



Vassar Brothers Medical Center
Linear Accelerator Replacement
45 Reade Place
Poughkeepsie, NY 12601

ISSUED FOR BID, PERMIT & CONSTRUCTION 12/03/20

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DRAWING LIST:	
COVER SHEET	
STRUCTURAL S100 STRUCTURAL DRAWINGS	
ARCHITECTURAL G001 INDEX SHEET, CODE ANALYSIS, PARTITION TYPES & GENERAL NOTES G002 TYPICAL HC REQUIREMENTS & MOUNTING HEIGHTS D100 PARTIAL SECOND FLOOR - DEMOLITION PLAN A001 PARTIAL SECOND FLOOR - KEY PLAN & LIFE SAFETY A100 PARTIAL SECOND FLOOR - NEW WORK PLAN & DETAILS A101 PARTIAL FIRST & SECOND FLOOR PLANS - NEW CHASE & EX MECHANICAL SPACE A500 TYPICAL MILLWORK DETAILS A501 TYPICAL MILLWORK DETAILS A520 INTERIOR ELEVATIONS & INTERIOR DETAILS A600 PARTIAL SECOND FLOOR - REFLECTED CEILING PLAN & DETAILS A100 PARTIAL SECOND FLOOR - FINISH PLAN & SCHEDULES A101 DOOR SCHEDULE & DETAILS A600 PARTIAL SECOND FLOOR - EQUIPMENT PLAN	
MECHANICAL M100 PARTIAL SECOND FLOOR PLAN - HVAC REMOVALS & NEW LINAC VAULT M101 PARTIAL SECOND FLOOR PLAN - NEW LINAC CHILLER WATER PIPING & FIRST FLOOR HER RM M102 PARTIAL HVAC ROOF PLAN & CHILLED WATER FLOW DIAGRAM M200 HVAC DETAILS M201 HVAC DETAILS, NOTES AND LEGEND M202 HVAC SCHEDULES M500 HVAC SPECIFICATIONS M501 HVAC SPECIFICATIONS	
ELECTRICAL E100 PARTIAL SECOND FLOOR PLAN - ELECTRICAL REMOVAL PLAN AND NOTES E101 PARTIAL SECOND FLOOR PLAN - LIGHTING & FIRE ALARM AND POWER & DATA PLANS E102 PARTIAL SECOND FLOOR - UNDERFLOOR CONDUIT PLAN AND SECTIONS E103 PARTIAL ROOF PLAN, LINAC POINT TO POINT CABLE DIAGRAM E104 PARTIAL SECOND FLOOR PLAN - NEW POWER CONDUITS, FIRST FLOOR MER & RISER DIAGRAM E200 ELECTRICAL DETAILS, NOTES AND SCHEDULES E500 ELECTRICAL SPECIFICATIONS E501 ELECTRICAL SPECIFICATIONS	
PLUMBING P100 PARTIAL SECOND FLOOR PLAN - PLUMBING PLANS, DETAILS AND NOTES P500 PLUMBING SPECIFICATIONS	
SPRINKLER SP100 PARTIAL SECOND FLOOR PLAN - SPRINKLER PLANS, DETAILS AND NOTES SP500 SPRINKLER SPECIFICATIONS	
REFERENCE DOCUMENTS	
1. VARIAN TRUEBEAM/VITALBEAM PRODUCT PLANNING GUIDE, DATED NOVEMBER 2020 2. VARIAN BASEFRAME DELIVERY CRITERIA 3. VARIAN CUSTOMER'S RADIATION SAFETY CHECK, AT FIRST BEAM DELIVERY 4. VARIAN LABEL, WIRING DIAGRAM, CUSTOMER CONNECTIONS 5. VARIAN CONFIGURATION FOR HIGH ENERGY FILTRINE CHILLER 6. VARIAN TRUEBEAM MAIN DISCONNECT PANEL PRODUCT DATA 7. VARIAN ACCELERATOR PRE-INSTALLATION CHECKLIST, DATED MARCH 6, 2019 8. VARIAN PHOTOGRAPHIC GUIDE, TRUEBEAM PRE-INSTALLATION KITS 9. VARIAN TRUEBEAM KICKOFF MEETING DOCUMENT 10. FILTRINE EQUIPMENT INSTALLER CHECKLIST, DATED FEBRUARY 6, 2019 11. FILTRINE QUICK CONNECT PANEL PRODUCT DATA, DATED DECEMBER 17, 2019 12. FILTRINE GLYCOL CONCENTRATION CHART, DATED MARCH 10, 2019 13. TRANSPECTOR POWER CONDITIONING WITH VOLTAGE REGULATION PRODUCT DATA 14. VISIONRT PRE-INSTALLATION CUSTOMER REQUIREMENTS, DATED OCTOBER 17, 2019 15. LINAC #1 VAULT SHIELDING CALCULATIONS FOR THE DYSON CENTER FOR CANCER CARE AS PREPARED BY ASTARITA ASSOCIATES, DATED NOVEMBER 5, 2020	
THE PROVIDED REFERENCE DOCUMENTS ARE FOR REFERENCE ONLY. VARIAN AND VISIONRT SHALL BE RESPONSIBLE FOR FURNISHING ALL APPLICABLE INFORMATION/DOCUMENTATION TO THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THEIR WORK TO ACCOMMODATE THE MOST CURRENT VENDOR/MANUFACTURER DOCUMENTATION	

1. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING AND PROVIDING ALL TEMPORARY SHORING THAT IS REQUIRED TO SUPPORT INSTABILITIES OF THE EXISTING STRUCTURE DURING CONSTRUCTION AND DUE TO THE REMOVAL OF EXISTING PORTIONS OF THE STRUCTURE & SUB-GRADE.

1. JOBSITE SAFETY AND CONSTRUCTION PROCEDURES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR. REVIEW OF THE CONSTRUCTION BY THE ENGINEER AND/OR ARCHITECT IS FOR CONFORMANCE WITH DESIGN AND SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR JOB SITE SAFETY. LACK OF COMMENT BY THE ENGINEER AND ARCHITECT IS NOT TO BE INTERPRETED AS APPROVAL OF THOSE ASPECTS OF WORK.
2. PRIOR TO ALL NEW STRUCTURAL WORK THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL LAYOUT AND ALL ACCESSORIES, THE CONTRACTOR SHALL CHECK AND INITIAL THESE SHOP DRAWINGS PRIOR TO SUBMISSION.
3. IF FAULTY CONSTRUCTION PROCEDURES, OR MATERIAL, RESULT IN DEFECTIVE WORK THAT REQUIRES ADDITIONAL ENGINEERING TIME TO DEVEISE CORRECTIVE MEASURES, THE CONTRACTOR'S REPAIR FEES MAY BE CHARGED TO THE CONTRACTOR AT THE STANDARD HOURLY RATE OF ADDITIONAL SERVICES, SUCH FEES MAY BE WITHHELD FROM THE GENERAL CONTRACTOR'S PAYMENT.
4. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND ANGLES WITH ARCHITECTURAL DRAWINGS AND EXISTING CONDITIONS BEFORE PROCEEDING WITH ANY WORK.
5. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE PROCEEDING WITH ANY WORK.
6. DO NOT SCALE DRAWINGS.
7. CONTRACTORS MUST REVIEW THE WORK AREA PRIOR TO SUBMITTING CONSTRUCTION PROPOSALS/ORDERS TO DETERMINE THE FULL SCOPE OF WORK INVOLVED. THE DRAWING MAY NOT SHOW ALL PIPING, CONDUITS, EQUIPMENT AND FIXTURES THAT MAY HAVE TO BE RE-ROUTED OR TEMPORARILY DISLOCATED TO PERFORM THE STRUCTURAL WORK SHOWN.
8. THE CONTRACTOR SHALL VERIFY ALL CRITICAL DIMENSIONS AND ELEVATIONS OF THE EXISTING CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK.
9. THE SCHEDULING OF ALL PHASES OF THE WORK, INCLUDING ANY TEMPORARY SERVICE OUTAGES SHALL BE COORDINATED WITH THE OWNER.
10. ALL FINISHES OR MATERIALS DAMAGED IN THE PERFORMANCE OF THE WORK SHALL BE RESTORED TO ORIGINAL CONDITION, TEMPORARY RELOCATED UTILITIES OR EQUIPMENT SHALL BE PUT BACK IN PROPER POSITION.
11. CONDUCT DEMOLITION AND REMOVE DEBRIS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS AND OTHER ADJACENT PROPERTIES AND UTILITIES.
12. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER ADJACENT OCCUPIED OR USED AREAS WITHOUT PERMISSION FROM OWNER.
13. CONDUCT DEMOLITION TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT BUILDINGS AND FACILITIES TO REMAIN, ENSURE SAFE PASSAGE OF PEOPLE AROUND DEMOLITION AREA.
14. PROVIDE AND MAINTAIN SHORING, BRACING AND STRUCTURAL SUPPORTS AS REQUIRED TO PRESERVE STABILITY AND PREVENT MOVEMENT, SETTLEMENT OR COLLAPSE OF CONSTRUCTION TO REMAIN.
15. REMOVE & TRANSPORT DEBRIS IN A MANNER THAT WILL PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS.
16. CLEAN ADJACENT AREAS OF DUST DIRT AND DEBRIS CAUSED BY DEMOLITION, REPAIR OR ADJACENT AREAS TO CONDITION EXISTING BEFORE START OF DEMOLITION.
17. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ALL PROJECT DOCUMENTS AND SPECIFICATIONS, THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO ADDITIONAL ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORK.
18. THE WORK IS SUBJECT TO SPECIAL INSPECTIONS AS DESCRIBED IN THE BUILDING CODE.
19. PRIOR TO CONCRETE WORK, ALL EXCAVATIONS SHALL BE INSPECTED BY THE SPECIAL INSPECTOR TO EXPLORE THE EXTENT OF LOOSE, SOFT, EXPANSIVE OR OTHERWISE UNSATISFACTORY SOIL MATERIAL, AND TO VERY DESIGN AND RECOMMEND NECESSARY MEASURES FOR CORRECTIVE ACTION WILL BE PROVIDED WHERE REQUIRED.

CONCRETE/FOUNDATION NOTES:

1. THE SLAB-ON-GRADE SUB-BASE SHALL BE A CRUSHER RUN STONE FREE FRONT SOFT DISINTEGRATED PIECES, MUD, DIRT, OR OTHER INJURIOUS MATERIAL. THE MATERIAL SHALL HAVE NO STONE GREATER THAN 2 INCHES AND NO DIMENSION AND WITH LESS THAN 10 PERCENT BY WEIGHT PASS A NO. 100 SIEVE.
2. ALL SOIL SURROUNDINGS AND UNDER EXISTING FOOTINGS SHALL BE PROTECTED FROM BEING DISTURBED BY CONSTRUCTION ACTIVITIES.
3. KEEP EXCAVATIONS FREE FROM WATER AT ALL TIMES.
4. LOCATE EXISTING UNDERSLAB ITEMS IN AREA OF NEW WORK PRIOR TO BEGINNING CONSTRUCTION. TAKE ALL NECESSARY PRECAUTIONS TO AVOID MAKING CONTACT WITH OR DISTURBING ANY ACTIVE OR IN USE PIPING/MIRING.
5. SUBMITTALS ARE REQUIRED FOR STRUCTURAL FILL, COMPACTION OF THE EXISTING SUB-GRADE AND THE SLAB SUB-BASE.
6. ALL CONCRETE WORK SHALL CONFORM TO ALL THE REQUIREMENTS OF ACI 301-05, "SPECIFICATIONS FOR STRUCTURAL CONCRETE IN BUILDINGS" AND ACI 318-05 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".
7. CONCRETE SHALL BE THE SPECIFIED RIGHT AND DEVELOP A MINIMUM STRENGTH IN 28 DAYS AS FOLLOWS:

<u>LOCATION</u>	<u>WEIGHT</u>	<u>MIN STRENGTH</u>	<u>MAX WATER /CEMENTITIOUS RATIO</u>
SLABS-ON-GRADE	NORMAL	4,000 PSI	0.45

4. ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, MUST FOLLOW THE LATEST ACI CODE BOOKS AND THE LATEST EDITIONS OF THE STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES'.
9. CONCRETE MIX DESIGN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW, TOGETHER WITH LABORATORY REPORTS ATTESTING THAT THE MIXES CAN ATTAIN THE MINIMUM STRENGTH REQUIRED IN ACCORDANCE WITH SECTION 4 OF ACI 301-05.
10. OTHER CEMENTITIOUS MATERIAL SUCH AS FLYASH OR GRIND CRANULATED BLAST FURNACE SLAG MAY BE BLENDED WITH CEMENT FOR USE IN THE CONCRETE MIX. FLYASH SHALL CONFORM TO ASTM C681 AND MAY REPLACE CEMENT IF THE FOLLOWING RANGES FOR THE 2 CLASSES OF FLYASH: CLASS C FLYASH SHALL CONFORM TO ASTM C618 GRANULATED BLAST FURNACE SLAG SHALL CONFORM TO ASTM C484 AND MAY NOT EXCEED 50% OF THE TOTAL WEIGHT OF CEMENTITIOUS MATERIALS.
11. COARSE AGGREGATE SHALL BE 3/4" AND CONFORM TO ASTM C233.
12. THE CONCRETE MIX DESIGN FOR THE INTERIOR SLAB ON GRADE SHALL CONTAIN 'BARRIER'-A MOISTURE VAPOR REDUCTION ADMIXTURE, RECOMMENDED ADDITION RATE IS 14 OZ. PER 100 LBS OF TOTAL CONCRETE. OTHER MATERIALS SUCH AS GRANULATED BLAST FURNACE SLAG TO COMPENSATE FOR THIS ADMIXTURE, CONTACT MANUFACTURER FOR ADDITIONAL REQUIREMENTS FOR USING THIS PRODUCT.
13. NO ADMIXTURES ARE PERMITTED UNLESS THE ENGINEERS WRITTEN TO THE CONTRACTOR. ADMIXTURES ARE ALLOWED FOR CONCRETE EXPOSED TO THE WATER SUCH AS THAT USED IN FOUNDATION WALLS SHALL CONTAIN 5% ± 1% EXTRAIRAL AIR, DO NOT USE AIR ENTRAINMENT ADMIXTURE FOR INTERIOR NORMAL HEIGHT CONCRETE SLABS.
14. LIMIT WATER-SOLUBLE, CHLORIDE-ION CONTENT IN HARDENED CONCRETE TO 0.30 PERCENT BY WEIGHT OF CEMENT.
15. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60.
16. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WITH A MINIMUM YIELD STRENGTH OF 75 KSI, LAP ONE MESH SIZE AT SIDES AND ENDS, AND WIRE TOGETHER.
17. VAPOR BARRIER SHALL BE STEGO WRAP (5 MIL) VAPOR BARRIER BY STEGO INDUSTRIES, INC (SEE SPEC) AND SHALL HAVE A MINIMUM PERMEANCE AFTER CONDITIONING (ASTM E 1745, PARAGRAPHS 11.2-11.3) THAT IS LESS THAN 0.01 PERMS AND MEETS THE REQUIREMENTS OF CLASS A PLACE AS PER ASTM E 1643 AND MANUFACTURER'S WRITTEN INSTRUCTIONS.
18. JOINT SEALANT FOR CONTROL JOINTS IN THE INTERIOR SLAB ON GRADE SHALL BE SIKADUR 51 SL[®] AS MANUFACTURED BY SIKA CORPORATION.

4) CONCRETE/FOUR
NOT TO SCALE

19. THE FOLLOWING CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:

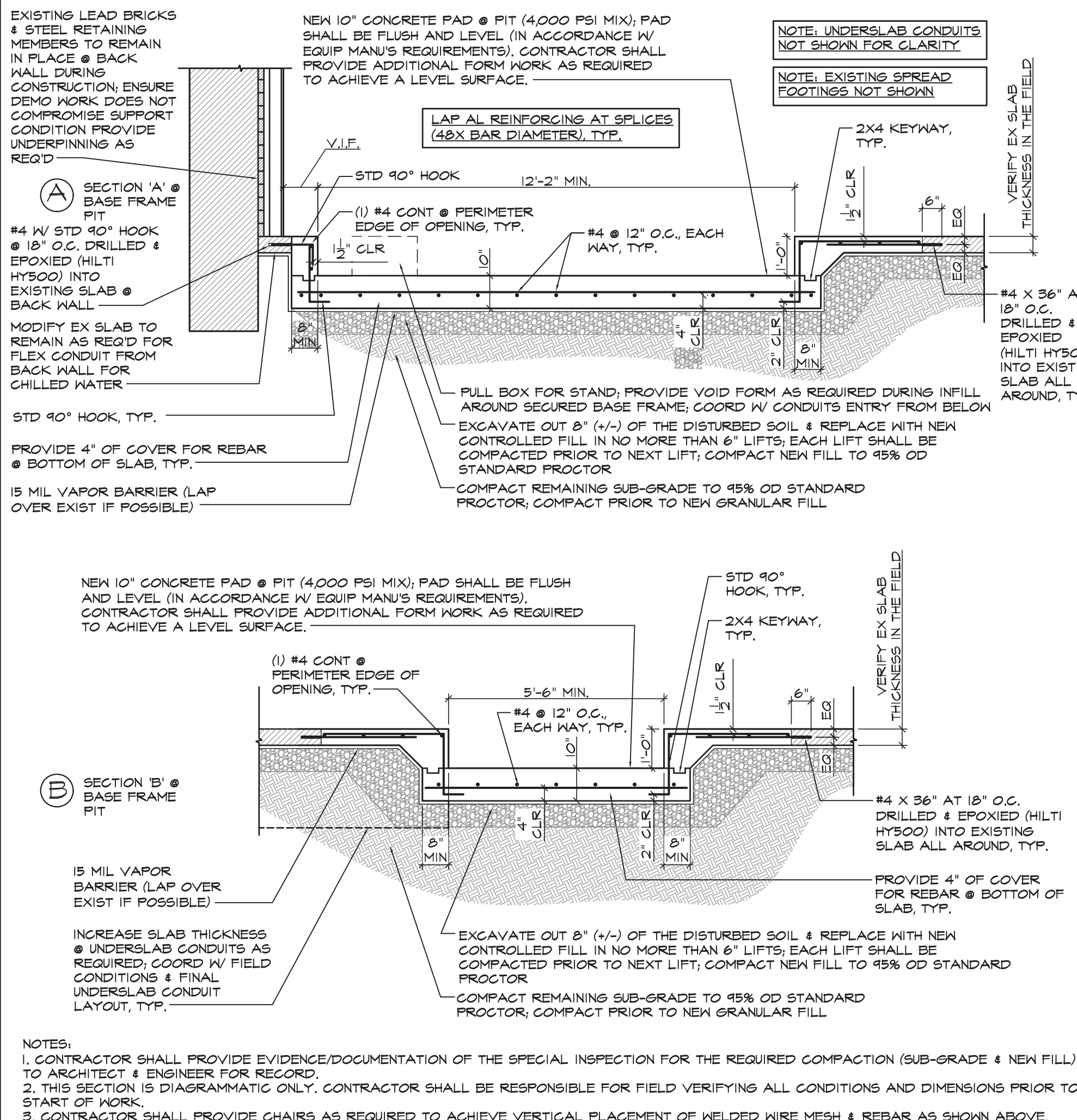
<u>LOCATION</u>	<u>COVER</u>
CONCRETE CASE AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
CONCRETE EXPOSED TO EARTH OR WEATHER, #6 THROUGH #10 BARS	2"
#5 BARS OR SMALLER	1-1/2"
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND; #14 AND #10 BARS	1-1/2"
#1 BARK AND SMALLER BEAMS AND COLUMNS	3/4"
PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS	1-1/2"

20. THE CONVEYANCE, PLACEMENT AND PROTECTION OF THE CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF CHAPTERS ACI 318, MECHANICAL VIBRATIONS AND THE USE OF PUMPED CONCRETE.
21. CONCRETE SHALL BE PLACED AROUND REINFORCING AND AGAINST FORM SURFACES AND TO PREVENT THE FORMATION OF AIR OR STONE POCKETS, HONEYCOMBS, OR OTHER DEFECTS. SEAGUARDING DEVICES MUST BE USED TO AVOID OVER VIBRATION THAT CAN LEAD TO AGGREGATE SEGREGATION.
22. NO YIELDING OF REINFORCING WILL BE PERMITTED.
23. ALL LAP SPICES SHALL BE CLASS B, IN ACCORDANCE WITH ACI 318 SPECIFIED ABOVE.
24. THE INSTALLATION OF SLABS SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER ACI 318. INTERIOR FINISH SLAB SURFACES ARE TO HAVE A STEEL TROWEL FINISH.
25. EXPANSION AND ISOLATION JOINT FILL STRIPS; ASTM D 1751, ASPHALT-SATURATED CELLULOSIC FIBER.
26. WATERSTOPPS, "VOLGAY R" SELF EXPANDING BUTYL RUBBER WITH BENTONITE STRIP WATERSTOP, AS MANUFACTURER BY COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY (OR EQUAL), MUST AS PER MANUFACTURER'S INSTRUCTION.
27. THE CURING AND PROTECTION OF CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF CHAPTERS ACI 318-20. CONCRETE SLABS SHALL BE PROTECTED FROM LOSS OF SURFACE MOISTURE FOR NOT LESS THAN 1 DAY USING A CURING COMPOUND CONFORMING TO ASTM C930 OR CONSIDERABLY BETTER. CURING COMPOUND SHALL BE COMPATIBLE WITH ANY INTENDED FLOORING OVERLAY. DO NOT INSTALL FINISH FLOORING UNTIL THE SLAB HAS ADEQUATELY DRIED PER THE FLOORING MANUFACTURER'S SPECIFICATIONS.
28. ACCURATELY POSITION, SUPPORT AND SECURE REINFORCING AGAINST DISTURBANCE FROM FORMS, SHORING AND ACCESSORIES.
29. PROVIDE REINFORCING BAR SUPPORTS WITH BAR SUPPORT TO MAINTAIN MINIMUM CONCRETE COVER. DO NOT TACK WELD CROSSING REINFORCING BARS, PROVIDE BAR SUPPORTS AS FOLLOWS:
 - BOLSTERS, CHAIRS, SPACERS AND OTHER DEVICES FOR SPACING, SUPPORTING AND FASTENING REINFORCING BARS AND WELDED IRON BARS.
 - REINFORCING BARS SHALL BE SUPPORTED BY BAR SUPPORTS FROM STEEL WIRE, PLASTIC OR PRECAST CONCRETE ACCORDING TO CRSI'S "MANUAL OF STANDARD PRACTICE" OF GREATER COMPRESSIVE STRENGTH THAN CONCRETE.
30. SUBMITTALS OF ENGINEER AND ARCHITECT ARE REQUIRED FOR GEMENT, CONSTRUCTION AND ASSESSMENT.

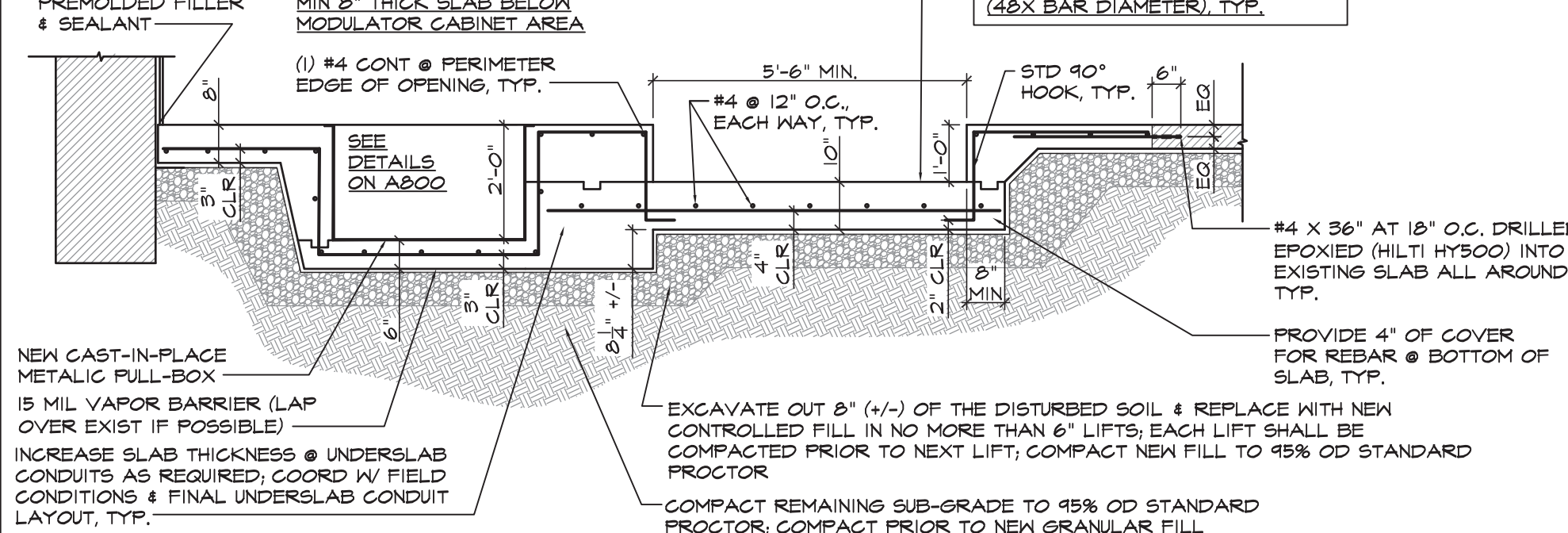
CONNECTIONS TO EX MASONRY OR
CASE-IN-PLACE CONCRETE:

1. ALL PROPRIETARY ANCHORING SYSTEMS (EXPANSION, ADHESIVE ANCHORING SYSTEMS, ETC.) TO BE INSTALLED INTO EXISTING CONCRETE AND MASONRY DEVELOPED BY THE MANUFACTURER OF THE ANCHORS. THE CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR DRILLING AND CLEANING OF HOLES, FOR SPACING AND EDGE DISTANCE REQUIREMENTS AND FOR THE PROPER MIXING OF SETTING OF THE ANCHORING SYSTEMS SUCH AS SCREEN TUBES, DOWELING ADHESIVES, ETC.
2. FOR CONNECTIONS TO EXISTING CONCRETE CONTRACTOR MUST LOCATE THE POSITION OF EXISTING REINFORCING BARS WITH AN R-METER OR PILOT HOLES PRIOR TO INSTALLATION OF ANCHORS, NOTIFY ENGINEER OF FIELD CONFLICTS PRIOR TO INSTALLATION.
3. CONNECTIONS TO EXISTING CONCRETE SHALL BE MADE WITH ANCHORS, CONFORMING TO THE FOLLOWING: A. FOR GRACED CONCRETE:
 - 3.1. MECHANICAL ANCHORS SHALL BE EITHER:
 - 3.1.1. HILTI "Kwik Bolt," ETC.
 - 3.1.2. SIMPSON "TITAN HD" HIGH STRENGTH ANCHOR (USE ONLY IN PERMANENTLY DRY INTERIOR NON-CORROSIVE ENVIRONMENTS)
 - 3.1.3. SIMPSON "STRONG BOLT," ETC.
 - 3.1.4. SIMPSON "HIT-80" HIGH STRENGTH ANCHOR (USE ONLY IN PERMANENTLY DRY INTERIOR NON-CORROSIVE ENVIRONMENTS)
 - 3.2. NOTE: SIZE EMBEDMENT, SPACING AND EDGE DISTANCE OF ANCHORS SHALL BE AS NOTED ON DRAWINGS.
4. ADHESIVE ANCHOR RODS OR REINFORCING BARS SHALL BE INSTALLED IN ROTARY HAMMERED DRILLED HOLES USING THE FOLLOWING ADHESIVE ANCHORING SYSTEM:
 - 4.1. HILTI "HIT RE 500 SD" OR HILTI "HIT-HY 200" ADHESIVE ANCHORING SYSTEM WITH 150 Ø40 CLASS II CLASS 55 ANCHORS (MINIMUM VIELD STRENGTH - 58 KSI) WITH 1/2" DIA. 1/2" LONG CLASS B70 - 120 KSI ASTM A154 GRADE B1 HIGH STRENGTH ANCHOR RODS.
 - 4.2. SIMPSON "SET-ON" ADHESIVE ANCHORING SYSTEM WITH ASTM F1554 GRADE B62 1/2" DIA. 1/2" LONG CLASS B70 - 120 KSI ANCHOR RODS (TORQUE CONTROLLED ANCHOR RODS).
5. NOTE: USING ANY OF THE ABOVE ADHESIVE ANCHORING SYSTEMS, CONTRACTOR SHALL FOLLOW THE ABOVE ADHESIVE ANCHORING SYSTEMS TO THE CONCRETE GENERAL NOTES.
6. SIZE EMBEDMENT, SPACING AND EDGE DISTANCE OF THE ANCHORS AND REINFORCING BARS SHALL BE AS NOTED ON THE DRAWINGS.

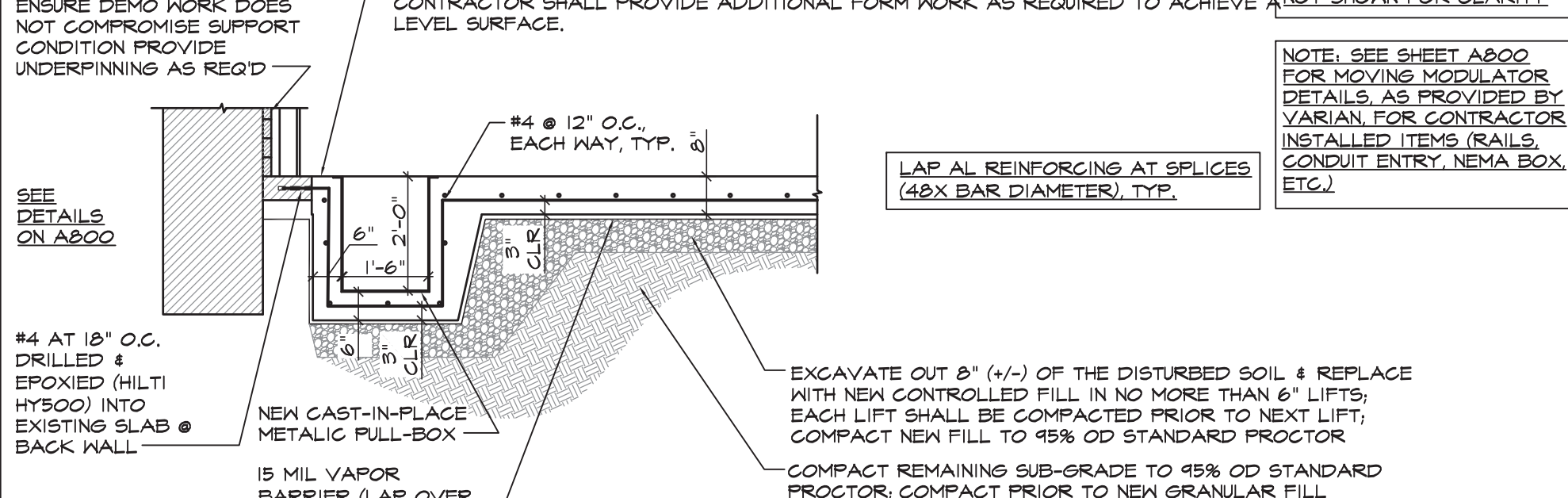
24) CONN TO EX MA
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ACCORDANCE W/ EQUIP MANU'S REQUIREMENTS), CONTRACTOR
ADDITIONAL FORM WORK AS REQUIRED TO ACHIEVE A LEVEL
1/2" EXP. JOINT W/

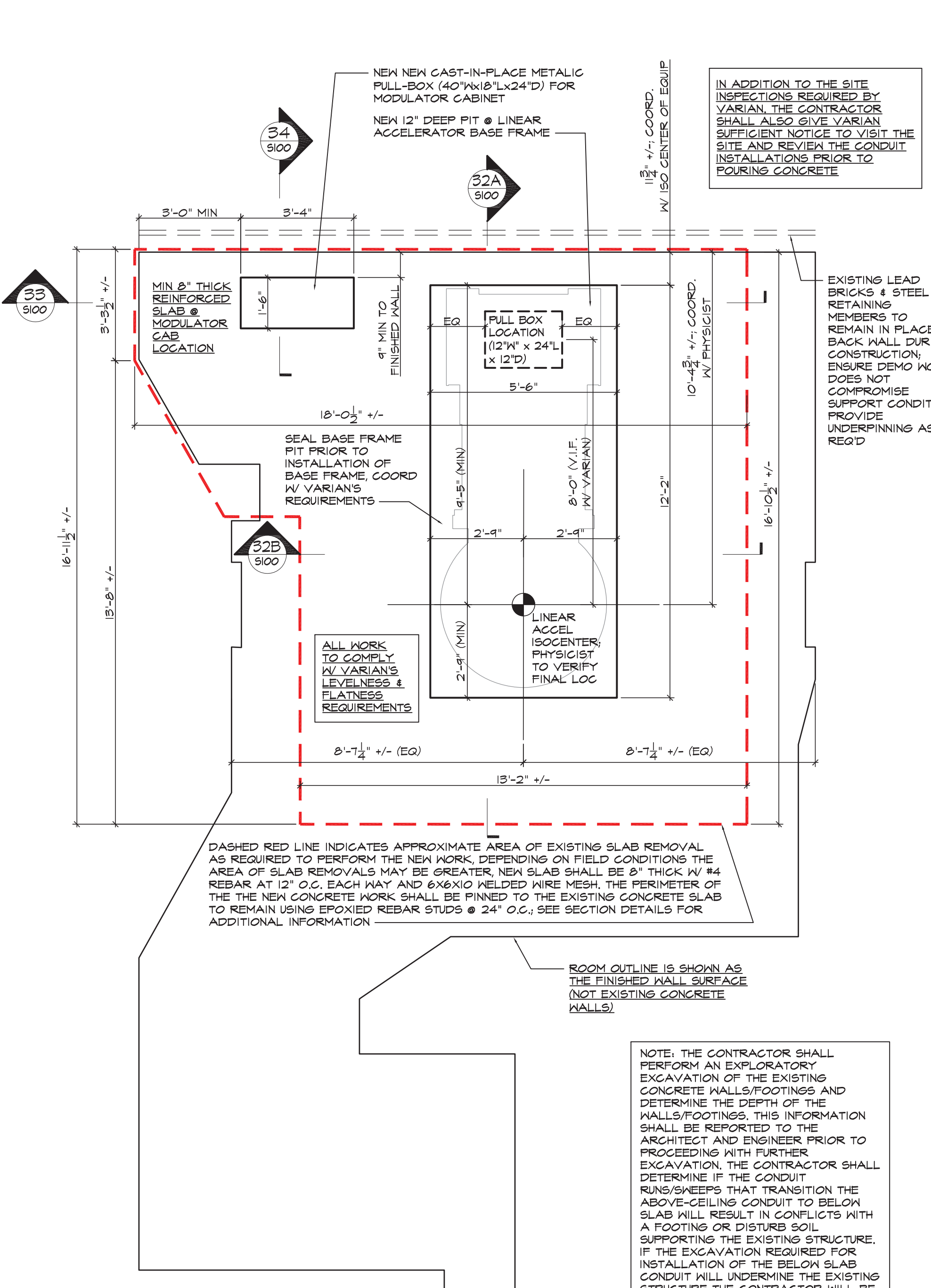


NEW 8" CONCRETE PAD @ MODULATOR CAB LOCATION (4,000 PSI MIX); PAD SHALL BE FLUSH AND LEVEL (IN ACCORDANCE W/ EQUIP MANU'S REQUIREMENTS).



- NOTES:
1. CONTRACTOR SHALL PROVIDE EVIDENCE/DOCUMENTATION OF THE SPECIAL INSPECTION FOR THE REQUIRED COMPACTION (SUB-GRADE & NEW FILL) TO ARCHITECT & ENGINEER FOR RECORD.
 2. THIS SECTION IS DIAGRAMMATIC ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL CONDITIONS AND DIMENSIONS PRIOR TO START OF WORK.
 3. CONTRACTOR SHALL PROVIDE CHAIRS AS REQUIRED TO ACHIEVE VERTICAL PLACEMENT OF WELDED WIRE MESH & REBAR AS SHOWN ABOVE.

(34) SECTION DE
3/8" = 1'-0"

[illegible]

(64)	TITLE
	SCALE

© 2020 OPTIMUS ARCHITECTURE

IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT

87 E. Market Street
Suite 180
Hinebeck NY 12572
45 876 8202 phone
45 876 8112 fax

optimus
ARCHITECTURE

DATE	DRAWN BY	CHKD. BY
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SCALE	
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GENERAL DEMOLITION NOTES:

1. REMOVE EVERYTHING AS REQUIRED FOR NEW WORK AND DISPOSE IN ACCORDANCE WITH APPLICABLE LAWS.
2. CONTRACTOR SHALL WALK THROUGH THE DEMOLITION WORK AREA WITH THE OWNER AND PROVIDE AN ACCEPTABLE METHOD FOR MARKING ALL WALL, GROUND AND ACCESSORIES THAT ARE TO BE REMOVED. ITEMS THAT ARE TO BE SALVAGED AND REINSTALLED BY THE CONTRACTOR AS PART OF THE WORK AND AFTER FINISHES ARE COMPLETE, SHALL BE CAREFULLY IDENTIFIED AND PROTECTED. DEMOLITION CONTRACTOR SHALL REINSTALL AS PER DIRECTION OF THE OWNER.
3. ALL REMOVALS AND DISPOSAL SHALL BE COORDINATED WITH REQUIREMENTS FOR NEW WORK.
4. ALL ROUTES FOR REMOVAL OF DEBRIS AND DELIVERY OF NEW EQUIPMENT AND MATERIALS SHALL BE COORDINATED CAREFULLY WITH THE OWNER.
5. PROVIDE ALL NECESSARY TEMPORARY SHORING AND BRACING AS REQUIRED.
6. NEW FLOOR FINISHES ARE INTENDED TO BE FLUSH. REPLACE ANY DETEIORATED/ MISSING SUBSTRATES TO MATCH ADJACENT CONSTRUCTION & THICKNESS. FLASH PATCH AS REQUIRED.
7. ALL DEMOLITION SHALL PREPARE SURFACES AND SUBSTRATES FOR NEW FINISHES. THIS WORK INCLUDES BUT IS NOT LIMITED TO PATCHING AND FLASH PATCHING SIMILAR TO THAT REQUIRED FOR FLOOR SURFACES.
8. NO EXISTING MATERIALS OR EQUIPMENT SHALL BE ABANDONED OR LEFT IN PLACE THAT INTERFERE WITH THE INSTALLATION OF NEW CONSTRUCTION VIOLATION OF APPLICABLE CODES, OR INTERFERES WITH THE DAILY OPERATION OF THE EXISTING FACILITY.
9. PROVIDE ALL NECESSARY REMOVALS AS REQD FOR NEW MECH, ELEC & PLUMBING WORK.
10. WHERE EXISTING CONSTRUCTION OR STRUCTURE APPEARS TO VARY FROM ARCHITECT'S DRAWINGS OR AS INDICATED, REQUIRED CONDITIONS TO ACHIEVE PROTECT AND CONSERVE EXISTING CONDITIONS.
11. TO ACHIEVE NEW FLUSH WALL AND FLOOR SURFACES, REMOVE ONLY TO EXPOSE EXISTING FINISHES, FURRING AND OTHER REMOVABLE MATERIALS TO ALIGN NEW FINISH WITH NEW ADJOINING SURFACES.
12. ANY ITEM NOT SCHEDULED FOR DEMOLITION SHALL BE PROTECTED FROM DAMAGE DURING DEMOLITION.
13. CONTRACTOR SHALL COORDINATE AND PROVIDE FOR REQUIRED DEMOLITION NOT INDICATED BUT NECESSARY FOR THE INSTALLATION OF NEW WORK SHOWN ON PLANS.
14. ANY AREAS OR OTHER FLOORS NOT PART OF THE WORK WHICH ARE AFFECTED BY DEMOLITION OR REMOVALS AS REQUIRED FOR NEW SYSTEMS (INCLUDING BUT NOT LIMITED TO MEP), ARE CONSIDERED PART OF THE WORK TO MAKE THIS PROJECT COMPLETE. ANY FINISHES OR ITEMS IN SUCH AREAS ARE TO BE PROTECTED AND CONSERVED. IF CONSTRUCTION SHALL BE REMOVED REINSTALLED OR REPLACED TO ACCOMMODATE NEW WORK. WHERE NEW FINISHES ARE REQUIRED, MATCH EXISTING.
15. REMOVE EXISTING WALL MOUNTED ACCESSORIES, FIXTURES INCLUDING BUT NOT LIMITED TO HAND AND SOAP SANITIZERS, BULLETIN / CORK BOARDS, ETC. WHETHER OR NOT NOTED ON PLANS AS DIRECTED BY OWNER AND REINSTALL AS REQD FOR NEW FINISHES.
16. CAREFULLY PROTECT ANY EXISTING ITEM TO REMAIN IN PLACE DURING INSTALLATION OF NEW FLOOR AND WALL FINISHES. ANY EXISTING ITEM WHICH IS NOT TO BE REMOVED OR REPLACED SHALL BE PROTECTED. IF BLASTING IS A RESULT OF NEW FINISHES SHALL BE CLEANED OR REPAIRED. IN THE EVENT ANY ITEM TO REMAIN BECOMES DAMAGED BEYOND REPAIR, CONTRACTOR SHALL REPLACE AND MATCH EXISTING. CONTRACTOR SHALL MATCH EXISTING IN MANUFACTURER, MODEL, PROFILE AND FINISH.

DEMOLITION KEY:

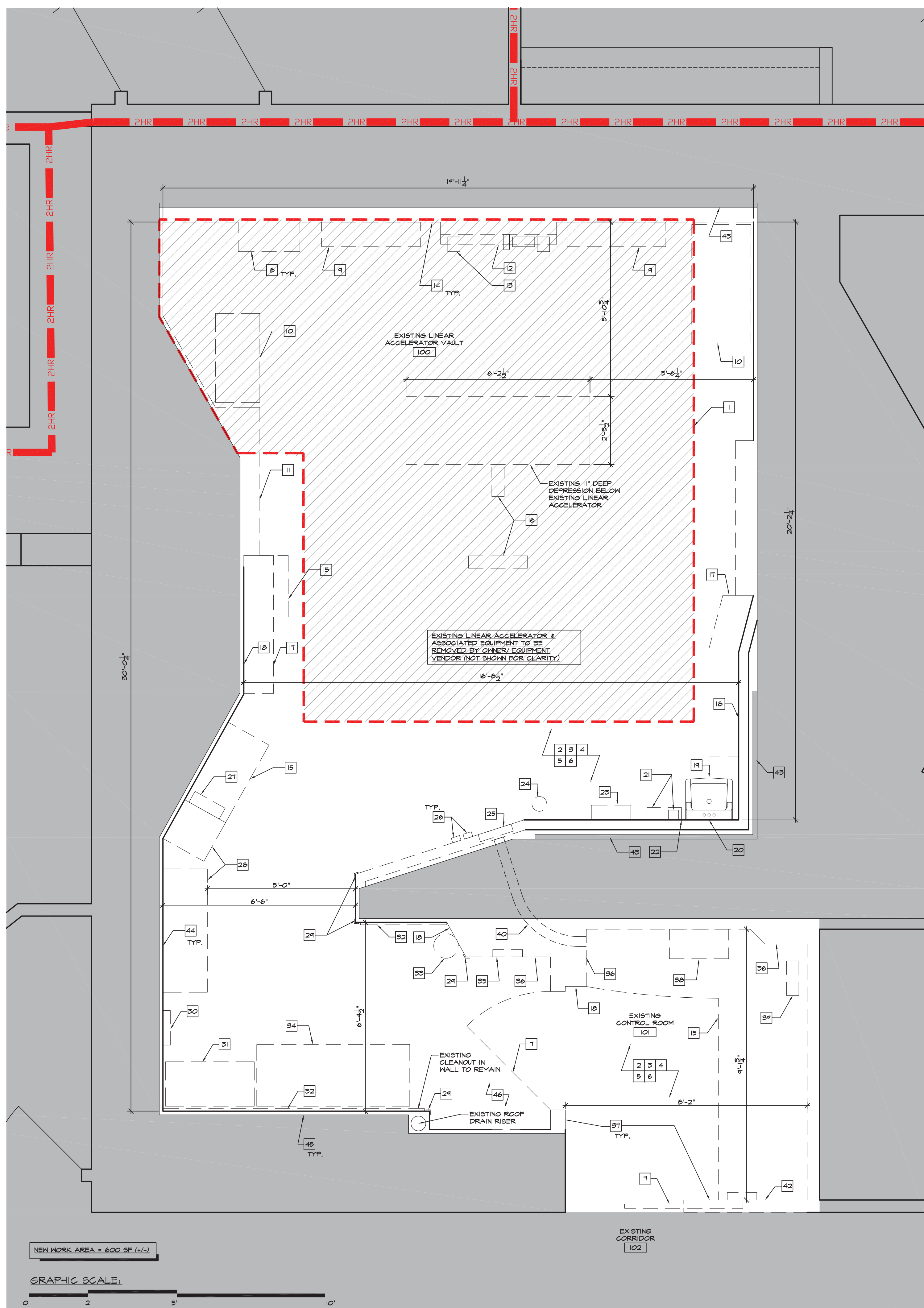
REMOVE ALL ITEMS SHOWN DASHED AND AS ITEMIZED BELOW.
REMOVE EXISTING CONSTRUCTION INCLUDING BUT NOT LIMITED TO

- DASHED RED LINE INDICATES APPROXIMATE AREA OF EXISTING SLAB REMOVAL AS REQUIRED TO PERFORM THE NEW WORK. DEMOLITION OF EXISTING WALLS AND CONCRETE SLAB REMOVALS MAY BE GREATER, SEE SHEET S100 FOR ADDITIONAL INFORMATION.

 2. COORDINATE ADDITIONAL MEP REMOVALS WITH MEP DRAWINGS. COORDINATE ANY EXISTING EQUIPMENT AND WALL-MOUNTED ACCESSORIES TO BE SALVAGED WITH OWNER PRIOR TO REMOVALS. PREP EXISTING WALL SURFACES TO RECEIVE NEW FINISHES REMOVE ALL EXISTING WALL FINISHES, PREP AND REPAIR AS REQUIRED FOR NEW WALL FINISHES.
 3. REMOVE EXISTING FLOORING AND WALL BASE IN THEIR ENTIRETY. REMOVE REMNANT ADHESIVE TO EXPOSE BARE CONCRETE. SAND BLAST (OR OTHER SUITABLE MEANS OF TECH ABRASION) AND PREP EXISTING SLAB AS REQUIRED FOR NEW FINISH.
 4. REMOVE CEILING GRID, TILE, LIGHTING, FIRE SUPPORTS, ALL CEILING MOUNTED ACCESSORIES & ALL UNUSED ABOVE-CEILING ITEMS/SUPPORTS AS REQUIRED FOR NEW WORK.
 5. REMOVE DRYWALL AND ALL ASSOCIATED ITEMS AS REQUIRED TO INSTALL NEW PARTITION. NEW WALL AND CONCRETE SHALL BE FLUSH WITH FACE OF ADJACENT EXISTING DRYWALL. COORDINATE LOCATIONS AND EXTENT OF REMOVALS WITH NEW WORK REQUIREMENTS.
 6. REMOVE ALL EXISTING WALL-MOUNTED ACCESSORIES, FIXTURES, ETC. INCLUDING BUT NOT LIMITED TO EXISTING FIRE RACEWAYS IN THEIR ENTIRETY. COORDINATE WITH OWNER FOR SALVAGE & STORAGE FOR REUSE.
 7. REMOVE EXISTING DOOR FRAMES, SLABS AND HARDWARE IN THEIR ENTIRETY. COORDINATE WITH OWNER REGARDING THEIR STORAGE FOR REUSE OR DISPOSAL.
 8. EXISTING FURRED PARTITION & ASSOCIATED CONDUITS/WIRING TO BE REMOVED IN THEIR ENTIRETY
 9. EXISTING HALL UNIT & CONDENSATE PUMP TO BE REMOVED
 10. EXISTING FIRE SHELVEING TO BE REMOVED & FURNISHED TO OWNER
 11. EXISTING FURRED PARTITION & POSITIONING LASERS TO BE REMOVED. POSITIONING LASERS & MOUNTING PLATES TO BE FURNISHED TO OWNER. TYP FOR ALL EXISTING LASERS (WALL & CEILING MOUNTED).
 12. EXISTING FURRED PARTITION & IN-WALL ITEMS TO BE REMOVED
 13. EXISTING WALL-MOUNTED SPEAKERS AND PATIENT CAMERA/MICROPHONE TO BE REMOVED & FURNISHED TO OWNER
 14. EXISTING ACOUSTICAL WALL PANELS TO BE REMOVED.
 15. EXISTING COUNTER & BASE CABINETS TO BE REMOVED.
 16. EXISTING CEILING-MOUNTED POSITIONING LASERS TO BE REMOVED. POSITIONING LASERS & MOUNTING PLATES TO BE FURNISHED TO OWNER. TYP FOR ALL EXISTING LASERS (WALL & CEILING MOUNTED).
 17. EXISTING UPPER CABINETS TO BE REMOVED
 18. EXISTING EPO (OR EQUIVALENT) BUTTON TO BE REMOVED
 19. EXISTING WALL-MOUNTED LAVATORY & MIRROR TO BE REMOVED; PREP PLUMBING CONNECTIONS FOR NEW SINK INSTALLATION
 20. REMOVE EXISTING WALL-MOUNTED CAMERA ABOVE SINK
 21. EXISTING WALL-MOUNTED SOAP & PAPER TOWEL DISPENSERS TO BE REMOVED & REINSTALLED AS PART OF NEW WORK.
 22. EXISTING CONDUIT, BACKBOX, CABLING & RECEPTACLE FOR HDR AFTERLOADER TO REMAIN AS IS
 23. EXISTING WALL-MOUNTED SHARPS DISPENSER TO BE REMOVED & STORED FOR REINSTALLATION
 24. EXISTING CEILING- MOUNTED CCTV CAMERA TO BE REMOVED
 25. EXISTING RECESSED PHYSICS CONNECTION CABINET TO BE REMOVED
 26. EXISTING WALL-MOUNTED CONTROLS/SENSORS TO BE REMOVED
 27. EXISTING GLOVE BOX HOLDER TO BE REMOVED & STORED FOR REINSTALLATION
 28. EXISTING BUILT-IN FULL-HEIGHT CABINETS TO BE REMOVED
 29. EXISTING CORNER GUARDS TO BE REMOVED
 30. EXISTING WALL-MOUNTED HOOKS TO BE REMOVED. COORD WITH OWNER REGARDING DISPOSAL OR STORAGE FOR REUSE.
 31. EXISTING FULL-HEIGHT METAL STORAGE CABINET TO BE REMOVED & FURNISHED TO OWNER
 32. EXISTING HALL GUARDS TO BE REMOVED
 33. EXISTING HOOK-MOUNTED FIRE EXTINGUISHER TO BE REMOVED & STORED FOR REINSTALLATION.
 34. EXISTING CART TO BE REMOVED & FURNISHED TO OWNER
 35. EXISTING RECESSED MAIN BREAKER BOX TO BE REMOVED.
 36. EXISTING FRAMED CHASE TO BE REMOVED.
 37. REMOVE/MODIFY EXISTING CONTROL ROOM PARTITIONS AS REQ'D FOR NEW WORK & TRANSPORT OF NEW & OLD EQUIPMENT
 38. EXISTING HALL-MOUNTED SHELVEING TO BE REMOVED
 39. EXISTING HALL-MOUNTED FAN TO BE REMOVED
 40. EXISTING PHYSICS CONDUITS) TO REMAIN AS PART OF THE NEW WORK, THE CONTRACTOR SHALL LOCATE/TRACE THE EXISTING PHYSICS CONDUIT AND REPORT THE EXISTING ROUTING THE ARCHITECT AND PHYSICIST.
 41. PARTITION DIVIDING CONTROL ROOMS IS CONSTRUCTED TO GRID. CONTRACTOR SHALL REMOVE THE EXISTING SACK TO THE EXISTING TOP PLATE & PINSECURE THE EXISTING GRID SO AS TO NOT DISTURB THE EXISTING RETIRED. THE ADJACENT CONTROL ROOM CEILING, PROVIDE NEW SUPPORT WIRES AS REQUIRED. CARRY NEW DRYWALL AT NEW WORK SIDE ABOVE THE CEILING FLANGE & PROVIDE SUPPORT SURFACE FOR NEW PERIMETER STRIPS.
 42. EXISTING PARTITION BETWEEN CONTROL ROOM AND CORRIDOR TO BE REMOVED AS REQ'D FOR NEW WORK. THE EXISTING PARTITION IS TO GRID, SUPPORT EXISTING CORRIDOR CEILING GRID AND PROVIDE NEW PERIMETER TIE-INS AS REQUIRED AT MODIFIED CORRIDOR CEILING GRID. PROVIDE NEW DRYWALL AND FINISHES AS REQUIRED. PROVIDE NEW CEILING TILES IN CORRIDOR AS REQ'D FOR A CLEAN & ATTRACTIVE APPEARANCE.
 43. LAYER OF EXISTING LEAD BRICKS WITH RETAINING STEEL MEMBERS EXISTING AGAINST EXISTING WALL. THE PHYSICIST OF RECORD SHALL ENSURE THAT ALL DEMOLITION AND NEW WORK DOES NOT COMPROMISE/DISTURB THE EXISTING LEAD BRICK SHIELDING. THE CONTRACTOR SHALL NOT REMOVE OR DISTURB THE EXISTING LEAD BRICKS AND EXCAVATION DOES NOT COMPROMISE THE SUPPORT CONDITION FOR THE LEAD BRICKS AT THE BACK WALL.
 44. REMOVE EXISTING DRYWALL & MODIFY FRAMING AS REQ'D TO INSTALL F.R. WOOD BLOCKING FOR SUPPORT OF NEW MILLWORK & WALL-MOUNTED ITEMS/ACCESSORIES.
 45. UPON COMPLETION OF THE DEMOLITION WORK THE CONTRACTOR SHALL IN-VAULT THE EXISTING PHYSICIST OF RECORD AND LOCATE ANY UNDOCUMENTED EXISTING PENETRATIONS IN THE SHIELDING/BARRIER. PHYSICIST OF RECORD SHALL EVALUATE ALL EXISTING RETIRED. THE ADJACENT CONTROL ROOM CEILING, PROVIDE NEW SUPPORT WIRES AS REQUIRED. CARRY NEW DRYWALL AT NEW WORK SIDE ABOVE THE CEILING FLANGE & PROVIDE SUPPORT SURFACE FOR NEW PERIMETER STRIPS.
 46. CUT & REPLACE PORTION OF EXISTING FLOOR SLAB AS REQUIRED FOR INSTALLATION OF NEW PIVOTS. SEE DETAILS ON SHEET A520.

NOTE: ALL WORK IN AREAS OUTSIDE THE VAULT & CONTROL ROOM SHALL BE COMPLETED AT NIGHT OR AS SCHEDULED WITH AND APPROVED BY THE OWNER.

