# Crady

#### **INVITATION FOR BIDS**

#### ALL PROSPECTIVE MECHANICAL CONTRACTORS

#### INVITATION FOR BIDS Grady MRI Chiller

Grady Health System Department of Facilities Management is soliciting proposals for mechanical services for the *Marcus Trauma Tower* 4<sup>th</sup> *Floor Penthouse*.

The project will be located at the main campus at 80 Jesse hill Dr., Atlanta, GA. 30303 in the Marcus Trauma Tower 4<sup>th</sup> Floor Penthouse.

The IFB (dated Monday, August 19, 2024) will be posted on the Grady website prior to the *mandatory preproposal* meeting Monday, September 2, 2024, at 3:00pm EST, in the offices of the Health System's Department of Facilities Management, Basement Floor, Grady Hospital. The driving address is 80 Jesse hill Dr., Atlanta, GA. 30303

Proposals will be due on **Tuesday**, <u>09/17/2024</u>, at 4:00 PM EST. Additional RFP documents will be presented at the <u>mandatory pre-proposal</u> meeting.

Additionally, registration with VendorMate (through the following website: <u>https://registersupplier.ghx.com</u>) must be completed prior to proposal submission.

Please notify *Ron Henry* by email at <u>rehenry@gmh.edu</u> of your intention to attend the pre-proposal meeting by email no later than **Friday, August 30 at 4:00 PM EST.** 

Please see the attached documents below for Project Background and New Scope Narrative.

Sincerely,

Grady Health System





TLC Engineering Solutions 4360 Chamblee Dunwoody Rd., Ste 210 Atlanta, Georgia 30341



GRADY HEALTH SYSTEMS ATLANTA, GEORGIA

MRI CHILLER CONCEPT DESIGN

JULY 12, 2024



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#### **1.0 Project Background and Existing Conditions**

#### Background:

Grady operates three MRIs on the 3<sup>rd</sup> floor of the Marcus Trauma Building. The MRIs' cooling is supplied by the chiller plant located in the 4<sup>th</sup> floor Mechanical penthouse. Grady engaged TLC to produce a concept design to add dedicated chillers, one for each MRI. TLC brought on PES Structural Engineers to determine if additional roof supports would be required.

#### Mechanical:

The MRIs system is isolated from the main chilled water system with a heat exchanger, and there are three dedicated circulation pumps for the system. When the third MRI was installed in 2022, the heat exchanger was replaced with a larger capacity model and the third pump was added to maintain redundancy. The pump system operates at constant volume of approximately 90 GPM.

#### **Electrical:**

The existing chillers pumps will remain as they are. No changes to electrical installation is anticipated.

#### Structural:

The existing roof construction based on original design documents dated 11-6-2014 consists of a concrete beam and slab construction. The existing 5" thick reinforced slab spans to 21" deep cast in place beams at various spacings which are supported by concrete girders. The concrete strength is 5000 psi.



Grady Health Systems – MRI Chiller Concept Design Narrative Page 2

#### 2.0 New Scope Narrative

#### Mechanical:

Three air-cooled chillers will be installed on the 4<sup>th</sup> floor roof, one chiller dedicated to each MRI. Piping shall be routed through the 4<sup>th</sup> floor mechanical room to each MRI equipment room. All piping shall be insulated, and exterior piping will also be heat traced for freeze protection. The piping shall connect to the existing systems upstream of the components required by Siemens (Appendix C). The existing MRI chilled water loop shall remain in service to function as a backup system. Control valves and a bypass will be installed to ensure that cold water is available without interruption.

The new chillers shall have manufacturer provided, onboard controls. Integrate each chiller with the BMS for monitoring and alarms as indicated in Appendix A. Provide an add/alternate price to use a Filtrine Quick Connect Panel (or similar). Integrate the existing MRI loop pumps into the BMS and provide new controls as required per the sequence on the drawings.

At each location where piping penetrates the roof, provide a piping doghouse or box. Coordinate with Grady's preferred roofing vendor and provide proper installation.

One of the chiller locations is less than 10' from a roof edge and may require fall protection during maintenance activities. The connection work inside of the MRI rooms shall be coordinated with the Owner to minimize downtime.

#### Electrical:

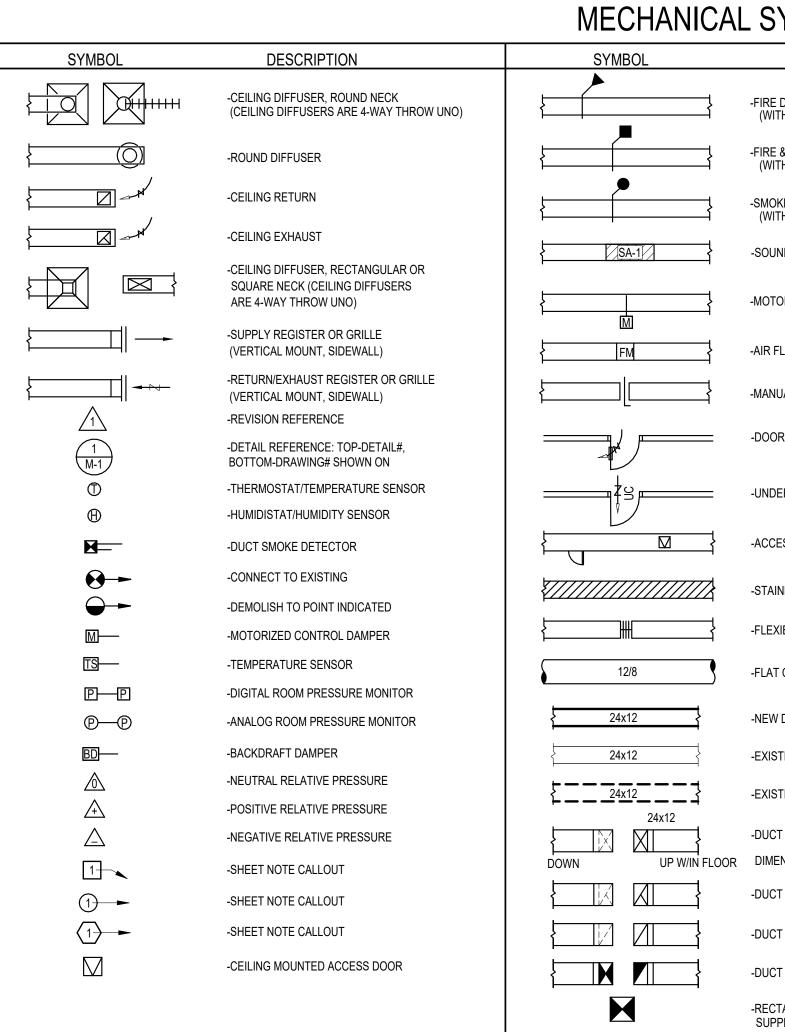
The three air-cooled chillers will derive their power from existing distribution panel "4CED2". Panel 4CED2 will need to be metered for 30 days to confirm the electrical capacity of the panel. Each chiller will require a NEMA 3R disconnect rated at 200A and non-fused. 150A breaker will be provided at distribution panel "4CED2" for each chiller. Refer to Appendix B for wiring and conduit information. For the new chiller piping mounted on the exterior of the building, a new 277V, 30A breaker shall be utilized to power the heat traced that will be used on the exterior piping. This should be obtained from the existing 277/480V equipment distribution panel.

#### Structural:

PES has analyzed the existing structure for the weight of the 6,400# chillers. The existing roof slab, girders and columns are all capable of supporting the new units. However, not all the roof beams have the capacity to support the units. PES has worked with TLC to locate the units in the locations on their plan so that they are either on a girder line or supported directly over a beam that can support their weight.



# **APPENDIX A**



		MECHANICAL SYMBOL LEGEND		MECHANICAL ABBREVIATIONS	MECHANICAL GENERAL NOTES
SYMBOL	DESCRIPTION	SYMBOL DESCRIPTION	SYMBOL DESCRIPTION	SYMBOL DESCRIPTION SYMBOL DESCRIPTION	<ol> <li>CONNECTION TO EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURER'S CERTIFIED DRAWINGS. TRANSITIONS TO ALL EQUIPMENT SHALL BE VERIFIED AND PROVIDED FOR EQUIPMENT FURNISHED.</li> </ol>
	DESCRIPTION -CEILING DIFFUSER, ROUND NECK (CEILING DIFFUSERS ARE 4-WAY THROW UNO) -ROUND DIFFUSER -CEILING RETURN -CEILING EXHAUST -CEILING DIFFUSER, RECTANGULAR OR SQUARE NECK (CEILING DIFFUSERS ARE 4-WAY THROW UNO) -SUPPLY REGISTER OR GRILLE (VERTICAL MOUNT, SIDEWALL) -RETURN/EXHAUST REGISTER OR GRILLE (VERTICAL MOUNT, SIDEWALL) -RETURN/EXHAUST REGISTER OR GRILLE (VERTICAL MOUNT, SIDEWALL) -RETURN/EXHAUST REGISTER OR GRILLE (VERTICAL MOUNT, SIDEWALL) -REVISION REFERENCE DETAIL REFERENCE: TOP-DETAIL#, BOTTOM-DRAWING# SHOWN ON -THERMOSTAT/TEMPERATURE SENSOR -DUCT SMOKE DETECTOR -DUCT SMOKE DETECTOR -DUCT SMOKE DETECTOR -DUCT SMOKE DETECTOR DUGITAL ROOM PRESSURE MONITOR -MAULOG ROOM PRESSURE MONITOR -ANALOG ROOM PRESSURE MONITOR -BACKDRAFT DAMPER -NEUTRAL RELATIVE PRESSURE -NEUTRAL RELATIVE PRESSURE -NEUTRAL RELATIVE PRESSURE -NEGATIVE RELATIVE PRESSURE -SHEET NOTE CALLOUT -SHEET NOTE CALLOUT -SHEET NOTE CALLOUT	SYMBOL     DESCRIPTION       -FIRE DAMPER (WITH ACCESS PANEL)     -FIRE S MOKE DAMPER (WITH ACCESS PANEL)       -SMOKE DAMPER (WITH ACCESS PANEL)     -SMOKE DAMPER (WITH ACCESS PANEL)       -SMOKE DAMPER (WITH ACCESS PANEL)     -SMOKE DAMPER (WITH ACCESS PANEL)       -SOUND ATTENUATOR     -SOUND ATTENUATOR       -MOTOR OPERATED CONTROL DAMPER (MOD)     -MOTOR OPERATED CONTROL DAMPER (MOD)       -MOTOR OPERATED CONTROL DAMPER (MOD)     -MOTOR OPERATED CONTROL DAMPER (MOD)       -MOTOR OPERATED CONTROL DAMPER     -DOOR GRILLE       -MOTOR OPERATED CONTROL DAMPER     -DOOR GRILLE       -MOTOR OPERATED CONTROL DOOR     -MANUAL BALANCING DAMPER       -MOTOR OPERATED CONNECTION     -MOTOR OPERATED CONNECTION       -MOTOR OPERATED CONNECTION     -FLEXIBLE CONNECTION       -MOTOR OPERATED CONTROL DUCT     -NEW DUCTWORK, FIRST DIMENSION IS SIDE SHOWN       -Z4X12     -NEW DUCTWORK TO REMAIN       -Z4X12     -EXISTING DUCTWORK TO REMAIN       -Z4X12     -EXISTING DUCTWORK TO REMAIN       -Z4X12     -DUCT ELBOW, POSITIVE PRESSURE (SUPPLY), FIRST       DOWN     -DUCT ELBOW, NEGATIVE PRESSURE, RETURN       -DUCT ELBOW, NEGATIVE PRESSURE, RETURN       -DUCT ELBOW, UP THROUGH ROOF OR SLAB ABOVE	-TERMINAL UNIT, VARIABLE/CONSTANT AIR -TERMINAL UNIT, VARIABLE/CONSTANT -TERMINAL UNIT, VARIABLE/CONSTANT -TERMINAL UNIT, VARIABLE/CONSTANT -TERMINAL UNIT, VARIABLE/CONS		<ol> <li>CONNECTION TO EQUIPMENT SHALL BE VERIFIED WITH MANUFACTURER'S CERTIFIED DRAWINGS. TRANSITIONS TO ALL EQUIPMENT SHALL BE VERIFIED AND PROVIDED FOR EQUIPMENT FURNISHED.</li> <li>DIMENSIONS SHALL BE FIELD-VERIFIED AND COORDINATED PRIOR TO PROCUREMENT OR FABRICATION. COORDINATE THE WORK WITH OTHER TRADES INVOLVED. FIELD MODIFICATIONS SUCH AS OFFSETS IN PIPING OR DUCTYORK (INCLUDING DIVIDED DUCTYORK) REEDED DUTO OSSTRUCTIONS ON INTERFRENCES SHALL BE PROVIDED AT NO ADDITIONAL COST. FOR PROJECTS INVOLVING RENOVATION. COORDINATE NEW WORK WITH ENSISTING CLARING NEW REDUCTION FUNCTIONE RENOVATION. COORDINATE NEW WORK WITH ENSISTING CLARING. AND ELECTRICAL CONDUIT.</li> <li>DUCT CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARD.</li> <li>SEES SPECIFICATIONS FOR GAUGES. THICKNESS, BRACING, REQUIREMENTS, ETC., OF DUCTWORK.</li> <li>PROVIDE AIR TURNING VANES IN ALL 00 DEGREE RECTANGULAR DUCT ELBOWS.</li> <li>DUCT SIZES AND ALL OPENINGS THROUGH BUILDING CONSTRUCTION SHALL SUIT EQUIPMENT FURNISHED.</li> <li>COORDINATE DIFFUSER, GRILLE AND DEGISTER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS AND EQUIPMENT OF ALL TRADES.</li> <li>LOCATE THERMOSTATS, TEMPERATURE SENSORS, HUMIDISTATS, AND HUMIDITY SENSORS AT 49' ABOVE PINISHED FLOOR UNLESS NOTED OTHERWISE. COORDINATE LOCATIONS WITH OTHER EQUIPMENT. FURNITURE, AND DORS WINNS.</li> <li>ALL EQUIPMENT, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED AND/OR SPECIFIED. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED TO PROVIDE A VIRRITION-FREE, RIGID INSTALLATION.</li> <li>ALL EQUIPMENT, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED AND DIFFUSERS SHALL BE PAINTED FLAT BLACK.</li> <li>REMERS SHOWN ARE INSIDE CLEAR DIMENSIONS.</li> <li>DAMERS SHOWN ARE INSIDE CLEAR DIMENSIONS.</li> <li>DAMENES SHOWN ARE INSIDE CLEAR DIMENSIONS.</li> <li>DRANGET SO UT GONDERT FURNISHED.</li> <li>ROKIDES OF DUCTS VISIBLE THROUGH GRILLES, REGISTERS AND DIFFUSERS SHALL BE PAINTED FLAT</li></ol>
		-RECTANGULAR DUCT SECTION UP, POSITIVE PRESSURE, SUPPLY OR OUTSIDE AIR         -RECTANGULAR DUCT SECTION UP, NEGATIVE PRESSURE, RETURN         -RECTANGULAR DUCT SECTION UP, EXHAUST         -ROUND DUCT SECTION UP         -ROUND DUCT SECTION UP         -FLAT OVAL DUCT SECTION UP	Image: constraint of the second se		<ul> <li>OF LEGALLY, AS DIRECTED BY OWNER.</li> <li>22. MAINTAIN CLEARANCE OF A MINIMUM OF 4" BETWEEN DUCTWORK, PIPING, EQUIPMENT, ETC., AND ALL FIRE AND/OR SMOKE RATED WALLS, TO ALLOW FOR INSPECTIONS OF RATED WALLS.</li> <li>23. LOCATE ALL OUTSIDE AIR INTAKES A MINIMUM OF 10" CLEAR FROM ALL PLUMBING VENTS AND EXHAUST AIR DISCHARGE LOCATIONS, AND A MINIMUM OF 11" ABOVE ROOF SURFACES/GRADE.</li> <li>24. DUCT RUNOUTS TO DIFFUSERS SHALL MATCH THE SIZE OF THE DIFFUSER NECK.</li> <li>25. WATER PRESSURE DROPS THROUGH COIL CONTROL VALVES SHALL NOT EXCEED 5 PSI.</li> <li>26. UNLESS OTHERWISE NOTED, ALL EQUIPMENT AND VALVE DRAINS SHALL BE INDEPENDENTLY PIPED FULL SIZE TO THE NEAREST PLUMBING DRAIN.</li> <li>27. SLEEVE AND SEAL ALL PIPING PENETRATIONS THROUGH BUILDING PARTITIONS. PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS IN CHILLED WATER RAND HOT WATER PIPING.</li> <li>28. PIPING, DUCTWORK, LEAK PROTECTION APPARATUS, OR OTHER EQUIPMENT FOREIGN TO ELECTRICAL SWITCHBOARDS, PANELBOARDS, DISTRIBUTION BOARDS, OR MOTOR CONTROL CENTERS SHALL NOT BE INSTALLED WITHIN THE REQUIPMENT. EXTENDING IN FRONT OF AND FROM FLOOR TO STRUCTURAL CEILING WITH A WIDTH AND DEPTH OF THE ELECTRICAL EQUIPMENT IN ACCORDANCE WITH NEC-110.26.</li> <li>29. TEST AND BALANCE SHALL BE PERFORMED AT EACH PHASE OF CONSTRUCTION, ON ALL SPACES AND SYSTEMS ASSOCIATED WITH THE PHASE. PROVIDE REPORT TO ENGINEER FOR REVIEW.</li> <li>30. SUBMITTALS: ELECTRONIC SUBMITTALS SHALL BE IN SEARCHABLE FORMAT. DO NOT SUBMIT SCANNED DOCUMENTS.</li> <li>31. MECHANICAL SYSTEMS COMMISSIONING WILL BE PERFORMED IN ACCORDANCE WITH CURRENT FLORIDA BUILDING CODE SECTION C408. A COMMISSIONING PLAN WILL BE DEVELOPED IN ACCORDANCE WITH FBC C408.2.1. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.</li> </ul>
		MECHANICAL PIPING SYMBOL LEGEND	<u>ר</u>	APPLICABLE CODES	MECHANICAL SHEET INDEX
SYMBOL	DESCRIPTION	SYMBOL DESCRIPTION	SYMBOL DESCRIPTION	A. STATE, COUNTY, AND CITY HEALTH AND BUILDING CODES	SHEET DESCRIPTION
CWS CWR CHWS CHWR CHWR CD CHWR CD CR CR PC HHWR HHWS HHS HPS HPS LPS HPR LPR CSI RS CSI CR CR CR CR CR CR CR CR CR CR CR CR CR	-CONDENSER WATER SUPPLY -CONDENSER WATER RETURN -CHILLED WATER SUPPLY -CHILLED WATER RETURN -CONDENSATE -CONDENSATE RETURN -PUMPED CONDENSATE -HEATING HOT WATER RETURN -HEATING HOT WATER SUPPLY -HIGH PRESSURE STEAM SUPPLY -HIGH PRESSURE STEAM SUPPLY -LOW PRESSURE STEAM SUPPLY -HIGH PRESSURE STEAM RETURN -MEDIUM PRESSURE STEAM RETURN -LOW PRESSURE STEAM RETURN -LOW PRESSURE STEAM RETURN -LOW PRESSURE STEAM RETURN -LOW PRESSURE STEAM RETURN -REFRIGERANT LIQUID -REFRIGERANT SUCTION -TEE, OUTLET DOWN -TEE, OUTLET UP -45° PIPE RISE (R) / DROP (D) -PIPE ANCHORS -CONCENTRIC REDUCER -ECCENTRIC REDUCER	JIMODE       JESCINFTION         ISOLATION VALVE       ISOLATION VALVE         ISOLASCOCK       IIII         ISOLENOID VALVE       ISOLENOID VALVE         ISOLENOID VALVE <td>EQUIP       .P.TRAP        </td> <td>A STATE COUNT FAM ON THE ALTRADUCTION CODE 2018 EDITION, WITH GEORGIA AMENDMENTS B. INTERNATIONAL PURINES CODE 2018 EDITION, WITH GEORGIA AMENDMENTS D. INTERNATIONAL PURINES CODE 2018 EDITION, WITH GEORGIA AMENDMENTS B. INTERNATIONAL ENCRYCODE 2018 EDITION, WITH GEORGIA AMENDMENTS B. INTERNATIONAL ENCYCODE 2018 EDITION, WITH GEORGIA AMENDMENTS B. INTERNATIONAL ENCYCLODE 2018 EDITION, WITH GEORGIA MENDMENTS B. INTERNATIONAL ENCYCLODE 2018 EDITION, WITH GEORGIA MENDMENTS B. INTERNATIONAL ENCYCLODE 2018 EDITION, WITH GEORGIA MENDMENTS B. INTERNATION, ATTAUNAL ELECTRICAL CODE I. INTERNATION, NATIONAL ELECTRICAL CODE I. INTERNATION, NATIONAL ELECTRICAL CODES. M. ASHRAE STANDARD 53 AREPERENCICED BY STANDARD ECODES. M. ASHRAE STANDARD 53 AS REFERENCED BY STANDARD CODES. M. ASHRAE STANDARD 54. 2039 EDITION P. FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS, 2022 M. BARKES STANDARD 62.1. 2019 EDITION P. FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS, 2022 M. BISTRIBUTION DEVICE TAG EQUIPMENT NAME AHU-1 C. EQUIPMENT NAME C. EQUIPMENT NAME C.</td> <td>M01 MECHANICAL LEGENDS SHEET M02 MECHANICAL SPECIFICATIONS M02 LEVEL - NEW WORK MECHANICAL PLAN M02 LEVEL - NEW WORK MECHANICAL PLAN M03 ROOCH LEVEL NEW WORK MECHANICAL PLAN M01 MECHANICAL DENLS M01 MECHANICAL SCHEDULES</td>	EQUIP       .P.TRAP	A STATE COUNT FAM ON THE ALTRADUCTION CODE 2018 EDITION, WITH GEORGIA AMENDMENTS B. INTERNATIONAL PURINES CODE 2018 EDITION, WITH GEORGIA AMENDMENTS D. INTERNATIONAL PURINES CODE 2018 EDITION, WITH GEORGIA AMENDMENTS B. INTERNATIONAL ENCRYCODE 2018 EDITION, WITH GEORGIA AMENDMENTS B. INTERNATIONAL ENCYCODE 2018 EDITION, WITH GEORGIA AMENDMENTS B. INTERNATIONAL ENCYCLODE 2018 EDITION, WITH GEORGIA MENDMENTS B. INTERNATIONAL ENCYCLODE 2018 EDITION, WITH GEORGIA MENDMENTS B. INTERNATIONAL ENCYCLODE 2018 EDITION, WITH GEORGIA MENDMENTS B. INTERNATION, ATTAUNAL ELECTRICAL CODE I. INTERNATION, NATIONAL ELECTRICAL CODE I. INTERNATION, NATIONAL ELECTRICAL CODES. M. ASHRAE STANDARD 53 AREPERENCICED BY STANDARD ECODES. M. ASHRAE STANDARD 53 AS REFERENCED BY STANDARD CODES. M. ASHRAE STANDARD 54. 2039 EDITION P. FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS, 2022 M. BARKES STANDARD 62.1. 2019 EDITION P. FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS, 2022 M. BISTRIBUTION DEVICE TAG EQUIPMENT NAME AHU-1 C. EQUIPMENT NAME C.	M01 MECHANICAL LEGENDS SHEET M02 MECHANICAL SPECIFICATIONS M02 LEVEL - NEW WORK MECHANICAL PLAN M02 LEVEL - NEW WORK MECHANICAL PLAN M03 ROOCH LEVEL NEW WORK MECHANICAL PLAN M01 MECHANICAL DENLS M01 MECHANICAL SCHEDULES

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SOLUTIONS 4360 Chamblee Dunwoody Rd, Ste 210 Atlanta, GA 30341 P 707.451.6757 www.tlc-engineers.com COA K938087 © Copyright 2022 TLC Engineering Solutions, Inc. TLC Project No.: 824101 THINK. LISTEN. CREATE. **Concept Design** S ແ Hill Jr Dr GA 3030 Chiller Jesse Atlanta, MR Grady Consultants: 

 Revisions:

 No.
 Date
 Description

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 DRAFT FOR REVIEW

 Seal: NOTPUCTION Project No.: 824101 Issue Date: 10 JULY 2024 Christian D. Drawn By: Approved By: Scale: MDM NTS Drawing Title: MECHANICAL LEGENDS SHEET Drawing No.: M001

CONFLICTS: NOTHING CONTAINED HEREIN SHALL BE CONSTRUED TO CONFLICT IN ANY WAY WITH OTHER PROVISIONS OR REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE INTENT IS THAT THIS SECTION WILL TAKE PRECEDENCE. WHERE DIFFERENCES ARISE, THE ARCHITECT SHALL DECIDE WHICH DIRECTIONS OR INSTRUCTIONS TAKE PRECEDENCE. UNLESS AN ITEM IS SPECIFICALLY MENTIONED AS BEING PROVIDED BY OTHERS, THE REQUIREMENTS OF DIVISION 23 CONTRACT DOCUMENTS SHALL BE COMPLETED. THE SYSTEMS, EQUIPMENT, DEVICES AND ACCESSORIES SHALL BE INSTALLED, FINISHED, TESTED AND ADJUSTED FOR CONTINUOUS AND PROPER OPERATION. ANY APPARATUS, MATERIAL OR DEVICE NOT SHOWN ON THE DRAWINGS BUT MENTIONED IN THESE SPECIFICATIONS, OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE PROJECT

INSTALLATION, START-UP AND TESTS NECESSARY FOR COMPLETE AND PROPERLY FUNCTIONING SYSTEMS. COMPLY WITH ALL RULES, REGULATIONS, STANDARDS, CODES, ORDINANCES AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENTS AND THE AMENDMENTS AND INTERPRETATION OF SUCH RULES, REGULATIONS, STANDARDS, CODES, ORDINANCES AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENTS BY THE AUTHORITIES HAVING LAWFUL JURISDICTION. DRAWINGS AND SPECIFICATIONS:

INTENT: THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO ESTABLISH MINIMUM ACCEPTABLE QUALITY STANDARDS FOR MATERIALS, EQUIPMENT AND WORKMANSHIP, AND TO PROVIDE OPERABLE MECHANICAL SYSTEMS COMPLETE IN EVERY RESPECT. EQUIPMENT PLACEMENT: THE DRAWINGS ARE DIAGRAMMATIC, INTENDED TO SHOW GENERAL ARRANGEMENT, CAPACITY AND LOCATION OF VARIOUS COMPONENTS, EQUIPMENT AND DEVICES. EACH LOCATION SHALL BE DETERMINED BY REFERENCE TO THE GENERAL BUILDING PLANS AND BY ACTUAL MEASUREMENTS IN THE BUILDING AS BUILT. REASONABLE CHANGES IN LOCATIONS ORDERED BY THE ARCHITECT PRIOR TO THE PERFORMANCE OF THE AFFECTED WORK SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

DRAWING SCALE: DUE TO THE SMALL SCALE OF THE DRAWINGS, AND TO UNFORESEEN JOB CONDITIONS, ALL REQUIRED OFFSETS, TRANSITIONS AND FITTINGS MAY NOT BE SHOWN BUT SHALL BE PROVIDED AT NO ADDITIONAL COST. CONFLICT: IN THE EVENT OF A CONFLICT, THE ARCHITECT WILL RENDER AN INTERPRETATION IN ACCORDANCE WITH THE GENERAL CONDITIONS. ABBREVIATIONS: ABBREVIATIONS, WHERE NOT DEFINED IN THE CONTRACT DOCUMENTS, SHALL BE INTERPRETED TO MEAN THE NORMAL

CONSTRUCTION INDUSTRY TERMINOLOGY, AS DETERMINED BY THE ARCHITECT. PLURAL WORDS SHALL BE INTERPRETED AS SINGULAR AND SINGULAR WORDS SHALL BE INTERPRETED AS PLURAL WHERE APPLICABLE FOR CONTEXT OF THE CONTRACT DOCUMENTS. WORKMANSHIP

ADEQUATE NUMBER OF CRAFTSMEN KNOWLEDGEABLE OF THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THEY SHALL BE SKILLED IN THE METHODS AND CRAFTSMANSHIP NEEDED TO PRODUCE A FIRST-QUALITY INSTALLATION. PERSONNEL WHO INSTALL MATERIALS AND EQUIPMENT SHALL BE QUALIFIED BY TRAINING AND EXPERIENCE TO PERFORM THEIR ASSIGNED TASKS. HOUSEKEEPING: KEEP INTERIORS OF DUCT AND PIPE SYSTEMS CLEAN AND FREE FROM DIRT, RUBBISH AND FOREIGN MATTER. CLOSE OPEN ENDS OF PIPING AND DUCTWORK AT ALL TIMES THROUGHOUT THE INSTALLATION.

EQUIPMENT PROTECTION: PROTECT FAN MOTORS, SWITCHES, EQUIPMENT, FIXTURES, AND OTHER ITEMS FROM DIRT, RUBBISH AND FOREIGN MATTER. DO NOT OPERATE AIR HANDLING EQUIPMENT IF THE BUILDING IS NOT CLEAN OR IF DUST CAN ENTER THE COILS OR THE FAN HOUSINGS.

EQUIPMENT CLEANING: THOROUGHLY CLEAN EQUIPMENT AND ENTIRE PIPING SYSTEMS INTERNALLY UPON COMPLETION OF INSTALLATION AND IMMEDIATELY PRIOR TO FINAL ACCEPTANCE. BUILDING CLEANUP: REMOVE DEBRIS, RUBBISH, LEFTOVER MATERIALS, TOOLS AND EQUIPMENT FROM WORK AREAS AND SITE. CLEAN TUNNELS AND CLOSED OFF SPACES OF PACKING BOXES, WOOD FRAME MEMBERS AND OTHER WASTE MATERIALS USED IN THE

INSTALLATION.

FILTER REPLACEMENT: PROVIDE FILTERS, WITH THE SAME EFFICIENCY RATING AS REQUIRED FOR THE FINAL INSTALLATION, FOR THE PROTECTION OF THE AIR MOVING EQUIPMENT AND DUCTWORK CONTINUOUSLY THROUGHOUT THE CONSTRUCTION PHASE. PROVIDE A NEW SET OF CLEAN FILTERS FOR THE TEST AND BALANCE OF THE AIR SIDE EQUIPMENT. PROTECTION OF FINISHED INSTALLATION: WHERE INSTALLATION IS REQUIRED IN AREAS PREVIOUSLY FINISHED BY OTHER TRADES,

PROTECT THE AREA FROM MARRING. SOILING OR OTHER DAMAGE. CLEAN-UP: DEBRIS AND RUBBISH SHALL NOT BE DISPOSED INTO THE OWNER'S CONTAINERS.

CORRECTION OF WORK GENERAL: AT NO ADDITIONAL COST TO THE OWNER, RECTIFY DISCREPANCIES BETWEEN THE ACTUAL INSTALLATION AND CONTRACT DOCUMENTS WHEN IN THE OPINION OF THE T&B AGENCY OR THE ARCHITECT THE DISCREPANCIES WILL AFFECT SYSTEM BALANCE AND PERFORMANCE.

DRIVE CHANGES: INCLUDE THE COST OF ALL PULLEY, BELT, AND DRIVE CHANGES, AS WELL AS BALANCING DAMPERS, VALVES AND FITTINGS, AND ACCESS PANELS TO ACHIEVE PROPER SYSTEM BALANCE RECOMMENDED BY THE T&B AGENCY. COORDINATION AND ASSISTANCE: GENERAL: PROVIDE ALL LABOR, EQUIPMENT, TOOLS AND MATERIAL REQUIRED TO OPERATE THE EQUIPMENT AND SYSTEMS NECESSARY

FOR THE TESTING AND BALANCING OF THE SYSTEMS. COORDINATE THE OPERATION OF THESE SYSTEMS WITH THE T&B AGENCY. CORRECT DEFICIENCIES NOTED BY THE T&B AGENCY. THE CONTRACTOR WILL BE HELD LIABLE FOR RETEST/REBALANCE REQUIRED FROM CONTRACTOR RELATED SYSTEM DEFIECIENCES.

DRAWINGS AND SPECIFICATIONS: PROVIDE TO THE T&B AGENCY A COMPLETE SET OF PROJECT RECORD DRAWINGS AND SPECIFICATIONS AND AN APPROVED COPY OF ALL HVAC SHOP DRAWINGS AND EQUIPMENT SUBMITTALS. THE T&B AGENCY SHALL BE INFORMED OF ALL CHANGES MADE TO THE SYSTEM DURING CONSTRUCTION, INCLUDING APPLICABLE CHANGE ORDERS. COORDINATION: COORDINATE THE WORK OF ALL TRADES AND EQUIPMENT SUPPLIERS TO COMPLETE THE MODIFICATIONS RECOMMENDED

BY THE T&B AGENCY AND ACCEPTED BY THE ARCHITECT. CUT OR DRILL HOLES FOR THE INSERTION OF AIR MEASURING DEVICES AS DIRECTED FOR TEST PURPOSES; REPAIR TO AS-NEW CONDITION, INSERTING PLASTIC CAPS OR COVERS TO PREVENT AIR LEAKAGE. REPAIR OR REPLACE INSULATION AND RE-ESTABLISH THE INTEGRITY OF THE VAPOR RETARDANT.

COORDINATION DRAWINGS: CONTRACTOR WILL PROVIDE M, E, P, & FP COORDINATION DRAWINGS TO BE RECEIVED AND APPROVED BY THE ENGINEER AND ARCHITECT BEFORE FABRICATION OR INSTALLATION OF ANY SYSTEM. PROVIDE 6 COPIES OF COORDINATED 1/4" SCALE DRAWINGS FOR REVIEW. ALL CONFLICTS SHALL RESOLVED BEFORE FINAL ACCEPTANCE.

PROTECTION OF MATERIALS AND EQUIPMENT: REPLACEMENT OF DAMAGED STORED MATERIAL AND EQUIPMENT: ANY MATERIAL AND EQUIPMENT THAT HAS BEEN WET OR OTHERWISE DAMAGED PRIOR TO INSTALLATION, IN THE OPINION OF THE ARCHITECT, SHALL BE REPLACED WITH NEW MATERIAL REGARDLESS OF THE CONDITION OF THE MATERIAL AND EQUIPMENT AT THE TIME OF INSTALLATION.

REPAIR OF DAMAGED EXISTING MATERIAL AND EQUIPMENT AFTER INSTALLATION: CORRECT OR REPAIR DENTS, SCRATCHES AND OTHER VISIBLE BLEMISHES. AT THE DIRECTION OF ARCHITECT REPLACE OR REPAIR TO "AS NEW" CONDITION EQUIPMENT THAT HAS BEEN DAMAGED DURING CONSTRUCTION. ASBESTOS AND HAZARDOUS MATERIALS:

GENERAL: SHOULD ASBESTOS OR OTHER HAZARDOUS MATERIAL BE ENCOUNTERED DURING EXECUTION OF THE WORK, OR SHOULD THE PRESENCE OF ASBESTOS OR OTHER HAZARDOUS MATERIAL BE SUSPECTED, IMMEDIATELY NOTIFY THE ARCHITECT AND SUSPEND WORK IN THE AFFECTED AREA. THE OWNER WILL INITIATE A STUDY TO DETERMINE IF ASBESTOS OR OTHER HAZARDOUS MATERIALS ARE PRESENT AND WILL DETERMINE WHAT ACTION WILL BE TAKEN. REMOVAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS WILL BE DONE UNDER A SEPARATE CONTRACT.

COORDINATION OF SERVICES: GENERAL: COORDINATE INTERRUPTION OF EXISTING SERVICES TO OWNER-OCCUPIED AREAS, IN WRITING, AT LEAST 1-WEEK IN ADVANCE WITH THE ARCHITECT. THE OWNER SHALL DECIDE SHUTDOWN TIME AND DURATION OF SERVICES INTERRUPTION. PROVIDE SHUTOFF VALVES AT POINTS OF INTERCONNECTION TO MINIMIZE DOWNTIME. PROCEDURES INCIDENTAL TO THE OUTAGE SHALL BE PREPARED IN ADVANCE TO MINIMIZE DOWNTIME.

DO NOT DECREASE THE FIRE RATING OF WALLS, PARTITIONS, CEILINGS, FLOORS, DOORS OR COMBINATIONS THEREOF IN ADJACENT AREAS OR MEANS OF EGRESS. DO NOT INTERRUPT FIRE SPRINKLING OR LIFE SAFETY SYSTEMS WITHOUT PRIOR COORDINATION WITH THE ARCHITECT. INFORM ALL NECESSARY PARTIES (FIRE DEPARTMENT, OWNER'S INSURANCE CARRIER, ETC.) IN ADVANCE, PRIOR TO AND IMMEDIATELY AFTER SHUTDOWN, DISCONNECTION OR ISOLATION OF ANY PORTION OF LIFE SAFETY OR FIRE SPRINKLER SYSTEM. LAYOUT OF EXISTING EQUIPMENT:

GENERAL: EXISTING EQUIPMENT, PIPING, DUCTWORK, ETC., AS INDICATED ON THE DRAWINGS HAVE, FOR THE MOST PART, BEEN PROVIDED TO THE ARCHITECT THROUGH EXISTING DRAWINGS. THE LAYOUTS SHOWN MAY NOT BE FROM AS-BUILT DRAWINGS AND MAY BE FROM PARTIAL COPIES OF ORIGINAL DESIGN DOCUMENTS NOT PRODUCED BY THE ARCHITECT. THE ARCHITECT IS NOT RESPONSIBLE FOR THE ACCURACY NOR COMPLETENESS OF THE EXISTING INSTALLATION AND ALL LAYOUTS ARE SHOWN FOR REFERENCE ONLY. IT IS TO BE UNDERSTOOD THAT UNFORESEEN CONDITIONS PROBABLY EXIST AND THAT EXISTING AND NEW WORK MAY NOT BE FIELD LOCATED EXACTLY AS SHOWN ON THE DRAWINGS. VERIFY EXISTING CONDITIONS IN THE FIELD AND NOTIFY THE ARCHITECT OF ANY DEVIATIONS REQUIRED TO INSTALL THE WORK AS SHOWN. COORDINATE NEW WORK WITH EXISTING EQUIPMENT, INCLUDING REMOVING, RELOCATING, REROUTING, EXTENDING WITH NEW MATERIALS, AND REINSTALL EXISTING PIPING, DUCTWORK, CONDUITS, WIRING, TUBING, SUPPORTS AND OTHER EQUIPMENT. THE ARCHITECT SHALL MAKE THE FINAL DECISION ON ALL DEVIATIONS OR MODIFICATIONS REQUIRED BY THE EXISTING CONDITIONS.

<u>AIR FILTER</u>

FIRE SAFETY IN EXISTING FACILITIES:

SUBMITTALS SHALL INCLUDE THE FOLLOWING DATA: MANUFACTURERS LITERATURE, SIZE, MAKE, MODEL NUMBER, THICKNESS, MERV RATING, AND EFFICIENCY OF FILTER SELECTED.

PLEATED FILTER MEDIA GENERAL: UNLESS OTHERWISE INDICATED ALL PLEATED MEDIA FILTERS SHALL HAVE A FACE SIZE OF 24 INCHES BY 24 INCHES OR 24 INCHES BY 12 INCHES.

30 PERCENT EFFICIENT/MERV 8 FILTERS: FILTER MEDIA SHALL BE REINFORCED NON- WOVEN COTTON WITH POLYESTER TRACE FIBERS. TREATED WITH ADHESIVE AND CONTINUOUSLY LAMINATED TO A SUPPORTED STEEL WELDED WIRE GRID. THE DISPOSABLE FILTER MEDIA ENCLOSING FRAME SHALL BE RIGID WET-STRENGTH BEVERAGE BOARD WITH DIAGONAL SUPPORT MEMBERS. THE INSIDE PERIPHERY OF THE FRAME SHALL BE BONDED TO THE FILTER MEDIA TO ELIMINATE AIR BYPASS. EACH FILTER SHALL CONTAIN A MINIMUM 3 SQUARE FEET OF MEDIA PER SQUARE FOOT OF FACE AREA, AND A MINIMUM 11 PLEATS PER LINEAR FOOT. UNLESS OTHERWISE INDICATED, MEDIA THICKNESS SHALL BE 2 INCHES; CLEAN RESISTANCE SHALL NOT EXCEED 0.30 INCHES OF WATER AT 500 FPM FACE VELOCITY.

MANUFACTURER AND MODEL: AMERICAN AIR FILTER, PERFECT PLEAT ULTRA, CAMFIL FARR, 30/30 90 PERCENT EFFICIENT/MERV 14 CARTRIDGE FILTERS: AIR FILTERS SHALL BE HIGH PERFORMANCE, EXTENDED AREA, DEEP PLEATED, CARTRIDGE TYPE CONSISTING OF A FILTER ELEMENT, MEDIA RETAINER HOLDING FRAME AND SEALER FRAME. THE MEDIA SHALL BE

SHALL BE DESIGNED TO SUPPORT THE MULTIPLE PLEATS OF THE FILTER ELEMENT AGAINST THE DIRECTION OF AIRFLOW. THE WELDED WIRE GRID SHALL BE BONDED TO THE FILTER MEDIA. ENCLOSURE FRAMES SHALL BE FACTORY FABRICATED OF GALVANIZED STEEL AND SHALL BE EQUIPPED WITH GASKETS AND FOUR SPRING-

TYPE POSITIVE SEALING FASTENERS CAPABLE OF BEING ATTACHED OR REMOVED WITHOUT TOOLS. SEALER FRAMES SHALL BE FABRICATED OF 20 GAUGE GALVANIZED STEEL AND SHALL BE EQUIPPED WITH GASKETING MATERIAL ON THE FRAME REAR FLANGE. UNLESS OTHERWISE INDICATED, FILTER CLEAN RESISTANCE SHALL NOT EXCEED 0.70 INCHES OF WATER AT 500 FPM FACE VELOCITY. MANUFACTURER AND MODEL: AMERICAN AIR FILTER, VARICEL DH, CAMFIL FARR, MICRETAIN

COMPLETE AND OPERATIONAL IN ALL RESPECTS, SHALL BE FURNISHED, DELIVERED AND INSTALLED WITHOUT ADDITIONAL EXPENSE TO THE OWNER. INCLUDE ALL MATERIALS, EQUIPMENT, SUPERVISION, OPERATION, METHODS AND LABOR FOR THE FABRICATION,

# GENERAL: THE INSTALLATION OF MATERIALS AND EQUIPMENT SHALL BE DONE IN A NEAT. WORKMANLIKE AND TIMELY MANNER BY AN

PERFORMANCE DATA: INITIAL AND RECOMMENDED FINAL PRESSURE DROP ACROSS EACH FILTER ASSEMBLY AT THE AIR FLOWS INDICATED.

MICROFINE GLASS FIBER REINFORCED BY A LAMINATED SYNTHETIC BACKING. RETAINER SHALL BE OF WELDED STEEL CONSTRUCTION AND

GENERAL: SHALL BE PERFORMED BY AN INDEPENDENT T&B AGENCY. RENOVATION PROJECTS, PERFORMANCE VERIFICATION: PROVIDE A PRE-DEMOLITION TEST OF ALL AIR DEVICES AND EQUIPMENT WITHIN THE SCOPE OF WORK AREA OR AS OTHERWISE INSTRUCTED. T&B FOR THE MECHANICAL EQUIPMENT SHALL INCLUDE: DIFFERENTIAL PRESSURE ON FILTER(S), COOLING COIL(S), AND FAN(S)

INLET AND DISCHARGE STATIC PRESSURES TOTAL SUPPLY CFM TOTAL RETURN CFM

OA CFM FAN MOTOR NAMEPLATE DATA FAN MOTOR AMP DRAW TEMPERATURE PROFILE

TEST AND BALANCE:

T&B REPORT SHALL BE FORWARDED TO ENGINEER BEFORE DEMOLITION OF SYSTEMS.

CERTIFICATION: THE T&B AGENCY SHALL BE A CERTIFIED MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). WORK INCLUDED: THE T&B AGENCY SHALL PROVIDE ALL LABOR, SUPERVISION, PROFESSIONAL SERVICES, TOOLS, TEST EQUIPMENT AND INSTRUMENTS (EXCEPT AS OTHERWISE INDICATED) TO PERFORM WORK OF THIS SECTION; INCLUDING BUT NOT LIMITED TO: REVIEW THE AUTOMATIC TEMPERATURE CONTROL AND AIR TERMINAL UNIT SPECIFICATIONS FOR THEIR EFFECTS ON THE TESTING AND BALANCING PROCEDURES FOR THE AIR SYSTEMS.

WHERE CONDITIONS MAY EXIST IN THE SYSTEM DESIGN OR CONSTRUCTION WHICH MAY ADVERSELY AFFECT SYSTEM PERFORMANCE, IDENTIFY THE CONDITIONS AND SUBMIT RECOMMENDED CORRECTIONS IN WRITING FOR CONSIDERATION BY THE ARCHITECT.

PERFORM A COMPLETE AIR TEST AND BALANCE OF ALL HEATING, VENTILATING, AIR CONDITIONING AND EXHAUST AIR SYSTEMS SHOWN AND DESCRIBED ON THE CONTRACT DOCUMENTS.

TAB REPORT: RECORDED TEST DATA SHALL BE AT THE FINAL BALANCED CONDITION FOR EACH SYSTEM, AND SHALL BE ARRANGED BY SYSTEM USING THE APPROPRIATE DESIGNATION AS ESTABLISHED ON THE CONTRACT DOCUMENTS. 6 COPIES OF THE TYPEWRITTEN. SIGNED, BOUND AND INDEXED FINAL REPORT SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW PRIOR TO REQUEST FOR SUBSTANTIAL COMPLETION INSPECTION. THE SUBSTANTIAL COMPLETION INSPECTION SHALL NOT BE SCHEDULED UNTIL THE FINAL REPORT HAS BEEN RECEIVED AND IS ACCEPTABLE TO THE ARCHITECT. REPORT FORMAT SHALL BE SIMILAR TO FORMS APPROVED FOR USE BY SMACNA OR AABC.

MEASUREMENTS: WHERE ACTUAL MEASUREMENTS RECORDED FOR THE FINAL BALANCE SHOW DEVIATIONS OF MORE THAN 10 PERCENT FROM THE DESIGN, THE T&B AGENCY SHALL NOTE SAME IN THE REPORT AND SUBMIT RECOMMENDATIONS FOR CORRECTIVE ACTION TO

THE ARCHITECT. VIBRATION: WHERE, IN THE OPINION OF THE T&B AGENCY, THERE IS EXCESSIVE VIBRATION, MOVEMENT OR NOISE FROM ANY PIECE OF

EQUIPMENT, DUCTWORK, PIPES, ETC., THE T&B AGENCY SHALL NOTE SAME IN THE REPORT AND SUBMIT RECOMMENDATIONS FOR CORRECTIVE ACTION TO THE ARCHITECT.

TEST DATA: PROVIDE TEST AND BALANCE REPORT PRIOR TO AND AFTER THE BALANCING OF EACH CONSTRUCTION PHASE. INCLUDE THE FOLLOWING DATA IN THE SYSTEMS TEST AND BALANCE REPORT:

MANUFACTURER, MODEL AND SERIAL NUMBER, TYPE OF FAN, WHEEL DIAMETER RATED CFM, MEASURED CFM DESIGN INLET AND OUTLET TOTAL EXTERNAL STATIC PRESSURES, ACTUAL INLET AND OUTLET TOTAL AND EXTERNAL STATIC PRESSURES

2. AIR SYSTEMS (INCLUDING INLETS AND OUTLETS): GRILLE AND OR DIFFUSER: REFERENCE NUMBER, MANUFACTURER, SYSTEM TYPE AND LOCATION. DESIGN AND MEASURED CFM TABULATION OF DESIGN AND MEASURED CFM FOR EACH INLET OR OUTLET. A SUMMARIZATION BY SYSTEM TO COMPARE DESIGN DATA TO ACTUAL

3. AIR HANDLING UNITS: MANUFACTURER. MODEL AND SERIAL NUMBER A SUMMARIZATION BY SYSTEM TO COMPARE DESIGN DATA TO ACTUAL DESIGN AND MEASURED WATER FLOW

DESIGN AND MEASURED SUPPLY AND RETURN TEMPERATURES DESIGN AND MEASURED AMP DRAW

5. CONTROLS: THE T&B AGENCY SHALL VERIFY THAT EACH CONTROLLER AND THE DEVICES IT CONTROLS. SUCH AS CONTROL VALVES. MOTORIZED DAMPERS, VAV BOXES, ETC., OPERATES IN THE EXACT SEQUENCE REQUIRED. <u>PRODUCTS</u>

<u>PIPING</u>

ALL PRESSURIZED PIPING SYSTEMS SHALL CONFORM TO ASME B31.9, CODE FOR PRESSURE PIPING, BUILDING SERVICES PIPING. BEFORE FINAL TESTING, FLUSH PIPING SYSTEMS WITH CLEAN WATER TO REMOVE DEBRIS. DISCONNECT ALL COILS FROM SYSTEM BEFORE FLUSHING. FLUSH ALL COILS SEPARATE FROM SYSTEM. PROVIDE TEMPORARY VALVES AND DRAINS AS REQUIRED.

PRIOR TO INSULATING AND CONCEALING THE PIPING SYSTEM, APPLY A WATER PRESSURE TEST TO ALL PARTS OF EACH SYSTEM BEFORE EQUIPMENT IS CONNECTED. USE A HYDROSTATIC PRESSURE OF NOT LESS THAN 100 PSIG OR 150 PERCENT OF SYSTEM OPERATING PRESSURE WHICHEVER IS GREATER. TEST SYSTEM FOR A PERIOD NOT LESS THAN FOUR HOURS. THERE SHALL BE NO LEAKS AT ANY POINT IN THE SYSTEM AT THIS PRESSURE.

CHILLED WATER PIPING: PROVIDE AND INSTALL PIPE AND FITTINGS AS INDICATED, INCLUDING ALL OFFSETS, FITTINGS, SLEEVES AND SIMILAR ITEMS REQUIRED BUT NOT NECESSARILY INDICATED DUE TO DRAWING SCALE FOR COMPLETE AND OPERABLE SYSTEMS. ALL PRESSURIZED PIPING SYSTEMS SHALL CONFORM TO ASME B31.9, CODE FOR PRESSURE PIPING, BUILDING SERVICES PIPING.

CHILLED WATER PIPING ABOVE TWO INCHES IN DIAMETER SHALL BE FORMED FROM WELDED, SEAMLESS ASTM A-53, GRADE B, AND STANDARD WEIGHT STEEL PIPE. SMALLER CHILLED WATER PIPING SHALL BE FORMED FROM TYPE L, ASTM B-88, COPPER WITH FITTINGS. COLD CONDENSATE PIPING SHALL

BE TYPE L COPPER. COPPER FITTINGS SHALL BE STREAMLINED PATTERN, WROUGHT OR CAST BRASS CONFORMING TO ANSI B16.22 OR WROUGHT BRONZE CONFORMING TO ANSI B16.15.

FITTINGS SHALL AT A MINIMUM, HAVE THE SAME WALL THICKNESS AS THE CONNECTED PIPING AND SHALL BE COMPATIBLE WITH THE PIPING MATERIAL. THE USE OF FIELD FABRICATED FITTINGS IS PROHIBITED.

DIELECTRIC UNIONS OR FLANGES SHALL BE PROVIDED AT ALL JUNCTIONS OF COPPER OR BRASS PIPE OR FITTINGS AND FERROUS MATERIAL TO PREVENT ELECTROLYSIS AND GALVANIC CORROSION. WHERE COPPER OR BRASS COME IN CONTACT WITH FERROUS PIPING SYSTEMS MATERIALS, ISOLATE THE TWO MATERIALS WITH A NON-CONDUCTIVE NEOPRENE SPACER.

DIELECTRIC COUPLINGS SHALL BE RATED FOR AT LEAST 150 PERCENT OF MAXIMUM WORKING PRESSURE OF THE PIPING SYSTEM AND AT LEAST 50 F HIGHER THAN THE MAXIMUM OPERATING TEMPERATURE OF THE PIPING SYSTEM IN WHICH THEY ARE INSTALLED. COUPLINGS SHALL BE ELECTROPLATED STEEL OR BRASS WITH INERT AND NON-CORRISIVE THERMOPLASTIC LINING OR BRONZE FITTINGS. PROVIDE DIELECTRIC INSULATING UNIONS IN PIPING 2 INCH AND SMALLER WITH THREADED OR SOLDER JOINT CONNECTIONS.

PIPE AND FITTINGS SHALL BE INSTALLED WITH A MIN. OF JOINTS AND COUPLINGS BUT WITH ADEQUATE AND ACCESSIBLE UNIONS FOR DISASSEMBLY AND MAINTENANCE REPLACEMENT VALVES AND EQUIPMENT. REDUCE SIZES WERE INDICTED USING REDUCING FITTINGS. PIPING SHALL BE RAN WITHOUT TRAPS OR POCKETS AND A MIN. 1 INCH IN 40 FEET IN THE DIRECTION OF FLOW.

PIPING SHALL BE RAN PARALLEL TO THE WALLS AND CEILINGS WITH A MINIMUM OF 6 INCH CLEARANCE BETWEEN WALLS AND HORIZONTAL PIPING.

PIPE REQUIRING INSULATION SHALL BE INSTALLED WITH SUFFICIENT CLEARANCES TO PERMIT PROPER APPLICATION OF INSULATION. DO NOT RUN PIPING OVER ELECTRICAL PANELS, TRANSFORMER VAULTS, ELEVATOR EQUIPMENT ROOMS OR ELECTRONIC EQUIPMENT SPACES AND ENCLOSURES.

PIPING SHALL BE INSTALLED WITH PROVISION FOR PIPE EXPANSION BOTH HORIZONTALLY AND VERTICALLY.

PIPING IDENTIFICATION:

AND ROOMS THAT THE PIPING PASS THROUGH SHALL HAVE AT LEAST ONE LABEL.

MANVILLE, RUBATEX, OR SPECIFICALLY APPROVED EQUAL.

PIPE INSULATION:

INSULATION AND ACCESSORIES SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84-75, NFPA 225, UL 723, AND FURTHER MUST MEET THE REQUIREMENTS OF NFPA 90-A. PROVIDE FIRE-RETARDANT CLOSED-CELL SLIP-ON FLEXIBLE TYPE. PRODUCT SHALL HAVE CONTINUOUS OPERATIONAL TEMPERATURE LIMIT OF NOT LESS THAN 220 DEGREES F, AND A MINIMUM "F" VALUE OF ((3.70 DEGREE F/FT/HR) 1/2BTUH) PER INCH THICKNESS AT 75 DEGREES F AMBIENT

MAINTAIN REQUIRED CLEARANCES.

USE FOAMGLASS PIPING INSULATION FOR THE FOLLOWING SERVICES: CHILLED WATER LINES 1-1/2" THK, 2" PIPE SIZE & UNDER CHILLED WATER LINES 2" THK, 2-1/2" PIPE SIZE & GREATER JACKET SHALL BE REINFORCED KRAFT PAPER WITH ALUMINUM FOIL. PREMOLDING FITTING MATERIAL (INSERTS) SHALL BE PRECISELY CUT OR MITERED TO FIT AND TAPED TO FORM A FULLY INSULATED PIPE COVERING. USE ADHESIVE AND / OR TAPE SPECIFIED FOR TYPE OF

INSULATION TO INSURE A THOROUGH VAPOR BARRIER.

POINT IN THE SYSTEM AT THIS PRESSURE.

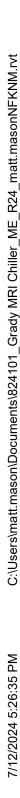
PROVIDE PIPE IDENTIFICATION CONSISTING OF SETON SNAP-ON PLASTIC SLEEVES OR EQUAL. INDICATE SYSTEM NAME, NOMINAL PIPE SIZE AND FLOW DIRECTION. PROVIDE PIPE IDENTIFIERS EVERY 50' IN OUTDOOR LOCATIONS AND EVERY 15' FOR INDOOR LOCATIONS. ALL FLOORS

ACCEPTABLE INSULATION MANUFACTURERS OF FLEXIBLE ELASTOMERIC INSULATION PRODUCTS INCLUDE ARMSTRONG, HALSTEAD,

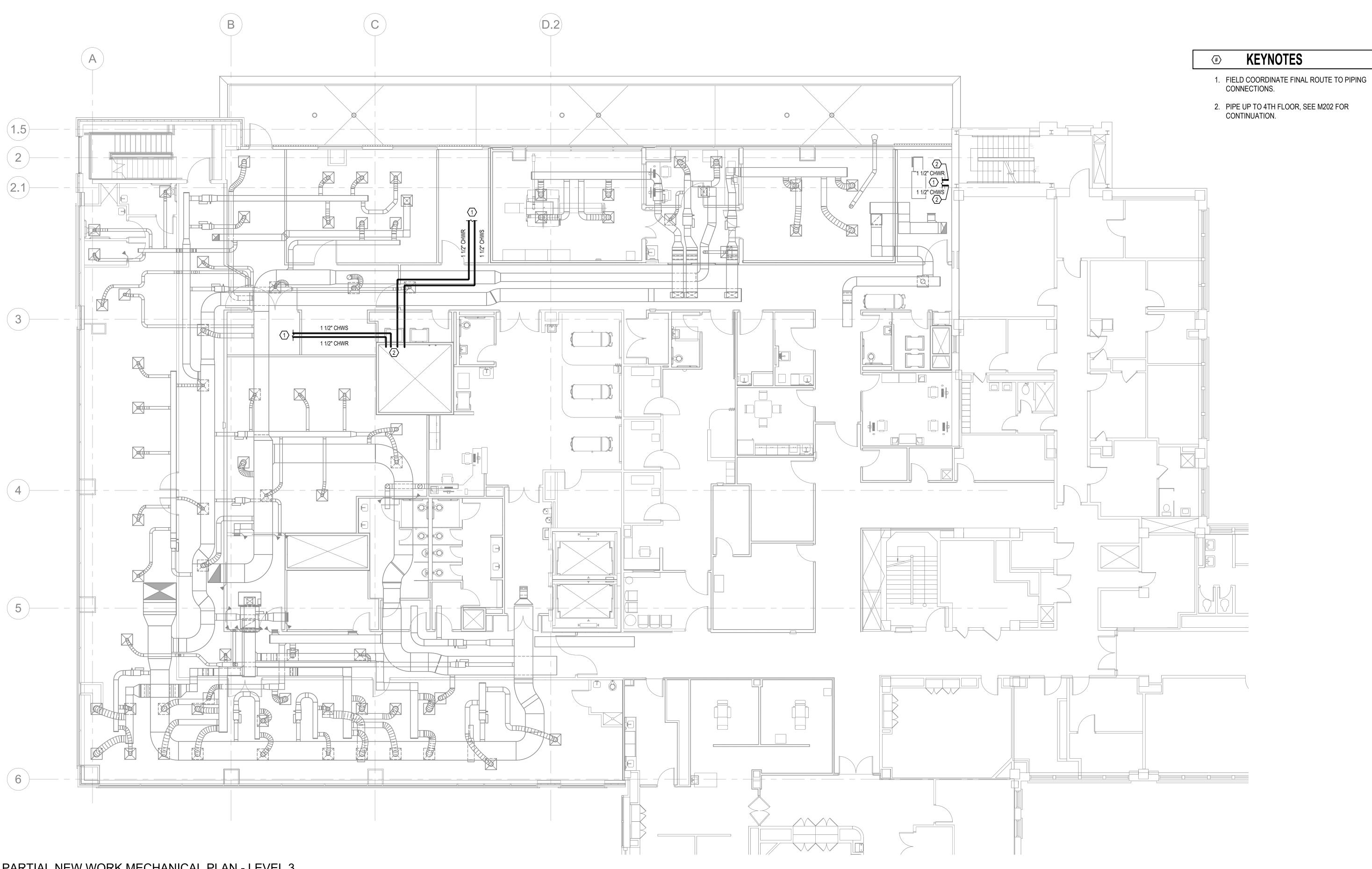
PIPE REQUIRING INSULATION SHALL BE INSTALLED WITH SUFFICIENT CLEARANCES TO PERMIT PROPER APPLICATION OF INSULATION AND

PRIOR TO INSULATING AND CONCEALING THE PIPING SYSTEM. APPLY A WATER PRESSURE TEST TO ALL PARTS OF EACH SYSTEM BEFORE EQUIPMENT IS CONNECTED. USE A HYDROSTATIC PRESSURE OF NOT LESS THAN 100 PSIG OR 150 PERCENT OF SYSTEM OPERATING PRESSURE WHICHEVER IS GREATER. TEST SYSTEM FOR A PERIOD NOT LESS THAN FOUR HOURS. THERE SHALL BE NO LEAKS AT ANY

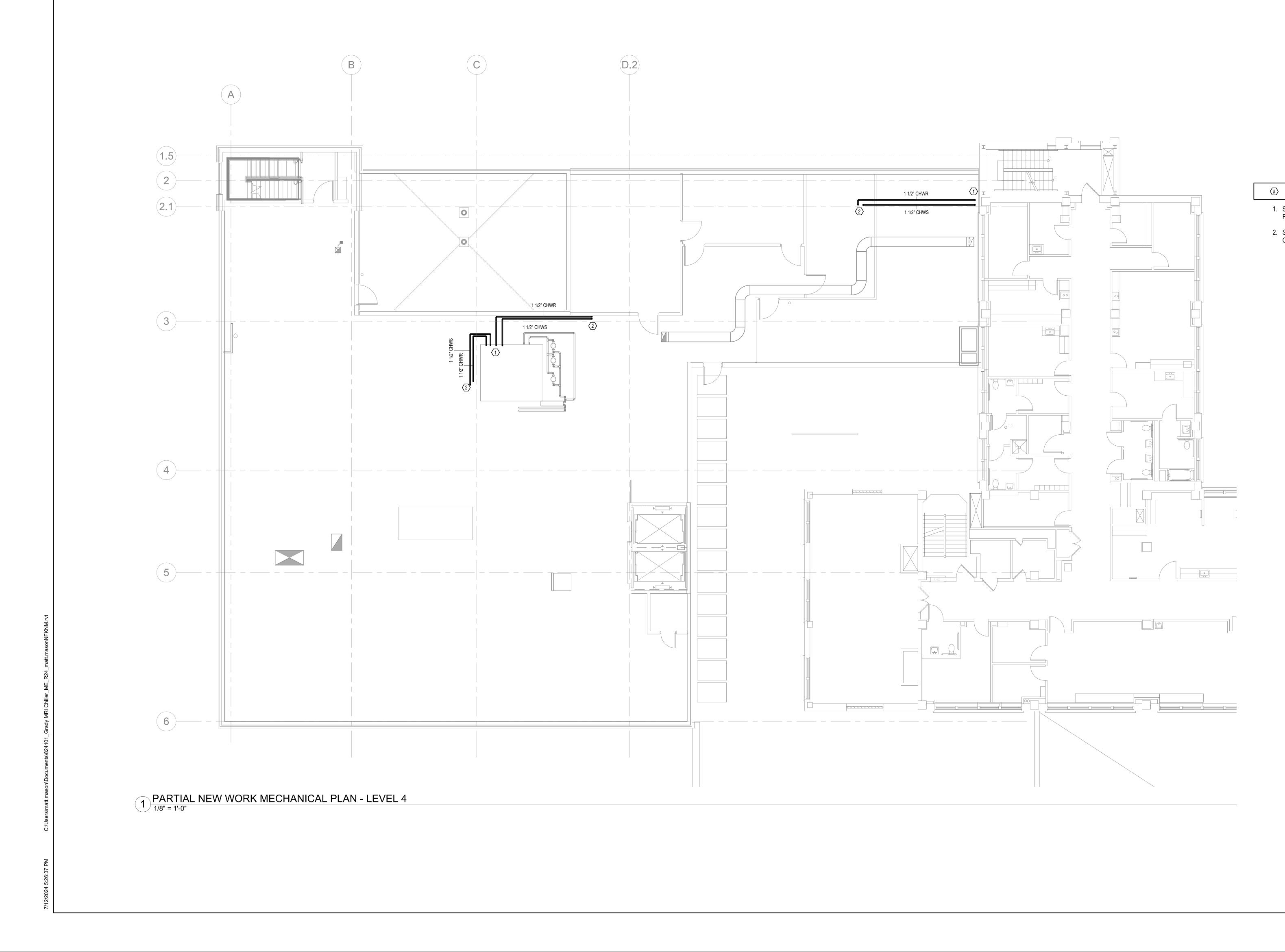
SOLU4360 Chamblee Dunwoody Rd, Ste 210 Atlanta, GA 30341 P 707.451.6757 www.tlc-engineers.com COA K938087 © Copyright 2022 TLC Engineering Solutions, Inc. TLC Project No.: 824101 THINK. LISTEN. CREATE.  $\cap$ Υ >σ ( onsultants: Revisions: No. Date Description A 10 JUL 24 DRAFT FOR REVIEW Project No.: 824101 Issue Date: 10 JULY 2024 Christian D. Drawn By: MDM Approved By: Scale: NTS Drawing Title: MECHANICAL SPECIFICATIONS Drawing No.: M002



# 1 PARTIAL NEW WORK MECHANICAL PLAN - LEVEL 3



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## **KEYNOTES**

1. SUPPLY & RETURN PIPING UP FROM 3RD FLOOR, SEE M201 FOR CONTINUATION.

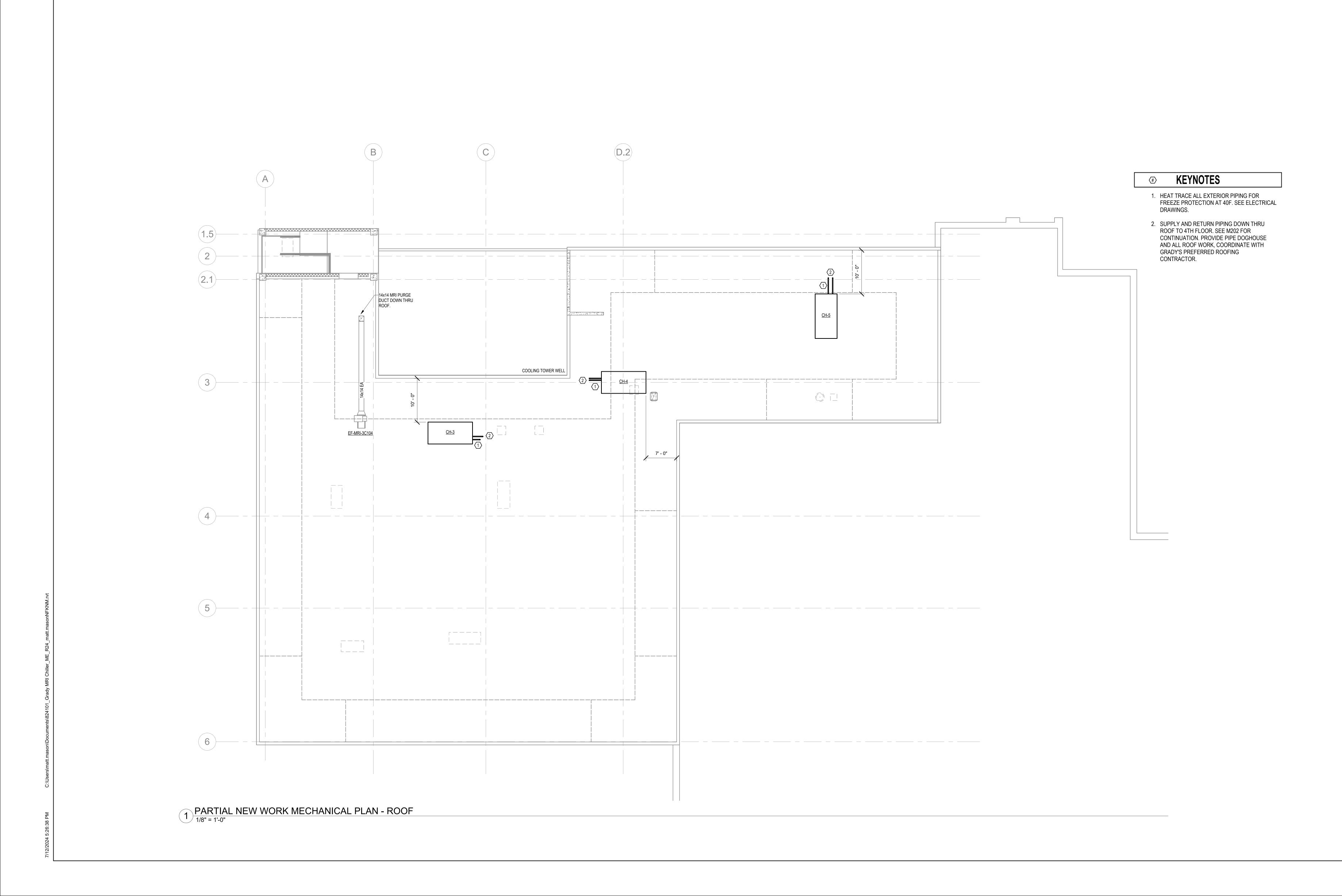
2. SUPPLY & RETURN PIPING UP THRU ROOF TO CHILLER, SEE M203 FOR CONTINUATION.

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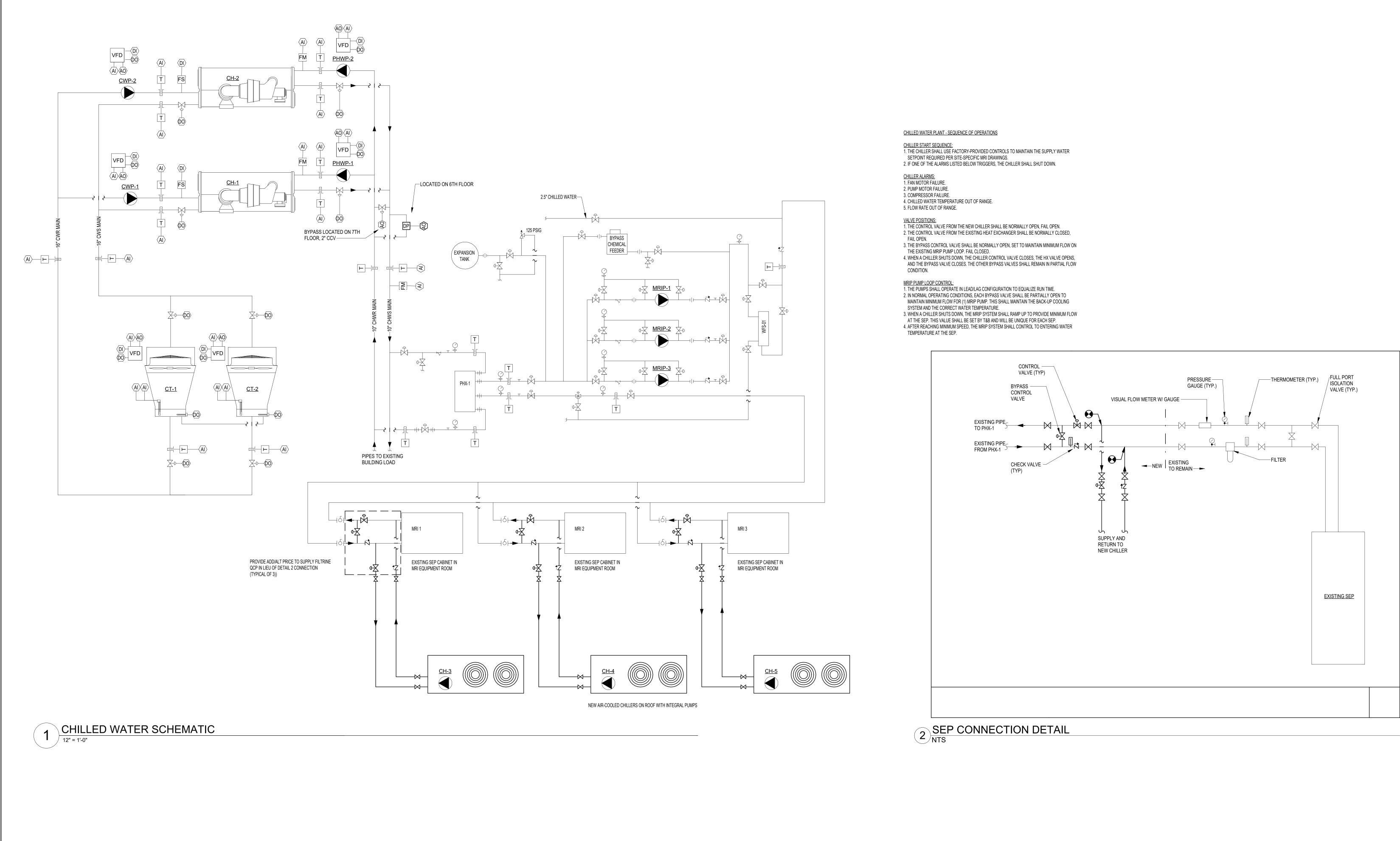
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## EXISTING HEAT EXCHANGER SCHEDULE SYSTEM FLUID FLOW (GPM) MARK MANUFACTURER MODEL TYPE PHX-1 BELL & GOSSETT GPX GASKETED PLATE HX CHW WATER 100 NOTES: 1. STAINLESS STEEL PLATES 2. FOULING FACTOR: 0.000005 3. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

#### EXISTING PUMP SCHEDULE

	BASIS	OF DESIGN			FLUID DATA			PUMP DATA		PIPE D				MOTOR DATA		
MARK	MANUFACTURER	MODEL	SYSTEM SERVED	FLOW RATE (GPM)	HEAD (FT)	FLUID TEMP. (°F)	TYPE	IMPELLER SIZE (IN)	EFFICIENCY (%)	DISCHARGE SIZE (IN)	SUCTION SIZE (IN)	MOTOR HP	VFD	PUMP SPEED (RPM)	VOLTS	PHASE
MRIP-3	BELL & GOSSETT	e-80 2x2x9.5C	PCHW	70	75.0	48	INLINE	9.375	56.8	2	2	5	YES	1800		
MOTORS SHALL BE PROVIDE PROPER F	HIGH EFFICIENCY AND TEF	INLET/OUTLET AS REQUIRED														

PROVIDE SUCTION DIFFUSERS AS REQUIRED. 5. PROVIDE FULL IMPELLER SIZE FOR ALL VFD DRIVEN PUMPS.

6. VFD DRIVEN PUMPS SHALL BE INVERTER DUTY.

7. PROVIDE SPRING VIBRATION ISOLATORS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

	NEW AIR COOLED CHILLER SCHEDULE																			
	BASIS OF D	DESIGN							EVAPOR	ATOR DATA		CONE	ENSER DATA			ELECT	RICAL [	DATA		
MARK	MANUFACTURER	MODEL	COMP. TYPE	NUMBER OF COMP.	REFRIG.		EWT (°F)	LWT (°F)	FLOW (GPM)	MAX P.D. (FT)	FOULING FACTOR	DESIGN AMBIENT TEMP (°F)	NUMBER OF FANS	FAN TOTAL HP	EFFICIENCY (BTU/W.H)	IPLV.IP (BTU/W.H)	MCA	MOCP	VOLTS	PHASE
CH-3	FILTRINE	SMS-3000-330	VARIES	2		259,554	54	42	30			90	2	30			62	100	480	3
CH-4	FILTRINE	SMS-3000-330	VARIES	2		259,554	54	42	30			90	2	30			62	100	480	3
CH-5	FILTRINE	SMS-3000-330	VARIES	2		259,554	54	42	30			90	2	30			62	100	480	3

NOTES:

1. PROVIDE RAIL SYSTEM FOR ROOF MOUNTING.

2. PROVIDE WITH SINGLE-POINT POWER CONNECTION. SINGLE-POINT POWER CONNECTION SHALL INCLUDE ALL NECESSARY POWER NEEDS OF THE CHILLER. PROVIDE ANY NECESSARY STEP-DOWN TRANSFORMERS FOR COMPLETE SYSTEM. 3. PROVIDE UPS FOR CHILLER CONTROLS, SUCH THAT UPON POWER LOSS, THE CHILLER WILL RESTART AUTOMATICALLY, RESUMING ITS PREVIOUS STATUS AND SETTINGS.

4. PROVIDE LINE REACTORS FOR THE CONDENSER FAN VFDS FOR HARMONIC ISOLATION.

5. PERFORMANCE VALUES BASED ON AHRI TOLERANCES.

6. PROVIDE VARIABLE SPEED CONDENSER FANS FOR LOW AMBIENT CONTROL

7. PROVIDE CORROSION-RESISTANT BAKED ENAMEL FINISH ON CASING

8. PROVIDE FLEX CONNECTORS AND ISOLATION VALVES AT PIPE CONNECTIONS TO CHILLER INLET AND OUTLET. 9. PROVIDE FACTORY DISCONNECT AND CONTROL PANEL WITH NEMA 3R ENCLOSURE

10. PROVIDE FACTORY INSULATION.

11. PROVIDE PROTECTIVE CONDENSER GRILLES FOR PROTECTION OF CONDENSER FINS.

12. PROVIDE INTEGRAL 3 HP CENTRIFUGAL PUMP. STAINLESS STEEL CONSTRUCTION. PROVIDE RUBBER PAD ISOLATION.

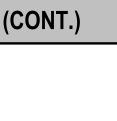
13. INSULATE ALL INTERNAL PIPING AND FITTINGS WITH CLOSED CELL INSULATION.

