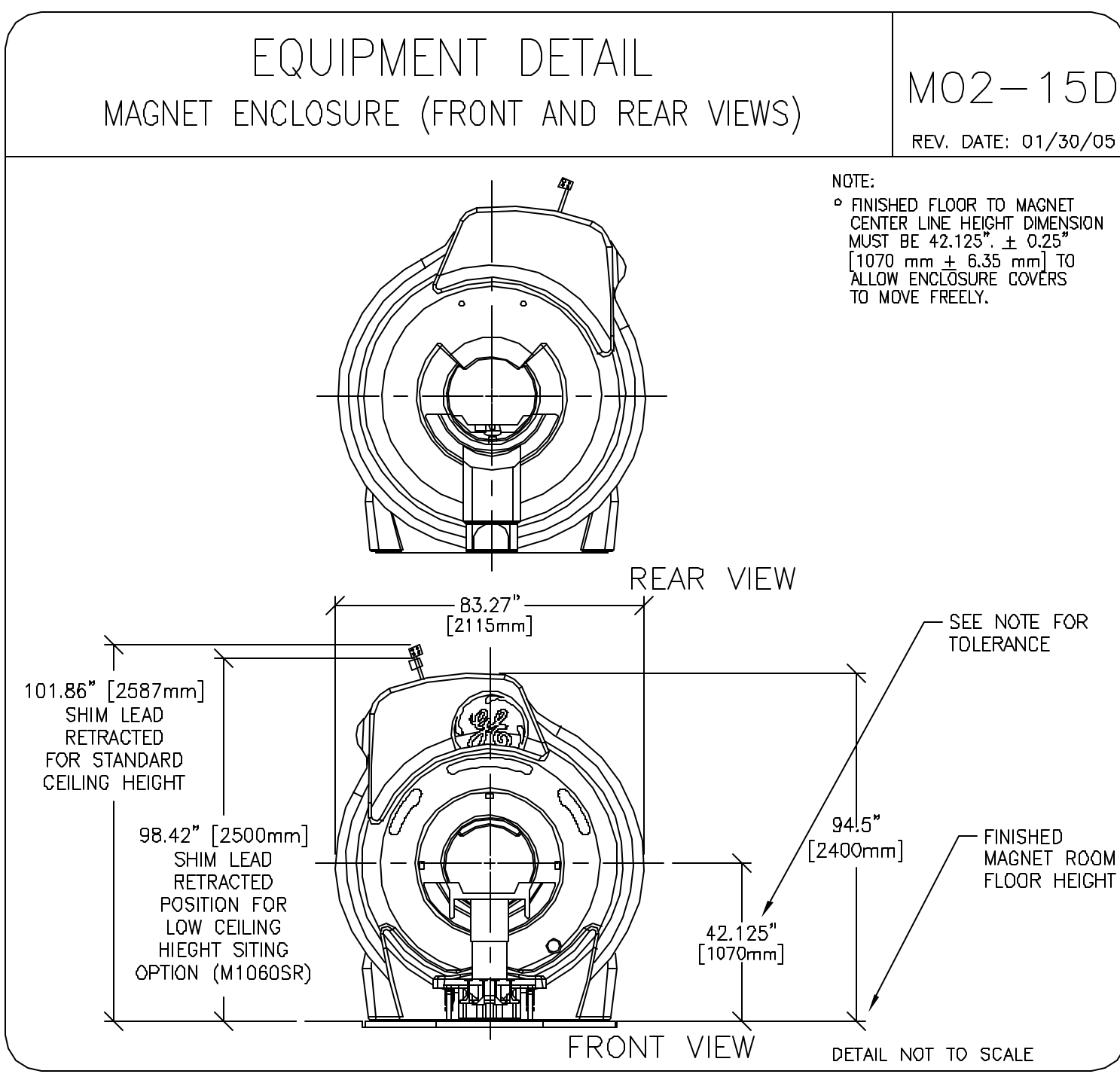
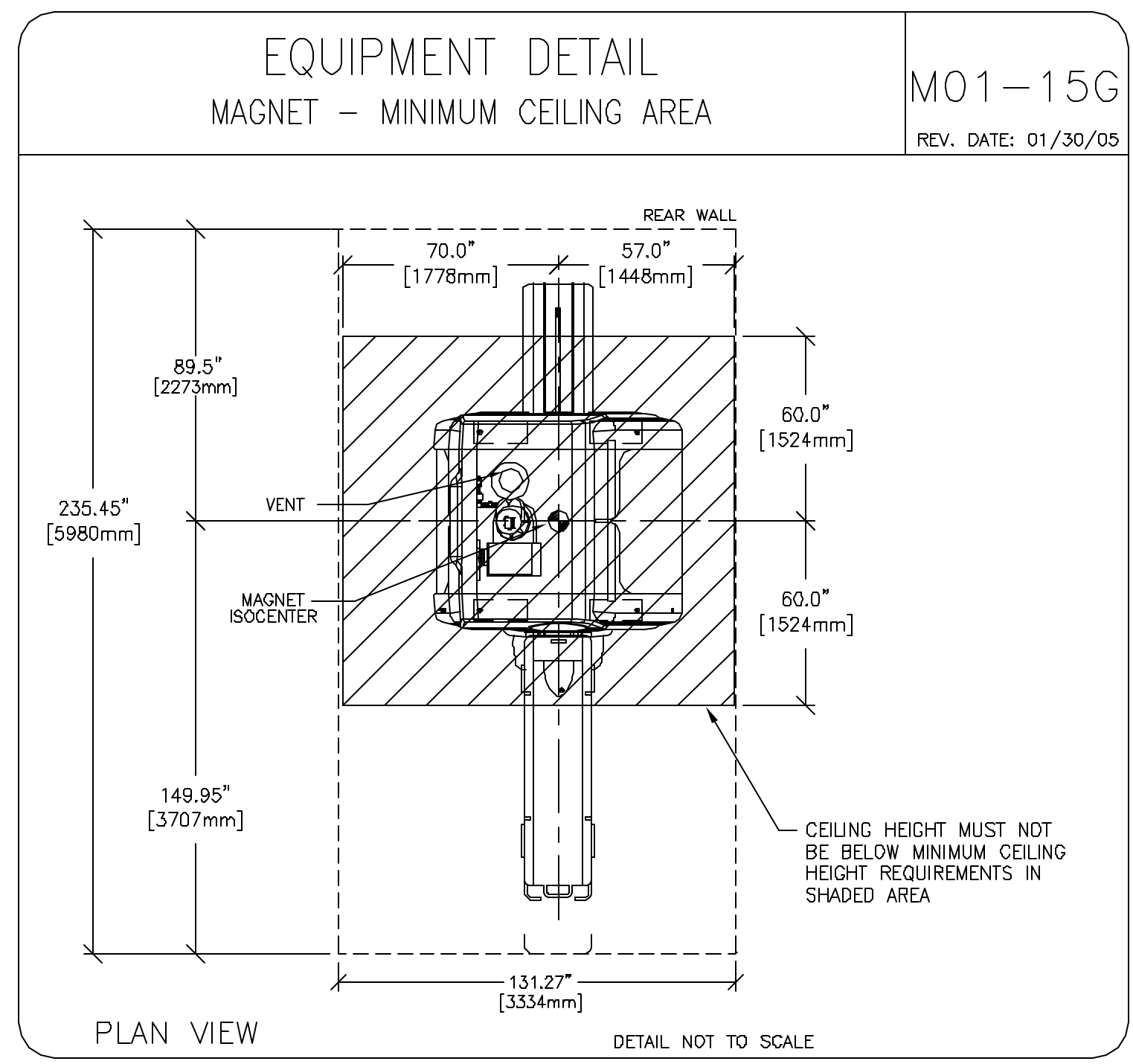
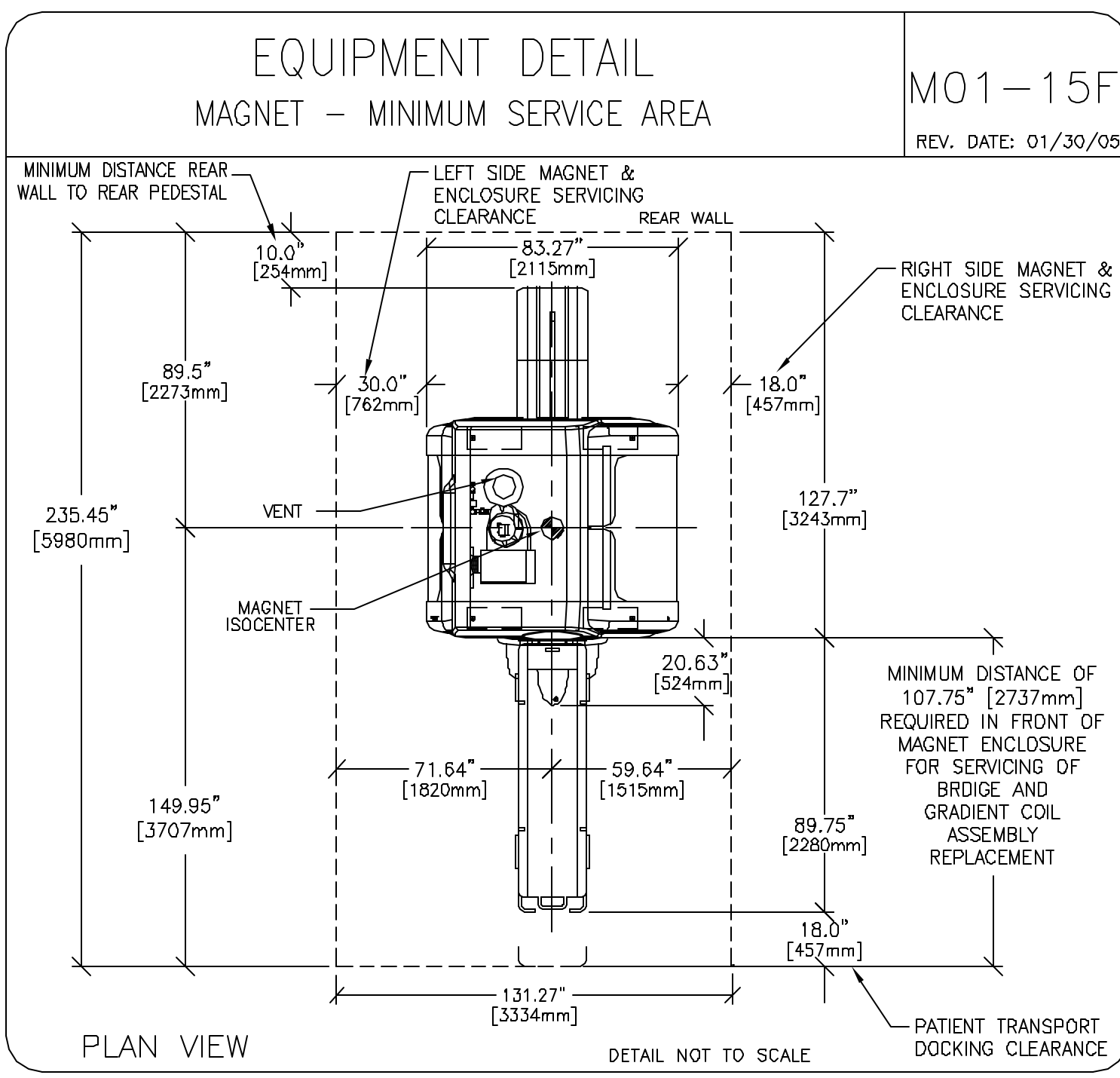