34 DEMOLITION KEY NOTES
NOT TO SCALE



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#	DATE	REVISIONS	
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PROJECT Linear Accelerator Replacement for:
VASSAR BROTHERS MEDICAL CENTER
45 READE PLACE
FOUGHKEEPSIE, NEW YORK 12601

DRAWING TITLE	PARTIAL SECOND EDITION - DEMONSTRATION
---------------	--

DRAWING NUMBER:

D100

	TITLE
	SCALE

12	TITLE
	SCALE

13	TITLE
	SCALE

14	TITLE
	SCALE

22 GENERAL DEMOLITION NOTES
NOT TO SCALE

23	TITLE
	SCALE

24 DRAWING LEGEND
NOT TO SCALE

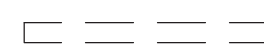
DRAWING LEGEND



= EXISTING 2 HR. FIRE RATED WALL



= EXISTING PARTITIONS TO REMAIN



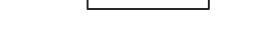
= PARTITIONS TO BE REMOVED



= EXISTING TO REMAIN (NO REMOVALS)



= AREA OF NEW WORK (INTERIOR,



= AREA OF NEW WORK (INTERIOR,

24 DRAWING LEGEND
NOT TO SCALE

34 DEMOLITION KEY NOTES
NOT TO SCALE

14) PARTIAL SECOND FLOOR - DEMOLITION PLAN
1/2" = 1'-0"

GRAPHIC SCALE:



VASSAR BROTHERS MEDICAL CENTER
LINEAR ACCELERATOR REPLACEMENT
600 +/- SQUARE FEET (RENOVATION AREA)

NOTES:
BUILDING IS TYPE I-B PER THE 2020 NYSBC AND TYPE II (222) PER NFPA 101-2012.
THE BUILDING IS PROTECTED THROUGHOUT BY AN AUTOMATIC SPRINKLER SYSTEM.

OCCUPANCY CLASSIFICATION:
(NFPA 101-2012, HEALTH CARE OCCUPANCY), (IBC 2015 OCCUPANCY CLASSIFICATION
GROUP "I-2" INSTITUTIONAL).

OCCUPANT LOAD: AMBULATORY CARE, 552 SF AT 100 SF PER PERSON = 6 OCCUPANTS.

NFPA 101-2012 (SECTION 18.2.6.2.1): THE TRAVEL DISTANCE BETWEEN ANY POINT IN A ROOM AND AN EXIT SHALL NOT EXCEED 200 FT.

NFPA 101-2012 (SECTION 10.3.5.1); BUILDINGS CONTAINING HEALTH CARE OCCUPANCIES SHALL BE PROTECTED THROUGHOUT BY AN APPROVED, SUPERVISED AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 9.7, UNLESS OTHERWISE PERMITTED BY 10.3.5.5.

Diagram illustrating the perimeter of the building at the second floor and the area shown on the life safety plan. The diagram shows a building footprint with a shaded area indicating the grey hatch area shown on the life safety plan. Labels include: DYSON CENTER FOR CANCER CARE, PERIMETER OF BUILDING AT SECOND FLOOR, GREY HATCH INDICATES AREA SHOWN ON LIFE SAFETY PLAN, and APROX AREA OF NEW WORK.



-  = EXISTING 1 HOUR FIRE RESISTANCE RATED CONSTRUCTION
-  = EXISTING 2 HOUR FIRE RESISTANCE RATED CONSTRUCTION
-  = EXIT ACCESS TRAVEL DISTANCE (MAX PERMITTED NFPA 101-12 = 200'-0")
-  = EXISTING SMOKE BARRIER SEALED TO DECK ABOVE
-  = EXIT

	STAIR ENCLOSURE (EXISTING- NO CHANGE)
	ELEVATOR ENCLOSURE (EXISTING- NO CHANGE)
	EXISTING TO REMAIN AS IS (INTERIOR)
	NEW WORK AREA (INTERIOR)

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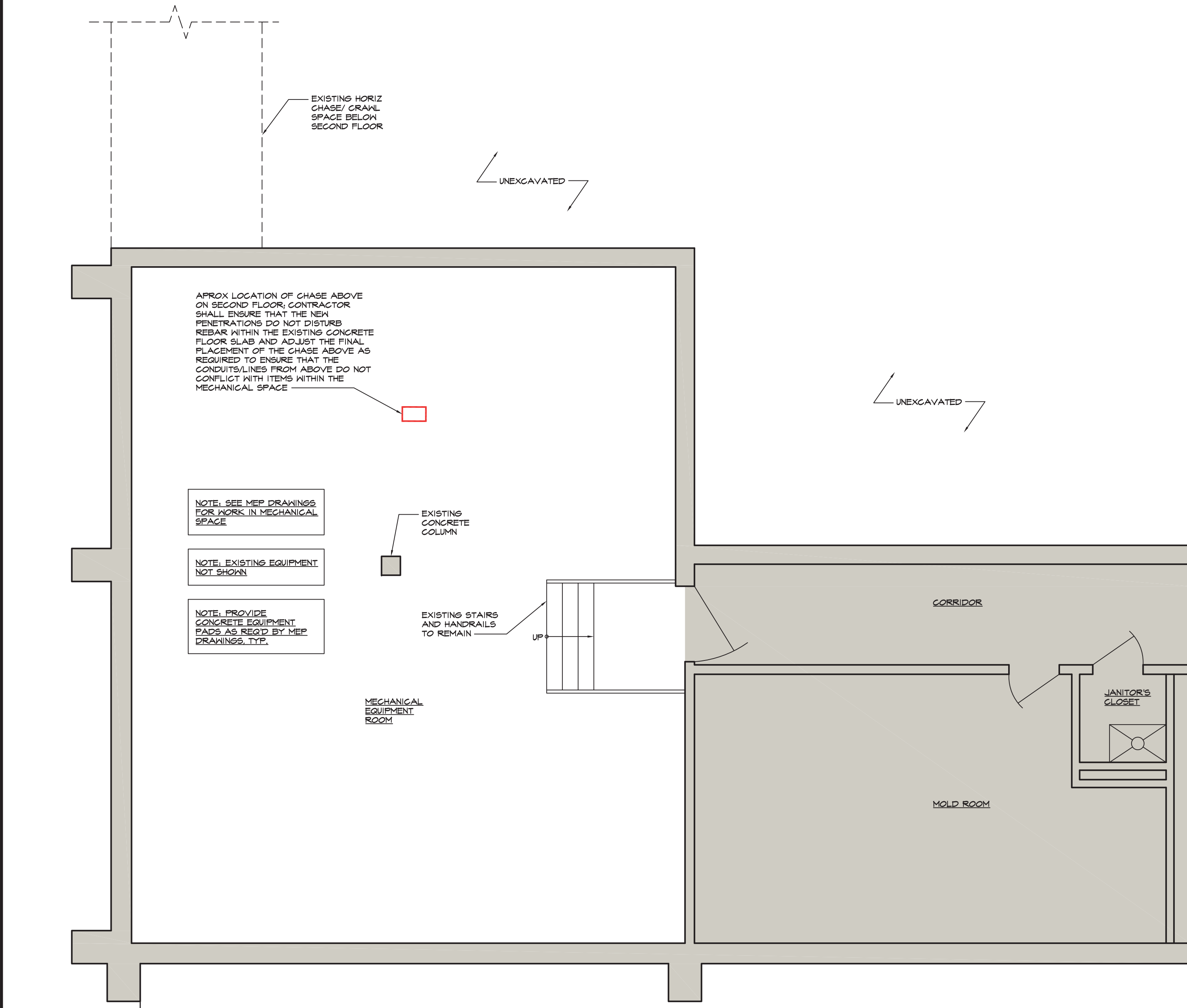
SCALE	DATE	DRAWN BY	CHECKED. BY
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PROJECT	PROJECT #: 2023
Linear Accelerator Replacement for:	

DRAWING NUMBER

A001

A100

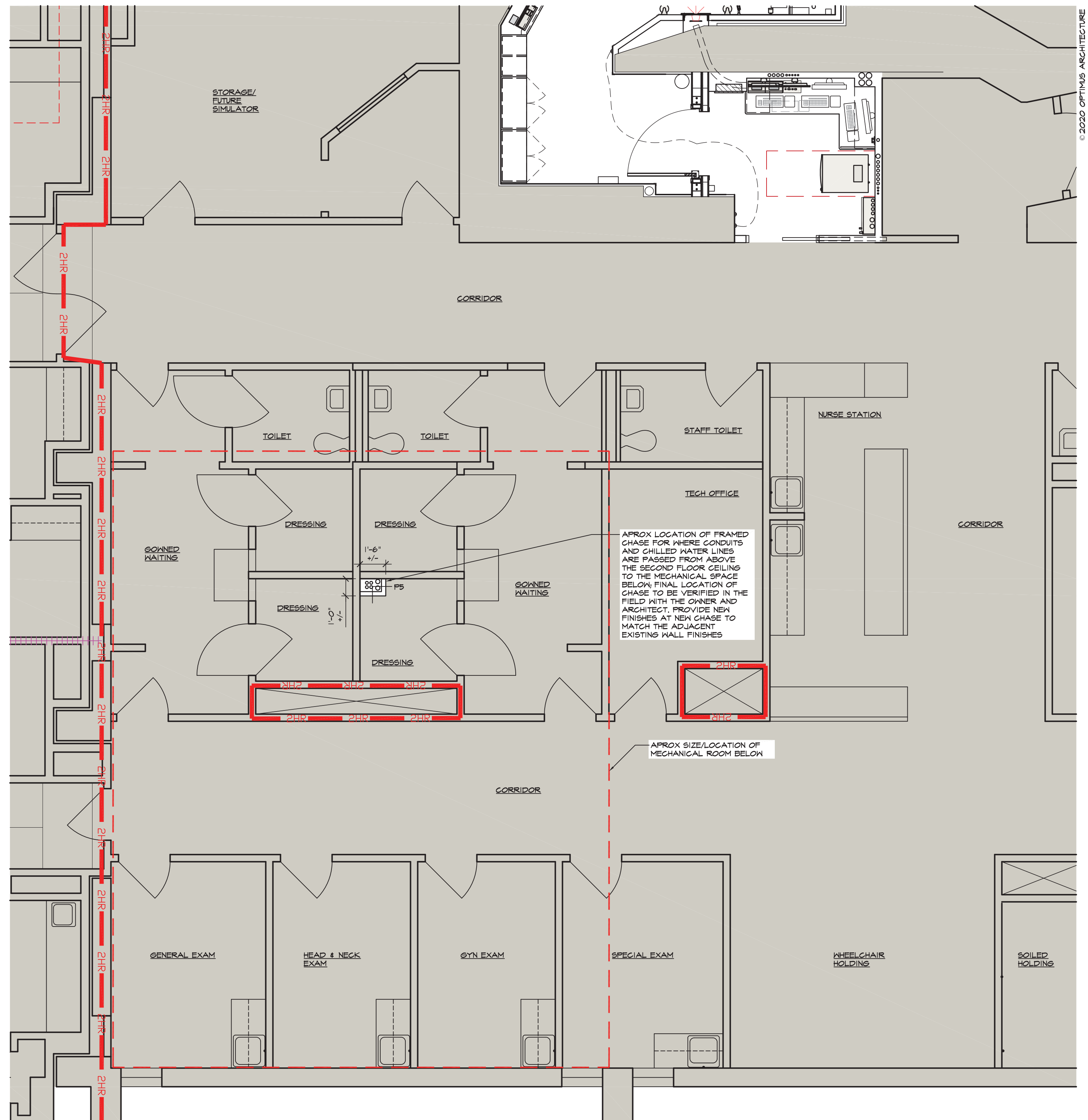


13 PARTIAL FIRST FLOOR - MECHANICAL SPACE BELOW
1/4" = 1'-0"

14 TITLE
SCALE

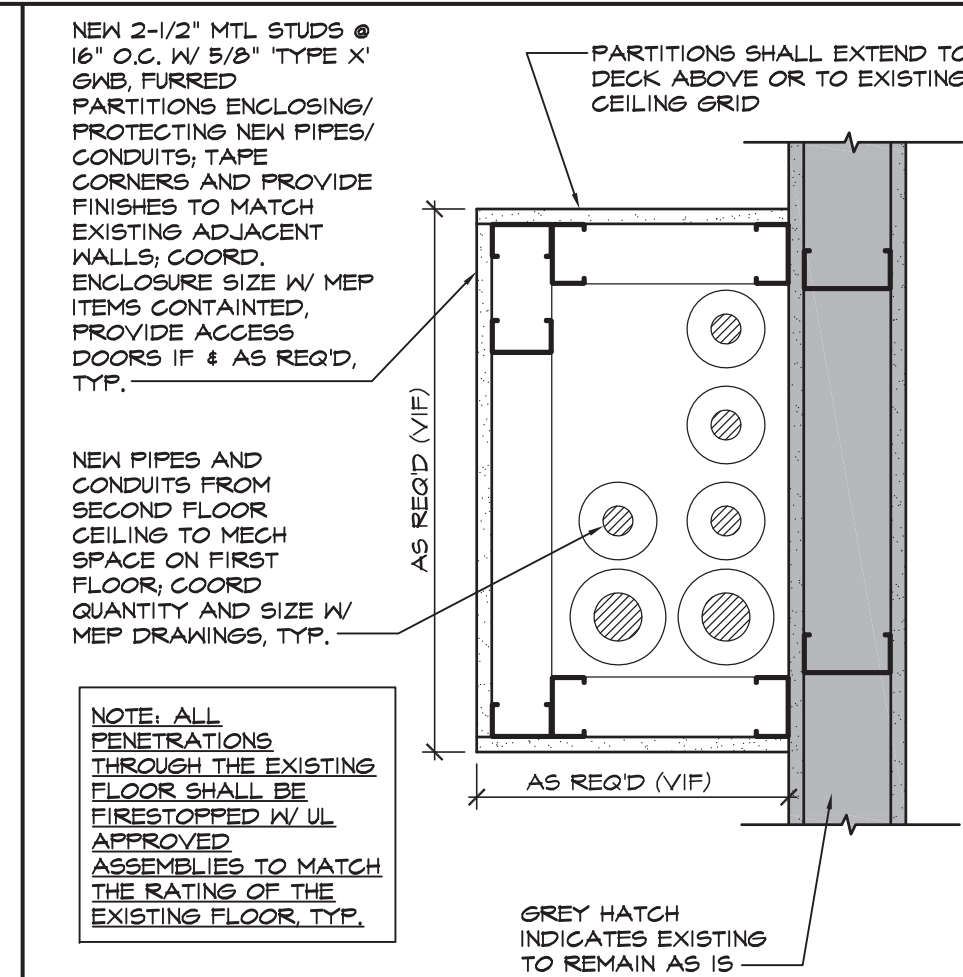
24 TITLE
SCALE

34 TITLE
SCALE



43 PARTIAL SECOND FLOOR - APPROX LOCATION OF NEW CHASE TO MECH SPACE BELOW
1/4" = 1'-0"

44 TITLE
SCALE



54 TYP DETAIL • PIPE/CONDUIT CONCEALMENT
1-1/2" = 1'-0"

DRAWING LEGEND	
	= EXISTING 2 HR. FIRE RATED WALL
	= EXISTING PARTITIONS TO REMAIN
	= NEW OR REMORKED PARTITIONS
	= EXISTING TO REMAIN (NO REMOVALS)
	= AREA OF NEW WORK (INTERIOR)
	= EXISTING DOOR TO REMAIN (U.O.N)
	= NEW OR REINSTALLED DOOR

64 DRAWING LEGEND
NOT TO SCALE

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ALTERS AN ARCHITECT'S DRAWING, HE OR SHE SHALL
BE RESPONSIBLE FOR THE RESULTS OF SUCH ALTERATION,
AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC
DESCRIPTION OF THE ALTERATION.

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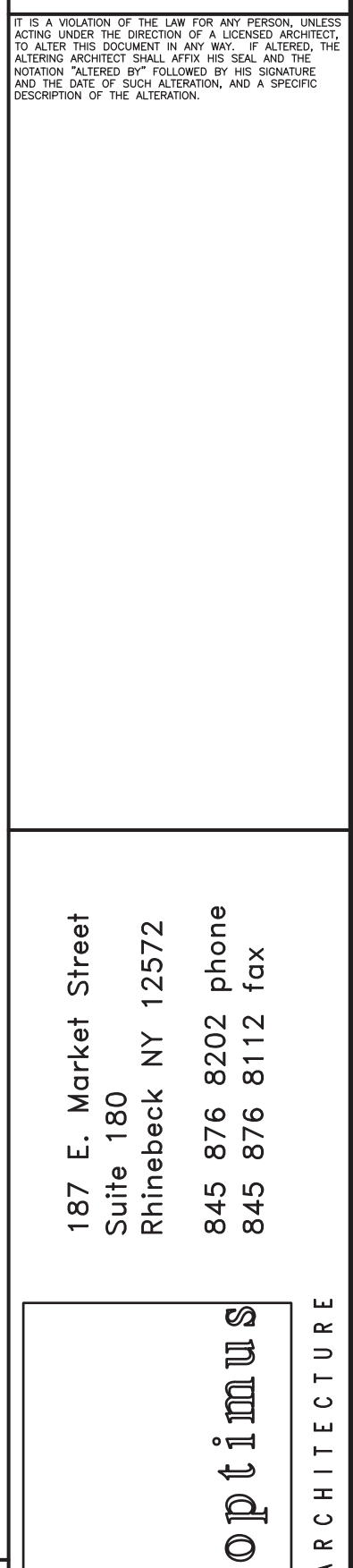
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AS NOTED	12/03/20	NDG	DAG
#	DATE	REVISIONS	
1	12/03/20	ISSUED FOR BID, PERMIT & CONSTRUCTION	

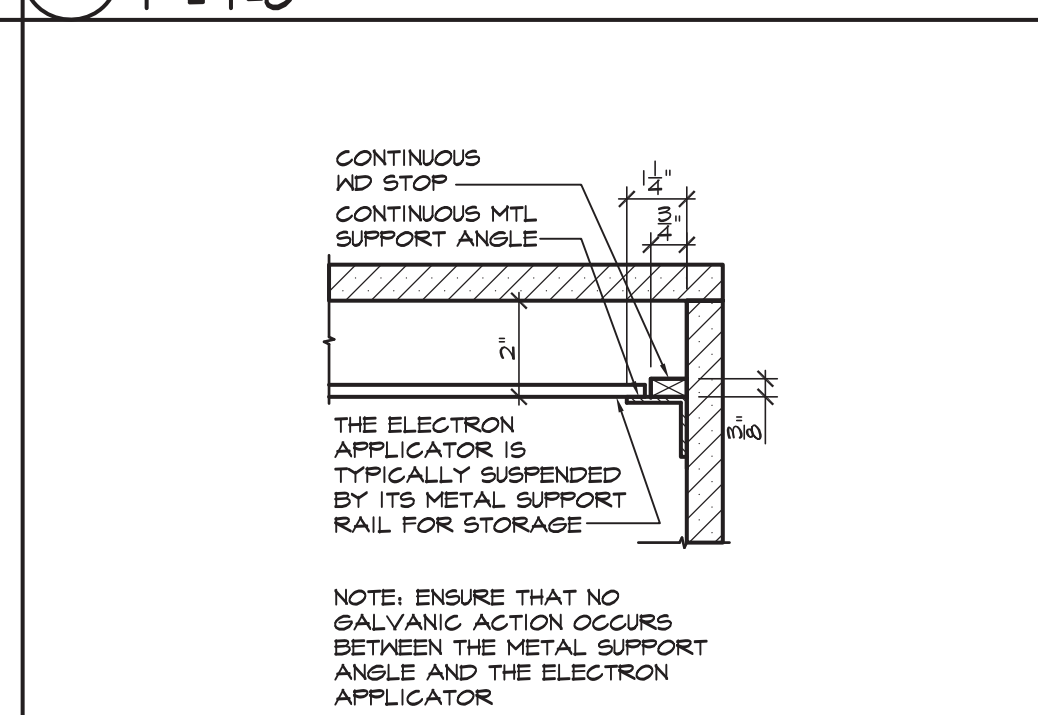
PROJECT # 2023
Linear Accelerator Replacement for:
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45 READE PLACE
POUGHKEEPSIE, NEW YORK 12601
DRAWING TITLE
PARTIAL FIRST & SECOND FLOOR PLANS -
NEW CHASE & EX MECHANICAL SPACE

DRAWING NUMBER

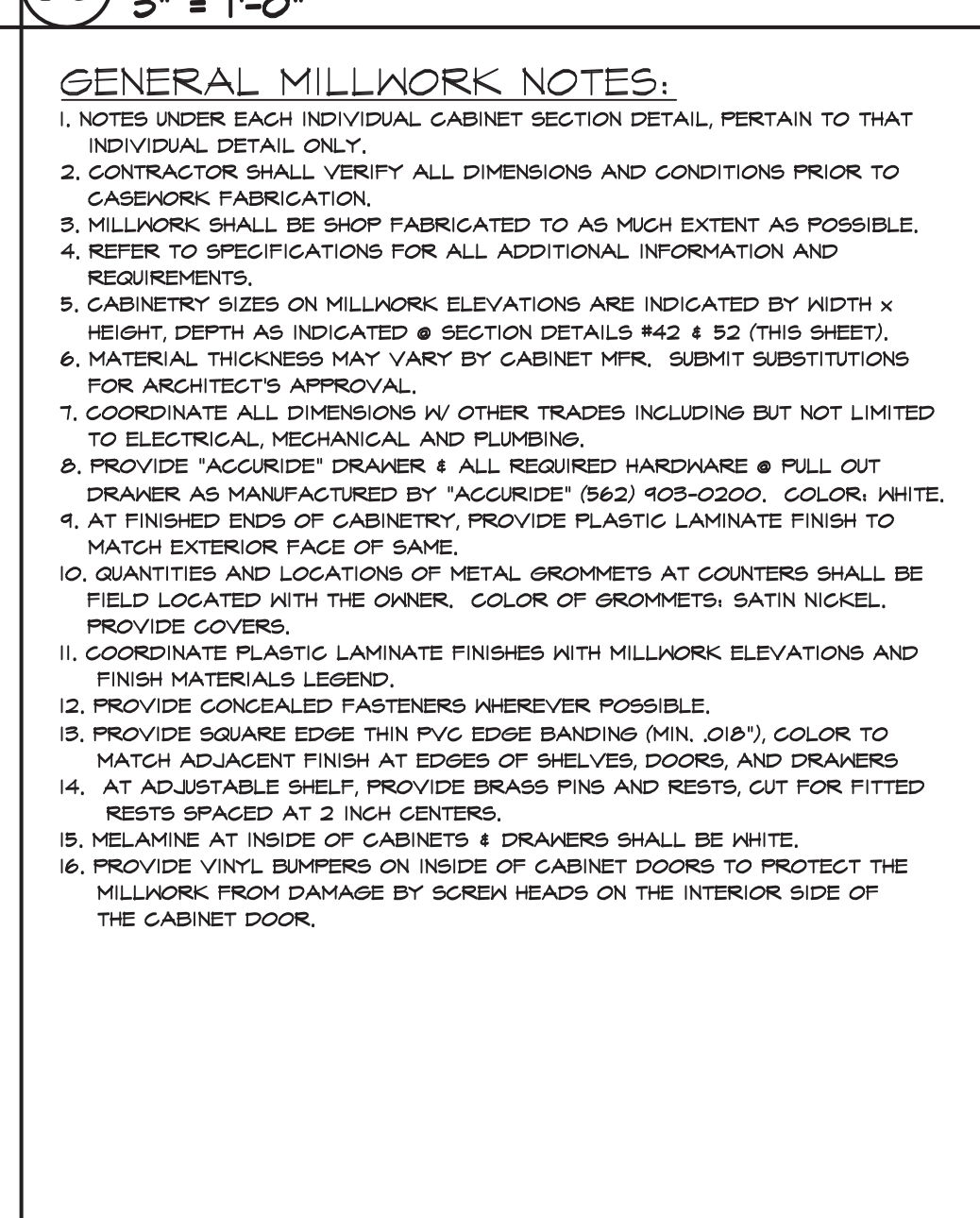
A101



62 TYPICAL SECTION THRU STOR CAB (OPT #4)
1" = 1'-0"

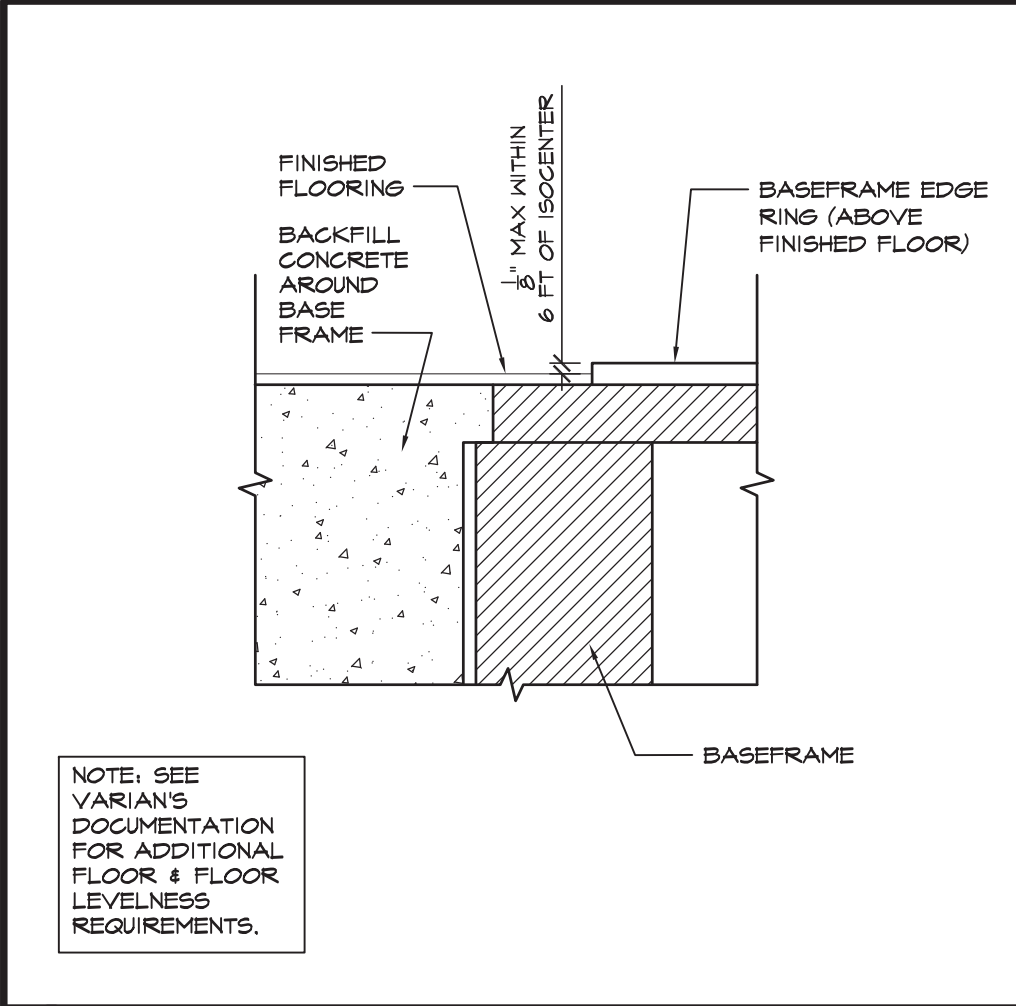


63 ENLARGED ELEV DETAIL • ELEC APPL STOR
3" = 1' 0"

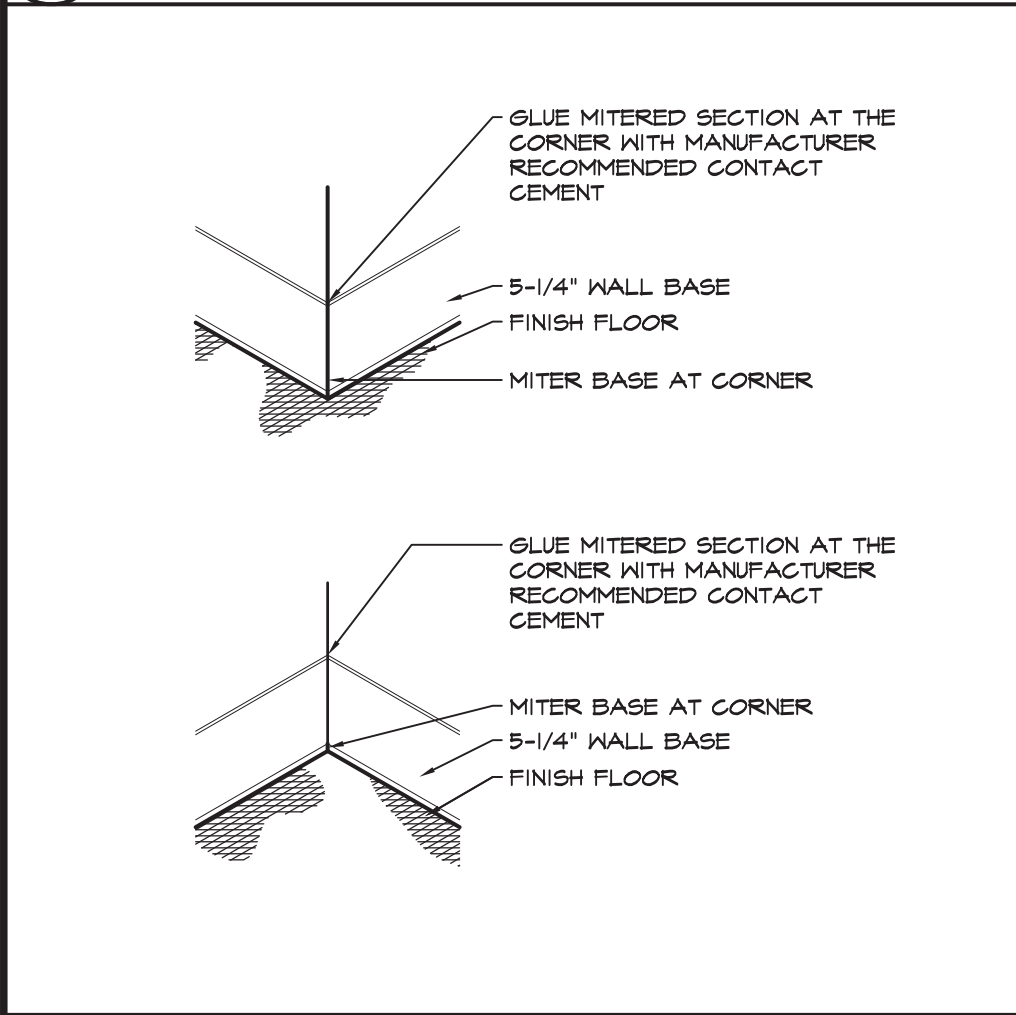


64 GENERAL MILLWORK NOTES
NOT TO SCALE

[illegible]



11 FLOORING DETAIL @ BASE FRAME
6" = 1'-0"



12 BASE AT INSIDE & OUTSIDE CORNERS
1-1/2"=1'-0"

FINISH PLAN KEY NOTES:

1. PROVIDE FLASH PATCH SO THAT TOP OF NEW FLOORING IS FLUSH WITH EXISTING CORRIDOR FLOORING. MAX SLOPE FLASH PATCH SHALL BE 1/8" PER FOOT. IF THE EXISTING CORRIDOR FLOORING IS THINNER THAN THE NEW FLOORING THEN AN ADA COMPLIANT TRANSITION STRIP SHALL BE USED. MODEL AND COLOR TO BE APPROVED BY THE ARCHITECT.
2. 5-1/4" H MILLWORK PROFILE BASE (COLOR AS SCHEDULED)
3. PROVIDE STAINLESS STEEL DOOR GLASSING ON BOTH SIDES OF DOOR WITHIN 1' OF PERIMETER OF EXPOSED FACE WHILE IN THE CLOSED POSITION AND TO 34" ABOVE FINISHED FLOOR.

13 FINISH PLAN GENERAL NOTES
NOT TO SCALE

FINISH PLAN GENERAL NOTES:

1. SEE ROOM FINISH SCHEDULE FOR ADDITIONAL INFORMATION.
2. CONTRACTOR SHALL ACHIEVE A LEVEL FINISHED FLOOR. CONTRACTOR SHALL PROVIDE LEVELING SYSTEMS AS APPROVED BY MANUFACTURERS.
3. FLOORING CONTRACTOR TO PROVIDE FACTORY RECOMMENDED SMOOTH AND FLUSH TRANSITION AT DIFFERENT FLOORING MATERIAL THICKNESS.
4. WALL FINISHES TO BE INSTALLED PRIOR TO MOUNTING WALL PROTECTION (CORNER GUARDS, ETC.), TYP.

14 FINISH PLAN KEY NOTES
NOT TO SCALE

FINISH MATERIALS LEGEND						
MATERIAL	ABB	MANUF.	MODEL	COLOR	NOTES	CLASS RATING*
PAINT	P-1	BENJAMIN MOORE	REGAL SELECT - EGGSHELL	HC-80 BLEEKER BEIGE	FIELD PAINT & TREATMENT RM ACCENT PAINT; EGGSHELL	CLASS A (CLASS A OR B REQ'D)
	P-2	BENJAMIN MOORE	PRE-CATALYZED WATERB. EPOXY	HC-80 BLEEKER BEIGE	HM TRIM PAINT; SEMI-GLOSS	CLASS A (CLASS A OR B REQ'D)
	P-3	BENJAMIN MOORE	REGAL SELECT - EGGSHELL	PM-30 BONE WHITE	TREATMENT ROOM FIELD PAINT; EGGSHELL	CLASS A (CLASS A OR B REQ'D)
	P-4	BENJAMIN MOORE	REGAL SELECT - FLAT	885 CLOUD COVER	GRD CEILING & SOFFIT PAINT; FLAT	CLASS A (CLASS A OR B REQ'D)
LUXURY VINYL TILE	LVT-1	MOHAWK	HOT & HEAVY - SECQYA - 4'X84"	148 ATWELL MILL	SEE FINISH PLAN & ROOM SCHEDULE FOR LOCATIONS	CLASS 1 (NO REQUIREMENT)
HALL BASE	B-1	TARKETT	MILLWORK - INFLECTION (MH-XX-G)	COLOR 01 SNOW WHITE	5-1/4" HIGH MILLWORK PROFILE WALL BASE	CLASS B (CLASS A OR B REQ'D)
PLASTIC LAMINATE	PL-1	WILSONART	HIGH PRESSURE LAMINATE	COLUMBIAN WALNUT #T43K-12	VERTICAL FACES OF MILLWORK	CLASS B (CLASS A OR B REQ'D)
SOLID SURFACE	SS-1	CORIAN	-	CAMEO WHITE	COUNTERS; PROVIDE EASED EDGES	CLASS A (CLASS A OR B REQ'D)
CEILING TILE	SAC-1	ARMSTRONG	ULTIMA HEALTH ZONE	#18T BEVELED REGULAR; WHITE	2X2 TILE, W/ ARMSTRONG PRELUDE XL 15/16" GRID; SEE NOTE #1	CLASS A (CLASS A OR B REQ'D)
INTERIOR DOORS	IND-1	VT INDUST.	ROTARY CUT BIRCH	MATCH EXISTING ADJACENT DOORS	-	-
HALL PROTECTION	CS-1	CS ACROVYN	SSM-20AN (CONTINUOUS ALUMINUM RETAINER)	#102 DESERT SAND	CORNER GUARD W/ 2" LEGS, PARTIAL HEIGHT; FROM TOP OF BASE TO 51" (1/2") A.F.F., U.O.M. ALIGN W/ TOP OF SIDEHALL LASER ENCLOSURES.	CLASS A (CLASS A OR B REQ'D)
	CS-2	CS ACROVYN	SM-20MN (CONTINUOUS ALUMINUM RETAINER)	#102 DESERT SAND	ODD ANGLE CORNER GUARD W/ 3" LEGS, PARTIAL HEIGHT; FROM TOP OF BASE TO 51" (1/2") A.F.F., U.O.M. ALIGN W/ TOP OF SIDEHALL LASER ENCLOSURES.	CLASS A (CLASS A OR B REQ'D)

NOTES:

1. AT SAC-1 PROVIDE ARMSTRONG PRELUDE XL 15/16" EXPOSED GRID COMMERCIAL QUALITY GOLD ROLLED STEEL WITH GALVANIZED COATING; GRID COLOR: WHITE.
2. SEE FINISH PLAN FOR ADDITIONAL INFORMATION.
3. CONTRACTOR SHALL ACHIEVE A LEVEL FINISHED FLOOR WHEN A TRANSITION OCCURS BETWEEN TWO DIFFERING FLOOR MATERIALS. CONTRACTOR SHALL PROVIDE LEVELING SYSTEMS OR FLASH WITH PATCH AS APPROVED BY SPECIFIED MANUFACTURERS.
4. *INTERIOR WALL OR CEILING FINISH THAT IS REQUIRED IN THE LIFE SAFETY CODE TO BE CLASS A, CLASS B, OR CLASS C, SHALL BE CLASSIFIED BASED ON TEST RESULTS FROM NFPA 255, STANDARD METHOD OF TEST OF SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS. EXCEPTION NO.2 (NFPA 101-100 SECTION 10.2.3.1); INTERIOR WALL AND CEILING FINISH TESTED IN ACCORDANCE WITH NFPA 286, STANDARD METHODS OF FIRE TESTS FOR EVALUATING CONTRIBUTION OF WALL AND CEILING INTERIOR FINISH TO ROOM FIRE GROWTH, SHALL BE EXEMPT FROM NFPA 255 TESTING AND CLASSIFICATION.

NFPA 255 CLASSIFICATIONS:

CLASS A- FLAME SPREAD 0-25; SMOKE DEVELOPMENT 0-450.

CLASS B- FLAME SPREAD 26-75; SMOKE DEVELOPMENT 0-450.

CLASS C- FLAME SPREAD 76-200; SMOKE DEVELOPMENT 0-450.

EXCEPTION (NFPA 101-100 SECTION 10.2.3.2); EXISTING INTERIOR FINISH SHALL BE EXEMPT FROM THE SMOKE DEVELOPMENT CRITERIA.

5. VARIAN REQUIRES THAT THE FLOORING IN THE TREATMENT ROOM, MAZE AND CONTROL AREA SHOULD BE SELECTED TO ENSURE THEY HAVE ANTI-STATIC PROPERTIES THAT MEET LOCAL AND NATIONAL CODES. THE FLOOR FINISH SHOULD NOT HAVE A PROPENSITY TO CREATE STATIC ELECTRICITY EXCEEDING 2.0 KV AT 20% RELATIVE HUMIDITY WHEN MEASURED USING STANDARD METHODS. MOHAWK GROUP HAS PROVIDED A TEST REPORT (AATG 154 ELECTROSTATIC PROPENSITY OF CARPETS) FOR THE PROPOSED LVT PRODUCT. THIS TEST REPORT DEMONSTRATED CONFORMANCE WITH VARIAN'S REQUIREMENTS.

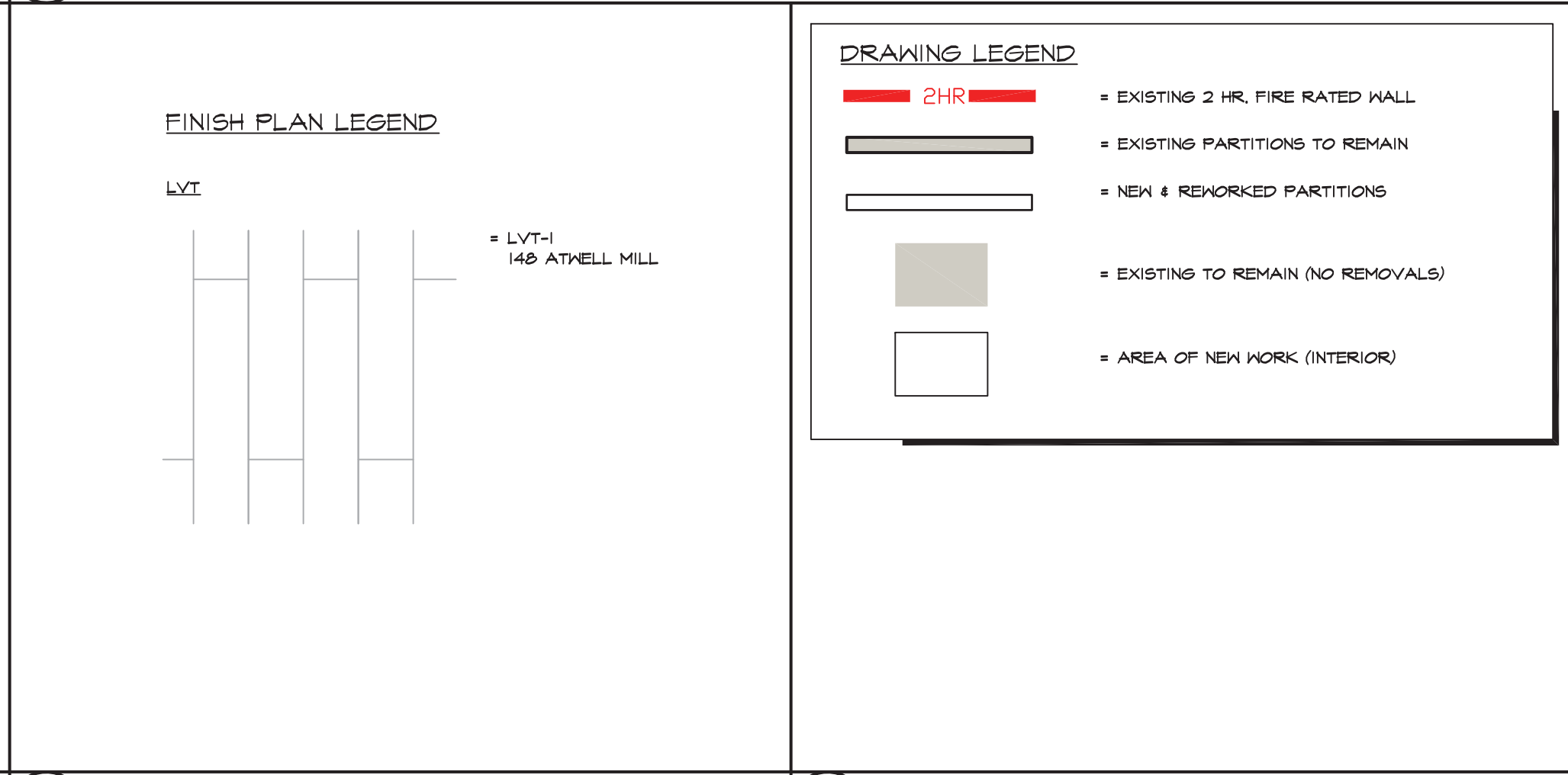
22 FINISH MATERIALS LEGEND
NOT TO SCALE

ROOM FINISH SCHEDULE									
ROOM		FLOOR		WALLS				CEILING	
NO.	NAME	MATL	BASE	N	E	S	W	MATL	HEIGHT
100	EX. LINACC VAULT	LVT-1	B-1	P-3	P-3	P-1	P-3	SAC-1	9'-2"
101	EX. CONTROL ROOM	LVT-1	B-1	P-1	P-1	P-1	P-1	SAC-1	8'-0"
102	EX. CORRIDOR	E.T.R	E.T.R	E.T.R	E.T.R	M.E.	E.T.R	E.T.R	E.T.R

*M.E. = MATCH EXISTING

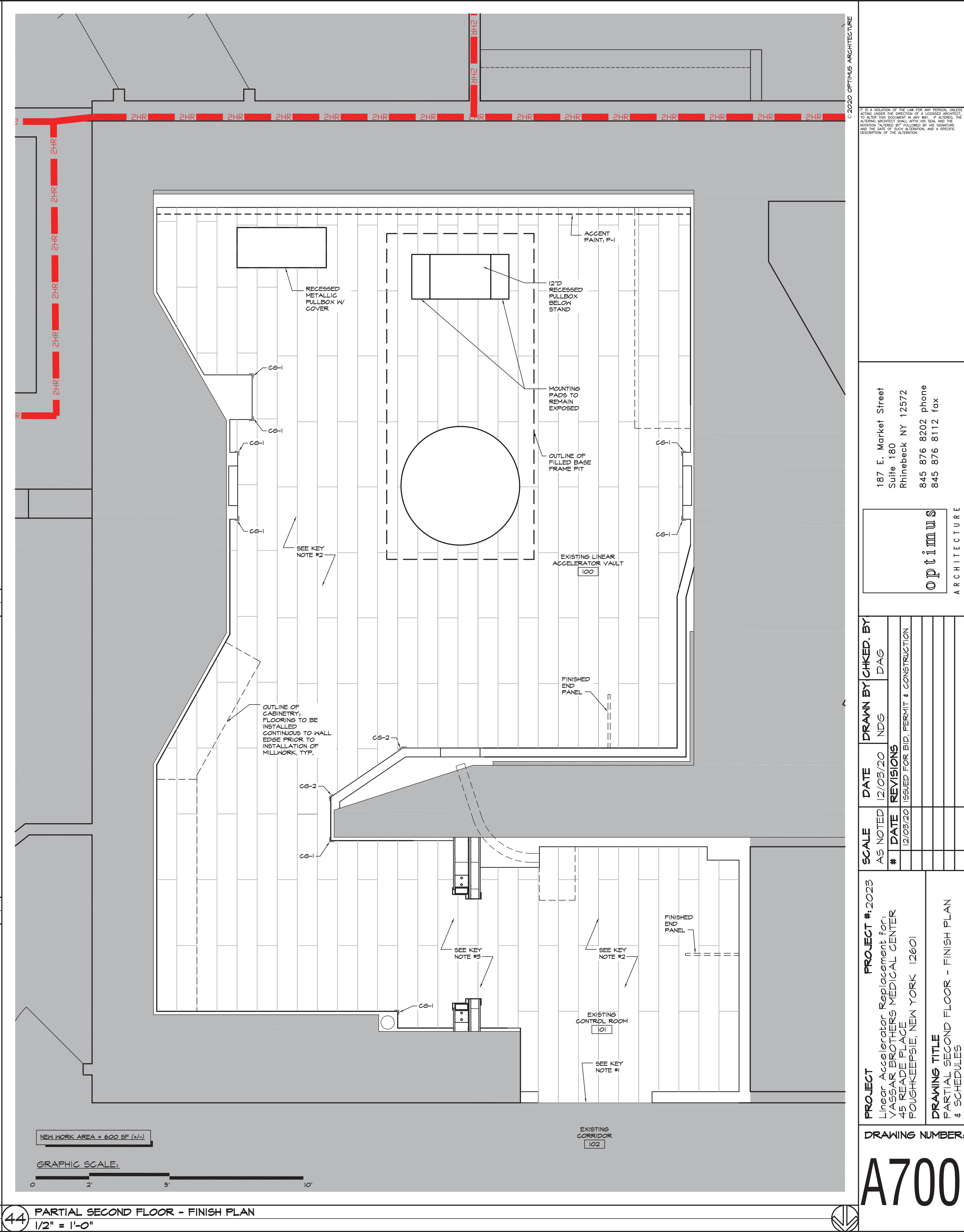
PROVIDE NEW FINISHES AS REQ'D FOR NEW WORK (MATCH EXISTING)

23 ROOM FINISH SCHEDULE
NOT TO SCALE



24 FINISH LEGEND
NOT TO SCALE

34 DRAWING LEGEND
NOT TO SCALE



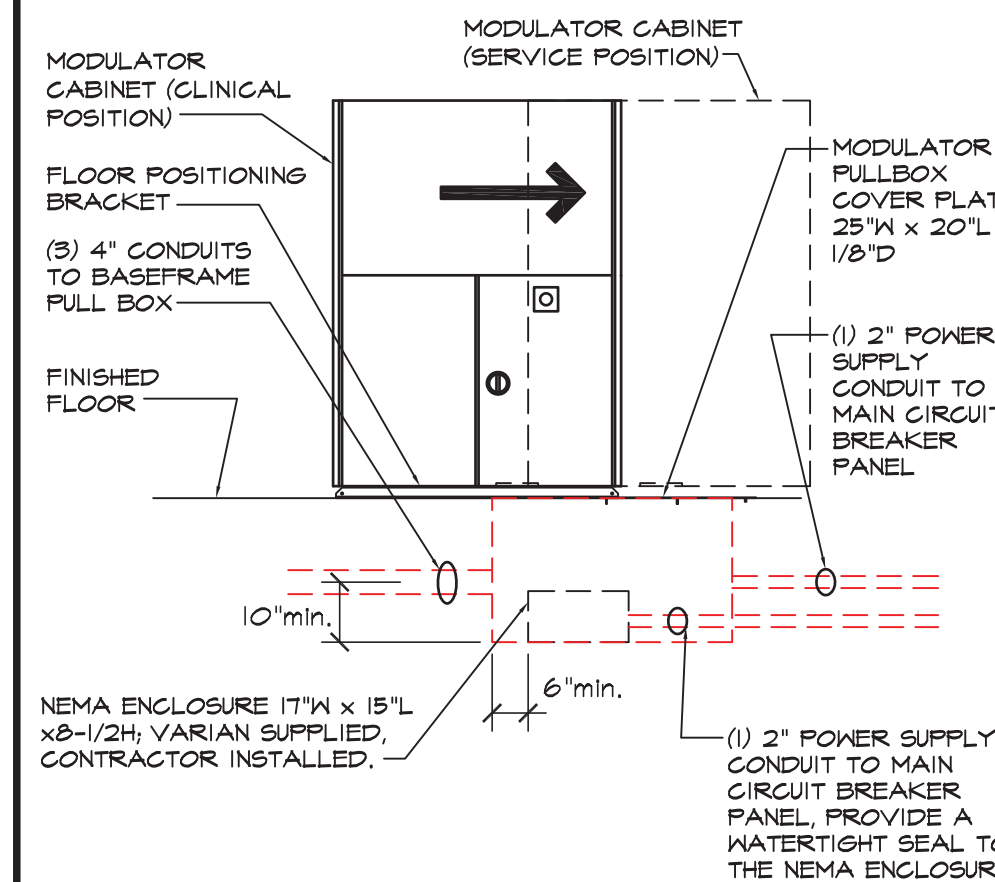
1. ALL EQUIPMENT LISTED WILL BE PROVIDED BY OWNER/OWNER'S VENDOR AND INSTALLED BY CONTRACTOR (UNLESS OTHERWISE NOTED). THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE OWNER'S EQUIPMENT VENDORS AND PROVIDING THE REQUIRED UTILITY CONNECTIONS (ALONG WITH ANY ADDITIONAL REQUIREMENTS AS REQUIRED BY THE EQUIPMENT AND/OR THE OWNER'S EQUIPMENT VENDORS)

3. LISTED EQUIPMENT DIMENSIONS ARE PRELIMINARY AND SHALL BE CONFIRMED WITH THE FINAL EQUIPMENT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE FINAL EQUIPMENT DIMENSIONS WITH ADJACENT WORK.

3. LISTED EQUIPMENT DIMENSIONS ARE PRELIMINARY AND SHALL BE CONFIRMED WITH THE FINAL EQUIPMENT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE FINAL EQUIPMENT DIMENSIONS WITH ADJACENT WORK.

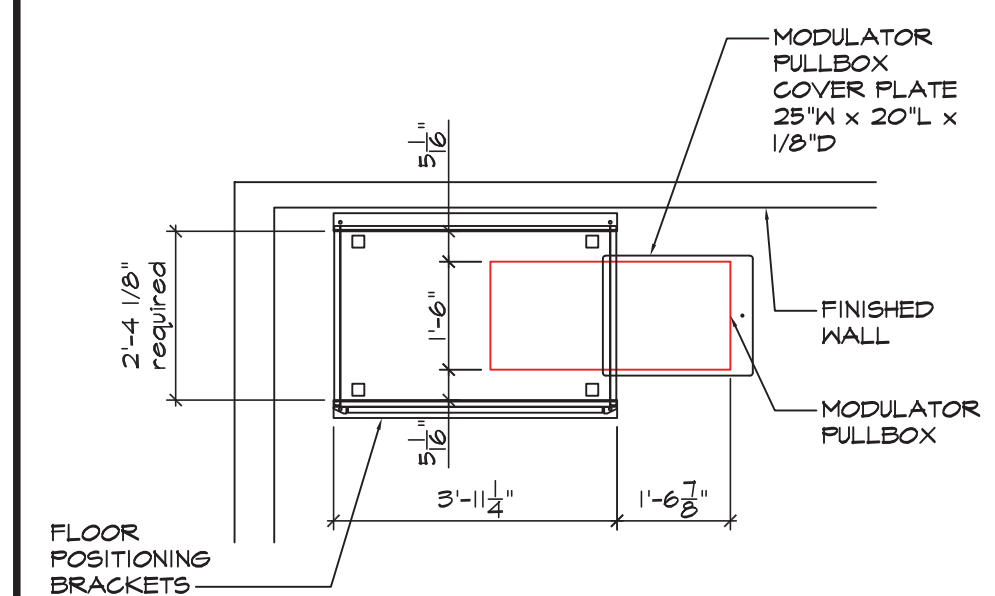
EQUIPMENT PLAN GENERAL NOTES

12	TITLE
	SCALE



13 MOVING MODULATOR ELEVATION VIEW
3/8" = 1'-0"

NOTE: CAD DETAIL FURNISHED BY VARIAN ON 9/18/20. COORDINATE WITH VARIAN AND THEIR DOCUMENTATION REGARDING ALL VARIAN EQUIPMENT REQUIREMENTS. DETAIL PROVIDED FOR REFERENCE ONLY.



14 MOVING MODULATOR FLOOR POSITIONING
3/8" = 1'-0"

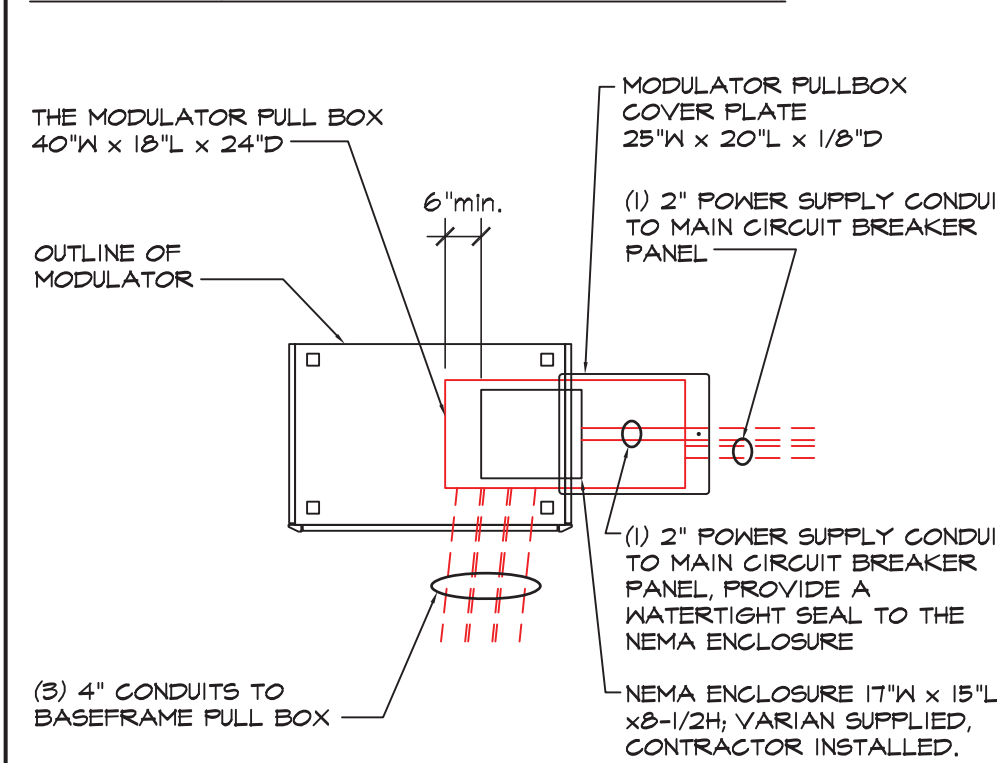
NO	DESCRIPTION	WEIGHT (LBS)	BTU/HR TO AIR	DIMENSIONS (INCHES)			REMARKS
				W	D	H	
01	TRUEBEAM STAND & GANTRY	18,794	-	8'-4"	11'-2"	8'-6"	SEE PPG FOR BASEFRAME
02	TREATMENT COUCH	1,382	-	2'-0"	7'-6"	VARIES	-
03	MODULATOR CABINET	1,985	-	4'-0"	2'-7"	5'-6"	W/ MOVING MOD KIT
04	BASE FRAME	1,669	-	-	-	-	-
05	RELAY JUNCTION BOX	-	-	1'-4"	6"	1'-8"	-
06	POSITIONING LASER (4 TOTAL)	-	-	4"	5"	1'-0"	-
07	IN-ROOM MONITOR SET (DUAL SCREEN) (2 TOTAL)	-	-	-	-	-	W/ BASKETS & POSTS
08	PATIENT MICROPHONE (2 TOTAL)	-	-	-	-	-	-
09	CCTV CAMERA (2 TOTAL)	-	-	6"	7"	9"	-
10	LIVE VIEW CAMERA	-	-	-	-	-	-
11	SPEAKER (2 TOTAL)	-	-	-	-	-	-
12	USB HUB & SERVICE KEYBOARD	-	-	-	-	-	-
13	MAIN CIRCUIT BREAKER (MCB)	-	-	-	-	-	-
14	CONSOLE CABINET	640	-	2'-3"	3'-0"	5'-2"	W/ BASE BRACKET
15	IEC 60309 POWER OUTLET	-	-	-	-	-	-
16	SYSTEM MONITORS (2 TOTAL)	-	-	-	-	-	-
17	CONSOLE DEDICATED KEYBOARD	-	-	-	-	-	-
18	CCTV MONITOR (2 TOTAL)	-	-	-	-	-	-
19	PRINTER	-	-	-	-	-	NOT SHOWN ON PLAN
20	OPTICAL IMAGING CAMERA	-	-	-	-	-	-
21	VISION RT IMAGING/POSITIONING CAMERA (3 TOTAL)	-	-	-	-	-	IN LIEU OF VARIAN OPT IMAGER
22	VISION RT REMOTE TERMINAL	-	-	-	-	-	IN TREATMENT ROOM
23	VISION RT WORKSTATION	-	-	-	-	-	-

THIS LEGEND IS FOR REFERENCE ONLY, THE CONTRACTOR IS TO REFER TO VARIAN'S & VISIONRT'S PRODUCT DOCUMENTATION TO ESTABLISH A COMPLETE EQUIPMENT LIST & UNDERSTANDING OF THE MANUFACTURER'S REQUIREMENTS

NOTES:
1. SEE MEP DRAWINGS FOR LOCATIONS OF POWER CONDITIONER & CHILLER

22 VARIAN & VISIONRT EQUIPMENT LEGEND
NOT TO SCALE

NOTE: CAD DETAIL FURNISHED BY VARIAN ON 9/18/20. COORDINATE WITH VARIAN AND THEIR DOCUMENTATION REGARDING ALL VARIAN EQUIPMENT REQUIREMENTS. DETAIL PROVIDED FOR REFERENCE ONLY.



