

ABBREVIATIONS	
(E)	EXISTING ITEM
(ED)	EXISTING ITEM TO BE DEMOLISHED
GE	GENERAL EXHAUST
FL	FUTURE
(N)	NEW
(RL)	RELOCATED ITEM
AV	AUTOMATIC AIR VENT
AC	AIR CONDITIONING UNIT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
ACD	AUTOMATIC CONTROL DAMPER
ALCL	AIR COOLED LIQUID CHILLER
AD	ACCESS DOOR
AF	AIR FILTER
FF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
ARCH	ARCHITECT
AS	AIR SEPARATOR
ASC	APPLICABLE SECTION CONTRACTOR
ATC	AUTOMATIC TEMPERATURE CONTROL
B	BOILER
BDD	BACKDRIFT DAMPER
BE	BATHROOM EXHAUST
BMS	BUILDING MANAGEMENT SYSTEM
BS	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STEEL
BTU	BTU/HOUR THERMAL UNIT
BTUH	BTU PER HOUR
BVC	BOILER VENT AND COMBUSTION AIR
CA	COMBUSTION AIR
CAP	CAPACITY
CC	COOLING COIL
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CO	CONSTRUCTION MANAGER
CO	CLEAN OUT
CONN	CONNECT
CP	CONDENSATE PUMP
CT	COOLING TOWER
CUH	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CV	CONNECTOR
CVB	CONSTANT VOLUME BOX
D	CONDENSATE DRAIN
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DE	DRYER EXHAUST
DF	DESTRATIFICATION FAN
DHW	DOMESTIC HOT WATER
Ø	DIAMETER
DN	DOWN
DP	DIFFERENTIAL PRESSURE
DWG	DRAWING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ECU	EVAPORATIVE CONDENSING UNIT
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EMS	EMERGENCY MANAGEMENT SYSTEM
ER	EXHAUST REGISTER
ERV	EXHAUST ROOF VENT
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
EXT	EXTENDING WATER TEMPERATURE
EXH	EXHAUST
F	FAN
FATT	FLOAT & THERMOSTATIC TRAP
FA	FREE AREA
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FLR	FLOOR
FM	FLOW METER
FMS	FLOW MEASURING STATION
FO	FUEL OIL
FOB	FLAT ON BOTTOM
UF	FLAT ON TOP
UH	UNIT HEATER
FF	FAN POWERED
FPB	FAN POWERED BOX
FPS	FPS PER INCH
FPM	FEET PER MINUTE
FSD	FIRE SMOKE DAMPER
FT	FEET
FTR	FIN-TUBE RADIATION
FTU	FAN TERMINAL UNIT

ABBREVIATIONS	
GAL	GALLONS
GC	GENERAL CONTRACTOR
GE	GENERAL EXHAUST
GPM	GALLONS PER MINUTE
H	HUMIDIFIER
HC	HEATING COIL
AV	AUTOMATIC AIR VENT
AC	AIR CONDITIONING UNIT
HP	HORSE POWER
HP	HEAT PUMP
ACD	AUTOMATIC CONTROL DAMPER
ALCL	AIR COOLED LIQUID CHILLER
AD	ACCESS DOOR
AF	AIR FILTER
FF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
ARCH	ARCHITECT
ID	INSIDE DIAMETER
IN	INCHES
IRV	INTAKE ROOF VENT
KE	KITCHEN EXHAUST
KW	KILOWATTS
LE	LEAVING AIR TEMPERATURE
LBG	LINEAR BAR GRILLE
LD	LINEAR DIFFUSER, LOUVERED DOOR
LS	LOOSE STARTER
LWT	LEAVING WATER TEMPERATURE
MAT	MIXED AIR TEMPERATURE
MBH	THOUSAND BTUS PER HOUR
MC	MECHANICAL CONTRACTOR
MD	MOTORIZED DAMPER
MECH	MECHANICAL
NER	MECHANICAL EQUIPMENT ROOM
MOD	MOTOR OPERATED DAMPER
MUA	MAKEUP AIR
MUAJ	MAKEUP AIR UNIT
NC	NORMALLY CLOSED
NC	NOT IN CONTRACT
NO	NORMALLY OPEN
NO	NOT TO SCALE
OA	OUTSIDE AIR
OS	OUTSIDE AIR TEMPERATURE
OSD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
P	PUMP
PC	PLUMBING CONTRACTOR
PR	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE
PS	PACKAGE STARTER
PSI	POUNDS PER SQUARE INCH
PSG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
RD	RETURN DIFFUSER
RF	RETURN FAN
RG	RETURN GRILLE
RC	RETURN IN COVER
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SCT	SATURATED CONDENSING TEMPERATURE
SD	SMOKE DAMPER
SDA	SOUND ATTENUATOR
SF	STAND ALONE DIGITAL CONTROLLER
SF	SQUARE FEET
SG	SUPPLY AIR FAN
SG	SUPPLY GRILLE
SP	STATIC PRESSURE
SPD	SPEED
SST	STATIC SUCTION TEMPERATURE
TA	TRANSFER AIR
TE	TOILET EXHAUST
TF	TRANSFER FAN
TG	TRANSFER GRILLE
TOS	TOP OF STEEL
TSP	TOTAL STATIC PRESSURE
UC	UNDERCUT DOOR
UF	UNDER FLOOR
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VI	VIBRATION ISOLATOR
VF	VERIFY IN FIELD
VRF	VARIABLE REFRIGERANT FLOW
WBS	WET BULB TEMPERATURE
WMS	WIRE MESH SCREEN
WSHP	WATER SOURCE HEAT PUMP

REVISION LEGEND		NEW ISSUE	REVISED ISSUE	REVISED, NOT ISSUED
○	ISSUED, NOT REVISED	●	ISSUED, NOT REVISED	■
○	REMOVED FROM DRAWING SET	●	REMOVED FROM DRAWING SET	■
DRAWING LIST - MECHANICAL				
DRAWING NUMBER	DRAWING TITLE	05-23-2021	05-23-2021	05-23-2021
M0-0-1	MECHANICAL LEGENDS AND ABBREVIATIONS	○	●	■
M0-0-2	MECHANICAL GENERAL NOTES	○	●	■
M1-1-0-1	MECHANICAL DUCTWORK LOWER LEVEL FLOOR PLAN - AREA C	○	●	■
M1-1-0-2	MECHANICAL DUCTWORK LOWER LEVEL FLOOR PLAN - AREA D	○	●	■
M1-1-1A	MECHANICAL DUCTWORK FIRST FLOOR PLAN - AREA A	○	●	■
M1-1-1B	MECHANICAL DUCTWORK FIRST FLOOR PLAN - AREA B	○	●	■
M1-1-1C	MECHANICAL DUCTWORK FIRST FLOOR PLAN - AREA C	○	●	■
M1-1-1D	MECHANICAL DUCTWORK FIRST FLOOR PLAN - AREA D	○	●	■
M1-1-2A	MECHANICAL DUCTWORK SECOND FLOOR PLAN - AREA A	○	●	■
M1-1-2B	MECHANICAL DUCTWORK SECOND FLOOR PLAN - AREA B	○	●	■
M1-1-2C	MECHANICAL DUCTWORK SECOND FLOOR PLAN - AREA C	○	●	■
M1-1-2D	MECHANICAL DUCTWORK SECOND FLOOR PLAN - AREA D	○	●	■
M1-1-3A	MECHANICAL DUCTWORK THIRD FLOOR PLAN - AREA A	○	●	■
M1-1-3B	MECHANICAL DUCTWORK THIRD FLOOR PLAN - AREA B	○	●	■
M1-1-3C	MECHANICAL DUCTWORK THIRD FLOOR PLAN - AREA C	○	●	■
M1-1-3D	MECHANICAL DUCTWORK THIRD FLOOR PLAN - AREA D	○	●	■
M1-1-4A	MECHANICAL DUCTWORK FOURTH FLOOR PLAN - AREA A	○	●	■
M1-1-4B	MECHANICAL DUCTWORK FOURTH FLOOR PLAN - AREA B	○	●	■
M1-1-4C	MECHANICAL DUCTWORK FOURTH FLOOR PLAN - AREA C	○	●	■
M1-1-4D	MECHANICAL DUCTWORK FOURTH FLOOR PLAN - AREA D	○	●	■
M1-1-5A	MECHANICAL CONCESSION BUILDING PLAN	○	●	■
M1-1-5B	MECHANICAL CONCESSION BUILDING PLAN	○	●	■
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GENERAL NOTES	MECHANICAL GENERAL NOTES	MECHANICAL GENERAL NOTES
1. THE WORK TO BE DONE UNDER THESE SPECIFICATIONS AND THE DRAWINGS CONSISTS OF PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES AND PERFORMING ALL OPERATIONS TO COMPLETE THE CONSTRUCTION WORK FOR THIS PROJECT. ANY WORK NOT SPECIFICALLY COVERED BY THESE SPECIFICATIONS OR INDICATED ON THE CONTRACT DRAWINGS, BUT NECESSARY TO COMPLETE OR PERFECT ANY PART OF THIS INSTALLATION IN A SUBSTANTIAL MANNER, SHALL BE PROVIDED WITHOUT EXTRA COST TO THE OWNER. 2. THE WORK SHALL CONFORM TO THE MORE STRINGENT OF ALL APPLICABLE CODES & REGULATIONS, UL (AND FMJ) GUIDELINES, (LEED REQUIREMENTS), MANUFACTURER'S LITERATURE AND RECOMMENDATIONS, (BUILDING OPERATOR'S REQUIREMENTS), AND TO THE REQUIREMENTS OF FEDERAL, STATE AND LOCAL REGULATORY AGENCIES AND AUTHORITIES HAVING JURISDICTION. 3. THE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND INDICATE THE EXTENT, GENERAL CHARACTER, LOCATION AND ARRANGEMENT OF THE WORK UNDER THIS CONTRACT. EXACT LOCATIONS OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS, WHERE JOB CONDITIONS REQUIRE MINOR CHANGES OR ADJUSTMENTS IN THE INDICATED LOCATIONS OR ARRANGEMENT OF THE WORK. SUCH CHANGES SHALL BE PROVIDED WITHOUT EXTRA COST. THE CONTRACTOR SHALL RE-INSTALL EQUIPMENT THAT HAS INADEQUATE OR UNSAFE ACCESSIBILITY. 4. INSTALLATION OF WORK SHALL PROVIDE REASONABLE ACCESSIBILITY FOR OPERATION, INSPECTION AND MAINTENANCE OF EQUIPMENT AND ACCESSORIES. PROVIDE CLEARANCES REQUIRED BY MANUFACTURERS AND APPLICABLE CODES. ALL CEILING MOUNTED EQUIPMENT SHALL BE INSTALLED IN SUCH A MANNER THAT LIGHTS, PIPING, AND DUCTWORK DO NOT BLOCK ACCESS TO EQUIPMENT AND RELATED ACCESSORIES. 5. THE TERM "TURNKEY" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIN IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "MECHANICAL WORK," "ELECTRICAL WORK," "PLUMBING WORK," ETC. SHALL MEAN ALL LABOR, MATERIAL, EQUIPMENT, SCAFFOLDING, RIGGING, TOOLS, SUPERVISION, SERVICES AND OTHER INCIDENTALS NECESSARY FOR COMPLETE AND OPERABLE INSTALLATION. 6. THE CM/SG SHALL MAKE SETS OF THE BID DOCUMENTS CONSISTING OF COMPLETE SETS OF DRAWINGS AND SPECIFICATIONS, AND ISSUE THEM TO EACH OF THE PRIME AND SUB-CONTRACTORS. EVERY PRIME AND SUB-CONTRACTOR ON EACH BIDDING TEAM SHALL RECEIVE COMPLETE SETS OF DRAWINGS AND SPECIFICATIONS. THERE ARE NOTES AND CROSS REFERENCES FOR VARIOUS TRADE CONTRACTORS IN MULTIPLE TRADE OR DISCIPLINE DRAWINGS AND SPECIFICATIONS. THESE EACH CONTRACTOR IS TO RECEIVE COMPLETE SETS OF THE BID DOCUMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THESE DRAWINGS FROM CM/SG. EACH CONTRACTOR IS RESPONSIBLE FOR THEIR WORK AS NOTED ON THE OTHER DISCIPLINE DOCUMENTS. BIDDERS ARE RESPONSIBLE FOR ALL COSTS FOR EACH SET OF BID DOCUMENTS REQUESTED. 7. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A FULL COORDINATION EFFORT IN ORDER TO CREATE A FINALIZED COORDINATED LAYOUT OF ALL EQUIPMENT, SYSTEMS, DUCTWORK, PIPING AND ALL OTHER ITEMS WITHIN THEIR RESPECTIVE SCOPE. THE CONTRACTOR'S COORDINATION EFFORT SHALL INCLUDE COORDINATED INFORMATION FROM ALL OTHER TRADE CONTRACTORS INVOLVED IN THE PROJECT SCOPE IN ORDER TO PROVIDE COORDINATION BETWEEN TRADES AND ALL EXISTING CONDITIONS. ALL ERRORS MADE AS A RESULT OF A LACK OF COORDINATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND CORRECTED AT NO ADDITIONAL COST TO THE PROJECT. MINOR RELOCATIONS AND SHIFTS OF EQUIPMENT, DUCTWORK, AND PIPING WHICH DO NOT CHANGE THE DESIGN INTENT INDICATED ON THE CONTRACT DOCUMENTS, REQUIRED TO ACCOMMODATE FIELD CONDITIONS ARE AT THE CONTRACTORS DISCRETION AND DO NOT REQUIRE ENGINEER APPROVAL. 8. CONTRACTOR SHALL ARRANGE AND OBTAIN ALL PERMITS, INSPECTIONS AND APPROVALS, AND PAY ALL RELATED FEES. 9. THE DRAWINGS INDICATE APPROXIMATE LOCATIONS BASED UPON INFORMATION OBTAINED WITHOUT REMOVING CEILING, TILES OR WALLS. THEREFORE, THE CONTRACTOR OR SHALL INCLUDE IN THEIR BID CONINGENCY COSTS TO ADDRESS CONFLICTS BETWEEN DESIGN AND EXISTING CONDITIONS. ANY CHANGES AND/OR MODIFICATIONS MUST BE REVIEWED AND APPROVED BY THE ENGINEER AND/OR OWNERS REPRESENTATIVE PRIOR TO CONSTRUCTION. 10. FOR ANY DISCREPANCY BETWEEN DRAWINGS AND/OR SPECIFICATIONS, THE CONTRACTOR SHALL BASE THEIR BID UPON THE MOST STRINGENT REQUIREMENT (QUALITY, QUANTITY, SIZE, ETC.). THE CONTRACTOR SHALL IDENTIFY DISCREPANCIES AS PART OF THEIR BID. 11. PRIOR TO DEMOLITION, THE CONTRACTOR SHALL LOG ALL EXISTING EQUIPMENT AND TRACE ELECTRICAL, FIRE ALARM, AND CONTROL CIRCUITS THAT SERVE SUCH EQUIPMENT. 12. ALL SERVICES TO EXISTING BUILDINGS SHALL BE MAINTAINED DURING CONSTRUCTION UNLESS OTHERWISE INDICATED. CONTRACTOR SHALL COORDINATE ALL SYSTEM SHUT DOWNS AND TIMING WITH OWNER. 13. THE CONTRACTOR SHALL EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED. 14. EXISTING EQUIPMENT THAT INTERFERES WITH NEW ARRANGEMENT SHALL BE REMOVED, REINSTALLED, RELOCATED, REROUTED, EXTENDED OR ABANDONED AS REQUIRED, TO SUIT THE NEW ARRANGEMENT. 15. WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK AND/OR PIPING, CAREFULLY COORDINATE SIZES AND LOCATIONS OF THE ELEMENTS BEFORE FABRICATION. COORDINATE WITH FINAL LOCATION OF BEAM PENETRATIONS AND SHEAR WALL PENETRATIONS. 16. CONTRACTOR SHALL COORDINATE LOCATION OF ALL WALL, FLOOR AND ROOF OPENINGS WITH STRUCTURAL AND OTHER TRADES. 17. PROVIDE CUTTING AND PATCHING AS REQUIRED AND WHERE NECESSARY TO ACCOMMODATE NEW WORK AND THE REPAIR OF EXISTING WORK. 18. WHEN WORK INVOLVES CONTACT WITH MATERIALS CONTAINING ASBESTOS, PCB, OR OTHER TOXIC MATERIALS, NOTIFY OWNER, WHO WILL ESTABLISH PROCEDURES FOR REMEDIATION AND REMOVAL. 19. CONTRACTOR SHALL SCHEDULE THE WORK UNDER THIS CONTRACT WITH WORK OF OTHER TRADES AS NOT TO DELAY THE OVERALL PROGRESS OF THE PROJECT. 20. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY CONFLICTS PRIOR TO PURCHASING EQUIPMENT AND PRIOR TO CUTTING OPENINGS. 21. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS PER SPECIFICATIONS PRIOR TO PURCHASING OR INSTALLING EQUIPMENT AND SYSTEMS INDICATED ON CONTRACT DOCUMENTS. PRIOR TO SUBMITTAL, CONTRACTOR SHALL VERIFY THAT ADEQUATE SPACE EXISTS FOR THE SUBMITTED EQUIPMENT. SHOP DRAWINGS MUST BE REVIEWED BY ARCHITECT/ENGINEER. 22. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED BY OTHER TRADES DUE TO SUBSTITUTION OF OTHER THAN SCHEDULED EQUIPMENT. WHEN EQUIPMENT FURNISHED IS DIFFERENT THAN INDICATED, THE COST OF ADDITIONAL ELECTRICAL SERVICE, STRUCTURAL, AND RELATED WORK SHALL BE PAID BY THIS CONTRACTOR. 23. ALL WORK SHALL BE EXECUTED IN A NEAT AND WORKMANLIKE MANNER AND SHALL BE DONE IN ACCORDANCE WITH GOOD TRADE PRACTICE AND IN CONFORMANCE WITH APPLICABLE MANUFACTURER'S RECOMMENDATIONS. 24. CONTRACTOR SHALL REMOVE ALL TRASH, DEBRIS AND DEMOLITION MATERIAL FROM PREMISES AT THE END OF EACH DAY. 25. RESTORE ALL SURFACES (WALLS, CEILINGS, FLOORS AND ROOFS) THAT ARE DAMAGED BY THE WORK OF THIS CONTRACT TO THEIR ORIGINAL CONDITION AT NO EXTRA COST TO THE OWNER. 26. PRIOR TO EQUIPMENT STARTUP, CONTRACTOR SHALL PERFORM THE SPECIFIED STARTUP AND COMMISSIONING PROCEDURES. 27. IN THE ABSENCE OF OTHER SPECIFIC INSTRUCTIONS, ALL WORK AND MATERIALS SUPPLIED SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF THEIR ACCEPTANCE BY THE OWNER. 28. BALA CONSULTING ENGINEERS, INC. (BALA) WILL PROVIDE CONTRACTOR WITH ELECTRONIC CADD FILES OF THE ENGINEERING DESIGNS FOR THE SOLE USE IN EXPEDITING SHOP DRAWINGS. BALA'S FILES SHALL NOT BE DIRECTLY COPIED AND ISSUED AS SHOP DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FIELD COORDINATION, DIMENSIONING AND ADHERENCE TO THE SHOP DRAWING REQUIREMENTS AS NOTED IN THE SPECIFICATIONS. SHOULD THE SHOP DRAWINGS SUBMITTED PROVE TO BE A DIRECT COPY OF OUR FILES WITHOUT THE NECESSARY FIELD COORDINATION, DIMENSIONING AND ADHERENCE TO THE SHOP DRAWING REQUIREMENTS AS NOTED IN THE SPECIFICATIONS, THESE SHOP DRAWINGS WILL BE RETURNED AS REJECTED. BALA'S ELECTRONIC FILES ARE SAVED IN VERSION (REVIT, AUTOCAD) (2016, 2017, 2018) AND ARE COMPATIBLE WITH ALL VERSIONS AFTER THAT. BALA MAKES NO REPRESENTATION AS TO THE COMPATIBILITY OF THESE FILES WITH THE CONTRACTOR'S HARDWARE OR THEIR SOFTWARE. DATA CONTAINED ON THESE ELECTRONIC FILES ARE PART OF BALA'S "INSTRUMENTS OF SERVICE" AND ARE COPYRIGHTED. CONTRACTORS USE OF FILES IS FOR THE SOLE PURPOSE AS A CONVENIENCE IN THE PREPARATION OF DRAWINGS FOR THE REFERENCED PROJECT. ANY OTHER USE OR REUSE BY CONTRACTOR IS UNLAWFUL.	1. MECHANICAL CONTRACTOR SHALL EXAMINE THE DRAWINGS OF ALL TRADES AND COORDINATE THEIR WORK PRIOR TO ANY INSTALLATIONS TO AVOID INTERFERENCE WITH STRUCTURE, AND ALL EQUIPMENT ABOVE AND BELOW THE CEILING. THE MECHANICAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND FIELD CONDITIONS AT THE SITE PRIOR TO BID AND PURCHASE OF EQUIPMENT/MATERIALS. THE CONTRACTOR SHALL PROVIDE VALUE FOR SAME IN THEIR BID. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER, ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING WITH THE WORK. 2. FOR ANY DISCREPANCY BETWEEN DRAWINGS AND/OR SPECIFICATIONS, THE MECHANICAL CONTRACTOR SHALL BASE THEIR BID UPON THE MOST STRINGENT REQUIREMENT (QUALITY, QUANTITY, SIZE, ETC.). THE CONTRACTOR SHALL IDENTIFY DISCREPANCIES AS PART OF THEIR BID. 3. THE MECHANICAL CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING OF EXISTING CONSTRUCTION REQUIRED BY THEIR WORK. ALL FINISHES SHALL MATCH EXISTING. STRUCTURAL MEMBERS SHALL NOT BE CUT UNLESS APPROVED BY OWNERS REPRESENTATIVE. PAINTING SHALL BE BY GENERAL CONTRACTOR. WHERE EQUIPMENT IS REMOVED, CONTRACTOR TO REFRESH AREA TO MATCH EXISTING. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING INTEGRITY OF ALL STRUCTURAL ELEMENTS. 4. THE MECHANICAL CONTRACTOR SHALL EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED. 5. EXISTING MECHANICAL EQUIPMENT THAT INTERFERES WITH NEW ARRANGEMENT SHALL BE REMOVED, REINSTALLED, RELOCATED, REROUTED, EXTENDED OR ABANDONED AS REQUIRED, TO SUIT THE NEW ARRANGEMENT. 6. ALL MATERIALS, EQUIPMENT AND INSTALLATIONS SHALL BE IN STRICT ACCORDANCE WITH SMACNA AND ASHARE GUIDELINES, UNLESS OTHERWISE NOTED. 7. EQUIPMENT INDICATED ON THE DRAWINGS, TOGETHER WITH ITS BASE AND/OR SUPPORT, DUCTWORK CONNECTIONS, SERVICE CLEARANCES, WALL, FLOOR AND ROOF PENETRATIONS, AND ELECTRICAL REQUIREMENTS IS BASED ON THE MODEL INDICATED IN THE SCHEDULES. IF CONTRACTOR FURNISHES AN EQUIVALENT SUBSTITUTION, THE CONTRACTOR SHALL MAKE THE REQUIRED MODIFICATIONS IN THE WORK WITHOUT CHANGE IN CONTRACT AMOUNT. 8. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL COSTS RELATED TO REMOVING AND REPLACING ALL CEILINGS AS REQUIRED FOR THE MECHANICAL WORK ON THIS PROJECT. PROVIDE SELECTIVE CEILING DEMOLITION TO PLACE NEW DUCTWORK AND DIFFUSERS. REPLACE DAMAGED CEILING TILES AND GRIDS RESULTING FROM DEMOLITION. NEW CEILING TILES SHALL MATCH WITH EXISTING. 9. COORDINATE MECHANICAL SYSTEM INSTALLATION WITH EXISTING CONDITIONS. VISIT SITE PRIOR TO BID AND INVESTIGATE REQUIREMENTS FOR MECHANICAL SYSTEM INSTALLATION. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. 10. COORDINATE LOCATION OF ALL WALL, FLOOR AND ROOF OPENINGS WITH STRUCTURAL AND OTHER TRADES. 11. COORDINATE LOCATION OF NEW DUCTWORK, AIR DEVICES AND EQUIPMENT WITH LIGHT FIXTURES, SPRINKLER PIPING AND HYDRONIC PIPING. 12. COORDINATE THE LOCATIONS OF ALL EQUIPMENT AND REGISTERS WITH THE LATEST ARCHITECTURAL DRAWINGS PRIOR TO PERFORMING AND ROUGH-IN WORK FOR THE UTILITIES. 13. COORDINATE THERMOSTATS WITH FINAL DIFFUSER LOCATIONS. THERMOSTATS SHALL NOT BE MOUNTED IN THE THROWN PATTERN OF DIFFUSERS. 14. FIELD VERIFY THE ACTUAL LOCATIONS AND EXACT DIMENSIONS OF ALL EQUIPMENT, CASEWORK, DEVICES, FIXTURES, SWITCHES, SENSORS, STRUCTURAL ELEMENTS, ETC. DURING FIELD VISITS AND PRIOR TO PERFORMING ANY ROUGH-IN WORK FOR DUCTWORK, PIPING AND OTHER AND UTILITIES/SCOPE. MINOR CHANGES TO EQUIPMENT LOCATIONS OR DUCTWORK AND PIPING ROUTING AND DUCTWORK ASPECT RATIO, BASED ON THE FINAL COORDINATION EFFORT, ARE TO BE COMPLETED BY THE CONTRACTOR. REPORT DISCREPANCIES IMMEDIATELY TO ARCHITECT AND/OR ENGINEER. 15. PROVIDE TEMPORARY CONSTRUCTION FILTERS ON ALL RECIRCULATING HVAC EQUIPMENT USED FOR HEATING, COOLING, EXHAUST OR VENTILATION DURING CONSTRUCTION. PROVIDE REGULARLY SCHEDULED FILTER CHANGES DURING CONSTRUCTION. PROVIDE FRESH FILTERS PRIOR TO BALANCING. PRIOR TO TURN OVER TO OWNER, PROVIDE FRESH FILTERS IN ALL EQUIPMENT. 16. EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM DUST, DIRT AND DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE ALL DUCT AND EQUIPMENT OPENINGS DURING CONSTRUCTION WITH SUITABLE PROTECTIVE COVERING BEFORE, DURING AND FOLLOWING INSTALLATION. 17. UNLESS OTHERWISE NOTED, INSTALL DUCTWORK AND PIPING OVERHEAD, TIGHT TO UNDERSIDE OF STRUCTURE OR SLAB, WITH ADEQUATE SPACE FOR INSULATION AND GAP TO PREVENT TRANSMISSION OF VIBRATION TO STRUCTURE. 18. WHERE CONNECTING TO EXISTING DUCTWORK AND PIPING SYSTEMS, INSPECT FOR DEFECTS. NOTIFY OWNER IF EXISTING DUCTWORK, PIPING AND INSULATION IS FOUND TO HAVE DAMAGE/DEFECTS AND TO DETERMINE IF REPLACEMENT IS REQUIRED. 19. MECHANICAL WORK THAT IS TO REMAIN WHEN STRUCTURE ON WHICH IT IS INSTALLED IS TO BE MODIFIED OR REMOVED SHALL BE PROPERLY SUPPORTED IN PLACE UNTIL WORK OF ALL TRADES IS COMPLETED. REINSTALL MECHANICAL WORK ON NEW STRUCTURE. 20. ALL MATERIALS AND EQUIPMENT INSTALLED IN RETURN AIR PLENUMS SHALL BE NON-COMBUSTIBLE AND UL APPROVED FOR USE IN A RETURN AIR PLENUM SPACE. ALL WIRING SHALL BE NON-COMBUSTIBLE OR SHALL BE ENCLOSED IN METAL CONDUIT OR PROTECTED BY A SHEET METAL COVER SECURED WITH METAL FASTENERS. 21. PROVIDE ALL OFFSETS, FITTINGS, DOUBLE ELBOWS, RISES, DROPS, DUCTWORK, PIPING, INSULATION AND ALL DUCTWORK OR PIPING AROUND EXISTING CONDITIONS. DUCTWORK, PIPING, EXISTING STEEL, NEW CONSTRUCTION AND ALL OTHER TRADE WORK. COORDINATE WORK WITH ALL OTHER WORK AND ALL OTHER TRADE CONTRACTORS TO VERIFY LOCATIONS REQUIRING CHANGES IN ELEVATION. 22. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT AND PIPE TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION. 23. INSTALL PIPING SUCH THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, AND OTHER ACCESSORIES ARE ACCESSIBLE. 24. PROVIDE ACCESS PANELS AS REQUIRED FOR ALL VALVES, DAMPERS, CONTROLS, OR OTHER EQUIPMENT. PROVIDE ACCESS PANELS IN NON-LAY-IN-CEILINGS FOR SERVICE AND MAINTENANCE OF ALL CONCEALED EQUIPMENT AND DEVICES, SUCH AS HEAT PUMPS, ELECTRIC DUCT HEATERS, COILS, SMOKE DETECTORS, BALANCING DAMPERS AND FIRE DAMPERS. 25. [CLEAN EXISTING AND RELOCATED AIR DEVICES THOROUGHLY WITH WARM SOAPY WATER. REPAIR AND RE-PAINT ALL DAMAGED AIR DEVICES TO BE REUSED. CLEAN ALL AIR DEVICES AFTER CONSTRUCTION IS COMPLETED.] 26. CONTRACTOR SHALL NOT CONCEAL ANY WORK UNTIL INSPECTED BY MECHANICAL INSPECTOR AND/OR ARCHITECT/ENGINEER. CONTRACTOR SHALL NOTIFY A/E OF A SCHEDULED INSPECTION TIME WITHIN 72 HOURS. GENERAL CONTRACTOR SHALL NOT CONCEAL WORK UNTIL APPROVED, REGARDLESS OF SCHEDULE. 27. REMOVE ALL TRASH, DEBRIS AND DEMOLITION MATERIAL FROM PREMISES AT THE END OF EACH DAY. 28. PROVIDE ALL ROOFING OPENINGS, FLASHING, CURBS, COUNTER FLASHING, ETC. REQUIRED FOR THE INSTALLATION OF ROOF MOUNTED EQUIPMENT OR CURBS. COORDINATE OPENING WITH ROOFING CONTRACTOR AND CM/SG. ALL ROOFING WORK SHALL BE PERFORMED BY AUTHORIZED ROOFING CONTRACTOR TO MAINTAIN ROOF WARRANTY. 29. ALL DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS. 30. SHEETMETAL FITTINGS SHOWN SHALL BE PROVIDED. NO SUBSTITUTES WILL BE ALLOWED WITHOUT PRIOR CONSENT FROM ENGINEER. 31. PROVIDE BALANCING DAMPERS IN ALL DUCT BRANCHES AND TO AIR DEVICES. 32. PROVIDE COMBINATION PRESMOKE DAMPERS AND SMOKE DAMPERS IN DUCTS PASSING THROUGH FIRE OR SMOKE RATED ASSEMBLIES AS INDICATED ON THE ARCHITECTURAL DRAWINGS. 33. DUCTWORK SHALL NOT BE ROUTED ABOVE ELECTRICAL PANELS. COORDINATE WITH ELECTRICAL CONTRACTOR. DUCTWORK SHALL NOT COVER OR LIMIT ACCESS TO EXISTING CABOES. 34. PROVIDE HEAVY DUTY FLEXIBLE CONNECTIONS AT ALL FANS INLET AND OUTLET CONNECTIONS.	36. PROVIDE ACOUSTICALLY LINED DUCTWORK 20 FEET DOWNSTREAM OF ALL FANS, FAN COIL UNITS, FAN POWERED BOXES AND VAV BOXES. 37. [MECHANICAL CONTRACTOR SHALL BLANK OFF ALL UNUSED SECTIONS OF LOUVER AREA WITH 1/8 GAUGE GALVANIZED STEEL PANELS AND INSULATE WITH 1" THICK FIBERGLASS BOARD INSULATION.] 38. ALL OPEN-ENDED DUCTS IN CEILING PLENUMS OR EXPOSED SHALL BE UNOBSTRUCTED FOR A MINIMUM DISTANCE OF 36 INCHES FROM THE OPENING TO ALLOW FREE FLOW OF AIR. UNLESS OTHERWISE NOTED, EACH OPENING SHALL TERMINATE WITH 3/4" WIRE MESH SCREEN. 39. LOCATE CEILING DIFFUSERS, GRILLES AND REGISTERS AS SHOWN ON THE ARCHITECTURAL REFLECTED CEILING PLANS. 40. CONTRACTOR SHALL PROVIDE FIRE STOPPING WHERE EQUIPMENT, DUCTWORK AND PIPING PENETRATE FIRE AND SMOKE RATED BARRIERS/PARTITIONS. INSTALL FIRE STOPPING IN ACCORDANCE WITH UL RATED ASSEMBLY REQUIREMENTS AFTER EQUIPMENT, DUCTWORK AND PIPING HAVE BEEN INSTALLED. 41. PROVIDE ALL MISCELLANEOUS STEEL, THREADED RODS, REINFORCEMENT, VIBRATION ISOLATORS, TURNBUCKLES, ETC. TO SUPPORT MECHANICAL EQUIPMENT ON OR FROM BUILDING STRUCTURE. ALL SUPPORTS AND ASSOCIATED ANCHORS SHALL BE SIZED BASED ON THE HEIGHT OF THE RESPECTIVE EQUIPMENT BEING SUPPORTED. 42. SUPPORT ALL EQUIPMENT, PIPING AND DUCTWORK FROM BUILDING STRUCTURE TO PROVIDE A VIBRATION FREE INSTALLATION. OTHERWISE, ADHERE TO THE DETAILS IN THE CONTRACT DOCUMENTS. NOTIFY ARCHITECT AND/OR STRUCTURAL ENGINEER OF ALL WEIGHTS AND METHODS OF SUPPORT. PROVIDE DETAILS TO COORDINATE CONCRETE PADS AND STEEL PLATFORMS REQUIRED FOR MECHANICAL WORK. 43. PROVIDE VIBRATION ISOLATION FOR ROTATING, REVOLVING OR RECIPROCATING EQUIPMENT, INCLUDING DUCTWORK CONNECTIONS TO THE EQUIPMENT TO PREVENT TRANSMISSION OF NOISE AND VIBRATION TO BUILDING STRUCTURE AND OCCUPIED SPACES. VIBRATION ISOLATION DEVICES SHALL INCLUDE SPRING VIBRATION ISOLATORS, NEOPRENE PADDING AND DUCT PIPE FLEXIBLE CONNECTIONS. 44. CONTROL WIRE AND CONDUIT SHALL COMPLY WITH NEC, INTERNATIONAL BUILDING CODES AND ELECTRICAL SPECIFICATIONS. PLENUM RATED CABLE SHALL BE PROVIDED IN ALL PLENUM CEILINGS. CONTRACTOR TO COORDINATE LOCATION OF ALL PLENUM CEILINGS. 45. ALL WALL MOUNTED CONTROL DEVICES SHOWN ON DRAWINGS ARE DIAGRAMMATIC IN LOCATION AND SHOWN FOR GENERAL WIRING PURPOSES ONLY. ALL DEVICES SHALL BE MOUNTED 48" ABOVE FINISHED FLOOR. DEVICES INDICATED TO BE INSTALLED IN THE SAME LOCATIONS WITH DIFFERENT ELEVATIONS SHALL BE ADJUSTED VERTICALLY AND HORIZONTALLY REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING DETAILS OF SWITCHES, OUTLETS, FIRE ALARM STROBES, AUDIBLE AND VISUAL DEVICES, FIRE ALARM PULL STATION, CLOCKS, SECURITY DEVICES, CARD READERS, THERMOSTATS, SENSORS, ETC. COORDINATE FINAL LOCATIONS WITH EQUIPMENT, FURNITURE, TENANT, AND ARCHITECT PRIOR TO INSTALLATION. 46. REMOVE TEMPORARY AIR FILTERS AND PROVIDE NEW FILTERS IN ALL AIR CONDITIONING EQUIPMENT WITHIN THE SCOPE OF WORK UPON COMPLETION OF CONSTRUCTION AND BEFORE BALANCING. 47. ALL LOUVERS SHALL BE FURNISHED BY DIV. 23 AND INSTALLED BY THE C. M. DIV. 23 SHALL FULLY REVIEW BOTH MECHANICAL DRAWINGS AND ARCHITECTURAL DRAWINGS FOR LOUVER SIZES.

