

Dobo Hall Suite 120 HVAC Modifications FOR University of North Carolina, Wilmington

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General Notes

1. ALL ELECTRICAL WORK SHALL BE IN FULL COMPLIANCE WITH NFPA 70, THE NORTH CAROLINA STATE BUILDING CODE, ALL LOCAL CODES AND ORDINANCES AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
2. ALL EQUIPMENT PROVIDED BY THE CONTRACTOR SHALL BE LISTED AND LABELED BY A NATIONALLY-RECOGNIZED TESTING AGENCY, ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION, FOR THE CONDITIONS OF INSTALLATION. ALL MATERIAL, EQUIPMENT AND DEVICES SHALL BE NEW CURRENT PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SUCH PRODUCTS. EQUIPMENT SHALL BE SUITABLE FOR ITS APPLICATION (E.G. WHEN INSTALLED OUTDOORS, IT SHALL BE WEATHERPROOF, ETC.)
3. THE CONTRACTOR SHALL REVIEW THE DRAWINGS AND SPECIFICATIONS FOR WORK REQUIREMENTS, THE AMOUNT OF SPACE AVAILABLE FOR ELECTRICAL EQUIPMENT, AND LAYOUT HIS WORK IN A COMPATIBLE AND COMPLEMENTARY MANNER.
4. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THOROUGHLY FAMILIARIZING HIMSELF WITH ANY CONTRACTUAL REQUIREMENTS AS MAY BE SET FORTH IN THE OTHER DIVISIONS OF THE PROJECT SPECIFICATIONS.
5. UNLESS SPECIFICALLY NOTED OTHERWISE, SYSTEMS PROVIDED OR INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE COMPLETE AND FULLY-FUNCTIONING AFTER INSTALLATION. INCIDENTAL COMPONENTS MAY NOT BE SHOWN, AND ALL WORK WHICH MAY BE REASONABLY IMPLIED AS BEING INCIDENTAL TO THIS WORK, BUT REQUIRED FOR THE PROPER OPERATION OF THE EQUIPMENT OR SYSTEM, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER. ADDITIONAL CIRCUITS SHALL BE INSTALLED WHEREVER NEEDED TO CONFORM TO THE SPECIFIC REQUIREMENTS OF EQUIPMENT.
6. TEMPORARY POWER CONNECTIONS AS REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. ALL TEMPORARY EQUIPMENT WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. THE CONTRACTOR SHALL PROVIDE DETAILS, METHODS, MATERIALS, ETC. TO THE ARCHITECT/ENGINEER PRIOR TO MAKING TEMPORARY CONNECTIONS. FURNISH AND INSTALL ALL EQUIPMENT AND MATERIALS INCLUDING CONTROL EQUIPMENT, MOTOR STARTERS, BRANCH AND FEEDER CIRCUIT BREAKERS, PANELBOARDS, TRANSFORMERS, ETC. FOR TEMPORARY POWER. COORDINATE WITH THE ELECTRICAL UTILITY COMPANY AS REQUIRED.
7. THE WORK SHALL INCLUDE COMPLETE TESTING OF ALL EQUIPMENT AND WIRING AT THE COMPLETION OF WORK AND ANY MINOR CORRECTIONS, CHANGES OR ADJUSTMENTS NECESSARY FOR THE PROPER FUNCTIONING OF THE SYSTEM AND EQUIPMENT.
8. ALL EQUIPMENT SHOWN DOTTED OR DASHED IS BY OTHERS OR IS EXISTING, AS NOTED.
9. ALL ELECTRICAL EQUIPMENT SHALL, AT ALL TIMES DURING CONSTRUCTION, BE ADEQUATELY PROTECTED AGAINST MECHANICAL INJURY, OR DAMAGE BY WATER AND/OR THE ELEMENTS. ELECTRICAL EQUIPMENT SHALL NOT BE STORED OUT OF DOORS, BUT SHALL BE STORED IN DRY PERMANENT SHELTERS. IF AN APPARATUS HAS BEEN DAMAGED, OR HAS BEEN SUBJECT TO POSSIBLE INJURY BY WATER OR THE ELEMENTS, SUCH DAMAGE SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.
10. DO NOT SCALE ELECTRICAL DRAWINGS. FIELD VERIFY ALL DIMENSIONS.
11. CIRCUIT LAYOUTS ARE NOT INTENDED TO SHOW THE NUMBER OF FITTINGS, OR OTHER INSTALLATION DETAILS. UNLESS NOTED OTHERWISE, THE EXACT ROUTING OF FEEDER AND BRANCH CIRCUIT RACEWAYS AND CABLES IS THE RESPONSIBILITY OF THE CONTRACTOR. RISER AND GENERAL CIRCUIT ARRANGEMENTS ARE SHOWN SCHEMATICALLY/DIAGRAMMATICALLY ONLY. THE CONTRACTOR SHALL ROUTE CONDUITS AS REQUIRED BY THE CONDITIONS OF THE INSTALLATION.
12. UNLESS DIMENSIONED, DEVICE LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. ADJUST EXACT LOCATIONS AS REQUIRED TO SERVE THE INTENDED PURPOSE AND TO AVOID CONFLICTS AND INTERFERENCES WITH OTHER TRADES. EXACT DEVICE LOCATIONS SHALL BE AS INDICATED ON THE ARCHITECTURAL DRAWINGS OR AS DIMENSIONED. IF NOT SHOWN ON THE ARCHITECTURAL DRAWINGS OR DIMENSIONED ON THE ELECTRICAL DRAWINGS, VERIFY EXACT LOCATION WITH THE ARCHITECT/ENGINEER PRIOR TO ROUGH-IN.
13. CONDUIT TERMINATING IN PRESSED STEEL BOXES SHALL HAVE DOUBLE LOCKNUTS AND INSULATED BUSHINGS. CONDUITS TERMINATING IN GASKETED ENCLOSURES SHALL BE TERMINATED WITH GROUNDING TYPE CONDUIT HUBS.
14. DEVICE BOXES SHOWN BACK-TO-BACK SHALL BE OFFSET A MINIMUM OF TWELVE (12) INCHES TO REDUCE SOUND TRANSMISSION BETWEEN ROOMS.
15. THE DRAWINGS INDICATE THE NUMBER OF BRANCH CIRCUIT HOMERUN PHASE CONDUCTORS VIA ARROWHEADS. PROVIDE NEUTRAL, EQUIPMENT GROUND CONDUCTORS AS REQUIRED. ADDITIONAL CONDUCTORS REQUIRED FOR CONTROL SHALL BE INCLUDED EVEN IF NOT EXPLICITLY SHOWN.
16. SEAL ALL CONDUIT OPENINGS THROUGH EXTERIOR BUILDING WALLS WATERTIGHT.
17. MAINTAIN CEILING FIRE RATINGS WITH ALL NECESSARY LIGHTING FIXTURE TRIM, ACCESSORIES, OPTIONS AND/OR FIELD FABRICATED SHROUDS COMPLYING WITH ALL APPLICABLE CODES.
18. RACEWAYS PENETRATING FLOORS, CEILINGS OR WALLS SHALL BE PROPERLY SEALED SMOKE/TIGHT.
19. RACEWAYS PENETRATING RATED FLOOR, CEILING OR WALL ASSEMBLIES SHALL BE PROPERLY SEALED IN ACCORDANCE WITH THE CORRESPONDING UNDERWRITERS LABORATORIES (OR OTHER APPROVED THIRD PARTY TESTING AGENCY) APPROVED AND LISTED FIRESTOPPING MATERIALS AND MANUFACTURER APPROVED INSTALLATION TECHNIQUES COMPLYING WITH ALL APPLICABLE CODES. SEE ARCHITECTURAL DRAWINGS FOR IDENTIFICATION OF RATED WALLS AND CEILINGS.
20. ALL RACEWAYS SHALL BE CONCEALED WHERE POSSIBLE.
21. INSTALL EXPOSED RACEWAYS PARALLEL TO OR AT RIGHT ANGLES TO NEARBY SURFACES OR STRUCTURAL MEMBERS, AND FOLLOW THE SURFACE CONTOURS AS MUCH AS POSSIBLE. NO DIAGONAL RUNS WILL BE ALLOWED. ALL CONDUITS SHALL BE RUN STRAIGHT AND TRUE. RUN PARALLEL OR BANKED RACEWAYS TOGETHER ON COMMON SUPPORTS WHERE PRACTICAL. MAKE BENDS IN PARALLEL OR BANKED RUNS FROM SAME CENTERLINE TO MAKE BENDS PARALLEL.
22. PATCHING OF WATERPROOFED SURFACES SHALL RENDER THE AREA OF THE PATCHING COMPLETELY WATERPROOF.
23. ALL MOTORS AND OTHER VIBRATING EQUIPMENT SHALL BE CONNECTED TO THE CONDUIT SYSTEM BY MEANS OF A SHORT SECTION (18 INCH MINIMUM) OF FLEXIBLE CONDUIT UNLESS OTHERWISE INDICATED. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED INSIDE THE FLEXIBLE CONDUIT AND TERMINATE AT THE LOAD END WITH AN APPROVED GROUNDING CLAMP OR LUG.
24. SURFACE MOUNTED JUNCTION, OUTLET AND PULL BOXES, RACEWAYS, ETC., INSTALLED ON EXTERIOR SURFACES OR INSIDE ON EXTERIOR WALLS SHALL BE SUPPORTED BY SPACERS TO PROVIDE A 1/4" MINIMUM CLEARANCE BETWEEN THE WALL AND EQUIPMENT.
25. CEILING MOUNTED DEVICES INSTALLED IN ACOUSTICAL TILE CEILING AREAS SHALL BE SUPPORTED FROM THE STRUCTURE ABOVE WITH RODS OF SUFFICIENT SIZE TO PREVENT VERTICAL MOVEMENT OF THE OUTLET BOX. BRIDGES ALONE ARE NOT ADEQUATE UNLESS SPECIFICALLY APPROVED. CEILING MOUNTED EXIT LIGHT FIXTURES SHALL BE INSTALLED LEVEL. DO NOT SUPPORT DEVICES FROM ACOUSTICAL CEILING TILE.
26. FINAL TYPED PANELBOARD DIRECTORIES INSTALLED IN THE PANELBOARD DOOR POCKET SHALL INCLUDE FINAL ACTUAL ROOM NAMES AND NUMBERS IN ADDITION TO THE GENERAL DESCRIPTION SHOWN ON THE PANEL SCHEDULES ON THE DRAWINGS.
27. CONDUCTOR SIZING IS BASED ON 75 DEGREE C. COPPER NEC RATINGS, UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL VERIFY, PRIOR TO INSTALLATION OF CONDUCTORS OR CONDUIT FEEDING ANY EQUIPMENT, THE ELECTRICAL EQUIPMENT IS RATED FOR USE WITH 75 DEGREE C. WIRING. IF ANY EQUIPMENT IS RATED FOR USE WITH LESS THAN 75 DEGREE C. CONDUCTORS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY FOR EVALUATION/CORRECTION.
28. DO NOT PULL CONDUCTORS UNTIL THE CONDUIT SYSTEM IS COMPLETE IN EVERY DETAIL. IN THE CASE OF CONCEALED WORK, "COMPLETE" MEANS UNTIL ALL ROUGH PLASTERING OR MASONRY HAS BEEN COMPLETED.
29. WHERE SIZE IS NOT SHOWN ON THE DRAWINGS, BRANCH CIRCUITS SHALL CONSIST OF #12 OR #10 AWG MINIMUM PHASE, NEUTRAL AND EQUIPMENT GROUND CONDUCTORS IN 1/2" MINIMUM RACEWAY.
30. USE #10 AWG CONDUCTORS FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS WITH A TOTAL INSTALLED LENGTH GREATER THAN 75 FEET AND/OR BRANCH CIRCUIT HOMERUNS LONGER THAN 50 FEET, I.E.; #12 AWG INCREASED TO #10 AWG FOR RECEPTACLE BRANCH CIRCUITS OVER 75 FEET TOTAL LENGTH (INCLUDING THE HOMERUN SEGMENT) AND HOMERUNS OVER 50 FEET.
31. KEEP CONDUCTOR SPLICES TO A MINIMUM. INSTALL SPLICES AND TAPES THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN CONDUCTORS BEING SPLICED. USE SPLICE AND TAP CONNECTORS COMPATIBLE WITH CONDUCTOR MATERIAL. INSTALL CONDUCTORS AT EACH OUTLET WITH AT LEAST 6 INCHES OF SLACK. CONNECT OUTLETS AND COMPONENTS TO WIRING AND TO GROUND AS INDICATED AND INSTRUCTED BY THE MANUFACTURER.
32. DO NOT SPLICE BRANCH CIRCUIT HOMERUNS WITHOUT THE PERMISSION OF THE ARCHITECT/ENGINEER. HOMERUNS SHALL BE CONTINUOUS FROM THE LAST OUTLET BOX TO THE SERVING PANELBOARD.
33. DO NOT COMBINE BRANCH CIRCUIT HOMERUNS UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS.
34. DO NOT CHANGE CIRCUITING SHOWN WITHOUT PERMISSION OF THE ARCHITECT/ENGINEER.
35. TROUGH TAPS SHALL BE AT SWITCH AMPACITY, UNLESS NOTED OTHERWISE.
36. INSTALL WIRING DEVICES AT HEIGHTS AS SHOWN ON THE DRAWINGS. ALSO COORDINATE MOUNTING HEIGHTS WITH THE DRAWINGS AND CASEWORK DETAILS.
37. COORDINATE LOCATIONS OF MECHANICAL EQUIPMENT WITH THE RESPECTIVE CONTRACTORS AND VENDORS AND THE OWNER BEFORE ROUGH-IN. ADJUST LIGHTING FIXTURES, RECEPTACLES AND ELECTRICAL EQUIPMENT TO ACCOMMODATE THIS EQUIPMENT. ADVISE THE ARCHITECT/ENGINEER OF CONFLICTS BEFORE ROUGH-IN.
38. BEFORE COMMENCING WORK OR ORDERING MATERIALS, THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND VERIFY THE NAMEPLATE RATINGS OF ALL EQUIPMENT (MOTORS, HEATERS, COMPRESSORS, ETC.) AND ADJUST THE RATINGS OF THE ELECTRICAL EQUIPMENT (SWITCHES, FUSES, CIRCUIT BREAKERS, FEEDERS, ETC.) AS APPROPRIATE TO SERVE THIS EQUIPMENT.
39. ENERGIZE EQUIPMENT ONLY AFTER OBTAINING PERMISSION FROM THE CONTRACTOR PROVIDING THE EQUIPMENT.
40. UNLESS SPECIFICALLY NOTED OTHERWISE, THE ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL UTILIZATION EQUIPMENT SHOWN ON THE DRAWINGS. VERIFY THE TYPE OF FINAL CONNECTION AND PROVIDE APPROPRIATE WIRING METHOD. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL, PLUMBING AND GENERAL CONTRACTORS, PRIOR TO ORDERING OR INSTALLATION OF ANY EQUIPMENT, TO VERIFY MECHANICAL AND PLUMBING EQUIPMENT REQUIREMENTS ARE PROVIDED IN THE ELECTRICAL DESIGN. THE CONTRACTOR WILL NOT BE COMPENSATED FOR COSTS ASSOCIATED WITH CHANGING THE ELECTRICAL SYSTEMS TO MATCH UTILIZATION EQUIPMENT, EVEN IF THE ELECTRICAL WORK IS INSTALLED PER THE ELECTRICAL DRAWINGS.
41. THE MECHANICAL AND PLUMBING CONTRACTORS SHALL FURNISH ALL STARTERS AND CONTROLS FOR THEIR EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL MOUNT STARTERS FURNISHED BY THE MECHANICAL AND PLUMBING CONTRACTORS. THE ELECTRICAL CONTRACTOR PROVIDE ALL SAFETY SWITCHES, WIRING AND CONNECTIONS TO LINE SIDE AND LOAD SIDE OF STARTERS AND SAFETY SWITCHES COMPLETE TO MECHANICAL EQUIPMENT. FOR RESISTANCE TYPE LOADS WHERE STARTERS OR CONTACTORS ARE NOT REQUIRED, THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING AND CONNECTIONS COMPLETE TO EQUIPMENT. THE MECHANICAL AND PLUMBING CONTRACTORS SHALL PROVIDE ALL CONTROL WIRING AND CONNECTIONS AND DEVICES FOR THEIR EQUIPMENT.
42. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL EQUIPMENT TERMINATIONS, PLUGS AND CORDSETS WITH VENDOR EQUIPMENT AND VERIFY ALL DEVICE LOCATIONS FOR SPECIALTY EQUIPMENT WITH CASEWORK PRIOR TO ROUGH-IN.
43. PROTECT ALL EXISTING POWER, COMMUNICATIONS, DATA, LIFE SAFETY SYSTEMS, FIRE ALARM AND PUBLIC ADDRESS SYSTEMS AND MAINTAIN THEM IN OPERATION THROUGHOUT THE PROGRESS OF THE WORK. NOTIFY THE OWNER AND ARCHITECT/ENGINEER IF SHUTDOWNS ARE REQUIRED PRIOR TO ANY OUTAGE OF SERVICE. WHERE THE DURATION OF A PROPOSED OUTAGE CANNOT BE TOLERATED BY THE OWNER, PROVIDE TEMPORARY CONNECTIONS AS REQUIRED TO MAINTAIN SERVICE.
44. THE CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING NECESSARY TO INSTALL ALL EQUIPMENT AS REQUIRED AND SHALL REESTABLISH ALL FINISHES TO THEIR ORIGINAL CONDITION WHERE CUTTING AND PATCHING OCCUR. ALL CUTTING AND PATCHING SHALL BE DONE IN A THOROUGHLY WORKMANSHIP MANNER. SAW CUT CONCRETE AND MASONRY PRIOR TO BREAKING OUT SECTIONS. ALL PATCHING MATERIALS AND WORKMANSHIP SHALL BE PERFORMED BY TRADESMEN EXPERIENCED IN THAT WORK. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER.
45. CORE DRILL HOLES IN EXISTING CONCRETE WALLS AS REQUIRED.
46. INSTALL WORK AT SUCH TIME AS TO REQUIRE THE MINIMUM AMOUNT TO CUTTING AND PATCHING.
47. CUT OPENINGS ONLY LARGE ENOUGH TO ALLOW EASY INSTALLATION OF THE CONDUIT.
48. EXISTING CIRCUITING WHERE SHOWN IS FOR CONVENIENCE PURPOSES ONLY. VERIFICATION OF EXISTING WIRING DESTINATION, TERMINATION AND ADDITIONS OF NEW LOADS IS THE RESPONSIBILITY OF THE CONTRACTOR.
49. MAINTAIN CONTINUITY OF ALL EXISTING CIRCUITS TO REMAIN OR PORTIONS THEREOF AFFECTED BY THIS WORK.
50. ABANDONED POWER WIRING, RACEWAYS AND CONDUCTORS, SHALL BE REMOVED BACK TO THEIR SOURCE. THE ACCESSIBLE PORTIONS OF ABANDONED CABLES (VOICE, DATA, VIDEO, ALARM, ETC.) SHALL BE REMOVED.
51. TRACE OUT EXISTING WIRING THAT IS TO BE RELOCATED, OR REMOVED AND PERFORM THE RELOCATION OR REMOVAL WORK AS REQUIRED FOR A COMPLETE OPERATING AND SAFE SYSTEM.
52. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING ELECTRICAL SYSTEMS AND THE EXISTING BUILDING. THE SUBMISSION OF THE PROPOSAL BY THE CONTRACTOR SHALL BE CONSIDERED EVIDENCE THAT HE OR HIS REPRESENTATIVE HAS VISITED THE SITE AND BUILDINGS AND NOTED THE LOCATION AND CONDITIONS UNDER WHICH THE WORK WILL BE PERFORMED AND THAT HE TAKES FULL RESPONSIBILITY OF ALL FACTORS GOVERNING HIS WORK. NO EXTRAS WILL BE CONSIDERED BECAUSE OF ADDITIONAL WORK NECESSITATED BY EXISTING JOB CONDITIONS THAT ARE NOT INDICATED ON THE DRAWINGS.
53. SOME EXISTING RECEPTACLE, LIGHTING OR OTHER LOADS MAY BE SERVED BY CIRCUITS INDICATED TO BE REMOVED. IF SUCH CONDITIONS ARE DISCOVERED, REQUEST THE ARCHITECT/ENGINEER PROVIDE NEW CIRCUIT NUMBER FOR THE LOAD. DO NOT INDISCRIMINATELY CONNECT TO THE NEAREST CIRCUIT.
54. THE EXISTING FACILITIES WILL REMAIN OCCUPIED BY STUDENTS AND THE STAFF THROUGHOUT THE PROJECT. AS SUCH, WORK WILL REQUIRE SPECIAL EFFORT BY THIS CONTRACTOR TO ALLOW THE WORK TO PROCEED IN A TIMELY MANNER. ALL ELECTRICAL WORK SHALL BE COORDINATED WITH THE OWNER AND GENERAL CONTRACTOR SO AS TO MINIMIZE DISRUPTION OF THE OWNER'S USE OF THE FACILITIES AND MAINTAIN THE CONSTRUCTION SEQUENCE OF THE GENERAL CONTRACTOR. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INSTRUCTIONS CONCERNING PHASING AND SEQUENCE OF WORK.
55. SEE "SELECTIVE DEMOLITION NOTES" FOR ADDITIONAL REQUIREMENTS.
56. SAFETY
 - A. COMPLY WITH OSHA AND NEC ARC FLASH PROTECTION REQUIREMENTS.
 - B. FOR EQUIPMENT BEING REMOVED AND REPLACED, THE CONTRACTOR SHALL DE-ENERGIZE THE EQUIPMENT AND MAKE IT SAFE PRIOR TO REMOVAL AND COMPLY WITH OSHA REQUIREMENTS FOR LOCKING-OUT AND TAGGING EQUIPMENT TO PREVENT INADVERTENT RE-ENERGIZING.
 - C. WHERE EQUIPMENT IS BEING REMOVED, BUT NOT REPLACED, REMOVE THE CONDUCTORS FEEDING THE EQUIPMENT BACK TO THE POINT WHERE THEY RECEIVE POWER. REMOVE ACCESSIBLE CONDUITS. ABANDON IN PLACE INACCESSIBLE CONDUITS. AFTER REMOVAL OF EQUIPMENT, REPAIR ANY OPENING LEFT TO MATCH SURROUNDING WALLS, CEILINGS, OR FLOORS TO THE ARCHITECT/ENGINEER'S SATISFACTION.
 - D. COORDINATE WITH THE OTHER TRADES, PRIOR TO BID, AND INCLUDE IN THE BASE BID THE ELECTRICAL DISCONNECTION OF ANY EQUIPMENT BEING DEMOLISHED, EVEN IF NOT EXPLICITLY SHOWN. UNLESS NOTED OTHERWISE, REMOVE ALL DEMOLISHED EQUIPMENT FROM THE PROPERTY.