DLD	SIDE				HO	T SIDE				
OW PM)	EWT (°F)	LWT (°F)	MAX WPD (PSI)	SYSTEM	FLUID	FLOW (GPM)	EWT (°F)	LWT (°F)	MAX WPD (PSI)	LOCATION
0.0	44.0	59.9	4.50	PROCESSED CHW	WATER	100.0	64.0	48.0	4.47	LEVEL 4 MECH PENTHOUSE

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# **APPENDIX B**

		ELECTRICAL SYMBOL LEGEND			
		ATERIALS	FIRE ALARM / DETECTION SYSTEM		
SYMBOL DEVICE ABBR	L DESCRIPTION REVIATION TAGS:	SYMBOL DESCRIPTION	SYMBOL     DESCRIPTION		
6C 8C 4G	POKE-THRU WITH 6" CORE DRILL POKE-THRU WITH 8" CORE DRILL FOUR-GANG FLOOR BOX	PB PULLBOX	F       MANUAL PULL STATION         CEILING SMOKE DETECTOR, PHOTOELECTRIC TYPE UNLESS OTHERWISE         NOTED		
6G 8G	SIX-GANG FLOOR BOX EIGHT-GANG FLOOR BOX DOUBLE DUPLEX RECEPTACLE WITH DEDICATED CIRCUIT FOR AV RACK OR CART	HH     HANDHOLE       T     TRANSFORMER	E = ELEVATOR WITH RECALL CONTACTS I = IONIZATION		
C	RECEPTACLE CONTROLLED PER ASHRAE 90.1 (2010); PROVIDE POWER PACK FOR RECEPTACLE CIRCUIT, TO BE CONTROLLED THROUGH LOCAL ROOM OCCUPANCY	AUTOMATIC TRANSFER SWITCH	S     DUCT SMOKE DETECTOR       R = RETURN       S = SUPPLY		
ETR H	SENSOR(S); PROVIDE DEVICE WITH BLUE DOT OR UNIVERSAL POWER SYMBOL EXISTING TO REMAIN HOSPITAL GRADE	NON-FUSED DISCONNECT SWITCH, RATING AS NOTED NF = NON-FUSED AR = AMPERE RATING OF SWITCH	BEAM SMOKE DETECTOR BR OR R = BEAM DETECTOR RECEIVER BT OR T = BEAM DETECTOR TRANSMITTER		
IG RL	ISOLATED GROUND (ORANGE DEVICE) RELOCATED	4X SS = NEMA 4X STAINLESS STEEL ENCLOSURE	HEAT DETECTOR 135°F FIXED TEMPERATURE, UNLESS OTHERWISE NOTED, CEILING MOUNTED		
TR TV	TAMPER RESISTANT RECEPTACLE MOUNTED ADJACENT TO TV OUTLET, COORDINATE HEIGHT W/ ARCHITECT	$\frac{30AR}{20AF} 3R^{4}$ FUSED DISCONNECT AF = AMPERE RATING OF FUSE AR = AMPERE RATING OF SWITCH	R       SUPERVISED ADDRESSABLE FIRE ALARM CONTROL RELAY         DUCT SMOKE DETECTOR REMOTE TEST SWITCH WITH INDICATING LAMP, WALL		
WP	DUPLEX RECEPTACLE WITH (2) USB PORTS WEATHERPROOF	4X SS = NEMA 4X STAINLESS STEEL ENCLOSURE MCP# OF POLES AMPERENEMA DATING: NEMA 1 UNILESS OTHERWISE NOTED	MOUNTED AT 48" AFF, UNLESS OTHERWISE NOTED COMBINATION SPEAKER/STROBE, WALL MOUNTED, 75CD UNLESS OTHERWISE		
Sa Sg	SINGLE POLE SWITCH (SUBSCRIPT INDICATES ITEM CONTROLLED) THREE-WAY SWITCH	ANNERNE RATING ANNERNE RATING ANNERNE AND ANNERNE AND ANNERNE	XXCD     NOTED CD = CANDELA RATING       EX     HORN ONLY, WALL MOUNTED		
s <sub>4</sub> s <sub>K</sub>	FOUR-WAY SWITCH SINGLE POLE KEY SWITCH DIGITAL TIMER SWITCH W/ 5 MIN. WARNING FLASH	4X SS = NEMA 4X STAINLESS STEEL ENCLOSURE NEMA STARTER SIZE	STROBE, CEILING MOUNTED, 75 CD UNLESS OTHERWISE NOTED XXCD CD = CANDELA RATING		
s <sub>T</sub> S <sub>OSab</sub>	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH, DUAL RELAY	SWITCHBOARD/ SWITCHGEAR/ DISTRIBUTION PANEL	COMBINATION SPEAKER/STROBE_, CEILING MOUNTED, 75CD UNLESS OTHERWISE NOTED CD = CANDELA RATING		
s <sub>os</sub> s <sub>vs</sub>	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR SWITCH WALL MOUNTED DUAL TECHNOLOGY VACANCY SENSOR SWITCH	BRANCH CIRCUIT PANELBOARD, OVER 240 VOLTS, SURFACE MOUNTED BRANCH CIRCUIT PANELBOARD, OVER 240 VOLTS, FLUSH MOUNTED	SPEAKER ONLY, CEILING MOUNTED		
s <sub>D,OS</sub> s <sub>LV</sub>	WALL MOUNTED DUAL TECHNOLOGY DIMMING/OCCUPANCY SENSOR SWITCH LOW VOLTAGE SWITCH	BRANCH CIRCUIT PANELBOARD, UNDER 240 VOLTS, SURFACE MOUNTED	STROBE, WALL MOUNTED         STROBE, WALL MOUNTED, 75CD UNLESS OTHERWISE NOTED		
s <sub>LVO</sub> s <sub>LVD</sub>	LOW VOLTAGE OVERRIDE SWITCH LOW VOLTAGE OVERRIDE SWITCH WITH DIMMING	BRANCH CIRCUIT PANELBOARD, UNDER 240 VOLTS, FLUSH MOUNTED	FIREMAN'S PHONE JACK     VS   SPRINKLER TAMPER SWITCH CONNECTION		
SF SM	FAN SWITCH MOTOR RATED SWITCH	CONDUIT CONCEALED ABOVE CEILING OR IN WAL	WS SPRINKLER WATERFLOW SWITCH CONNECTION		
S <sub>D</sub>	DIMMER SWITCH, LINE VOLTAGE	CONDUIT CONCEALED IN SLAB, UNDERGROUND OR UNDER FLOOR	PS     PRESSURE SWITCH CONNECTION       DH     ELECTROMAGNETIC DOOR HOLD OPEN DEVICE		
©\$ ♥ ©\$ ♥	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR	CONDUIT HOMERUN TO ELECTRICAL PANEL	FACPFIRE ALARM CONTROL PANELFATCFIRE ALARM TERMINAL CABINET		
	DAYLIGHT SENSOR CEILING MOUNTED DAYLIGHT SENSOR WALL MOUNTED	CONDUIT TURNING DOWN	FAA       FIRE ALARM ANNUNCIATOR PANEL - FLUSH MOUNTED         EVAC       VOICE EVACUATION PANEL         MNS       MASS NOTIFICATION SYSTEM PANEL		
(VS)	VACANCY SENSOR CEILING MOUNTED	CONDUIT STUBBED OUT OR UP  CONDUIT CONTINUED	MNS     MASS NOTIFICATION SYSTEM PANEL       DACT     MASS NOTIFICATION SYSTEM PANEL		
(\s)- 10-	VACANCY SENSOR WALL MOUNTED PHOTOCELL, MOUNTED ON ROOF FACING NORTH				
₩₩	NOTE: DIAGONAL MARKS INDICATED ON ANY DEVICE REPRESENTS DEVICE CONNECTED TO EMERGENCY CIRCUIT (RED DEVICE FOR RECEPTACLE);	CONDUIT SEAL-OFF FITTING GROUND OR GROUND ROD AS NOTED			
<del>0</del> -	TYPICAL FOR ANY DEVICE IN LEGEND	EXISTING TO BE REMOVED (HEAVY, DASHED LINE)     EXISTING TO REMAIN (LIGHT, SOLID LINE)			
⊕	DUPLEX RECEPTACLE TWO DUPLEX RECEPTACLES (QUAD) WITH COMMON COVERPLATE	NEW (HEAVY, SOLID LINE)			
€	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER TWO DUPLEX RECEPTACLES (QUAD) WITH COMMON COVER MOUNTED ABOVE COUNTER	LIGHTING	NURSE CALL SYSTEMS	ABBREVIATIONS	ABBREVIATIONS (CONT.)
<del>o</del>	DUPLEX RECEPTACLE; EACH RECEPTACLE ON SEPARATE CIRCUIT (PROVIDE BREAKER WITH 2-POLE COMMON TRIP HANDLE)		-N SINGLE PATIENT STATION	A/C AIR CONDITIONING AC ALTERNATING CURRENT	KCMIL ONE THOUSAND CIRCULAR MILS KV KILOVOLT
●	SPLIT-WIRED CONTROLLED DUPLEX RECEPTACLE GFCI RECEPTACLE; "WP" INDICATES CAST METAL "IN-USE" WEATHERPROOF COVER, WEATHER-RESISTANT LISTED	AFIXTURE TYPE FIXTURE, RECESSED, PENDANT OR SURFACE CEILING	$-\langle N \rangle_2$ DUAL PATIENT STATION	ABV CLG ABOVE CEILING ADA AMERICANS WITH DISABILITIES ACT AF AMPERE FRAME	KVA KILOVOLT AMPERES KW KILOWATT KWH KILOWATT HOURS
#	TWO GFCI DUPLEX RECEPTACLES (QUAD) WITH COMMON COVERPLATE	2 a LOWER CASE LETTER INDICATES CONTROLLING SWITCH ZX-X LIGHTING CONTROL ZONE NUMBER	Image: Description     Duty station       Image: Description     Staff assistance station	AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE	LBS POUNDS LED LIGHT EMITTING DIODE LP LIGHTNING PROTECTION
	GFCI RECEPTACLE MOUNTED ABOVE COUNTER DUPLEX RECEPTACLE, CEILING MOUNTED	FIXTURE RECESSED, PENDANT OR SURFACE CEILING	STAFF EMERGENCY STATION	AIC AMPERE INTERRUPTING CAPACITY AL ALUMINUM	LT LIGHT LTG LIGHTING
	TWO DUPLEX RECEPTACLES (QUAD) WITH COMMON COVERPLATE, CEILING MOUNTED PEDESTAL MOUNTED DUPLEX RECEPTACLE	DIAGONAL HALF SHADING INDICATE FIXTURE CONNECTED TO CRITICAL CIRCUIT OR PROVIDED WITH INTEGRAL EMERGENCY BATTERY PACK; "E" AFTER FIXTURE TYPE TAG INDICATES INTEGRAL BATTERY PACK UNLESS OTHERWISE NOTED ON LIGHT FIXTURE	STAFF EMERGENCY ANNUNCIATOR       STAFF EMERGENCY STATION	AMP AMPERE ANSI AMERICAN NATIONAL STANDARDS INSTITUTE ASA AMERICAN STANDARDS ASSOCIATION	LSIG LONG TIME, SHORT TIME, INSTANTANEOUS, GROUND LSIA LONG TIME, SHORT TIME, INSTANTANEOUS, ALARM LSI LONG TIME, SHORT TIME, INSTANTANEOUS
	FLOOR BOX WITH DUPLEX RECEPTACLE WITH APPROPRIATE FLANGE	SCHEDULE (TYPICAL FOR ALL LIGHT FIXTURE SYMBOLS)	TOILET EMERGENCY STATION	AT AMPERE TRIP ATS AUTOMATIC TRANSFER SWITCH AUX AUXILIARY	MAX MAXIMUM MCA MINIMUM CIRCUIT AMPS MCB MAIN CIRCUIT BREAKER
	FLOOR BOX, TWO DUPLEX RECEPTACLES (QUAD) WITH APPROPRIATE FLANGE MULTI-SERVICE FLOOR BOX WITH DUPLEX RECEPTACLE, VOICE/DATA/AV DEVICES (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW	FULL SHADING INDICATE FIXTURE CONNECTED TO LIFE SAFETY CIRCUIT.	SHOWER EMERGENCY STATION	AWG AMERICAN WIRE GUAGE BC BARE COPPER BIL BASIC IMPULSE LEVEL	MCC MOTOR CONTROL CENTER MDP MAIN SERVICE DISTRIBUTION PANEL MIC MICROPHONE
	VOLTAGE REQUIREMENTS) MULTI-SERVICE FLOOR BOX WITH TWO DUPLEX RECEPTACLES (QUAD) , VOICE/DATA/AV	FIXTURE, WALL MOUNTED O RECESSED, PENDANT OR SURFACE CEILING	CODE BLUE EMERGENCY STATION       DUAL STAFF PRESENCE INDICATOR STATION	BAS BUILDING AUTOMATION SYSTEM BMS BUILDING MANAGEMENT SYSTEM BRKR OR BKR BREAKER	MIN MINIMUM MLO MAIN LUGS ONLY
	DEVICES (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS)				
لُطُ الله	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION	HO     WALL MOUNTED	CORRIDOR DOME LIGHT WALL MOUNTED	C CONDUIT OR RACEWAY CAB CABINET CKT CIRCUIT	MOCP MAXIMUM OVERCURRENT PROTECTION MSB MAIN SERVICE SWITCHBOARD MTD MOUNTED
	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS)	CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH	T CORRIDOR ZONE LIGHT	CAB CABINET CKT CIRCUIT CB CIRCUIT BREAKER CBM CERTIFIED BALLAST MANUFACTURERS	MOCPMAXIMUM OVERCURRENT PROTECTIONMSBMAIN SERVICE SWITCHBOARDMTDMOUNTEDMTGMOUNTINGMTRMOTORMTSMANUAL TRANSFER SWITCH
 ₽	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW	CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH	T     Z     CORRIDOR ZONE LIGHT	CABCABINETCKTCIRCUITCBCIRCUIT BREAKERCBMCERTIFIED BALLAST MANUFACTURERSCATVCABLE TELEVISIONCCTVCLOSED CIRCUIT TELEVISIONCLECCLOCK EQUIPMENT CABINET	MOCPMAXIMUM OVERCURRENT PROTECTIONMSBMAIN SERVICE SWITCHBOARDMTDMOUNTEDMTGMOUNTINGMTRMOTORMTSMANUAL TRANSFER SWITCHMUXMULTIPLEX (TRANSPONDER) PANELMVAMEGA VOLT AMPSNNEUTRAL
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS) SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AS NOTED	CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH	T       Z       CORRIDOR ZONE LIGHT	CABCABINETCKTCIRCUITCBCIRCUIT BREAKERCBMCERTIFIED BALLAST MANUFACTURERSCATVCABLE TELEVISIONCCTVCLOSED CIRCUIT TELEVISIONCLECCLOCK EQUIPMENT CABINETCLGCEILINGCOCONDUIT OR RACEWAY ONLYCOAXCOAXIAL CABLE	MOCP       MAXIMUM OVERCURRENT PROTECTION         MSB       MAIN SERVICE SWITCHBOARD         MTD       MOUNTED         MTG       MOUNTING         MTR       MOTOR         MTS       MANUAL TRANSFER SWITCH         MUX       MULTIPLEX (TRANSPONDER) PANEL         MVA       MEGA VOLT AMPS         N       NEUTRAL         NC       NORMALLY CLOSED         NEC       NATIONAL ELECTRICAL CODE         NEMA       NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS) SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AS NOTED JUNCTION BOX WALL MOUNTED	CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH	T       Z       CORRIDOR ZONE LIGHT	CABCABINETCKTCIRCUITCBCIRCUIT BREAKERCBMCERTIFIED BALLAST MANUFACTURERSCATVCABLE TELEVISIONCCTVCLOSED CIRCUIT TELEVISIONCLECCLOCK EQUIPMENT CABINETCLGCEILINGCOCONDUIT OR RACEWAY ONLYCOAXCOAXIAL CABLECONDCONDUCTORCONNCONNECTIONCPUCENTRAL PROCESSING UNIT	MOCPMAXIMUM OVERCURRENT PROTECTIONMSBMAIN SERVICE SWITCHBOARDMTDMOUNTEDMTGMOUNTINGMTRMOTORMTSMANUAL TRANSFER SWITCHMUXMULTIPLEX (TRANSPONDER) PANELMVAMEGA VOLT AMPSNNEUTRALNCNORMALLY CLOSEDNECNATIONAL ELECTRICAL CODENEMANATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONNFPANATIONAL FIRE PROTECTION ASSOCIATIONNICNON-FUSED
	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS) SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AS NOTED JUNCTION BOX WALL MOUNTED JUNCTION BOX MOUNTED IN OR ABOVE CEILING OR IN STRUCTURE WALL MOUNTED FURNITURE FEED POWER CONNECTION POWER POLE WITH POWER & DATA FURNITURE FEED POWER CONNECTIONS	<ul> <li>CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH</li> <li>TRACK WITH TRACK LIGHT FIXTURE (TRIANGLES INDICATE QUANTITY OF TRACK HEADS)</li> <li>EMERGENCY TWIN-HEAD LIGHT WITH INTEGRAL BATTERY PACK, WALL MOUNTED</li> <li>LINEAR RECESSED, PENDANT OR SURFACE CEILING</li> <li>EXTERIOR POLE-MOUNTED AREA LIGHT FIXTURE, ARMS AS INDICATED ON DRAWINGS</li> <li>EXTERIOR PEDESTRIAN SIDEWALK BOLLARD OR POST-TOP LIGHT FIXTURE</li> <li>EXIT LIGHT, CEILING OR PENDANT MOUNTED; DIRECTIONAL ARROWS AS INDICATED;</li> </ul>	T       Z       CORRIDOR ZONE LIGHT	CABCABINETCKTCIRCUITCBCIRCUIT BREAKERCBMCERTIFIED BALLAST MANUFACTURERSCATVCABLE TELEVISIONCCTVCLOSED CIRCUIT TELEVISIONCLECCLOCK EQUIPMENT CABINETCLGCEILINGCOCONDUIT OR RACEWAY ONLYCOAXCOAXIAL CABLECONDCONNECTIONCPUCENTRAL PROCESSING UNITCRTCATHODE RAY TERMINAL (VIDEO DISPLAY TERMINAL)CTCURRENT TRANSFORMERCUCOPPER	MOCPMAXIMUM OVERCURRENT PROTECTIONMSBMAIN SERVICE SWITCHBOARDMTDMOUNTEDMTGMOUNTINGMTRMOTORMTSMANUAL TRANSFER SWITCHMUXMULTIPLEX (TRANSPONDER) PANELMVAMEGA VOLT AMPSNNEUTRALNCNORMALLY CLOSEDNECNATIONAL ELECTRICAL CODENEMANATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONNFPANATIONAL FIRE PROTECTION ASSOCIATIONNICNOT IN CONTRACTNFNON-FUSEDNLNORMALLY OPEN OR NUMBEROLOVERLOAD
♥ J J V P P	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS) SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AS NOTED JUNCTION BOX WALL MOUNTED JUNCTION BOX MOUNTED IN OR ABOVE CEILING OR IN STRUCTURE WALL MOUNTED FURNITURE FEED POWER CONNECTION POWER POLE WITH POWER & DATA FURNITURE FEED POWER CONNECTIONS POWER POLE WITH POWER & DATA OUTLETS MULTI-SERVICE POKE-THRU WITH TWO INTEGRAL DUPLEX RECEPTACLES AND	<ul> <li>CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH</li> <li>TRACK WITH TRACK LIGHT FIXTURE (TRIANGLES INDICATE QUANTITY OF TRACK HEADS)</li> <li>EMERGENCY TWIN-HEAD LIGHT WITH INTEGRAL BATTERY PACK, WALL MOUNTED</li> <li>LINEAR RECESSED, PENDANT OR SURFACE CEILING</li> <li>EXTERIOR POLE-MOUNTED AREA LIGHT FIXTURE, ARMS AS INDICATED ON DRAWINGS</li> <li>EXTERIOR PEDESTRIAN SIDEWALK BOLLARD OR POST-TOP LIGHT FIXTURE</li> </ul>	T       Z       CORRIDOR ZONE LIGHT	CABCABINETCKTCIRCUITCBCIRCUIT BREAKERCBMCERTIFIED BALLAST MANUFACTURERSCATVCABLE TELEVISIONCCTVCLOSED CIRCUIT TELEVISIONCLECCLOCK EQUIPMENT CABINETCLGCEILINGCOCONDUIT OR RACEWAY ONLYCOAXCOAXIAL CABLECONDCONNECTIONCPUCENTRAL PROCESSING UNITCRTCATHODE RAY TERMINAL (VIDEO DISPLAY TERMINAL)CTCURRENT TRANSFORMERCUCOPPERCWCOLD WATERDCDIRECT CURRENTDDCDIRECT DIGITAL CONTROL	MOCPMAXIMUM OVERCURRENT PROTECTIONMSBMAIN SERVICE SWITCHBOARDMTDMOUNTEDMTGMOUNTINGMTRMOTORMTSMANUAL TRANSFER SWITCHMUXMULTIPLEX (TRANSPONDER) PANELMVAMEGA VOLT AMPSNNEUTRALNCNORMALLY CLOSEDNECNATIONAL ELECTRICAL CODENEMANATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONNFPANATIONAL FIRE PROTECTION ASSOCIATIONNICNOT IN CONTRACTNFNON-FUSEDNLNON-FUSEDNLNORMALLY OPEN OR NUMBEROLOVERLOADOSHAOCCUPATIONAL SAFETY & HEALTH ADMINISTRATIONPPOLEPBPULLBOX
	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS) SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AS NOTED JUNCTION BOX WALL MOUNTED JUNCTION BOX MOUNTED IN OR ABOVE CEILING OR IN STRUCTURE WALL MOUNTED FURNITURE FEED POWER CONNECTION POWER POLE WITH POWER & DATA FURNITURE FEED POWER CONNECTIONS POWER POLE WITH POWER & DATA OUTLETS	<ul> <li>CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH</li> <li>TRACK WITH TRACK LIGHT FIXTURE (TRIANGLES INDICATE QUANTITY OF TRACK HEADS)</li> <li>EMERGENCY TWIN-HEAD LIGHT WITH INTEGRAL BATTERY PACK, WALL MOUNTED</li> <li>LINEAR RECESSED, PENDANT OR SURFACE CEILING</li> <li>EXTERIOR POLE-MOUNTED AREA LIGHT FIXTURE, ARMS AS INDICATED ON DRAWINGS</li> <li>EXTERIOR PEDESTRIAN SIDEWALK BOLLARD OR POST-TOP LIGHT FIXTURE</li> <li>EXIT LIGHT, CEILING OR PENDANT MOUNTED; DIRECTIONAL ARROWS AS INDICATED; SHADED QUADRANT INDICATES FACE(S) OF FIXTURE</li> </ul>	T       Z       CORRIDOR ZONE LIGHT         CBAP       CODE BLUE ANNUNCIATOR PANEL WALL MOUNTED         NCEC       NURSE CALL EQUIPMENT CABINET         NURSE       NURSE CALL MASTER STATION         NURSE       NURSE CALL MASTER SUB-STATION	CABCABINETCKTCIRCUITCBCIRCUIT BREAKERCBMCERTIFIED BALLAST MANUFACTURERSCATVCABLE TELEVISIONCCTVCLOSED CIRCUIT TELEVISIONCLECCLOCK EQUIPMENT CABINETCLGCEILINGCOCONDUIT OR RACEWAY ONLYCOAXCOAXIAL CABLECONDCONNECTIONCPUCENTRAL PROCESSING UNITCRTCATHODE RAY TERMINAL (VIDEO DISPLAY TERMINAL)CTCURRENT TRANSFORMERCUCOPPERCWCOLD WATERDCDIRECT CURRENT	MOCPMAXIMUM OVERCURRENT PROTECTIONMSBMAIN SERVICE SWITCHBOARDMTDMOUNTEDMTGMOUNTINGMTRMOTORMTSMANUAL TRANSFER SWITCHMUXMULTIPLEX (TRANSPONDER) PANELMVAMEGA VOLT AMPSNNEUTRALNCNORMALLY CLOSEDNECNATIONAL ELECTRICAL CODENEMANATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONNFPANATIONAL FIRE PROTECTION ASSOCIATIONNFPANON-FUSEDNLNON-FUSEDNLNON-LINEARNONORMALLY OPEN OR NUMBEROLOVERLOADOSHAOCCUPATIONAL SAFETY & HEALTH ADMINISTRATIONPPOLE
♥ J J V P P	<ul> <li>MULTI-SERVICE POWER &amp; DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS)</li> <li>SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AS NOTED</li> <li>JUNCTION BOX WALL MOUNTED</li> <li>JUNCTION BOX MOUNTED IN OR ABOVE CEILING OR IN STRUCTURE</li> <li>WALL MOUNTED FURNITURE FEED POWER CONNECTION</li> <li>POWER POLE WITH POWER &amp; DATA FURNITURE FEED POWER CONNECTIONS</li> <li>POWER POLE WITH POWER &amp; DATA FURNITURE FEED POWER CONNECTIONS</li> <li>POWER POLE WITH POWER &amp; DATA OUTLETS</li> <li>MULTI-SERVICE POKE-THRU WITH TWO INTEGRAL DUPLEX RECEPTACLES AND VOICE/DATA/AV DEVICES (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS), OR FURNITURE FEED CONNECTION; REFER TO POKE-THRU DETAILS</li> <li>MULTI-SERVICE RACEWAY WITH 5-20R RECEPTACLES, 18" O.C. UNLESS OTHERWISE NOTED</li> </ul>	<ul> <li>CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH</li> <li>TRACK WITH TRACK LIGHT FIXTURE (TRIANGLES INDICATE QUANTITY OF TRACK HEADS)</li> <li>EMERGENCY TWIN-HEAD LIGHT WITH INTEGRAL BATTERY PACK, WALL MOUNTED</li> <li>LINEAR RECESSED, PENDANT OR SURFACE CEILING</li> <li>EXTERIOR POLE-MOUNTED AREA LIGHT FIXTURE, ARMS AS INDICATED ON DRAWINGS</li> <li>EXTERIOR PEDESTRIAN SIDEWALK BOLLARD OR POST-TOP LIGHT FIXTURE</li> <li>EXIT LIGHT, CEILING OR PENDANT MOUNTED; DIRECTIONAL ARROWS AS INDICATED; SHADED QUADRANT INDICATES FACE(S) OF FIXTURE</li> </ul>	T       Z       CORRIDOR ZONE LIGHT         CBAP       CODE BLUE ANNUNCIATOR PANEL WALL MOUNTED         NCEC       NURSE CALL EQUIPMENT CABINET         NURSE       NURSE CALL MASTER STATION         NURSE       NURSE CALL MASTER SUB-STATION	CABCABINETCKTCIRCUITCBCIRCUIT BREAKERCBMCERTIFIED BALLAST MANUFACTURERSCATVCABLE TELEVISIONCCTVCLOSED CIRCUIT TELEVISIONCLECCLOCK EQUIPMENT CABINETCLGCEILINGCOCONDUIT OR RACEWAY ONLYCOAXCOAXIAL CABLECONDCONDUCTORCONNCONNECTIONCPUCENTRAL PROCESSING UNITCRTCATHODE RAY TERMINAL (VIDEO DISPLAY TERMINAL)CTCURRENT TRANSFORMERCUCOPPERCWCOLD WATERDCDIRECT CURRENTDDCDIRECT DIGITAL CONTROLDEGDEGREEDFDEMAND FACTOR	MOCPMAXIMUM OVERCURRENT PROTECTIONMSBMAIN SERVICE SWITCHBOARDMTDMOUNTEDMTGMOUNTINGMTRMOTORMTSMANUAL TRANSFER SWITCHMUXMULTIPLEX (TRANSPONDER) PANELMVAMEGA VOLT AMPSNNEUTRALNCNORMALLY CLOSEDNECNATIONAL ELECTRICAL CODENEMANATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONNFPANATIONAL FIRE PROTECTION ASSOCIATIONNICNOT IN CONTRACTNFNON-FUSEDNLNON-LINEARNONORMALLY OPEN OR NUMBEROLOVERLOADOSHAOCCUPATIONAL SAFETY & HEALTH ADMINISTRATIONPPOLEPBPULLBOXPFPOWER FACTORPIVPOST INDICATOR VALVE
	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS) SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AS NOTED JUNCTION BOX WALL MOUNTED JUNCTION BOX WALL MOUNTED JUNCTION BOX MOUNTED IN OR ABOVE CEILING OR IN STRUCTURE WALL MOUNTED FURNITURE FEED POWER CONNECTION POWER POLE WITH POWER & DATA FURNITURE FEED POWER CONNECTIONS POWER POLE WITH POWER & DATA FURNITURE FEED POWER CONNECTIONS POWER POLE WITH POWER & DATA OUTLETS MULTI-SERVICE POKE-THRU WITH TWO INTEGRAL DUPLEX RECEPTACLES AND VOICE/DATA/AV DEVICES (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS), OR FURNITURE FEED CONNECTION; REFER TO POKE-THRU DETAILS MULTI-SERVICE RACEWAY WITH 5-20R RECEPTACLES, 18" O.C. UNLESS OTHERWISE NOTED CLOCK RECEPTACLE, WALL MOUNTED	<ul> <li>CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH</li> <li>TRACK WITH TRACK LIGHT FIXTURE (TRIANGLES INDICATE QUANTITY OF TRACK HEADS)</li> <li>EMERGENCY TWIN-HEAD LIGHT WITH INTEGRAL BATTERY PACK, WALL MOUNTED</li> <li>LINEAR RECESSED, PENDANT OR SURFACE CEILING</li> <li>EXTERIOR POLE-MOUNTED AREA LIGHT FIXTURE, ARMS AS INDICATED ON DRAWINGS</li> <li>EXTERIOR PEDESTRIAN SIDEWALK BOLLARD OR POST-TOP LIGHT FIXTURE</li> <li>EXIT LIGHT, CEILING OR PENDANT MOUNTED; DIRECTIONAL ARROWS AS INDICATED; SHADED QUADRANT INDICATES FACE(S) OF FIXTURE</li> </ul>	T       Z       CORRIDOR ZONE LIGHT         CBAP       CODE BLUE ANNUNCIATOR PANEL WALL MOUNTED         NCEC       NURSE CALL EQUIPMENT CABINET         NURSE       NURSE CALL MASTER STATION         NURSE       NURSE CALL MASTER SUB-STATION	CABCABINETCKTCIRCUITCBCIRCUIT BREAKERCBMCERTIFIED BALLAST MANUFACTURERSCATVCABLE TELEVISIONCCTVCLOSED CIRCUIT TELEVISIONCLECCLOCK EQUIPMENT CABINETCLGCEILINGCOCONDUIT OR RACEWAY ONLYCOAXCOAXIAL CABLECONDCONDUCTORCONNCONNECTIONCPUCENTRAL PROCESSING UNITCRTCATHODE RAY TERMINAL (VIDEO DISPLAY TERMINAL)CTCURRENT TRANSFORMERCUCOPPERCWCOLD WATERDCDIRECT CURRENTDDCDIRECT DIGITAL CONTROLDEGDEGREEDFDEMAND FACTORDISCDISCONNECTDISC SWDISCONNECTDNDOWNDPSTDOUBLE POLE SINGLE THROWEDHELECTRIC DUCT HEATER	MOCPMAXIMUM OVERCURRENT PROTECTIONMSBMAIN SERVICE SWITCHBOARDMTDMOUNTEDMTGMOUNTINGMTRMOTORMTSMANUAL TRANSFER SWITCHMUXMULTIPLEX (TRANSPONDER) PANELMVAMEGA VOLT AMPSNNEUTRALNCNORMALLY CLOSEDNECNATIONAL ELECTRICAL CODENEMANATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONNFPANATIONAL FIRE PROTECTION ASSOCIATIONNFPANON-FUSEDNLNON-LINEARNONORMALLY OPEN OR NUMBEROLOVERLOADOSHAOCCUPATIONAL SAFETY & HEALTH ADMINISTRATIONPPOLEPBPULLBOXPFPOWER FACTORPIVPOST INDICATOR VALVEPILPAIRPRIPRIMARYPTPOTENTIAL TRANSFORMERPVCPOLYVINYLCHLORIDEPWRPOWER
♥ J J V P P P P	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS)         SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AS NOTED         JUNCTION BOX WALL MOUNTED         JUNCTION BOX MOUNTED IN OR ABOVE CEILING OR IN STRUCTURE         WALL MOUNTED FURNITURE FEED POWER CONNECTION         POWER POLE WITH POWER & DATA FURNITURE FEED POWER CONNECTIONS         POWER POLE WITH POWER & DATA FURNITURE FEED POWER CONNECTIONS         POWER POLE WITH POWER & DATA OUTLETS         MULTI-SERVICE POKE-THRU WITH TWO INTEGRAL DUPLEX RECEPTACLES AND VOICE/DATA/AV DEVICES (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS), OR FURNITURE FEED CONNECTION; REFER TO POKE-THRU DETAILS         MULTI-SERVICE RACEWAY WITH 5-20R RECEPTACLES, 18" O.C. UNLESS OTHERWISE NOTED CLOCK RECEPTACLE, WALL MOUNTED         GROUND BUS BAR, COPPER SURGE PROTECTIVE DEVICE	<ul> <li>CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH</li> <li>TRACK WITH TRACK LIGHT FIXTURE (TRIANGLES INDICATE QUANTITY OF TRACK HEADS)</li> <li>EMERGENCY TWIN-HEAD LIGHT WITH INTEGRAL BATTERY PACK, WALL MOUNTED</li> <li>LINEAR RECESSED, PENDANT OR SURFACE CEILING</li> <li>EXTERIOR POLE-MOUNTED AREA LIGHT FIXTURE, ARMS AS INDICATED ON DRAWINGS</li> <li>EXTERIOR PEDESTRIAN SIDEWALK BOLLARD OR POST-TOP LIGHT FIXTURE</li> <li>EXIT LIGHT, CEILING OR PENDANT MOUNTED; DIRECTIONAL ARROWS AS INDICATED; SHADED QUADRANT INDICATES FACE(S) OF FIXTURE</li> </ul>	T       Z       CORRIDOR ZONE LIGHT         CBAP       CODE BLUE ANNUNCIATOR PANEL WALL MOUNTED         NCEC       NURSE CALL EQUIPMENT CABINET         NURSE       NURSE CALL MASTER STATION         NURSE       NURSE CALL MASTER SUB-STATION	CABCABINETCKTCIRCUITCBCIRCUIT BREAKERCBMCERTIFIED BALLAST MANUFACTURERSCATVCABLE TELEVISIONCCTVCLOSED CIRCUIT TELEVISIONCLECCLOCK EQUIPMENT CABINETCLGCEILINGCOCONDUIT OR RACEWAY ONLYCOAXCOAXIAL CABLECONDCONDUCTORCONNCONNECTIONCPUCENTRAL PROCESSING UNITCRTCATHODE RAY TERMINAL (VIDEO DISPLAY TERMINAL)CTCURRENT TRANSFORMERCUCOPPERCWCOLD WATERDCDIRECT DIGITAL CONTROLDEGDEGREEDFDEMAND FACTORDISCDISCONNECTDISCDISCONNECTDNDOWNDPSTDOUBLE POLE SINGLE THROWEDHELECTRIC DUCT HEATEREMTELECTRIC METALLIC TUBINGEOELECTRICALLY OPERATEDEOLEND OF LINE	MOCPMAXIMUM OVERCURRENT PROTECTIONMSBMAIN SERVICE SWITCHBOARDMTDMOUNTEDMTGMOUNTINGMTRMOTORMTSMANUAL TRANSFER SWITCHMUXMULTIPLEX (TRANSPONDER) PANELMVAMEGA VOLT AMPSNNEUTRALNCNORMALLY CLOSEDNECNATIONAL ELECTRICAL CODENEMANATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONNFPANATIONAL FIRE PROTECTION ASSOCIATIONNFPANON-FUSEDNLNON-FUSEDNLNON-LINEARNONORMALLY OPEN OR NUMBEROLOVERLOADOSHAOCCUPATIONAL SAFETY & HEALTH ADMINISTRATIONPPOLEPBPULLBOXPFPOWER FACTORPIVPOST INDICATOR VALVEPNLPANELPRPAIRPRIPRIMARYPTPOTENTIAL TRANSFORMERPVCPOLYVINYLCHLORIDE
♥ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS) SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AS NOTED JUNCTION BOX WALL MOUNTED JUNCTION BOX MOUNTED IN OR ABOVE CEILING OR IN STRUCTURE WALL MOUNTED FURNITURE FEED POWER CONNECTION POWER POLE WITH POWER & DATA FURNITURE FEED POWER CONNECTIONS POWER POLE WITH POWER & DATA FURNITURE FEED POWER CONNECTIONS POWER POLE WITH POWER & DATA OUTLETS MULTI-SERVICE POKE-THRU WITH TWO INTEGRAL DUPLEX RECEPTACLES AND VOICE/DATA/AV DEVICES (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS), OR FURNITURE FEED CONNECTION; REFER TO POKE-THRU DETAILS MULTI-SERVICE RACEWAY WITH 5-20R RECEPTACLES, 18" O.C. UNLESS OTHERWISE NOTED CLOCK RECEPTACLE, WALL MOUNTED GROUND BUS BAR, COPPER SURGE PROTECTIVE DEVICE SHUNT-TRIP PUSHBUTTON; SEMI-FLUSH WALL MOUNTED UNLESS OTHERWISE NOTED; NEMA 3R FOR EXTERIOR LOCATIONS EMERGENCY POWER OFF SHUNT-TRIP PUSHBUTTON, RED MUSHROOM HEAD, CLEAR	<ul> <li>CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH</li> <li>TRACK WITH TRACK LIGHT FIXTURE (TRIANGLES INDICATE QUANTITY OF TRACK HEADS)</li> <li>EMERGENCY TWIN-HEAD LIGHT WITH INTEGRAL BATTERY PACK, WALL MOUNTED</li> <li>LINEAR RECESSED, PENDANT OR SURFACE CEILING</li> <li>EXTERIOR POLE-MOUNTED AREA LIGHT FIXTURE, ARMS AS INDICATED ON DRAWINGS</li> <li>EXTERIOR PEDESTRIAN SIDEWALK BOLLARD OR POST-TOP LIGHT FIXTURE</li> <li>EXIT LIGHT, CEILING OR PENDANT MOUNTED; DIRECTIONAL ARROWS AS INDICATED; SHADED QUADRANT INDICATES FACE(S) OF FIXTURE</li> </ul>	T       Z       CORRIDOR ZONE LIGHT         CBAP       CODE BLUE ANNUNCIATOR PANEL WALL MOUNTED         NCEC       NURSE CALL EQUIPMENT CABINET         NURSE       NURSE CALL MASTER STATION         NURSE       NURSE CALL MASTER SUB-STATION	CABCABINETCKTCIRCUITCBCIRCUIT BREAKERCBMCERTIFIED BALLAST MANUFACTURERSCATVCABLE TELEVISIONCCTVCLOSED CIRCUIT TELEVISIONCLECCLOCK EQUIPMENT CABINETCLGCEILINGCOCONDUIT OR RACEWAY ONLYCOAXCOAXIA CABLECONDCONDUCTORCONNCONNECTIONCPUCENTRAL PROCESSING UNITCRTCATHODE RAY TERMINAL (VIDEO DISPLAY TERMINAL)CTCURRENT TRANSFORMERCUCOPPERCWCOLD WATERDCDIRECT DIGITAL CONTROLDEGDEGREEDFDEMAND FACTORDISCDISCONNECTDISCDISCONNECTDNDOWNDPSTDOUBLE POLE SINGLE THROWEOHELECTRIC AUCT TERTICALIC TUBINGEOELECTRICALLY OPERATEDEOLEND OF LINEEORENGINEER OF RECORDETREXISTING TO REMAINEWCELECTRIC WATER COOLER	MOCPMAXIMUM OVERCURRENT PROTECTIONMSBMAIN SERVICE SWITCHBOARDMTDMOUNTEDMTGMOUNTINGMTRMOTORMTSMANUAL TRANSFER SWITCHMUXMULTIPLEX (TRANSPONDER) PANELMVAMEGA VOLT AMPSNNEUTRALNCNORMALLY CLOSEDNECNATIONAL ELECTRICAL CODENEMANATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONNFPANATIONAL FIRE PROTECTION ASSOCIATIONNFFANON-FUSEDNLNON-FUSEDNLNON-FUSEDNLNON-FUSEDNLNON-UNEAROLOVERLOADOSHAOCCUPATIONAL SAFETY & HEALTH ADMINISTRATIONPPOLEPBPULLBOXPFPOWER FACTORPIVPOST INDICATOR VALVEPNLPANELPRPAIRPRIPRIMARYPTPOTENTIAL TRANSFORMERPVCPOLYINYLCHLORIDEPWRPOWERREC, RECEPTRECEPTACLEREFREFRIGERATORREFREFRIGERATORRGS, GRCRIGID GALVANIZED STEEL CONDUITRLARUNNING LOAD AMPERESRMSROOT-MEAN-SQUARERPMREVOLUTIONS PER MINUTE
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	MULTI-SERVICE POWER & DATA FLOOR BOX WITH FURNITURE FEED CONNECTION (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS) SPECIAL PURPOSE RECEPTACLE, NEMA CONFIGURATION AS NOTED JUNCTION BOX WALL MOUNTED JUNCTION BOX MOUNTED IN OR ABOVE CEILING OR IN STRUCTURE WALL MOUNTED FURNITURE FEED POWER CONNECTION POWER POLE WITH POWER & DATA FURNITURE FEED POWER CONNECTIONS POWER POLE WITH POWER & DATA FURNITURE FEED POWER CONNECTIONS POWER POLE WITH POWER & DATA OUTLETS MULTI-SERVICE POKE-THRU WITH TWO INTEGRAL DUPLEX RECEPTACLES AND VOICE/DATA/AV DEVICES (REFER TO TECHNOLOGY DRAWINGS OR OWNER'S VENDOR DRAWINGS FOR LOW VOLTAGE REQUIREMENTS), OR FURNITURE FEED CONNECTION; REFER TO POKE-THRU DETAILS MULTI-SERVICE RACEWAY WITH 5-20R RECEPTACLES, 18° O.C. UNLESS OTHERWISE NOTED CLOCK RECEPTACLE, WALL MOUNTED GROUND BUS BAR, COPPER SURGE PROTECTIVE DEVICE SHUNT-TRIP PUSHBUTTON; SEMI-FLUSH WALL MOUNTED UNLESS OTHERWISE NOTED; NEMA 3R FOR EXTERIOR LOCATIONS EMERGENCY POWER OFF SHUNT-TRIP PUSHBUTTON, RED MUSHROOM HEAD, CLEAR LEXAN PROTECTIVE COVER OVERHEAD DOOR PUSHBUTTON CONTROL STATION PUSHBUTTON STATION	<ul> <li>CEILING WALLWASHER, ACCENT LIGHT, LANDSCAPING TREE ACCENT LIGHT, FACADE LIGH</li> <li>TRACK WITH TRACK LIGHT FIXTURE (TRIANGLES INDICATE QUANTITY OF TRACK HEADS)</li> <li>EMERGENCY TWIN-HEAD LIGHT WITH INTEGRAL BATTERY PACK, WALL MOUNTED</li> <li>LINEAR RECESSED, PENDANT OR SURFACE CEILING</li> <li>EXTERIOR POLE-MOUNTED AREA LIGHT FIXTURE, ARMS AS INDICATED ON DRAWINGS</li> <li>EXTERIOR PEDESTRIAN SIDEWALK BOLLARD OR POST-TOP LIGHT FIXTURE</li> <li>EXIT LIGHT, CEILING OR PENDANT MOUNTED; DIRECTIONAL ARROWS AS INDICATED; SHADED QUADRANT INDICATES FACE(S) OF FIXTURE</li> </ul>	T       Z       CORRIDOR ZONE LIGHT         CBAP       CODE BLUE ANNUNCIATOR PANEL WALL MOUNTED         NCEC       NURSE CALL EQUIPMENT CABINET         NURSE       NURSE CALL MASTER STATION         NURSE       NURSE CALL MASTER SUB-STATION	CABCABINETCKTCIRCUITCBCIRCUIT BREAKERCBMCERTIFIED BALLAST MANUFACTURERSCATVCABLE TELEVISIONCCTVCLOSED CIRCUIT TELEVISIONCLECCLOCK EQUIPMENT CABINETCLGCEILINGCOCONDUIT OR RACEWAY ONLYCOAXCOAXIAL CABLECONDCONDUCTORCONNCONNECTIONCPUCENTRAL PROCESSING UNITCRTCATHODE RAY TERMINAL (VIDEO DISPLAY TERMINAL)CTCURRENT TRANSFORMERCUCOPPERCWCOLD WATERDCDIRECT CURRENTDDCDIRECT CURRENTDCDISCONNECTDSCDISCONNECTDSCDISCONNECTDNDOWNDSTDOUBLE POLE SINGLE THROWEDHELECTRIC METALIC TUBINGEOELECTRIC MATER COOLERFAFIRE ALARMFAAPFIRE ALARM ANNUNCIATOR PANELFATCFIRE ALARM ANNUNCIATOR PANELFATCFIRE ALARM ANNUNCIATOR PANELFATCFIRE ALARM MERMINAL CABINETFCUFAN COIL UNITFLAFULL LOAD AMPERESFMFACTORY MUTUAL	MOCPMAXIMUM OVERCURRENT PROTECTIONMSBMAIN SERVICE SWITCHBOARDMTDMOUNTEDMTGMOUNTINGMTRMOTORMTSMANUAL TRANSFER SWITCHMUXMULTIPLEX (TRANSPONDER) PANELMVAMEGA VOLT AMPSNNEUTRALNCNORMALLY CLOSEDNECNATIONAL ELECTRICAL CODENEMANATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONNFPANATIONAL FIRE PROTECTION ASSOCIATIONNFPANATIONAL FIRE PROTECTION ASSOCIATIONNFPANOT IN CONTRACTNFNOR-FUSEDNLNON-FUSEDNLNON-FUSEDNLNON-FUSEDNLNON-FUSEDNLNON-FUSEDNLNORMALLY OPEN OR NUMBEROLOVERLOADOSHAOCCUPATIONAL SAFETY & HEALTH ADMINISTRATIONPPOLEPBPULLBOXPFPOWER FACTORPIVPOST INDICATOR VALVEPNLPANELPRPAIRPRIPRIMARYPTPOTENTIAL TRANSFORMERPVCPOLYVINYLCHLORIDEPWRPOWERREC, RECEPTRECERGRATORRGS, GRCRIGID GALVANIZED STEEL CONDUITRLARUNNING LOAD AMPERESRMSROOT-MEAN-SQUARERPMREVOLUTIONS PER MINUTERTUROOT-MEAN-SQUARERPMREVOLUTIONS PER MINUTERTUROOT OFD UNITSCASHORT CIRCUIT AMPERESSDSMOKE DET
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	ELECTRICAL SHEET INDEX
E001	ELECTRICAL SYMBOLS, LEGEND, AND INDEX
E002	ELECTRICAL NOTES AND SPECIFICATIONS
E003	PARTIAL ONE-LINE DIAGRAM
E202	PARTIAL LEVEL 4 - NEW WORK POWER PLAN
E203	PARTIAL ROOF LEVEL - NEW WORK POWER PLAN

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 Description

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 DRAFT FOR REVIEW

 Seal: NOTFORTION CONSTRUCTION Project No.: 824101 Issue Date: 10 JULY 2024 RLS FSS Drawn By: Approved By: Scale: N.T.S. Drawing Title: ELECTRICAL SYMBOLS, LEGEND, AND INDEX Drawing No.: E001

<ul> <li>1. ALL PIRE ALARM EQUIPMENT IS TO BE NEW, UL LISTED FOR FIRE SERVICE, AND SHALL BE COMPATIBLE WITH THE SYSTEM BEING USED.</li> <li>2. ALL WIRING AND CONDUIT IS TO CONFORM TO NEC ARTICLE 760. WIRING SHALL BE UL LISTED, MINIMUM 300V TYPE FPLP PLENUM RATED SOLID COPPER OR STRANDED COPPER WITH MAXIMUM 19. STRANDS.</li> <li>3. LOW VOLTAGE CONDUCTORS: PROVIDE CONDUCTORS IN ACCORDANCE WITH NFPA 70 AND NFPA 72, AND AS RECOMMENDED BY THE FIRE ALARM SYSTEM MANUFACTURER. CONDUCTORS SHALL BE COPPER, MINIMUM NO. 14 AWG, TWISTED SHIELDED PAIR.</li> <li>4. SURVIVABILITY: A 2-HOUR RATED CABLE ASSEMBLY SHALL BE PROVIDED FOR NOTIFICATION APPLIANCE CIRCUITS AND ANY OTHER CIRCUITS NECESSARY FOR THE OPERATION OF THE NOTIFICATION APPLIANCE CIRCUITS FROM THE POINT AT WHICH THEY EXIT THE CONTROL UNTI UNTIL THE POINT THAT THEY ENTER THE NOTIFICATION APPLIANCE CIRCUITS FROM THEY SERVE.</li> <li>5. MANUAP CULU STATIONS ARE TO BE INSTALLED AT 42° TO BOTTOM OF DEVICE AND NO HIGHER THAN 48° TO HANDLE ABOVE FINISHED FLOOR.</li> <li>6. PROVIDE MOUTT AND WIRING BETWEEN EACH FIRE ALARM DEVICE AND NO HIGHER THAN 48° TO HANDLE ABOVE FINISHED FLOOR.</li> <li>7. PROVIDE DUCT DETECTOR (AND FIRE ALARM RELAY WHERE APPLICABLE) CONNECTED TO FIRE ALARM SYSTEM, WITHIN 5' OF ALL DUCT PENETRATIONS THROUGH FIRE/SMOKE WALLS, WHETHER INDICATED ON ELECTRICAL OR MECHANICAL PLANS OR NOT.</li> <li>8. FIRE ALARM CONTROL PANEL IS TO BE PROVIDED WITH DEDICATED 120V CIRCUIT WITH EQUIPMENT GROUND CONNECTION PER MANUFACTURER'S RECOMMENDATIONS AND ARTICLE 760 OF THE INEC. PROVIDE USES OT AND AND AND AND AND AND AND AND AND AND</li></ul>	Hendelse Hendel
SINCERCIDENTIATION OF STROEDS IN ALL AUXACENT AREAS WHERE STROEDS ARE VISIBLIT DEACH OTHER ALL STROEDS SHALL BE INSTALLED PRE NAAM CONTINO HEIGH REQUIREMENTS WALL MOUNTED STROEDS SHALL BE WATHER WHERE WHERE AUXAEN STRULEDS OTH ALL ENTRALLED PRE NAAM CONTINO HEIGH REQUIREMENTS WALL MOUNTED STROEDS SHALL BE WATHER BOTTO IN THE INSTROEL DENS BY AF. IS STRUEDS SHALL BE INSTALLED PRE NAAM CONTINO HEIGH REQUIREMENTS WALL MOUNTED STROEDS SHALL BE CONTINOTOR THE CONTINO THE REASTROEDS SHALL BE INSTALLED PRE NATARY & WALL CORRECORS. IT REAL AREA DROEDS SHALL DE PRE NATARY & WALL MOUNTED STROEDS SHALL BE MOUNTED 4-12" IS STRUED ENTERTIED OTTOM OF THE CERCENS OF INAEXCE OPERATION OF THE CONTRACTOR FOR CONTRACTOR FOR CONTRACT BE STRUEDS SHALL BE MOTOLE LECTIC ADDRESSABLE TYPE, UNLESS SPECIFICALLY NOTED OTHERWISE. IS STRUED ENTERCISES SHALL BE MOTOLE LECTIC ADDRESSABLE EVACE NAME WAS AND ELEVATOR MACHINE RECKISS SHALL BE BEOWTHE COLLING AND AWAY FRÂN CONTROL DE LECTICS AND CASES ENTERNAME AND USITY TO SALL DE MOUNTED AT THE FREAL AND CONTROL OF THE CONTRACTOR FOR CONTROL IS STRUED ENTERCISES SHALL BE MOTOLE LECTICS ADDRESSABLE ELEVATOR MACHINE RECKISS SHALL BE BEOWTHE COLLING AND AWAY FRÂN CONTROL DE LECTICS AND CASES ENTERNAME AND USITY TO SALL DE MOUNTED AT THE ENTERNAME AND USITY TO SALL DE MOUNTED AT THE ENTERNAME AND USITY TO SALL DE MOUNTED AT THE ENTERNAME AND USITY TO SALL DE MOUNTED AT THE ENTERNAME AND USITY TO SALL DE MOUNTED AT THE ENTERNAME AND USITY TO SALL DE MOUNTED AT THE ENTERNAME AND AND THE FREE ALARMA CONTROL DE MOUNTED AND CASES AND LEAD AT THE ELEVATOR MOUNTED AND CASES AND HEAD ELEVATOR AND	INCREMENTS NO GREATER THAN ONE HOUR MAY BE PERFORMED PROVIDED THAT IT IS DOCUMENTED IN FULL ACCORDANCE WITH NEPA 72. COORDINATE ACTIVITY IN FIELD WITH GENERAL CONTRACTOR. 7. ALL NOTIFICATION DEVICES SHALL MATCH EXISTING CLASS IN EXISTING DUILDINGS. 9. ALL NOTIFICATION DEVICES SHALL BE WHITE. 9. FIRE ALARM CIRCUITS SHALL BE CLASS 'A', 1. NOTIFICATION DEVICES SHALL BE ADDRESSABLE ELECTRIC-VIBRATING-POLARIZED HORNS, SELECTABLE FOR HIGH OR LOW dBA OUTPUT. THEY SHALL HAVE A SOUND PRESSURE LEVEL OF 90dBA MEASURED 10 FEET FROM HORN, USING CODED SIGNAL PER NFPA 72. ALL WORK UNDER THIS DIVISION SHALL BE IN STRICT COMPLIANCE AND IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE FOLLOWING CODES AND STANDARDS INCLUDING THE REGULATIONS OF GOVERNING LOCAL, STATE, COUNTY AND OTHER APPLICABLE CODES. INTERNATIONAL BUILDING CODE, 2018 ADDITION, WITH GA AMENDMENTS INTERNATIONAL BUILDING CODE, 2018 ADDITION, WITH GA AMENDMENTS INTERNATIONAL BUILDING CODE, 2018 ADDITION, WITH GA AMENDMENTS INTERNATIONAL FIRE CODE, 2018 ADDITION, WITH GA AMENDMENTS INTERNATIONAL ENERGY CONSERVATION CODE, 2015 EDITION, WITH GA AMENDMENTS INTERNATIONAL STANDARDS, AND REQUIREMENTS INTERNATIONAL STANDARDS INSTITUTE (ANSI).
APPLICABLE SPECIFICATIONS, NOTIF	<ul> <li>APPLICABLE CODES. REFER TO SPECIFICATIONS FOR ADDITIONAL CODE REQUIREMENTS:</li> <li>BUILDING CODES:</li> <li>INTERNATIONAL BUILDING CODE, 2018 ADDITION, WITH GA AMENDMENTS</li> <li>INTERNATIONAL FIRE CODE, 2018 EDITION, WITH GA AMENDMENTS</li> <li>INTERNATIONAL ENERGY CONSERVATION CODE, 2015 EDITION, WITH GA AMENDMENTS</li> <li>ADDITIONAL CODES, STANDARDS, AND REQUIREMENTS</li> <li>1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).</li> </ul>
APPLICABLE CODES STRINGENT REQUIREMENT SHALL GO DESIGN STANDARDS, WHEREIN THE 9. CAREFULLY EXAMINE THOSE PORTIO PRICE, SO AS TO BECOME FAMILIAR W WORK. SUBMISSION OF A BID PRICE S	2: INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE). 3: NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA). 4: REQUIREMENTS OF LOCAL POWER COMPANY. 5: THE AMERICANS WITH DISABILITIES ACT (ADA). 5: OWNER'S PUBLISHED DESIGN STANDARDS. ALL MATERIALS SHALL BE NEW AND FREE OF DEFECTS, AND SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LAB, AS DEFINED BY OSHA. WHERE NO LABELING OR LISTING SERVICE IS AVAILABLE FOR CERTAIN TYPES OF EQUIPMENT, TEST DATA SHALL BE SUBMITTED TO VALIDATE THAT EQUIPMENT MEETS OF EXCEEDS AVAILABLE STANDARDS. IATIONAL FIRE PROTECTION (NFPA) STANDARDS: NFPA 13, 2019 EDITION, STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS. NFPA 70, 2020 EDITION, NATIONAL ELECTRICAL CODE®. NFPA 72, 2019 EDITION, NATIONAL FIRE ALARM AND SIGNALING CODE.

#### **ELECTRICAL GENERAL NOTES** ELECTRICAL EQUIPMENT <u>ENTIFICATION</u> THE DRAWINGS AND APPLICABLE SPECIFICATIONS SHALL BE CONSIDERED SUPPLEMENTARY. ONE TO THE OTHER AND ARE EQUIPMENT SHALL BE OF MATERIALS SUITABLE FOR AND RATED FOR THE ENVIRONMENT IN WHICH THEY ARE TO BE INSTALLED. CONSIDERED THE "CONTRACT DOCUMENTS". ALL WORKMANSHIP, METHODS AND/OR MATERIALS DESCRIBED OR IMPLIED BY ON ALL COMPONENTS OF THE ELECTRICAL SYSTEM LOCATED OUTDOORS OR INDOORS WHERE EXPOSED TO SIGNIFICANT AND NOT DESCRIBED OR IMPLIED BY THE OTHER SHALL BE PROVIDED, FURNISHED OR PERFORMED AS IF IT HAD APPEARED IN MOISTURE SHALL BE WEATHERPROOF, NEMA 3R, AS A MINIMUM, WHETHER INDICATED ON THE CONTRACT DRAWINGS OR NOT. BOTH SECTIONS. THE TERM "CONTRACT DOCUMENTS" DESCRIBED HEREIN IS NOT LIMITED SOLELY TO THE ELECTRICAL TERMINATION PROVISIONS FOR ALL ELECTRICAL EQUIPMENT (PANELBOARDS, SWITCHBOARD, TRANSFORMERS, DISCONNECT PORTION OF THE DRAWINGS AND SPECIFICATIONS, BUT ENCOMPASSES THE DRAWINGS AND SPECIFICATIONS OF ALL DIVISION SWITCHES, MOTOR CONTROLLERS, AUTOMATIC TRANSFER SWITCHES, ENCLOSED CIRCUIT BREAKERS, BUSWAYS, ETC.) SHALL PANEL DIRECTORIES. BE LISTED AND IDENTIFIED FOR USE WITH MINIMUM 75 DEG. F CONDUCTORS IN ACCORDANCE WITH NEC. 2. THE DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO SHOW EVERY DETAIL OF CONSTRUCTION. METHODS. 3. WORKING CLEARANCES FOR ELECTRICAL EQUIPMENT SHALL BE IN COMPLIANCE WITH NEC. MATERIALS AND EQUIPMENT. OR EXACT LOCATIONS. ROUTING, ETC. THEY INDICATE THE RESULT TO BE ACHIEVED BY THE I. THE ELECTRICAL DEDICATED EQUIPMENT SPACE EXTENDING FROM FLOOR TO 6' ABOVE ELECTRICAL EQUIPMENT OR TO THE ASSEMBLAGE OF SEVERAL SYSTEMS FOR A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM. DO NOT SCALE THE CONTRACT STRUCTURAL CEILING, WHICHEVER DISTANCE IS LOWER, WITH A WIDTH AND DEPTH OF THE PANELBOARD OR SWITCHBOARD DOCUMENTS. COORDINATE EXACT EQUIPMENT LOCATIONS WITH THE ARCHITECTURAL, CIVIL AND STRUCTURAL CONTRACT MUST BE CLEAR OF ALL PIPING, DUCTS, ARCHITECTURAL APPURTENANCES AND OTHER EQUIPMENT FOREIGN TO THE DOCUMENTS. AS WELL AS FIELD CONDITIONS. APPROVED SHOP DRAWINGS AND WORK OF ALL OTHER DIVISIONS/TRADES. ELECTRICAL INSTALLATION IN ACCORDANCE WITH NEC. 3. THE TERM "PROVIDE" USED IN THE CONTRACT DOCUMENTS INDICATES TO FURNISH AND INSTALL MATERIALS REQUIRED FOR PROVIDE A REINFORCED CONCRETE PAD, SIZED 4" LARGER IN ALL DIRECTIONS THAN THE FOOTPRINT OF THE EQUIPMENT, AND CORRECT INSTALLATION OF A COMPLETE SYSTEM, UNLESS SPECIFICALLY NOTED OTHERWISE 4" HIGH. FOR ALL FREESTANDING, FLOOR-MOUNTED ELECTRICAL EQUIPMENT, PROVIDE VIBRATION ISOLATORS AND/OR ANCHORS UNLESS NOTED AS EXISTING, ALL ELECTRICAL INDICATED ON THE CONTRACT DOCUMENTS SHALL BE NEW, SHALL BE U.L. LISTED PER MANUFACTURER'S INSTRUCTIONS. AND SHALL BEAR A U.L. LABEL, WHERE NO U.L. LABEL OR LISTING IS AVAILABLE. THE MATERIAL SHALL BE LISTED WITH AN 6. PROVIDE HACR RATED CIRCUIT BREAKER FOR ALL HVAC EQUIPMENT. CONNECTED TO. APPROVED, NATIONALLY RECOGNIZED ELECTRICAL TESTING AGENCY. ALL PANELBOARDS OR DISCONNECT SWITCHES LOCATED IN KITCHEN AREAS SHALL BE STAINLESS STEEL (COVER AND DOOR PROVIDE EXPERIENCED, QUALIFIED AND RESPONSIBLE SUPERVISION FOR ALL WORK REQUIRED BY THE CONTRACT WHERE PANEL IS FLUSH MOUNTED; PANEL BOX, COVER & DOOR WHERE SURFACE MOUNTED). DOCUMENTS. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, TO THE SATISFACTION 3. PROVIDE SURGE PROTECTION DEVICE FOR ALL MAIN SERVICE EQUIPMENT, PANELBOARDS SERVING SENSITIVE ELECTRONIC OF THE ARCHITECT/ENGINEER AND OWNER. EQUIPMENT (DATA RACKS) OR COMPUTERS, EMERGENCY SWITCHBOARDS AND PANELBOARDS, LIGHTING PANELS SERVING DISCONNECTING MEANS IS LOCATED INSIDE. CARRY ALL INSURANCE REQUIRED TO PROTECT AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THIS EXTERIOR LIGHTING, POWER CIRCUITS OR LOW VOLTAGE (FIRE ALARM, TELECOMMUNICATIONS) EXITING THE BUILDING. PROVIDE MINIMUM 30A/3P BREAKER IN BRANCH CIRCUIT PANELBOARDS AND 60A/3P IN DISTRIBUTION PANELBOARDS OR SWITCHBOARDS, 7. GUARANTEE ALL MATERIALS AND WORKMANSHIP ARE FREE FROM DEFECTS FOR A PERIOD OF NOT LESS THAN ONE YEAR FROM UNLESS NOTED OTHERWISE, OR PER THE SPD MANUFACTURER'S RECOMMENDATIONS FOR SURGE PROTECTION DEVICE. THE DATE OF FINAL ACCEPTANCE BY THE ARCHITECT/ENGINEER AND OWNER, UNLESS NOTED OTHERWISE IN DIVISION 1. AT NO ). PROVIDE ARC ENERGY REDUCING MAINTENANCE SWITCH FOR ANY BREAKER RATED (OR ABLE TO BE ADJUSTED TO) 1200A OR WHERE APPLICABLE. ADDITIONAL COSTS, PROVIDE THE CORRECTION OF ANY DEFECTS INCLUDING REPAIR OR REPLACEMENT. HIGHER UNLESS OTHER ARC ENERGY REDUCTION MEANS MEETING NEC 240.87 IS INDICATED ON DRAWINGS/SPECIFICATIONS OR INCLUDE ALL COSTS ASSOCIATED WITH PERMITS, LICENSES, FEES, INSPECTIONS, TESTING AND TEMPORARY POWER IN THE BID OTHERWISE PROVIDED. PRICE, UNLESS NOTED OTHERWISE IF HAZARDOUS MATERIALS ARE ENCOUNTERED, COMPLY WITH ALL APPLICABLE RULES, REGULATIONS AND GUIDELINES CONCERNING REMOVAL, HANDLING, DISPOSAL AND PROTECTION AGAINST ENVIRONMENTAL EXPOSURE OR POLLUTION. PROVIDE DOCUMENTATION OF SAID COMPLIANCE. . PROVIDE ELECTRONIC SUBMITTALS (PRODUCT DATA & SHOP DRAWINGS) FOR EACH MAJOR COMPONENT OF THE ELECTRICAL <u>Lighting</u> SYSTEM FOR REVIEW BY THE ARCHITECT/ENGINEER AND OWNER. MAJOR COMPONENTS INCLUDE, BUT ARE NOT LIMITED TO, RACEWAYS. BOXES. WIRE AND CABLE. EQUIPMENT. DEVICES, LIGHT FIXTURES, SWITCHGEAR, PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, FIRE ALARM SYSTEM, ETC. ALL SUBMITTALLS ARE TO BE REVIEWED AND APPROVED BY THE CONTRACTOR FOR CONFORMANCE WITH THE PROJECT REQUIREMENTS PRIOR TO SUBMITTING TO THE ARCHITECT/ENGINEER ALLOW A MINIMUM OF TEN (10) BUSINESS DAYS FOR REVIEW BY ARCHITECT/ENGINEER, UNLESS NOTED OTHERWISE IN DIVISION . THE ELECTRICAL PORTION OF THE CONTRACT DOCUMENTS ARE COORDINATED WITH THE DESIGN BASIS EQUIPMENT SPECIFIED ELECTRICAL DEVICES OUTLET BOXES, JUNCTION BOXES BY DIVISION 26 AND OTHER DIVISIONS. WHERE THE CONTRACTOR ELECTS TO SUBSTITUTE A PRODUCT IN LIEU OF PROVIDING THE DESIGN BASIS, AND SAID SUBSTITUTION IS ACCEPTED BY THE ARCHITECT/ENGINEER AND OWNER, THE CONTRACTOR SHALL I. LIGHT SWITCHES SHALL BE MOUNTED 48 INCHES ABOVE FINISHED FLOOR TO CENTER LINE OF DEVICE, UNLESS NOTED MAKE ALL CORRECTIONS TO THE ELECTRICAL SYSTEM NECESSARY IN ORDER TO ENSURE A COMPLETE AND OPERATIONAL OTHERWISE. INSTALLATION OF THE EQUIPMENT AT NO ADDITIONAL COSTS. WHERE THE CONTRACTOR'S DESIGN SUBSTITUTION RESULTS IN 2. RECEPTACLES, VOICE/DATA OUTLETS AND WALL FURNITURE FEEDS SHALL BE MOUNTED 18 INCHES ABOVE FINISHED FLOOR TO THE NEED FOR THE ENGINEER TO REVISE THE CONTRACT DOCUMENTS, THE ENGINEER RESERVES THE RIGHT TO REQUEST ARCHITECT/ENGINEER CENTER LINE OF DEVICE, UNLESS NOTED OTHERWISE. ABOVE COUNTER RECEPTACLES SHALL BE MOUNTED 6" ABOVE BACK COMPENSATION FROM THE CONTRACTOR FOR SAID SERVICES. SPLASH TO CENTERLINE OF DEVICE, UNLESS NOTED OTHERWISE. . MAINTAIN A CURRENT AND ACCURATE SET OF PROJECT RECORD DOCUMENTS (AS-BUILTS) AT THE SITE THROUGHOUT THE DURATION OF THE PROJECT. RECORD DRAWINGS SHALL BE UPDATED EACH DAY TO REFLECT THE ACTUAL LOCATIONS, SIZES, B. IT IS THE INTENT THAT ALL DEVICE OUTLET BOXES (POWER AND SYSTEMS) BE FLUSH MOUNTED IN WALLS, CEILINGS OR FLOORS AND JUNCTION BOXES FLUSH MOUNTED IN WALLS, CEILINGS, OR FLOORS, OR CONCEALED ABOVE ACCESSIBLE CEILINGS, AND ROUTING, ETC. OF EACH PORTION OF THE ELECTRICAL SYSTEM AFFECTED BY THIS WORK. A FINAL SET OF RECORD DOCUMENTS NOT SURFACE MOUNTED, UNLESS SPECIFICALLY NOTED ON THE CONTRACT DRAWINGS, OR UNLESS THE ARCHITECT/ENGINEER SHALL BE ISSUED TO THE ARCHITECT/ ENGINEER FOR REVIEW AND THEN SUBMITTED TO THE OWNER WITHIN 30 DAYS AFTER THE GRANTS WRITTEN PERMISSION. DATE OF FINAL ACCEPTANCE. PROVIDE RECORD DRAWINGS OF THE ACTUAL INSTALLATION INCLUDING SINGLE LINE DIAGRAM, 4. ALL COMPONENTS OF THE ELECTRICAL SYSTEM (INCLUDE RACEWAYS, ELECTRICAL EQUIPMENT, OUTLET BOXES, JUNCTION POWER RISER DIAGRAM OF THE BUILDING ELECTRICAL DISTRIBUTION SYSTEM, SITE PLANS AND ALL ELECTRICAL FLOORPLANS, BOXES, ETC.) LOCATED IN A HAZARDOUS (CLASSIFIED) LOCATION SHALL BE APPROVED FOR USE IN SAID LOCATION. AS DEFINED DETAILS, PANEL SCHEDULES, ETC LIGHT FIXTURES. BY THE NEC, WHETHER INDICATED ON THE CONTRACT DOCUMENTS OR NOT. 3. PROVIDE AN OPERATING AND MAINTENANCE MANUAL TO OWNER PRIOR TO THE FINAL ACCEPTANCE. THE MANUAL SHALL 5. ALL DEVICES SHALL BE MOUNTED VERTICALLY, UNLESS NOTED OTHERWISE. INCLUDE, AS A MINIMUM. (1) SUBMITTAL DATA STATING EQUIPMENT RATING AND SELECTED OPTIONS FOR EACH PIECE OF VOLTAGES INDICATED. COORDINATE THE CATALOG NUMBERS WITH THE EXACT FIXTURE MOUNTING AND TRIM REQUIRED BY 6. ALL RECEPTACLES SHALL BE MOUNTED SUCH THAT THE GROUND PIN IS MOUNTED UP. EQUIPMENT REQUIRING MAINTENANCE. ALSO PROVIDE TWO OPERATIONS AND MAINTENANCE MANUALS FOR EACH PIECE OF THE CEILING IN WHICH EACH FIXTURE IS BEING INSTALLED. 7. WHERE DEVICES ARE SHOWN IN WALLS BACK-TO-BACK ON OPPOSITE SIDES, INSTALL SO THAT THEY ARE SEPARATED BY AT EQUIPMENT REQUIRING MAINTENANCE. REQUIRED ROUTINE MAINTENANCE ACTIONS AND METHOD OF OPERATION FOR EQUIPMENT SHALL BE CLEARLY IDENTIFIED, AND THE NAME, PHONE NUMBER AND ADDRESS OF AT LEAST ONE QUALIFIED I FAST 12" 8. RECEPTACLES OR JUNCTION BOXES FOR ELECTRIC WATER COOLERS AND VENDING MACHINES SHALL BE LOCATED DIRECTLY BEHIND SAID APPLIANCE. CONCEALED FROM DIRECT VIEW. RECEPTACLES AND/OR HARD WIRED EQUIPMENT CONNECTIONS 4. INCLUDE ALL COSTS FOR EXCAVATION, SAW CUTTING, DIRECTIONAL BORING, CORE DRILLING, BACKFILLING, SURFACE SHALL BE PROTECTED BY A READILY ACCESSIBLE GFCI FEED-THRU DEVICE LOCATED IMMEDIATELY ADJACENT TO THE RESTORATION, REPAIR OF FINISHES, ETC. THAT IS REQUIRED IN ORDER TO MEET THE PROJECT REQUIREMENTS. 5. INCLUDE IN BID ALL COSTS ASSOCIATED WITH TEMPORARY ELECTRICAL SERVICE AS REQUIRED FOR USE BY ALL TRADES APPLIANCE OR BE PROTECTED BY GFCI BREAKER IN THE PANELBOARD. ALL GFCI DEVICES MUST BE READILY ACCESSIBLE PER SHOWERS, OR OPEN STRUCTURES. DURING CONSTRUCTION. REMOVE TEMPORARY POWER AT THE COMPLETION OF THE PROJECT. OBTAIN AND PAY FOR ALL 9. ALL EXTERIOR RECEPTACLES OR RECEPTACLES LOCATED IN AREAS SUBJECT TO MOISTURE (PARKING GARAGE, WASHDOWN REQUIRED PERMITS FOR TEMPORARY POWER. ENGINEER OF RECORD SHALL BE PROVIDED WITH ADDITIONAL COMPENSATION AREAS IN KITCHEN, ETC) SHALL BE GFCI TYPE. ALL EXTERIOR RECEPTACLES SHALL WE PROVIDED WITH CAST METAL, IN-USE FROM THE CONTRACTOR WHERE SIGNED & SEALED DRAWINGS ARE REQUESTED BY THE CONTRACTOR TO THE ENGINEER OF COVER UNLESS NOTED OTHERWISE RECORD IF REQUIRED BY THE AHJ FOR THE TEMPORARY POWER. 0. ALL RECEPTACLES LOCATED IN KITCHENS, BATHROOMS, MECHANICAL ROOMS, JANITOR CLOSETS, ELEVATOR SHAFTS, 5. LOCATE, IDENTIFY, PROTECT AND DOCUMENT ALL UTILITY LINES LOCATED WITHIN THE PROJECT BOUNDARY. FOR LOCATING CONSTRUCTION PHASE. ELEVATOR EQUIPMENT ROOMS, FOR ELEVATOR SUMP PUMP(S) OR INSTALLED WITHIN 6' OF THE INSIDE FACE OF A SINK, SHALL SITE UTILITIES, CONTACT ALL LOCAL MUNICIPALITIES AND UTILITIES AT LEAST 48 HOURS PRIOR TO DIGGING. BE GFCI TYPE OR GFCI PROTECTED. 7. INCLUDE IN BID THE TRANSPORT AND DISPOSAL OR RECYLING OF ALL WASTE MATERIALS GENERATED BY THIS PROJECT IN 11. ALL RECEPTACLES LOCATED IN CHILD-CARE FACILITIES, DWELLING UNITS, HOTEL/MOTEL GUEST ROOMS, PEDIATRIC CLINICS OR ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL RULES, REGULATIONS AND GUIDELINES APPLICABLE. COMPLY FULLY WITH ALL APPLICABLE STATUTES REGARDING MERCURY- CONTAINING DEVICES, AND WITH ALL LOCAL, STATE AND FEDERAL PEDIATRIC CAREA AREAS, AND OTHER AREAS AS REQUIRED BY NEC AND LOCAL CODE REQUIREMENTS SHALL BE TAMPER RESISTANT. APPLICABLE GUIDELINES AT THE TIME OF DISPOSAL. PROVIDE OWNER WITH WRITTEN CERTIFICATION OF ACCEPTED DISPOSAL. 2. WHEN ELECTRICAL BOXES ARE LOCATED IN VERTICAL FIRE-RESISTIVE ASSEMBLIES. THEY SHALL BE INSTALLED WITHOUT FFECTING THE FIRE CLASSIFICATION. ALL OF THE FOLLOWING CONDITIONS SHALL BE MET: A. ALL ELECTRICAL BOXES SHALL BE METALLIC. B. BOX OPENING SHALL OCCUR ONLY ON ONE SIDE OF FRAMING SPACE. BOX OPENING SHALL NOT EXCEED 16 SQUARE INCHES. D. ALL CLEARANCES BETWEEN OUTLET BOX AND GYPSUM BOARD SHALL BE COMPLETELY FILLED WITH JOINT COMPOUND (OR OTHER APPROVED MATERIAL). VERIFY AND COORDINATE LOCATIONS OF ANY MISCELLANEOUS EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS (I.E., PROVIDE A WALL AROUND OUTLETS LARGER THAN 16 SQUARE INCHES. THE INTEGRITY OF THE WALL RATING SHALL BE COPIERS. FAX MACHINES, PRINTERS, KITCHEN APPLIANCES, LAUNDRY APPLIANCES, PROJECTION SCREENS, SHOP TOOLS, MAINTAINED. MACHINE, ELEVATORS, ETC.) WITH APPROVED SHOP DRAWINGS, OWNER-PROVIDED CUT SHEETS, MANUFACTURER'S THE TOTAL AGGREGATE SURFACE AREA OF THE BOXES SHALL NOT EXCEED 100 SQUARE INCHES PER 100 SQUARE FEET. INSTRUCTIONS, AND EQUIPMENT NAMEPLATE INFORMATION, PRIOR TO ROUGH IN, AND PROVIDE ALL NECESSARY ELECTRICAL G. OUTLET BOXES LOCATED ON OPPOSITE SIDES OF FIRE RESISTIVE ASSEMBLIES SHALL BE SEPARATED BY A MINIMUM HORIZONTAL DISTANCE OF 24 INCHES. 2. VERIFY AND COORDINATE LOCATIONS AND EXACT ELECTRICAL REQUIREMENTS FOR ALL MECHANICAL, PLUMBING AND FIRE OUTLET BOXES SHALL BE SECURELY FASTENED TO WALL FRAMING MEMBERS. PROTECTION EQUIPMENT PRIOR TO SUBMITTAL OF SHOP DRAWINGS OF ELECTRICAL EQUIPMENT. PROVIDE ALL NECESSARY THE OPENING IN THE GYPSUM BOARD FACING SHALL BE CUT NOT TO EXCEED 1/8 INCH BETWEEN THE EDGES OF THE ADDITIONAL PROJECT REQUIREMENTS RACEWAYS, CONDUCTORS, BOXES, EQUIPMENT, ACCESSORIES, ASSOCIATED DISCONNECT SWITCHES, CIRCUIT BREAKERS, OUTLET BOX AND THE EDGES OF THE OPENING. CONTROL TRANSFORMERS. FIRE ALARM SHUTDOWN, ETC. REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. COORDINATE WITH APPROPRIATE TRADE'S APPROVED SHOP DRAWINGS, MANUFACTURER'S INSTRUCTIONS, AND EQUIPMENT NAMEPLATE INFORMATION, PRIOR TO ROUGH IN, AND PROVIDE ALL NECESSARY ELECTRICAL REQUIRED, UNLESS NOTED RACEWAYS CONDUCTOR NOT SMALLER THAN #10 AWG. FLEXIBLE METAL CONDUIT AND LIQUIDTIGHT FLEXIBLE METAL CONDUIT (FMC & LFMC) SHALL NOT BE USED IN LENGTHS THAT THIS PROJECT REQUIRES COORDINATION DRAWINGS BY THE CONTRACTOR. PARTICIPATE IN THE COORDINATION DRAWING EXCEED 6'-0" UNLESS SPECIFICALLY NOTED OTHERWISE, OR UNLESS THE ARCHITECT/ENGINEER GRANTS WRITTEN PREPARATION PROCESS AND PROVIDE ALL NECESSARY INFORMATION REQUIRED TO COORDINATE ALL TRADE INFORMATION. PERMISSION I. ALL WORK ON THE ELECTRICAL SYSTEM REQUIRED BY THE CONTRACT DOCUMENTS SHALL BE COORDINATED WITH THE WORK 2. ALL FEEDER AND BRANCH CIRCUIT CONDUCTORS, INCLUDING LOW VOLTAGE SYSTEMS, SHALL BE INSTALLED IN A COMPLETE OF ALL OTHER DIVISIONS/TRADES PRIOR TO COMMENCEMENT OF WORK. AVOID INTERFERENCES WITH THE PROGRESS OF ESSENTIAL POWER. RACEWAY SYSTEM (CONDUIT) UNLESS SPECIFICALLY NOTED OTHERWISE. OTHER DIVISIONS/TRADES. 3. THE USE OF ELECTRICAL NON-METALLIC TUBING (ENT) AND LIQUIDTIGHT FLEXIBLE NON-METALLIC CONDUIT (LFNC) ARE 5. WHERE WALLS ARE OF TILT-UP OR PRE-CAST CONSTRUCTION, PROVIDE COORDINATION FOR EXACT DIMENSIONS AND PROHIBITED UNLESS SPECIFICALLY NOTED OTHERWISE, OR UNLESS THE ARCHITECT/ENGINEER OR OWNER GRANTS OPENINGS REQUIRED FOR ALL ELECTRICAL COMPONENTS INSTALLED WITHIN SUCH WALLSDURING THE SHOP DRAWING REVIEW WRITTEN PERMISSION. PROCESS OF THE WALLS, PRIOR TO CONSTRUCTION OF THE WALLS. I. CONNECTIONS TO TRANSFORMERS, AHU'S, AND PUMPS SHALL BE WITH LIGUIDTIGHT, FLEXIBLE METAL CONDUIT. D. LOCATIONS OF VFD'S, DISCONNECTS, MOTOR STARTERS, ETC. FOR HVAC EQUIPMENT ARE DIAGRAMMATIC ON THE PLAN NO PVC CONDUIT MAY BE USED INSIDE OF BUILDING UNLESS ROUTED UNDERGROUND, AND UNLESS NOTED OTHERWISE. DRAWINGS. EXACT LOCATIONS ARE TO BE COORDINATED WITH CONTRACTOR'S COORDINATION DRAWINGS PRIOR TO ROUGH-IN 6. ALL CONDUIT TERMINATIONS AT TERMINAL BOARDS ARE TO HAVE GROUNDING BUSHINGS AT CONDUIT ENDS. TO ENSURE PROPER NEC CLEARANCES AND APPROPRIATE MOUNTING SURFACE 7. ALL CONDUITS ARE TO BE CONCEALED UNLESS IMPOSSIBLE DUE TO EXISTING CONDITIONS (I.E., EXPOSED CEILINGS, 7. REFER TO ARCHITECTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, CIVIL, LANDSCAPE, INTERIOR DESIGN, TECHNOLOGY, BUILDING EXTERIOR WALL RUNS). CONCEAL ALL CONDUITS ABOVE CEILINGS OR IN WALLS AND MILLWORK. WHERE STRUCTURAL, AND VENDOR EQUIPMENT DRAWINGS FOR RELATED INFORMATION AND ADDITIONAL INSTALLATION i. WINDOW FRAMES EXISTING CONDITIONS DICTATE THAT CONDUITS CANNOT BE CONCEALED, NOTIFY ARCHITECT/ENGINEER PRIOR TO REQUIREMENTS TO BE PERFORMED AS PART OF THE WORK. ii. Door Frames INSTALLING CONDUIT FOR RESOLUTION TO ROUTING. 3. WHERE A DISCREPANCY OR CONFLICT IS FOUND BETWEEN ONE DRAWING AND ANOTHER, OR BETWEEN A DRAWING AND iii. FLOOR DRAINS 8. SEAL ALL PENETRATIONS AND OPENINGS MADE DURING EXECUTION OF WORK IN FIRE-RATED AND SMOKE-RATED WALLS. APPLICABLE SPECIFICATIONS, NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY IN WRITTEN FORM. IN GENERAL, THE MOST WALLS SHALL BE SEALED WITH UL-APPROVED PRODUCT WITH THE SAME OR GREATER RATING OF WALL PENETRATED. STRINGENT REQUIREMENT SHALL GOVERN UNLESS THE DISCREPANCY CONFLICTS WITH APPLICABLE CODES OR OWNER'S 9. PROVIDE ALL PENETRATIONS THROUGH FLOORS, WALLS, CEILINGS AND ROOFS WHERE REQUIRED. COORDINATE LOCATIONS DESIGN STANDARDS, WHEREIN THE CODE OR OWNER'S DESIGN STANDARDS SHALL GOVERN. ONE OF THE FOLLOWING: AND SIZES WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS, FIELD CONDITIONS AND WORK OF ALL OTHER ). CAREFULLY EXAMINE THOSE PORTIONS OF THE BUILDING AND/OR SITE AFFECTED BY THIS WORK PRIOR TO SUBMITTING BID PRICE, SO AS TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT EXECUTION OF THE DIVISIONS/TRADES. ALL OPENINGS ARE TO BE SEALED WATERTIGHT. 10. ALL RACEWAYS THAT TURN UP THROUGH THE SLAB OR INTO ELECTRICAL EQUIPMENT FROM UNDERGROUND SHALL BE WORK. SUBMISSION OF A BID PRICE SHALL BE CONSTRUED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE. LATER RIGID GALVANIZED STEEL (RGS) WITH BITUMASTIC COATING FOR AT LEAST THE FINAL 18" LENGTH. THE USE OF NON-CLAIMS FOR LABOR, EQUIPMENT AND/OR MATERIALS REQUIRED DUE TO DIFFICULTIES ENCOUNTERED THAT COULD HAVE BEEN METALLIC CONDUIT ABOVE GRADE IS PROHIBITED. REASONABLY OBSERVED WILL NOT BE RECOGNIZED 1. PANEL SCHEDULES AND FLOOR PLANS MAY INDICATE DEDICATED HOMERUNS FOR EACH BRANCH CIRCUIT, BRANCH ). COORDINATE ALL PROJECT SCHEDULING AND PHASING REQUIREMENTS WITH ARCHITECT/ENGINEER AND OWNER PRIOR TO CIRCUITS MAY BE GROUPED IN A COMMON HOMERUN WHERE THE HOMERUN DOES NOT EXCEED 3 PHASE CONDUCTORS, 3 SUBMITTING BID PRICE. THIS PROJECT MAY REQUIRE PHASING SEQUENCES AND POTENTIAL PREMIUM TIME WORK AND ALL C. TEST METHOD: NEUTRAL CONDUCTORS, AND 1 EQUIPMENT GROUND. THE HOMERUN RACEWAY SIZE AND CONDUCTOR SIZE SHALL BE COSTS FOR SUCH SHALL BE INCLUDED IN THE BID PRICE. PROVIDE ADEQUATE WORK FORCE AND EQUIPMENT, AND INCLUDE INCREASED AS NECESSARY TO COMPLY WITH THE NEC FOR 40% MAXIMUM FILL AND DERATING REQUIREMENTS. PREMIUM TIME AS MAY BE REQUIRED IN ORDER TO ADHERE TO THE PROJECT SCHEDULE. ADDITIONALLY, ENSURE THAT LONG . PROVIDE SEAL OFF FITTINGS, APPROVED FOR SUCH USE, WHERE RACEWAYS PENETRATE BETWEEN A DRY, LEAD ITEMS DO NOT IMPACT THE PROJECT'S SCHEDULE OR PHASING. 1. ANY TEMPORARY INTERRUPTION OF POWER REQUIRED FOR THE SYSTEM TIE-IN OR SWITCHOVER FOR ANY PORTION OF THE CONDITIONED ENVIRONMENT AND THE EXTERIOR OR OTHER WET ENVIRONMENTS AND ADDITIONAL AREAS WHERE CONDUITS PASS FROM WARM TO COLD LOCATIONS SUCH AS WALK-IN COOLERS OR FREEZERS, BOILER ROOMS, ETC. ELECTRICAL SYSTEM SHALL BE PRE-APPROVED IN WRITING BY THE OWNER AND SCHEDULED IN ADVANCE. 3. PROVIDE POLYOLEFIN JET-LINE #232 (NYLON PULL STRING) IN EACH EMPTY CONDUIT WITH ENGRAVED METAL TAG 2. COORDINATE EXACT REQUIREMENTS WITH THE LOCAL UTILITY COMPANIES AND PROVIDERS (ELECTRIC, TELEPHONE, CABLE D. MAXIMUM ACCEPTABLE VALUES: INDICATING CONDUIT DESIGNATION. TV, ETC.) AND INCLUDE ALL COSTS FOR PROVIDING TEMPORARY AND PERMANENT SERVICES REQUIRED FOR THIS PROJECT IN