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MSBA 90% CD
Construction Document
Submittal
May 12th, 2023

MECHANICAL
GENERAL
NOTES

Scale: 1/2" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L
Date: May 12th, 2023

M0-0-2

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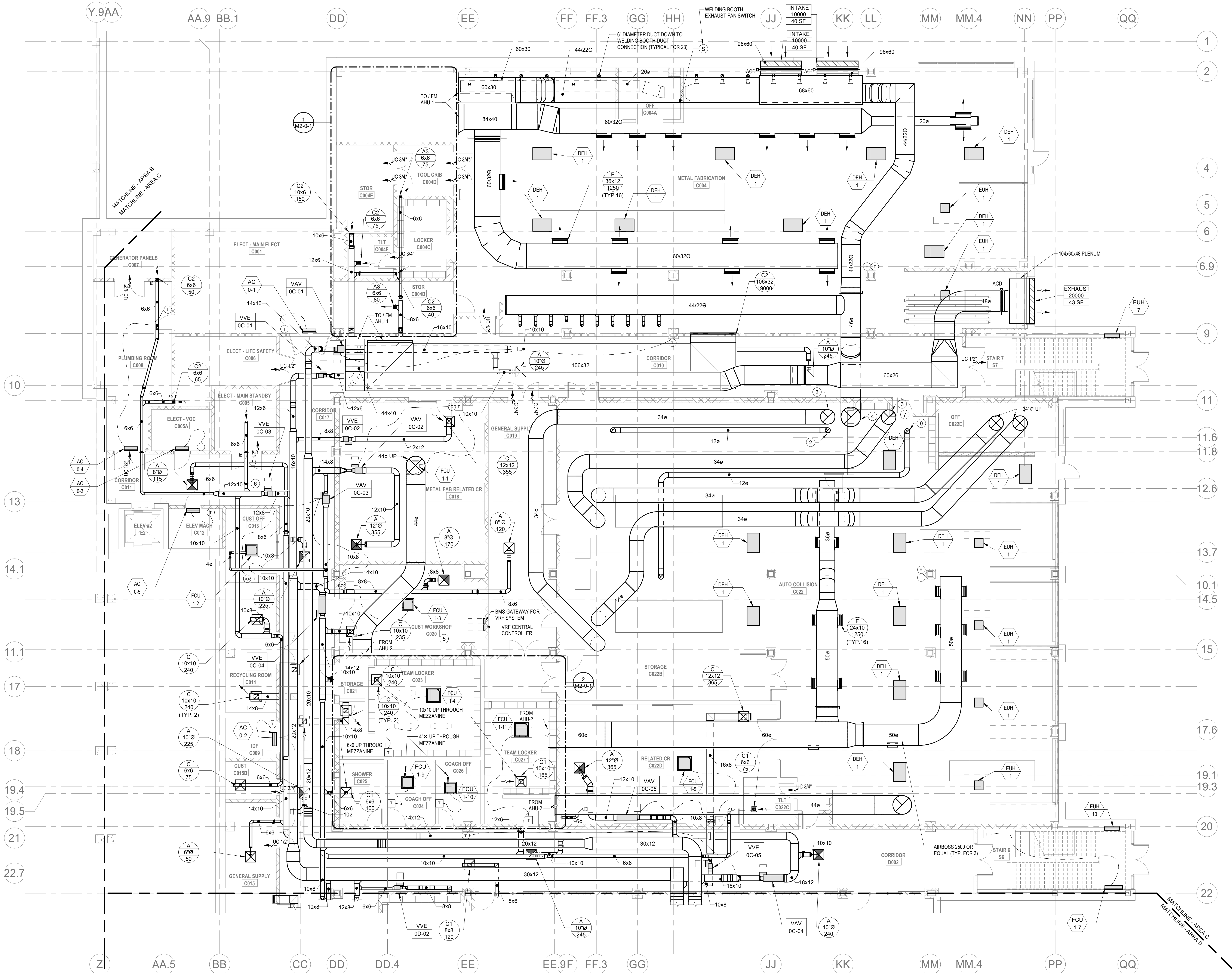
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HVAC DRAWING NOTES

- 48"Ø EA DUCT UP TO ROOF VENT.
- 12"Ø PAINT MIXING BOOTH EXHAUST DUCT UP TO FAN F-3 ON ROOF.
- 36"Ø SPRAY BOOTH EXHAUST DUCT UP TO FANS F-14 AND F-16 ON ROOF.
- 48"Ø WELDING EXHAUST DUCT UP TO FAN ON ROOF.
- PROVIDE BMS HEAD-END COMPUTER IN THIS ROOM.
- PROVIDE MANUAL BALANCING DAMPER, BALANCE THE BALANCING DAMPER TO AN AIRFLOW OF 85 CFM.
- UNDERCUT DOOR 1/2".
- UNDERCUT DOOR 3/4".
- 12"Ø PAINT MIXING BOOTH EXHAUST DUCT UP TO FAN F-17 ON ROOF.