Electrical Specifications

260500 GENERAL ELECTRICAL

- A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING CODES AND STANDARDS INSOFAR AS THEY APPLY.
 1. THE NATIONAL ELECTRICAL CODE, 2011 EDITION
 2. THE NATIONAL ELECTRICAL SAFETY CODE
 3. UNDERWRITER'S LABORATORIES, INC., STANDARDS AND APPROVED LISTINGS
 4. ELECTRICAL TESTING LABORATORIES STANDARDS
 5. NORTH CAROLINA STATE BUILDING CODE, LATEST EDITION AND REVISIONS
 6. ALL LOCAL CODES AND ORDINANCES
 7. NFPA 72
 8. ADA
- B. THE CONTRACTOR SHALL OBTAIN ALL PERMITS, LICENSES, INSPECTIONS, ETC., REQUIRED FOR THE WORK AND SHALL PAY FOR SAME. THE CONTRACTOR SHALL FURNISH A FINAL CERTIFICATE OF INSPECTION AND APPROVAL FROM THE AUTHORITY HAVING JURISDICTION PRIOR TO ACCEPTANCE OF THE WORK.
- C. ALL WORK SHALL BE DONE BY SKILLED MECHANICS AND SHALL PRESENT A NEAT, TRIM AND WORKMANLIKE FINISH WHEN COMPLETED.
- D. COORDINATION: DO NOT SCALE ELECTRICAL DRAWINGS. LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT MEASUREMENTS IN THE PLACEMENT OF EQUIPMENT, FIXTURES, OUTLETS, ETC. THE DRAWINGS DO NOT GIVE EXACT DETAILS AS TO ELEVATIONS AND LOCATIONS OF VARIOUS FITTINGS, CONDUIT, ETC., AND DO NOT SHOW ALL OFFSETS AND OTHER INSTALLATION DETAILS WHICH MAY BE REQUIRED.
- E. MATERIALS: ALL MATERIALS SHALL BE NEW AND SHALL BEAR THE MANUFACTURER'S NAME, TRADE NAME, AND UL LABEL WHERE SUCH A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR MATERIAL. MATERIALS SHALL BE THE STANDARD PRODUCTS OF MANUFACTURER'S REGULARLY ENGAGED IN THE MANUFACTURE OF THE REQUIRED TYPE OF EQUIPMENT AND THE MANUFACTURER'S LATEST APPROVED DESIGN. OTHER MATERIALS AND EQUIPMENT TO BE AS SHOWN ON THE DRAWINGS. WHERE NO SPECIFIC MATERIAL TYPE IS MENTIONED, A HIGH QUALITY PRODUCT OF A REPUTABLE MANUFACTURER MAY BE USED PROVIDED IT CONFORMS TO THE REQUIREMENTS OF THESE SPECIFICATIONS.
 1. TEST ALL SYSTEMS MODIFIED OR DISTURBED BY THIS CONSTRUCTION FOR PROPER OPERATION AND FUNCTION IN A MANNER APPROVED BY THE SYSTEM MANUFACTURER. PROVIDE WRITTEN CERTIFICATION OF ALL TESTS.
- F. EXISTING BUILDINGS AND CONSTRUCTION

1. THE CONTRACTOR IS CAUTIONED THAT WORK TO BE PERFORMED UNDER THIS CONTRACT IS TO BE ACCOMPLISHED IN AN EXISTING OCCUPIED BUILDING. ALL SUCH WORK SHALL BE SCHEDULED AND ARRANGED TO BE DONE AT THE CONVENIENCE OF THE OWNER SO AS NOT TO INTERFERE WITH, DISRUPT, OR DISTURB NORMAL OPERATIONS IN THE BUILDING. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE OWNER BEFORE PROCEEDING WITH WORK IN EXISTING BUILDINGS AND SHALL WORK IN EXISTING BUILDINGS ON SCHEDULE AS AGREED UPON WITH THE OWNER.
2. THE CONTRACTOR SHALL, AT ALL TIMES, PROVIDE SAFETY BARRIERS, PROTECTIVE DEVICES, SCREENING, DUST BARRIERS, ETC., AS REQUIRED TO MAINTAIN THE SAFETY AND COMFORT OF THE BUILDING'S PERSONNEL AND/OR OCCUPANTS IN OR NEAR HIS WORK AREA.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP IN CONNECTION WITH HIS WORK IN EXISTING BUILDINGS. ALL DEMOLISHED EQUIPMENT AND MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. AT THE END OF EACH DAY OF WORK, DEBRIS, BOXES, WASTE, ETC., SHALL BE REMOVED FROM THE BUILDINGS AND PROPERLY DISPOSED OF. CONTRACTOR EQUIPMENT, MATERIALS, ETC., MUST BE PROPERLY STORED, STACKED AND LOCATED AS INSTRUCTED BY THE OWNER.
4. THE CONTRACTOR SHALL DO ALL CUTTING, PATCHING, FINISHING, REPAIRING, PAINTING, ETC., NECESSARY FOR WORK TO BE INSTALLED IN EXISTING BUILDINGS. ALL FINISHES SHALL BE LEFT TO EQUAL FINISH AND CONDITION PRIOR TO CUTTING. NO CUTTING OF STRUCTURAL MEMBERS WILL BE ALLOWED. REMOVE/REPLACE EXISTING LAY-IN CEILING AS REQUIRED TO ACCOMPLISH WORK. ALL CUTTING OF WALLS, FLOORS, ROOFS, ETC., SHALL BE REPAIRED AND/OR REPLACED TO EQUAL FINISH PRIOR TO CUTTING. CORE DRILL ALL HOLES FOR PIPING AND CONDUIT. THE CONTRACTOR SHALL ROUTE PIPE, CONDUITS, DUCTWORK AND LOCATE EQUIPMENT AS APPROVED BY THE OWNER'S REPRESENTATIVE. ROUTINGS AND LOCATIONS SHALL BE FIRMLY ESTABLISHED AND APPROVED BEFORE PROCEEDING WITH ANY PHASE OF THE WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE EXISTING BUILDINGS, GROUNDS, WALKWAYS, ETC., CAUSED BY THE WORK. THE CONTRACTOR AND/OR HIS PERSONNEL, AND/OR HIS EQUIPMENT IN THE ACCOMPLISHMENT OF THIS WORK, SUCH DAMAGES SHALL BE REPAIRED AND/OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER, TO FINISH EQUAL TO THAT FINISH PRIOR TO DAMAGE. THE OWNER'S REPRESENTATIVE SHALL BE THE JUDGE AS TO EQUAL FINISHES, ETC.
6. COORDINATE POWER OUTAGES WITH THE OWNER. REQUEST OUTAGES 24 HOURS IN ADVANCE.

- G. SUBMITTALS: SUBMITTALS SHALL INCLUDE PRODUCT DATA FOR ALL MATERIALS SPECIFIED AND COMPONENT INDICATED IN THE DRAWINGS. EACH SWITCHBOARD, PANELBOARD, TRANSFORMER, SAFETY SWITCH, ENCLOSED CIRCUIT BREAKER, LIGHTING FIXTURE, BALLAST, LAMPS, OVERCURRENT PROTECTIVE DEVICE, FIRE ALARM SYSTEM, SURFACE RACEWAY, WIREWAY, RACEWAY FITTINGS, WIRING DEVICES AND ACCESSORIES. INCLUDE DIMENSIONS AND MANUFACTURERS TECHNICAL DATA ON FEATURES, PERFORMANCE, ELECTRICAL CHARACTERISTICS, RATINGS AND FINISHES.
- H. GUARANTEE: THE CONTRACTOR SHALL GUARANTEE THE MATERIALS AND WORKMANSHIP COVERED BY THESE DRAWINGS AND SPECIFICATIONS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY PARTS OF ANY SYSTEM THAT MAY PROVE TO BE DEFECTIVE AT NO ADDITIONAL COST TO THE OWNER WITHIN THE GUARANTEE PERIOD.