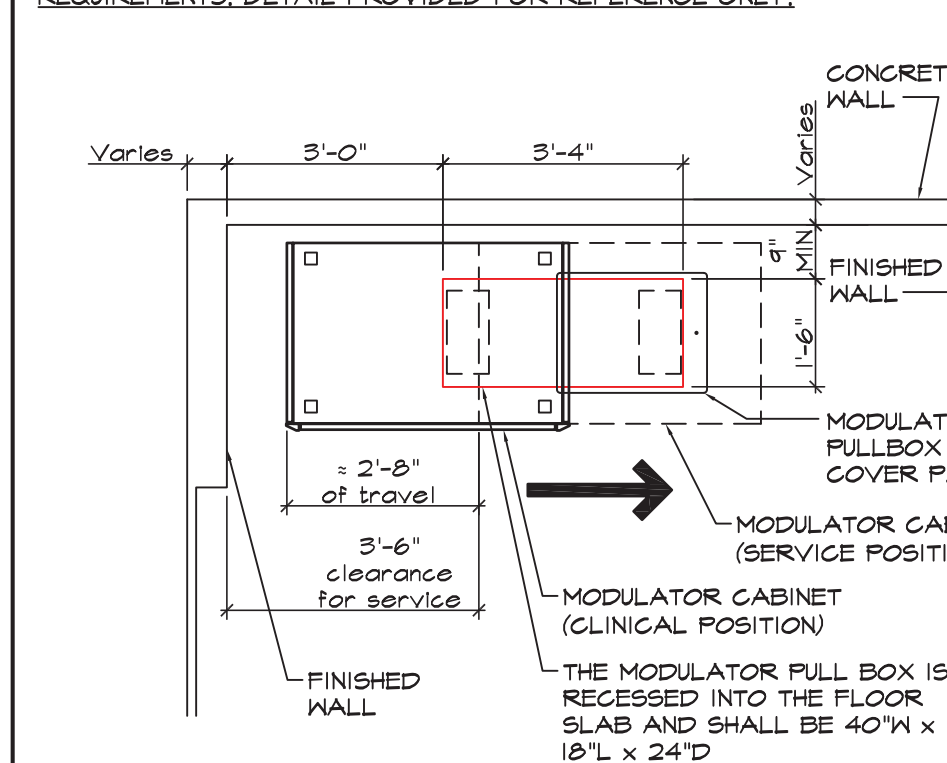
23 MOVING MODULATOR CABINET PLAN VIEW
 $3/8" = 1'-0"$

MOVING MODULATOR MANUFACTURER'S NOTES (FOR REFERENCE ONLY)
SEE MANU/VENDOR'S DOCUMENTATION FOR REQ'S & NOTES

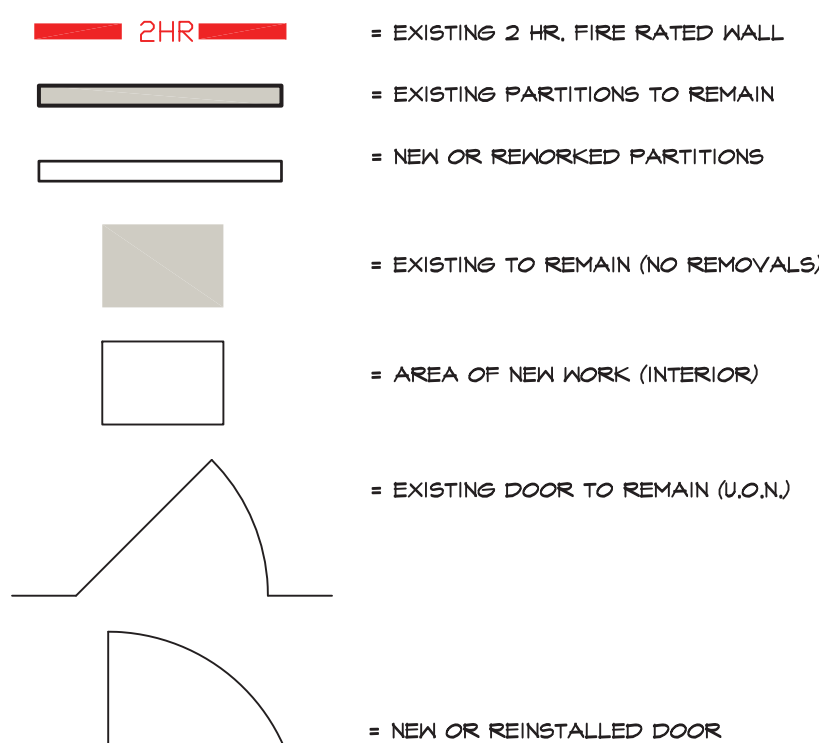
1. MOVING MODULATOR KIT INCLUDES (2) FLOOR POSITIONING BRACKETS, (2) CASTOR ASSEMBLIES, (2) MODULATOR CABINET LOCKING PINN, (1) NEMA 6P ENCLOSURE (IEC-6P) W/ TERMINAL BLOCK ASSEMBLY, (1) TRUEBEAM MAIN POWER CABLE & (1) MODULATOR PULL BOX COVER PLATE.
2. THE CONTRACTOR SHALL:
 1. INSTALL THE VARIAN SUPPLIED FLOOR POSITIONING BRACKETS.
 2. INSTALL THE VARIAN SUPPLIED NEMA ENCLOSURE.
 3. INSTALL THE VARIAN SUPPLIED CASTOR ASSEMBLY AND ENSURE A WATER TIGHT SEAL TO THE NEMA ENCLOSURE.
 4. SUPPLY AND CONNECT 3-PHASE POWER AND GROUND FROM THE MAIN CIRCUIT BREAKER SUPPLY OF THE MODULUM SUPPLIED TERMINAL BLOCK IN THE NEMA ENCLOSURE.
 5. MAKE THE FINAL POWER CONNECTION USING THE VARIAN SUPPLIED TRUEBEAM MAIN POWER CABLE FROM THE TERMINAL BLOCK IN THE NEMA ENCLOSURE TO THE MODULATOR (UNDER VARIAN SUPERVISION).
 6. SUPPLY AND INSTALL (1) 1/4" X 20 X 1" DROP-IN ANCHOR FOR THE MODULATOR PULL BOX COVER PLATE.
3. THE MODULATOR CABINET DIMENSION IS DIMENSIONED FROM THE FACE OF THE FINISHED WALL.
4. THE NEMA ENCLOSURE MUST BE INSTALLED ON THE MODULATOR PITCH AND MAINTAIN A MINIMUM 1" CLEARANCE FROM THE SIDE WALL OF THE NEMA ENCLOSURE (TO THE SIDE WITH (4) KNOCKOUTS).
5. CONDUIT PENETRATIONS INTO THE MODULATOR PULL BOX MUST ACCESS THROUGH ONE OF THE SIDE WALLS, MAINTAIN A MINIMUM OF 1" FROM THE CORNER OF THE MODULATOR PULL BOX AND FLOOR WITH THE EXCEPTION OF THE 2" POWER SUPPLY CONDUIT.
6. A MINIMUM OF 4-1/4" IS REQUIRED FROM THE EDGE OF THE MODULATOR PULL BOX AND THE FACE OF THE FLOOR POSITIONING BRACKET. BOTTOM CORNER OF BRACKET IS PREPREFRILLED FOR 3/8" DIAM ANCHOR BOLTS (CONTRACTOR PROVIDED).

24 MOVING MODULATOR NOTES
NOT TO SCALE

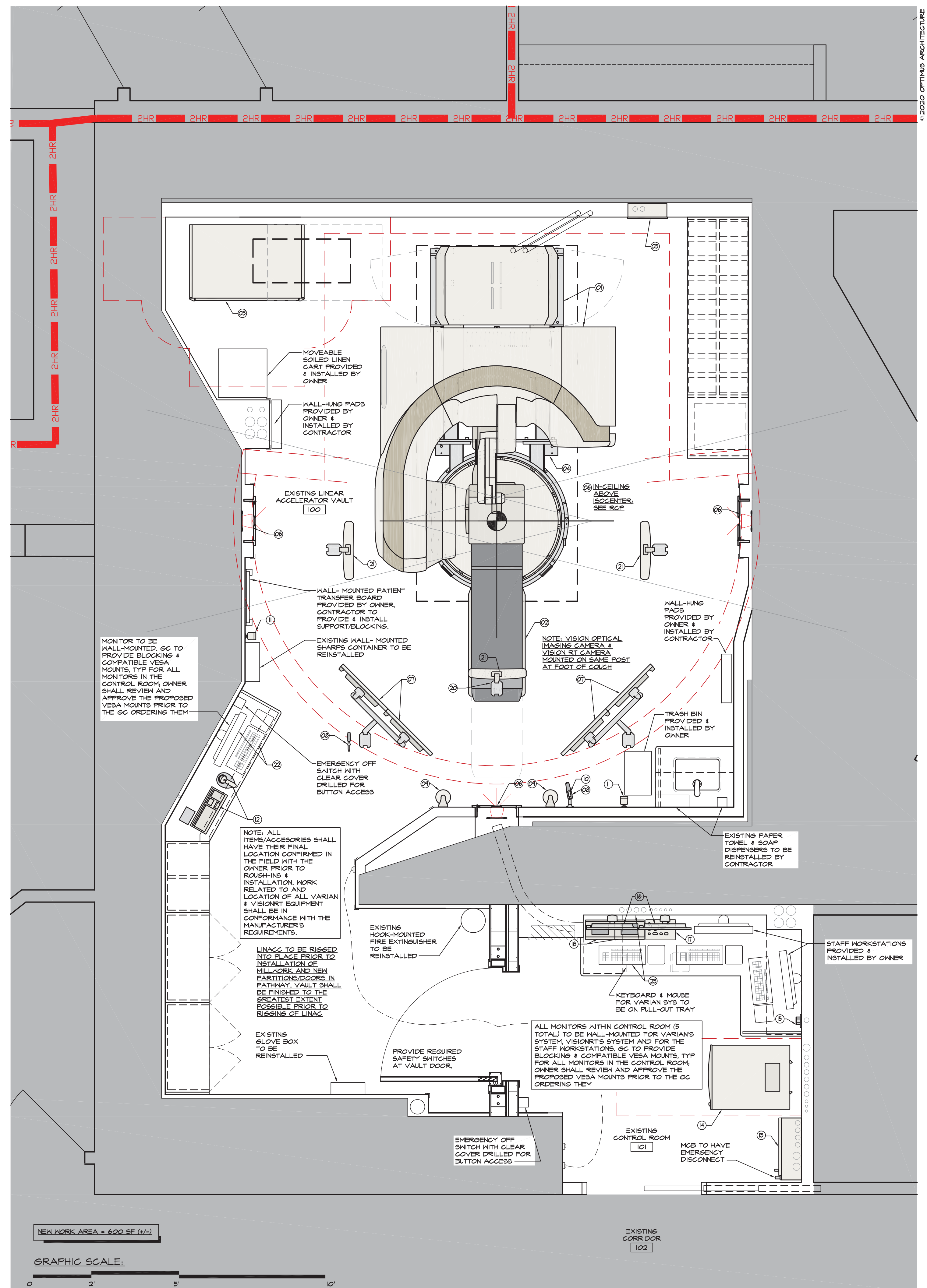
33 MOVING MODULATOR PULLBOX LOCATION
3/8" = 1'-0"



DRAWING LEGEND



34 DRAWING LEGEND
NOT TO SCALE



IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING ARCHITECT SHALL AFFIX HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

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ARCHITECTURE

SCALE	DATE	DRAWN BY	CHECKED BY
AS NOTED	12/03/20	NDG	DAG
#	DATE	REVISIONS	
	12/03/20	ISSUED FOR BID, PERMIT & CONSTRUCTION	

PROJECT	PROJECT #:	2023
Linear Accelerator Replacement for: VASAR BROTHERS MEDICAL CENTER 45 READE PLACE FOUGHKEEPSIE, NEW YORK 12601		
DRAWING TITLE	PARTIAL SECOND FLOOR - EQUIPMENT PLAN	

DRAWING NUMBER:

A800

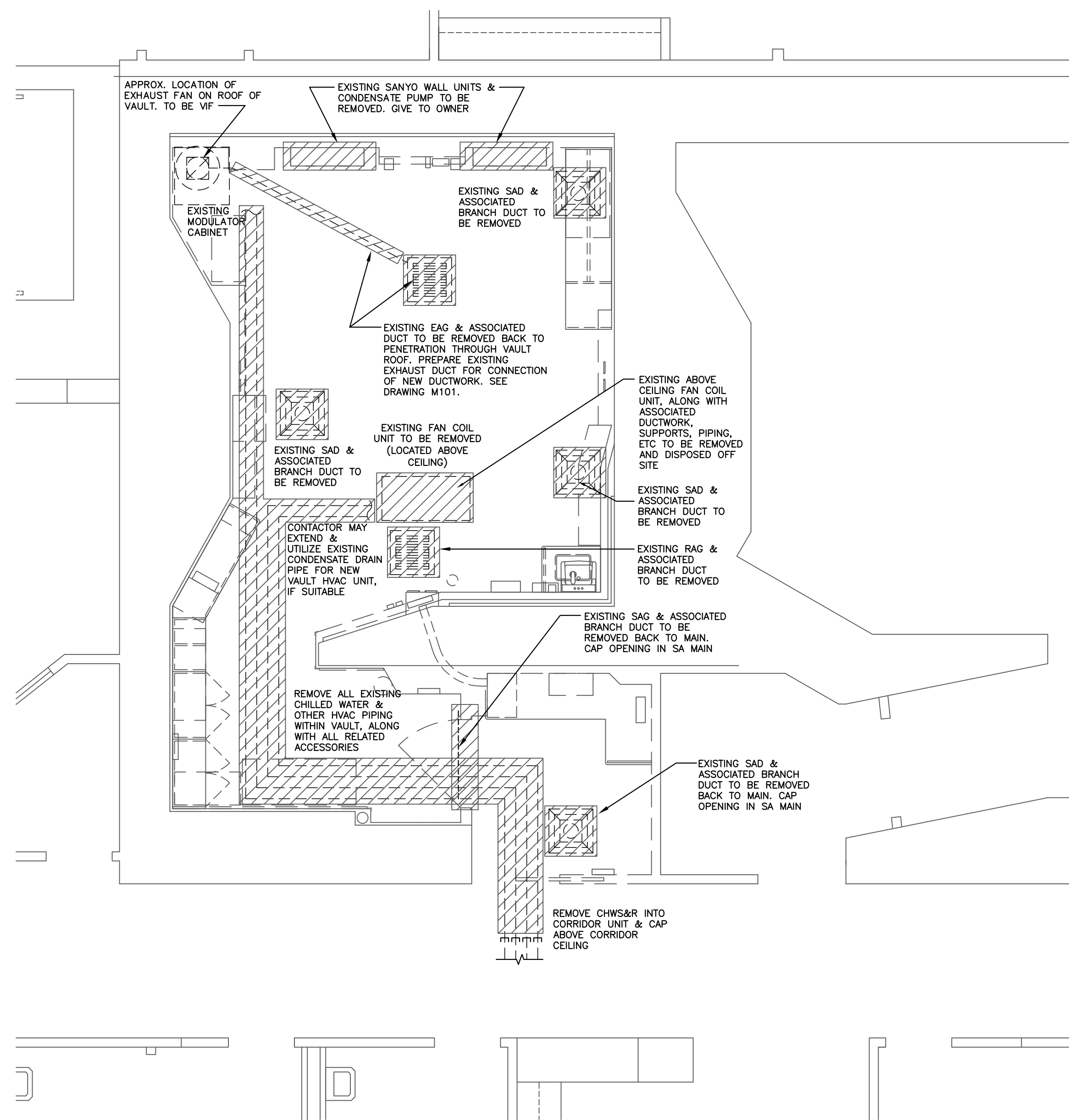
1. ALL EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE SHOWN IN A SCHEMATIC, DIAGRAMMATIC, NATURE. THE DOCUMENTS DO NOT SHOW EVERY OFFSET, FITTING OR EVERY LENGTH OF PIPE OR CONDUIT. DO NOT SCALE THE DRAWINGS.

6. THE PROJECT WILL REQUIRE MULTIPLE SHUT-DOWNS OF MEP SYSTEMS AS WELL AS MULTIPLE TEMPORARY CONNECTIONS DURING DIFFERENT TIMES/PHASES IN ORDER TO MAINTAIN OPERATION OF THE SYSTEMS TO ALL ADJACENT AND OCCUPIED AREAS AND TO PERMIT CONSTRUCTION OF THE PROPOSED WORK.

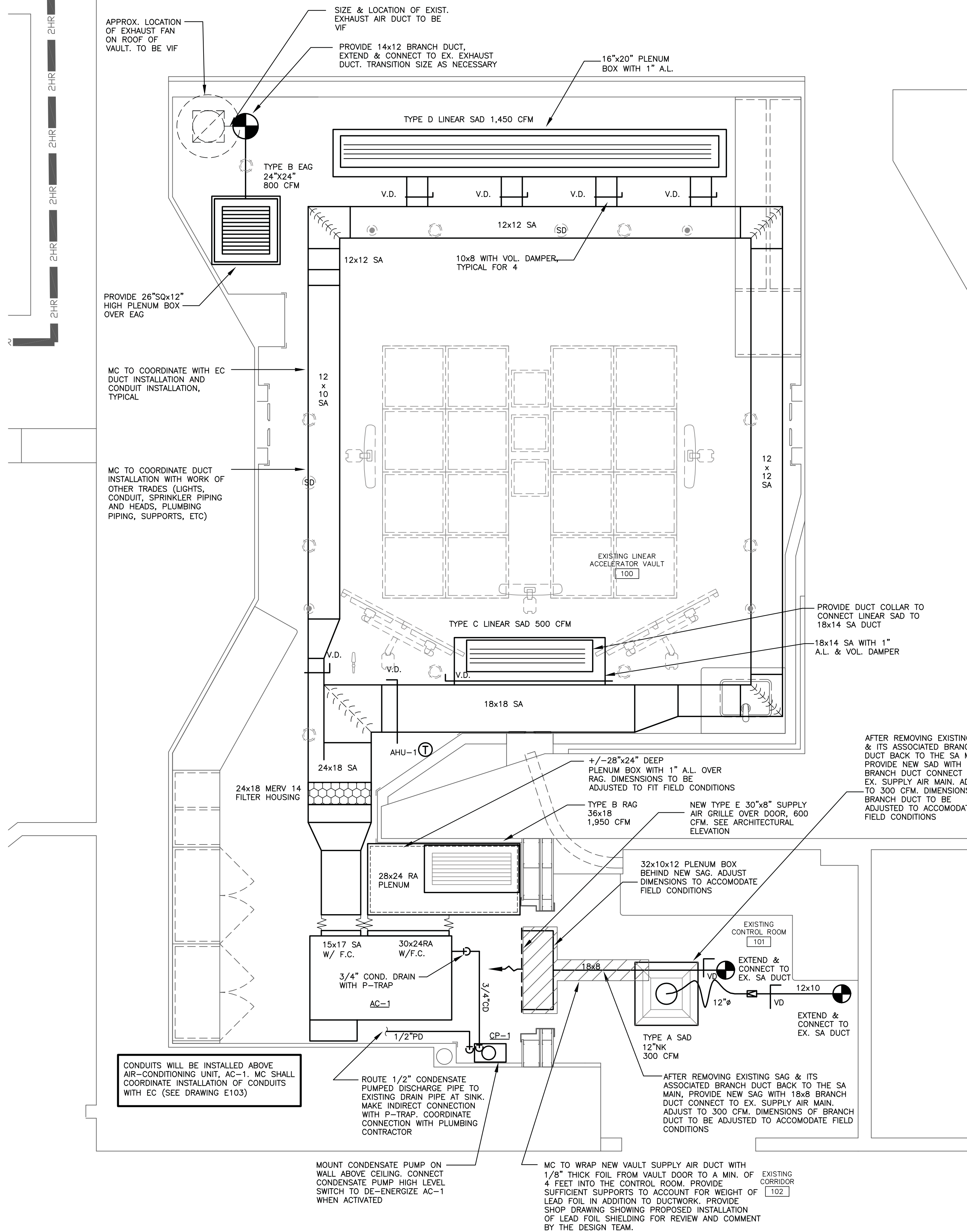
1. BEFORE SUBMITTING A BID THE MECHANICAL CONTRACTOR SHALL VISIT THE PROJECT SITE AND SHALL BECOME THOROUGHLY FAMILIAR WITH THE OBSERVABLE EXISTING CONDITIONS WHICH AFFECT WORK OF THIS CONTRACT. NO ADDITIONAL COMPENSATION WILL BE GRANTED DUE TO EXTRA WORK MADE NECESSARY BY THE CONTRACTOR'S FAILURE TO INVESTIGATE EXISTING CONDITIONS AND NOT BECOMING FAMILIAR WITH THE NATURE OF THE PROJECT.
2. ALL EXISTING HVAC EQUIPMENT, DUCTWORK, GRILLES, DIFFUSERS, CONTROLS AND HANGERS AND THEIR ASSOCIATED ACCESSORIES WITHIN THE LINAC VAULT ARE TO BE REMOVED. (UNLESS NOTED OTHERWISE). COORDINATE REMOVALS WITH ARCHITECTURAL DRAWINGS AND NEW HVAC DRAWINGS.
3. ALL OPENINGS CREATED IN THE EXISTING CONSTRUCTION SHALL BE CLOSED, PATCHED, SEALED AND FINISHED TO MATCH NEW BUILDING FINISHES AND OR SMOKE / FIRE RATINGS.

INSTALLATION OF NEW DUCTWORK, DIFFUSERS, REGISTERS, GRILLES, ETC. SHALL BE BASED UPON ACTUAL CONDITIONS AND REQUIREMENTS OF THE NEW DESIGN. REVIEW ARCHITECTURAL NEW WORK DRAWINGS FOR SPACES AVAILABLE FOR BUILDING CONSTRUCTION DETAILS BEFORE INSTALLING PIPING AND EQUIPMENT. MAKE SUCH OFFSETS AND DEVIATIONS FROM WORK SHOWN ON THE DRAWINGS AS MAY BECOME NECESSARY TO FIT EXISTING CONDITIONS.

THE HVAC CONTRACTOR, PLUMBING CONTRACTOR, SPRINKLER SYSTEM CONTRACTOR, ELECTRICAL CONTRACTOR AND OTHER CONTRACTORS ARE REQUIRED TO PREPARE A COORDINATION DRAWING SHOWING INSTALLATION OF ALL EQUIPMENT, PIPING, DUCTWORK, CONDUIT, VALVES, ACCESSORIES AND OTHER ITEMS THAT WILL BE INSTALLED ABOVE THE CEILING. IF CONFLICTS (INCLUDING, BUT NOT LIMITED TO, LOCATION, CLEARANCES FOR MAINTENANCE AND/OR REPAIR, CODE REQUIRED CLEARANCES FOR EQUIPMENT, ETC.) ARE IDENTIFIED, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER AND SHALL BE RESOLVED BEFORE INSTALLATION OF THE CONFLICTING ITEMS. IF THE COORDINATION DRAWING INDICATES CONFLICTS BETWEEN EQUIPMENT OF DIFFERING TRADES, OWNER'S EQUIPMENT, BUILDING ELEMENTS, OR ANY OTHER ITEM, AND THESE CONFLICTS ARE NOT NOTED, IDENTIFIED OR OTHERWISE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER, OR IF THEY ARE IDENTIFIED AND INSTALLED BEFORE BEING RESOLVED, ALL COSTS INVOLVED WITH CORRECTING THE CONFLICTS, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER, SHALL BE PAID BY THE AFFECTED TRADES. ADDITIONALLY, THERE ARE NO CONFLICTS BETWEEN BUILDING ELEMENTS, BUILDING ELEMENTS, ETC. AND THEY ARE READYLY APPARENT. BY CASUAL OBSERVATION OF THE AREAS IN WHICH THE EQUIPMENT IS TO BE INSTALLED, AND/OR BY REVIEWING EQUIPMENT MANUFACTURER'S INSTALLATION REQUIREMENTS AND RECOMMENDATIONS, ALL COSTS INVOLVED WITH CORRECTING THE CONFLICTS, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER, SHALL BE PAID BY THE AFFECTED TRADES.



2) $\frac{\text{PARTIAL SECC}}{1/4''} = 1'-0''$



1) $\frac{\text{PARTIAL SECC}}{1/2''} = 1'-0''$

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BY: CHKD. BY:	
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IT AND CONSTRUCTION

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SCALE	DATE
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AS NOTED	12/03/20
#	DATE
	REVISIONS

#	DATE	REVISIONS
	12/03/20	ISSUED FOR BIDDING

PROJECT #: 2023

placement for:
ICAL CENTER

RK 12601

504

PROJECT

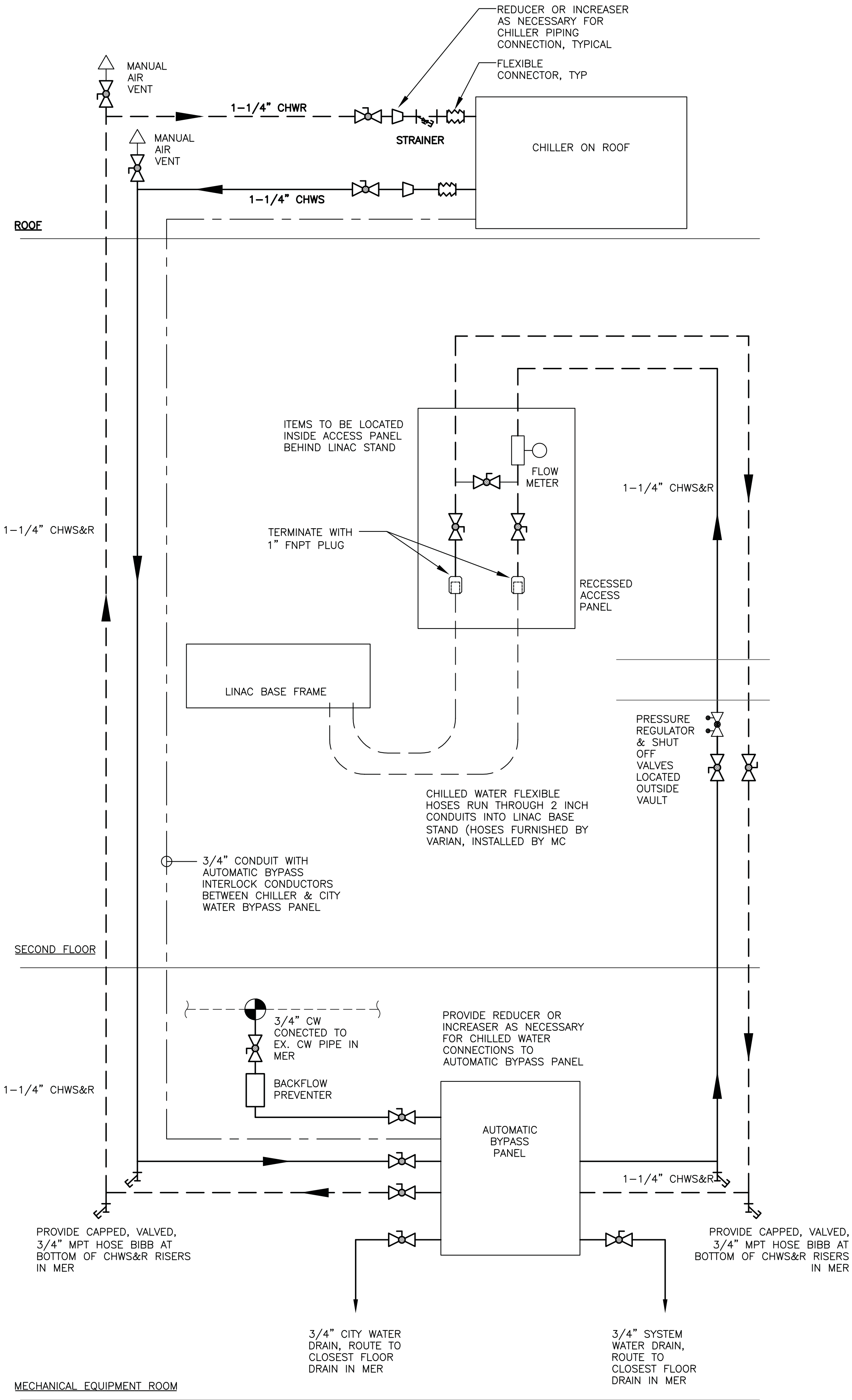
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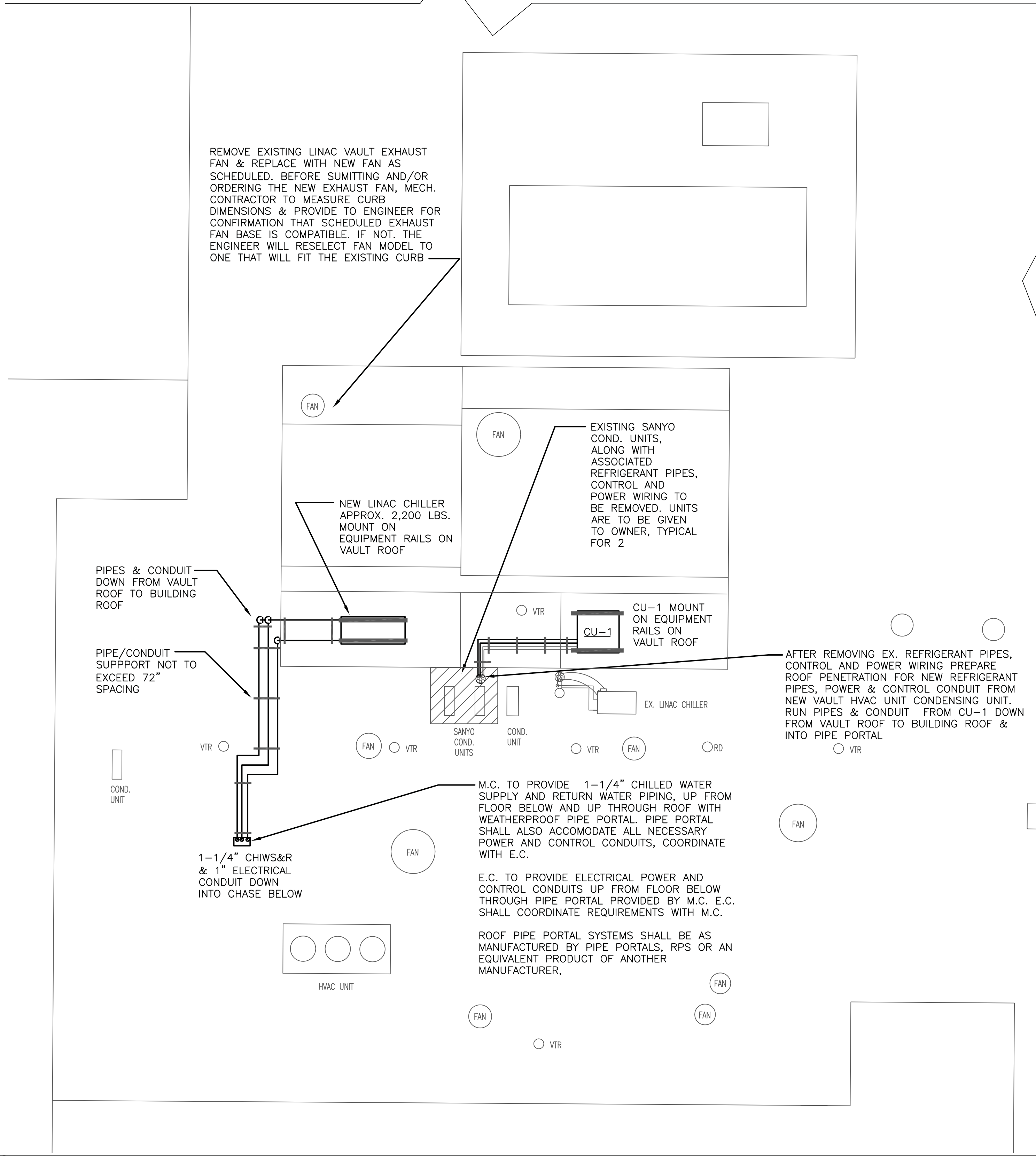
M100



2 LINAC CHILLED WATER FLOW DIAGRAM
NOT TO SCALE

RIGGING OF EQUIPMENT

- A. THE NEW CHILLER FOR THE LINAC IS PURCHASED BY THE OWNER AND WILL BE DELIVERED TO VPMC. THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR, MATERIALS AND EQUIPMENT, REQUIRED FOR RECEIVING, MOVING, RIGGING, LIFTING AND SETTING THE CHILLER FROM THE TRUCK UP ONTO THE ROOF AND MOUNTING ON THE EQUIPMENT RAILS PROVIDED BY THE MECHANICAL CONTRACTOR.
- B. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT, REQUIRED FOR REMOVING, RIGGING, LIFTING AND DISPOSING OF THE EXISTING LINAC CHILLER OFF SITE.
- C. ADDITIONALLY PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT, REQUIRED FOR MOVING, RIGGING, LIFTING AND SETTING ALL EQUIPMENT PROVIDED UNDER THIS CONTRACT, INCLUDING, BUT NOT LIMITED TO ROOF MOUNTED CONDENSING UNIT AND EXHAUST FAN.
- D. THIS WORK SHALL BE PERFORMED IN SUCH A MANNER THAT IT DOES NOT DISTURB EXISTING TRAFFIC PATTERNS AROUND THE HOSPITAL AND DOES NOT CREATE A HAZARD FOR PATIENTS, VISITORS, STAFF OR ANYONE ELSE. DEPENDING UPON DELIVERY AND PROJECT SCHEDULE, REMOVING THE UNIT FROM THE DELIVERY TRUCK AND SETTING ON THE GROUND (IN A LOCATION APPROVED BY THE OWNER) AND THEN LIFTING THE CHILLER TO ROOF MAY BE NECESSARY AND MAY REQUIRE SEPARATE LIFTS ON DIFFERENT DAYS.
- E. SCHEDULING, AND SETUP, OF RIGGING AND MOVING EQUIPMENT SHALL BE APPROVED BY THE OWNER BEFORE PROCEEDING WITH THE WORK.



1 PARTIAL ROOF PLAN - PROPOSED HVAC WORK
1/8" = 1'-0"

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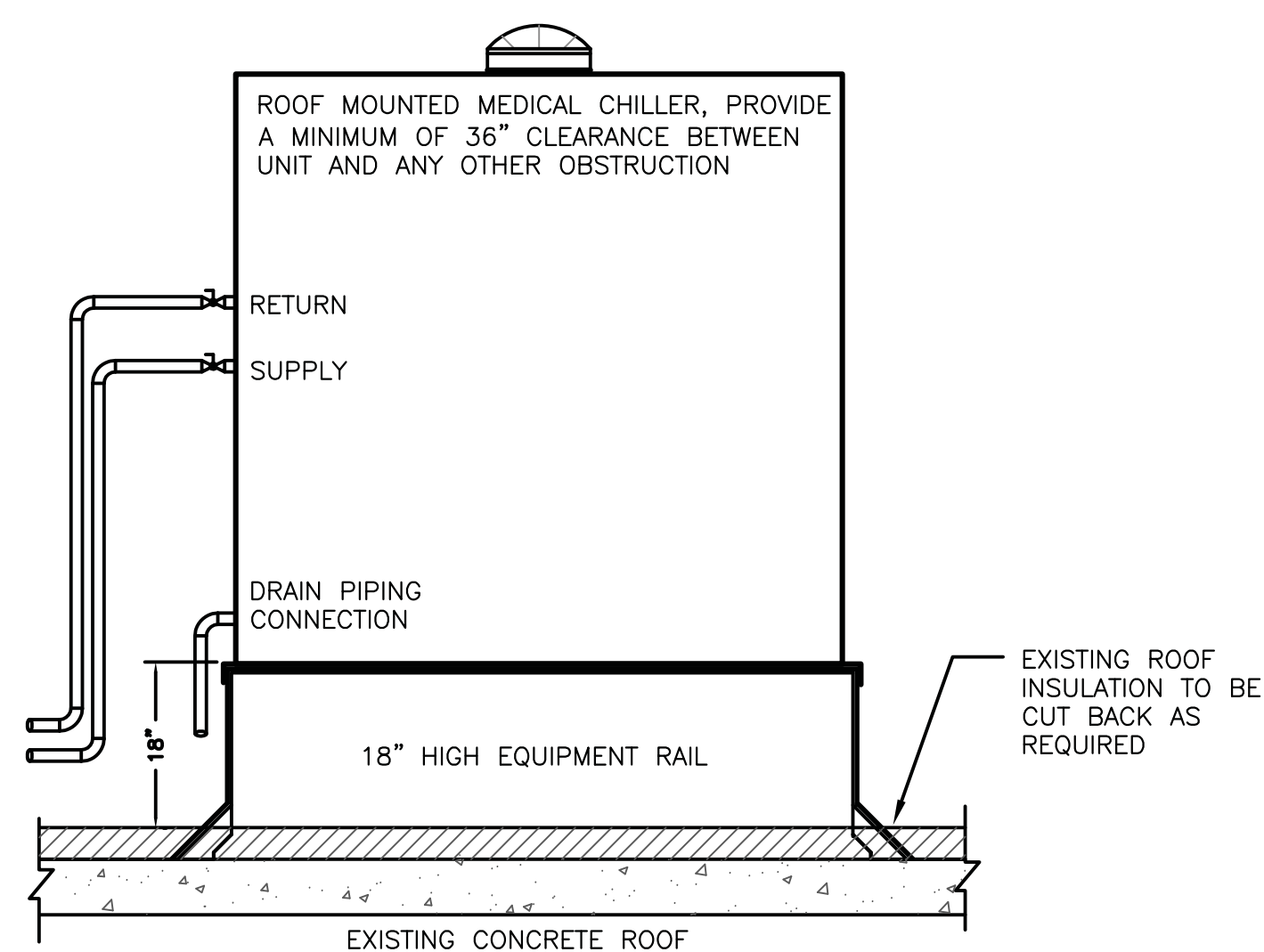
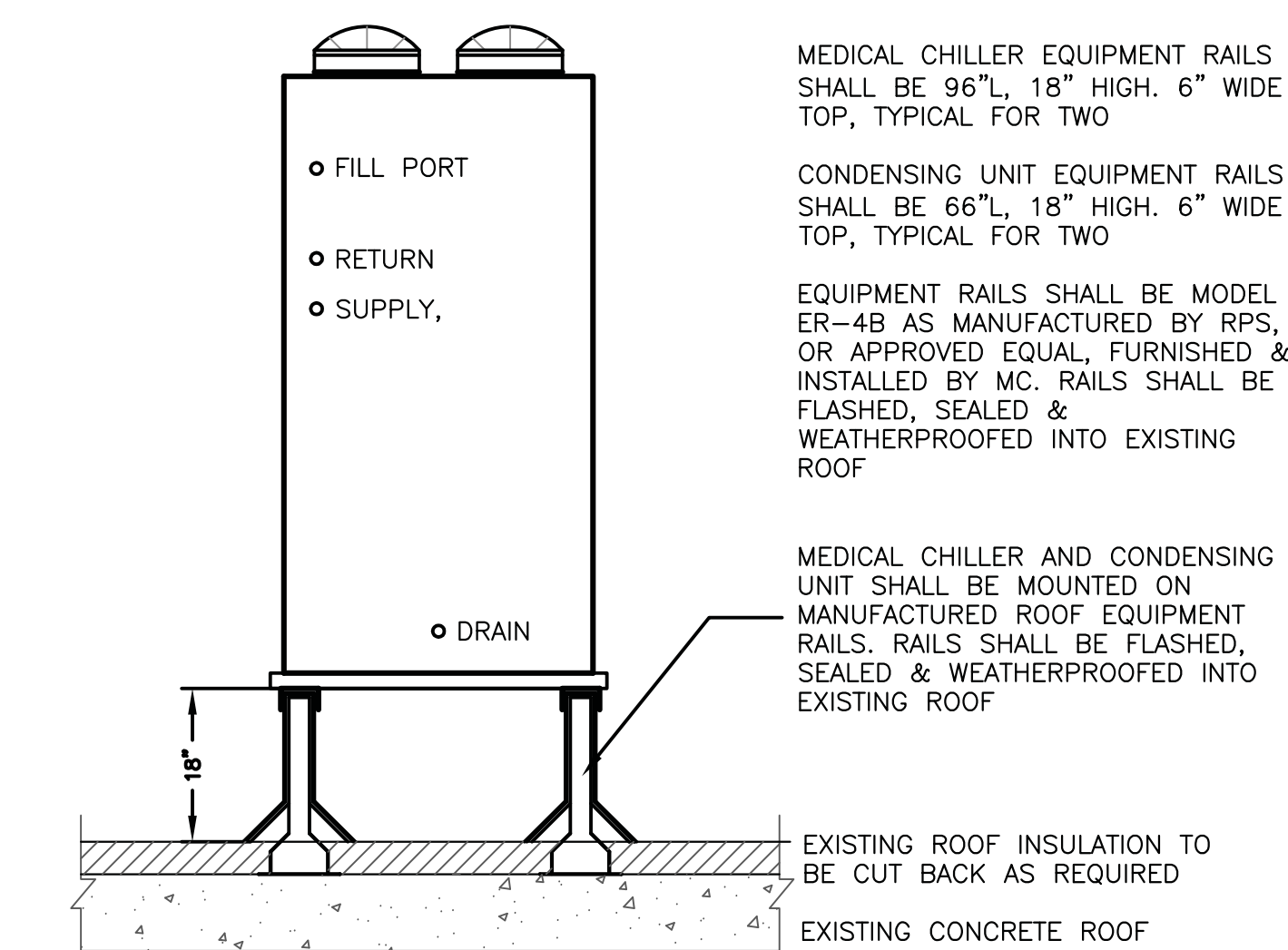
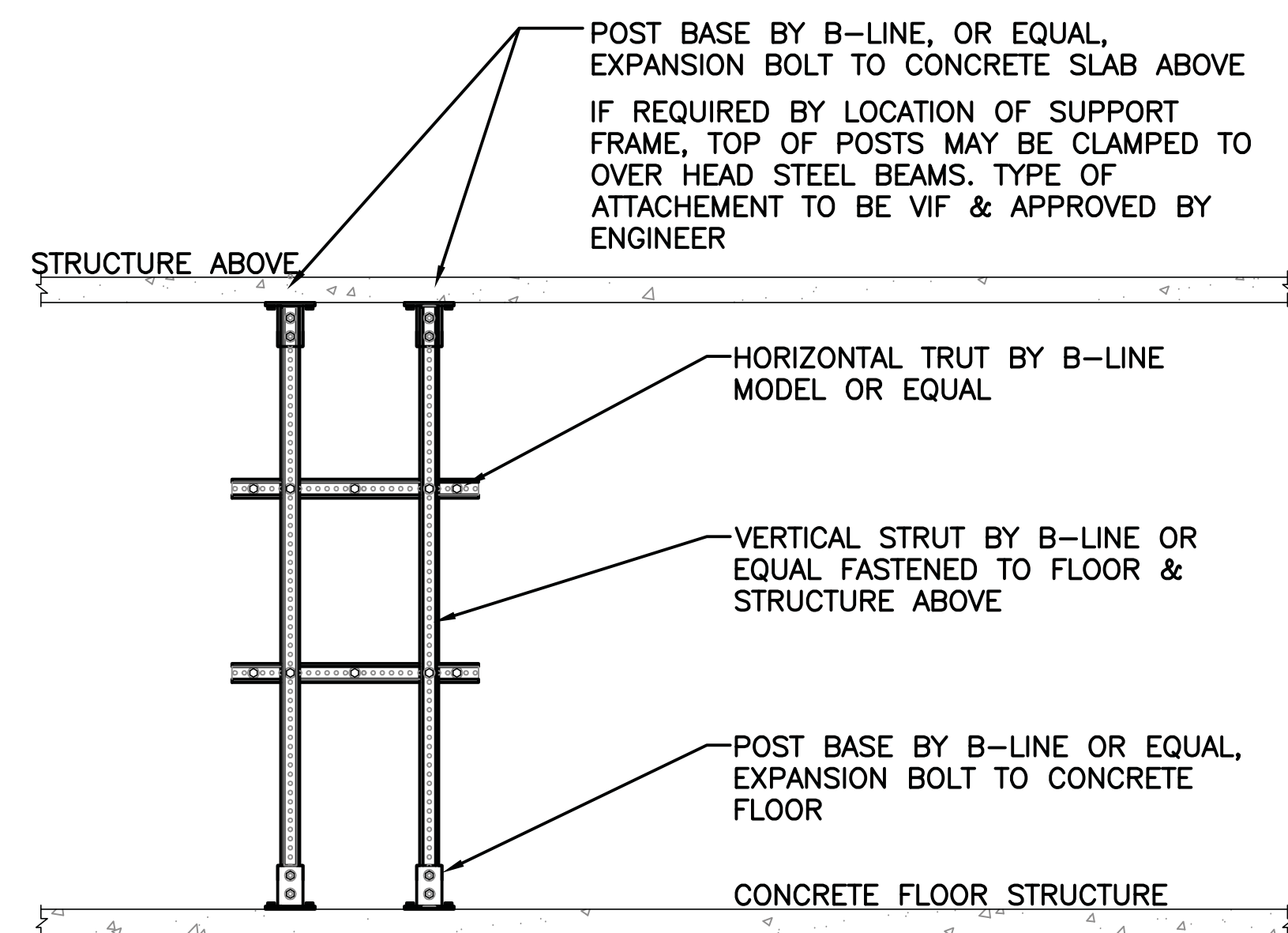
SCALE AS NOTED
DATE 12/03/20
REVISIONS
ISSUED FOR BID, PERMIT AND CONSTRUCTION

PROJECT # 2023
Linear Accelerator Replacement for:
VASSAR BROTHERS MEDICAL CENTER
45 READE PLACE
POUGHKEEPSIE, NEW YORK 12601

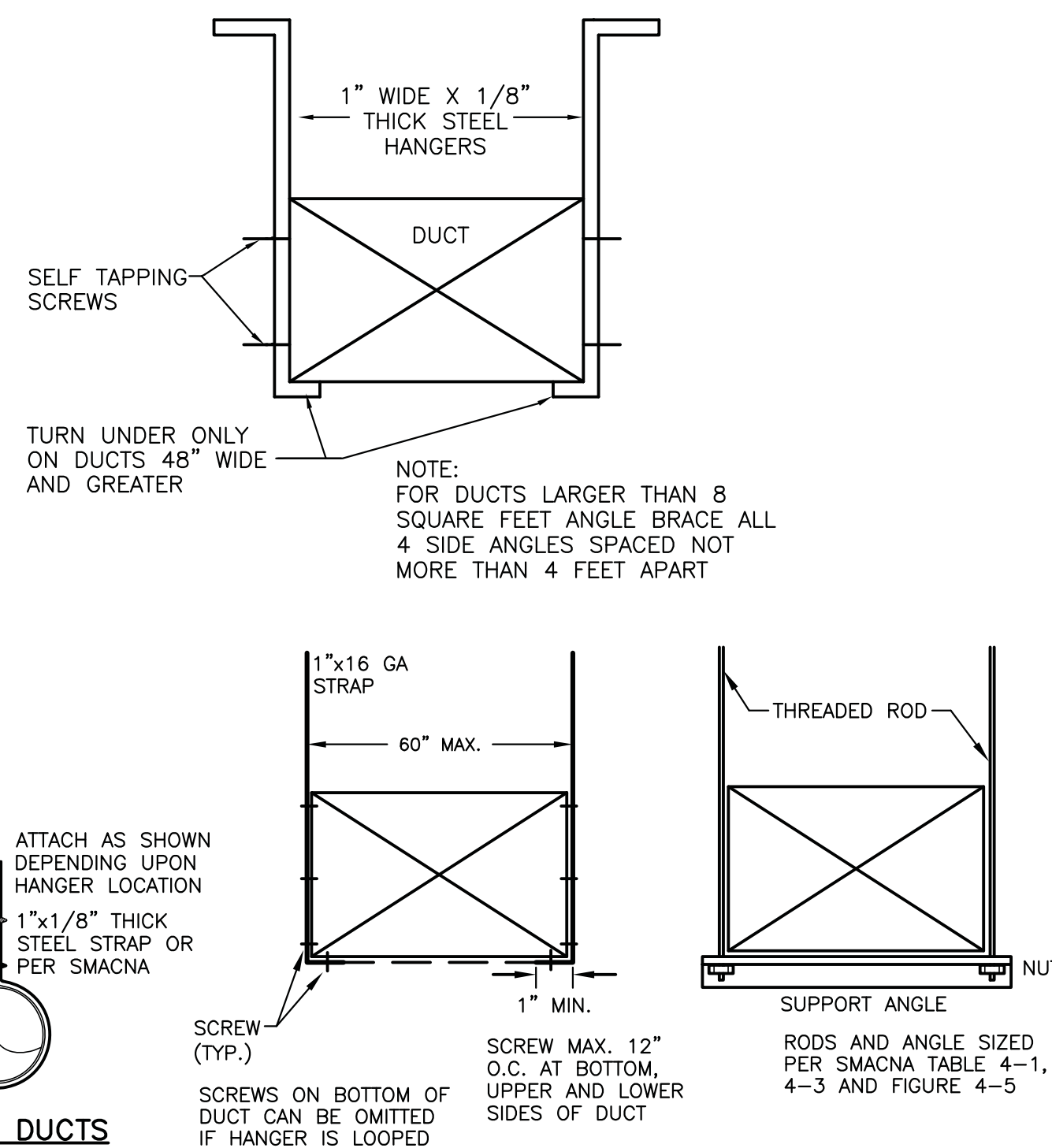
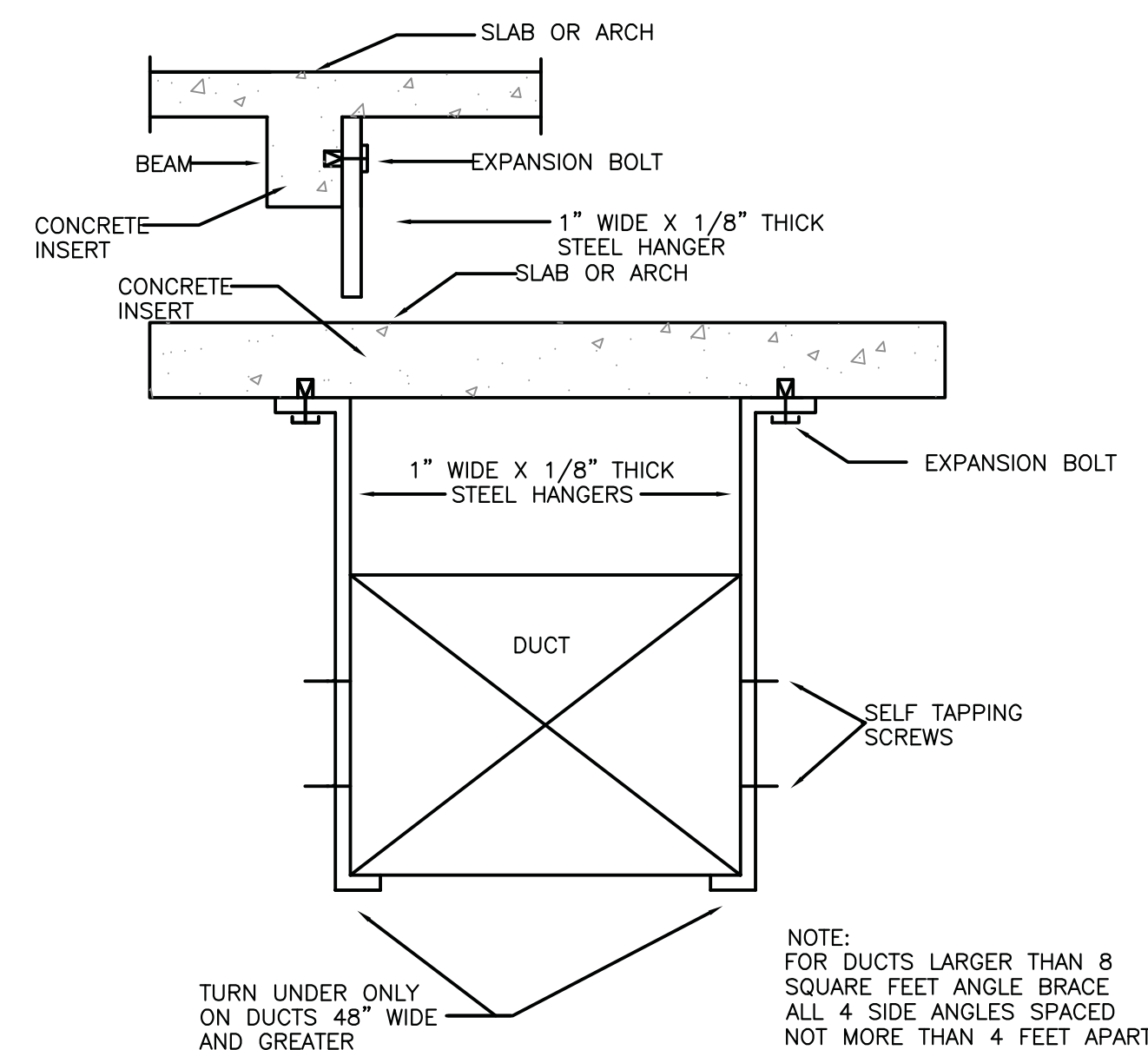
DRAWING TITLE
PARTIAL HVAC ROOF PLAN & LINAC
CHILLED WATER FLOW DIAGRAM