THE BID PRICE. BID PRICE SHALL INCLUDE, BUT NOT BE LIMITED TO, EXCAVATION, RACEWAYS, BACKFILL, EQUIPMENT, EQUIPMENT PADS, BACKBOARDS, METERS, GROUNDING, UTILITY ENGINEERING AND IMPACT FEES. 3. CONDUCT WORK OPERATIONS AND DEBRIS REMOVAL IN A MANNER THAT ENSURES MINIMUM INTERFERENCE WITH NORMAL BUSINESS OPERATIONS, TRAFFIC, PARKING, ETC. ONGOING IN ADJACENT OCCUPIED SPACES OR FACILITIES. PROVIDE ALL THAT IS REQUIRED TO EFFECTIVELY PROTECT SURROUNDING OCCUPANTS, EQUIPMENT, FINISHES, FURNITURE, ETC. FROM DAMAGE OR EXCESSIVE NOISE THROUGHOUT THE DURATION OF THIS PROJECT. CONTRACTOR IS RESPONSIBLE FOR ANY LOSSES OR ANY DAMAGE RESULTING FROM THE FAILURE TO ADHERE TO THIS REQUIREMENT. RESTORE DAMAGED ELEMENTS TO ORIGINAL CONDITION TO THE SATISFACTION OF THE ARCHITECT/ENGINEER AND OWNER, AT NO ADDITIONAL COSTS. REPORT OF ANY SUCH OCCURRENCE TO THE ARCHITECT/ENGINEER AND OWNER IMMEDIATELY AND AWAIT WRITTEN DIRECTION PRIOR TO

PROCEEDING WITH REPAIRS. 4. COORDINATE THE LOCATION OF ALL LIGHT FIXTURES, DEVICES AND BOXES WITH WINDOWS, MIRRORS, MILLWORK, CABINETS, GLASS CURTAIN WALLS, AND GLASS WALLS PRIOR TO INSTALLATION OF CONDUITS OR BOXES. REVIEW ALL CONTRACT DRAWINGS TO ASCERTAIN ANY CONFLICTS PRIOR TO BIDDING. OBTAIN CLARIFICATION FROM THE ARCHITECT/ENGINEER PRIOR TO BID. CONTRACTOR SHALL NOT BE ENTITLED TO ADDITIONAL COMPENSATION FOR WORK REQUIRED TO RELOCATE OUTLET BOXES OR RACEWAYS FOR COORDINATION WITH OTHER TRADE'S WORK.

#### . FIRE PROTECTION PIPING SHALL NOT BE USED FOR GROUNDING. 2. ALL FEEDERS AND BRANCH CIRCUITS SHALL INCLUDE AN EQUIPMENT GROUND CONDUCTOR. METAL RACEWAYS SHALL NOT BE

USED AS THE SOLE EQUIPMENT GROUND. WHERE A PHASE CONDUCTOR IS INCREASED IN SIZE DUE TO VOLTAGE DROP, THE EQUIPMENT GROUND CONDUCTOR SHALL BE INCREASED IN SIZE PROPORTIONATELY. PROVIDE A GROUND BUS BAR IN EACH ELECTRICAL ROOM AND TELECOMMUNICATIONS / IDF/ MDF ROOM FOR ALL NEW CONSTRUCTION AND NEW ROOMS IN EXISTING CONSTRUCTION, AND IN EXISTING CONSTRUCTION WHERE THERE IS NONE

CIRCUIT DUE TO FIELD ROUTING, FINAL INSTALLATION SHALL NOT EXCEED A MAXIMUM OF 3% VOLTAGE DROP FOR BRANCH CIRCUITS. REFER TO VOLTAGE DROP TABLE BELOW FOR CONDUCTOR SIZES FOR BRANCH CIRCUITS AS FOLLOWS: A. 120V, 20A CIRCUITS SHALL BE: i. #12 FROM 0-70 FT ii. #10 FROM 71-115FT iii. #8 FROM 116-180FT

ALL WIRE SHALL BE SIZED AS SHOWN ON THE DRAWINGS. IF NO WIRE SIZE IS SHOWN, THEN WIRE SHALL BE #12 AWG.

2. BRANCH CIRCUITS SHALL BE INCREASED IN SIZE AS REQUIRED TO COMPENSATE FOR VOLTAGE DROP FROM LENGTH OF

14. ALL HOMERUNS SHALL BE IN 3/4" RACEWAY MINIMUM. 1/2" RACEWAY IS ACCEPTABLE FOR A SINGLE CIRCUIT FROM THE

STRUCTURAL LIMITATIONS SHALL BE COORDINATED WITH THE STRUCTURAL DRAWINGS AND THE STRUCTURAL ENGINEER

6. WHERE RACEWAYS ARE INSTALLED IN SLABS, THE MINIMUM SPACING, MAXIMUM RACEWAY SIZE, AND ANY OTHER

HOMERUN TO REMAINING DEVICES.

B. 277V, 20A CIRCUITS SHALL BE

PRIOR TO INSTALLATION.

<u>CONDUCTORS</u>

CONTRACTOR SHALL USE COMPRESSION FITTINGS ONLY FOR EMT CONDUIT.

i. #12 FROM 0-140FT ii. #10 FROM 141-220FT iii. #8 FROM 221-350FT ANYTHING LONGER THAN THE ABOVE SHALL BE SUBMITTED TO THE ENGINEER WITH CALCULATIONS FOR APPROVAL. ALL CONDUCTORS IN CABINETS MUST BE CAREFULLY FORMED AND HARNESSED SO THAT EACH CONDUCTOR DROPS OFF DIRECTLY OPPOSITE TO TERMINAL 4. ALL WIRE SIZES ARE BASED ON AMPACITIES FOR 60 DEG F TEMPERATURE RATING FROM 0-100A AND 75 DEG. F TEMPERATURE

RATING LISTED IN NEC FOR 100A AND ABOVE 5. ALL CONDUCTORS SHALL BE COPPER, THHN/THWN; SOLID FOR #10 AWG AND SMALLER; STRANDED FOR #8 AWG AND LARGER. CONDUCTORS USED IN WET LOCATIONS, INCLUDING BUT NOT LIMITED TO UNDERGROUND CONDUITS/ DUCTBANKS AND EXTERIOR CONDUITS SHALL COMPLY WITH NEC 310.10 AND BE LISTED FOR USE IN WET LOCATIONS.

7. ALL POWER CIRCUITS HAVE BEEN DESIGNED TO MEET 2% OR LESS VOLTAGE DROP FOR FEEDERS, AND 3% OR LESS VOLTAGE DROP FOR BRANCH CIRCUITS.

WHERE THERE IS A DISCREPANCY BETWEEN ABOVE GENERAL NOTES AND SPECIFICATIONS, WHERE APPLICABLE, SPECIFICATIONS SHALL BE FOLLOWED

PROVIDE TYPED PANEL DIRECTORIES FOR ALL NEW PANELBOARDS. AND EXISTING PANELBOARDS AFFECTED BY THIS PROJECT. DIRECTORIES SHALL REFLECT PROJECT AS- BUILT CONDITIONS FOR ALL BRANCH CIRCUITS. DIRECTORIES SHALL INCLUDE WHER EACH PANEL IS FED FROM. ADDITIONALLY, EACH BRANCH CIRCUIT LOAD DESCRIPTION SHALL INCLUDE THE ROOM NUMBER(S) FOR EACH LOAD (I.E., RECEPTACLES-RMS 501,503), ROOM NUMBERS SHALL BE BASED ON ACTUAL ROOM SIGNAGE INSTALLED IN FIELD. COORDINATE EXACT ROOM NUMBERS WITH ARCHITECT/ENGINEER AND OWNER PRIOR TO COMPLETION OF PROVIDE ENGRAVED PLASTIC LAMINATE NAME TAGS ON EACH SWITCHBOARD, SWITCHGEAR, DISTRIBUTION PANEL, PANELBOARD MOTOR CONTROL CENTER, SAFETY SWITCH, ENCLOSED CIRCUIT BREAKER, CABINET, STEP-DOWN TRANSFORMER, TRANSFER SWITCH, ETC., AND ANY OTHER MAJOR COMPONENT OF THE ELECTRICAL SYSTEM. 9. PROVIDE ENGRAVED PLASTIC LAMINATE NAME TAGS FOR EACH DISTRIBUTION BREAKER OR BRANCH CIRCUIT BREAKER IN SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS AND OTHER DISTRIBUTION EQUIPMENT. NAME TAG SHALL INCLUDE LOAD DESCRIPTION AND ROOM NUMBER FOR EACH LOAD. 4. ARC FLASH DANGER/WARNING LABELS SHALL BE APPLIED TO SWITCHBOARD, PANELBOARDS, AND EQUIPMENT CONTROLLERS PEF 5. PROVIDE LABELS ON THE INSIDE OF EACH DEVICE COVERPLATE, IDENTIFYING THE PANEL(S)/ CIRCUIT NUMBER(S) DEVICE IS 6. PROVIDE NEATLY, HANDWRITTEN IDENTIFICATION ON THE EXTERIOR COVER OF ALL JUNCTION BOXES, PULLBOXES AND WIREWAYS, IDENTIFYING THE PANEL(S)/ CIRCUIT NUMBER(S) CONTAINED WITHIN. PROVIDE A PERMANENT SIGN ON THE MAIN ELECTRICAL ROOM DOOR TO THE BUILDING STATING THAT THE MAIN SERVICE 3. PROVIDE A PERMANENT LABEL ON ALL PANELBOARDS, SWITCHBOARDS, SWITCHGEAR, MOTOR CONTROL CENTERS AND DISTRIBUTION PANELS STATING "DO NOT WORK ON EQUIPMENT WHILE ENERGIZED. LOCK-OUT TAG-OUT REQUIRED". 9. PROVIDE REQUIRED IDENTIFICATION PER ANSI STANDARDS, NEC REQUIREMENTS, AND OWNER'S PUBLISHED DESIGN STANDARDS 0. PROVIDE ENGRAVED PHENOLIC LABEL ON ALL NEW SERVICE EQUIPMENT TO INDICATE THE MAXIMUM AVAILABLE FAULT CURRENT AND THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED. PROVIDE LABEL ON ALL EXISTING SERVICE EQUIPMENT WHEN MODIFICATIONS OCCUR THAT AFFECT THE MAXIMUM AVAILABLE FAULT CURRENT AT THE SERVICE.

LIGHT FIXTURES SUPPORTED BY CEILING GRID SHALL BE SUPPORTED AS FOLLOWS: LIGHT FIXTURES WEIGHING LESS THAN 10 POUNDS SHALL HAVE 12-GAUGE HANGER WIRE CONNECTED FROM THE LIGHT FIXTURE TO THE STRUCTURE ABOVE. LIGHT FIXTURES WEIGHING 10 POUNDS OR MORE SHALL HAVE (2) 12-GAUGE HANGER WIRES ATTACHED AT OPPOSITE CORNERS OF THE LIGHT FIXTURE TO THE STRUCTURE ABOVE. 2. COORDINATE EXACT LOCATIONS OF LIGHT FIXTURES IN LAY-IN AND GYPBOARD CEILINGS WITH ARCHITECTURAL REFLECTED CEILING PLANS, AND WALL MOUNTED EXTERIOR AND INTERIOR LIGHT FIXTURES WITH ARCHITECTURAL ELEVATIONS PRIOR TO INSTALLATION. WHERE THE QUANTITY OF LIGHTS DIFFERS BETWEEN THE ARCHITECTURAL RCP AND THE ELECTRICAL LIGHTING PLANS, PROVIDE THE HIGHEST QUANTITY OF FIXTURES IN THE BID PRICE. THE DISCREPANCY IN QUANTITY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER. THE HIGHEST QUANTITY SHALL BE CIRCUITED TO THE LOCAL ROOM OR AREA LIGHTING CIRCUITS AND LIGHTING CONTROL DEVICES, UNLESS OTHERWISE DIRECTED IN WRITING BY THE

VERIFY ACTUAL CEILING CONSTRUCTION TYPE AS DEFINED ON THE ARCHITECTURAL DRAWINGS AND FURNISH ALL LIGHT FIXTURES WITH THE CORRECT MOUNTING DEVICES WHETHER OR NOT SUCH VARIATIONS ARE INDICATED BY THE LIGHT FIXTURE CATALOG NUMBER. VERIFY THE DEPTH OF ALL RECESSED LIGHT FIXTURES WITH THE ARCHITECTURAL DRAWINGS PRIOR TO ORDERING LIGHT FIXTURES. ANY DISCREPANCIES THAT WOULD CAUSE THE RECESSED LIGHT FIXTURES NOT TO FIT INTO CEILING SHALL BE REPORTED TO ARCHITECT/ENGINEER PRIOR TO ORDERING. LIGHT FIXTURES RECESSED IN FIRE-RATED CEILINGS SHALL BE PROVIDED WITH APPROVED FIRE-RATED ENCLOSURE WITH A FIRE RATING EQUAL TO THAT OF THE CEILING. PROVIDE A MINIMUM OF 3" CLEARANCE FROM SIDES AND TOP OF RECESSED MODIFY ALL LIGHT FIXTURE CATALOG NUMBERS AS REQUIRED TO COORDINATE WITH THE LIGHTING BRANCH CIRCUIT

5. ALL LIGHT FIXTURES SHALL BE PROVIDED COMPLETE WITH LAMPS, UNLESS OTHERWISE NOTED. Z. ALL EXIT LIGHTS, LIGHT FIXTURES INDICATED WITH UNSWITCHED CIRCUIT (NIGHTLIGHT N/L), EMERGENCY TWIN-HEAD FIXTURES WITH INTEGRAL BATTERY PACKS, AND BATTERY PACKS INTEGRAL TO LIGHT FIXTURES, SHALL BE WIRED AHEAD OF ANY LOCAL SWITCHING OR LIGHTING CONTROLS. 9. PROVIDE UL WET LABEL OR IP67 RATED LIGHT FIXTURES FOR ALL FIXTURES LOCATED OUTSIDE OR IN PARKING GARAGES, IN 9. EXTERIOR LIGHTING BALLASTS/DRIVERS SHALL HAVE A MINMUM STARTING TEMPERATURE OF -40 DEGREE C, AND A NORMAL

AMBIENT OPERATING TEMPERATURE OF 40 DEGREE C. ). PROVIDE FUSING FOR ALL EXTERIOR LIGHT FIXTURES, OR FIXTURES IN PARKING GARAGES OR OPEN STRUCTURES. 1. PROVIDE ALL TEMPORARY NORMAL LIGHTING. EMERGENCY LIGHTING AND EXIT SIGNS REQUIRED DURING THE PROJECT 2. COORDINATE EXACT FOUNDATION AND/OR COMPACTING REQUIREMENTS FOR ALL POLE MOUNTED LIGHT FIXTURES WITH

MANUFACTURER'S AND/OR INSTALLER'S STRUCTURAL ENGINEER. POLE BASES SHALL MEET OR EXCEED ALL WIND LOAD RATINGS. GUST FACTORS. IMPORTANCE FACTORS. ETC. REQUIRED BY NATIONAL AND/OR LOCAL CODES. SHOP DRAWINGS SHALL INCLUDE STRUCTURAL DRAWINGS FOR ALL POLE BASES, POLE, ASSEMBLY AND OVERTURN CALCULATIONS REQUIRED. IN THIS PROJECT, SIGNED AND SEALED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE PROJECT STATE. 3. REFER TO LIGHT FIXTURE SCHEDULE FOR LIGHT FIXTURE TYPES, DESCRIPTIONS, CATALOG NUMBERS AND ADDITIONAL INFORMATION PERTINENT TO THE LIGHT FIXTURE OR INSTALLATION THEREOF. 4. COORDINATE LIGHT FIXTURE TRIM TYPE AND FINISH COLOR WITH ARCHITECT PRIOR TO ORDERING. 15. EACH LIGHTING CIRCUIT SHALL BE PROVIDED WITH A DEDICATED NEUTRAL.

## **HEALTHCARE NOTES**

. THE EQUIPMENT GROUNDING TERMINAL BARS OF THE NORMAL AND ESSENTIAL ELECTRICAL SYSTEM PANELBOARDS SERVING THE SAME PATIENT VICINITY SHALL BE BONDED TOGETHER WITH AN INSULATED, CONTINUOUS, COPPER 2. CRITICAL AND LIFE SAFETY LIGHT SWITCHES SHALL BE ROUTED IN CONDUIT AND BOXES OTHER THAN THAT FOR NORMAL BRANCH. ESSENTIAL SYSTEM SWITCHES SHALL BE RED IN COLOR. . MAINTAIN SEPARATION AMONG EACH TYPE OF ESSENTIAL AND NON-ESSENTIAL POWER WIRING. LIFE SAFETY, CRITICAL, EQUIPMENT, AND NORMAL WIRING SHALL BE INSTALLED TO MAINTAIN NEC REQUIRED SEPARATION OF EACH BRANCH OF

4. PATIENT CARE AREAS SHALL BE PROVIDED WITH GROUNDING IN ACCORDANCE WITH NEC 517. 5. NON-METALLIC RACEWAYS SHALL NOT BE USED TO SERVE ANY PATIENT CARE SPACE. ALL WIRING SHALL BE MECHCANICALLY PROTECTED BY INSTALLATION IN METALLIC RACEWAYS. 6. CONTRACTOR SHALL PERFORM A COMPLETE EQUIPOTENTIAL GROUND TEST IN ACCORDANCE WITH NFPA 99. TEST ALL METAL CONDUCTIVE SURFACES LIKELY TO BECOME ENERGIZED WITHIN ALL PATIENT CARE AREAS. TEST ALL LARGE CONDUCTIVE SURFACES LIKELY TO BECOME ENERGIZED WITHIN A VOLUME DEFINED AS 6 FOOT FROM THE PATIENT BED HORIZONTALLY OR 7 FOOT 6 INCHES VERTICALLY AS FOLLOWS: A. LARGE METAL SURFACES NOT LIKELY TO BE ENERGIZED, WHICH DO NOT REQUIRE TESTING:

iv. MOVEABLE METAL CABINETS B. VOLTAGE AND IMPEDANCE MEASUREMENTS SHALL BE TAKEN WITH RESPECT TO A REFERENCE POINT, WHICH SHALL BE i. THE GROUND BUS OF THE PANELBOARD OR ISOLATED POWER SYSTEM PANEL SUPPLYING THE PATIENT CARE ii. GROUNDING POINT, IN OR NEAR THE ROOM UNDER TEST, THAT IS ELECTRICALLY REMOTE FROM THE iii. GROUNDING CONTACT OF A RECEPTACLE THAT IS POWERED FROM A DIFFERENT BRANCH CIRCUIT FROM THE RECEPTACLE UNDER TEST.

ARFA.

RECETPACLES.

CONTACTS

i. VOLTAGE: 20mV

E. EQUIPMENT:

ii. IMPEDANCE 0.1ohm

ii. POLARITY TESTER

GROUND TEST REPORT:

i. MEASURE VOLTAGE FROM REFERENCE POINT TO CONDUCTIVE SURFACES AND ALL RECEPTACLE GROUND ii. MEASURE IMPEDANCE BETWEEN REFERENCE POINT AND RECEPTACLE GROUND CONTACTS. iii. CHECK FOR PROPER POLARITY iv. IDENTIFY THE REFERENCE GROUND FOR EACH ROOM ON THE GROUND TEST REPORT.

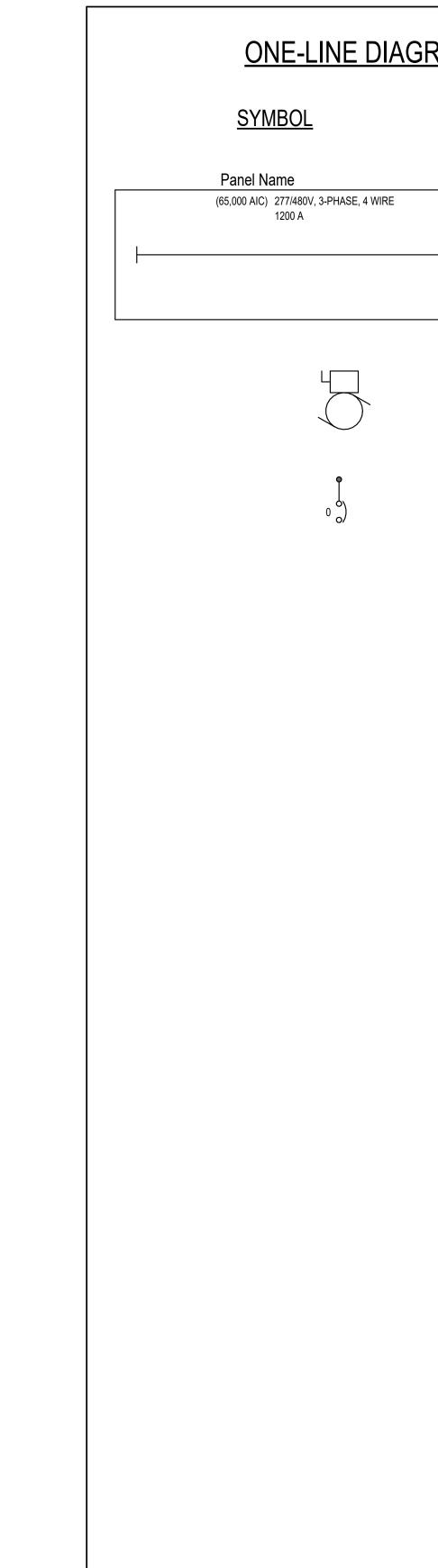
i. MILLIVOLT METER WITH 1kohm IMPEDANCE AND PROPER FREQUENCY RESPONSE, IN ACCORDANCE WITH NFPA 99.

i. SUBMIT COMPLETE TYPED GROUND TEST REPORT ii MAKE COPIES AVAILABLE AT THE FINAL INSPECTION iii. ENSURE METER USED FOR EQUIPOTENTIAL TESTING IS ON-SITE DURING FINAL INSPECTION TO DEMONSTRATE A SAMPLING OF TEST LOCATIONS PER AUTHORITY HAVING JURISDICATION.

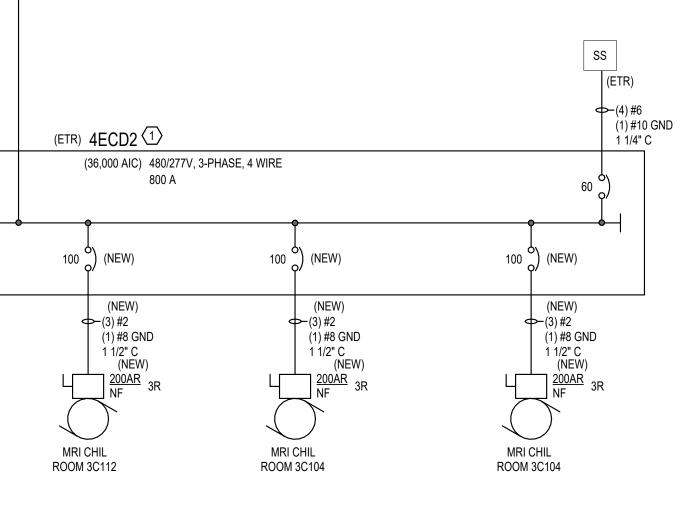
 $SOLU^{-}$ 4360 Chamblee Dunwoody Rd, Ste 210 Atlanta, GA 30341 P 707.451.6757 www.tlc-engineers.com COA K938087 © Copyright 2022 TLC Engineering Solutions, Inc TLC Project No.: 82410 THINK. LISTEN. CREATE onsulants Revisions No. Date Description A 10 JUL 24 DRAFT FOR REVIEW roject No.: 824101 Issue Date: 10 JULY 2024 RLS Drawn By: FSS Approved B Scale: N.T.S. Drawing Title: **ELECTRICAL NOTES** AND **SPECIFICATIONS** Drawing No.: E002

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1 Existing Partial One-Line Diagram



ATS-4CED2 (ETR)



EQUIPMENT BRANCH

## ONE-LINE DIAGRAM SYMBOL LEGEND

## DESCRIPTION

SWITCHBOARD OR DITRIBUTION BOARD

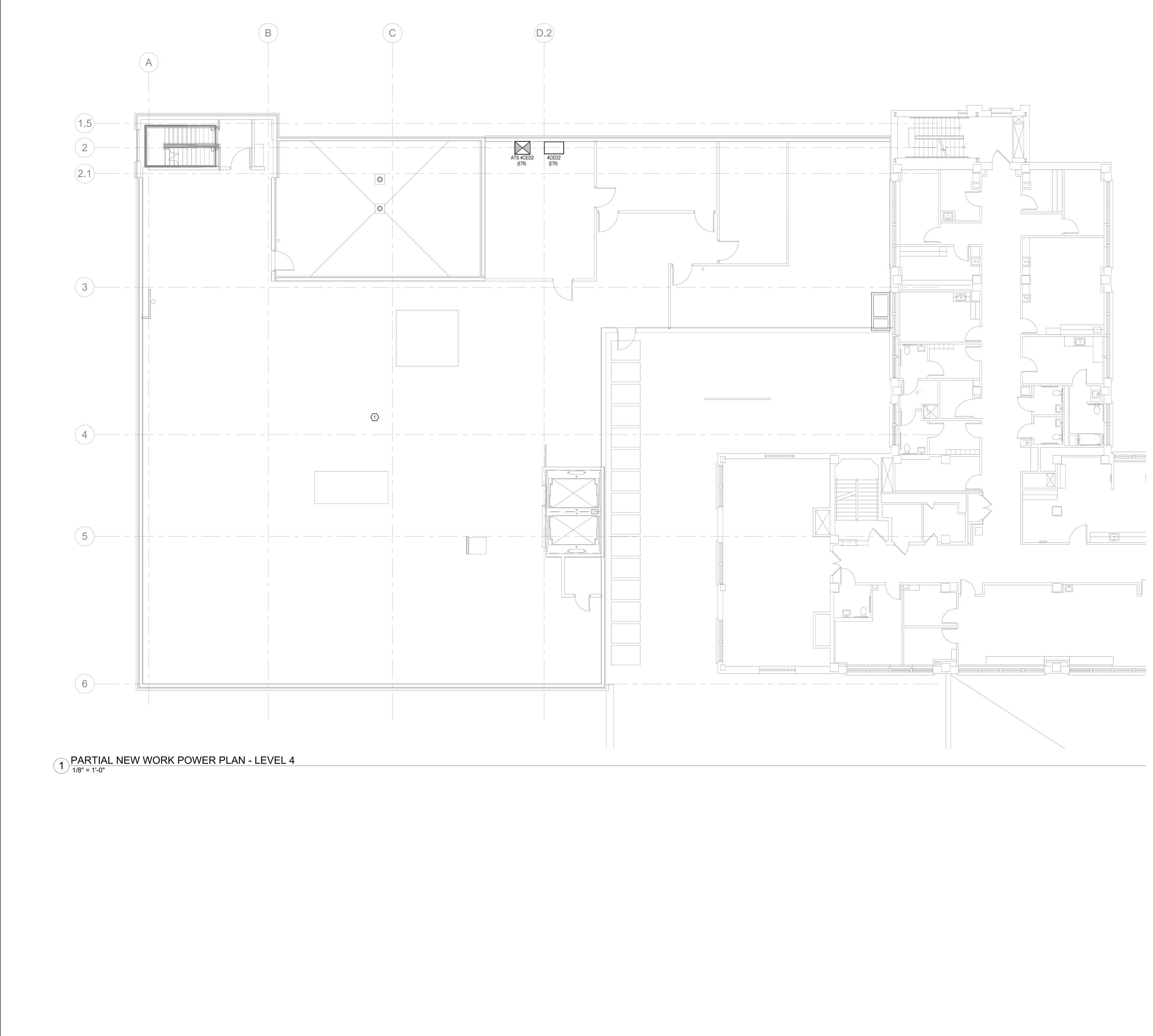
MOTOR

CIRCUIT BREAKER

**KEYNOTES** 

PROVIDE 30 DAY ELECTRICAL LOAD READING OF PANEL AS REQUIRED BY NEC.







(1) ALTERNATE LOCATION FOR CH-2.

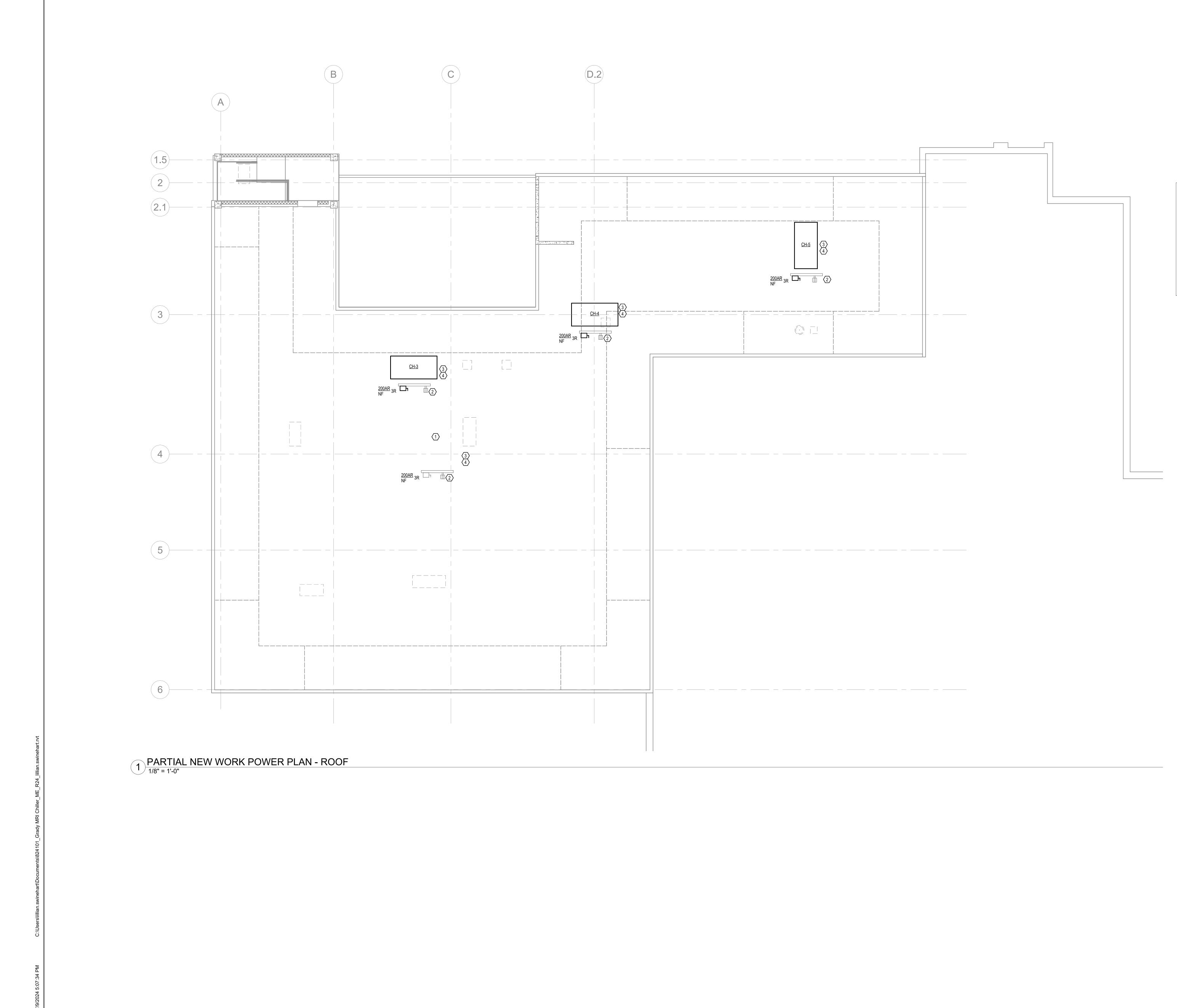
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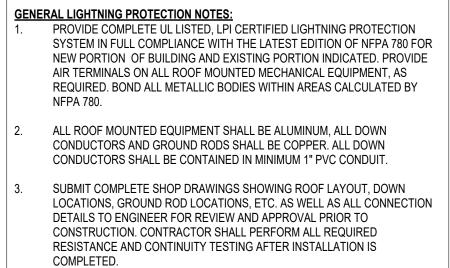
 Revisions:

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COORDINATE EXACT LOCATION OF ALL ROOFTOP MECHANICAL EQUIPMENT WITH DIVISION 23 PRIOR TO INSTALLATION AND ROUGH-IN. FIELD LOCATIONS SHALL DICTATE.

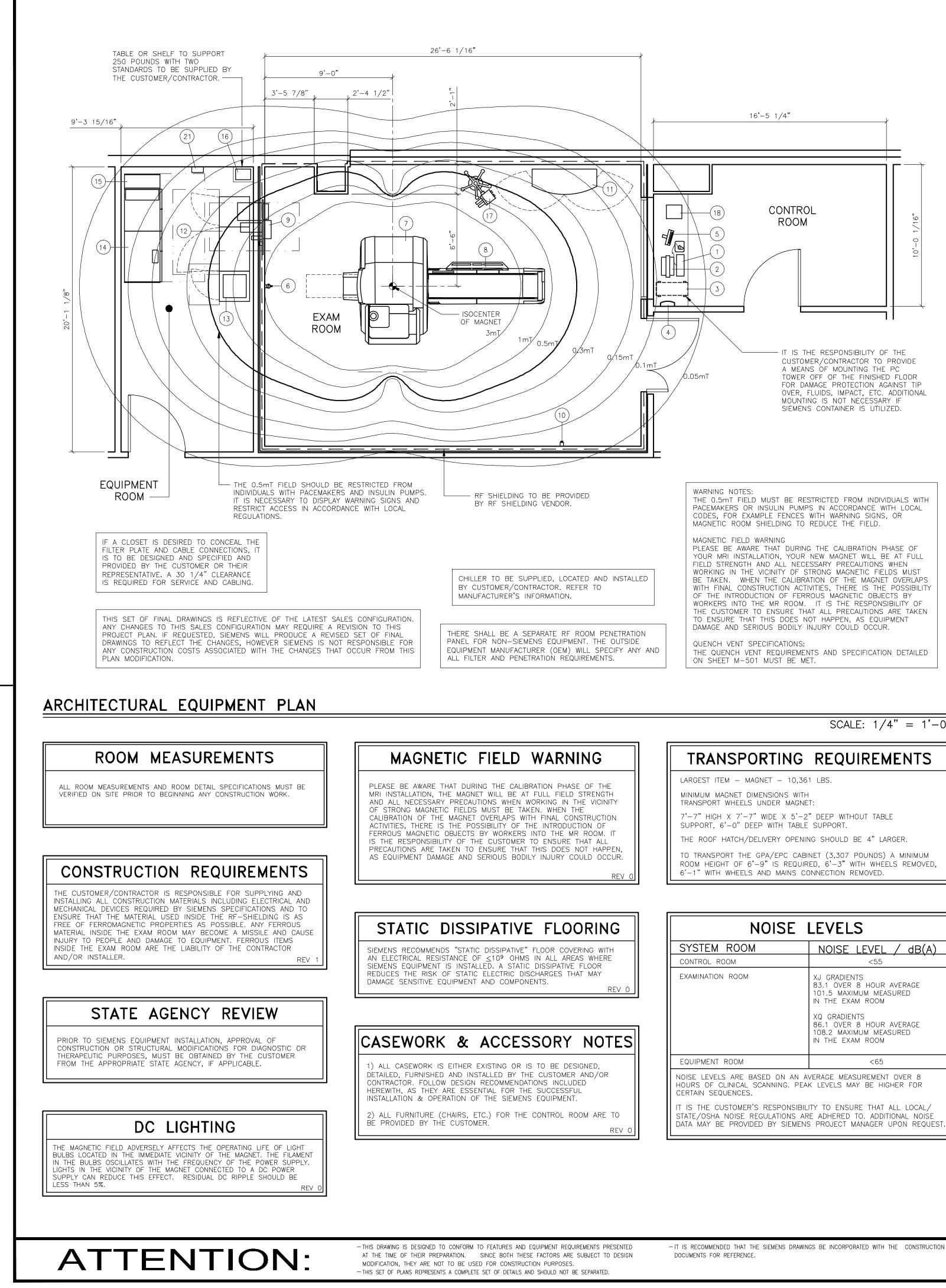
## **KEYNOTES**

- ALTERNATE LOCATION FOR CH-2 AND DISCONNECT.
   PROVIDE WEATHER PROOF WHILE IN USE ALUMINUM COVER. WIRE TO 120V BRANCH CIRCUIT FOR EQUIPMENT BRANCH USING 2#10, 1#10 GROUND IN 3/4" CONDUIT.
- CONTRACTOR SHALL CONNECT NEW EQUIPMENT TO EXISTING LIGHTNING PROTECTION. PROVIDE UL CERTIFIED SYSTEM.
- PROVIDE 277, 30A GFCI PROTECTED CIRCUIT FOR HEAT TRACING OF MECHANICAL PIPES. COORDINATE WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH IN. INCREASE BREAKER SIZE AS NECESSARY. PROVIDE WIRE SIZE PER NEC.

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 No.
 Date
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 Seal: NOTRI Project No.: 824101 Issue Date: 10 JULY 2024 RLS Drawn By: Approved By: FSS Scale: 1/8" = 1'-0" Drawing Title: PARTIAL ROOF LEVEL - NEW WORK POWER PLAN Drawing No.: E203

# APPENDIX C



#### SCALE: $1/4" = \overline{1'-0'}$

G	NOISE	LEVELS
ł	SYSTEM ROOM	NOISE LEVEL
	CONTROL ROOM	, <55
EV O	EXAMINATION ROOM	XJ GRADIENTS 83.1 OVER 8 HOUR AV 101.5 MAXIMUM MEASL IN THE EXAM ROOM
ES		XQ GRADIENTS 86.1 OVER 8 HOUR AV 108.2 MAXIMUM MEASL IN THE EXAM ROOM
	EQUIPMENT ROOM	<65
	NOISE LEVELS ARE BASED ON AN HOURS OF CLINICAL SCANNING. PE CERTAIN SEQUENCES.	
го	IT IS THE CUSTOMER'S RESPONSIE STATE/OSHA NOISE REGULATIONS / DATA MAY BE PROVIDED BY SIEME	ARE ADHERED TO. ADDITIO

	EC	VIPI	MENT	LEGE	ND			
NO	DESCRIPTION	SMS	WEIGHT	BTU/HR	DIMENSIONS (INCHES)		REMARKS	
		SYM	(LBS)	TO AIR	W	D	н	
	MRC KEYBOARD	$\Theta$	5		27 1/4	10 1/8	1 3/4	ON CONSOLE/COUNTER
2	COLOR MONITOR FOR MRC	$\Box$	22	239	18 5/16	16 15/16	4 3/4	ON CONSOLE/COUNTER
3	HOST PC MRC	(R)	49	2,389	11	27	18 1/8	
4	ALARM BOX	AB	2		9	4	9	
5	PATIENT MONITOR (OPTION)	P	30		13	8	12 1/2	
6	PATIENT SUPERVISION CAMERA (OPTION)	<b>(50)</b>	3		3 1/8	6 3/4	6 3/4	WALL MOUNTED
$\overline{\mathcal{O}}$	AERA MAGNET WITH COVERS, COILS, ELECTRONICS	B	10,093	7,506	91	170	86	
8	PATIENT TABLE (MOBILE)	$\Theta$	529		29 1/2	97 1/4	21-41	MOBILE TABLE
9	RF-FILTER PLATE	(F1)	287	853	46 1/2	35 1/8	21 5/8	
(10)	MAGNET STOP	MS	1		3	5	3	
	SURFACE COIL CART (OPTION)	<b>\$00</b>	110		55 1/8	21 1/8	47 5/8	WEIGHT WITHOUT COILS
(12)	ELECTRONICS CABINET (GPA/EPC CABINET)	(CPA)	3,307	3,412	61 1/2	26	77 1/2	
13	SEP CABINET	(P)	750	3,412	25 5/8	25 5/8	73 5/8	
(14)	POWERWARE 9390 U.P.S. WITH BATTERY (OPTION)	(PS)	5,880	43,800	78 3/8	32	74	
(15)	POWERWARE 9390 ISOLATION TRANSFORMER (OPTION)	$\Theta$	1,100		12	32	74	
16	POWERWARE 9130 UPS (OPTION)	(PS)	76	1,257	8 3/8	12 7/8	16 1/4	
17	MEDRAD ICBC INJECTOR STAND AND HEAD (OPTION)		37.5		19 1/4	21 1/2	52 1/4	INJECTOR ON STAND
18	MEDRAD ICBC INJECTOR CRU (OPTION)	(N3)	7.9		12	10 1/2	10 7/8	ON CUSTOMERS COUNTER
(19)	MEDRAD ICBC INJECTOR POWER SUPPLY (OPTION)		3.5		10	5	3 1/4	OUTSIDE 5mT FIELD

## PROTECTING THE MAGNETIC FIELD

HE SIEMENS MR SYSTEM UTILIZES A SUPERCONDUCTIVE MAGNET WITH AN EXTREMELY HOMOGENOUS FIELD WITHIN THE MAGNET TO PROVIDE DISTORTION REE IMAGING. THE PRESENCE OF FERROMAGNETIC MATERIAL WITHIN THE /ICINITY OF THE MAGNET CAN ADVERSELY AFFECT THE UNIFORMITY OF THE JSEFUL MAGNETIC FIELD. THIS APPLIES TO STATIONARY FERROUS MATERIAL STRUCTURAL STEEL) WHICH IS TO BE MINIMIZED. STATIONARY STEEL COMPENSATION MAY BE ACHIEVED BY MAGNET POSITIONING AND SELECTIVE SE OF SHIMS. DISTORTION CAUSED BY MOVING FERROMAGNETIC OBJECTS (MOTOR VEHICLES, ELEVATORS) IS MORE DIFFICULT TO COMPENSATE AND MAY REQUIRE THE USE OF MAGNETIC SHIELDING. REV

MAGNET S	ITING REQUIREMENTS					
IT MUST BE ENSURED THAT THE MAGNET IS LOCATED SO THAT THE STABILITY AND HOMOGENEITY OF THE MAGNETIC FIELD ARE NOT ADVERSELY AFFECTED BY EXTRANEOUS FIELDS AND STATIC OR DYNAMIC FERROMAGNETIC OBJECTS.						
X/Y AND Z AXIS	SOURCE OF INTERFERENCE					
4'-2"	FLOOR STEEL REINFORCEMENT<20 LBS./ FT <sup>2</sup> IRON BEAMS < 66 LBS./FT.					
16'-1" / 19'-1"	STRETCHERS UP TO 110 LBS.					
13'-1"	WATER COOLING UNIT (CHILLER)					
17'-5" / 21'-40"	TRANSPORT DEVICES UP TO 440 LBS.					
18'-5" / 24'-8"	VEHICLES UP TO 2,000 LBS.					
20'-5" / 29'-7"	ELEVATORS, TRUCKS UP TO 10,000 LBS.					
39'-5"/26'-2"	AC TRANSFORMERS LESS THAN 100 KVA					
39'-5"/29'-7"	AC TRANSFORMERS LESS THAN 250 KVA					
42'-7"/32'-10"	AC TRANSFORMERS LESS THAN 650 KVA					
45'-11"/36'-2"	AC TRANSFORMERS LESS THAN 1600 KVA					
9'-10"/6'-6"	AC CABLES, MOTORS LESS THAN 100 AMPS					
19'-9"/6'-7"	AC CABLES, MOTORS LESS THAN 250 AMPS					
29'-7"/36'-2"	AC CABLES, MOTORS LESS THAN 1000 AMPS					

POSSIBLE WITH STEEL SHIELDING.

## ENVIRONMENTAL/POWER AUDIT

AS AN INDICATION OF OUR COMMITMENT TO QUALITY, SIEMENS MAY, AT NO COST TO YOUR FACILITY, CHECK THE OPERATING ENVIRONMENT AFTER SYSTEM TURNOVER TO DETERMINE IF THE REQUIREMENTS FOR TEMPERATURE, HUMIDITY, POWER, AND GROUNDING ARE MET AS PER SIEMENS' PUBLISHED SPECIFICATIONS. SIEMENS WILL GENERATE A WRITTEN REPORT DETAILING THE ENVIRONMENTAL AND ELECTRICAL CONDITION OF THE SITE AFTER TURNOVER AND WILL SHARE THE REPORT WITH YOU. IN THE EVENT WE IDENTIFY ANY ENVIRONMENTAL/POWER DEFICIENCIES AT THE SITE, YOUR FACILITY WILL BE REQUESTED TO CORRECT DEFICIENCIES WITHIN THIRTY (30) DAYS. SHOULD ANY CORRECTIVE ACTIONS BE NECESSARY, AND UPON REQUEST SIEMENS WILL PROVIDE GUIDANCE IN AN EFFORT TO FACILITATE RESOLUTION. PLEASE BE ADVISED THAT AFTER 30 DAYS NOTICE ANY REPAIR OR MAINTENANCE SERVICES NECESSITATED BY SEVERE DEFICIENCIES WILL FALL OUTSIDE YOUR WARRANTY COVERAGE.

### **CEILING HEIGHTS**

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM

- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION	- ALL DIMENSIONS SHO
DOCUMENTS FOR REFERENCE.	- THIS DRAWING DOES
	EQUIPMENT. THE

SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. S NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED HE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

### PROTECTING THE ENVIRONMENT

PROTECTING THE IMMEDIATE ENVIRONMENT FROM THE EFFECT OF THE MAGNETIC FIELD REQUIRES CONSIDERATION. INFORMATION STORED ON MAGNETIC DATA CARRIERS SUCH AS DISCS, TAPES AND CARDS MAY BE FRASED IF NEAR THE MAGNET. CAUTION WITH REGARD TO HEART PACEMAKERS MUST BE EXERCISED, MOST PACEMAKER UNITS EMPLOY A REED RELAY WHICH MAY CHANGE OPERATING MODE WHEN EXPOSED TO AN FXTERNAL MAGNETIC FIELD. PACEMAKER USERS MUST BE KEPT AT A SPECIFIED DISTANCE FROM THE MAGNET WHICH IS DETERMINED BY THE MAGNET FIELD STRENGTH. REV (

MAGNET	IC FRINGE FIELDS					
MAGNETIC FIELDS MAY AFFECT THE FUNCTION OF DEVICES IN THE VICINITY OF THE MAGNET. THESE DEVICES MUST BE OUTSIDE CERTAIN MAGNETIC FIELDS. THE DISTANCES LISTED ARE FROM THE MAGNET ISOCENTER AND DO NOT CONSIDER ANY MAGNETIC ROOM SHIELDING.						
X/Y AND Z AXIS	DEVICES					
6'-1" / 9'-2" SMALL MOTORS, WATCHES, CAMERAS, CREDIT 3.0mT CARDS, MAGNETIC DATA CARRIERS (SHORT- TERM EXPOSURE)						
7'-3" / 11'-6" <b>1.0mT</b>	COMPUTERS, MAGNETIC DISK DRIVES, OSCILLOSCOPES, PROCESSORS					
8'-3" / 13'-2" 0.5mT	CARDIAC PACEMAKERS, X-RAY TUBES, INSULIN PUMPS, B/W MONITORS, MAGNETIC DATA CARRIERS (LONG-TERM STORAGE)					
9'-9" / 16'-1" <b>0.2mT</b>	SIEMENS CT SCANNERS					
10'-4" / 17'-1" <b>0.15mT</b>	COLOR MONITORS, SIEMENS LINEAR ACCELERATORS					
13'-1" / 22'-3" 0.05mT	X-RAY IMAGE INTENSIFIERS, GAMMA CAMERAS, PET/CYCLOTRON, ELECTRON MICROSCOPES, LINEAR ACCELERATORS					
THE OWNER/USER IS TO VERIFY THE LOCATION OF THE 0.5mT FIELD AND ENSURE THAT IT IS MAINTAINED AS A RESTRICTED AREA.						

## MAGNET CO-SITING

MINIMUM DISTANCE MAGNET-MAGNET (SIEMENS)								
	0.2T	0.35T	1.0T	1.5T	3.0T			
0.2T	32'-9"	32'-9"	16'-5 <b>"</b>	19'-9"	32'-9"			
0.35T	32'-9"	32'-9"	16'-5"	19'-9"	32'-9"			
1.0T	16'-5"	16'-5"	14'-10"	16'-5"	19'-9"			
1.5T	19'-9"	19'-9"	16'-5"	16'-5"	19'-9"			
3.0T	32'-9"	32'-9"	19'-9"	19'-9"	19'-9"			

DO NOT RAMP ONE MAGNET WHILE THE OTHER IS RUNNING APPLICATIONS. SHIM IS ONLY OPTIMIZED WHEN BOTH MAGNETS ARE RAMPED UP DURING THE SHIMMING PROCEDURE.

WHEN CO-SITING AN MR SYSTEM WITH A MAGNETIC NAVIGATION SYSTEM THE MINIMUM DISTANCE FOR CLINICAL IMAGING IS 98'-6", FOR SPECTROSCOPY THE MINIMUM SEPARATION IS 121'-5".

## ARCHITECTURAL NOTES

) ALL PRELIMINARY EQUIPMENT LAYOUTS SUBMITTED BY SIEMENS MEDICAL SOLUTIONS, INC. (SMS HEREAFTER) ARE BASED ON THE RECOMMENDED SPACE NECESSARY FOR THE OPERATION AND SERVICEABILITY OF THE EQUIPMENT BEING PROPOSED. SMS WILL NOT SUBMIT AN EQUIPMENT LAYOUT THAT IS NOT IN THE BEST INTEREST OF BOTH THE CUSTOMER AND SMS. ALL EQUIPMENT LAYOUTS ARE BASED EITHER ON AN ACTUAL SITE LOCATION SURVEY OR ARCHITECTURAL DRAWINGS SUPPLIED TO SMS. SMS WILL NOT BE RESPONSIBLE FOR ANY ALTERATIONS THAT ENCROACH WITHIN DESIGNATED SAFETY AND SERVICE CLEARANCE ZONES AS INDICATED ON DRAWINGS (IE, PIPE CHASES, VENTILATION DUCTS, CASEWORK, AND SOFFITS, ETC.) MADE BY THE CUSTOMER OR REQUIRED BY A CUSTOMER'S ARCHITECTURAL FIRM ONCE PRELIMINARY DRAWINGS HAVE BEEN SUBMITTED AND APPROVED. DO NOT ALTER ANY SPECIFICATIONS AND/OR DIMENSIONS WITHOUT CONTACTING AND RECEIVING WRITTEN CONFIRMATION FROM SMS PROJECT MANAGER. 2) SMS IS NOT AN ARCHITECTURAL OR ENGINEERING FIRM. DRAWINGS

SUPPLIED BY SMS ARE NOT CONSTRUCTION DRAWINGS. THEREFORE, THESE DRAWINGS ARE TO BE USED ONLY FOR INFORMATION TO COMPLEMENT ACTUAL CONSTRUCTION DRAWINGS AVAILABLE FROM A CUSTOMER APPOINTED ARCHITECTURAL REPRESENTATIVE OR A CUSTOMER'S ENGINEERING DESIGN GROUP. THE CUSTOMER'S ARCHITECT AND GENERAL CONTRACTOR SHALL BE ULTIMATELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE CODES AND PROFESSIONAL DESIGN REQUIREMENTS.

3) THE CUSTOMER IS RESPONSIBLE FOR ALL ROOM AND AREA PREPARATION COSTS, PROFESSIONAL FEES, PERMITS, REPORTS, AND INSPECTION FEES. 4) EQUIPMENT WARRANTIES. EXPRESSED OR IMPLIED ON THE PART OF

SMS SHALL BE CONTINGENT UPON STRICT COMPLIANCE WITH THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, MECHANICAL AND RECOMMENDATIONS AND REQUIREMENTS CONTAINED IN THESE DRAWINGS, UNLESS SPECIFIED OTHERWISE

5) ALL DIMENSIONS SHOWN ARE TAKEN FROM FINISHED SURFACES UNLESS SPECIFIED OTHERWISE, 6) THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING

RÉQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST. ACTUAL PROTECTION REQUIREMENTS SHALL BE SPECIFIED BY A REGISTERED RADIATION PHYSICIST AT CUSTOMER'S ENGAGEMENT AND EXPENSE, RESPONSIBILITY FOR ALL INFORMATION AS TO THE ROOM LOCATION, USE, AND NUMBER OF ANTICIPATED EXAMINATIONS TO BE PERFORMED PER TIME PERIOD SHALL BE PROVIDED TO THE PHYSICIST BY THE CUSTOMER. THE CUSTOMER SHALL FURTHER TAKE ALL RESPONSIBILITY IN THE COMMUNICATION

AND COORDINATION OF ACTIVITIES OF THE RADIATION PHYSICIST AND THE ARCHITECTURAL REPRESENTATIVE. 7) SMS SHALL BE RESPONSIBLE FOR SMS EQUIPMENT INSTALLATION

AND CALIBRATION, CONNECTION AND INSTALLATION OF SMS PROVIDED CABLES. AND CONNECTION OF CONTRACTOR PROVIDED WIRES TO SMS EQUIPMENT. IN THE EVENT THAT SPECIFIC TRADE RULES OR LICENSE EQUIREMENTS PROHIBIT THIS, THE CUSTOMER SHALL INITIATE THE SERVICES OF APPROVED OTHER CONTRACTORS AND PAY FOR SELECTED, APPROVED PARTIES TO PERFORM THIS WORK WITH JOB SUPERVISION TO BE PROVIDED BY SMS. CALIBRATION WHEN ACCOMPLISHED OUTSIDE OF NORMAL INSTALLATION SEQUENCES DUE TO CONTRACTOR OR TRADE RULE ACTIONS OR REQUIREMENTS SHALL

BE SUPPORTED BY, CHARGED TO, AND ACCEPTED BY THE CUSTOMER AS AN ADDITIONAL INSTALLATION EXPENSE. 8) THE CUSTOMER SHALL VERIFY WITH SMS PROJECT MANAGER FINAL

INSTALLATION DRAWINGS THE LOCATIONS AND TRAVEL OF ALL ANCILLARY EQUIPMENT TO BE CEILING OR WALL MOUNTED (IE: O.R. LIGHTS, MEDICAL GAS COLUMNS, PHYSIOLOGICAL MONITORING INJECTORS, CRT PLATFORMS, SPRINKLER HEADS, SMOKE DETECTORS, ELECTRICAL OUTLETS, HVAC GRILLES, SPEAKERS, AND GENERAL ROOM LIGHTING. ETC.)

9) THE GENERAL CONTRACTOR/CUSTOMER SHALL BE RESPONSIBLE FOR ALL FINAL PAINT, TOUCH-UP AND ANY COSMETIC OR TRIM WORK WHICH NEEDS TO BE OR IS REQUIRED TO BE COMPLETED AFTER THE INSTALLATION OF THE SMS EQUIPMENT AND ANY ASSOCIATED SUPPORT APPARATUS.

## SITE READINESS GUIDELINES

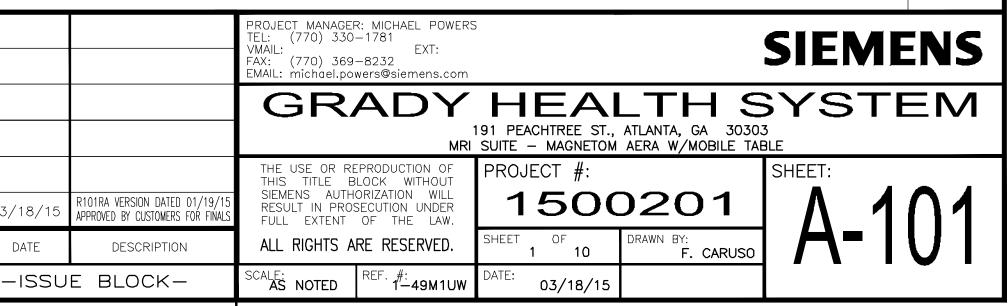
THE FOLLOWING GENERAL CONDITIONS ARE NECESSARY TO HAVE THE STATUS OF "READY SITE":

- PROPER POWER AVAILABLE AT SIEMENS EQUIPMENT POWER CABINET LOCATION AND ALL POWER OUTLETS FUNCTIONING.
- AIR CONDITIONING/HUMIDIFICATION SYSTEMS COMPLETE, TESTED, AND FUNCTIONING PROPERLY ACCORDING TO SIEMENS SPECIFICATIONS. PROPER LIGHTING INSTALLED AND FUNCTIONING.
- PLUMBING COMPLETE EXCEPT FOR ANY FINAL CONNECTIONS TO SIEMENS EQUIPMENT.
- ALL CABLE TRAYS/DUCTS/CONDUITS CORRECTLY SIZED, LOCATED,
- AND INSTALLED ACCORDING TO THE SIEMENS DRAWINGS. ALL REINFORCEMENT PLATES/UNISTRUT INSTALLED AS REQUIRED. ROOM FOR EQUIPMENT INSTALLATION AND IMMEDIATE VICINITY IS DUST-FREE AND IS TO REMAIN SO FOR THE DURATION OF THE
- INSTALLATION. A SECURE AREA (APPROXIMATELY 10' x 10') IS AVAILABLE AT EQUIPMENT DELIVERY FOR PARTS AND INSTALLATION TOOLS.
- CUSTOMER SUPPLIED CAMERAS AND PROCESSORS INSTALLED. 0) CUSTOMER APPROVAL FOR SIEMENS REMOTE SERVICES (SRS) CONNECTION, AND CUSTOMER'S I.T. CONTACT INFORMATION AND IP ADDRESSES ESTABLISHED.
- ) WALLS TO BE PRIMED AND PAINTED, FLOORS TO BE TILED EXCEPT IN AREAS OF THE EQUIPMENT BASE PLATES.

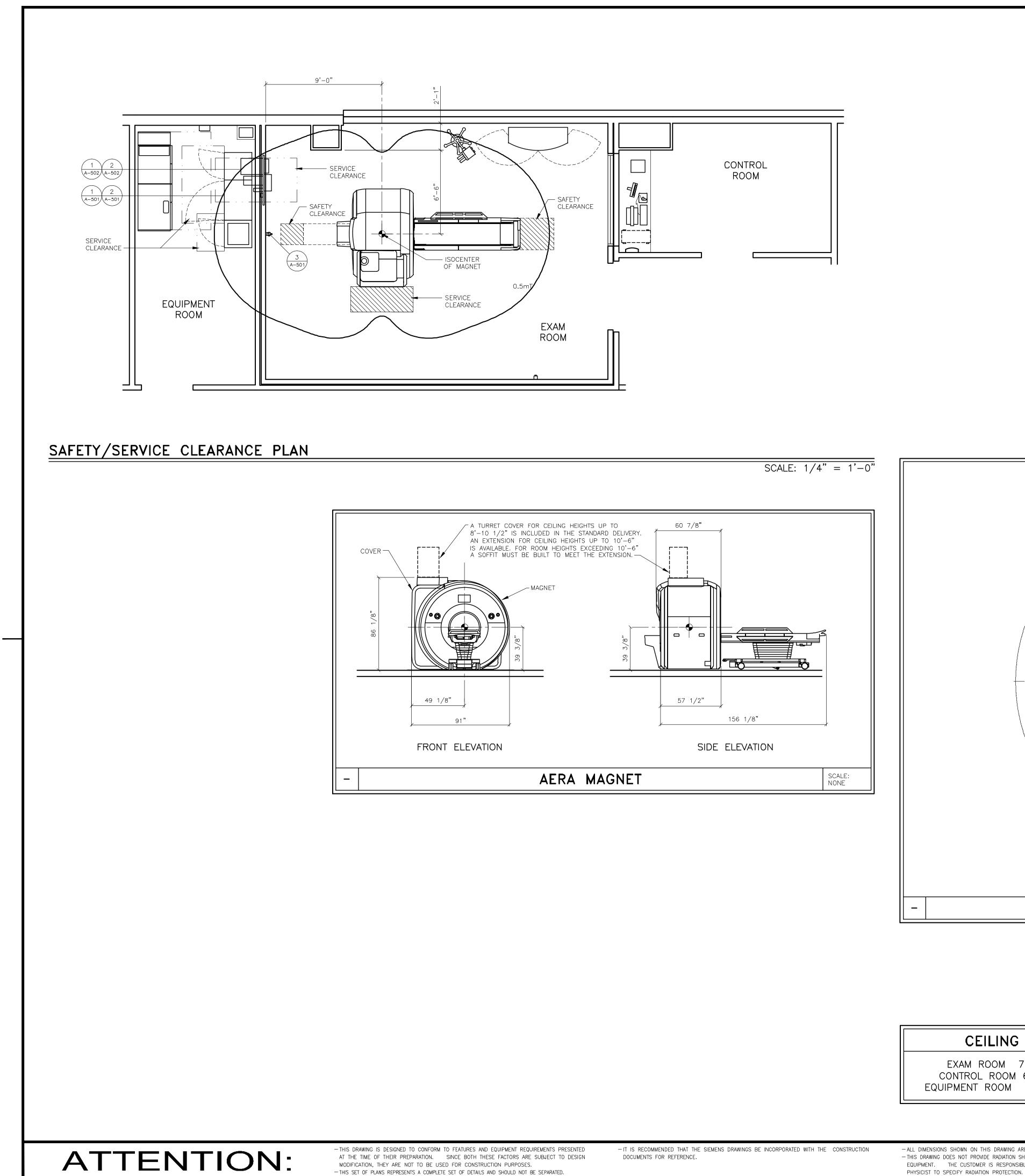
F THESE CONDITIONS ARE NOT MET. THE SIEMENS PROJECT MANAGER AND THE DESIGNATED SIEMENS INSTALLATION SUPERVISOR SHALL RESCHEDULE THE INSTALLATION START DATE. NOTE: ADDITIONAL COST MAY BE INCURRED BY THE CUSTOMER/CONTRACTOR AND DELIVERY DATES MAY NEED TO BE RESCHEDULED, WHEN THE SIEMENS SITE READINESS GUIDELINES ARE NOT MET.

