

# Drawing Index

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

SITE READINESS	C1
EQUIPMENT LAYOUT (Equipment locations, heat loads, component weights, environmental specs)	A1
STRUCTURAL LAYOUT (Structural support/mounting locations for floor/wall/ceiling, wall support elevations)	S1
STRUCTURAL DETAILS (Floor and Ceiling loading information)	S2
ELECTRICAL LAYOUT (Contractor supplied wiring, interconnect methods, junction point locations and descriptions)	E1
ELECTRICAL SPECIFICATIONS (Maximum wiring run lengths, interconnect diagram, system power specifications)	E2
ELECTRICAL DETAILS	E3
MECHANICAL LAYOUT (Chiller information)	M1
EQUIPMENT DETAILS	D1

These 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 operation of such equipment in compliance with GE Healthcare's written specifications and all applicable federal, state, and/or local requirements.

**\* REQUIRED REFERENCE \***

Optima MR430  
Pre Installation Manual  
DOC0797563

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 19					
<p>Before using this document, ensure you have the latest Rev from MyWorkshop on DOC0422752</p> <p>GEHC Global Order #: _____ Customer: _____</p> <p>GEHC PMI: _____ FE / Installer: _____</p> <p>The customer is responsible for proper site preparation regardless of any GEHC measurements/inspections/assessments.</p>					
Inspection Date	Storage is in place?	PMI is in place?	FE is in place?	Comments if "N", enter comments or action plan	
1				<b>MR Magnet Delivery Requirements:</b> Ensure cryogen venting system is available for magnet connection as defined by GEHC. Pre-installation PMI measurements, without 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 monitoring and phone service is available during delivery. Surface in unit vibration mat installed where required. Magnet room final flooring is in place.	
2				<b>MR RF Screen Room Requirements:</b> RF Screen Room is tested with copy of Test Report, emailed to <a href="mailto:isadmin@gehealthcare.com">isadmin@gehealthcare.com</a> , that is in compliance with GEHC specifications. Back door and magnet lockers (if applicable) installed using 2 part anchors. For MRI systems, blowers in unit bolts installed by RF vendor using 2 part anchors.	
3				<b>State Regulatory Requirements:</b> Facility registration number provided for states of IL, WI, MI, RI, SC, TX, KY, VA. Facility plan and state acknowledgment letter provided to installer for AZ, DC, NC, SC, CO, & VA.	
4				<b>Site Drawing Requirements:</b> Final version of a equipment network and antenna, installation drawings (including red lined versions) 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.	
6				<b>Pre-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 communication/notifications have occurred. Arrangements have been made for special handling (elevator, rigging, floor protection, fork lift, millback truck, etc).	
7				<b>Finished Room Requirements:</b> Rooms that will contain equipment, including storage area, not in open state, are dust free. Provisions taken to contain a dust free room. Precautions will be taken to prevent dust from entering rooms containing equipment when construction is incomplete in adjacent areas. All walls primed/initial coat not needed on Day 1. Shielding, doors, and windows are to be installed. No contractor work being done during or after the installation that will cause dust in the installation areas 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 PMI requirements for storage.	
8				<b>Electrical Requirements:</b> To cable (LTD) from Disconnect Panel (MDP) is installed per GE guidelines and system power is available. Conduits, electrical cable ducting/divers cable trays, and access flooring is installed in proper location and height. Surface floor duct and load-side wires can be installed at time of system installation. Validate outlet location and requirements meet specifications for device/equipment.	
9				<b>HVAC Requirements:</b> The HVAC/Chilled Water systems designed to maintain the environment per speed/PMI is at running state and appears to provide the desired environmental conditions including location of vents, temperature and humidity for system operation.	
10				<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. Confirm customer anchoring plan aligns with designed floor thickness. Final flooring installed where required for network racks.	
11				<b>Ceiling Requirements:</b> Unistrut for equipment location, levelness and spacing is measured (or vendor confirmed) and consistent with the requirements of the installation drawings. Ensure suspension and rails are not secured on sounding surfaces. Ceiling grid is installed. Permanent lighting is installed and operational. HVAC diffusers are installed and connected to ductwork. Ceiling tiles installed per PMI installation.	
12				<b>Staging Requirements:</b> Space has been identified to support the active installation process only. This area meets PMI/project book requirements.	
13				Storage space has been identified, if needed. This secured space would be used to store equipment indefinitely. If offsite, transportation plan has been developed at customer expense. This space is per PMI requirements.	
14				<b>Network Connectivity:</b> Hardware for network connectivity (network drops) is in place prior to delivery with specified network fire wall configuration where required. Site Surveys for wireless mobile RR units have been completed.	
15				<b>Medical Gases Requirements:</b> Systems (hard pipe or portable) in place to allow testing and calibration of equipment (oxygen/air), including ventilation.	

GE Healthcare  
Healthcare Project Implementation - Design Center  
Minneapolis, Wisconsin  
Copyright © 2009 General Electric Company - Proprietary to GE

SHEET TITLE: SITE READINESS  
MODALITY TYPE: OPTIMA MR430S  
THIS PLAN IS SUBMITTED TO CURRENT 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 PURPOSES. TO BE INSTALLED TO CONFORM TO THESE DETAILS. THE COMPANY CANNOT ACCEPT RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
ORTHOPAEDIC ASSOCIATES OF PORTLAND  
PORTLAND, MAINE

PROJECT	REVISION
130260	00
DATE:	22.JAN.13
DRAWN BY:	TMS
CHECKED BY:	PM
CON NO.:	4057872
CON DT.:	16.JAN.13

REVISION HISTORY:


SHEET  
C1

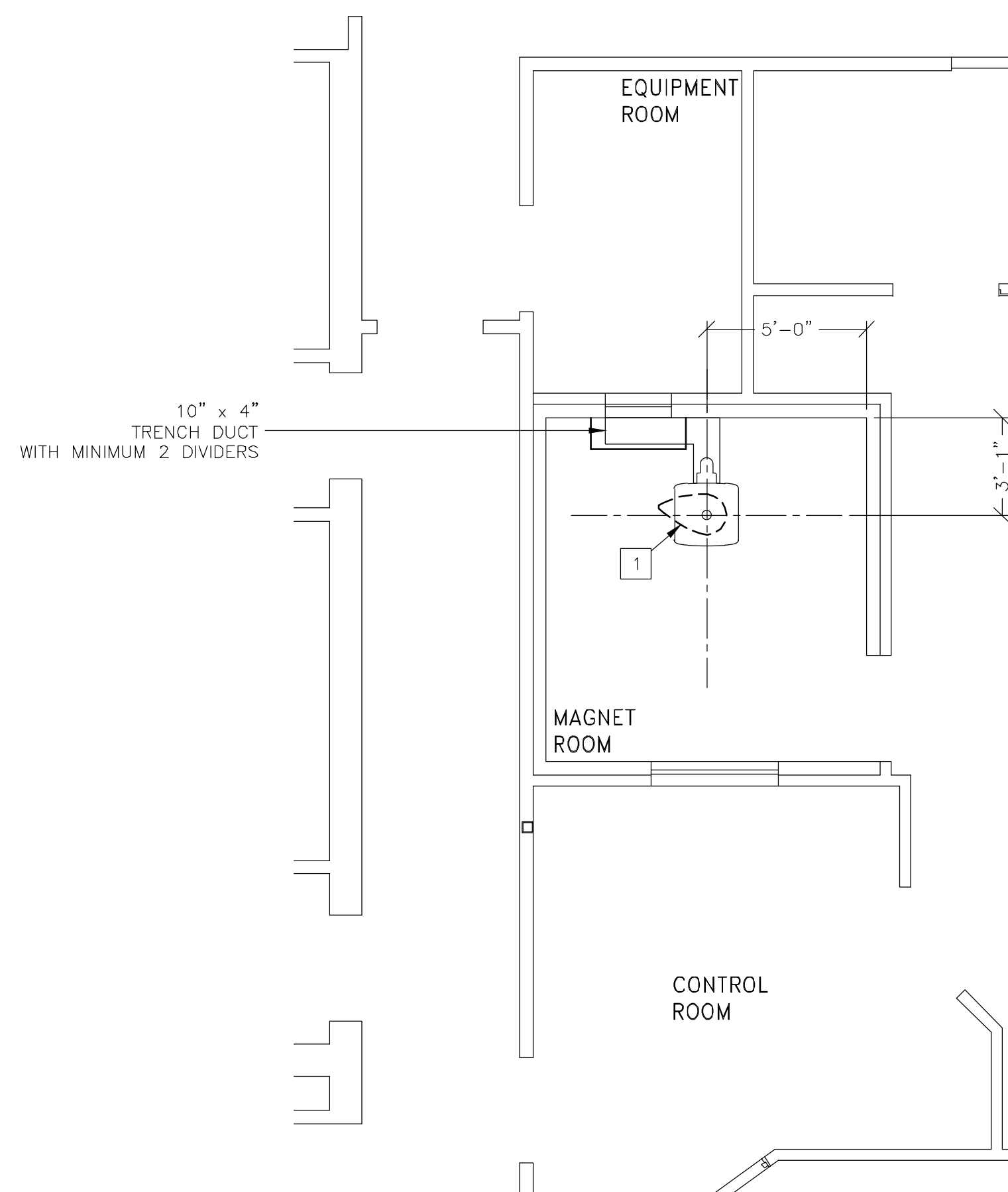
This drawing is based on Sketch No.: 1.3nef005  
PIM 33  
RQ - 132724





CUSTOMER/CONTRACTOR SUPPLIED AND INSTALLED ITEMS

ITEM NO.	ITEM DESCRIPTION (* INDICATES EXISTING)
1	THE EXAM ROOM FLOOR MUST ACCOMMODATE THE FLOOR LOADING FROM THE MRI EQUIPMENT. SEE TABLE S-3 FOR SPECIFIC REQUIREMENTS. THE FLOOR MUST BE SMOOTH TO ALLOW THE PATIENT CHAIR TO MOVE FREELY WITH THE HEAVY PATIENT LOAD. COMMERCIAL GRADE VINYL COMPOSITION TILE (VCT) OR COMMERCIAL GRADE SHEET FLOORING CAPABLE OF WITHSTANDING HEAVY CASTERS OR ROLLERS IS REQUIRED. THE MAXIMUM LOCAL FLOOR PRESSURE IS ESTIMATED TO BE 1800 PSI (<12.4 MPa). FELT UNDERLAYMENT, TEXTURED OR SOFT VINYL OR RUGS ARE NOT ACCEPTABLE. THE FLOOR LEVEL MUST BE 4/8" (12.7mm) BETWEEN DEPRESSIONS AND HIGH SPOTS OVER 2' x 2' LONG (610mm) x 6" x 6" WIDE (152mm) (CENTERED IN FRONT OF MAGNET BORE OPENING) FLOOR AREA. SEE DETAIL B7865 SPECIFIES ANCHOR BOLT TYPE AND SHOWS THE BOLT PATTERN FOR MOUNTING THE MAGNET TO THE FLOOR. THIS PATTERN MUST BE ACCOMMODATED IN THE FLOOR TO ENABLE THE MAGNET STAND BASE TO BE INSTALLED FLAT ON THE FINISH FLOOR. FOR AREAS THAT HAVE EARTHQUAKE MOUNTING REQUIREMENTS, RF SHIELDING SHOULD BE INSTALLED ACCORDINGLY.



STRUCTURAL NOTES

- o 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.
- o DIMENSIONS ARE TO FINISHED SURFACES OF ROOM.
- o 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.
- o 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.
- o FLOOR LEVELNESS IN THE MAGNET ROOM SHOULD NOT EXCEED 0.125 in. (3 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.
- o NON-MOVABLE STEEL SUCH AS WALL STUDS OR HVAC COMPONENTS WILL PRODUCE NEGLIGIBLE EFFECT ON THE ACTIVE SHIELD MAGNET.
- o CUSTOMERS CONTRACTOR MUST PROVIDE ALL PENETRATIONS IN POST TENSION FLOORS.
- o 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.
- o 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.
- o CUSTOMERS CONTRACTOR TO PROVIDE AND INSTALL APPROPRIATE SUPPORTS FOR THE STORAGE OF EXCESS CABLES.
- o 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 Project Manager: **JIM DOMBROSKI**  
 Telephone: 603-934-3739  
THE GE MR TECHNICAL SUPPORT GROUP IS AN ADDITIONAL RESOURCE THAT CAN PROVIDE ANSWERS FOR GENERAL GE PRODUCT SITING QUESTIONS AND CAN BE REACHED AT (877)-305-9877

SHEET TITLE: STRUCTURAL LAYOUT  
 MODALITY TYPE: OPTIMA MR430s

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 SPECIFICATIONS. TO BE INSTALLED TO CONFORM TO THE COMPANY'S POLICY AND CONSTRUCTION PRACTICES. HOWEVER, THE COMPANY CANNOT ACCEPT RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
**ORTHOPAEDIC ASSOCIATES OF PORTLAND**  
 PORTLAND, MAINE