260519 CONDUCTORS

- A. CONDUCTORS SHALL BE COPPER, MINIMUM SIZE #12. SIZES #10 AND #12 SHALL BE SOLID, #8 AND LARGER, STRANDED. INSULATION SHALL BE TYPE THW, THWN OR THHN FOR FEEDERS, TYPE THWN OR THHN FOR BRANCH CIRCUITS.
- B. CONDUCTORS SHALL BE COLOR CODED THROUGHOUT, SIZES #10 AND #12 SHALL BE FACTORY CODED, SIZES #8 AND LARGER MAY BE COLOR TAPED ON THE JOB. COLOR CODING SHALL BE: PHASE A - BLACK, PHASE B - RED, PHASE C - BLUE, NEUTRAL - WHITE, GROUND - GREEN FOR 120/208 VOLT SYSTEMS. COLOR CODING SHALL BE: PHASE A - BROWN, PHASE B - ORANGE, PHASE C - YELLOW, NEUTRAL - GREY, GROUND - GREEN FOR 277/480 VOLT SYSTEMS.
- C. CONDUCTORS SHALL MEET THE LATEST REQUIREMENTS OF NEMA AND IPECA AND SHALL BE UL APPROVED.
- D. ALL CONDUCTORS SHALL BE CONTINUOUS WITHOUT SPLICE BETWEEN JUNCTION, OUTLET, DEVICE BOXES, ETC., UNLESS NOTED OTHERWISE. NO SPLING WILL BE PERMITTED IN PANELBOARD CABINETS, SAFETY SWITCHES, ETC.

260533 RACEWAYS AND FITTINGS

- A. RACEWAYS SHALL BE RIGID GALVANIZED STEEL OR ELECTRICAL METALLIC TUBING. EMT FITTINGS SHALL BE HEX NUT STEEL COMPRESSION TYPE WITH INSULATED THROATS.
- B. FLEXIBLE METAL CONDUIT AND LIQUIDTIGHT FLEXIBLE METAL CONDUIT: UL APPROVED AND LABELED WITH HEX NUT STEEL FITTINGS.
- C. JUNCTION AND OUTLET BOXES FOR INTERIOR USE IN DRY LOCATIONS SHALL BE ZINC COATED OR CADMIUM PLATED SHEET STEEL, 4" SQUARE BY 2-1/8" DEEP, EXCEPT SINGLE WIRING DEVICE BOXES MAY BE SINGLE GANG.
- D. RACEWAYS, BOXES, FITTINGS, ETC., SHALL BE SOLIDLY FASTENED TO MASONRY WITH LEAD ANCHORS AND MACHINE SCREWS OR TOGGLE BOLTS. RACEWAYS SHALL BE FASTENED TO STRUCTURAL STEEL WITH BEAM CLAMPS, CONDUIT HANGERS, TRAPEZE HANGERS, OR OTHER APPROVED DEVICES.
- E. BOXES INSTALLED IN CONCEALED LOCATIONS SHALL BE SET FLUSH WITH THE FINISHED SURFACES AND SHALL BE PROVIDED WITH EXTENSION RINGS WHERE REQUIRED. BOXES SHALL BE RIGIDLY INSTALLED.
- F. RACEWAYS PASSING THROUGH RATED WALLS, FLOORS, ETC., SHALL BE INSTALLED IN ACCORDANCE WITH PUBLISHED UL CONFIGURATIONS.
- G. RACEWAYS SHALL BE SIZED AS SHOWN AND/OR AS REQUIRED BY THE NEC. MINIMUM SIZE SHALL BE 1/2".
- H. RACEWAY AND BOX INSTALLATION:
 1. OUTDOORS (EXPOSED): USE RIGID STEEL, IMC OR SCHEDULE 40 PVC. RIGID STEEL WHERE SUBJECT TO PHYSICAL DAMAGE.
 2. OUTDOORS (CONCEALED): USE RIGID STEEL, IMC OR SCHEDULE 40 PVC.
 3. INDOORS (EXPOSED): USE EMT, RIGID STEEL OR IMC. RIGID STEEL WHERE SUBJECT TO PHYSICAL DAMAGE.
 4. INDOORS (CONCEALED): USE EMT, IMC OR RIGID STEEL INDOORS (WET AND DAMP LOCATIONS): USE RIGID STEEL.
 5. BOXES AND ENCLOSURES
 - a. INDOORS: NEMA 250, TYPE 1, EXCEPT IN DAMP AND WET LOCATIONS: NEMA 250, TYPE 4, STAINLESS STEEL OR NON-METALLIC
 - b. OUTDOORS: NEMA 250, TYPE 3R.

260534 BOXES

- A. JUNCTION, SWITCH, RECEPTACLE AND OUTLET BOXES FOR INTERIOR USE IN DRY LOCATIONS SHALL BE

ZINC COATED OR CADMIUM PLATED SHEET STEEL, 4" SQUARE AND 2-1/8" DEEP, UNLESS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS. EXTERIOR AND EXPOSED BOXES SHALL BE CAST TYPE WITH HUBS. SMALLER AND SHALLOWER OUTLET BOXES WILL BE PERMITTED ONLY BY SPECIAL PERMISSION OF THE ARCHITECT/ENGINEER WHERE SUCH BOXES ARE NECESSARY DUE TO STRUCTURAL CONDITIONS ENCOUNTERED. WHERE LARGER JUNCTION BOXES ARE REQUIRED, THEY SHALL BE FABRICATED FROM NO. 10, 12, 14 OR 16 GAUGE SHEET STEEL AS REQUIRED BY THE UNDERWRITER'S LABORATORIES, INC., AND GALVANIZED AFTER FABRICATION.

B. USE FLUSH MOUNTING OUTLET BOX IN FINISHED AREAS. USE STAMPED STEEL BRIDGES TO FASTEN FLUSH MOUNTING OUTLET BOX BETWEEN STUDS, CADDY RBS SERIES OR EQUIVALENT.

C. ALL JUNCTION BOXES SHALL HAVE SCREW FASTENED COVERS. OUTLET BOXES SHALL BE PROVIDED WITH EXTENSION PLASTER RINGS WHERE REQUIRED BY STRUCTURAL AND FINISH CONDITIONS.

D. SET WALL MOUNTED BOXES AT ELEVATIONS TO ACCOMMODATE MOUNTING HEIGHTS INDICATED AND SPECIFIED IN SECTION FOR OUTLET DEVICE. BOXES ARE SHOWN ON DRAWINGS IN APPROXIMATE LOCATIONS UNLESS DIMENSIONED. ADJUST BOX LOCATION UP TO 10 FEET (3 M) IF REQUIRED TO ACCOMMODATE INTENDED PURPOSE. INSTALL PULL BOXES AND JUNCTION BOXES ABOVE ACCESSIBLE CEILINGS AND IN UNFINISHED AREAS ONLY. COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF OUTLETS MOUNTED ABOVE COUNTERS, BENCHES, AND BACKSPASHES.

E. INSTALL BOXES TO PRESERVE FIRE RESISTANCE RATING OF PARTITIONS AND OTHER ELEMENTS, USING APPROVED MATERIALS AND METHODS.

260526 GROUNDING

- A. ALL GROUNDING SHALL BE IN ACCORDANCE WITH ARTICLE 250 OF THE NEC. IN ADDITION, THE FOLLOWING REQUIREMENTS SHALL BE MET:
 1. GROUNDING CONDUCTORS SHALL BE INSTALLED AS TO PERMIT THE SHORTEST AND MOST DIRECT PATH FROM EQUIPMENT TO GROUND. ALL GROUND CONNECTIONS TO GROUND CONDUCTORS SHALL BE ACCESSIBLE.
 2. EQUIPMENT GROUND CONTINUITY SHALL BE MAINTAINED THROUGH FLEXIBLE METAL CONDUIT.
 3. ALL WIRING DEVICES EQUIPPED WITH GROUNDING CONNECTION SHALL BE SOLIDLY GROUND TO GROUND SYSTEM WITH GROUNDING CONDUCTORS.
 4. THE FRAME OF ALL LIGHTING FIXTURES SHALL BE SECURELY GROUND TO THE EQUIPMENT GROUND SYSTEM WITH GROUNDING CONDUCTORS.
 5. GROUNDING TYPE CONVENIENCE OUTLETS AND SWITCHES SHALL BE SOLIDLY GROUND TO EQUIPMENT GROUNDING SYSTEM WITH A GREEN COLORED INSULATED CONDUCTOR. ELECTRICAL CONNECTIONS SHALL BE CONTINUOUS FROM EQUIPMENT GROUND BUS IN PANELBOARD TO THE HEX NUT ON THE CONVENIENCE OUTLET OR SWITCH.
 6. ALL CIRCUITS SHALL CONTAIN AN INSULATED, GREEN, COPPER GROUNDING CONDUCTOR, SIZED IN ACCORDANCE WITH TABLE 250-122 OF THE NEC. GROUNDING CONDUCTORS SHALL BE CONNECTED TO EQUIPMENT GROUND BUS IN PANELBOARD AND SECURELY ATTACHED AND GROUND TO THE DEVICE OR ENCLOSURE AT THE OTHER END.
 7. ALL EQUIPMENT ENCLOSURES, AND NON-CURRENT METALLIC PARTS OF ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS, ETC., SHALL BE EFFECTIVELY AND ADEQUATELY BONDED TO GROUND.

260529 SUPPORTING DEVICES

- A. Provide materials, sizes, and types of anchors, fasteners and supports to carry the loads of equipment and conduit. Consider weight of wire in conduit when selecting products. Provide adequate corrosion resistance.
- B. Anchors and Fasteners:
 1. Concrete Structural Elements: Use expansion anchors.
 2. Steel Structural Elements: Use beam clamps.
 3. Concrete Surfaces: Use self-drilling anchors and expansion anchors.
 4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Use toggle bolts.
 5. Solid Masonry Walls: Use expansion anchors.
 6. Sheet Metal: Use sheet metal screws or bolts.
 7. Wood Elements: Use wood screws.
- C. Install products in accordance with manufacturer's instructions.
- D. Provide anchors, fasteners, and supports in accordance with NECA "Standard of Installation".
- E. Do not fasten supports to pipes, ducts, mechanical equipment, and conduit.
- F. Do not use powder-actuated anchors.
- G. Obtain permission from Architect/Engineer before drilling or cutting structural members.
- H. Fabricate supports from structural steel or steel channel. Rigidly weld members or use hexagon head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.
- I. Conduits installed on the interior of exterior building walls shall be spaced away from the wall surface a minimum of 1/4 inch (65mm) using "clamp-backs" or struts.
- J. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.

260553 IDENTIFICATION

- A. IDENTIFICATION NAMEPLATES: FURNISH AND INSTALL ENGRAVED LAMINATED NAMEPLATES FOR ALL SAFETY SWITCHES, PANELBOARDS AND ELECTRICAL EQUIPMENT SUPPLIED FOR IDENTIFICATION OF EQUIPMENT CONTROLLED, SERVED, PHASE, VOLTAGE, ETC. NAMEPLATES SHALL BE SECURELY ATTACHED TO EQUIPMENT WITH METAL SCREWS AND SHALL IDENTIFY BY NAME THE EQUIPMENT CONTROLLED, ATTACHED, ETC. LETTERS SHALL BE APPROXIMATELY 1/4-INCH HIGH MINIMUM. EMBOSSED, SELF-ADHESIVE PLASTIC TAPE IS NOT ACCEPTABLE. NAMEPLATE MATERIAL COLORS SHALL BE BLACK SURFACE WITH WHITE CORE FOR THE NORMAL POWER SYSTEM.

262816 SAFETY SWITCHES

- A. NEMA KS 1, TYPE HD WITH EXTERNALLY OPERABLE HANDLE INTERLOCKED (DEFEATABLE) TO PREVENT OPENING FRONT COVER WITH SWITCH IN ON POSITION, ENCLOSED LOAD INTERRUPTER KNIFE SWITCH. MECHANISMS SHALL BE NON-TEASIBLE, POSITIVE, QUICK MAKE-QUICK BREAK TYPE. HANDLE LOCKABLE IN ON OR OFF POSITION. SWITCHES SHALL HAVE HANDLES WHOSE POSITIONS ARE EASILY RECOGNIZABLE IN THE ON OR OFF POSITION. FUSE CLIPS SHALL BE DESIGNED TO ACCOMMODATE NEMA FUJ, CLASS R FUSES.
- B. SAFETY SWITCHES SHALL BE MANUFACTURED BY CUTLER HAMMER, GENERAL ELECTRIC, SIEMENS OR SQUARE D.

262817 CIRCUIT BREAKERS

- A. CIRCUIT BREAKERS INDICATED TO BE INSTALLED IN EXISTING PANELBOARDS SHALL BE MOLDED CASE, UL LISTED AND SHALL BE RATED AS SHOWN ON THE DRAWINGS. PROVIDE ALL NECESSARY MOUNTING HARDWARE AND ACCESSORIES AS REQUIRED TO INSTALL NEW CIRCUIT BREAKERS. NEW CIRCUIT BREAKERS SHALL MATCH EXISTING TYPES INSTALLED AND BE RATED CONSISTENT WITH THE EXISTING EQUIPMENT TO MAINTAIN EQUIPMENT RATINGS.
- B. CIRCUIT BREAKERS SHALL BE MANUFACTURED BY CUTLER HAMMER, GENERAL ELECTRIC, SIEMENS OR SQUARE D.