HVAC GENERAL NOTES

- GENERAL NOTE AT SOUND BARRIER CEILING:
IN THE METAL FABRICATION AND AUTO COLLISION SHOP A SOUND BARRIER CEILING SYSTEM IS INSTALLED BETWEEN STEEL BEAMS ON THE UNDERSIDE OF THE UPPER LEVEL FLOOR STRUCTURE. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS, SECTIONS AND DETAILS DRAWINGS FOR ADDITIONAL INFORMATION. THIS IS A SPECIALTY SOUND ISOLATION SUSPENDED CEILING SYSTEM. MEHPF SYSTEMS COMPONENTS ARE NOT ALLOWED TO BE ATTACHED/SUSPENDED, OR INSTALLED ABOVE THIS CEILING SYSTEM UNLESS SPECIFICALLY NOTED OTHERWISE. EACH SUB-CONTRACTOR SHALL PROVIDE UNSTRUT SUPPORTS ATTACHED TO BOTTOM CORE OF STRUCTURAL STEEL BEAMS AS REQUIRED TO SUPPORT MEHPF SYSTEMS COMPONENTS. SPECIALTY ACoustically RATED ACCESS PANELS MAY BE ALLOWED TO ACCESS MEHPF SYSTEMS COMPONENTS LOCATED ABOVE THE SOUND BARRIER SYSTEM ON THE LIMITED BASES AT LOCATIONS SPECIFICALLY INDICATED ON THE MEHPF DRAWINGS.
- GENERAL NOTES AT PRE-CAST CONCRETE PLANKS LOCATED AT VOCATIONAL SHOP MEZZANINES:
ALL HVAC COMPONENTS THAT REQUIRE PENETRATIONS THROUGH PRE-CAST CONCRETE PLANK AT MECHANICAL MEZZANINE FLOOR STRUCTURE SHALL BE COORDINATED WITH THE PRE-CAST PLANK CORE LOCATIONS. PENETRATIONS THROUGH THE PRE-CAST PLANK ARE ONLY ALLOWED THROUGH THE CORES. GENERAL CONTRACTOR MUST COORDINATE ALL OPENINGS IN THE PRE-CAST CONCRETE PLANK AS PART OF THE MEP-FE COORDINATION PROCESS.
ALL MECHANICAL SYSTEMS AND COMPONENTS THAT REQUIRE ATTACHMENT TO THE ARCHITECTURAL PRE-CAST CONCRETE PANELS SHALL BE COORDINATED WITH THE PRE-CAST CONCRETE SUB-CONTRACTOR DURING COORDINATION AND SHOP DRAWING PROCESS. NO ATTACHMENT OF THE MECHANICAL COMPONENTS TO THE PRE-CAST CONCRETE PANELS SHALL BE ALLOWED IN THE FIELD WITHOUT PRIOR REVIEW AND APPROVAL BY THE PRE-CAST CONCRETE SUB-CONTRACTOR. NO CUTTING AND/OR PATCHING OF THE PRE-CAST CONCRETE PANELS IS ALLOWED IN THE FIELD.



M1-1-0C VARIABLE AIR VOLUME EXHAUST AIR TERMINAL SCHEDULE (VVE)

UNIT NO.	TYPE	INLET DIAMETER (IN)	DISCHARGE SIZE (IN)	MAX AIRFLOW (CFM)	MIN. TURNDOWN (CFM)	MAX. PD (IN WG)	MAX. NC RATING	DISCH. RAD	MANUFACTURER	MODEL	REMARKS
VVE-OC-01	SINGLE DUCT EXHAUST	6	12x8	265	265	0.50	1.50	29	28	TITUS	DESV
VVE-OC-02	SINGLE DUCT EXHAUST	8	12x10	355	355	0.50	1.50	39	33	TITUS	DESV
VVE-OC-03	SINGLE DUCT EXHAUST	8	12x10	480	480	0.50	1.50	39	33	TITUS	DESV
VVE-OC-04	SINGLE DUCT EXHAUST	10	14x12.5	815	815	0.50	1.50	45	35	TITUS	DESV
VVE-OC-05	SINGLE DUCT EXHAUST	6	12x8	365	40	0.50	1.50	29	28	TITUS	DESV

- NOTES:
- REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
 - PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
 - SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
 - CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
 - PROVIDE INLET VELOCITY SENSOR.
 - SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
 - CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
 - PROVIDE 1" LINER FOR 20'± DOWNSTREAM OF ALL VAV BOXES.
 - PROVIDE SOUND ATTENUATOR.

M1-1-0C VARIABLE AIR VOLUME TERMINAL (VAV)

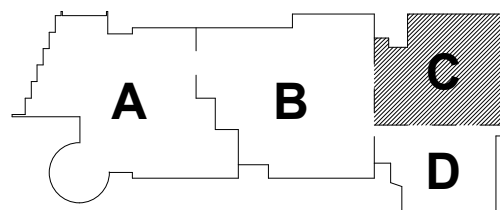
UNIT NO.	SYSTEM	ROOM SERVED	PRIMARY INLET DIA. (IN)	MAX FLOW SETPOINT (CFM)	MIN FLOW OCCUPIED (CFM)	MINIMUM FLOW UNOCCUPIED (CFM)	INLET AIR PRESSURE (IN WG)	DISCHARGE SIZE (IN)	MAX PD (IN WG)	DISCH. RAD	MANUFACTURER	MODEL	REMARKS
VAV-OC-01	HRU4	C010 CORRIDOR	10	675	675	675	1.50	14x12.5	0.50	45	35	TITUS	DESV
VAV-OC-02	HRU4	C018 METAL FAB CR	8	355	110	35	1.50	12x10	0.50	39	33	TITUS	DESV
VAV-OC-03	HRU4	C018 METAL FAB CR	6	305	305	30	1.50	12x10	0.50	39	33	TITUS	DESV
VAV-OC-04	HRU4	C011 CORRIDOR	12	1100	1100	1100	1.50	18x15	0.50	43	36	TITUS	DESV
VAV-OC-05	HRU4	C0220 RELATED CR	8	395	120	40	1.50	12x10	0.50	39	33	TITUS	DESV

- NOTES:
- REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
 - PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
 - REFER TO FLOOR PLANS - VAV TERMINALS ARE PROVIDED WITH AND WITHOUT ELECTRIC RE-HEAT COILS.
 - CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
 - PROVIDE INLET VELOCITY SENSOR.
 - CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
 - SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
 - PROVIDE 1" LINER FOR 20'± DOWNSTREAM OF ALL VAV BOXES.
 - PROVIDE SOUND ATTENUATOR.

M1-1-0C DIRECT DUCTED OUTSIDE AIR FLOW (CFM)

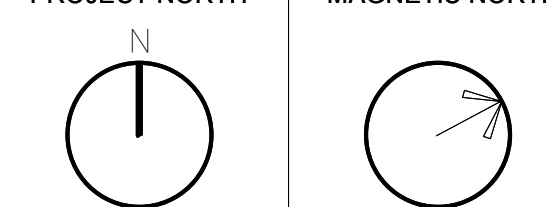
UNIT NO.	LOCATION	VRF CONDENSING UNIT	OUTSIDE AIR FLOW (CFM)	NOTES
FCU-1-2	C013 CUST OFF	CU-1	15	SEE NOTES 1-9
FCU-1-9	C024 COACH OFF	CU-1	15	SEE NOTES 1-10
FCU-1-10	C028 COACH OFF	CU-1	15	SEE NOTES 1-10

- NOTES:
- ALL DIRECT DUCTED VRF FAN COIL UNITS SHALL HAVE A MANUAL BALANCING DAMPER LOCATED AT THE BRANCH DUCT CONNECTION TO THE MAIN OUTSIDE AIR SUPPLY DUCT. MANUAL BALANCING DAMPER SHALL BE BALANCED TO THE OUTSIDE AIR FLOW (CFM) NOTED IN THIS SCHEDULE.



PROJECT NORTH

MAGNETIC NORTH



MECHANICAL
DUCTWORK
LOWER LEVEL
FLOOR PLAN -
AREA C

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

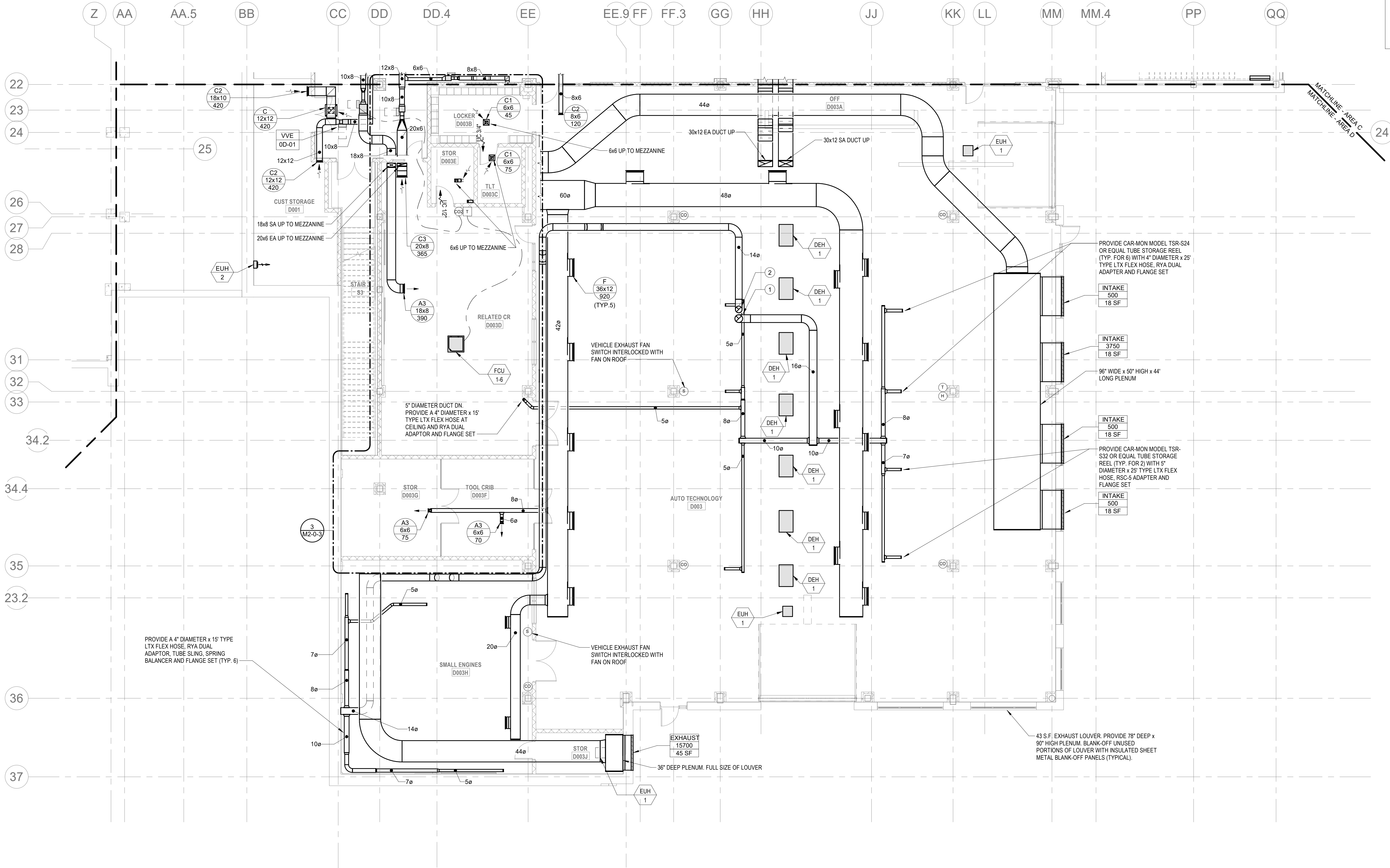
M1-1-0C

HVAC DRAWING NOTES

1. 16" Ø VEHICLE EXHAUST DUCT UP (2,600 CFM).
2. 14" Ø VEHICLE EXHAUST DUCT UP (2,100 CFM).

HVAC GENERAL NOTES

1. GENERAL NOTE AT SOUND BARRIER CEILING:
- IN THE METAL FABRICATION AND AUTO-COLLISION SHOP A SOUND BARRIER CEILING SYSTEM IS INSTALLED BETWEEN STEEL BEAMS ON THE UNDERSIDE OF THE UPPER LEVEL FLOOR STRUCTURE. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS, SECTIONS AND DETAILS DRAWINGS FOR ADDITIONAL INFORMATION. THIS IS A SPECIALLY SOUND ISOLATION SUSPENDED CEILING SYSTEM. MEHPFP SYSTEMS COMPONENTS ARE NOT ALLOWED TO BE ATTACHED/SUSPENDED, OR INSTALLED ABOVE THIS CEILING SYSTEM UNLESS SPECIFICALLY NOTED OTHERWISE. EACH SUB-CONTRACTOR SHALL PROVIDE UNISTRUT SUPPORTS ATTACHED TO BOTTOM CORO OF STRUCTURAL STEEL BEAMS AS REQUIRED TO SUPPORT MEHPFP SYSTEMS COMPONENTS. SPECIALTY ACOUSTICALLY RATED ACCESS PANELS MAY BE ALLOWED TO ACCESS MEHPFP SYSTEMS COMPONENTS LOCATED ABOVE THE SOUND BARRIER SYSTEM ON THE LIMITED BASES AT LOCATIONS SPECIFICALLY INDICATED ON THE MEHPFP DRAWINGS.
2. GENERAL NOTES AT PRE-CAST CONCRETE PLANKS LOCATED AT VOCATIONAL SHOP-MEZZANINES:
- ALL HVAC COMPONENTS THAT REQUIRE PENETRATIONS THROUGH PRE-CAST CONCRETE PLANK AT MECHANICAL MEZZANINE FLOOR STRUCTURE SHALL BE COORDINATED WITH THE PRE-CAST PLANK CORE LOCATIONS. PENETRATIONS THROUGH THE PRE-CAST PLANK ARE ONLY ALLOWED THROUGH THE CORES. GENERAL CONTRACTOR MUST COORDINATE ALL OPENINGS IN THE PRE-CAST CONCRETE PLANK AS PART OF THE MEP-FP COORDINATION PROCESS.
- ALL MECHANICAL SYSTEMS AND COMPONENTS THAT REQUIRE ATTACHMENT TO THE ARCHITECTURAL PRE-CAST CONCRETE PANELS SHALL BE COORDINATED WITH THE PRE-CAST CONCRETE SUB-CONTRACTOR DURING COORDINATION AND SHOP DRAWING PROCESS. NO ATTACHMENT OF THE MECHANICAL COMPONENTS TO THE PRE-CAST CONCRETE PANELS SHALL BE ALLOWED IN THE FIELD WITHOUT PRIOR REVIEW AND APPROVAL BY THE PRE-CAST CONCRETE SUB-CONTRACTOR. NO CUTTING AND/OR PATCHING OF THE PRE-CAST CONCRETE PANELS IS ALLOWED IN THE FIELD.



M1-1-0D VARIABLE AIR VOLUME TERMINAL (VAV)

UNIT NO	SYSTEM	ROOM SERVED	PRIMARY AIR VALVE	PRIMARY INLET DIA (IN)	MAX FLOW SETPOINT (CFM)	MIN FLOW UNOCCUPIED (CFM)	MINIMUM FLOW UNOCCUPIED (CFM)	INLET AIR PRESSURE (IN WG)	DISCHARGE SIZE WHH (IN)	MAX PD (IN WG)	DISCH	RAD	MANUFACTURER	MODEL	NOTES
VAV-00-01	HRU-1	D003 RELATED CR		8	390	120	40	1.50	12x10	0.50	39	33	TITUS	DESV	SEE NOTES 1-7

NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. REFER TO FLOOR PLANS. VAV TERMINALS ARE PROVIDED WITH AND WITHOUT ELECTRIC RE-HEAT COILS.
4. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
5. PROVIDE INLET VELOCITY SENSOR.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
7. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
8. PROVIDE 1" LINER FOR 20' DOWNSTREAM OF ALL VAV BOXES.
9. PROVIDE SOUND ATTENUATOR.

M1-1-0D VARIABLE AIR VOLUME EXHAUST AIR TERMINAL SCHEDULE (VVE)

UNIT NO	TYPE	INLET DIAMETER (IN)	DISCHARGE SIZE WHH (IN)	MAX AIRFLOW (CFM)	MIN. TURNDOWN (CFM)	MAX PD (IN WG)	INLET AIR PRESSURE (IN WG)	MAX NC RATING	DISCH	RAD	MANUFACTURER	MODEL	REMARKS
VVE-00-01	SINGLE DUCT EXHAUST	8	12x10	420	420	0.50	1.50	39	33		TITUS	DESV	SEE NOTES 1-7
VVE-00-02	SINGLE DUCT EXHAUST	6	12x8	145	145	0.50	1.50	29	28		TITUS	DESV	SEE NOTES 1-7
VVE-00-03	SINGLE DUCT EXHAUST	8	12x10	365	40	0.50	1.50	39	33		TITUS	DESV	SEE NOTES 1-7

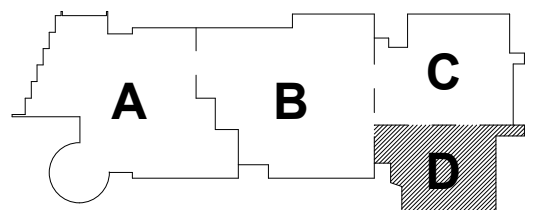
NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
4. PROVIDE INLET VELOCITY SENSOR.
5. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
7. PROVIDE 1" LINER FOR 20' DOWNSTREAM OF ALL VAV BOXES.
8. PROVIDE SOUND ATTENUATOR.

Northeast
Metropolitan
Regional
Vocational High
School

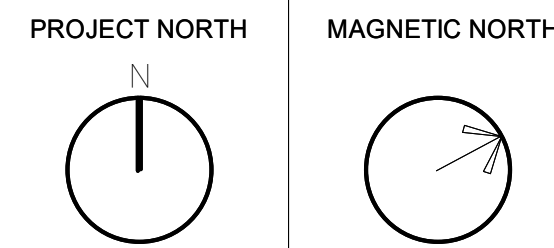
Wakefield, MA 01880

MSBA 90% CD
Construction Document
Submittal

May 12th, 2023



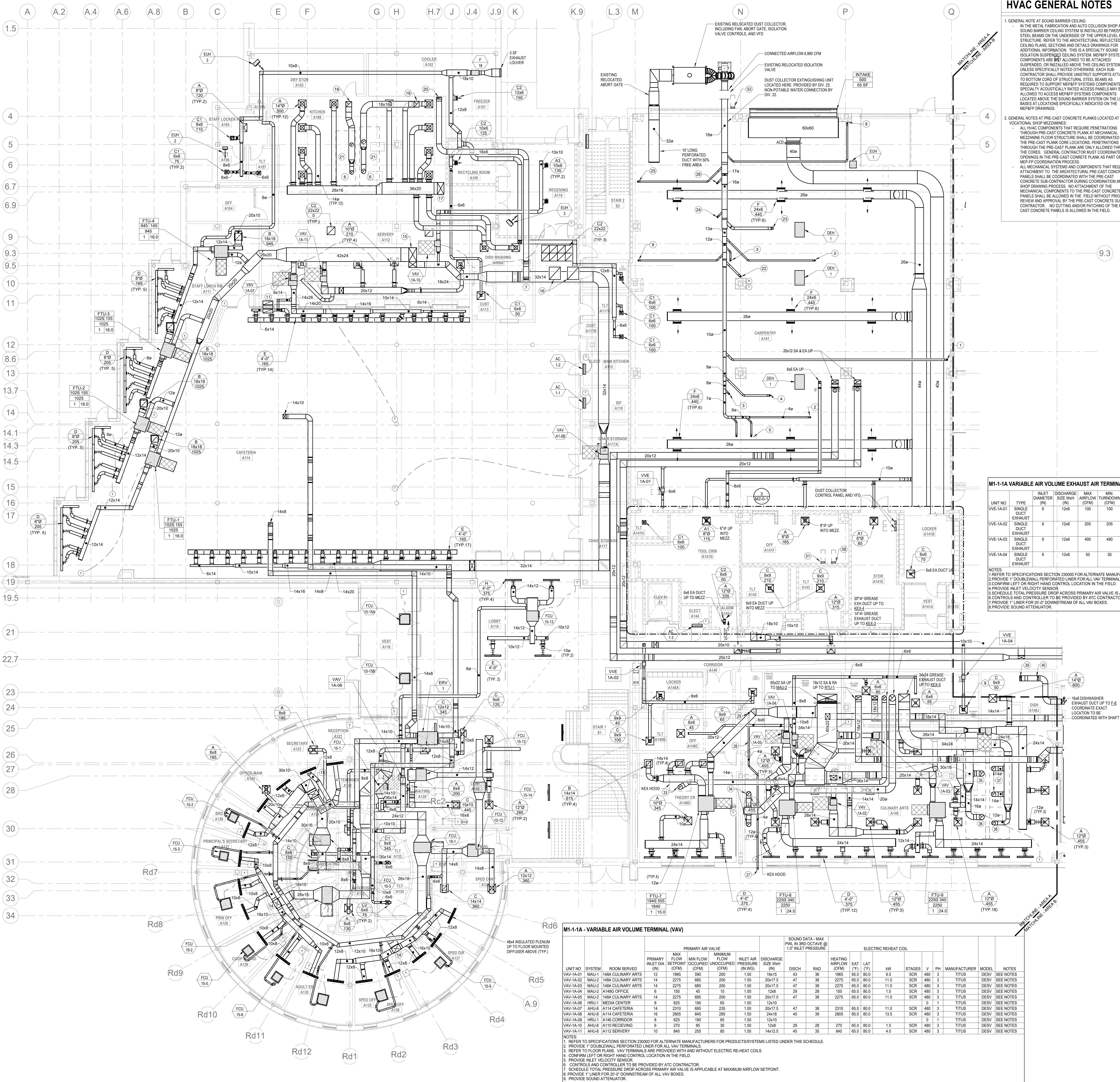
KEY PLAN



MECHANICAL
DUCTWORK
LOWER LEVEL
FLOOR PLAN -
AREA D

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

M1-1-0D



HVAC GENERAL NOTES

- GENERAL NOTE AT SOUND BARRIER CEILING:
 - IN THE METAL FABRICATION AND AUTO COLLISION SHOP A SOUND BARRIER CEILING SYSTEM IS INSTALLED BETWEEN STEEL BEAMS ON THE UNDERSIDE OF THE UPPER LEVEL FLOOR STRUCTURE. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLAN, SECTIONS AND DETAILS DRAWINGS FOR ADDITIONAL INFORMATION. THIS IS A SPECIALTY SOUND ISOLATION SUSPENDED CEILING SYSTEM. MECHANICAL SYSTEMS COMPONENTS ARE NOT ALLOWED TO BE ATTACHED OR SUPPORTED ON THIS CEILING SYSTEM UNLESS SPECIFICALLY NOTED OTHERWISE. EACH SUB-CONTRACTOR SHALL PROVIDE UNUSUAL SUPPORTS ATTACHED TO BOTTOM CORRO OF STRUCTURAL STEEL BEAMS AS REQUIRED TO SUPPORT MECHANICAL SYSTEMS COMPONENTS. SPECIALTY ACoustically RATED ACCESS PANELS MAY BE ALLOWED TO ACCESS MECHANICAL SYSTEMS COMPONENTS LOCATED ABOVE THE SOUND BARRIER SYSTEM ON THE LIMITED BASES AT LOCATIONS SPECIFICALLY INDICATED ON THE MECHANICAL DRAWINGS.
- GENERAL NOTES AT PRE-CAST CONCRETE PLANKS LOCATED AT VOCATIONAL SHOP MEZZANINES:
 - ALL HVAC COMPONENTS THAT REQUIRE PENETRATIONS THROUGH PRE-CAST CONCRETE PLANKS AT MECHANICAL MEZZANINE FLOOR STRUCTURE SHALL BE COORDINATED WITH THE PRE-CAST PLANK CORE LOCATIONS. PENETRATIONS THROUGH THE PRE-CAST PLANK ARE ONLY ALLOWED THROUGH THE CORES. GENERAL CONTRACTOR MUST COORDINATE ALL OPENINGS IN THE PRE-CAST CONCRETE PLANK AS PART OF THE MECHANICAL COORDINATION PROCESS.
 - ALL MECHANICAL SYSTEMS AND COMPONENTS THAT REQUIRE ATTACHMENT TO THE ARCHITECTURAL PRE-CAST CONCRETE PLANKS SHALL BE COORDINATED WITH THE PRE-CAST CONCRETE SUB-CONTRACTOR DURING COORDINATION AND SHOP DRAWING PROCESS. NO ATTACHMENT OF THE MECHANICAL COMPONENTS TO THE PRE-CAST CONCRETE PLANKS SHALL BE ALLOWED IN THE FIELD WITHOUT PRIOR REVIEW AND APPROVAL BY THE PRE-CAST CONCRETE SUB-CONTRACTOR. NO CUTTING AND PATCHING OF THE PRE-CAST CONCRETE PLANKS IS ALLOWED IN THE FIELD.