PROJECT	REVISION
130260	00

DATE: 22.Jan.13  
 DRAWN BY: TMS  
 CHECKED BY: PMM  
 CON NO: 4057872  
 CON DT: 16.JAN.13

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

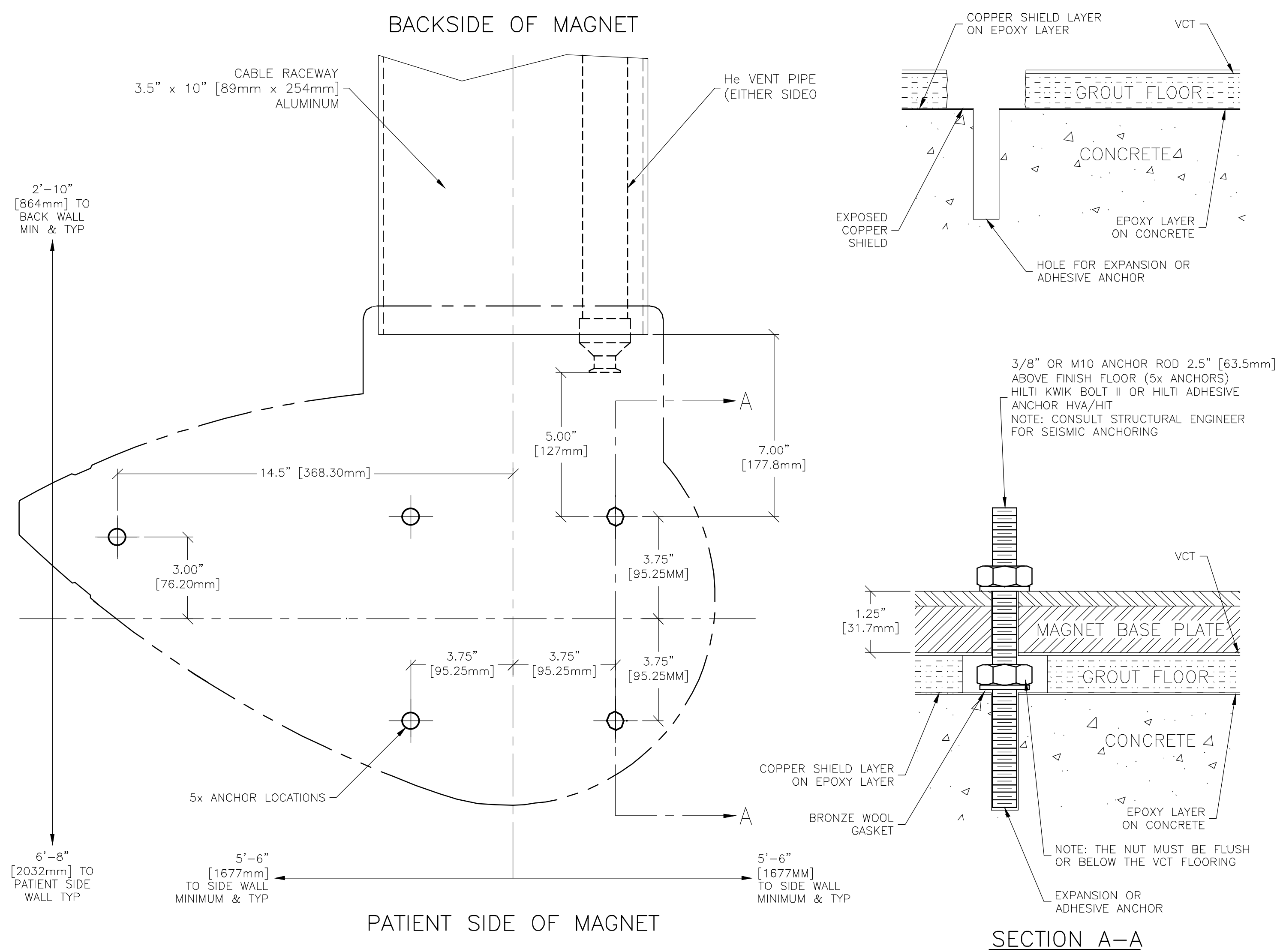
SHEET  
**S1**

This drawing is based on Sketch No.: 13nef005  
 PIM R3  
 RQ - 132724

MAGNET GANTRY MOUNTING PATTERN

B78-65

REV. DATE: 04/08/10



NOTE: DISTANCES TO WALL ARE TYPICAL ONLY FOR THOSE CONFIGURATIONS WHERE THE MAGNET IS ORIENTED SQUARE TO A FOUR WALL ROOM. IF THE MAGNET IS TO BE ROTATED OUT OF SQUARE, OR THE ROOM IS A COMPLEX SHAPE, CONTACT GE SITE PLANNING FOR ASSISTANCE.

DETAIL NOT TO SCALE

SHEET TITLE: STRUCTURAL DETAILS  
MODALITY TYPE: OPTIMA MR430s

THIS PLAN IS SUBMITTED TO SURVEY 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 MANUFACTURER'S REQUIREMENTS. IT IS ADVISED THAT THE COMPANY CANNOT ACCEPT LIABILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
ORTHOPAEDIC ASSOCIATES OF PORTLAND  
PORTLAND, MAINE

PROJECT	REVISION
130260	00

DATE: 22.Jan.13  
DRAWN BY: TMS  
CHECKED BY: PMM  
CON NO: 4057872  
CON DT: 16.JAN.13

REVISION HISTORY:

SHEET  
S2

This drawing is based on Sketch No.: 13nef005

PIM R3

RQ - 132724

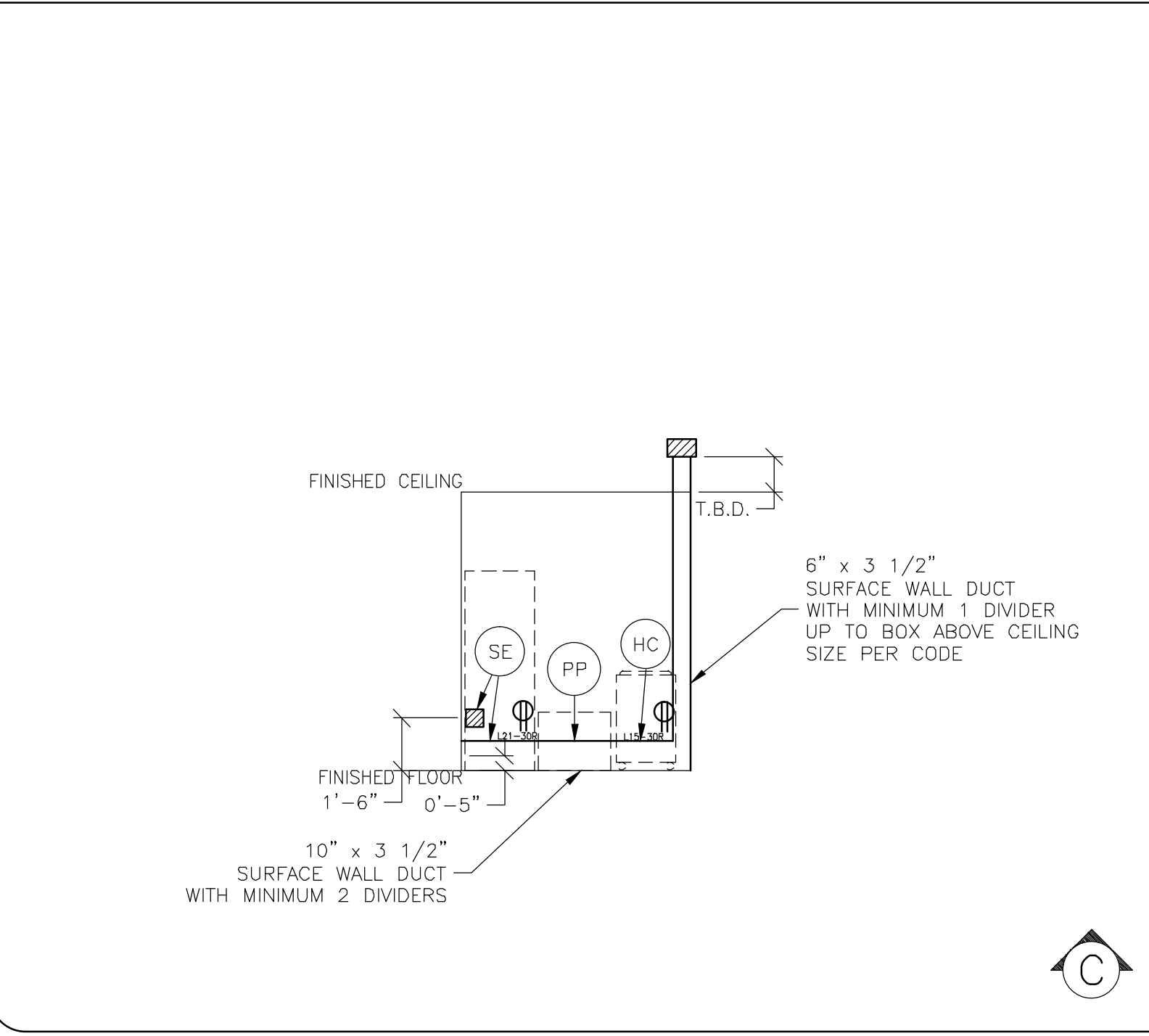
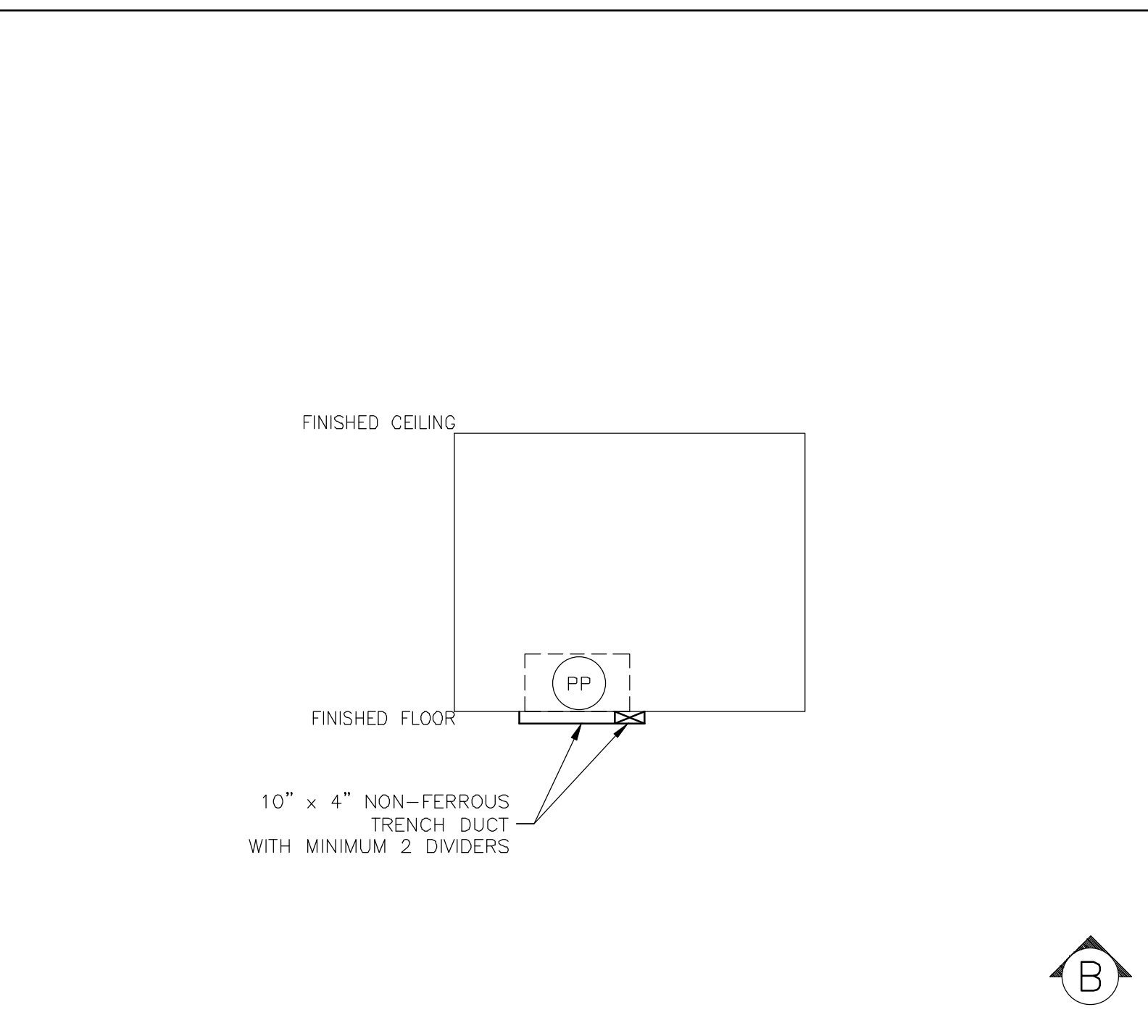
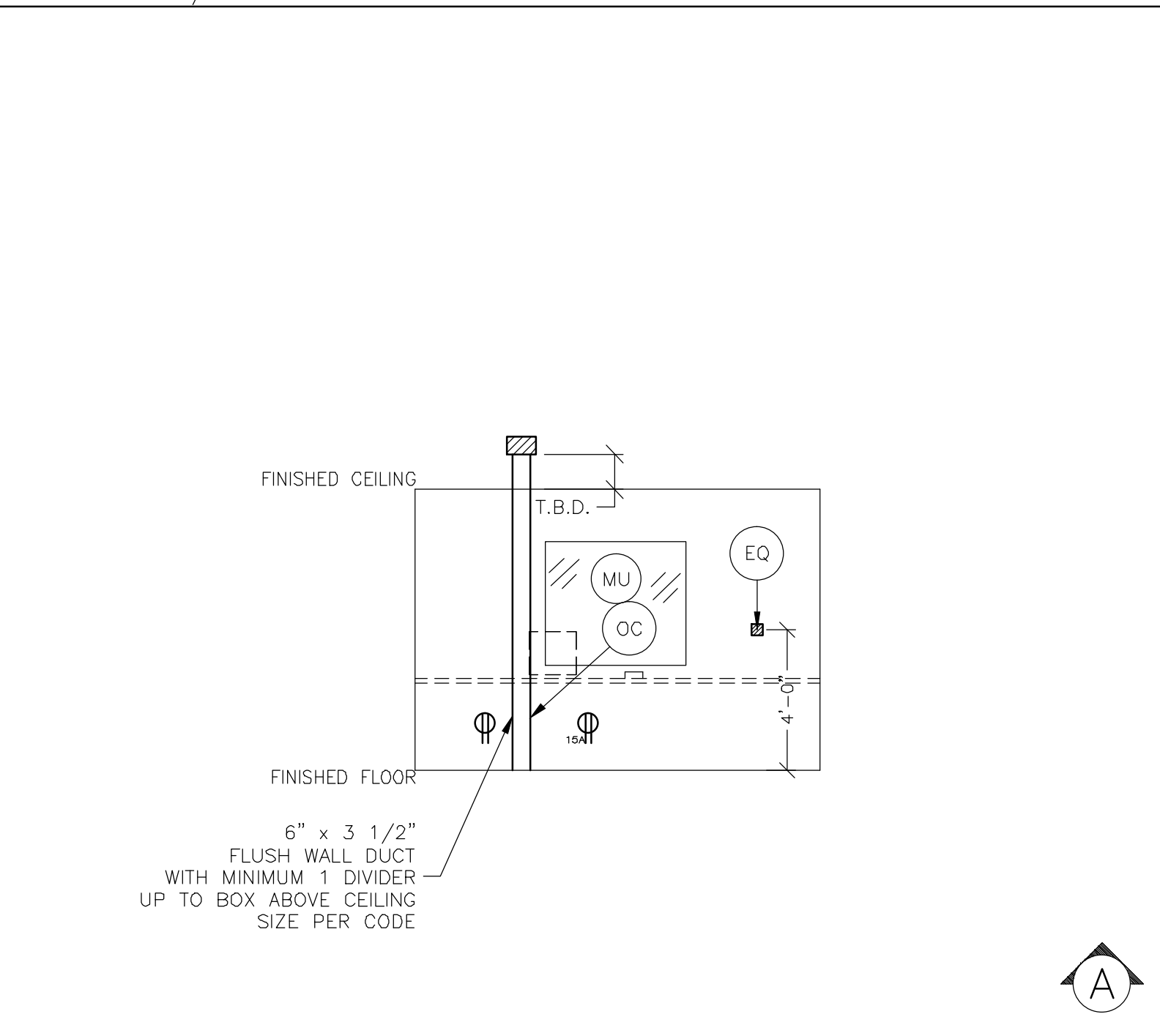
**GE Healthcare**  
Healthcare Project Implementation - Design Center  
Milwaukee, Wisconsin