05.04.15	08.30.14	Date:
0	1	ISSUED FOR RECORD DRAWING
0	1	ISSUED FOR REVIEW
0	1	REVISIONS
0	1	REVISIONS

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UNC- Wilmington Dobo Hall Suite 120
601 S. College Road
Wilmington, NC
Electrical

Job No.:	14147
Drawn:	RWC
Designed:	RWC
Checked:	WAC

Drawing No:
E0.1

Revision:
1

SYMBOL	DESCRIPTION
	<p>MANUAL MOTOR STARTER, ELECTRICAL CONTRACTOR SHALL COORDINATE POLES AND SIZE WITH EQUIPMENT</p> <p>## = AMPERAGE RATING WHEN INDICATED ON DRAWING</p> <p>PANEL BOARD, SURFACE MOUNTED, SIZE and RATINGS AS INDICATED ON PANEL SCHEDULE</p> <p>PANEL BOARD, SURFACE MOUNTED, SIZE and RATINGS AS INDICATED ON PANEL SCHEDULE REQUIRED CLEARANCE IN FRONT OF ELECTRICAL PANEL, SEE NEC TABLE 110.26 WORKING SPACES FOR ADDITIONAL CLEARANCE CONDITIONS</p> <p>CONDUIT, HOME RUN TO PANEL BOARD</p> <p>HATCHING INDICATES ITEMS TO BE DEMOLISHED. REMOVE DEVICE, EQUIPMENT, FIXTURE INDICATED, CIRCUIT, AND CONDUIT BACK TO SOURCE UNLESS OTHERWISE NOTED.</p>

PANEL "LPX"

ROOM 120A

ABOVE CEILING, TYPICAL

ROOM 120

ROOM 120B

VAV1

VAV2

LPX-25

MS

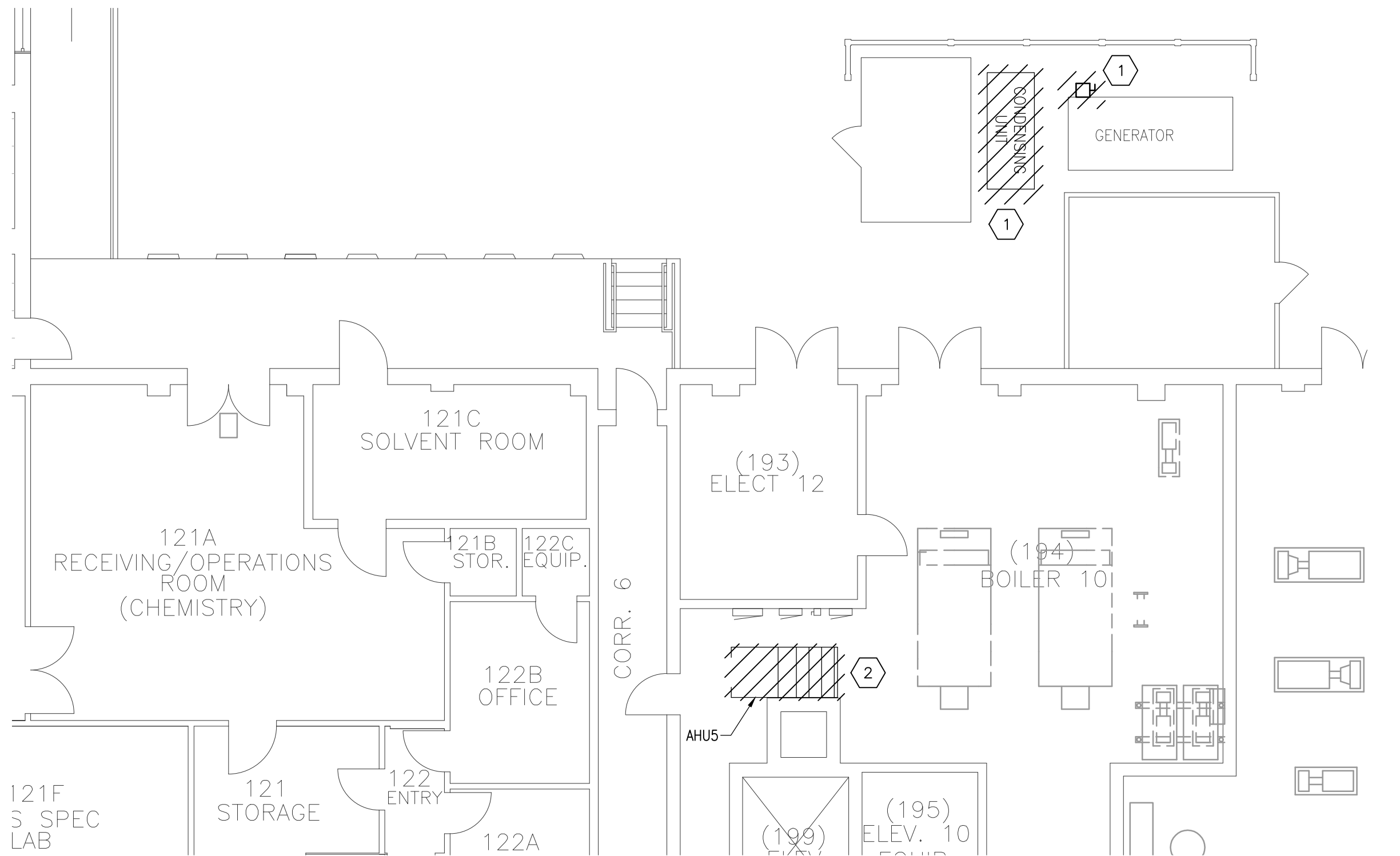
MS

2#12 & 1#12EG, 3/4"CND
TYPICAL ALL CIRCUITS

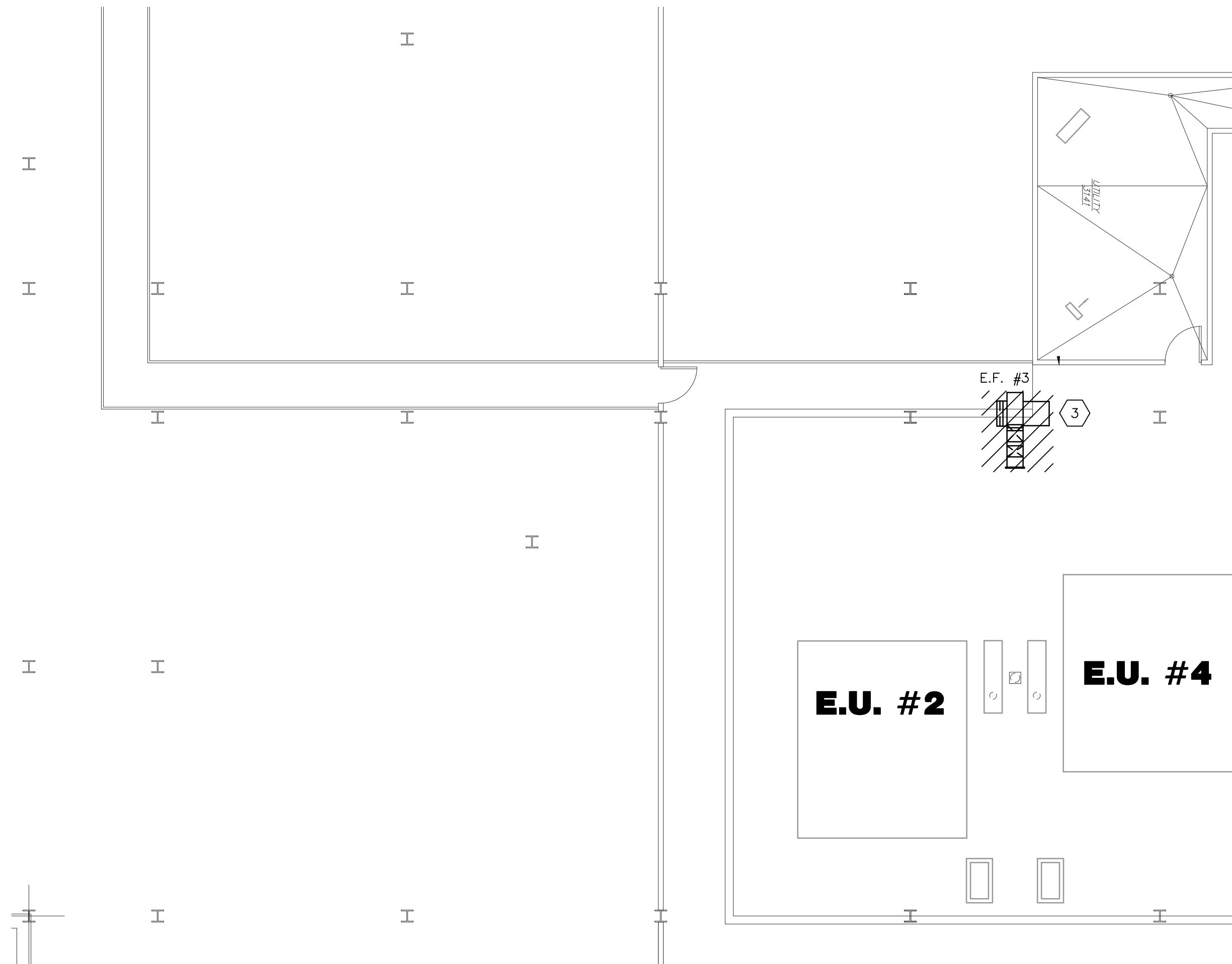
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Revision:
1

Drawing: K:\UNC\1147-Wilmington Dobo Hall Suite 120\Outbox\2015-08-26 Rec Draw-16 Rendition Mads\DWG\1147 Edwg Plot Time: 8/26/2015 12:01 PM



1 -First Floor Electrical Demolition Plan
1/8"=1'-0"



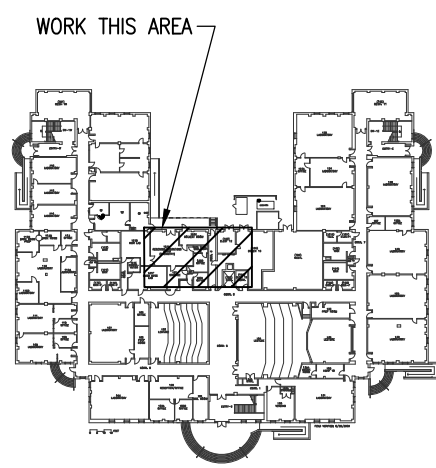
2 -Attic Electrical Demolition Plan
1/8"=1'-0"

Demolition Notes

1. SELECTIVE ELECTRICAL DEMOLITION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AS DESCRIBED HEREIN AND AS SHOWN ON THE CONTRACT DRAWINGS. GROSS DEMOLITION WILL BE PROVIDED BY THE GENERAL CONTRACTOR. IDENTIFY ACTIVE UTILITIES, AND AT THE APPROPRIATE TIME, DISCONNECT AND CAP OFF SUCH UTILITIES AND PROVIDE EXPERIENCED PERSONNEL ON SITE DURING GENERAL CONTRACTOR DEMOLITION OPERATIONS TO PERFORM SUCH OPERATIONS AND RESOLVE ISSUES. REMOVE MATERIALS NOTED FOR SALVAGE AND REUSE. IDENTIFY AND MARK WIRING AND DEVICES TO REMAIN FOR THE GENERAL CONTRACTOR.
2. THE ELECTRICAL CONTRACTOR SHALL REVIEW THE MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR DEMOLITION REQUIREMENTS AND CARRY OUT HIS WORK IN A COMPATIBLE AND COMPLEMENTARY MANNER. REMOVE ALL WIRING DEVICES, BOXES, FIXTURES, EXPOSED ABANDONED RACEWAYS, HANGARS, ETC., AND THOSE MADE OBSOLETE BY THESE ALTERATIONS AND AS SHOWN ON THE ELECTRICAL DRAWINGS. ALL ITEMS TO BE REMOVED OR MODIFIED MAY NOT BE SHOWN, HOWEVER, THIS CONTRACTOR SHALL REMOVE ANY ELECTRICAL WORK AS REQUIRED BY THE CONSTRUCTION OR AS DIRECTED BY THE OWNER OR ARCHITECT/ENGINEER. SURVEY THE AFFECTED AREAS BEFORE SUBMITTING A BID AS ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DEPICTED ON THE DRAWINGS AND SOME UNUSUAL CONDITIONS MAY EXIST.
3. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.
4. ALL EXISTING ELECTRICAL EQUIPMENT AND DEVICES SHALL REMAIN UNLESS SPECIFICALLY NOTED TO BE REMOVED.
5. VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE AS SHOWN ON DRAWINGS.
6. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.
7. DISCONNECT AND/OR DE-ENERGIZE ELECTRICAL SYSTEMS IN WALLS AND CEILINGS SCHEDULED FOR REMOVAL.
8. PROVIDE TEMPORARY AND/OR PERMANENT WIRING AND CONNECTIONS AS SHOWN AND/OR AS REQUIRED BY CONDITIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, AND WHEN SUCH WORK IS SPECIFICALLY APPROVED BY THE OWNER AND PERMITTED BY REGULATORY AUTHORITIES, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.
9. EXISTING ELECTRICAL SERVICE: COORDINATE POWER OUTAGES WITH THE OWNER. MAINTAIN EXISTING SYSTEMS IN SERVICE. DISABLE SYSTEMS ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM THE OWNER AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA.
10. CONTINUOUS SERVICE IS REQUIRED ON ALL CIRCUITS AND OUTLETS AFFECTED BY THESE CHANGES, EXCEPT WHERE THE OWNER WILL PERMIT AN OUTAGE FOR A SPECIFIC TIME. OBTAIN OWNER'S CONSENT BEFORE REMOVING ANY CIRCUIT FROM CONTINUOUS SERVICE.
11. PROTECT ALL EXISTING TELEPHONE, DATA, LIFE SAFETY SYSTEMS, FIRE ALARM, SECURITY, ACCESS CONTROL AND PUBLIC ADDRESS SYSTEMS AND MAINTAIN THEM IN OPERATION THROUGHOUT THE PROGRESS OF THE WORK. NOTIFY THE OWNER AND ARCHITECT/ENGINEER IN WRITING IF SHUTDOWNS ARE REQUIRED PRIOR TO ANY OUTAGE OF SERVICE. WHERE THE DURATION OF A PROPOSED OUTAGE CANNOT BE TOLERATED BY THE OWNER, PROVIDE TEMPORARY CONNECTIONS AS REQUIRED TO MAINTAIN SERVICE.
12. WHERE ELECTRICAL SYSTEMS PASS THROUGH THE DEMOLITION AREAS TO SERVE OTHER PORTIONS OF THE PREMISES, THEY SHALL BE PROTECTED FROM DAMAGE AND REMAIN OR BE SUITABLY RELOCATED UTILIZING MATCHING SIZE AND TYPE MATERIALS AND THE SYSTEM RESTORED TO NORMAL OPERATION. ADVISE THE ARCHITECT/ENGINEER IMMEDIATELY IF SUCH CONDITIONS ARE UNCOVERED BEFORE PROCEEDING WITH ADDITIONAL WORK.
13. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.
14. ENDS OF ALL CONDUITS TO REMAIN SHALL BE TIGHTLY PLUGGED TO EXCLUDE DUST AND MOISTURE WHILE THE BUILDING IS UNDER RENOVATION.
15. PROTECT EXISTING CIRCUITS TO REMAIN AND EXTEND AS REQUIRED UTILIZING MATCHING CONDUCTORS AND CONDUIT SIZE AND TYPE.
16. SECURE ALL CIRCUITS, RACEWAYS, CABLE AND CONDUCTORS THAT, AS A RESULT FROM THIS CONSTRUCTION, ARE ABANDONED OR UNUSED. REMOVE UNUSED EXPOSED CONDUIT AND WIRING BACK TO POINT OF CONCEALMENT INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILINGS. REMOVE UNUSED WIRING IN CONCEALED CONDUITS BACK TO SOURCE OR NEAREST POINT OF USAGE. BLANK ABANDONED KNOCKOUTS IN REMAINING BOXES. INSTALL BLANK PLATES FOR ALL UNUSED OUTLETS THAT WILL REMAIN AS A RESULT OF THIS CONSTRUCTION. ALL SUCH WORK SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES.
17. TRACE OUT EXISTING WIRING THAT IS TO BE RELOCATED OR REMOVED AND PERFORM THE RELOCATION OR REMOVAL WORK AS REQUIRED FOR A COMPLETE OPERATING AND SAFE SYSTEM.
18. RECONNECT EXISTING CIRCUITS SEPARATED AS A RESULT OF THIS CONSTRUCTION.
19. DELIVER ALL REMOVED AND SALVAGED WIRING DEVICES, SPEAKERS, ETC., TO THE OWNER, OR AT THE OWNER'S OPTION, DISPOSE OF PROPERLY OFF SITE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL ENVIRONMENTAL REGULATIONS. FEES ASSOCIATED WITH DISPOSAL SHALL BE INCLUDED IN THE CONTRACTOR'S BASE BID.
20. DO NOT DISTURB EXISTING DATA, TELEPHONE, SECURITY/INTRUSION AND ENERGY MANAGEMENT SYSTEMS, DEVICES OR CABLES UNLESS SPECIFICALLY NOTED OTHERWISE.
21. COORDINATE WITH THE OTHER TRADES, PRIOR TO BID, AND INCLUDE IN THE BASE BID THE ELECTRICAL DISCONNECTION OF ANY EQUIPMENT BEING DEMOLISHED, EVEN IF NOT EXPLICITLY SHOWN. UNLESS NOTED OTHERWISE, REMOVE ALL DEMOLISHED EQUIPMENT FROM THE PROPERTY AND IDENTIFIED IN THE ELECTRICAL DRAWINGS.
22. THESE DRAWINGS ARE COMPILED BY THE ENGINEER FROM THE OWNER'S RECORD DRAWINGS AND LIMITED FIELD VERIFICATION OF EXISTING CONDITIONS FOR THE PURPOSE OF INDICATING THE WORK REQUIRED AND ARE BELIEVED TO BE CORRECT. NOTWITHSTANDING, THE CONTRACTOR SHALL VERIFY ALL CIRCUITS, WIRING, CONDUIT, DIMENSIONS, POINTS OF ACCESS AND ALL FIELD CONDITIONS AFFECTING HIS WORK. BEGINNING OF DEMOLITION MEANS THE CONTRACTOR ACCEPTS EXISTING CONDITIONS.