HVAC DRAWING NOTES

- 5" DIAMETER DUCT DOWN TO PANEL SAW (CPM) DUCT CONNECTION (500 CFM). PROVIDE REDUCTION TO 4" DIAMETER DUCT AT CONNECTION TO EQUIPMENT.
- 4" DIAMETER DUCT DOWN TO CABINET SAW (CPM) DUCT CONNECTION (350 CFM).
- 4" DIAMETER DUCT DOWN TO JOINTER (CPM) DUCT CONNECTION (350 CFM).
- 4" DIAMETER DUCT DOWN TO TABLE SAW (CPM) DUCT CONNECTION (350 CFM).
- 4" DIAMETER DUCT DOWN TO PLANNER (CPM) DUCT CONNECTION (350 CFM).
- 18x18 KITCHEN EXHAUST TO KITCHEN EXHAUST HOOD.
- 14x14 EXHAUST TO DISHWASHER.
- 4" DIAMETER DUCT DOWN TO INVERTED ROUTER (CPM) DUCT CONNECTION (350 CFM).
- 4" DIAMETER DUCT DOWN TO VERTICAL BAND SAW (CPM) DUCT CONNECTION (350 CFM).
- 12x12 ACoustically LINED TRANSFER DUCT.
- 12x12 ACoustically LINED TRANSFER DUCT.
- 30x18 SA DUCT UP INTO INTERSILL SPACE. PROVIDE FIRE DAMPER IN VERTICAL WHERE DUCT PENETRATES SLAB.
- 26x18 SA DUCT UP INTO INTERSILL SPACE. PROVIDE FIRE DAMPER IN VERTICAL WHERE DUCT PENETRATES SLAB.
- PROVIDE 1.5 INCHES ELBOW OF 42x24 AND 18x24 SA DUCT UP. TRANSITION TO 60x24 SA UP TO AHJ4 ON SECOND FLOOR.
- 36x18 SA OPENING UP TO AHJ4 ON SECOND FLOOR. PROVIDE W/ WMS OPENING.
- 40x16 SUPPLY UP TO MAJ1.
- 18x18 KITCHEN EXHAUST UP TO KEF-2.
- 18x18 KITCHEN EXHAUST UP TO KEF-1.
- 18x18 KITCHEN EXHAUST UP TO F-1 ON THE ROOF.
- 21" KITCHEN EXHAUST HOOD.
- 5" DIAMETER DUCT DOWN TO FLOOR SWEEP (500 CFM).
- 8" DIAMETER DUCT DOWN TO PLANNER (CPM) DUCT CONNECTION (350 CFM).
- 4" DIAMETER DUCT DOWN TO DRUM SANDER (CPM) DUCT CONNECTION (350 CFM).
- 4" DIAMETER DUCT DOWN TO OSCILLATING UNIVERSAL EDGE SANDER (CPM) DUCT CONNECTIONS (350 CFM).
- PROVIDE UPPER VENT CAP. SEND 8" DIA OR EQUAL.
- 4" DIA DRIVER EXHAUST FROM DRIVER CONNECTION TO EXTERIOR WALL. PROVIDE VENT CAP AT WALL. TYPICAL FOR ALL DRIVERS.
- 4" DIA DRIVER SA DUCT DN TO DRIVER CONNECTION.
- EXISTING RELOCATED VFD BY DIV. 26.
- NEW DUST COLLECTION FIRE EXTINGUISHING SYSTEM CONTROL PANEL, EMPLOYER SPARK OR EQUAL. PROVIDE 6 SETS OF 24V LOW VOLTAGE CABLES FROM THE CONTROL PANEL. ONE SET SHALL BE PROVIDED TO THE ISOLATION VALVE. ONE SET TO EACH OF THE SPARK DETECTORS, AND TWO SETS TO THE EXTINGUISHING SYSTEM.
- EXISTING RELOCATED ABORT GATE CONTROLLER. PROVIDE LOW VOLTAGE CABLES FROM CONTROLLER TO ABORT GATE. DUST COLLECTION OR ISOLATION VALVE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 14" KITCHEN EXHAUST DUCT DOWN TO KITCHEN HOOD CONNECTION (1842 CFM). PITCH DUCTWORK AT A SLOPE OF 1/4" PER FOOT BACK TOWARD KITCHEN HOOD.
- 12" KITCHEN EXHAUST DUCTS DOWN TO KITCHEN HOOD CONNECTIONS (488 TOTAL CFM). PITCH DUCTWORK AT A SLOPE OF 1/4" PER FOOT BACK TOWARD KITCHEN HOOD.
- 16" KITCHEN EXHAUST DUCT DOWN TO KITCHEN HOOD CONNECTION (2475 CFM). PITCH DUCTWORK AT A SLOPE OF 1/4" PER FOOT BACK TOWARD KITCHEN HOOD.
- 16" KITCHEN EXHAUST DUCT DOWN TO KITCHEN HOOD CONNECTION (2200 CFM). PITCH DUCTWORK AT A SLOPE OF 1/4" PER FOOT BACK TOWARD KITCHEN HOOD.
- 12" KITCHEN EXHAUST DUCTS DOWN TO KITCHEN HOOD CONNECTIONS (2315 TOTAL CFM). PITCH DUCTWORK AT A SLOPE OF 1/4" PER FOOT BACK TOWARD KITCHEN HOOD.
- 12" KITCHEN EXHAUST DUCTS DOWN TO KITCHEN HOOD CONNECTION (1400 CFM). PITCH DUCTWORK AT A SLOPE OF 1/4" PER FOOT BACK TOWARD KITCHEN HOOD.
- 16x16 DISHWASHER EXH DUCT DN TO CONNECTION ON UNIT (400 CFM).
- 16x16 DISHWASHER EXH DUCT DN TO CONNECTION ON UNIT (200 CFM).

M1-1-1A VARIABLE AIR VOLUME EXHAUST AIR TERMINAL SCHEDULE (VVE)											
UNIT NO.	TYPE	INLET DIAMETER (IN)	DISCHARGE SIZE (IN)	MAX AIRFLOW (CFM)	MIN. TURNDOWN (CFM)	MAX PD (IN WG)	MAX NC RATING (IN WG)	DISCH. RAD.	MANUFACTURER	MODEL	REMARKS
VVE-1A-01	SINGLE DUCT EXHAUST	6	12x8	100	100	0.50	1.50	29	TITUS	DESIGN	SEE NOTES
VVE-1A-02	SINGLE DUCT EXHAUST	6	12x8	205	205	0.50	1.50	29	TITUS	DESIGN	SEE NOTES
VVE-1A-03	SINGLE DUCT EXHAUST	6	12x8	490	490	0.50	1.50	29	TITUS	DESIGN	SEE NOTES
VVE-1A-04	SINGLE DUCT EXHAUST	6	12x8	50	50	0.50	1.50	29	TITUS	DESIGN	SEE NOTES

NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
4. PROVIDE INLET VELOCITY SENSOR.
5. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
7. PROVIDE 1" LINER FOR 24" DOWNSTREAM OF ALL VAV BOXES.
8. PROVIDE SOUND ATTENUATOR.

M1-1-1A - VARIABLE AIR VOLUME TERMINAL (VAV)

PRIMARY AIR VALVE										SOUND DATA - MAX PW. IN 3RD OCTAVE @ 10" INLET PRESSURE				ELECTRIC REHEAT COIL				
PRIMARY DRAIN	MAX FLOW (CFM)	MIN FLOW (CFM)	MIN FLOW (CFM)	MIN FLOW (CFM)	INLET AIR PRESSURE (IN WG)	DISCHARGE SIZE (IN)	DISCH. RAD.	HEATING AIRFLOW (CFM)	EAT (°F)	LAT (°F)	kW	STAGES	V PH	MANUFACTURER	MODEL	NOTES		
UNIT NO	SYSTEM	ROOM SERVED	(IN)	(CFM)	(CFM)	(IN WG)	(IN)	RAD	(°F)	(°F)	kW	STAGES	V	PH	MANUFACTURER <td>MODEL<td>NOTES</td></td>	MODEL <td>NOTES</td>	NOTES	
VAV-1A-01	MAJ1	148A CULINARY ARTS	14	2275	685	1.50	20x17.5	47	38	2275	65.0	80.0	11.0	SCR	480	3	TITUS	SEE NOTES
VAV-1A-02	MAJ2	148A CULINARY ARTS	14	2275	685	1.50	20x17.5	47	38	2275	65.0	80.0	11.0	SCR	480	3	TITUS	SEE NOTES
VAV-1A-03	MAJ2	148A CULINARY ARTS	14	2275	685	1.50	20x17.5	47	38	2275	65.0	80.0	11.0	SCR	480	3	TITUS	SEE NOTES
VAV-1A-04	MAJ2	148A CULINARY ARTS	14	2275	685	1.50	20x17.5	47	38	2275	65.0	80.0	11.0	SCR	480	3	TITUS	SEE NOTES
VAV-1A-05	MAJ2	148A CULINARY ARTS	14	2275	685	1.50	20x17.5	47	38	2275	65.0	80.0	11.0	SCR	480	3	TITUS	SEE NOTES
VAV-1A-06	HRU1	MEDIA CENTER	8	625	190	1.50	12x10	47	38	2210	65.0	80.0	11.0	SCR	480	3	TITUS	SEE NOTES
VAV-1A-07	HRU4	A114 CAFETERIA	14	2210	685	1.50	20x17.5	47	38	2210	65.0	80.0	11.0	SCR	480	3	TITUS	SEE NOTES
VAV-1A-08	HRU4	A114 CAFETERIA	16	2805	845	1.50	24x18	45	39	2805	65.0	80.0	13.5	SCR	480	3	TITUS	SEE NOTES
VAV-1A-09	HRU1	A146 CORRIDOR	8	625	190	1.50	12x10	47	38	2210	65.0	80.0	11.0	SCR	480	3	TITUS	SEE NOTES
VAV-1A-10	HRU4	A110 RECEIVING	8	625	190	1.50	12x10	47	38	2210	65.0	80.0	11.0	SCR	480	3	TITUS	SEE NOTES
VAV-1A-11	HRU4	A112 SERVERY	10	840	255	1.50	14x12.5	45	35	840	65.0	80.0	4.0	SCR	480	3	TITUS	SEE NOTES

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
4. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
5. PROVIDE INLET VELOCITY SENSOR.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
7. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
8. PROVIDE 1" LINER FOR 24" DOWNSTREAM OF ALL VAV BOXES.
9. PROVIDE SOUND ATTENUATOR.

DRAWING

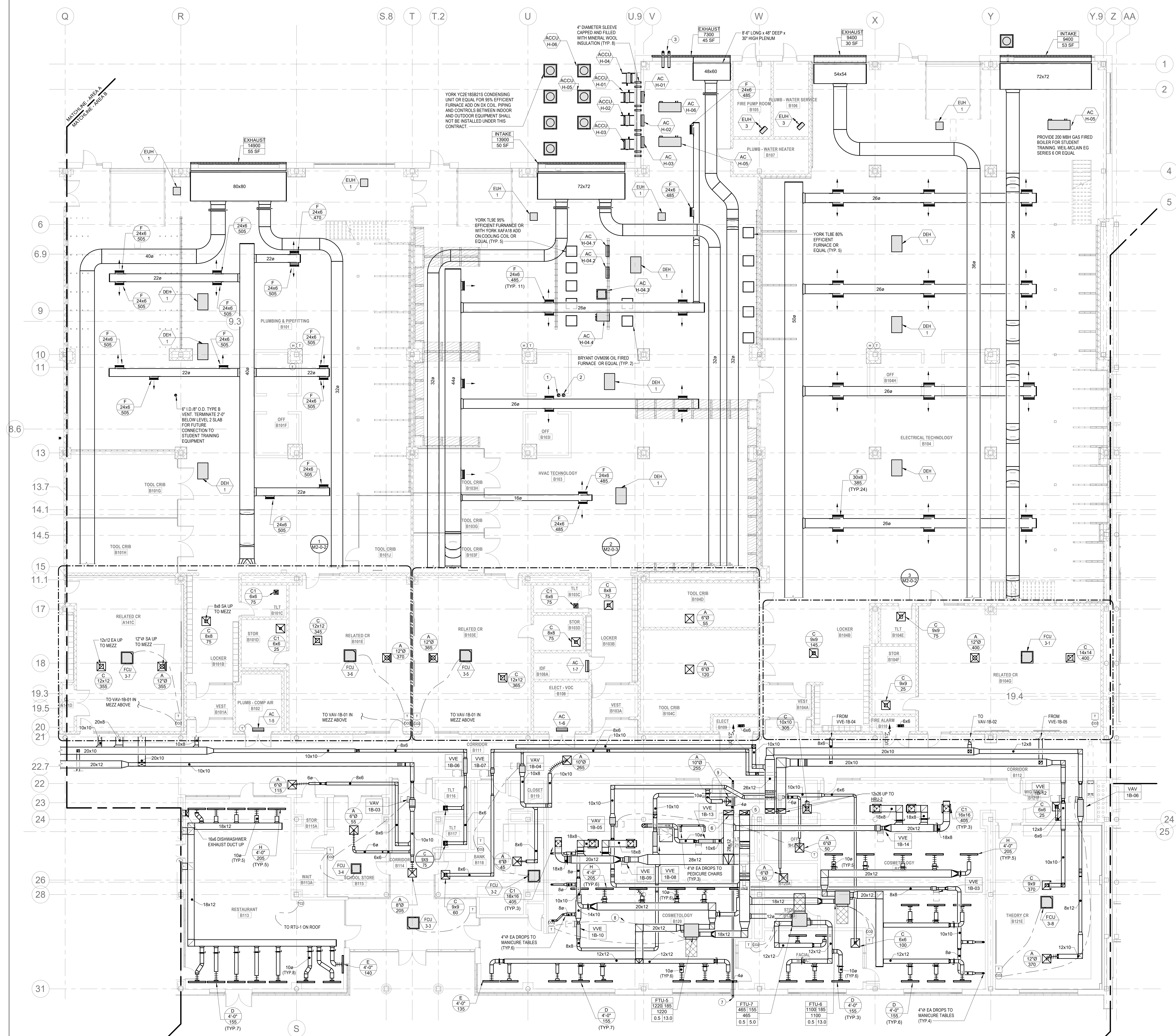
Drummet Rosane Anderson, Inc.
225 Oakland Road
Studio 205
South Windsor, CT 06074
Tel: 817.984.1700
www.dra.com

Northeast Metropolitan Regional Vocational High School
Wakefield, MA 01880

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

MECHANICAL DUCTWORK FIRST FLOOR PLAN - AREA A

M1-1-1A



HVAC DRAWING NOTES

- 6" DIAMETER TYPE L VENT UP THROUGH ROOF. TERMINATE 1'-0" BELOW FLOOR.
- 6" DIAMETER TYPE B VENT UP THROUGH ROOF. TERMINATE 1'-0" BELOW FLOOR.
- 6" DIAMETER VENT AND INTAKE THROUGH WALL FOR HIGH EFFICIENCY FURNACES.
- 36x14 SUPPLY AIR DUCT UP.
- 24x12 SUPPLY AIR DUCT UP TO HRU-5.
- 24x12 EXHAUST AIR DUCT UP TO HRU-5.
- PROVIDE DRIVER VENT CAP. SEHO SPB4 OR EQUAL.
- 4" Ø DRYER EXHAUST FROM DRYER CONNECTION TO EXTERIOR WALL. PROVIDE VENT CAP AT WALL. TYPICAL FOR ALL DRYERS.
- 4" Ø DRYER EA DUCT DN TO DRYER CONNECTION.

HVAC GENERAL NOTES

- GENERAL NOTE AT SOUND BARRIER CEILING:
- IN THE METAL FABRICATION AND AUTO COLLISION SHOP A SOUND BARRIER CEILING SYSTEM IS INSTALLED BETWEEN STEEL BEAMS ON THE UNDERSIDE OF THE UPPER LEVEL FLOOR STRUCTURE. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS, SECTIONS AND DETAILS DRAWINGS FOR ADDITIONAL INFORMATION. THIS IS A SPECIALTY SOUND ISOLATION SUSPENDED CEILING SYSTEM. MEPPF SYSTEMS COMPONENTS ARE NOT ALLOWED TO BE ATTACHED/SUSPENDED OR INSTALLED ABOVE THIS CEILING SYSTEM UNLESS SPECIFICALLY NOTED OTHERWISE. EACH SUB-CONTRACTOR SHALL PROVIDE UNSTRUT SUPPORTS ATTACHED TO BOTTOM CHORD OF STRUCTURAL STEEL BEAMS AS REQUIRED TO SUPPORT MEPPF SYSTEMS COMPONENTS. SPECIALLY ACoustically RATED ACCESS PANELS MAY BE ALLOWED TO ACCESS MEPPF SYSTEMS COMPONENTS LOCATED ABOVE THE SOUND BARRIER SYSTEM ON THE LIMITED BASES AT LOCATIONS SPECIFICALLY INDICATED ON THE MEPPF DRAWINGS.
- GENERAL NOTES AT PRE-CAST CONCRETE PLANKS LOCATED AT VOCATIONAL SHOP MEZZANINES:
- ALL HVAC COMPONENTS THAT REQUIRE PENETRATIONS THROUGH PRE-CAST CONCRETE PLANK AT MECHANICAL MEZZANINE FLOOR STRUCTURE SHALL BE COORDINATED WITH THE PRE-CAST PLANK CORE LOCATIONS. PENETRATIONS THROUGH THE PRE-CAST PLANK ARE ONLY ALLOWED THROUGH THE CORES. GENERAL CONTRACTOR MUST COORDINATE ALL OPENINGS IN THE PRE-CAST CONCRETE PLANK AS PART OF THE MEP-FP COORDINATION PROCESS.
- ALL MECHANICAL SYSTEMS AND COMPONENTS THAT REQUIRE ATTACHMENT TO THE ARCHITECTURAL PRE-CAST CONCRETE PANELS SHALL BE COORDINATED WITH THE PRE-CAST CONCRETE SUB-CONTRACTOR DURING COORDINATION AND SHOP DRAWING PROCESS. NO ATTACHMENT OF THE MECHANICAL COMPONENTS TO THE PRE-CAST CONCRETE PANELS SHALL BE ALLOWED IN THE FIELD WITHOUT PRIOR REVIEW AND APPROVAL BY THE PRE-CAST CONCRETE SUB-CONTRACTOR. NO CUTTING AND/OR PATCHING OF THE PRE-CAST CONCRETE PANELS IS ALLOWED IN THE FIELD.