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

ELECTRICAL PLAN

RECOMMENDED CEILING HEIGHT = 8'-9"

JUNCTION POINT DESCRIPTIONS



**FEEDER TABLE — MSK EXTREMITY**

- CALCULATIONS BASED UPON NOMINAL VOLTAGE, WIRE SIZE IN AWG.
- RECOMMENDED FEEDER SIZES FROM DIST. TRANS. TO DEDICATED OUTLETS.
- THE GROUNDING CONDUCTOR ( ) SHALL BE COPPER AND WILL RUN IN THE SAME CONDUIT AS THE FEEDERS FROM EQUIPMENT BACK TO THE ROOM POWER SOURCE GROUNDING POINTS.
- THE GROUND CONDUCTOR TO BE THE SAME SIZE AS THE FEEDER.
- IF THE GENERAL ELECTRICAL 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.

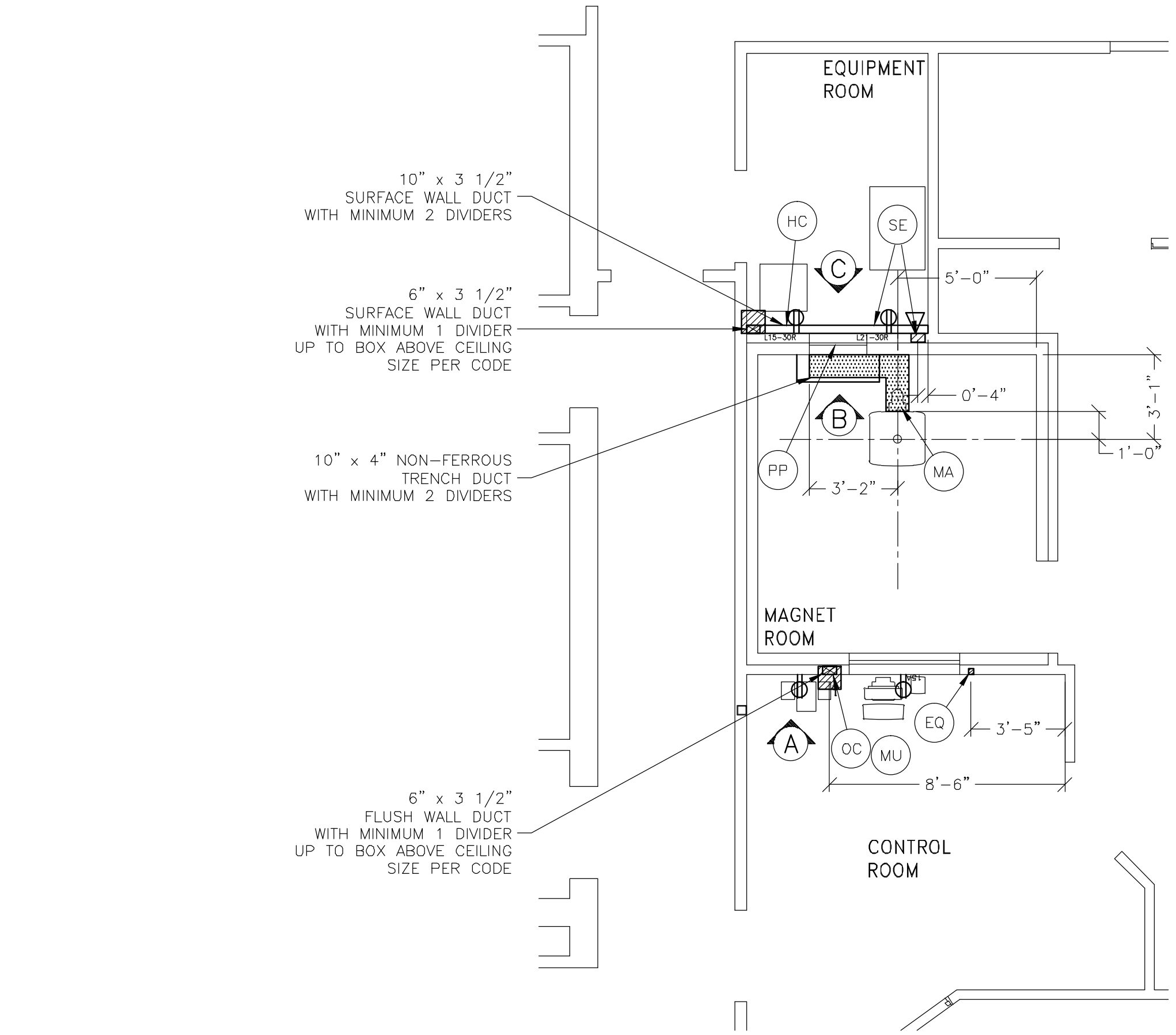
RUN LENGTH IN FEET	POWER SUPPLY VOLTAGE							
	180-220		187-229		342-418		360-440	
	FEEDER	GROUND	FEEDER	GROUND	FEEDER	GROUND	FEEDER	GROUND
100	8	(8)	8	(8)	12	(12)	14	(14)
150	6	(6)	6	(6)	10	(10)	12	(12)
200	4	(4)	4	(4)	10	(10)	10	(10)
250	3	(3)	4	(4)	8	(8)	10	(10)
300	2	(2)	3	(3)	8	(8)	8	(8)
350	2	(2)	2	(2)	8	(8)	8	(8)
400	1	(1)	1	(1)	6	(6)	8	(8)
450	1/0	(1/0)	1	(1)	6	(6)	6	(6)

REV. DATE: 04/20/10

PLEASE SEE BELOW FOR ADDITIONAL REQUIRED CONDUIT RUNS AND SIZES.

- 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.

POINT	THE FOLLOWING MATERIALS ARE TO BE SUPPLIED AND INSTALLED BY THE CUSTOMER'S ELECTRICAL CONTRACTOR		
	DESCRIPTION	QTY.	HARDWARE
EQ	EMERGENCY QUENCH BUTTON	1	SINGLE GANG 2 1/2 IN. DEEP FLUSH MOUNTED JUNCTION BOX
HC	HELIUM COMPRESSOR	1	48 IN. OF GROMMET MATERIAL FOR A 3 X 3 IN. OPENING IN DUCT COVER
MA	MAGNET ASSEMBLY	1	28 IN. OF GROMMET MATERIAL
OC	OPERATORS CONSOLE	1	48 IN. OF GROMMET MATERIAL FOR A 3 X 3 IN. OPENING IN DUCT COVER
PP	PENETRATION PANEL	1	48 IN. OF GROMMET MATERIAL FOR A 3 X 3 IN. OPENING IN DUCT COVER
SE	SYSTEM ELECTRONICS	1	CONNECT EXTERNALLY
		1	6 X 6 X 4 IN. BDX
		1	1 IN. DIA. IN. CHASE NIPPLE
		1	COVERPLATE
MU	MUSIC SYSTEM	1	SAME ROUTING AS DV



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

CONDUITS REQUIRED FOR BASE SYSTEM

TO	FROM	CONDUIT SIZE
EQ	OC	ONE 3/4" CND.
OC	SE	TWO 2 1/2" CND.

REV DATE: 07/07/10

NOTE: SEE EQUIPMENT LIST FOR CALL OUTS

- 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 OUTLET ROUTED THROUGH RF FILTER
  - Ⓝ: NETWORK OUTLET (SEE ELECTRICAL DETAILS ELEC-83 AND ELEC-84 OR ELEC-87)
  - Ⓣ: DEDICATED TELEPHONE LINE(S) (SEE ELECTRICAL DETAIL ELEC-1 OR ELEC-87)
  - Ⓛ15-30R: THREE PHASE 208V, 3ØA, 4 WIRE, L15-30R TWST LOCK, 18" A.F.F.
  - Ⓛ21-30R: THREE PHASE 208V, 3ØA, 5 WIRE, L21-30R TWST LOCK, 18" A.F.F.
  - Ⓛ15A: SINGLE PHASE 120V, 15A, QUAD U-GROUND RECEPTACLE, 18" A.F.F.

GE Project Manager: **JIM DOMBROSKI**  
Telephone: 603-934-3739

THE GE HR TECHNICAL SUPPORT GROUP IS AN ADDITIONAL RESOURCE THAT CAN PROVIDE ANSWERS FOR GENERAL GE PRODUCT SIZING QUESTIONS AND CAN BE REACHED AT (877)-305-9877

**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
RF GND STUD > RF FILTER	1-GREEN (<SIZE AS REQUIRED FOR EACH FILTER>)

**GE Healthcare**

Healthcare Project Implementation - Design Center

Minneapolis, Wisconsin

SHEET TITLE: **ELECTRICAL LAYOUT**

MODALITY TYPE: **OPTIMA MR430s**

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 SPECIFICATIONS SHOWN ON THIS PLAN. THE COMPANY CANNOT ACCEPT RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:

**ORTHOPAEDIC ASSOCIATES OF PORTLAND**

PORTLAND, MAINE

PROJECT	REVISION
130260	00

DATE: 22.Jan.13  
DRAWN BY: TMS  
CHECKED BY: PMM  
CON NO: 4057872  
CON DT: 16.JAN.13

REVISION HISTORY:

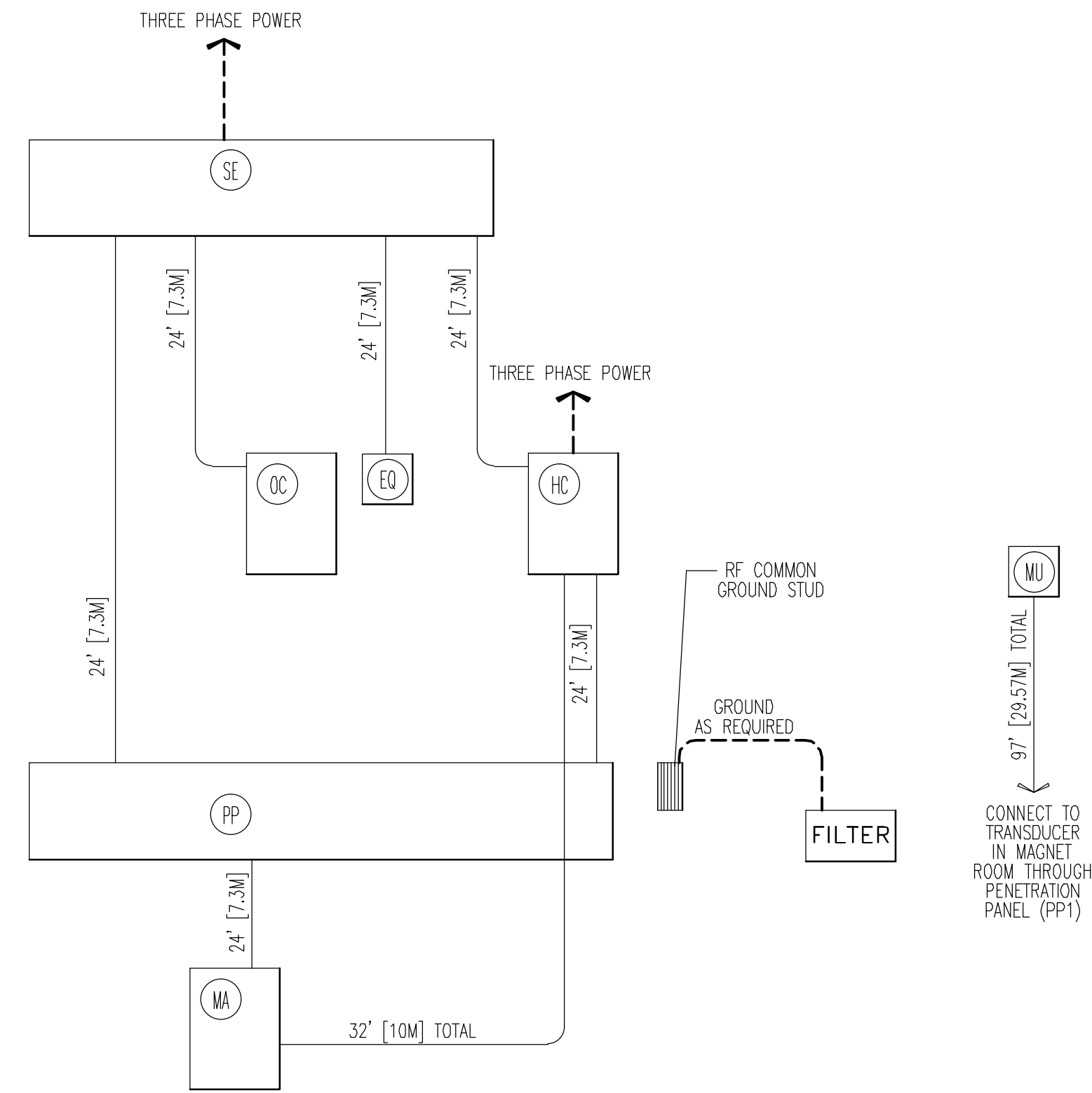
NO.	DESCRIPTION

SHEET

**E1**

This drawing is based on Sketch No.: 13nef005

INTERCONNECT DIAGRAM



ALTERNATE LENGTH CABLES		
SE	TO	OC
		25' [7.62M]
		50' [15.24M]
		75' [22.86M]
SE	TO	HC
		25' [7.62M]
		50' [15.24M]
		75' [22.86M]
SE	TO	PP
		25' [7.62M]
		50' [15.24M]
HC	TO	MA
		32.8' [10M] TOTAL
		65.6' [20M] TOTAL

POWER SPECIFICATIONS

MSK EXTREMITY (REV. DATE 04/20/10)

VOLTAGE PRIMARY SOURCE IS REQUIRED FOR ALL INSTALLATIONS. RANGE OF LINE VOLTAGES: NOMINAL LINE VOLTAGE OF 200 TO 415, 3 PHASE, 50 OR 60 Hz.

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)	
		MOMENTARY	CONTINUOUS
200	180-220	32	18
<b>208</b>	<b>187-229</b>	<b>31</b>	<b>17</b>
380	342-418	17	9
400	360-440	16	9
415	374-456	15	8

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 75 MICROSECONDS 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 = 11.1 KVA. CONTINUOUS = 6.1 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.
- NOTE 12: GEHC CONDUCTS POWER AUDITS TO VERIFY QUALITY OF POWER BEING DELIVERED TO THE SYSTEM. THE CUSTOMER'S ELECTRICAL CONTRACTOR IS REQUIRED TO BE AVAILABLE TO SUPPORT THIS ACTIVITY.

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**

Healthcare Project Implementation - Design Center

Minneapolis, Wisconsin

SHEET TITLE: **ELECTRICAL SPECIFICATIONS**

MODALITY TYPE: **OPTIMA MR430S**

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 SPECIFICATIONS. IT IS ADVISED THAT THE COMPANY CANNOT BE HELD RESPONSIBLE FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:

**ORTHOPAEDIC ASSOCIATES OF PORTLAND**

PORTLAND, MAINE

PROJECT	REVISION
130260	00
DATE:	22.Jan.13
DRAWN BY:	TMS
CHECKED BY:	PMM
CON NO.:	4057872
CON DT.:	16.JAN.13

REVISION HISTORY:


SHEET

**E2**

This drawing is based on Sketch No.: 1.3nef005

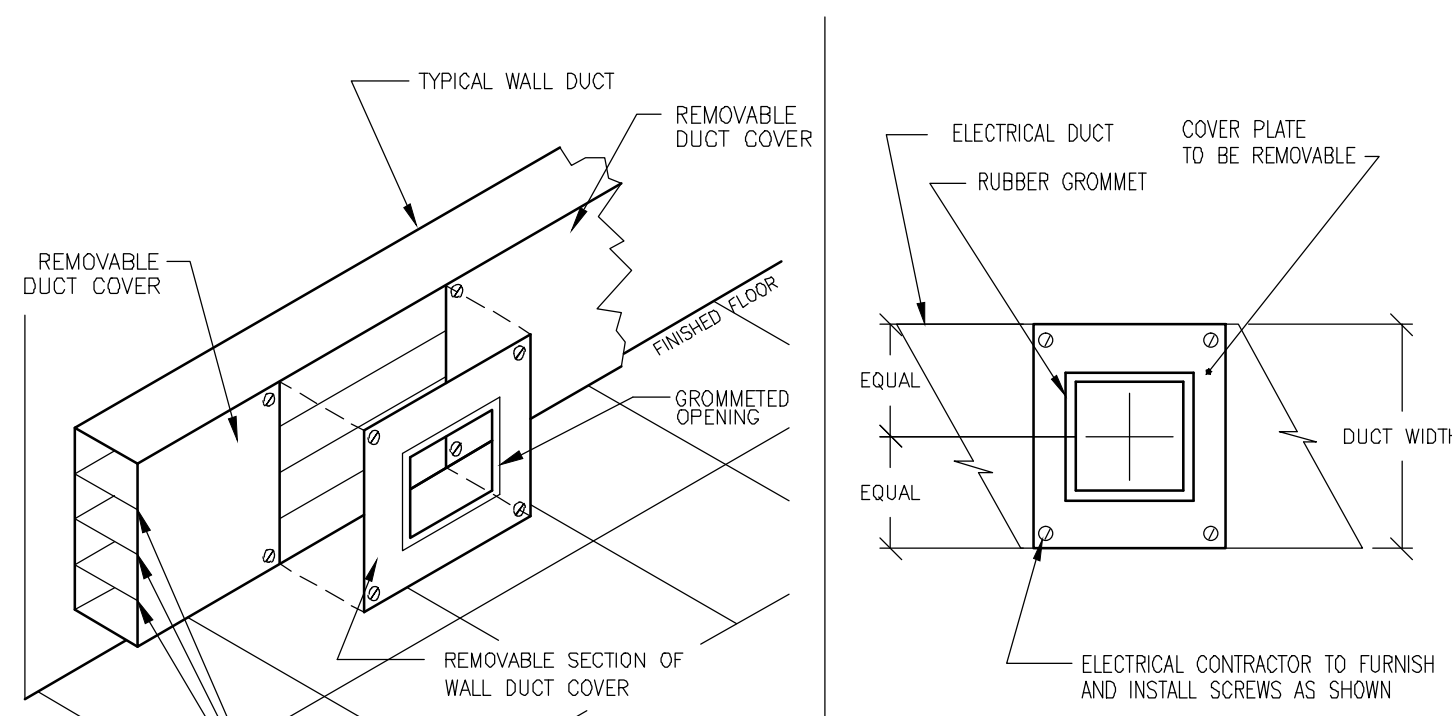
PIM R3

RQ - 132724

ELECTRICAL DETAIL  
HORIZONTAL WALL DUCT (TYPICAL)

ELEC-5

REV. DATE: 03/19/04



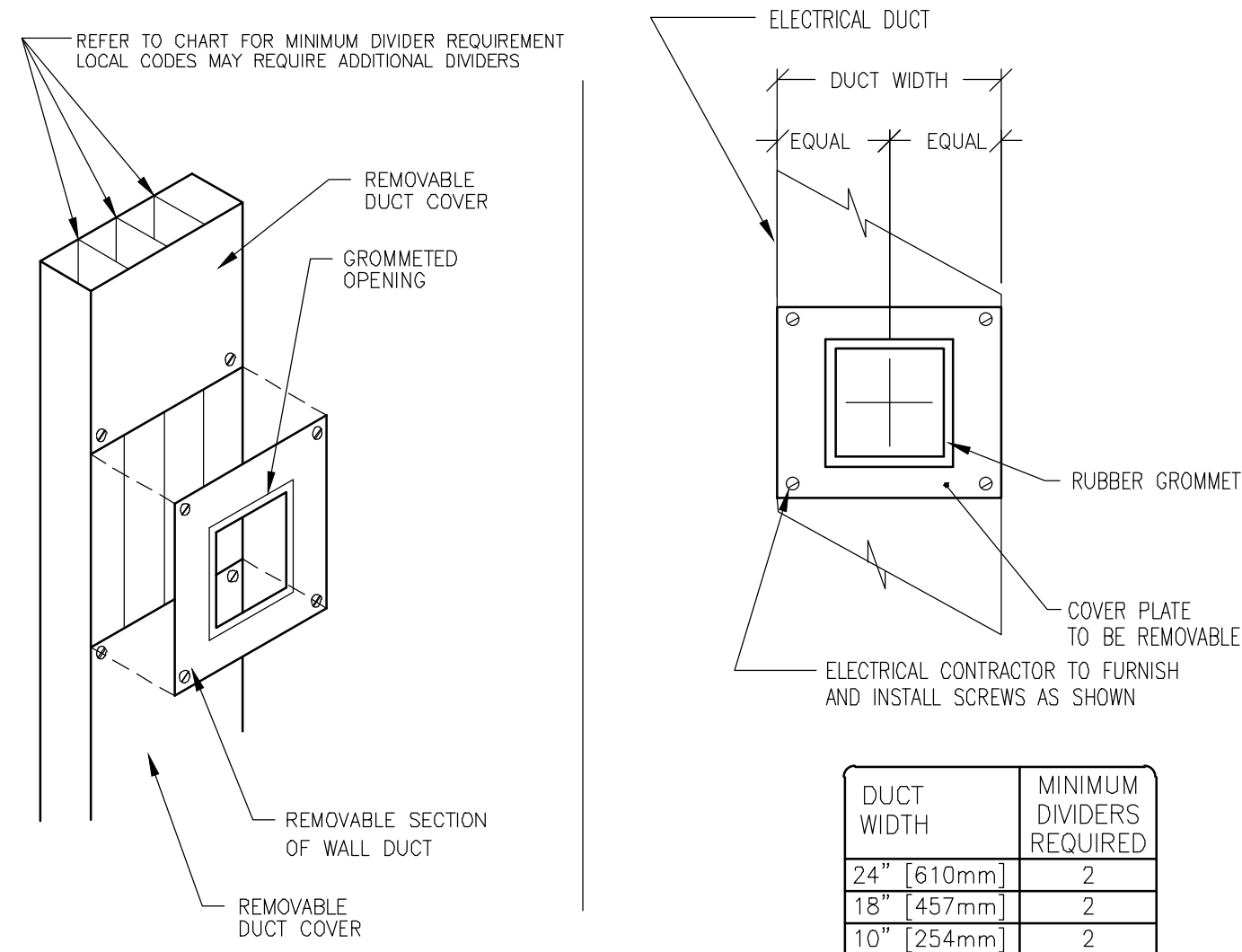
DUCT WIDTH	MINIMUM DIVIDERS REQUIRED
24" (610mm)	2
18" (457mm)	2
10" (254mm)	2
6" (152mm)	1
4" (102mm)	1

DETAIL NOT TO SCALE

ELECTRICAL DETAIL  
VERTICAL WALL DUCT (TYPICAL)