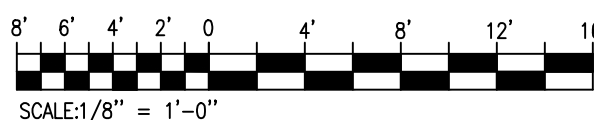
Keyed Notes

1. E.C. SHALL DISCONNECT EXISTING CU EQUIPMENT, REMOVE DISCONNECT SWITCH AND SHALL REMOVE CONDUIT AND CONDUCTORS BACK TO SOURCE AND MARK BREAKER AS SPARE.
2. E.C. SHALL DISCONNECT EXISTING AHU EQUIPMENT, REMOVE DISCONNECT SWITCH AND SHALL REMOVE CONDUIT AND CONDUCTORS BACK TO SOURCE AND MARK BREAKER AS SPARE.
3. E.C. SHALL DISCONNECT EXISTING E.F. #3 AND REMOVE CONDUCTORS AND CONDUIT TO NEAREST JUNCTION IF ADDITIONAL LOADS ON CIRCUIT. IF E.F. #3 IS ONLY LOAD ON CIRCUIT, E.C. SHALL REMOVE CONDUIT AND CONDUCTORS TO SOURCE AND MARK BREAKER AS SPARE.



Key Plan

Not To Scale



Revision	Revisions	Date
1	ISSUED FOR RECORD DRAWING	08.04.15
0	ISSUED FOR REVIEW	08.30.14

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W. ALLEN CRIBB, P.E.
NC 023311 ON 08/30/14
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UNC- Wilmington Dobo Hall Suite 120
601 S. College Road
Wilmington, NC

Electrical
First Floor and Attic Demolition Plan

Job No.:	14147
Drawn:	RWC
Designed:	RWC
Checked:	WAC

Drawing No.:	ED1.1
Revision:	1

Drawing: K:\UNC\W1147\Dobo Hall Suite 120\Oct09\2015-06-26 Rec Draw-16 Revisions Made\0605\1147.dwg Plot Time: 6/26/2015 11:52 AM

Mechanical Specifications:

- PART 1 – GENERAL
- 1.1 SCOPE OF WORK: THESE DRAWINGS AND SPECIFICATIONS DESCRIBE THE SCOPE OF WORK REQUIRED FOR PROJECT MECHANICAL HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS. CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL REQUIRED FOR COMPLETE, FULLY FUNCTIONING MECHANICAL SYSTEMS COMPLYING WITH THE INTENT OF THE DRAWINGS AND SPECIFICATIONS.
- 1.2 CONTRACTOR: THE WORD "CONTRACTOR" AS USED HEREIN SHALL MEAN THE HVAC INSTALLER UNLESS OTHERWISE QUALIFIED.
- 1.3 DRAWINGS: DRAWINGS ARE DIAGRAMMATIC AND MAY NOT COMPLETELY DESCRIBE EVERY DETAIL OF THE INSTALLATION. HOWEVER, CONTRACTOR IS RESPONSIBLE FOR FURNISHING COMPLETE SYSTEMS INCLUDING ALL REQUIRED EQUIPMENT AND ACCESSORIES TO OBTAIN FULLY FUNCTIONING HVAC SYSTEMS.
- 1.4 CODE COMPLIANCE: COMPLY WITH THE LATEST EDITIONS OF THE FOLLOWING STANDARDS AND CODES, INsofar AS THEY APPLY:
- A. NORTH CAROLINA STATE BUILDING CODE, LATEST EDITION AND REVISIONS
- B. LOCAL JURISDICTION REQUIREMENTS: INCLUDE ALL WORK TO COMPLY WITH CODES WHETHER INDICATED ON DRAWINGS OR NOT. NOTIFY ENGINEER OF DISCREPANCIES BETWEEN DRAWINGS AND CODES PRIOR TO BEGINNING WORK.
- 1.5 PERMITS AND INSPECTIONS: OBTAIN ALL PERMITS, LICENSES, INSPECTIONS, ETC., REQUIRED FOR THE WORK AND PAY FOR SAME. FURNISH A FINAL CERTIFICATE OF INSPECTION AND APPROVAL FROM THE AUTHORITY HAVING JURISDICTION PRIOR TO ACCEPTANCE OF THE WORK.
- 1.6 MANUFACTURER'S RECOMMENDATIONS: INSTALL ALL EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 1.7 WORKMANSHIP: UTILIZE SKILLED MECHANICS TO OBTAIN A HIGH QUALITY PROFESSIONAL FINISH INSTALLATION WHEN COMPLETED. WORK OF UNACCEPTABLE QUALITY SHALL BE REMOVED AND REWORKED AT NO ADDITIONAL COST. ENGINEER SHALL BE THE JUDGE OF WORKMANSHIP AND THEIR OPINION WILL BE FINAL. IN ADDITION, ANY EXISTING CONSTRUCTION DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER BY THE CONTRACTOR AT NO ADDITIONAL COST.
- 1.8 SUPERVISION: PROVIDE SKILLED SUPERINTENDENTS TO SUPERVISE THE WORK FROM THE BEGINNING TO COMPLETION AND FINAL INSPECTION.
- 1.9 PROGRESS OF WORK: PERFORM WORK IN ACCORDANCE WITH SCHEDULE AND REQUIREMENTS OF THE OWNER. UNDER NO CIRCUMSTANCES SHALL THIS CONTRACTOR DELAY THE OVERALL PROJECT SCHEDULE.
- 1.10 COORDINATION: COORDINATE MECHANICAL WORK WITH THE WORK OF OTHER TRADES. LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE UNLESS SPECIFICALLY DIMENSIONED. LAYOUT MECHANICAL WORK SO AS NOT TO INTERFERE WITH THE WORK OF OTHER TRADES. VERIFY ACTUAL BUILDING STRUCTURE PRIOR TO DUCT FABRICATION AND ADJUST ARRANGEMENT AS REQUIRED. INCLUDE ALL OFFSETS IN DUCTS, FITTINGS, PIPING, ETC. AS REQUIRED TO PROPERLY INSTALL EQUIPMENT.
- 1.11 EQUIPMENT LOCATIONS: DETERMINE EXACT EQUIPMENT AND MATERIALS LOCATIONS TO PROVIDE BEST ARRANGEMENT AND TO FACILITATE PROPER MAINTENANCE AND SERVICING OF EQUIPMENT.
- 1.12 LISTING AND LABELING: ALL EQUIPMENT SHALL BE LABELED OR LISTED BY UL OR OTHER APPROVED TESTING AGENCY WHERE REQUIRED.
- 1.13 STORAGE SPACE: CONSULT WITH THE OWNER REGARDING JOB SITE STORAGE FOR MECHANICAL MATERIALS TO BE INSTALLED UNDER THIS PROJECT. STORAGE SPACE MUST BE SECURED AND CONTRACTOR'S REPRESENTATIVE MUST BE ON JOB BEFORE ANY MATERIAL MAY BE RECEIVED.
- 1.14 CLEANUP: REMOVE ALL DEBRIS GENERATED IN THE ACCOMPLISHMENT OF WORK UNDER THIS PROJECT. CLEAN, REPLACE OR REPAIR ALL SURFACES SOILED OR DAMAGED DURING THE COURSE OF THE WORK. REMOVE DEBRIS DAILY SO TO MAINTAIN SAFE WORKING CONDITIONS. THE CONTRACTOR SHALL COLLECT ALL REFRIGERANT FROM DEMOLISHED EQUIPMENT AND RETURN TO THE UNIVERSITY.
- 1.15 ELECTRICAL WORK
- A. PERFORM ELECTRICAL WORK FOR MECHANICAL EQUIPMENT IN COMPLIANCE WITH PROJECT ELECTRICAL REQUIREMENTS. ELECTRICAL WORK FOR MECHANICAL EQUIPMENT NOT SPECIFICALLY INDICATED TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR IN THE ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AS PART OF HIS WORK.

- B. ELECTRICAL DRAWINGS ARE BASED ON ELECTRICAL CHARACTERISTICS INDICATED IN DRAWING MECHANICAL EQUIPMENT SCHEDULES. ANY EQUIPMENT FURNISHED BY THE MECHANICAL CONTRACTOR WHICH DOES NOT MATCH THE ELECTRICAL CHARACTERISTICS INDICATED IN THE DRAWING SCHEDULES SHALL BE COORDINATED WITH THE ELECTRICAL CONTRACTOR. ANY ADDITIONAL COSTS FOR ELECTRICAL INSTALLATION REQUIRED FOR EQUIPMENT NOT MATCHING THE DRAWING SCHEDULES SHALL BE BORNE BY THE MECHANICAL CONTRACTOR.
- C. LOW VOLTAGE CONTROL WIRING FOR MECHANICAL SYSTEMS SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR.
- 1.16 SUBMITTALS: SUBMIT FOUR (4) COPIES OF DESCRIPTIVE DATA FOR MECHANICAL EQUIPMENT AND MATERIALS INCLUDING GRILLES AND DAMPERS FOR APPROVAL BY THE ENGINEER. CLEARLY IDENTIFY ALL ITEMS.
- 1.17 OPERATING AND MAINTENANCE MANUALS: SUBMIT TWO COPIES OF COMPLETE OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT, INCLUDING NECESSARY CUT SHEETS, CHARTS, WRITTEN INSTRUCTIONS, WIRING DIAGRAMS, FINAL AS-BUILT DRAWINGS WITH BALANCED AIRFLOWS INDICATED, ETC. BIND IN SUITABLE HARD BACK RING BINDERS, PROPERLY INDEXED, AND DELIVER TO THE OWNER PRIOR TO BUILDING OCCUPANCY. IN ADDITION, AFFIX A FOLDER WITH TYPICAL "OWNER'S INSTRUCTIONS" AND "MAINTENANCE INFORMATION" INSIDE THE MECHANICAL EQUIPMENT AS APPLICABLE. THE FOLDER SHALL ALSO INCLUDE A COMPLETE STARTUP LOG FOR THE EQUIPMENT.
- 1.18 RECORD DRAWINGS: MAINTAIN ONE SET OF "RED-LINED" RECORD DRAWINGS ON SITE AT ALL TIMES AND PROVIDE DRAWINGS TO ENGINEER PRIOR TO FINAL INSPECTION.
- 1.19 WARRANTY: WARRANTY THE MATERIALS AND WORKMANSHIP COVERED BY THESE DRAWINGS AND SPECIFICATIONS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER. REPAIR AND/OR REPLACE ANY PARTS OF ANY SYSTEM THAT MAY PROVE TO BE DEFECTIVE AT NO ADDITIONAL COST TO THE OWNER WITHIN THE WARRANTY PERIOD. PROVIDE 5 YEAR WARRANTY FOR ALL AIR CONDITIONING COMPRESSORS. FURNISH WARRANTY CERTIFICATES FOR ALL MECHANICAL EQUIPMENT. WARRANTY TO COMMENCE UPON DATE OF ACCEPTANCE OF WORK BY OWNER.

- 1.20 EXISTING BUILDINGS AND CONSTRUCTION
- A. WORK UNDER THIS CONTRACT IS TO BE PERFORMED IN AN EXISTING BUILDING. BUILDING LAYOUT INDICATED IS DEVELOPED FROM EXISTING RECORD DOCUMENTS AND LIMITED FIELD VERIFICATION FOR THE PURPOSES OF DESCRIBING THE WORK. VERIFY ALL EXISTING CONDITIONS AND ADJUST WORK AS REQUIRED TO SUIT ACTUAL FIELD CONDITIONS.
- B. PERFORM ALL WORK IN ACCORDANCE WITH SAFETY REGULATIONS.
- C. DO NOT CUT ANY STRUCTURAL MEMBERS WITHOUT EXPRESS WRITTEN INSTRUCTIONS FROM ENGINEER. PROVIDE CUTTING AND PATCHING FOR EXISTING FINISHES AS REQUIRED.
- D. COORDINATE INSTALLATION OF NEW MECHANICAL SYSTEMS WITH EXISTING BUILDING SYSTEMS. ADJUST ARRANGEMENTS AS REQUIRED TO ACCOMMODATE INTERFERENCES.

PART 2 – MATERIALS

- 2.1 EQUIPMENT
- A. MODELS AS SCHEDULED ON THE DRAWINGS. MANUFACTURERS INDICATED ARE INTENDED TO ESTABLISH THE QUALITY AND TYPE OF EQUIPMENT DESIRED. COMPARABLE EQUIPMENT WILL BE CONSIDERED FOR APPROVAL BY THE ARCHITECT/ENGINEER
- B. INCLUDE ALL ACCESSORIES INDICATED OR AS RECOMMENDED BY THE MANUFACTURER FOR PROPER OPERATION.
- 2.2 DUCTWORK
- A. DUCT CONSTRUCTION: GALVANIZED STEEL CONSTRUCTED, BRACED, SUPPORTED AND INSTALLED ACCORDING TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS, 1" PRESSURE CLASS, SEAL CLASS A. SEAL USING APPROVED TYPE DUCT SEALING MASTIC OR TAPE DIPPED IN OR BRUSHED WITH ADHESIVE ("HARDCAST" DT-TAPE W/FTA-20 ADHESIVE OR "UNITED MCGILL" MTD TAPE W/MTD-20 ADHESIVE). "DUCT TAPE" IS UNACCEPTABLE FOR DUCT SEALING. "DUCT-MATE" OR EQUAL TRANSVERSE JOINT CONNECTION METHODS WILL BE ACCEPTABLE ONLY IF A LETTER FROM THE MANUFACTURER IS PRESENTED TO THE ENGINEER STATING THAT THE CONTRACTOR'S

INSTALLATION METHODS ARE APPROVED BY THE MANUFACTURER AND THAT ALL MANUFACTURER'S RECOMMENDATIONS WILL BE FOLLOWED. THERE WILL BE NO EXCEPTIONS TO THIS STIPULATION.