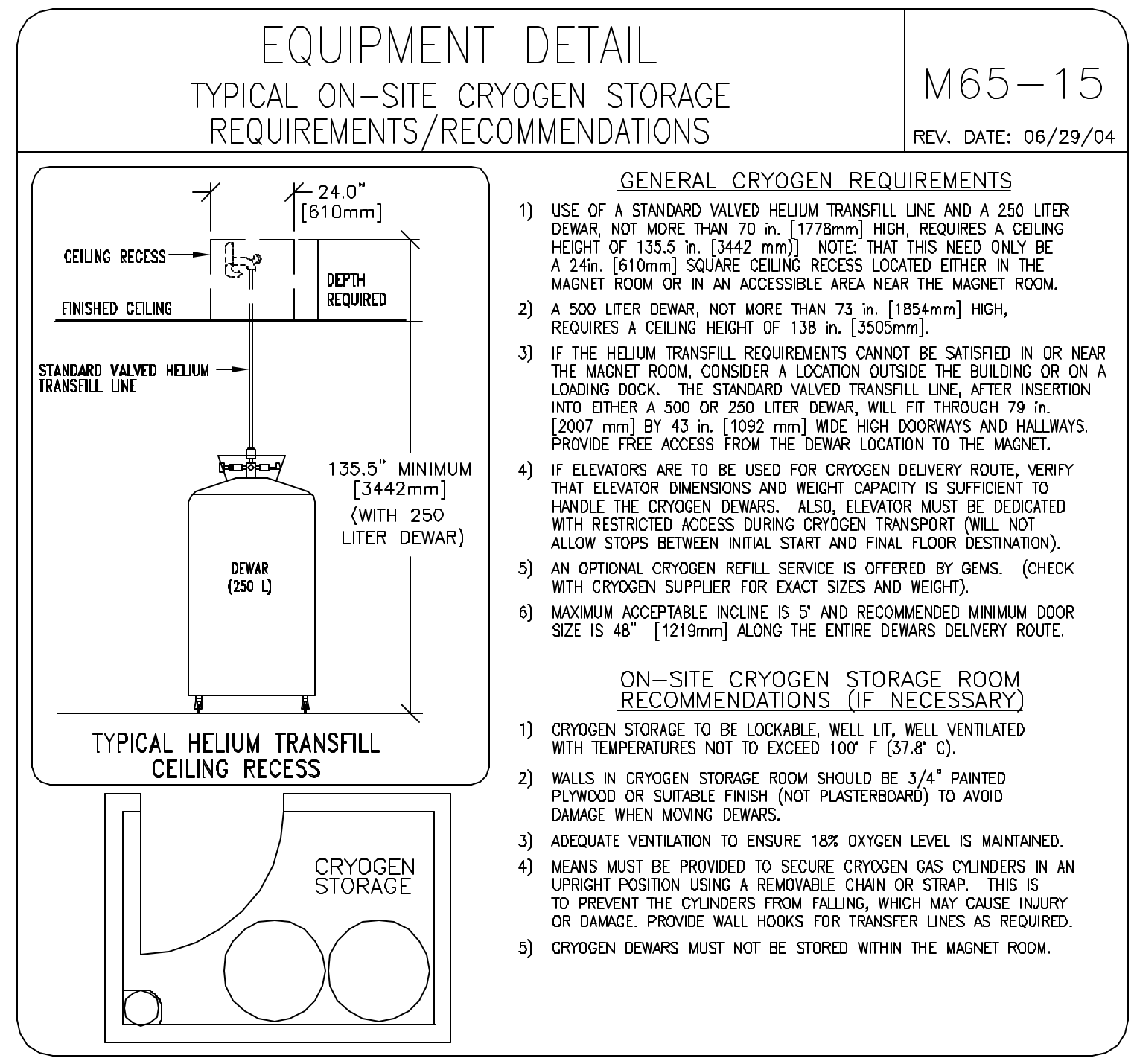
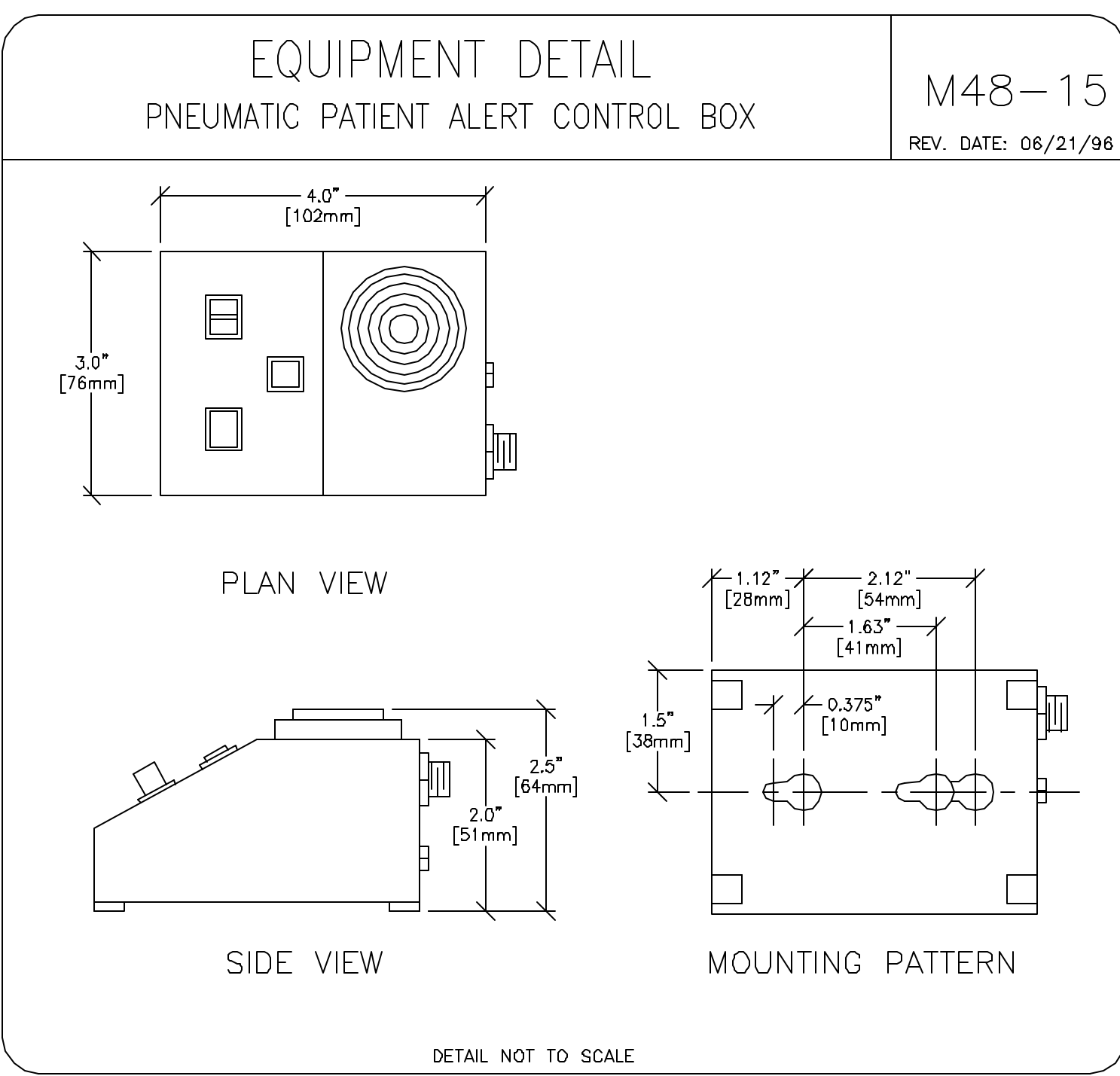