ELEC-6

REV. DATE: 03/19/04



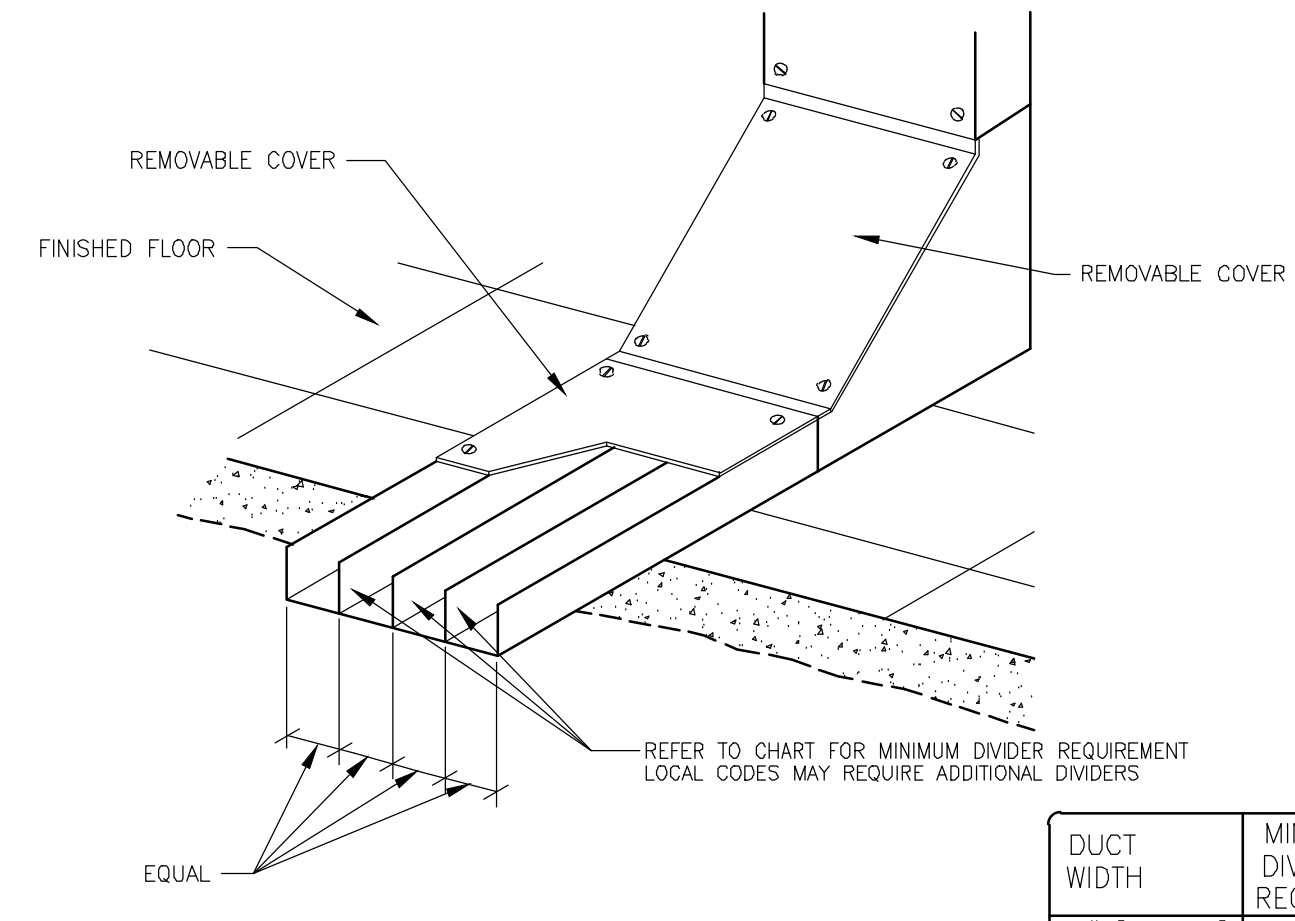
DUCT WIDTH	MINIMUM DIVIDERS REQUIRED
24" (610mm)	2
18" (457mm)	2
10" (254mm)	2
6" (152mm)	1
4" (102mm)	1

DETAIL NOT TO SCALE

ELECTRICAL DETAIL  
SURFACE FLOOR DUCT (TYPICAL)

ELEC-14

REV. DATE: 4/02/04



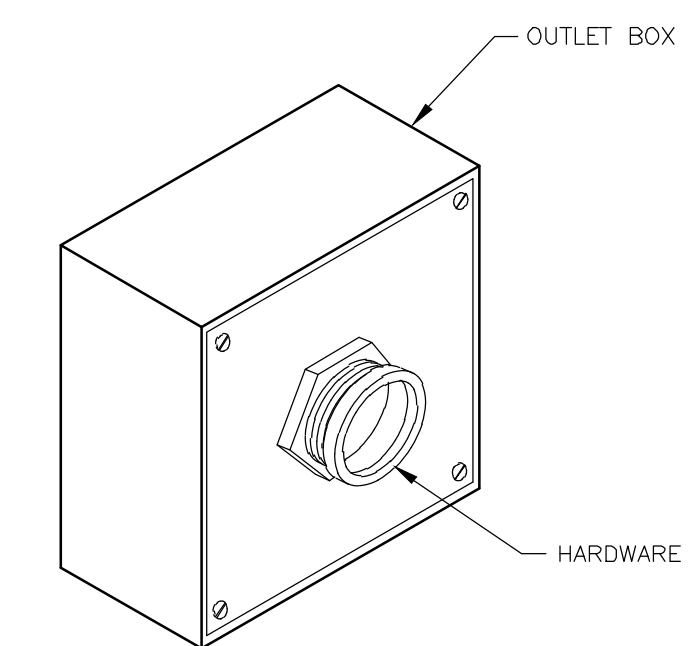
DUCT WIDTH	MINIMUM DIVIDERS REQUIRED
24" (610mm)	2
18" (457mm)	2
10" (254mm)	2
6" (152mm)	1
4" (102mm)	1

DETAIL NOT TO SCALE

ELECTRICAL DETAIL  
BOX WITH COVERPLATE (TYPICAL)

ELEC-8

REV. DATE: 09/30/94



DETAIL NOT TO SCALE

SHEET TITLE: ELECTRICAL DETAILS  
MODALITY TYPE: OPTIMA MR430S

PROJECT TITLE:  
**ORTHOPAEDIC ASSOCIATES OF PORTLAND**  
PORTLAND, MAINE

PROJECT	REVISION
130260	00
DATE:	22.Jan.13
DRAWN BY:	TMS
CHECKED BY:	PMM
GON NO:	4057872
GON DT:	16.JAN.13

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

SHEET  
**E3**

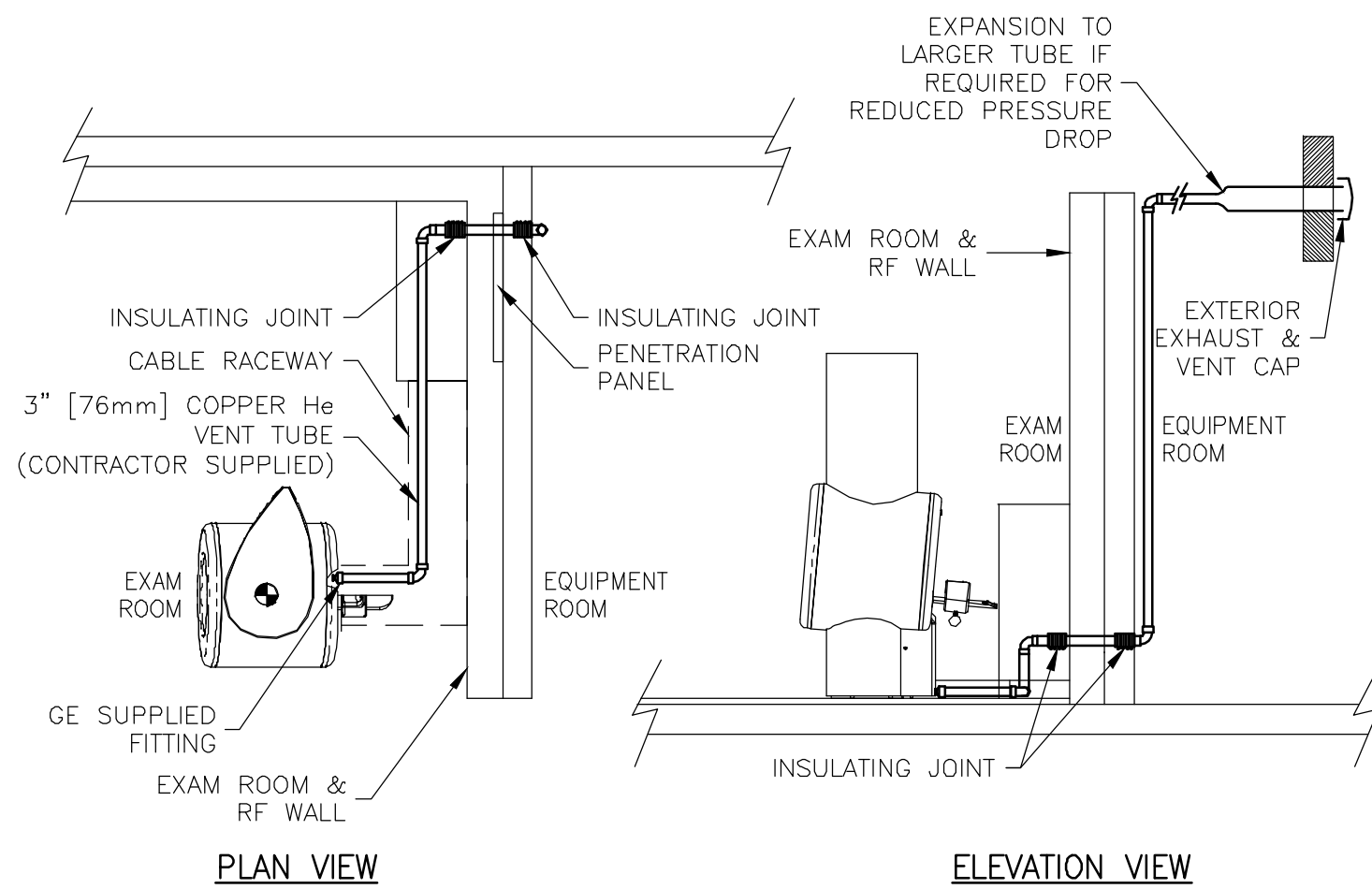
RQ - 132724 PIM R3 This drawing is based on Sketch No.: 13nef005

THIS PLAN IS SUBMITTED TO SURVEY 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 ACTUAL CONSTRUCTION PURPOSES. HOWEVER, THE COMPANY CANNOT ACCEPT RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

**GE Healthcare**  
Healthcare Project Implementation - Design Center  
MILWAUKEE, WISCONSIN

CRYOGENIC VENTING SYSTEM

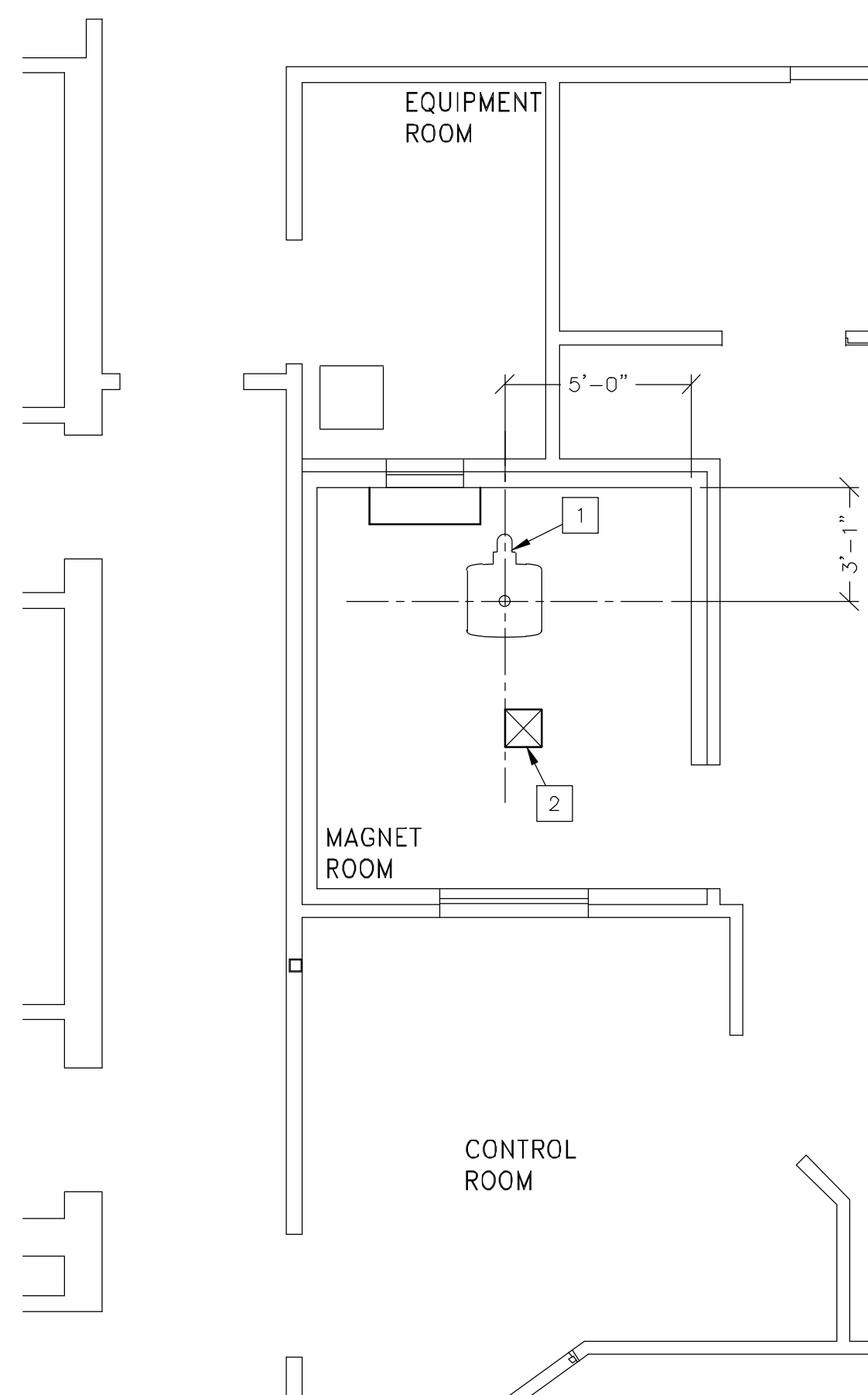
MECH-48  
REV. DATE: 04/12/10



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	A HELIUM VENT PIPE PENETRATION IS REQUIRED. THE SHIELD CONTRACTOR IS TO SUPPLY A 3 IN. (76 MM) WAVEGUIDE SECTION OF TUBE AND MECHANICALLY AND ELECTRICALLY SECURE THE TUBE TO THE SHIELD. REFER TO CHAPTER 5 OF MANUAL FOR MORE DETAILS ON HELIUM VENTING.
2	A MINIMUM 18 IN. X 18 IN. (305 MM X 305 MM) EMI-SHIELDED VENTILATION PANEL WITH HONEYCOMB CONSTRUCTION SHOULD BE INSTALLED IN THE CEILING.