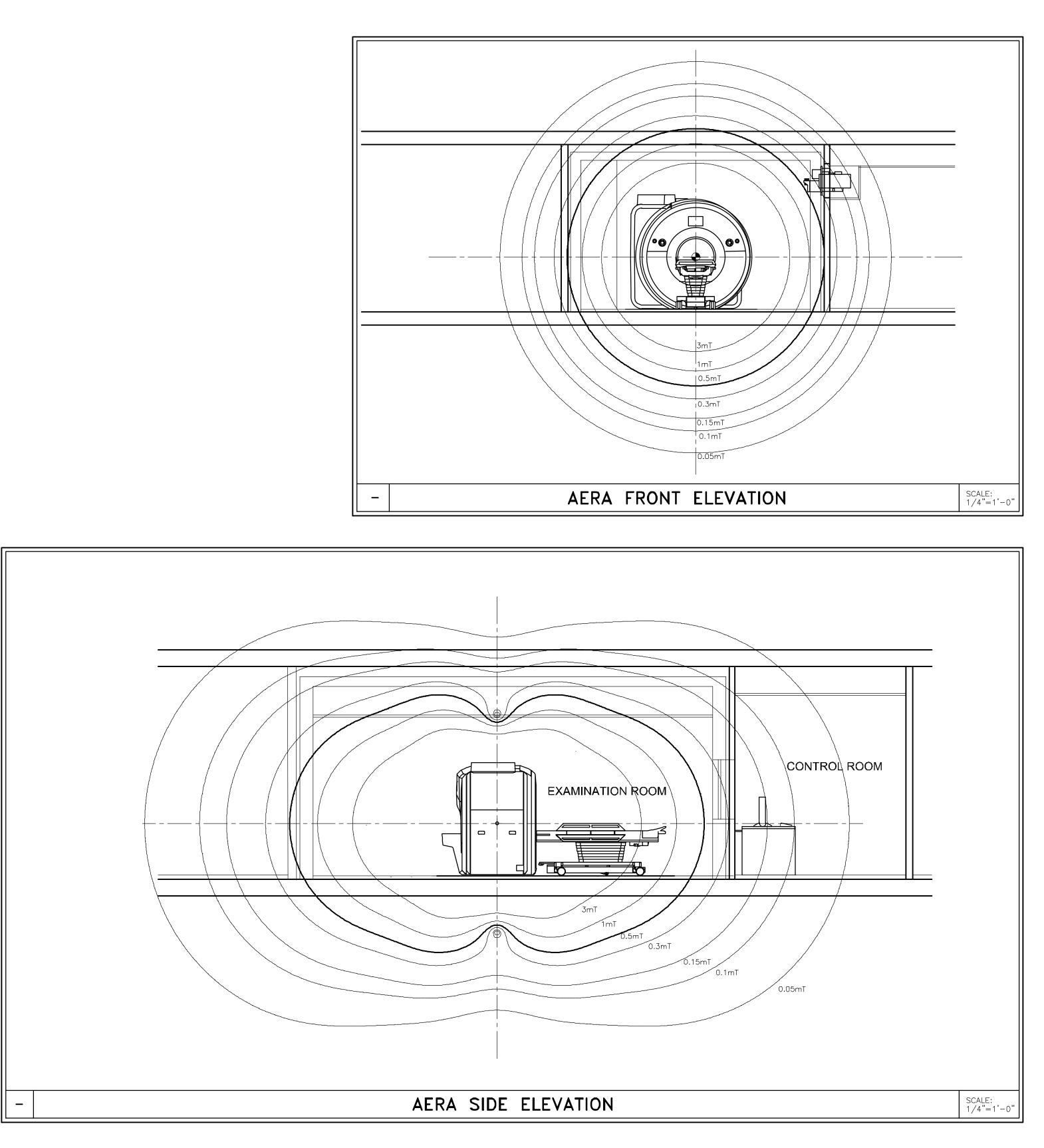
RESOURCE LIST (SMS USE ONLY) DESIGNATION PG NUMBER M7-010.891.01.08.02 PLANNING GUIDE

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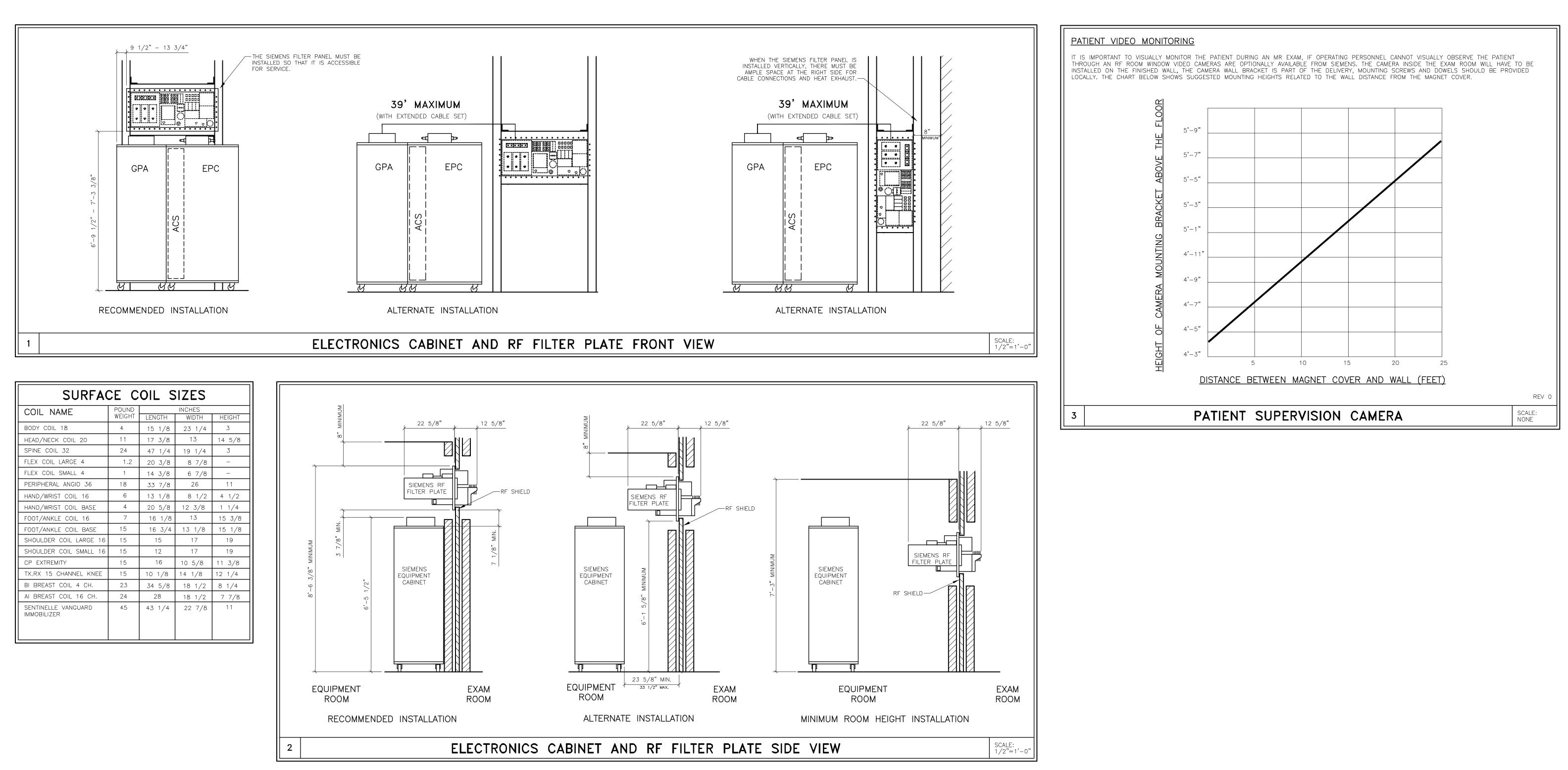


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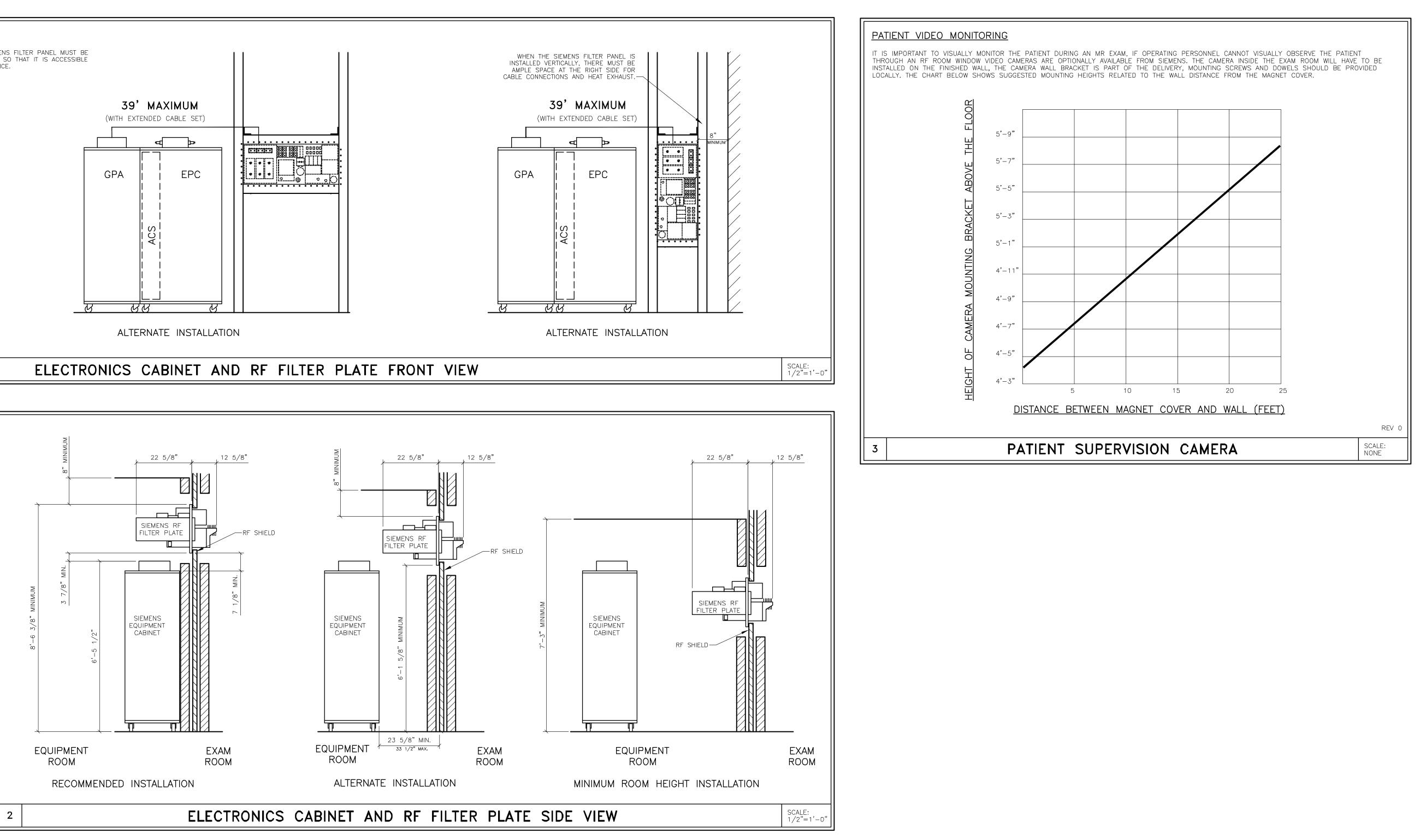




CEILING HEIGHTS	
EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM	
DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED	SYN



SURFACE COIL SIZES						
COIL NAME	POUND WEIGHT	LENGTH	INCHES WIDTH	HEIGHT		
BODY COIL 18	4	15 1/8	23 1/4	3		
HEAD/NECK COIL 20	11	17 3/8	13	14 5/8		
SPINE COIL 32	24	47 1/4	19 1/4	3		
FLEX COIL LARGE 4	1.2	20 3/8	87/8	_		
FLEX COIL SMALL 4	1	14 3/8	6 7/8	_		
PERIPHERAL ANGIO 36	18	33 7/8	26	11		
HAND/WRIST COIL 16	6	13 1/8	8 1/2	4 1/2		
HAND/WRIST COIL BASE	4	20 5/8	12 3/8	1 1/4		
FOOT/ANKLE COIL 16	7	16 1/8	13	15 3/8		
FOOT/ANKLE COIL BASE	15	16 3/4	13 1/8	15 1/8		
SHOULDER COIL LARGE 16	15	15	17	19		
SHOULDER COIL SMALL 16	15	12	17	19		
CP EXTREMITY	15	16	10 5/8	11 3/8		
TX.RX 15 CHANNEL KNEE	15	10 1/8	14 1/8	12 1/4		
BI BREAST COIL 4 CH.	23	34 5/8	18 1/2	8 1/4		
AI BREAST COIL 16 CH.	24	28	18 1/2	7 7/8		
SENTINELLE VANGUARD IMMOBILIZER	45	43 1/4	22 7/8	11		



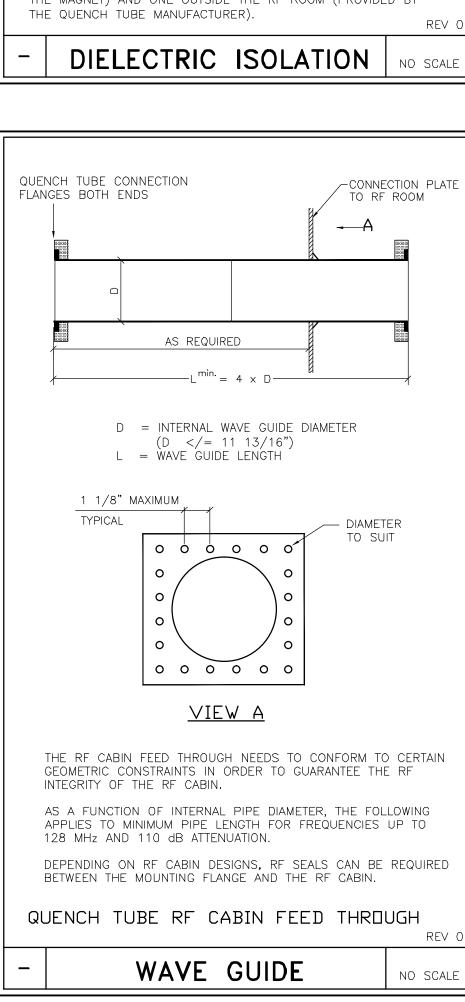
-THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. -THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

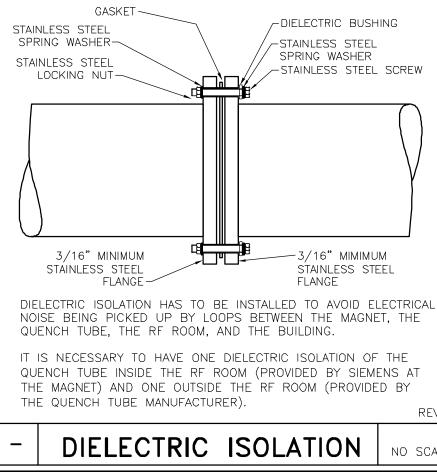


- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.

- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

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		TEL: (770) 330- VMAIL: FAX: (770) 369-	EXT:			SIEM	ENS
		GR	ADY	HEAI	_TH S	SYSTI	ΞM
				91 PEACHTREE ST., SUITE – MAGNETOM			
			PRODUCTION OF	PROJECT #:		SHEET:	• •
3/18/15	R101RA VERSION DATED 01/19/15 APPROVED BY CUSTOMERS FOR FINALS	RESULT IN PROS	ORIZATION WILL SECUTION UNDER OF THE LAW.	1500	0201		Λ1
DATE	DESCRIPTION	ALL RIGHTS A	RE RESERVED.	SHEET OF <b>3 10</b>	DRAWN BY: F. CARUSO		UI
-ISSU	E BLOCK-	SCALE: AS NOTED	REF. <u>#</u> : <b>1—49M1UW</b>	DATE: 03/18/15			<b>~</b> -





#### RF DOOR OPENING

IN THE EVENT OF A CATASTOPHIC FAILURE OF THE QUENCH VENT DURING A QUENCH, PRESSURE BUILT UP MAY PREVENT OPENING A DOOR THAT OPENS INTO THE RF ROOM, PREVENTING EVACUATION FROM LIFE THREATENING CONDITIONS.

FOR THIS REASON THE RF DOOR SHOULD OPEN TO THE OUTSIDE OF THE RF ROOM. IF THE DOOR CANNOT OPEN OUT FROM THE RF ROOM, OTHER APPROPRIATE MEANS HAVE TO BE PROVIDED SO THAT THE RF ROOM DOOR IS NOT PREVENTED FROM OPENING DUE TO PRESSURE.

IF THE DOOR OPENS INTO THE RF ROOM, A 24"x24" OPENING FOR PRESSURE EQUALIZATION INTO THE RF ROOM MUST BE INSTALLED. THIS IS MANDATORY. THIS IS NOT AN ESCAPE HATCH. THE PURPOSE OF THE OPENING IS TO RELIEVE PRESSURE AND ALLOW THE MAIN DOOR TO BE OPENED SO THAT OCCUPANTS CAN BE EVACUATED.

THE OPENINGS WILL HAVE PANELS INSTALLED IN THE RF ROOM OR THE DOOR THAT CAN BE UNLOCKED AND OPENED TO THE OUTSIDE IN CASE OF EMERGENCY. THESE PANELS REQUIRE AN RF SEALED INSTALLATION. AFTER OPENING THE PANEL, THE OUTLET SHOULD MEASURE AT LEAST 24"x24". WHEN USING RECTANGULAR PANELS, THE SHORTER SIDE SHOULD MEASURE OF MINIMUM OF 24".

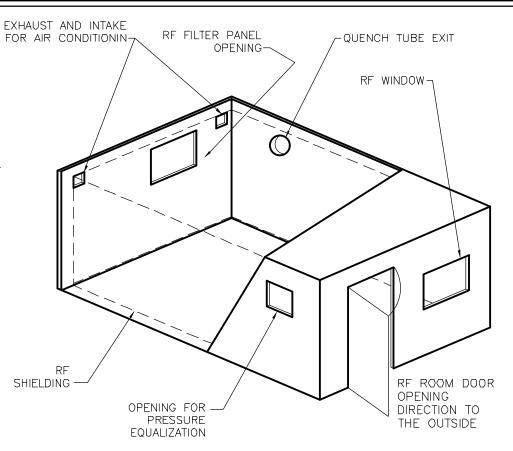
TO ENSURE UNOBSTRUCTED VENTING, THIS OPENING CANNOT BE SUBDIVIDED. THIS MEANS THAT, FOR EXAMPLE, RF SEALED HONEYCOMB GRIDS ARE NOT PERMITTED.

EASY REMOVAL OF THE PANEL BY A PERSON HAS TO BE ENSURED AND A MINIMUM DISTANCE OF 40" TO A FIXED OBJECT MUST BE MAINTAINED. THE PANEL SHOULD BE INSTALLED IN AN ACCESSIBLE LOCATION AND ALLOW ESCAPE OF THE LOW DENSITY HELIUM.

AS AN ALTERNATIVE TO AN OUTSWING DOOR, THE STATIONARY OBSERVATION WINDOW IS REPLACED BY A WINDOW OPENING INTO THE CONTROL AREA OR THE DOOR IS REPLACED WITH AN RF SEALED SLIDING DOOR, IT SHOULD BE ENSURED THAT THE DOOR CLOSES IN A WAY THAT ALLOWS IT TO MOVE AWAY FROM THE FRAME IN CASE OF OVERPRESSURE.

IF THE DOOR OPENS TO THE OUTSIDE, THE OPENING IN THE RF ROOM IS STILL RECOMMENDED.

THE RF ROOM MANUFACTURER CAN PROVIDE YOU WITH ADDITIONAL RF SEALED ROOM OPENINGS THAT LEAD DIRECTLY TO THE OUTSIDE. HOWEVER, THESE OPENINGS ARE ALSO CONDUITS FOR NOISE GENERATED OUTSIDE THE RF ROOM. UNOBSTRUCTED FLOW THROUGH THIS PIPE MUST BE GUARANTEED.



SAFETY ASPECTS FOR THE RF ROOM: IT MUST BE POSSIBLE TO LOCK THE RF ROOM (EXAMINATION ROOM) DOOR FROM THE OUTSIDE. IT MUST ALSO BE POSSIBLE TO OPEN THE DOOR FROM THE INSIDE WITHOUT A KEY OR ADDITIONAL DEVICE.

THE RF DOOR IS AN IMPORTANT COMPONENT FOR GOOD IMAGE QUALITY AS WELL AS SAFETY, THE OWNER/OPERATOR OF THE MR SYSTEM MUST MAINTAIN THE RF ROOM AS INSTRUCTED BY THE RF ROOM MANUFACTURER IN ORDER TO GUARANTEE CORRECT FUNCTION OF THE RF DOOR.

NO FERROMAGNETIC ITEMS CAN BE BROUGHT INTO THE RF ROOM AFTER THE MAGNET HAS BEEN RAMPED UP TO FIELD. MAGNETIC ITEMS WILL BECOME ATTRACTED TO THE MAGNET WITH NO WARNING AND DUE TO THE HIGH MAGNETIC FIELD, WILL BECOME MISSILES.

NOTE: FOR DOORS MOVED BY AN AUXILIARY DRIVES (ELECTRICAL OR PNEUMATIC), MANUAL OPERATION HAS TO BE ENSURED. AN OUTSIDE WINDOW SHOULD BE IN THE VICINITY TO ALLOW VENTING EXHAUSTED GAS TO THE OUTSIDE. THE INTEGRITY OF THE RF SHIELD MUST BE TESTED AFTER REMODELING.

### SAFETY INFORMATION - PRESSURE EQUALIZATION

### **RF SHIELDING**

THE EXAMINATION AREA MUST BE SHIELDED TO PROVIDE A REDUCTION OF RADIO FREQUENCY WAVES EMANATING FROM EXTERNAL TRANSMITTERS. THE REQUIRED ATTENUATION IS 90dB IN THE FREQUENCY RANGE OF 15-128 MHz. IF CO-SITING TWO SYSTEMS EACH ROOM SHOULD BE 100 dB. THE RF SHIELD MUST BE TESTED BEFORE AND AFTER MAGNET PLACEMENT IN THE RF ROOM AND AFTER THE SIEMENS RF FILTER PANEL IS INSTALLED. THE RF-SHIELDING MUST BE INSULATED FROM ALL GROUNDS SUCH THAT THE ONLY GROUND IS THE SINGLE POINT GROUND ON THE OUTSIDE OF THE RF-ROOM WALL. RESISTANCE  $\geq$  100 OHMS. ALL ELECTRICAL LINES INTO THE RF ROOM MUST BE OUTED THROUGH RF FILTERS (PROVIDED BY RF SHIELDING SUPPLIER) ALL ELECTRICALLY NON-CONDUCTIVE SUPPLY LINES (E.G. FIBER OPTIC CABLES, OR HOSES) INTO THE RF ROOM MUST BE ROUTED THROUGH RF SEALED WAVE GUIDES (PROVIDED BY RF SHIELDING SUPPLIER). FOR PRESSURE EQUALIZATION PURPOSES THE RF DOOR SHOULD OPEN TO THE OUTSIDE OF THE RF ROOM. AS AN ALTERNATIVE A 24"X24" OPENING IN THE RF ROOM FOR PRESSURE EQUALIZATION IS REQUIRED.

REV O

### EXAM ROOM INTERIOR NOTES

1) ONLY NON-MAGNETIC MATERIALS ARE TO BE USED AND INSTALLED IN THE RF ROOM.

2) A SUSPENDED CEILING MUST BE STATICALLY SUSPENDED, NOT SUSPENDED WITH MOVABLE CLAMPS, SPRINGS, ETC.

3) CORRUGATED RODS IN SUSPENDED CEILINGS MUST BE INSTALLED SECURELY. GALVANIC CONTENT BETWEEN THE CORRUGATED RODS MUST BE GUARANTEED, THEY MUST NOT JUST LIE ON TOP OF ONE ANOTHER. A WIRE JUMPER BETWEEN RODS MAY BE USEFUL.

4) ELECTRICAL WIRING, FOR AMBIENT LIGHTS FOR EXAMPLE, MUST NOT SIMPLY REST ON THE SUSPENDED CEILING, THEY MUST BE FASTENED OR INSIDE A CONDUIT TO PREVENT MOTION.

REV 0

## SHIELDING GENERAL NOTES

1) SIEMENS REQUESTS THAT THE SHIELDING MANUFACTURER(S) SUBMIT FINAL SHOP DRAWINGS TO SIEMENS FOR REVIEW PRIOR TO THEIR INCLUSION IN CONSTRUCTION DOCUMENTS. SIEMENS SHALL BE COPIED ON ALL FIELD ORDER CHANGES CONCERNING CHANGES IN RF AND MAGNETIC SHIELDING CONDITIONS, CONFIGURATION AND SPECIFICATION. THE RF AND MAGNETIC SHIELDING CONTRACTOR(S) SHALL FURNISH "AS BUILT" SCALED AND DIMENSIONED PLANS REFLECTING ANY AND ALL FIELD ORDER CHANGES PRIOR TO THE COMPLETION OF THE CONSTRUCTION DOCUMENTS.

2) ALL CHANGES TO SIEMENS RECOMMENDED OPENINGS AND PENETRATIONS SHALL BE APPROVED BY THE SIEMENS PROJECT MANAGER PRIOR TO THE COMPLETION OF THE CONSTRUCTION DOCUMENTS.

3) THE SIZE, LOCATION, AND DIMENSIONS OF ANY MAGNETIC SHIELDING REQUIRED HAS BEEN DETERMINED BY SIEMENS. THIS INFORMATION HAS BEEN SUPPLIED TO THE MAGNETIC SHIELDING FABRICATOR TO DESIGN THE STRUCTURAL SUPPORT SYSTEM REQUIRED FOR THE MAGNETIC SHIELDING MATERIAL.

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SCALE: NONE

## FILTER PLATE GENERAL NOTES

1) STRUCTURAL SUPPORT AND INTEGRATION OF THE SIEMENS SUPPLIED AND INSTALLED FILTER PLATE WITH MAGNETIC AND RF SHIELDING SHALL BE SPECIFIED, DETAILED AND NOTED BY THE RF AND MAGNETIC SHIELDING MANUFACTURER(S) WITH OVERALL COORDINATION WITH SIEMENS SITE SPECIFIC RECOMMENDATIONS TO BE THE RESPONSIBILITY OF THE ARCHITECT OF RECORD.

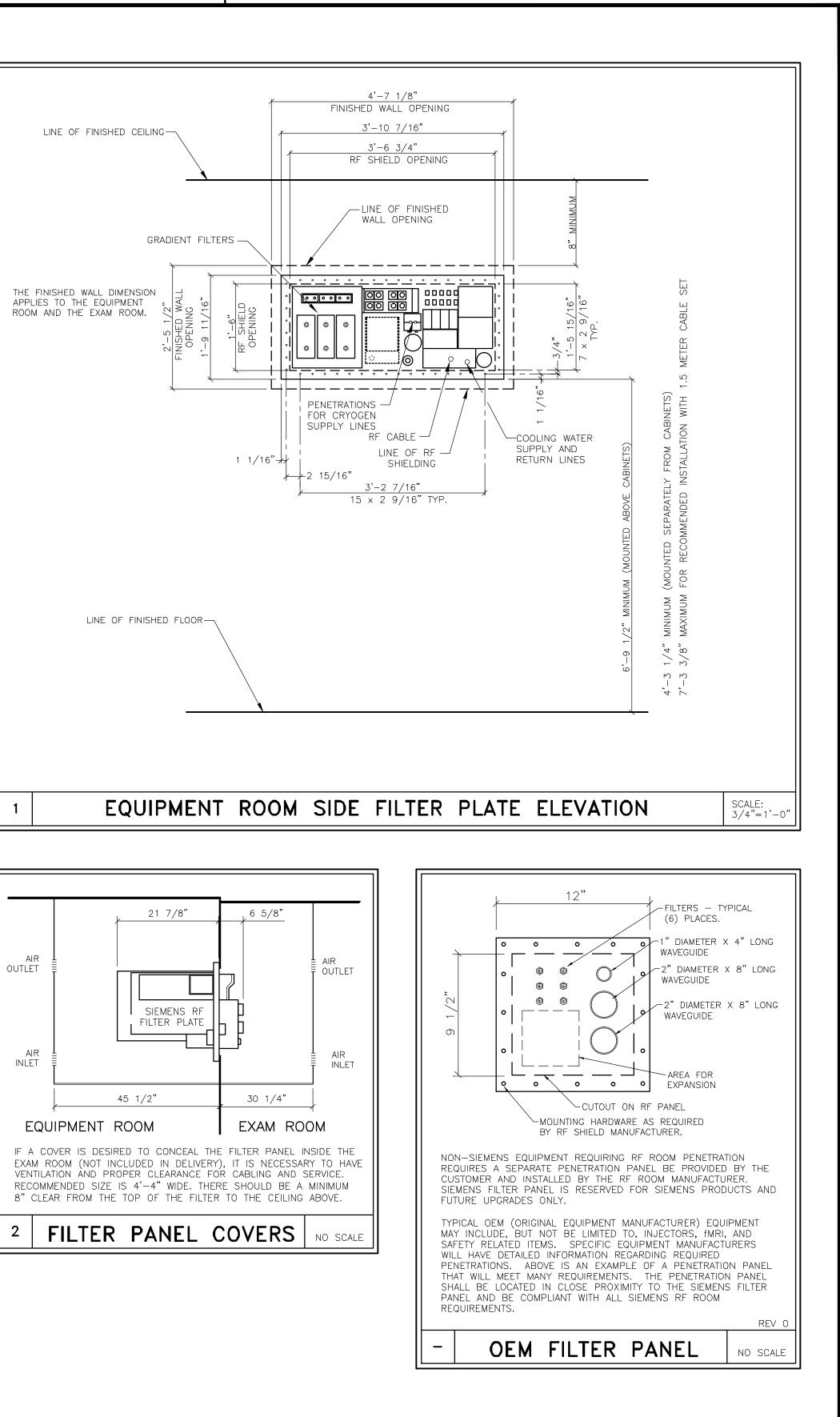
2) THE FILTER PLATE FRAME, RF FILTER PLATE BLANK, RF GASKET AND MOUNTING HARDWARE FOR THE PURPOSES OF TESTING THE INTEGRITY OF THE RF ENCLOSURE PRIOR TO THE INSTALLATION OF THE SIEMENS SUPPLIED AND INSTALLED RF FILTER PLATE SHALL BE PROVIDED AND INSTALLED BY THE SHIELDING CONTRACTOR(S) UNLESS SPECIFIED OTHERWISE.

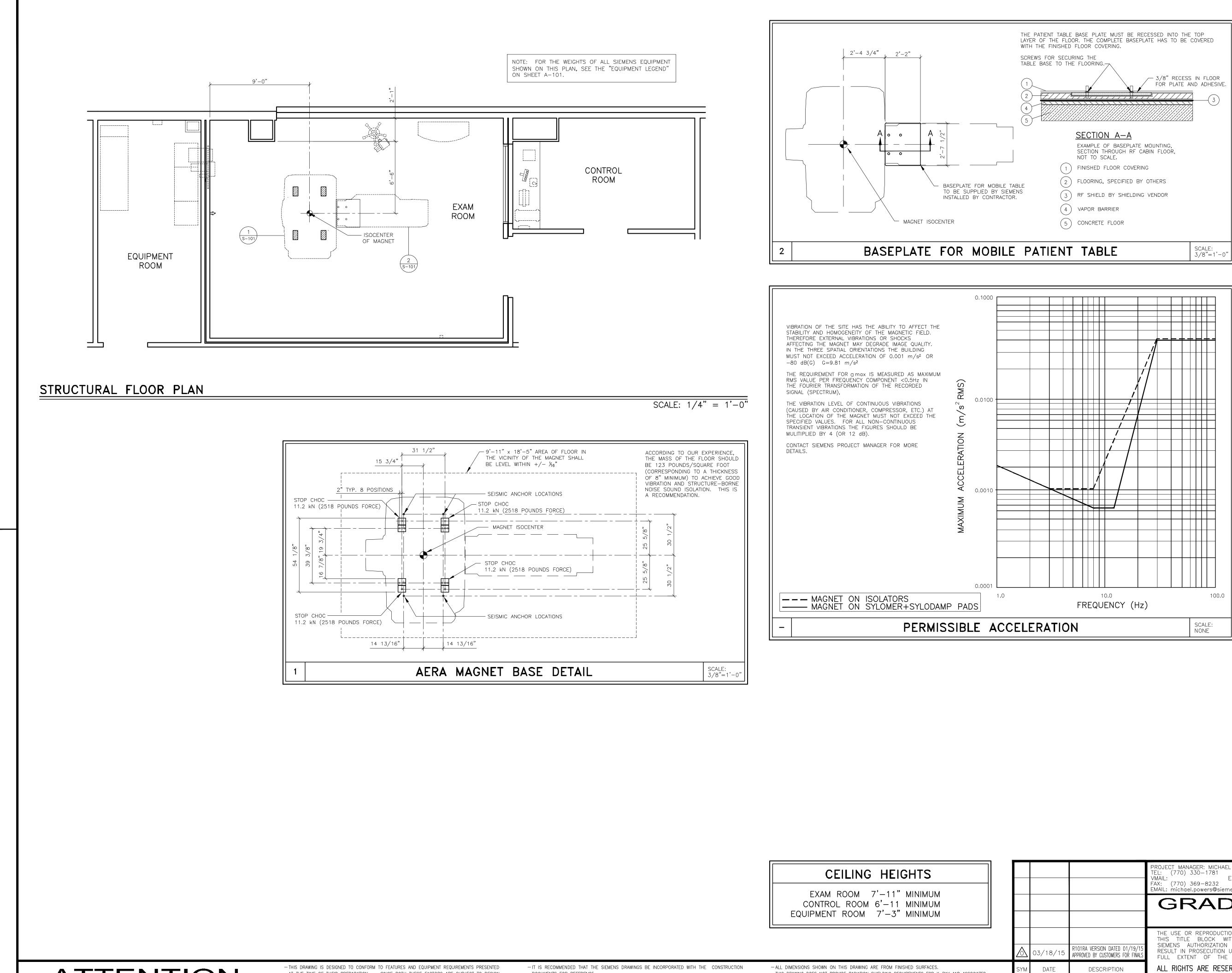
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- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.

ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES.
 THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.





AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. - THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

CEILING HEIGHTS	
EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM	

ESENTED	- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION	- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES.
DESIGN	DOCUMENTS FOR REFERENCE.	- THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED
		EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION
		PHYSICIST TO SPECIFY RADIATION PROTECTION.

## STRUCTURAL NOTES

1) THE CUSTOMER/CONTRACTOR SHALL FURNISH AND INSTALL ALL STRUCTURAL SUPPORT MEMBERS AND NEEDED HARDWARE FOR THE INSTALLATION OF THE SIEMENS EQUIPMENT.

2) THE OVERHEAD STRUCTURAL SUPPORT SYSTEM SHALL BE FIXED, RIGID AND BRACED FOR SWAY.

3) ALL STRUCTURAL SUPPORT MEMBERS SHALL BE TRUE, SQUARE, LEVEL, PARALLEL AND COPLANAR WITH RESPECT TO EACH OTHER, WITH A HORIZONTAL STRUCTURAL SUPPORT MEMBER TO BE LOCATED AND SET WITH A TRANSIT.

4) ALL STRUCTURAL SUPPORT DETAILS SHOWN ARE SAMPLE DETAILS BASED UPON TYPICAL AND STANDARD BUILDING PRACTICES AND ARE NOT INTENDED AS ACTUAL CONSTRUCTION DETAILS. ALL CONSTRUCTION DETAILS AND SUPPORT CALCULATIONS SHALL BE PREPARED BY A PROFESSIONAL STRUCTURAL ENGINEER AT THE CUSTOMER'S EXPENSE. IN THE EVENT AN EXISTING SUPPORT SYSTEM IS TO BE USED, IT WILL BE THE CUSTOMER'S RESPONSIBILITY TO VERIFY THE INTEGRITY OF THAT SYSTEM.

5) MOUNTING PLATES, FRAMES, AND HARDWARE SUPPLIED BY SIEMENS AS DETAILED IN THIS DRAWING SET ARE INSTALLED BY SIEMENS UNLESS OTHERWISE REQUIRED. ANY DEVIATION FROM THE PROVIDED MATERIALS OR MOUNTING METHODS MUST BE DESIGNED AND DOCUMENTED BY THE STRUCTURAL ENGINEER OF RECORD. ALTERNATE MOUNTING MATERIALS (I.E. ANCHORS, THREADED ROD, BACKING PLATES, ETC.) MUST BE SUPPLIED BY THE CUSTOMER/CONTRACTOR. SIEMENS MAY REQUIRE ASSISTANCE FROM THE CUSTOMER/CONTRACTOR WITH INSTALLATION WHEN UTILIZING ALTERNATE MOUNTING MATERIALS.

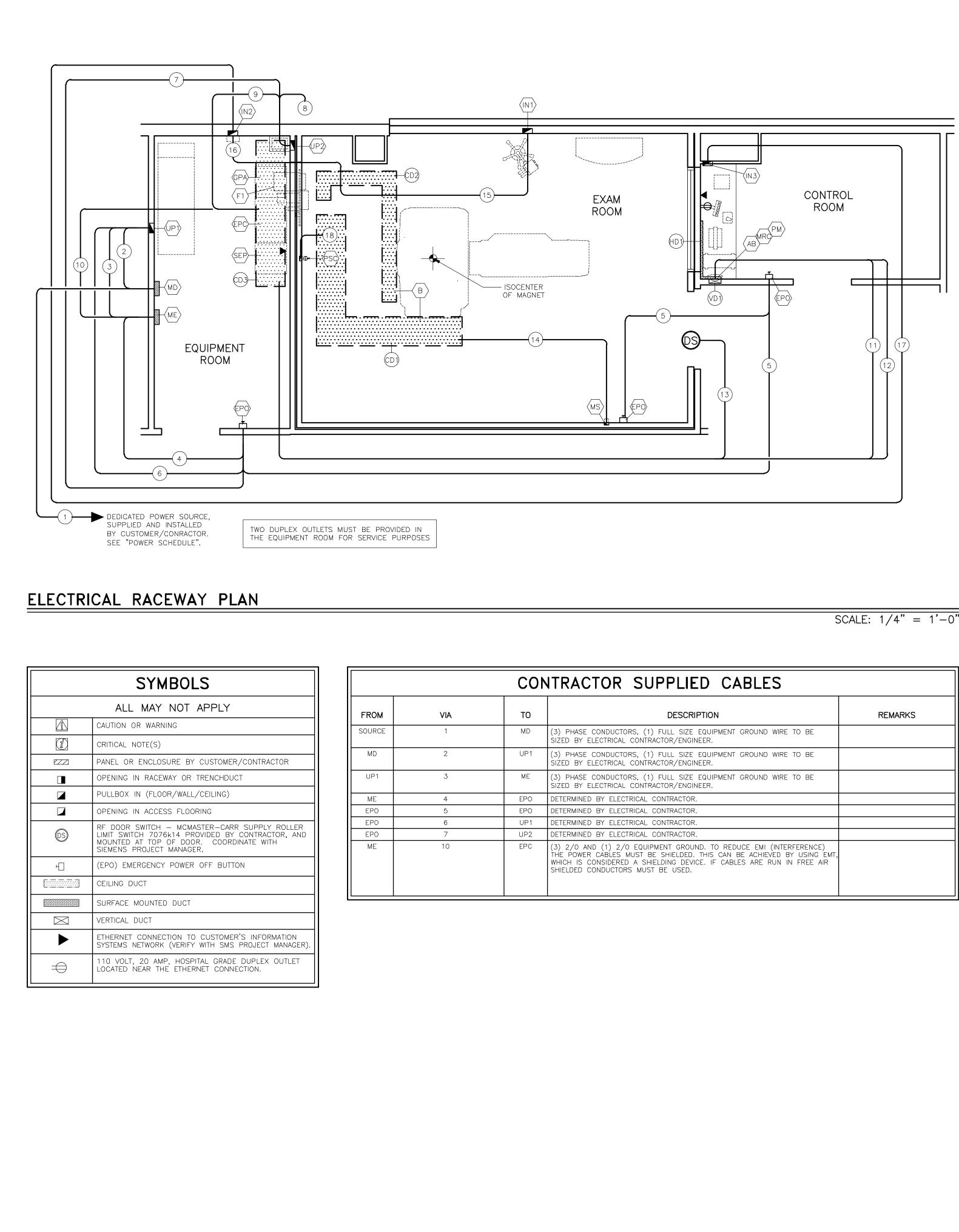
6) ALL CEILING FIXTURES (I.E. AIR SUPPLY GRILLES, AIR RETURN GRILLES, EXHAUST GRILLES, SPRINKLER HEADS, INCANDESCENT AND FLUORESCENT LIGHT FIXTURES, INTERCOM SPEAKERS, MEDICAL GAS COLUMNS, ETC.) SHALL BE INSTALLED FLUSH MOUNTED WITH THE FINISHED CEILING TO PROVIDE FREE AND UNRESTRICTED TRAVEL OF THE SMS CEILING MOUNTED EQUIPMENT.

7) THE BOTTOM SIDE OF THE UNISTRUT CEILING GRID AND ANY CEILING MOUNTED SUPPORT PLATES ARE TO BE INSTALLED FLUSH WITH THE FINISHED CEILING. THE CUSTOMER/CONTRACTOR SHALL ALSO PROVIDE COVERSTRIPS FOR THE UNISTRUT.

8) THE STRUCTURAL PLANNING AS SHOWN ON THE 1/4" STRUCTURAL PLAN HAS BEEN COORDINATED WITH THE EQUIPMENT LOCATION AS SHOWN ON THE 1/4" EQUIPMENT LAYOUT PLAN. FOR THIS REASON, ANY DEVIATIONS FROM THE STRUCTURAL PLANNING AS SHOWN MUST BE APPROVED BY SMS PLANNING DEPARTMENT.

9) THE STRUCTURAL ENGINEER OF RECORD SHALL BE RESPONSIBLE FOR THE DESIGN AND DETAIL OF FLOOR, WALL AND CEILING STRUCTURES IN ACCORDANCE WITH THE WEIGHTS, MOMENTS AND FORCES AS SHOWN ON OUR STRUCTURAL CALCULATIONS, OR INFORMATION, IN CONSIDERATION OF FORCES AS DETERMINED PER LÓCAL GOVERNING BUILDING CODES.

		TEL: (770) 330 VMAIL: FAX: (770) 369	EXT:			SIEMENS
		GR	1	HEAI 191 PEACHTREE ST., SUITE - MAGNETOM	ATLANTA, GA 30303	
03/18/15	R101RA VERSION DATED 01/19/15 APPROVED BY CUSTOMERS FOR FINALS	THIS TITLE E SIEMENS AUTH RESULT IN PROS	EPRODUCTION OF ILOCK WITHOUT ORIZATION WILL SECUTION UNDER OF THE LAW.	PROJECT #: 1500	0201	SHEET:
DATE	DESCRIPTION		RE RESERVED.	SHEET OF <b>5 10</b>	DRAWN BY: F. CARUSO	
-ISSU	E BLOCK-	SCALE: AS NOTED	<sup>REF.</sup> 1–49M1UW	DATE: 03/18/15		



- THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. - THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

OR SUPPLIED CABLES	
DESCRIPTION	REMARKS
DUCTORS, (1) FULL SIZE EQUIPMENT GROUND WIRE TO BE RICAL CONTRACTOR/ENGINEER.	
DUCTORS, (1) FULL SIZE EQUIPMENT GROUND WIRE TO BE RICAL CONTRACTOR/ENGINEER.	
DUCTORS, (1) FULL SIZE EQUIPMENT GROUND WIRE TO BE RICAL CONTRACTOR/ENGINEER.	
ELECTRICAL CONTRACTOR.	
I) 2/O EQUIPMENT GROUND. TO REDUCE EMI (INTERFERENCE) BLES MUST BE SHIELDED. THIS CAN BE ACHIEVED BY USING EMT, IDERED A SHIELDING DEVICE. IF CABLES ARE RUN IN FREE AIR UCTORS MUST BE USED.	

		ELECTRICAL LEGEND	
SYM	SIZE	DESCRIPTION	REMARKS
	- 11	SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR	
ÆB	3"ø	OPENING IN FACE OF VERTICAL DUCT 5'-0" ABOVE FINISHED FLOOR IN LOCATION TO BE COORDINATED WITH THE ARCHITECT.	ALARM BOX
(PC)(PA)(EP)	18" × 18"	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	ELECTRONICS CABINETS
 €Pŷ	AS REQUIRED	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	MAGNET CABLE ACCESS SEE POWER SCHEDULE,
		EMERGENCY POWER OFF BUTTONS, MOUNTED WITH CENTERLINE AT 5'-O" ABOVE FINISHED FLOOR. ALL PARTS ARE TO BE NONFERROUS INSIDE THE RF ROOM. EXACT LOCATIONS ARE TO BE VERIFIED WITH THE ARCHITECT OF RECORD.	SHEET E-102
	AS REQUIRED	SIEMENS RF FILTER PANEL TO BE MOUNTED ON RF SHIELDED WALL NON-FERROUS PULL BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 2'-0" ABOVE	FILTER PANEL
		FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	MUST BE LOCATED OUTSIDE OF 5mT FIELD
	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN EQUIPMENT ROOM, MOUNTED 2'-O" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR POWER SUPPLY
	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA, MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR CONTROL CONSOLI
		MAIN FUSIBLE DISCONNECT. EXACT LOCATION DETERMINED BY CUSTOMER/CONTRACTOR	SEE POWER SCHEDULE
₩E>		MAIN ENCLOSURE WITH MAIN BREAKER. EXACT LOCATION DETERMINED BY CUSTOMER/CONTRACTOR.	SEE POWER SCHEDULE
(R) PM	4" × 4"	OPENING IN FACE OF RACEWAY IN SHOWN LOCATION.	HOST COMPUTER/PATINET
(MS)	AS REQUIRED	NON FERROUS SINCLE CANC DOV NOUNTER FLUSH WITH ENVELIER WALL MOUNTER C' O" ADOVE	MONITOR
_		NON-FERROUS SINGLE GANG BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 6'-O" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	
(SC)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL REFER TO HEIGHT CHART A-501-3. THE PULL BOX CAN BE MOUNTED AT APPROXIMATELY 5'-O" ABOVE THE FINISHED FLOOR IN MOST CASES, DEPENDING ON THE DISTANCE FROM THE MAGNET TO THE WALL.	PATIENT SUPERVISION CAMER
(P)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL AT FLOOR LINE IN SHOWN LOCATION PROVIDED WITH 2"¢ OPENING IN FINISHED COVER.	POWERWARE 9130
(F)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER AND EATON INSTALLATION MANUAL IN SHOWN LOCATION PROVIDED WITH 2"Ø OPENING IN FINISHED COVER.	POWERWARE 9390
	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER, IN THE EXAM ROOM, MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE FILTER PANEL AND THE MAGNET. A 15" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE RF FILTER PANEL (F1). WHEN ROUTING ALL RACEWAYS REFER TO DETAIL E-501/2 TAKING CARE SO THAT MAXIMUM CABLE LENGTHS ARE NOT EXCEEDED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	CABLE TRAY SEE DETAIL E-501/2
(02)	12 <b>"</b> x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EXAM ROOM. A 12" SEPARATION BETWEEN CD1 AND CD2 MUST BE MAINTAINED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	CABLE TRAY SEE DETAIL E-501/2
(11)	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EQUIPMENT ROOM MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE EQUIPMENT ROOM AND THE RF FILTER PANEL (F1). AN 18" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE FILTER PANEL.	CABLE TRAY SEE DETAIL E-501/2
$(\mathbb{H})$	4" × 2"	WIREMOLD SURFACE MOUNTED ON WALL IN CONTROL AREA AT FLOOR LINE AS SHOWN, FINISHED TO MATCH WALLS.	
(101)	10" x 3-1/2"	VERTICAL DUCT MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA FROM ABOVE FINISHED	
	AS PER NEC	CEILING TO FLOOR LINE PROVIDED WITH REMOVABLE FINISHED COVERS.	SEE POWER SCHEDULE,
		CONDUIT FROM FACILITY POWER TO MAIN DISCONNECT (MD)	SHEET E-102
2	AS PER NEC	CONDUIT FROM "MD" TO "UP1"	SEE POWER SCHEDULE, Sheet e-102
3	AS PER NEC	CONDUIT FROM "UP1" TO "ME".	SEE POWER SCHEDULE, SHEET E-102
(4)	AS PER NEC	CONDUIT FROM "ME" TO "EPO".	SHELL E-102 SEE POWER SCHEDULE,
	AS PER NEC	CONDUIT FROM "EPO" TO "EPO" TO BE NON-FERROUS WHEN INSIDE THE RF ROOM.	SHEET E-102 SEE POWER SCHEDULE,
5	AS FER NEC	CUSTOMER/CONTRACTOR IS TO PROVIDE RF FILTERS FOR ALL NON-SIEMENS WIRING.	SHEET E-102
6	AS PER NEC	CONDUIT FROM "EPO" TO "UP1".	SEE POWER SCHEDULE, SHEET E-102
7	AS PER NEC	CONDUIT FROM "EPO" TO "UP2".	SEE POWER SCHEDULE, SHEET E-102
8	(1) 3/4"ø	SURFACE MOUNTED FLEX CONDUIT FROM "UP2" TO SIEMENS PROVIDED UPS/EPO CONTROL BOX,	
9	(1) 1"ø	CONDUIT FROM "UP2" TO "EPC".	MAXIMUM LENGTH 29 FEET
10	(1) 2"ø	CONDUIT FROM "ME" TO END AT "EPC" VIA FLEX CONDUIT. THERE MUST BE A DIELECTRIC	SEE POWER SCHEDULE, SHEET E-102
(1)	(2) 2 1/2 <b>"</b> ø	SEPARATION BETWEEN THE CONDUIT AND THE CONNECTION AT THE SIEMENS EPC CABINET. CONDUIT FROM "VD1" (MRC) TO "CD3" (EPC).	60' MAXIMUM CONDUIT
			LENGTH
(12)	(1) 1 1/2"ø (1) 1/2"ø	CONDUIT FROM "VD1" (AB) TO "CD3" (EPC). CONDUIT FROM "DS" TO "CD3" (EPC).	60' MAXIMUM CONDUIT LENGTH 55' MAXIMUM CONDUIT
			LENGTH
(14)	(1) 3/4"ø	CONDUIT FROM "MS" TO "CD1" (WIRES TO MAGNET) TO BE NON-FERROUS WHEN INSIDE THE RF ROOM.	LENGTH
(15)	(2) 2"ø	NON-FERROUS CONDUITS FROM NEAR "F1" TO "IN1" FOR INJECTOR CABLES.	NOT TO EXCEED 50 FEET
	(2) 2 <b>"</b> ø	CONDUITS FROM NEAR FILTER LOCATION TO "IN2".	
	(1) 1"ø	CONDUIT FROM "IN2" TO "IN3" FOR INJECTOR CABLES.	NOT TO EXCEED 200 FEET
(18)	(1) 1 <b>"</b> ø	NON-FERROUS CONDUIT FROM "PSC" TO "CD1".	

EILING HEIGHTS	



	CEILING HEIGHTS       EXAM ROOM 7'-11" MINIMUM	F			PROJECT MANAGER: MICHAEL POWERS TEL: (770) 330-1781 VMAIL: EXT: FAX: (770) 369-8232 EMAIL: michael.powers@siemens.com			SIEM	IENS
	CONTROL ROOM 7'-11 MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM					91 PEACHTREE ST.,	ATLANTA, GA 30303 AERA W/MOBILE TAB		ΓΕΜ
		$\triangle$	03/18/15	R101RA VERSION DATED 01/19/15 APPROVED BY CUSTOMERS FOR FINALS	THIS TITLE BLOCK WITHOUT	PROJECT #: 1500		SHEET:	101
- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.	<ul> <li>ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES.</li> <li>THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.</li> </ul>	SYM	DATE —ISSU	DESCRIPTION	ALL RIGHTS ARE RESERVED.          SCALE:       REF. 1#:         AS       NOTED	SHEET         OF           6         10           DATE:         03/18/15	DRAWN BY: F. CARUSO		

### ELECTRICAL NOTES

) COMPLIANCE: ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA-70), O.S.H.A. REGULATIONS, AS WELL AS APPLICABLE REGULATIONS OF CITY, COUNTY, STATE AND FEDERAL AGENCIES. PROVIDE MATERIALS AND EQUIPMENT THAT COMPLY TO ANSI, IEEE AND NEMA STANDARDS. WHERE APPLICABLE, PROVIDE ONLY MATERIALS AND PRODUCTS THAT ARE U.L. LISTED AND LABELED. CUSTOMER'S/CONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF NÉCA STANDARD OF INSTALLATION. 2) QUALITY ASSURANCE: THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN THE FIELD TO INSURE THAT THE NEW WORK WILL FIT TO THE EXISTING STRUCTURE AS SHOWN ON THE DRAWINGS. SHOULD ANY CONDITIONS EXIST OR BE DISCOVERED THAT PREVENT THE INSTALLATION OF WORK AS SHOWN, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE PRIOR TO FABRICATION OF EQUIPMENT, OR THE PERFORMANCE OF ANY WORK THAT MAY BE AFFECTED. DO NOT ALTER DRAWINGS, DIMENSIONS, OR SPECIFICATIONS IN ANY WAY WITHOUT CONTACTING AND RECEIVING WRITTEN CONFIRMATION FROM SMS PROJECT MANAGER. ALL DIMENSIONS ARE FROM FINISHED SURFACES. CONDUIT AND PULL BOXES TO BE INSTALLED BY THE CUSTOMER/CONTRACTOR WITH LOCATIONS BEING FIELD VERIFIED BY SMS PROJECT MANAGER. ) POWER SUPPLY SOURCE: POWER SUPPLIES FOR SIEMENS MEDICAL SOLUTIONS EQUIPMENT SHALL BE DEDICATED SERVICES KEPT ENTIRELY FREE AND INDEPENDENT OF ALL OTHER BUILDING WIRING AND EQUIPMENT. SUCH AS: ELEVATORS, GENERATORS, PUMPS, HVAC SYSTEMS, ETC. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE CUSTOMER/UTILITY COMPANY FIELD REPRESENTATIVE. 4) WORK FURNISHED BY CUSTOMER/CONTRACTOR: WORK NOT PROVIDED BY SIEMENS MEDICAL SOLUTIONS BUT SHOWN ON DRAWINGS TO BE FURNISHED AND INSTALLED BY CUSTOMER/CONTRACTOR INCLUDES THE FOLLOWING BUT IS NOT LIMITED TO UNLESS NOTED OTHERWISE: ELECTRICAL RACEWAYS AND DUCTS, WIRING TROUGHS, PULL BOXES, CONDUITS, CIRCUIT BREAKERS, EMERGENCY OFF BUTTONS, DOOR SWITCHES, WARNING LIGHTS, WIRING, WIRING DEVICES, CONNECTORS, LIGHTING EQUIPMENT AND GROUNDING. 5) RACEWAY AND CONDUIT NOTES: ALL ITEMS IN THE MAGNET ROOM SHALL BE NON-FERROUS. RACEWAY SHALL BE ELECTRIC METALLIC TUBING (EMT) FOR RIGID CONDUIT WORK, OR WHERE SHORT OFF-SET CONNECTIONS ARE REQUIRED LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL BE USED. FIELD BENDS SHALL NOT BE LESS THAN AS SHOWN IN TABLE 346-10 OF THE NATIONAL ELECTRICAL CODE. PROVIDE A JETLINE "SUPER TRUE TAPE", OR EQUIVALENT CONDUIT MEASURING TAPE FISH LINE IN ALL RACEWAYS AND CONDUITS.

CONDUIT BODIES SHALL NOT BE USED. WHERE A CONDUIT ENTERS A BOX, FITTING, OR OTHER ENCLOSURE, AN INSULATED THROAT CONNECTOR SHALL BE PROVIDED TO PROTECT THE WIRE FROM ABRASION. CONNECTORS SHALL BE DOUBLE SET SCREW TYPE, STEEL CONCRETE

KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES OR STEAM AND HOT WATER PIPES. INSTALL RACEWAY RUNS ABOVE WATER AND STEAM PIPES PROVIDED THAT CABLE RUN DISTANCES ARE MAINTAINED. USE TEMPORARY CLOSURES TO PREVENT FOREIGN MATTER FROM ENTERING RACEWAY.

CONDUIT RUNS ARE SHOWN SCHEMATICALLY. INSTALL CONDUIT WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE CONSIDERING THE BUILDING CONSTRUCTION AND OBSTRUCTIONS, EXCEPT AS OTHERWISE INDICATED. THE CONTRACTOR SHALL MAKE CERTAIN THAT ANY CONDUIT/RACEWAY RUNS CONTAINING SIEMENS MEDICAL SYSTEMS CABLES DO NOT EXCEED THE SPECIFIED MAXIMUM DISTANCES AS SHOWN ON THE ELECTRICAL DETAILS.

PROVIDE ENCLOSED METAL RACEWAY SYSTEM (WIRE DUCT) WHERE SHOWN ON DRAWINGS WITH DIVIDERS TO SEPARATE THE DUCT (FOR POWER AND SIEMENS MEDICAL SOLUTIONS CABLING). DIVIDERS AND CROSSOVER PIECES TO BE PROVIDED AS NECESSARY. FOR UL CERTIFIED SYSTEMS, THE CABLE TO CABLE AS WELL AS THE CIRCUIT TO CIRCUIT SEPARATION REQUIREMENT WAS EVALUATED DURING THE UL SYSTEM INVESTIGATION OF THIS EQUIPMENT. ADDITIONAL SEPARATION OF THE SYSTEM CABLE ASSEMBLIES INTO SEPARATE OR PARTITIONED RACEWAYS, UNLESS OTHERWISE NOTED, IS NOT NECESSARY TO INSURE SEPARATION OF CIRCUITS, AS THEY CAN BE IN THE SAME RACEWAY.

PROVIDE WIRE DUCT/RACEWAY WITH ACCESSIBLE REMOVABLE COVERS. LOCATIONS OF OPENINGS (I.E. ACCESS PANELS) TO BE CUT IN FIELD ARE IO BE COORDINATED WITH SIEMENS PROJECT MANAGER. ELECTRICAL PULL BOXES AND RACEWAY COVERS SHALL BE INSTALLED IN A MANNER TO ALLOW ACCESSIBILITY FOR INSTALLATION AND MAINTENANCE, CONTRACTORS MUST PROVIDE PULL STRINGS FOR ALL CONDUIT AND WIRE DUCT/RACEWAY. IN-FLOOR TRENCH DUCT AND FLUSH FLOOR BOXES SHALL BE PROVIDED WITH FULLY GASKETED REMOVABLE COVERS.

WHEN JUNCTION BOXES AND WIRE DUCT/RACEWAY ARE MOUNTED HIGHER THAN 14 FEET ABOVE FINISHED FLOOR, THE ELECTRICAL CONTRACTOR SHALL PROVIDE TWO ELECTRICIANS TO HELP THE SIEMENS INSTALL TEAM PULL SIEMENS SUPPLIED CABLES AT CUSTOMER EXPENSE. WHEN JUNCTION BOXES AND WIRE DUCT/RACEWAY ARE MOUNTED ABOVE

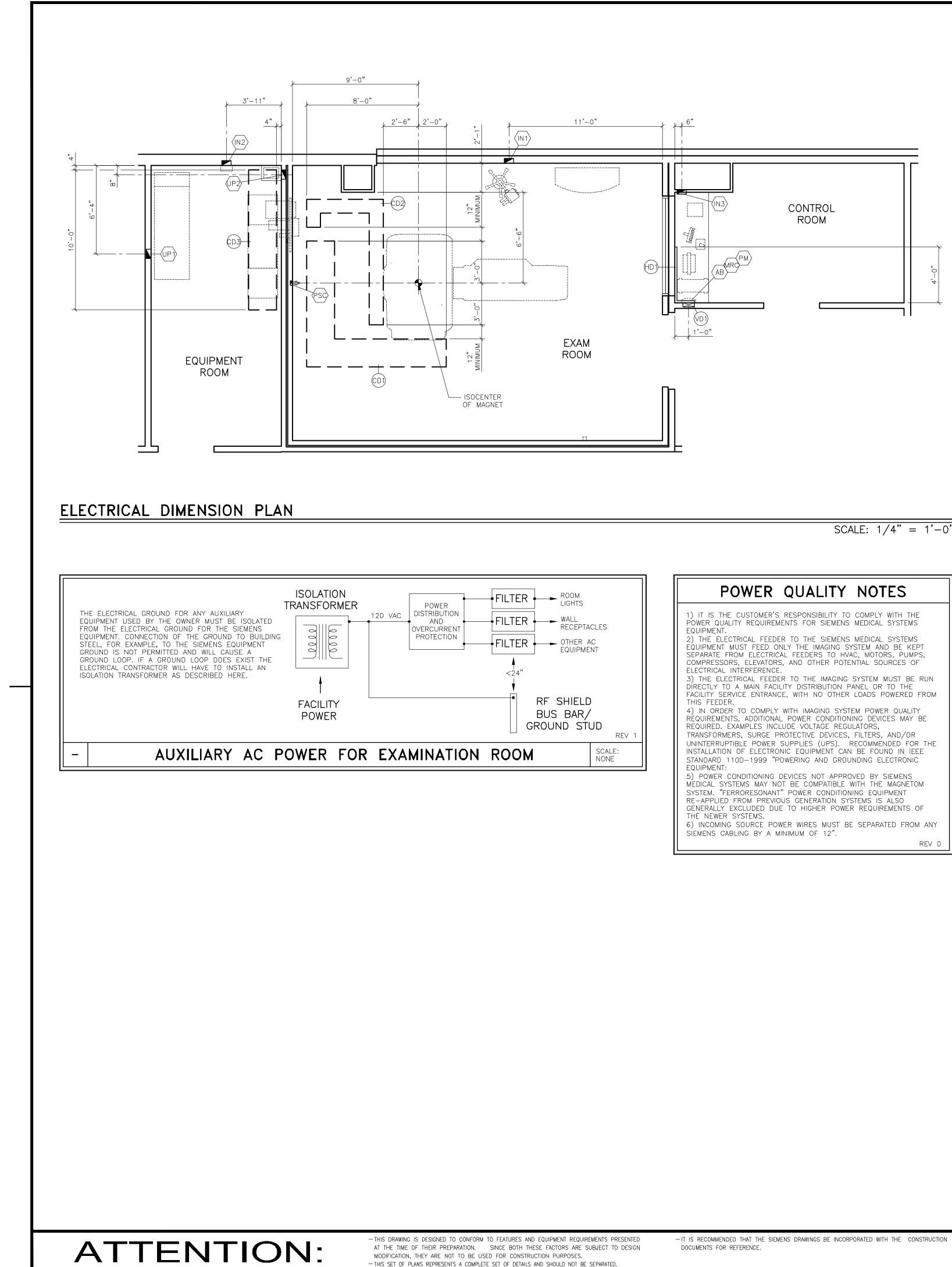
A HARD CEILING (I.E. SHEET ROCK), A 24" x 24" ACCESS PANEL IS REQUIRED AT EACH JUNCTION BOX AND WITHIN 2 FEET OF EACH 90 DEGREE ELBOW OR TEE IN WIRE DUCT/RACEWAY. THERE MUST BE FREE AND CLEAR ACCESS TO JUNCTION BOXES AND WIRE DUCT/RACEWAY. WHEN ACCESS PANELS ARE LOCATED MORE THAN 3 FEET FROM JUNCTION BOXES AND WIRE DUCT/RACEWAY THE ELECTRICAL CONTRACTOR SHALL PROVIDE TWO ELECTRICIANS TO HELP SIEMENS INSTALL TEAM PULL SIEMENS SUPPLIED CABLES

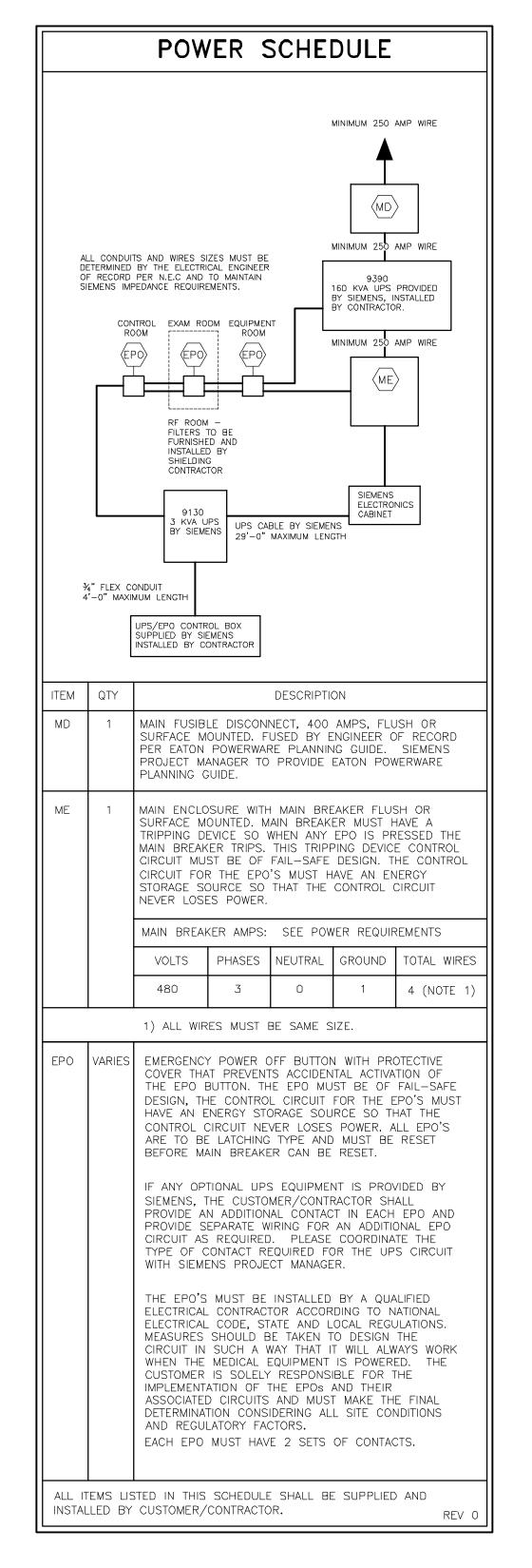
AT CUSTOMER EXPENSE. 6) WIRING: WIRING SHALL BE INSTALLED IN METAL RACEWAY, 600 VOLT CLASS, STRANDED TYPE THHN-THWN, SINGLE CONDUCTOR ANNEALED COPPER FOR A MAXIMUM OPERATING TEMPERATURE OF 75° C (165° F). SIZED AS INDICATED. THE CUSTOMER/CONTRACTOR SHALL LEAVE MINIMUM 10 FT. WIRE TAILS AT ALL OUTLET POINTS WITH WIRE IDENTIFICATION TAGGED AT BOTH ENDS FOR FINAL CONNECTION BY SIEMENS MEDICAL SOLUTIONS

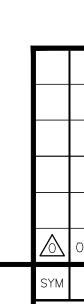
7) IN ADDITION TO THE CIRCUIT BREAKER LOAD CURRENT RATING, CONSIDERATION MUST ALSO BE GIVEN TO SELECTING CIRCUIT BREAKERS THAT HAVE A HIGH ENOUGH SHORT CIRCUIT CURRENT WITHSTAND RATING TO SAFELY COORDINATE WITH THE POWER SYSTEM AVAILABLE SHORT CIRCUIT CURRENT. GENERALLY, WHEN THE 480 VOLT, 3 PHASE, MR EQUIPMENT IS SERVED FROM A POWER SUPPLY SYSTEM THAT IS PROVIDED WITH A 500 KVA OR SMALLER TRANSFORMER, A STANDARD 14,000 RMS AMPERE WITHSTAND RATED CIRCUIT BREAKER WILL BE

ADEQUATE. HOWEVER, IF THE POWER SUPPLY SYSTEM TRANSFORMER IS LARGER THAN 500 KVA, THEN THE CIRCUIT BREAKERS HAVING A SHORT CIRCUIT WITHSTAND RATING GREATER THAN 14,000 RMS AMPERES MAY BE REQUIRED.

AERA REV 8







## **CEILING HEIGHTS**

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3" MINIMUM

— IT IS	RECOMMENDED	THAT TH	E SIEMENS	DRAWINGS	ΒE	INCORPORATED	WITH	THE	CONSTRUCTION	_	1
DOCU	MENTS FOR RE	FERENCE.								_	1
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ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

#### POWER REQUIREMENTS

VOLTAGE VARIATION:480 VAC $\pm 10\%$ FOR ALL LINE AND LOAD CONDITIONS. VOLTAGE UNBALANCE:2% MAXIMUM DIFFERENCE BETWEEN PHASES					
FREQUENCY:	60 Hz ± 1.0 Hz				
LINE IMPEDENCE:	< 95 mOHMS				
STAND BY POWER CONSUMPTION	9.0 kW				
TYPICAL POWER CONSUMPTION DURING EXAM	20.1 KW				
CONNECTION VALUE	110 kVA				
MOMENTARY POWER	114 kVA				
MR SYSTEM BREAKER SIZE	150 AMPS				
RECOMMENDED UPS EATON 9390	160 kVA				
UPS SYSTEM BREAKER SIZE	250 AMPS				
ALL BREAKERS ARE RATED AT 100%					

### POWER QUALITY

SIEMENS SPECIFICATIONS.

POOR POWER WILL ALTER EQUIPMENT PERFORMANCE IT IS IN THE CUSTOMER'S INTEREST THAT THE ELECTRICAL CONTRACTOR BE RESPONSIBLE FOR TESTING AND VERIFYING THAT THE EQUIPMENT POWER SUPPLY COMPLIES WITH THE

#### DEMAND AND CAPACITY

) IF EQUIPMENT UPGRADE IS ANTICIPATED, INSTALLING ELECTRICAL POWER TO MEET THE REQUIREMENTS OF THE HIGHER POWER GRADIENT PACKAGE AT THE TIME OF INITIAL INSTALLATION WILL REDUCE THE COST TO UPGRADE THE ELECTRICAL SYSTEM LATER.

2) RECOMMENDED TRANSFORMER SIZE (SYSTEM WITHOUT UPS) IS BASED ON INDUSTRY STANDARD ISOLATION TRANSFORMER KVA RATINGS. SOURCE IMPEDANCE FEEDING THE MAGNETOM SYSTEM, INCLUDING ANY ISOLATION TRANSFORMERS, MUST MEET EQUIPMENT REQUIREMENTS AS LISTED HERE. SIEMENS RECOMMENDS A TRANSFORMER WITH COPPER WINDINGS. AN ELECTRO-STATIC SHIELD, AND A LOW IMPEDANCE (<3%) TO ENSURE THAT SOURCE IMPEDANCE REQUIREMENTS ARE MET.

3) OVER CURRENT PROTECTION IS SPECIFIED FOR SYSTEMS WITHOUT AN UNINTERRUPTIBLE POWER SUPPLY (UPS). ADDITION OF A UPS REQUIRES A HIGHER CAPACITY MAINS CONNECTION (DEPENDENT UPON UPS MODEL AND SIZE). MAXIMUM FAULT CURRENT IS DEPENDENT UPON THE IMPEDANCE OF THE FACILITY ELECTRICAL SYSTEM. THE CUSTOMER'S ARCHITECT OR ELECTRICAL CONTRACTOR TO SPECIFY AIC RATING OF OVER CURRENT PROTECTION BASED ON FACILITY IMPEDANCE CHARACTERISTICS.

4) MOMENTARY POWER IS BASED ON A MAXIMUM RMS VALUE FOR A PERIOD NOT TO EXCEED FIVE (5) SECONDS, AS DEFINED IN NEC. 517.2. STAND-BY AND AVERAGE CURRENT ARE SUBSTANTIALLY LOWER.

HE CONDUCTOR SIZE SHOULD BE SELECTED TO MEET THE VOLTAGE DROP REQUIREMENTS, TAKING INTO CONSIDERATION THE MAINS CAPACITY, RUN LENGTH, AND ANY ADDITIONAL TRANSFORMERS USED TO OBTAIN THE PROPER EQUIPMENT VOLTAGE LEVEL. NEMA STANDARD XR-9-1989 (R1994,R2000) PROVIDES GENERAL GUIDELINES FOR SIZING CONDUCTORS, TRANSFORMERS, AND ELECTRICAL SYSTEMS FOR MEDICAL IMAGING SYSTEMS.

6) LONG-TIME POWER IS BASED ON THE HIGHEST AVERAGE RMS VALUES FOR A PERIOD EXCEEDING 5 MINUTES DURING CLINICAL SYSTEM OPERATION, AS DEFINED IN NEC 517.2.

7) A CIRCUIT BREAKER WITH A HIGH INRUSH RATING (>8x RATED CURRENT) IS REQUIRED TO PERMIT SWITCH-ON OF THE UPS SYSTEM WITHOUT SPURIOUS TRIPPING. CIRCUIT BREAKERS WITH AN ADJUSTABLE MAGNETIC TRIP (SIEMENS FD6 SERIES OR SIMILAR) ARE HIGHLY RECOMMENDED.

REV 1

CHILLER POWER	REQUIREMENTS
KKT ECO CHILLER	480 VOLTS, 3-PHASE 60 AMPS
KKT MEDIX X 60 CHILLER	480 VOLTS, 3-PHASE 75 AMPS
DIMPLEX 14 TON CHILLER	480 VOLTS, 3-PHASE 70 AMPS
DIMPLEX 20 TON CHILLER	480 VOLTS, 3-PHASE 95 AMPS
REFER TO CHILLER MANUFACTURER'S	INFORMATION

### ELECTRICAL INSTALLATION NOTES

1) INSTALL THE MR SYSTEM CIRCUIT BREAKER IN OR NEAR THE EQUIPMENT ROOM. THE PERMITTED FRINGE FIELD FOR THE PANEL IS UP TO 3mT. IF THE FRINGE FIELDS HAVE HIGHER VALUES, MAGNETIC SHIELDING MUST BE PROVIDED OR THE DISTANCE FROM THE MAGNET MUST BE INCREASED.

2) AN ACCEPTABLE MEANS FOR SWITCHING MAIN POWER ON AND OFF SHOULD BE INSTALLED IN THE MAIN BREAKER PANEL, INSTALL EMERGENCY SHUTDOWN BUTTONS IN EACH ROOM WHERE THERE IS SIEMENS EQUIPMENT.

3) THE ELECTRICAL FEEDER TO THE SIEMENS EQUIPMENT MUST FEED ONLY THE IMAGING SYSTEM AND BE KEPT SEPARATE FROM ELECTRICAL FEEDERS TO HVAC, MOTORS, PUMPS, COMPRESSORS, ELEVATORS AND OTHER POTENTIAL SOURCES OF ELECTRICAL INTERFERENCE.

4) THE EMERGENCY POWER OFF (EPO) BUTTONS ARE TO BE MUSHROOM TYPE WITH PUSH LOCK AND PULL TO RELEASE.

5) WALL RECEPTACLES MADE OF FERROMAGNETIC MATERIALS ARE NOT PERMITTED IN THE EXAM ROOM. PERIPHERAL UNITS (SUCH AS VENTILATORS) NOT APPROVED FOR USE IN A HIGH MAGNETIC FIELD ENVIRONMENT CAN INFLUENCE THE MAGNETIC FIELD, COMPROMISING IMAGE QUALITY. THE CUSTOMER IS RESPONSIBLE FOR INSTALLATION AND USE OF RECEPTACLES IN THE EXAM ROOM. INSTALLATION OF RECEPTACLES AND THE FILTERS REQUIRED ARE TO BE COORDINATED WITH THE RF SHIELDING SUPPLIER.

6) THE RF SHIELD MUST BE FITTED WITH A GROUND STUD OR BUS BAR, LOCATED WITHIN 24" OF THE AUXILIARY FILTERS FOR ROOM LIGHTS AND OUTLETS, SUPPLIED AND INSTALLED BY THE RF SHIELD SUPPLIER.

7) IN ORDER TO PREVENT GROUND LOOPS, ALL CUSTOMER OR CUSTOMER/CONTRACTOR SUPPLIED AC POWER ENTERING THE EXAMINATION ROOM (I.E. OUTLETS, EPO, ETC.) SHOULD BE SUPPLIED VIA AN ISOLATION TRANSFORMER. THE ISOLATION TRANSFORMER SECONDARY WINDING GROUND CONDUCTOR SHOULD BE CONNECTED TO THE RF SHIELD GROUND STUD OR BUS BAR. SEE NOTE 6 ABOVE AND THE AUXILIARY AC POWER FOR EXAMINATION ROOM DETAIL.

REV C

## **GROUNDING NOTES**

EQUIPMENT GROUND CONDUCTOR TO COMPLY WITH THE FOLLOWING:

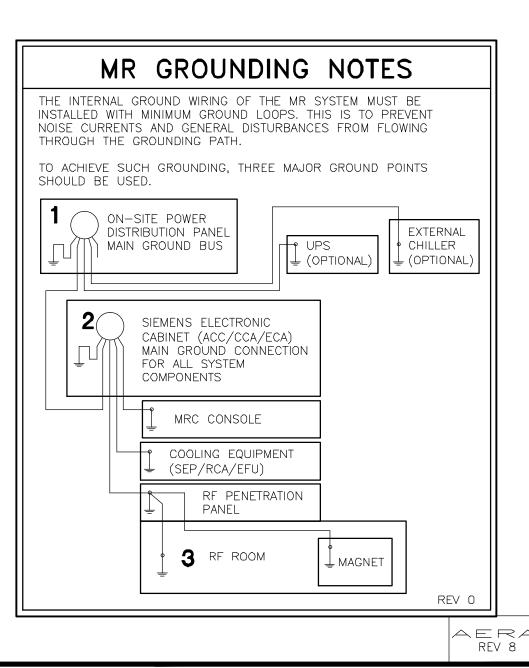
1) SIZED EQUIVALENT TO THE PHASE CONDUCTORS (FULL SIZED GROUND).