M1-1-1B - VARIABLE AIR VOLUME TERMINAL (VAV)

UNIT NO.	SYSTEM	ROOM SERVED	INLET DIA.	AIR TERMINAL AIR FLOW (CFM)	PRIMARY AIR VALVE		TOTAL PRESS. DROP (IN WG)	DISCH.	RAD.	MANUFACTURER	MODEL	NOTES
					MIN FLOW	MAX FLOW						
VAV-1B-01	HRU-1	A141C RELATED CR	12	1090	330	110	0.50			TITUS	DESV	SEE NOTES
VAV-1B-02	HRU-1	B104C RELATED CR	8	400	120	40	0.50			TITUS	DESV	SEE NOTES
VAV-1B-03	HRU-1	B115 SCHOOL STORE	8	375	115	40	0.50			TITUS	DESV	SEE NOTES
VAV-1B-04	HRU-1	B118 BANK	6	325	265	265	0.50			TITUS	DESV	SEE NOTES
VAV-1B-05	HRU-1	B120B DISP	8	455	165	55	0.50			TITUS	DESV	SEE NOTES
VAV-1B-06	HRU-1	B121C THEORY CR	8	395	120	40	0.50			TITUS	DESV	SEE NOTES

- NOTES:
- REFER TO SPECIFICATIONS SECTION 22000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
 - PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
 - REFER TO FLOOR PLANS. VAV TERMINALS ARE PROVIDED WITH AND WITHOUT ELECTRIC RE-HEAT COILS.
 - CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
 - PROVIDE INLET VELOCITY SENSOR.
 - CONTROL S AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
 - SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
 - PROVIDE 1" LINER FOR 20'-0" DOWNSTREAM OF ALL VAV BOXES.
 - PROVIDE SOUND ATTENUATOR.

M1-1-1B VARIABLE AIR VOLUME EXHAUST AIR TERMINAL SCHEDULE (VVE)

UNIT NO.	TYPE	INLET DIA.	DISCHARGE SIZE	MAX AIRFLOW (CFM)	MIN. TURNDOWN (CFM)	MAX. PRESS. (IN WG)	MAX. NC. RATING (IN WG)	DISCH. RAD.	MANUFACTURER	MODEL	REMARKS
VVE-1B-01	SINGLE DUCT EXHAUST	10	16x15	1065	110	0.00	0.00	25	TITUS	DESV	SEE NOTES
VVE-1B-02	SINGLE DUCT EXHAUST	10	12x10	400	110	0.00	0.00	25	TITUS	DESV	SEE NOTES
VVE-1B-03	SINGLE DUCT EXHAUST	6	10x8	375	45	0.50	1.50	25	TITUS	DESV	SEE NOTES
VVE-1B-04	SINGLE DUCT EXHAUST	6	12x8	245	0	0.50	1.50	25	TITUS	DESV	SEE NOTES
VVE-1B-05	SINGLE DUCT EXHAUST	8	12x10	400	60	0.50	1.50	25	TITUS	DESV	SEE NOTES
VVE-1B-06	SINGLE DUCT EXHAUST	6	12x8	150	150	0.50	1.50	25	TITUS	DESV	SEE NOTES
VVE-1B-07	SINGLE DUCT EXHAUST	6	12x8	60	15	0.50	1.50	25	TITUS	DESV	SEE NOTES
VVE-1B-08	SINGLE DUCT EXHAUST	8	12x10	405	60	0.00	0.00	25	TITUS	DESV	SEE NOTES
VVE-1B-09	SINGLE DUCT EXHAUST	10	16x15	1215	165	0.00	0.00	25	TITUS	DESV	SEE NOTES
VVE-1B-10	SINGLE DUCT EXHAUST	6	12x8	300	45	0.50	1.50	25	TITUS	DESV	SEE NOTES
VVE-1B-11	SINGLE DUCT EXHAUST	6	12x8	115	20	0.50	1.50	25	TITUS	DESV	SEE NOTES
VVE-1B-12	SINGLE DUCT EXHAUST	6	10x10	385	60	0.00	0.00	25	TITUS	DESV	SEE NOTES
VVE-1B-13	SINGLE DUCT EXHAUST	6	12x8	150	25	0.50	1.50	25	TITUS	DESV	SEE NOTES
VVE-1B-14	SINGLE DUCT EXHAUST	10	16x15	1215	165	0.00	0.00	25	TITUS	DESV	SEE NOTES

- NOTES:
- REFER TO SPECIFICATIONS SECTION 22000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
 - PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
 - CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
 - PROVIDE INLET VELOCITY SENSOR.
 - SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
 - CONTROL S AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
 - PROVIDE 1" LINER FOR 20'-0" DOWNSTREAM OF ALL VAV BOXES.
 - PROVIDE SOUND ATTENUATOR.

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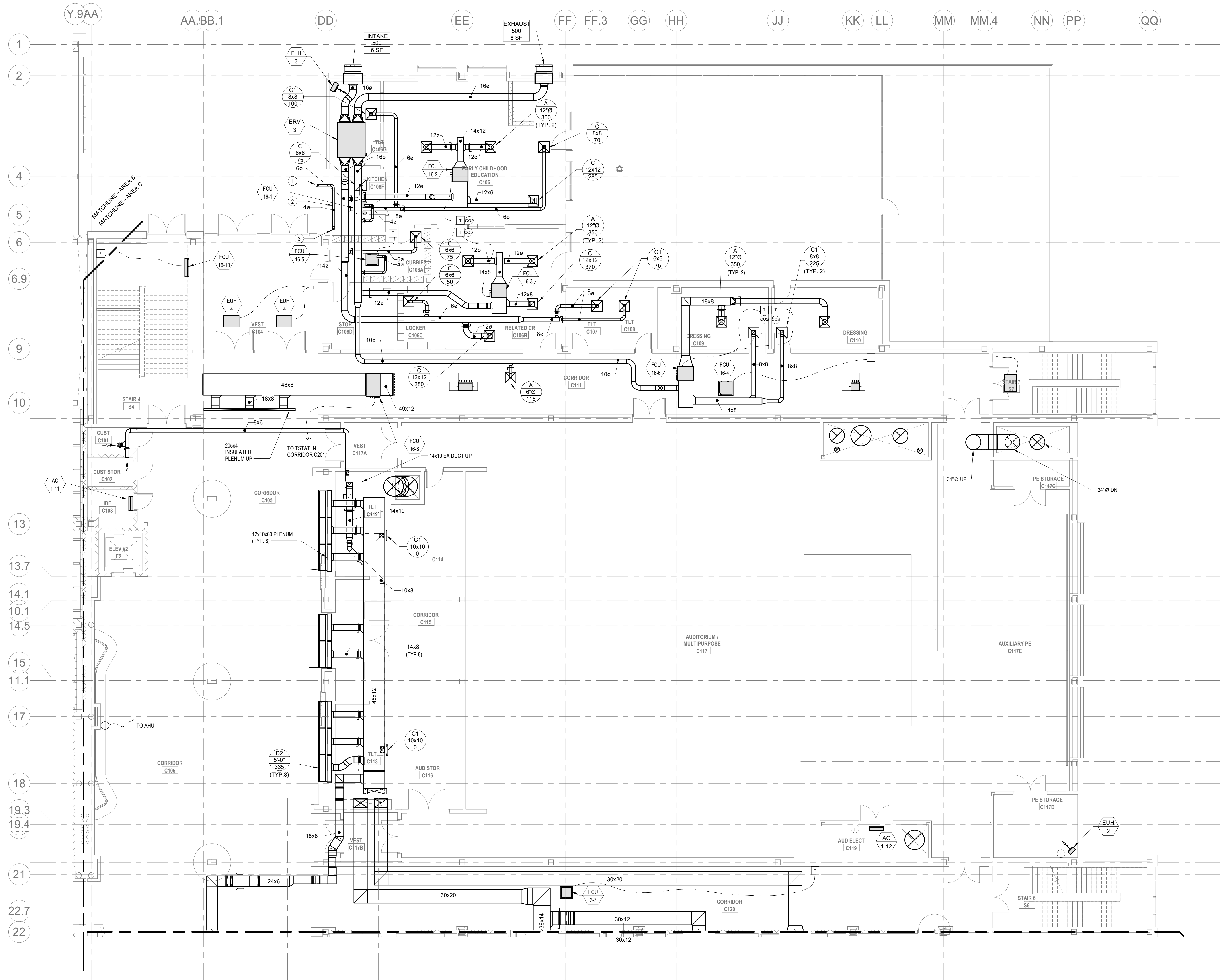
KEY PLAN

PROJECT NORTH
MAGNETIC NORTH

MECHANICAL
DUCTWORK
FIRST FLOOR
PLAN - AREA B

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

M1-1-1B



HVAC DRAWING NOTES

1. PROVIDE DRYER VENT CAP, SEHO SF84 OR EQUAL.
2. 4"Ø DRYER EXHAUST FROM DRYER CONNECTION TO EXTERIOR WALL. PROVIDE VENT CAP AT WALL. TYPICAL FOR ALL DRYERS.
3. 4"Ø DRYER EA DUCT DN TO DRYER CONNECTION.

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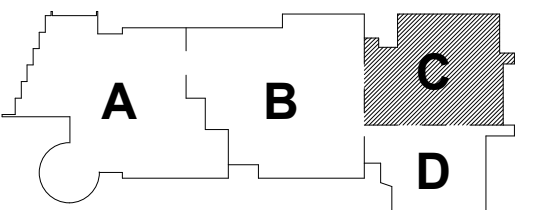
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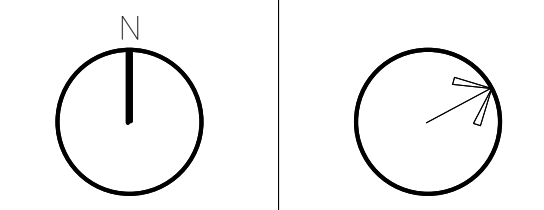
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May 12th, 2023



KEY PLAN

PROJECT NORTH MAGNETIC NORTH



MECHANICAL
DUCTWORK
FIRST FLOOR
PLAN - AREA C

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

M1-1-1C

HVAC DRAWING NOTES

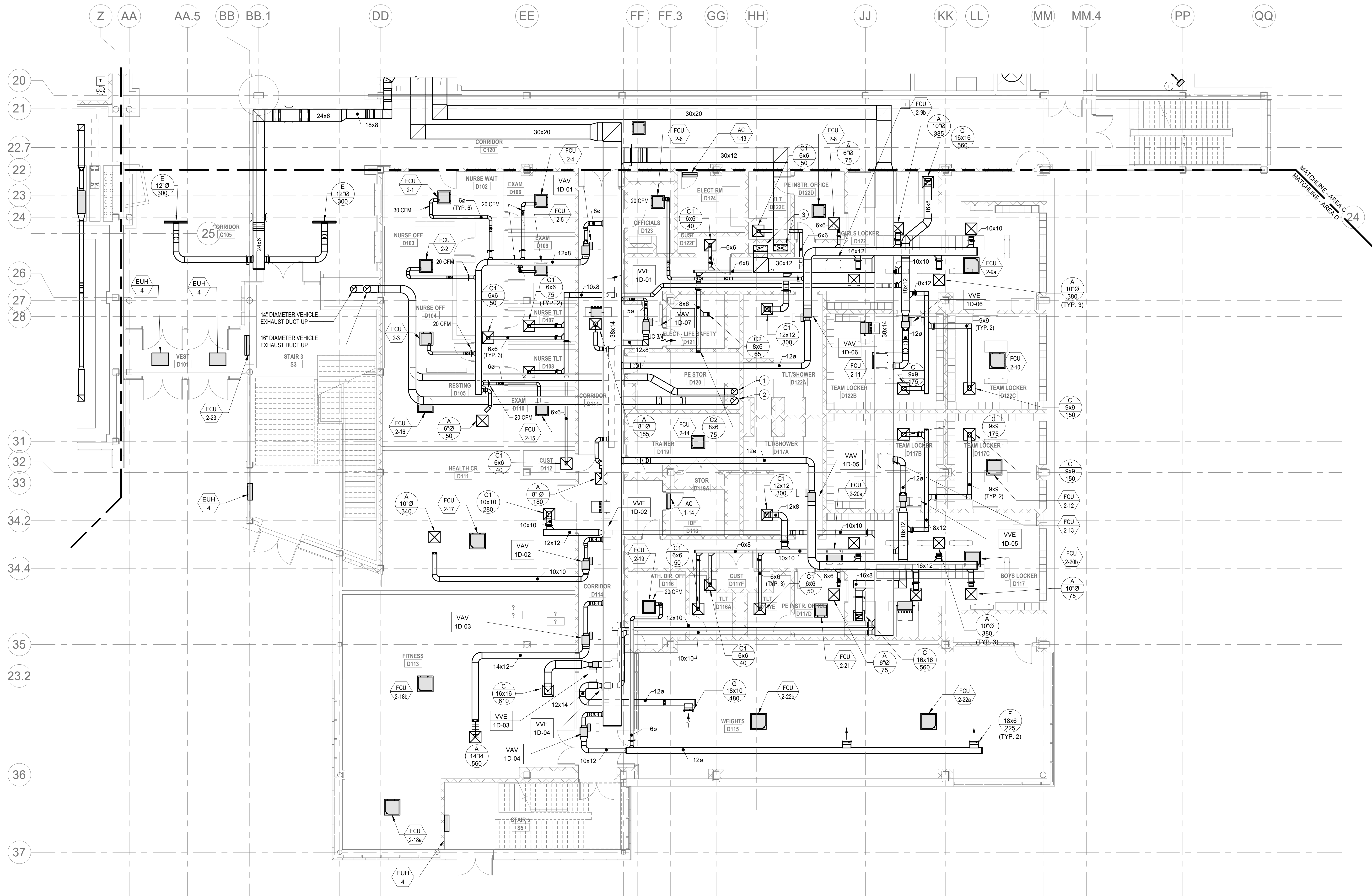
1. 14"Ø VEHICLE EXHAUST DUCT DN.
2. 16"Ø VEHICLE EXHAUST DUCT DN.
3. 30x12 EA AND SA DUCT DN.

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M1-1-1D VARIABLE AIR VOLUME EXHAUST AIR TERMINAL SCHEDULE (VVE)						
UNIT NO	TYPE	INLET DIAMETER (IN)	MAX AIRFLOW (CFM)	MIN TURNDOWN (CFM)	MANUFACTURER	MODEL
VVE-10-01	SINGLE DUCT EXHAUST	5	200	60	TITUS	DESV
VVE-10-02	SINGLE DUCT EXHAUST	6	380	125	TITUS	DESV
VVE-10-03	SINGLE DUCT EXHAUST	8	380	105	TITUS	DESV
VVE-10-04	SINGLE DUCT EXHAUST	8	380	105	TITUS	DESV
VVE-10-05	SINGLE DUCT EXHAUST	12	1325	650	TITUS	DESV
VVE-10-06	SINGLE DUCT EXHAUST	12	1350	650	TITUS	DESV

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
4. PROVIDE INLET VELOCITY SENSOR.
5. PROVIDE 1" LINER FOR 15' DOWNSTREAM OF ALL VAV BOXES.
6. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
7. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.

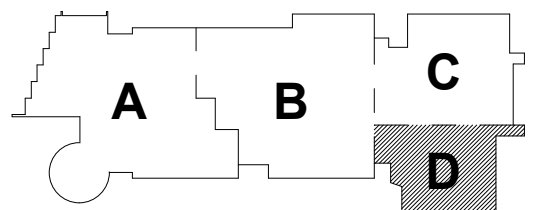
M1-1-1D - VARIABLE AIR VOLUME TERMINAL (VAV)											
UNIT NO	SYSTEM	ROOM SERVED	PRIMARY AIR VALVE INLET DIA (IN)	SUPPLY AIR FLOW (CFM)	PRIMARY AIR VALVE			TOTAL PRESS DROP (IN WG)	DISCH	RAD	MANUFACTURER
					MIN FLOW OCCUPIED (CFM)	MINIMUM FLOW UNOCCUPIED (CFM)	0.50				
VAV-10-01	HRU-1	NURSING SUITE	6	180	55	20	0.50				TITUS
VAV-10-02	HRU-1	D111 HEALTH CR	6	340	105	35	0.50				TITUS
VAV-10-03	HRU-1	D113 FITNESS	8	590	170	60	0.50				TITUS
VAV-10-04	HRU-1	D115 WEIGHTS	8	470	145	50	0.50				TITUS
VAV-10-05	HRU-2	D117 BOYS LOCKER RM	12	910	275	95	0.50				TITUS
VAV-10-06	HRU-2	GIRLS LOCKER RM	12	1010	305	105	0.50				TITUS
VAV-10-07	HRU-1	D114 CORRIDOR	6	190	55	20	0.50				TITUS

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. REFER TO FLOOR PLANS. VAV TERMINALS ARE PROVIDED WITH AND WITHOUT ELECTRIC RE-HEAT COILS.
4. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
5. PROVIDE INLET VELOCITY SENSOR.
6. PROVIDE 1" LINER FOR 15' DOWNSTREAM OF ALL VAV BOXES.
7. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
8. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.

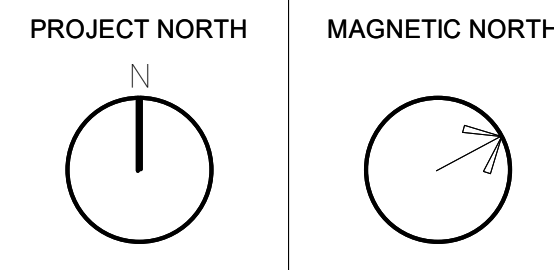
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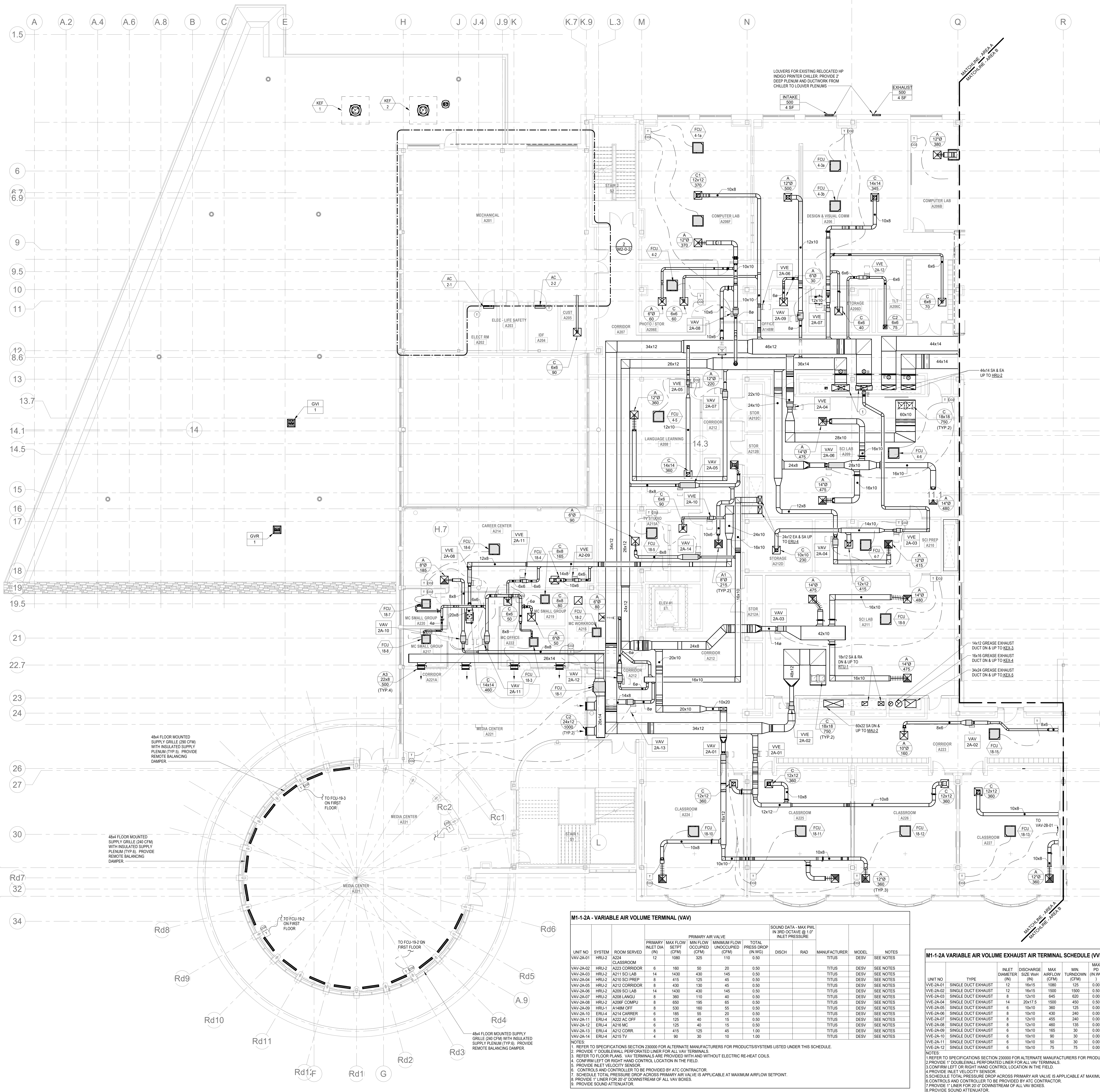


KEY PLAN



MECHANICAL
DUCTWORK
FIRST FLOOR
PLAN - AREA D

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023
M1-1-1D



HVAC DRAWING NOTES

1. 50x14 SA & EA UP TO HELL1 AND 20x12 SA & EA DN

4
5
9.3

24
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M1-1A-2A DIRECT DUCTED OUTSIDE AIR FLOW (CFM)

UNIT NO	LOCATION	VRF CONDENSING UNIT	OUTSIDE AIR FLOW (CFM)	NOTES
FCU-4-1a	A209F COMPUTER LAB	CU-4	0	SEE NOTES 1-10
FCU-4-1b	A209F COMPUTER LAB	CU-4	0	SEE NOTES 1-10
FCU-4-2	A209F PHOTO/STOR	CU-4	0	SEE NOTES 1-10
FCU-4-3a	A209F DESIGN & VISUAL COMM	CU-4	0	SEE NOTES 1-10
FCU-4-3b	A209F DESIGN & VISUAL COMM	CU-4	0	SEE NOTES 1-10
FCU-4-5	A209F LANGUAGE LEARNING	CU-4	0	SEE NOTES 1-10
FCU-4-6	A209F SCIENCE LAB	CU-4	0	SEE NOTES 1-10
FCU-4-7	A210 SCI PREP	CU-4	0	SEE NOTES 1-10
FCU-18-1	A212 CORRIDOR	CU-18	0	SEE NOTES 1-10
FCU-18-3	A222 MC OFFICE	CU-18	15	SEE NOTES 1-10
FCU-18-5	A215 TV STUDIO	CU-18	0	SEE NOTES 1-10
FCU-18-6	A214 CAREER CENTER	CU-18	0	SEE NOTES 1-10
FCU-18-7	A220 MC SMALL GROUP	CU-18	30	SEE NOTES 1-10
FCU-18-8	A217 MC SMALL GROUP	CU-18	30	SEE NOTES 1-10
FCU-18-9	A211 SCIENCE LAB	CU-18	0	SEE NOTES 1-10
FCU-18-10	A224 CLASSROOM	CU-18	0	SEE NOTES 1-10
FCU-18-11	A225 CLASSROOM	CU-18	0	SEE NOTES 1-10
FCU-18-12	A226 CLASSROOM	CU-18	0	SEE NOTES 1-10
FCU-18-13	A227 CLASSROOM	CU-18	0	SEE NOTES 1-10
FCU-18-15	A223 CORRIDOR	CU-18	0	SEE NOTES 1-10

1. ALL DIRECT DUCTED VRF FAN COIL UNITS SHALL HAVE A MANUAL BALANCING DAMPER LOCATED AT THE BRANCH DUCT CONNECTION TO THE MAIN OUTSIDE AIR SUPPLY DUCT. MANUAL BALANCING DAMPER SHALL BE BALANCED TO THE OUTSIDE AIR FLOW (CFM) NOTED IN THIS SCHEDULE.