DRAWING NUMBER:

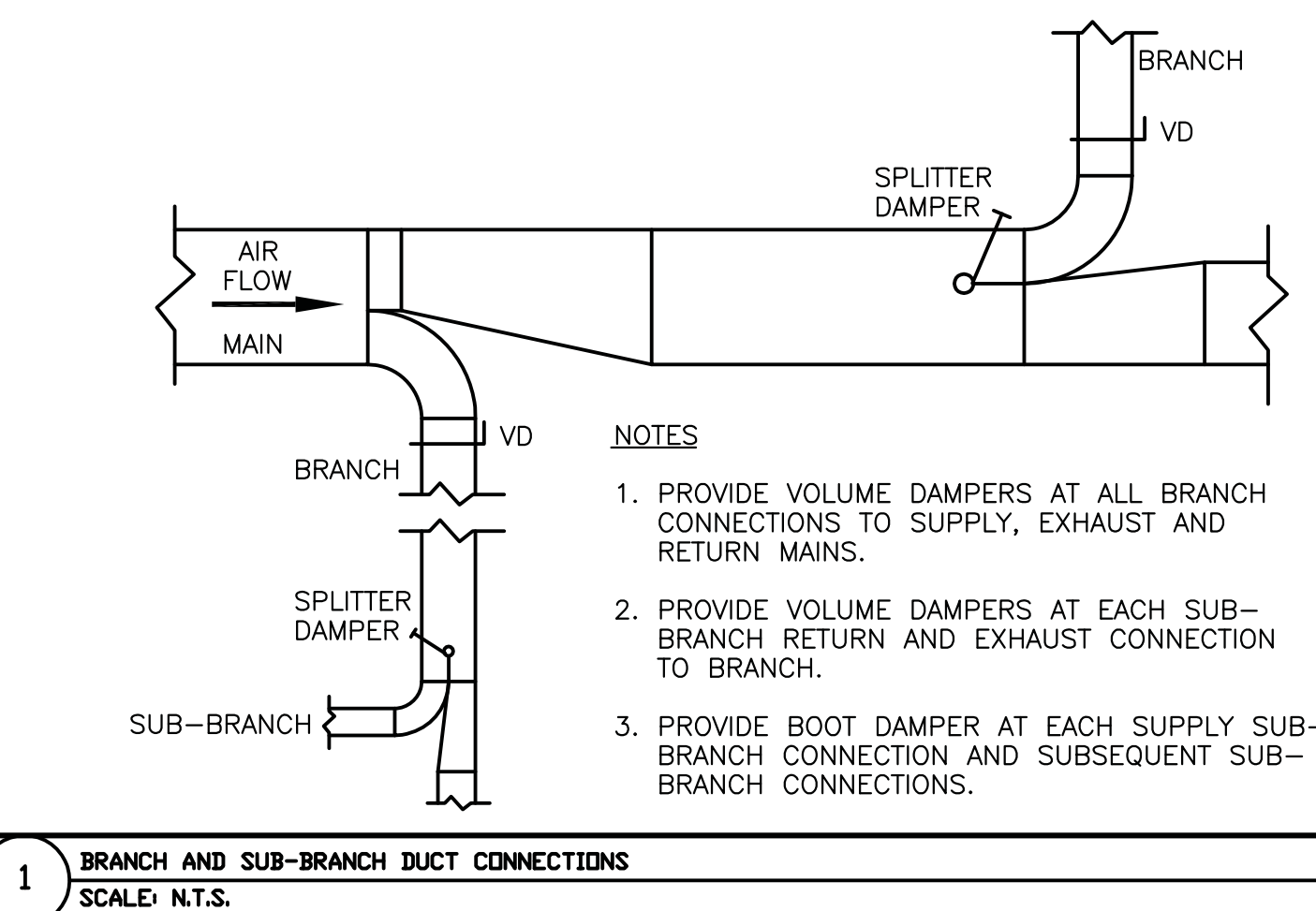
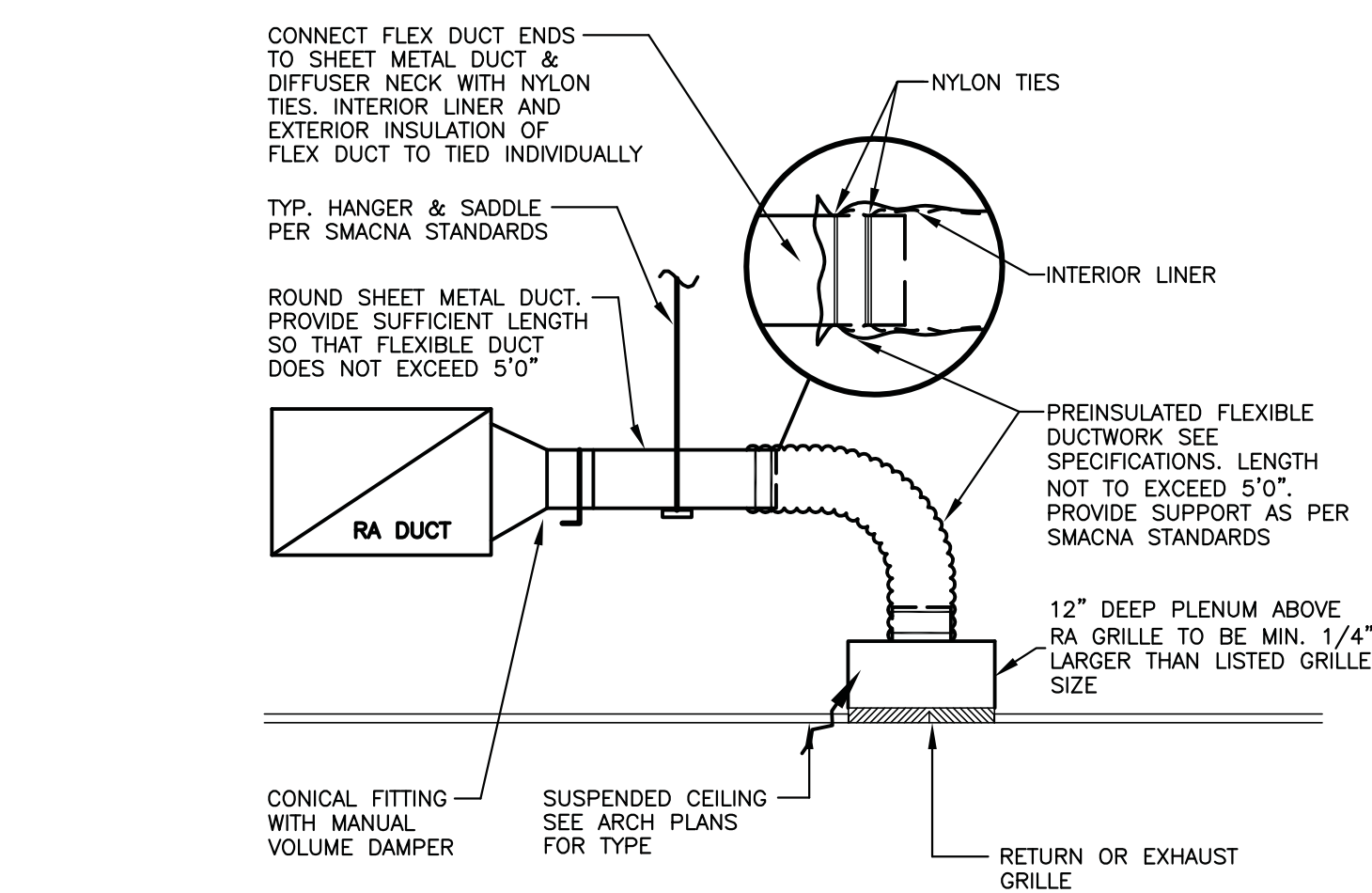
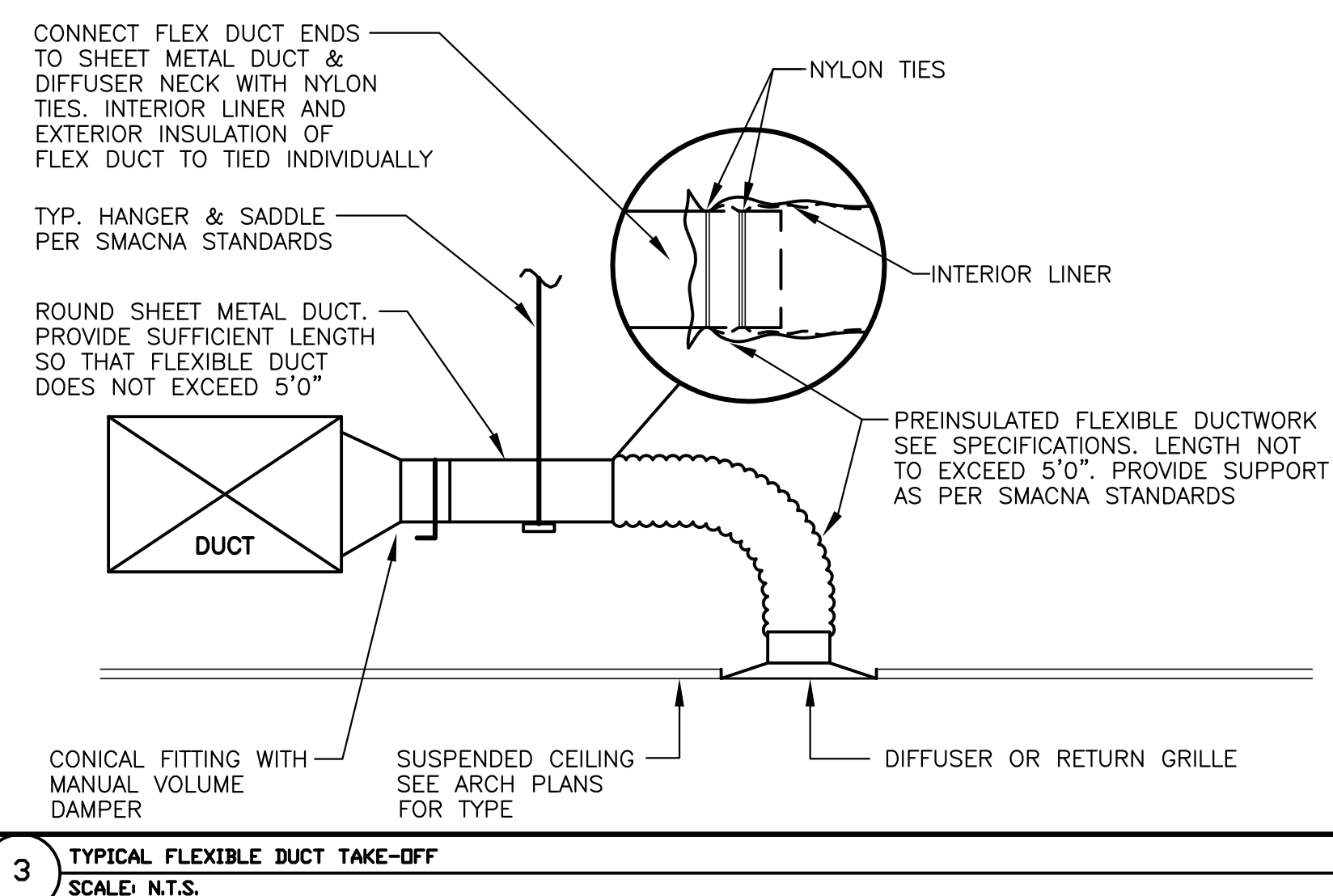
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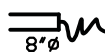


5 MEDICAL CHILLER AND CONDENSING UNIT SUPPORT DETAIL
SCALE: N.T.S.



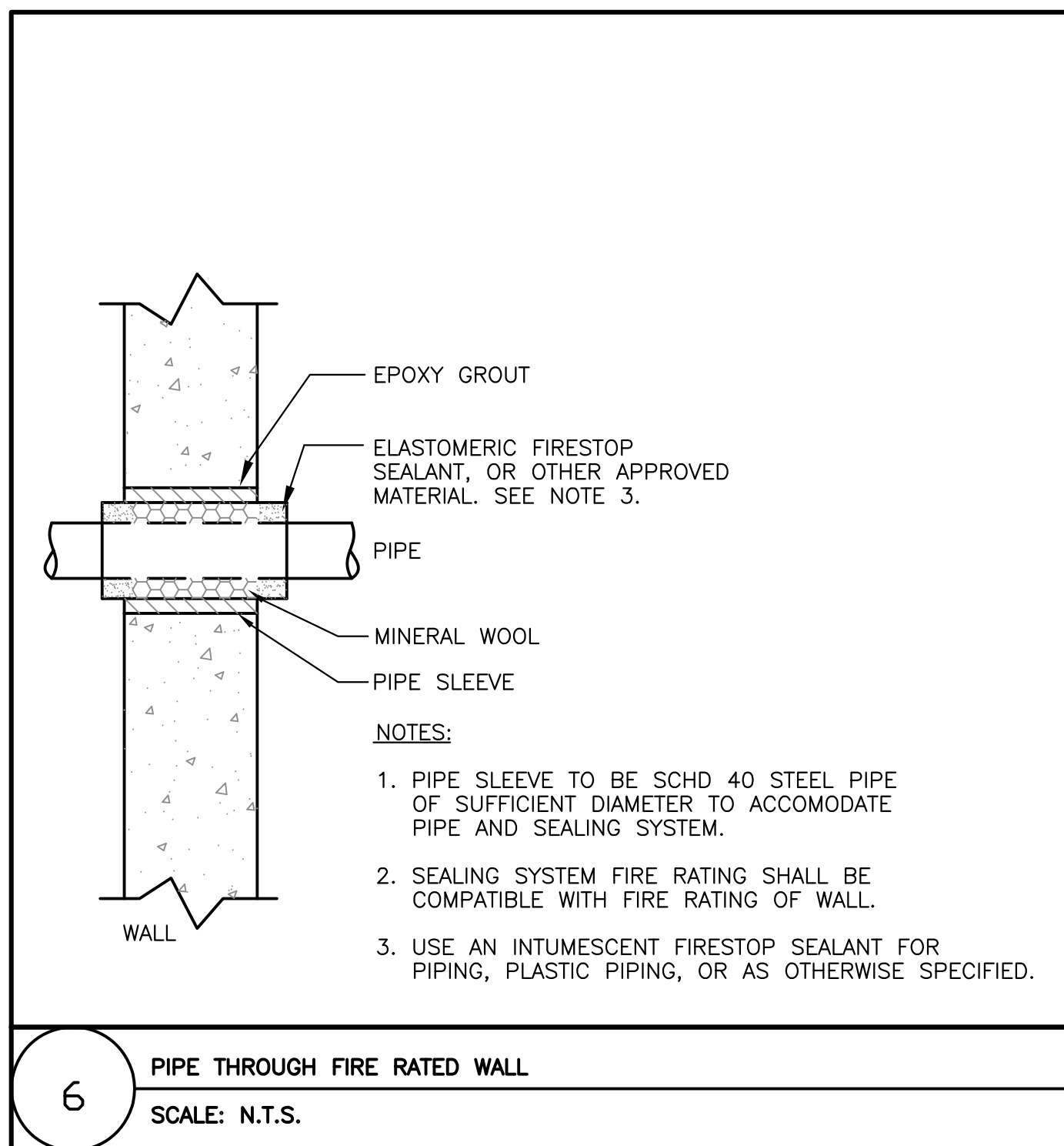
4 DUCT HANGING DETAILS
SCALE: N.T.S.



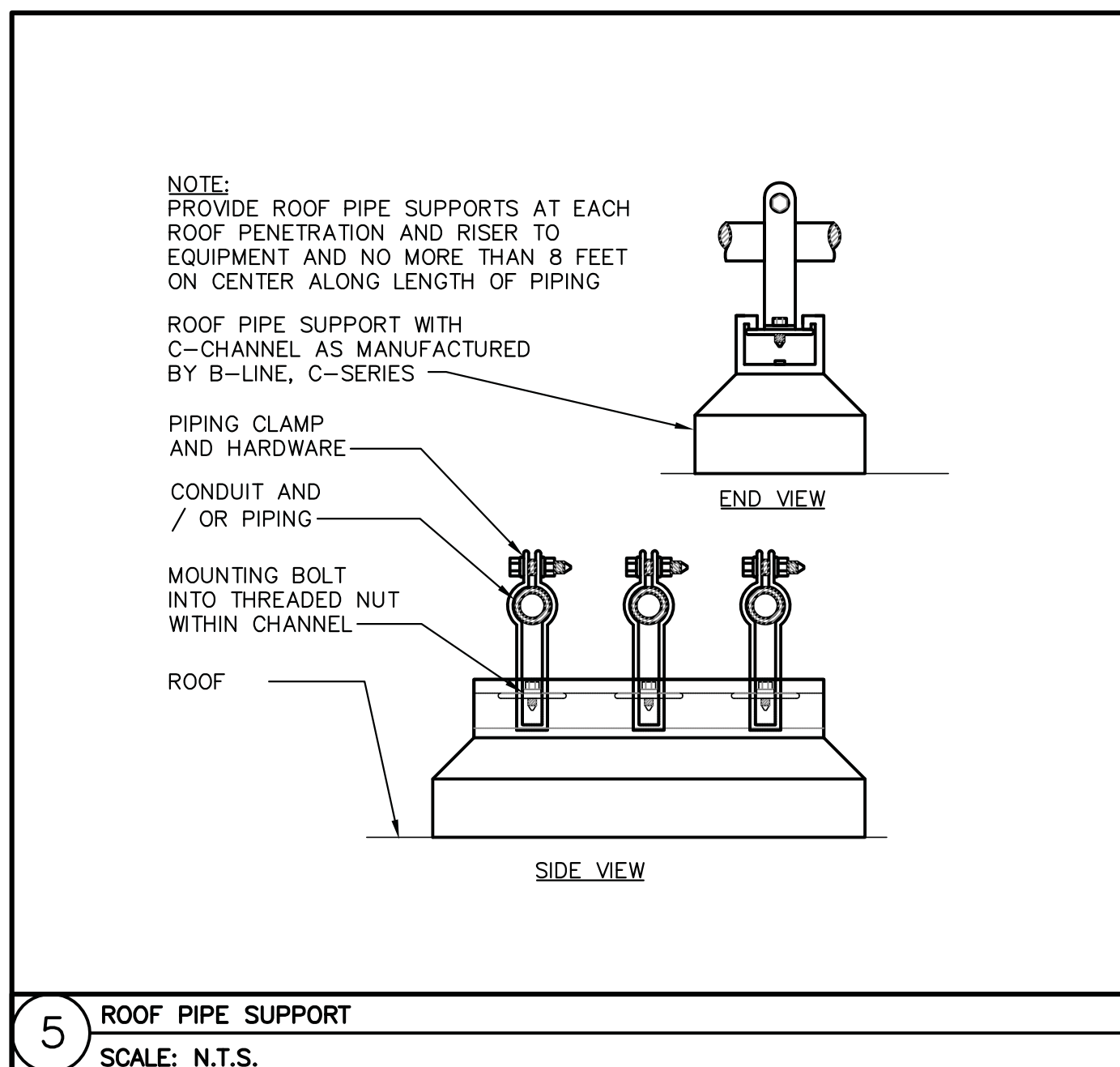
LEGEND & SYMBOL LIST			
	SUPPLY AIR DUCT		SUPPLY AIR DIFFUSER
	RETURN AIR DUCT		RETURN/EXHAUST GRILLE
	ELBOW WITH TURNING VANES		FLEX ABLE DUCT CONNECTION
	DUCT RADIUS ELBOW		VOLUME DAMPER
	RETURN AIR DUCT DOWN		FIRE DAMPER
	SUPPLY AIR DUCT DOWN		RETURN/SUPPLY AIR GRILLE
	BALANCING VALVE		WALL LOUVER
	BUTTERFLY VALVE		FLEXIBLE DUCT CONNECTION
	BALL VALVE		THERMOSTAT
	CHECK VALVE		
	GATE VALVE		
	ELBOW DOWN		
	TEE UP		
	UNION		
FAI	FRESH AIR INTAKE		
TD	TRANSFER DUCT		
SD	SPLITTER DAMPER		
FD	FIRE DAMPER		
AD	ACCESS DOOR		
A.L.	ACOUSTIC DUCT LINING		
SAD	SUPPLY AIR DIFFUSER		
RAG	RETURN AIR GRILLE		
EXH.	EXHAUST		
CHWS ——— ——— ———		CHILLED WATER SUPPLY	
CHWR ——— ——— ———		CHILLED WATER RETURN	
COND DRAIN ——— ——— ———		CONDENSATION DRAIN	

MECHANICAL WORK GENERAL NOTES

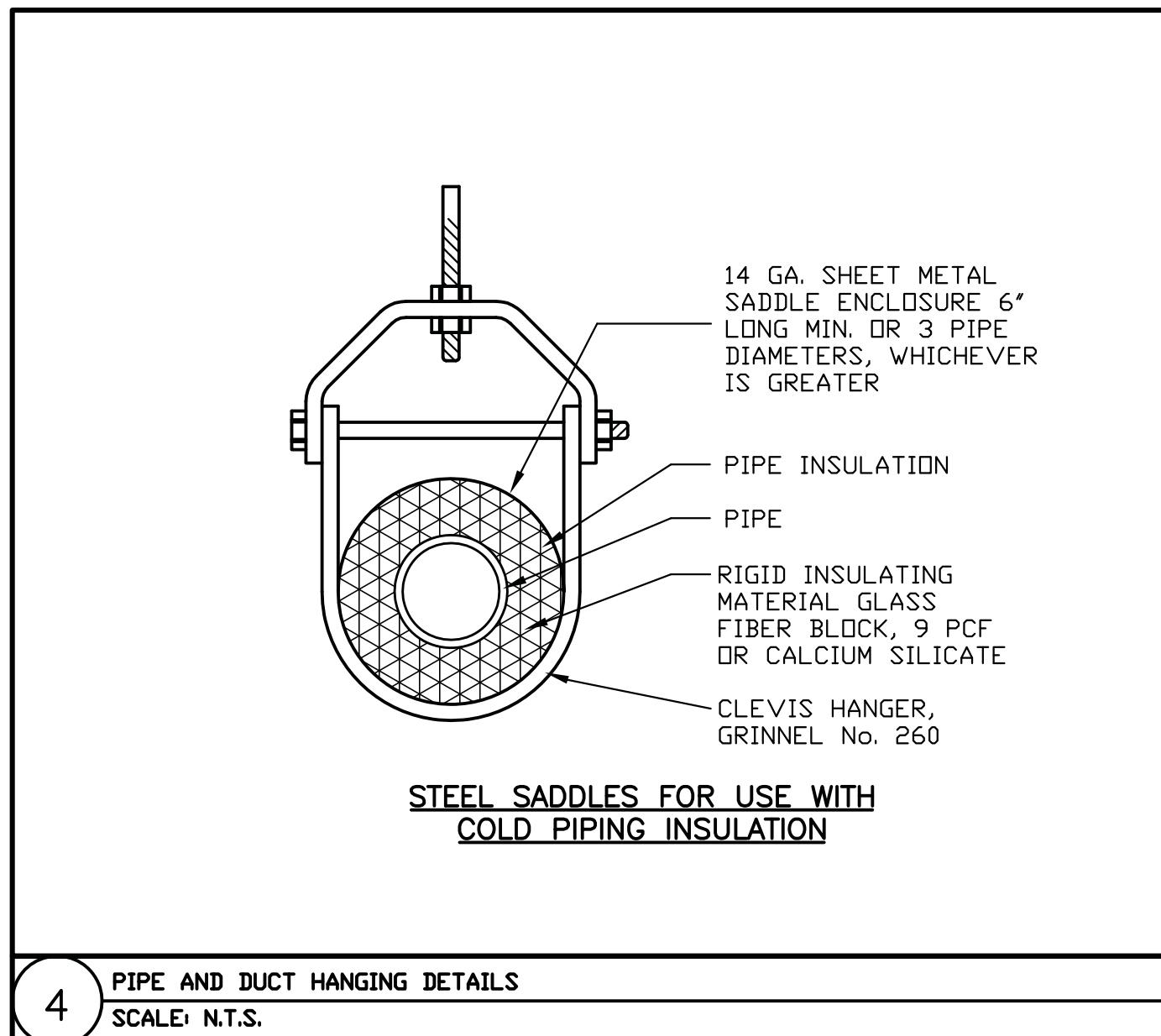
- ALL OPENINGS THROUGH SOUND AND FIRE RATED WALLS, FLOORS AND CEILINGS FOR PIPING, WIRING, DUCTWORK, AND ASSOCIATED HANGING/MOUNTING HARDWARE MUST BE SEALED FIRE AND SMOKE TIGHT WITH FIRESTOPPING MATERIAL AND/OR SYSTEM MANUFACTURED BY HILTI.
- FULLY COORDINATE ALL PIPE, DUCT, CONDUIT AND CONTROL WIRING RUNS AND INSTALLATIONS BEFORE FABRICATION AND INSTALLATION. NO EXTRA PAYMENTS WILL BE AUTHORIZED FOR REROUTING OR REMOVAL OF INSTALLED WORK DUE TO LACK OF COORDINATION WITH THE BUILDING STRUCTURE, WORK OF OTHER TRADES OR BUILDING COMPONENTS. DUCTWORK AND PIPING PLANS ARE TWO DIMENSIONAL AND ALL DUCTWORK AND PIPING RUNS DO NOT SHOW ALL NECESSARY CHANGES IN ELEVATION OR OFFSETS REQUIRED FOR A COMPLETE INSTALLATION. PROVIDE DUCT AND PIPE OFFSETS AS NECESSARY FOR INSTALLATION OF DUCT AND PIPE RUNS.
- OFFSET EXPOSED PIPING, DRAINS, DUCTWORK AND WIRING AS REQUIRED SO THAT THEY DO NOT RUN ACROSS LIGHTS, SPEAKERS, FIRE ALARM COMPONENTS AND OTHER CEILING OR EXPOSED STRUCTURE MOUNTED DEVICES.
- COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL DRAWINGS AND PROVIDE EQUIPMENT WIRE AND DESIGN FOR THE VOLTAGES SHOWN THEREIN.
- STARTERS, TRANSFORMERS, CONTROLS AND CONTROL WIRING REQUIRED FOR ALL MECHANICAL EQUIPMENT SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR.
- ALL CONTROL WIRING SHALL BE INCLUDED AS PART OF THE MECHANICAL WORK.
- ALL MECHANICAL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE INSTALLED WITH DISCONNECT SWITCHES OR COMBINATION STARTERS AS REQUIRED, AT EACH PIECE OF EQUIPMENT. COORDINATE SWITCH TYPE (FUSED OR NON-FUSED) WITH EQUIPMENT CHARACTERISTICS AND ELECTRICAL DRAWINGS.
- SUPPLY AND RETURN AIR DUCTWORK SHALL BE INSULATED. SEE SPECIFICATIONS FOR REQUIREMENTS.
- EXHAUST AIR DUCTWORK SHALL NOT BE INSULATED, UNLESS NOTED OTHERWISE.
- ALL DUCTWORK SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES, OR CEILING STRUCTURE.
- FLEXIBLE DUCTWORK SHALL BE FLEXMASTER TYPE 4, OR APPROVED EQUAL, SAME SIZE AS DIFFUSER NECKS. MAXIMUM LENGTH 5FT.
- LOCATIONS OF GRILLES, REGISTERS, AND DIFFUSERS ARE APPROXIMATE. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR LOCATIONS.
- ALL SQUARE DUCTWORK ELBOWS SHALL BE PROVIDED WITH DOUBLE DEFLECTION TURNING VANES.
- PROVIDE FLEXIBLE SUPPLY AND RETURN DUCT CONNECTIONS AT EACH AIR HANDLER UNIT.
- ALL DUCT DIMENSIONS ARE CLEAR, INSIDE DIMENSIONS



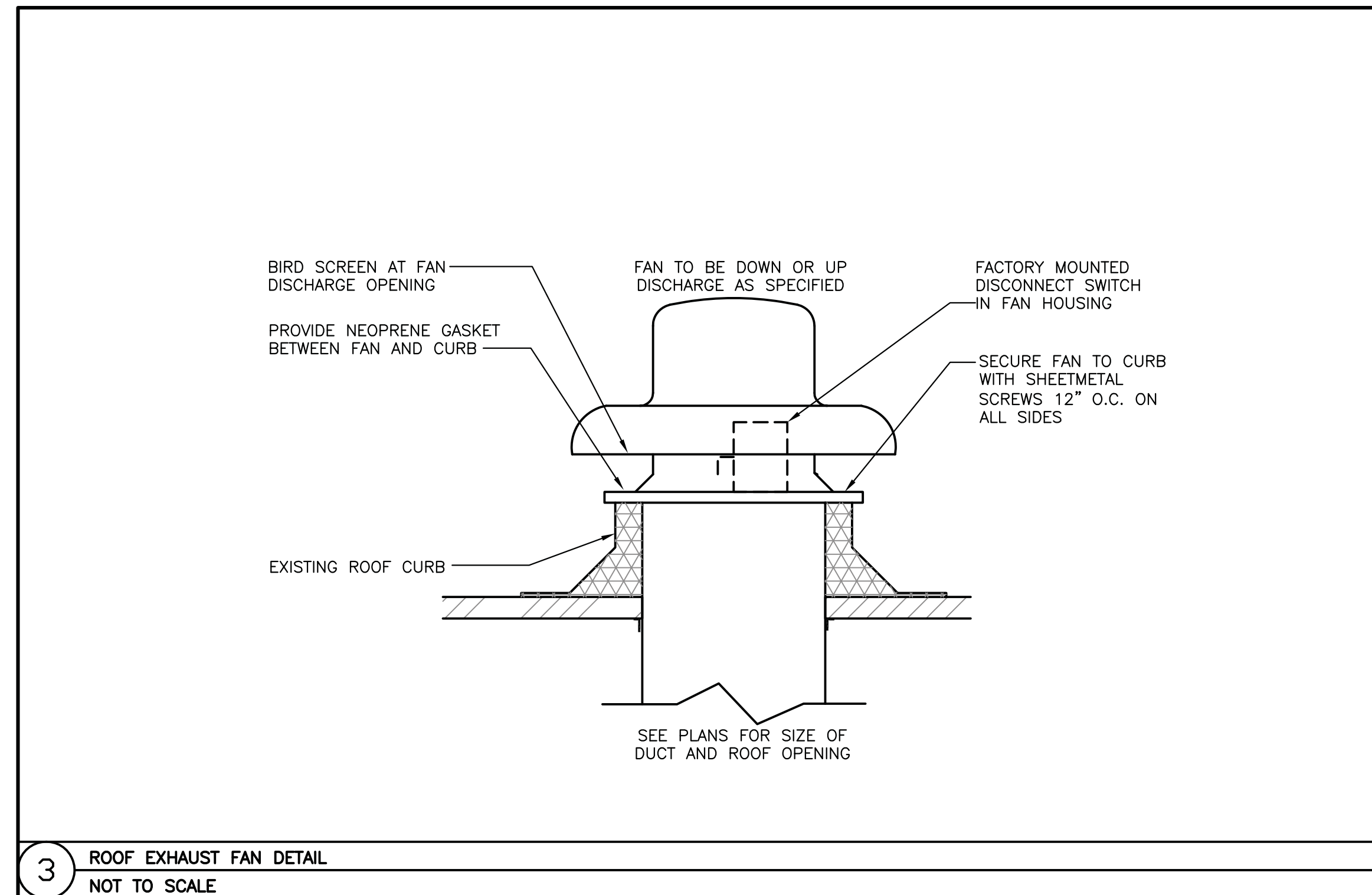
6 PIPE THROUGH FIRE RATED WALL
SCALE: N.T.S.



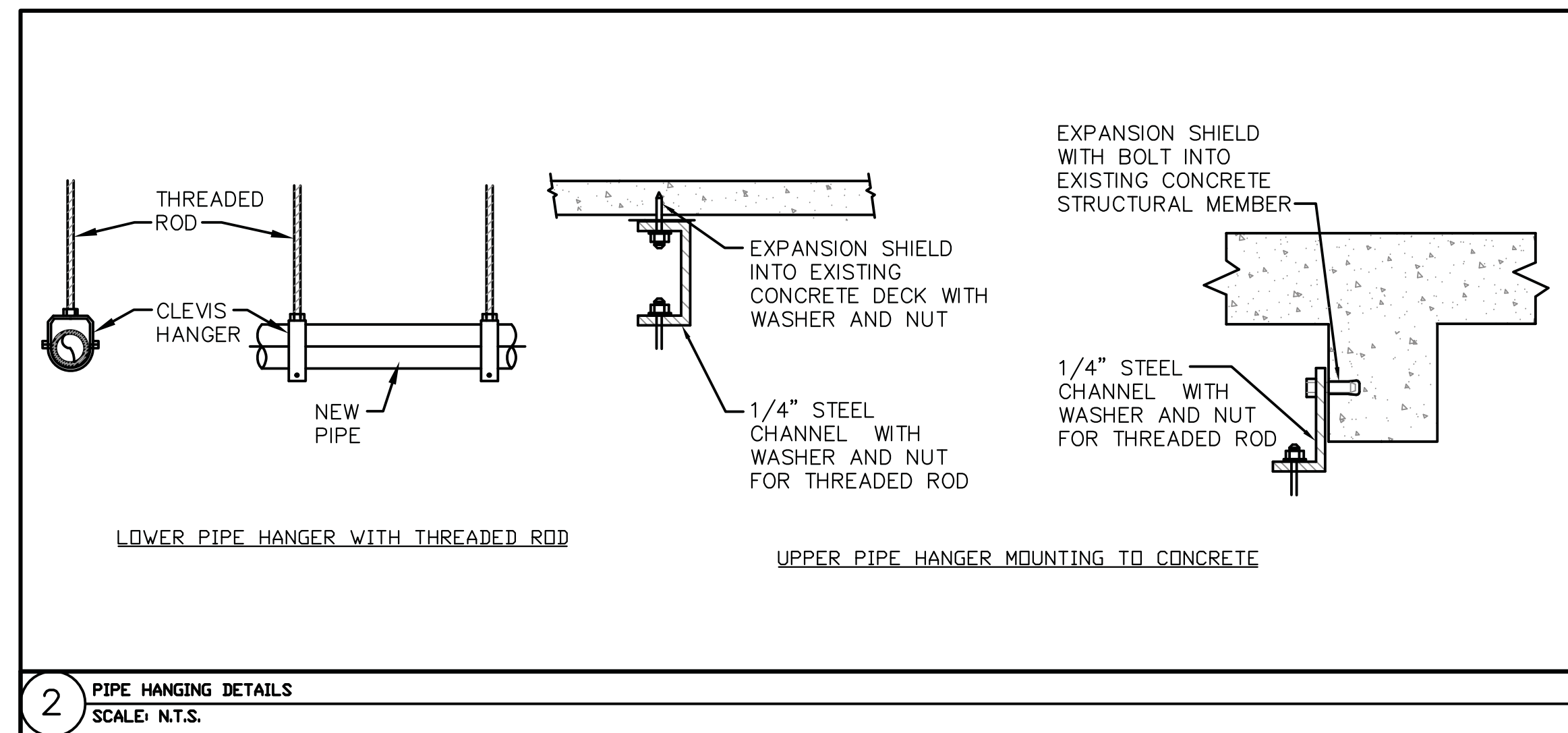
5 ROOF PIPE SUPPORT
SCALE: N.T.S.



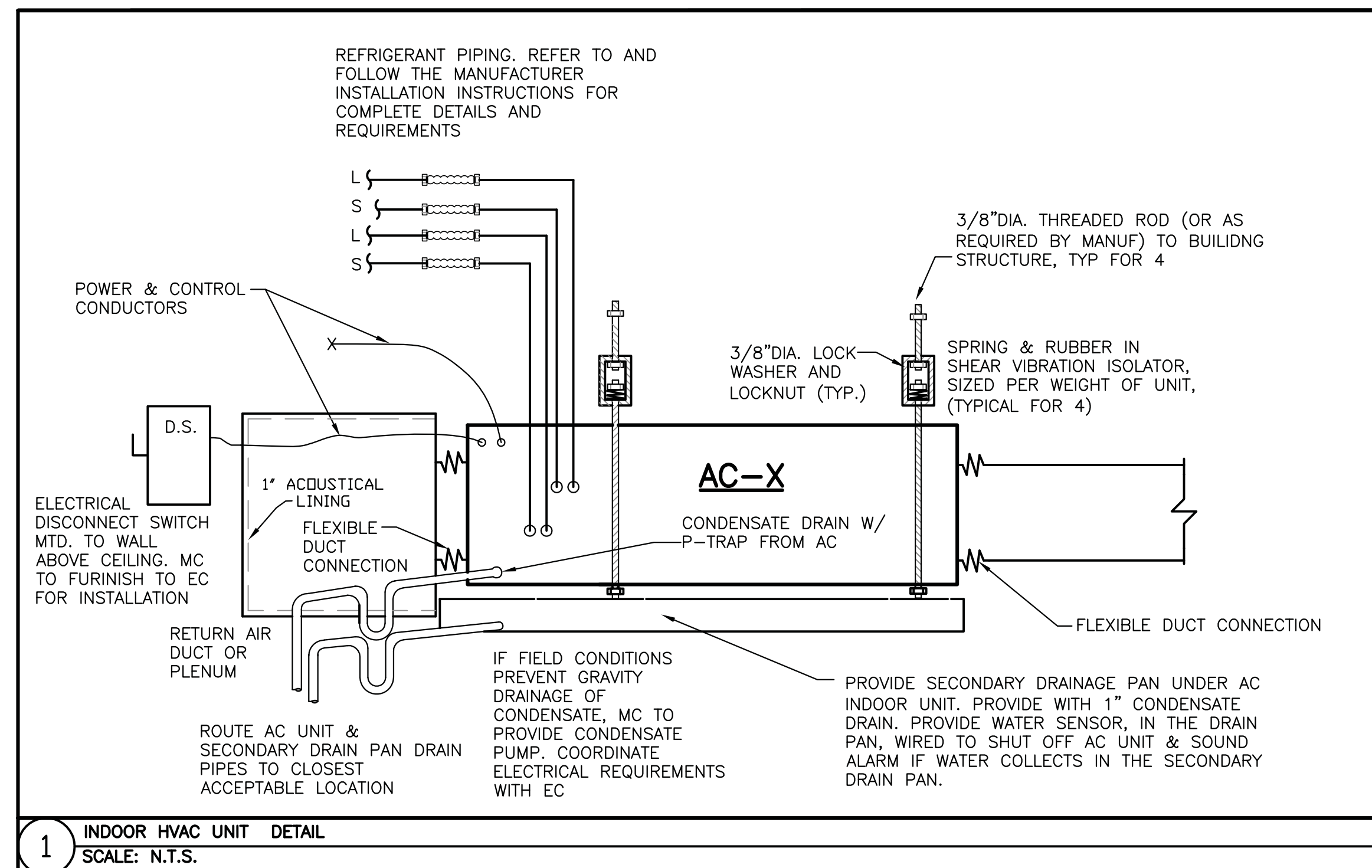
4 PIPE AND DUCT HANGING DETAILS
SCALE: N.T.S.



3 ROOF EXHAUST FAN DETAIL
NOT TO SCALE



2 PIPE HANGING DETAILS
SCALE: N.T.S.



1 INDOOR HVAC UNIT DETAIL
SCALE: N.T.S.

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ARCHITECTURE

SCALE AS NOTED
DATE 12/03/20
REVISIONS
ISSUED FOR BID, PERMIT AND CONSTRUCTION

PROJECT # 2023

Linear Accelerator Replacement for:
VASSAR BROTHERS MEDICAL CENTER
45 READE PLACE
POUGHKEEPSIE, NEW YORK 12601

DRAWING TITLE
HVAC DETAILS, NOTES AND LEGEND

DRAWING NUMBER:

M201

DIFFUSER & REGISTER SCHEDULE											
DESIG.	MANUF.	MODEL	TYPE	DUTY	FLOW PATTERN	SIZE	NECK	DAMPER	FINISH	MAT'L	REMARKS
A	TITUS	PMC	PERFORATED FACE	SUPPLY	ADJUSTABLE	24"x24"	SEE DWG	NO	NOTE 10	STEEL	NOTES 1, 2
B	TITUS	355FL	RCT GRILLE	RTN/EXH	N/A	SEE DWG'S	NONE	NO	NOTE 10	ALUMINUM	NOTES 1, 2, 3, 4, 5, 8
C	TITUS	LL1-11-3/4"	LINEAR DIFFUSER	SUPPLY	ONE WAY	4 FEET	SEE DWG	NO	NOTE 10	ALUMINUM	NOTES 1, 2, 3, 6, 7
D	TITUS	LL1-11-3/4"	LINEAR DIFFUSER	SUPPLY	ONE WAY	12 FEET	SEE DWG	NO	NOTE 10	ALUMINUM	NOTES 1, 2, 3, 6, 7
E	TITUS	271FS	RCT GRILLE	SUPPLY	N/A	SEE DWG'S	NONE	NO	NOTE 10	ALUMINUM	NOTES 1, 2, 9
NOTES: 1. SEE DRAWINGS FOR SIZES 2. PROVIDE DAMPER IN BRANCH DUCT TO DIFFUSER 3. PROVIDE T-BAR CEILING MARGIN 4. PROVIDE RECTANGULAR TO ROUND ADAPTER AS REQUIRED FOR CONNECTION OF DUCT 5. PROVIDE DAMPER IN EXHAUST BRANCH DUCTWORK 6. PROVIDE PLENUM SIZED PER DRAWING WITH ACOUSTICAL LINING 7. PROVIDE WITH ALL NECESSARY MOUNTING AND SUPPORT ACCESSORIES REQUIRED FOR INSTALLATION IN A LAY-IN CEILING. BORDERS SHALL HAVE MITERED CORNERS, PROVIDE TRIM AS REQUIRED FOR MULTIPLE SECTIONS 8. FLEXIBLE DUCT CONNECTION 9. PROVIDE WITH ALL NECESSARY MOUNTING AND SUPPORT ACCESSORIES REQUIRED FOR INSTALLATION IN A SHEETROCK WALL 10. COLOR TO BE SELECTED ON SUBMITTAL											

EXHAUST FAN SCHEDULE												
UNIT #	AREA SERVED	MANUF.	MOUNTING	MODEL No.	CFM	EXTERNAL S.P.	SONES	ELEC. VOLT.	MOTOR	DRIVE	LBS.	REMARKS
EF-1	LINAC VAULT	GREENHECK	ROOF	C-103-VG	800	0.75"	7.4	120	1/2 HP	DIRECT	55	
EXHAUST FAN NOTES: PROVIDE EXHAUST FANS WITH INDICATED ACCESSORIES: 1. MANUAL MOTOR STARTER 2. GRAVITY BACKDRAFT DAMPER (LOW LEAKAGE TIGHT CLOSING) 3. ECM MOTOR WITH INTEGRAL SPEED CONTROL 4. ELECTRICAL DISCONNECT SWITCH 5. FLEX CONNECTION FROM FAN TO DUCT 6. SPRING & RUBBER VIBRATION ISOLATOR'S WITH HANGING RODS, AND MOUNTING HARDWARE												

LINAC VAULT AC-1 SCHEDULE												
PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO FURNISH AND INSTALL A COMPLETE AIR-CONDITIONING SYSTEM FOR THE LINAC TREATMENT VAULT, INCLUDING, BUT NOT LIMITED TO, INDOOR, ABOVE CEILING MOUNTED, EVAPORATOR, ROOF MOUNTED OUTDOOR CONDENSING UNIT, ALL INTERCONNECTING REFRIGERANT PIPING, CONDENSATE DRAIN PIPING, CONTROLS, CONTROL WIRING, POWER WIRING, NECESSARY SUPPORTS AND ACCESSORIES, ETC. THE WORK SHALL PROVIDE A FULLY FUNCTIONING AIR-CONDITIONING SYSTEM. AC-1 SHALL BE ABOVE-AIR TECHNOLOGIES "PRECISION COOL" MODEL HK WITH A ROOF MOUNTED DUAL CIRCUIT CONDENSING UNIT, OR AN EQUIVALENT PRODUCT OF ANOTHER MANUFACTURER NOMINAL SYSTEM COOLING CAPACITY: 6 TONS COOLING CAPACITIESS AT 72F DB/60 F WB AT EVAPORATOR EAT: TOTAL COOLING CAPACITY: 75.5 MBH SENSIBLE COOLING CAPACITY: 67.0 MBH AIRFLOW: 2,400 CFM ESP: 1.25" WC SYSTEM SHALL BE PROVIDED WITH THE FOLLOWING: INDOOR UNIT 1. SAME SIDE SUPPLY AND RETURN AIR 2. ELECTRIC REHEAT (11 KW), SCR CONTROL 3. MC-2000 CONTROLLER WITH BACNET INTERFACE (CONFIRM WITH VBMC IT DEPT) 4. CONDENSATE PUMP 5. SMOKE DETECTOR 6. WATER LEAK DETECTOR 7. SPRING HANGING ISOLATORS 8. DISCONNECT SWITCH 9. MERV 8 FILTER WITH FILTER RACK 10. 460/3/60, 27.4A MCA OUTDOOR UNIT 1. DUAL SCROLL COMPRESSORS, DUAL REFRIGERATION CIRCUIT CONDENSING UNIT (ROOF MOUNTED) 2. HOT GAS BYPASS ON EACH CIRCUIT 3. SUCTION LINE ACCUMULATORS 4. MINUS 20F LOW AMBIENT OPERATION 5. DISCONNECT SWITCH 6. 460/3/60, 17.4A MCA INSTALLATION A. GENERAL: INSTALL AIR-CONDITIONING SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. INSTALL UNITS PLUMB AND LEVEL, FIRMLY ANCHORED IN LOCATIONS INDICATED, AND MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES. B. INSTALL INDOOR AND OUTDOOR UNIT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, REQUIREMENTS AND RECOMMENDATIONS. C. FURNISH AND INSTALL CONDENSATE DRAIN PIPING (INCLUDING CONDENSATE PUMP AND DISCHARGE PIPING) FROM INDOOR UNIT AS REQUIRED BY THE MANUFACTURER AND SHOWN ON THE DRAWINGS. D. INSTALL ALL REFRIGERANT PIPING, INSULATION, AND RELATED ACCESSORIES, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. PURGE REFRIGERANT PIPING IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. E. PROTECT REFRIGERANT PIPING DURING CONSTRUCTION AGAINST ENTRANCE OF FOREIGN MATTER, DIRT AND MOISTURE; HAVE OPEN ENDS OF PIPING AND CONNECTIONS TO COMPRESSORS, CONDENSERS, EVAPORATORS AND OTHER EQUIPMENT TIGHTLY CAPPED UNTIL ASSEMBLY. F. INSULATE REFRIGERANT PIPING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE WEATHER RESISTANT JACKET TO ALL INSULATION EXPOSED TO OUTDOOR CONDITIONS. G. INSTALL ALL ITEMS SHIPPED LOOSE BY THE MANUFACTURER FOR FIELD INSTALLATION. H. PROVIDE R410A REFRIGERANT AS NECESSARY TO FULLY CHARGE SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. I. PROVIDE ALL REQUIRED CONTROL AND POWER WIRING REQUIRED TO FURNISH AND INSTALL A COMPLETELY FUNCTIONAL SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. J. ELECTRICAL: INSTALL AND CONNECT ELECTRICAL DEVICES SUPPLIED BY MANUFACTURER BUT NOT SPECIFIED TO BE FACTORY MOUNTED. K. FURNISH COPY OF MANUFACTURER'S ELECTRICAL CONNECTION DIAGRAM SUBMITTAL TO ELECTRICAL CONTRACTOR. L. FURNISH AND INSTALL POWER AND CONTROL CONDUITS AND CONDUCTORS ALONG WITH RELATED INTERCONNECTIONS IN ACCORDANCE WITH HVAC UNITS MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS. M. FIELD QUALITY CONTROL: START UP SYSTEM IN ACCORDANCE WITH MANUFACTURER'S START UP INSTRUCTIONS. TEST EQUIPEMNT AS WELL AS CONTROLS AND DEMONSTRATE COMPLIANCE WITH REQUIREMENTS.												