2) DERIVED FROM THE ELECTRICAL SERVICE, TRANSFORMER OR MAIN DISTRIBUTION PANEL FEEDING THE SIEMENS EQUIPMENT

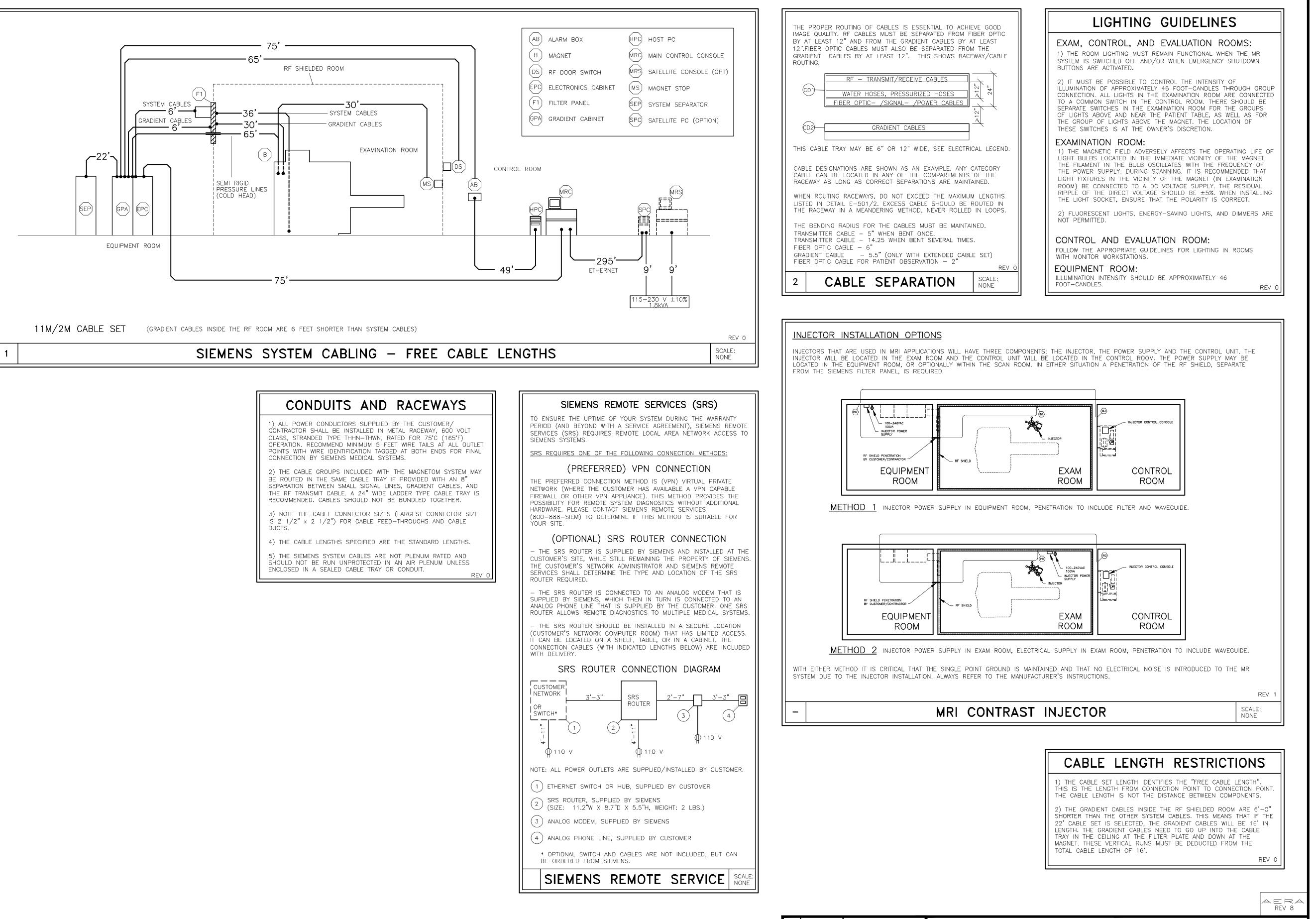
3) RUN IN THE SAME CONDUIT, TROUGH OR RACEWAY AS THE PHASE CONDUCTORS. 4) CONTINUOUS, WITH NO BREAKS OR USE OF CONDUIT,

CHASSIS OR EARTH AS THE SOLE GROUNDING PATH. 5) BONDED TO CHASSIS AND/OR CONDUIT IN ACCORDANCE WITH THE NEC REQUIREMENTS. 6) MINIMIZE CONNECTIONS OR TERMINALS TO ENSURE

CONTINUITY OVER THE LIFE OF THE INSTALLATION. 7) AS A NORM, THERE SHOULD NOT BE ANY CURRENT PRESENCE ON THE GROUND CONDUCTOR, BUT IT IS ACCEPTABLE TO HAVE <<u>500mA</u> DURING OPERATION OF THE IMAGING EQUIPMENT.



ROJECT MANAGER: MICHAEL POWERS **SIEMENS** (770) 330-1781 EXT: VMAIL FAX: (770) 369-8232 EMAIL: michael.powers@siemens.com GRADY HEALTH SYSTEM 191 PEACHTREE ST., ATLANTA, GA 30303 MRI SUITE - MAGNETOM AERA W/MOBILE TABLE THE USE OR REPRODUCTION OF PROJECT #: THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL 1500201 R101RA VERSION DATED 01/19 RESULT IN PROSECUTION UNDER 3/18/15 APPROVED BY CUSTOMERS FOR FIN FULL EXTENT OF THE LAW. )RAWN BY ALL RIGHTS ARE RESERVED. DATE DESCRIPTION 10 F. CARUSO REF. 1<sup>#:</sup> 1—49M1UW -ISSUE BLOCK-AS NOTED 03/18/15

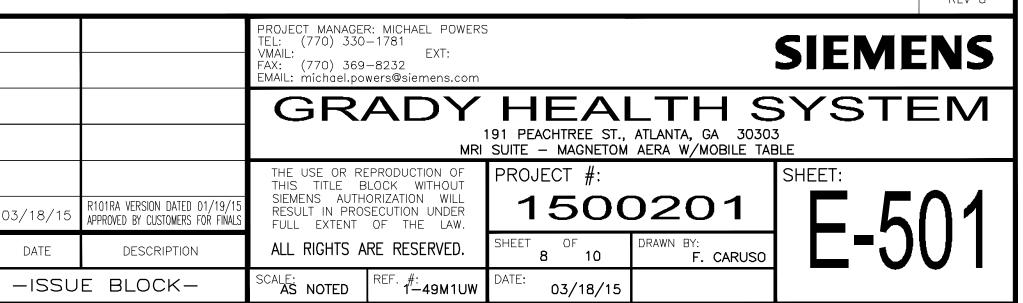


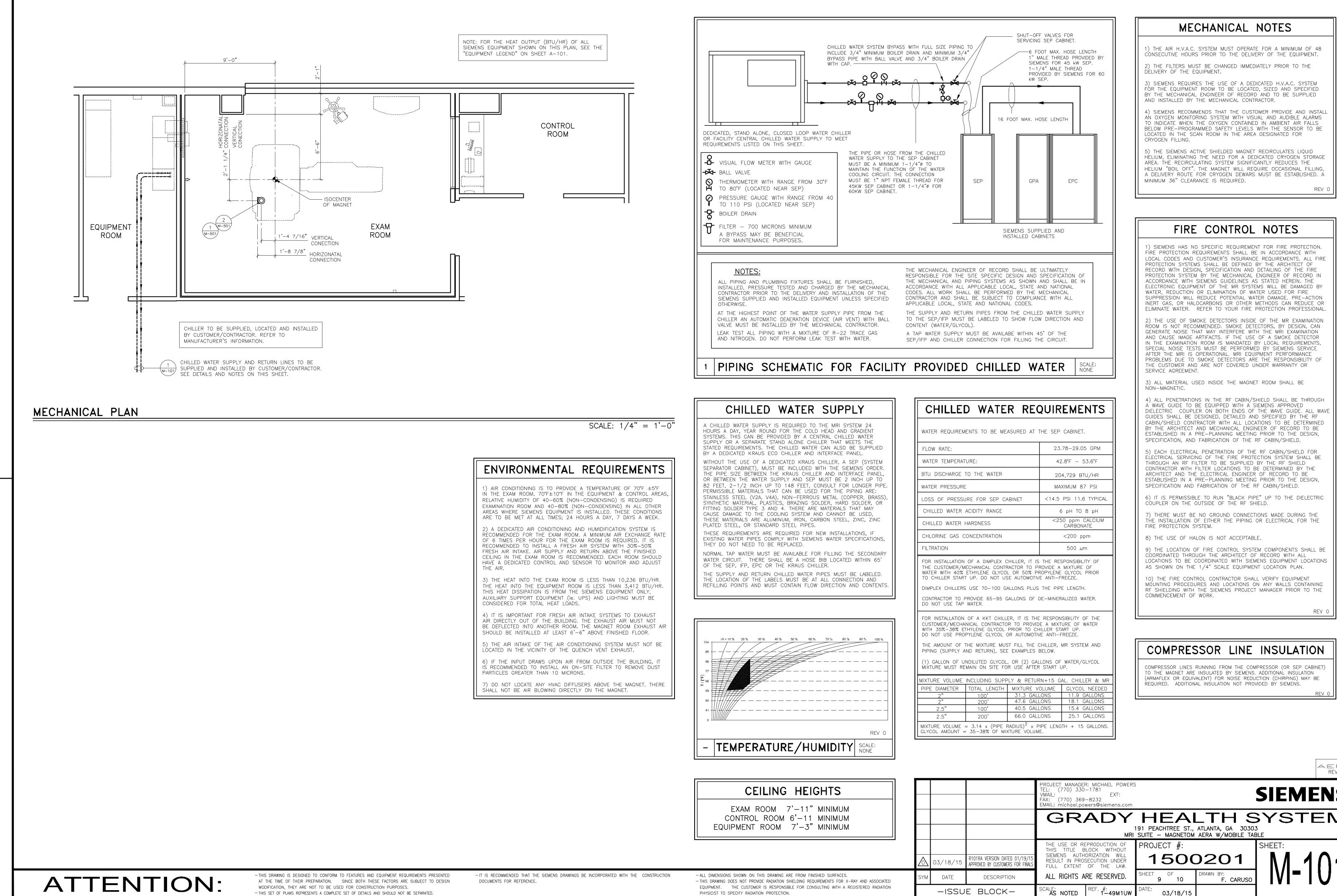
- THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. - THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

$\bigtriangleup$	C
SYM	

- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

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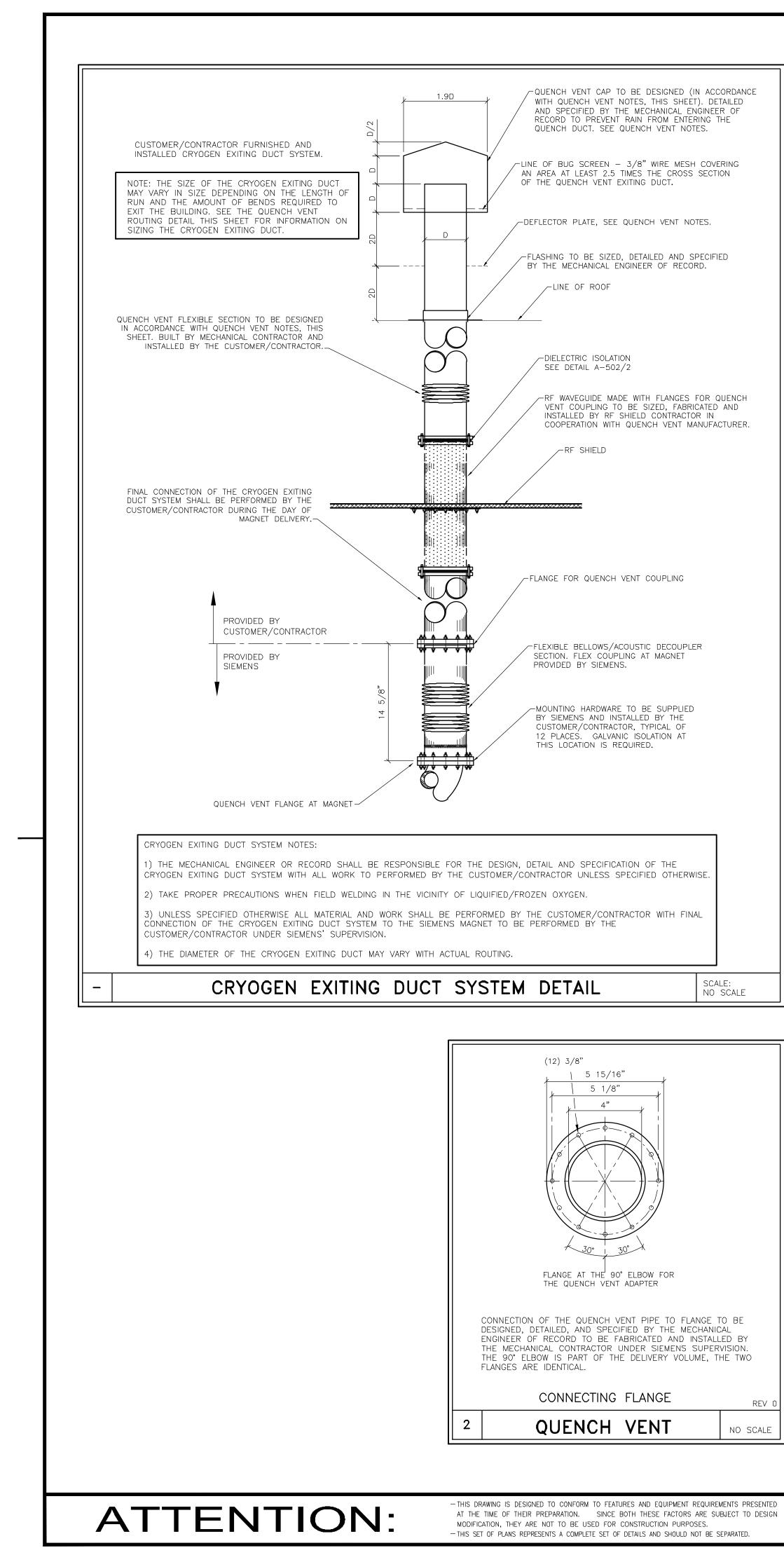


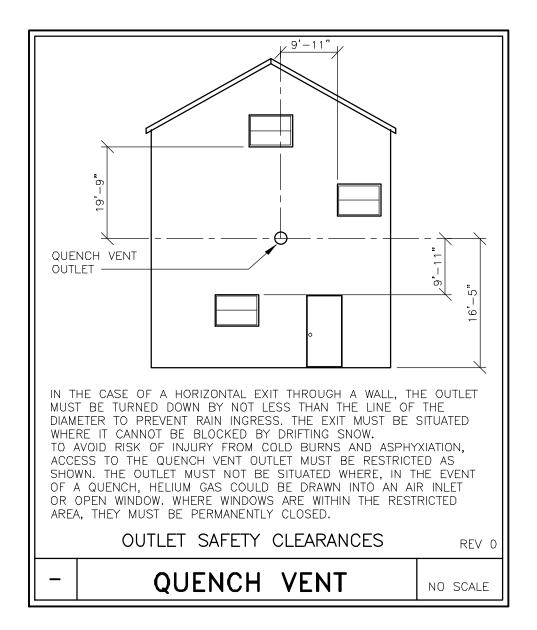


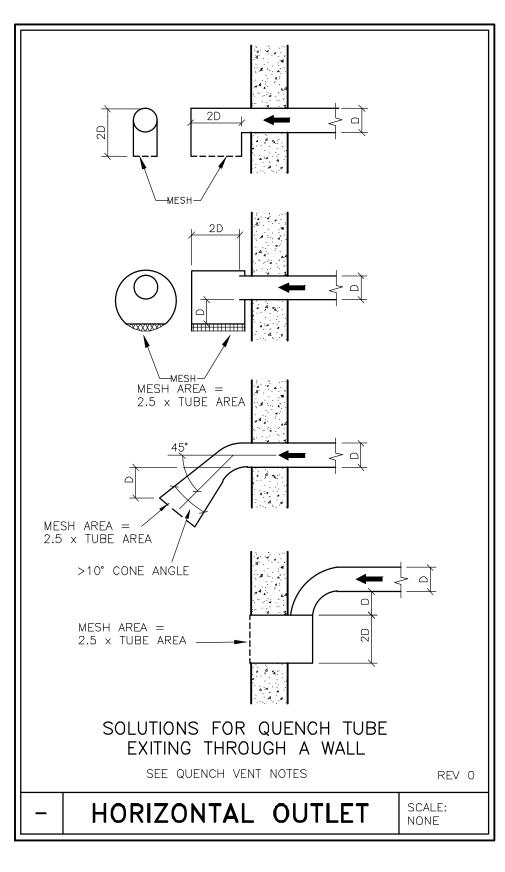
- IT IS RECOMMENDED THAT 1	THE SIEMENS	DRAWINGS BE	INCORPORATED	WITH THE	CONSTRUCTION	
DOCUMENTS FOR REFERENC	C					
DOCUMENTS FOR REFERENC	L.					

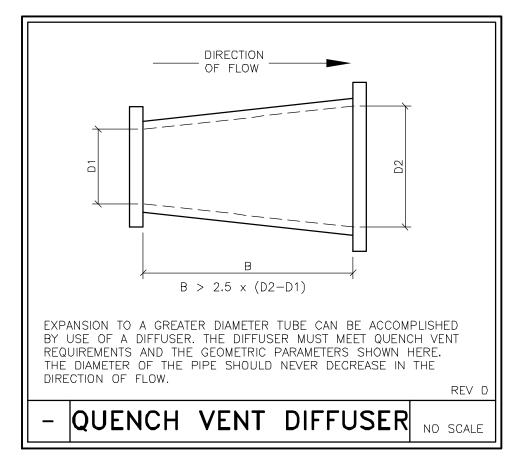
PHYSICIST TO SPECIFY RADIATION PROTECTION.

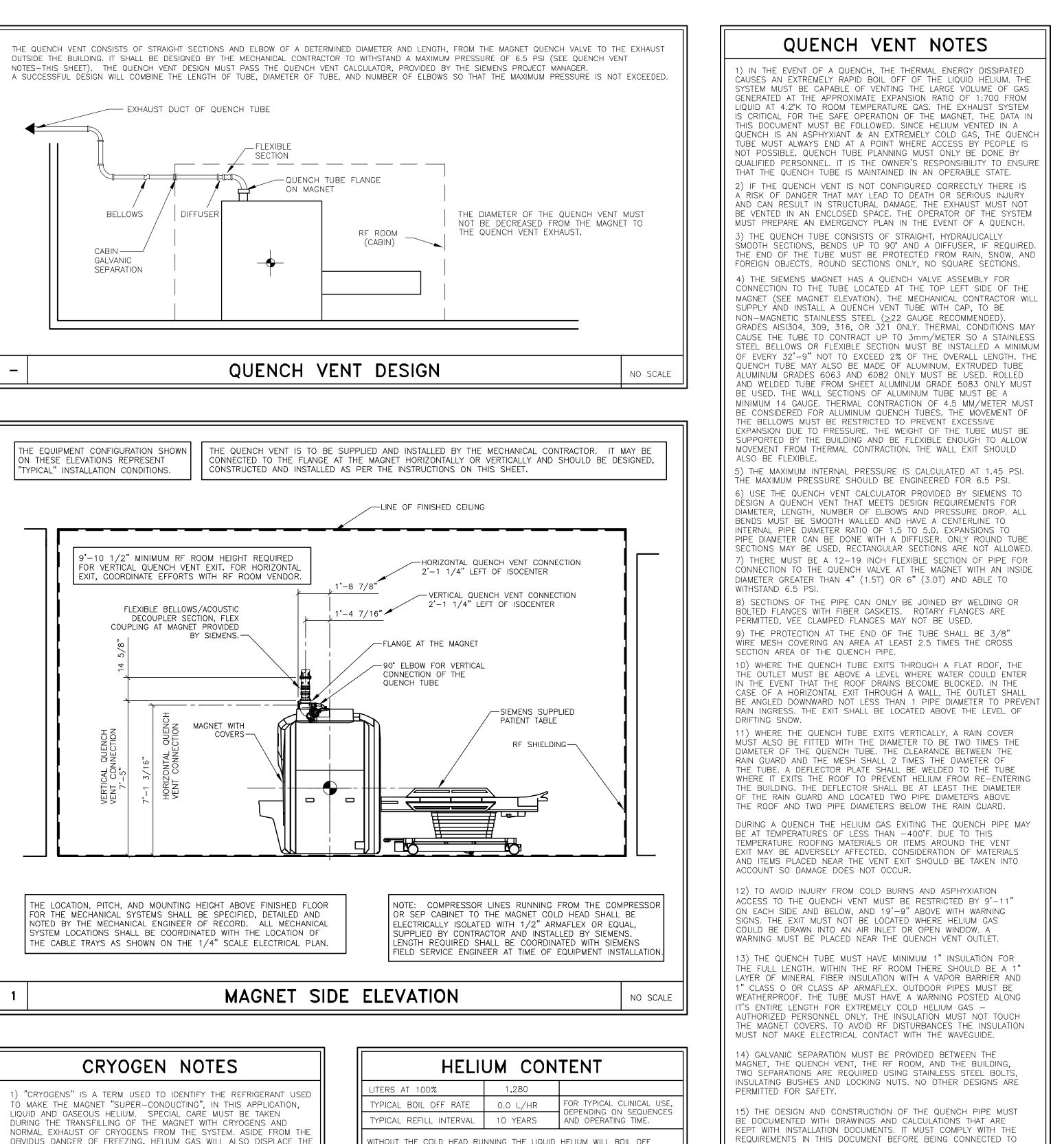
		Ň
	COMPRESSOR LINE INSULATION	
MR ED	COMPRESSOR LINES RUNNING FROM THE COMPRESSOR (OR SEP CABINET) TO THE MAGNET ARE INSULATED BY SIEMENS. ADDITIONAL INSULATION (ARMAFLEX OR EQUIVALENT) FOR NOISE REDUCTION (CHIRPING) MAY BE REQUIRED. ADDITIONAL INSULATION NOT PROVIDED BY SIEMENS. REV 0	
ED S S IS		
NS.		
	AERA REV 8	
HAEL POWERS EXT: siemens.com	SIEMENS	
	HEALTH SYSTEM 191 PEACHTREE ST., ATLANTA, GA 30303 SUITE – MAGNETOM AERA W/MOBILE TABLE	Ш
JCTION OF WITHOUT ION WILL ON UNDER THE LAW.	PROJECT #: SHEET: 1500201	
ESERVED.	SHEET OF DRAWN BY: 9 10 F. CARUSO	
1 <sup>#:</sup> 1—49M1UW	03/18/15	▋┕┷







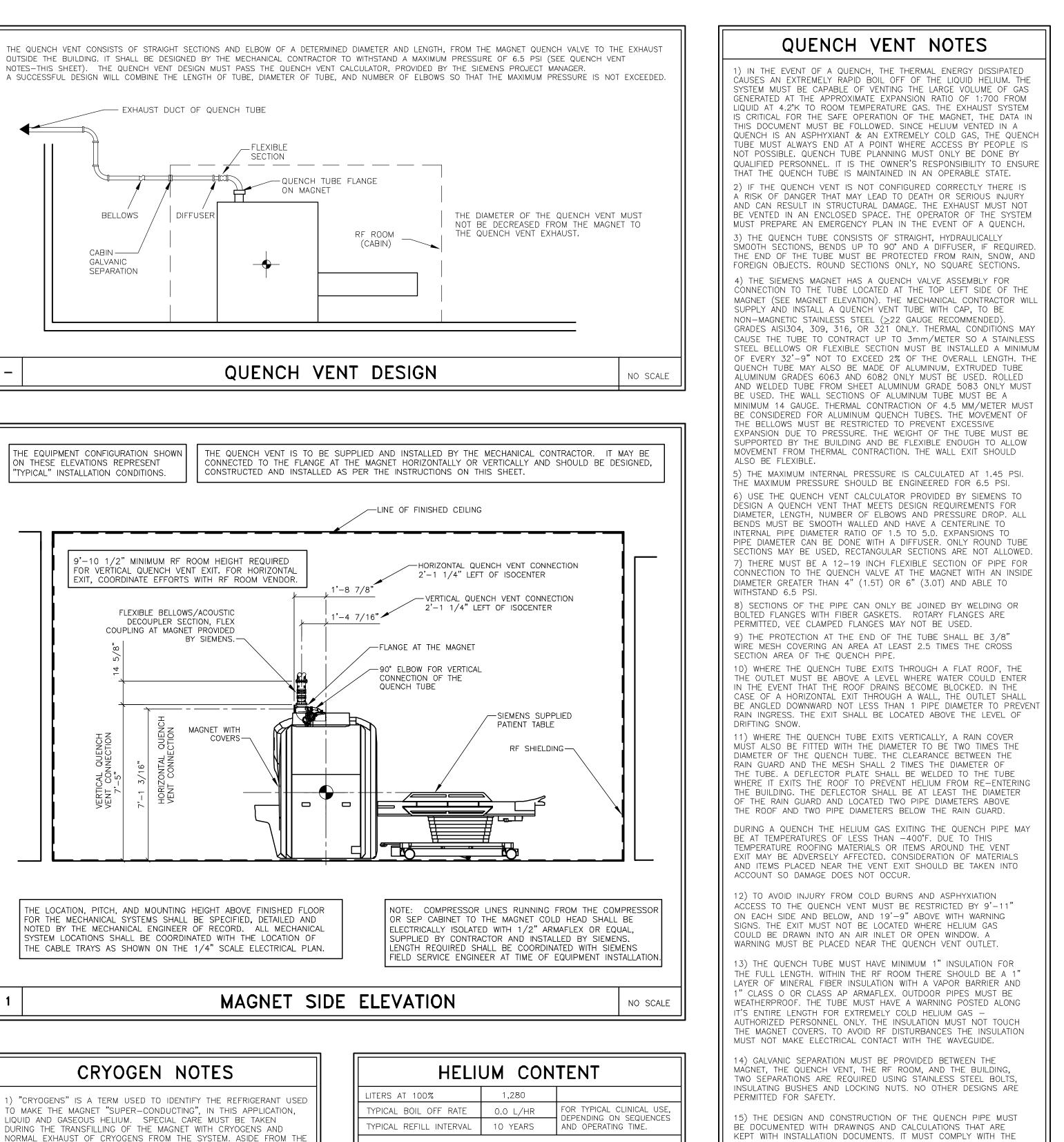


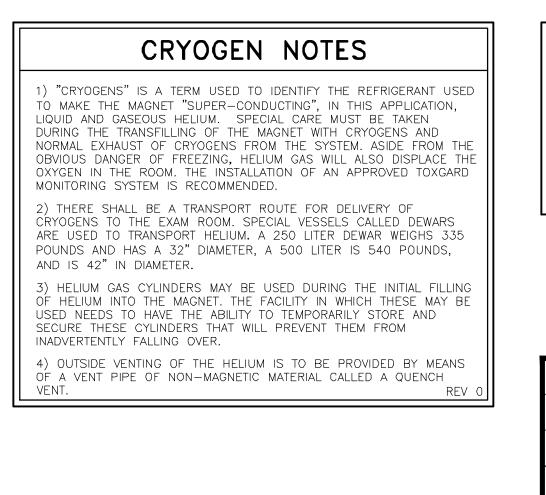


WITHOUT THE COLD HEAD RUNNING THE LIQUID HELIUM WILL BOIL OFF

THE LOSS DURING SHIPPING IS APPROXIMATELY 3.3% PER DAY.

FROM 97% TO 0% IN APPROXIMATELY 30 DAYS.



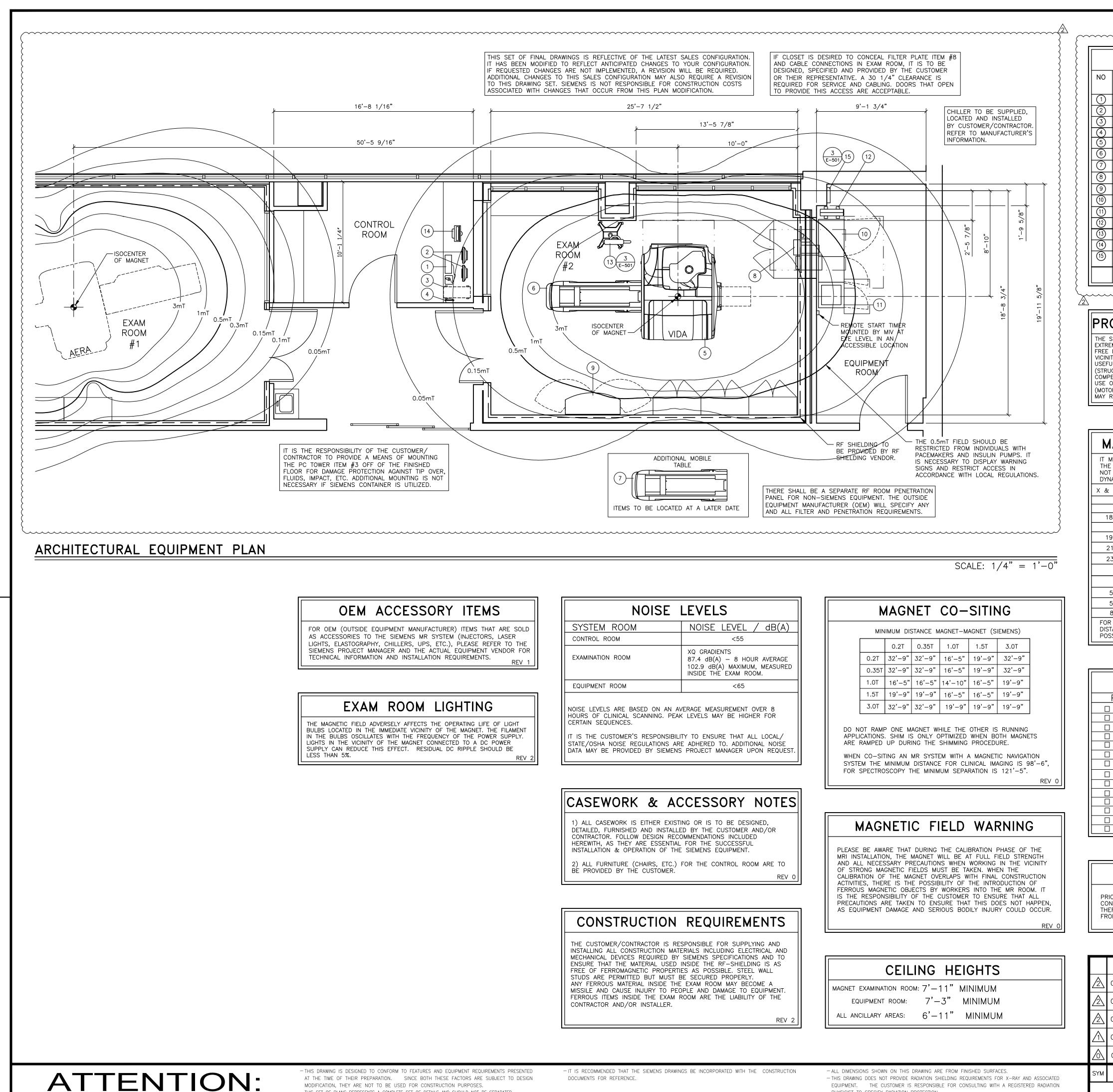


-ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

REV 2

								AERA REV 8
			TEL: (770) 330 VMAIL: FAX: (770) 369	EXT:	5			SIEMENS
			GR	1	191 PEAC	HTREE ST.,	ATLANTA, GA 30303 AERA W/MOBILE TAE	
7	03/18/15	R101RA VERSION DATED 01/19/15 APPROVED BY CUSTOMERS FOR FINALS	THIS TITLE B SIEMENS AUTH RESULT IN PROS	PRODUCTION OF LOCK WITHOUT ORIZATION WILL SECUTION UNDER OF THE LAW.	PROJE		0201	SHEET:
1	DATE	DESCRIPTION	ALL RIGHTS A	RE RESERVED.	SHEET	OF 10	DRAWN BY: F. CARUSO	
	-ISSU	E BLOCK-	SCALE: AS NOTED	<sup>REF.</sup> <b>1–49M1UW</b>	DATE:	03/18/15		

THE MAGNET.



MINIMUM DISTANCE MAGNET-MAGNET (SIEMENS)						
	0.2T	0.35T	1.0T	1.5T	3.0T	
0.2T	32'-9"	32'-9"	16'-5"	19'-9"	32' <b>-</b> 9"	
0.35T	32'-9"	32'-9"	16'-5"	19'-9"	32'-9"	
1.0T	16'-5"	16'-5"	14'-10"	16'-5"	19'–9"	
1.5T	19'-9"	19'-9"	16'-5"	16'-5"	19'-9"	
3.0T	32'-9"	32'-9"	19'-9"	19'-9"	19'-9"	

	CEILI	NG HI	EIGHTS	
MAGNET EXAMII	NATION ROOM:	7'-11"	MINIMUM	
EQUIPME	NT ROOM:	7'-3"	MINIMUM	
ALL ANCILLAR	Y AREAS:	6 <b>'</b> -11"	MINIMUM	

-IT IS	RECON	IMENDED	THAT	THE	SIEMENS	DRAWINGS	ΒE	INCORPORATED	V
DOCL	IMENTS	FOR RE	FEREN	CE.					

- THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES.

- THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

E	QUIPI	MENT	LEGE	ND			
DESCRIPTION	SMS	WEIGHT	BTU/HR	BTU/HR DIMEN		CHES)	REMARKS
	SYM	(LBS)	TO AIR	W	D	Н	
MRC KEYBOARD	$\Box$	5		27 1/4	10 1/8	1 3/4	ON CUSTOMER'S COUNTER
COLOR MONITOR FOR MRC	$\Theta$	22	239	18 5/16	16 15/16	4 3/4	ON CUSTOMER'S COUNTER
HOST PC MRC	(RC)	49	2,390	11	27	18 1/8	BELOW COUNTER TOP
ALARM BOX	AB	2		9	4	9	WALL MOUNTED
VIDA MAGNET IN OPERATION	B	16,204	9,383	96 1/2	80 5/8	89	
PATIENT TABLE (MOBILE)	$\ominus$	529		29 1/2	97 1/4	21-41	
ADDITIONAL PATIENT TABLE (MOBILE)	$\Box$	529		29 1/2	97 1/4	21-41	
RF-FILTER PLATE (HORIZONTAL)	(F1)	287	853	46 1/2	35 1/8	21 5/8	WALL MOUNTED
SURFACE COIL CART	600	110		55 1/8	21 1/8	47 5/8	WEIGHT WITHOUT COILS
GPA/EPC ELECTRONICS CABINET (XQ GRADIENTS)	(PC)	3,307	<3,412	61 1/2	26	77 1/2	
SEP CABINET	(P)	701	<3,412	25 5/8	25 5/8	73 5/8	
LIEBERT GXT4 UPS WITH BATTERY	(PS)	164	1,121	17	23 5/8	6 3/4	
MRXPERION INJECTOR STAND AND HEAD	(R)	94		23 3/8	28 3/8	71 7/8	INJECTOR ON STAND
MRXPERION ICBC INJECTOR CRU	(RD)	17.6		15 3/4	10 1/4	13 1/2	ON CUSTOMERS COUNTER
MRXPERION ICBC INJECTOR POWER SUPPLY	(RP)	6		15 3/8	3 3/8	15 1/2	LOCATED IN EXAM ROOM OUTSIDE 5mT FIELD

### PROTECTING THE MAGNETIC FIELD

THE SIEMENS MR SYSTEM UTILIZES A SUPERCONDUCTIVE MAGNET WITH AN EXTREMELY HOMOGENOUS FIELD WITHIN THE MAGNET TO PROVIDE DISTORTION FREE IMAGING. THE PRESENCE OF FERROMAGNETIC MATERIAL WITHIN THE VICINITY OF THE MAGNET CAN ADVERSELY AFFECT THE UNIFORMITY OF THE USEFUL MAGNETIC FIELD. THIS APPLIES TO STATIONARY FERROUS MATERIAL (STRUCTURAL STEEL) WHICH IS TO BE MINIMIZED. STATIONARY STEEL COMPENSATION MAY BE ACHIEVED BY MAGNET POSITIONING AND SELECTIVE USE OF SHIMS. DISTORTION CAUSED BY MOVING FERROMAGNETIC OBJECTS (MOTOR VEHICLES, ELEVATORS) IS MORE DIFFICULT TO COMPENSATE AND

MAY REQUIRE THE USE OF MAGNETIC SHIELDING. RFV

## PROTECTING THE ENVIRONMENT

PROTECTING THE IMMEDIATE ENVIRONMENT FROM THE EFFECT OF THE MAGNETIC FIELD REQUIRES CONSIDERATION. INFORMATION STORED ON MAGNETIC DATA CARRIERS SUCH AS DISCS, TAPES AND CARDS MAY BE ERASED IF NEAR THE MAGNET. CAUTION WITH REGARD TO HEART PACEMAKERS MUST BE EXERCISED. MOST PACEMAKER UNITS EMPLOY A REED RELAY WHICH MAY CHANGE OPERATING MODE WHEN EXPOSED TO AN EXTERNAL MAGNETIC FIELD. PACEMAKER USERS MUST BE KEPT AT A SPECIFIED DISTANCE FROM THE MAGNET WHICH IS DETERMINED BY HE MAGNET FIELD STRENGTH.

MAGNI	ET SI	TING REQUIREMENTS						
IT MUST BE ENSURED THAT THE MAGNET IS LOCATED SO THAT THE STABILITY AND HOMOGENEITY OF THE MAGNETIC FIELD ARE NOT ADVERSELY AFFECTED BY EXTRANEOUS FIELDS AND STATIC OR DYNAMIC FERROMAGNETIC OBJECTS.								
X & Y AXES	Z AXIS	SOURCE OF INTERFERENCE						
4'-4		FLOOR STEEL REINFORCEMENT<20 LBS./ FT2						
4'-4		IRON BEAMS < 67 LBS./FT.						
18'-1"	21'-4"	MOVING METAL UP TO 110 LBS.						
13 <b>'</b> —'	1"	WATER COOLING UNIT (CHILLER)						
19'-9"	23'-0"	MOVING METAL UP TO 440 LBS.						
21'-4"	26'-3"	MOVING METAL UP TO 2,000 LBS.						
23'-0"	31'-2"	ELEVATORS, TRUCKS UP TO 10,000 LBS.						
13'—	2"	AC TRANSFORMERS UP TO 650 KVA						
16'—	5"	AC TRANSFORMERS UP TO 1600 KVA						
5'-0"	5'-0"	AC CABLES, MOTORS LESS THAN 100 AMPS						
5'-0"	5'-0"	AC CABLES, MOTORS LESS THAN 250 AMPS						
8'-3"	8'-3"	AC CABLES, MOTORS LESS THAN 1000 AMPS						
FOR IRON OBJECTS LOCATED UP TO 45° FROM THE Z AXIS, THE DISTANCES FOR THE Z AXIS MUST BE USED. REDUCTION IS POSSIBLE WITH STEEL SHIELDING.								

	MAG	NETIC	C FRINGE FIELDS				
MAGNETIC FIELDS MAY AFFECT THE FUNCTION OF DEVICES IN THE VICINITY OF THE MAGNET. THESE DEVICES MUST BE OUTSIDE CERTAIN MAGNETIC FIELDS. THE DISTANCES LISTED ARE FROM THE MAGNET ISOCENTER AND DO NOT CONSIDER ANY MAGNETIC ROOM SHIELDING.							
FIELD	X & Y	Z AXIS	DEVICES				
3.0mT	7'–2"	10'-8"	SMALL MOTORS, WATCHES, CAMERAS, CREDIT CARDS, MAGNETIC DATA CARRIERS.				
1.0mT	8'-1"	13'-4"	COMPUTERS, MAGNETIC DISK DRIVES, OSCILLOSCOPES, PROCESSORS				
0.5mT	8'-7"	15'-2"	CARDIAC PACEMAKERS, X—RAY TUBES, INSULIN PUMPS, B/W MONITORS, MAGNETIC DATA CARRIERS (LONG—TERM STORAGE)				
0.2mT	10'-3"	18'-9"	SIEMENS CT SCANNERS				
0.15mT	11'-0"	20'-1"	CRT MONITORS, SIEMENS LINEAR ACCELERATORS				
0.05mT	15'-9"	26'-7"	X-RAY IMAGE INTENSIFIERS, GAMMA CAMERAS, PET/CYCLOTRON, ELECTRON MICROSCOPES, LINEAR ACCELERATORS				
			VERIFY THE LOCATION OF THE 0.5mT FIELD MAINTAINED AS A RESTRICTED AREA.				

	PROJECT MILESTONES								
PF	PROJECT MILESTONES TO BE COMPLETED BEFORE EQUIPMENT DELIVERY REFERENCE SHEET								
	DELIVERY PATH VERIFIED, COORDINATED DELIVERY PATH CLOSE UP PRIOR TO CALIBRATION	A-102							
	COORDINATE RF ROOM CONSTRUCTION/ROOM FINISH PRIOR TO CALIBRATION	A-102							
	FLOOR LEVEL MEETS SIEMENS SPECIFICATIONS AND ALL BASEPLATES INSTALLED	S-101							
	RF ROOM TEST COMPLETED AND MEETS SIEMENS SPECIFICATIONS	A-502							
	ALL RACEWAY, CONDUITS AND JUNCTION BOXES INSTALLED	E-101							
	ALL PLUMBING INSTALLED AND TESTED	M-101							
	POWER DISTRIBUTION COMPLETED PER SYSTEM REQUIREMENTS	E-102							
	ALL EPO BUTTONS INSTALLED AND TESTED	E-101							
	MR COMPATIBLE LIGHTING AND CEILING GRIDS INSTALLED IN MAGNET ROOM	A-101							
	CONTROL ROOM COMPLETED ENOUGH TO FACILITATE THE INSTALLATION	A-101							
	CHILLED WATER SUPPLY AVAILABLE AND MEETS SIEMENS SPECIFICATIONS	M-101							
	HVAC SYSTEM COMPLETE, TESTED AND WORKING PER SIEMENS SPECIFICATIONS	M-101							
	QUENCH PIPE CONSTRUCTED AND INSTALLED PER SIEMENS SPECIFICATIONS	M-501							
	ETHERNET CONNECTION INSTALLED AND IN OPERATION AT THE SHOWN LOCATIONS	E-101							

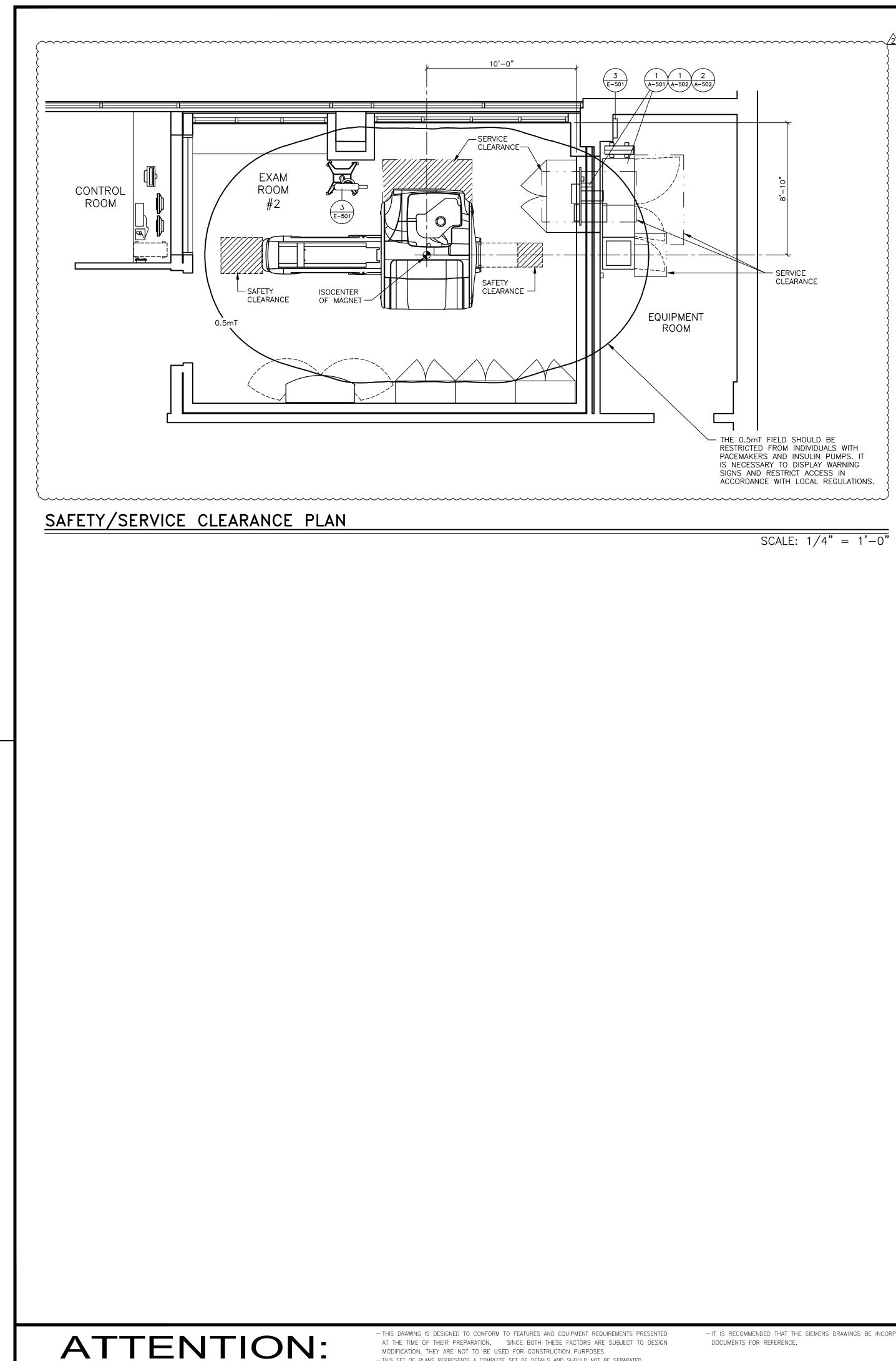
## STATE AGENCY REVIEW

PRIOR TO SIEMENS EQUIPMENT INSTALLATION, APPROVAL OF CONSTRUCTION OR STRUCTURAL MODIFICATIONS FOR DIAGNOSTIC OR THERAPEUTIC PURPOSES, MUST BE OBTAINED BY THE CUSTOMER FROM THE APPROPRIATE STATE AGENCY, IF APPLICABLE.

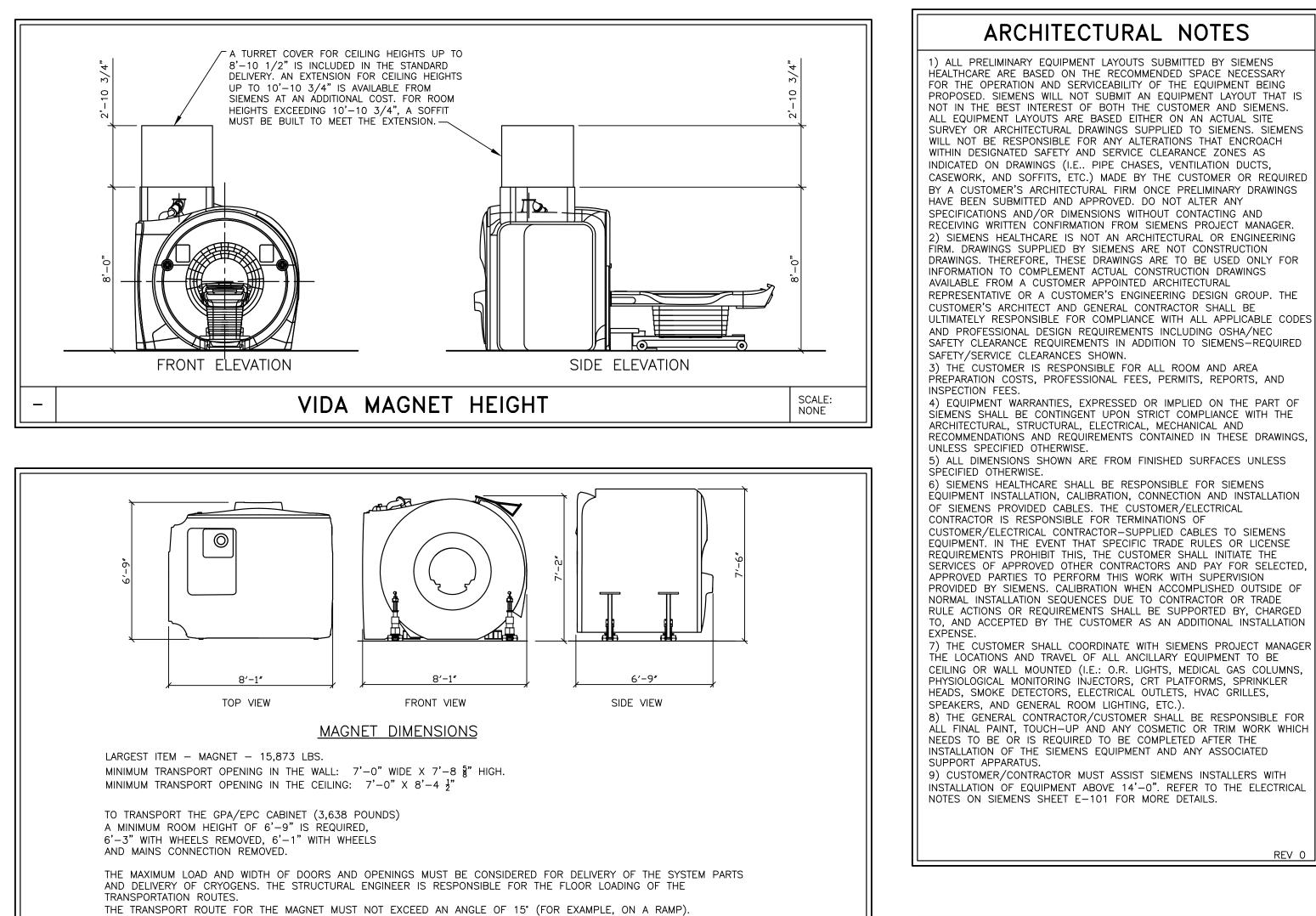
RESOURCE LIST	(SMS USE ONL	Y)
DESIGNATION	PG NUMBER	DATE
PLANNING GUIDE	M11-030.891.01.03.02	11/19
MAGNETIC SHIELDING CALCULATIONS	89727-1357201	05/21
MAGNETIC SHIELDING CALCULATIONS	89727-1357686	05/21

VIDA REV 16

		PROJECT MANAGEF TEL: (770) 402- VMAIL:				SIEME	INS
06/25/21	COMPLETE NEW SET OF DWGS BASED ON LATEST WALL BACKGROUNDS/		@siemens-healthine	eers.com			
06/25/21	MODIFIED MAGNET GAUSS FIELDS TO REFLECT LATEST SHLD CALCS./	GRAD	Y MEMC	ORIAL HO	SPITAL C	ORPORA <sup>-</sup>	ΓΙΟΝ
06/25/21	ALL LAYOUTS, LEGENDS NOTES & DETAILS UPDATED ACCORDINGLY				OUTH EAST, ATLANTA, TOM VIDA XQ GRADIE		
05/11/21	NEW WALL BACKGROUNDS/ ADD CASEWORK & SHIFT MAGNET	THIS TITLE B	LOCK WITHOUT	PROJECT #:		SHEET:	
06/25/21	2003356RRA DATED 09/10/20 APPROVED BY CUSTOMERS FOR FINALS	RESULT IN PROS			3356	Λ	<b>N1</b>
DATE	DESCRIPTION	ALL RIGHTS ARE RESERVED.		SHEET OF 1 10	DRAWN BY: D. BRISTOE		
-ISSU	E BLOCK-	SCALE: AS NOTED	REF. #: 30238438	DATE: 06/25/21			



- THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.



- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

THE RF DOOR AND COMPLETE PATH FROM EXAM ROOM TO THE EXTERIOR OF THE BUILDING MUST HAVE A MINIMUM CLEARANCE OF 40". THIS IS REQUIRED FOR REPLACEMENT PARTS AND HELIUM FILLS.

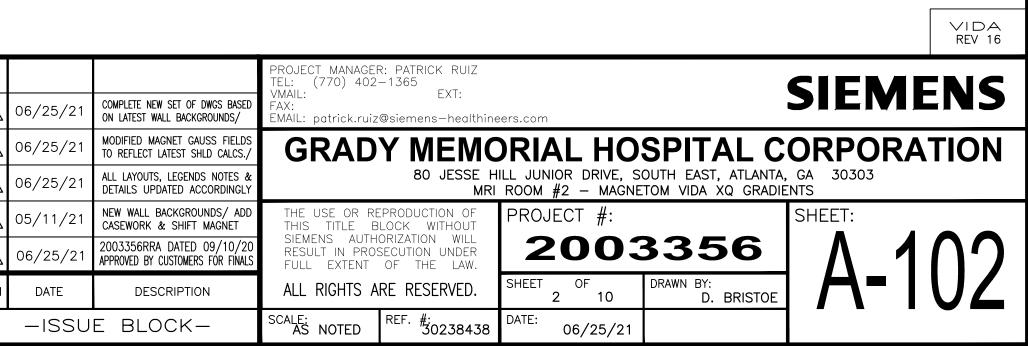
MAGNETOM VIDA TRANSPORT REQUIREMENTS

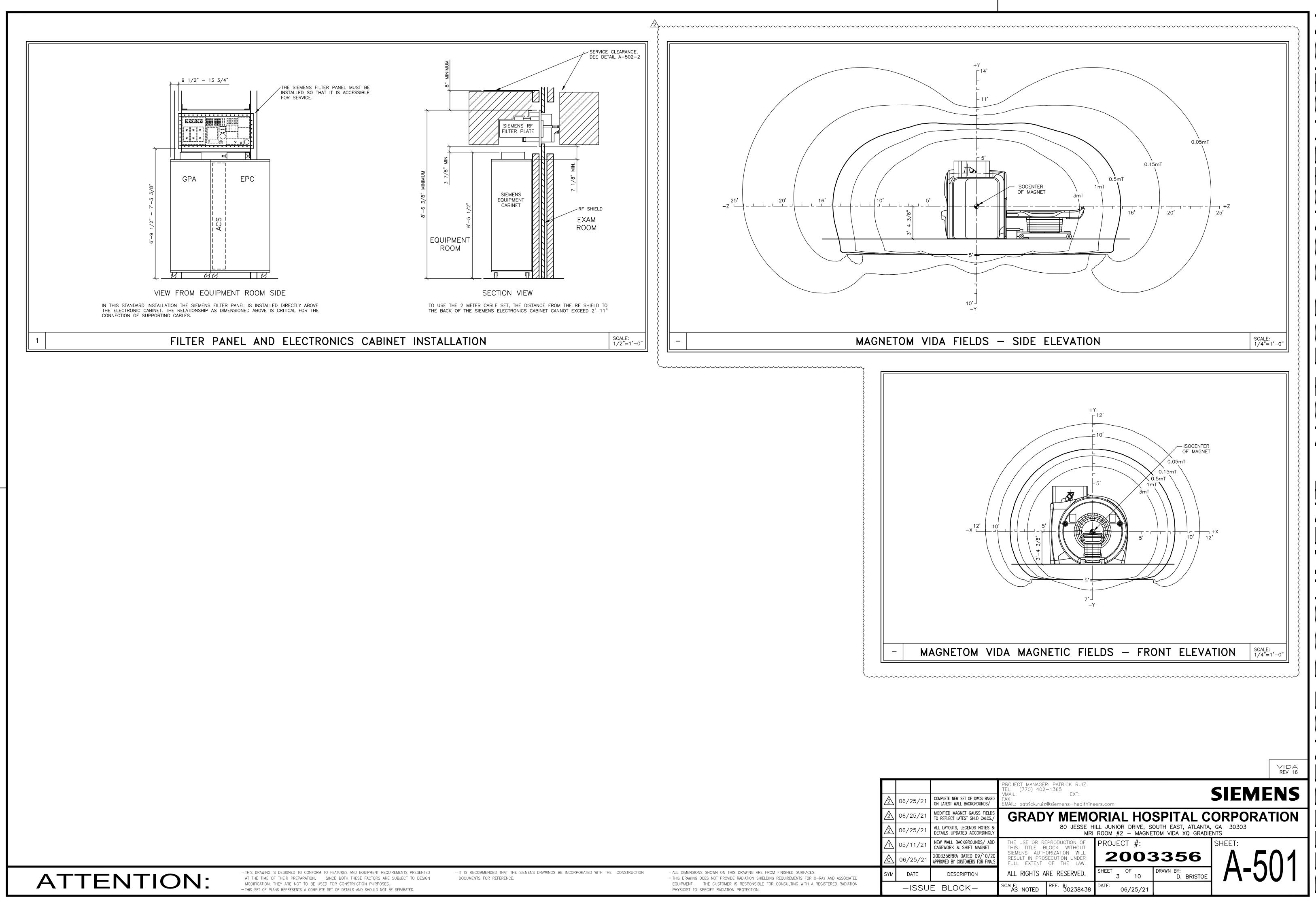
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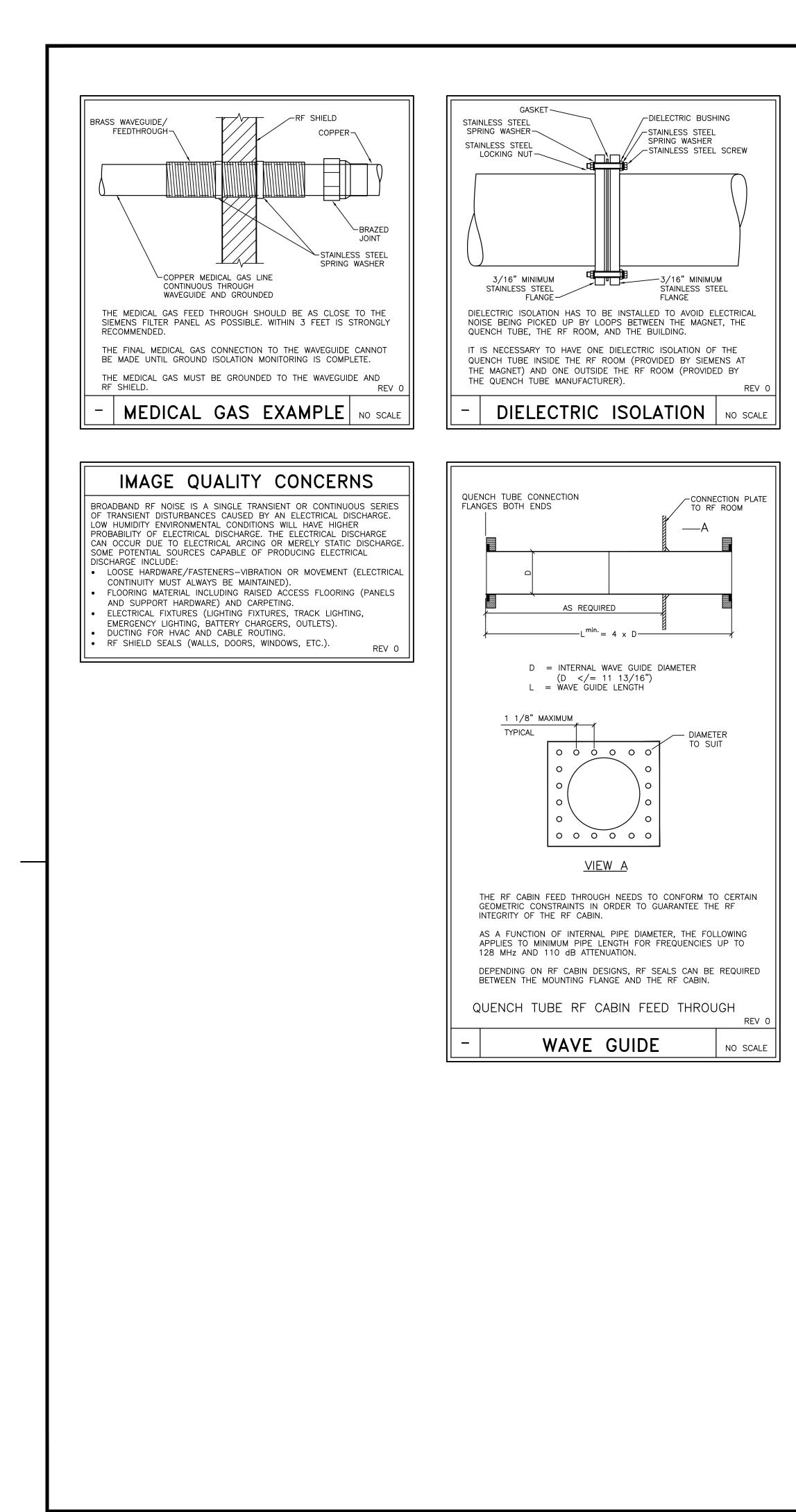
## SURFACE COIL STORAGE

SURFACE COILS ARE COMPONENTS OF THE MRI SYSTEM THAT ARE ATTACHED TO THE PATIENT TABLE DURING EXAMS. WHEN NOT IN USE COILS SHOULD BE STORED SO THAT THEY ARE FREE FROM DAMAGE. THE DESIGN OF THE MR EXAM ROOM MUST HAVE AMPLE STORAGE SPACE TO ACCOMMODATE ANY COILS THAT THE OWNER WILL HAVE. COILS MAY BE SELECTED FROM THE LIST BELOW.

COIL NAME	POUND	INCHES					
	WEIGHT	LENGTH	WIDTH	HEIGHT	DIAMETER		
MATRIX COILS							
BIOMATRIX HEAD/NECK 20	13	16 3/4	14 5/8	15 1/8	-		
BIOMATRIX SPINE 32	24	47 1/4	19 1/4	2 1/2	_		
BODY 18	26	15 1/4	19 1/8	23 1/4	-		
FLEX LARGE 4	2	20 1/4	8 7/8	_			
FLEX SMALL 4	1	14 1/2	6 7/8	_	-		
COMBINATION OF ALL COILS IS POSSIBLE.							









- THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. - THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

#### RF DOOR OPENING

IN THE EVENT OF A CATASTROPHIC FAILURE OF THE QUENCH VENT DURING A QUENCH, PRESSURE BUILT UP MAY PREVENT OPENING A DOOR THAT OPENS INTO THE RF ROOM, PREVENTING EVACUATION FROM LIFE THREATENING CONDITIONS.

FOR THIS REASON THE RF DOOR SHOULD OPEN TO THE OUTSIDE OF THE RF ROOM. IF THE DOOR CANNOT OPEN OUT FROM THE RF ROOM, OTHER APPROPRIATE MEANS HAVE TO BE PROVIDED SO THAT THE RF ROOM DOOR IS NOT PREVENTED FROM OPENING DUE TO PRESSURE.

IF THE DOOR OPENS INTO THE RF ROOM, A 24"x24" OPENING FOR PRESSURE EQUALIZATION INTO THE RF ROOM MUST BE INSTALLED. THIS IS MANDATORY. THIS IS NOT AN ESCAPE HATCH. THE PURPOSE OF THE OPENING IS TO RELIEVE PRESSURE AND ALLOW THE MAIN DOOR TO BE OPENED SO THAT OCCUPANTS CAN BE EVACUATED.

THE OPENINGS WILL HAVE PANELS INSTALLED IN THE RF ROOM OR THE DOOR THAT CAN BE UNLOCKED AND OPENED TO THE OUTSIDE IN CASE OF EMERGENCY. THESE PANELS REQUIRE AN RF SEALED INSTALLATION. AFTER OPENING THE PANEL, THE OUTLET SHOULD MEASURE AT LEAST 24"x24". WHEN USING RECTANGULAR PANELS, THE SHORTER SIDE SHOULD MEASURE OF MINIMUM OF 24".

TO ENSURE UNOBSTRUCTED VENTING, THIS OPENING CANNOT BE SUBDIVIDED. THIS MEANS THAT, FOR EXAMPLE, RF SEALED HONEYCOMB GRIDS ARE NOT PERMITTED.

EASY REMOVAL OF THE PANEL BY A PERSON HAS TO BE ENSURED AND A MINIMUM DISTANCE OF 40" TO A FIXED OBJECT MUST BE MAINTAINED. THE PANEL SHOULD BE INSTALLED IN AN ACCESSIBLE LOCATION AND ALLOW ESCAPE OF THE LOW DENSITY HELIUM.

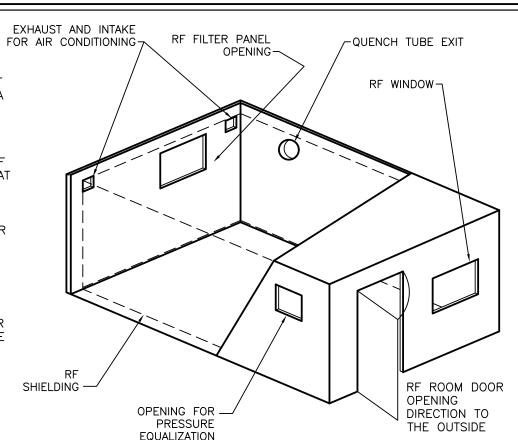
AS AN ALTERNATIVE TO AN OUT SWING DOOR. THE STATIONARY OBSERVATION WINDOW IS REPLACED BY A WINDOW OPENING INTO THE CONTROL AREA OR THE DOOR IS REPLACED WITH AN RE SEALED SLIDING DOOR. IT SHOULD BE ENSURED THAT THE DOOR CLOSES IN A WAY THAT ALLOWS IT TO MOVE AWAY FROM THE FRAME IN CASE OF OVERPRESSURE.

IF THE DOOR OPENS TO THE OUTSIDE, THE OPENING IN THE RF ROOM IS STILL RECOMMENDED.

THE RF ROOM MANUFACTURER CAN PROVIDE YOU WITH ADDITIONAL RF SEALED ROOM OPENINGS THAT LEAD DIRECTLY TO THE OUTSIDE. HOWEVER, THESE OPENINGS ARE ALSO CONDUITS FOR NOISE GENERATED OUTSIDE THE RF ROOM. UNOBSTRUCTED FLOW THROUGH THIS PIPE MUST BE GUARANTEED.

SAFETY INFORMATION - PRESSURE EQUALIZATION

REV 1



SAFETY ASPECTS FOR THE RF ROOM:

IT MUST BE POSSIBLE TO LOCK THE RF ROOM (EXAMINATION ROOM) DOOR FROM THE OUTSIDE. IT MUST ALSO BE POSSIBLE TO OPEN THE DOOR FROM THE INSIDE WITHOUT A KEY OR ADDITIONAL DEVICE.

THE RF DOOR IS AN IMPORTANT COMPONENT FOR GOOD IMAGE QUALITY AS WELL AS SAFETY, THE OWNER/OPERATOR OF THE MR SYSTEM MUST MAINTAIN THE RF ROOM AS INSTRUCTED BY THE RF ROOM MANUFACTURER IN ORDER TO GUARANTEE CORRECT FUNCTION OF THE RF DOOR.

NO FERROMAGNETIC ITEMS CAN BE BROUGHT INTO THE RF ROOM AFTER THE MAGNET HAS BEEN RAMPED UP TO FIELD. MAGNETIC ITEMS WILL BECOME ATTRACTED TO THE MAGNET WITH NO WARNING AND DUE TO THE HIGH MAGNETIC FIELD, WILL BECOME MISSILES.

NOTE: FOR DOORS MOVED BY AN AUXILIARY DRIVES (ELECTRICAL OR PNEUMATIC), MANUAL OPERATION HAS TO BE ENSURED. AN OUTSIDE WINDOW SHOULD BE IN THE VICINITY TO ALLOW VENTING EXHAUSTED GAS TO THE OUTSIDE. THE INTEGRITY OF THE RF SHIELD MUST BE TESTED AFTER REMODELING.

> REV C SCALE: NONE

### **RF SHIELDING**

1) THE EXAMINATION AREA MUST BE SHIELDED TO PROVIDE A REDUCTION OF RADIO FREQUENCY WAVES EMANATING FROM EXTERNAL TRANSMITTERS. THE REQUIRED ATTENUATION IS 90dB IN THE FREQUENCY RANGE OF 15-128 MHz. IF CO-SITING TWO SYSTEMS EACH ROOM SHOULD BE 100 dB.

2) THE RF SHIELD MUST BE TESTED BEFORE AND AFTER MAGNET PLACEMENT IN THE RE ROOM AND AFTER THE SIEMENS RE FILTER PANEL IS INSTALLED. THE RF-SHIELDING MUST BE INSULATED FROM ALL GROUNDS SUCH THAT THE ONLY GROUND IS THE SINGLE POINT GROUND ON THE OUTSIDE OF THE RF-ROOM WALL. RESISTANCE  $\geq$  100 OHMS.

3) ALL ELECTRICAL LINES INTO THE RF ROOM MUST BE ROUTED THROUGH RF FILTERS (PROVIDED BY RF SHIELDING SUPPLIER). ALL ELECTRICALLY NON-CONDUCTIVE SUPPLY LINES (E.G. FIBER OPTIC CABLES, OR HOSES) INTO THE RF ROOM MUST BE ROUTED THROUGH RF SEALED WAVE GUIDES (PROVIDED BY RF SHIELDING SUPPLIER).

4) FOR PRESSURE EQUALIZATION PURPOSES THE RF DOOR SHOULD OPEN TO THE OUTSIDE OF THE RF ROOM. AS AN ALTERNATIVE A 24"X24" OPENING IN THE RF ROOM FOR PRESSURE EQUALIZATION IS REQUIRED. REV 1

#### EXAM ROOM INTERIOR NOTES

1) ONLY NON-MAGNETIC MATERIALS ARE TO BE USED AND INSTALLED Ń THE RF ROOM. SEE CONSTRUCTION REQUIREMENTS.

2) A SUSPENDED CEILING MUST BE STATICALLY SUSPENDED, NOT SUSPENDED WITH MOVABLE CLAMPS, SPRINGS, ETC.

3) RODS IN SUSPENDED CEILINGS MUST BE INSTALLED SECURELY. GÁLVANIC CONTENT BETWEEN THE RODS MUST BE GUARANTEED, THEY MUST NOT JUST LIE ON TOP OF ONE ANOTHER. A WIRE JUMPER BETWEEN RODS MAY BE USEFUL.

4) ELECTRICAL WIRING, FOR AMBIENT LIGHTS FOR EXAMPLE, MUST NOT SIMPLY REST ON THE SUSPENDED CEILING, THEY MUST BE FASTENED OR INSIDE A CONDUIT TO PREVENT MOTION.

SHIELDING GENERAL NOTES 1) SIEMENS REQUESTS THAT THE SHIELDING MANUFACTURER(S)

SUBMIT FINAL SHOP DRAWINGS TO SIEMENS FOR REVIEW PRIOR TO THEIR INCLUSION IN CONSTRUCTION DOCUMENTS. SIEMENS SHALL BE COPIED ON ALL FIELD ORDER CHANGES CONCERNING CHANGES IN RF AND MAGNETIC SHIELDING CONDITIONS, CONFIGURATION AND SPECIFICATION. THE RF AND MAGNETIC SHIELDING CONTRACTOR(S) SHALL FURNISH "AS BUILT" SCALED AND DIMENSIONED PLANS REFLECTING ANY AND ALL FIELD ORDER CHANGES PRIOR TO THE COMPLETION OF THE CONSTRUCTION DOCUMENTS.

2) ALL CHANGES TO SIEMENS RECOMMENDED OPENINGS AND PÉNETRATIONS SHALL BE APPROVED BY THE SIEMENS PROJECT MANAGER PRIOR TO THE COMPLETION OF THE CONSTRUCTION DOCUMENTS.

3) THE SIZE, LOCATION, AND DIMENSIONS OF ANY MAGNETIC SHIELDING REQUIRED HAS BEEN DETERMINED BY SIEMENS. THIS INFORMATION HAS BEEN SUPPLIED TO THE MAGNETIC SHIELDING FABRICATOR TO DESIGN THE STRUCTURAL SUPPORT SYSTEM REQUIRED FOR THE MAGNETIC SHIELDING MATERIAL.

### FILTER PLATE GENERAL NOTES

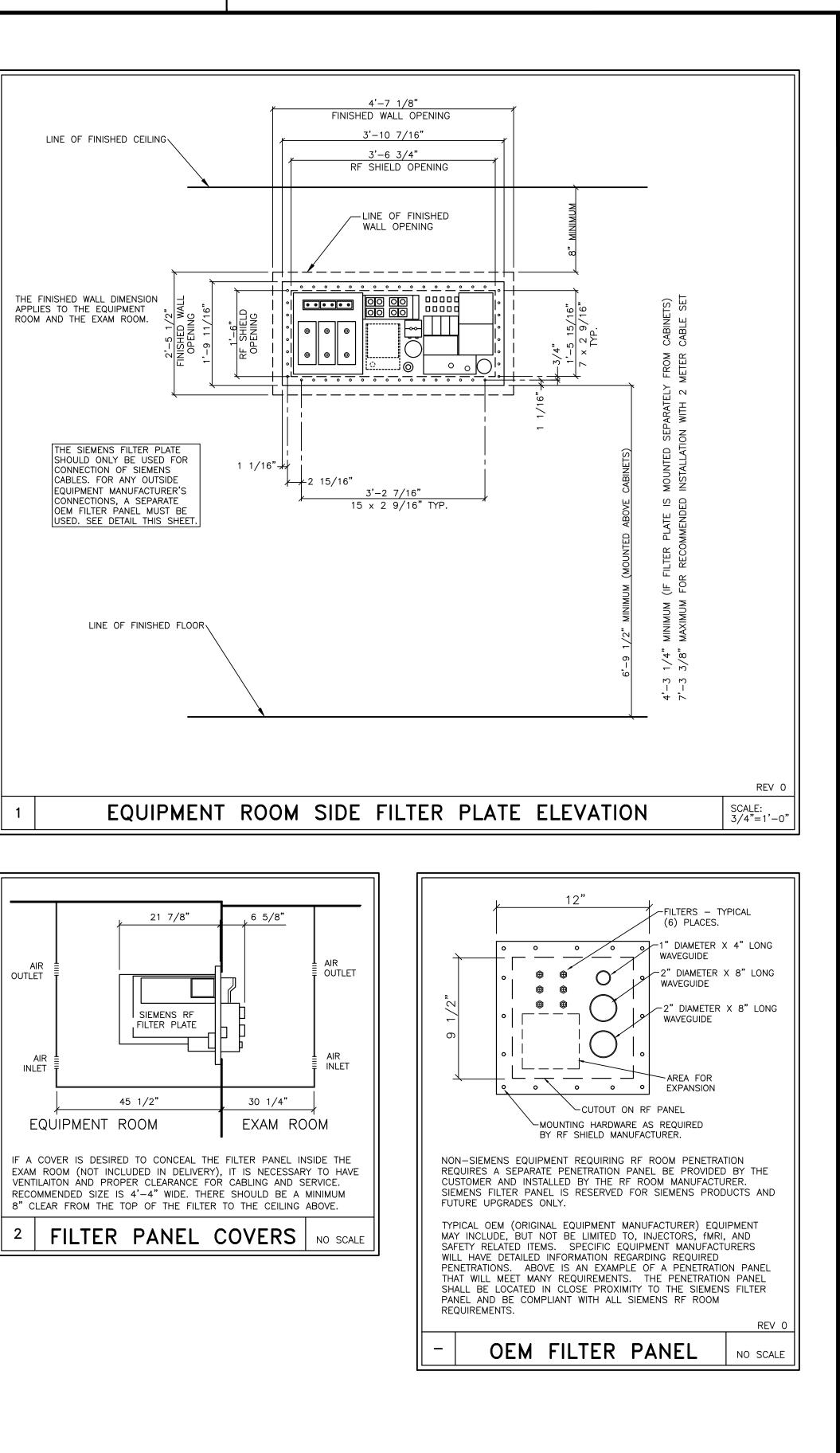
1) STRUCTURAL SUPPORT AND INTEGRATION OF THE SIEMENS SUPPLIED AND INSTALLED FILTER PLATE WITH MAGNETIC AND RF SHIELDING SHALL BE SPECIFIED, DETAILED AND NOTED BY THE RF AND MAGNETIC SHIELDING MANUFACTURER(S) WITH OVERALL COORDINATION WITH SIEMENS SITE SPECIFIC RECOMMENDATIONS TO BE THE RESPONSIBILITY OF THE ARCHITECT OF RECORD.

2) THE FILTER PLATE FRAME, RF FILTER PLATE BLANK, RF GASKET AND MOUNTING HARDWARE FOR THE PURPOSES OF TESTING THE INTEGRITY OF THE RF ENCLOSURE PRIOR TO THE INSTALLATION OF THE SIEMENS SUPPLIED AND INSTALLED RF FILTER PLATE SHALL BE PROVIDED AND INSTALLED BY THE SHIELDING CONTRACTOR(S) UNLESS SPECIFIED OTHERWISE.