M1-1A-2A - VARIABLE AIR VOLUME TERMINAL (VAV)

UNIT NO	SYSTEM	ROOM SERVED	PRIMARY INLET DIA (IN)	MAX FLOW SEPT (CFM)	MIN FLOW UNOCCUPIED (CFM)	TOTAL PRESS DROP (IN WG)	DISCH	RAD	MANUFACTURER	MODEL	NOTES
VAV-2A-01	HRU-2	A224 CLASSROOM	12	1080	325	110	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-02	HRU-2	A223 CORRIDOR	6	160	50	20	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-03	HRU-2	A211 SCI LAB	14	1430	430	145	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-04	HRU-2	A210 SCI PREP	9	415	125	45	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-05	HRU-2	A212 CORRIDOR	6	430	130	45	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-06	HRU-2	A209 SCI LAB	14	1430	430	145	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-07	HRU-2	A208 LANGU	9	360	110	40	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-08	HRU-2	A209F COMPU	6	650	195	65	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-09	HRU-1	A114M OFF	8	530	160	55	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-10	ERU-4	A214 CHAMBER	6	105	35	20	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-11	ERU-4	A222 AC OFF	6	125	40	15	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-12	ERU-4	A216 MC	6	125	40	15	0.50		TITUS	DESIV	SEE NOTES
VAV-2A-13	ERU-4	A212 CORR	9	415	125	45	1.00		TITUS	DESIV	SEE NOTES
VAV-2A-14	ERU-4	A215 TV	4	90	30	10	1.00		TITUS	DESIV	SEE NOTES

NOTES:
1. REFER TO SPECIFICATIONS SECTION 20000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLEDWALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. REFER TO FLOOR PLANS: VAV TERMINALS ARE PROVIDED WITH AND WITHOUT ELECTRIC RE-HEAT COILS.
4. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
5. PROVIDE INLET VELOCITY SENSOR.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY A/C CONTRACTOR.
7. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
8. PROVIDE 1" LINER FOR 20'-0" DOWNSTREAM OF ALL VAV BOXES.
9. PROVIDE SOUND ATTENUATOR.

M1-1A-2A VARIABLE AIR VOLUME EXHAUST AIR TERMINAL SCHEDULE (VVE)

UNIT NO	TYPE	INLET DIAMETER (IN)	DISCHARGE SIZE WHH (CFM)	MAX AIRFLOW (CFM)	MIN TURNDOWN (CFM)	MAX PD (IN WG)	INLET AIR PRESSURE (IN WG)	MAX NC RATING (IN WG)	DISCH RATING	MANUFACTURER	MODEL	REMARKS
VVE-2A-01	SINGLE DUCT EXHAUST	12	16x15	1500	1500	0.50	1.50	43		TITUS	DESIV	
VVE-2A-02	SINGLE DUCT EXHAUST	12	16x15	1500	1500	0.50	1.50	43		TITUS	DESIV	
VVE-2A-03	SINGLE DUCT EXHAUST	9	12x10	445	445	0.00	0.00	25		TITUS	DESIV	
VVE-2A-04	SINGLE DUCT EXHAUST	14	20x17.5	1500	450	0.50	1.50	47	38	TITUS	DESIV	SEE NOTES 1-7
VVE-2A-05	SINGLE DUCT EXHAUST	8	10x10	360	125	0.00	0.00	25		TITUS	DESIV	
VVE-2A-06	SINGLE DUCT EXHAUST	9	10x10	430	240	0.00	0.00	25		TITUS	DESIV	
VVE-2A-07	SINGLE DUCT EXHAUST	8	12x10	455	240	0.00	0.00	25		TITUS	DESIV	
VVE-2A-08	SINGLE DUCT EXHAUST	8	12x10	460	135	0.00	0.00	25		TITUS	DESIV	
VVE-2A-09	SINGLE DUCT EXHAUST	6	10x10	165	30	0.00	0.00	25		TITUS	DESIV	
VVE-2A-10	SINGLE DUCT EXHAUST	6	10x10	90	30	0.00	0.00	25		TITUS	DESIV	
VVE-2A-11	SINGLE DUCT EXHAUST	6	10x10	50	30	0.00	0.00	25		TITUS	DESIV	
VVE-2A-12	SINGLE DUCT EXHAUST	6	10x10	75	75	0.00	0.00	25		TITUS	DESIV	

NOTES:
1. REFER TO SPECIFICATIONS SECTION 20000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLEDWALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
4. PROVIDE INLET VELOCITY SENSOR.
5. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY A/C CONTRACTOR.
7. PROVIDE 1" LINER FOR 20'-0" DOWNSTREAM OF ALL VAV BOXES.
8. PROVIDE SOUND ATTENUATOR.

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May 12th, 2023

KEY PLAN

PROJECT NORTH
MAGNETIC NORTH

MECHANICAL DUCTWORK SECOND FLOOR PLAN - AREA A

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

M1-1A-2A

M1-1-2B - VARIABLE AIR VOLUME TERMINAL (VAV)

UNIT NO	SYSTEM	ROOM SERVED	PRIMARY AIR VALVE				TOTAL PRESS DROP (IN.WG)	DISCH	RAD	MANUFACTURER	MODEL	NOTES
			INLET DIA (IN)	AIR FLOW (CFM)	MIN FLOW OCCUPIED (CFM)	MINIMUM FLOW UNOCCUPIED (CFM)						
VAV-2B-01	HRU-2	B233 CR	10	720	220	75	0.00			TITUS	DES	SEE NOTES
VAV-2B-02	HRU-2	B234 TEACHERS PLAN	4	165	50	20	1.00			TITUS	DES	SEE NOTES
VAV-2B-03	HRU-1	B231 CORRIDOR	8	430	130	45	1.00			TITUS	DES	SEE NOTES
VAV-2B-04	HRU-1	B231 CORRIDOR	8	430	130	45	1.00			TITUS	DES	SEE NOTES
VAV-2B-05	HRU-2	B208 CLASSROOMS	10	720	220	75	0.00			TITUS	DES	SEE NOTES
VAV-2B-06	HRU-2	B207 CLASSROOMS	12	1080	325	110	0.00			TITUS	DES	SEE NOTES
VAV-2B-07	HRU-2	B216 SUSPENSION	4	70	25	10	1.00			TITUS	DES	SEE NOTES
VAV-2B-08	HRU-2	B211 CLASSROOM	10	1080	325	110	0.00			TITUS	DES	SEE NOTES
VAV-2B-09	HRU-2	B215 SPED	4	115	35	15	1.00			TITUS	DES	SEE NOTES
VAV-2B-10	HRU-2	B214 CORRIDOR	6	215	65	25	0.00			TITUS	DES	SEE NOTES
VAV-2B-11	HRU-2	B202 COMPUTER LAB	10	815	245	85	0.00			TITUS	DES	SEE NOTES
VAV-2B-12	HRU-2	B208 COMPUTER LAB	8	440	135	45	1.00			TITUS	DES	SEE NOTES
VAV-2B-13	HRU-2	B203 MARKETING	8	475	145	50	1.00			TITUS	DES	SEE NOTES
VAV-2B-14	HRU-2	B202A RELATED CR	8	510	155	55	1.00			TITUS	DES	SEE NOTES
VAV-2B-15	HRU-2	B201 DRAFTING AND DESIGN	10	875	265	90	0.00			TITUS	DES	SEE NOTES
VAV-2B-16	HRU-2	B201F RELATED CR	10	660	200	70	0.00			TITUS	DES	SEE NOTES
VAV-2B-17	HRU-2	A206B COM LAB	10	750	225	75	0.00			TITUS	DES	SEE NOTES
VAV-2B-18	HRU-1	B206 GUID OFF	8	470	145	50	1.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7, 8

- NOTES:
- REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
 - PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
 - REFER TO FLOOR PLANS. VAV TERMINALS ARE PROVIDED WITH AND WITHOUT ELECTRIC RE-HEAT COILS.
 - CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
 - PROVIDE INLET VELOCITY SENSOR.
 - CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
 - SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
 - PROVIDE 1" LINER FOR 20'-0" DOWNSTREAM OF ALL VAV BOXES.
 - PROVIDE SOUND ATTENUATOR.

M1-1-2B DIRECT DUCTED OUTSIDE AIR FLOW (CFM)

UNIT NO	LOCATION	VRF CONDENSING UNIT	OUTSIDE AIR FLOW (CFM)	NOTES
FCU-5-2a	B230 COLLAB	CU-5	0	SEE NOTES 1-10
FCU-5-2b	B230 COLLAB	CU-5	0	SEE NOTES 1-10
FCU-5-4	B234B HUBBLE	CU-5	30	SEE NOTES 1-10
FCU-5-5	B231 CORRIDOR	CU-5	0	SEE NOTES 1-10
FCU-5-12	B216G DEPT HEAD OFFICES	CU-5	80	SEE NOTES
FCU-5-13	B216G DEPT HEAD OFFICES	CU-5	130	SEE NOTES
FCU-5-14	B226 API	CU-5	15	SEE NOTES 1-10
FCU-5-16	B219 ACAD PROG	CU-5	30	SEE NOTES 1-10
FCU-5-6	B202C COMPUTER LAB	CU-6	0	SEE NOTES 1-10
FCU-5-7	B202D OFF	CU-6	25	SEE NOTES 1-10
FCU-5-10	B201E OFF	CU-6	30	SEE NOTES 1-10
FCU-5-11	B210 SPED TUTORIAL	CU-7	30	SEE NOTES 1-10
FCU-5-2	B209 DEAN	CU-7	15	SEE NOTES 1-10
FCU-5-3	B208 GUID OFF	CU-7	15	SEE NOTES 1-10
FCU-5-4	B207 GUID OFF	CU-7	15	SEE NOTES 1-10
FCU-5-5	B206 GUID OFF	CU-7	15	SEE NOTES 1-10

- NOTES:
- ALL DIRECT DUCTED VRF FAN COIL UNITS SHALL HAVE A MANUAL BALANCING DAMPER LOCATED AT THE BRANCH DUCT CONNECTION TO THE MAIN OUTSIDE AIR SUPPLY DUCT. MANUAL BALANCING DAMPER SHALL BE BALANCED TO THE OUTSIDE AIR FLOW (CFM) NOTED IN THIS SCHEDULE.

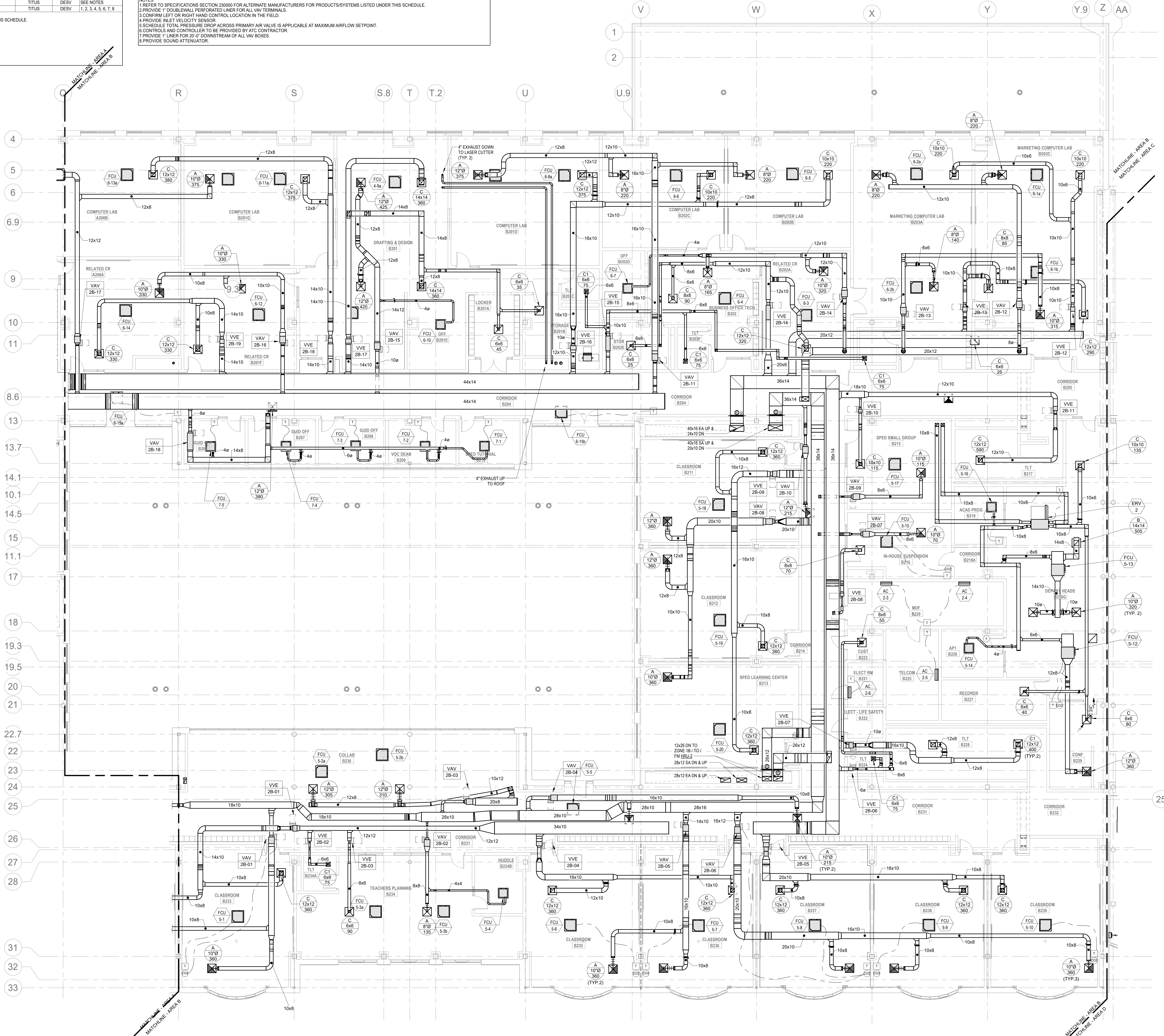
M1-1-2B VARIABLE AIR VOLUME EXHAUST AIR TERMINAL SCHEDULE (VVE)

UNIT NO	TYPE	INLET DIA (IN)	DISCHARGE SIZE (IN)	MAX AIRFLOW (CFM)	MIN TURNDOWN (IN.WG)	MAX PD (IN.WG)	INLET AIR PRESSURE (IN.WG)	MAX NC RATING	DISCH. RAD	MANUFACTURER	MODEL	REMARKS
VVE-2B-01	SINGLE DUCT EXHAUST	10	10x10	720	125	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-02	SINGLE DUCT EXHAUST	4	10x10	90	125	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-03	SINGLE DUCT EXHAUST	4	10x10	90	125	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-04	SINGLE DUCT EXHAUST	10	10x15	720	0	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-05	SINGLE DUCT EXHAUST	12	16x15	1080	370	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-07	SINGLE DUCT EXHAUST	10	16x15	800	800	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-08	SINGLE DUCT EXHAUST	4	10x10	140	0	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-09	SINGLE DUCT EXHAUST	7	16x15	1080	0	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-10	SINGLE DUCT EXHAUST	5	10x10	115	125	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-11	SINGLE DUCT EXHAUST	9	12x10	590	800	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-12	SINGLE DUCT EXHAUST	8	12x10	440	80	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-13	SINGLE DUCT EXHAUST	8	12x10	375	80	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-14	SINGLE DUCT EXHAUST	10	12x10	435	80	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-15	SINGLE DUCT EXHAUST	8	12x10	225	80	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-16	SINGLE DUCT EXHAUST	10	16x15	815	80	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-17	SINGLE DUCT EXHAUST	10	16x15	840	240	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-18	SINGLE DUCT EXHAUST	8	12x10	755	80	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-19	SINGLE DUCT EXHAUST	8	12x10	660	240	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7
VVE-2B-23	SINGLE DUCT EXHAUST	6	10x10	130	15	0.00	0.00			TITUS	DES	1, 2, 3, 4, 5, 6, 7

- NOTES:
- REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
 - PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
 - CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
 - PROVIDE INLET VELOCITY SENSOR.
 - SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
 - CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
 - PROVIDE 1" LINER FOR 20'-0" DOWNSTREAM OF ALL VAV BOXES.
 - PROVIDE SOUND ATTENUATOR.

HVAC DRAWING NOTES

- PROVIDE REFRIGERANT LINE SET FROM ACCU TO INDOOR AC UNIT. REFER TO EQUIPMENT CURB DETAIL TO DETAIL SHEETS.
- REFER TO VRF PIPING DIAGRAMS ON THE M2 SERIES DRAWINGS FOR REFRIGERANT PIPING DISTRIBUTION. PROVIDE A CONDENSATE DRAIN FROM THE FAN COIL UNIT TO THE NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR BY DIV. 22.