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.

SHEET TITLE: MECHANICAL LAYOUT  
MODALITY TYPE: OPTIMA MR430s

THIS PLAN IS SUBMITTED TO SUBJECT 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. THE COMPANY CANNOT ACCEPT RESPONSIBILITY FOR ANY DAMAGES RESULTING THEREFROM.

PROJECT TITLE:  
**ORTHOPAEDIC ASSOCIATES OF PORTLAND**  
PORTLAND, MAINE

PROJECT	REVISION
130260	00
DATE:	22 Jan. 13
DRAWN BY:	TMS
CHECKED BY:	PMM
GON NO:	4057872
GON DT:	16 JAN. 13

REVISION HISTORY:

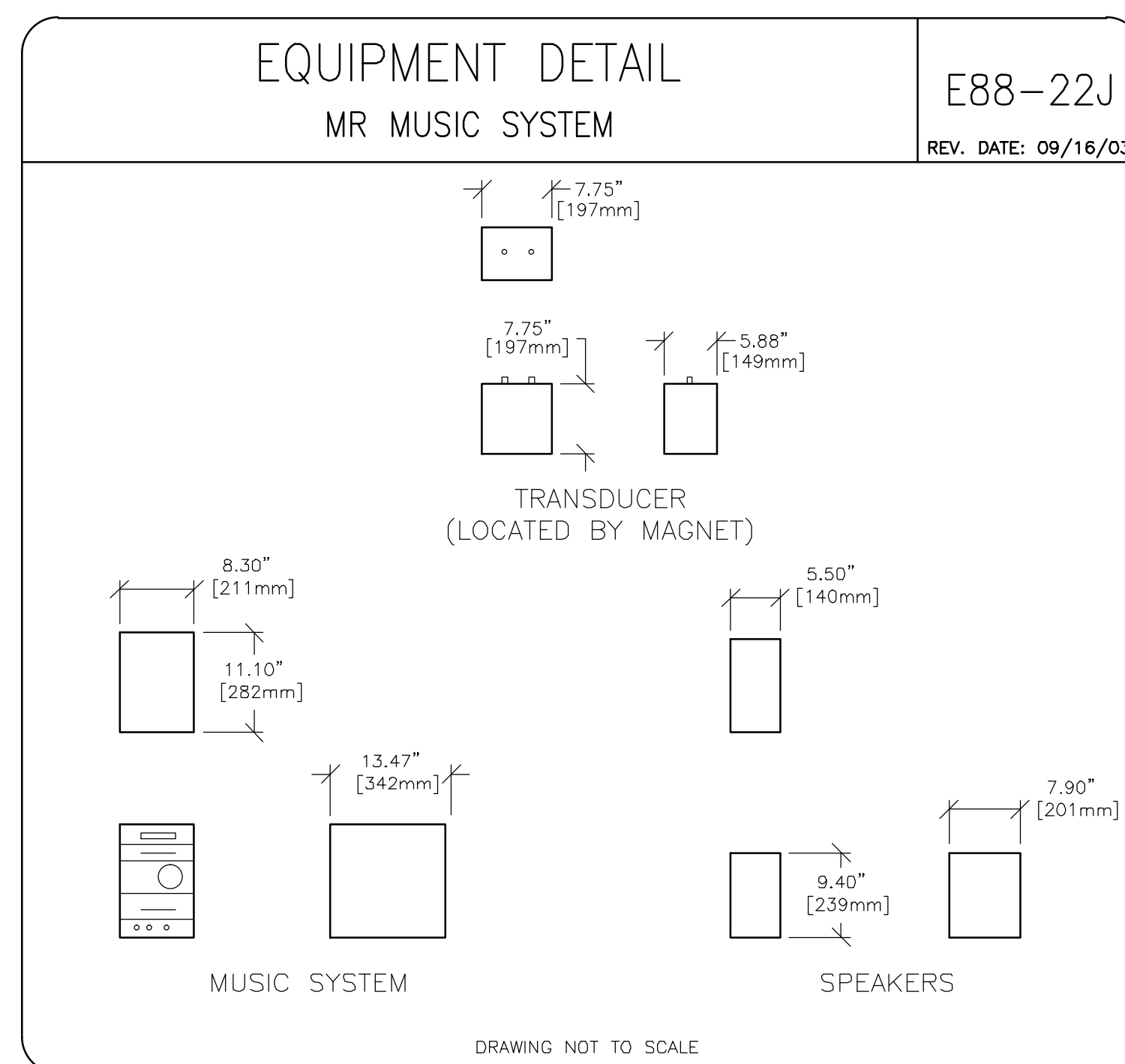
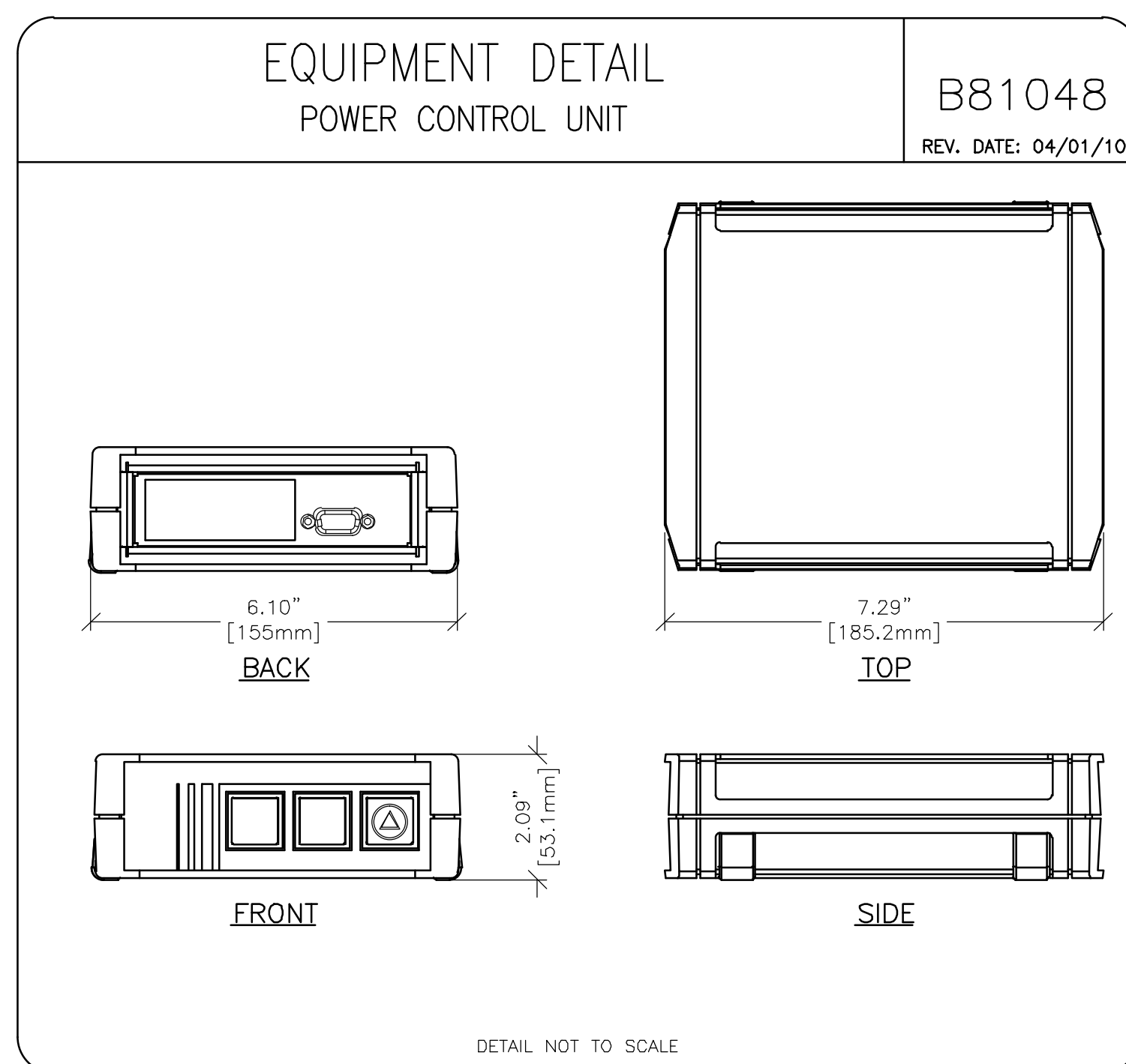
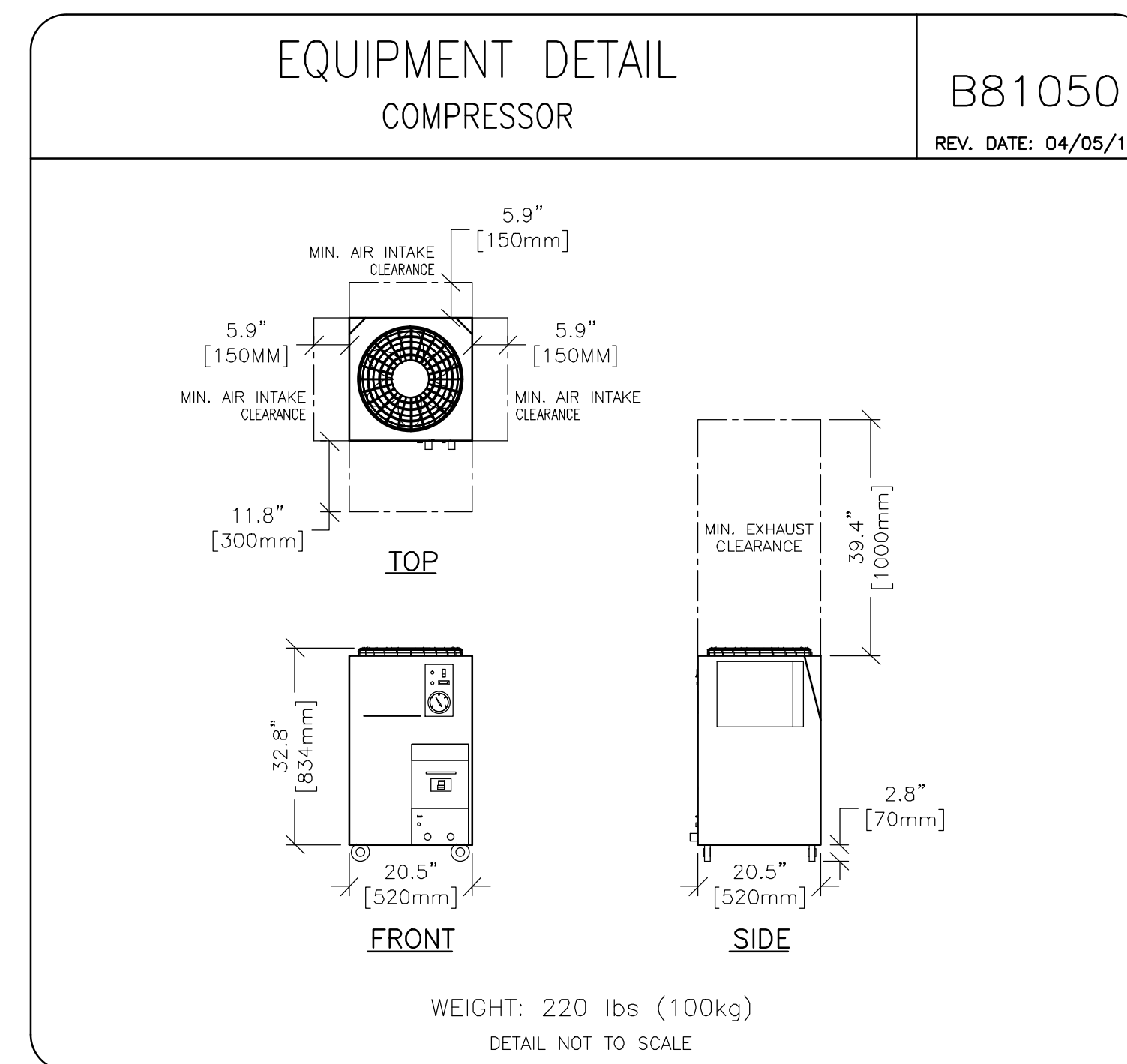