PROJECT	PROJECT #:	2023	Linear Accelerator Replacement for: VASSAR BROTHERS MEDICAL CENTER 45 READE PLACE POUGHKEEPSIE, NEW YORK 12601	DRAWING TITLE HVAC SCHEDULES
DRAWING NUMBER:				

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ARCHITECTURE

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MECHANICAL WORK SPECIFICATIONS										14. SLEEVES & PLATES										E. DUCT ACCESSORIES INSTALLATION										REPORTS TO BE SUBMITTED																			
1. SCOPE OF WORK										SLEEVES SHALL BE PROVIDED AT ALL FLOOR, ROOF, AND WALL PENETRATIONS FOR PIPING AND CONDUIT. SLEEVES THROUGH STRUCTURAL MEMBERS ARE NOT ALLOWED WITHOUT PRIOR APPROVAL FROM THE ENGINEER. SLEEVES SHALL BE OF ADEQUATE SIZE TO ACCOMMODATE SERVICE AND PACKING.										1. INSTALL ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, NFPA 90A, AND FOLLOW SMACNA HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE.										A. REPORT FORMS																			
THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS THAT THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND TRANSPORTATION NECESSARY FOR THE PROPER EXECUTION OF THE WORK OF THIS PROJECT, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ALL INCIDENTAL WORK NECESSARY TO COMPLETE THE PROJECT IN AN ACCEPTABLE MANNER, READY FOR USE, OCCUPANCY OR OPERATION BY THE OWNER.										SLEEVES SHALL BE OF SIMILAR MATERIAL TO ADJACENT CONDUIT, ETC., BUT NOT LESS THAN 18 US GAUGE METAL. SLEEVES THROUGH FLOOR SLABS, COLUMNS OR BEAMS SHALL BE STANDARD WEIGHT STEEL PIPE.										2. PROVIDE BACKDRAFT DAMPERS ON EXHAUST FANS OR EXHAUST DUCTS NEAREST TO OUTSIDE AND WHERE INDICATED.										1. TITLE PAGE:																			
IN CASE OF CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN. FIGURE DIMENSIONS ON DRAWINGS SHALL GOVERN OVER SCALE DIMENSIONS AND DETAILED DRAWINGS SHALL GOVERN OVER GENERAL DRAWINGS.										SLEEVES FOR CONDUIT AND EQUIPMENT THROUGH FIRE RATED AND FIRE RESISTIVE FLOORS AND WALLS SHALL BE PREFABRICATED FIRE RATED SLEEVES INCLUDING SEALS, UL LISTED AND BEARING THE UL LABEL.										3. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS, AND ELSEWHERE AS INDICATED. PROVIDE MINIMUM 8 X 8 INCH SIZE FOR HAND ACCESS, 18 X 18 INCH SIZE FOR SHOULDER ACCESS, AND AS INDICATED. REVIEW LOCATIONS PRIOR TO FABRICATION.										A. NAME OF TESTING, ADJUSTING, AND BALANCING AGENCY B. ADDRESS OF TESTING, ADJUSTING, AND BALANCING AGENCY C. TELEPHONE NUMBER OF TESTING, ADJUSTING, AND BALANCING AGENCY D. PROJECT NAME E. PROJECT LOCATION F. PROJECT ARCHITECT G. PROJECT ENGINEER H. PROJECT CONTRACTOR I. PROJECT ALTITUDE J. REPORT DATE																			
ANY ADDITIONAL WORK OR COSTS INCURRED DUE TO DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SPECIFICATIONS AND SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES, SHALL BE DONE AT THE CONTACTORS' RISK, UNLESS THE ENGINEER IS NOTIFIED IN WRITING.										15. FIRESTOPPING										4. PROVIDE DUCT TEST HOLES WHERE INDICATED AND REQUIRED FOR TESTING AND BALANCING PURPOSES.										2. SUMMARY COMMENTS:																			
2. CODES & STANDARDS										PROVIDE FIRESTOPPING IN ALL SPACES AROUND PENETRATIONS AND OTHER OPENINGS IN FIRE RATED PARTITIONS, FLOORS, WALLS AND CEILINGS. WHERE DUCTWORK, WIRING, CABLE, PIPE, CONDUIT OR OTHER EQUIPMENT PENETRATES FIRERATED FLOOR, CEILING, OR WALL CONSTRUCTION, CLOSE OFF SPACE BETWEEN DUCTWORK, CONDUIT OR EQUIPMENT AND ADJACENT WORK WITH FIRE STOPPING INSULATION AND CAULK.										5. PROVIDE FIRE DAMPERS AT LOCATIONS INDICATED, WHERE DUCTS AND OUTLETS PASS THROUGH FIRE RATED COMPONENTS, AND WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION. INSTALL WITH REQUIRED PERIMETER MOUNTING ANGLES, SLEEVES, BREAKAWAY DUCT CONNECTIONS, CORROSION RESISTANT SPRINGS, BEARINGS, BUSHINGS AND HINGES. PROVIDE ACCESS DOORS ON BOTH SIDES OF EACH FIRE DAMPER.										A. DESIGN VERSUS FINAL PERFORMANCE B. NOTABLE CHARACTERISTICS OF SYSTEM C. DESCRIPTION OF SYSTEMS OPERATION SEQUENCE D. SUMMARY OF OUTDOOR AND EXHAUST FLOWS TO INDICATE AMOUNT OF BUILDING PRESSURIZATION E. NOMENCLATURE USED THROUGHOUT REPORT F. TEST CONDITIONS																			
ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF FEDERAL, STATE AND LOCAL AGENCIES; PUBLIC UTILITY COMPANIES AND SHALL COMPLY WITH LOCAL CODES, WHERE A CONFLICT IN CODE REQUIREMENTS IS ENCOUNTERED, THE MOST STRINGENT SHALL APPLY. A SAMPLE OF THE MORE EXPLICIT CODES AND STANDARDS:										16. DUCTWORK										6. DEMONSTRATE RE–SETTING OF FIRE DAMPERS TO OWNER'S REPRESENTATIVE.										3. INSTRUMENT LIST:																			
– UNDERWRITER'S LABORATORIES – NATIONAL ELECTRICAL CODE, LATEST EDITION – N.Y.S. ENERGY CONSERVATION CONSTRUCTION CODE (NYSECC) – NEW YORK STATE BUILDING CODE – OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)										A. GENERAL: THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLATION OF DUCTWORK AND ACCESSORIES REQUIRED FOR THIS PROJECT. ALL DUCTWORK SYSTEMS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH SMACNA HVAC DUCT INSTALLATION STANDARDS. SEAL ALL DUCT SEAMS TIGHT. DUCTS WITH ANY DIMENSION LARGER THAN 14" SHALL UTILIZE "DUCTMATE" FLANGES AND SEAL, OR AN EQUIVALENT PRODUCT.										7.PROVIDE FLEXIBLE CONNECTIONS IMMEDIATELY ADJACENT TO EQUIPMENT IN DUCTS ASSOCIATED WITH FANS AND MOTORIZED EQUIPMENT AND SUPPORTED BY VIBRATION ISOLATORS.										A. INSTRUMENT B. MANUFACTURER C. MODEL NUMBER D. SERIAL NUMBER E. RANGE F. CALIBRATION DATE																			
3. PERMITS										B. DUCTWORK ACCESSORIES:										8.PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY, RETURN, AND EXHAUST SYSTEMS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2 DUCT WIDTHS FROM DUCT TAKE–OFF.										4. ELECTRIC MOTORS:																			
THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED FOR WORK OF THIS CONTRACT.										1. ACCEPTABLE MANUFACTURERS: TITUS, AERO DYNE, DURO DYNE.										9.USE SPLITTER DAMPERS WHERE INDICATED OR REQUIRED DUE TO DUCT LAYOUT.										A. MANUFACTURER B. MODEL/FRAME C. HP/BHP D. PHASE, VOLTAGE, AMPERAGE; NAMEPLATE, ACTUAL, NO LOAD E. RPM F. SERVICE FACTOR G. STARTER SIZE, RATING, HEATER ELEMENTS H. SHEAVE MAKE/SIZE/BORE																			
4. GUARANTEES										2. AIR TURNING DEVICES/EXTRACTORS										10. PROVIDE BALANCING DAMPERS ON DUCT TAKE–OFF TO DIFFUSERS, GRILLES, AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER, GRILLE, OR REGISTER ASSEMBLY.										5. V BELT DRIVE:																			
WRITTEN GUARANTEE: THE CONTRACTOR SHALL SUBMIT A WRITTEN GUARANTEE IN TRIPPLICATE TO INCLUDE ALL SYSTEMS, MATERIALS, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER.										a. MULTI-BLADE DEVICE WITH BLADES ALIGNED IN SHORT DIMENSION; STEEL CONSTRUCTION; WITH INDIVIDUALLY ADJUSTABLE BLADES, MOUNTING STRAPS. SIMILAR TO TITUS MODELS AG–45 OR AG225. b. MANUFACTURED TURNING VANES: PROVIDE TURNING VANES CONSTRUCTED OF 1–1/2" WIDE CURVED BLADES SET AT 3/4" O.C., SUPPORTED WITH BARS PERPENDICULAR TO THE BLADES SET 2" O.C. AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK. c. MANUFACTURED ACOUSTIC TURNING VANES: PROVIDE ACOUSTIC TURNING VANES CONSTRUCTED OF AIRFOIL SHAPED ALUMINUM EXTRUSIONS WITH PERFORATED FACES AND FIBERGLASS FILL.										17. DUCT INSULATION										A. IDENTIFICATION/LOCATION B. REQUIRED DRIVEN RPM C. DRIVEN SHEAVE, DIAMETER AND RPM D. BELT, SIZE AND QUANTITY E. MOTOR SHEAVE DIAMETER AND RPM F. CENTER TO CENTER DISTANCE, MAXIMUM, MINIMUM, AND ACTUAL																			
GUARANTEE PERIOD: THE OPERATION OF THE EQUIPMENT BY THE OWNER DOES NOT CONSTITUTE AN ACCEPTANCE OF THE WORK. THE WORK WILL BE ACCEPTED ONLY AFTER THE CONTRACTOR HAS PROPERLY ADJUSTED HIS EQUIPMENT, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, OPERATED IT SATISFACTORILY FOR A SUFFICIENT PERIOD OF TIME, AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES.										3. BACKDRAFT DAMPERS:										A. THERMAL INSULATION: FLEXIBLE BLANKET TYPE DUCT INSULATION WITH A FACTORY APPLIED ALUMINUM FOIL FACING REINFORCED WITH FIBERGLASS SCRIM LAMINATED TO A UL LISTED KRAFT PAPER. APPLY TO DUCTWORK WITH A 3"–4" OVERLAP, AND SECURE OVERLAP TIGHTLY WITH OUTWARD CLINCHING STAPLES. CARE SHOULD BE TAKEN TO MINIMIZE COMPRESSION DURING INSTALLATION. TEARS AND BREAKS IN FACING SHALL BE SEALED WITH A FOIL–SCRIM–DRAFT FSK BARRIER TAPE. INSULATION ON DUCTWORK MORE THAN 24" WIDE SHALL BE ADDITIONALLY SECURED ON THE BOTTOM WITH MECHANICAL FASTENERS SPACED APPROXIMATELY 18" ON CENTER. SEAL PIN PENETRATIONS WITH VAPOR BARRIER TAPE AS ABOVE. DENSITY: 1.0 LB/CUFT, "K" VALUE OF 0.27 AT 75 DEGREES F, THICKNESS: 1–1/2". MANVILLE "MICROLITE" TYPE 100, WITH FSK FACING. VSK VAPOR BARRIER TAPE. PERIMATE BY COMPACT CORPORATION, FSK PRODUCT NO. 110–7.										18. DIFFUSERS AND REGISTERS										6. DX UNIT DATA:									
THE GUARANTEE PERIOD WILL BEGIN ON THE DATE THE CONTRACTOR RECEIVES WRITTEN NOTICE OF ACCEPTANCE BY THE OWNER AND/OR ENGINEER.										a. GRAVITY BACKDRAFT DAMPERS, SIZE 18 X 18 INCHES OR SMALLER, SHALL BE FURNISHED WITH AIR MOVING EQUIPMENT: AIR MOVING EQUIPMENT MANUFACTURERS STANDARD CONSTRUCTION. b. MULTI-BLADE, PARALLEL ACTION GRAVITY BALANCED BACKDRAFT DAMPERS: FRAME SHALL BE CONSTRUCTED OF 12 GAUGE GALVANIZED STEEL, DAMPER BLADES OF 16GAUGE STEEL WITH REINFORCEMENT AND EDGE SEALS. BLADES SHALL BE INTERNALLY LINKED AND ATTACHED TO ADJUSTABLE, EXTERNAL COUNTERWEIGHTS TO PERMIT SETTING FOR VARYING DIFFERENTIAL STATIC PRESSURES. MODEL 3200 AS MANUFACTURED BY VENT PRODUCTS INC.										A. PROVIDE MANUFACTURERS STANDARD DIFFUSERS, REGISTERS AND GRILLES OF SIZE, SHAPE, MATERIALS AND PERFORMANCE AS REQUIRED BY THE APPLICABLE SERVICE AND INSTALLATION CONDITIONS. PROVIDE DIFFUSER, REGISTER, AND GRILLE STYLES THAT ARE COMPATIBLE WITH FLOOR, CEILING AND/OR WALL CONSTRUCTION. PAINT DUCTWORK VISIBLE BEHIND REGISTERS AND GRILLES MATTE BLACK. DIFFUSERS, REGISTERS AND GRILLES SHALL BE AS MANUFACTURED BY TUTTLE AND BAILEY, CARNES, TITUS.										A. IDENTIFICATION/NUMBER B. LOCATION C. SERVICE D. MANUFACTURER E. AIR FLOW, DESIGN AND ACTUAL F. ENTERING DRY BULB AND WET AIR TEMPERATURES, DESIGN AND ACTUAL G. LEAVING AIR DRY BULB AND WET BULB TEMPERATURES, DESIGN AND ACTUAL H. AIR PRESSURE DROP, DESIGN AND ACTUAL																			
GUARANTEE RESPONSIBILITY: UPON NOTICE OF THE OWNER OF FAILURE OF ANY PART OF THE GUARANTEED EQUIPMENT OR SYSTEMS DURING THE GUARANTEE PERIOD, THE AFFECTED PART OR PARTS AND DAMAGES RESULTING THEREFROM SHALL BE REPLACED OR REPAIRED PROMPTLY BY AND AT THE EXPENSE OF THE CONTRACTOR AND AT THE CONVENIENCE OF THE OWNER.										4. VOLUME CONTROL DAMPERS										C. TESTING AND BALANCING: SUBMIT TYPED REPORT CONTAINING THE FOLLOWING INFORMATION.										7. AIR MOVING EQUIPMENT:																			
5. WORK & MATERIALS										a. FABRICATE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE, AND AS INDICATED. b. SPLITTER DAMPERS:										19. BALANCING AND TESTING										A. LOCATION B. MANUFACTURER C. MODEL NUMBER D. SERIAL NUMBER E. AIR FLOW, SPECIFIED AND ACTUAL F. SUPPLY AIR FLOW, SPECIFIED AND ACTUAL G. RETURN AIR FLOW, SPECIFIED AND ACTUAL H. TOTAL STATIC PRESSURE, SPECIFIED AND ACTUAL I. EXTERNAL STATIC PRESSURE, SPECIFIED AND ACTUAL J. SHEAVE MAKE/SIZE/BORE K. NUMBER OF BELTS/MAKE/SIZE L. FAN RPM																			
PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT AS USUALLY PROVIDED, AND AS REQUIRED FOR THE DELIVERY, THE ERECTION, THE PROPER WORKING, AND THE COMPLETE FINISH OF THE WORK OF THIS CONTRACT.										1. MATERIAL: SAME GAGE AS DUCT TO 24 INCHES SIZE IN EITHER DIRECTION, AND TWO GAGES HEAVIER FOR SIZES OVER 24 INCHES. 2. BLADE: FABRICATE OF DOUBLE THICKNESS SHEET METAL TO STREAMLINE SHAPE, SECURED WITH CONTINUOUS HINGE OR ROD. 3. OPERATOR: MINIMUM 1/4 INCH DIAMETER ROD IN SELF ALIGNING, UNIVERSAL JOINT ACTION, FLANGED BUSHING WITH SET SCREW. c. SINGLE BLADE DAMPERS: FABRICATE FOR DUCT SIZES UP TO 6 X 30 INCH. d. MULTI-BLADE DAMPER: FABRICATE OF OPPOSED BLADE PATTERN WITH MAXIMUM BLADE SIZES 8 X 72 INCH. ASSEMBLE CENTER AND EDGE CRIMPED BLADES IN PRIME COATED OR GALVANIZED CHANNEL FRAME WITH SUITABLE HARDWARE. e. END BEARINGS: EXCEPT IN ROUND DUCTWORK 12 INCHES AND SMALLER, PROVIDE END BEARINGS. ON MULTIPLE BLADE DAMPERS, PROVIDE OIL–IMPREGNATED NYLON OR SINTERED BRONZE BEARINGS. f. QUADRANTS: 1. PROVIDE LOCKING, INDICATING QUADRANT REGULATORS ON SINGLE AND MULTI-BLADE DAMPERS. 2. ON INSULATED DUCTS MOUNT QUADRANT REGULATORS ON STAND–OFF MOUNTING BRACKETS, BASES, OR ADAPTERS. 3. WHERE ROD LENGTHS EXCEED 30 INCHES PROVIDE REGULATOR AT BOTH ENDS.										A. CONTRACTOR SHALL SUBMIT A DRAFT COPY OF THE TESTING AND BALANCING REPORT FOR ENGINEERS REVIEW AND COMMENT.										B. UPON COMPLETION AND BEFORE FINAL ACCEPTANCE OF WORK, TEST EACH SYSTEM IN SERVICE TO DEMONSTRATE COMPLIANCE WITH THE CONTRACT REQUIREMENTS. ADJUST CONTROLS AND BALANCE SYSTEMS PRIOR TO FINAL ACCEPTANCE OF COMPLETED SYSTEMS. TEST CONTROLS THROUGH EVERY CYCLE OF OPERATION.																			
6. SUBMITTALS										C. DUCTWORK FABRICATION:										3. REPORT FORMS: TYPE ALL DATA ENTRIES AND WRITING ON THE TEST REPORT FORMS. COMPLETED TEST REPORT FORMS FOR EACH ITEM OF EQUIPMENT SHALL BE REVIEWED, APPROVED, AND SIGNED BY THE CONTRACTOR. THE MANUFACTURER'S FIELD TEST REPRESENTATIVE SHALL ALSO REVIEW, APPROVE, AND SIGN THE REPORT OF THE MANUFACTURER'S RECOMMENDED TEST. SIGNATURES SHALL BE ACCOMPANIED BY THE PERSON'S TYPED NAME.										4. DEFICIENCY RESOLUTION: THE TEST REQUIREMENTS ARE ACCEPTABLY MET, DEFICIENCIES IDENTIFIED DURING THE TESTS CORRECTED TO COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS, AND CORRECTIONS RETESTED IN ORDER TO VERIFY COMPLIANCE.																			
PROVIDE SHOP DRAWINGS OF ALL SYSTEMS AND EQUIPMENT, UNLESS OTHERWISE SPECIFIED. THE TERM "SHOP DRAWINGS," AS USED HEREIN, SHALL MEAN ALL MANUFACTURER'S BROCHURES, CATALOG CUTS, WIRING DIAGRAMS, INSTALLATION MANUALS, SHOP FABRICATION DRAWINGS, OR ANY SUCH MATERIALS USED TO DESCRIBE THE SYSTEM OR EQUIPMENT BEING SUBMITTED FOR APPROVAL.										1. CONSTRUCT T'S, BENDS, AND ELBOWS WITH RADIUS OF NOT LESS THAN 1–1/2 TIMES WIDTH OF DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS ARE USED, PROVIDE AIR–OIL TURNING VANES. PROVIDE ACOUSTICAL AIR–FOIL TURNING VANES WHERE INDICATED ON DRAWINGS.										4. NOTICE OF TESTS: NOTIFY THE ENGINEER IN WRITING AT LEAST FIFTEEN (15) CALENDAR DAYS PRIOR TO THE TESTING. WITHIN THIRTY (30) CALENDAR DAYS AFTER ACCEPTABLE COMPLETION OF TESTING, SUBMIT EACH TEST REPORT FOR REVIEW AND APPROVAL.										1. AIR DISTRIBUTION TEST SHEET:																			
ALL DRAWINGS SHALL BE SUBMITTED SUFFICIENTLY IN ADVANCE OF FIELD REQUIREMENTS TO ALLOW REASONABLE TIME FOR CHECKING; AND NO CLAIM FOR EXTENSION OF THE CONTRACT TIME WILL BE GRANTED BY REASON OF FAILURE IN THIS RESPECT. ALL SUBMITTALS SHALL BE COMPLETE; AND SHALL CONTAIN ALL REQUIRED AND DETAILED INFORMATION.										2. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE WHEREVER POSSIBLE; MAXIMUM 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.										5. AIR SYSTEM PROCEDURE										A. AIR TERMINAL NUMBER B. ROOM NUMBER/LOCATION C. TERMINAL TYPE D. TERMINAL SIZE E. AREA FACTOR F. DESIGN MINIMUM AND MAXIMUM VELOCITY G. DESIGN AIR FLOW H. TEST (FINAL) MINIMUM AND MAXIMUM VELOCITY I. TEST (FINAL) MINIMUM AND MAXIMUM AIR FLOW J. PERCENT OF DESIGN AIR FLOW @ MAXIMUM																			
SHOP DRAWINGS SHALL BE SUBMITTED ELECTRONICALLY TO THE GREATEST EXTENT POSSIBLE. IF NOT, THEN SUBMIT FIVE COPIES OF SHOP DRAWINGS TO THE ARCHITECT. THE ARCHITECT, ENGINEER AND OWNER WILL KEEP ONE COPY EACH AND TWO COPIES WILL BE RETURNED TO THE CONTRACTOR.										3. PROVIDE STANDARD 45 DEGREE LATERAL WYE TAKEOFFS UNLESS OTHERWISE INDICATED WHERE 90 DEGREE CONICAL TEE CONNECTIONS MAY BE USED.										A. TEST AND ADJUST FAN RPM TO DESIGN REQUIREMENTS.										2. TERMINAL TYPE 3. TERMINAL SIZE 4. TERMINAL AREA 5. DESIGN VELOCITY 6. DESIGN AIR FLOW 7. TEST VELOCITY 8. TEST AIR FLOW 9. DUCT STATIC PRESSURE 10. AIR TEMPERATURE 11. AIR CORRECTION FACTOR																			
B. RECORD DRAWINGS: INCLUDE A COPY OF AS–BUILT DRAWINGS IN EACH COPY OF THE OPERATION AND MAINTENANCE MANUAL DESCRIBED IN THESE SPECIFICATIONS.										4. LONGITUDINAL SEAMS FOR RECTANGULAR DUCTWORK SHALL BE SUITABLY SELECTED FOR THE MATERIAL, PRESSURE CLASSIFICATION AND OTHER CONSTRUCTION DETAILS APPLICABLE FOR THE SERVICE. SEAMS SHALL BE FORMED AND ASSEMBLED WITH PROPER DIMENSION AND PROPORTION FOR TIGHT AND SECURE FITUP. SOLDER FOR WATERTIGHT SEAM CLOSURE SHALL CONFORM TO ASTM STANDARD B32.										B. TEST AND RECORD MOTOR FULL LOAD NAMEPLATE RATING AND ACTUAL AMPERE DRAW.										12. CHILLED WATER FOR LINAC																			
C. UPON COMPLETION OF THIS PROJECT, AND AS A CONDITION OF ACCEPTANCE, DELIVER TO THE ENGINEER, THREE COPIES OF THE OPERATIONS AND MAINTENANCE MANUAL.										5. ON ROUND DUCTWORK USE 5–PIECE ELBOWS UP TO 12" DIAMETER, AND 7–PIECE ELBOWS ON LARGER DUCTS. USE SMACNA TYPES RL–1, 4 OR 5 ON LONGITUDINAL SEAMS AND TYPES RT–1 OR 2 ON TRANSVERSE JOINTS.										C. TEST AND RECORD SYSTEM STATIC PRESSURES, FAN SUCTION AND DISCHARGE.										A. IDENTIFICATION/NUMBER B. LOCATION C. SERVICE D. CHILLER MANUFACTURER AND MODEL NUMBER, VOLTAGE E. CHILLED WATER FLOW, DESIGN AND ACTUAL AT CHILLER F. CHILLED WATER FLOW, DESIGN AND ACTUAL AT LINAC G. CHILLED WATER PRESSURE DROP, DESIGN AND ACTUAL H. ENTERING WATER TEMPERATURE, DESIGN AND ACTUAL I. LEAVING WATER TEMPERATURE, DESIGN AND ACTUAL																			
7. RECORD DRAWINGS										6. DUCTWORK SHALL BE GALVANIZED STEEL EXCEPT FOR TOILET EXHAUST WHICH SHALL BE ALUMINUM.										D. ADJUST ALL MAIN SUPPLY AND RETURN AIR DUCT TO PROPER DESIGN CFM.										11. PRESSURE DIFFERENTIAL TEST SHEET:																			
DURING THE PROGRESS OF WORK, A CAREFUL RECORD WILL BE KEPT OF ALL CHANGES WHERE THE ACTUAL INSTALLATION DIFFERS FROM THAT SHOWN ON THE DESIGN DRAWINGS.										7. DUCTWORK SYSTEM SHALL BE DESIGNED FOR A MAXIMUM VELOCITY OF 500 FEET PER MINUTE IN BRANCH DUCTS AND 800 FEET PER MINUTE IN MAIN DUCTS.										E. TEST AND ADJUST EACH DIFFUSER, GRILLE AND REGISTER. READING AND TESTS OF DIFFUSERS, GRILLES AND REGISTERS SHALL INCLUDE DESIGN VELOCITY (FPM) AND AS ADJUSTED VELOCITY, DESIGN CFM AND ADJUSTED CFM.										A. VAULT TO CONTROL ROOM: –0.015"WC																			
ON COMPLETION OF THE JOB, THE CONTRACTOR SHALL FURNISH TO THE OWNER HIS ORIGINAL TRACINGS OR REPRODUCIBLE TRANSPARENCIES OF ALL SHOP DRAWINGS. HE SHALL NOTE CHANGES FROM THE DESIGN DRAWINGS ON THE RECORD DRAWINGS. WHERE SHOP DRAWINGS ARE NOT AVAILABLE, THE CONTRACTOR SHALL PRODUCE RECORD DRAWINGS. RECORD DRAWINGS SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL. AFTER APPROVAL, THEY SHALL BECOME THE PROPERTY OF THE OWNER.										8. ALL EXTERIOR DUCTWORK SHALL BE MIN. 18 GAUGE GALVANIZED STEEL WITH DUCTMATE "45" SYSTEM CONNECTIONS BETWEEN SECTIONS.										F. TEST AND ADJUST AIR DISTRIBUTION SYSTEMS TO PROVIDE REQUIRED OR DESIGN SUPPLY, RETURN, OUTSIDE AND EXHAUST AIR QUANTITIES.										A. IDENTIFICATION/NUMBER B. LOCATION C. SERVICE D. CHILLER MANUFACTURER AND MODEL NUMBER, VOLTAGE E. CHILLED WATER FLOW, DESIGN AND ACTUAL AT CHILLER F. CHILLED WATER FLOW, DESIGN AND ACTUAL AT LINAC G. CHILLED WATER PRESSURE DROP, DESIGN AND ACTUAL H. ENTERING WATER TEMPERATURE, DESIGN AND ACTUAL I. LEAVING WATER TEMPERATURE, DESIGN AND ACTUAL																			
8. INSTRUCTION MANUALS										9. ALL DUCTWORK SHALL BE CONSTRUCTED AND SEALED TO SMANCA STANDARDS FOR MIN. 3" WC POSITIVE AND NEGATIVE.										G. MAKE AIR QUANTITY MEASUREMENTS IN DUCTS BY PITOT TUBE TRAVERSE OF ENTIRE CROSS SECTIONAL AREA OF DUCT.										12. CHILLED WATER FOR LINAC																			
INSTRUCTION MANUALS WILL CONTAIN ALL PERTINENT DATA SPECIFIC TO THE WORK. THE MANUAL SHALL BE HARD–BOUND, THREE–RING TYPE OF SUFFICIENT SIZE TO CONTAIN ALL REQUIRED DATA OR SHALL BE MULTIPLE BINDERS CONTAINING ASSOCIATED PORTIONS OF THE DATA AND LABELED ACCORDINGLY.										D. DUCTWORK INSTALLATION:										H. MEASURE AIR QUANTITIES AT AIR INLETS AND OUTLETS.										A. IDENTIFICATION/NUMBER B. LOCATION C. SERVICE D. CHILLER MANUFACTURER AND MODEL NUMBER, VOLTAGE E. CHILLED WATER FLOW, DESIGN AND ACTUAL AT CHILLER F. CHILLED WATER FLOW, DESIGN AND ACTUAL AT LINAC G. CHILLED WATER PRESSURE DROP, DESIGN AND ACTUAL H. ENTERING WATER TEMPERATURE, DESIGN AND ACTUAL I. LEAVING WATER TEMPERATURE, DESIGN AND ACTUAL																			
LABEL OUTSIDE FRONT COVER AND HEEL COVER WITH FILLED EMBOSSED LETTERS HAVING A CONTRASTING COLOR. LABEL SHALL STATE "PROJECT NAME – HEATING AND VENTILATING SYSTEMS". FURNISH THREE COPIES OF THE MANUAL TO THE ENGINEER.										1. INSTALL AND SEAL DUCTS IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE. DUCTWORK SHALL BE DESIGNED, CONSTRUCTED, SEALED AND REINFORCED AS PER SMACNA REQUIREMENTS FOR DUCTS OPERATING BETWEEN 3" W.G. AND 4" W.G. PRESSURE.										I. ADJUST DISTRIBUTION SYSTEM TO OBTAIN UNIFORM SPACE TEMPERATURES FREE FROM OBJECTIONABLE DRAFTS AND NOISE.										11. PRESSURE DIFFERENTIAL TEST SHEET:																			
THE INSTRUCTION MANUAL SHALL CONTAIN:										2. PROVIDE OPENINGS IN DUCTWORK WHERE REQUIRED TO ACCOMMODATE THERMOMETERS AND CONTROLLERS. PROVIDE PILOT TUBE OPENINGS WHERE REQUIRED FOR TESTING OF SYSTEMS, COMPLETE WITH METAL CAN WITH SPRING DEW OR SCREW TO ENSURE AGAINST AIR LEAKAGE. WHERE OPENINGS ARE PROVIDED IN INSULATED DUCTWORK, INSTALL INSULATION MATERIAL INSIDE A METAL RING.										J. USE VOLUME CONTROL DEVICES TO REGULATE AIR QUANTITIES ONLY TO EXTEND THAT ADJUSTMENTS DO NOT CREATE OBJECTIONABLE AIR MOTION OR SOUND LEVELS. EFFECT VOLUME CONTROL BY DUCT INTERNAL DEVICES SUCH AS DAMPERS AND SPLITTERS.										A. VAULT TO CONTROL ROOM: –0.015"WC																			
– INSTALLATION, MAINTENANCE, OPERATING INSTRUCTIONS AND FULL CATALOG DESCRIPTION INCLUDING EXPLODED PARTS DRAWINGS OF ALL EQUIPMENT.										3. DUCTS SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE BY THE USE OF INSERTS, BEAM CLAMPS, EXPANSION BOLTS AS APPROPRIATE. DUCTS SHALL HAVE HANGERS AT EACH JOINT. CARE SHALL BE TAKEN TO COOPERATE WITH OTHER TRADES SO AS TO UTILIZE SPACE CONDITIONS IN AS EFFICIENT A MANNER AS POSSIBLE.										K. ADJUST SYSTEM TO PROVIDE THE SPECIFIED PRESSURE DIFFERENTIALS AND MINIMUM AIR CHANGES.										A. IDENTIFICATION/NUMBER B. LOCATION C. SERVICE D. CHILLER MANUFACTURER AND MODEL NUMBER, VOLTAGE E. CHILLED WATER FLOW, DESIGN AND ACTUAL AT CHILLER F. CHILLED WATER FLOW, DESIGN AND ACTUAL AT LINAC G. CHILLED WATER PRESSURE DROP, DESIGN AND ACTUAL H. ENTERING WATER TEMPERATURE, DESIGN AND ACTUAL I. LEAVING WATER TEMPERATURE, DESIGN AND ACTUAL																			
– ALL WIRING DIAGRAMS. – AS–BUILT DRAWINGS – CONTROL DESCRIPTION AND DIAGRAMS. – EMERGENCY PHONE NUMBERS FOR SERVICE FOR ALL EQUIPMENT. – LIST OF ALL SUPPLIERS AND SUBCONTRACTORS INCLUDING ADDRESSES, RESPONSIBLE PERSONNEL AND PHONE NUMBERS. – ALL GUARANTEES.										4. FOR DUCTS NOT EXCEEDING TWO (2) SQUARE FEET IN CROSS–SECTIONAL AREA, HANGERS SHALL BE METAL NOT LESS THAN ONE SIXTEENTH (1/16") INCH IN THICKNESS. FOR LARGER DUCTS, HANGERS SHALL BE METAL NOT LESS THAN ONE INCH WIDE BY ONE–EIGHTH INCH THICK, OR THE EQUIVALENT AREA. HANGERS SHALL BE FASTENED TO THE SIDES OF THE DUCTS. FOR DUCTS OVER 48 INCHES WIDE, THE HANGERS SHALL BE BROUGHT DOWN THE SIDES AND TURNED UNDER AND FASTENED TO BOTTOM AS WELL (REFER TO APPLICABLE SMACNA STANDARDS).										L. PROVIDE SYSTEM SCHEMATIC WITH REQUIRED AND ACTUAL AIR QUANTITIES AND PRESSURE DIFFERENTIALS RECORDED AT EACH OUTLET, INLET, ROOM, ETC.										12. CHILLED WATER FOR LINAC																			
9. TRAINING										5. WHERE VIBRATION OCCURS IN DUCTWORK WHILE THE SYSTEM IS IN OPERATION, THE CONTRACTOR SHALL PROVIDE SUCH ADDITIONAL STIFFENING MEMBERS AS ARE NECESSARY TO OVERCOME THE VIBRATION. ALL DUCTWORK WHERE VIBRATIONS OCCUR SHALL BE ISOLATED AT POINTS OF CONTACT WITH THE BUILDING BY FELT PADS NEATLY AND SECURELY HELD IN PLACE.										A. PREPARE ITEMIZED EQUIPMENT SCHEDULES, LISTING ALL HEATING AND/OR COOLING ELEMENTS AND EQUIPMENT IN THE SYSTEMS TO BE BALANCED. LIST IN ORDER ON EQUIPMENT SCHEDULES, BY PUMP OR ZONE ACCORDING TO THE DESIGN, ALL HEATING AND/OR COOLING ELEMENTS AND ALL ZONE BALANCING VALVES OR BALANCING DEVICES. BREAK DOWN SCHEDULES INTO ZONES OR CIRCUITS, STARTING WITH THE ZONE AND ENDING WITH THE LAST ITEMS OF EQUIPMENT OR TRANSFER ELEMENT IN THE RESPECTIVE ZONE OR CIRCUIT. INCLUDE ON SCHEDULE SHEETS COLUMN TITLES LISTING THE LOCATION, TYPE OF ELEMENT OR APPARATUS, DESIGN CONDITIONS AND MEASURED CONDITIONS. PREPARE INDIVIDUAL REPORT SHEETS FOR EACH ZONE OR CIRCUIT.										11. PRESSURE DIFFERENTIAL TEST SHEET:																			
AFTER RECEIPT OF THE INSTRUCTION MANUALS BY THE OWNER, A TRAINING PERIOD WILL BE PROVIDED FOR THE OPERATING PERSONNEL. THE TRAINING PERIOD WILL PROVIDE SUFFICIENT TIME FOR THE CONTRACTOR TO DEMONSTRATE THE VARIOUS SYSTEMS OPERATIONS.										6. LIGHTING FIXTURES, CONDUIT, PIPING, CEILING CONSTRUCTION OR ANY WORK INSTALLED BY OTHER TRADES IS NOT TO BE SUSPENDED OR HUNG FROM DUCTWORK.										B. ADJUST WATER SYSTEMS TO PROVIDE REQUIRED OR DESIGN QUANTITIES.										A. IDENTIFICATION/NUMBER B. LOCATION C. SERVICE D. CHILLER MANUFACTURER AND MODEL NUMBER, VOLTAGE E. CHILLED WATER FLOW, DESIGN AND ACTUAL AT CHILLER F. CHILLED WATER FLOW, DESIGN AND ACTUAL AT LINAC G. CHILLED WATER PRESSURE DROP, DESIGN AND ACTUAL H. ENTERING WATER TEMPERATURE, DESIGN AND ACTUAL I. LEAVING WATER TEMPERATURE, DESIGN AND ACTUAL																			
10. COORDINATION OF WORK										7. PROVIDE FLEXIBLE CONNECTIONS AT THE DISCHARGE AND INLET OF EACH FAN AND WHEREVER ELSE INDICATED. THE FLEXIBLE CONNECTION SHALL BE INSTALLED SLACK AND SHALL NOT BE PAINTED. ALIGN DUCTWORK AND FANS TO EACH OTHER AND TO THE PLUMB PRIOR TO START–UP.										C. USE CALIBRATED VENTURI TUBES, ORIFICES, OR OTHER METERED FITTINGS AND PRESSURE GAGES TO DETERMINE FLOW RATE BALANCE. WHERE FLOW METERING DEVICES ARE NOT INSTALLED, BASE FLOW BALANCE ON TEMPERATURE DIFFERENCE ACROSS VARIOUS HEAT TRANSFER ELEMENTS IN THE SYSTEM.										12. CHILLED WATER FOR LINAC																			
COORDINATE REQUIREMENTS FOR INSTALLATION OF MECHANICAL WORK WHICH IS INDICATED DIAGRAMMATICALLY ON DRAWINGS. FOLLOW ROUTING SHOWN FOR DUCTS, AS CLOSELY AS PRACTICABLE. PLACE RUNS PARALLEL WITH LINE OF BUILDING. UTILIZE SPACES EFFICIENTLY TO MAXIMIZE ACCESSIBILITY FOR OTHER INSTALLATIONS, FOR MAINTENANCE, AND FOR REPAIRS.										8. THE THROAT RADIUS OF ALL ELBOWS, OFFSETS, ETC. SHALL BE EQUAL TO THE FULL WIDTH OF THE DUCT IN THE TURNING PLANE, WHERE IT IS IMPOSSIBLE TO MAINTAIN THE FULL RADIUS DUE TO SPACE LIMITATIONS. SPLITTERS SHALL BE INSTALLED IN THE TURNING PLANE. IF SPLITTERS ARE OF SUCH DESIGN AND NUMBER TO MAINTAIN THE SAME PRESSURE LOSS AT THE ELBOW OR OFFSET AS WOULD BE IN THE CASE, WHERE IT HAS A FULL RADIUS, SPLITTERS SHALL BE OF THE SAME MATERIAL AS THE DUCT IN WHICH IT IS INSTALLED.										D. ADJUST SYSTEMS TO PROVIDE SPECIFIED PRESSURE DROPS AND FLOWS THROUGH HEAT TRANSFER ELEMENTS PRIOR TO THERMAL TESTING. PERFORM BALANCING BY MEASUREMENT OF TEMPERATURE DIFFERENTIAL IN CONJUNCTION WITH AIR BALANCING.										11. PRESSURE DIFFERENTIAL TEST SHEET:																			
11. CUTTING, PATCHING & PAINTING										9. WHERE CONDITIONS PROHIBIT THE USE OF A THROAT RADIUS OF AT LEAST 4", THE ELBOW OR OFFSET SHALL HAVE A SQUARE THROAT AND HEEL, PROVIDE TURNING VANES IN ALL SQUARE THROAT ELBOWS OR OFFSETS. ALL TURNING VANES SHALL BE DOUBLE THICKNESS, AREA EQUALIZING TYPE AND SHALL BE OF THE SAME MATERIAL AS THE DUCT IN WHICH IT IS INSTALLED.										E. EFFECT SYSTEM BALANCE WITH AUTOMATIC CONTROL VALVES FULLY OPEN TO HEAT TRANSFER ELEMENTS.										12. CHILLED WATER FOR LINAC																			
ALL CUTTING AND PATCHING REQUIRED TO PERFORM WORK OF THIS CONTRACT (INCLUDING, BUT NOT LIMITED TO CORE CUTTING AND SAWCUTTING OF CONCRETE) SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR. ALL SURFACES AND FINISHES IN AREAS DISTURBED BY WORK OF THIS CONTRACT, EITHER INTENTIONALLY OR ACCIDENTALLY, SHALL BE RESTORED TO A CONDITION EQUAL OR BETTER THAN FOUND. PREPARE SURFACE AND REMOVE SURFACE FINISHES TO PROVIDE FOR PROPER INSTALLATION OF FINISHES. ALL SAWCUTTING AND/OR CORE DRILLING OF CONCRETE MUST HAVE PRIOR APPROVAL FROM THE OWNER AND DESIGN TEAM. ALL CUTTING, COREDRILLING, SAW CUTTING, ETC MUST BE SCHEDULED WITH THE OWNER TO MINIMIZE DISTURBANCES TO OPERATION OF THE FACILITY AND ITS OCCUPANTS.										10. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.										F. EFFECT ADJUSTMENT OF WATER DISTRIBUTION SYSTEMS BY MEANS OF BALANCING COCKS, VALVES, AND FITTINGS. DO NOT USE SERVICE OR SHUT–OFF VALVES FOR BALANCING UNLESS INDEXED FOR BALANCE POINT.										11. PRESSURE DIFFERENTIAL TEST SHEET:																			
12. CLEAN UP										11. USE DOUBLE NUTS AND LOCK WASHERS ON THREADED ROD SUPPORTS. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH DRAW BANDS. PLASTIC DRAW BANDS USED IN CEILING PLENUM SPACES SHALL BE LISTED, AND APPROVED BY THE ENGINEER, FOR SUCH USE.										G. CONFIRM REQUIRED CHILLED WATER FLOW RATE WITH THE LINAC MANUFACTURER.										12. CHILLED WATER FOR LINAC																			
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING UP THE DEBRIS, RUBBISH, ETC., GENERATED BY HIS OWN OPERATION. HE SHALL CLEAN UP THE PROJECT SITE PERIODICALLY AND AS DIRECTED BY THE ENGINEER.										12. DURING CONSTRUCTION PROVIDE TEMPORARY CLOSURES OF METAL OR TAPED POLYETHYLENE ON OPEN DUCTWORK TO PREVENT CONSTRUCTION DUST FROM ENTERING DUCTWORK SYSTEM.																																							
13. INSERTS & SUPPORTS										13. ALUMINUM DUCTWORK SHALL BE USED IN TOILET ROOM. SLOPE DUCT TOWARDS REGISTER.																																							
IT SHALL BE THE RESPONSIBILITY OF THE INSTALLER OF A PARTICULAR PIECE OF EQUIPMENT TO PROVIDE THE PROPER MEANS OF ANCHORING AND SUPPORT.																																																	

BASIC PIPING MATERIALS A. GENERAL: BASIC PIPING MATERIALS, ASSEMBLIES AND FACTORY FABRICATED PIPING PRODUCTS OF SIZES, TYPES, PRESSURE RATINGS, AND CAPACITIES AS REQUIRED PROVIDE PROPER SELECTION AS DETERMINED BY INSTALLER TO COMPLY WITH INSTALLATION REQUIREMENTS. PROVIDE FITTINGS OF MATERIALS WHICH ARE COMPATIBLE WITH THEIR ASSOCIATED PIPING AND CONNECTIONS. B. PIPE FITTINGS: 1. ALL FITTINGS SHALL COMPLY WITH LATEST EDITION OF ANSI STANDARDS. 2. STEEL FLANGES/FITTINGS: ANSI B16.5 3. CAST IRON THREADED FITTINGS: ANSI B16.4 C. JOINTS: 1. AMERICAN STANDARD TAPERED THREADS, FULL CUT. LUBRICANT FOR MALE THREADS OF SCREWED PIPE SHALL BE TEFLON TAPE OR NON-TOXIC THREAD SEALANT COMPOUND. THE USE OF COTTON WICKING OR CAULKING SHALL BE PROHIBITED. PIPE ENDS SHALL BE DEBURRED AND REAMED TO FULL SIZE. C. UNIONS AND FLANGES: 1. UNIONS ON STEEL PIPE: GALVANIZED, MALLEABLE, BRASS SEAT UNIONS FOR GALVANIZED PIPING AND BLACK, MALLEABLE, BRASS SEAT UNIONS FOR BLACK AND COPPER NICKEL ALLOY STEEL PIPING. RATED AT 150 PSIG OR GREATER AS REQUIRED BY PRESSURE RATING OF THE SYSTEM AND OTHER FITTINGS USED IN THE SYSTEM. 2. UNIONS FOR COPPER PIPE: BRONZE WITH SOLDERED JOINTS. 3. DIELECTRIC UNIONS: AT EACH JOINT BETWEEN STEEL OR GALVANIZED (ZINC) AND COPPER PIPING SYSTEMS. FOR FLANGE TYPE, PROVIDE INSULATING SPACERS AND WASHERS. 4. FLANGES FOR PIPE OVER 2 INCHES: FERROUS PIPING: 150 PSIG FORGED STEEL, SLIP-ON. COPPER PIPING: BRONZE. E. SOLDERING MATERIALS: 1. ALL SOLDERS SHALL MEET FEDERAL REQUIREMENTS FOR LEAD FREE SOLDERS AS PER THE FEDERAL SAFE DRINKING WATER ACT AMENDMENTS OF 1986 (PUBLIC LAW 99-339). 2. ALL SOLDERS SHALL COMPLY WITH SECTION 905.5 OF THE NEW YORK STATE EXECUTIVE VOLUME OF CODES, RULES AND REGULATIONS (NEW YORK STATE BUILDING CODE). 3. SOLDER SHALL BE TIN-ANTIMONY (ASTM B-32 GRADE 95 TA) OR OF OTHER LEAD FREE TYPE SUCH AS SILVABRITE 100 (AS MANUFACTURED BY ENGELHARD CORP.), STAY-SAFE 50 (AS MANUFACTURED BY J.W. HARRIS CO.) OR EQUAL. 15.3 PIPING A. CHILLED WATER PIPING (WITHIN BUILDING, ABOVE GRADE) 1. COPPER TUBING: ASTM B88, TYPE L, HARD DRAWN. 2. FITTINGS: ASME B16.18, CAST BRONZE, OR ASME B16.22, WROUGHT COPPER AND BRONZE. 3. JOINTS: ASTM B32, SOLDER, GRADE 95TA. B. LOW PRESSURE STEAM PIPING (15 PSIG MAXIMUM) 1. STEEL PIPE: ASTM A53, SCHEDULE 40, BLACK. a. FITTINGS: 1/2" THROUGH 2" THREADED ASTM B16.3 MALLEABLE IRON CLASS 125, 2-1/2" THROUGH 6" ASTM A234 FORGED STEEL CLASS 125. b. JOINTS: 1/2" THROUGH 2" THREADED, 2-1/2" THROUGH 6", WELDED. 2. DIELECTRIC CONNECTIONS: UNION WITH GALVANIZED OR PLATED STEEL THREADED END, COPPER SOLDER END, WATER IMPERVIOUS ISOLATION BARRIER. 15.4 VALVES A. GENERAL: VALVES AND VALVE CONSTRUCTION SHALL BE SUITABLE FOR THE PRESSURE, TEMPERATURE, AND WATER QUALITY OF THE SERVICE. ALL VALVES SHALL CONFORM TO ANSI STANDARDS. COMPLY WITH ASME B31.9 FOR BUILDING SERVICES PIPING AND ASME B31.1 FOR POWER PIPING. B. VALVES: 1. PIPE SIZE 2" AND UNDER: BRONZE BODY AND TRIM WITH SCREWED ENDS. 2. TUBE SIZE 2" AND UNDER: SOLDERED JOINT VALVES. C. OPERATORS: PROVIDE HANDWHEELS, FASTENED TO VALVE STEM, FOR VALVES OTHER THAN QUARTER-TURN. PROVIDE LEVER HANDLE FOR QUARTER-TURN VALVES, 6" AND SMALLER, OTHER THAN PLUG VALVES. PROVIDE ONE WRENCH FOR EVERY TEN (10) PLUG VALVES. D. GATE VALVES (SHUT-OFF VALVE): SCREWED - NIBCO #T-111, OR APPROVED EQUAL. E. TWO INCH AND SMALLER WITH RISING STEM, SCREWED BONNET AND INSIDE SCREW. ALL VALVES SHALL BE BACK SEATING WITH ADJUSTABLE PACKING NUT AND CAPABLE OF BEING REPACKED UNDER PRESSURE. F. BALL VALVES (SHUT-OFF VALVE 2" AND SMALLER): SCREWED - NIBCO #T-595-Y, OR APPROVED EQUAL. 1. 2" AND SMALLER THREE PIECE, BRONZE TRIM, WITH BOTTOM LOADED PRESSURE RETAINING STEMS, TEFLON SEATS, REINFORCED STEM PACKING SEALS, ADJUSTABLE STEM PACKING GLAND AND QUARTER TURN OPEN-CLOSE LEVER. G. CHECK VALVES: SCREWED - NIBCO #T-413, OR APPROVED EQUAL. 1. 2" AND SMALLER WITH RENEWABLE TEFLON OR BRONZE DISC AND BRONZE ARM SWINGING ON A BRONZE HINGE PIN. H. DRAIN VALVES AND MANUAL VENT VALVES: 1. 1/2" - 75 PSIG WORKING PRESSURE AND BELOW, 150 DEGREES F WORKING TEMPERATURE AND BELOW. CAST BRASS BODY AND HANDWHEEL WITH 3/4" HOSE CONNECTION AND INTEGRAL VACUUM BREAKER. WATTS #HB-1, OR APPROVED EQUAL. 2. OVER 1/2" - 75 PSIG WORKING PRESSURE AND ABOVE, 150 DEGREES F WORKING TEMPERATURE AND ABOVE. USE GATE VALVE. NIBCO #T-113-HC, OR APPROVED EQUAL. I. ACCEPTABLE MANUFACTURERS FOR ALL VALVES SPECIFIED ABOVE CONTINGENT UPON COMPLIANCE WITH SPECIFICATIONS: CRANE, DEZURIK, FAIRBANKS, OR OTHER APPROVED EQUAL. 15.5 PIPE INSULATION A. ACCEPTABLE MANUFACTURERS: MANVILLE CORP., OWENS-CORNING, CERTAIN-TEED OR OTHER MANUFACTURER PROVIDING EQUIVALENT PRODUCTS. B. INSULATION TYPE FS: INSULATION: FLEXIBLE, UNICELLULAR ELASTOMERIC SHEET INSULATION, FIELD FABRICATE FOR A SECURE, TIGHT FIT. SECURE WITH PROPER CONTACT CEMENT, MAKING SURE ALL JOINTS AND POSSIBLE VAPOR BARRIER LEAKS ARE ALSO SEALED. APPLY MANUFACTURER'S RECOMMENDED PAINT FOR U.V. PROTECTION FOR EXTERIOR APPLICATIONS. MANVILLE "RUBATEX", OR APPROVED EQUAL. C. INSULATION TYPE GF: RIGID FIBERGLASS ONE-PIECE PIPE INSULATION, WITH A FACTORY INSTALLED ALL PURPOSE VAPOR BARRIER JACKET OF WHITE KRAFT BONDED TO ALUMINUM FOIL, REINFORCED WITH FIBERGLASS YARN. JACKET SHALL BE FURNISHED WITH A PRESSURE SENSITIVE TAPE LAP SEALING SYSTEM, WITH MATCHING PRESSURE SENSITIVE TAPE BUTT STRIPS. "K" VALUE OF 0.24 AT 75 DEGREES F. OWENS-CORNING ASI/SSL-II OR EQUAL. D. INSULATION JACKETS: ONE-PIECE MOLDED PVC VALVE AND FITTING COVERS AND SHEET MATERIAL, WHITE COLOR. MANVILLE ZESTON 2000, OR APPROVED EQUAL. 1. MINIMUM SERVICE TEMPERATURE: 0 DEGREES F. 2. MAXIMUM SERVICE TEMPERATURE: 150 DEGREES F. 3. MAXIMUM FLAME SPREAD: 25 OR LESS. 4. MAXIMUM SMOKE DEVELOPED: 50 OR LESS. 5. THICKNESS: 20 MIL. 6. CONNECTIONS: BRUSH ON WELDING ADHESIVE. STAINLESS STEEL: TYPE 304 (USE OUTDOORS). 1. THICKNESS: 0.018" SHEET, WITH MOISTURE BARRIER. 2. FINISH: EMBOSSED. 3. JOINING: LONGITUDINAL SLIP JOINTS AND 2 INCH LAPS. 4. FITTINGS: 0.016 INCH THICK DIE SHAPED FITTING COVERS WITH FACTORY ATTACHED PROTECTIVE LINER. 5. METAL JACKET BANDS: 3/8 INCH WIDE; 0.010 INCH THICK STAINLESS STEEL. E. INSULATION IS TO BE PROVIDED ON ALL CONDENSATE DRAIN AND CHILLED WATER PIPING. INSULATION COMPONENTS (INSULATION, JACKETS, ADHESIVES, CEMENTS, COATINGS, ETC.) SHALL HAVE A COMPOSITE FIRE AND SMOKE HAZARD RATING NOT TO EXCEED 25 FOR FLAME SPREAD, 50 FOR SMOKE DEVELOPED. F. FOR EXTERIOR APPLICATIONS, PROVIDE VAPOR BARRIER JACKET. INSULATE FITTINGS, JOINTS, AND VALVES WITH INSULATION OF LIKE MATERIAL AND THICKNESS AS ADJOINING PIPE, AND FINISH WITH GLASS MESH REINFORCED VAPOR BARRIER CEMENT. MINIMUM INSULATION THICKNESS FOR EXTERIOR PIPING SHALL BE 2 INCHES. COVER WITH STAINLESS STEEL JACKET WITH SEAMS LOCATED ON BOTTOM SIDE OF HORIZONTAL PIPING. 1. BUTT STRIPS LINED WITH SEALING COMPOUND SHALL PROVIDE THE CIRCUMFERENTIAL, WEATHERPROOF JOINT SEAL. SNAP STRAPS SHALL BE SECURED WITH A 3/8" WIDE STAINLESS STEEL BAND APPLIED WITH A BONDING AGENT. 2. PRIOR TO APPLYING THE STAINLESS STEEL JACKET, THE PIPING INSULATION SHALL BE WATERPROOFED BY COMPLETELY COATING IT WITH A PRODUCT SUCH AS "INSULKOTE" AS MANUFACTURED BY SCHULLER, OR APPROVED EQUAL. BEFORE APPLYING THE COATING, INSULKOTE PRIMER, OR OTHER PRIMER RECOMMENDED BY THE MANUFACTURER, MUST BE APPLIED. ADDITIONALLY, AN OPEN MESH GLASS CLOTH, TIGHTLY STRETCHED, SHALL BE INSTALLED OVER THE INSULATION PRIOR TO APPLYING THE COATING. APPLY THE COATING TO A TOTAL THICKNESS OF 1/4", IN TWO COATS. THE FIRST COAT SHALL BE 1/8" THICK, OR SLIGHTLY LESS, BUT SHALL COMPLETELY COVER THE MESH. THE FINAL COAT MUST BE APPLIED WHILE THE FIRST COAT IS STILL TACKY AND SLIGHTLY WET TO THE TOUCH. WHEN FINISHED, ALL MESH MUST BE COMPLETELY COVERED. FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR APPLICATION AND INSTALLATION OF THE WEATHER PROTECTIVE COATING SYSTEM.	PIPE HANGERS AND SUPPORTS FURNISH AND INSTALL ALL HANGERS, GUIDES AND SUPPORTS TO PROPERLY SUPPORT AND RETAIN PIPING TO CONTROL EXPANSION, CONTRACTION, ANCHORAGE, DRAINAGE AND TO PREVENT SWAY AND VIBRATION. PIPING SHALL BE SUPPORTED AS TO NOT PLACE A STRAIN ON VALVES AND EQUIPMENT. SUSPENDED PIPING SHALL BE SUPPORTED BY ADJUSTABLE CLEVIS TYPE HANGERS. PIPING 2" IN SIZE AND SMALLER MAY BE SUPPORTED USING ADJUSTABLE BANK OR SWIVEL RING HANGERS. NO PERFORATED STRAP HANGERS WILL BE PERMITTED. TRAPEZE HANGERS MAY BE USED FOR MULTIPLE RUNS OF PIPING AND SHALL CONSIST OF A CHANNEL WITH ADJUSTABLE HANGER RODS. ALL PIPE THUS SUPPORTED SHALL HAVE INDIVIDUAL ROLLER SUPPORT. HANGER SPACING SHALL BE DETERMINED BY THE SMALLEST PIPE SUPPORTED. <table><tr><th>PIPE SIZE INCHES</th><th>MAX. SUPPORT SPACING FEET</th><th>DIAMETER INCHES</th></tr><tr><td>1/2 TO 1-1/4</td><td>6</td><td>3/8</td></tr><tr><td>1-1/2 TO 2</td><td>10</td><td>3/8</td></tr><tr><td>2-1/2 TO 3</td><td>10</td><td>1/2</td></tr><tr><td>4 TO 6</td><td>12</td><td>5/8</td></tr></table> FOR HORIZONTAL ROOF MOUNTED PIPING, PROVIDE SUPPORTS A BOTH SIDES OF EACH ELEBOW AND WHERE PIPE CHANGES DIRECTION FROM HORIZONTAL TO VERTICAL. THESE ARE IN ADDITION TO SUPPORTS SPACED AS DESCRIBED ABOVE. 19. MISCELLANEOUS HYDRONIC SPECIALTIES a. THERMOMETERS: THERMOMETER SHALL BE ADJUSTABLE ANGLE, WITH RED APPEARING MERCURY, LENS FRONT TUBE, CAST ALUMINUM CASE WITH ENAMEL FINISH, CAST ALUMINUM ADJUSTABLE JOINT WITH POSITIVE LOCKING DEVICE AS MANUFACTURED BY TAYLOR OR APPROVED EQUAL. b. STRAINERS: STRAINER TO BE SAME SIZE AS PIPING, WITH SCREWED BRASS OR IRON BODY FOR 175 PSIG WORKING PRESSURE, Y PATTERN WITH 1/32 INCH STAINLESS STEEL PERFORATED SCREEN AND VALVED BLOWOFF (CAP END OF BLOWOFF PIPE). STRAINER SHALL BE AS MANUFACTURED BY SARCO, OR EQUAL. c. AUTOMATIC AIR VENTS: PROVIDE AUTOMATIC AIR VENTS AT HIGH POINTS IN PIPING SYSTEM AND IN OTHER LOCATIONS AS INDICATED ON THE DRAWINGS, OR REQUIRED FOR PROPER OPERATION. AUTOMATIC AIR VENTS SHALL BE #67, AS MANUFACTURED BY BELL & GOSSETT, OR APPROVED EQUAL. d. FLOW METER SHALL BE DWYER MODEL HF, OR AN EQUIVALENT PRODUCT OF ANOTHER MANUFACTURER, WITH A FLOW RANGE OF 2-15 GPM. MODEL SHALL BE SELECTED FOR COMAPTIBILITY WITH WATER/PROPYLENE GLYCOL MIXTURE. PROVIDE PIPE SIZE REDUCER/INCREASER AS NECESSARY FOR INSTALLATION.	PIPE SIZE INCHES	MAX. SUPPORT SPACING FEET	DIAMETER INCHES	1/2 TO 1-1/4	6	3/8	1-1/2 TO 2	10	3/8	2-1/2 TO 3	10	1/2	4 TO 6	12	5/8	20. AUTOMATIC TEMPERATURE CONTROL DESCRIPTION OF WORK A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY FOR, AND INCIDENTAL TO, THE FURNISHING AND INSTALLATION OF AUTOMATIC TEMPERATURE CONTROL SYSTEM COMPONENTS AND ACCESSORIES NECESSARY AND/OR REQUIRED FOR THE COMPLETE EXECUTION OF WORK FOR THIS PROJECT, AS REQUIRED BY THE SCHEDULES, DRAWINGS, OPERATING SEQUENCES AND/OR AS SPECIFIED HEREIN. B. THE AUTOMATIC TEMPERATURE CONTROL SYSTEM AND ITS ASSOCIATED COMPONENTS SHALL BE FULLY COMPATIBLE WITH THE EXISTING CARRIER BUILDING MANAGEMENT SYSTEM. C. INCLUDE AS PART OF WORK OF THIS PROJECT ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR FURNISHING AND INSTALLING CONNECTIONS TO, AND INTEGRATING WITH, THE EXISTING BUILDING MANAGEMENT SYSTEM, AC-1 (LINAC VAULT AC UNIT) AND EF-1 LINAC VAULT EXHAUST FAN. THIS INCLUDES, BUT IS NOT LIMITED TO, FURNISHING AND INSTALLING POWER SUPPLIES, EXPANSION CARDS, EXPANSION PANELS, WIRING, PROGRAMMING, CONTROLS, SENSORS, CONTROLLERS, CALIBRATING AND COMMISSIONING OF CONTROLS ALONG WITH OTHER ITEMS REQUIRED TO ACCOMPLISH THIS TASK D. THE BMS CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLATION OF ALL AUTOMATIC TEMPERATURE CONTROL SYSTEM COMPONENTS AND ACCESSORIES REQUIRED TO PROVIDE THE SPECIFIED OPERATING SEQUENCES. WORK INCLUDES PROVIDING LABOR, MATERIAL AND EQUIPMENT FOR INSTALLATION OF ALL POWER AND CONTROL WIRING, SENSORS, TRANSMITTERS, THERMOSTATS, CONTROLLERS, OPERATORS, CONTROL DEVICES, SWITCHES, PANELS AND ALL OTHER ITEMS REQUIRED TO PROVIDE THE CONDITIONS, LIMITS, SAFETY CONTROLS, CYCLES AND OPERATING SEQUENCES SPECIFIED. E. THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY TO ONE ANOTHER, MEANING THAT WHAT IS CALLED FOR ON ONE IS TO BE CONSIDERED CALLED FOR IN BOTH. WHERE CONFLICTS EXIST BETWEEN THE SPECIFICATIONS AND/OR DRAWINGS, THE MORE STRINGENT REQUIREMENT SHALL APPLY. F. THE BMS CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF SITE CONDITIONS AND FOR GATHERING ALL NECESSARY FIELD DATA FOR ALL ITEMS TO BE PROVIDED UNDER THIS CONTRACT PRIOR TO SUBMITTING HIS BID. G. WHERE WORK SPECIFIED UNDER OTHER SECTIONS OF THESE SPECIFICATIONS CONNECTS TO EQUIPMENT OR SYSTEMS, WHICH IS A PART OF THIS SECTION, PROVIDE PROPER CONNECTION(S) TO SUCH EQUIPMENT INCLUDING TRADE COORDINATION. H. ADDITIONAL REQUIREMENTS: WORK UNDER THIS CONTRACT SHALL ALSO INCLUDE: 1. PROVIDING ACCESS DOORS OR OTHER APPROVED MEANS OF ACCESS THROUGH DUCTS AND/BUILDING CONSTRUCTION FOR SERVICING OF CONTROL EQUIPMENT. 2. PROVIDING ALL REQUIRED RELAYS ALONG WITH RELATED CONTROLS AND OTHER DEVICES REQUIRED TO INTERFACE EQUIPMENT WITH FIRE ALARM SYSTEM TO PROVIDE SHUTDOWN OF , ALL ROOFTOP HVAC UNITS AND EXHAUST FANS. A DRY CONTACT CLOSURE SIGNAL WILL BE PROVIDED TO INITIATE SHUTDOWN. 3. CONTROL AND POWER WIRING AS REQUIRED AND AS FOLLOWS: a) ALL CIRCUITS WHICH ARE ACTIVATED OR DEACTIVATED BY A TEMPERATURE CONTROL SYSTEM COMPONENT, SUCH AS, BUT NOT LIMITED TO, SAFETY AND/OR PROTECTIVE DEVICES, PRESSURE-ELECTRIC SWITCHES, ELECTRIC-PRESSURE SWITCHES, EQUIPMENT INTERLOCKS, ETC. b) ALL CIRCUITS WHICH ACTIVATE OR DEACTIVATE TEMPERATURE CONTROL COMPONENTS. c) ALL TEMPERATURE CONTROL PANEL WIRING TO TERMINAL STRIPS AND FROM TERMINAL STRIPS TO ALL DEVICES AND EQUIPMENT. d) ALL CONTROL WIRING TO MOTOR STARTERS OF UNITS BEING CONTROLLED BY THE AUTOMATIC TEMPERATURE CONTROL SYSTEM. e) WIRING OF ALL ELECTRO-MECHANICAL AND ELECTRONIC DEVICES REQUIRED TO PROVIDE THE REQUIRED OPERATING SEQUENCE OR FUNCTION. f) WIRING OF ALL DEVICES ASSOCIATED WITH THE AUTOMATIC TEMPERATURE CONTROL SYSTEM, UNLESS OTHERWISE NOTED. g) 120 VAC POWER WIRING TO CONTROL CIRCUITS. THE ATC CONTRACTOR SHALL UTILIZE A LICENSED ELECTRICIAN TO PERFORM ALL 120 VAC WIRING. INSTALLATION WIRING A. UNLESS NOTED OTHERWISE, ALL ELECTRICAL WIRING (INCLUDING, BUT NOT LIMITED TO, POWER, CONTROL, DATA AND INTERLOCK WIRING) REQUIRED TO OPERATE. MONITOR, INTERCONNECT THE COMPONENTS OF THE CONTROL SYSTEM SHALL BE FURNISHED AND INSTALLED BY THE ATC CONTRACTOR. PERFORM ALL WIRING IN ACCORDANCE WITH THE REQUIREMENTS LISTED BELOW, APPLICABLE CODE REQUIREMENTS AND THE NEC. B. POWER WIRING REQUIRED FOR CONTROLLERS AND CONTROL PANELS SHALL BE FURNISHED AND INSTALLED BY THE ATC CONTRACTOR. POWER FOR THESE COMPONENTS SHALL BE DEDICATED POWER CIRCUITS FOR THE EXPRESS USE OF THE INDIVIDUAL CONTROLLER OR CONTROL PANEL. PROVIDE ALL CIRCUIT BREAKERS AND OTHER ELECTRICAL COMPONENTS REQUIRED FOR THIS DEDICATED CIRCUIT. C. ALL LINE VOLTAGE WIRING SHALL BE INSTALLED WITHIN EMT CONDUIT. CONDUIT SHALL BE ADEQUATELY SUPPORTED IN ACCORDANCE WITH LOCAL CODES AND DIVISION 16. D. ALL LOW VOLTAGE WIRING SHALL BE INSTALLED WITHIN EMT CONDUIT, EXCEPT WHEN RAN IN CEILING SPACES. LOW VOLTAGE WIRING INSTALLED IN CEILING SPACES MUST BE PLENUM RATED WIRING IN ACCORDANCE WITH LOCAL CODES. ALL WIRING IN CEILING SPACES MUST BE PROPERLY SUPPORTED TO THE BUILDING SO AS NOT TO DROOP. INSTALL WIRING AS CLOSE TO THE DECK AS POSSIBLE TO AVOID DAMAGE FROM OTHER TRADES OR MATERIALS. E. ALL CONDUIT AND WIRING SHALL BE INSTALLED IN PARALLEL LINES TO THE BUILDING STRUCTURE, CORRIDORS, AND HALLWAYS. F. COMMUNICATION WIRING SHALL BE INSTALLED USING SHIELDED CABLE. THE COMMUNICATION NETWORK WIRING SHALL BE CLEARLY MARKED WITH A SPECIFIC COLOR CODE. COMMUNICATION WIRING SHALL NOT BE INSTALLED NEAR NOISE PRODUCING EQUIPMENT, SUCH AS BALLASTS, MAGNETIC STARTERS, ETC. G. ALL ANALOG INPUTS AND ANALOG OUTPUTS SHALL BE WIRED USING SHIELDED CABLE. H. ALL DIGITAL OUTPUTS SHALL BE WIRED USING 18 GAUGE STRANDED WIRE. I. ALL WIRING IN MECHANICAL ROOMS, WALLS SHALL BE INSTALLED IN EMT CONDUIT. CONCEALED CONDUIT AND WIRING IS REQUIRED IN ALL FINISHED SPACES. EQUIPMENT A. ALL COMPONENTS SHALL BE INSTALLED IN PROTECTIVE ENCLOSURES. ALL WIRING WITHIN THE DDC ENCLOSURE SHALL BE EITHER NUMBER CODED OR COLOR CODED. BOTH THE ENCLOSURE AND THE CONTROLLER SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. DOCUMENTATION SHALL BE FIRMLY ATTACHED TO THE ENCLOSURE WITHIN A PLASTIC ENVELOPE. DOCUMENTATION SHALL STATE POINT-TO-POINT TERMINATIONS DETAIL, DESCRIPTION OF EACH INDIVIDUAL POINT, LOCATION OF POWER SOURCE FOR THE CONTROLLER AND ID NUMBER OR ADDRESS WITHIN THE NETWORK. B. ALL DDC CONTROLLERS SHALL BE MOUNTED ON WALLS WITHIN EQUIPMENT ROOMS, CUSTODIAL CLOSETS OR ELECTRICAL ROOMS. ONLY APPLICATION-SPECIFIC CONTROLLERS (ASCS) FOR VAV BOXES, HEAT PUMPS, UNIT VENTILATORS, ROOFTOP UNITS OR PACKAGE UNITS MAY BE MOUNTED ON THE EQUIPMENT. SENSING DEVICE INSTALLATION A. SPACE SENSORS/TRANSMITTERS: PROVIDE AS REQUIRED BY THE SEQUENCES AND SHOWN ON THE DRAWINGS. MOUNT AT 60 INCHES ABOVE FINISHED FLOOR. WIRE TO RESPECTIVE PUC OR ASC TO PROVIDE STAND-ALONE CONTROL. B. DUCT MOUNTED SENSORS/TRANSMITTERS: PROVIDE AS REQUIRED BY TILE SEQUENCES. AVERAGING TYPE SENSORS SHALL BE SUPPLIED FOR ALL MIXED AIR AND DISCHARGE AIR LOCATIONS. SERPENTINE ACROSS THE DUCT OPENING AT EVEN INCREMENTS AND PROVIDE PROPER FASTENING. CONTROLLED DEVICES A. DAMPERS: DAMPERS SHALL BE INSTALLED BY THE HVAC CONTRACTOR, AND ANY LINKAGE ASSEMBLY SHALL BE PERFORMED BY THE ATC CONTRACTOR. DAMPERS SHALL OPERATE SMOOTHLY THROUGHOUT THEIR ENTIRE STROKE. B. ACTUATORS: ALL ACTUATORS SHALL BE INSTALLED BY THE ATC CONTRACTOR, UNLESS SPECIFIED OTHERWISE. ALL POWER WIRING SHALL BE THE RESPONSIBILITY OF THE CONTROLS CONTRACTOR. OPERATING SEQUENCES PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY FOR, AND INCIDENTAL TO, THE FURNISHING AND INSTALLATION OF AUTOMATIC TEMPERATURE CONTROL SYSTEM COMPONENTS AND ACCESSORIES NECESSARY AND/OR REQUIRED FOR THE COMPLETE EXECUTION OF WORK FOR THIS PROJECT, AS REQUIRED BY THE SCHEDULES, DRAWINGS, OPERATING SEQUENCES AND/OR AS SPECIFIED HEREIN. HVAC-1 SEQUENCE OF OPERATION THE VAULT HVAC SYSTEM SHALL OPERATE, UNDER ITS OWN CONTROLS TO MAINTAIN THE REQUIRED SPACE TEMPERATURE (70 DEGREES F, ADJUSTABLE) IN THE LINAC VAULT. HOWEVER THE AC UNITS CONTROLS SHALL BE CONNECTED TO THE BMS IN ORDER TO ADJUST SPACE TEMPERATURE, MONITOR AND PROVIDE ALARMS FOR TEMPERATURE EXCURSIONS. PROVIDE TEMPERATURE SENSORS, ALONG WITH ALL RELATED ACCESSORIES, IN THE LINAC VAULT AS NECESSARY TO CONTROL AND MONITOR SPACE CONDITIONS, AS WELL AS ISSUE HIGH AND LOW TEMPERATURE ALARMS TO THE BMS. SMOKE DETECTOR PROVIDE DUCT MOUNTED SMOKE DETECTOR IN THE RETURN DUCT OF AC-1 WHEN SMOKE DETECTOR IS ACTIVATED, IT SHALL STOP HVAC-1 AND SEND AN ALARM THROUGH THE FIRE ALARM SYSTEM. EXHAUST FAN CONTROL: FAN SHALL OPERATE CONTINUOUSLY. EXHAUST FAN OPERATION SHALL BE MONITORED THROUGH THE BMS. IF A FAN IS SCHEDULED TO OPERATE AND FAILS TO START, OR RUN, AN ALARM SHALL BE SENT THROUGH THE BMS. RTU-1 OPERATING SEQUENCE 1. THE AC SYSTEM SHALL OPERATE CONTINUOUSLY TO MAINTAIN REQUIRED TEMPERATURE WITHIN THE LINAC VAULT. 2. SPACE TEMPERATURE SHALL BE CONTROLLED THROUGH THE UNITS INTERNAL CONTROLS AND THE WALL MOUNTED CONTROLLER FURNISHED WITH THE SYSTEM. IN ADDITION VAULT SPACE TEMPERATURE SHALL BE MONITORED AND CONTROLLED THROUGH THE BMS. 3. ALARM CONDITION AS REPORTED BY THE WALL MOUNTED CONTROLLER SHALL BE REPORTED TO THE BMS.	© 2020 SJM ASSOCIATES M.E.P. ENGINEER SJM Associates Consulting Engineers 58 Brookside Drive West Shokan, New York 12494 Ph: (845) 657-2072 Fax: (845) 657-2073	187 E. Market Street Suite 180 Rhinebeck NY 12572 845 876 8202 phone 845 876 8112 fax optimus ARCHITECTURE	<table><tr><td rowspan="2">SCALE</td><td rowspan="2">AS NOTED</td><td rowspan="2">DATE</td><td colspan="2">DRAWN BY: CHIKED. S/JM</td><td rowspan="2">PROJECT #</td><td rowspan="2">2023</td></tr><tr><td>DATE</td><td>REVISIONS</td></tr><tr><td>#</td><td>12/03/20</td><td>12/03/20</td><td>ISSUED FOR BID, PERMIT AND CONSTRUCTION</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	SCALE	AS NOTED	DATE	DRAWN BY: CHIKED. 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GENERAL ELECTRICAL WORK NOTES