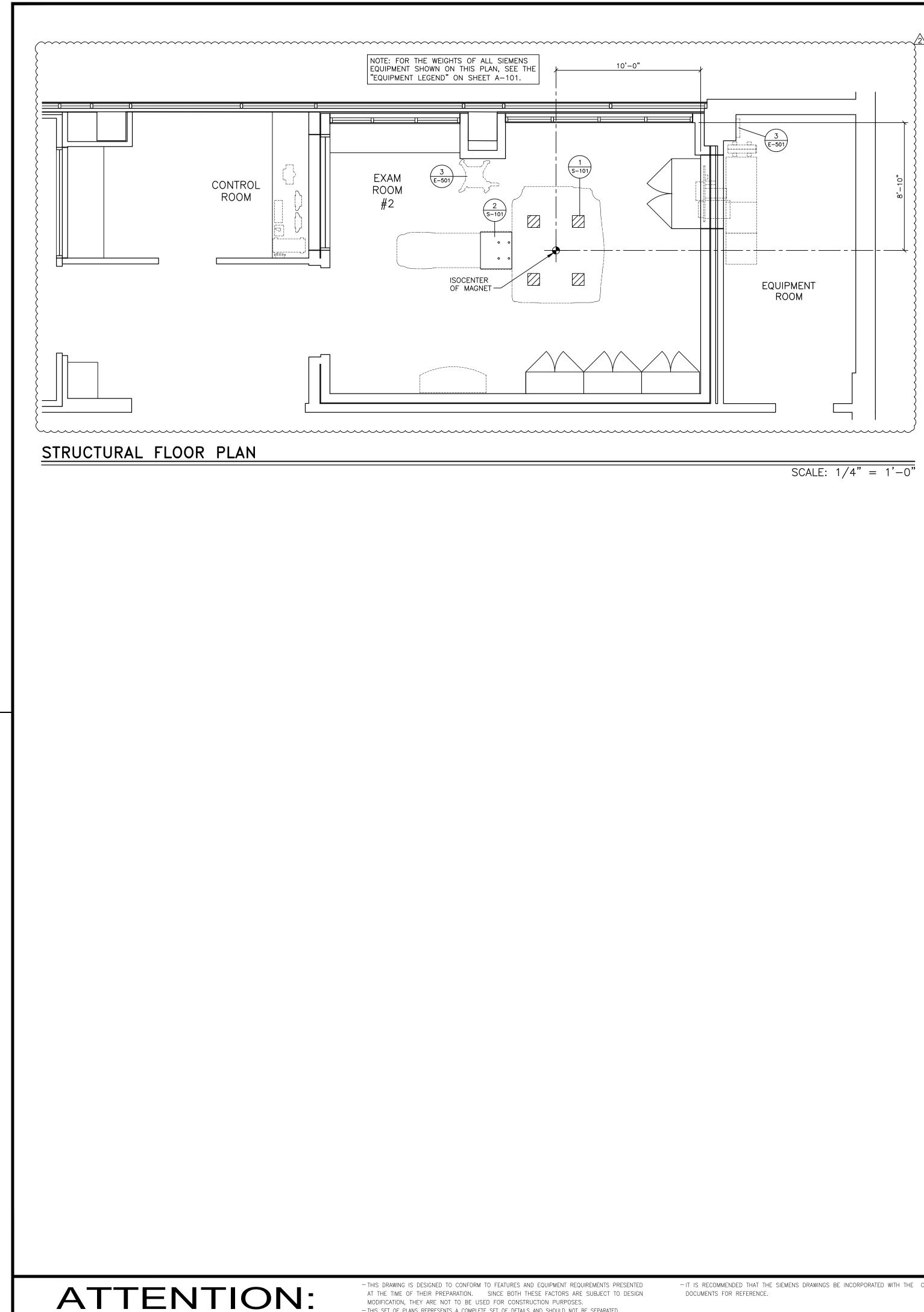
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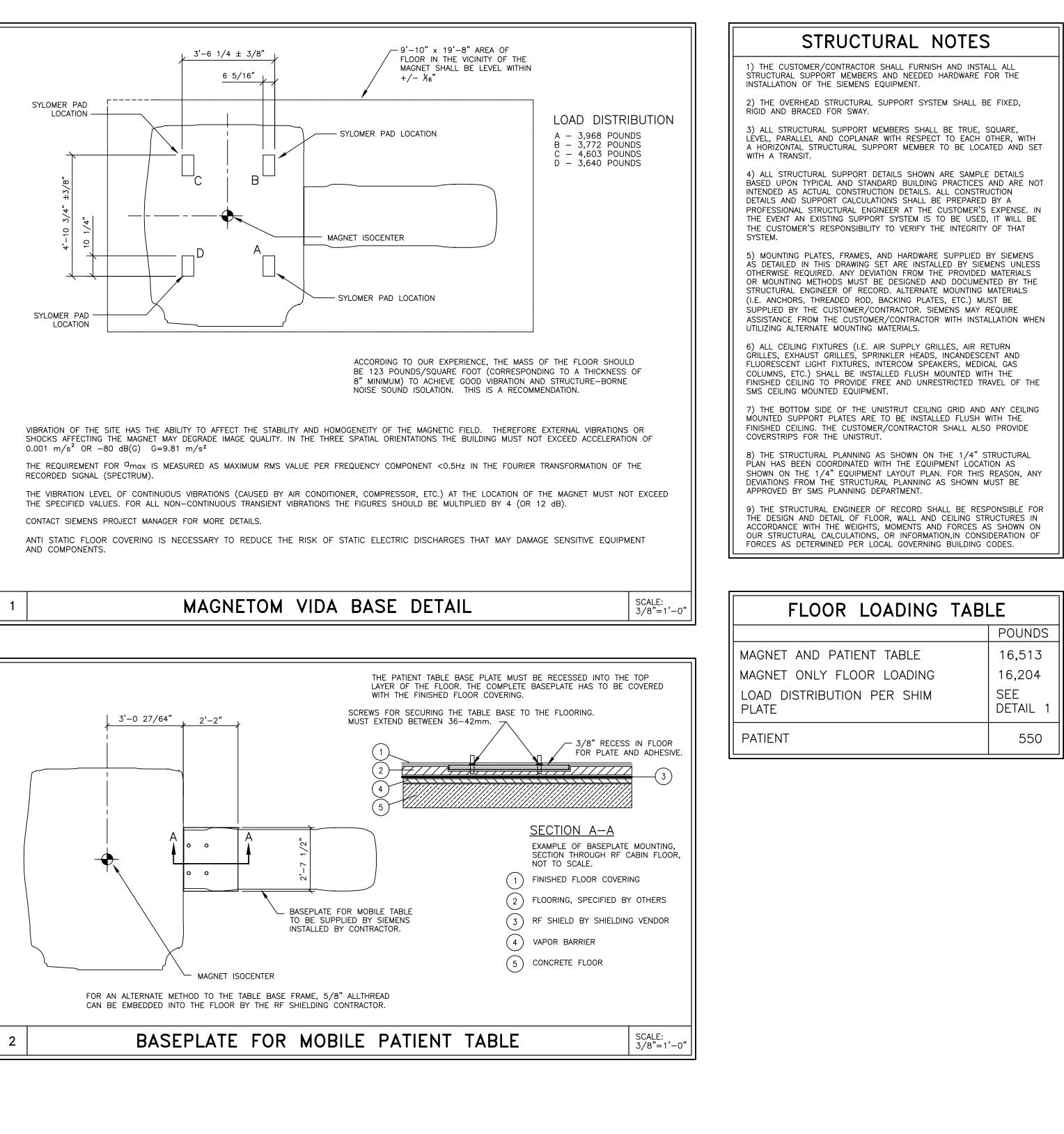
- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

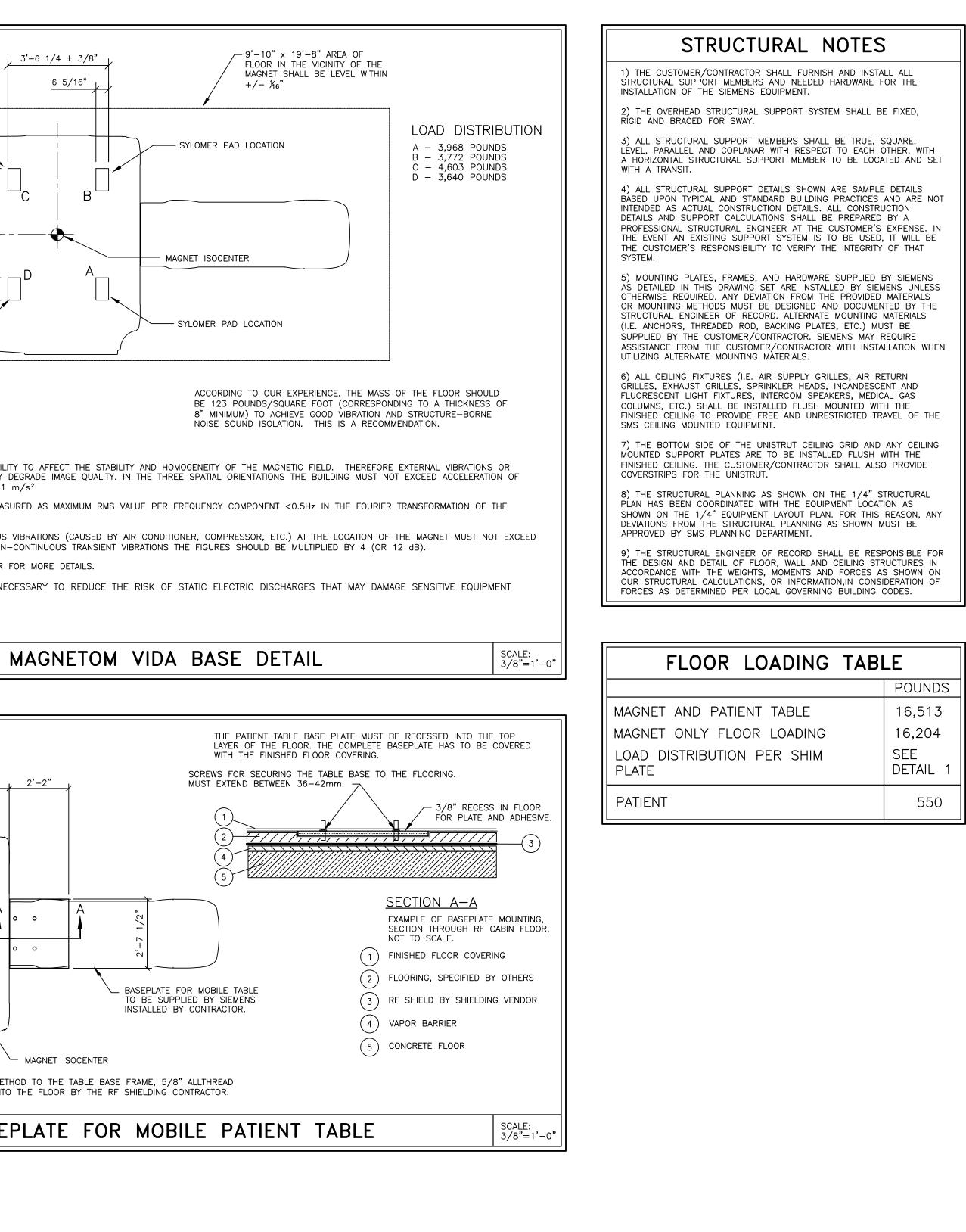


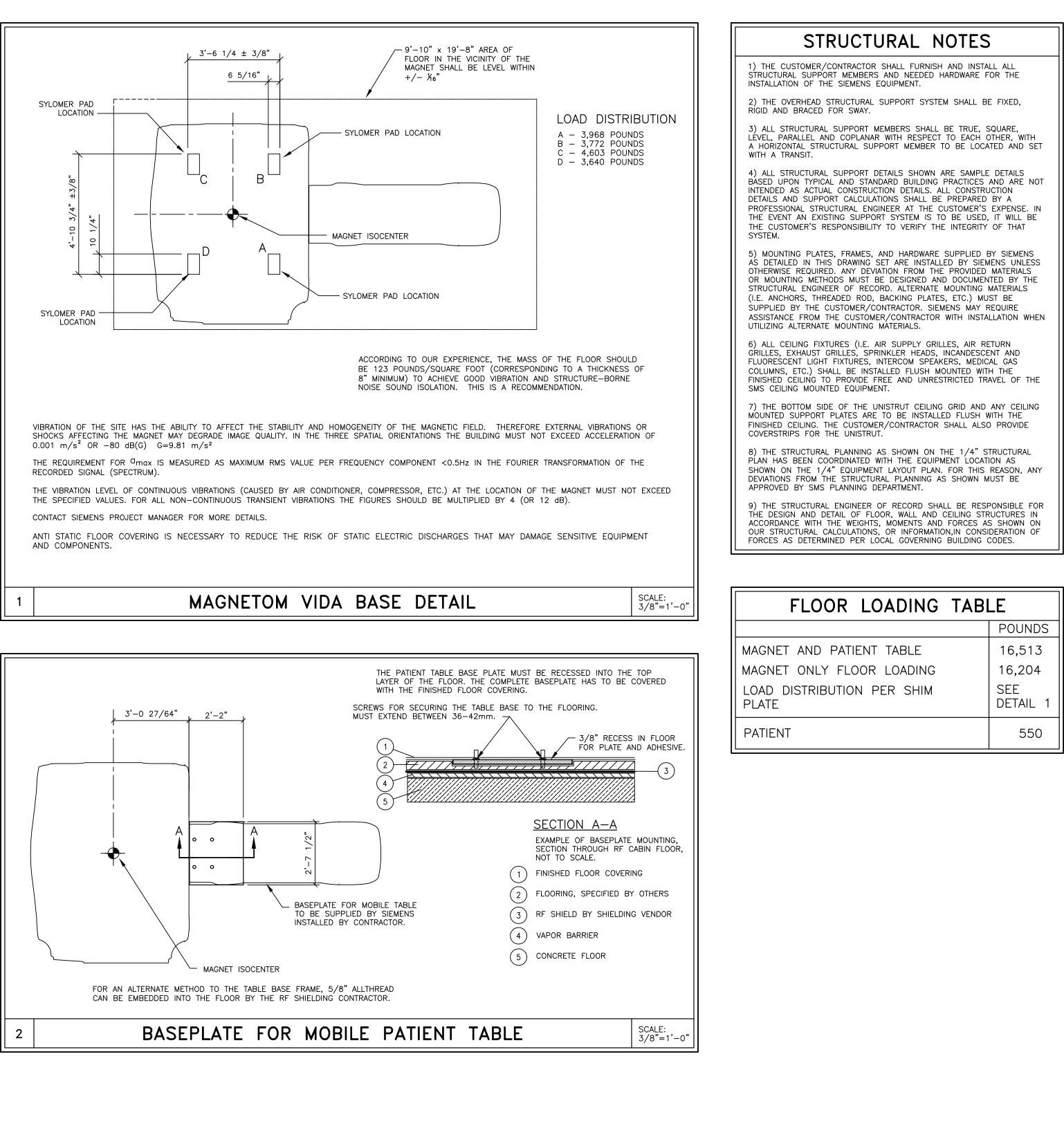
								VIDA REV 16
	06/25/21	COMPLETE NEW SET OF DWGS BASED ON LATEST WALL BACKGROUNDS/	PROJECT MANAGEF TEL: (770) 402- VMAIL: FAX: EMAIL: patrick.ruiz		eers.com		SIEME	INS
	06/25/21	MODIFIED MAGNET GAUSS FIELDS TO REFLECT LATEST SHLD CALCS./	GRAD		DRIAL HO			TION
•	06/25/21	ALL LAYOUTS, LEGENDS NOTES & DETAILS UPDATED ACCORDINGLY			ROOM #2 - MAGNE			
	05/11/21	NEW WALL BACKGROUNDS/ ADD CASEWORK & SHIFT MAGNET	THIS TITLE B	PRODUCTION OF	PROJECT #:		SHEET:	
	06/25/21	2003356RRA DATED 09/10/20 APPROVED BY CUSTOMERS FOR FINALS	RESULT IN PROS	ORIZATION WILL SECUTION UNDER OF THE LAW.	2003	3356	<b>ハ</b> ト	N7
	DATE	DESCRIPTION	ALL RIGHTS ARE RESERVED.		SHEET OF 4 10	DRAWN BY: D. BRISTOE		UZ I
	-ISSU	E BLOCK-	SCALE: AS NOTED	REF. #: 30238438	DATE: 06/25/21			-



- THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.







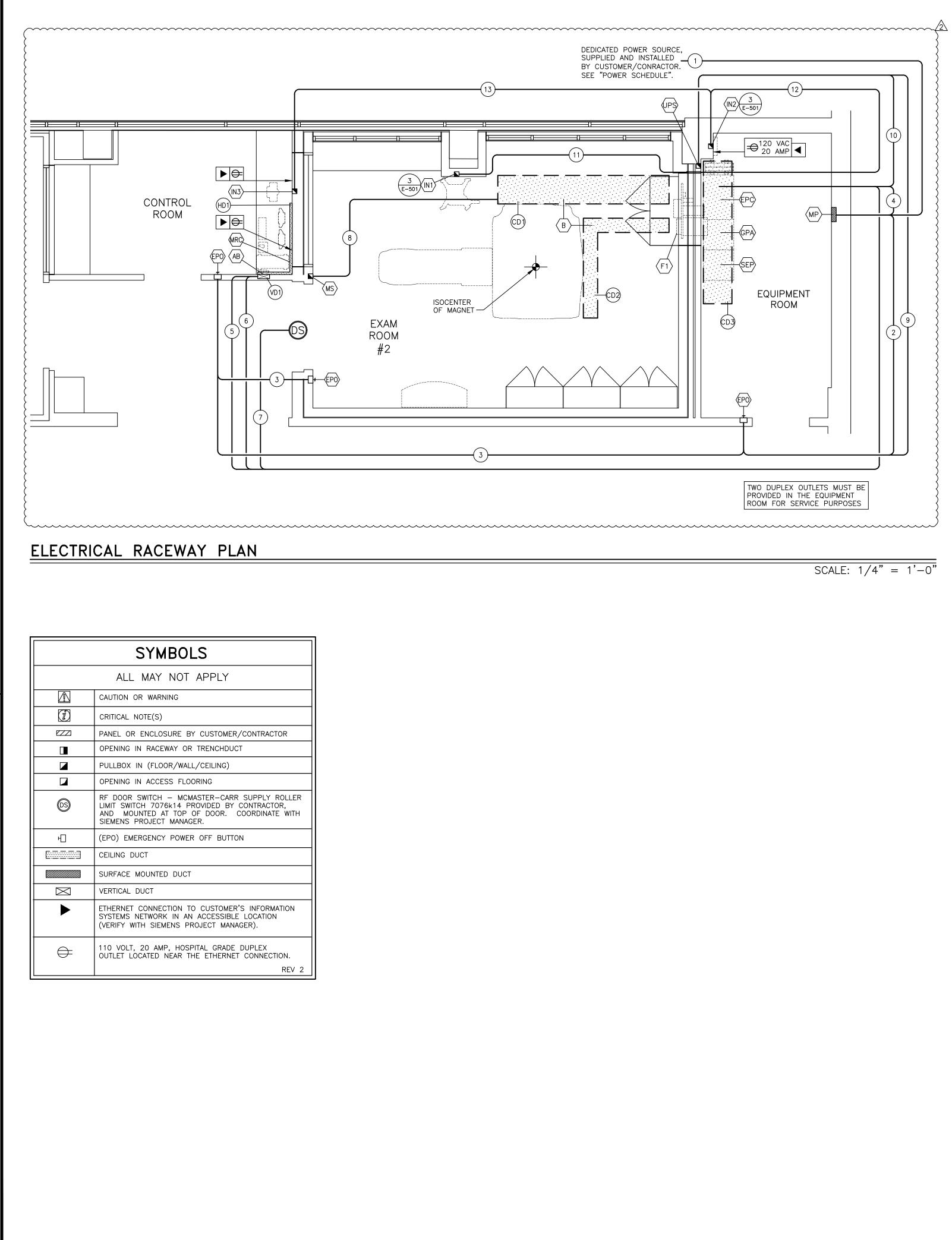
CEILING HEIGHTS		
MAGNET EXAMINATION ROOM: 7'-11" MINIMUM	2	06
EQUIPMENT ROOM: 7'-3" MINIMUM	$\triangle$	06
ALL ANCILLARY AREAS: 6'-11" MINIMUM		06
	$\triangle$	05
	$\triangle$	06
– ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. – THIS DRAWING DOES NOT PROVIDE RADIATION SHIFLDING REQUIREMENTS FOR X-RAY AND ASSOCIATED	SYM	

- THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED

EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION

PHYSICIST TO SPECIFY RADIATION PROTECTION.

							VIDA REV 16
06/25/21	COMPLETE NEW SET OF DWGS BASED ON LATEST WALL BACKGROUNDS/	TEL: (770) 402 <sup>.</sup> VMAIL: FAX:	R: PATRICK RUIZ - 1365 EXT: @siemens-healthine	ers.com			SIEMENS
06/25/21	MODIFIED MAGNET GAUSS FIELDS TO REFLECT LATEST SHLD CALCS./	GRAD	Y MEMC	) RI/	L HO	SPITAL C	ORPORATION
06/25/21	ALL LAYOUTS, LEGENDS NOTES & DETAILS UPDATED ACCORDINGLY	80 JESSE HILL JUNIOR DRIVE, SOUTH EAST, ATLANTA, GA 30303 MRI ROOM #2 – MAGNETOM VIDA XQ GRADIENTS					
05/11/21	NEW WALL BACKGROUNDS/ ADD CASEWORK & SHIFT MAGNET	THIS TITLE B	PRODUCTION OF LOCK WITHOUT		ECT #:		SHEET:
06/25/21	2003356RRA DATED 09/10/20 APPROVED BY CUSTOMERS FOR FINALS	RESULT IN PROS	ORIZATION WILL SECUTION UNDER OF THE LAW.	2	003	3356	
DATE	DESCRIPTION	ALL RIGHTS ARE RESERVED.		SHEET	OF 5 10	DRAWN BY: D. BRISTOE	
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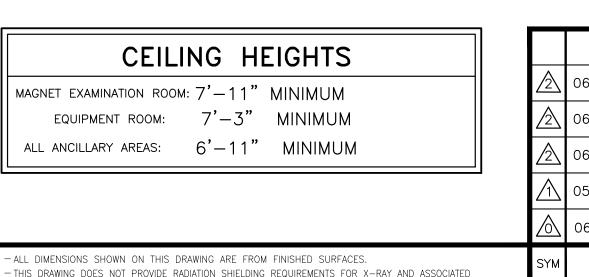
MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES.

- THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

ATTENTION:

ELECTRICAL LEGEND						
SYM SIZE		DESCRIPTION SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR	REMARKS			
AB	3"ø	OPENING IN FACE OF VERTICAL DUCT 5'-0" ABOVE FINISHED FLOOR IN LOCATION TO BE COORDINATED WITH THE ARCHITECT.	ALARM BOX			
) CPA SEP		LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	ELECTRONICS CABINETS			
B	AS REQUIRED	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	MAGNET CABLE ACCESS			
		EMERGENCY POWER OFF BUTTONS, MOUNTED WITH CENTERLINE AT 5'-O" ABOVE FINISHED FLOOR. ALL PARTS ARE TO BE NONFERROUS INSIDE THE RF ROOM. EXACT LOCATIONS ARE TO BE VERIFIED WITH THE ARCHITECT OF RECORD.	SEE POWER SCHEDULE, SHEET E-102			
<b>(F1)</b>		SIEMENS RF FILTER PANEL TO BE MOUNTED ON RF SHIELDED WALL	FILTER PANEL			
	AS REQUIRED	NON-FERROUS PULL BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR POWER SUPPLY- MUST BE LOCATED OUTSIDI OF 5mT FIELD			
(N2)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN EQUIPMENT ROOM, MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR POWER SUPPLY			
(N3)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA, MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR CONTROL CONSO			
₩P		MAIN PANEL WITH MAIN BREAKER. EXACT LOCATION DETERMINED BY CUSTOMER/CONTRACTOR	SEE POWER SCHEDULE			
₩¢	4" × 4"	OPENING IN FACE OF RACEWAY IN SHOWN LOCATION.	HOST COMPUTER			
WS I	AS REQUIRED		MAGNET STOP			
Ø	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL AT FLOOR LINE IN SHOWN LOCATION PROVIDED WITH 2"Ø OPENING IN FINISHED COVER.	LIEBERT GXT4 UPS			
(1)	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER, IN THE EXAM ROOM, MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE FILTER PANEL AND THE MAGNET. A 15" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE RF FILTER PANEL (F1). WHEN ROUTING ALL RACEWAYS REFER TO DETAIL E-501/2 TAKING CARE SO THAT MAXIMUM CABLE LENGTHS ARE NOT EXCEEDED. A 12" SEPARATION BETWEEN CD1 AND CD2 MUST BE MAINTAINED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	,			
	12"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER, IN THE EXAM ROOM, MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE FILTER PANEL AND THE MAGNET. A 15" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE RF FILTER PANEL (F1). WHEN ROUTING ALL RACEWAYS REFER TO DETAIL E-501/2 TAKING CARE SO THAT MAXIMUM CABLE LENGTHS ARE NOT EXCEEDED. A 12" SEPARATION BETWEEN CD2 AND CD1 MUST BE MAINTAINED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.				
	24"x4"	LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EQUIPMENT ROOM MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE EQUIPMENT ROOM AND THE RF FILTER PANEL (F1). AN 18" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE FILTER PANEL.	CABLE TRAY SEE DETAIL E-501/2			
(HD)	4" × 2"	HORIZONTAL DUCT SURFACE MOUNTED ON WALL IN CONTROL AREA AT FLOOR LINE AS SHOWN, FINISHED TO MATCH WALLS.				
(10)	10" x 3-1/2"	VERTICAL DUCT MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA FROM ABOVE FINISHED CEILING TO FLOOR LINE PROVIDED WITH REMOVABLE FINISHED COVERS.				
1	AS PER NEC	CONDUIT FROM FACILITY POWER TO MAIN PANEL "MP"	SEE POWER SCHEDULE, SHEET E-102			
2	AS PER NEC	CONDUIT FROM "MP" TO "EPO"	SEE POWER SCHEDULE, SHEET E-102			
3	AS PER NEC	CONDUIT FROM "EPO" TO "EPO" TO BE NON-FERROUS WHEN INSIDE THE RF ROOM. CUSTOMER/CONTRACTOR IS TO PROVIDE RF FILTERS FOR ALL NON-SIEMENS WIRING.	SEE POWER SCHEDULE, SHEET E-102			
4	(1) 2"ø	CONDUIT FROM "MP" TO END AT "CD3" (EPC) VIA FLEX CONDUIT. THERE MUST BE A DIELECTRIC SEPARATION BETWEEN THE CONDUIT AND THE CONNECTION AT THE SIEMENS EPC CABINET.	SEE POWER SCHEDULE, SHEET E-102			
5	(2) 2 1/2"ø	CONDUIT FROM "VD1" (MRC) TO "CD3" (EPC)	NOT TO EXCEED 60 FT.			
6	(1) 1 1/2"ø	CONDUIT FROM "VD1" (AB) TO "CD3" (EPC)	NOT TO EXCEED 60 FT.			
$\overline{0}$	(1) 1/2 <b>"</b> ø	CONDUIT FROM "DS" TO "CD3" (EPC)	NOT TO EXCEED 60 FT.			
8	(1) 3/4 <b>"</b> ø	CONDUIT FROM "MS" TO "CD1" (WIRES TO MAGNET) TO BE NON-FERROUS WHEN INSIDE THE RF ROOM.	NOT TO EXCEED 20 FT.			
9	(1) 3/4"ø	CONDUIT FROM "EPO" TO "UPS"				
10	(1) 2 <b>"</b> ø	CONDUIT FROM "UPS" TO "CD3" (EPC)	MAXIMUM LENGTH 29 FEET			
(1)	(1) 2 <b>"</b> ø	NON-FERROUS CONDUIT FROM "IN1" TO RF PENETRATION/FILTER PANEL (LOCATED NEAR "F1"). CABLES RUN FROM INJECTOR AT "IN1" THRU RF PENETRATION/FILTER PANEL TO INJECTOR POWER SUPPLT AT "IN2". REFER TO MANUFACTURERS SPECIFICATIONS FOR ACTUAL ELECTRICAL REQUIREMENTS.	NOT TO EXCEED 30 FEET EXAM ROOM			
(12)	(1) 2"ø	CONDUIT FROM RF PENETRATION/FILTER PANEL (LOCATED NEAR "F1") TO "IN2. CABLES RUN FROM INJECTOR AT "IN1" THRU RF PENETRATION/FILTER PANEL TO INJECTOR POWER SUPPLT AT "IN2". REFER TO MANUFACTURERS SPECIFICATIONS FOR ACTUAL ELECTRICAL REQUIREMENT	NOT TO EXCEED 10 FEET OUTSIDE EXAM ROOM			
(13)	(1) 2 <b>"</b> ø	CONDUIT FROM "IN2" TO "IN3" FOR INJECTOR CABLES.	NOT TO EXCEED 150 FEET			

CONTRACTOR SUPPLIED CABLES						
FROM	VIA	то	DESCRIPTION	REMARKS		
SOURCE	1	MP	(3) PHASE CONDUCTORS, (1) FULL SIZE EQUIPMENT GROUND WIRE TO BE SIZED BY ELECTRICAL CONTRACTOR/ENGINEER.			
MP	2	EPO	DETERMINED BY ELECTRICAL CONTRACTOR.			
EPO	3	EPO	DETERMINED BY ELECTRICAL CONTRACTOR.			
MP	4	EPC	(3) 2/0 AND (1) 2/0 EQUIPMENT GROUND. TO REDUCE EMI (INTERFERENCE) THE POWER CABLES MUST BE SHIELDED. THIS CAN BE ACHIEVED BY USING EMT, WHICH IS CONSIDERED A SHIELDING DEVICE. IF CABLES ARE RUN IN FREE AIR SHIELDED CONDUCTORS MUST BE USED.	LANDED BY ELECTRICAL CONTRACTOR		
EPO	9	UPS	DETERMINED BY ELECTRICAL CONTRACTOR.	6 FOOT TAILS		



EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION

PHYSICIST TO SPECIFY RADIATION PROTECTION.

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### ELECTRICAL NOTES

1) COMPLIANCE: ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE (NFPA-70), O.S.H.A. REGULATIONS, AS WELL AS APPLICABLE REGULATIONS OF CITY, COUNTY, STATE AND FEDERAL AGENCIES. PROVIDE MATERIALS AND EQUIPMENT THAT COMPLY TO ANSI, IEEE AND NEMA STANDARDS AND ARE U.L. LISTED AND LABELED. THE CUSTOMER'S/CONTRACTOR'S WORK AND ALL EQUIPMENT INSTALLED SHALL COMPLY WITH THE CURRENT EDITION OF NATIONAL ELECTRICAL CODE ADOPTED/ENFORCED BY THE AUTHORITY HAVING JURISDICTION. ) QUALITY ASSURANCE: THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN THE FIELD TO INSURE THAT THE NEW WORK WILL FIT INTO THE EXISTING STRUCTURE AS SHOWN ON THE DRAWINGS. SHOULD ANY CONDITIONS EXIST OR BE DISCOVERED THAT PREVENT THE INSTALLATION OF WORK AS SHOWN, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE PRIOR TO FABRICATION OF EQUIPMENT, OR THE

PERFORMANCE OF ANY WORK THAT MAY BE AFFECTED. DO NOT ALTER DRAWINGS, DIMENSIONS, OR SPECIFICATIONS IN ANY WAY WITHOUT CONTACTING AND RECEIVING WRITTEN CONFIRMATION FROM SIEMENS PROJECT MANAGER. ALL DIMENSIONS ARE FROM FINISHED SURFACES. CONDUIT AND PULL BOXES TO BE INSTALLED BY THE CUSTOMER/CONTRACTOR WITH LOCATIONS BEING FIELD VERIFIED BY SIEMENS PRÓJECT MANAGER. 3) POWER SUPPLY SOURCE: POWER SUPPLIES FOR SIEMENS HEALTHCARE

 $\sim \sqrt{2}$ 

EQUIPMENT SHALL BE FROM A MEDICAL IMAGING PANEL OR BUILDING SERVICE EQUIPMENT THAT IS A GROUNDED 3 OR 4-WIRE 'WYE' SOURCE PER THE SPECIFIC EQUIPMENT OPERATION REQUIREMENTS. A DEDICATED CIRCUIT SHALL BE PROVIDED THAT IS KEPT ENTIRELY FREE AND INDEPENDENT OF ALL OTHER BUILDING WIRING. NO ELEVATORS, GENERATORS, PUMPS, HVAC OR SIMILAR EQUIPMENT SHALL BE CONNECTED TO THE SAME CIRCUIT OR MEDICAL IMAGING PANEL THAT SERVES THE SIEMENS HEALTHCARE EQUIPMENT IF THE POWER SUPPLY SOURCE DOES NOT MEET THE SPECIFIC SIEMENS EQUIPMENT POWER REQUIREMENTS, THE CONTRACTOR SHALL PROVIDE THE

NECESSARY EQUIPMENT REQUIRED TO ESTABLISH THE POWER SUPPLY IN ACCORDANCE WITH THE REQUIRED POWER SUPPLY PARAMETERS OF THE SIEMENS EQUIPMENT. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE CUSTOMER AND/OR UTILITY COMPANY FIELD REPRESENTATIVE. 4) WORK FURNISHED BY CUSTOMER/CONTRACTOR: WORK NOT PROVIDED BY SIEMENS HEALTHCARE BUT SHOWN ON DRAWINGS TO BE FURNISHED AND INSTALLED BY CUSTOMER/CONTRACTOR INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING, UNLESS NOTED OTHERWISE: ELECTRICAL RACEWAYS AND DUCTS, WIRING TROUGHS, PULL BOXES, CONDUITS, CIRCUIT BREAKERS, ACCESS PANELS, EMERGENCY OFF BUTTONS, DOOR SWITCHES, WARNING LIGHTS, WIRING, WIRING DEVICES, CONNECTORS, LIGHTING EQUIPMENT AND GROUNDING.

5) RACEWAY AND CONDUIT NOTES: ALL ITEMS IN THE MAGNET ROOM SHALL BÉ NON-FERROUS. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT ENFORCED EDITION OF THE NATIONAL ELECTRICAL CODE. CONDUIT BODIES SHALL NOT BE USED. WHERE A CONDUIT ENTERS A BOX, FITTING, OR OTHER ENCLOSURE, AN INSULATED THROAT CONNECTOR SHALL BE PROVIDED TO PROTECT THE WIRE FROM ABRASION. ALL CONNECTORS FOR EMT SHALL BE COMPRESSION OR DOUBLE SET SCREW

KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES OR STEAM AND HOT WATER PIPES. INSTALL RACEWAY RUNS ABOVE WATER AND STEAM PIPES PROVIDED THAT CABLE RUN DISTANCES ARE MAINTAINED. USE TEMPORARY CLOSURES TO PREVENT FOREIGN MATTER FROM ENTERING RACEWAY.

CONDUIT RUNS ARE SHOWN SCHEMATICALLY. INSTALL CONDUIT WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE CONSIDERING THE BUILDING CONSTRUCTION AND OBSTRUCTIONS, EXCEPT AS OTHERWISE INDICATED. THE CONTRACTOR SHALL MAKE CERTAIN THAT ANY CONDUIT/RACEWAY RUNS CONTAINING SIEMENS HEALTHCARE CABLES DO NOT EXCEED THE SPECIFIED MAXIMUM DISTANCES AS SHOWN ON THE ELECTRICAL

DETAILS. LISTED CONDUIT SIZES FOR SIEMENS-SUPPLIED CABLES MUST BE MAINTAINED IN ORDER TO ENABLE THE TOTAL CABLE BUNDLE INCLUDING CONNECTORS TO BE PULLED THROUGH WITHOUT DAMAGE. PROVIDE ENCLOSED METAL WIRE DUCT RACEWAY SYSTEM WHERE SHOWN ON DRAWINGS WITH DIVIDERS TO SEPARATE THE DUCT INTO TWO OR THREE

SEPARATE COMPARTMENTS AS SHOWN ON THE SIEMENS PLANS (FOR POWER AND SIEMENS HEALTHCARE CABLING). DIVIDERS AND CROSSOVER PIECES TO BE PROVIDED AS NECESSARY. THE CABLE TO CABLE AS WELL AS THE CIRCUIT TO CIRCUIT SEPARATION REQUIREMENT WAS EVALUATED DURING THE UL SYSTEM CERTIFICATION OF THE EQUIPMENT. ADDITIONAL SEPARATION OF THE SYSTEM CABLE ASSEMBLIES INTO SEPARATE OR PARTITIONED RACEWAYS, UNLESS OTHERWISE NOTED, IS NOT NECESSARY TO INSURE SEPARATION OF CIRCUITS.

PROVIDE WIRE DUCT/RACEWAY WITH ACCESSIBLE REMOVABLE COVERS. LOCATIONS OF BUILDING MATERIAL OPENINGS (I.E. ACCESS PANELS) TO BE CUT IN FIELD ARE TO BE COORDINATED WITH THE DRAWING REQUIREMENTS AND BUILDING STRUCTURE. THOSE THAT ARE NOT INDICATED OR INTERFERE WITH BUILDING ELEMENTS SHALL BE COORDINATED WITH SIEMENS PROJECT MANAGER. ELECTRICAL PULL BOXES AND RACEWAY COVERS SHALL BE INSTALLED IN A MANNER TO ALLOW ACCESSIBILITY FOR INSTALLATION AND MAINTENANCE. CONTRACTORS MUST PROVIDE PULL STRINGS FOR ALL CONDUIT AND WIRE DUCT/RACEWAY. IN-FLOOR TRENCH DUCT AND FLUSH FLOOR BOXES SHALL BE PROVIDED WITH FULLY GASKETED REMOVABLE COVERS. WHEN JUNCTION BOXES AND WIRE DUCT/RACEWAY ARE MOUNTED HIGHER

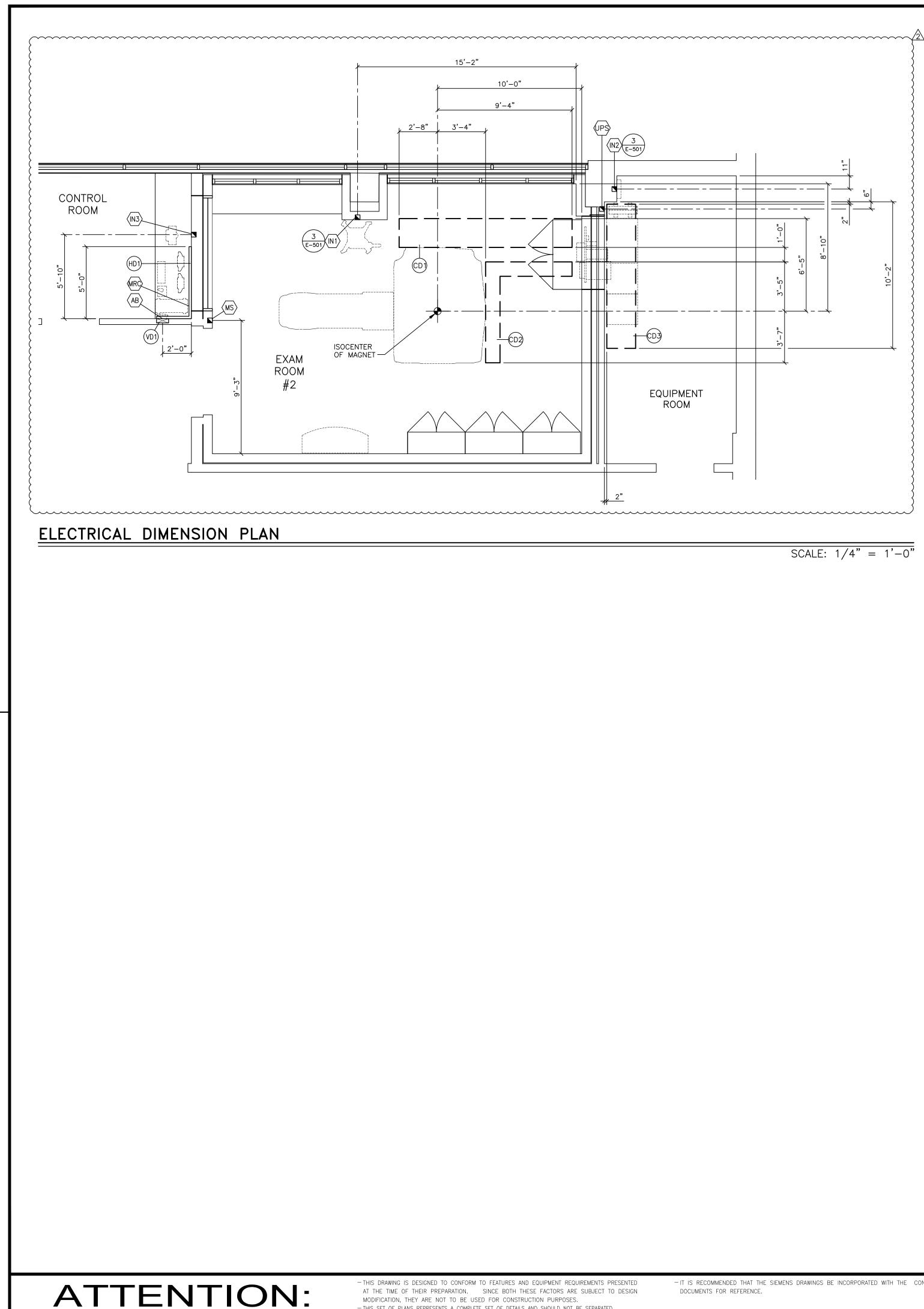
THAN 14 FEET ABOVE FINISHED FLOOR, THE ELECTRICAL CONTRACTOR SHALL PROVIDE TWO ELECTRICIANS TO HELP THE SIEMENS INSTALL TEAM PULL SIEMENS SUPPLIED CABLES AT CUSTOMER EXPENSE. WHEN JUNCTION BOXES AND WIRE DUCT/RACEWAY ARE MOUNTED ABOVE A

HARD CEILING (I.E. SHEET ROCK), A 24" x 24" ACCESS PANEL IS REQUIRED AT EACH JUNCTION BOX AND WITHIN 2 FEET OF EACH RACEWAY TRANSITION (SUCH AS A 90 DEGREE ELBOW OR TEE) IN DUCT/RACEWAY. THERE MUST BE FREE AND CLEAR ACCESS TO JUNCTION BOXES AND WIRE DUCT/RACEWAY. WHEN ACCESS PANELS ARE LOCATED MORE THAN 3 FEET FROM JUNCTION BOXES AND WIRE DUCT/RACEWAY THE ELECTRICAL CONTRACTOR SHALL PROVIDE TWO ELECTRICIANS TO HELP SIEMENS INSTALL TEAM PULL SIEMENS SUPPLIED CABLES AT CUSTOMER EXPENSE.

6) WIRING: ALL WIRING INSTALLED SHALL BE 600 VOLT CLASS, STRANDED TYPE THHN/THWN-2, SINGLE CONDUCTOR ANNEALED COPPER FOR A MAXIMUM OPERATING TEMPERATURE OF 90° C (194° F). SIZED AS INDICATED INSTALLED IN METAL RACEWAYS. THE CUSTOMER/CONTRACTOR SHALL LEAVE MINIMUM 10 FT. OF WIRE TAILS AT ALL OUTLET POINTS WITH WIRE IDENTIFICATION TAGGED AT BOTH ENDS FOR FINAL CONNECTION BY THE CUSTOMER/ELECTRICAL CONTRACTOR.

7) SHORT CIRCUIT REQUIREMENTS: ALL CIRCUIT BREAKERS SUPPLIED FOR THE SIEMENS EQUIPMENT REQUIREMENTS SHALL BE RATED HIGHER THAN THI SHORT CIRCUIT AVAILABLE AT THE TERMINALS OF THE ELECTRICAL EQUIPMENT AS DETERMINED BY THE ENGINEER OF RECORD, BUT NOT LESS THAN 35,000A RMS SYMMETRICAL AT 480V, 3-PHASE, 60 HERTZ. THE CONTRACTOR SHALL OBTAIN THE CORRECT SHORT CIRCUIT CURRENT RATING OF ALL THE NEW EQUIPMENT FOR INSTALLATION FROM THE ENGINEER OF RECORD.

							VIDA REV 16
		PROJECT MANAGEF TEL: (770) 402- VMAIL:				SIEME	
06/25/21	COMPLETE NEW SET OF DWGS BASED ON LATEST WALL BACKGROUNDS/	FAX:	©siemens-healthine	eers.com		JIEINIE	
06/25/21	MODIFIED MAGNET GAUSS FIELDS TO REFLECT LATEST SHLD CALCS./	GRAD	Y MEMC	<b>DRIAL HO</b>	SPITAL C	ORPORA	TION
06/25/21	ALL LAYOUTS, LEGENDS NOTES & DETAILS UPDATED ACCORDINGLY	80 JESSE HILL JUNIOR DRIVE, SOUTH EAST, ATLANTA, GA 30303 MRI ROOM #2 – MAGNETOM VIDA XQ GRADIENTS					
05/11/21	NEW WALL BACKGROUNDS/ ADD CASEWORK & SHIFT MAGNET	THIS TITLE B	PRODUCTION OF LOCK WITHOUT	PROJECT #:		SHEET:	
06/25/21	2003356RRA DATED 09/10/20 APPROVED BY CUSTOMERS FOR FINALS	SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER FULL EXTENT OF THE LAW.		2003	3356		<b>N1</b>
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		POW	'ER S	SCHEI	DULE			
DETE OF F	RMINED BY RECORD PE	ROOM EPO NC NC D AND BY NOTE	ENGINEER MAINTAIN	480V, NOTE #1 MR BREAKEI CIRCUIT POI SOURCE				
24V IS APPLIED TO THIS CIRCUIT FROM THE UPS								
ITEM	QTY			DESCRIPTIO	ON			
MP	1	MAIN PANE MOUNTED.	L WITH MA	NN BREAKEI	R FLUSH (	OR SURFACE		
A	1		EPO IS P	RESSED TH	E BREAKEF			
1) ALL WIRES MUST BE SAME SIZE. NOTE: UNLESS OTHERWISE NOTED ALL BREAKERS WILL BE 80% RATED.         EPO       VARIES         NOTE 1       – EPO CIRCUIT #1         MAIN CIRCUIT BREAKER EMERGENCY POWER OFF BUTTON WITH PROTECTIVE COVER THAT PREVENTS ACCIDENTAL								
	ACTIVATION. THE EPO MUST BE OF FAIL-SAFE DESIGN, ALL EPO'S TO HAVE MECHANICAL LATCHING MECHANISM. EPO MUST BE RESET BEFORE MR BREAKER CAN RESUME OPERATION. CONTACTS AND WIRING CONFIGURATION TO BE DESIGNED BY ELECTRICAL ENGINEER OF RECORD. NOTE 2 – EPO CIRCUIT #2 EPO CONTACTS TO BE NORMALLY CLOSED, WIRED IN SERIES, CONNECTED TO GXT4 UPS ONLY.							
SERIES, CONNECTED TO GXT4 UPS ONLY. THE EPO'S MUST BE INSTALLED BY A QUALIFIED ELECTRICAL CONTRACTOR ACCORDING TO NATIONAL ELECTRICAL CODE, STATE AND LOCAL REGULATIONS. THE CUSTOMER IS SOLELY RESPONSIBLE FOR THE IMPLEMENTATION OF THE EPO'S AND THEIR ASSOCIATED CIRCUITS AND MUST MAKE THE FINAL DETERMINATION CONSIDERING ALL SITE CONDITIONS AND REGULATORY FACTORS. UNLESS OTHERWISE NOTED, ALL ITEMS LISTED IN THIS SCHEDULE SHALL BE SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR.								

## POWER QUALITY NOTES

1) IT IS THE CUSTOMER'S RESPONSIBILITY TO COMPLY WITH THE POWER QUALITY REQUIREMENTS FOR SIEMENS MEDICAL SYSTEMS EQUIPMENT. 2) THE ELECTRICAL FEEDER TO THE SIEMENS MEDICAL SYSTEMS EQUIPMENT MUST FEED ONLY THE IMAGING SYSTEM AND BE KEPT SEPARATE FROM ELECTRICAL FEEDERS TO HVAC, MOTORS, PUMPS, COMPRESSORS, ELEVATORS, AND OTHER POTENTIAL SOURCES OF ELECTRICAL INTERFERENCE. 3) THE ELECTRICAL FEEDER TO THE IMAGING SYSTEM MUST BE RUN DÍRECTLY TO A MAIN FACILITY DISTRIBUTION PANEL OR TO THE FACILITY SERVICE ENTRANCE, WITH NO OTHER LOADS POWERED FROM THIS FEEDER. 4) IN ORDER TO COMPLY WITH IMAGING SYSTEM POWER QUALITY

REQUIREMENTS, ADDITIONAL POWER CONDITIONING DEVICES MAY BE REQUIRED. EXAMPLES INCLUDE VOLTAGE REGULATORS, TRANSFORMERS, SURGE PROTECTIVE DEVICES, FILTERS, AND/OR UNINTERRUPTIBLE POWER SUPPLIES (UPS). RECOMMENDED FOR THE INSTALLATION OF ELECTRONIC EQUIPMENT CAN BE FOUND IN IEEE STANDARD 1100-1999 "POWERING AND GROUNDING ELECTRONIC EQUIPMENT: 5) POWER CONDITIONING DEVICES NOT APPROVED BY SIEMENS MEDICAL SYSTEMS MAY NOT BE COMPATIBLE WITH THE MAGNETOM

SYSTEM. "FERRORESONANT" POWER CONDITIONING EQUIPMENT RE-APPLIED FROM PREVIOUS GENERATION SYSTEMS IS ALSO GENERALLY EXCLUDED DUE TO HIGHER POWER REQUIREMENTS OF THE NEWER SYSTEMS. 6) INCOMING SOURCE POWER WIRES MUST BE SEPARATED FROM ANY

SIEMENS CABLING BY A MINIMUM OF 12". REV 0

# CEILING HEIGHTS MAGNET EXAMINATION ROOM: 7'-11" MINIMUM

EQUIPMENT ROOM: 7'-3" MINIMUM ALL ANCILLARY AREAS: 6'-11" MINIMUM

- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION

- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

- THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

POWER REQUIREME	NTS						
VOLTAGE VARIATION:480 VAC $\pm 10\%$ FOR ALL LINE AND LOAD CONDITIONS VOLTAGE UNBALANCE: 2% MAXIMUM DIFFERENCE BETWEEN PHASES							
FREQUENCY:	60 Hz ± 1.0 Hz						
LINE IMPEDENCE:	<150 mOHMS						
POWER CONSUMPTION READY FOR MEASUREMENT CHILLER/SEP	8.35kW/1.8kW						
POWER CONSUMPTION TYPICAL EXAM CHILLER/SEP	27.42kW/1.8kW						
CONNECTION VALUE	84 kVA						
MOMENTARY POWER	135 kVA						
MR SYSTEM BREAKER SIZE (A)	150 A						
ALL BREAKERS ARE RATED AT 80%							

# POWER QUALITY

POOR POWER WILL ALTER EQUIPMENT PERFORMANCE IT IS IN THE CUSTOMER'S INTEREST THAT THE ELECTRICAL CONTRACTOR BE RESPONSIBLE FOR TESTING AND VERIFYING THAT THE EQUIPMENT POWER SUPPLY COMPLIES WITH THE SIEMENS SPECIFICATIONS.

## DEMAND AND CAPACITY

1) IF EQUIPMENT UPGRADE IS ANTICIPATED, INSTALLING ELECTRICAL POWER TO MEET THE REQUIREMENTS OF THE HIGHER POWER GRADIENT PACKAGE AT THE TIME OF INITIAL INSTALLATION WILL REDUCE THE COST TO UPGRADE THE ELECTRICAL SYSTEM LATER.

2) RECOMMENDED TRANSFORMER SIZE (SYSTEM WITHOUT UPS) IS BASED ON INDUSTRY STANDARD ISOLATION TRANSFORMER KVA RATINGS. SOURCE IMPEDANCE FEEDING THE MAGNETOM SYSTEM, INCLUDING ANY ISOLATION TRANSFORMERS, MUST MEET EQUIPMENT REQUIREMENTS AS LISTED HERE. SIEMENS RECOMMENDS A TRANSFORMER WITH COPPER WINDINGS. AN ELECTRO-STATIC SHIELD, AND A LOW IMPEDANCE (<3%) TO ENSURE THAT SOURCE IMPEDANCE REQUIREMENTS ARE MET.

3) OVER CURRENT PROTECTION IS SPECIFIED FOR SYSTEMS WITHOUT AN UNINTERRUPTIBLE POWER SUPPLY (UPS). ADDITION OF A UPS REQUIRES A HIGHER CAPACITY MAINS CONNECTION (DEPENDENT UPON UPS MODEL AND SIZE). MAXIMUM FAULT CURRENT IS DEPENDENT UPON THE IMPEDANCE OF THE FACILITY ELECTRICAL SYSTEM. THE CUSTOMER'S ARCHITECT OR ELECTRICAL CONTRACTOR TO SPECIFY AIC RATING OF OVER CURRENT PROTECTION BASED ON FACILITY IMPEDANCE CHARACTERISTICS.

4) MOMENTARY POWER IS BASED ON A MAXIMUM RMS VALUE FOR A PERIOD NOT TO EXCEED FIVE (5) SECONDS, AS DEFINED IN NEC. 17.2. STAND-BY AND AVERAGE CURRENT ARE SUBSTANTIALLY LOWER.

5) THE CONDUCTOR SIZE SHOULD BE SELECTED TO MEET THE VOLTAGE DROP REQUIREMENTS, TAKING INTO CONSIDERATION THE MAINS CAPACITY, RUN LENGTH, AND ANY ADDITIONAL TRANSFORMERS USED TO OBTAIN THE PROPER EQUIPMENT VOLTAGE LEVEL. NEMA STANDARD XR-9-1989 (R1994,R2000) PROVIDES GENERAL GUIDELINES FOR SIZING CONDUCTORS, TRANSFORMERS, AND ELECTRICAL SYSTEMS FOR MEDICAL IMAGING SYSTEMS.

6) LONG-TIME POWER IS BASED ON THE HIGHEST AVERAGE RMS VALUES FOR A PERIOD EXCEEDING 5 MINUTES DURING CLINICAL SYSTEM OPERATION, AS DEFINED IN NEC 517.2.

7) A CIRCUIT BREAKER WITH A HIGH INRUSH RATING (>8x RATED CURRENT) IS REQUIRED TO PERMIT SWITCH-ON OF THE UPS SYSTEM WITHOUT SPURIOUS TRIPPING. CIRCUIT BREAKERS WITH AN ADJUSTABLE MAGNETIC TRIP (SIEMENS FD6 SERIES OR SIMILAR) ARE HIGHLY RECOMMENDED.

REV 1

# ELECTRICAL INSTALLATION NOTES

1) INSTALL THE MR SYSTEM CIRCUIT BREAKER IN OR NEAR THE EQUIPMENT ROOM. THE PERMITTED FRINGE FIELD FOR THE PANEL IS UP TO 3mT. IF THE FRINGE FIELDS HAVE HIGHER VALUES, MAGNETIC SHIELDING MUST BE PROVIDED OR THE DISTANCE FROM THE MAGNET MUST BE INCREASED.

2) AN ACCEPTABLE MEANS FOR SWITCHING MAIN POWER ON AND OFF SHOULD BE INSTALLED IN THE MAIN BREAKER PANEL. INSTALL EMERGENCY SHUTDOWN BUTTONS IN EACH ROOM WHERE THERE IS SIEMENS EQUIPMENT.

3) THE ELECTRICAL FEEDER TO THE SIEMENS EQUIPMENT MUST FÉED ONLY THE IMAGING SYSTEM AND BE KEPT SEPARATE FROM ELECTRICAL FEEDERS TO HVAC, MOTORS, PUMPS, COMPRESSORS, ELEVATORS AND OTHER POTENTIAL SOURCES OF ELECTRICAL INTERFERENCE.

4) THE EMERGENCY POWER OFF (EPO) BUTTONS ARE TO BE MUSHROOM TYPE WITH PUSH LOCK AND PULL TO RELEASE.

5) WALL RECEPTACLES MADE OF FERROMAGNETIC MATERIALS ARE NOT PERMITTED IN THE EXAM ROOM. PERIPHERAL UNITS (SUCH AS VENTILATORS) NOT APPROVED FOR USE IN A HIGH MAGNETIC FIELD ENVIRONMENT CAN INFLUENCE THE MAGNETIC FIELD, COMPROMISING IMAGE QUALITY. THE CUSTOMER IS RESPONSIBLE FOR INSTALLATION AND USE OF RECEPTACLES IN THE EXAM ROOM. INSTALLATION OF RECEPTACLES AND THE FILTERS REQUIRED ARE TO BE COORDINATED WITH THE RF SHIELDING SUPPLIER.

6) THE RF SHIELD MUST BE FITTED WITH A GROUND STUD OR BUS BAR, LOCATED WITHIN 24" OF THE AUXILIARY FILTERS FOR ROOM LIGHTS AND OUTLETS, SUPPLIED AND INSTALLED BY THE RF SHIELD SUPPLIER.

7) IN ORDER TO PREVENT GROUND LOOPS, ALL CUSTOMER OR CUSTOMER/CONTRACTOR SUPPLIED AC POWER ENTERING THE EXAMINATIÓN ROOM (I.E. OUTLETS, EPO, ETC.) SHOULD BE SUPPLIED VIA AN ISOLATION TRANSFORMER. THE ISOLATION TRANSFORMER SECONDARY WINDING GROUND CONDUCTOR SHOULD BE CONNECTED TO THE RF SHIELD GROUND STUD OR BUS BAR.

REV

## **GROUNDING NOTES**

EQUIPMENT GROUNDING CONDUCTOR TO COMPLY WITH THE FOLLOWING:

1) SIZE GROUNDING WIRE TO SIEMENS EQUIPMENT PER POWER SCHEDULE REQUIREMENTS. 2) DERIVED FROM THE ELECTRICAL SERVICE, TRANSFORMER

OR MAIN DISTRIBUTION PANEL FEEDING THE SIEMENS EQUIPMENT.

3) RUN IN THE SAME CONDUIT, TROUGH OR RACEWAY AS THE PHASE CONDUCTORS. 4) CONTINUOUS, WITH NO BREAKS OR USE OF CONDUIT,

CHASSIS OR EARTH AS THE SOLE GROUNDING PATH. 5) BONDED TO CHASSIS AND/OR CONDUIT IN ACCORDANCE WITH THE NEC REQUIREMENTS. 6) MINIMIZE CONNECTIONS OR TERMINALS TO ENSURE

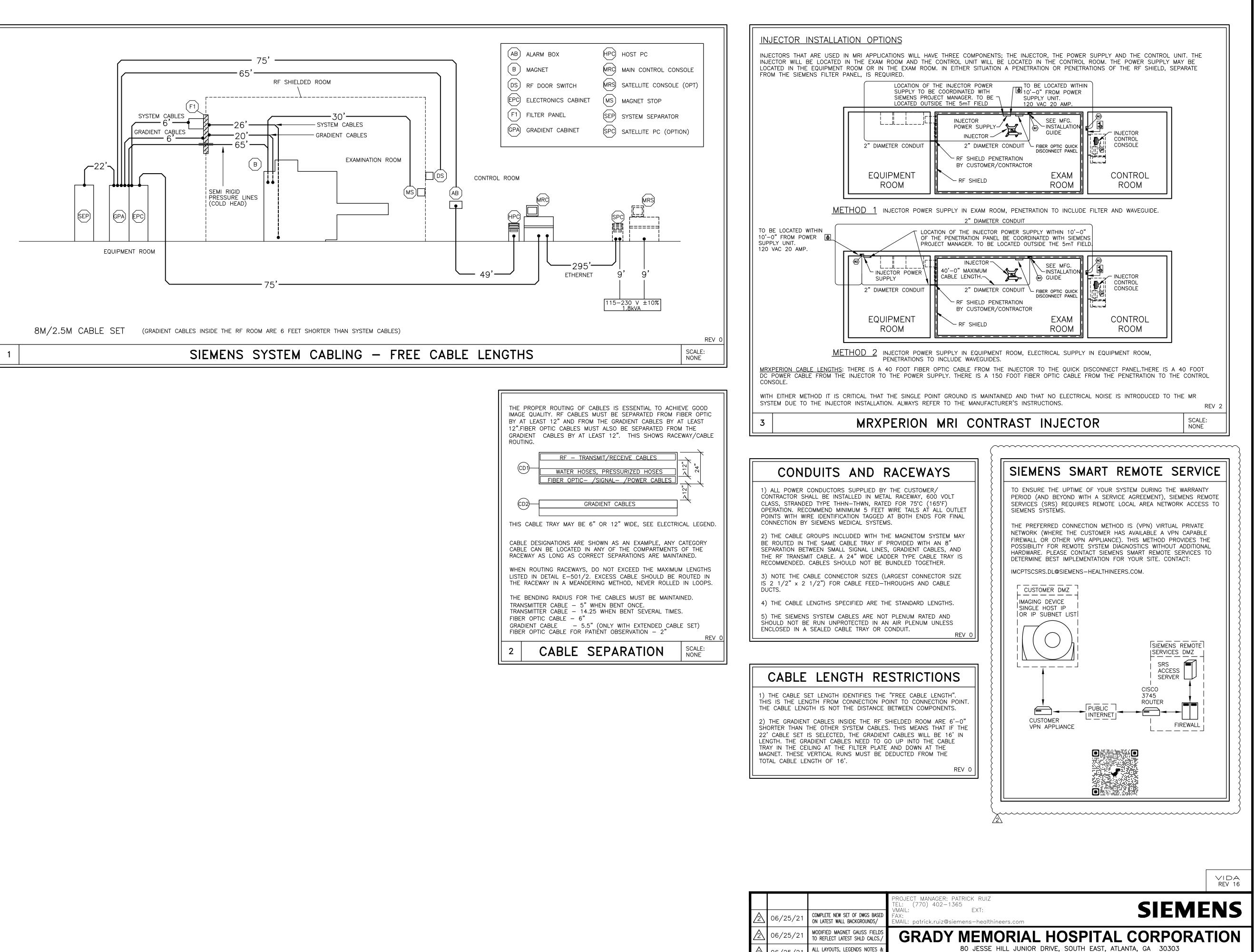
CONTINUITY OVER THE LIFE OF THE INSTALLATION. 7) AS A NORM, THERE SHOULD NOT BE ANY CURRENT PRESENCE ON THE GROUND CONDUCTOR, BUT IT IS ACCEPTABLE TO HAVE <500mA DURING OPERATION OF THE

IMAGING EQUIPMENT.

MR GROUNDING NOTES THE INTERNAL GROUND WIRING OF THE MR SYSTEM MUST BE INSTALLED WITH MINIMUM GROUND LOOPS. THIS IS TO PREVENT NOISE CURRENTS AND GENERAL DISTURBANCES FROM FLOWING THROUGH THE GROUNDING PATH. TO ACHIEVE SUCH GROUNDING, THREE MAJOR GROUND POINTS SHOULD BE USED. DISTRIBUTION PANEL EXTERNAL CHILLER MAIN GROUND BUS + UPS |↓ (OPTIONAL) | ↓ (OPTIONAL) | 2 SIEMENS ELECTRONIC CABINET (ACC/CCA/ ECA/EPC) MAIN GROUND CONNECTION FOR ALL SYSTEM COMPONENTS MRC CONSOLE COOLING EQUIPMENT ↓ (SEP/RCA/EFU) RF PENETRATION PANEL 3 RF ROOM ⊥ MAGNET REV 0

VIDA REV 16

						REV 10
		PROJECT MANAGER: TEL: (770) 402–1 VMAIL:				SIEMENS
06/25/21	COMPLETE NEW SET OF DWGS BASED ON LATEST WALL BACKGROUNDS/			eers.com		SIEIVIENS
06/25/21	MODIFIED MAGNET GAUSS FIELDS TO REFLECT LATEST SHLD CALCS./	GRADY	' MEMC	DRIAL HO	SPITAL C	ORPORATION
06/25/21	ALL LAYOUTS, LEGENDS NOTES & DETAILS UPDATED ACCORDINGLY			ILL JUNIOR DRIVE, SO ROOM #2 - MAGNE		
05/11/21	NEW WALL BACKGROUNDS/ ADD CASEWORK & SHIFT MAGNET	THIS TITLE BLO	CK WITHOUT	PROJECT #:		SHEET:
06/25/21	2003356RRA DATED 09/10/20 APPROVED BY CUSTOMERS FOR FINALS		CUTION UNDER	2003	3356	
DATE	DESCRIPTION	ALL RIGHTS ARE		7 10	DRAWN BY: D. BRISTOE	
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- THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. - THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

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2) T SHOF 22' LENG TRAY MAGN TOTA

06/25/21 05/11/21 06/25/21

DATE

DETAILS UPDATED ACCORDINGL NEW WALL BACKGROUNDS/ A

CASEWORK & SHIFT MAGNET

2003356RRA DATED 09/10/

APPROVED BY CUSTOMERS FOR FINALS

DESCRIPTION

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MRI ROOM #2 - MAGNETOM VIDA XQ GRADIENTS

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06/25/21

DRAWN BY

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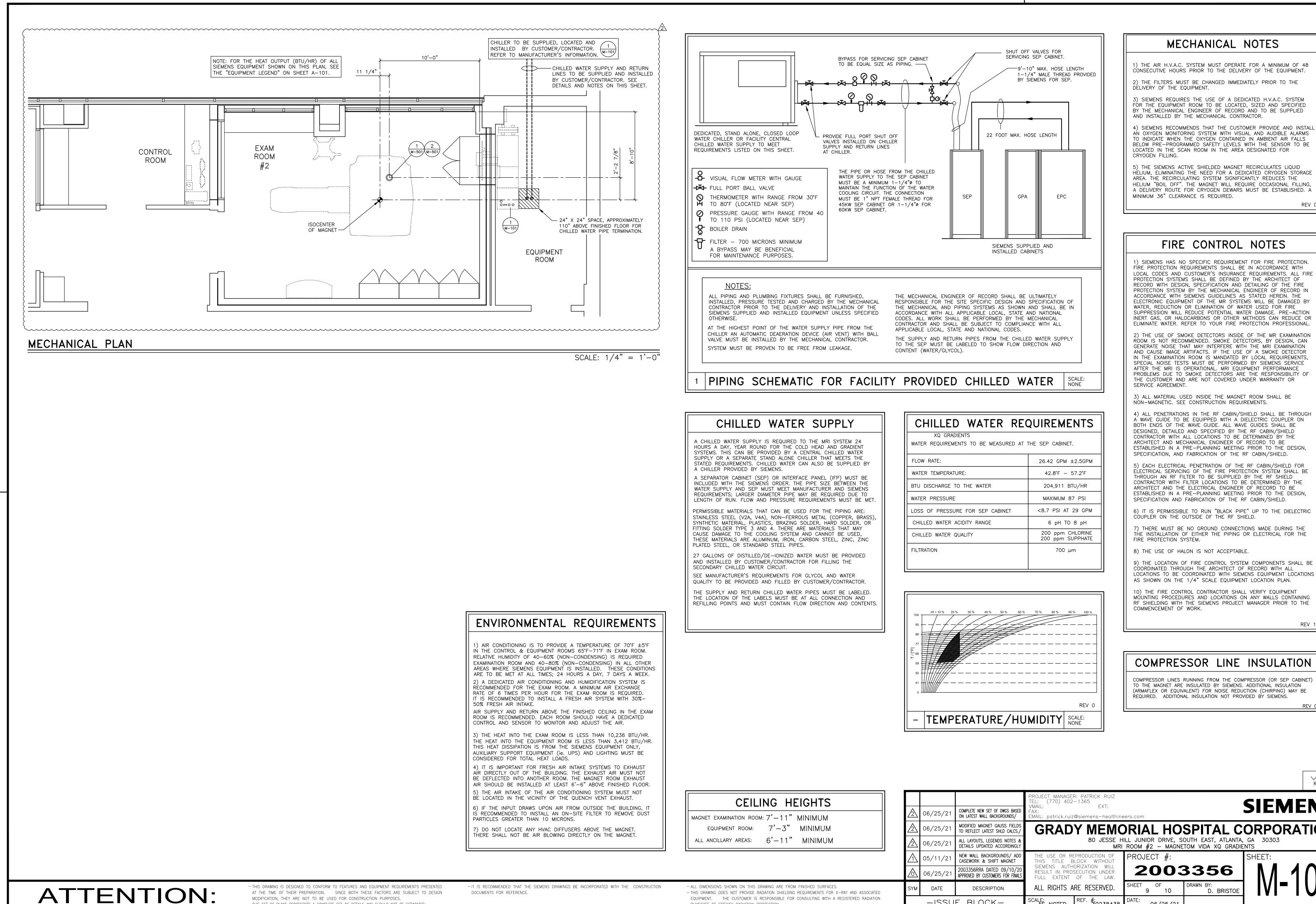
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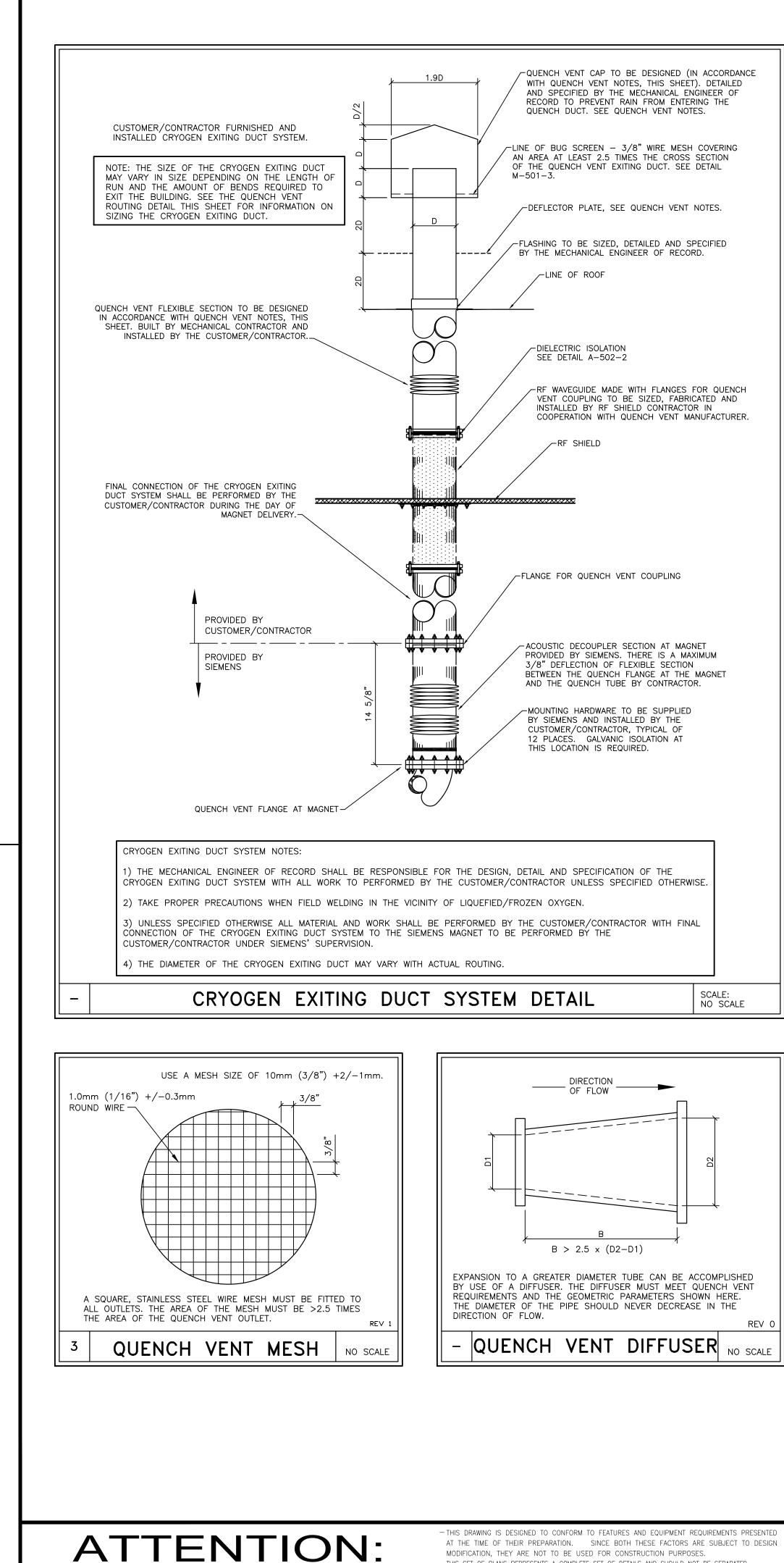
EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.



REV 1

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									VIDA REV 16
			PROJECT MANAGER TEL: (770) 402 VMAIL:					SIEME	
7	06/25/21	COMPLETE NEW SET OF DWGS BASED ON LATEST WALL BACKGROUNDS/	FAX:	@siemens-healthine	ers.com				.113
7	06/25/21	MODIFIED MAGNET GAUSS FIELDS TO REFLECT LATEST SHLD CALCS./	GRAD	Y MEMC	<b>DRIA</b>		SPITAL C	ORPORA	TION
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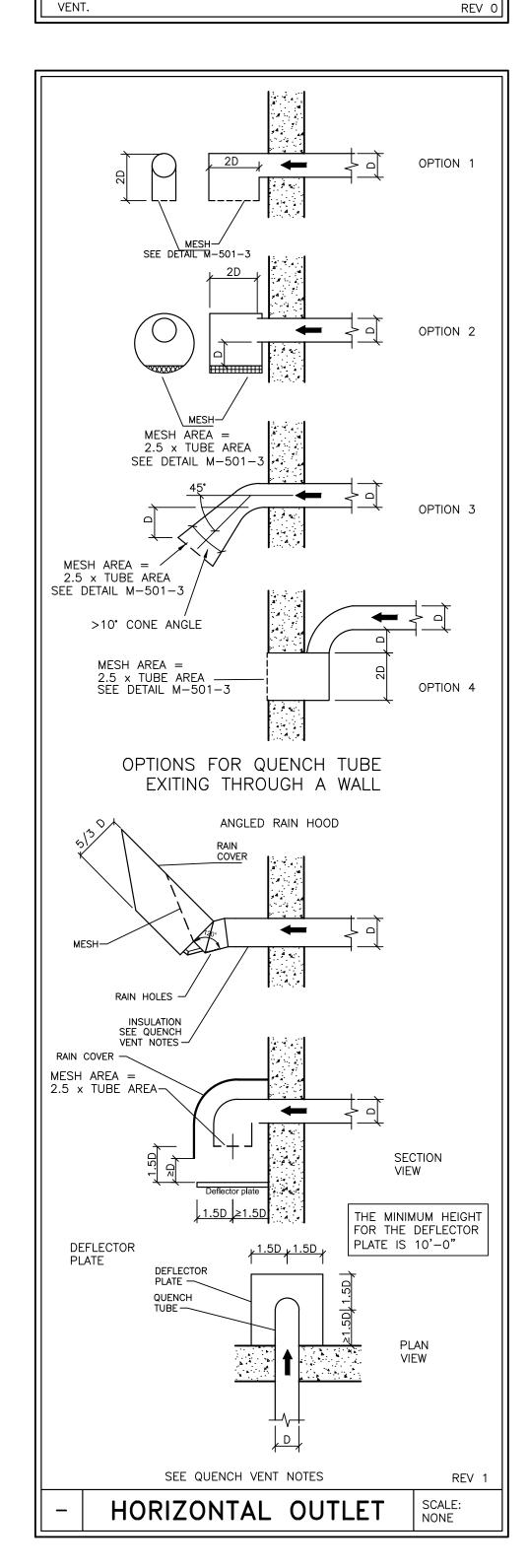
### CRYOGEN NOTES

) "CRYOGENS" IS A TERM USED TO IDENTIFY THE REFRIGERANT USED TO MAKE THE MAGNET "SUPER-CONDUCTING", IN THIS APPLICATION, LIQUID AND GASEOUS HELIUM. SPECIAL CARE MUST BE TAKEN DURING THE TRANSFILLING OF THE MAGNET WITH CRYOGENS AND NORMAL EXHAUST OF CRYOGENS FROM THE SYSTEM. ASIDE FROM THE OBVIOUS DANGER OF FREEZING, HELIUM GAS WILL ALSO DISPLACE THE OXYGEN IN THE ROOM. THE INSTALLATION OF AN APPROVED TOXGARD MONITORING SYSTEM IS RECOMMENDED.

2) THERE SHALL BE A TRANSPORT ROUTE FOR DELIVERY OF CRYOGENS TO THE EXAM ROOM. SPECIAL VESSELS CALLED DEWARS ARE USED TO TRANSPORT HELIUM. A 250 LITER DEWAR WEIGHS 335 POUNDS AND HAS A 32" DIAMETER, A 500 LITER IS 540 POUNDS, AND IS 42" IN DIAMETER.

3) HELIUM GAS CYLINDERS MAY BE USED DURING THE INITIAL FILLING OF HELIUM INTO THE MAGNET. THE FACILITY IN WHICH THESE MAY BE USED NEEDS TO HAVE THE ABILITY TO TEMPORARILY STORE AND SECURE THESE CYLINDERS THAT WILL PREVENT THEM FROM INADVERTENTLY FALLING OVER.

4) OUTSIDE VENTING OF THE HELIUM IS TO BE PROVIDED BY MEANS OF A VENT PIPE OF NON-MAGNETIC MATERIAL CALLED A QUENCH



#### QUENCH VENT NOTES

#### QUENCH VENT DESIGN INSTRUCTIONS 1) IN THE EVENT OF A QUENCH, THE THERMAL ENERGY DISSIPATED CAUSES AN EXTREMELY RAPID BOIL OFF OF THE LIQUID HELIUM. THE SYSTEM MUST BE CAPABLE OF VENTING THE LARGE VOLUME OF GAS GENERATED AT THE APPROXIMATE EXPANSION RATIO OF 1:700 FROM LIQUID AT 4.2°K TO ROOM TEMPERATURE GAS. THE EXHAUST SYSTEM IS CRITICAL FOR THE SAFE OPERATION OF THE MAGNET. THE DATA IN THIS DOCUMENT MUST BE FOLLOWED. SINCE HELIUM VENTED IN A QUENCH IS AN ASPHYXIANT & AN EXTREMELY COLD GAS, THE QUENCH TUBE MUST ALWAYS END AT A POINT WHERE ACCESS BY PEOPLE IS NOT POSSIBLE. QUENCH TUBE PLANNING MUST ONLY BE DONE BY QUALIFIED PERSONNEL. IT IS THE OWNER'S RESPONSIBILITY TO ENSURE THAT THE QUENCH TUBE IS MAINTAINED IN AN OPERABLE STATE.