- B. DUCT SIZES INDICATED ARE INSIDE FREE AREA DIMENSIONS. DUCT DIMENSIONS SHALL BE ADJUSTED TO SUIT FIELD CONDITIONS USING EQUIVALENT SIZE PER ASHRAE STANDARD. RECTANGULAR OR ROUND DUCTWORK MAY BE USED AT CONTRACTOR OPTION PROVIDED EQUIVALENT SIZE PER ASHRAE STANDARD IS USED.
- C. BRANCH DUCTS: PROVIDE MANUFACTURED TAKE-OFF FITTINGS (SPIN-IN FITTINGS) WITH EXTRACTOR AND VOLUME DAMPER WITH LOCKING QUADRANT OPERATOR AND INSULATION GUARD, GENERAL ENVIRONMENT CORPORATION OR EQUAL, FOR ALL BRANCH RUNOUTS TO SUPPLY REGISTERS AND DIFFUSERS. UNLESS OTHERWISE NOTED, MATCH SUPPLY BRANCH DUCT SIZE TO DIFFUSER SIZE.
- D. ELBOWS: ALL SQUARE BENDS OR ELBOW FITTINGS SHALL BE FITTED WITH APPROVED TYPE DOUBLE THICKNESS TURNING VANES.
- E. FLEXIBLE DUCT: FACTORY INSULATED, R-6, MINIMUM, UL 181 CLASS 1. MAXIMUM FLEX DUCT RUNOUT LENGTH NOT TO EXCEED 8' UNLESS OTHERWISE NOTED. INSTALL AND SUPPORT FLEXIBLE DUCTS IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- F. FLEXIBLE CONNECTIONS: PROVIDE FLEXIBLE CONNECTOR, VENTFABRICS OR EQUAL, AT ALL MECHANICAL EQUIPMENT CONNECTIONS TO DUCT SYSTEM.
- G. FIRE DAMPERS: PROVIDE SUITABLY LISTED FIRE DAMPERS IN DUCTS PENETRATING FIRE RATED CONSTRUCTION WHERE REQUIRED BY CODE. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED CONSTRUCTION.
- H. PROVIDE REMOVABLE ACCESS PANELS IN CEILINGS AND ACCESS DOORS (WITH AIR TIGHT GASKETS) IN DUCTWORK AS REQUIRED FOR ACCESS TO DAMPERS OR OTHER DUCT MOUNTED EQUIPMENT.
- I. PLENUMS: USE CODE APPROVED MATERIALS AND METHODS FOR ALL MECHANICAL WORK INSTALLED IN PLENUMS.
- 2.3 AIR DISTRIBUTION
- A. DIFFUSERS AND REGISTERS: MODELS AS SCHEDULED ON THE DRAWINGS. MANUFACTURERS INDICATED ARE INTENDED TO ESTABLISH THE QUALITY AND TYPE OF EQUIPMENT DESIRED. COMPARABLE EQUIPMENT WILL BE CONSIDERED FOR APPROVAL BY THE ENGINEER. INCLUDE FINISH AND ACCESSORIES AS INDICATED.
- B. LOUVERS: MODELS AS SCHEDULED ON THE DRAWINGS OR EQUAL.
- 2.4 PIPING
- A. HYDRONIC PIPING: SCHEDULE 40, CARBON STEEL, ASTM A53, GR.B ERW OR SEAMLESS. FITTINGS TO BE 300# MALLEABLE IRON.
- 2.5 INSULATION
- A. DUCT INSULATION: R-6 MINIMUM, 2" FIBERGLASS BLANKET INSULATION, ASTM C553, TYPE II, 0.75 PCF CLASS F-1, ASTM 84E FLAME SPREAD/SMOKE DEVELOPED RATING LESS THAN 25/50. PROVIDE WITH FACTORY APPLIED ALL-PURPOSE, LAMINATED GLASS-FIBER-REINFORCED, FLAME-RETARDANT KRAFT PAPER AND ALUMINUM FOIL JACKET. INSTALL ON ALL CONCEALED HVAC SUPPLY, RETURN, MAKE-UP AIR DUCTS AND PLENUMS.
- B. HYDRONIC PIPING INSULATION: PREFORMED FIBERGLASS WITH FACTORY INSTALLED VAPOR SEAL JACKET.
- 2.6 CONTROLS
- A. TEMPERATURE CONTROLS: AUTOMATIC CHANGEOVER PROGRAMMABLE SETBACK HEAT/COOL THERMOSTATS.
- 2.7 SUPPORTS
- A. HANGERS, SUPPORTS, AND ANCHORS: SUPPORT AND FASTEN ALL DUCTWORK, PIPING,

EQUIPMENT, ETC., SECURELY IN PLACE USING APPROVED STEEL HANGERS AND FASTENERS. CHAIN, STRAP, PERFORATED STRAP, WIRE HANGERS, OR WOOD PLUGS ARE PROHIBITED.

- B. INCLUDE STEEL SUPPORTS, ANCHORS, FRAMES, BRACING, PLATES, BOLTS, NUTS, WASHERS, ETC. INCIDENTAL TO INSTALLATION OF WORK.
- C. PROVIDE AUXILIARY STRUCTURAL MEMBERS WHERE REQUIRED BETWEEN MEMBERS OF THE STRUCTURE.

PART 3 – EXECUTION

- 3.1 PREPARATION: REVIEW CONSTRUCTION DOCUMENTS AND VERIFY ARRANGEMENT WITH FIELD CONDITIONS. COORDINATE PROPOSED MECHANICAL EQUIPMENT AND SYSTEMS WITH ASSOCIATED WORK OF OTHER TRADES.
- 3.2 INSTALLATION: INSTALL ALL MECHANICAL WORK IN ACCORDANCE WITH CODE, MANUFACTURER'S RECOMMENDATIONS AND GOOD INDUSTRY PRACTICE. ARRANGE WORK TO ALLOW EASY ACCESS TO EQUIPMENT FOR SERVICE AND MAINTENANCE.
- 3.3 DUCTWORK: LAYOUT DUCTWORK TO AVOID INTERFERENCES AND MAXIMIZE USABLE SPACE IN THE BUILDING.
- 3.4 PIPING: ROUTE PIPING NEATLY, PARALLEL TO BUILDING WALLS. WHERE REQUIRED, SLOPE PIPING FOR PROPER DRAINAGE.
- 3.5 DUCT INSULATION: INSTALL BLANKET INSULATION TIGHT AND SMOOTH. OVERLAP JOINTS 3 INCHES. SEAL JOINTS, BREAKS, AND PUNCTURES WITH VAPOR BARRIER COMPOUND.
- 3.6 PIPING INSULATION: INSTALL INSULATION NEATLY. APPLY ADHESIVE TO BOTH FACES OF JOINT TO OBTAIN FULLY ADHERED. VAPOR TIGHT INSTALLATION. FINISH ALL INSULATION EXPOSED TO WEATHER WITH MANUFACTURE APPROVED WEATHERPROOF COATING.
- 3.7 CONTROLS: INSTALL AND WIRE ALL CONTROLS COMPLETE TO OBTAIN INTENDED SEQUENCE OF OPERATION.
- 3.8 HANGERS AND SUPPORTS: HANG AND SUPPORT EQUIPMENT, DUCTS AND PIPING IN A SUBSTANTIAL MANNER FROM THE BUILDING STRUCTURE. SPACE HANGERS IN ACCORDANCE WITH CODE AND SO AS TO AVOID EXCESS DEFLECTION OR SAG. PROVIDE SEISMIC DESIGN HANGERS WHERE REQUIRED. NO PORTION OF THE STRUCTURE SHALL BE OVER STRESSED BY THE HANGING OPERATION OR BY THE FINAL SUPPORTS. ATTACHMENTS DEEMED INADEQUATE BY THE ENGINEER SHALL BE REWORKED AS DIRECTED. PROVIDE VIBRATION ISOLATION FOR MOVING MACHINERY.
- 3.9 LABELS: LABEL ALL EQUIPMENT AND DEVICES WITH BAKELITE ENGRAVED PLATES SCREWED IN PLACE. "TAPEWRITER" AND ADHESIVE LABELS ARE UNACCEPTABLE.
- 3.10 START-UP: VERIFY INSTALLATION IS COMPLETE AND READY FOR START-UP. START-UP ALL EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS USING FACTORY CERTIFIED MECHANICS. AFTER START-UP, VERIFY AND DOCUMENT THAT EQUIPMENT IS OPERATING PROPERLY WITHIN MANUFACTURER'S SPECIFIED TOLERANCES.
- 3.11 TESTING AND BALANCING: BALANCE AIR FLOWS TO OBTAIN AIR QUANTITIES SHOWN ON DRAWINGS. ADJUST DAMPERS FOR ALL AIR OUTLETS AND RECORD VELOMETER READINGS WHICH CORRESPOND TO DESIGN FLOW RATES AT EACH OUTLET. RECORD DESIGN AND FINAL READINGS ON APPROVED FORMS. SUBMIT TWO COPIES FOR REVIEW AND APPROVAL BY ENGINEER. UPON COMPLETION OF ALL BALANCING AND TESTING, SCHEDULE A TIME FOR ENGINEER TO PERFORM RANDOM CHECKING OF TYPICAL OUTLETS. CONTRACTOR SHALL PROVIDE TECHNICIANS AND MEASURING DEVICES FOR THIS TESTING.
- 3.12 COMMISSIONING: DEMONSTRATE AND DOCUMENT OPERATION OF ALL MECHANICAL SYSTEMS INSTALLED UNDER THIS CONTRACT IN THE PRESENCE OF THE ENGINEER. INCLUDE ALL TESTS, TRIAL OPERATIONS, ETC. AS REQUIRED TO PROVE THAT ALL SYSTEMS ARE IN COMPLETE SERVICEABLE CONDITION AND WILL FUNCTION AS INTENDED. ALL COSTS OF COMMISSIONING SHALL BE BORNE BY THIS CONTRACTOR.
- 3.13 TRAINING: TRAIN OWNER PERSONNEL IN THE PROPER OPERATION AND MAINTENANCE OF MECHANICAL SYSTEMS. PROVIDE WRITTEN DOCUMENTATION INCLUDING NAMES OF OWNER PERSONNEL ATTENDING TRAINING.
- 3.14 CLEAN-UP: CLEAN ALL EQUIPMENT AND DEVICES AND INSTALL NEW FILTERS IN EQUIPMENT IMMEDIATELY PRIOR TO OWNER ACCEPTANCE AND OCCUPANCY.

Mechanical Demolition Notes:

- 1.1 THE MECHANICAL CONTRACTOR SHALL REVIEW THE DRAWINGS AND SPECIFICATIONS FOR DEMOLITION REQUIREMENTS AND LAYOUT HIS WORK IN A COMPATIBLE AND COMPLEMENTARY MANNER. REMOVE ALL EQUIPMENT, DUCTWORK, SUPPORTS, CONTROLS, ACCESSORIES, ETC., AND MECHANICAL ITEMS MADE OBSOLETE BY THESE ALTERATIONS AS SHOWN IN THE MECHANICAL DRAWINGS. ALL ITEMS TO BE REMOVED OR MODIFIED MAY NOT BE SHOWN. HOWEVER, THIS CONTRACTOR SHALL REMOVE ANY MECHANICAL WORK AS REQUIRED BY THE CONSTRUCTION OR AS DIRECTED BY THE OWNER OR THE ENGINEER. SURVEY THE AFFECTED AREAS BEFORE SUBMITTING A BID.
- 1.2 SCHEDULING OF DEMOLITION – COORDINATE SCHEDULING OF MECHANICAL DEMOLITION WORK WITH THE OWNER AND GENERAL CONTRACTOR SO AS TO MINIMIZE DISRUPTION OF THE OWNER'S USE OF THE FACILITIES AND MAINTAIN THE CONSTRUCTION SEQUENCE OF THE GENERAL CONTRACTOR. SEE DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INSTRUCTIONS CONCERNING PHASING AND SEQUENCE OF WORK.
- 1.3 EXISTING MECHANICAL SYSTEMS – VERIFY CONDITION OF EXISTING MECHANICAL SYSTEMS TO BE REUSED SO THAT COMPLETE, FULLY OPERATIONAL AND RELIABLE SYSTEMS ARE OBTAINED AT THE COMPLETION OF THE WORK. NOTIFY ARCHITECT/ENGINEER OF ANY SYSTEMS FOUND TO BE OF QUESTIONABLE CONDITION.
- 1.4 ALL EXISTING MECHANICAL EQUIPMENT AND DEVICES SHALL REMAIN UNLESS SPECIFICALLY NOTED TO BE REMOVED.
- 1.5 DEMOLISHED MATERIALS – UNLESS SPECIFICALLY REQUESTED BY THE OWNER, ALL DEMOLISHED MECHANICAL MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY.
- 1.6 CUTTING AND PATCHING – PERFORM CUTTING AND PATCHING FOR MECHANICAL WORK SO AS TO MINIMIZE DAMAGE TO CEILINGS, FLOORS AND WALLS. REFER TO ARCHITECTURAL DRAWINGS AND GENERAL SPECIFICATIONS SPECTIONS FOR SPECIFIC RESPONSIBILITIES REGARDING CUTTING AND PATCHING.
- 1.7 THESE DRAWINGS ARE COMPILED BY THE ARCHITECT/ENGINEER FROM THE OWNER'S AS-BUILT RECORD DRAWINGS AND LIMITED FIELD VERIFICATION OF EXISTING CONDITIONS FOR THE PURPOSE OF INDICATING THE WORK REQUIRED AND ARE BELIEVED TO BE CORRECT. NOTWITHSTANDING, THE CONTRACTOR SHALL VERIFY ALL DUCTWORK, EQUIPMENT LOCATIONS, DIMENSIONS AND ALL FIELD CONDITIONS AFFECTING HIS WORK.
- 1.8 WHERE MECHANICAL SYSTEMS PASS THROUGH THE DEMOLITION AREAS TO SERVE OTHER PORTIONS OF THE PREMISES, THEY SHALL REMAIN OR BE SUITABLY RELOCATED AND THE SYSTEM RESTORED TO NORMAL OPERATION. ADVISE THE ARCHITECT/ENGINEER IMMEDIATELY IF SUCH CONDITIONS ARE UNCOVERED BEFORE PROCEEDING WITH ADDITIONAL WORK.
- 1.9 PROTECT ALL EXISTING LIFE SAFETY SYSTEMS, FIRE ALARM AND PUBLIC ADDRESS SYSTEMS AND MAINTAIN THEM IN OPERATION THROUGHOUT THE PROGRESS OF THE WORK. NOTIFY THE OWNER AND ARCHITECT/ENGINEER IN WRITING OF SHUTDOWNS ARE REQUIRED PRIOR TO ANY OUTAGE OF SERVICE. WHERE THE DURATION OF A PROPOSED OUTAGE CANNOT BE TOLERATED BY THE OWNER, PROVIDE TEMPORARY CONNECTIONS AS REQUIRED MAINTAINING SERVICE.
- 1.10 SURVEY THE EFFECTED AREAS BEFORE SUBMITTING A BID AS ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DEPICTED ON THE DRAWINGS AND SOME UNUSUAL CONDITIONS EXIST.