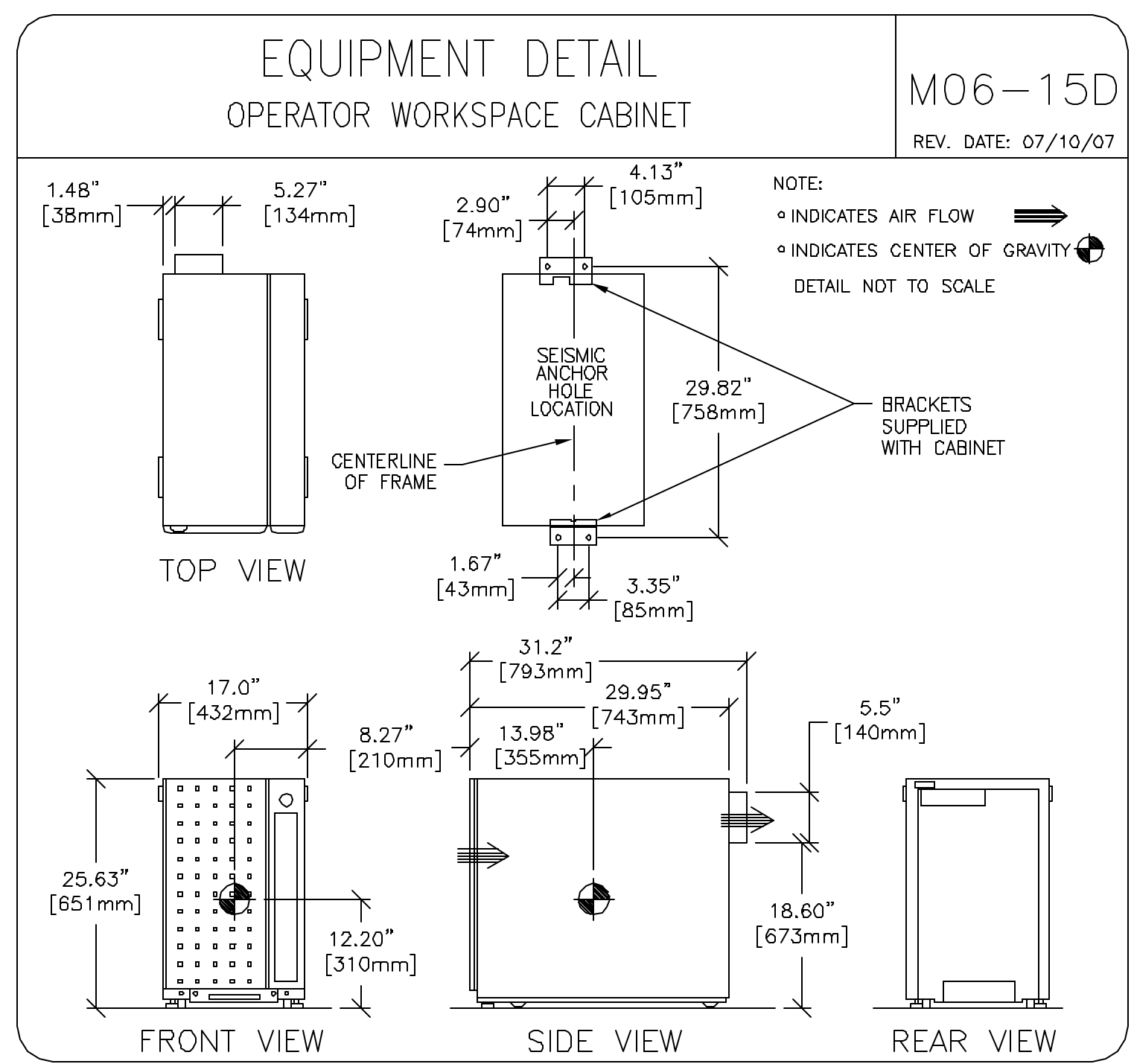
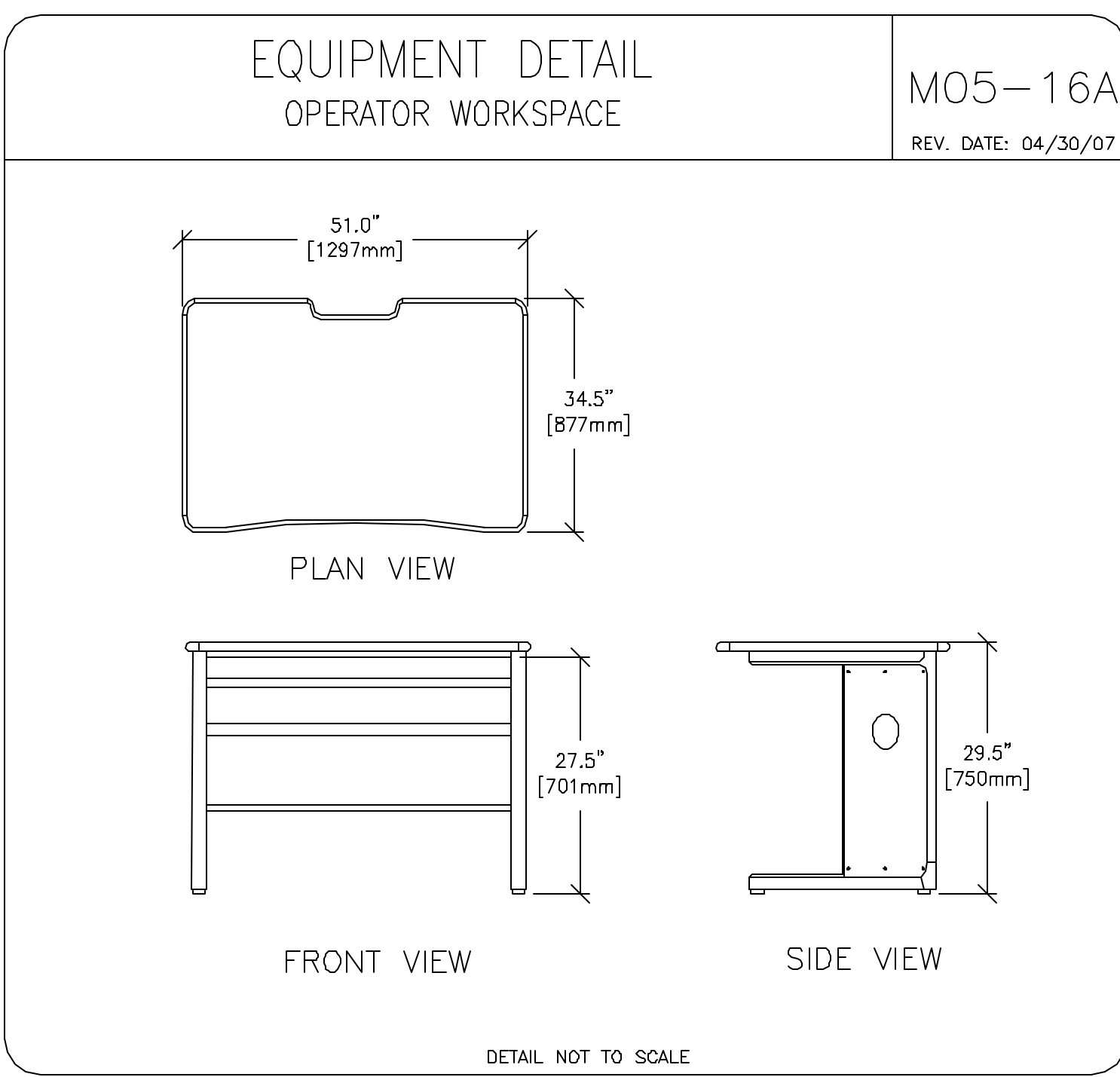
PROJECT	REVISION
8-186f	02