Northeast Metropolitan Regional Vocational High School

Wakefield, MA 01880

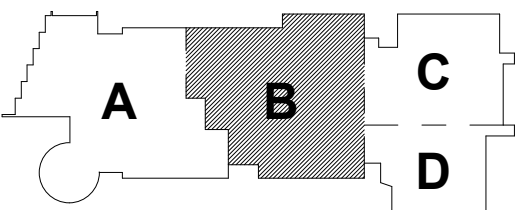
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KEY PLAN

PROJECT NORTH MAGNETIC NORTH

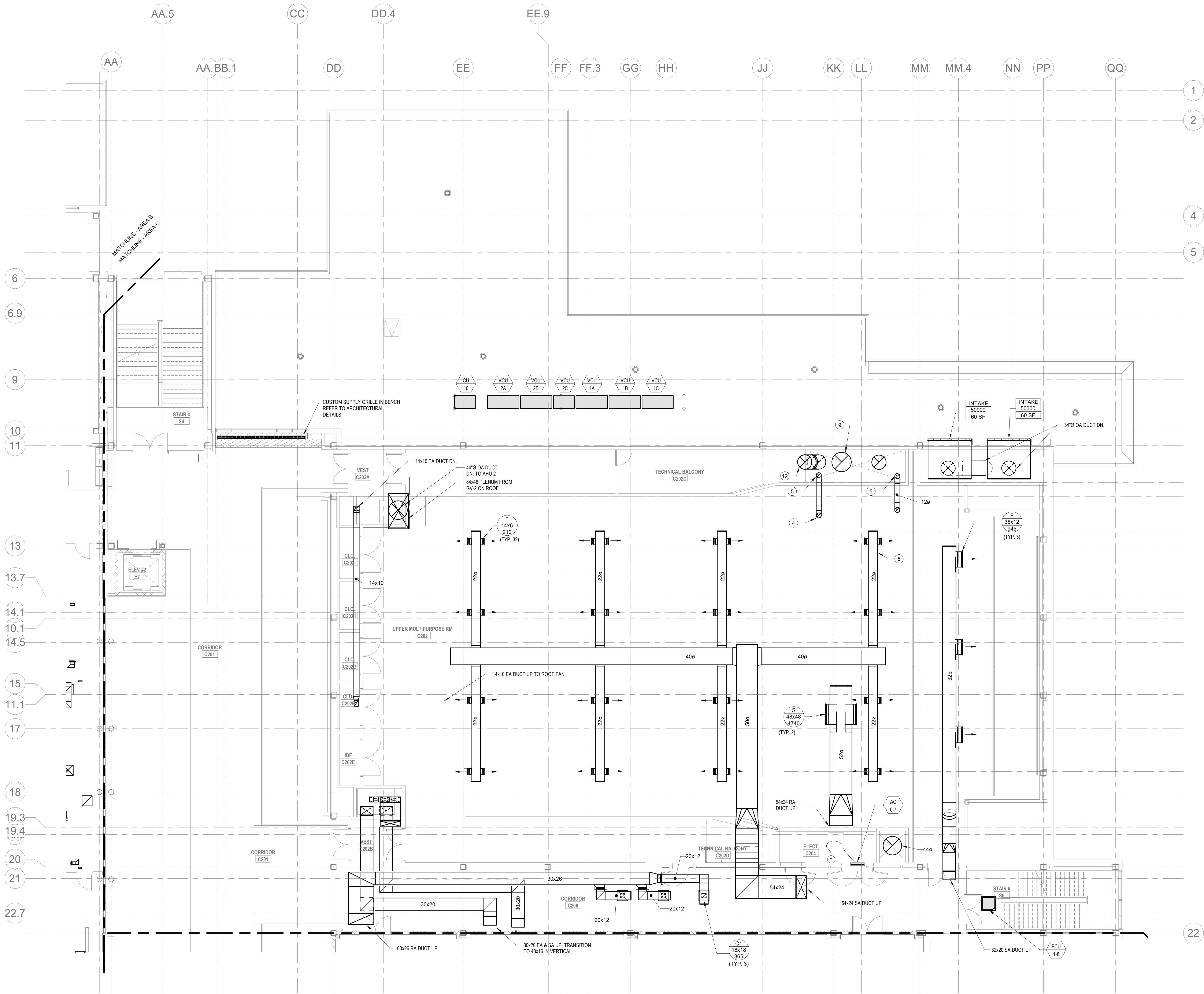
MECHANICAL DUCTWORK SECOND FLOOR PLAN - AREA B

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

M1-1-2B

HVAC DRAWING NOTES

- 48"Ø EA DUCT DOWN TO 1ST FLOOR.
- 72x72 EA DUCT UP TO ROOF VENT.
- 34"Ø EA DUCT UP TO FAN ON ROOF AND DOWN TO 1ST FLOOR.
- 12"Ø EA DUCT UP TO FAN ON ROOF.
- 12"Ø EA DUCT DOWN TO 1ST FLOOR.
- NOT USED.
- 10"Ø EA DUCT DOWN TO 1ST FLOOR.
- 10"Ø EA DUCT UP TO FAN ON ROOF.
- 46"Ø EA DUCT UP TO FAN ON ROOF AND DOWN TO 1ST FLOOR.
- NOT USED.
- 34"Ø EA DUCT DOWN.
- 34"Ø EA DUCT UP TO FAN ON ROOF.
- 34"Ø EA UP TO F-16 ON ROOF AND DOWN TO 1ST FLOOR.



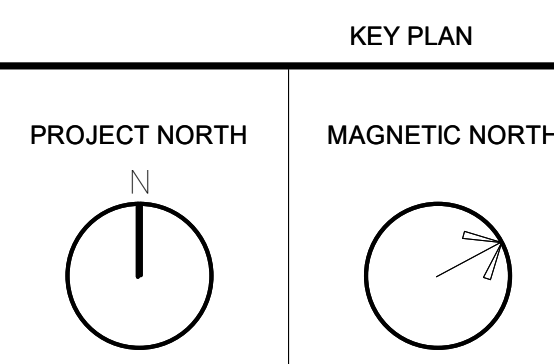
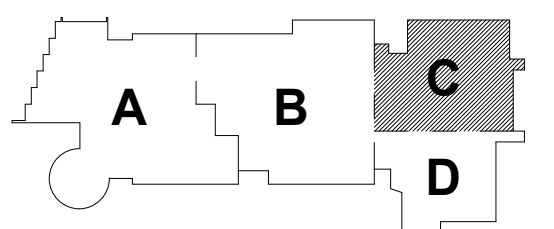
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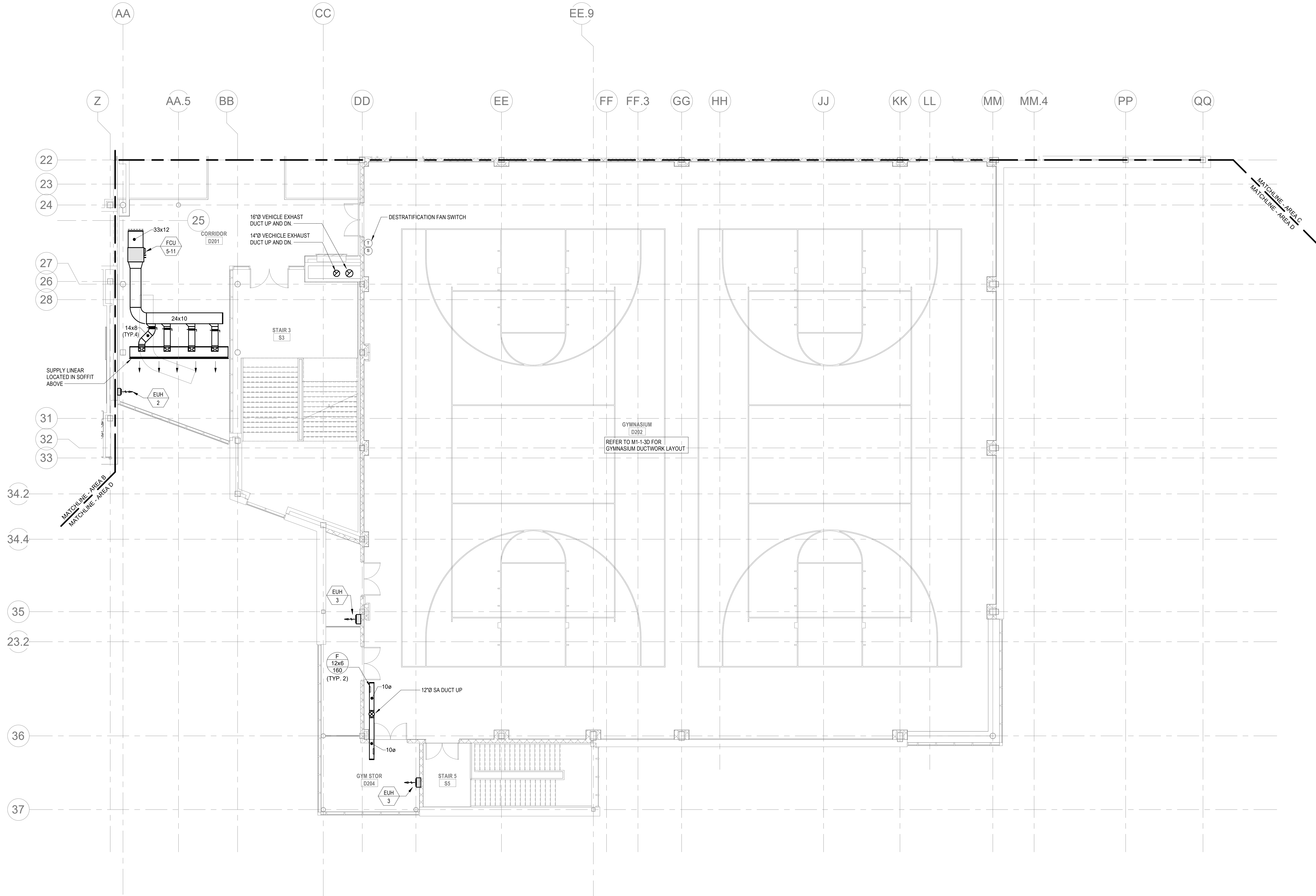
MECHANICAL
DUCTWORK
SECOND FLOOR
PLAN - AREA C

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

M1-1-2C

HVAC DRAWING NOTES

- 25'-0" FRESH AIR INTAKE CLEARANCE FROM ALL HAZARDOUS/ODOROUS CONTAMINATES SHALL BE MAINTAINED. DIV. 23 CONTRACTOR SHALL VERIFY BASED UPON EQUIPMENT INSTALLATION.
- PROVIDE REFRIGERANT LINE SET FROM ACU TO INDOOR AC UNIT. COORDINATE LENGTH OF PIPING RUN WITH MANUFACTURER FOR SIZING. REFER TO PIPE ROOF PENETRATION DETAIL #11 ON DWG M4-0-1.
- VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M4 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
- REFER TO DETAIL #14 ON DRAWING M4-0-1 FOR CONDENSATE TRAP DETAIL.
- PROVIDE ROOF MOUNTED SUPPORT AS PER DETAIL #13 ON DRAWING M4-0-2.
- CONDENSATE DRAIN TO NEAREST ROOF DRAIN. FIELD PAINT PIPING ORANGE TO ALERT FOR TRIP HAZARD. PROVIDE PIPE SUPPORT EVERY 4 FEET.
- PIPING SHOWN DIAGRAMMATICALLY. PIPING SHALL BE ROUTED TIGHT TO DUNNAGE TO ALLOW ACCESS TO EACH CONDENSING UNIT.



DRA

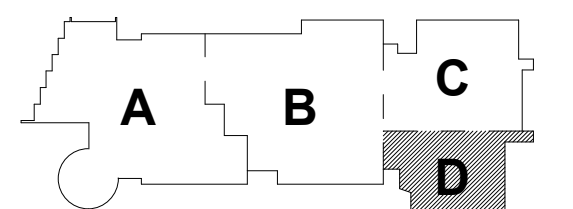
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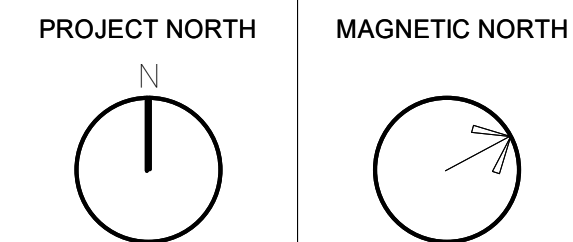
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KEY PLAN



MECHANICAL
DUCTWORK
SECOND FLOOR
PLAN - AREA D

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023
M1-1-2D

M1-1-3A - VARIABLE AIR VOLUME TERMINAL (VAV)

PRIMARY AIR VALVE											SOUND DATA - MAX PWL IN 3RD OCTAVE @ 1'0" INLET PRESSURE				
UNIT NO	SYSTEM	ROOM SERVED	PRIMARY INLET DIA (IN)	MAX FLOW (CFM)	MIN FLOW OCCUPIED (CFM)	MINIMUM FLOW UNOCCUPIED (CFM)	TOTAL PRESS DROP (IN WG)	DISCH	RAD	MANUFACTURER	MODEL	NOTES			
VAV-3A-01	HRU-2	A303 BIOTECHNOLOGY	14	1585	480	180	0.00				TTTUS DESV	SEE NOTES			
VAV-3A-02	HRU-2	A303H LAB	8	600	180	60	1.00				TTTUS DESV	SEE NOTES			
VAV-3A-03	HRU-1	A318 SCI LAB	12	1310	396	135	0.00				TTTUS DESV	SEE NOTES			
VAV-3A-04	HRU-1	A319 SCI LAB	8	410	123	45	1.00				TTTUS DESV	SEE NOTES			
VAV-3A-05	HRU-2	A309 CORRIDOR	12	1040	315	105	0.00				TTTUS DESV	SEE NOTES			
VAV-3A-06	HRU-3	A303 BIOTECHNOLOGY	12	1735	315	520	0.00				TTTUS DESV	SEE NOTES			
VAV-3A-07	HRU-1	A320 BIO CR	12	1045	315	105	0.00				TTTUS DESV	SEE NOTES			
VAV-3A-08	HRU-1	A308 DIG LRNG	8	510	155	55	1.00				TTTUS DESV	SEE NOTES			
VAV-3A-09	HRU-2	A322 CLASSROOM	12	1305	396	130	0.00				TTTUS DESV	SEE NOTES			
VAV-3A-10	HRU-2	A320 SCI LAB	12	1080	395	130	0.00				TTTUS DESV	SEE NOTES			

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBL WALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. REFER TO FLOOR PLANS. VAV TERMINALS ARE PROVIDED WITH AND WITHOUT ELECTRIC RE-HEAT COILS.
4. CONTROL LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
5. PROVIDE INLET VELOCITY SENSOR.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
7. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
8. PROVIDE 1" LINER FOR 20' DOWNSTREAM OF ALL VAV BOWES.
9. PROVIDE SOUND ATTENUATOR.

M1-1-3A VARIABLE AIR VOLUME EXHAUST AIR TERMINAL SCHEDULE (VVE) Copy 1

UNIT NO	TYPE	INLET DIAMETER (IN)	DISCHARGE SIZE (IN)	MAX ABSE LOW (CFM)	MIN TURNDOWN (CFM)	MAX PD (IN WG)	INLET AIR PRESSURE (IN WG)	MAX NC RATING	DISCH	RAD	MANUFACTURER	MODEL	REMARKS
VVE-3A-01	SINGLE DUCT EXHAUST	7	20x17.5	1510	335	0.00	0.00				TTTUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3A-02	SINGLE DUCT EXHAUST	8	12x10	570	80	0.00	0.00				TTTUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3A-03	SINGLE DUCT EXHAUST	12	16x15	1040	0	0.00	0.00				TTTUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3A-04	SINGLE DUCT EXHAUST	8	12x10	510	70	0.00	0.00				TTTUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3A-05	SINGLE DUCT EXHAUST	14	20x17.5	1550	0	0.00	1.50	47			TTTUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3A-06	SINGLE DUCT EXHAUST	12	16x15	0	125	0.00	0.00				TTTUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3A-10	SINGLE DUCT EXHAUST	7	16x15	1045	0	0.00	0.00				TTTUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3A-11	SINGLE DUCT EXHAUST	14	20x17.5	1550	0	0.00	1.50	47			TTTUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3A-13	SINGLE DUCT EXHAUST	7	20x17.5	1685	335	0.00	0.00				TTTUS	DESV	1, 2, 3, 4, 5, 6, 7

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBL WALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. CONTROL LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
4. PROVIDE INLET VELOCITY SENSOR.
5. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
7. PROVIDE 1" LINER FOR 20' DOWNSTREAM OF ALL VAV BOWES.
8. PROVIDE SOUND ATTENUATOR.

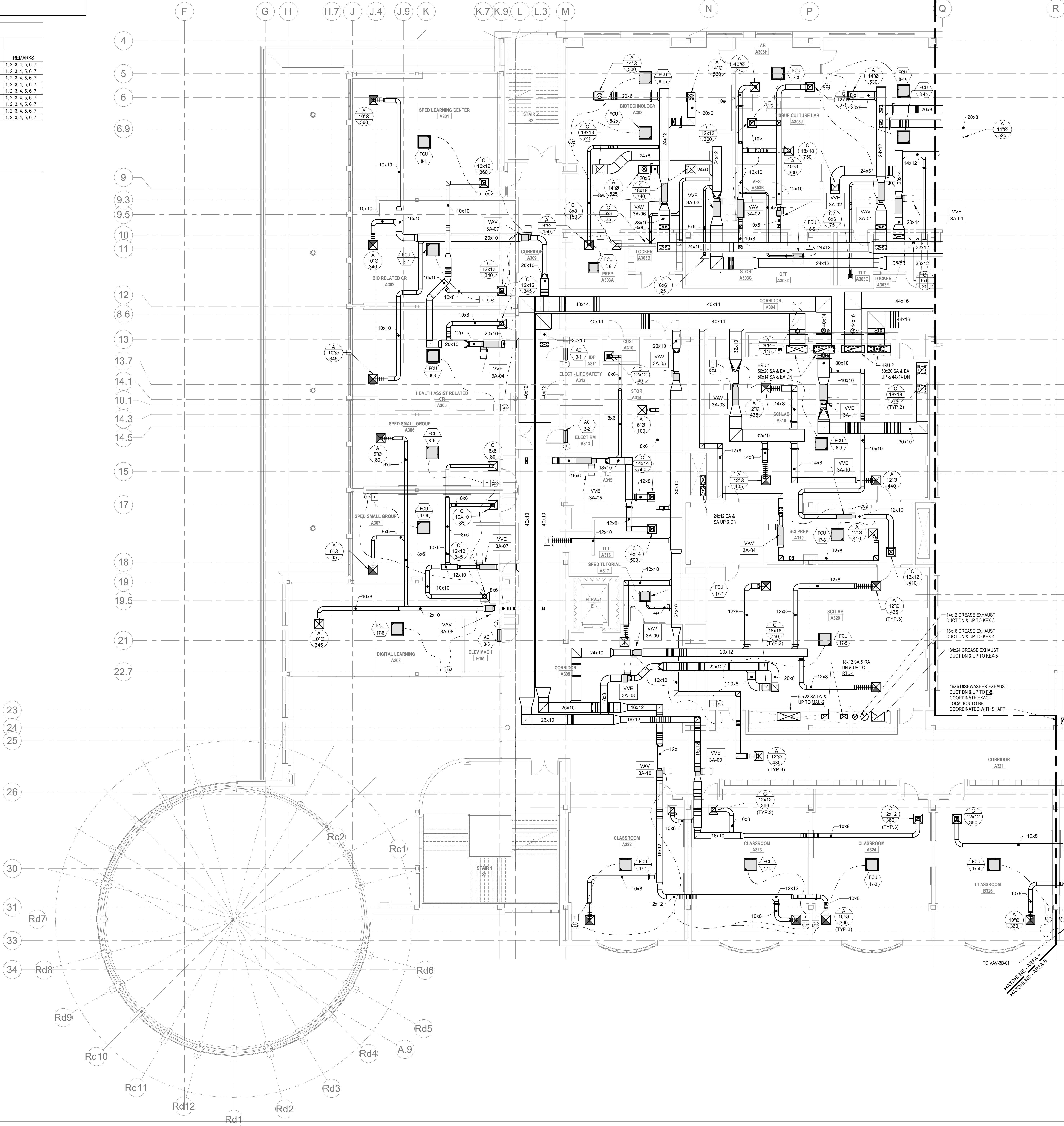
M1-1-3A DIRECT DUCTED OUTSIDE AIR FLOW (CFM)