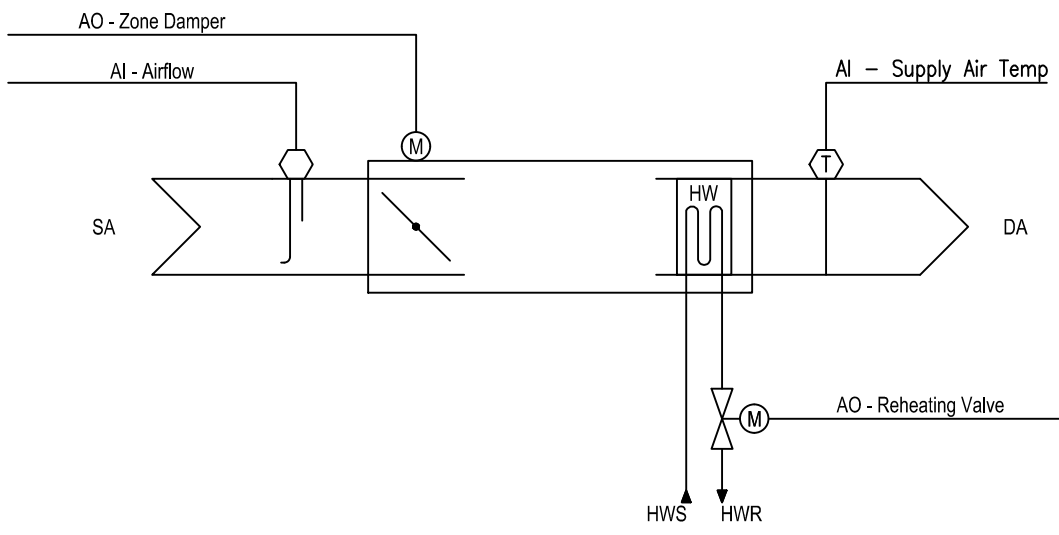
Single Duct VAV Terminal Box Schedule

DRAWING MARK	LOCATION	DESIGN BASIS MFR	MODEL	ALTERNATE APPROVED MFRS	TYPE	PRIMARY AIRFLOW		INLET DIA		HEATING COIL		LAT	FLOW	WPD	NOISE CRITERIA		NOTES
						MAX	MIN	INLET	MAX INLET	CAP	EAT				DISCH	RAD	
						(CFM)	(CFM)	(IN)	(IN H2O)	(MBH)	(°F)	(°F)	(GPM)	(FT H2O)	(NC)	(NC)	
VAV1	SEE PLANS	TRANE	VCWF08	ENVIROTECH, TITUS	HW REHEAT	450	225	8	.75	12.40	52.00	102.90	0.75	1.29	69	53.0	
VAV2	SEE PLANS	TRANE	VCWF08	ENVIROTECH, TITUS	HW REHEAT	405	200	8	.75	11.81	52.00	106.40	0.75	1.29	69	52.0	

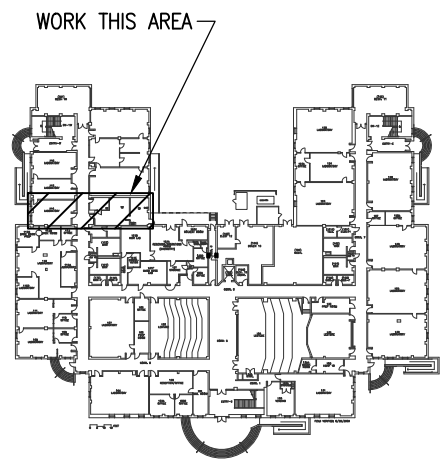
NOTES: SUPPLY EACH UNIT WITH A 120/24V FACTORY INSTALLED TRANSFORMER.

Typical VAV Sequence of Operations

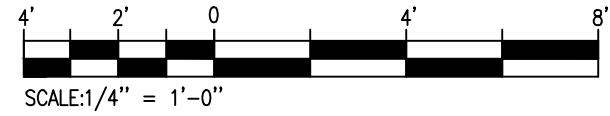
- A. As space temperature increases as sensed by room thermostat the VAV damper shall modulate open as required to maintain space temperature set point (adj.). As space temperature decreases VAV damper shall modulate closed as required to maintain space temperature set point (adj.). If the VAV damper is at its minimum position, the heating hot water control valve shall modulate open to maintain space temperature set point. (adj.).
- B. All VAV terminal boxes shall have the following programming set point: Max/Min unoccupied heating, Max/Min standby cooling and Max/Min standby heating.
- C. When space temperature falls below space set point as sensed by the room thermostat the heating hot water control valve shall modulate open to maintain space temperature set point (adj.).



3 - VAV Terminal Unit Schematic
Not to Scale



Key Plan
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Mechanical
General and Demolition Notes, Schedules and Schematic

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Checked: JHM

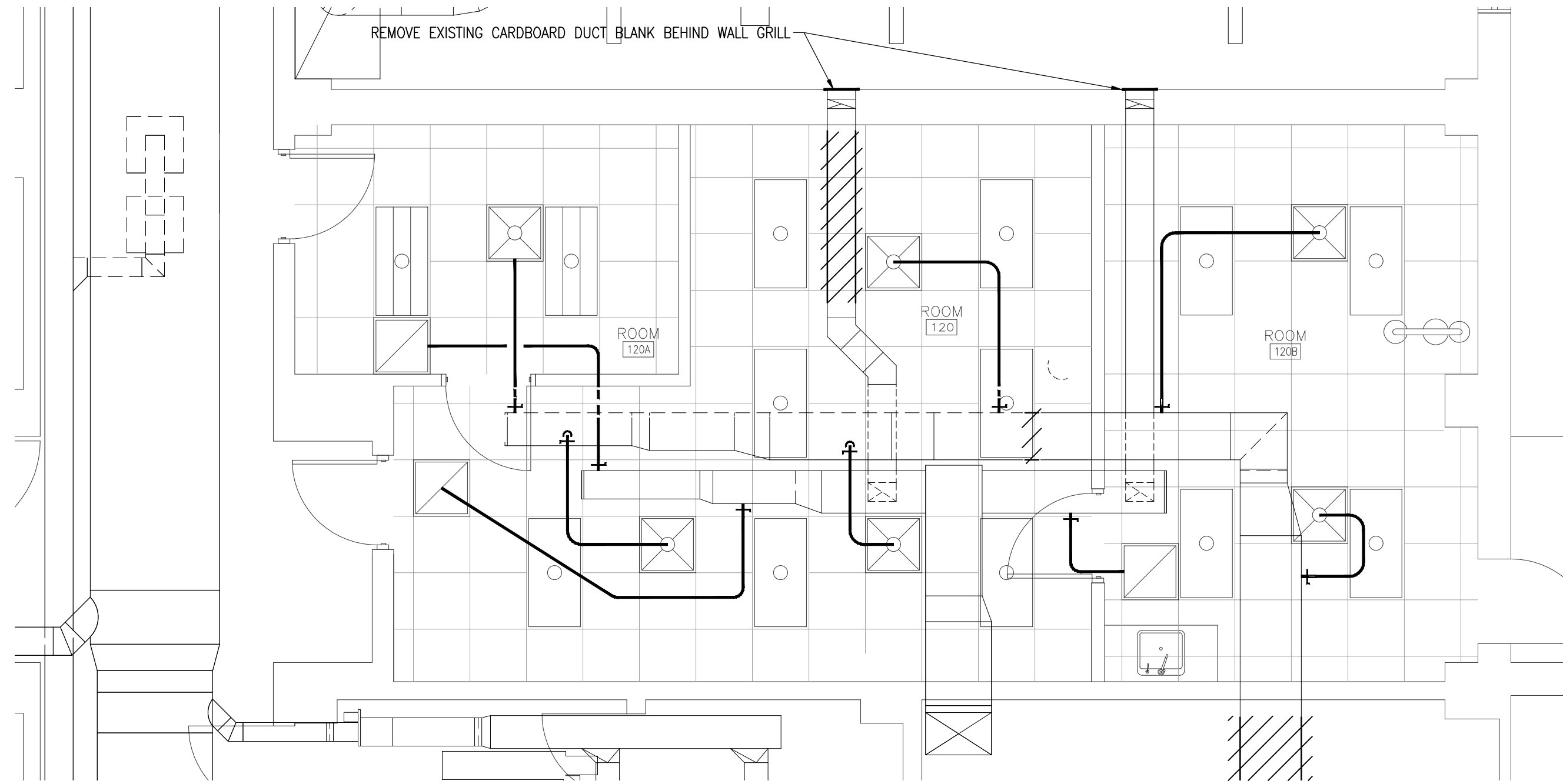
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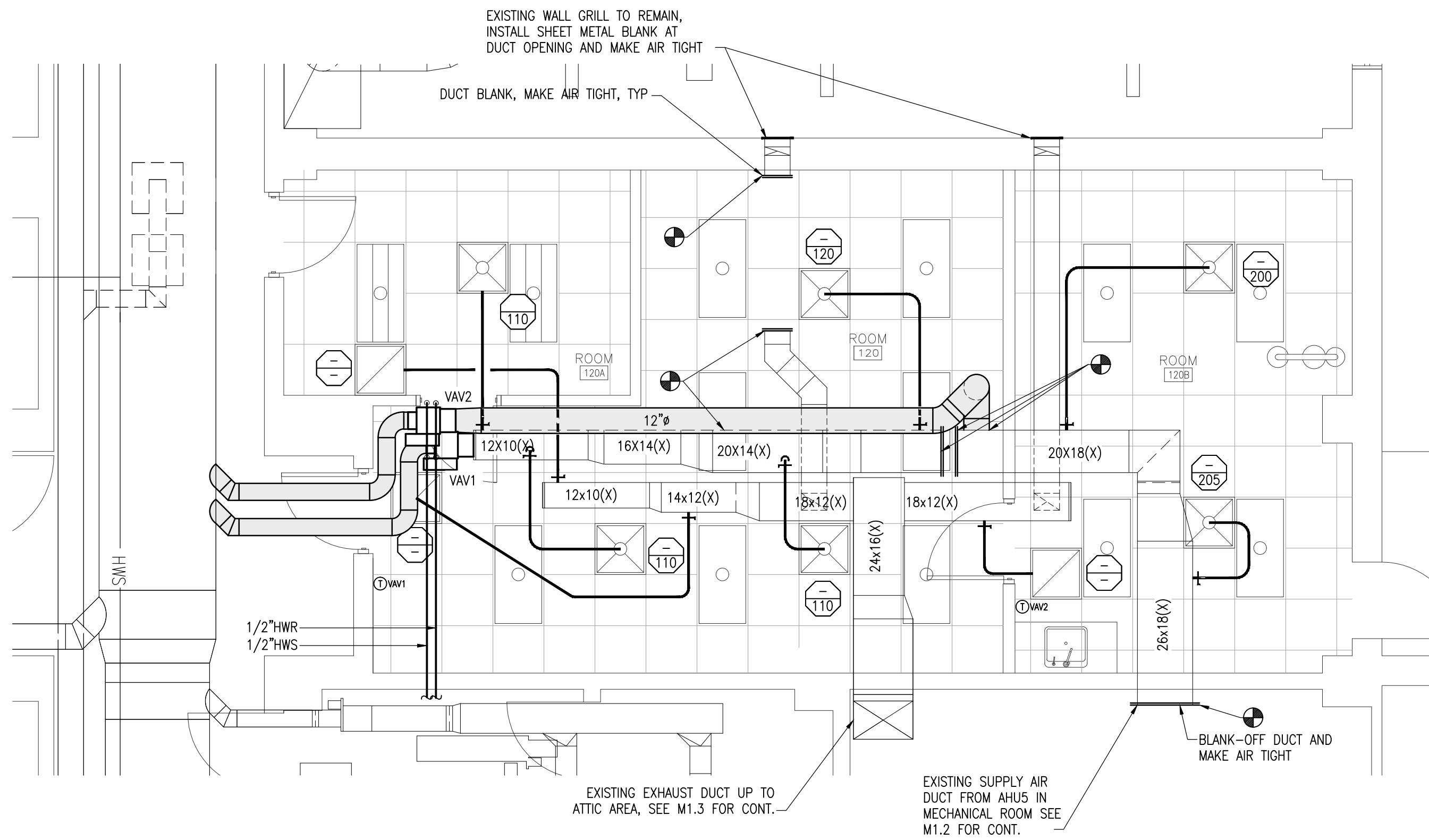
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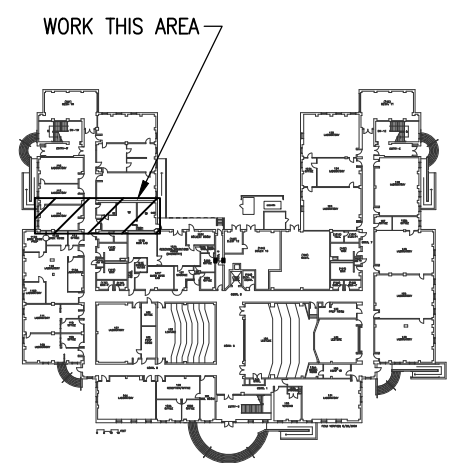
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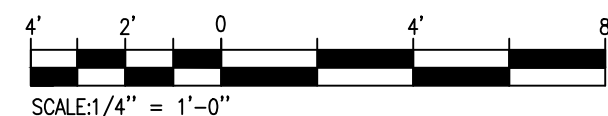
1 -First Floor Mechanical Demolition Plan
1/4"=1'-0"



2 -First Floor Mechanical New Work Plan
1/4"=1'-0"



Key Plan
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1	ISSUED FOR RECORD DRAWING	05.04.15
0	ISSUED FOR REVIEW	08.30.14