DATE: 10-10-07  
DRAWN BY: SDB  
CHECKED BY: PMM

REVISION HISTORY:


SHEET  
M1

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



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Installation Services Design Center  
Milwaukee, Wisconsin

SHEET TITLE: EQUIPMENT DETAILS  
MODALITY TYPE: 1.5T SIGNA EXCITE HD

THIS PLAN IS LIMITED TO SUBJECT LOCATION OF GE HEALTHCARE EQUIPMENT AND ASSOCIATED APPLIANCE, ELECTRICAL WIRING DETAILS AND ROOM ARRANGEMENTS. IN PREPARING THIS PLAN, EVERY EFFORT HAS BEEN MADE TO CONFORM TO DETAILS IN THE EQUIPMENT MANUALS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE INFORMATION AND ASSUMING ALL RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

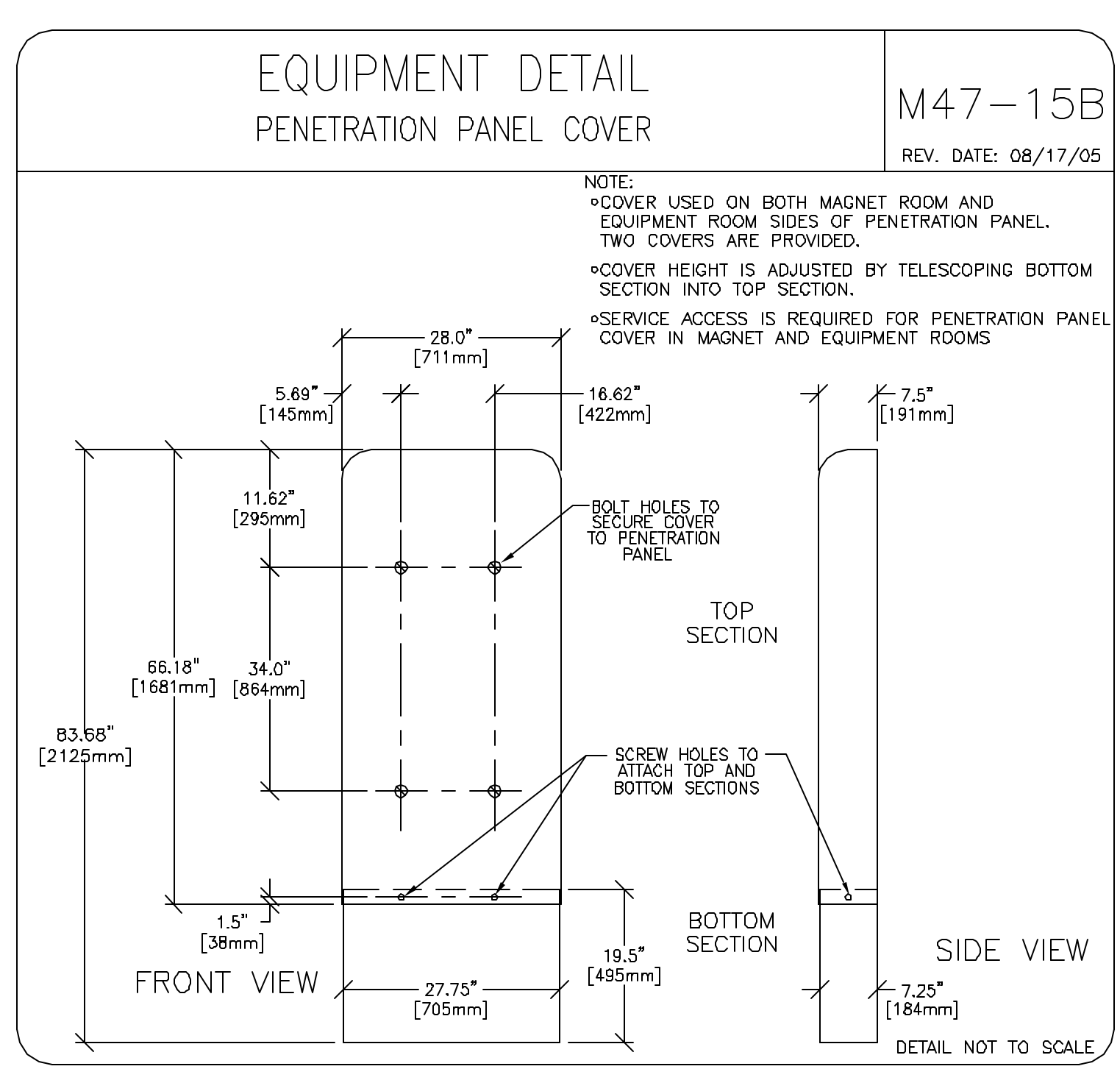
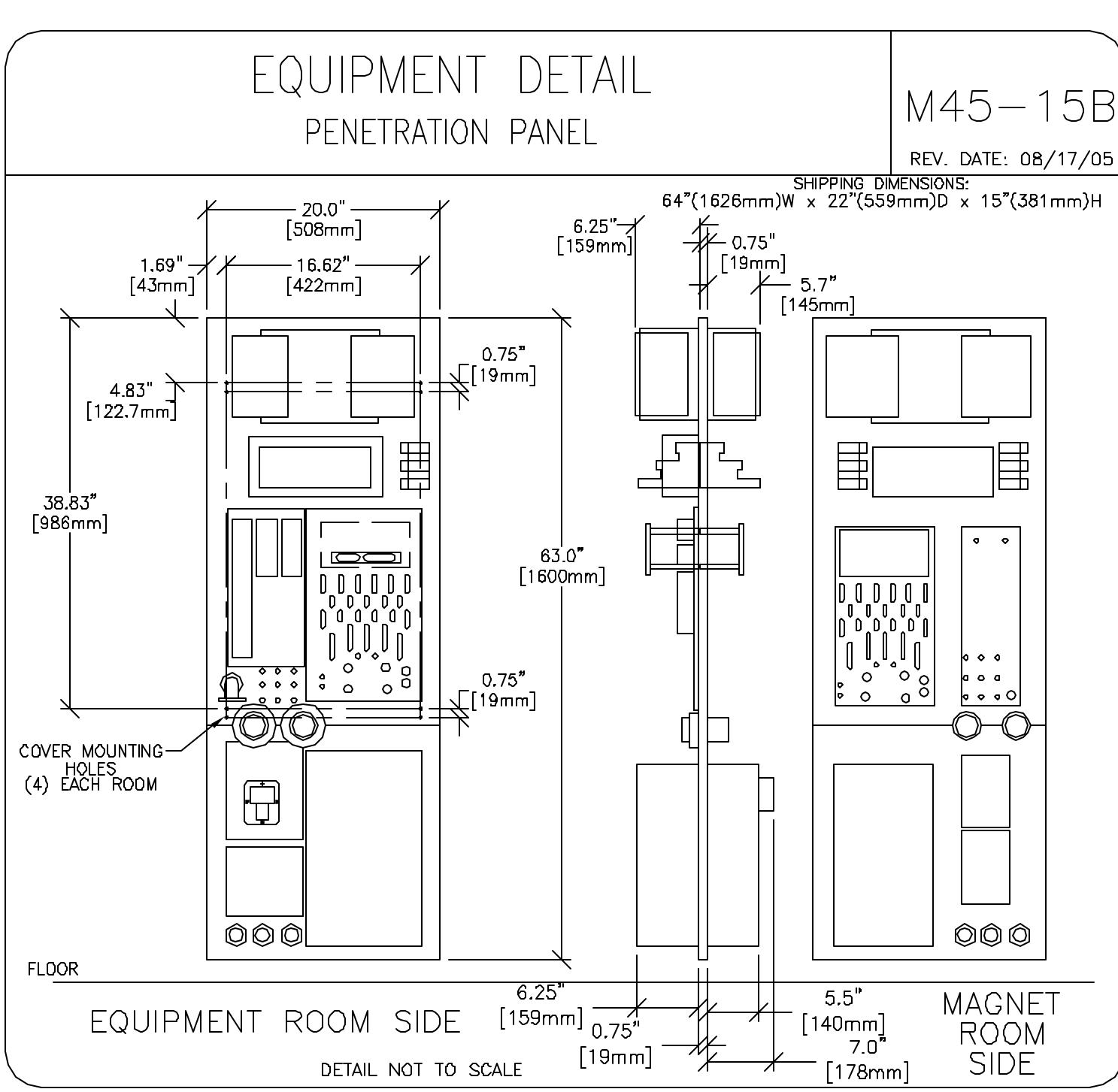
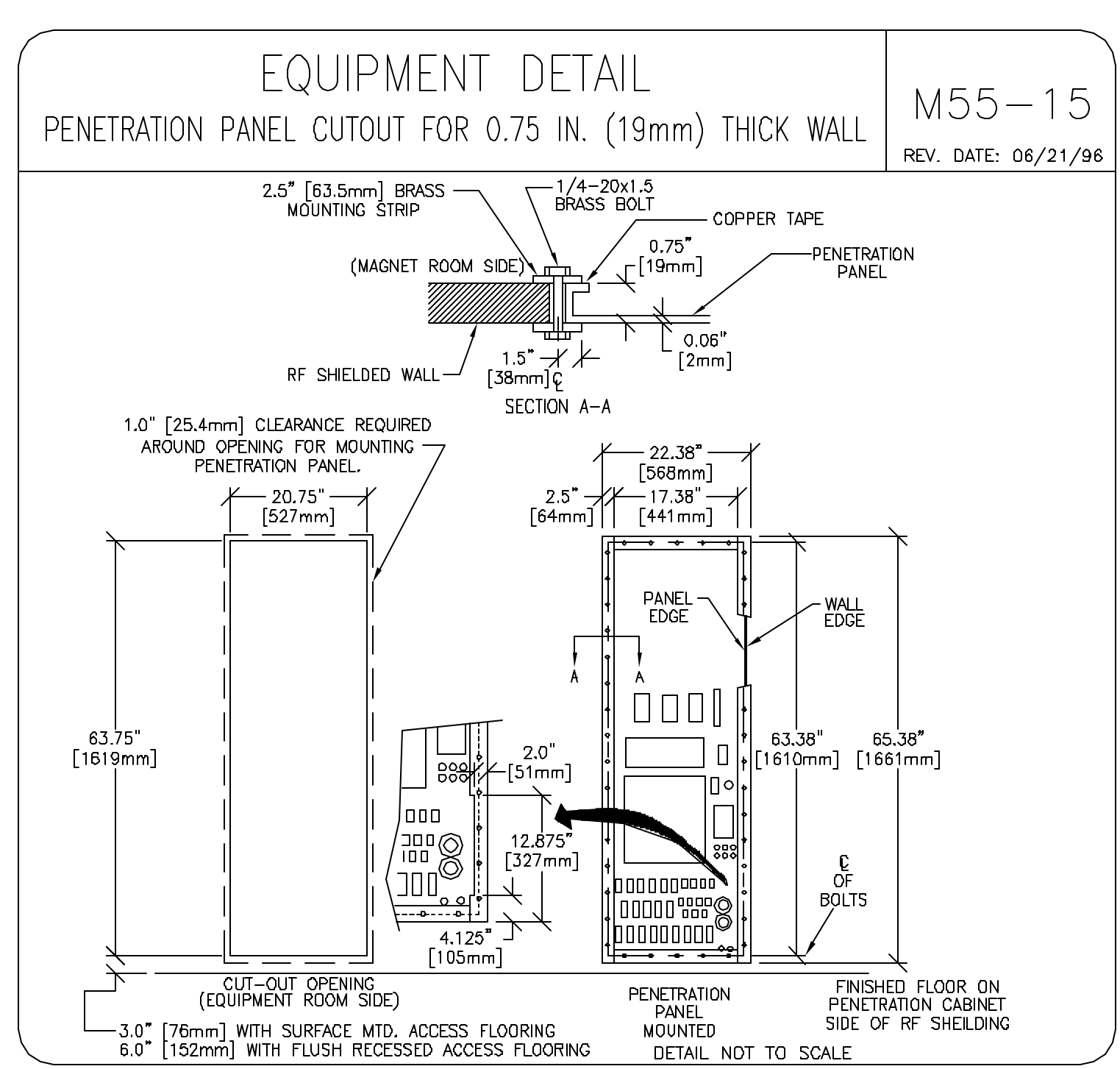
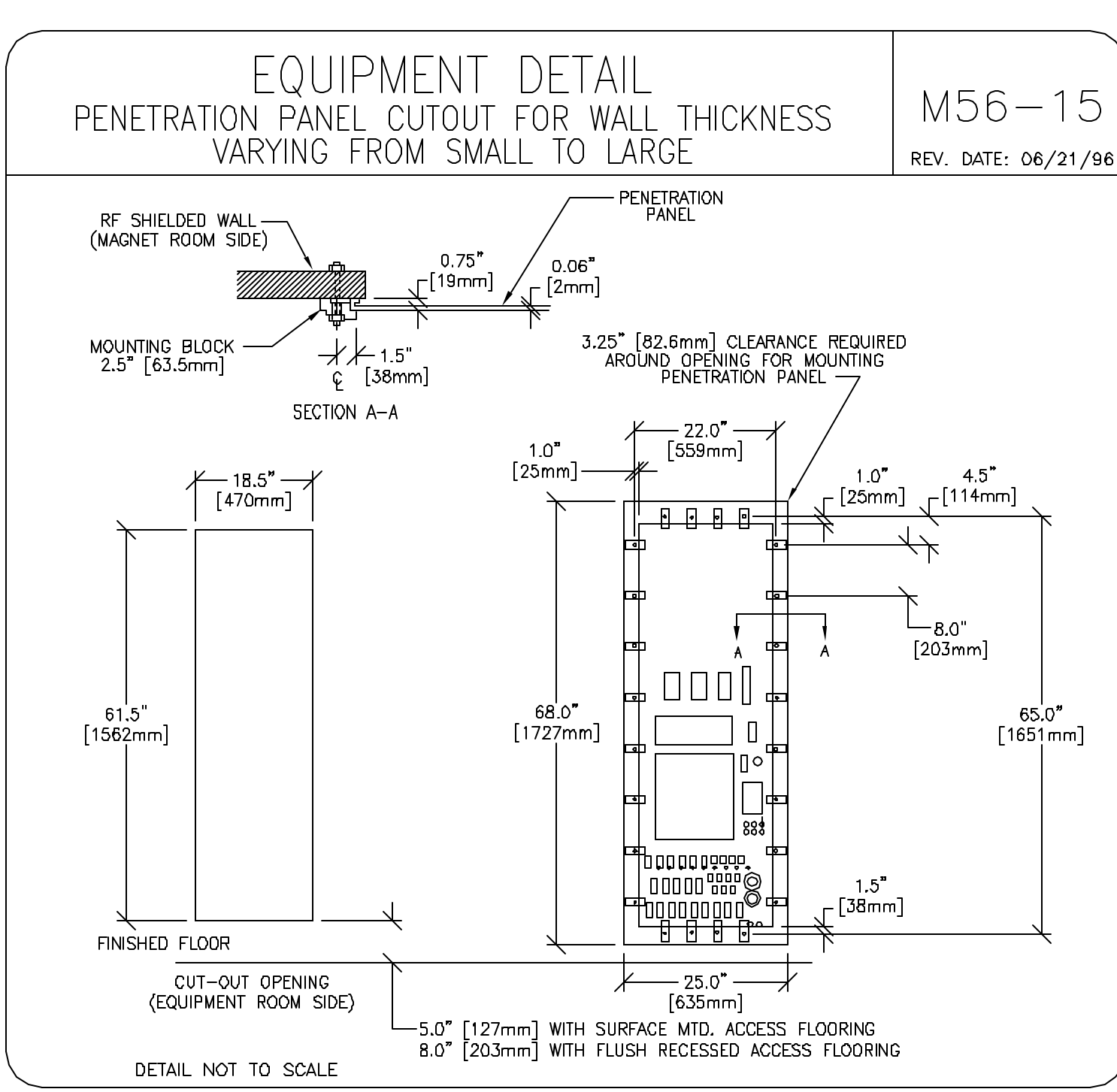
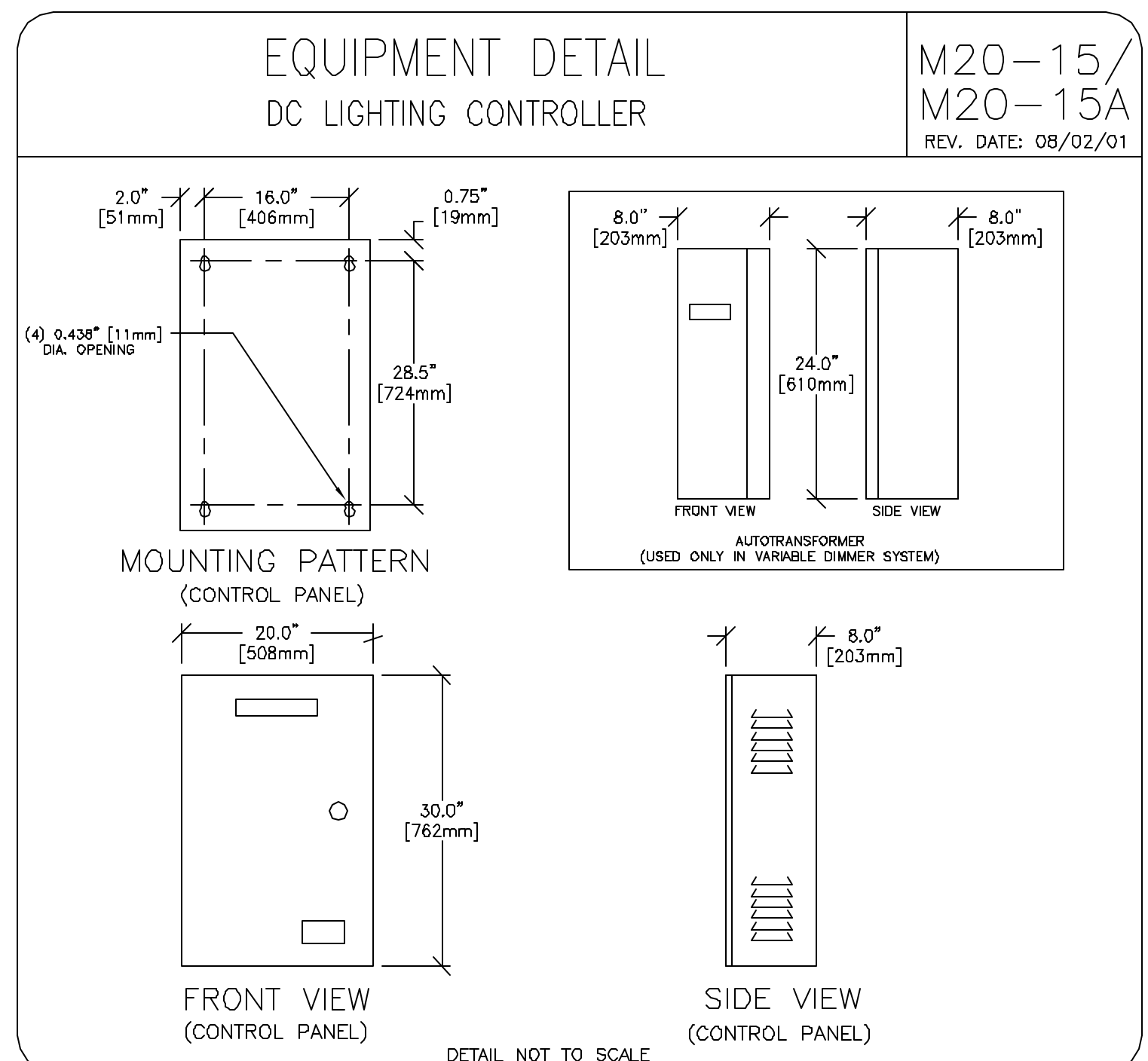