2) IF THE QUENCH VENT IS NOT CONFIGURED CORRECTLY THERE IS A RISK OF DANGER THAT MAY LEAD TO DEATH OR SERIOUS INJURY AND CAN RESULT IN STRUCTURAL DAMAGE. THE EXHAUST MUST NOT BE VENTED IN AN ENCLOSED SPACE. THE OPERATOR OF THE SYSTEM MUST PREPARE AN EMERGENCY PLAN IN THE EVENT OF A QUENCH. 3) THE QUENCH TUBE CONSISTS OF STRAIGHT, HYDRAULICALLY SMOOTH SECTIONS. BENDS UP TO 90° AND A DIFFUSER, IF REQUIRED. THE END OF THE TUBE MUST BE PROTECTED FROM RAIN, SNOW, AND FOREIGN OBJECTS. ROUND SECTIONS ONLY, NO SQUARE SECTIONS. 4) THE SIEMENS MAGNET HAS A QUENCH VALVE ASSEMBLY FOR CONNECTION TO THE TUBE LOCATED AT THE TOP LEFT SIDE OF THE MAGNET (SEE MAGNET ELEVATION). THE MECHANICAL CONTRACTOR WILL SUPPLY AND INSTALL A QUENCH VENT TUBE WITH CAP, TO BE NON-MAGNETIC STAINLESS STEEL ( $\geq$ 22 GAUGE RECOMMENDED). GRADES AISI304, 309, 316, OR 321 ONLY. THERMAL CONDITIÓNS MAY CAUSE THE TUBE TO CONTRACT UP TO 3mm/METER SO A STAINLESS STEEL BELLOWS OR FLEXIBLE SECTION MUST BE INSTALLED A MINIMUM OF EVERY 32'-9" NOT TO EXCEED 2% OF THE OVERALL LENGTH. THE QUENCH TUBE MAY ALSO BE MADE OF ALUMINUM, EXTRUDED TUBE ALUMINUM GRADES 6063 AND 6082 ONLY MUST BE USED. ROLLED AND WELDED TUBE FROM SHEET ALUMINUM GRADE 5083 ONLY MUST BE USED. THE WALL SECTIONS OF ALUMINUM TUBE MUST BE A MINIMUM 14 GAUGE. THERMAL CONTRACTION OF 4.5 MM/METER MUST BE CONSIDERED FOR ALUMINUM QUENCH TUBES. THE MOVEMENT OF THE BELLOWS MUST BE RESTRICTED TO PREVENT EXCESSIVE EXPANSION DUE TO PRESSURE. THE WEIGHT OF THE TUBE MUST BE SUPPORTED BY THE BUILDING AND BE FLEXIBLE ENOUGH TO ALLOW MOVEMENT FROM THERMAL CONTRACTION. THE WALL EXIT SHOULD

#### ALSO BE FLEXIBLE. PRESSURE CALCULATION

5) THE MAXIMUM INTERNAL PRESSURE IS CALCULATED AT 1.45 PSI. THE MAXIMUM PRESSURE SHOULD BE ENGINEERED FOR 6.5 PSI.

6) USE THE QUENCH VENT CALCULATOR PROVIDED BY SIEMENS TO DESIGN A QUENCH VENT THAT MEETS DESIGN REQUIREMENTS FOR DIAMETER. LENGTH. NUMBER OF ELBOWS AND PRESSURE DROP. ALL BENDS MUST BE SMOOTH WALLED AND HAVE A CENTERLINE TO INTERNAL PIPE DIAMETER RATIO OF 1.5 TO 5.0. EXPANSIONS TO PIPE DIAMETER CAN BE DONE WITH A DIFFUSER. ONLY ROUND TUBE

SECTIONS MAY BE USED, RECTANGULAR SECTIONS ARE NOT ALLOWED. 7) THERE MUST BE A 12-19 INCH FLEXIBLE SECTION OF PIPE FOR CONNECTION TO THE QUENCH VALVE AT THE MAGNET WITH AN INSIDE DIAMETER GREATER THAN 4" (1.5T) OR 6" (3.0T) AND ABLE TO WITHSTAND 6.5 PSI.

CONNECTING SECTIONS 8) SECTIONS OF THE PIPE CAN ONLY BE JOINED BY WELDING OR BOLTED FLANGES WITH FIBER GASKETS. ROTARY FLANGES ARE PERMITTED, VEE CLAMPED FLANGES MAY NOT BE USED.

QUENCH VENT EXIT 9) THE PROTECTION AT THE END OF THE TUBE SHALL BE 3/8" WIRE MESH WITH 1/16 INCH WIRES, COVERING AN AREA AT LEAST 2.5 TIMES THE CROSS SECTION AREA OF THE QUENCH PIPE.

10) WHERE THE QUENCH TUBE EXITS THROUGH A FLAT ROOF. THE THE OUTLET MUST BE ABOVE A LEVEL WHERE WATER COULD ENTER IN THE EVENT THAT THE ROOF DRAINS BECOME BLOCKED. IN THE CASE OF A HORIZONTAL EXIT THROUGH A WALL, THE OUTLET SHALL BE ANGLED DOWNWARD NOT LESS THAN 1 PIPE DIAMETER TO PREVENT RAIN INGRESS. THE EXIT SHALL BE LOCATED ABOVE THE LEVEL OF DRIFTING SNOW.

11) WHERE THE QUENCH TUBE EXITS VERTICALLY, A RAIN COVER MÚST ALSO BE FITTED WITH THE DIAMETER TO BE TWO TIMES THE DIAMETER OF THE QUENCH TUBE. THE CLEARANCE BETWEEN THE RAIN GUARD AND THE MESH SHALL 2 TIMES THE DIAMETER OF THE TUBE. A DEFLECTOR PLATE SHALL BE WELDED TO THE TUBE WHERE IT EXITS THE ROOF TO PREVENT HELIUM FROM RE-ENTERING THE BUILDING. THE DEFLECTOR SHALL BE AT LEAST 3 TIMES THE DIAMETER OF THE QUENCH TUBE AND LOCATED TWO PIPE DIAMETERS ABOVE THE ROOF AND TWO PIPE DIAMETERS BELOW THE RAIN GUARD.

DURING A QUENCH THE HELIUM GAS EXITING THE QUENCH PIPE MAY BE AT TEMPERATURES OF LESS THAN -400°F. DUE TO THIS TEMPERATURE ROOFING MATERIALS OR ITEMS AROUND THE VENT EXIT MAY BE ADVERSELY AFFECTED. CONSIDERATION OF MATERIALS AND ITEMS PLACED NEAR THE VENT EXIT SHOULD BE TAKEN INTO ACCOUNT SO DAMAGE DOES NOT OCCUR.

12) WHERE THE QUENCH TUBE EXITS HORIZONTALLY, THE OUTLET MÚST CONFORM TO OPTIONS 1-4 OR THE ANGLED RAIN HOOD. THE OUTLET SHOULD NOT BE LOCATED WHERE HELIUM GAS CAN BE DRAWN INTO AN AIR INLET, ENTER AN OPEN WINDOW, OR BLOW DIRECTLY ONTO STRUCTURE OR EQUIPMENT. RESTRICT ACCESS TO WINDOWS AND DOORS TO AVOID INJURY FROM COLD BURNS AND ASPHYXIATION BY 9'-11" ON EACH SIDE, BELOW AND 19'-9" ABOVE, IF THE OUTLET IS POSITIONED TOO LOW A DEFLECTOR PLATE CAN BE USED WITH OPTION 1 AND 3.

WARNING SIGNS AND OUTLET RESTRICTIONS A WARNING SIGN MUST BE FIXED AND VISIBLE NEAR THE QUENCH VENT OUTLET. THE TUBE MUST HAVE A WARNING POSTED ALONG IT'S ENTIRE LENGTH FOR EXTREMELY COLD HELIUM GAS -AUTHORIZED PERSONNEL ONLY.

13) AREAS WITH ACCESS IN THE AREA OF THE OUTLET MUST BE CLÉARLY IDENTIFIED AND FENCED, FOR EXAMPLE, A ROOF OUTLET WITH MAINTENANCE ACCESS.

#### INSULATION AND GALVANIC SEPARATION

14) THE QUENCH TUBE MUST HAVE MINIMUM 1" INSULATION FOR THE FULL LENGTH. WITHIN THE RF ROOM THERE SHOULD BE A 1" LAYER OF MINERAL FIBER INSULATION WITH A VAPOR BARRIER AND " CLASS O OR CLASS AP ARMAFLEX. OUTDOOR PIPES MUST BE WEATHERPROOF. THE INSULATION MUST NOT TOUCH THE MAGNET COVERS. TO AVOID RF DISTURBANCES THE INSULATION MUST NOT MAKE ELECTRICAL CONTACT WITH THE WAVEGUIDE.

15) GALVANIC SEPARATION MUST BE PROVIDED BETWEEN THE MAGNET, THE QUENCH VENT, THE RF ROOM, AND THE BUILDING, TWO SEPARATIONS ARE REQUIRED USING STAINLESS STEEL BOLTS, INSULATING BUSHES AND LOCKING NUTS. NO OTHER DESIGNS ARE PERMITTED FOR SAFETY.

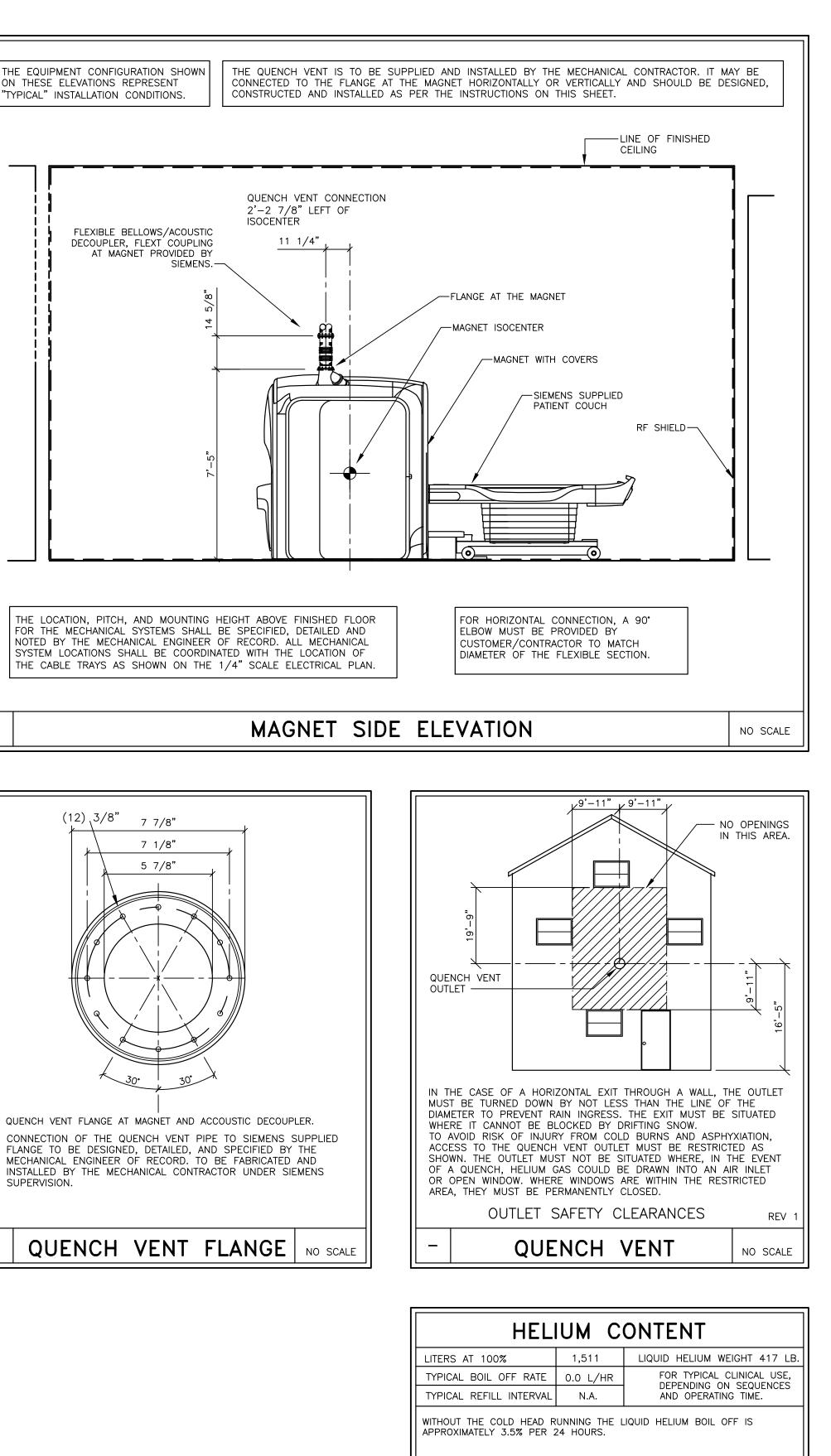
#### **DOCUMENTATION**

16) THE DESIGN AND CONSTRUCTION OF THE QUENCH PIPE MUST BE DOCUMENTED WITH DRAWINGS AND CALCULATIONS THAT ARE KEPT WITH INSTALLATION DOCUMENTS. IT MUST COMPLY WITH THE REQUIREMENTS IN THIS DOCUMENT BEFORE BEING CONNECTED TO THE MAGNET.

- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

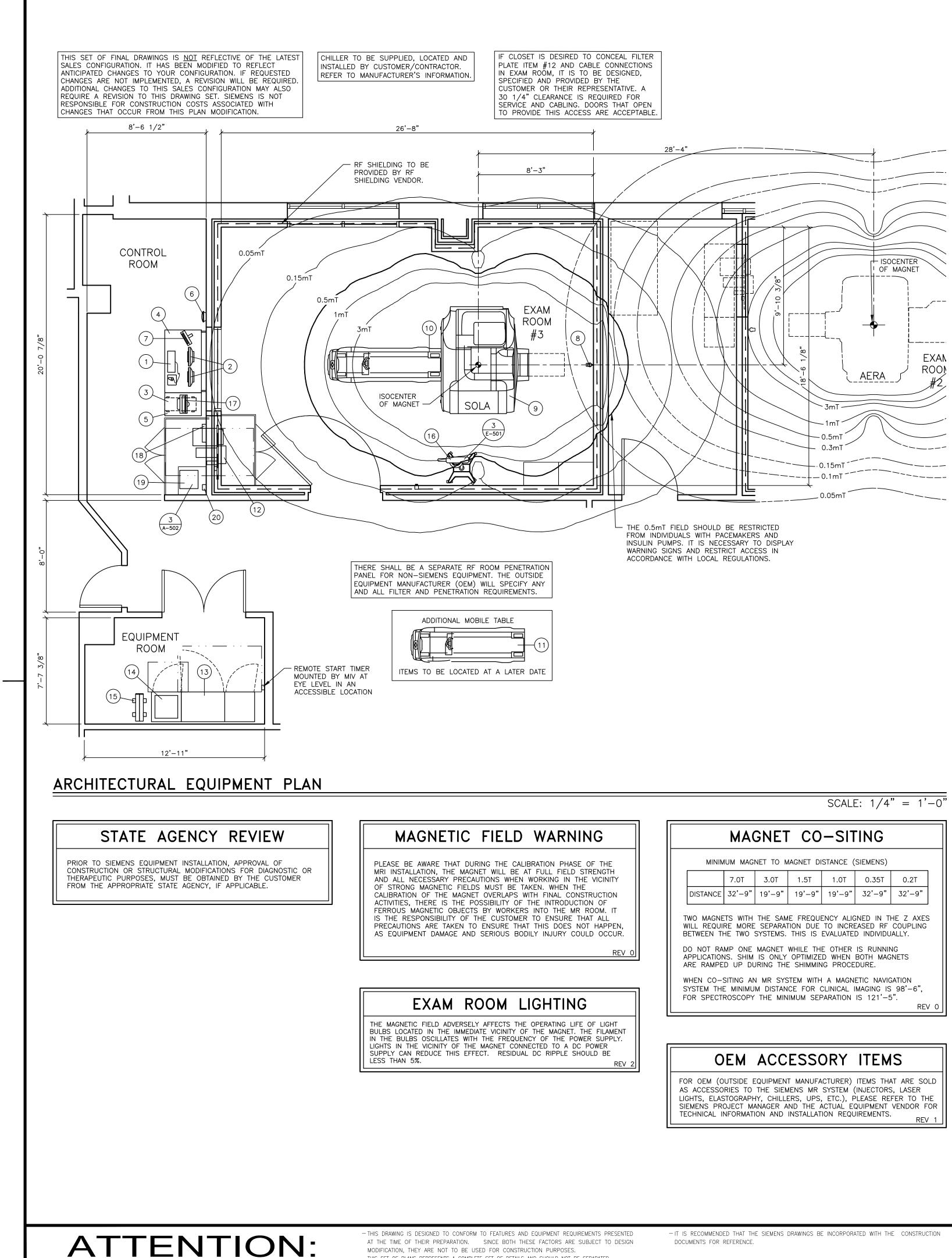
MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES.

- THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.



		PROJECT MANAGEF TEL: (770) 402- VMAIL:					SIEME	
06/25/21	COMPLETE NEW SET OF DWGS BASED ON LATEST WALL BACKGROUNDS/	FAX:	⊑∧ı. @siemens-healthine	ers.com			SIENIE	
06/25/21	MODIFIED MAGNET GAUSS FIELDS TO REFLECT LATEST SHLD CALCS./	GRAD	Y MEMC	RIAL	HO	SPITAL C	ORPORAT	ION
06/25/21	ALL LAYOUTS, LEGENDS NOTES & DETAILS UPDATED ACCORDINGLY					OUTH EAST, ATLANTA, TOM VIDA XQ GRADIE		
05/11/21	NEW WALL BACKGROUNDS/ ADD CASEWORK & SHIFT MAGNET	IIIIO IIIEE D	LOCK WITHOUT	PROJEC			SHEET:	
06/25/21	2003356RRA DATED 09/10/20 APPROVED BY CUSTOMERS FOR FINALS	RESULT IN PROS	ORIZATION WILL SECUTION UNDER OF THE LAW.	20	003	3356		
DATE	DESCRIPTION		RE RESERVED.	10	)F 10	DRAWN BY: D. BRISTOE		JI
-ISSUE BLOCK-		SCALE: AS NOTED	REF. #: 30238438	DATE: 06	/25/21			

VIDA REV 16



MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES.

- THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

		EQUIP	MENT	LEGE	ND			
NO	DESCRIPTION	SMS	WEIGHT	BTU/HR	DIMEN	SIONS (IN	CHES)	REMARKS
		SYM	(LBS)	TO AIR	W	D	н	
1	MRC KEYBOARD	$\overline{\bigcirc}$	5		27 1/4	10 1/8	1 3/4	ON CONSOLE/COUNTER
2	COLOR MONITOR FOR MRC	$\overline{\Box}$	22	239	18 5/16	4 3/4	16 15/16	ON CONSOLE/COUNTER
3	HOST PC MRC	(RC)	49	2,389	11	27	18 1/8	
4	MRC OPERATING CONSOLE TABLE	$\Box$	132		54 3/8	31 1/2	27-46	ADJUSTABLE HEIGHT
5	CONTAINER FOR HOST PC 500	$\overline{\Box}$	238		19 5/8	31 1/2	28 3/8	
6	ALARM BOX	AB	2		9	4	9	
$\overline{\mathcal{O}}$	PATIENT MONITOR	(PM)	9		13	8	12 1/2	
8	PATIENT SUPERVISION CAMERA	<b>(50)</b>	3		3 1/8	6 3/4	6 3/4	WALL MOUNTED
9	SOLA MAGNET IN OPERATION	B	8,779	7,506	91	170	86	
(10)	PATIENT TABLE (MOBILE)	$\Theta$	529		29 1/2	97 1/4	21-41	
(11)	ADDITIONAL PATIENT TABLE (MOBILE)	$\overline{\bigcirc}$	529		29 1/2	97 1/4	21-41	
(12)	RF-FILTER PLATE	(F1)	287	853	46 1/2	35 1/8	21 5/8	
(13)	ELECTRONICS CABINET (GPA/EPC CABINET)	(CPA)	3,307	<3,412	61 1/2	26	77 1/2	
(14)	SEP CABINET	Ð	750	<3,412	25 5/8	25 5/8	73 5/8	
(15)	LIEBERT GXT4 UPS WITH BATTERY	ß	164	1,121	17	23 5/8	6 3/4	
(16)	MRXPERION INJECTOR STAND AND HEAD		94		23 3/8	28 3/8	71 7/8	INJECTOR ON STAND
17	MRXPERION ICBC INJECTOR CRU	(N3)	17.6		15 3/4	10 1/4	13 1/2	ON CUSTOMERS COUNTER
18	MRXPERION ICBC INJECTOR POWER SUPPLY		6		15 3/8	3 3/8	15 1/2	LOCATED IN CONTROL ROOI CLOSET OUTSIDE 5mT FIEL
(19)	ELASTOGRAPHY ACTIVE DRIVER	(L)	53.5		15 3/4	15 3/4	6	PROVIDE SHELF
(20)	ELASTOGRAPHY TRIGGER BOX	(TB)			3 1/4	4 3/4	4 3/4	IN CONTROL ROOM CLOSET

PROTECTING	THE	MAGN	ETIC	FIEL	D
THE SIEMENS MR SYSTEM I EXTREMELY HOMOGENOUS F FREE IMAGING. THE PRESEN VICINITY OF THE MAGNET C USEFUL MAGNETIC FIELD. TI (STRUCTURAL STEEL) WHICH COMPENSATION MAY BE ACT USE OF SHIMS. DISTORTION (MOTOR VEHICLES, ELEVATO MAY REQUIRE THE USE OF	IELD WITHIN ICE OF FERF AN ADVERSE HIS APPLIES I IS TO BE HIEVED BY M CAUSED BY RS) IS MOR	THE MAGNET TO ROMAGNETIC MAT LY AFFECT THE TO STATIONARY MINIMIZED. STAT MAGNET POSITION MOVING FERRO E DIFFICULT TO	O PROVIDE FERIAL WITH UNIFORMIT FERROUS TONARY STI NING AND S DMAGNETIC	DISTORTION IN THE Y OF THE MATERIAL EEL SELECTIVE OBJECTS	0

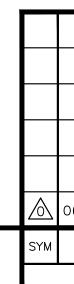
MAGNETIC FRINGE FIELDS								
MAGNETIC FIELDS MAY AFFECT THE FUNCTION OF DEVICES IN THE VICINITY OF THE MAGNET. THESE DEVICES MUST BE OUTSIDE CERTAIN MAGNETIC FIELDS. THE DISTANCES LISTED ARE FROM THE MAGNET ISOCENTER AND DO NOT CONSIDER ANY MAGNETIC ROOM SHIELDING.								
FIELD	X & Y	Z AXIS	DEVICES					
3.0mT	6'-1"	9'-2"	SMALL MOTORS, WATCHES, CAMERAS, CREDIT CARDS, MAGNETIC DATA CARRIERS.					
1.0mT	7'–3"	11'—7"	COMPUTERS, MAGNETIC DISK DRIVES, OSCILLOSCOPES, PROCESSORS					
0.5mT	8'-3"	13'–2"	CARDIAC PACEMAKERS, X—RAY TUBES, INSULIN PUMPS, B/W MONITORS, MAGNETIC DATA CARRIERS (LONG—TERM STORAGE)					
0.15mT	10'-4"	17'-4"	SIEMENS CT SCANNERS					
0.1mT	11'-2"	19'—1"	CRT MONITORS, SIEMENS LINEAR ACCELERATORS					
0.05mT	13'-6"	22'–8"	X-RAY IMAGE INTENSIFIERS, GAMMA CAMERAS, PET/CYCLOTRON, ELECTRON MICROSCOPES, LINEAR ACCELERATORS					
	THE OWNER/USER IS TO VERIFY THE LOCATION OF THE 0.5mT FIELD AND ENSURE THAT IT IS MAINTAINED AS A RESTRICTED AREA.							

MAGNI	ET SI	TING REQUIREMENTS					
IT MUST BE ENSURED THAT THE MAGNET IS LOCATED SO THAT THE STABILITY AND HOMOGENEITY OF THE MAGNETIC FIELD ARE NOT ADVERSELY AFFECTED BY EXTRANEOUS FIELDS AND STATIC OR DYNAMIC FERROMAGNETIC OBJECTS.							
X & Y AXES	Z AXIS	SOURCE OF INTERFERENCE					
4'-2	2"	FLOOR STEEL REINFORCEMENT<20 LBS./ FT <sup>2</sup> IRON BEAMS < 66 LBS./FT.					
16'-1"	19'-1"	MOVING METAL UP TO 110 LBS.					
13'-	1"	WATER COOLING UNIT (CHILLER)					
17'–5"	21'-4"	MOVING METAL UP TO 440 LBS.					
18'-1"	24'-8"	MOVING METAL UP TO 2,000 LBS.					
20'-5"	29'-7"	ELEVATORS, TRUCKS UP TO 10,000 LBS.					
13'-1"	13'-1"	AC TRANSFORMERS LESS THAN 650 KVA					
16'-5"	16'-5"	AC TRANSFORMERS LESS THAN 1600 KVA					
5'-0"	5'-0"	AC CABLES, MOTORS LESS THAN 250 AMPS					
8'-3"	8'-3"	AC CABLES, MOTORS LESS THAN 1000 AMPS					
FOR IRON OBJECTS LOCATED UP TO 45° FROM THE Z AXIS, THE DISTANCES FOR THE Z AXIS MUST BE USED. REDUCTION IS POSSIBLE WITH STEEL SHIELDING.							

	PROJECT MILESTONES							
PF	ROJECT MILESTONES TO BE COMPLETED BEFORE EQUIPMENT DELIVERY	REFERENCE SHEET						
	DELIVERY PATH VERIFIED	A-102						
	FLOOR LEVEL MEETS SIEMENS SPECIFICATIONS AND ALL BASEPLATES INSTALLED	S-101						
	RF ROOM TEST COMPLETED AND MEETS SIEMENS SPECIFICATIONS	A-502						
	ALL RACEWAY, CONDUITS AND JUNCTION BOXES INSTALLED	E-101						
	ALL PLUMBING INSTALLED AND TESTED	M-101						
	POWER SCHEDULE COMPLETED	E-102						
	ALL EPO BUTTONS INSTALLED AND TESTED	E-101						
	MR COMPATIBLE LIGHTING AND CEILING GRIDS INSTALLED IN MAGNET ROOM	A-101						
	CONTROL ROOM COMPLETED ENOUGH TO FACILITATE THE INSTALLATION	A-101						
	CHILLED WATER SUPPLY AVAILABLE AND MEETS SIEMENS SPECIFICATIONS	M-101						
	MR COMPATIBLE LIGHTING AND CEILING GRIDS INSTALLED IN MAGNET ROOM	A-101						
	HVAC SYSTEM COMPLETE, TESTED AND WORKING PER SIEMENS SPECIFICATIONS	M-101						
	QUENCH PIPE CONSTRUCTED AND INSTALLED PER SIEMENS SPECIFICATIONS	M-501						
	ETHERNET CONNECTION INSTALLED AND IN OPERATION AT THE SHOWN LOCATIONS	E-101						

EILING HEIGHTS	
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EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3'' MINIMUM



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

	MAGNET CO-SITING						
	MINIM	IUM MAG	NET TO N	IAGNET DI	STANCE (	SIEMENS)	
		7.0T	3.0T	1.5T	1.0T	0.35T	0.2T
	DISTANCE	32'-9"	19'–9"	19'–9"	19'–9"	32'-9"	32'–9"
BETWEEN THE TWO SYSTEMS. THIS IS EVALUATED INDIVIDUALLY. DO NOT RAMP ONE MAGNET WHILE THE OTHER IS RUNNING APPLICATIONS. SHIM IS ONLY OPTIMIZED WHEN BOTH MAGNETS ARE RAMPED UP DURING THE SHIMMING PROCEDURE.							
	WHEN CO-						

- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

## PROTECTING THE ENVIRONMENT

PROTECTING THE IMMEDIATE ENVIRONMENT FROM THE EFFECT OF THE MAGNETIC FIELD REQUIRES CONSIDERATION. INFORMATION STORED ON MAGNETIC DATA CARRIERS SUCH AS DISCS, TAPES AND CARDS MAY BE ERASED IF NEAR THE MAGNET. CAUTION WITH REGARD TO HEART PACEMAKERS MUST BE EXERCISED. MOST PACEMAKER UNITS EMPLOY A REED RELAY WHICH MAY CHANGE OPERATING MODE WHEN EXPOSED TO AN EXTERNAL MAGNETIC FIELD. PACEMAKER USERS MUST BE KEPT AT A SPECIFIED DISTANCE FROM THE MAGNET WHICH IS DETERMINED BY THE MAGNET FIELD STRENGTH. REV 0

AGNET	SITING	REQUIREMENTS	
	011110		

## ARCHITECTURAL NOTES

1) ALL PRELIMINARY EQUIPMENT LAYOUTS SUBMITTED BY SIEMENS HEALTHCARE ARE BASED ON THE RECOMMENDED SPACE NECESSARY FOR THE OPERATION AND SERVICEABILITY OF THE EQUIPMENT BEING PROPOSED. SIEMENS WILL NOT SUBMIT AN EQUIPMENT LAYOUT THAT IS NOT IN THE BEST INTEREST OF BOTH THE CUSTOMER AND SIEMENS. ALL EQUIPMENT LAYOUTS ARE BASED EITHER ON AN ACTUAL SITE SURVEY OR ARCHITECTURAL DRAWINGS SUPPLIED TO SIEMENS. SIEMENS WILL NOT BE RESPONSIBLE FOR ANY ALTERATIONS THAT ENCROACH WITHIN DESIGNATED SAFETY AND SERVICE CLEARANCE ZONES AS INDICATED ON DRAWINGS (I.E., PIPE CHASES, VENTILATION DUCTS, CASEWORK, AND SOFFITS, ETC.) MADE BY THE CUSTOMER OR REQUIRED BY A CUSTOMER'S ARCHITECTURAL FIRM ONCE PRELIMINARY DRAWINGS HAVE BEEN SUBMITTED AND APPROVED. DO NOT ALTER ANY

SPECIFICATIONS AND/OR DIMENSIONS WITHOUT CONTACTING AND RECEIVING WRITTEN CONFIRMATION FROM SIEMENS PROJECT MANAGER. 2) SIEMENS HEALTHCARE IS NOT AN ARCHITECTURAL OR ENGINEERING FÍRM. DRAWINGS SUPPLIED BY SIEMENS ARE NOT CONSTRUCTION DRAWINGS. THEREFORE, THESE DRAWINGS ARE TO BE USED ONLY FOR INFORMATION TO COMPLEMENT ACTUAL CONSTRUCTION DRAWINGS AVAILABLE FROM A CUSTOMER APPOINTED ARCHITECTURAL REPRESENTATIVE OR A CUSTOMER'S ENGINEERING DESIGN GROUP. THE CUSTOMER'S ARCHITECT AND GENERAL CONTRACTOR SHALL BE

ULTIMATELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE CODES AND PROFESSIONAL DESIGN REQUIREMENTS INCLUDING OSHA/NEC SAFETY CLEARANCE REQUIREMENTS IN ADDITION TO SIEMENS-REQUIRED SAFETY/SERVICE CLEARANCES SHOWN. 3) THE CUSTOMER IS RESPONSIBLE FOR ALL ROOM AND AREA PREPARATION COSTS, PROFESSIONAL FEES, PERMITS, REPORTS, AND

INSPECTION FEES. 4) EQUIPMENT WARRANTIES, EXPRESSED OR IMPLIED ON THE PART OF SIEMENS SHALL BE CONTINGENT UPON STRICT COMPLIANCE WITH THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, MECHANICAL AND RECOMMENDATIONS AND REQUIREMENTS CONTAINED IN THESE DRAWINGS, UNLESS SPECIFIED OTHERWISE.

5) ALL DIMENSIONS SHOWN ARE FROM FINISHED SURFACES UNLESS SPECIFIED OTHERWISE. 6) SIEMENS HEALTHCARE SHALL BE RESPONSIBLE FOR SIEMENS

EQUIPMENT INSTALLATION, CALIBRATION, CONNECTION AND INSTALLATION OF SIEMENS PROVIDED CABLES. THE CUSTOMER/ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR TERMINATIONS OF

CUSTOMER/ELECTRICAL CONTRACTOR-SUPPLIED CABLES TO SIEMENS EQUIPMENT. IN THE EVENT THAT SPECIFIC TRADE RULES OR LICENSE REQUIREMENTS PROHIBIT THIS, THE CUSTOMER SHALL INITIATE THE SERVICES OF APPROVED OTHER CONTRACTORS AND PAY FOR SELECTED, APPROVED PARTIES TO PERFORM THIS WORK WITH SUPERVISION PROVIDED BY SIEMENS. CALIBRATION WHEN ACCOMPLISHED OUTSIDE OF NORMAL INSTALLATION SEQUENCES DUE TO CONTRACTOR OR TRADE RULE ACTIONS OR REQUIREMENTS SHALL BE SUPPORTED BY, CHARGED TO, AND ACCEPTED BY THE CUSTOMER AS AN ADDITIONAL INSTALLATION

EXPENSE. 7) THE CUSTOMER SHALL COORDINATE WITH SIEMENS PROJECT MANAGER THE LOCATIONS AND TRAVEL OF ALL ANCILLARY EQUIPMENT TO BE CEILING OR WALL MOUNTED (I.E.: O.R. LIGHTS, MEDICAL GAS COLUMNS, PHYSIOLOGICAL MONITORING INJECTORS, CRT PLATFORMS, SPRINKLER HEADS, SMOKE DETECTORS, ELECTRICAL OUTLETS, HVAC GRILLES,

SPEAKERS, AND GENERAL ROOM LIGHTING, ETC.). 8) THE GENERAL CONTRACTOR/CUSTOMER SHALL BE RESPONSIBLE FOR ALL FINAL PAINT, TOUCH-UP AND ANY COSMETIC OR TRIM WORK WHICH NEEDS TO BE OR IS REQUIRED TO BE COMPLETED AFTER THE INSTALLATION OF THE SIEMENS EQUIPMENT AND ANY ASSOCIATED SUPPORT APPARATUS

9) CUSTOMER/CONTRACTOR MUST ASSIST SIEMENS INSTALLERS WITH INSTALLATION OF EQUIPMENT ABOVE 14'-0". REFER TO THE ELECTRICAL NOTES ON SIEMENS SHEET E-101 FOR MORE DETAILS.

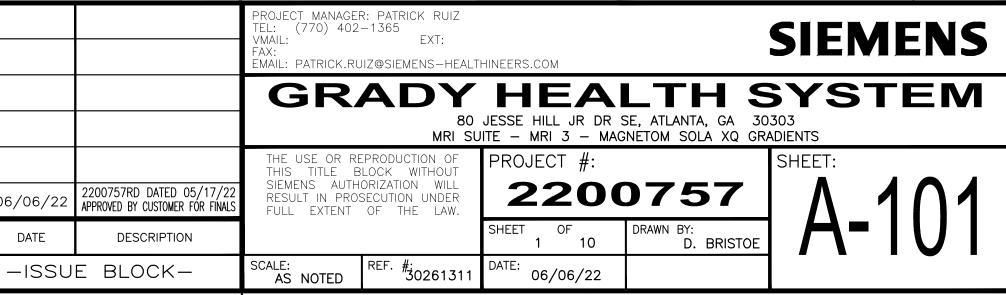
# CONSTRUCTION REQUIREMENTS

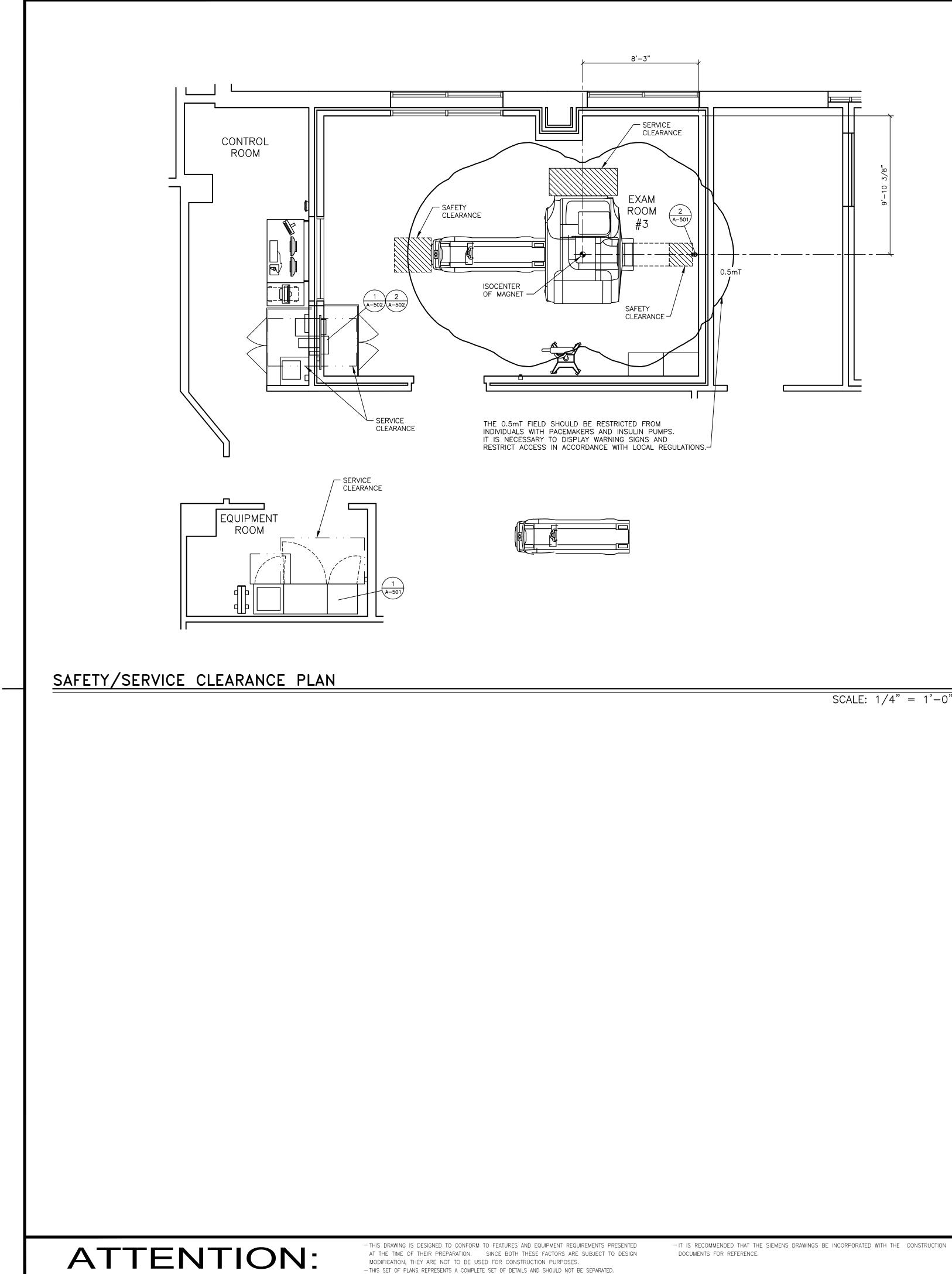
THE CUSTOMER/CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AND INSTALLING ALL CONSTRUCTION MATERIALS INCLUDING ELECTRICAL AND MECHANICAL DEVICES REQUIRED BY SIEMENS SPECIFICATIONS AND TO ENSURE THAT THE MATERIAL USED INSIDE THE RF-SHIELDING IS AS FREE OF FERROMAGNETIC PROPERTIES AS POSSIBLE. STEEL WALL STUDS ARE PERMITTED BUT MUST BE SECURED PROPERLY. ANY FERROUS MATERIAL INSIDE THE EXAM ROOM MAY BECOME A PROJECTILE AND CAUSE INJURY TO PEOPLE AND DAMAGE TO EQUIPMENT. FERROUS ITEMS INSIDE THE EXAM ROOM ARE THE LIABILITY OF THE CONTRACTOR AND/OR INSTALLER.

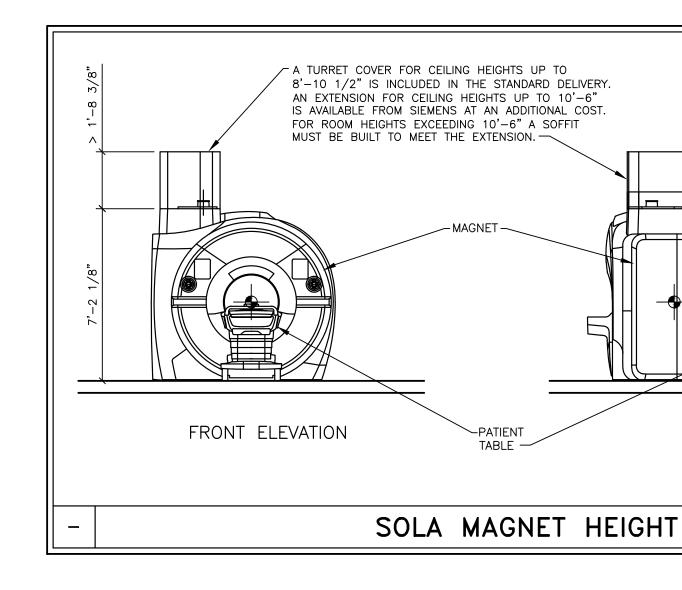
REV 3

CASEWORK & ACCESSORY NOTES 1) ALL CASEWORK IS EITHER EXISTING OR IS TO BE DESIGNED, DETAILED, FURNISHED AND INSTALLED BY THE CUSTOMER AND/OR CONTRACTOR. FOLLOW DESIGN RECOMMENDATIONS INCLUDED HEREWITH, AS THEY ARE ESSENTIAL FOR THE SUCCESSFUL INSTALLATION & OPERATION OF THE SIEMENS EQUIPMENT. 2) ALL FURNITURE (CHAIRS, ETC.) FOR THE CONTROL ROOM ARE TO BE PROVIDED BY THE CUSTOMER. REV 0

RESOURCE LIST (SMS USE ONLY) DESIGNATION PG NUMBER DATE PLANNING GUIDE M11-010.891.01.03.02 11.19 







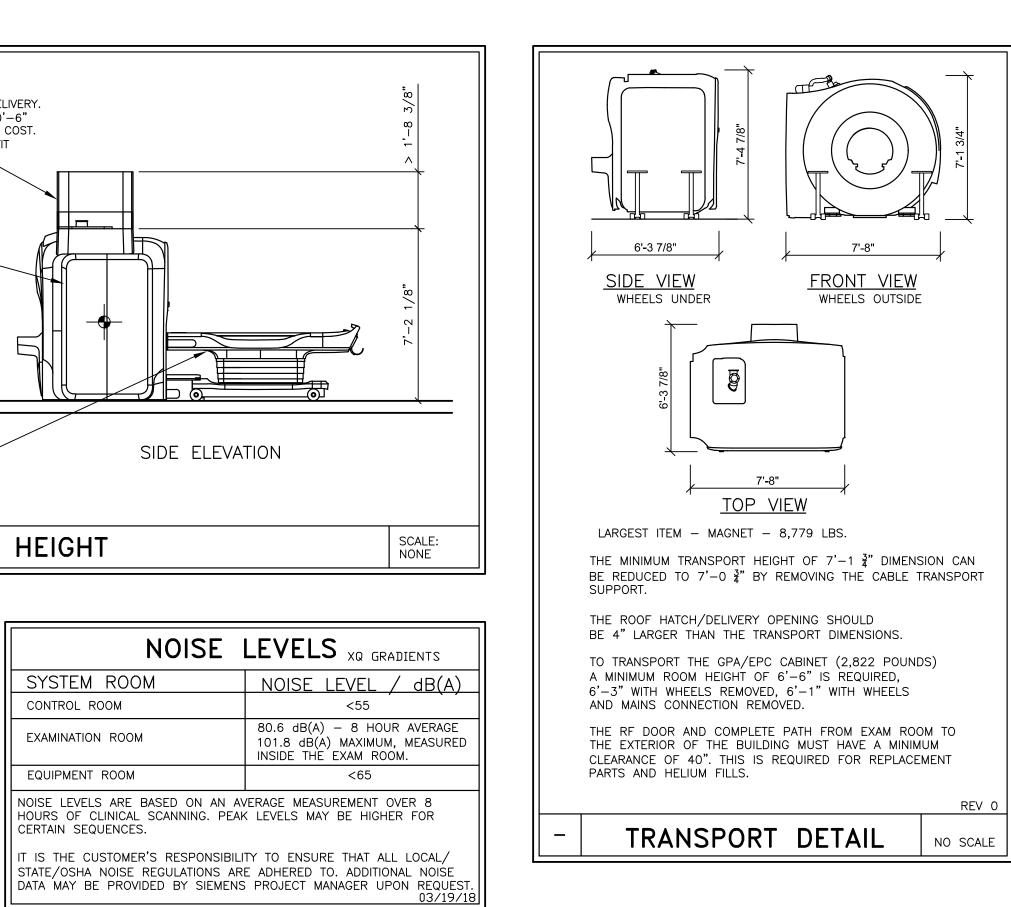
SCALE: 1/4" = 1'-0'

CEILING HEI	GHTS
EXAM ROOM 7'-11"	MINIMUM
DNTROL ROOM 6'-11	MINIMUM
	NAINTINALINA I

CC EQUIPMENT ROOM 7'-3" MINIMUM

$\land$	C
SYM	

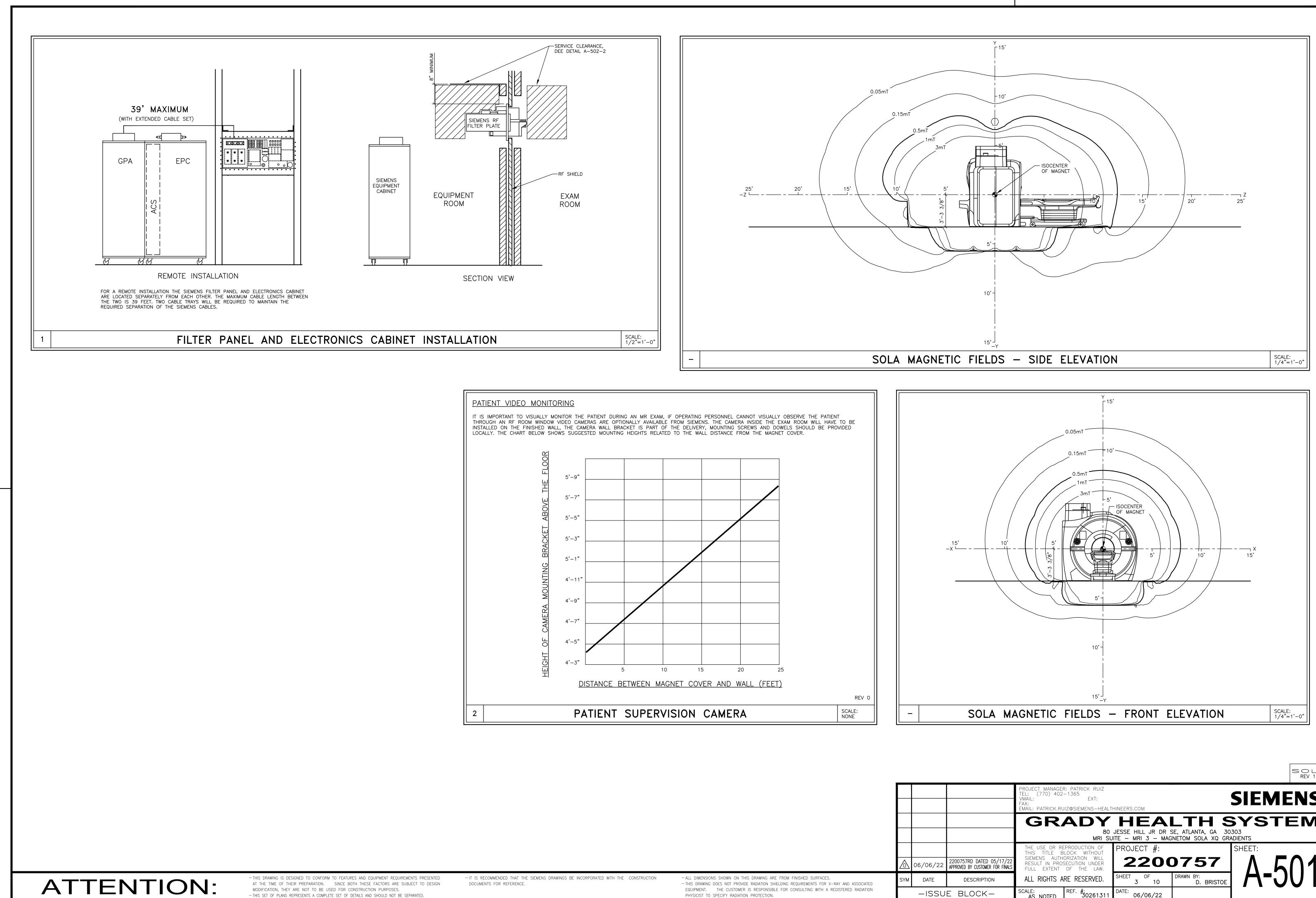
- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.



SURFACE COILS ARE COMPO ATTACHED TO THE PATIENT COILS SHOULD BE STORED THE DESIGN OF THE MR EX SPACE TO ACCOMMODATE A COILS MAY BE SELECTED F BY CUSTOMER/CONTRACTOR	TABLE DU SO THAT KAM ROOM NY COILS ROM THE	RING EXAMS THEY ARE F MUST HAVE THAT THE C	. WHEN NOT TREE FROM I E AMPLE STO WNER WILL	IN USE DAMAGE. DRAGE HAVE.	
COIL NAME	POUND	INCHES			
	WEIGHT	LENGTH	WIDTH	HEIGHT	
BIOMATRIX HEAD/NECK 20	13	16 3/4	14 5/8	15 1/8	
BIOMATRIX SPINE 32	23	47 1/4	19 1/4	3	
BODY 18	4	15 1/8	23 1/4	3	
FLEX LARGE 4	1.2	20 3/8	8 7/8	_	
FLEX SMALL 4	1	14 3/8	8 7/8	_	

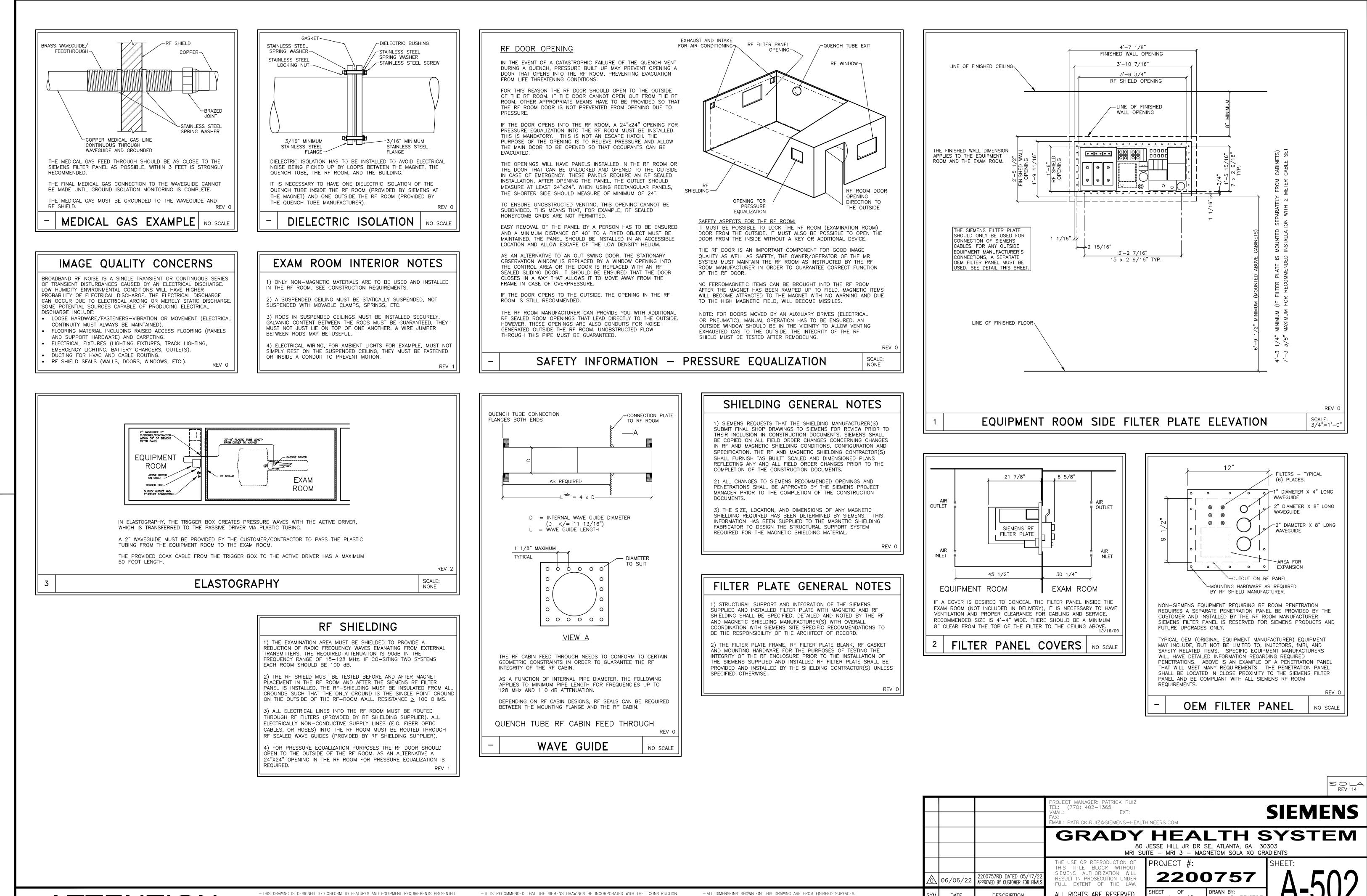
SURFACE COIL STORAGE

							SOLA REV 14
		PROJECT MANAGER: P. TEL: (770) 402–13 VMAIL: FAX: EMAIL: PATRICK.RUIZ@3	65 EXT:	HINEERS.COM		SIEME	INS
		GRA	80	JESSE HILL JR DR S	LTH S SE, ATLANTA, GA 30 GNETOM SOLA XQ GRA	303	EM
06/06/22	2200757RD DATED 05/17/22 APPROVED BY CUSTOMER FOR FINALS	SIEMENS AUTHORIZ	k without	PROJECT #: 2200	0757	SHEET:	∩ <u>)</u>
DATE	DESCRIPTION	ALL RIGHTS ARE		SHEET OF 2 10	DRAWN BY: D. BRISTOE		UZ I
-ISSU	E BLOCK-	SCALE: REF AS NOTED	<sup></sup> #: 30261311	DATE: 06/06/22			-



PHYSICIST TO SPECIFY RADIATION PROTECTION.

PROJECT MANAGER: PATRICK RUIZ TEL: (770) 402–1365       SIEMENS         WAIL:       EXT: FAX: EMAIL: PATRICK.RUIZ@SIEMENS-HEALTHINEERS.COM       SIEMENS         OBJESSE       HILL JR DR SE, ATLANTA, GA 30303 MRI SUITE - MRI 3 - MAGNETOM SOLA XQ GRADIENTS         0/06/22       22007557RD DATED 05/17/22 APPROVED BY CUSTOMER FOR FINALS       THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION UNLL REMENS AUTHORIZATION UNLL REMENS AUTHORIZATION UNLL SIEMENS AUTHORIZATION UNLL REMENS AUTHORIZATION UNLL SIEMENS AUTHORIZATION UNLL REMENS AUTHORIZATION UNLL REMEN							SOLA REV 14
80 JESSE HILL JR DR SE, ATLANTA, GA 30303 MRI SUITE - MRI 3 - MAGNETOM SOLA XQ GRADIENTS111			TEL: (770) 402 VMAIL: FAX:	-1365 EXT:	HINEERS.COM		SIEMENS
Bit Mills III Le BLOCK WITHOUT SIEMENS AUTHORIZATION WILL APPROVED BY CUSTOMER FOR FINALS       His III Le BLOCK WITHOUT SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER FULL EXTENT OF THE LAW.       2200757RD 04757         DATE       DESCRIPTION       ALL RIGHTS ARE RESERVED.       SHEET OF 10       DRAWN BY: 3       DRAWN BY: 0. BRISTOE			GR	80	JESSE HILL JR DR S	SE, ATLANTA, GA 30	303
DATE DESCRIPTION ALL RIGHTS ARE RESERVED. SHEET OF DRAWN BY: 3 10 D. BRISTOE	5/06/22	2200757RD DATED 05/17/22 APPROVED BY CUSTOMER FOR FINALS	THIS TITLE B SIEMENS AUTH RESULT IN PROS	BLOCK WITHOUT ORIZATION WILL SECUTION UNDER		0757	SHEET:
-ISSUE BLOCK- SCALE: REF. #: 06/06/22	DATE		ALL RIGHTS A	RE RESERVED.	3 10		A-DUI
	-ISSU	E BLOCK-	SCALE: AS NOTED	REF. #: 30261311	DATE: 06/06/22		



**ATTENTION:** 

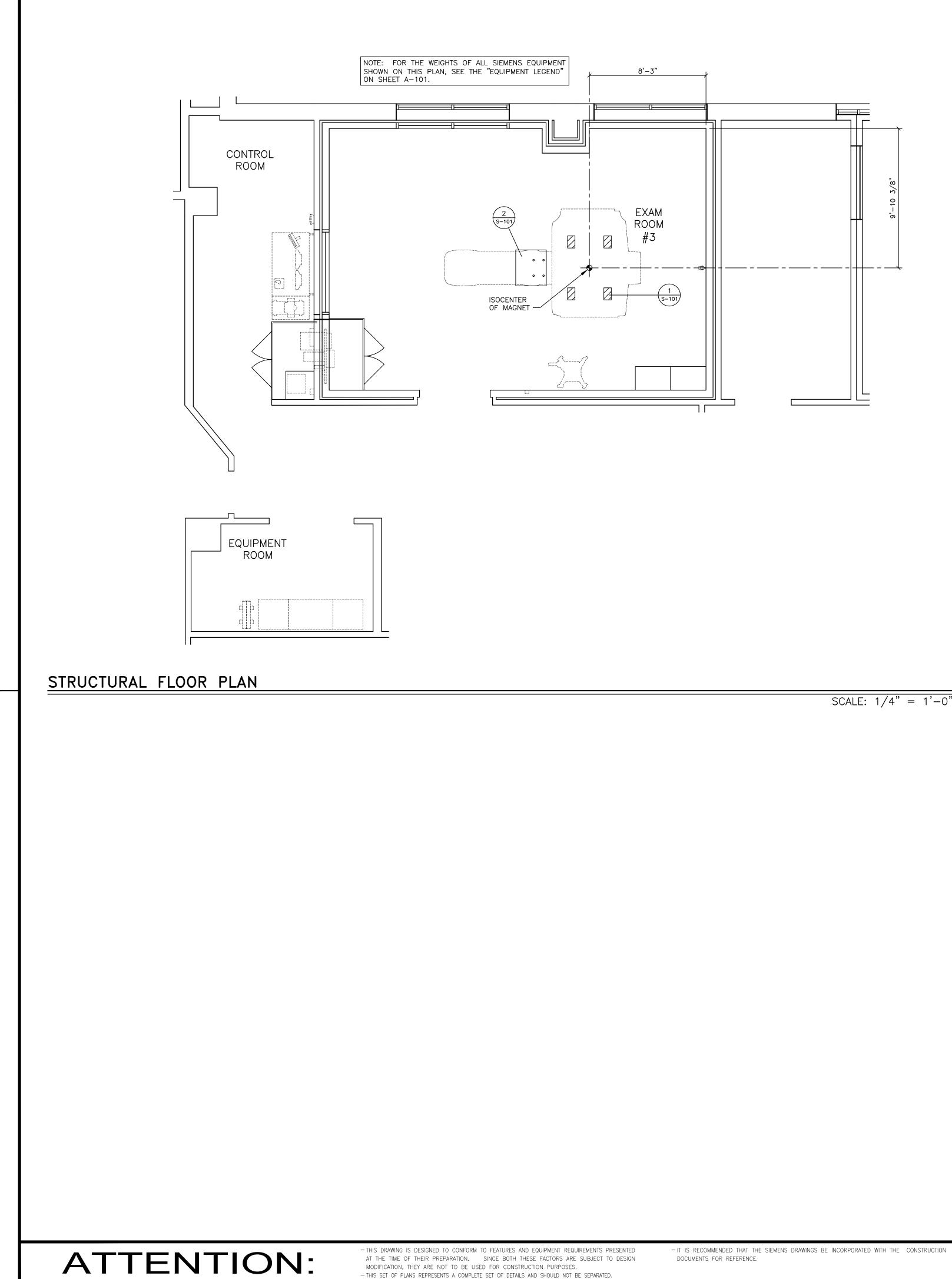
AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. - THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

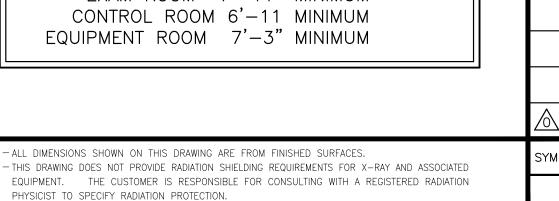
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	-

DOCUMENTS FOR REFERENCE.

- THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

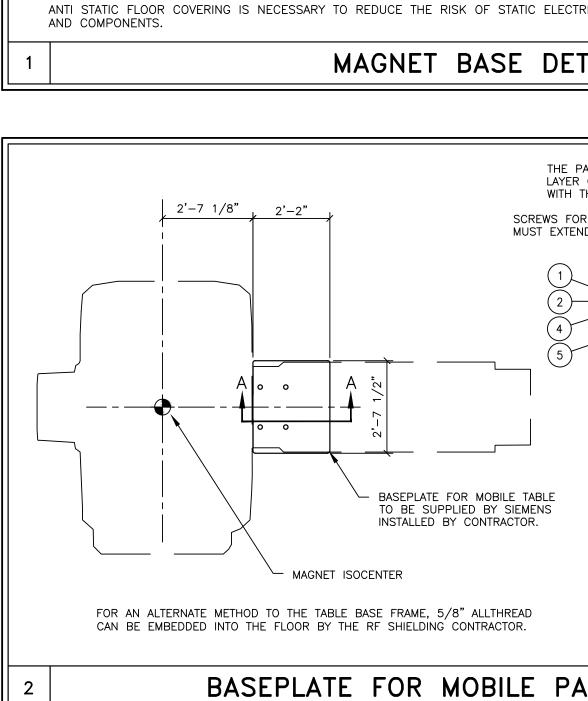
							REV 14
			TEL: (770) 402 <sup>.</sup> VMAIL: FAX:	R: PATRICK RUIZ -1365 EXT: IIZ@SIEMENS-HEALTI	HINEERS.COM		SIEMENS
			GR	80	HEAI JESSE HILL JR DR S ITE – MRI 3 – MAG	SE, ATLANTA, GA 30	SYSTEM 303 ADIENTS
				PRODUCTION OF LOCK WITHOUT	PROJECT #:		SHEET:
7	06/06/22	2200757RD DATED 05/17/22 APPROVED BY CUSTOMER FOR FINALS	OTEMENO / TOTAL	ORIZATION WILL SECUTION UNDER OF THE LAW.	2200	)757	A として A とうしょう とうしょう しん とうしょう しょうしょう しょう
	DATE	DESCRIPTION		RE RESERVED.	SHEET OF 4 10	DRAWN BY: D. BRISTOE	A-JUZ
	-ISSU	E BLOCK-	SCALE: AS NOTED	REF. #: 30261311	DATE: 06/06/22		

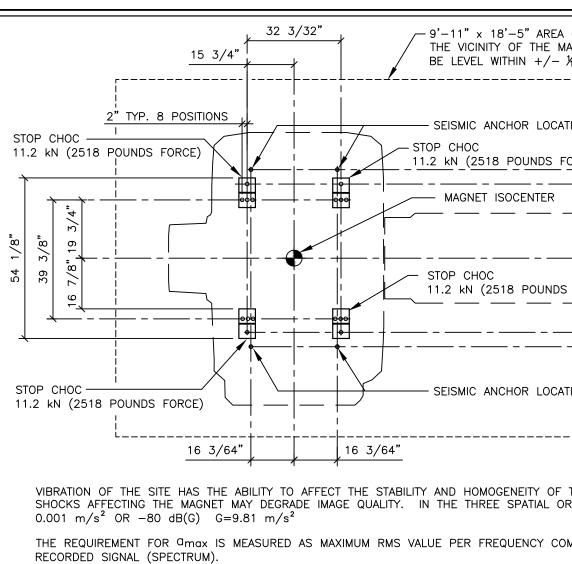




EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3'' MINIMUM

**CEILING HEIGHTS** 





$ \begin{array}{c} 32 \ 3/32" \\  15 \ 3/4"$	ACCORDING TO OUR EXPERIENCE, THE MASS OF THE FLOOR SHOULD BE 123 POUNDS/SQUARE FOOT (CORRESPONDING TO A THICKNESS					
2" TYP. 8 POSITIONS P CHOC	OF 8" MINIMUM) TO ACHIEVE GOOD VIBRATION AND STRUCTURE-BORNE NOISE SOUND ISOLATION. THIS IS A RECOMMENDATION.					
MAGNET ISOCENTER	30 3/4"					
m     m     STOP CHOC       m     m     11.2 kN (2518 POUNDS FORCE)	30 3/4"					
DP CHOC						
<u>16 3/64"</u> <u>16 3/64"</u>						
VIBRATION OF THE SITE HAS THE ABILITY TO AFFECT THE STABILITY AND HOMOGENEITY OF THE MAGNETIC FIELD. THEREFORE EXTERNAL VIBRATIONS OR SHOCKS AFFECTING THE MAGNET MAY DEGRADE IMAGE QUALITY. IN THE THREE SPATIAL ORIENTATIONS THE BUILDING MUST NOT EXCEED ACCELERATION OF 0.001 m/s <sup>2</sup> OR -80 dB(G) G=9.81 m/s <sup>2</sup> THE REQUIREMENT FOR <sup>q</sup> max IS MEASURED AS MAXIMUM RMS VALUE PER FREQUENCY COMPONENT <0.5Hz IN THE FOURIER TRANSFORMATION OF THE RECORDED SIGNAL (SPECTRUM).						
THE VIBRATION LEVEL OF CONTINUOUS VIBRATIONS (CAUSED BY AIR CONDITIONER, COMPRESSOR, ETC.) AT THE LOCATION OF THE MAGNET MUST NOT EXCEED						
THE SPECIFIED VALUES. FOR ALL NON-CONTINUOUS TRANSIENT VIBRATIONS THE FIGURES SHOULD BE MULTIPLIED BY 4 (OR 12 dB).						
ANTI STATIC FLOOR COVERING IS NECESSARY TO REDUCE THE RISK OF STATIC ELECTRIC DISCHARGES THAT MAY DAMAGE SENSITIVE EQUIPMENT AND COMPONENTS.						
MAGNET BASE DETAIL	SCALE: 3/8"=1'-0"					

ATIENT TABLE BASE PLATE MUST BE RECESSED INTO THE TOP OF THE FLOOR. THE COMPLETE BASEPLATE HAS TO BE COVERED THE FINISHED FLOOR COVERING.				
R SECURING THE TABLE BASE TO THE FLOORING. ID BETWEEN $36-42$ mm.				
- 3/8" RECESS FOR PLATE AN	IN FLOOR ID ADHESIVE.			
	3			
SECTION A-A				
EXAMPLE OF BASEPLATE MOUNTING, SECTION THROUGH RF CABIN FLOOR, NOT TO SCALE.				
1 FINISHED FLOOR COVERING				
2 FLOORING, SPECIFIED BY OTHERS				
3 RF SHIELD BY SHIELDING VENDOR				
4 VAPOR BARRIER				
5 CONCRETE FLOOR				
TIENT TABLE	SCALE: 3/8"=1'-0"			

## STRUCTURAL NOTES

1) THE CUSTOMER/CONTRACTOR SHALL FURNISH AND INSTALL ALL STRUCTURAL SUPPORT MEMBERS AND NEEDED HARDWARE FOR THE INSTALLATION OF THE SIEMENS EQUIPMENT.

2) THE OVERHEAD STRUCTURAL SUPPORT SYSTEM SHALL BE FIXED, RÍGID AND BRACED FOR SWAY.

3) ALL STRUCTURAL SUPPORT MEMBERS SHALL BE TRUE, SQUARE, LEVEL, PARALLEL AND COPLANAR WITH RESPECT TO EACH OTHER, WITH A HORIZONTAL STRUCTURAL SUPPORT MEMBER TO BE LOCATED AND SET WITH A TRANSIT.

4) ALL STRUCTURAL SUPPORT DETAILS SHOWN ARE SAMPLE DETAILS BASED UPON TYPICAL AND STANDARD BUILDING PRACTICES AND ARE NOT INTENDED AS ACTUAL CONSTRUCTION DETAILS. ALL CONSTRUCTION DETAILS AND SUPPORT CALCULATIONS SHALL BE PREPARED BY A PROFESSIONAL STRUCTURAL ENGINEER AT THE CUSTOMER'S EXPENSE. IN THE EVENT AN EXISTING SUPPORT SYSTEM IS TO BE USED, IT WILL BE THE CUSTOMER'S RESPONSIBILITY TO VERIFY THE INTEGRITY OF THAT SYSTEM.

5) MOUNTING PLATES, FRAMES, AND HARDWARE SUPPLIED BY SIEMENS AS DETAILED IN THIS DRAWING SET ARE INSTALLED BY SIEMENS UNLESS OTHERWISE REQUIRED. ANY DEVIATION FROM THE PROVIDED MATERIALS OR MOUNTING METHODS MUST BE DESIGNED AND DOCUMENTED BY THE STRUCTURAL ENGINEER OF RECORD. ALTERNATE MOUNTING MATERIALS (I.E. ANCHORS, THREADED ROD, BACKING PLATES, ETC.) MUST BE SUPPLIED BY THE CUSTOMER/CONTRACTOR. SIEMENS MAY REQUIRE ASSISTANCE FROM THE CUSTOMER/CONTRACTOR WITH INSTALLATION WHEN UTILIZING ALTERNATE MOUNTING MÁTERIALS.

6) ALL CEILING FIXTURES (I.E. AIR SUPPLY GRILLES, AIR RETURN GRILLES, EXHAUST GRILLES, SPRINKLER HEADS, INCANDESCENT AND FLUORESCENT LIGHT FIXTURES, INTERCOM SPEAKERS, MEDICAL GAS COLUMNS, ETC.) SHALL BE INSTALLED FLUSH MOUNTED WITH THE FINISHED CEILING TO PROVIDE FREE AND UNRESTRICTED TRAVEL OF THE SMS CEILING MOUNTED EQUIPMENT.

7) THE STRUCTURAL PLANNING AS SHOWN ON THE 1/4" STRUCTURAL PLAN HAS BEEN COORDINATED WITH THE EQUIPMENT LOCATION AS SHOWN ON THE 1/4" EQUIPMENT LAYOUT PLAN. FOR THIS REASON, ANY DEVIATIONS FROM THE STRUCTURAL PLANNING AS SHOWN MUST BE APPROVED BY SMS PLANNING DEPARTMENT.

8) THE STRUCTURAL ENGINEER OF RECORD SHALL BE RESPONSIBLE FOR THE DESIGN AND DETAIL OF FLOOR, WALL AND CEILING STRUCTURES IN ACCORDANCE WITH THE WEIGHTS, MOMENTS AND FORCES AS SHOWN ON OUR STRUCTURAL CALCULATIONS, OR INFORMATION, IN CONSIDERATION OF FORCES AS DETERMINED PER LOCAL GOVERNING BUILDING CODES.