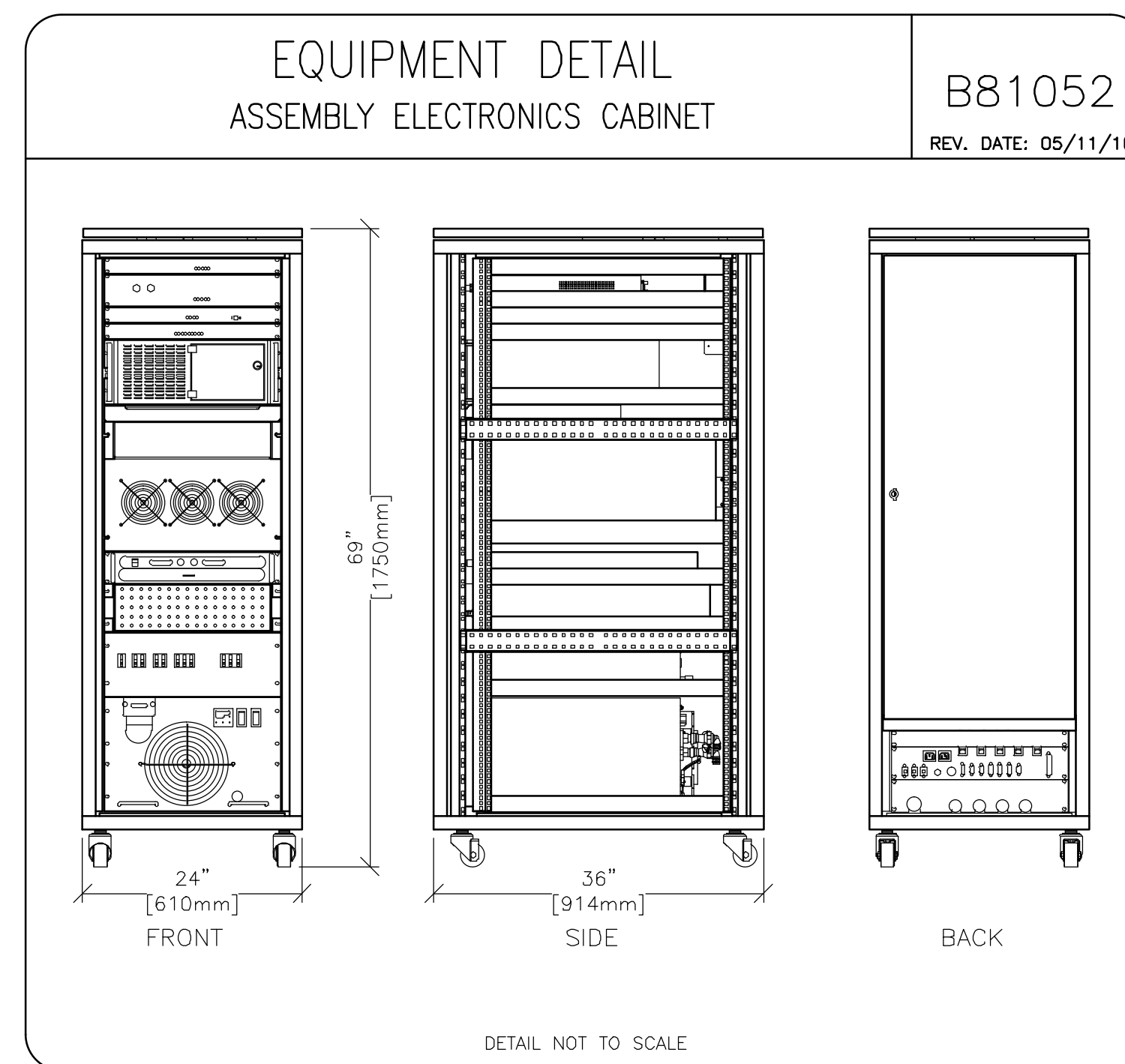
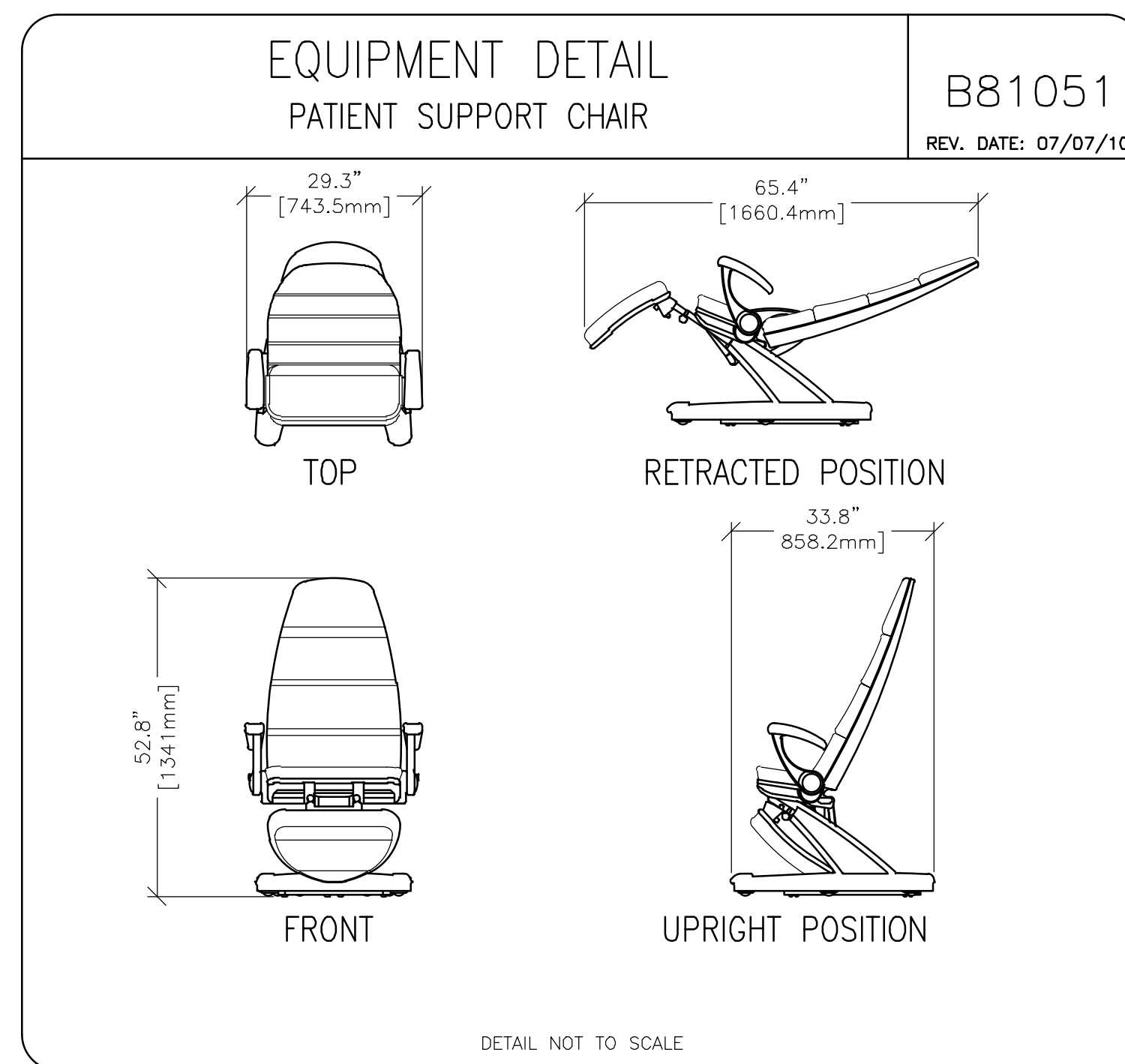
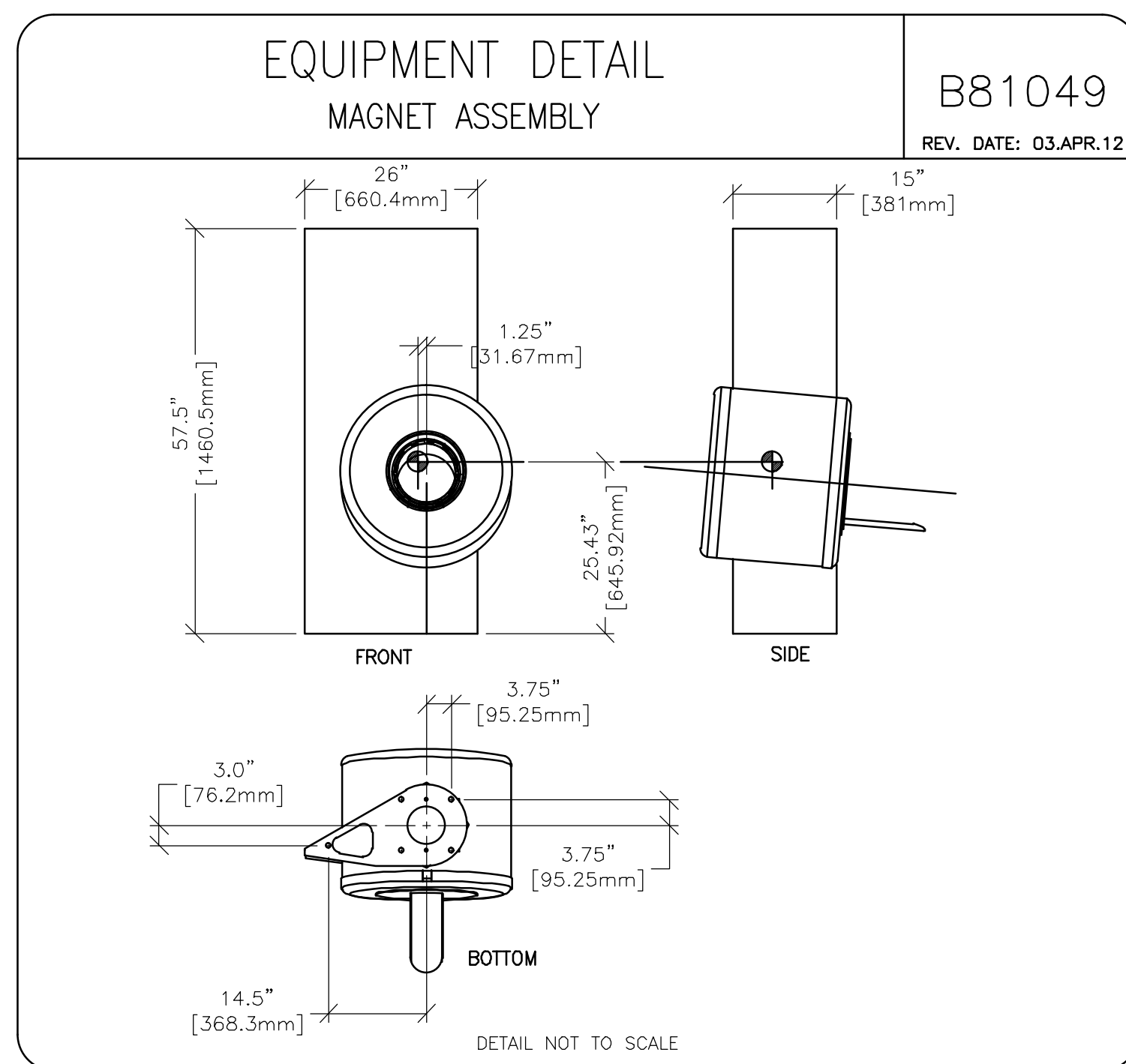
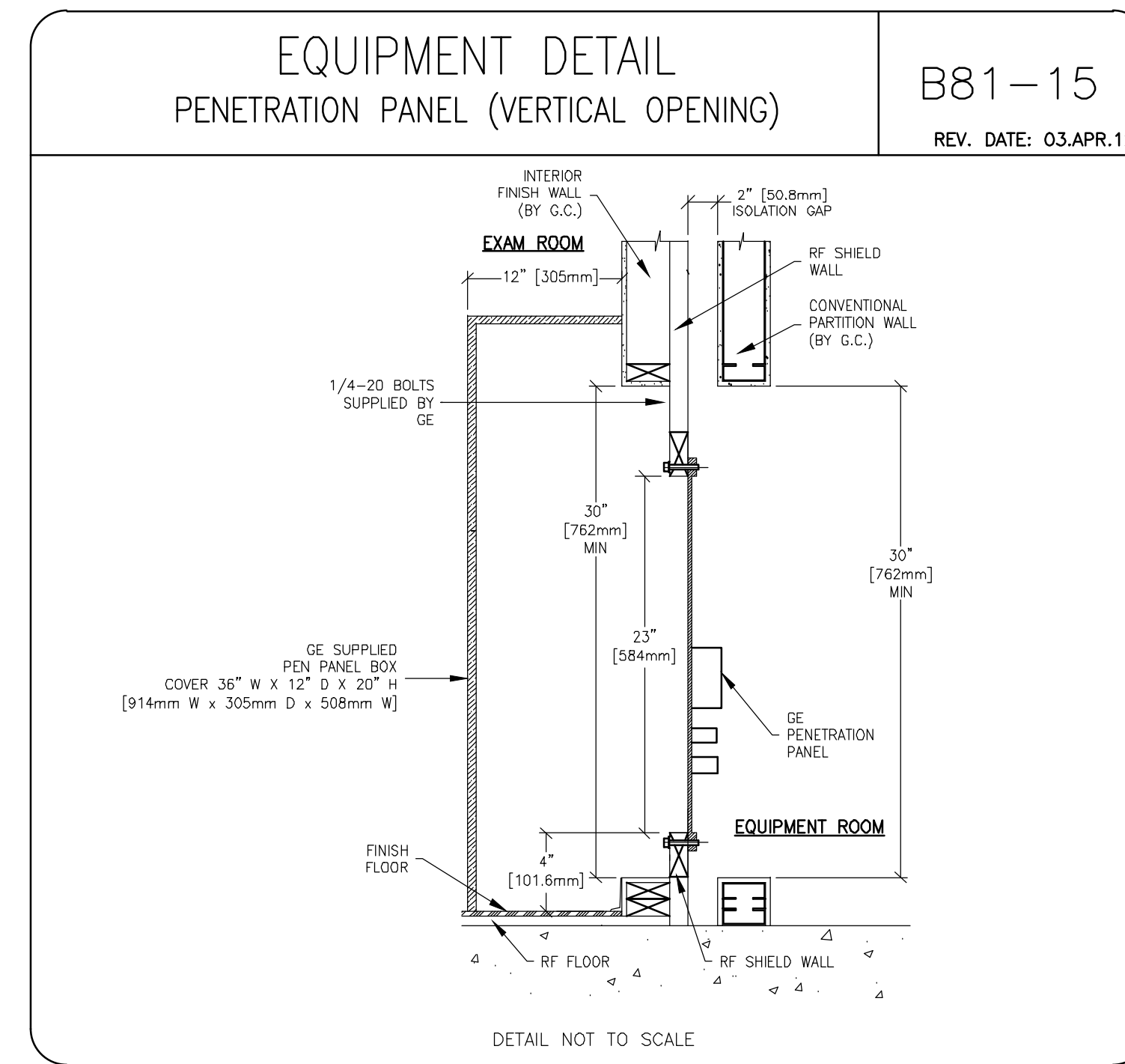
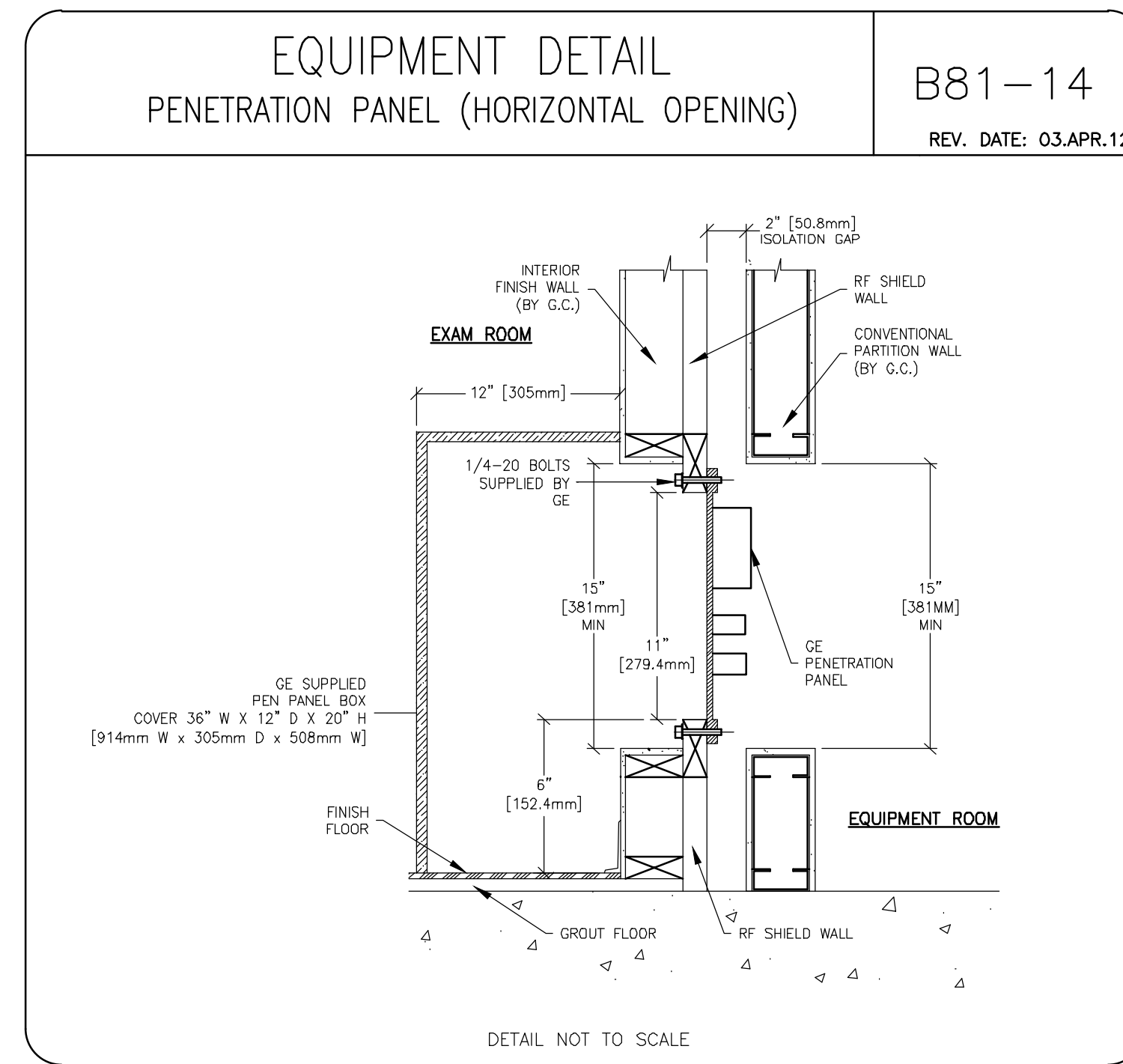
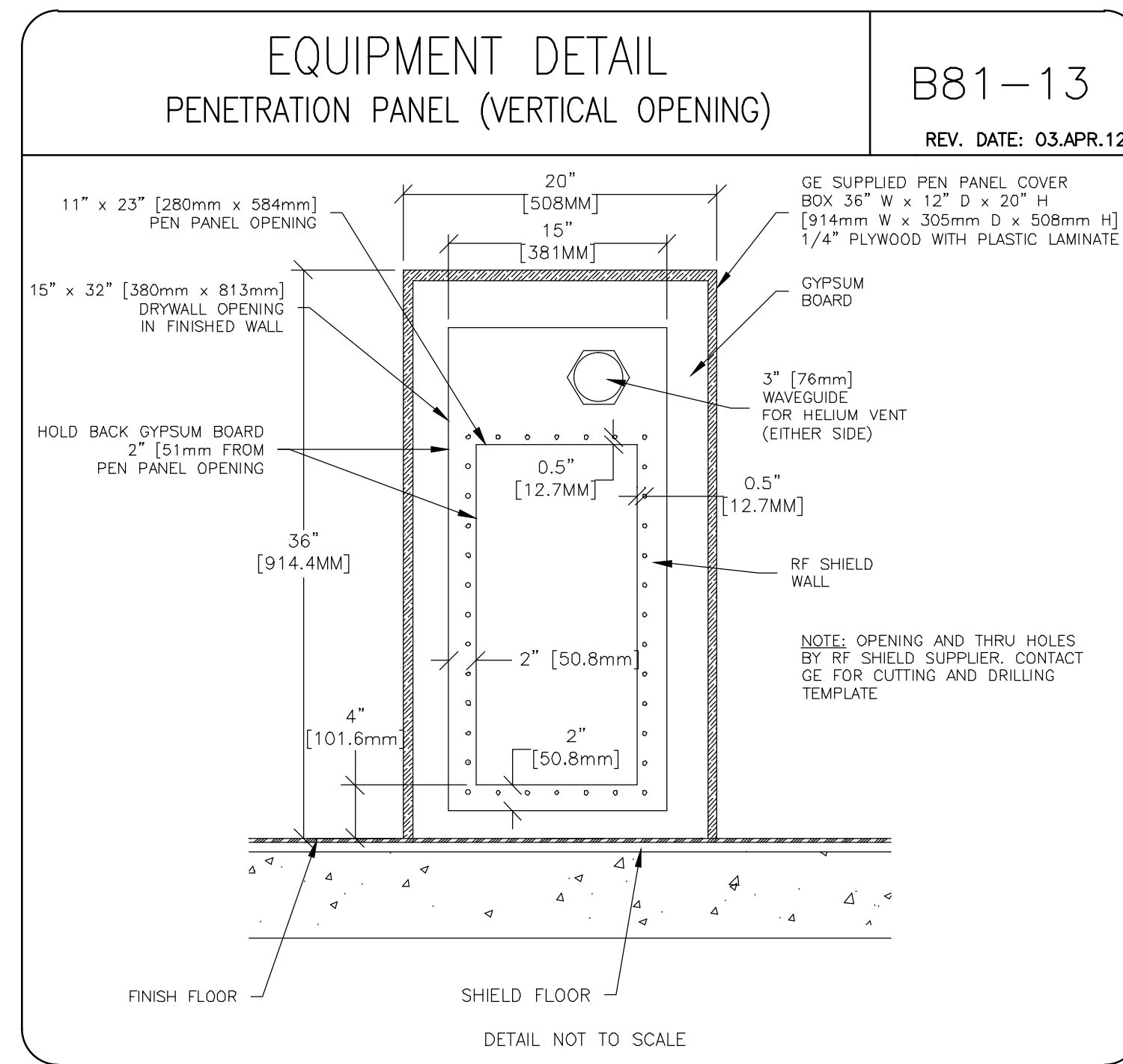
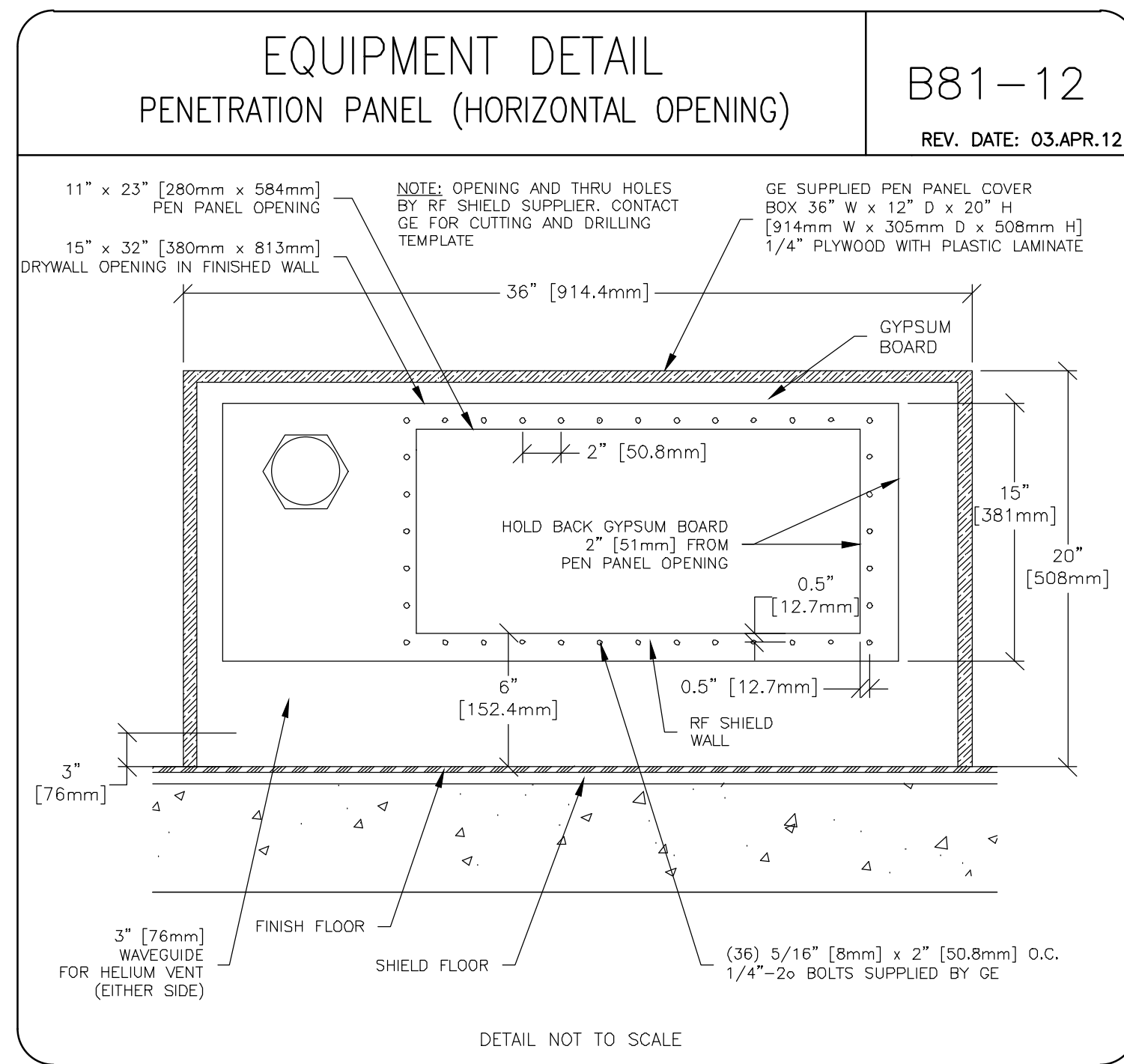
SHEET  
**M1**

GE Project Manager: JIM DOMBROSKI  
Telephone: 603-934-3739  
THE GE HR TECHNICAL SUPPORT GROUP IS AN ADDITIONAL RESOURCE THAT CAN PROVIDE ANSWERS FOR GENERAL GE PRODUCT SETTING QUESTIONS AND CAN BE REACHED AT (877)-305-9877

This drawing is based on Sketch No.: 1.3nef005  
PIM R3 RQ - 132724

**GE Healthcare**  
Healthcare Project Implementation - Design Center  
Milwaukee, Wisconsin





**GE Healthcare**  
Healthcare Project Implementation - Design Center  
Minneapolis, MN

SHEET TITLE: EQUIPMENT DETAILS  
MODALITY TYPE: OPTIMA MR430s

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

PROJECT TITLE:  
**ORTHOPAEDIC ASSOCIATES OF PORTLAND**  
PORTLAND, MAINE

PROJECT	REVISION
130260	00
DATE:	22.Jan.13
DRAWN BY:	TMS
CHECKED BY:	PMM
CON NO.:	4057872
CON DT.:	16.JAN.13

REVISION HISTORY:


SHEET  
**D1**

This drawing is based on Sketch No.: 13nef005  
PIM R3  
RQ - 132724