(APPLICABLE TO ALL DRAWINGS)

1. PROVIDE INSTALLATION OF CONDUIT, WIRING, ALL REQUIRED ACCESSORIES, (JUNCTION BOXES, ENCLOSURES, PULL BOXES, FITTINGS, ETC.) AND CONNECTIONS AND TERMINATIONS AT ALL EQUIPMENT. THE INTENT OF THESE NOTES IS TO PROVIDE A COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEM.
2. ELECTRICAL INSTALLATION SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE, 2017 EDITION, NFPA 99 AND APPLICABLE REGULATIONS OF OTHER AUTHORITIES HAVING JURISDICTION.
3. NO WIRE SMALLER THAN #12 THWN MAY BE USED FOR ANY BRANCH CIRCUIT. IF THE SINGLE DISTANCE FROM THE PANEL TO THE FIRST OUTLET OF ANY BRANCH CIRCUIT EXCEEDS 75 FEET, THEN THE WIRE MUST BE #10 TO THE FIRST OUTLET OF EACH BRANCH CIRCUIT, OR AS NOTED. ALL CONDUCTORS MUST BE COPPER, TYPE THWN OR THHN, UNLESS OTHERWISE NOTED.
4. COORDINATE ROUGH-IN WITH SPECIFIC EQUIPMENT PROVIDED.
5. THE DRAWINGS SHOW THE GENERAL CONCEPT AND LAYOUT OF THE ELECTRICAL WORK, BUT ARE NOT INTENDED TO SHOW EVERY DETAIL, NOR THE EXACT ARRANGEMENT OF EACH FIXTURE OR ELECTRICAL CONNECTION. THE LAYOUT IS TO BE MODIFIED IN THE FIELD TO PREVENT INTERFERENCES WITH ANY BUILDING SYSTEM OR OTHER ITEM.
6. ELECTRICAL CONTRACTOR IS TO REVIEW MECHANICAL, PLUMBING, SPRINKLER AND ARCHITECTURAL DRAWINGS AND PROVIDE POWER TO EQUIPMENT THAT REQUIRES IT, WHETHER OR NOT INDICATED ON THE ELECTRICAL DRAWINGS.
7. SEAL AND FIRESTOP ALL PENETRATIONS THROUGH FIRE RATED CONSTRUCTION.
8. BALANCE ALL LOADS AS EVENLY AS POSSIBLE ON ALL FEEDERS AND PANELBOARDS. IF NECESSARY, RECONNECT BRANCH CIRCUITS AS REQUIRED TO PROVIDE PHASE BALANCE. PROVIDE TYPEWRITTEN PANEL SCHEDULE FOR ALL ELECTRICAL PANELS.
9. LOCATE ALL EQUIPMENT WHICH MUST BE SERVICED, OPERATED OR MAINTAINED IN ACCESSIBLE POSITIONS. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, PULL BOXES, SPLICE BOXES, MOTORS, DISCONNECT SWITCHES, RELAYS, ETC.
10. FURNISH AND INSTALL ALL REQUIRED SUPPORTS FOR LUMINARIES, CONDUIT, PANELS, RACKS, ETC. AND FOR ALL OTHER EQUIPMENT FURNISHED UNDER THIS CONTRACT.
11. UNLESS INDICATED OTHERWISE, PROVIDE THE COMPLETE ELECTRICAL CONNECTIONS REQUIRED FOR FINAL INSTALLATION OF EQUIPMENT SUPPLIED BY THE OWNER AND/OR OTHER TRADES. MAKE FINAL CONNECTIONS TO EQUIPMENT THAT MOVES OR VIBRATES WITH LIQUDTIGHT FLEXIBLE METAL CONDUIT.
12. DO NOT LOCATE DEVICE BOXES BACK TO BACK. LOCATE DEVICE BOXES IN ADJACENT STUD SPACES.
13. ALL BRANCH CIRCUITS SHALL HAVE A GROUNDING CONDUCTOR RUN WITH THE ENERGIZED CONDUCTORS. GROUNDING CONDUCTOR SHALL BE SIZED AS PER TABLE 250-122 OF THE NEC.
14. WIRING IN ALL AREAS IN WHICH PATIENT CARE IS PROVIDED SHALL BE PROVIDED WITH REDUNDANT GROUND PATH AS REQUIRED BY NFPA ARTICLE 517 & NFPA 99.
15. WIRING MATERIALS AND METHODS SHALL BE AS PERMITTED BY THE N.E.C..
16. ALL EMPTY CONDUITS AND RACEWAYS SHALL BE PROVIDED WITH A PULL LINE.
17. EXIT LIGHTS ARE TO BE ENERGIZED FROM THE CLOSEST CONTINUOUS (UNSWITCHED) SOURCE OF 120 VAC.
18. COORDINATE WIRING DEVICE LOCATIONS AND MOUNTING HEIGHTS WITH ARCHITECTURAL DRAWINGS, CONFIRM WITH ARCHITECT PRIOR TO INSTALLATION. PAY PARTICULAR ATTENTION TO DEVICES MOUNTED WITHIN, OR NEAR, BUILT-IN FURNITURE. THE ACTUAL LOCATIONS OF ALL DEVICE BOXES (RECEPTACLES, SWITCHES, TELCOM PORTS, DATA PORTS, ETC.) SHALL BE MARKED ON THEIR ASSOCIATED FRAMING MEMBER AND APPROVED BY THE OWNER PRIOR TO INSTALLATION.
19. ELECTRICAL CONTRACTOR SHALL VERIFY LOCATIONS AND MOUNTING HEIGHTS OF ALL TV POWER RECEPTACLES AND SIGNAL CONNECTIONS WITH OWNER BEFORE INSTALLING.

MEP GENERAL REMOVAL NOTES

1. ALL EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE SHOWN IN A SCHEMATIC, DIAGRAMMATIC, NATURE. THE DOCUMENTS DO NOT SHOW EVERY OFFSET, FITTING OR EVERY LENGTH OF PIPE OR CONDUIT. DO NOT SCALE THE DRAWINGS.
2. OTHER AREAS WITHIN BUILDING WILL BE OCCUPIED, AND IN OPERATION, DURING NEW CONSTRUCTION AND DEMOLITION WORK. SCHEDULE WORK TO MINIMIZE DISRUPTIONS TO BUILDING SERVICES. COOPERATE WITH OWNER TO MINIMIZE CONFLICTS, AND TO FACILITATE OWNER'S OPERATIONS. SCHEDULE THE WORK TO ACCOMMODATE THIS REQUIREMENT.
3. IT IS THE INTENT OF THESE DOCUMENTS THAT THE EXISTING UTILITIES (HVAC, PLUMBING, SPRINKLER AND ELECTRICAL EQUIPMENT, PIPING, SUPPORTS, ETC.), WITHIN THE DEMOLITION WORK AREA (EXCEPT AS NOTED OTHERWISE), ARE TO BE REMOVED AND PROPERLY DISPOSED. SEE ARCHITECTURAL DRAWINGS FOR EXTENT OF DEMOLITION WORK.
4. IF REMOVAL OF ANY EXISTING UTILITY WILL REQUIRE A SHUTDOWN, PROVIDE A MINIMUM OF 5 DAYS WRITTEN NOTICE TO THE OWNER AND EXISTING TENANTS PRIOR TO ANY DISRUPTIONS IN BUILDING SERVICES (PLUMBING / SPRINKLER SYSTEMS, HVAC SYSTEM, ELECTRICAL POWER, PHONE, DATA, SECURITY AND OR FIRE ALARM SYSTEMS ETC.). DO NOT DISCONNECT OR INTERRUPT ANY BUILDING SERVICE WITHOUT EXPLICIT PERMISSION FROM THE OWNER.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THE DEMOLITION PLANS, AND INCLUDE, AS WORK OF THEIR CONTRACT, ALL TEMPORARY CONNECTIONS AND CONSTRUCTION AS REQUIRED TO MAINTAIN THE INTEGRITY OF SERVICES TO THE OCCUPIED PORTIONS OF THE BUILDING.
6. THE PROJECT WILL REQUIRE MULTIPLE SHUT-DOWNS OF MEP SYSTEMS AS WELL AS MULTIPLE TEMPORARY CONNECTIONS DURING DIFFERENT TIMES/PHASES IN ORDER TO MAINTAIN OPERATION OF THE SYSTEMS TO ALL ADJACENT AND OCCUPIED AREAS AND TO PERMIT CONSTRUCTION OF THE PROPOSED WORK.

ELECTRICAL REMOVAL NOTES

1. BEFORE SUBMITTING A BID THE ELECTRICAL CONTRACTOR SHALL VISIT THE PROJECT SITE AND SHALL BECOME THOROUGHLY FAMILIAR WITH THE OBSERVABLE EXISTING CONDITIONS WHICH AFFECTS WORK OF THIS CONTRACT. NO ADDITIONAL COMPENSATION WILL BE GRANTED DUE TO EXTRA WORK MADE NECESSARY BY THE CONTRACTOR'S FAILURE TO INVESTIGATE EXISTING CONDITIONS AND NOT BECOMING FAMILIAR WITH THE NATURE OF THE PROJECT.
2. THE CONTRACTOR, AS PART OF WORK OF THIS CONTRACT, SHALL FURNISH, INSTALL AND MAINTAIN A SYSTEM OF TEMPORARY POWER AND LIGHTING FOR THE NEEDS OF ALL OTHER TRADES WORKING ON THIS PROJECT AND TO MAINTAIN POWER TO OCCUPIED AREAS.
3. ALL WIRING, CONDUIT, BOXES, ETC. THAT ARE TO BE ABANDONED IS TO BE REMOVED FROM PANELBOARDS AND, EQUIPMENT AND WHERE POSSIBLE, FROM CEILINGS AND WALLS. WIRING AND CONDUIT THAT CANNOT BE REMOVED SHALL BE CUT FLUSH, ABANDONED WIRING AND CONDUIT IN EXISTING CONSTRUCTION THAT IS TO REMAIN MAY BE LEFT IN PLACE, BUT MUST BE SAFELY TERMINATED AND RECESSED INTO THE CONSTRUCTION (I.E. WALL, CEILING, FLOOR, ETC.). REVIEW ARCHITECTURAL DRAWINGS TO BECOME FAMILIAR WITH THE LOCATIONS AND EXTENT OF REMOVALS OF BUILDING ELEMENTS.
4. MAINTAIN SERVICES TO OCCUPIED AREAS OF THE BUILDING. SERVICES SHALL INCLUDE LIGHTING, POWER, TELEPHONE / DATA SYSTEMS, SECURITY AND FIRE ALARM SYSTEMS AND EXIT LIGHTS DURING THE CONSTRUCTION CONTRACT. THE CONTRACTOR IS TO NOTIFY THE OWNER AND ENGINEER OF ANY DISRUPTION OF ABOVE SERVICES (OR ANY OTHER SERVICES NOT LISTED) 5 DAYS PRIOR TO THE DISRUPTION.
5. COORDINATE BACKFEEDING OF EXISTING CIRCUITS, FIXTURES, DEVICES AT EXISTING LOCATIONS. CONTRACTOR SHALL MAINTAIN CONTINUITY OF SERVICE TO OCCUPIED SPACES. TAG ALL EXISTING WIRING, DEVICES, FIXTURES, CIRCUITS, ETC.
6. PROVIDE FOR CONTINUITY OF EXISTING BRANCH CIRCUITS SERVING RECEPTACLES. NO MORE THAN SIX (6) RECEPTACLES TO REMAIN ON A CIRCUIT.
7. EXISTING RECEPTACLE, EQUIPMENT AND LIGHTING CIRCUITS THAT ARE TO REMAIN ARE TO BE MADE CONTINUOUS AFTER REMOVAL OR CHANGE IN THE BUILDING LAYOUT AND/OR FIXTURE. THE TOTAL WATTAGE ON SUCH REMAINING CIRCUITS SHALL NOT EXCEED 1200 WATTS, IF ON A 20 AMPERE CIRCUIT OR 800 WATTS, IF ON A 15 AMPERE CIRCUIT.
8. ALL ELECTRICAL EQUIPMENT, SUPPORTS, DEVICES, FIXTURES WIRING CONDUIT, ETC. WITHIN PROJECT AREA ARE TO BE REMOVED. PROVIDE BLANK COVERS ON ELECTRICAL BOXES THAT REMAIN, BUT ARE NOT USED.
9. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL REMOVAL WORK REQUIREMENTS.

ELECTRICAL CONTRACTOR SHALL REVIEW HVAC, PLUMBING, SPRINKLER AND OTHER TRADE CONTRACTORS WORK AND PROVIDE ELECTRICAL WORK AS REQUIRED.

THE ELECTRICAL CONTRACTOR SHALL INCLUDE, AS WORK OF THIS PROJECT, ANY AND ALL WORK REQUIRED TO MAINTAIN EXISTING SECURITY ALARM SYSTEMS, FIRE ALARM SYSTEMS, INDOOR LIGHTING, RECEPTACLE AND OTHER ELECTRICAL CIRCUITS IN ADJACENT AREAS. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND OTHER ITEMS REQUIRED TO RE-CONNECT CIRCUITS THAT HAVE BECOME DISCONNECTED DUE TO REMOVAL WORK OF THIS PROJECT.

PROVIDE ALL NECESSARY EQUIPMENT, WIRING, CIRCUIT BREAKER PANELS, CONDUIT, FITTINGS, TEMPORARY RECEPTACLES, TEMPORARY LUMINAIRES, AND RELATED ACCESSORIES, INDICATED OR REQUIRED FOR FURNISHING AND INSTALLING OF TEMPORARY TELEPHONE, LIGHTING AND POWER SYSTEMS FOR CONSTRUCTION ACTIVITIES. TAG AND IDENTIFY ALL EXISTING SERVICES, CONDUCTORS, PANELS, AND EQUIPMENT THAT IS TO REMAIN AND THAT WILL BE ENERGIZED. VERIFY THAT ABANDONED CONDUCTORS AND EQUIPMENT ARE DE-ENERGIZED. MAINTAIN TEMPORARY ELECTRICAL SYSTEM. DISCONNECT AND REMOVE TEMPORARY ELECTRIC SYSTEM AS REQUIRED BY JOB CONDITIONS.

HATCH INDICATES EXISTING DEMOLITION SPACE AND AREA TO BE RENOVATED, SEE DEMO. NOTES AND NEW WORK PLANS FOR FURTHER INFORMATION

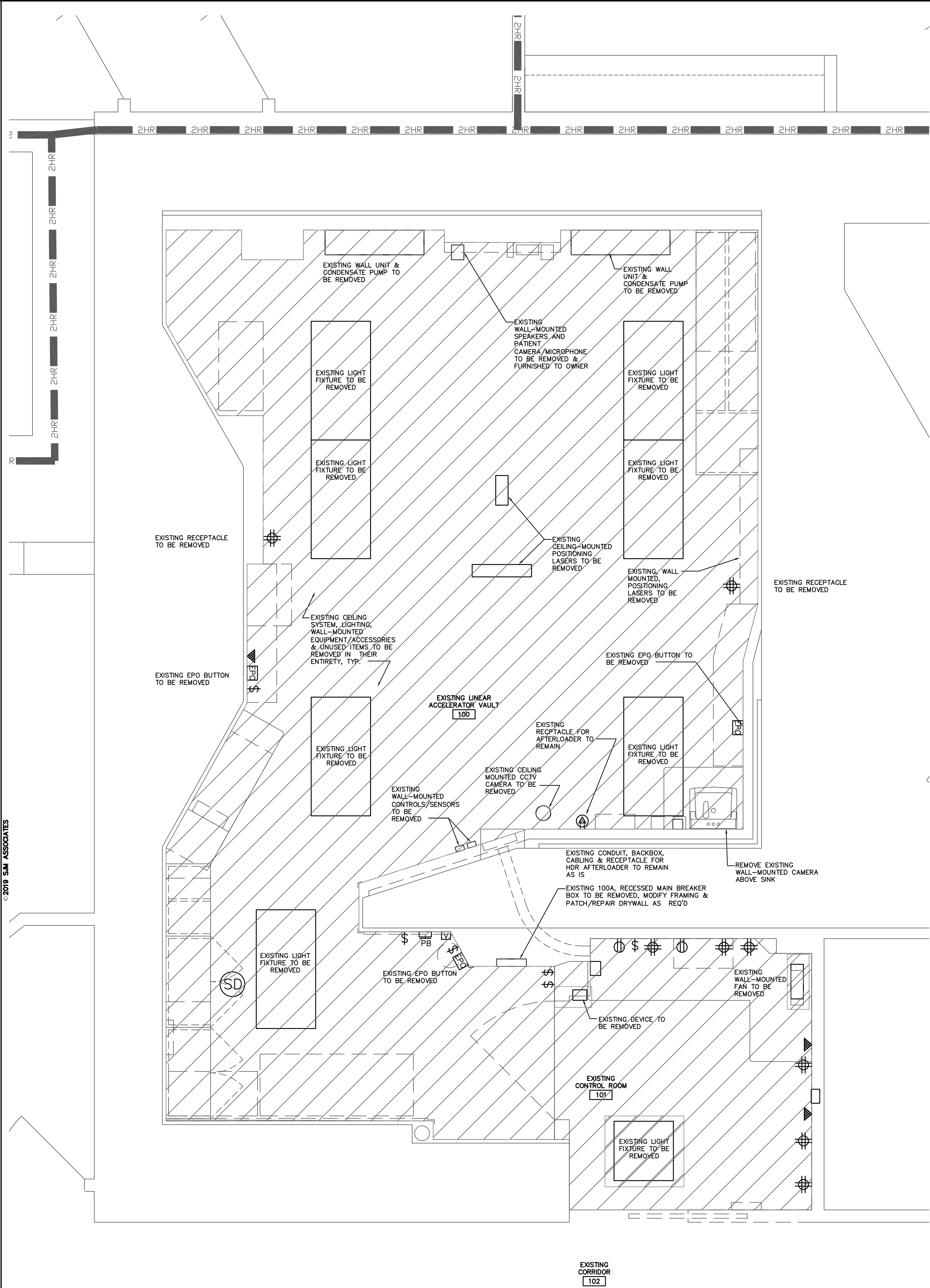
PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO REMOVE ALL ELECTRICAL EQUIPMENT, LIGHTING FIXTURES, BRANCH CIRCUIT CONDUCTS, FEEDERS, WIRING, ELECTRICAL DEVICES, DISCONNECT SWITCHES, TELEPHONE AND DATA JACKS, TELEPHONE PANELS, TELEPHONE, DATA AND OTHER CABLES, CONDUIT, CONDUCTORS, FIRE ALARM SYSTEM COMPONENTS, ALONG WITH ALL RELATED ACCESSORIES SERVING EQUIPMENT AND DEVICES LOCATED WITHIN THE EXISTING HATCHED PROJECT AREA.

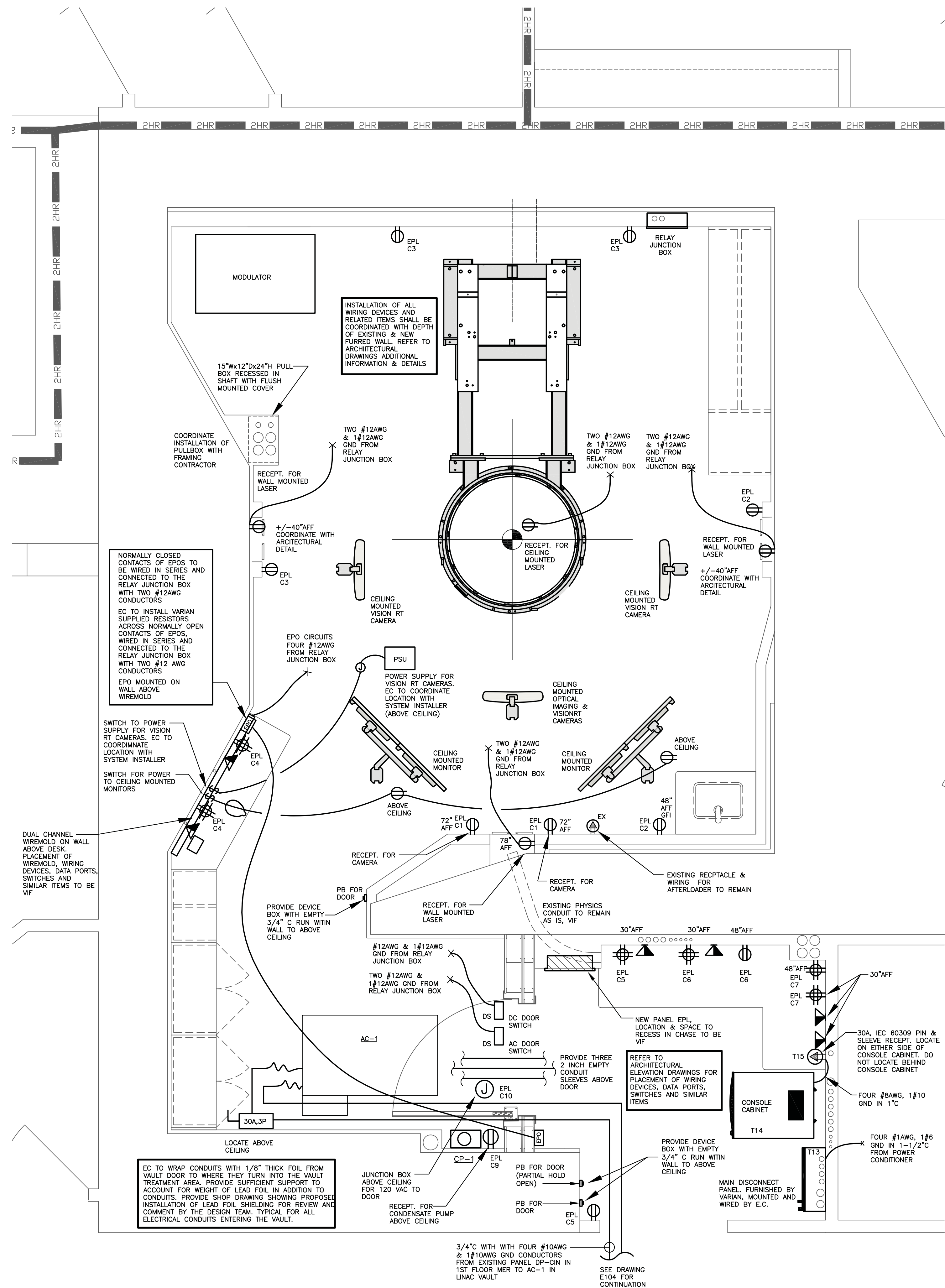
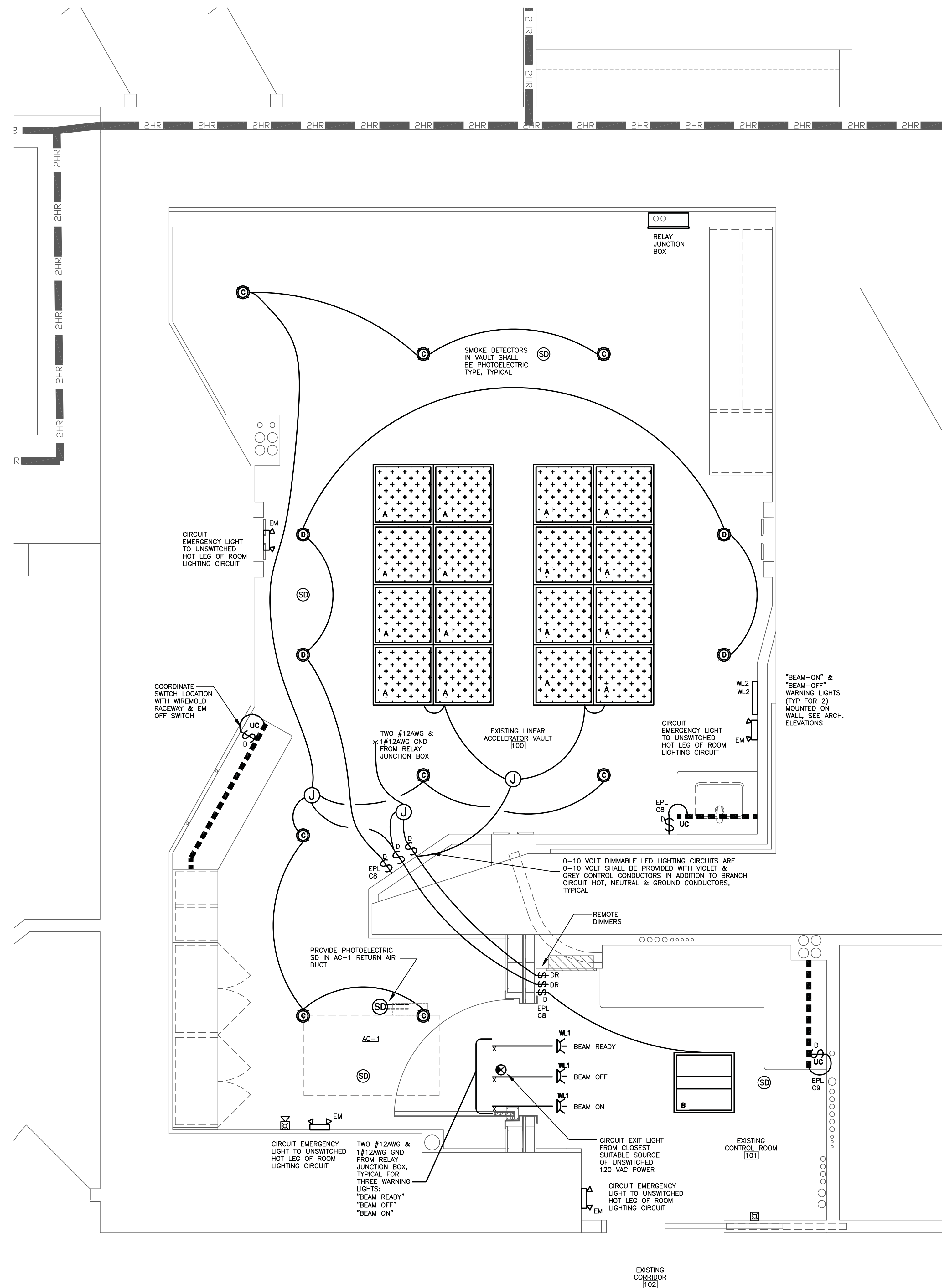
SAFELY REMOVE FEEDERS AND BRANCH CIRCUIT CONDUCTORS BACK TO THEIR SOURCE.

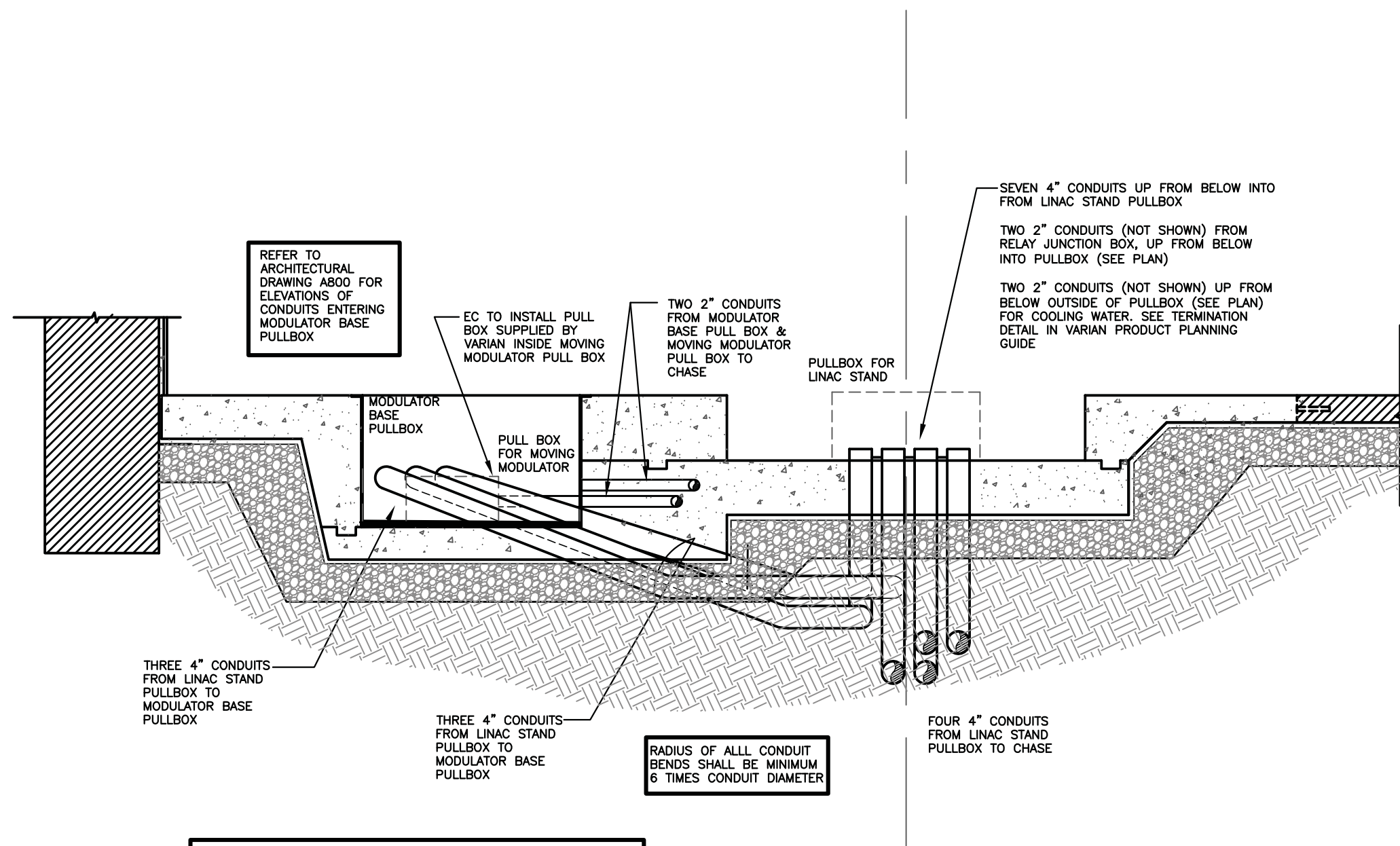
NEW FIRE ALARM SYSTEM INITIATION & NOTIFICATION DEVICES SHALL BE COMPATIBLE WITH EXISTING FIRE ALARM SYSTEM AND SHALL BE CONNECTED TO EXISTING ASSOCIATED ALARM PANEL. SEE FIRE ALARM SPECIFICATIONS FOR ADDITIONAL INFORMATION.

REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION

COORDINATE REMOVAL OF ELECTRICAL EQUIPMENT WITH BUILDING OWNER. PLAN, AND COORDINATE, ALL SHUTDOWNS WITH OWNER. DO NOT PROCEED WITHOUT DIRECTION AND PERMISSION FROM OWNER OR OWNERS REPRESENTATIVE.

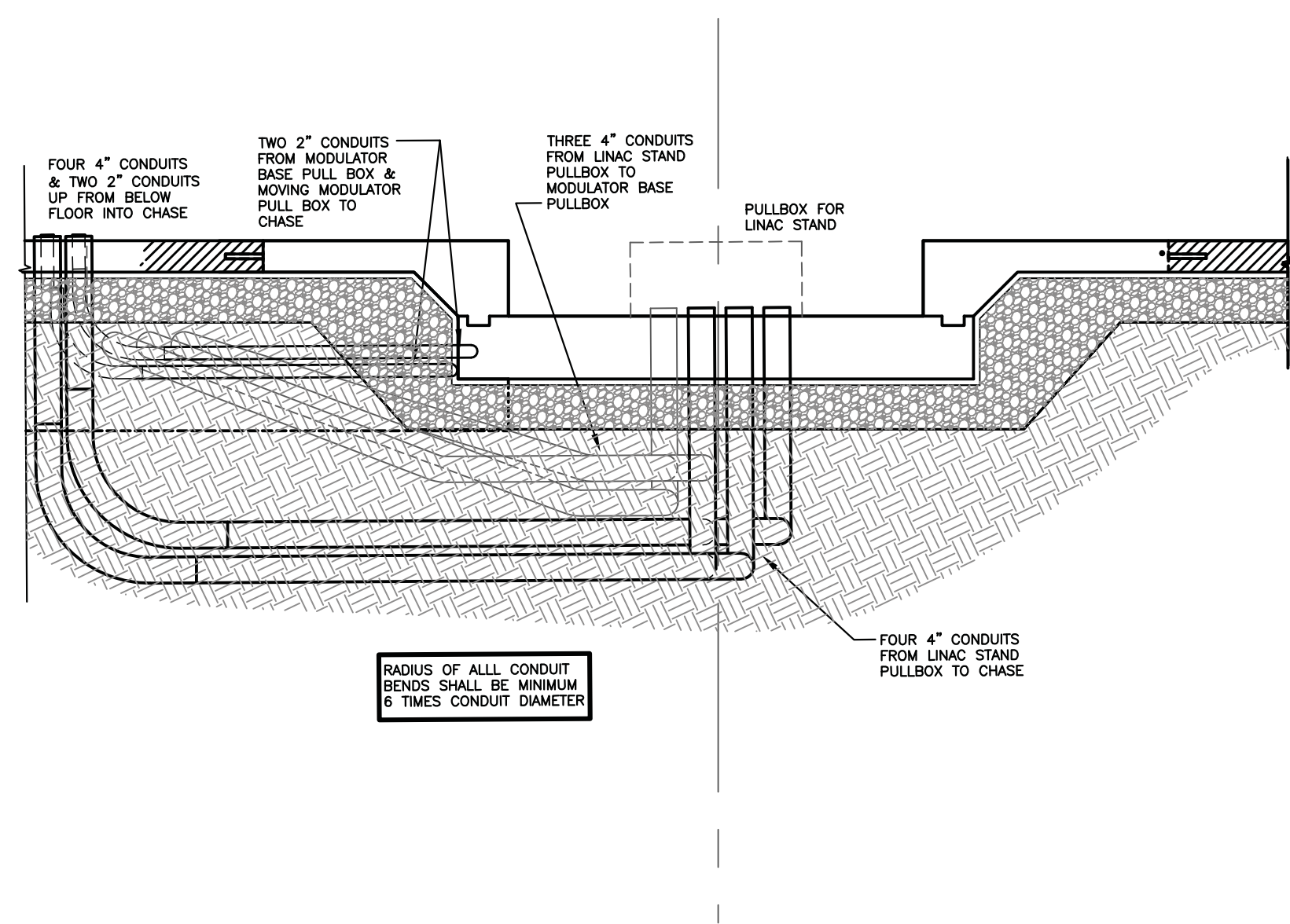




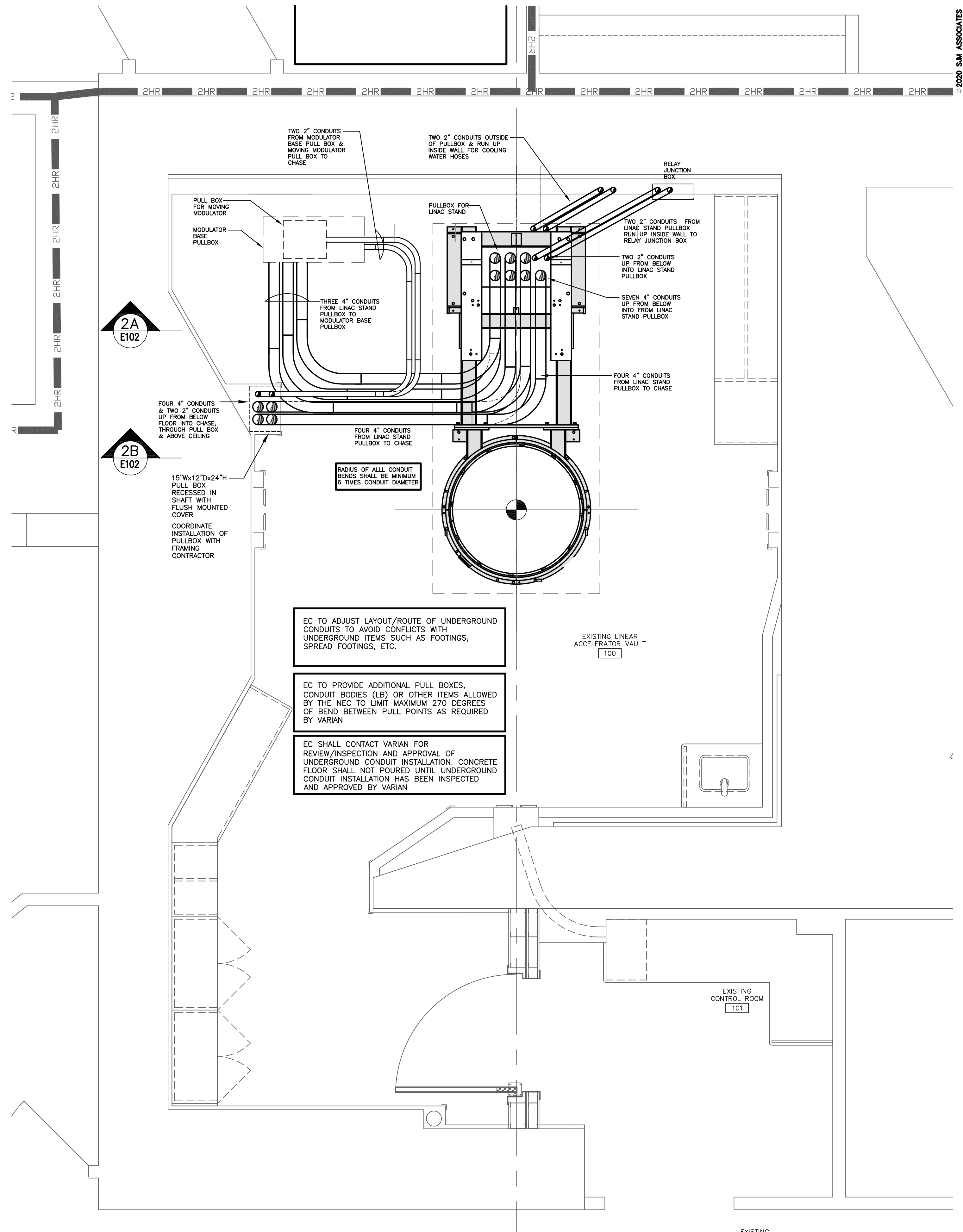


EC SHALL CONTACT VARIAN FOR REVIEW/INSPECTION AND APPROVAL OF UNDERGROUND CONDUIT INSTALLATION. CONCRETE FLOOR SHALL NOT POURED UNTIL UNDERGROUND CONDUIT INSTALLATION HAS BEEN INSPECTED AND APPROVED BY VARIAN

SECTION A



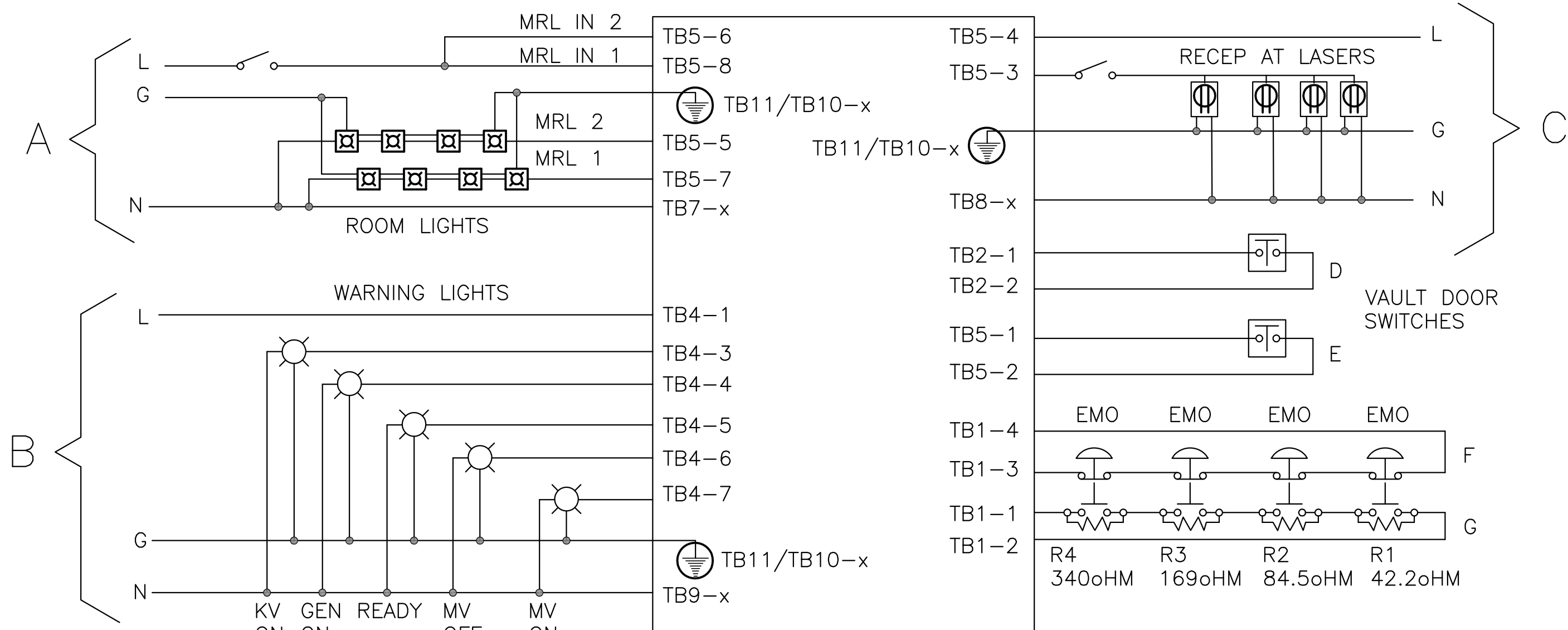
SECTION B



EC TO ADJUST LAYOUT/ROUTE OF UNDERGROUND CONDUITS TO AVOID CONFLICTS WITH UNDERGROUND ITEMS SUCH AS FOOTINGS, SPREAD FOOTINGS, ETC.