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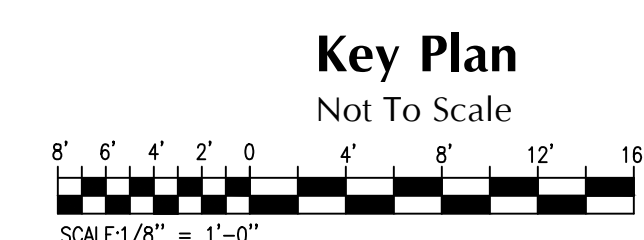
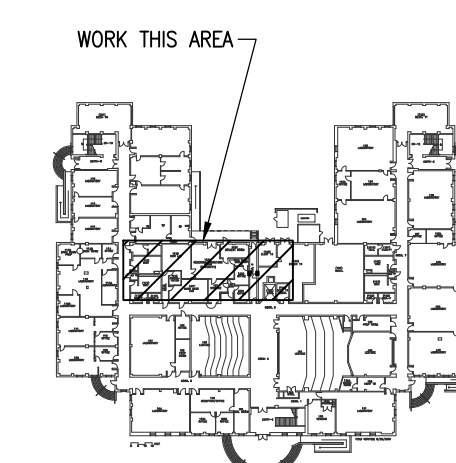
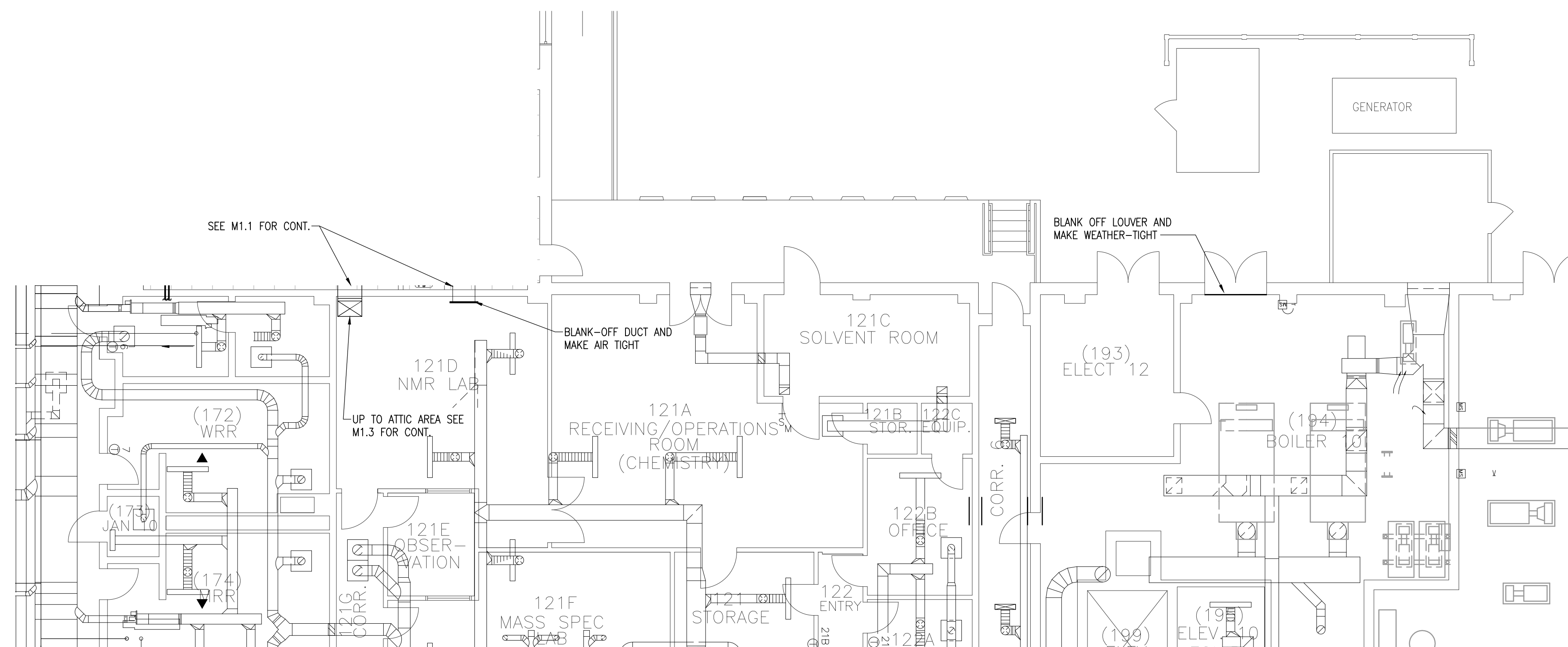
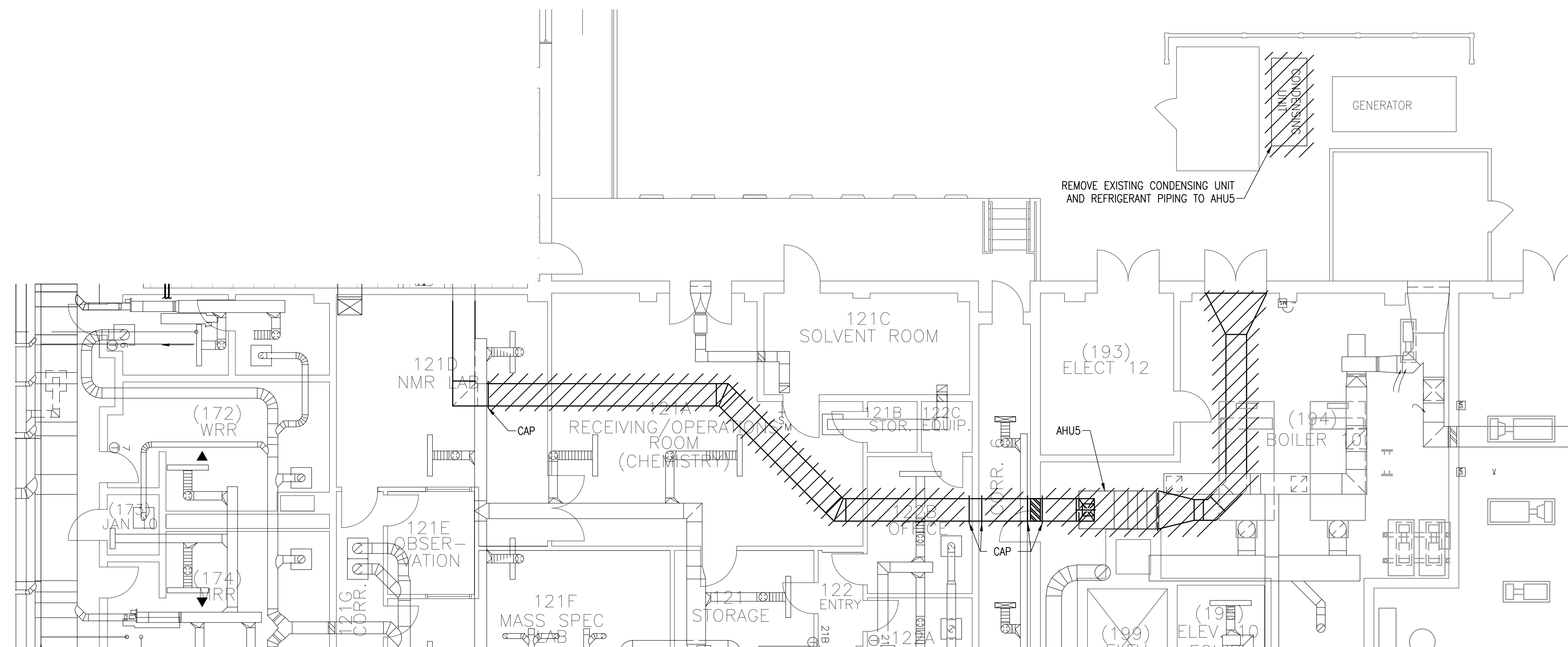
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Mechanical
First Floor Demolition & HVAC Plans

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Designed: RWC
Checked: JHM

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**Mechanical
First Floor Demolition & HVAC Plans**

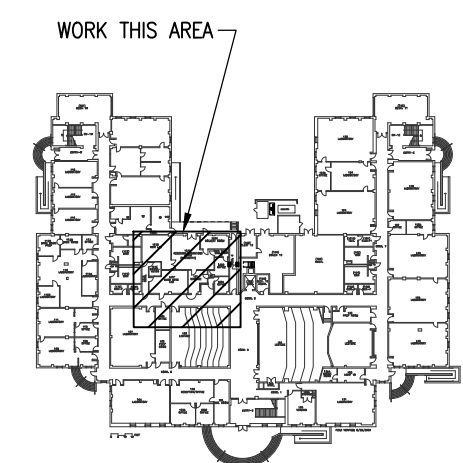
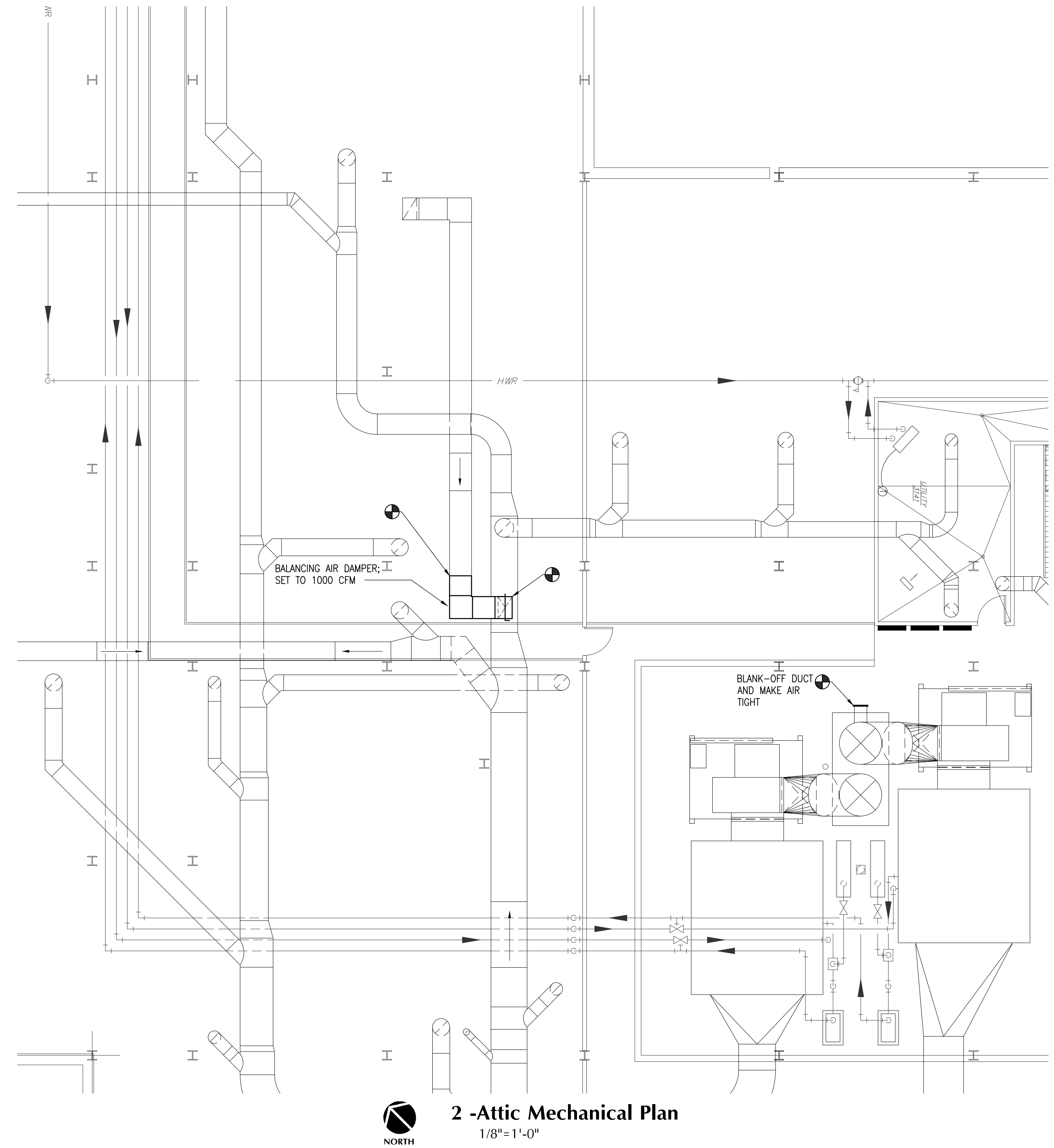
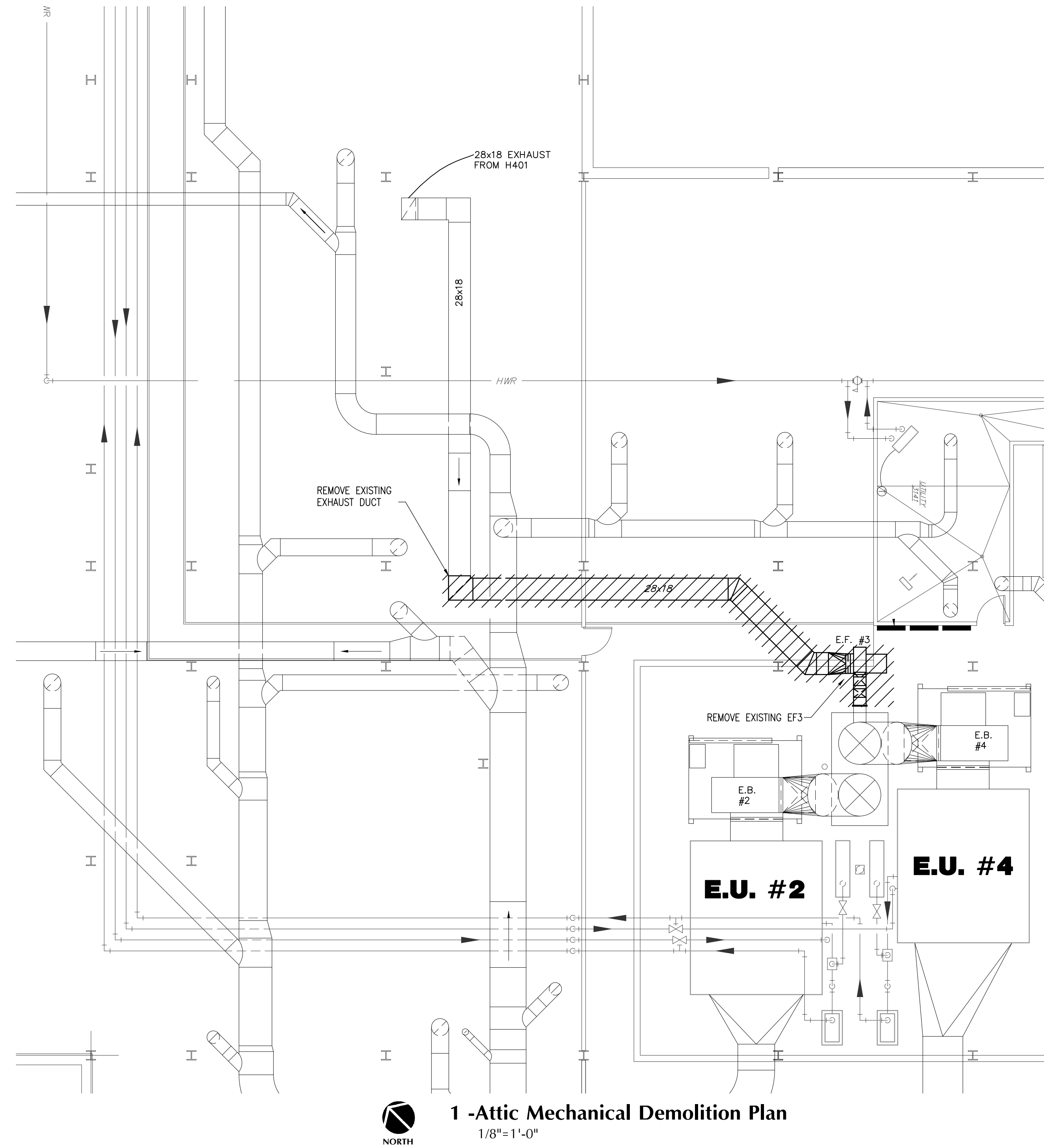
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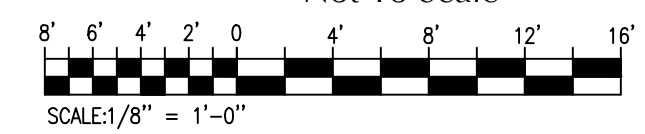
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