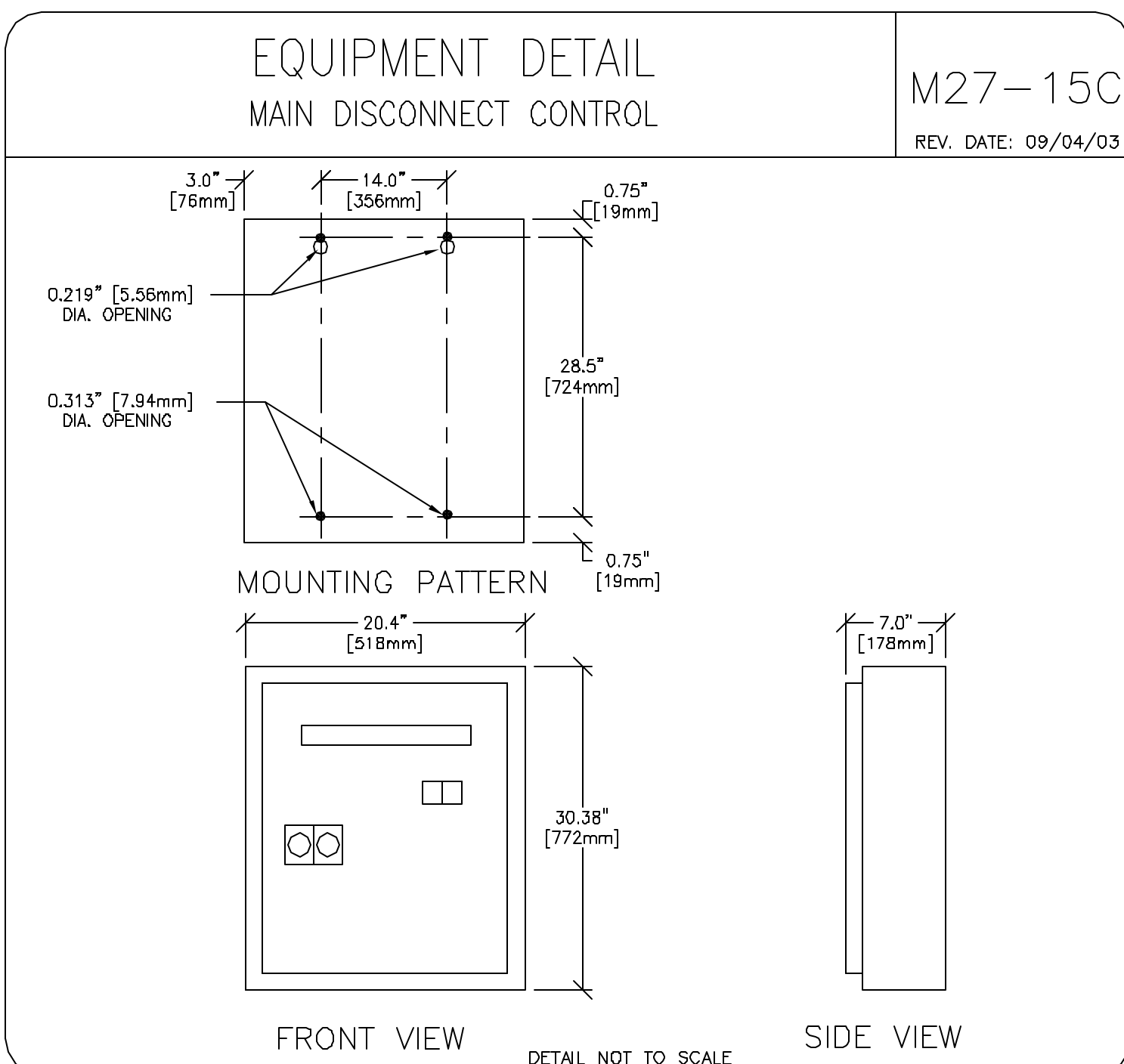
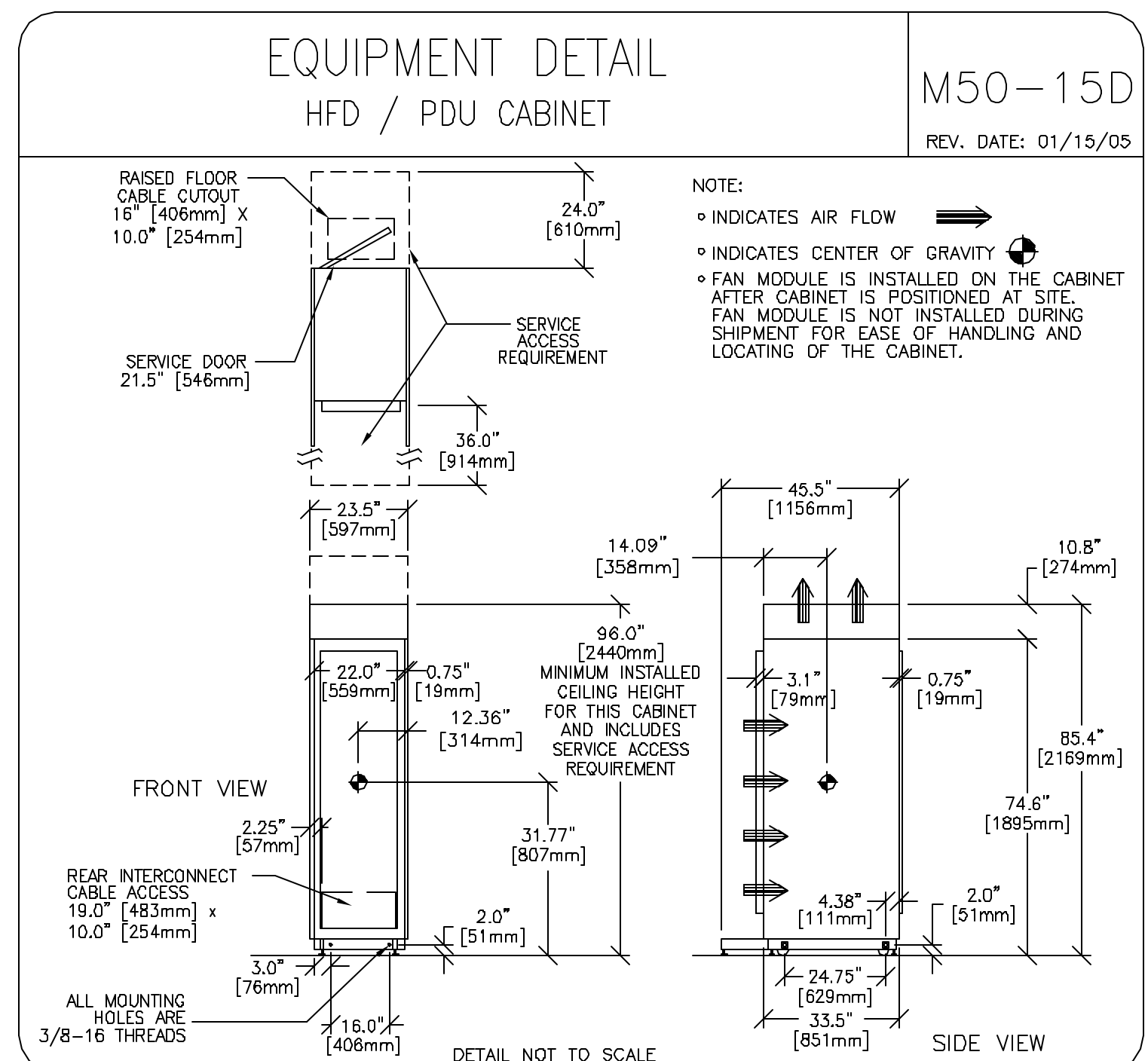
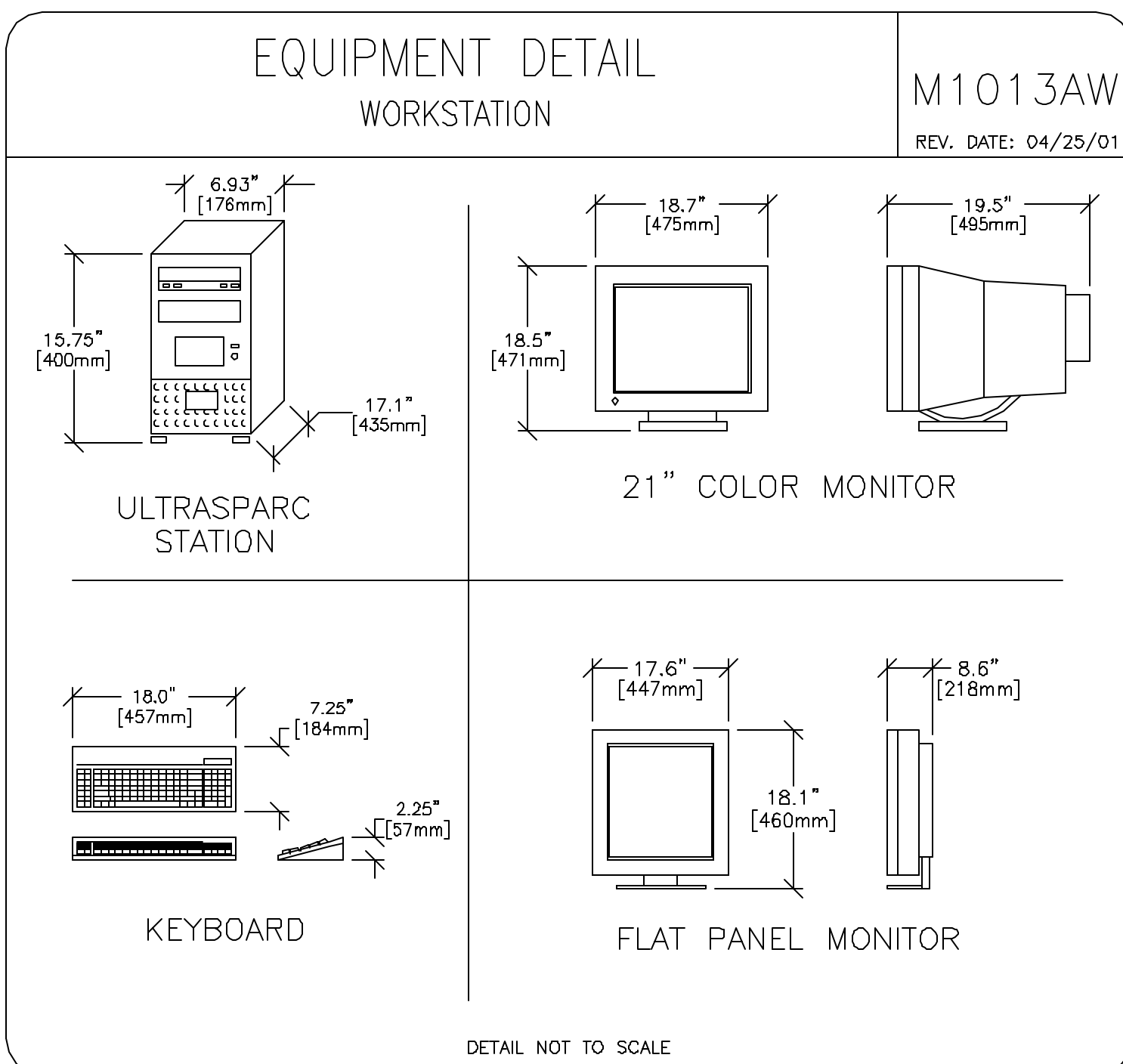
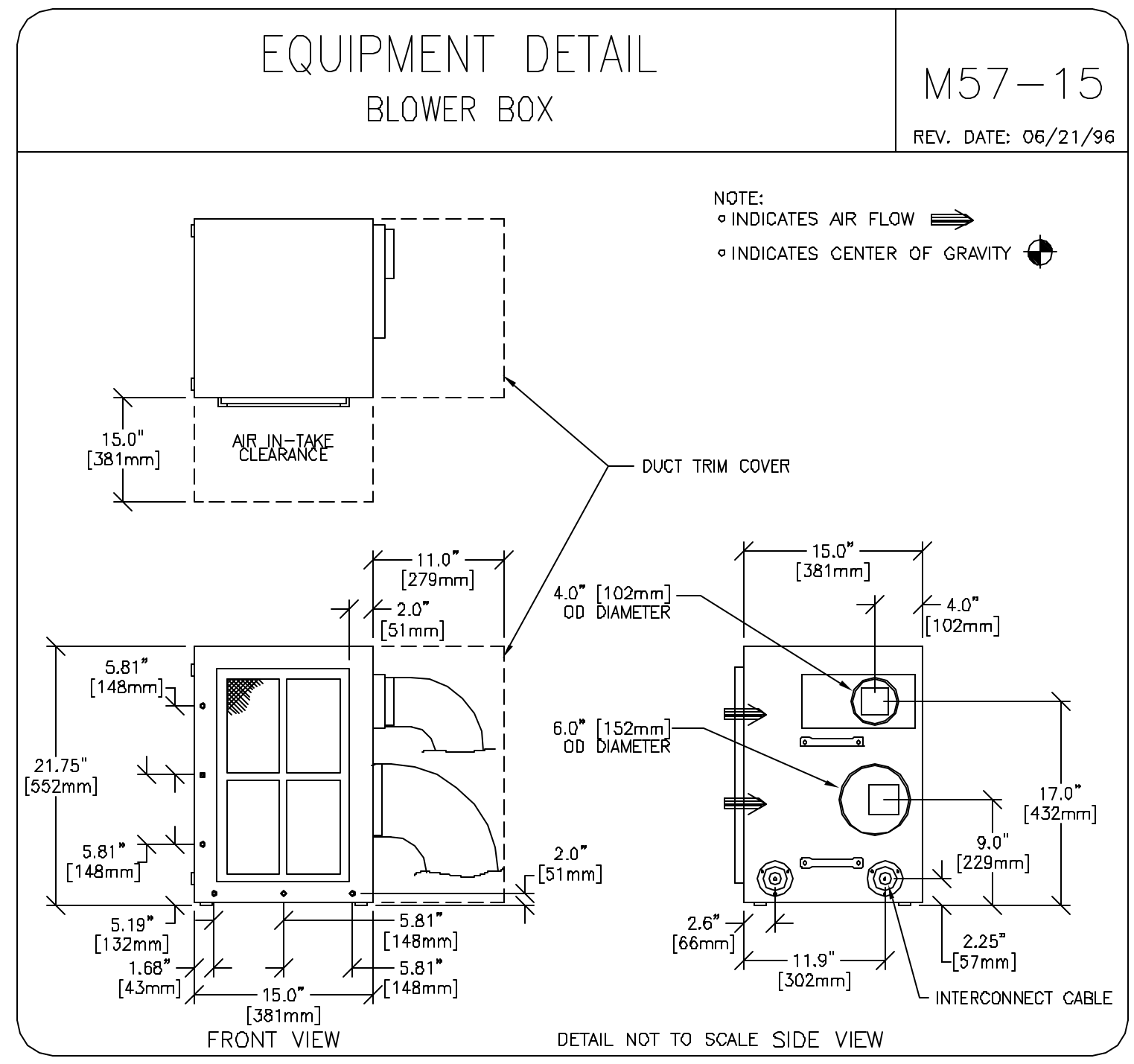
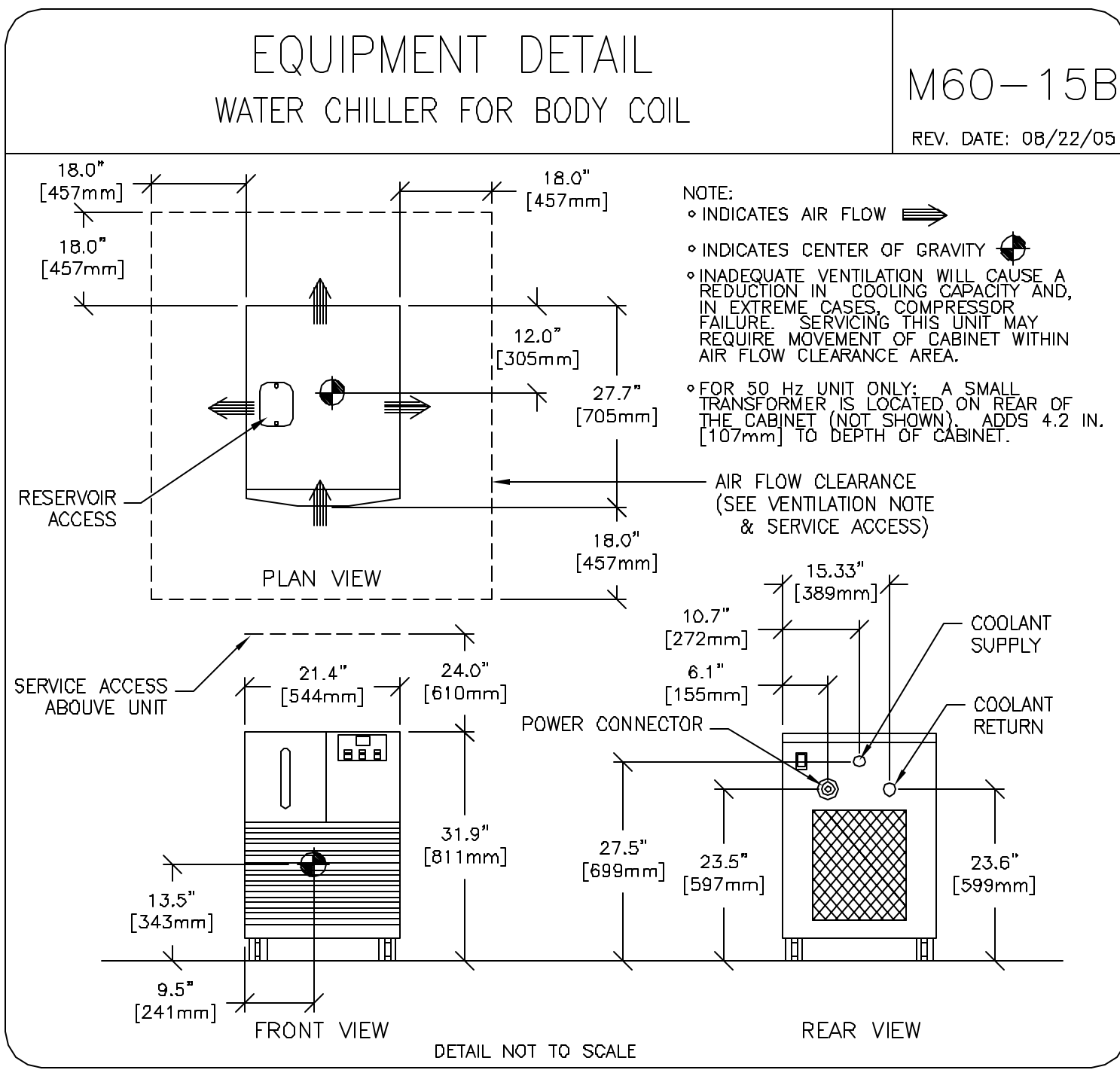
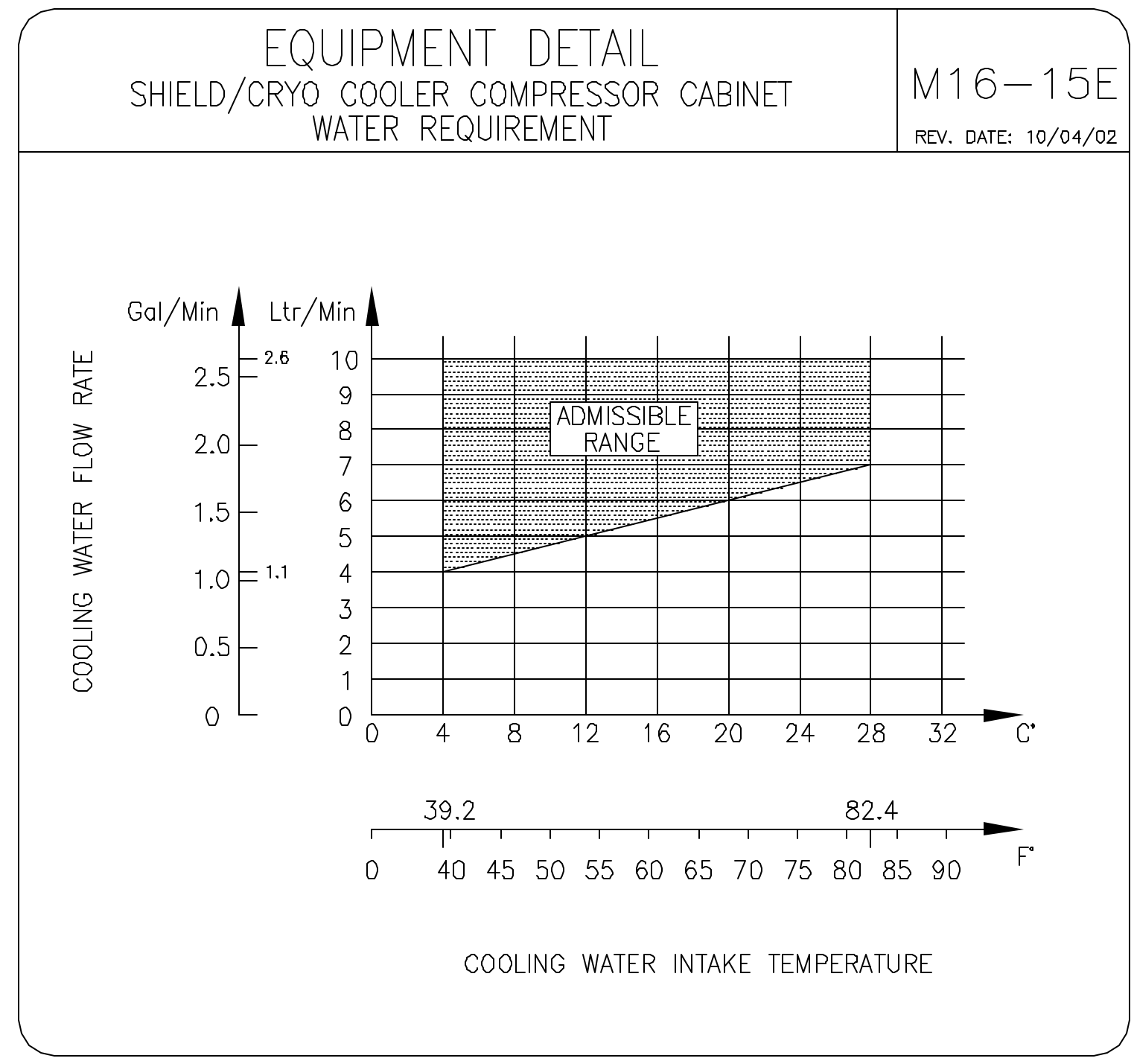
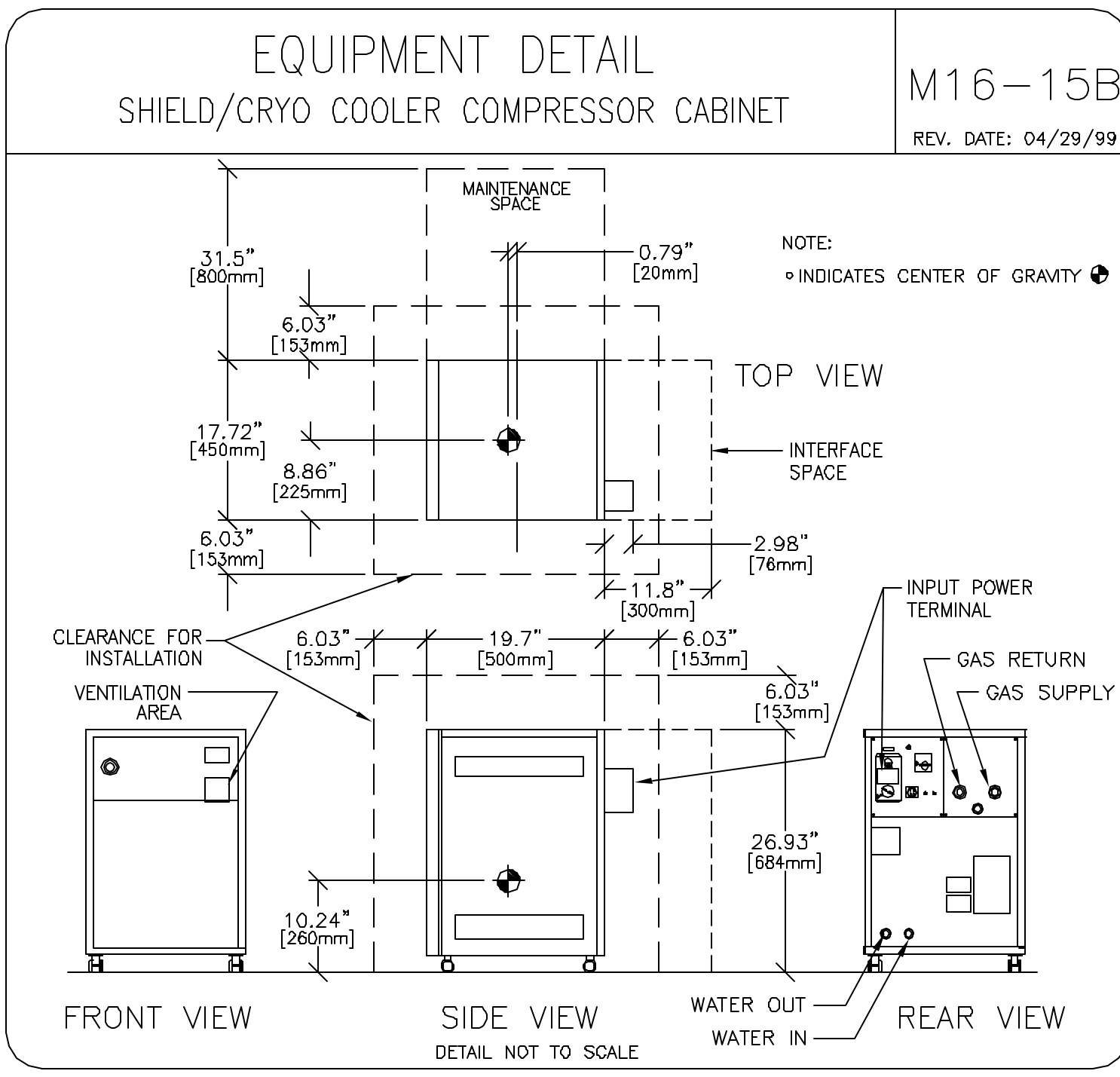
PROJECT TITLE:  
8-186f  
TYPICAL LAYOUT