EC TO PROVIDE ADDITIONAL PULL BOXES, CONDUIT BODIES (LB) OR OTHER ITEMS ALLOWED BY THE NEC TO LIMIT MAXIMUM 270 DEGREES OF BEND BETWEEN PULL POINTS AS REQUIRED BY VARIAN

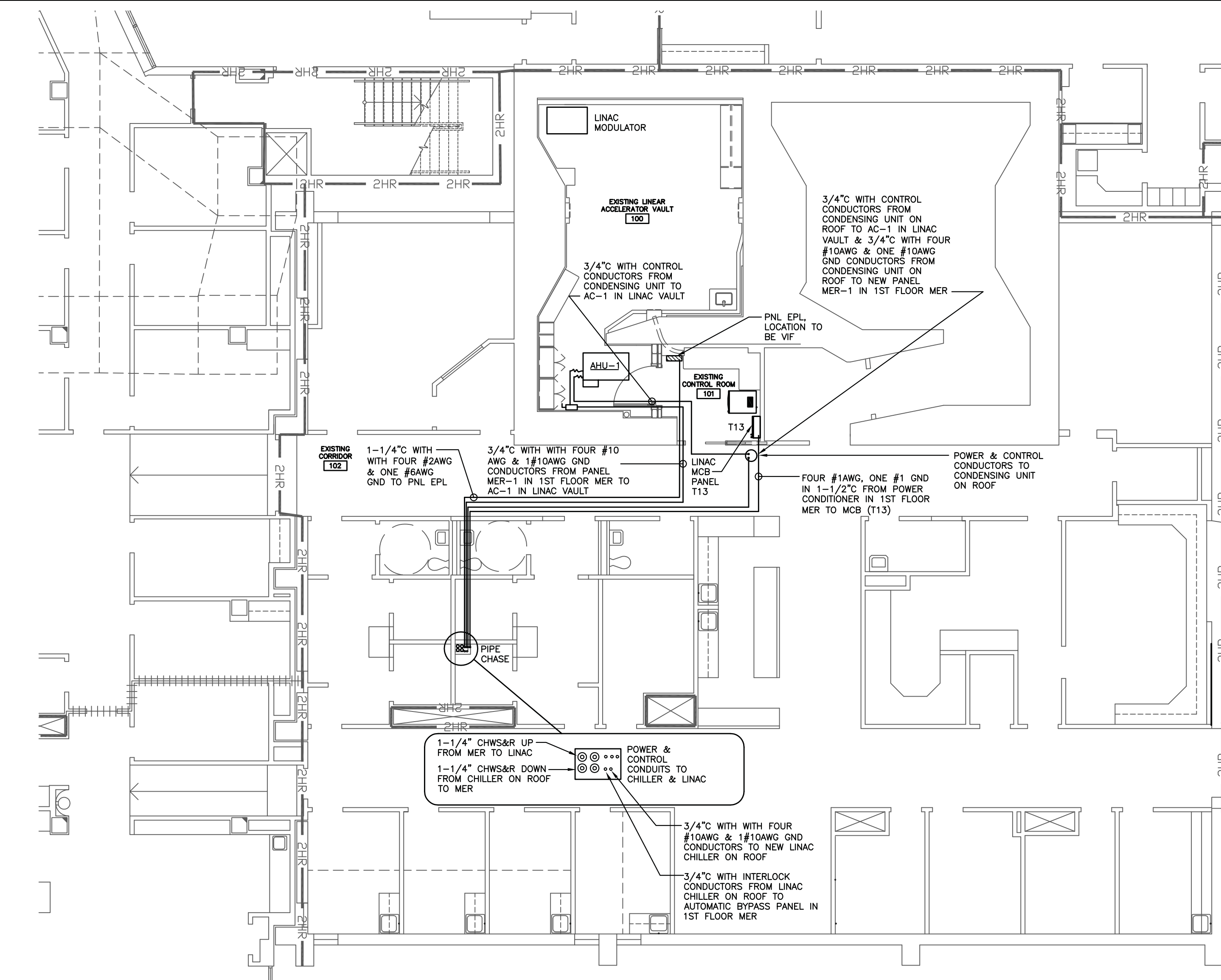
EC SHALL CONTACT VARIAN FOR REVIEW/INSPECTION AND APPROVAL OF UNDERGROUND CONDUIT INSTALLATION. CONCRETE FLOOR SHALL NOT POURED UNTIL UNDERGROUND CONDUIT INSTALLATION HAS BEEN INSPECTED AND APPROVED BY VARIAN



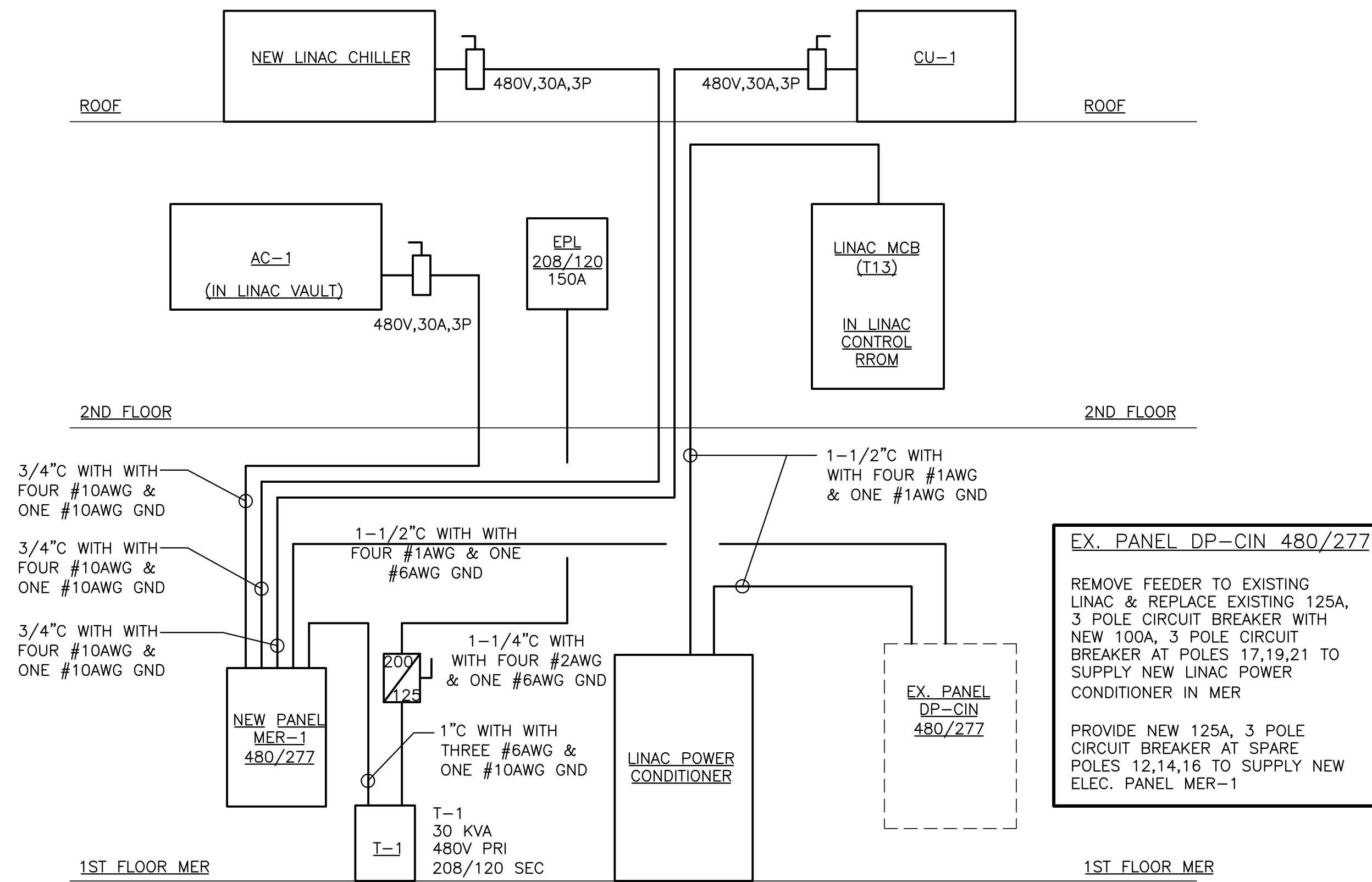
RELAY JUNCTION BOX CONNECTIONS		
A	MAIN ROOM LIGHTS	100-277 VAC (50/60Hz) 20A MAXIMUM
B	WARNING LIGHTS	100-250 VAC (50/60Hz) 10A MAXIMUM
C	LASERS POWER OUTLETS	100-250 VAC (50/60Hz) 10A MAXIMUM
D	DC DOOR INTERLOCK	24 VDC PROVIDED BY VARIAN
E	AC DOOR INTERLOCK	120 VAC PROVIDED BY VARIAN
F	EMO, "SAFETY LOOP", NORMALLY CLOSED	24 VDC PROVIDED BY VARIAN
G	EMO, "SENSOR LOOP", NORMALLY OPEN	24 VDC PROVIDED BY VARIAN

REFER TO FIGURE 3-1 "RJB CUSTOMER CONNECTIONS" AND TABLE 3-10 "RJB CONNECTIONS" IN THE VARIAN PRODUCT PLANNING GUIDE

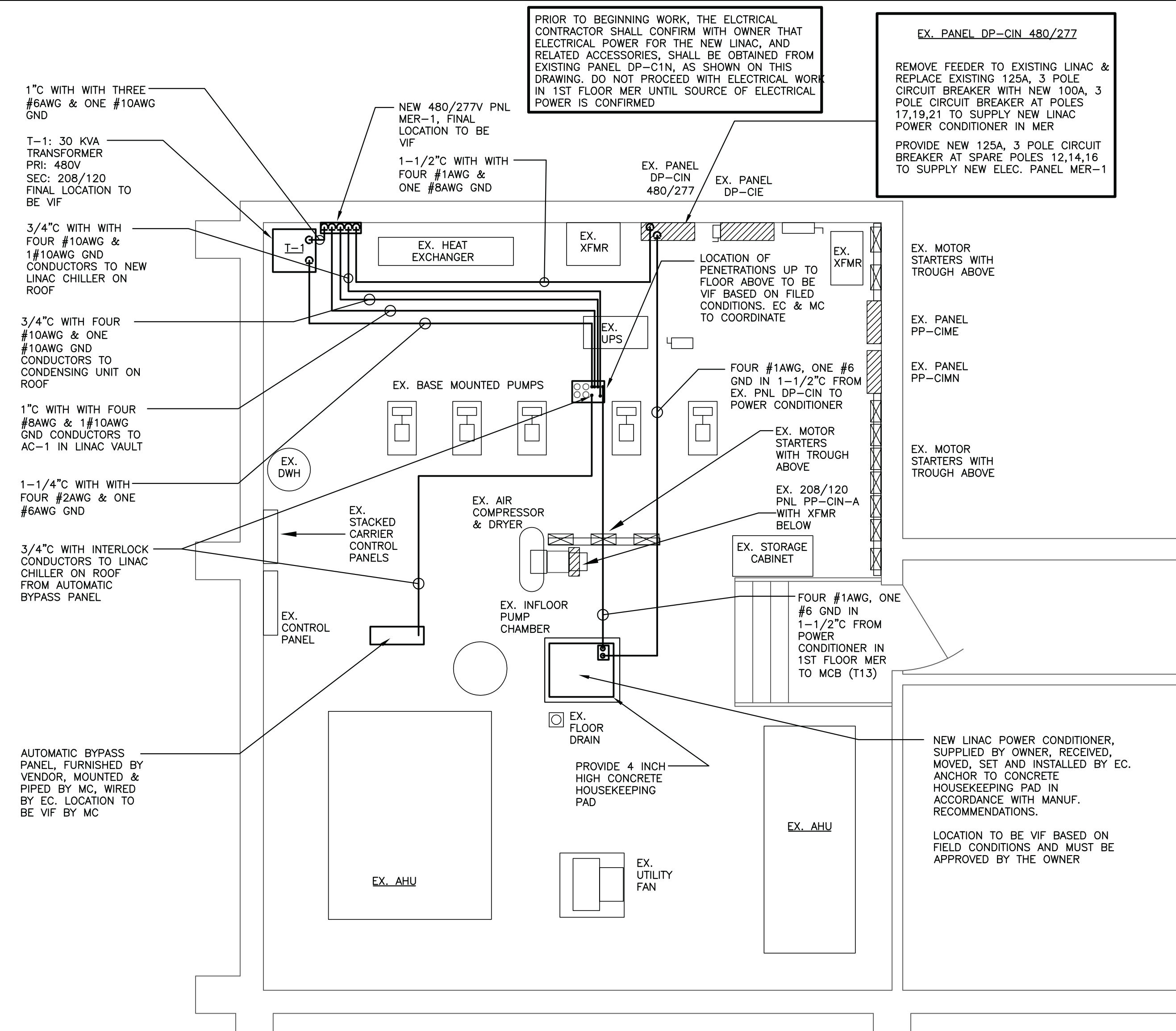
4 RELAY JUNCTION BOX (T05) WIRING DETAIL
NOT TO SCALE



2 PARTIAL FIRST FLOOR PLAN - ELECTRICAL
1/8" = 1'-0"



3 ELECTRICAL RISER DIAGRAM
NOT TO SCALE



1 PARTIAL FIRST FLOOR PLAN - MECHANICAL EQUIPMENT ROOM ELECTRICAL PLAN
1/2" = 1'-0"

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optimus
ARCHITECTURE

SCALE AS NOTED
DATE 12/03/20
REVISIONS
DATE

DRAWN BY: CHIKED. BY: SJM

PROJECT # 2023
Linear Accelerator Replacement for:
VASSAR BROTHERS MEDICAL CENTER
45 READE PLACE
POUGHKEEPSIE, NEW YORK 12601

DRAWING TITLE
PARTIAL SECOND FLOOR PLAN - NEW POWER
CONDUITS, FIRST FLOOR MER & RISER DIAGRAM

DRAWING NUMBER:
E104

Lighting Fixture Schedule								
Type	Manuf.	Model No.	Description	Mounting	Voltage	Type	Watts	Remarks
A	SKY FACTORY	EPA22-CLA	2'X2' RECESSED L.E.D. LIGHTED SCENE LUMINAIRE - LIGHTED SCENE IMAGE TO BE SELECTED BY OWNER	RECESSED	120	L.E.D.	23	SEE NOTES
B	COLUMBIA	LCAT22-35-ML-G-EDU-U	2'X4' RECESSED L.E.D. ARCHITECTURAL LUMINAIRE DIRECT/INDIRECT	RECESSED	120	L.E.D.	29	SEE NOTES
C	PRESCOLITE	LF48L-DM1-U-4,FSL20L-35K8-B24	4 INCH RECESSED LED DOWNLIGHT	RECESSED	120	L.E.D.	22.1	SEE NOTES
D	PRESCOLITE	LTR-4RA-H-30L-35K-8-WD-DM1-U-CP-LTR-4RA-T-PH-WC-WT	4 INCH RECESSED LED DOWNLIGHT	RECESSED	120	L.E.D.	35	SEE NOTES
UC	FEELUX	VSSL	DIMMABLE UNDER CABINET TASK L.E.D. LIGHTING FIXTURE. LENGTH OF FIXTURE TO MATCH CABINET LENGTH,SEE PLAN	SURFACE	120	L.E.D.	VARIES BY LENGTH	SEE NOTES
WARNING SIGN	EMERGL-LITE	WWP-PU-1-RW	DIECAST ALUMINUM WARNING SIGN, TYPICAL FOR 5 "BEAM READY", "BEAM ON", "BEAM OFF", "GENERATOR ON", "X-RAY ON"	SURFACE	120	LED		SEE NOTES
EXIT	EMERGL-LITE	PRESTIGE X40 SERIES LSNC-A-R-C, ARROWS AS REQUIRED BY LOCATION	DIE CAST ALUMINUM EDGE LIT L.E.D. EXIT SIGN WITH BATTERY BACKUP	RECESSED	120	LED		SEE NOTES
EM	SURE LIGHTS	SEL50-SD	WALL MOUNTED EMERGENCY LIGHT	SURFACE	120	LED	1.2	SEE NOTES

1. PROVIDE ALL DIMMABLE FIXTURES WHERE SHOWN ON PLANS WITH CORRESPONDING DIMMER CONTROL, COORDINATED WITH FIXTURE MANUFACTURER.

2. ALL FIXTURES ARE TO HAVE A MINIMUM COLOR RENDERING INDEX OF 80 & COLOR TEMPERATURE OF 3500K, UNLESS NOTED OTHERWISE.

3. PROVIDE HANGING BARS SUITABLE FOR MOUNTING OF RECESSED DOWN LIGHTS IN SPECIFIC CEILING TYPE..

4. PROVIDE HARDWARE & FASTENERS AS REQUIRED FOR MOUNTING OF ALL FIXTURES.

5. PROVIDE EXIT SIGNS SINGLE OR DOUBLE SIDED, WITH DIRECTIONAL ARROWS AS REQUIRED BY LOCATION.

6. ARCHITECT SHALL SELECT ALL FINISHES AND COLORS. SEND A FULL LINE OF SAMPLE COLORS.

7. "UC" UNDER CABINET LIGHTING SHALL EXTEND FULL LENGTH OF UPPER CABINET AS SHOWN ON PLANS. PROVIDE ALL ACCESSORIES RECOMMENDED OR REQUIRED BY THE MANUFACTURER, AND THE NYC ELECTRICAL CODE, FOR A COMPLETE AND FUNCTIONAL INSTALLATION. PROVIDE THE WITH THE FOLLOWING:

1. MOUNTING CLIPS

2. METAL BOX FOR HARD WIRING

8. ALL 0-10 VOLT DIMMABLE FIXTURES SHALL BE CIRCUITED WITH CONTROL CONDUCTORS (GRAY AND VIOLET) IN ADDITION TO HOT, NEUTRAL AND GROND CONDUCTORS.

Electrical Panel name: EPL									
VOLTAGE: 208 120		FEEDER: 4-#2,1#6g ,1-1/4"C		MAINS: 225		M.C.B. 125			
PHASE: 3									
CKT. #		WIRE SIZE	TRIP POLES	POLES	TRIP	WIRE SIZE	LOAD SERVED	CKT. #	
1	RECPT. FOR CAMERAS IN VAULT	2#12,1#12g	20 1	1	20	2#12,1#12g	RECPT. VAULT	2	
3	RECPT. VAULT	2#12,1#12g	20 1	1	20	2#12,1#12g	RECPT. VAULT	4	
5	RECPT.CONTROL ROOM	2#12,1#12g	20 1	1	20	2#12,1#12g	RECPT.CONTROL ROOM	6	
7	RECPT.CONTROL ROOM	2#12,1#12g	20 1	1	20	2#12,1#12g	VAULT SET-UP & UC LIGHTS	8	
9	CONDENSATE PUMP	2#12,1#12g	20 1	1	20	2#12,1#12g	VAULT DOOR	10	
11	SPARE	20 1	1	1	20	SPARE	SPARE	12	
13	SPARE	20 1	1	1	20	SPARE	SPARE	14	
15	SPARE	20 1	1	1	20	SPARE	SPARE	16	
17	SPARE	20 1	1	1	20	SPARE	SPARE	18	
19	SPARE	20 1	1	1	20	SPARE	SPARE	20	
21	SPACE			1	20	SPACE	SPACE	22	
23	SPACE			1	20	SPACE	SPACE	24	
25	SPACE					SPACE	SPACE	26	
27	SPACE					SPACE	SPACE	28	
29	SPACE					SPACE	SPACE	30	

Electrical Panel name: MER-1									
VOLTAGE: 480 277		FEEDER: FOUR #1AWG & ONE #6AWG GND ,1-1/2"C		MAINS: 225		MLO			
PHASE: 3									
CKT. #		WIRE SIZE	TRIP POLES	POLES	TRIP	WIRE SIZE	LOAD SERVED	CKT. #	
1								2	
3	LINAC CHILLER	4#10,1#10g	30 3	3	30	4#10,1#10g	LINAC VAULT AC UNIT	4	
5								6	
7								8	
9	LINAC VAULT AC CONDENSING UNIT	4#10,1#10g	20 3	3	50	3#6,1#10g	TRANSFORMER T-1	10	
11								12	
13								14	
15	SPARE		30 3	3	20		SPARE	16	
17								18	
19	SPARE	20 1	1	1	20		SPARE	20	
21	SPARE	20 1	1	1	20		SPARE	22	
23	SPARE	20 1	1	1	20		SPARE	24	
25	SPARE	20 1	1	1	20		SPARE	26	
27								28	
29								30	

ELECTRICAL LEGEND & SYMBOL LIST :

SYMBOL	DESCRIPTION
	FUSED DISCONNECT SWITCH
	DISCONNECT SWITCH
	MOTOR
	HOME RUN
	JUNCTION BOX
	DUPLEX ELECTRICAL POWER RECEPTACLE MTD 18" A.F.F.
	DUPLEX EMERGENCY POWERED RECEPTACLE MTD 18" A.F.F.
	DUPLEX RECEPTACLE MTD. AT NOTED HEIGHT A.F.F.
	GROUND FAULT PROTECTED RECEPTACLE
	WEATHERPROOF RECEPTACLE
	QUAD ELECTRICAL POWER RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE
	TELEPHONE & DATA RECEPTACLE, DOUBLE GANG BOX W/ 3/4" CONDUIT TO ABOVE CEILING
	CABLE TV RECEPTACLE, SINGLE GANG BOX W/ 3/4" CONDUIT TO ABOVE CEILING
	FRACTIONAL HP RATED STARTER
	SWITCH
	3-WAY SWITCH
	DIMMER
	REMOTE DIMMER
	ROOM OCCUPANCY SENSOR
	EXIT LIGHT
	ELECTRICAL PANEL
	A.F.F. ABOVE FINISHED FLOOR
	N.I.C. NOT IN CONTRACT
	V.I.F. VERIFY IN FIELD
	U.G. UNDERGROUND
	SMOKE DETECTOR
	FIRE PULL STATION
	STROBE
	HORN STROBE
	EPO: ALLEN-BRADLEY 800T-FX6AV OR EQUIVALENT, TWO-POLE, DRY CONTACT TYPE, MANUAL RESET. PROVIDE WITH SUITABLE NEMA 1 SURFACE MOUNTED ENCLOSURE. E.C. TO INSTALL EPO IDENTIFICATION RESISTORS (FURNISHED BY VARIAN) ACROSS SENSOR LOOP CONTACTS OF EACH EPO. PROVIDE EACH EPO WITH HINGED, DRILLED, CLEAR PLASTIC PROTECTIVE COVER.
	AC & DC DOOR SWITCHES (TYPICAL FOR 2)
	DOOR SWITCH - NORMALLY OPEN (SWITCH OPEN WHEN DOOR IS OPEN); MAGNETIC REED SWITCH, EDWARDS SERIES 60, NORMALLY OPEN, 500 Ma @ 100 VOLTS EQUIVALENT PRODUCTS OF OTHER MANUFACTURERS MAY BE USED.

ABOVE CEILING COORDINATION DRAWING

THE HVAC CONTRACTOR, PLUMBING CONTRACTOR, SPRINKLER SYSTEM CONTRACTOR, ELECTRICAL CONTRACTOR AND OTHER CONTRACTORS ARE REQUIRED TO PREPARE A COORDINATION DRAWING SHOWING INSTALLATION OF ALL EQUIPMENT, PIPING, DUCTWORK, CONDUIT, VALVES, ACCESSORIES AND OTHER ITEMS THAT WILL BE INSTALLED ABOVE THE CEILING. IF CONFLICTS (INCLUDING, BUT NOT LIMITED TO, LOCATION, CLEARANCES FOR MAINTENANCE AND/OR REPAIR, CODE REQUIRED CLEARANCES FOR EQUIPMENT, ETC.) ARE IDENTIFIED, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER, AND SHALL BE RESOLVED BEFORE INSTALLATION OF THE CONFLICTING ITEMS. IF THE COORDINATION DRAWING INDICATES CONFLICTS BETWEEN EQUIPMENT OF DIFFERING TRADES, OWNER'S EQUIPMENT, BUILDING ELEMENTS, OR ANY OTHER ITEM, AND THESE CONFLICTS ARE NOT NOTED, IDENTIFIED OR OTHERWISE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER, OR IF THEY ARE IDENTIFIED AND INSTALLED BEFORE BEING RESOLVED, ALL COSTS INVOLVED WITH CORRECTING THE CONFLICTS, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER, SHALL BE PAID BY THE AFFECTED TRADES. ADDITIONALLY, IF THERE ARE CONFLICTS BETWEEN INSTALLED ITEMS, BUILDING ELEMENTS, ETC., AND THEY ARE READILY APPARENT BY CASUAL OBSERVATION OF THE AREAS IN WHICH THE EQUIPMENT IS TO BE INSTALLED, AND/OR BY REVIEWING EQUIPMENT MANUFACTURER'S INSTALLATION REQUIREMENTS AND RECOMMENDATIONS, ALL COSTS INVOLVED WITH CORRECTING THE CONFLICTS, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER, SHALL BE PAID BY THE AFFECTED TRADES.

ADJACENT ELECTRICAL BOXES IN FIRERATED PARTITIONS

SCALE: N.T.S.

Diagram showing adjacent electrical boxes in fire-rated partitions with labels for telephone or electrical boxes, UL listed sealant, and fire-rated or smoke control partition.

ROOF PIPE SUPPORT

SCALE: N.T.S.

Diagram showing roof pipe support with C-channel as manufactured by B-Line, C-Series, including end view and side view details.

CONCRETE EQUIPMENT PAD

SCALE: N.T.S.

Diagram showing a concrete equipment pad with a 6"x6"x10 GA STEEL MESH reinforcement.

ELECTRICAL PANEL AND DEVICE DETAILS

NOT TO SCALE

Diagram showing electrical panel and device details, including a typical name plate detail and a breaker feeder nameplate.

PIPE HANGING DETAILS

SCALE: N.T.S.

Diagram showing pipe hanging details, including lower pipe hanger with threaded rod and upper pipe hanger mounting to concrete.

0 - 10 VOLT LED DIMMER LIGHTING CIRCUIT SCHEMATIC DIAGRAM

SCALE: NONE

Diagram showing a 0-10 volt LED dimmer lighting circuit schematic, including connections for hot, neutral, ground, and dimmer.

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optimus ARCHITECTURE

PROJECT # 2023

Linear Accelerator Replacement for: VASSAR BROTHERS MEDICAL CENTER 45 READE PLACE POUGHKEEPSIE, NEW YORK 12601

DRAWING TITLE ELECTRICAL DETAILS, NOTES AND SCHEDULES

DRAWING NUMBER: E200

1. SCOPE OF WORK THE WORK TO BE DONE BY THE CONTRACTOR SHALL CONSIST OF FURNISHING ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY OR REQUIRED TO PROVIDE A COMPLETE OPERATING ELECTRICAL SYSTEM, WHICH IS GENERALLY DESCRIBED HEREIN, IN THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL BE PRESUMED TO HAVE FULLY APPRAISED HIMSELF OF ALL SITE CONDITIONS PERTAINING TO THE WORK; AND WILL BE RESPONSIBLE FOR THE COMPLETION OF THE PROJECT IN THE MANNER AND WITHIN THE TIME CONTEMPLATED IN THE CONTRACT DOCUMENTS. THESE SPECIFICATIONS, TOGETHER WITH THE DRAWINGS AND CONTRACT DOCUMENTS, GENERALLY EXPLAIN THE WORK TO BE DONE. MINOR DETAILS NOT SPECIFICALLY MENTIONED IN THESE SPECIFICATIONS NOR SHOWN ON THE PLANS, BUT NECESSARY TO SECURE A WORKMANLIKE JOB AND PROPER OPERATION, SHALL BE PROVIDED BY THE CONTRACTOR. THE WORK IN GENERAL INCLUDES BUT IS NOT LIMITED TO THAT WHICH IS DESCRIBED BELOW: (A) PROVIDE ALL NECESSARY EQUIPMENT, WIRING, CONDUIT, FITTINGS, TEMPORARY RECEPTACLES, TEMPORARY LUMINAIRES, AND RELATED ACCESSORIES, INDICATED OR REQUIRED FOR FURNISHING AND INSTALLING OF TEMPORARY LIGHTING AND POWER SYSTEMS FOR CONSTRUCTION ACTIVITIES. TAG AND IDENTIFY ALL EXISTING SERVICES, CONDUCTORS, PANELS, AND EQUIPMENT THAT IS TO REMAIN AND THAT WILL BE ENERGIZED. VERIFY THAT ABANDONED CONDUCTORS AND EQUIPMENT ARE DE-ENERGIZED. MAINTAIN TEMPORARY ELECTRICAL SYSTEM. DISCONNECT AND REMOVE TEMPORARY ELECTRIC SYSTEM AS REQUIRED BY JOB CONDITIONS. (B) FURNISHING AND INSTALLATION OF WIRING AND CONNECTIONS TO NEW EQUIPMENT, LIGHTING FIXTURES, NEW PANELBOARDS, DISCONNECT SWITCHES, FEEDERS, FIRE ALARM DEVICES AND CIRCUITING TO EXISTING SYSTEM, POWER CIRCUITS, RECEPTACLES, POWER AND WIRING TO EQUIPMENT PROVIDED AND/OR FURNISHED BY OTHERS, CONDUIT, WIRING, DEVICES, SUPPORTS AND ACCESSORIES, INDICATED OR REQUIRED FOR INSTALLATION OF NEW ELECTRICAL WORK. NEW WORK SHALL PROVIDE AN OPERATING ELECTRICAL SYSTEM. (C) CUTTING AND PATCHING AS REQUIRED FOR INSTALLATION OF WORK OF THIS CONTRACT. (D) CONCRETE SAWCUTTING, COREDRILLING AND ALL OTHER ITEMS REQUIRED FOR WORK OF THIS CONTRACT. SCHEDULING AND UTILITY SHUTDOWNS A. THIS PROJECT IS BEING CONSTRUCTED WITHIN AN EXISTING, FUNCTIONING, MEDICAL FACILITY UTILIZING EXISTING SERVICES AND UTILITIES. IT IS A REQUIREMENT OF THIS CONTRACT THAT ALL SERVICE AND UTILITY DISRUPTIONS MUST BE SCHEDULED TO MINIMIZE DISRUPTIONS TO BUILDING OCCUPANTS AND FUNCTIONS. COOPERATE WITH OWNER TO MINIMIZE CONFLICT, AND TO FACILITATE OWNER'S OPERATIONS. SCHEDULE THE WORK TO ACCOMMODATE THIS REQUIREMENT. B. PROVIDE A MINIMUM OF FIVE (5) DAYS WRITTEN NOTICE PRIOR TO ANY DISRUPTIONS IN BUILDING SERVICES OR UTILITIES. DO NOT PROCEED WITH ANY SERVICE OR UTILITY SHUTDOWN WITHOUT WRITTEN PERMISSION FROM THE OWNER. ALL COSTS FOR UNOCCUPIED HOURS AND/OR WEEKEND WORK (IF ANY) SHALL BE A PART OF THE WORK UNDER THE CONTRACT AND ALL COSTS IN CONNECTION THEREWITH SHALL BE INCLUDED IN THE LUMP SUM PRICE ESTABLISHED IN THE AGREEMENT. C. SCHEDULE WORK TO ENSURE EQUIPMENT IS INSTALLED AND SYSTEMS TESTED AND CERTIFIED PRIOR TO SUBSTANTIAL COMPLETION. 2. CODES & STANDARDS ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF FEDERAL, STATE AND LOCAL AGENCIES; PUBLIC UTILITY COMPANIES AND UNDERWRITER'S LABORATORIES, AND SHALL COMPLY WITH LOCAL CODES. WHERE A CONFLICT IN CODE REQUIREMENTS IS ENCOUNTERED, THE MOST STRINGENT SHALL APPLY. A SAMPLE OF THE MORE EXPLICIT CODES FOLLOWS: - NATIONAL FIRE PROTECTION ASSOCIATION - UNDERWRITER'S LABORATORIES - N.Y.S. ELECTRICAL CODE, LATEST EDITION IN EFFECT - N.Y.S. ENERGY CONSERVATION CONSTRUCTION CODE - OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) - NEW YORK STATE BUILDING CODE 3. PERMITS THE CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED BY LOCAL AUTHORITIES. THE CONTRACTOR SHALL PAY FOR ALL PERMITS AND ALL INSPECTION FEES RELATED TO WORK OF THIS CONTRACT. THE CONTRACTOR SHALL OBTAIN AND PAY FOR A CERTIFICATE OF COMPLETED WORK FROM THE FIREMANS UNDERWRITERS. 4. SHOP DRAWINGS PROVIDE SHOP DRAWINGS OF ALL SYSTEMS AND EQUIPMENT, UNLESS OTHERWISE SPECIFIED. THE TERM "SHOP DRAWINGS," AS USED HEREIN, SHALL MEAN ALL MANUFACTURER'S BROCHURES, CATALOG CUTS, WIRING DIAGRAMS, INSTALLATION MANUALS, SHOP FABRICATION DRAWINGS, OR ANY SUCH MATERIALS USED TO DESCRIBE THE SYSTEM OR EQUIPMENT BEING SUBMITTED FOR APPROVAL. ALL DRAWINGS SHALL BE SUBMITTED SUFFICIENTLY IN ADVANCE OF FIELD REQUIREMENTS TO ALLOW REASONABLE TIME FOR CHECKING; AND NO CLAIM FOR EXTENSION OF THE CONTRACT TIME WILL BE GRANTED BY REASON OF FAILURE IN THIS RESPECT. ALL SUBMITTALS SHALL BE COMPLETE; AND SHALL CONTAIN ALL REQUIRED AND DETAILED INFORMATION. SHOP DRAWINGS SHALL BE SUBMITTED ELECTRONICALLY TO THE GREATEST EXTENT POSSIBLE. IF NOT, THEN SUBMIT FIVE COPIES OF SHOP DRAWINGS TO THE ARCHITECT. THE ARCHITECT, ENGINEER AND OWNER WILL KEEP ONE COPY EACH AND TWO COPIES WILL BE RETURNED TO THE CONTRACTOR. 5. RECORD DRAWINGS DURING THE PROGRESS OF WORK, A CAREFUL RECORD WILL BE KEPT OF ALL CHANGES WHERE THE ACTUAL INSTALLATION DIFFERS FROM THAT SHOWN ON THE DRAWINGS. ON COMPLETION OF THE JOB, THE ELECTRICAL CONTRACTOR SHALL FURNISH TO THE OWNER HIS ORIGINAL TRACINGS OR REPRODUCIBLE TRANSPARENCIES OF ALL PIPING SHOP DRAWINGS. HE SHALL NOTE ON THE AS-BUILT DRAWINGS, FURNISHED BY HIM, THE CORRESPONDING NUMBERS OF APPLICABLE SHOP DRAWINGS. WHERE SHOP DRAWINGS ARE NOT AVAILABLE, HE SHALL NEATLY INDICATE THE CHANGE ON THE AS-BUILT DRAWINGS. DRAWINGS SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL. AFTER APPROVAL, THEY SHALL BECOME THE PROPERTY OF THE OWNER. 6. GUARANTEES (1) WRITTEN GUARANTEE. THE CONTRACTOR SHALL SUBMIT A WRITTEN GUARANTEE IN TRIPPLICATE TO INCLUDE ALL SYSTEMS, MATERIALS, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE. THIS SHALL INCLUDE MANUFACTURER'S WARRANTY, FOR PARTS, FROM ALL HIS SUBCONTRACTORS AND EQUIPMENT SUPPLIERS. THIS WARRANTY SHALL APPLY TO ALL SYSTEMS AND EQUIPMENT FURNISHED AND INSTALLED UNDER THIS CONTRACT, UNLESS OTHERWISE SPECIFIED. 2) GUARANTEE PERIOD. THE OPERATION OF THE EQUIPMENT BY THE OWNER DOES NOT CONSTITUTE AN ACCEPTANCE OF THE WORK. THE WORK WILL BE ACCEPTED ONLY AFTER THE CONTRACTOR HAS PROPERLY ADJUSTED HIS EQUIPMENT, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, OPERATED IT SATISFACTORILY FOR A SUFFICIENT PERIOD OF TIME, AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES. THE GUARANTEE PERIOD WILL BEGIN ON THE DATE THE CONTRACTOR RECEIVES WRITTEN NOTICE OF ACCEPTANCE BY THE OWNER AND/OR ENGINEER. (3) GUARANTEE RESPONSIBILITY. UPON NOTICE OF THE OWNER OF FAILURE OF ANY PART OF THE GUARANTEED EQUIPMENT OR SYSTEMS DURING THE GUARANTEE PERIOD, THE AFFECTED PART OR PARTS AND DAMAGES RESULTING THEREFROM SHALL BE REPLACED OR REPAIRED PROMPTLY BY AND AT THE EXPENSE OF THE CONTRACTOR AND AT THE CONVENIENCE OF THE OWNER.	7. WORK & MATERIALS PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT AS HEREINAFTER SPECIFIED, AS SHOWN ON THE ACCOMPANYING DRAWINGS, AS REASONABLY IMPLIED AS USUALLY PROVIDED, AND AS REQUIRED FOR THE DELIVERY, THE ERECTION, THE PROPER WORKING, AND THE COMPLETE FINISH OF THE WORK OF THIS CONTRACT. IT IS THE INTENT OF THE PLANS AND SPECIFICATIONS TO PROVIDE ALTERATIONS AND NEW CONSTRUCTION AND IN THE DRAWINGS AND IN THE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS IN EVERY RESPECT, CAPABLE OF OPERATING AS DESIGNED. IT IS NOT INTENDED THAT EVERY FITTING, MINOR DETAIL OR FEATURE BE SHOWN ON THE DRAWINGS; AND THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DETAIL NECESSARY FORE COMPLETION OF THESE SYSTEMS IN ACCORDANCE WITH GOOD PRACTICE. THE CONTRACTOR MUST PROVIDE POWER, CONDUIT, WIRE, CONNECTIONS TO THE MAIN TERMINAL CONNECTION OF EQUIPMENT. DISCONNECT SWITCHES AHEAD OF THESE MAIN TERMINAL CONNECTIONS MUST BE PROVIDED BY THE EC (OR OTHER MEANS PERMITTED BY THE NEC). DISCONNECT SWITCHES MUST BE OF SIZE AND TYPE (FUSED, RAINLIGHT, ETC.) FOR THE APPLICATION INTENDED. 8. PRODUCT HANDLING USE ALL MEANS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE, DURING AND AFTER INSTALLATION AND TO PROTECT THE WORK AND MATERIALS OF ALL OTHER TRADES. IN THE EVENT OF DAMAGE, IMMEDIATELY MAKE ALL REPAIRS AND REPLACEMENTS NECESSARY TO THE APPROVAL OF THE ENGINEER AND AT NO ADDITIONAL COST TO THE OWNER. 9. PREPARATION COORDINATE INSTALLATION OF ELECTRICAL ITEMS WITH THE SCHEDULES FOR OTHER WORK TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK. WHERE LIGHTING FIXTURES AND OTHER ELECTRICAL ITEMS ARE SHOWN IN CONFLICT WITH LOCATIONS OF STRUCTURAL MEMBERS AND MECHANICAL OR OTHER EQUIPMENT, PROVIDE ALL REQUIRED SUPPORTS AND WIRING TO CLEAR THE ENCROACHMENT. ADJUST ALL CONDUIT EQUIPMENT, ETC., TO ACCOMMODATE THE WORK TO OBSTACLES ANTICIPATED AND ENCOUNTERED. ALL ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATIONS. 10. CUTTING, PATCHING & PAINTING REVIEW THE GENERAL CONSTRUCTION PLANS, SPECIFICATIONS AND ROOM FINISH SCHEDULE FOR WORK THAT IS TO PERFORMED BY THE GENERAL CONTRACTOR. ALL CUTTING AND PATCHING REQUIRED TO PERFORM WORK OF THIS CONTRACT (INCLUDING, BUT NOT LIMITED TO CORE DRILLING AND SAWCUTTING OF CONCRETE) SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. ALL SURFACES AND FINISHES IN AREAS DISTURBED BY WORK OF THIS CONTRACT, EITHER INTENTIONALLY OR ACCIDENTALLY, SHALL BE RESTORED TO A CONDITION EQUAL OR BETTER THAN FOUND. PREPARE SURFACE AND REMOVE SURFACE FINISHES TO PROVIDE FOR PROPER INSTALLATION OF FINISHES. ALL SAWCUTTING AND/OR CORE DRILLING OF CONCRETE MUST HAVE PRIOR APPROVAL FROM THE OWNER AND DESIGN TEAM. ALL CUTTING, COREDRILLING, SAW CUTTING, ETC MUST BE SCHEDULED WITH THE OWNER TO MINIMIZE DISTURBANCES TO OPERATION OF THE FACILITY AND ITS OCCUPANTS. WHERE WORK IS BEING PERFORMED ON SURFACES THAT REQUIRE PAINTING BY THE GENERAL CONTRACTOR, THE GC WILL PROVIDE THE PAINTING, PROVIDING THE WORK IS INSTALLED IN TIME WHERE THE WORK IS BEING PERFORMED ON SURFACES THAT DO NOT REQUIRE PAINTING BY THE GC, THE ELECTRICAL CONTRACTOR SHALL PROVIDE SUFFICIENT PATCHING ONLY OF THOSE SURFACES IN SUCH A MANNER AS TO PRESENT A PROPER FINISH FOR THE OWNER TO PAINT AT A LATER DATE. THE ENGINEER WILL MAKE A DETERMINATION AS TO WHETHER PATCHING HAS BEEN EXECUTED PROPERLY. THE CONTRACTOR IS RESPONSIBLE FOR ANY EXTRA PAINTING COSTS INCURRED BECAUSE OF TARDINESS IN INSTALLING SURFACE-MOUNTED ITEMS IN FINISHED AREAS THAT ARE TO PAINTED BY THE GC. THE CONTRACTOR SHALL CORE DRILL OR CUT EXISTING CONSTRUCTION IN AN APPROVED MANNER. STRUCTURAL ELEMENTS MUST NOT BE CUT WITH APPROVAL FROM THE ARCHITECT. PENETRATIONS THROUGH FIRE RATED CONSTRUCTION SHALL BE FIRESTOPPED WITH A UL LISTED SYSTEM CONSISTING OF MINERAL WOOL AND LISTED MASTIC COMPOUND, AS MANUFACTURED BY HILTI, OR OTHER MANUFACTURER PROVIDING EQUIVALENT PRODUCTS. 11. SLEEVES & PLATES SLEEVES SHALL BE PROVIDED AT ALL FLOOR, ROOF, AND WALL PENETRATIONS FOR ALL CONDUIT AND CONDUCTORS. SLEEVES THROUGH STRUCTURAL MEMBERS ARE NOT ALLOWED WITHOUT PRIOR APPROVAL FROM THE ENGINEER. SLEEVES SHALL BE OF ADEQUATE SIZE TO ACCOMMODATE SERVICE AND PACKING. SLEEVES SHALL BE OF SIMILAR MATERIAL TO ADJACENT CONDUIT, ETC., BUT NOT LESS THAN 18 US GAUGE METAL. SLEEVES THROUGH FLOOR SLABS, COLUMNS OR BEAMS SHALL BE STANDARD WEIGHT STEEL PIPE. SLEEVES SHALL BE FITTED WITH SUITABLE TEMPORARY PACKING TO PREVENT FILLING WITH CONCRETE OR MORTAR. IMPROPERLY LOCATED SLEEVES SHALL BE REMOVED AND OPENINGS PATCHED. SLEEVES IN FLOORS SUBJECT TO FREQUENT WASH-DOWN SHALL EXTEND 1" ABOVE FINISHED FLOOR. PACK ALL FINISHED FLOOR. PACK ALLSPACES BETWEEN SERVICE AND SLEEVES WITH MINERAL WOOL. 12. INSERTS AND/OR SUPPORTS IT SHALL BE THE RESPONSIBILITY OF THE INSTALLER OF A PARTICULAR PIECE OF EQUIPMENT TO PROVIDE THE PROPER MEANS OF ANCHORING. SUBMISSION OF THE PROPOSED LOADS TO BE IMPOSED ON THE STRUCTURE IS REQUIRED PRIOR TO INSTALLATION. 13. CLEAN UP THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING UP THE DEBRIS, RUBBISH, ETC., GENERATED BY HIS OWN OPERATION. THE PROJECT SITE SHALL BE CLEANED UP PERIODICALLY AND AS DIRECTED BY THE OWNERS REPRESENTATIVE. 14. PROTECTION OF ELECTRICAL SYSTEMS IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL AND MAINTAIN CONDUIT AND EQUIPMENT WHICH IS REASONABLY CLEAN AND FREE FROM RUST, DIRT, SCALE, ETC. WHERE NECESSARY, THE CONTRACTOR SHALL PROVIDE TEMPORARY AIR-TIGHT COVERS AT ALL EQUIPMENT OPENINGS. BEFORE TURNING THE SYSTEMS OVER TO THE OWNER, ALL ELECTRICAL SYSTEMS SHALL BE THOROUGHLY CLEANED OF ALL DIRT. IT SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROTECT HIS WORK FROM ADVERSE CONDITIONS UNTIL ACCEPTANCE OF THE WORK BY THE OWNER. 15. TESTING UPON COMPLETION OF THIS PORTION OF THE WORK, TEST ALL PARTS OF THE ELECTRICAL SYSTEM IN THE PRESENCE OF THE ENGINEER. DEMONSTRATE THAT ALL EQUIPMENT FURNISHED, INSTALLED, AND/OR CONNECTED UNDER THIS SECTION OF THESE SPECIFICATIONS FUNCTIONS ELECTRICALLY IN THE REQUIRED MANNER. ALL SYSTEMS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS. SHALL BE FREE FROM MECHANICAL AND ELECTRICAL DEFECTS, AND SHALL SHOW AN INSULATION RESISTANCE BETWEEN PHASE CONDUCTORS AND GROUND OF NOT LESS THAN THAT REQUIRED BY THE NATIONAL ELECTRIC CODE. TEST ALL CIRCUITS FOR PROPER NEUTRAL CONNECTIONS. AFTER THE ELECTRICAL INSTALLATION IS COMPLETE, THE CONTRACTOR SHALL TEST ALL CIRCUITS, BUSSSES AND EQUIPMENT FOR FREEDOM FROM GROUNDS AND SHORT CIRCUITS BEFORE ENERGIZING.	16. IDENTIFICATION OF CONDUCTORS & PANELS GENERAL – MARK EACH DEVICE EQUIPPED WITH MORE THAN 120 VOLTS WITH THE VOLTAGE AND IDENTIFICATION OF EQUIPMENTS OPERATED USING 1" HIGH LAMACOID NAMEPLATES AND 3/4" LETTERS. NAMEPLATES SHALL HAVE MARKINGS AS APPROVED BY THE ENGINEER ON ALL SWITCHES, PANELS, STARTERS, ETC. PHASE CONDUCTOR – MARK THE MAIN PHASE CONDUCTORS IN ALL DISCONNECTS, PANELBOARDS, JUNCTION BOXES, PULLBOXES AND MOTOR STARTERS WITH COLORED TAPE DENOTING THE PHASE. FOR A PHASE USE BLACK TAPE; FOR B PHASE USE RED TAPE; FOR C PHASE USE BLUE TAPE. INSTALL A, B, C, LEFT TO RIGHT FACING THE DEVICE. IN ADDITION, CABLE FEEDERS IN PULL BOXES SHALL BE TAGGED IDENTIFYING THE TERMINATION POINT OF THE FEEDERS. (EXAMPLE: PANEL PP-1, ETC.). PANEL BOX CHARTS – PROVIDE TYPEWRITTEN DIRECTORIES FOR ALL PANELBOARDS. INFORMATION REQUIRED ON EACH PANEL BOARD DIRECTORY SHALL BE AS FOLLOWS: DATE DIRECTORY WAS PREPARED; CIRCUIT NUMBERS; AMPERE SIZE OF CIRCUIT BREAKER OR FUSE; NUMBER OF POLES ON CIRCUIT BREAKER; DESCRIPTION OF THE LOAD SERVED; PANELBOARD FEEDER CABLE TYPE; NUMBER OF FEEDER CABLES; DIAMETER OF PANELBOARD FEEDER RACEWAY; AND PANELBOARD NAME. FURNISH THE ENGINEER WITH TWO COPIES OF EACH PANELBOARD TYPEWRITTEN DIRECTORY AFTER THE LOAD BALANCE TEST HAS BEEN COMPLETED. IDENTIFICATION OF FEEDERS & CONTROL WIRES IDENTIFY ALL WIRING BY NUMBER AND SIZE IN PULLBOXES AND THE GUTTERS OF ALL PANELS TO WHICH THEY CONNECT WITH PREMARKED, SELF-ADHESIVE, WRAP-AROUND TYE. INSTALL MARKERS SO THAT THEY ARE EASILY READ WITHOUT MOVING ADJACENT CONDUCTORS. 17. GROUNDING SYSTEMS A. PROVIDE GROUNDING AND BONDING TO MEET REQUIREMENTS OF NEC ARTICLES 250 AND 517. B. PROVIDE EQUIPMENT GROUNDING SYSTEM AS DESCRIBED IN THE SPECIFICATIONS. EQUIPMENT GROUNDING SYSTEM SHALL BE DESIGNED SO METALLIC STRUCTURES, ENCLOSURES, RACEWAYS, JUNCTION BOXES, OUTLET BOXES, CABINETS, MACHINE FRAMES, PORTABLE EQUIPMENT AND OTHER CONDUCTIVE ITEMS IN CLOSE PROXIMITY WITH ELECTRICAL CIRCUITS OPERATE CONTINUOUSLY AT GROUND POTENTIAL AND PROVIDE A LOW IMPEDANCE PATH FOR POSSIBLE GROUND FAULT CURRENTS. C. BOND TOGETHER SYSTEM NEUTRALS, SERVICE EQUIPMENT ENCLOSURES, EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT, METAL RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN RACEWAYS AND CABLES, RECEPTACLE GROUNDING CONNECTORS AND PLUMBING SYSTEMS. D. GROUND CONDUCTORS SHALL BE RUN IN CONDUIT AND MUST BE BONDED TO CONDUIT AT BOTH ENDS. E. MOTORS SHALL BE GROUNDED BY CONNECTING A BARE CONDUCTOR FROM THE MOTOR FRAME TO THE GROUNDING TERMINAL ON THE CONNECTOR FOR RIGID TO FLEXIBLE CONDUIT. ROUND CONNECTOR FOR MOTOR EQUIPMENT SHALL BE AT LEAST 50 PERCENT OF THE TOTAL COPPER PER PHASE OF THE LARGEST FEEDER TO THE EQUIPMENT AND GROUNDED. MINIMUM SIZE GROUND CONDUCTOR SHALL BE # 12 WIRE. F. DETERMINE NUMBERS AND SIZES OF SCREW TERMINALS FOR EQUIPMENT GROUNDING BARS IN PANELBOARDS AND OTHER ELECTRICAL EQUIPMENT. PROVIDE SCREW TERMINALS FOR ACTIVE CIRCUITS, SPARES AND SPACES. G. PROVIDE SEPARATE #6 AWG GREEN INSULATED CONDUCTOR FROM EQUIPMENT GROUND BUS TO EACH PIECE OF CONSOLE MOUNTED DATA OR COMMUNICATIONS EQUIPMENT. H. PROVIDE SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR FOR EACH FEEDER AND EACH BRANCH CIRCUIT. INSTALL GROUNDING CONDUCTOR IN COMMON CONDUIT WITH RELATED PHASE OR NEUTRAL CONDUCTORS, OR BOTH. PARALLEL FEEDERS INSTALLED IN MORE THAN ONE RACEWAY SHALL HAVE INDIVIDUAL FULL SIZE GREEN INSULATED EQUIPMENT GROUND CONDUCTORS. CONNECT CONDUCTOR TO GROUND BUS IN PANEL AND TO EACH DEVICE SUPPLIED BY THE CIRCUIT IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE NEC. MINIMUM SIZE #12 AWG. 1. FROM GREEN GROUND TERMINALS OF RECEPTACLES TO GREEN 10-32 WASHER-IN- HEAD OUTLET BOX MACHINE SCREW. 2. FROM GREEN 10-32 WASHER-IN-HEAD MACHINE SCREW IN CEILING OUTLET BOX OR JUNCTION BOX THROUGH FLEXIBLE METALLIC CONDUIT TO GROUND TERMINAL IN FIXTURE. 3. FROM GREEN 10-32 WASHER-IN-HEAD MACHINE SCREW IN CEILING OUTLET BOX OR JUNCTION BOX THROUGH FLEXIBLE METALLIC CONDUIT TO 10-32 WASHER-IN-HEAD MACHINE SCREW IN SWITCH OUTLET BOX IN MOVABLE PARTITIONS. 4. FROM GREEN 10-32 WASHER-IN-HEAD MACHINE SCREW IN JUNCTION BOX OR DISCONNECT SWITCH THROUGH FLEXIBLE METALLIC CONDUIT TO GROUND TERMINAL IN CONNECTION BOX MOUNTED ON SINGLE PHASE FRACTIONAL HORSEPOWER MOTOR. 5. PROVIDE GREEN INSULATED GROUNDING CONDUCTOR IN NONMETALLIC CONDUITS OR DUCTS UNLESS SPECIFIED OTHERWISE. 6. RACEWAYS: MAKE ALL THREADED CONNECTIONS WRENCH TIGHT. INSTALL BONDING JUMPS FOR CONTINUITY AROUND FITTINGS AND TERMINATIONS WHERE THE CONDUCTIVE RACEWAY IS MADE NON-CONTINUOUS. 7. IN ADDITION, AS NOTED ABOVE, PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN EACH RACEWAY TO AUGMENT THE CIRCUIT FORMED BY THE METALLIC RACEWAY SYSTEM. BOND THE EQUIPMENT GROUNDING CONDUCTOR TO EACH BOX OR ENCLOSURE IN WHICH ACCESS IS POSSIBLE, USING GROUNDING SCREW, GROUND BUS OR TERMINAL LUG. SIZE CONDUCTORS AS SPECIFIED, INDICATED, OR REQUIRED BY THE NEC, WHICHEVER IS LARGER. EQUIPMENT ROUNDING CONDUCTOR SHALL BE BONDED TO RACEWAY SYSTEM AT BOTH ENDS. 8. GROUNDING BUSHINGS: INSTALL GROUNDING BUSHINGS AND BONDING JUMPS TO ENCLOSURES OR CONTAINED GROUND BUSSING FOR THE FOLLOWING: SERVICE ENTRANCE FEEDER, EACH LOCATION WHERE MULTIPLE RING KNOCKOUTS ARE DAMAGED DURING CONDUIT INSTALLATION, EACH LOCATION WHERE CONDUITS ARE STUBBED UP INTO FLOOR MOUNTED ENCLOSURES, AND EACH CONDUIT TERMINATION AT A PAINTED ENCLOSURE WHERE PAINT IS NOT REMOVED BEFORE INSTALLATION OF RACEWAY. 1. PROVIDE REDUNDANT GROUNDING FOR BRANCH CIRCUITS SERVING PATIENT CARE AREAS, AS REQUIRED BY NEC ARTICLE 517 AND NFPA 99. SUCH AREAS INCLUDE, BUT ARE NOT LIMITED TO, DENTAL TREATMENT ROOMS. REDUNDANT GROUND WIRING SHALL BE PROVIDED FOR LIGHTING, RECEPTACLE AND EQUIPMENT CIRCUITS IN ALL SUCH AREAS. 18. CONDUIT SYSTEMS ALL CONDUITS MUST BE CONTINUOUS FROM OUTLET TO CABINETS, PULL OR JUNCTION BOXES. CONDUITS MUST BE SECURED WITH LOCKNUTS AND BUSHINGS IN SUCH A MANNER THAT EACH SYSTEM WILL BE ELECTRICALLY CONTINUOUS THROUGHOUT. CONDUIT ENDS MUST BE CAPPED WITH APPROVED CAPS OR SEALS TO PREVENT ENTRANCE OF FOREIGN MATERIALS DURING CONSTRUCTION. CONDUITS MUST BE SWABBED OUT BEFORE INSERTION OF CONDUCTORS. LEAVE FISH WIRE (NYLON LINE) IN ALL CONDUITS WHERE PERMANENT WIRING IS NOT INSTALLED. TAG EACH END. CHANGES IN DIRECTION OF CONDUIT WHERE CONCEALED SHALL BE MADE BY MEANS OF STANDARD RADIUS BEND, AND WHERE EXPOSED BY MEANS OF CROUSE-HINDS, OR EQUAL, GALVANIZED OR SHERARIZED THREADED CONDUITS. JUNCTION OR PULLBOXES SHALL BE FURNISHED AND INSTALLED UNDER THIS SECTION OF THE SPECIFICATIONS WHERE INDICATED ON THE DRAWINGS, AND WHEREVER ELSE SUCH A BOX MAY BE DEEMED NECESSARY TO FACILITATE THE PULLING OR SPLICING OF WIRES OR CABLES. ALL COUPLINGS USED ON GRADE FLOOR SLABS; IN EXTERIOR BELOW GRADE WALLS; BURIED IN EARTH WITH OR WITHOUT CONCRETE ENCASEMENT; MUST BE OF THE THREADED TYPE. EACH END OF CONDUIT MUST BE THREADED AND COUPLING MUST BE TAKEN UP TIGHT. CONDUITS 1-1/4" AND LARGER MUST HAVE GROUNDING TYPE INSULATED BUSHINGS. BOND CONDUITS 1-1/4" AND LARGER WHEN ENTERING OR LEAVING ENCLOSURE. CONDUITS SMALLER THAN 1-1/4" TO HAVE MALLEABLE IRON BUSHINGS. MECHANICALLY JOIN ALL METAL CONDUIT, ENCLOSURES AND RACEWAYS FOR CONDUCTORS TO FORM A CONTINUOUS ELECTRICAL PATH THROUGH ALL ELECTRICAL BOXES, FITTINGS AND CABINETS. CONDUIT FITTINGS TO BE SUITABLE TO TYPE AND SIZE FOR OUTLETS, BENDS, JUNCTIONS, ETC. FLEXIBLE LIQUID TIGHT CONDUIT IS TO BE USED FOR FINAL BRANCH CIRCUIT CONNECTION TO MOTORS, AHUS, FANS, CONTROLS AND ALL OTHER EQUIPMENT SUBJECT TO MOVEMENT OR VIBRATION. INSTALL AN 18" LENGTH AT EACH CONNECTION. NORMAL AND EMERGENCY POWER BRANCH CIRCUITS MUST BE RUN IN SEPARATE CONDUIT SYSTEMS.	19. LIQUID TIGHT CONDUIT HIGH TEMPERATURE "SEALTITE" FLEXIBLE CONDUIT SHALL BE USED WITH FITTINGS MANUFACTURED BY MIDWEST ELECTRIC MANUFACTURING COMPANY, SERIES LT FOR ALL FLEXIBLE CONNECTIONS TO MOTORS, CONTROLS, ETC. 20. CONDUIT HANGERS HANGERS SHALL BE AS MANUFACTURED BY CRANE, GRINNELL OR KINDORF. FURNISH AND INSTALL ALL HANGERS, ANCHORS, GUIDES AND SUPPORTS TO PROPERLY SUPPORT CONDUIT TO CONTROL ANCHORAGE, AND PREVENT SWAY AND VIBRATION. CONDUIT SHALL BE SO SUPPORTED AS NOT TO PLACE A STRAIN ON EQUIPMENT. 1/2" 6' 3/8" 3/4" & 1" 7' 3/8" 1-1/4" & 2-1/2" 10' 3/8" TRAPEZE HANGERS MAY BE USED FOR MULTIPLE RUNS OF CONDUIT AND SHALL CONSIST OF A CHANNEL WITH ADJUSTABLE HANGER RODS. HANGER SPACING SHALL BE DETERMINED BY THE SMALLEST PIPE SUPPORTED. BESIDES THE REQUIRED NUMBER OF HANGERS, ONE ADDITIONAL HANGER IS TO BE PLACED WHERE THE CONDUIT CHANGES DIRECTION TO PREVENT SAG IN THE LINE. 21. CONDUCTORS WIRING – NO WIRE SMALLER THAN #12 THWN MAY BE USED FOR ANY BRANCH CIRCUIT. IF THE SINGLE DISTANCE FROM THE PANEL TO THE FIRST OUTLET OF ANY BRANCH CIRCUIT EXCEEDS 75 FEET, THEN THE WIRE MUST BE #10 TO THE FIRST OUTLET OF EACH BRANCH CIRCUIT, OR AS NOTED. ALL CONDUCTORS MUST BE 600 VOLT COPPER TYPE THWN OR TYPE THHN, IN ALL AREAS EXCEPT AS OTHERWISE NOTED ALL CONDUCTORS MUST BE COPPER AND CONFORM TO LATEST REQUIREMENTS OF THE NEC AND BE UL LISTED FOR THE LOCATION USED. CONDUCTORS MUST BE MANUFACTURED IN ACCORDANCE WITH LATEST ASTM STANDARDS FOR SOFT OR ANNEALED COPPER WIRE. PROVIDE CABLE SUPPORTS FOR WIRES IN RISER CONDUITS AS REQUIRED BY NEC. SPLICE WIRES IN READILY ACCESSIBLE OUTLET BOXES WITH APPROVED MECHANICAL SOLDERLESS CRIMP CONNECTORS UP TO #6; #6 AND LARGER USE THREADED BOLTED CONNECTORS. TAG ALL FEEDER AND CONTROL WIRES IN EVERY PULLBOX, JUNCTION BOX AND GUTTER SPACE OF PANELS TO WHICH THEY CONNECT. TAGS MUST BE FLAMEPROOF LINEN OR FIBER WITH FEEDER NUMBER AND PHASE INDICATED THEREON. BUILDING WIRE AND CABLE A. DESCRIPTION: SINGLE CONDUCTOR INSULATED WIRE. B. CONDUCTORS: COPPER, NO. 10 AWG AND SMALLER SHALL BE SOLID, NO. 8 AWG AND LARGER SHALL BE STRANDED. THE USE OF ALUMINUM CONDUCTORS IS PROHIBITED. C. INSULATION VOLTAGE RATING: 600 VOLTS, UNLESS OTHERWISE SPECIFIED. D. INSULATION: ANSI/NFPA 70, TYPE THWN, USE TYPE SF22 FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF FLUORESCENT FIXTURES. METAL CLAD CABLE A. DESCRIPTION: ANSI/NFPA 70, TYPE MC, LISTED HOSPITAL GRADE. B. CONDUCTOR: COPPER. C. INSULATION VOLTAGE RATING: 600 VOLTS. D. INSULATION TEMPERATURE RATING: 75 DEGREES C. E. INSULATION MATERIAL: THERMOPLASTIC. F. ARMOR MATERIAL: STEEL. G. ARMOR DESIGN: INTERLOCKED METAL TAPE. OTHER WIRE AND CABLE A. REFER TO PARTICULAR SPECIFICATION SECTION FOR OTHER SPECIAL PURPOSE WIRING AND CABLE (I.E FIRE ALARM, ETC.). 22. WIRING DEVICES GENERAL – PROVIDE ALL SWITCHES, RECEPTACLES, SPECIAL OUTLETS AND CONFIGURATIONS REQUIRED, ETC., AS SHOWN OR SPECIFIED. SWITCHES & DIMMERS A. SWITCHES SINGLE POLE SWITCH: 20A – HUBBELL MODEL DS120, OR APPROVED EQUAL. THREE POLE SWITCH: 20A – HUBBELL MODEL DS320, OR APPROVED EQUAL. B. 0-10 VOLT LED DIMMERS PROVIDE DIMMERS AT LOCATIONS NOTED ON DRAWINGS. DIMMERS SHALL BE 0-10 VOLT THAT ARE COMPATIBLE WITH LED DIMMING POWER SUPPLIES PROVIDED FOR LIGHT FIXTURES. DIMMERS SHALL BE COMPATIBLE WITH THE LIGHTING CIRCUIT LOAD. PROVIDE MATCHING WALLPLATE AND ALL OTHER ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION. DIMMERS SHALL BE MANUFACTURER LISTED BY THE LIGHTING FIXTURE MANUFACTURER AS BEING COMPATIBLE WITH THE LIGHTING FIXTURE CONTROLLED. BEFORE SUBMITTING OR ORDERING DIMMERS THE ELECTRICAL CONTRACTOR SHALL VERIFY THAT THE PROPOSED MODELS ARE COMPATIBLE WITH THEIR ASSOCIATED LIGHT FIXTURES. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO PROVIDE LED FIXTURE DIMMERS AND FIXTURES THAT ARE ELECTRICALLY COMPATIBLE. DIMMERS SHALL BE DECORA STYLE. WHERE 0-10 VOLT DIMMER WITH REMOTE DIMMER IS SHOWN, PROVIDE LEVITON RENOIR II ARCHITECTURAL 0-10 VOLT DIMMER, WITH MATCHING REMOTE DIMMER. PRIOR TO ORDERING, COMPATIBILITY OF THE DIMMER WITH ITS ASSOCIATED LIGHT FIXTURES MUST BE CONFIRMED. C. PROVIDE ALL SWITCHES WITH WALLPLATE OF MATCHING TYPE AND COLOR. PROVIDE MULTIPLE OPENING WALLPLATE FOR GANGED DEVICES. ALL WIRING DEVICE WALLPLATES SHALL BE SCREWLESS TYPE. D. COLOR OF SWITCHES AND DIMMERS SHALL BE AS SELECTED BY THE ARCHITECT. RECEPTACLES A. HOSPITAL GRADE RECEPTACLE: 20A, NEMA 5-20R, HUBBELL MODEL HBL2182WA, WHITE COLOR, OR APPROVED EQUAL, IDENTIFIED WITH GREEN DOT ON FACE. B. PROVIDE HOSPITAL GRADE DUPLEX GROUND FAULT CIRCUIT PROTECTOR RECEPTACLES, IDENTIFIED WITH GREEN DOT ON FACE, IN LOCATIONS IDENTIFIED ON THE DRAWINGS, OR REQUIRED BY THE NATIONAL ELECTRICAL CODE, TO BE PROVIDED WITH GROUND FAULT CIRCUIT PROTECTOR RECEPTACLES. GROUND FAULT RECEPTACLE: 20A HUBBELL MODEL GFR8300SCW, OR APPROVED EQUAL. PROVIDE WHITE COLOR. C. PROVIDE ALL RECEPTACLES WITH WALLPLATES OF MATCHING TYPE AND COLOR. PROVIDE MULTIPLE OPENING WALLPLATE FOR GANGED DEVICES. ALL WIRING DEVICE WALLPLATES SHALL BE SCREWLESS TYPE. D. COLOR OF RECEPTACLES SHALL BE AS SELECTED BY THE ARCHITECT. 23. LIGHTING FIXTURES GENERAL – ALL LIGHTING FIXTURES SHALL BE L.E.D. COMPLETE WITH ALL REQUIRED SUSPENSION ACCESSORIES, CANOPIES, CASINGS, SOCKETS, HOLDERS, REFLECTORS, AND OTHER ITEMS AND SHALL BE COMPLETELY WIRED AND ASSEMBLED. LIGHTING FIXTURES – LIGHTING FIXTURES SHALL BE AS SHOWN ON THE FIXTURE SCHEDULE IN THE DRAWINGS. PROVIDE ALL CONNECTIONS AND CIRCUITING AS REQUIRED. SUSPEND LIGHTING FIXTURES FROM BUILDING STRUCTURE, NOT FROM CEILING.	© 2020 SJM ASSOCIATES M.E.P. ENGINEER SJM Associates Consulting Engineers 58 Brookside Drive West Shokan, New York 12494 Ph: (845) 657-2072 fax (845) 657-2073 187 E. Market Street Suite 180 Rhinebeck NY 12572 845 876 8202 phone 845 876 8112 fax optimus ARCHITECTURE SCALE AS NOTED # DATE 12/03/20 REVISIONS 12/03/20 ISSUED FOR BID, PERMIT AND CONSTRUCTION PROJECT #: 2023 PROJECT Linear Accelerator Replacement for: VASSAR BROTHERS MEDICAL CENTER 45 READE PLACE POUGHKEEPSIE, NEW YORK 12601 DRAWING TITLE ELECTRICAL SPECIFICATIONS DRAWING NUMBER: E500
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ABOVE CEILING COORDINATION DRAWING