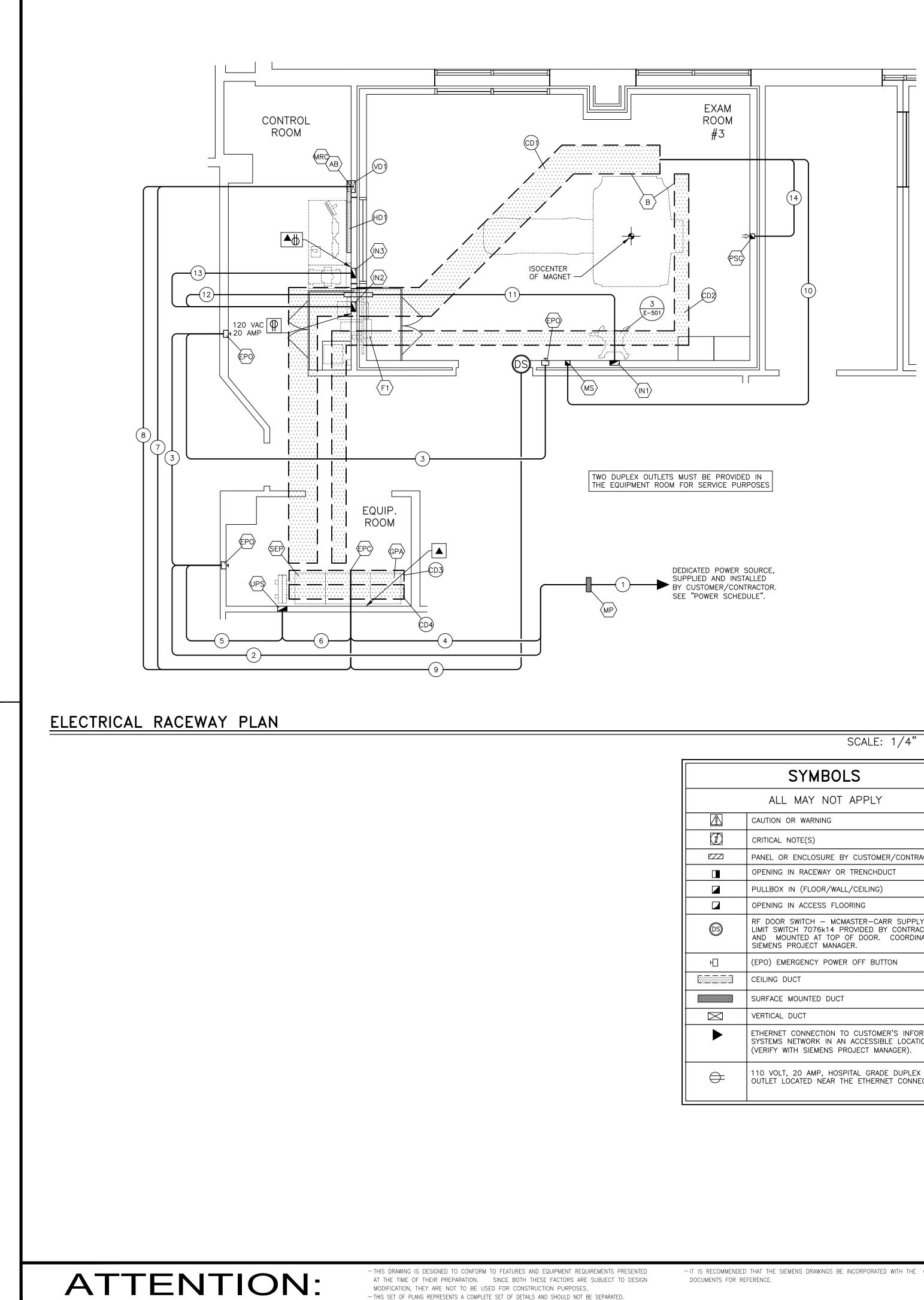
		PROJECT MANAGER: PATRICK RUIZ TEL: (770) 402–1365 VMAIL: EXT: FAX: EMAIL: PATRICK.RUIZ@SIEMENS-HEALT	HINEERS.COM		SIEM	ENS	
			HEAI JESSE HILL JR DR S ITE – MRI 3 – MAG	SE, ATLANTA, GA 30	303	EM	
/06/22	2200757RD DATED 05/17/22 APPROVED BY CUSTOMER FOR FINALS	THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER FULL EXTENT OF THE LAW.	PROJECT #: 2200	0757	SHEET:	101	
DATE	DESCRIPTION	ALL RIGHTS ARE RESERVED.	SHEET OF 5 10	DRAWN BY: D. BRISTOE	J-		

DATE: 06/06/22

REF. #: 30261311

SCALE: AS NOTED

-ISSUE BLOCK-



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

	SYMBOLS
	ALL MAY NOT APPLY
	CAUTION OR WARNING
i	CRITICAL NOTE(S)
EZZ	PANEL OR ENCLOSURE BY CUSTOMER/CONTRACTOR
	OPENING IN RACEWAY OR TRENCHDUCT
	PULLBOX IN (FLOOR/WALL/CEILING)
	OPENING IN ACCESS FLOORING
DS	RF DOOR SWITCH – MCMASTER-CARR SUPPLY ROLLER LIMIT SWITCH 7076k14 PROVIDED BY CONTRACTOR, AND MOUNTED AT TOP OF DOOR. COORDINATE WITH SIEMENS PROJECT MANAGER.
Ю	(EPO) EMERGENCY POWER OFF BUTTON
	CEILING DUCT
	SURFACE MOUNTED DUCT
$\square$	VERTICAL DUCT
	ETHERNET CONNECTION TO CUSTOMER'S INFORMATION SYSTEMS NETWORK IN AN ACCESSIBLE LOCATION (VERIFY WITH SIEMENS PROJECT MANAGER).
$\square$	110 VOLT, 20 AMP, HOSPITAL GRADE DUPLEX OUTLET LOCATED NEAR THE ETHERNET CONNECTION. REV 2

		ELECTRICAL LEGEND	
SYM	SIZE	DESCRIPTION SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR	REMARKS
ÆB	3"ø	OPENING IN FACE OF VERTICAL DUCT 5'-0" ABOVE FINISHED FLOOR IN LOCATION TO BE COORDINATED WITH THE ARCHITECT.	ALARM BOX
PC PASP	18" x 18"	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	ELECTRONICS CABINETS
B	AS REQUIRED	LOCATION FOR CABLES TO DROP OUT OF BOTTOM OF RACEWAY.	MAGNET CABLE ACCESS
Ð		EMERGENCY POWER OFF BUTTONS, MOUNTED WITH CENTERLINE AT 5'-0" ABOVE FINISHED FLOOR. ALL PARTS ARE TO BE NONFERROUS INSIDE THE RF ROOM. EXACT LOCATIONS ARE TO BE VERIFIED WITH THE ARCHITECT OF RECORD.	SEE POWER SCHEDULE, SHEET E-102
<b>(F1)</b>		SIEMENS RF FILTER PANEL TO BE MOUNTED ON RF SHIELDED WALL	FILTER PANEL
	AS REQUIRED	NON-FERROUS PULL BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 2'-O" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR POWER SUPPLY- MUST BE LOCATED OUTSIDE OF 5mT FIELD
	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN EQUIPMENT ROOM, MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR POWER SUPPLY
	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA, MOUNTED 2'-0" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	INJECTOR CONTROL CONSOL
P		MAIN PANEL WITH MAIN BREAKER. EXACT LOCATION DETERMINED BY CUSTOMER/CONTRACTOR	SEE POWER SCHEDULE
(RC)	4" × 4"	OPENING IN FACE OF RACEWAY IN SHOWN LOCATION.	HOST COMPUTER
AS	AS REQUIRED	NON-FERROUS SINGLE GANG BOX MOUNTED FLUSH WITH FINISHED WALL MOUNTED 6'-O" ABOVE FINISHED FLOOR. PROVIDE NEATLY FINISHED AND REMOVABLE COVER WITH CABLE EXIT. EXACT LOCATION TO BE COORDINATED WITH THE ARCHITECT.	MAGNET STOP
<b>(50)</b>	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL REFER TO HEIGHT CHART A-501-3. THE PULL BOX CAN BE MOUNTED AT APPROXIMATELY 5'-0" ABOVE THE FINISHED FLOOR IN MOST CASES, DEPENDING ON THE DISTANCE FROM THE MAGNET TO THE WALL.	PATIENT SUPERVISION CAME
(P)	AS REQUIRED	PULL BOX MOUNTED FLUSH WITH FINISHED WALL AT FLOOR LINE IN SHOWN LOCATION PROVIDED WITH 2"Ø OPENING IN FINISHED COVER.	LIEBERT GXT4 UPS
(1)	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER, IN THE EXAM ROOM, MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE FILTER PANEL AND THE MAGNET. A 15" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE RF FILTER PANEL (F1). WHEN ROUTING ALL RACEWAYS REFER TO DETAIL E-501/2 TAKING CARE SO THAT MAXIMUM CABLE LENGTHS ARE NOT EXCEEDED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	CABLE TRAY SEE DETAIL E-501/1
	12"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EXAM ROOM. A 12" SEPARATION BETWEEN CD1 AND CD2 MUST BE MAINTAINED. DO NOT LOCATE THIS CABLE TRAY ABOVE THE MAGNET.	CABLE TRAY SEE DETAIL E–501/1
(113)	24"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EQUIPMENT ROOM MAINTAINING 12" CLEARANCE ABOVE THE TRAY FOR ACCESS. CABLE LADDER IS REQUIRED TO SUPPORT INTERCONNECTING CABLES BETWEEN THE EQUIPMENT ROOM AND THE RF FILTER PANEL (F1). AN 18" MINIMUM CLEARANCE IS REQUIRED BETWEEN THE LADDER TRAY AND THE FILTER PANEL.	CABLE TRAY SEE DETAIL E–501/1
(1)4)	12"x4"	ALUMINUM LADDER TRAY, MOUNTED AT HEIGHT COORDINATED WITH SIEMENS PROJECT MANAGER IN EQUIPMENT ROOM. A 12" SEPARATION BETWEEN CD3 AND CD4 MUST BE MAINTAINED.	CABLE TRAY SEE DETAIL E–501/1
	4" × 2"	HORIZONTAL DUCT SURFACE MOUNTED ON WALL IN CONTROL AREA AT FLOOR LINE AS SHOWN, FINISHED TO MATCH WALLS.	
(10)	10" x 3-1/2"	VERTICAL DUCT MOUNTED FLUSH WITH FINISHED WALL IN CONTROL AREA FROM ABOVE FINISHED CEILING TO FLOOR LINE PROVIDED WITH REMOVABLE FINISHED COVERS.	
1	AS PER NEC	CONDUIT FROM FACILITY POWER TO MAIN PANEL "MP".	SEE POWER SCHEDULE, SHEET E-102
2	AS PER NEC	CONDUIT FROM "MP" TO "EPO".	SEE POWER SCHEDULE, SHEET E-102
3	AS PER NEC	CONDUIT FROM "EPO" TO "EPO" TO BE NON-FERROUS WHEN INSIDE THE RF ROOM. CUSTOMER/CONTRACTOR IS TO PROVIDE RF FILTERS FOR ALL NON-SIEMENS WIRING.	SEE POWER SCHEDULE, SHEET E-102
4	(1) 2 <b>"</b> ø	CONDUIT FROM "MP" TO END AT "CD3" (EPC) VIA FLEX CONDUIT. THERE MUST BE A DIELECTRIC SEPARATION BETWEEN THE CONDUIT AND THE CONNECTION AT THE SIEMENS EPC CABINET.	SEE POWER SCHEDULE, SHEET E-102
5	(1) 3/4 <b>"</b> ø	CONDUIT FROM "EPO" TO "UPS".	
6	(1) 2 <b>"</b> ø	CONDUIT FROM "UPS" TO "CD3" (EPC)	MAXIMUM LENGTH 29 FEET
7	(2) 2 1/2"ø	CONDUIT FROM "VD1" (MRC) TO "CD3" (EPC).	NOT TO EXCEED 54 FT.
8	(1) 1 1/2"ø	CONDUIT FROM "VD1" (AB) TO "CD3" (EPC).	NOT TO EXCEED 60 FT.
9	(1) 1/2"ø	CONDUIT FROM "DS" TO "CD3" (EPC).	NOT TO EXCEED 60 FT.
10	(1) 3/4 <b>"</b> ø	CONDUIT FROM "MS" TO "CD1" (WIRES TO MAGNET) TO BE NON-FERROUS WHEN INSIDE THE RF ROOM.	NOT TO EXCEED 25 FT.
(1)	(1) 2 <b>"</b> ø	NON-FERROUS CONDUITS FROM NEAR "F1" TO "IN1" FOR INJECTOR CABLES.	NOT TO EXCEED 40 FEET
12	(1) 2 <b>"</b> ø	CONDUITS FROM NEAR FILTER LOCATION TO "IN2".	
13	(1) 2"ø	CONDUIT FROM "IN2" TO "IN3" FOR INJECTOR CABLES.	NOT TO EXCEED 150 FEET
(14)	(1) 2 Ø (1) 1ӯ	NON-FERROUS CONDUIT FROM "PSC" TO "CD1".	
UT	(1) 1 9		

CONTRACTOR SUPPLIED CABLES						
FROM	VIA	то	DESCRIPTION	REMARKS		
SOURCE	1	MP	(3) PHASE CONDUCTORS, (1) FULL SIZE EQUIPMENT GROUND WIRE TO BE SIZED BY ELECTRICAL CONTRACTOR/ENGINEER.			
MP	2	EPO	DETERMINED BY ELECTRICAL CONTRACTOR.			
EPO	3	EPO	DETERMINED BY ELECTRICAL CONTRACTOR.			
MP	4,CD3	EPC	(3) 2/0 AND (1) 2/0 EQUIPMENT GROUND. TO REDUCE EMI (INTERFERENCE) THE POWER CABLES MUST BE SHIELDED. THIS CAN BE ACHIEVED BY USING EMT, WHICH IS CONSIDERED A SHIELDING DEVICE. IF CABLES ARE RUN IN FREE AIR SHIELDED CONDUCTORS MUST BE USED.	LANDED BY ELECTRICAL CONTRACTOR		
EPO	5	UPS	DETERMINED BY ELECTRICAL CONTRACTOR.	6 FOOT TAILS		

### CEILING HEIGHTS

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3'' MINIMUM



- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION

- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

## ELECTRICAL NOTES

1) COMPLIANCE: ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE (NFPA-70), O.S.H.A. REGULATIONS, AS WELL AS APPLICABLE REGULATIONS OF CITY, COUNTY, STATE AND FEDERAL AGENCIES. PROVIDE MATERIALS AND EQUIPMENT THAT COMPLY TO ANSI, IEEE AND NEMA STANDARDS AND ARE U.L. LISTED AND LABELED. THE CUSTOMER'S/CONTRACTOR'S WORK AND ALL EQUIPMENT INSTALLED SHALL COMPLY WITH THE CURRENT EDITION OF NATIONAL ELECTRICAL CODE ADOPTED/ENFORCED BY THE AUTHORITY HAVING JURISDICTION. 2) QUALITY ASSURANCE: THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN THE FIELD TO INSURE THAT THE NEW WORK WILL FIT INTO THE EXISTING STRUCTURE AS SHOWN ON THE DRAWINGS. SHOULD ANY CONDITIONS EXIST OR BE DISCOVERED THAT PREVENT THE INSTALLATION OF WORK AS SHOWN, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE PRIOR TO FABRICATION OF EQUIPMENT, OR THE PERFORMANCE OF ANY WORK THAT MAY BE AFFECTED. DO NOT ALTER DRAWINGS, DIMENSIONS, OR SPECIFICATIONS IN ANY WAY WITHOUT CONTACTING AND RECEIVING WRITTEN CONFIRMATION FROM SIEMENS PROJECT MANAGER. ALL DIMENSIONS ARE FROM FINISHED SURFACES. CONDUIT AND PULL BOXES TO BE INSTALLED BY THE CUSTOMER/CONTRACTOR WITH LOCATIONS BEING FIELD VERIFIED BY SIEMENS PRÓJECT MANAGER. 3) POWER SUPPLY SOURCE: POWER SUPPLIES FOR SIEMENS HEALTHCARE EQUIPMENT SHALL BE FROM A MEDICAL IMAGING PANEL OR BUILDING SERVICE EQUIPMENT THAT IS A GROUNDED 3 OR 4-WIRE 'WYE' SOURCE PER THE SPECIFIC EQUIPMENT OPERATION REQUIREMENTS. A DEDICATED CIRCUIT SHALL BE PROVIDED THAT IS KEPT ENTIRELY FREE AND INDEPENDENT OF ALL OTHER BUILDING WIRING. NO ELEVATORS, GENERATORS, PUMPS, HVAC OR SIMILAR EQUIPMENT SHALL BE CONNECTED TO THE SAME CIRCUIT OR MEDICAL IMAGING PANEL THAT SERVES THE SIEMENS HEALTHCARE EQUIPMENT. IF THE POWER SUPPLY SOURCE DOES NOT MEET THE SPECIFIC SIEMENS EQUIPMENT POWER REQUIREMENTS, THE CONTRACTOR SHALL PROVIDE THE NECESSARY EQUIPMENT REQUIRED TO ESTABLISH THE POWER SUPPLY IN ACCORDANCE WITH THE REQUIRED POWER SUPPLY PARAMETERS OF THE SIEMENS EQUIPMENT. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE CUSTOMER AND/OR UTILITY COMPANY FIELD REPRESENTATIVE. 4) WORK FURNISHED BY CUSTOMER/CONTRACTOR: WORK NOT PROVIDED BY SIEMENS HEALTHCARE BUT SHOWN ON DRAWINGS TO BE FURNISHED AND INSTALLED BY CUSTOMER/CONTRACTOR INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING, UNLESS NOTED OTHERWISE: ELECTRICAL RACEWAYS AND DUCTS, WIRING TROUGHS, PULL BOXES, CONDUITS, CIRCUIT BREAKERS, ACCESS PANELS, EMERGENCY OFF BUTTONS, DOOR SWITCHES, WARNING

GROUNDING. 5) RACEWAY AND CONDUIT NOTES: ALL ITEMS IN THE MAGNET ROOM SHALL BÉ NON-FERROUS. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT ENFORCED EDITION OF THE NATIONAL ELECTRICAL CODE. CONDUIT BODIES SHALL NOT BE USED. WHERE A CONDUIT ENTERS A BOX. FITTING, OR OTHER ENCLOSURE, AN INSULATED THROAT CONNECTOR SHALL BE PROVIDED TO PROTECT THE WIRE FROM ABRASION. ALL CONNECTORS FOR EMT SHALL BE COMPRESSION OR DOUBLE SET SCREW

LIGHTS, WIRING, WIRING DEVICES, CONNECTORS, LIGHTING EQUIPMENT AND

KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES OR STEAM AND HOT WATER PIPES. INSTALL RACEWAY RUNS ABOVE WATER AND STEAM PIPES PROVIDED THAT CABLE RUN DISTANCES ARE MAINTAINED. USE TEMPORARY CLOSURES TO PREVENT FOREIGN MATTER FROM ENTERING RACEWAY.

CONDUIT RUNS ARE SHOWN SCHEMATICALLY. INSTALL CONDUIT WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE CONSIDERING THE BUILDING CONSTRUCTION AND OBSTRUCTIONS, EXCEPT AS OTHERWISE INDICATED. THE CONTRACTOR SHALL MAKE CERTAIN THAT ANY CONDUIT/RACEWAY RUNS CONTAINING SIEMENS HEALTHCARE CABLES DO NOT EXCEED THE SPECIFIED MAXIMUM DISTANCES AS SHOWN ON THE ELECTRICAL DETAILS. LISTED CONDUIT SIZES FOR SIEMENS-SUPPLIED CABLES MUST BE MAINTAINED IN ORDER TO ENABLE THE TOTAL CABLE BUNDLE INCLUDING CONNECTORS TO BE PULLED THROUGH WITHOUT DAMAGE.

PROVIDE ENCLOSED METAL WIRE DUCT RACEWAY SYSTEM WHERE SHOWN ON DRAWINGS WITH DIVIDERS TO SEPARATE THE DUCT INTO TWO OR THREE SEPARATE COMPARTMENTS AS SHOWN ON THE SIEMENS PLANS (FOR POWER AND SIEMENS HEALTHCARE CABLING). DIVIDERS AND CROSSOVER PIECES TO BE PROVIDED AS NECESSARY. THE CABLE TO CABLE AS WELL AS THE CIRCUIT TO CIRCUIT SEPARATION REQUIREMENT WAS EVALUATED DURING THE UL SYSTEM CERTIFICATION OF THE EQUIPMENT. ADDITIONAL SEPARATION OF THE SYSTEM CABLE ASSEMBLIES INTO SEPARATE OR PARTITIONED RACEWAYS, UNLESS OTHERWISE NOTED, IS NOT NECESSARY TO INSURE SEPARATION OF CIRCUITS.

PROVIDE WIRE DUCT/RACEWAY WITH ACCESSIBLE REMOVABLE COVERS. LOCATIONS OF BUILDING MATERIAL OPENINGS (I.E. ACCESS PANELS) TO BE CUT IN FIELD ARE TO BE COORDINATED WITH THE DRAWING REQUIREMENTS AND BUILDING STRUCTURE. THOSE THAT ARE NOT INDICATED OR INTERFERE WITH BUILDING ELEMENTS SHALL BE COORDINATED WITH SIEMENS PROJECT MANAGER. ELECTRICAL PULL BOXES AND RACEWAY COVERS SHALL BE INSTALLED IN A MANNER TO ALLOW ACCESSIBILITY FOR INSTALLATION AND MAINTENANCE. CONTRACTORS MUST PROVIDE PULL STRINGS FOR ALL CONDUIT AND WIRE DUCT/RACEWAY. IN-FLOOR TRENCH DUCT AND FLUSH FLOOR BOXES SHALL BE PROVIDED WITH FULLY GASKETED REMOVABLE COVERS. WHEN JUNCTION BOXES AND WIRE DUCT/RACEWAY ARE MOUNTED HIGHER THAN 14 FEET ABOVE FINISHED FLOOR, THE ELECTRICAL CONTRACTOR SHALL PROVIDE TWO ELECTRICIANS TO HELP THE SIEMENS INSTALL TEAM PULL SIEMENS

SUPPLIED CABLES AT CUSTOMER EXPENSE. WHEN JUNCTION BOXES AND WIRE DUCT/RACEWAY ARE MOUNTED ABOVE A HARD CEILING (I.E. SHEET ROCK), A 24" x 24" ACCESS PANEL IS REQUIRED AT EACH JUNCTION BOX AND WITHIN 2 FEET OF EACH RACEWAY TRANSITION (SUCH AS A 90 DEGREE ELBOW OR TEE) IN DUCT/RACEWAY. THERE MUST BE FREE AND CLEAR ACCESS TO JUNCTION BOXES AND WIRE DUCT/RACEWAY. WHEN ACCESS PANELS ARE LOCATED MORE THAN 3 FEET FROM JUNCTION BOXES AND WIRE DUCT/RACEWAY THE ELECTRICAL CONTRACTOR SHALL PROVIDE TWO ELECTRICIANS TO HELP SIEMENS INSTALL TEAM PULL SIEMENS SUPPLIED CABLES AT CUSTOMER EXPENSE.

6) WIRING: ALL WIRING INSTALLED SHALL BE 600 VOLT CLASS, STRANDED TYPE THHN/THWN-2, SINGLE CONDUCTOR ANNEALED COPPER FOR A MAXIMUM OPERATING TEMPERATURE OF 90° C (194° F). SIZED AS INDICATED INSTALLED IN METAL RACEWAYS. THE CUSTOMER/CONTRACTOR SHALL LEAVE MINIMUM 10 FT. OF WIRE TAILS AT ALL OUTLET POINTS WITH WIRE IDENTIFICATION TAGGED AT BOTH ENDS FOR FINAL CONNECTION BY THE CUSTOMER/ELECTRICAL CONTRACTOR.

7) SHORT CIRCUIT REQUIREMENTS: ALL CIRCUIT BREAKERS SUPPLIED FOR THE SIEMENS EQUIPMENT REQUIREMENTS SHALL BE RATED HIGHER THAN THE SHORT CIRCUIT AVAILABLE AT THE TERMINALS OF THE ELECTRICAL EQUIPMENT AS DETERMINED BY THE ENGINEER OF RECORD, BUT NOT LESS THAN 35,000A RMS SYMMETRICAL AT 480V, 3-PHASE, 60 HERTZ. THE CONTRACTOR SHALL OBTAIN THE CORRECT SHORT CIRCUIT CURRENT RATING OF ALL THE NEW EQUIPMENT FOR INSTALLATION FROM THE ENGINEER OF RECORD.

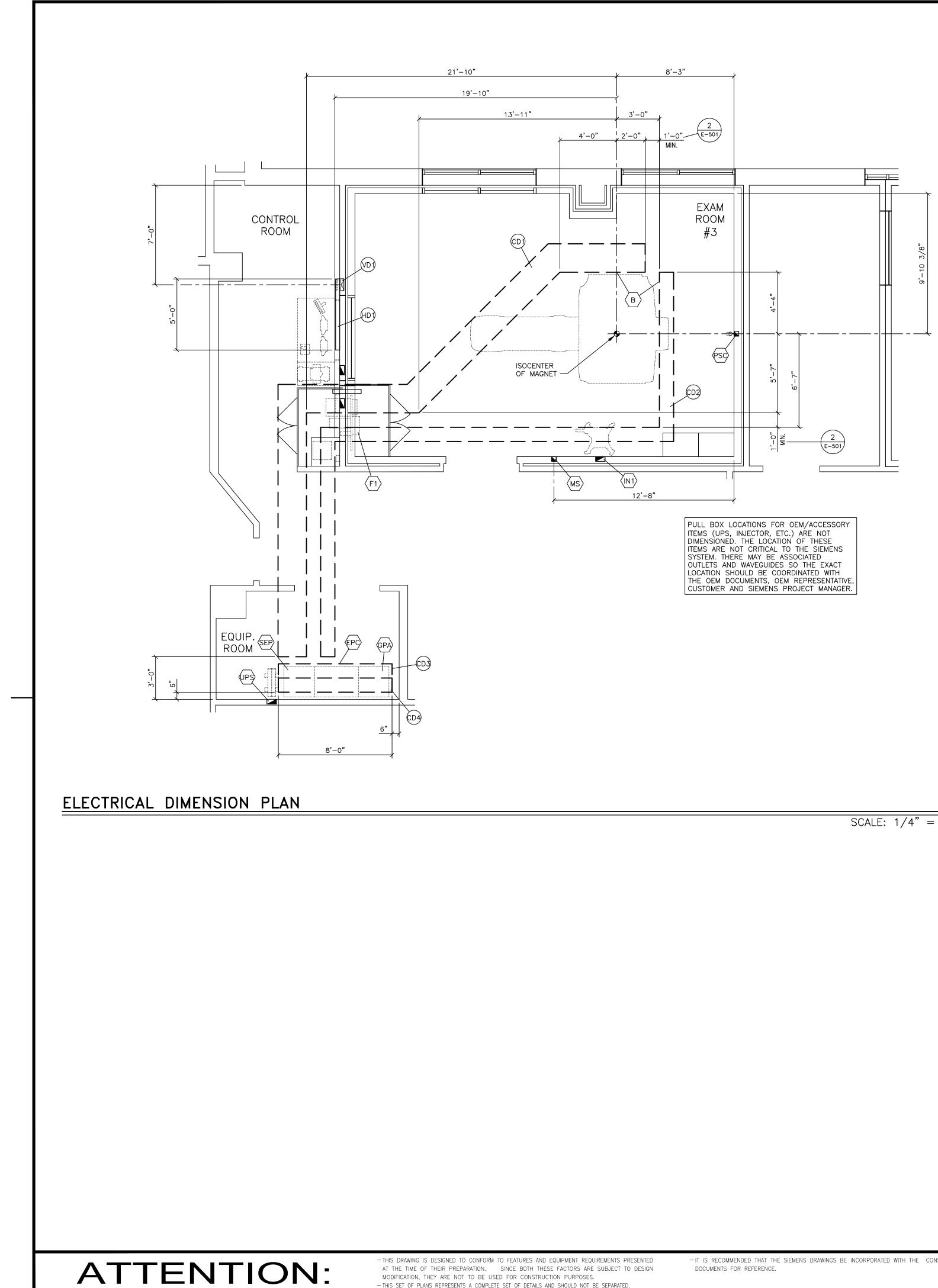
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		FAX: EMAIL: PATRICK.RU	IIZ@SIEMENS-HEALTI	HINEERS.COM				
		GR	80	JESSE HILL	JR DR S	SE, ATLANTA, GA 3 NETOM SOLA XQ G	30303	STEM
5/06/22	2200757RD DATED 05/17/22 APPROVED BY CUSTOMER FOR FINALS	THIS TITLE B SIEMENS AUTH RESULT IN PROS	EPRODUCTION OF LOCK WITHOUT ORIZATION WILL SECUTION UNDER OF THE LAW.	PROJECT		)757	SHEET:	101
DATE	DESCRIPTION		RE RESERVED.	SHEET C	F 10	DRAWN BY: D. BRISTOE		
-ISSU	E BLOCK-	SCALE: AS NOTED	REF. #: 30261311	DATE: 06/0	6/22			

ROJECT MANAGER: PATRICK RUIZ

EXT:

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ALL CONDUITS AND WIRES SIZES MUST BE DETERMINED BY THE ELECTRICAL ENGINEER OF RECORD PER N.E.C AND TO MAINTAIN SIEMENS IMPEDANCE REQUIREMENTS.						
	EXAM ROO EPO NC RF ROOM FILTERS T FURNISHEL INSTALLED SHIELDING CONTRACT	ROOM EPO NC NC BE D AND BY NOTE	ED CUIT	NOTE #1 MR BREAKE CIRCUIT POI SOURCE		۱D
ITEM	QTY			DESCRIPTIO	ON	
MP	1	MAIN PANE MOUNTED.	L WITH MA	IN BREAKE	R FLUSH C	R SURFACE
A	1	WHEN ANY	EPO IS P	RESSED TH	IE BREAKEF	
		MR BREAKE				
		VOLTS 480	3		GROUND 1	4 (NOTE 1)
		S MUST BE S S OTHERWISE		_L BREAKE	I RS WILL BI	E 80% RATED.
EPO	MAIN CIRCUIT BREAKER EMERGENCY POWER OFF BUTTON WITH PROTECTIVE COVER THAT PREVENTS ACCIDENTAL ACTIVATION. THE EPO MUST BE OF FAIL-SAFE DESIGN, ALL EPO'S TO HAVE MECHANICAL LATCHING MECHANISM. EPO MUST BE RESET BEFORE MR BREAKER CAN RESUME OPERATION. CONTACTS AND WIRING CONFIGURATION TO BE DESIGNED BY ELECTRICAL ENGINEER OF RECORD. NOTE 2 – EPO CIRCUIT #2 EPO CONTACTS TO BE NORMALLY CLOSED, WIRED IN SERIES, CONNECTED TO 9130 UPS ONLY. THE EPO'S MUST BE INSTALLED BY A QUALIFIED ELECTRICAL CONTRACTOR ACCORDING TO NATIONAL ELECTRICAL CODE, STATE AND LOCAL REGULATIONS. THE CUSTOMER IS SOLELY RESPONSIBLE FOR THE IMPLEMENTATION OF THE EPO'S AND THEIR ASSOCIATED CIRCUITS AND MUST MAKE THE FINAL DETERMINATION CONSIDERING ALL SITE CONDITIONS AND REGULATORY					
		FACTORS. RWISE NOTED AND INSTALL				HEDULE SHALL REV 0

POWER SCHEDULE

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

# POWER QUALITY NOTES

1) IT IS THE CUSTOMER'S RESPONSIBILITY TO COMPLY WITH THE POWER QUALITY REQUIREMENTS FOR SIEMENS MEDICAL SYSTEMS EQUIPMENT.

- 2) THE ELECTRICAL FEEDER TO THE SIEMENS MEDICAL SYSTEMS EQUIPMENT MUST FEED ONLY THE IMAGING SYSTEM AND BE KEPT SEPARATE FROM ELECTRICAL FEEDERS TO HVAC, MOTORS, PUMPS, COMPRESSORS, ELEVATORS, AND OTHER POTENTIAL SOURCES OF ELECTRICAL INTERFERENCE.
- 3) THE ELECTRICAL FEEDER TO THE IMAGING SYSTEM MUST BE RUN DÍRECTLY TO A MAIN FACILITY DISTRIBUTION PANEL OR TO THE FACILITY SERVICE ENTRANCE, WITH NO OTHER LOADS POWERED FROM THIS FEEDER.
- 4) IN ORDER TO COMPLY WITH IMAGING SYSTEM POWER QUALITY REQUIREMENTS, ADDITIONAL POWER CONDITIONING DEVICES MAY BE REQUIRED. EXAMPLES INCLUDE VOLTAGE REGULATORS, TRANSFORMERS, SURGE PROTECTIVE DEVICES, FILTERS, AND/OR UNINTERRUPTIBLE POWER SUPPLIES (UPS). RECOMMENDED FOR THE INSTALLATION OF ELECTRONIC EQUIPMENT CAN BE FOUND IN IEEE
- STANDARD 1100-1999 "POWERING AND GROUNDING ELECTRONIC EQUIPMENT: 5) POWER CONDITIONING DEVICES NOT APPROVED BY SIEMENS MEDICAL SYSTEMS MAY NOT BE COMPATIBLE WITH THE MAGNETOM
- SYSTEM. "FERRORESONANT" POWER CONDITIONING EQUIPMENT RE-APPLIED FROM PREVIOUS GENERATION SYSTEMS IS ALSO GENERALLY EXCLUDED DUE TO HIGHER POWER REQUIREMENTS OF THE NEWER SYSTEMS.
- 6) INCOMING SOURCE POWER WIRES MUST BE SEPARATED FROM ANY SIEMENS CABLING BY A MINIMUM OF 12".

REV 0

## CEILING HEIGHTS

EXAM ROOM 7'-11" MINIMUM CONTROL ROOM 6'-11 MINIMUM EQUIPMENT ROOM 7'-3'' MINIMUM

$\triangle$	06/06/22
SYM	DATE

- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION

- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

## POWER REQUIREMENTS

VOLTAGE VARIATION:480 VAC $\pm 10\%$ FOR ALL LINE AND LOAD CONDITIONS VOLTAGE UNBALANCE: $2\%$ MAXIMUM DIFFERENCE BETWEEN PHASES					
VOLTAGE:	480V – 3 PHASE				
FREQUENCY:	60 Hz ± 1.0 Hz				
LINE IMPEDANCE:	<140 mOHMS				
CONNECTION VALUE	88 kVA				
SHORT TIME POWER (LESS THAN 3 SECONDS)	104 kVA				
MR SYSTEM BREAKER SIZE (A)	125 A				
ALL BREAKERS ARE RATED AT 80%					

### POWER QUALITY

POOR POWER WILL ALTER EQUIPMENT PERFORMANCE IT IS IN THE CUSTOMER'S INTEREST THAT THE ELECTRICAL CONTRACTOR BE RESPONSIBLE FOR TESTING AND VERIFYING

THAT THE EQUIPMENT POWER SUPPLY COMPLIES WITH THE SIEMENS SPECIFICATIONS.

## DEMAND AND CAPACITY

1) IF EQUIPMENT UPGRADE IS ANTICIPATED, INSTALLING ELECTRICAL POWER TO MEET THE REQUIREMENTS OF THE HIGHER POWER GRADIENT PACKAGE AT THE TIME OF INITIAL INSTALLATION WILL REDUCE THE COST TO UPGRADE THE ELECTRICAL SYSTEM LATER.

2) RECOMMENDED TRANSFORMER SIZE (SYSTEM WITHOUT UPS) IS BASED ON INDUSTRY STANDARD ISOLATION TRANSFORMER KVA RATINGS. SOURCE IMPEDANCE FEEDING THE MAGNETOM SYSTEM, INCLUDING ANY ISOLATION TRANSFORMERS, MUST MEET EQUIPMENT REQUIREMENTS AS LISTED HERE. SIEMENS RECOMMENDS A TRANSFORMER WITH COPPER WINDINGS, AN ELECTRO-STATIC SHIELD, AND A LOW IMPEDANCE (<3%) TO ENSURE THAT SOURCE IMPEDANCE REQUIREMENTS ARE MET.

3) OVER CURRENT PROTECTION IS SPECIFIED FOR SYSTEMS WITHOUT AN UNINTERRUPTIBLE POWER SUPPLY (UPS). ADDITION OF A UPS REQUIRES A HIGHER CAPACITY MAINS CONNECTION (DEPENDENT UPON UPS MODEL AND SIZE). MAXIMUM FAULT CURRENT IS DEPENDENT UPON THE IMPEDANCE OF THE FACILITY ELECTRICAL SYSTEM. THE CUSTOMER'S ARCHITECT OR ELECTRICAL CONTRACTOR TO SPECIFY AIC RATING OF OVER CURRENT PROTECTION BASED ON FACILITY IMPEDANCE CHARACTERISTICS.

4) MOMENTARY POWER IS BASED ON A MAXIMUM RMS VALUE FOR A PERIOD NOT TO EXCEED FIVE (5) SECONDS, AS DEFINED IN NEC. 517.2. STAND-BY AND AVERAGE CURRENT ARE SUBSTANTIALLY LOWER.

5) THE CONDUCTOR SIZE SHOULD BE SELECTED TO MEET THE VOLTAGE DROP REQUIREMENTS, TAKING INTO CONSIDERATION THE MAINS CAPACITY, RUN LENGTH, AND ANY ADDITIONAL TRANSFORMERS USED TO OBTAIN THE PROPER EQUIPMENT VOLTAGE LEVEL. NEMA STANDARD XR-9-1989 (R1994,R2000) PROVIDES GENERAL GUIDELINES FOR SIZING CONDUCTORS, TRANSFORMERS, AND ELECTRICAL SYSTEMS FOR MEDICAL IMAGING SYSTEMS.

6) LONG-TIME POWER IS BASED ON THE HIGHEST AVERAGE RMS VALUES FOR A PERIOD EXCEEDING 5 MINUTES DURING CLINICAL SYSTEM OPERATION, AS DEFINED IN NEC 517.2.

7) A CIRCUIT BREAKER WITH A HIGH INRUSH RATING (>8x RATED CURRENT) IS REQUIRED TO PERMIT SWITCH-ON OF THE UPS SYSTEM WITHOUT SPURIOUS TRIPPING. CIRCUIT BREAKERS WITH AN ADJUSTABLE MAGNETIC TRIP (SIEMENS FD6 SERIES OR SIMILAR) ARE HIGHLY RECOMMENDED.

REV 1

## ELECTRICAL INSTALLATION NOTES

1) INSTALL THE MR SYSTEM CIRCUIT BREAKER IN OR NEAR THE EQUIPMENT ROOM. THE PERMITTED FRINGE FIELD FOR THE PANEL IS UP TO 3mT. IF THE FRINGE FIELDS HAVE HIGHER VALUES, MAGNETIC SHIELDING MUST BE PROVIDED OR THE DISTANCE FROM THE MAGNET MUST BE INCREASED.

2) AN ACCEPTABLE MEANS FOR SWITCHING MAIN POWER ON AND OFF SHOULD BE INSTALLED IN THE MAIN BREAKER PANEL. INSTALL EMERGENCY SHUTDOWN BUTTONS IN EACH ROOM WHERE THERE IS SIEMENS EQUIPMENT.

3) THE ELECTRICAL FEEDER TO THE SIEMENS EQUIPMENT MUST FÉED ONLY THE IMAGING SYSTEM AND BE KEPT SEPARATE FROM ELECTRICAL FEEDERS TO HVAC, MOTORS, PUMPS, COMPRESSORS, ELEVATORS AND OTHER POTENTIAL SOURCES OF ELECTRICAL INTERFERENCE.

4) THE EMERGENCY POWER OFF (EPO) BUTTONS ARE TO BE MUSHROOM TYPE WITH PUSH LOCK AND PULL TO RELEASE.

5) WALL RECEPTACLES MADE OF FERROMAGNETIC MATERIALS ARE NOT PERMITTED IN THE EXAM ROOM. PERIPHERAL UNITS (SUCH AS VENTILATORS) NOT APPROVED FOR USE IN A HIGH MAGNETIC FIELD ENVIRONMENT CAN INFLUENCE THE MAGNETIC FIELD, COMPROMISING IMAGE QUALITY. THE CUSTOMER IS RESPONSIBLE FOR INSTALLATION AND USE OF RECEPTACLES IN THE EXAM ROOM. INSTALLATION OF RECEPTACLES AND THE FILTERS REQUIRED ARE TO BE COORDINATED WITH THE RF SHIELDING SUPPLIER.

6) THE RF SHIELD MUST BE FITTED WITH A GROUND STUD OR BUS BAR, LOCATED WITHIN 24" OF THE AUXILIARY FILTERS FOR ROOM LIGHTS AND OUTLETS, SUPPLIED AND INSTALLED BY THE RF SHIELD SUPPLIER.

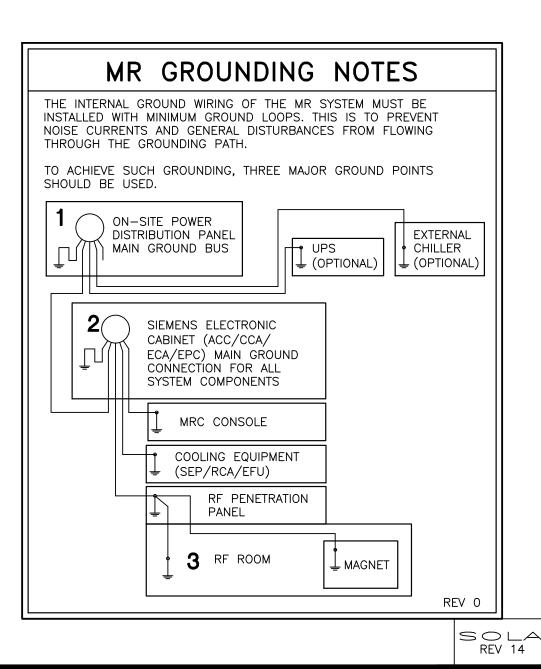
7) IN ORDER TO PREVENT GROUND LOOPS, ALL CUSTOMER OR CUSTOMER/CONTRACTOR SUPPLIED AC POWER ENTERING THE EXAMINATIÓN ROOM (I.E. OUTLETS, EPO, ETC.) SHOULD BE SUPPLIED VIA AN ISOLATION TRANSFORMER. THE ISOLATION TRANSFORMER SECONDARY WINDING GROUND CONDUCTOR SHOULD BE CONNECTED TO THE RF SHIELD GROUND STUD OR BUS BAR.

REV

## **GROUNDING NOTES**

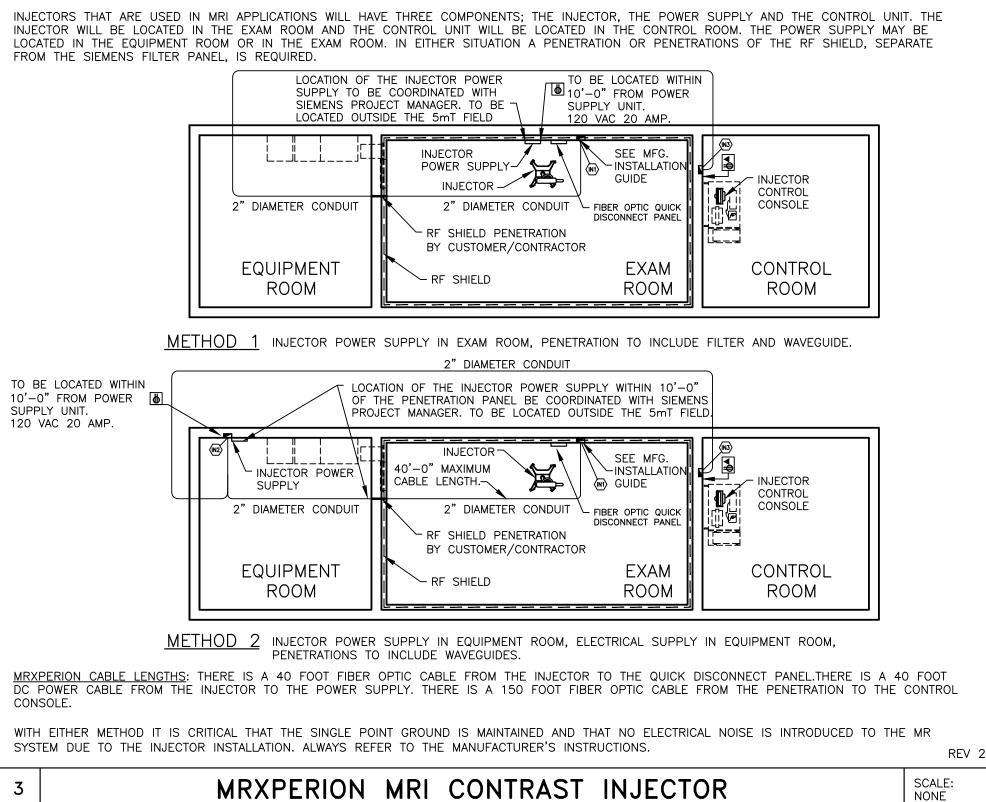
EQUIPMENT GROUNDING CONDUCTOR TO COMPLY WITH THE FOLLOWING:

- 1) SIZE GROUNDING WIRE TO SIEMENS EQUIPMENT PER POWER SCHEDULE REQUIREMENTS. 2) DERIVED FROM THE ELECTRICAL SERVICE, TRANSFORMER OR MAIN DISTRIBUTION PANEL FEEDING THE SIEMENS
- EQUIPMENT. 3) RUN IN THE SAME CONDUIT, TROUGH OR RACEWAY AS THE PHASE CONDUCTORS.
- 4) CONTINUOUS, WITH NO BREAKS OR USE OF CONDUIT, CHASSIS OR EARTH AS THE SOLE GROUNDING PATH. 5) BONDED TO CHASSIS AND/OR CONDUIT IN ACCORDANCE
- WITH THE NEC REQUIREMENTS. 6) MINIMIZE CONNECTIONS OR TERMINALS TO ENSURE CONTINUITY OVER THE LIFE OF THE INSTALLATION.
- 7) AS A NORM. THERE SHOULD NOT BE ANY CURRENT PRESENCE ON THE GROUND CONDUCTOR, BUT IT IS ACCEPTABLE TO HAVE <500mA DURING OPERATION OF THE IMAGING EQUIPMENT.

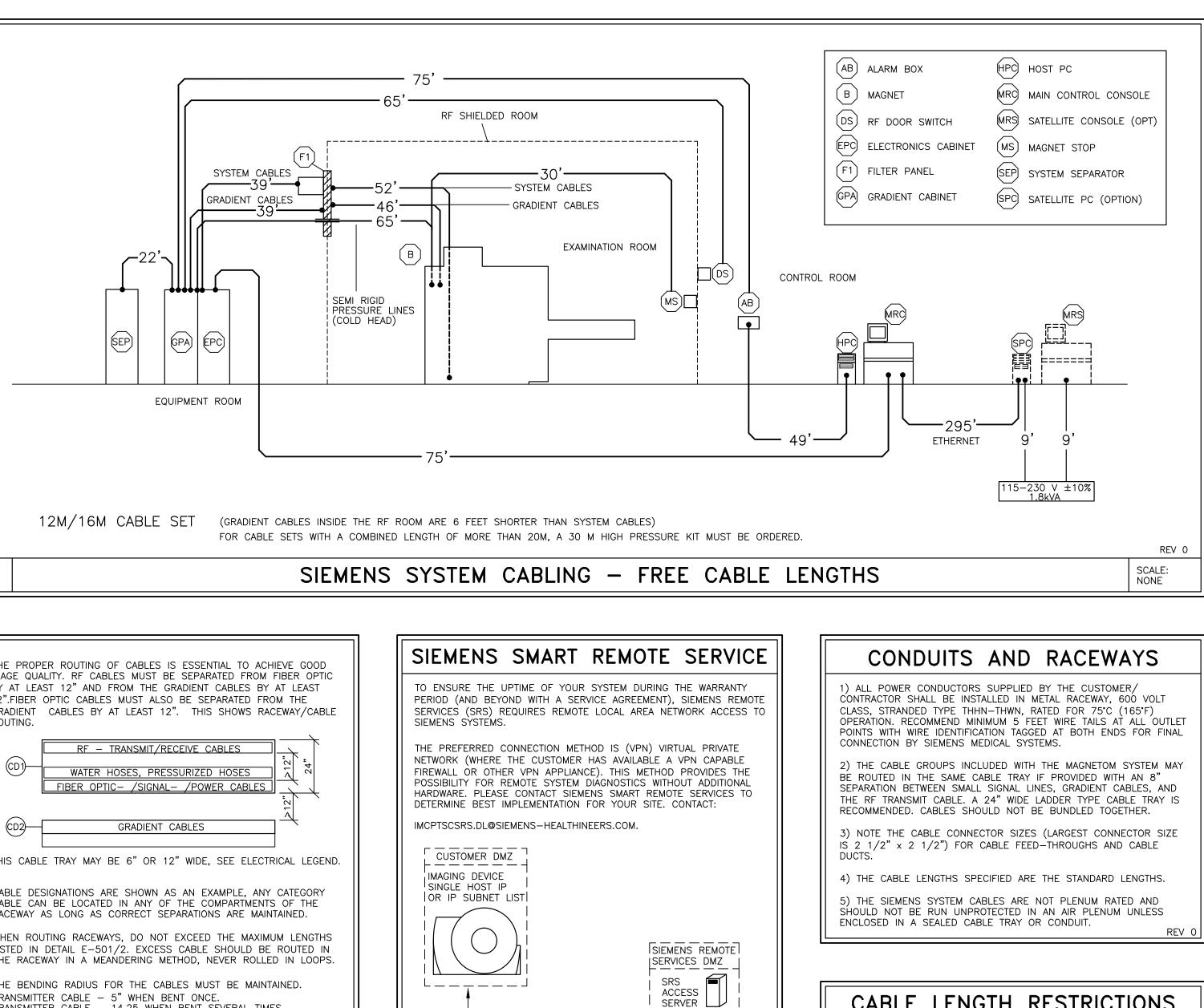


#### - THIS DRAWING IS DESIGNED TO CONFORM TO FEATURES AND EQUIPMENT REQUIREMENTS PRESENTED AT THE TIME OF THEIR PREPARATION. SINCE BOTH THESE FACTORS ARE SUBJECT TO DESIGN MODIFICATION, THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. - THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

# **ATTENTION:**



INJECTOR INSTALLATION OPTIONS



CISCO 3745

**PUBLIC** 

INTERNET

CUSTOMER

VPN APPLIANCE

ROUTER

FIREWALL

THE PROPER ROUTING OF CABLES IS ESSENTIAL TO ACHIE IMAGE QUALITY. RF CABLES MUST BE SEPARATED FROM FI BY AT LEAST 12" AND FROM THE GRADIENT CABLES BY A 12".FIBER OPTIC CABLES MUST ALSO BE SEPARATED FROM GRADIENT CABLES BY AT LEAST 12". THIS SHOWS RACE ROUTING.	BER OPTIC T LEAST I THE				
CD1 WATER HOSES, PRESSURIZED HOSES FIBER OPTIC- /SIGNAL- /POWER CABLES	>12" >12"				
CD2 GRADIENT CABLES	<b>→</b>				
THIS CABLE TRAY MAY BE 6" OR 12" WIDE, SEE ELECTRIC	CAL LEGEND.				
CABLE DESIGNATIONS ARE SHOWN AS AN EXAMPLE, ANY C CABLE CAN BE LOCATED IN ANY OF THE COMPARTMENTS RACEWAY AS LONG AS CORRECT SEPARATIONS ARE MAINTA	OF THE				
WHEN ROUTING RACEWAYS, DO NOT EXCEED THE MAXIMUM LISTED IN DETAIL E-501/2. EXCESS CABLE SHOULD BE R THE RACEWAY IN A MEANDERING METHOD, NEVER ROLLED	ROUTED IN				
THE BENDING RADIUS FOR THE CABLES MUST BE MAINTAII TRANSMITTER CABLE – 5" WHEN BENT ONCE. TRANSMITTER CABLE – 14.25 WHEN BENT SEVERAL TIMES FIBER OPTIC CABLE – 6"					
GRADIENT CABLE – 5.5" (ONLY WITH EXTENDED CABLE FIBER OPTIC CABLE FOR PATIENT OBSERVATION – 2"	E SET) REV 0				
2 CABLE SEPARATION	SCALE: NONE				
CABLE PROTECTION					
CABLES ARE NOT PLENUM RATED. ALL CABLES MUST B IN CABLE DUCTS OR CABLE CONDUITS.	E ROUTED				

$\triangle$	С
SYM	

04/13/21

- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.

- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES. - THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.

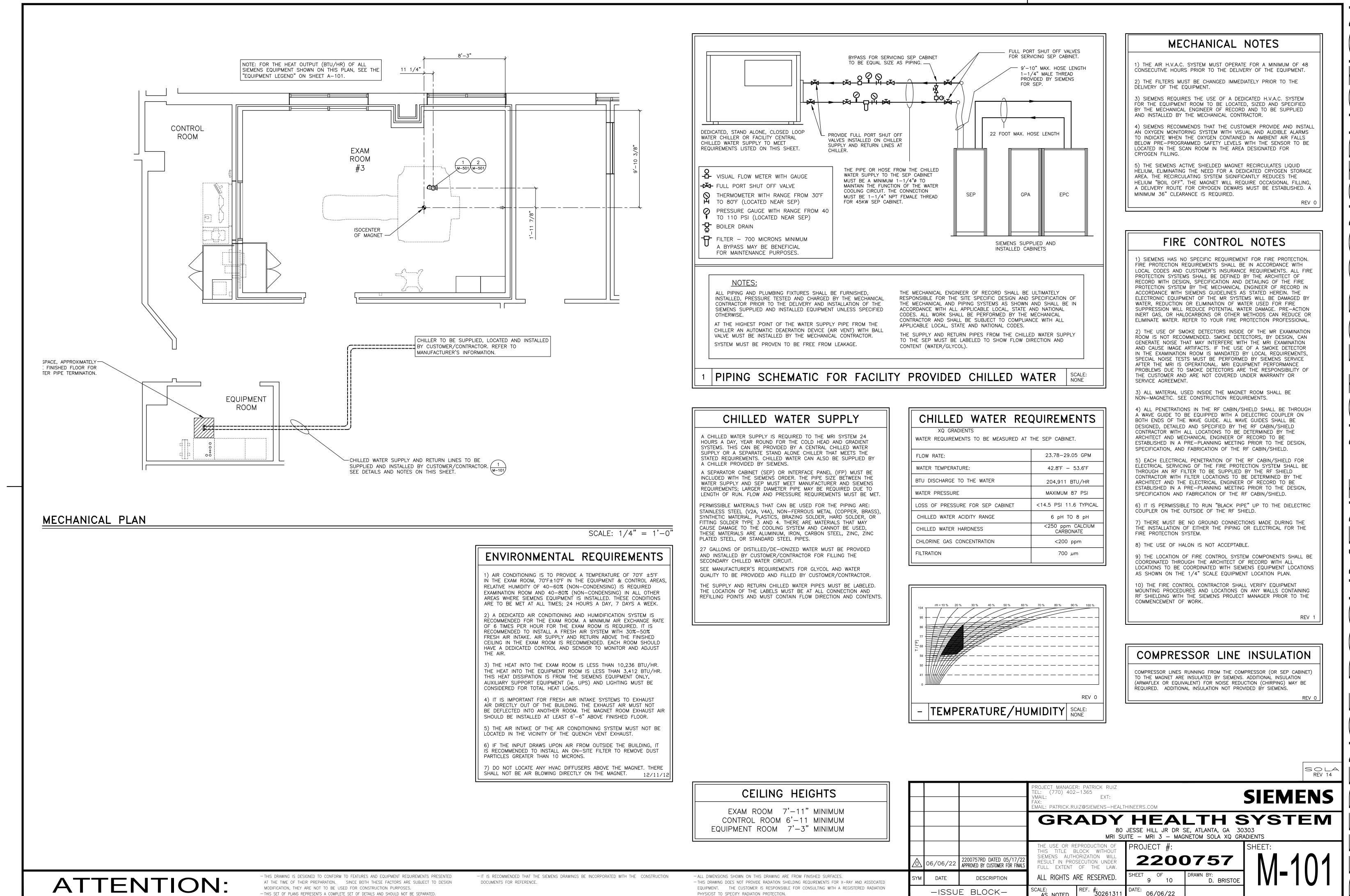
CABLE LENGTH RESTRICTIONS 1) THE CABLE SET LENGTH IDENTIFIES THE "FREE CABLE LENGTH".

THIS IS THE LENGTH FROM CONNECTION POINT TO CONNECTION POINT. THE CABLE LENGTH IS NOT THE DISTANCE BETWEEN COMPONENTS. 2) THE GRADIENT CABLES INSIDE THE RF SHIELDED ROOM ARE 6'-0"

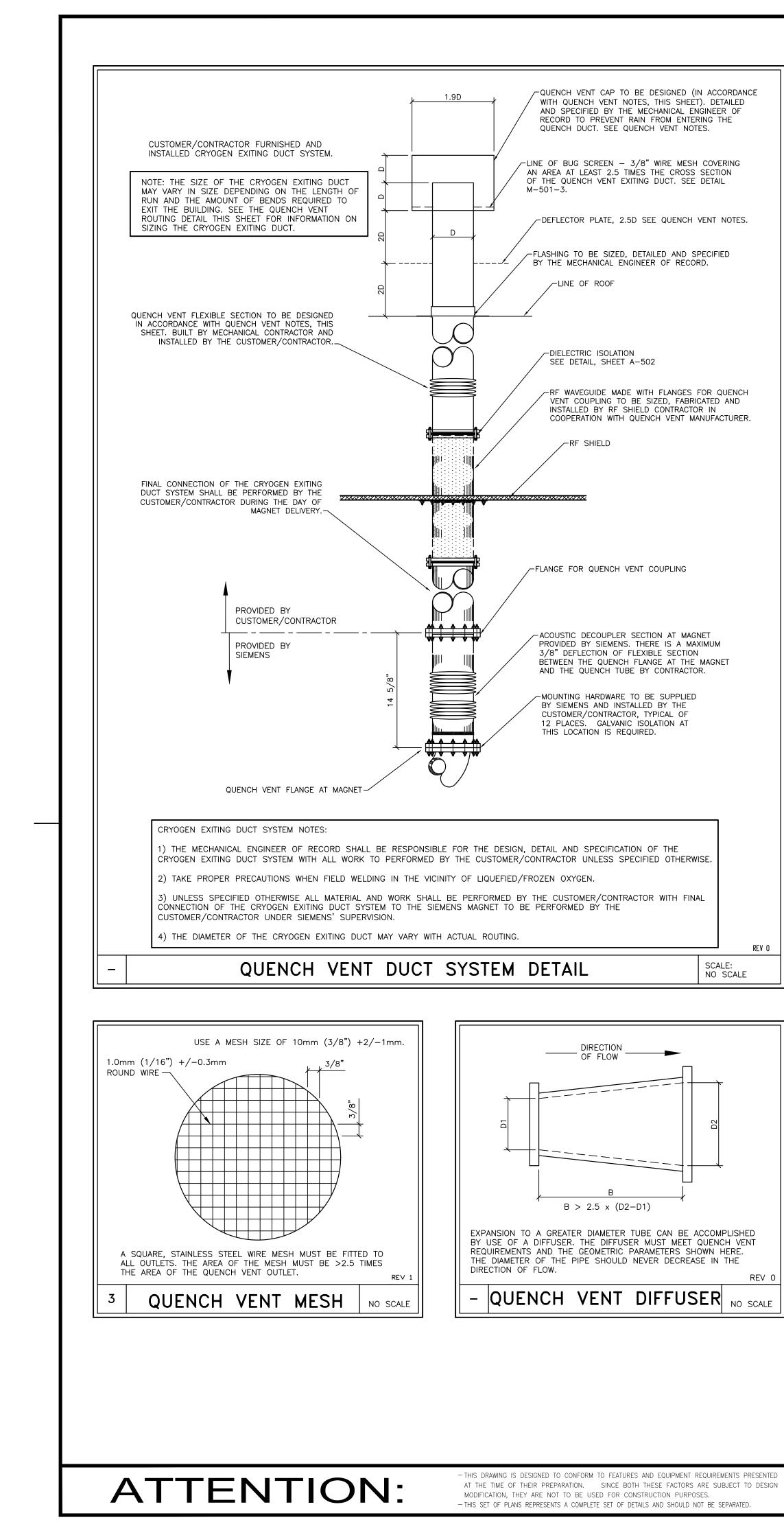
SHORTER THAN THE OTHER SYSTEM CABLES. THIS MEANS THAT IF THE 22' CABLE SET IS SELECTED, THE GRADIENT CABLES WILL BE 16' IN LENGTH. THE GRADIENT CABLES NEED TO GO UP INTO THE CABLE TRAY IN THE CEILING AT THE FILTER PLATE AND DOWN AT THE MAGNET. THESE VERTICAL RUNS MUST BE DEDUCTED FROM THE TOTAL CABLE LENGTH OF 16'.

REV 0

			PROJECT MANAGER: PATRICK RUIZ TEL: (770) 402–1365 VMAIL: EXT: FAX: EMAIL: PATRICK.RUIZ@SIEMENS-HEALTHINEERS.COM				SIEMENS
			GR	80	JESSE HILL JR DR S	LTH S SE, ATLANTA, GA 30 INETOM SOLA XQ GRA	
	06/06/22	2200757RD DATED 05/17/22	THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER		PROJECT #: 2200	0757	
•	DATE	APPROVED BY CUSTOMER FOR FINALS	FULL EXTENT OF THE LAW. ALL RIGHTS ARE RESERVED.		SHEET OF 8 10	DRAWN BY: D. BRISTOE	E-301
-ISSUE BLOCK-			SCALE: AS NOTED	REF. #: 30261311	DATE: 06/06/22		



PHYSICIST TO SPECIFY RADIATION PROTECTION.



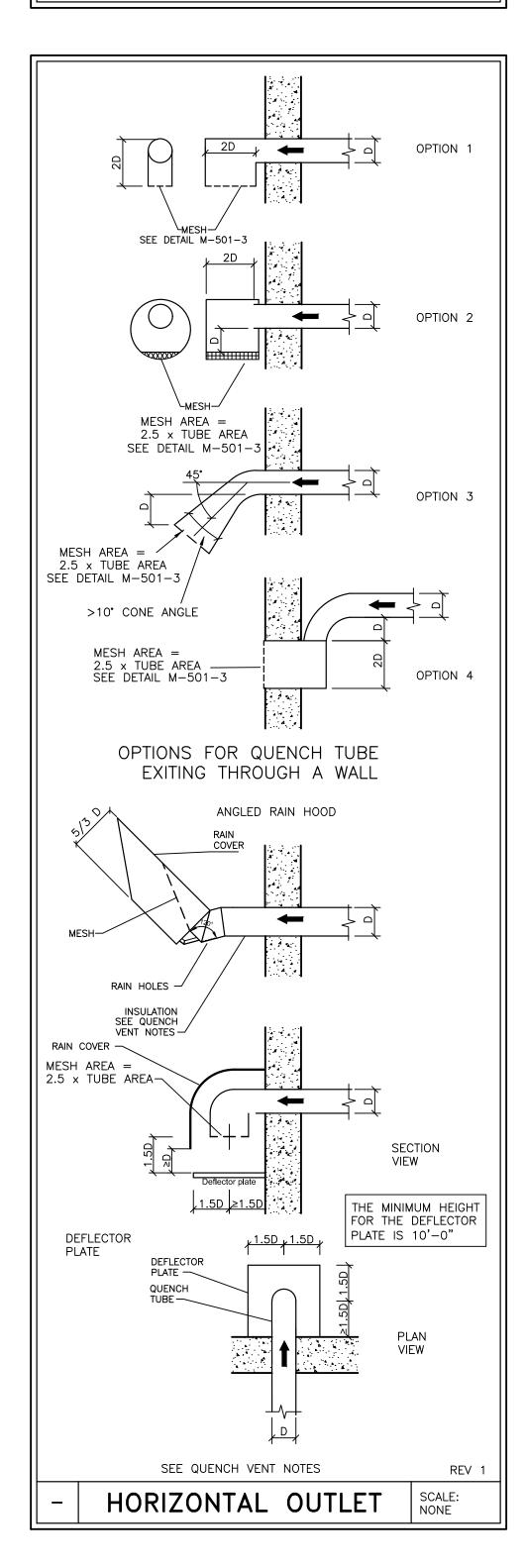
## CRYOGEN NOTES

1) "CRYOGENS" IS A TERM USED TO IDENTIFY THE REFRIGERANT USED TO MAKE THE MAGNET "SUPER-CONDUCTING", IN THIS APPLICATION, LIQUID AND GASEOUS HELIUM. SPECIAL CARE MUST BE TAKEN DURING THE TRANSFILLING OF THE MAGNET WITH CRYOGENS AND NORMAL EXHAUST OF CRYOGENS FROM THE SYSTEM. ASIDE FROM THE OBVIOUS DANGER OF FREEZING, HELIUM GAS WILL ALSO DISPLACE THE OXYGEN IN THE ROOM. THE INSTALLATION OF AN APPROVED TOXGARD MONITORING SYSTEM IS RECOMMENDED.

2) THERE SHALL BE A TRANSPORT ROUTE FOR DELIVERY OF CRYOGENS TO THE EXAM ROOM. SPECIAL VESSELS CALLED DEWARS ARE USED TO TRANSPORT HELIUM. A 250 LITER DEWAR WEIGHS 335 POUNDS AND HAS A 32" DIAMETER, A 500 LITER IS 540 POUNDS, AND IS 42" IN DIAMETER.

3) HELIUM GAS CYLINDERS MAY BE USED DURING THE INITIAL FILLING OF HELIUM INTO THE MAGNET. THE FACILITY IN WHICH THESE MAY BE USED NEEDS TO HAVE THE ABILITY TO TEMPORARILY STORE AND SECURE THESE CYLINDERS THAT WILL PREVENT THEM FROM INADVERTENTLY FALLING OVER.

4) OUTSIDE VENTING OF THE HELIUM IS TO BE PROVIDED BY MEANS OF A VENT PIPE OF NON-MAGNETIC MATERIAL CALLED A QUENCH VENT. REV 0



#### QUENCH VENT NOTES

QUENCH VENT DESIGN INSTRUCTIONS 1) IN THE EVENT OF A QUENCH, THE THERMAL ENERGY DISSIPATED CAUSES AN EXTREMELY RAPID BOIL OFF OF THE LIQUID HELIUM. THE SYSTEM MUST BE CAPABLE OF VENTING THE LARGE VOLUME OF GAS GENERATED AT THE APPROXIMATE EXPANSION RATIO OF 1:700 FROM LIQUID AT 4.2°K TO ROOM TEMPERATURE GAS. THE EXHAUST SYSTEM IS CRITICAL FOR THE SAFE OPERATION OF THE MAGNET, THE DATA IN THIS DOCUMENT MUST BE FOLLOWED. SINCE HELIUM VENTED IN A QUENCH IS AN ASPHYXIANT & AN EXTREMELY COLD GAS, THE QUENCH TUBE MUST ALWAYS END AT A POINT WHERE ACCESS BY PEOPLE IS NOT POSSIBLE. QUENCH TUBE PLANNING MUST ONLY BE DONE BY QUALIFIED PERSONNEL. IT IS THE OWNER'S RESPONSIBILITY TO ENSURE THAT THE QUENCH TUBE IS MAINTAINED IN AN OPERABLE STATE.

2) IF THE QUENCH VENT IS NOT CONFIGURED CORRECTLY THERE IS A RISK OF DANGER THAT MAY LEAD TO DEATH OR SERIOUS INJURY AND CAN RESULT IN STRUCTURAL DAMAGE. THE EXHAUST MUST NOT BE VENTED IN AN ENCLOSED SPACE. THE OPERATOR OF THE SYSTEM MUST PREPARE AN EMERGENCY PLAN IN THE EVENT OF A QUENCH.
3) THE QUENCH TUBE CONSISTS OF STRAIGHT, HYDRAULICALLY

SMOOTH SECTIONS, BENDS UP TO 90° AND A DIFFUSER, IF REQUIRED. THE END OF THE TUBE MUST BE PROTECTED FROM RAIN, SNOW, AND FOREIGN OBJECTS. ROUND SECTIONS ONLY, NO SQUARE SECTIONS.

4) THE SIEMENS MAGNET HAS A QUENCH VALVE ASSEMBLY FOR CONNECTION TO THE TUBE LOCATED AT THE TOP LEFT SIDE OF THE MAGNET (SEE MAGNET ELEVATION). THE MECHANICAL CONTRACTOR WILL SUPPLY AND INSTALL A QUENCH VENT TUBE WITH CAP, TO BE NON-MAGNETIC STAINLESS STEEL ( $\geq$ 22 GAUGE MINIMUM). GRADES AISI304, 309, 316, OR 321 ONLY. THERMAL CONDITIONS MAY CAUSE THE TUBE TO CONTRACT UP TO 3mm/METER SO A STAINLESS STEEL BELLOWS OR FLEXIBLE SECTION MUST BE INSTALLED A MINIMUM OF EVERY 32'-9" OF STRAIGHT SECTIONS, NOT TO EXCEED 2% OF THE OVERALL LENGTH. THE QUENCH TUBE MAY ALSO BE MADE OF ALUMINUM, EXTRUDED TUBE ALUMINUM GRADES 6063 AND 6082 ONLY MUST BE USED. ROLLED AND WELDED TUBE FROM SHEET ALUMINUM GRADE 5083 ONLY MUST BE USED. THE WALL SECTIONS OF ALUMINUM TUBE MUST BE A MINIMUM 14 GAUGE. THERMAL CONTRACTION OF 4.5 MM/METER MUST BE CONSIDERED FOR ALUMINUM QUENCH TUBES. THE MOVEMENT OF THE BELLOWS MUST BE RESTRICTED TO PREVENT EXCESSIVE EXPANSION DUE TO PRESSURE. THE WEIGHT OF THE TUBE MUST BE SUPPORTED BY THE BUILDING AND BE FLEXIBLE ENOUGH TO ALLOW MOVEMENT FROM THERMAL CONTRACTION. THE WALL EXIT SHOULD ALSO BE FLEXIBLE.

#### PRESSURE CALCULATION

5) THE MAXIMUM INTERNAL PRESSURE IS CALCULATED AT 1.45 PSI. THE MAXIMUM PRESSURE SHOULD BE ENGINEERED FOR 6.5 PSI.
6) USE THE QUENCH VENT CALCULATOR PROVIDED BY SIEMENS TO DESIGN A QUENCH VENT THAT MEETS DESIGN REQUIREMENTS FOR DIAMETER, LENGTH, NUMBER OF ELBOWS AND PRESSURE DROP. ALL BENDS MUST BE SMOOTH WALLED AND HAVE A CENTERLINE TO INTERNAL PIPE DIAMETER RATIO OF 1.5 TO 5.0. EXPANSIONS TO PIPE DIAMETER CAN BE DONE WITH A DIFFUSER. ONLY ROUND TUBE SECTIONS MAY BE USED, RECTANGULAR SECTIONS ARE NOT ALLOWED.
7) THERE MUST BE A 12–19 INCH FLEXIBLE SECTION OF PIPE FOR CONNECTION TO THE QUENCH VALVE AT THE MAGNET WITH AN INSIDE DIAMETER GREATER THAN 4" (1.5T) OR 6" (3.0T) AND ABLE TO WITHSTAND 6.5 PSI. CONNECTIONS

8) SECTIONS OF THE PIPE CAN ONLY BE JOINED BY WELDING OR BOLTED FLANGES WITH FIBER GASKETS. ROTARY FLANGES ARE PERMITTED, VEE CLAMPED FLANGES MAY NOT BE USED.

QUENCH VENT EXIT 9) THE PROTECTION AT THE END OF THE TUBE SHALL BE 3/8" WIRE MESH WITH 1/16 INCH WIRES, COVERING AN AREA AT LEAST 2.5 TIMES THE CROSS SECTION AREA OF THE QUENCH PIPE.

10) WHERE THE QUENCH TUBE EXITS THROUGH A FLAT ROOF, THE THE OUTLET MUST BE ABOVE A LEVEL WHERE WATER COULD ENTER IN THE EVENT THAT THE ROOF DRAINS BECOME BLOCKED. IN THE CASE OF A HORIZONTAL EXIT THROUGH A WALL, THE OUTLET SHALL BE ANGLED DOWNWARD NOT LESS THAN 1 PIPE DIAMETER TO PREVENT RAIN INGRESS. THE EXIT SHALL BE LOCATED ABOVE THE LEVEL OF DRIFTING SNOW.

11) WHERE THE QUENCH TUBE EXITS VERTICALLY, A RAIN COVER MUST ALSO BE FITTED WITH THE DIAMETER TO BE TWO TIMES THE DIAMETER OF THE QUENCH TUBE. THE CLEARANCE BETWEEN THE RAIN GUARD AND THE MESH SHALL 2 TIMES THE DIAMETER OF THE TUBE. A DEFLECTOR PLATE SHALL BE WELDED TO THE TUBE WHERE IT EXITS THE ROOF TO PREVENT HELIUM FROM RE-ENTERING THE BUILDING. THE DEFLECTOR SHALL BE AT LEAST 3 TIMES THE DIAMETER OF THE QUENCH TUBE AND LOCATED TWO PIPE DIAMETERS ABOVE THE ROOF AND TWO PIPE DIAMETERS BELOW THE RAIN GUARD.

DURING A QUENCH THE HELIUM GAS EXITING THE QUENCH PIPE MAY BE AT TEMPERATURES OF LESS THAN -400°F. DUE TO THIS TEMPERATURE ROOFING MATERIALS OR ITEMS AROUND THE VENT EXIT MAY BE ADVERSELY AFFECTED. CONSIDERATION OF MATERIALS AND ITEMS PLACED NEAR THE VENT EXIT SHOULD BE TAKEN INTO ACCOUNT SO DAMAGE DOES NOT OCCUR.

12) WHERE THE QUENCH TUBE EXITS HORIZONTALLY, THE OUTLET MUST CONFORM TO OPTIONS 1–4 OR THE ANGLED RAIN HOOD. THE OUTLET SHOULD NOT BE LOCATED WHERE HELIUM GAS CAN BE DRAWN INTO AN AIR INLET, ENTER AN OPEN WINDOW, OR BLOW DIRECTLY ONTO STRUCTURE OR EQUIPMENT. RESTRICT ACCESS TO WINDOWS AND DOORS TO AVOID INJURY FROM COLD BURNS AND ASPHYXIATION BY 9'–11" ON EACH SIDE, BELOW AND 19'–9" ABOVE, IF THE OUTLET IS POSITIONED TOO LOW A DEFLECTOR PLATE CAN BE USED WITH OPTION 1 AND 3.

WARNING SIGNS AND OUTLET RESTRICTIONS A WARNING SIGN MUST BE FIXED AND VISIBLE NEAR THE QUENCH VENT OUTLET. THE TUBE MUST HAVE A WARNING POSTED ALONG IT'S ENTIRE LENGTH FOR EXTREMELY COLD HELIUM GAS – AUTHORIZED PERSONNEL ONLY.

13) AREAS WITH ACCESS IN THE AREA OF THE OUTLET MUST BE CLEARLY IDENTIFIED AND FENCED, FOR EXAMPLE, A ROOF OUTLET WITH MAINTENANCE ACCESS.

INSULATION AND GALVANIC SEPARATION 14) THE QUENCH TUBE MUST HAVE MINIMUM 1" INSULATION FOR THE FULL LENGTH INSIDE THE BUILDING. WITHIN THE RF ROOM THERE SHOULD BE A 1" LAYER OF MINERAL FIBER INSULATION WITH A VAPOR BARRIER AND 1" CLASS O OR CLASS AP ARMAFLEX. OUTDOOR PIPES MUST BE WEATHERPROOF. THE INSULATION MUST NOT TOUCH THE MAGNET COVERS. TO AVOID RF DISTURBANCES THE INSULATION MUST NOT MAKE ELECTRICAL CONTACT WITH THE WAVEGUIDE.

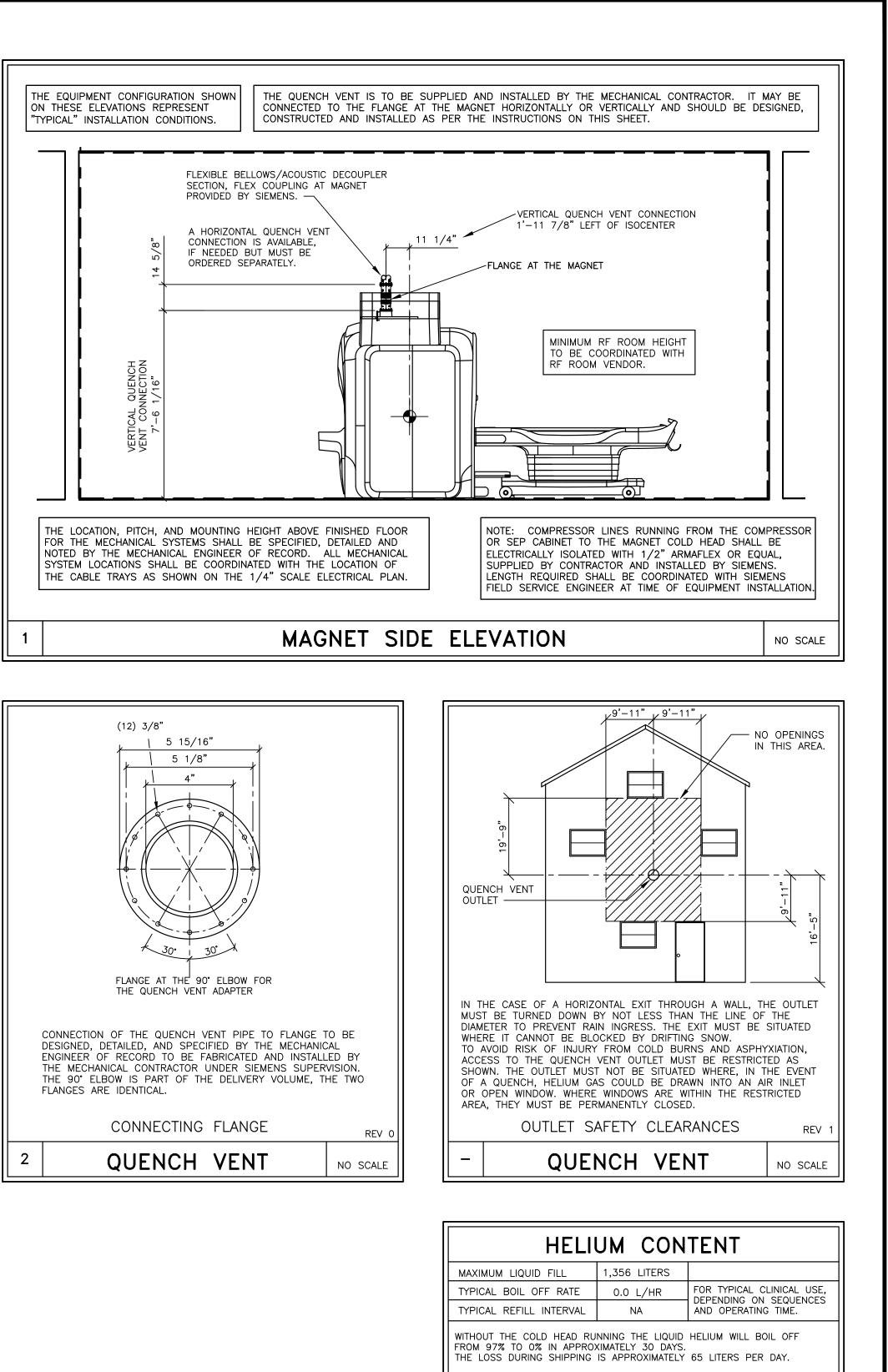
15) GALVANIC SEPARATION MUST BE PROVIDED BETWEEN THE MAGNET, THE QUENCH VENT, THE RF ROOM, AND THE BUILDING, TWO SEPARATIONS ARE REQUIRED USING STAINLESS STEEL BOLTS, INSULATING BUSHES AND LOCKING NUTS. NO OTHER DESIGNS ARE PERMITTED FOR SAFETY. DOCUMENTATION

16) THE DESIGN AND CONSTRUCTION OF THE QUENCH PIPE MUST BE DOCUMENTED WITH DRAWINGS AND CALCULATIONS THAT ARE KEPT WITH INSTALLATION DOCUMENTS. IT MUST COMPLY WITH THE REQUIREMENTS IN THIS DOCUMENT BEFORE BEING CONNECTED TO THE MAGNET.

SYM

REV 8

 IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.  ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES.
 THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.



							SOLA REV 14			
			PROJECT MANAGEF TEL: (770) 402- VMAIL: FAX: EMAIL: PATRICK.RU		HINEERS.COM		SIEMENS			
_			<b>GRADY HEALTH SYSTEM</b> 80 JESSE HILL JR DR SE, ATLANTA, GA 30303 MRI SUITE – MRI 3 – MAGNETOM SOLA XQ GRADIENTS							
<u> </u>	06/06/22	2200757RD DATED 05/17/22 APPROVED BY CUSTOMER FOR FINALS	THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER FULL EXTENT OF THE LAW.		PROJECT #: 220	0757	SHEET:			
	DATE	DESCRIPTION	ALL RIGHTS ARE RESERVED.		SHEET OF 10 10	DRAWN BY: D. BRISTOE	I UU-JU I I			
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