PROJECT	REVISION
8-186f	02

DATE: 10-10-07  
DRAWN BY: SDB  
CHECKED BY: PMM

REVISION HISTORY:


SHEET  
D1



PROJECT	REVISION
8-186f	02

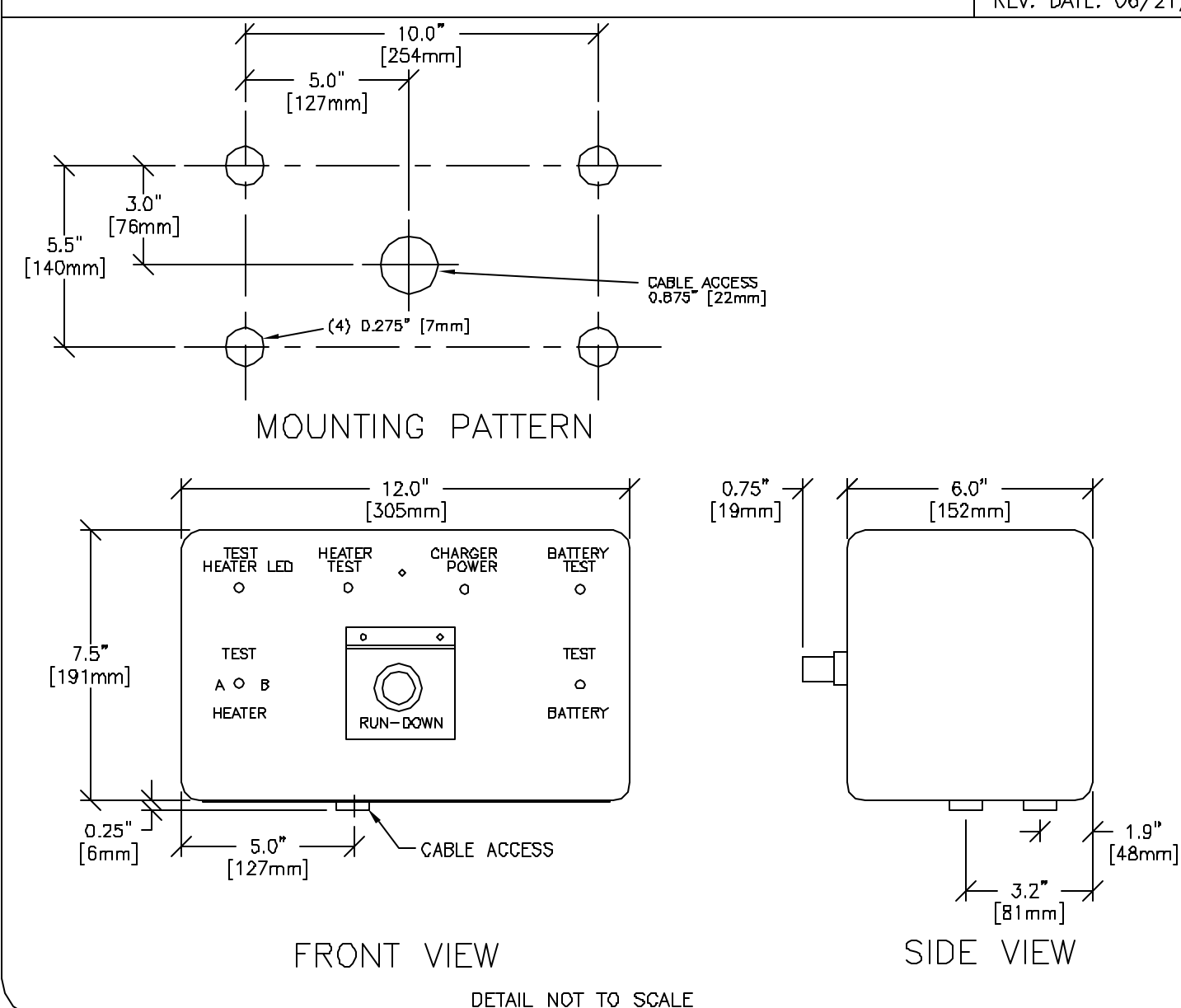
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REVISION HISTORY:


This drawing is based on Sketch No.: 8-206

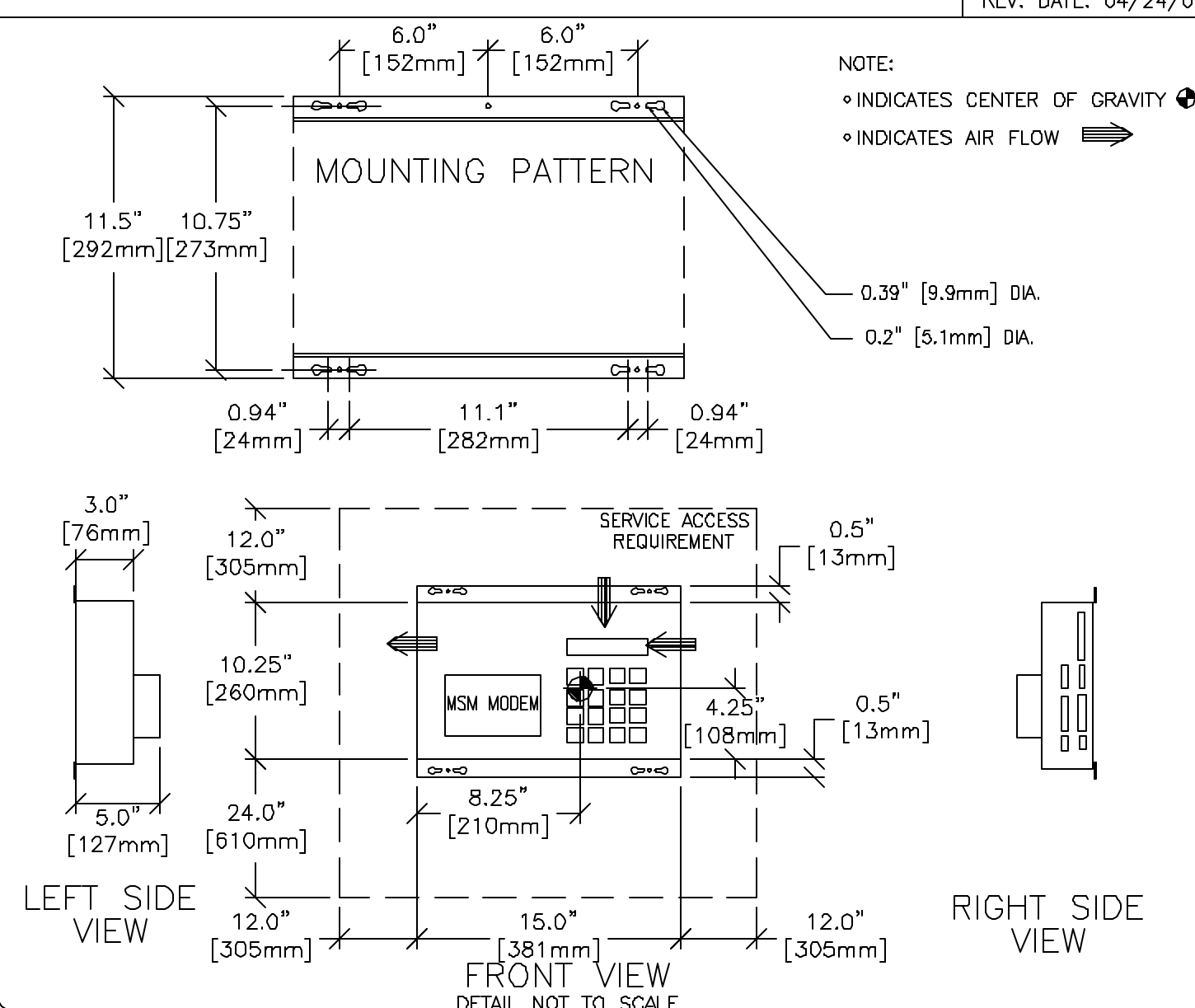
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MAGNET RUNDOWN UNIT

M17-15A  
REV. DATE: 06/21/96



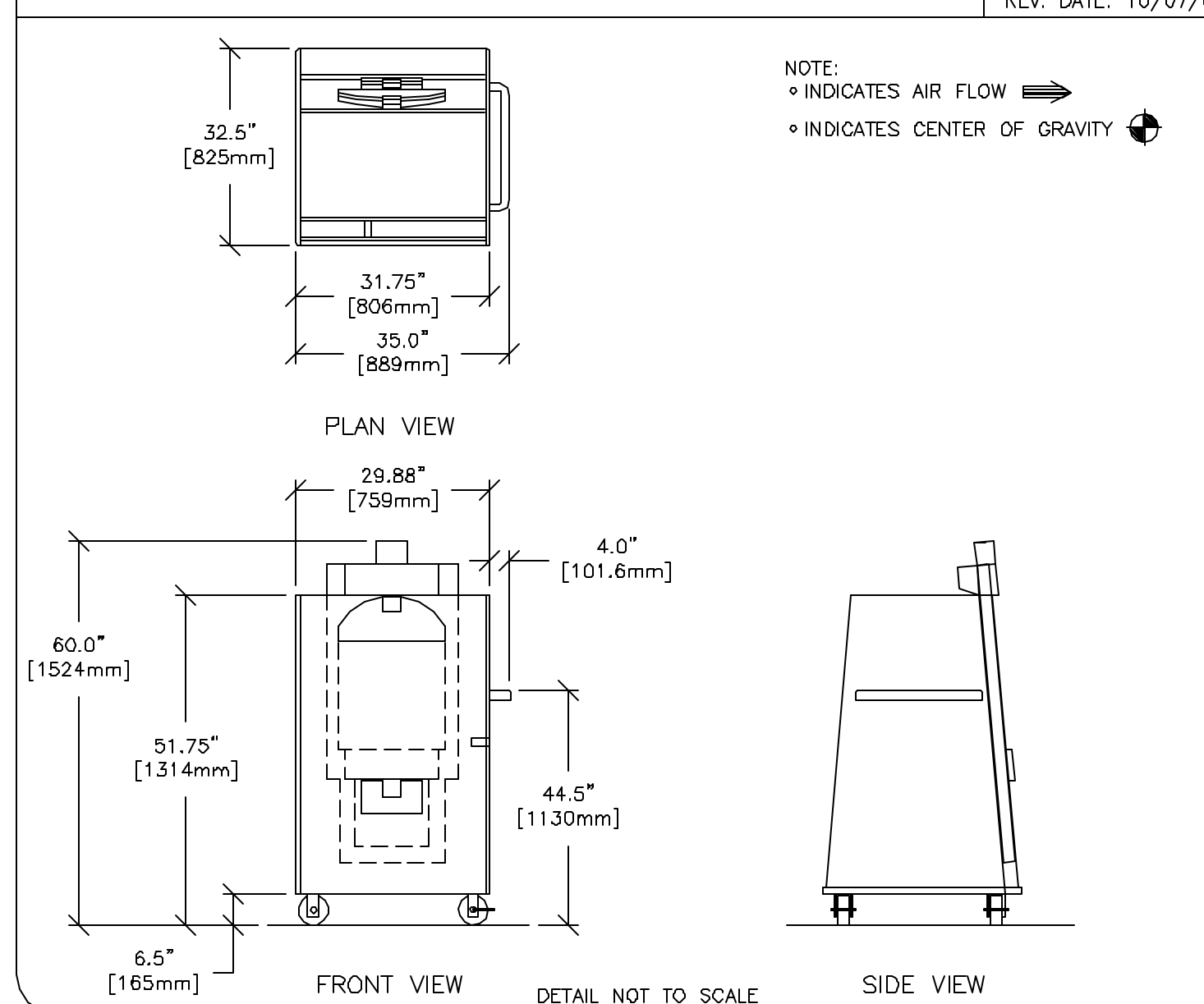
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MAGNET MONITOR

M16-15C  
REV. DATE: 04/24/07



EQUIPMENT DETAIL  
SPT PHANTOM STORAGE CABINET

M61-15  
REV. DATE: 10/07/02



This drawing is based on Sketch No.: 8-206

PROJECT TITLE:

8-186f  
TYPICAL LAYOUT

PROJECT	REVISION
8-186F	02
DATE:	10-10-07
DRAWN BY:	SDB
CHECKED BY:	PMM

REVISION HISTORY:


SHEET

D3

SHEET TITLE: EQUIPMENT DETAILS

MODALITY TYPE: 1.5T SIGNA EXCITE HD

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