THE HVAC CONTRACTOR, PLUMBING CONTRACTOR, SPRINKLER SYSTEM CONTRACTOR, ELECTRICAL CONTRACTOR AND OTHER CONTRACTORS ARE REQUIRED TO PREPARE A COORDINATION DRAWING SHOWING INSTALLATION OF ALL EQUIPMENT, PIPING, DUCTWORK, CONDUIT, VALVES, ACCESSORIES AND OTHER ITEMS THAT WILL BE INSTALLED ABOVE THE CEILING. IF CONFLICTS (INCLUDING, BUT NOT LIMITED TO, LOCATION, CLEARANCES FOR MAINTENANCE AND/OR REPAIR, CODE REQUIRED CLEARANCES FOR EQUIPMENT, ETC.) ARE IDENTIFIED, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER, AND SHALL BE RESOLVED BEFORE INSTALLATION OF THE CONFLICTING ITEMS. IF THE COORDINATION DRAWING INDICATES CONFLICTS BETWEEN EQUIPMENT OF DIFFERING TRADES, OWNER'S EQUIPMENT, BUILDING ELEMENTS, OR ANY OTHER ITEM, AND THESE CONFLICTS ARE NOT NOTED, IDENTIFIED OR OTHERWISE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER, OR IF THEY ARE IDENTIFIED AND INSTALLED BEFORE BEING RESOLVED, ALL COSTS INVOLVED WITH CORRECTING THE CONFLICTS, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER, SHALL BE PAID BY THE AFFECTED TRADES. ADDITIONALLY, IF THERE ARE CONFLICTS BETWEEN INSTALLED ITEMS, BUILDING ELEMENTS, ETC., AND THEY ARE READILY APPARENT BY CASUAL OBSERVATION OF THE AREAS IN WHICH THE EQUIPMENT IS TO BE INSTALLED, AND/OR BY REVIEWING EQUIPMENT MANUFACTURER'S INSTALLATION REQUIREMENTS AND RECOMMENDATIONS, ALL COSTS INVOLVED WITH CORRECTING THE CONFLICTS, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER, SHALL BE PAID BY THE AFFECTED TRADES.

STEEL SADDLES FOR USE WITH COLD PIPING INSULATION

INSULATION SADDLE SCHEDULE	
PIPE SIZE	GRINNEL FIG. No.
1/2" TO 1-1/2"	160
2" TO 10"	161
ABOVE 10"	162

STEEL SADDLES FOR USE WITH HOT PIPING INSULATION

1 PLUMBING PIPING SUPPORT
NOT TO SCALE

2 PIPE HANGER SUPPORT ATTACHMENT TO CONCRETE SLAB
N.T.S.

GENERAL PLUMBING WORK NOTES

1. PIPING SHOWN ON THE DRAWINGS IS DIAGRAMMATIC. IT IS NOT INTENDED TO SHOW EVERY OFFSET, FITTING AND EVERY LENGTH OF PIPE. DO NOT SCALE THE DRAWINGS. INSTALLATION SHALL BE BASED UPON ACTUAL BUILDING CONDITIONS AND REQUIREMENTS OF THE NEW DESIGN. REVIEW ARCHITECTURAL NEW WORK DRAWINGS FOR SPACES AVAILABLE AND FOR BUILDING CONSTRUCTION DETAILS BEFORE INSTALLING PIPING AND EQUIPMENT. MAKE SUCH OFFSETS AND DEVIATIONS FROM WORK SHOWN ON THE DRAWINGS AS MAY BECOME NECESSARY TO FIT THE ACTUAL SPACE CONDITIONS AND TO ACCOMMODATE EQUIPMENT INSTALLED UNDER OTHER SECTIONS OF THE WORK.
2. PRIOR TO INSTALLING ANY PIPE, FITTING, EQUIPMENT OR OTHER ITEM, ENSURE THAT WORK OF THIS CONTRACT DOES NOT INTERFERE WITH CLEARANCES REQUIRED FOR FINISHED WALLS, CEILINGS, FLOORS, COLUMNS OR OTHER DETAILS SHOWN ON THE ARCHITECTURAL DRAWINGS OR DRAWINGS OF OTHER TRADES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER, IN WRITING, OF ANY CONFLICTS AND NOT INSTALL THE CONFLICTING ITEMS UNTIL THE PROBLEM IS RESOLVED. IF ANY WORK IS SO INSTALLED AND IT LATER DEVELOPS THAT THE REQUIRED DESIGN DETAILS CANNOT BE FOLLOWED, THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL MAKE SUCH CHANGES IN WORK OF THIS CONTRACT AS DIRECTED BY THE ENGINEER SO THAT CONFLICTS WITH ARCHITECTURAL OR OTHER WORK ARE ELIMINATED.
3. PIPING SYSTEMS SHALL INCLUDE ALL PIPING, FITTINGS, AND ACCESSORIES NECESSARY TO MAKE THE SYSTEMS COMPLETE. REMOVE BURRS FROM CUT ENDS OF PIPING BY REAMING.
4. ALL SOLDER USED SHALL BE LEAD FREE.
5. PROVIDE SHUTOFF VALVES FOR EACH HOT AND COLD WATER SUPPLY LINE. PROVIDE ISOLATION VALVES AND UNIONS ON WATER SUPPLY PIPING AT EACH PIECE OF EQUIPMENT TO PERMIT REMOVAL FOR SERVICING OR REPLACEMENT. USE BALL VALVES UNLESS NOTED OTHERWISE.
6. ALL PLUMBING WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE NEW YORK STATE BUILDING AND PLUMBING CODES AND APPLICABLE RULES AND REGULATIONS OF THE GOVERNING MUNICIPALITY OR OTHER AUTHORITIES HAVING JURISDICTION.
7. DOMESTIC WATER PIPING SHALL BE TYPE "L" COPPER TUBING.
8. REFER TO SPECIFICATIONS FOR DOMESTIC WATER PIPE INSULATION.
9. ALL FIXTURES AND EQUIPMENT SHALL BE PROVIDED COMPLETE WITH ALL NECESSARY TRIM, RUNOUTS, TAILPIECES, PIPING, VALVES AND FITTINGS AS REQUIRED FOR A COMPLETE AND FUNCTIONAL INSTALLATION. ALL EXPOSED TRIM AND FITTINGS SHALL BE CHROME PLATED.
10. EACH FIXTURE SHALL BE PROVIDED WITH INDIVIDUAL STOP VALVE FOR DOMESTIC WATER CONNECTIONS.
11. THE SANITARY SEWER, VENT AND DRAINAGE SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE N.Y.S. BUILDING CODE, ANY ADDITIONAL TESTING AND/OR PROCEDURES REQUIRED BY THE LOCAL AUTHORITIES SHALL ALSO BE INCLUDED. TESTING SHALL BE PERFORMED AFTER THE PIPING IS ROUGHED IN AND AGAIN WHEN THE SYSTEM IS COMPLETE. ALL TESTS SHALL BE WITNESSED BY THE OWNERS REPRESENTATIVE IF TESTS ARE NOT PROPERLY WITNESSED, THEY WILL NOT BE ACCEPTED.
12. WATER SUPPLY PIPING SHALL BE TESTED AND SHOWN TO BE WATERTIGHT. TESTING SHALL BE PERFORMED PRIOR TO APPLICATION OF INSULATION AND PRIOR TO BEING ENCLOSED WITHIN CONSTRUCTION.
13. PROVIDE ALL CORE DRILLING, SAW CUTTING AND PATCHING, AS REQUIRED TO INSTALL WORK SHOWN AND/OR DESCRIBED IN THESE DRAWINGS.
14. SUBMIT MANUFACTURER'S INFORMATION ON ALL EQUIPMENT FURNISHED, FOR ENGINEER'S REVIEW AND APPROVAL.
15. ALL WATER LINES CARRYING POTABLE WATER SHALL BE SANITIZED PRIOR TO USE IN ACCORDANCE WITH NYS PLUMBING CODE & NYSDOH REQUIREMENTS.
16. ALL PIPING TO BE CONCEALED IN PARTITIONS, ABOVE CEILING, OR UNDERSLAB.
17. SEAL AND FIRESTOP ALL PENETRATIONS THROUGH FIRE RATED CONSTRUCTION. ALL FIRE STOPPING SYSTEMS AND PRODUCTS SHALL BE MANUFACTURED BY HILTI, OR APPROVED EQUAL.

1 SPRINKLER SYSTEM GENERAL NOTES
N.T.S.

MEP GENERAL REMOVAL NOTES

1. ALL EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE SHOWN IN A SCHEMATIC, DIAGRAMMATIC, NATURE. THE DOCUMENTS DO NOT SHOW EVERY OFFSET, FITTING OR EVERY LENGTH OF PIPE OR CONDUIT. DO NOT SCALE THE DRAWINGS.
2. OTHER AREAS WITHIN BUILDING WILL BE OCCUPIED, AND IN OPERATION, DURING NEW CONSTRUCTION AND DEMOLITION WORK. SCHEDULE WORK TO MINIMIZE DISRUPTIONS TO BUILDING SERVICES. COOPERATE WITH OWNER TO MINIMIZE CONFLICTS, AND TO FACILITATE OWNER'S OPERATIONS. SCHEDULE THE WORK TO ACCOMMODATE THIS REQUIREMENT.
3. IT IS THE INTENT OF THESE DOCUMENTS THAT THE EXISTING UTILITIES (HVAC, PLUMBING, SPRINKLER AND ELECTRICAL EQUIPMENT, PIPING, SUPPORTS, ETC.), WITHIN THE DEMOLITION WORK AREA (EXCEPT AS NOTED OTHERWISE), ARE TO BE REMOVED AND PROPERLY DISPOSED. SEE ARCHITECTURAL DRAWINGS FOR EXTENT OF DEMOLITION WORK.
4. IF REMOVAL OF ANY EXISTING UTILITY WILL REQUIRE A SHUTDOWN, PROVIDE A MINIMUM OF 5 DAYS WRITTEN NOTICE TO THE OWNER AND EXISTING TENANTS PRIOR TO ANY DISRUPTIONS IN BUILDING SERVICES (PLUMBING / SPRINKLER SYSTEMS, HVAC SYSTEM, ELECTRICAL POWER, PHONE, DATA, SECURITY AND OR FIRE ALARM SYSTEMS ETC.). DO NOT DISCONNECT OR INTERRUPT ANY BUILDING SERVICE WITHOUT EXPLICIT PERMISSION FROM THE OWNER.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THE DEMOLITION PLANS, AND INCLUDE, AS WORK OF THEIR CONTRACT, ALL TEMPORARY CONNECTIONS AND CONSTRUCTION AS REQUIRED TO MAINTAIN THE INTEGRITY OF SERVICES TO THE OCCUPIED PORTIONS OF THE BUILDING.
6. THE PROJECT MAY REQUIRE MULTIPLE SHUT-DOWNS OF MEP SYSTEMS AS WELL AS MULTIPLE TEMPORARY CONNECTIONS DURING DIFFERENT TIMES/PHASES IN ORDER TO MAINTAIN OPERATION OF THE SYSTEMS TO ALL ADJACENT AND OCCUPIED AREAS AND TO PERMIT CONSTRUCTION OF THE PROPOSED WORK.

PUMBING REMOVAL NOTES

1. BEFORE SUBMITTING A BID THE PLUMBING CONTRACTOR SHALL VISIT THE PROJECT SITE AND SHALL BECOME THOROUGHLY FAMILIAR WITH THE OBSERVABLE EXISTING CONDITIONS WHICH AFFECT WORK OF THIS CONTRACT. NO ADDITIONAL COMPENSATION WILL BE GRANTED DUE TO EXTRA WORK MADE NECESSARY BY THE CONTRACTOR'S FAILURE TO INVESTIGATE EXISTING CONDITIONS AND NOT BECOMING FAMILIAR WITH THE NATURE OF THE PROJECT.
2. PC SHALL REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION, SCOPE AND EXTENT OF DEMOLITION/REMOVALS.
3. ALL ABANDONED BRANCH PIPING ALONG WITH THEIR ASSOCIATED ACCESSORIES SHALL BE REMOVED. ANY RESULTANT OPENING IN PIPING, OR CONSTRUCTION, SHALL BE PLUGGED/CAPPED OR OTHERWISE SEALED IN A MANNER ACCEPTABLE TO THE ENGINEER.
4. ALL OPENINGS CREATED IN THE EXISTING CONSTRUCTION SHALL BE CLOSED, PATCHED, SEALED AND FINISHED TO MATCH NEW BUILDING FINISHES.
5. MAINTAIN PLUMBING SYSTEM SERVICE TO OCCUPIED AREAS OF THE BUILDING. THE PLUMBING CONTRACTOR IS TO NOTIFY THE OWNER OF ANY DISRUPTION OF PLUMBING SERVICE A MINIMUM OF 5 DAYS PRIOR TO THE DISRUPTION. DO NOT PROCEED WITH INTERRUPTION OF PLUMBING SERVICE UNTIL OWNER GIVES PERMISSION. ALL DISRUPTIONS SHALL BE AS SHORT AS POSSIBLE.
6. PLUMBING CONTRACTOR SHALL PROVIDE TEMPORARY AND PERMANENT PIPING, CAPS, PLUGS AND OTHER ITEMS AS REQUIRED TO MAINTAIN DOMESTIC WATER AND SANITARY PIPING SERVICE TO THE OCCUPIED AREAS OF THE BUILDING DURING CONSTRUCTION AND AFTER COMPLETION OF THE PROJECT. NOTE THAT THE PROJECT MAY REQUIRE MULTIPLE TEMPORARY PIPING CONNECTIONS/RECONNECTIONS DURING CONSTRUCTION TO MAINTAIN PLUMBING SERVICES.
7. INCLUDE IN COST OF PLUMBING SYSTEM WORK, INSTALLATION OF ISOLATION VALVES IN EXISTING PIPING TO PERMIT CONNECTION OF NEW DOMESTIC WATER PIPING.
8. PLUG OR OTHERWISE SEAL, IN AN ACCEPTABLE MANNER, ALL UNUSED OPENINGS IN EXISTING PIPING. PREPARE EXISTING, REMAINING SANITARY PIPING AND OVERHEAD VENT PIPING TO ACCEPT NEW PIPING AS SHOWN ON PLANS.

ALL EXISTING, AND NEW, PIPING SHOWN ON THE DRAWINGS ARE SHOWN IN A SCHEMATIC, DIAGRAMMATIC, NATURE. THE DOCUMENTS DO NOT SHOW EVERY OFFSET, FITTING OR EVERY LENGTH OF PIPE. THE ACTUAL LOCATIONS OF PIPING MAY DIFFER FROM THOSE SHOWN. THE CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING SANITARY, VENT AND DOMESTIC WATER PIPING AND MAKE ADJUSTMENTS IN THE LAYOUT OF NEW PIPING AS NECESSARY TO ACCOMODATE EXISTING CONDITIONS.

INSTALLATION OF NEW PIPING AND FIXTURES SHALL BE BASED UPON ACTUAL BUILDING CONDITIONS AND REQUIREMENTS OF THE NEW DESIGN. REVIEW ARCHITECTURAL NEW WORK DRAWINGS FOR SPACES AVAILABLE AND FOR BUILDING CONSTRUCTION DETAILS BEFORE INSTALLING PIPING AND EQUIPMENT. MAKE SUCH OFFSETS AND DEVIATIONS FROM WORK SHOWN ON THE DRAWINGS AS MAY BECOME NECESSARY TO FIT EXISTING CONDITIONS.

PLUMBING LEGEND & SYMBOLS

SYMBOL	DESCRIPTION
S	SANITARY DRAIN PIPING
V	OVER HEAD VENT PIPING
CW	DOMESTIC COLD WATER PIPE
HW	DOMESTIC HOT WATER PIPE
○	PIPE TURNING DOWN
○	PIPE TURNING UP
⊙	NEW TO EXISTING CONNECTION
⊗	BALL VALVE
▨	EXISTING ITEM TO BE REMOVED

2 PARTIAL SECOND FLOOR – PROPOSED PLUMBING DEMOLITION PLAN
1/4" = 1'-0"

1 PARTIAL SECOND FLOOR – PROPOSED NEW PLUMBING WORK PLAN
1/4" = 1'-0"

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ARCHITECTURE

PROJECT # 2023
Linear Accelerator Replacement for:
VASSAR BROTHERS MEDICAL CENTER
45 READE PLACE
POUGHKEEPSIE, NEW YORK 12601

DRAWING TITLE
PARTIAL SECOND FLOOR PLAN – PLUMBING
PLANS, DETAILS AND NOTES

DRAWING NUMBER:

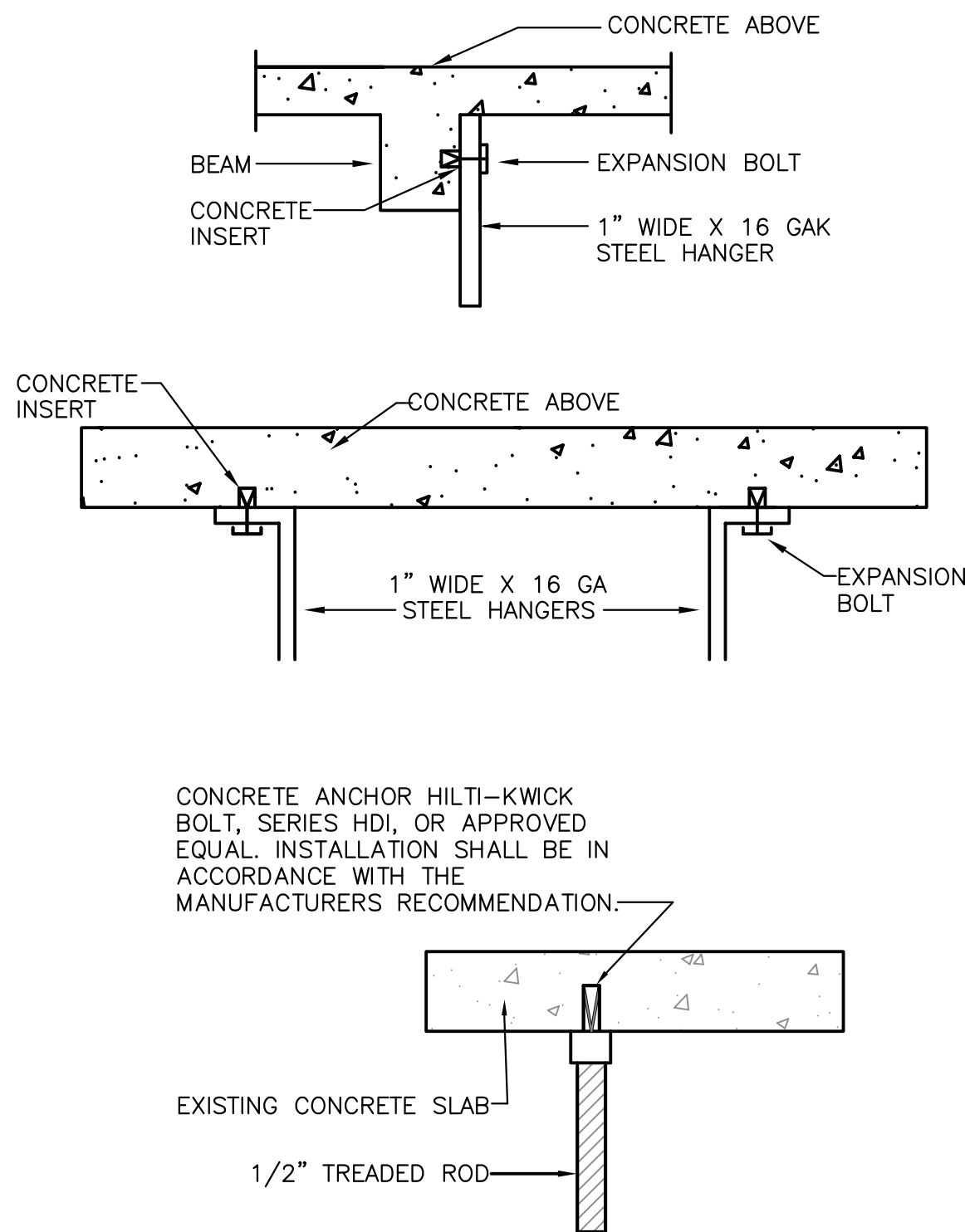
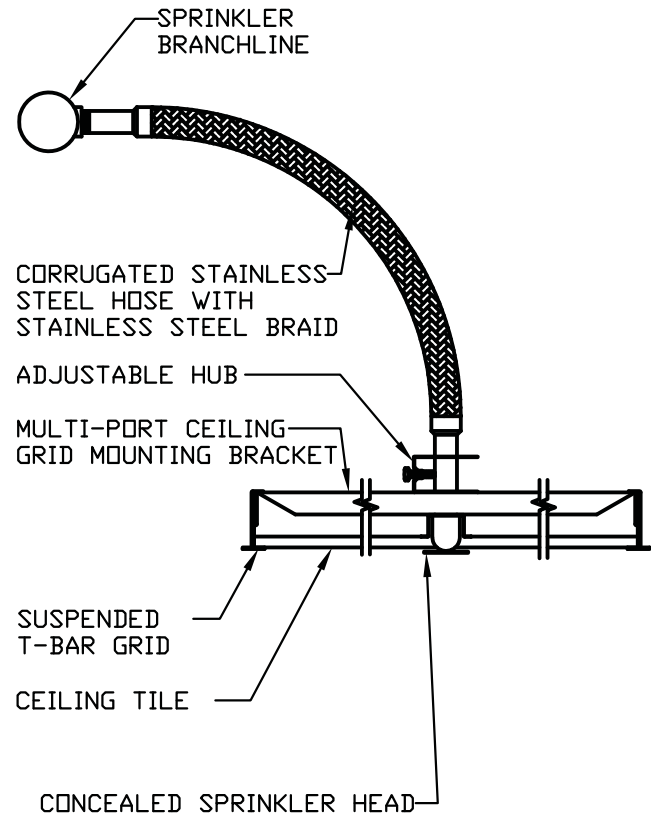
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Diagram illustrating a flexible connection to sprinkler heads. The components shown are:

- SPRINKLER BRANCHLINE
- CORRUGATED STAINLESS STEEL HOSE WITH STAINLESS STEEL BRAID
- ADJUSTABLE HUB
- MULTI-PORT CEILING GRID MOUNTING BRACKET
- SUSPENDED T-BAR GRID
- CEILING TILE
- CONCEALED SPRINKLER HEAD

THE HVAC CONTRACTOR, PLUMBING CONTRACTOR, SPRINKLER SYSTEM CONTRACTOR, ELECTRICAL CONTRACTOR AND OTHER CONTRACTORS ARE REQUIRED TO PREPARE A COORDINATION DRAWING SHOWING INSTALLATION OF ALL EQUIPMENT, PIPING, DUCTWORK, CONDUIT, VALVES, ACCESSORIES AND OTHER ITEMS THAT WILL BE INSTALLED ABOVE THE CEILING. IF CONFLICTS (INCLUDING, BUT NOT LIMITED TO, LOCATION, CLEARANCES FOR MAINTENANCE AND/OR REPAIR, CODE REQUIRED CLEARANCES FOR EQUIPMENT, ETC.) ARE IDENTIFIED, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER, AND SHALL BE RESOLVED BEFORE INSTALLATION OF THE CONFLICTING ITEMS. IF THE COORDINATION DRAWING INDICATES CONFLICTS BETWEEN EQUIPMENT OF DIFFERING TRADES' OWNER'S EQUIPMENT, BUILDING ELEMENTS, OR ANY OTHER ITEM, AND THESE CONFLICTS ARE NOT NOTED, IDENTIFIED OR OTHERWISE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER, OR IF THEY ARE IDENTIFIED AND INSTALLED BEFORE BEING RESOLVED, ALL COSTS INVOLVED WITH CORRECTING THE CONFLICTS, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER, SHALL BE PAID BY THE AFFECTED TRADES. IF CONFLICTS ARE COLLECTED BETWEEN THE AFFECTED TRADES' BUILDING ELEMENTS, AND THESE ARE READILY APPARENT TO VISUAL OBSERVATION OF THE AREAS IN WHICH THE EQUIPMENT IS TO BE INSTALLED, AND/OR BY REVIEWING EQUIPMENT MANUFACTURER'S INSTALLATION REQUIREMENTS AND RECOMMENDATIONS, ALL COSTS INVOLVED WITH CORRECTING THE CONFLICTS, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER, SHALL BE PAID BY THE AFFECTED TRADES.



1. CONTRACTOR IS TO PROVIDE ALL LABOR AND MATERIALS NECESSARY FOR DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONING SPRINKLER SYSTEM. WORK INCLUDES, BUT IS NOT LIMITED TO, INSTALLATION OF SPRINKLERS, PIPING, FITTINGS, VALVES, HANGERS, REQUIRED ACCESSORIES AND CONNECTIONS TO ALL EQUIPMENT. THE INTENT OF THESE NOTES IS FOR THE CONTRACTOR TO PROVIDE A COMPLETE AND FUNCTIONING SPRINKLER SYSTEM.
2. SPRINKLER WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS NFPA 13, NEW YORK STATE BUILDING, FIRE AND PLUMBING CODES, NYS ELECTRICAL CODE AND REGULATIONS OF ALL OTHER AUTHORITIES HAVING JURISDICTION.
3. SUBMITTALS - PRIOR TO INSTALLATION OF WORK, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING INFORMATION FOR THE ENGINEERING REVIEW. CONSTRUCTION WORK SHALL NOT BEGIN UNTIL THE SUBMITTALS ARE REVIEWED AND APPROVED BY THE ENGINEER. SHOP DRAWINGS SHALL INCLUDE, BUT NOT BE LIMITED TO, MANUFACTURERS DATA SHEETS FOR ALL EQUIPMENT TO BE PROVIDED AND/OR INSTALLED (FOR EXAMPLE, SPRINKLER HEADS, CHECK VALVES, ETC.). IN ADDITION, A DETAILED PIPING DIAGRAM OF THE SPRINKLER SYSTEM SHALL BE PROVIDED INDICATING LOCATION, TYPE AND NUMBER OF SPRINKLER HEADS, VALVES AND ALL ACCESSORIES, PIPE SIZES AND MATERIAL, LOCATION AND CONSTRUCTION OF PIPE HANGERS, SHOP DRAWINGS WILL BE OF SUFFICIENT DETAIL TO PERMIT THE ENGINEER TO FULLY EVALUATE THE PROPOSED SPRINKLER SYSTEM INSTALLATION. SHOP DRAWINGS SHALL CLEARLY INDICATE THE LOCATION, SIZE AND NUMBER OF DRAINS AND DRAIN POINTS. DRAINS SHALL BE LOCATED IN ACCESSIBLE AREAS, SUBJECT TO APPROVAL BY OWNER AND THE ENGINEER. SHOP DRAWINGS SHALL ALSO CLEARLY INDICATE PIPING BRACING AND RESTRAINTS.
4. COORDINATE ROUGH-IN OF EQUIPMENT WITH OTHER TRADES.
5. ALL OPENINGS THROUGH FIRE RATED CONSTRUCTION MADE AS WORK OF THIS CONTRACT, SHALL BE SEALED FIRE AND SMOKE TIGHT WITH AN APPROPRIATE, U.L. LISTED FIRESTOPPING MATERIAL AND/OR SYSTEM, AS MANUFACTURED BY HILTI. SUBMIT MANUFACTURERS' DATA TO ENGINEER FOR REVIEW AND APPROVAL.
6. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING ALL PERMIT APPLICATIONS, OBTAINING AND PAYING ALL FEES FOR ANY NECESSARY PERMITS AND APPROVALS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION, PRIOR TO BEGINNING WORK.
7. PROVIDE AUXILIARY DRAINS AS NECESSARY TO DRAIN LOW SPOTS IN PIPING OR OTHER AREAS WHICH CANNOT BE DRAINED TO THE MAIN DRAIN DUE TO, FOR EXAMPLE, CHANGES IN PIPE DIRECTION. AUXILIARY DRAIN VALVES SHALL BE PROVIDED WITH A CAPPED HOSE CONNECTION.
8. FIRE SPRINKLER WORK SHALL BE COORDINATED WITH MECHANICAL, ELECTRICAL, TELEPHONE, FIRE ALARM, SANITARY AND DOMESTIC WATER PLUMBING SERVICES.
9. PIPING AND/OR ANY OTHER EQUIPMENT OR MATERIALS SHALL BE ADEQUATELY SUPPORTED. DIRECT SUSPENSION OR SUPPORT TO PLASTER AND OR LAY-IN CEILING CONSTRUCTION IS NOT ACCEPTABLE. ALL OTHER MATERIALS AND EQUIPMENT SHALL BE DIRECTLY ATTACHED TO THE BUILDING STRUCTURAL SYSTEM. PROVIDE APPROVED FASTENERS AND OTHER MEMBERS AS REQUIRED TO SUPPORT MATERIALS AND EQUIPMENT WHICH MAY NOT BE DIRECTLY ATTACHABLE TO THE STRUCTURAL SYSTEM.
10. ROUGH ALL PIPING TO MAXIMUM EXTENT PERMISSIBLE AS HIGH AS POSSIBLE. MAINTAIN MAXIMUM CLEARANCE ON SIDES OF EQUIPMENT, ADJUST INSTALLATION OF PIPING ACCORDINGLY.
11. MAKE OFFSETS IN PIPING AS REQUIRED TO ACCOMMODATE EXISTING & NEW PIPING, EQUIPMENT, DUCTWORK, ETC.
12. MAINTAIN FIRE RATING AND INTEGRITY OF ALL FIRE RATED CONSTRUCTION THROUGH WHICH OPENINGS ARE MADE FOR WORK OF THIS CONTRACT. REVIEW ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED CONSTRUCTION.
13. TEST ALL PIPING AS REQUIRED PRIOR TO CONCEALMENT INTO GENERAL CONSTRUCTION.
14. OFFSET ALL PIPING AS NECESSARY TO AVOID CONSTRUCTION WORK OF OTHER TRADES.
15. COORDINATE AND PERFORM ALL WORK OF THIS CONTRACT IN ACCORDANCE WITH, REGULATIONS OF LOCAL AUTHORITY AND OTHER AGENCIES HAVING JURISDICTION.
16. CONTRACTOR SHALL NOTIFY THE BUILDING OWNER A MINIMUM OF 5 DAYS PRIOR TO ANY REQUIRED SHUTDOWN OR DRAINING OF ANY PORTION OF THE EXISTING SPRINKLER SYSTEM. THE CONTRACTOR SHALL NOT BEGIN ANY SPRINKLER SYSTEM SHUTDOWN, OR DRAINING, WITHOUT EXPLICIT PERMISSION FROM THE BUILDING OWNER.

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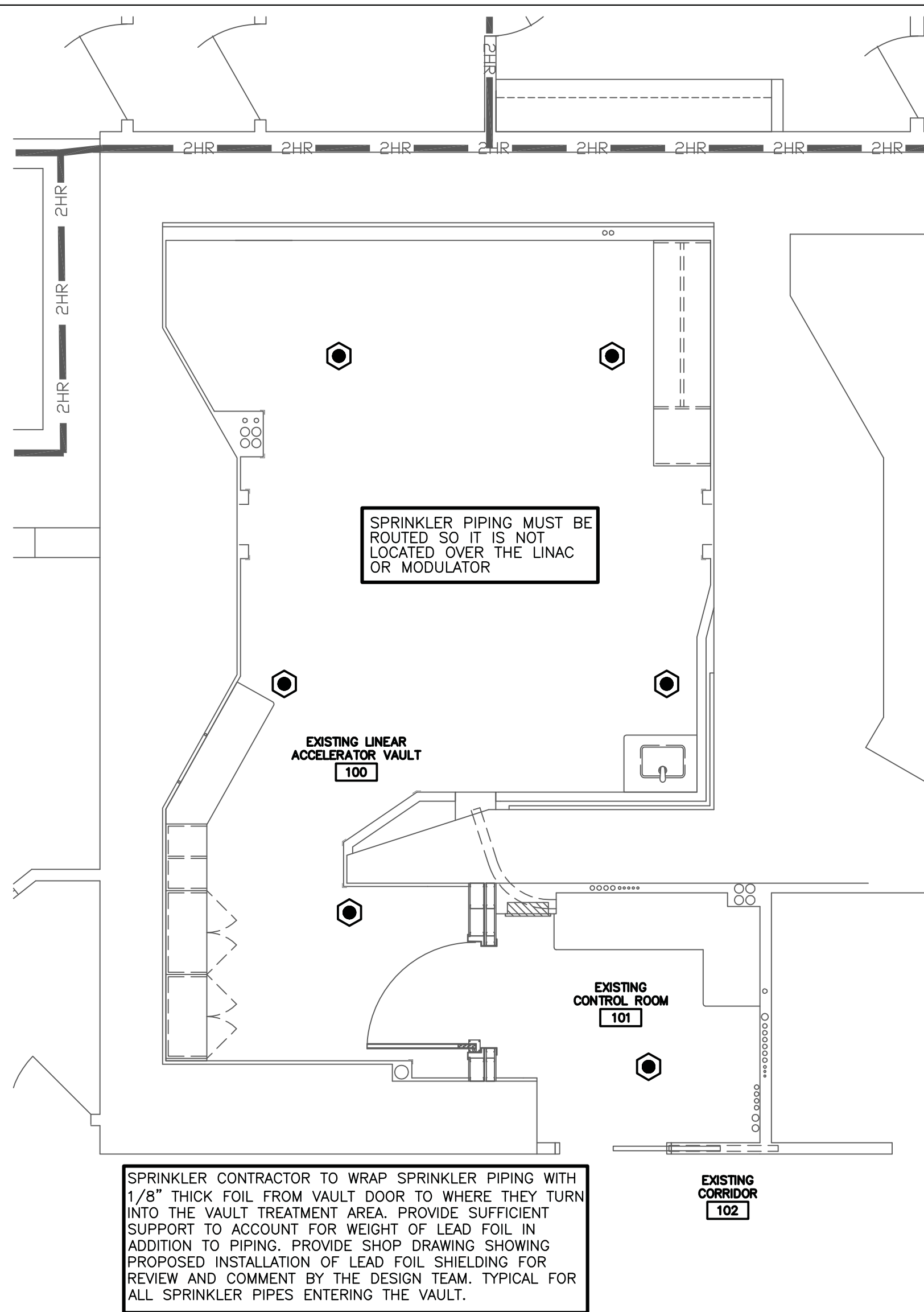
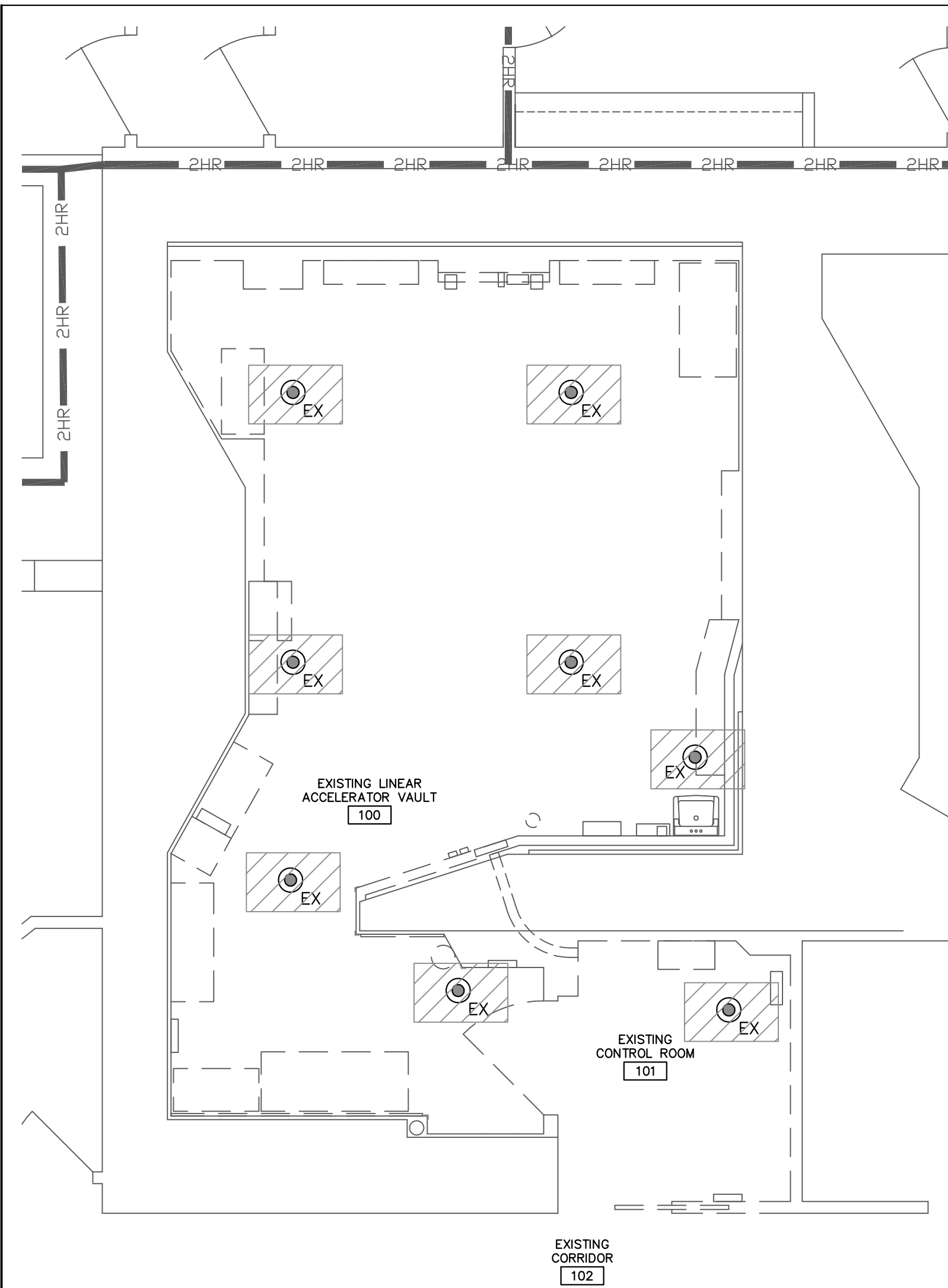
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ARCHITECTURE

1. ALL EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE SHOWN IN A SCHEMATIC, DIAGRAMMATIC, NATURE. THE DOCUMENTS DO NOT SHOW EVERY OFFSET, FITTING OR EVERY LENGTH OF PIPE OR CONDUIT. DO NOT SCALE THE DRAWINGS.
2. OTHER AREAS WITHIN BUILDING WILL BE OCCUPIED, AND IN OPERATION, DURING NEW CONSTRUCTION AND DEMOLITION WORK. SCHEDULE WORK TO MINIMIZE DISRUPTIONS TO BUILDING SERVICES. COOPERATE WITH OWNER TO MINIMIZE CONFLICTS, AND TO FACILITATE OWNER'S OPERATIONS. SCHEDULE THE WORK TO ACCOMMODATE THIS REQUIREMENT.
3. IT IS THE INTENT OF THESE DOCUMENTS THAT THE EXISTING UTILITIES (HVAC, PLUMBING, SPRINKLER AND ELECTRICAL EQUIPMENT, PIPING, SUPPORTS, ETC.), WITHIN THE DEMOLITION WORK AREA (EXCEPT AS NOTED OTHERWISE), ARE TO BE REMOVED AND PROPERLY DISPOSED. SEE ARCHITECTURAL DRAWINGS FOR EXTENT OF DEMOLITION WORK.
4. IF REMOVAL OF ANY EXISTING UTILITY WILL REQUIRE A SHUTDOWN, PROVIDE A MINIMUM OF 5 DAYS WRITTEN NOTICE TO THE OWNER AND EXISTING TENANTS PRIOR TO ANY DISRUPTIONS IN BUILDING SERVICES (PLUMBING SYSTEMS, SPRINKLER SYSTEMS, HVAC SYSTEM, ELECTRICAL POWER, ETC.). DO NOT DISCONNECT OR INTERRUPT ANY BUILDING SERVICE WITHOUT EXPLICIT PERMISSION FROM THE OWNER.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THE DEMOLITION PLANS, AND INCLUDE, AS WORK OF THEIR CONTRACT, ALL TEMPORARY CONNECTIONS AND CONSTRUCTION AS REQUIRED TO MAINTAIN THE INTEGRITY OF SERVICES TO THE OCCUPIED PORTIONS OF THE BUILDING.
6. THE PROJECT WILL REQUIRE MULTIPLE SHUT-DOWNS OF MEP SYSTEMS AS WELL AS MULTIPLE TEMPORARY CONNECTIONS DURING DIFFERENT TIMES/PHASES IN ORDER TO MAINTAIN OPERATION OF THE SYSTEMS TO ALL ADJACENT AND OCCUPIED AREAS AND TO PERMIT CONSTRUCTION OF THE PROPOSED WORK.

1. BEFORE SUBMITTING A BID THE SPRINKLER CONTRACTOR SHALL VISIT THE PROJECT SITE AND SHALL BECOME THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS WHICH AFFECT WORK OF THIS CONTRACT. NO ADDITIONAL COMPENSATION WILL BE GRANTED DUE TO EXTRA WORK MADE NECESSARY BY THE CONTRACTOR'S FAILURE TO INVESTIGATE EXISTING CONDITIONS AND NOT BECOMING FAMILIAR WITH THE NATURE OF THE PROJECT. EXISTING CONDITIONS SHOWN ON THESE DRAWINGS MAY NOT REFLECT EXACT FIELD CONDITIONS IN TERMS OF SIZES, LOCATIONS AND QUANTITIES.
2. FIRE PROTECTION CONTRACTOR SHALL INSPECT THE PROJECT AREA AND ADJACENT AREAS TO IDENTIFY, AND RECORD, EXISTING SPRINKLER SYSTEM PIPING, VALVES, FLOW AND TAMPER SWITCHES, SPRINKLER HEADS, SUPPORTS, AND OTHER RELATED ITEMS THAT ARE AFFECTED BY WORK OF THIS PROJECT.
3. INDICATED SPRINKLER HEADS WITHIN PROJECT AREA ALONG WITH THEIR ASSOCIATED BRANCH PIPING ARE TO BE REMOVED AS NECESSARY TO ACCOMMODATE WORK OF THIS PROJECT. RESPONSIBILITIES INCLUDE DRAINING, AND REFILLING, OF SPRINKLER SYSTEM AS REQUIRED TO PERFORM WORK OF THIS PROJECT. OPENINGS IN EXISTING PIPING, THAT ARE TO BE REUSED, SHALL BE PREPARED FOR CONNECTION OF NEW SPRINKLER PIPING. OPENINGS IN EXISTING PIPING THAT ARE NOTE USED SHALL BE PLUGGED/CAPPED. REMOVAL OF EXISTING SPRINKLER HEADS AND PIPING SHALL BE COORDINATED WITH THE BUILDINGS FACILITIES DEPARTMENT, DEMOLITION AND CONSTRUCTION WORK TO MAINTAIN THE GREATEST DEGREE OF SPRINKLER PROTECTION DURING CONSTRUCTION ACTIVITIES.
4. ALL OPENINGS CREATED IN THE EXISTING CONSTRUCTION SHALL BE CLOSED, PATCHED, SEALED AND FINISHED TO MATCH NEW BUILDING FINISHES AND OR CONSTRUCTION RATINGS.
5. THE SPRINKLER CONTRACTOR SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO MAINTAIN SPRINKLER SERVICE TO ADJACENT AREAS OF THE BUILDING. THE CONTRACTOR IS TO NOTIFY THE OWNER, IN WRITING, OF ANY DISRUPTION OF SPRINKLER SERVICE A MINIMUM OF 5 DAYS PRIOR TO THE DISRUPTION. DO NOT PROCEED WITH INTERRUPTION OF SPRINKLER SERVICE UNTIL OWNER GIVES PERMISSION. ALL DISRUPTIONS SHALL BE AS SHORT AS POSSIBLE.
6. COORDINATE WITH OWNER SHUT-DOWN, INCLUDING DRAINAGE OF SYSTEM AND ALL CONNECTIONS TO EXISTING SPRINKLER SYSTEM AS REQUIRED FOR INSTALLATION FOR WORK OF THIS PROJECT.
7. AFTER REMOVING INDICATED EXISTING SPRINKLER HEADS, ALONG WITH ASSOCIATED PIPING AND ACCESSORIES, THE FIRE PROTECTION CONTRACTOR SHALL PROVIDE NEW PIPING, SPRINKLER HEADS AND ACCESSORIES AS NECESSARY TO MODIFY THE EXISTING SPRINKLER SYSTEM TO ACCOMMODATE THE REVISED FLOOR PLAN. ALL WORK SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH NFPA 13 AS WELL AS APPLICABLE REQUIREMENTS OF THE NYS BUILDING, PLUMBING AND FIRE CODES. EXACT SIZE AND LOCATION SHALL BE DETERMINED IN FIELD BY SPRINKLER CONTRACTOR. PROVIDE CONNECTION OF NEW PIPING AND ACCESSORIES AS SHOWN, REQUIRED AND/OR SPECIFIED.



SCALE	DATE	DRAWN BY:	CHKD. BY:
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SCALE	DATE
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JECT #: 2023

Linear Accelerator Replacement for:
VASSAR BROTHERS MEDICAL CENTER

45 READE PLACE
POUGHKEEPSIE, NEW YORK 12601

DRAWING TITLE

DRAWING NUMBER:

SP100