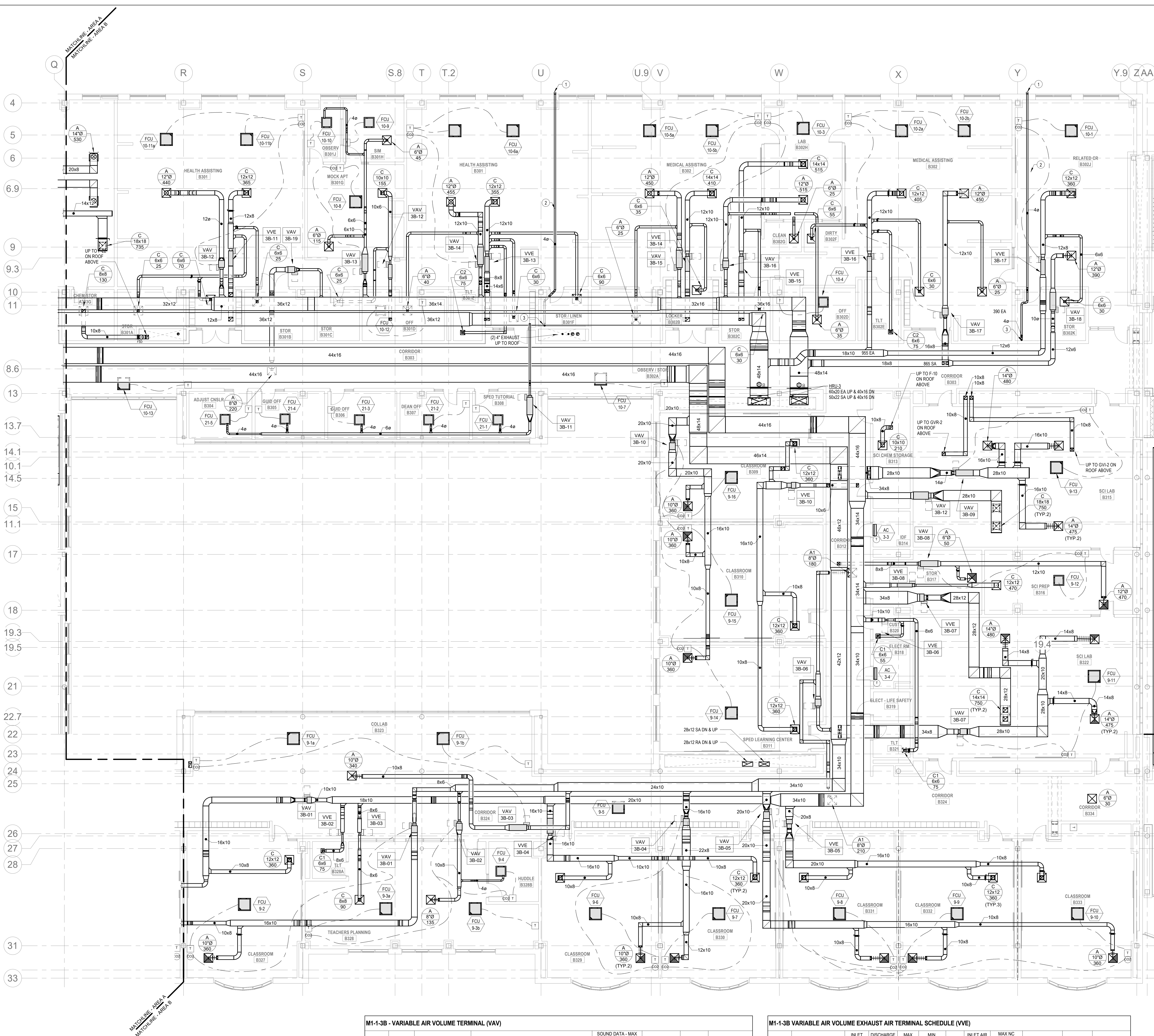
UNIT NO	LOCATION	VRF CONDENSING UNIT	OUTSIDE AIR FLOW (CFM)	NOTES
FCU-8-1	A301 SPED LEARNING CENTER	CU-8	0	SEE NOTES 1-10
FCU-8-2a	A303 BIO TECHNOLOGY	CU-8	0	SEE NOTES 1-10
FCU-8-2b	A303 BIO TECHNOLOGY	CU-8	0	SEE NOTES 1-10
FCU-8-3	A303H LAB	CU-8	0	SEE NOTES 1-10
FCU-8-4a	A303 BIO TECHNOLOGY	CU-8	0	SEE NOTES 1-10
FCU-8-4b	A303 BIO TECHNOLOGY	CU-8	0	SEE NOTES 1-10
FCU-8-5	A303 OFF	CU-8	30	SEE NOTES 1-10
FCU-8-6	A303A PREP	CU-8	0	SEE NOTES 1-10
FCU-8-7	A302 BIO RELATED CR	CU-8	0	SEE NOTES 1-10
FCU-8-9	A318 SCIENCE LAB	CU-8	0	SEE NOTES 1-10
FCU-8-10	A306 SPED GROUP SMALL	CU-8	0	SEE NOTES 1-10
FCU-17-1	A322 CLASSROOM	CU-17	0	SEE NOTES 1-10
FCU-17-2	A320 CLASSROOM	CU-17	0	SEE NOTES 1-10
FCU-17-3	A324 CLASSROOM	CU-17	0	SEE NOTES 1-10
FCU-17-5	A320 SCI LAB	CU-17	0	SEE NOTES 1-10
FCU-17-6	A319 SCI PREP	CU-17	0	SEE NOTES 1-10
FCU-17-7	A317 SPED TUTORIAL	CU-17	30	SEE NOTES 1-10
FCU-17-9	A307 SPED GROUP	CU-17	0	SEE NOTES 1-10

- NOTES:
1. ALL DIRECT DUCTED VRF FAN COIL UNITS SHALL HAVE A MANUAL BALANCING DAMPER LOCATED AT THE BRANCH DUCT CONNECTION TO THE MAIN OUTSIDE AIR SUPPLY DUCT.
2. MANUAL BALANCING DAMPER SHALL BE BALANCED TO THE OUTSIDE AIR FLOW (CFM) NOTED IN THIS SCHEDULE.

HVAC DRAWING NOTES

8





HVAC DRAWING NOTES

1. PROVIDE DRYER VENT CAP. SEHO SF84 OR EQUAL.
2. 4"Ø DRYER EXHAUST FROM DRYER CONNECTION TO EXTERIOR WALL. PROVIDE VENT CAP AT WALL. TYPICAL FOR ALL DRYERS.
3. 4"Ø DRYER EXHAUST DUCT TO DRYER CONNECTION.

M1-1-3B DIRECT DUCTED OUTSIDE AIR FLOW (CFM)

UNIT NO	LOCATION	VRF CONDENSING UNIT	OUTSIDE AIR FLOW (CFM)	NOTES
FCU-B-4	B320B HUBBLE	CU-9	30	SEE NOTES 1-10
FCU-B-10	B301 OBSERVATION	CU-10	20	SEE NOTES 1-10
FCU-B-17	B325 CLASSROOM	CU-17	0	SEE NOTES 1-10
FCU-B-21	B308 SPEED TUTORIAL	CU-21	30	SEE NOTES 1-10
FCU-B-22	B307 DEAN OFF	CU-21	15	SEE NOTES 1-10
FCU-B-23	B308 GUID OFF	CU-21	15	SEE NOTES 1-10
FCU-B-24	B304 ADJUST CNLSR	CU-21	15	SEE NOTES 1-10

NOTES:
1. ALL DIRECT DUCTED VRF FAN COIL UNITS SHALL HAVE A MANUAL BALANCING DAMPER LOCATED AT THE BRANCH DUCT CONNECTION TO THE MAIN OUTSIDE AIR SUPPLY DUCT. MANUAL BALANCING DAMPER SHALL BE BALANCED TO THE OUTSIDE AIR FLOW (CFM) NOTED IN THIS SCHEDULE.

M1-1-3B - VARIABLE AIR VOLUME TERMINAL (VAV)

UNIT NO	SYSTEM	ROOM SERVED	INLET DIA (IN)	AIR FLOW (CFM)	MIN FLOW (CFM)	MAX FLOW (CFM)	TOTAL PRESS DROP (IN WG)	SOUND DATA - MAX PWL IN 3RD OCTAVE @ 1.0" INLET PRESSURE		MANUFACTURER	MODEL	NOTES
								DISCH	RAD			
VAV-3B-01	HU-2	B307 CLASSROOM	10	720	220	75	0.00			TITUS	DESV	SEE NOTES
VAV-3B-02	HU-2	B303 TEACHERS PLAN	4	165	50	20	1.00			TITUS	DESV	SEE NOTES
VAV-3B-03	HU-2	B303 COLLAB	8	340	105	35	1.00			TITUS	DESV	SEE NOTES
VAV-3B-04	HU-2	B303 CLASSROOM	14	1420	430	145	0.00			TITUS	DESV	SEE NOTES
VAV-3B-05	HU-2	B301 CLASSROOM	14	1420	430	145	0.00			TITUS	DESV	SEE NOTES
VAV-3B-06	HU-1	B312 CORRIDOR	8	390	190	65	1.00			TITUS	DESV	SEE NOTES
VAV-3B-07	HU-2	B322 SCI LAB	14	1430	430	145	0.00			TITUS	DESV	SEE NOTES
VAV-3B-08	HU-2	B316 SCI PREP	10	970	295	100	0.00			TITUS	DESV	SEE NOTES
VAV-3B-09	HU-2	B315 SCI LAB	14	1430	430	145	0.00			TITUS	DESV	SEE NOTES
VAV-3B-10	HU-2	B309 CLASSROOM	12	1080	325	110	0.00			TITUS	DESV	SEE NOTES
VAV-3B-11	HU-2	B306 SPEED	4	90	30	10	1.00			TITUS	DESV	SEE NOTES
VAV-3B-12	HU-2	A301 HEALTH ASSISTING	8	440	135	45	1.00			TITUS	DESV	SEE NOTES
VAV-3B-13	HU-2	B301G MOCK APT	4	180	55	20	1.00			TITUS	DESV	SEE NOTES
VAV-3B-14	HU-1	B301 HEALTH ASSIST	8	455	60	50	1.00			TITUS	DESV	SEE NOTES
VAV-3B-15	HU-1	B302 MEDICAL ASSIST	8	450	135	45	1.00			TITUS	DESV	SEE NOTES
VAV-3B-16	HU-1	B320H LAB	8	575	175	60	1.00			TITUS	DESV	SEE NOTES
VAV-3B-17	HU-2	B303 MEDICAL ASSIST	8	475	145	50	0.00			TITUS	DESV	SEE NOTES
VAV-3B-18	HU-2	B302J RELA CR	8	420	130	45	1.00			TITUS	DESV	SEE NOTES
VAV-3B-19	HU-3	B303 CORRIDOR	8	220	70	20	0.50			TITUS	DESV	SEE NOTES

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 22000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLESIDED PERFORATED LINER FOR ALL VAV TERMINALS.
3. REFER TO FLOOR PLANS. VAV TERMINALS ARE PROVIDED WITH AND WITHOUT ELECTRIC RE-HEAT COILS.
4. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
5. PROVIDE INLET VELOCITY SENSOR.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
7. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
8. PROVIDE 1" LINER FOR 20' Ø DOWNSTREAM OF ALL VAV BOXES.
9. PROVIDE SOUND ATTENUATOR.

M1-1-3B VARIABLE AIR VOLUME EXHAUST AIR TERMINAL SCHEDULE (VVE)

UNIT NO	TYPE	INLET DIAMETER (IN)	DISCHARGE SIZE WH (IN)	MAX AIRFLOW (CFM)	MIN TURNDOWN (CFM)	MAX PO (IN WG)	INLET AIR PRESSURE (IN WG)	MAX NC RATING DISCH. RAD.	MANUFACTURER	MODEL	REMARKS
VVE-3B-01	SINGLE DUCT EXHAUST	10	16x15	720	125	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-02	SINGLE DUCT EXHAUST	4	10x10	75	75	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7, 8
VVE-3B-03	SINGLE DUCT EXHAUST	4	10x10	90	125	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7, 8
VVE-3B-04	SINGLE DUCT EXHAUST	10	16x15	720	0	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-05	SINGLE DUCT EXHAUST	12	16x15	1080	125	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-06	SINGLE DUCT EXHAUST	4	10x10	130	125	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-07	SINGLE DUCT EXHAUST	14	20x17.5	1500	0	0.50	1.50	47	TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-08	SINGLE DUCT EXHAUST	14	20x17.5	1500	125	0.50	1.50	47	TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-09	SINGLE DUCT EXHAUST	12	16x15	1080	125	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-10	SINGLE DUCT EXHAUST	8	12x10	465	0	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-11	SINGLE DUCT EXHAUST	8	12x10	550	105	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-12	SINGLE DUCT EXHAUST	8	12x10	625	105	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-13	SINGLE DUCT EXHAUST	8	12x10	565	105	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-14	SINGLE DUCT EXHAUST	8	12x10	360	105	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-3B-15	SINGLE DUCT EXHAUST	11	16x15	180	105	0.00	0.00		TITUS	DESV	1, 2, 3, 4, 5, 6, 7

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 22000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLESIDED PERFORATED LINER FOR ALL VAV TERMINALS.
3. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
4. PROVIDE INLET VELOCITY SENSOR.
5. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
7. PROVIDE 1" LINER FOR 20' Ø DOWNSTREAM OF ALL VAV BOXES.
8. PROVIDE SOUND ATTENUATOR.

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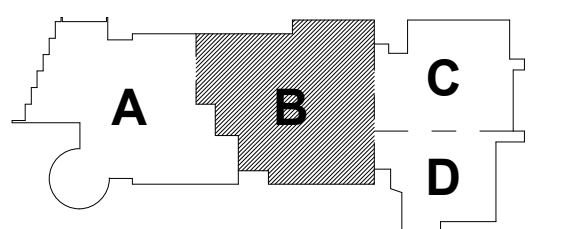
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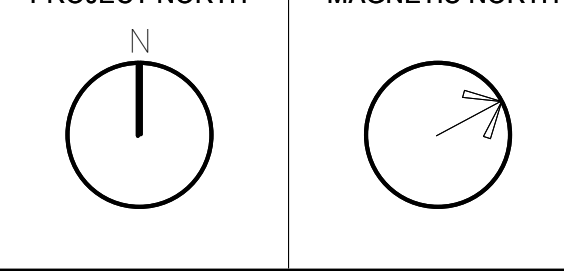
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May 12th, 2023



PROJECT NORTH
MAGNETIC NORTH



**MECHANICAL
DUCTWORK
THIRD FLOOR
PLAN - AREA B**

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

M1-1-3B

HVAC DRAWING NOTES

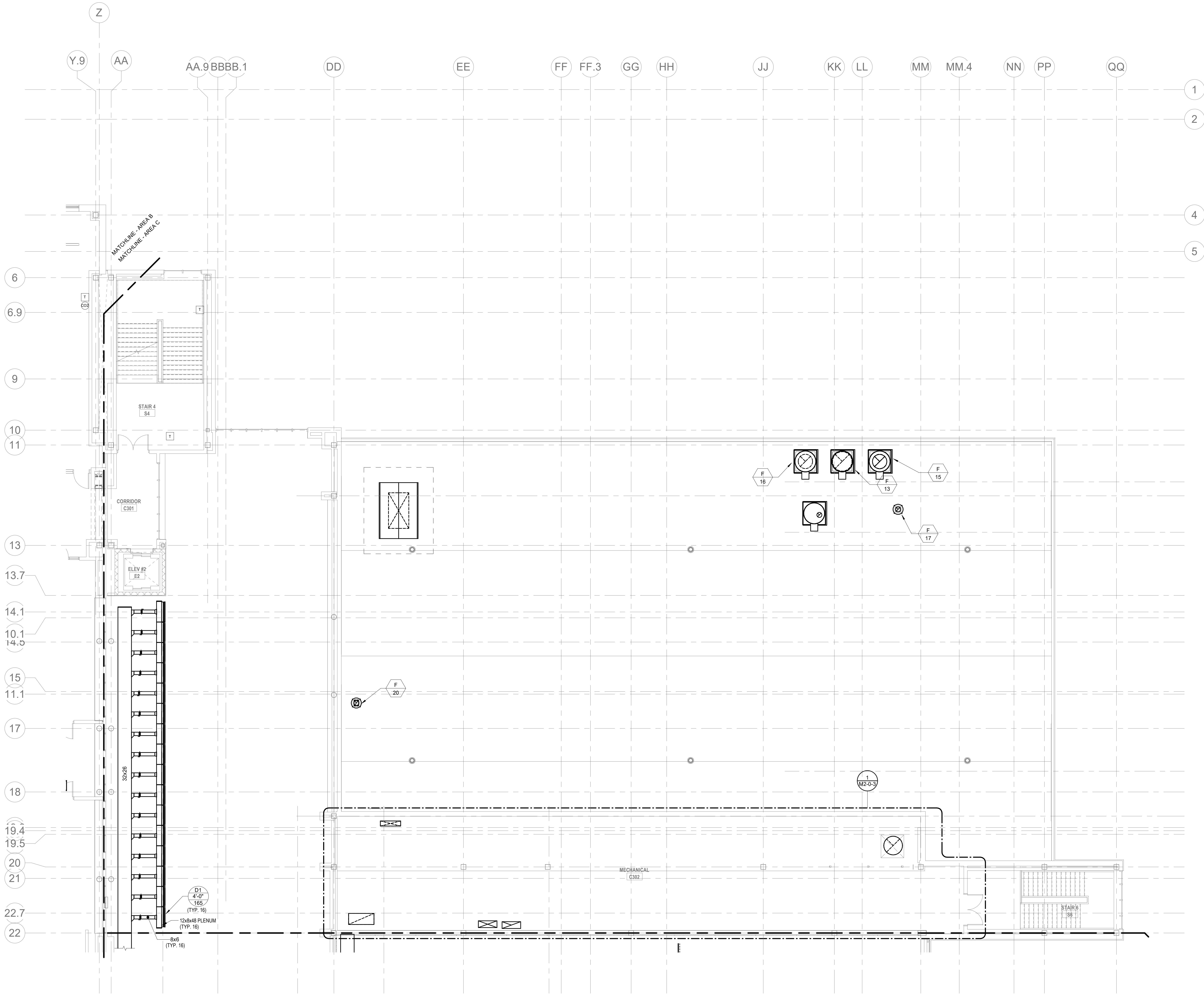
1. PROVIDE REMOTE OPERATED BALANCING DAMPER. REFER TO DETAIL XX ON DWG XX.

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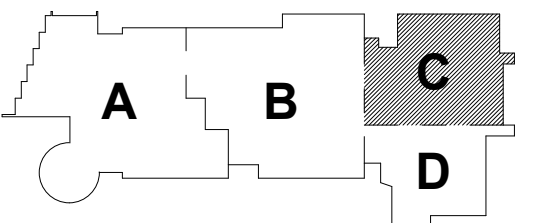
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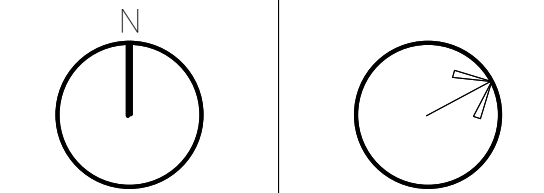
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KEY PLAN

PROJECT NORTH MAGNETIC NORTH



MECHANICAL
DUCTWORK
THIRD FLOOR
PLAN - AREA C

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

M1-1-3C

HVAC DRAWING NOTES

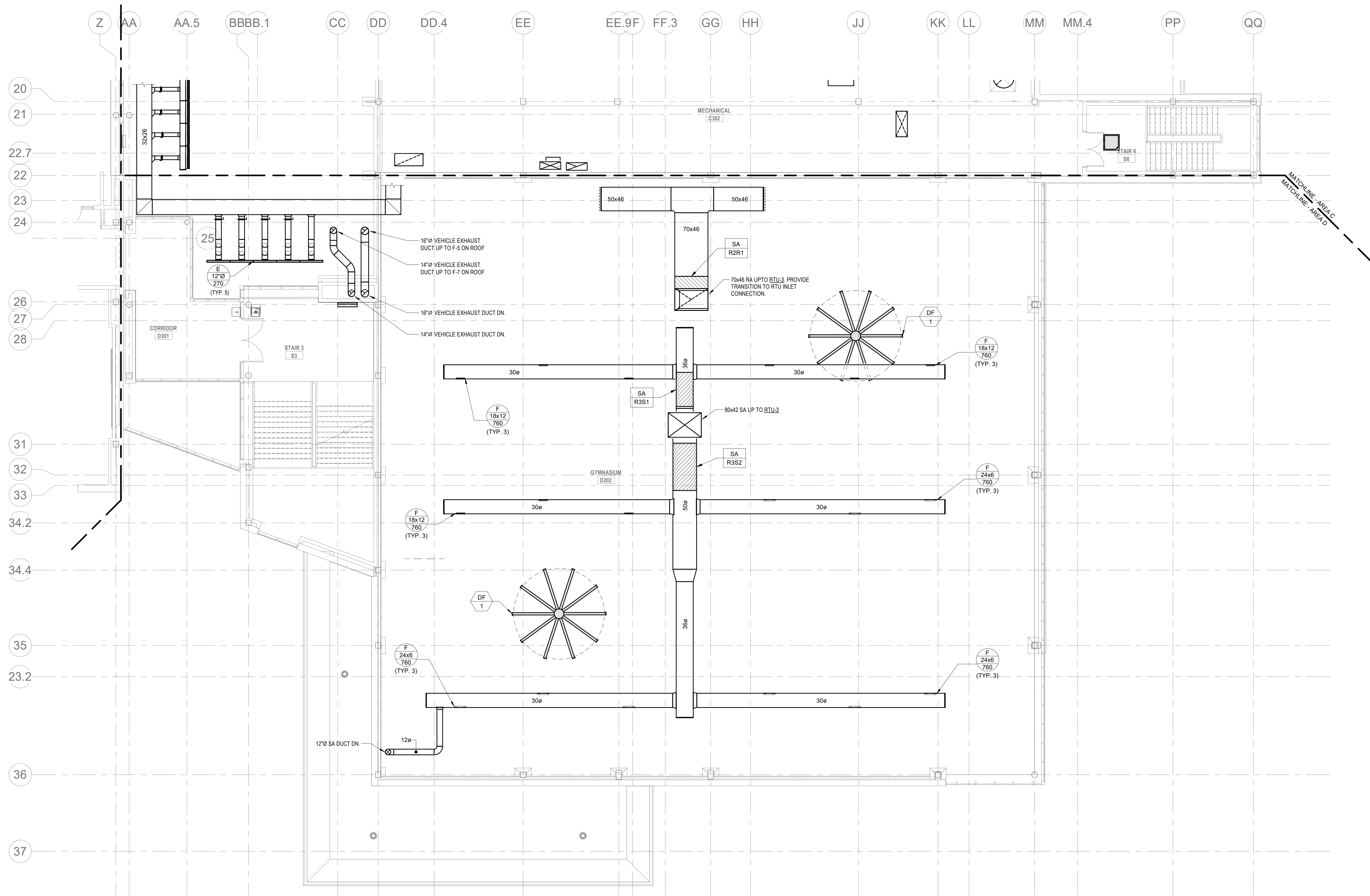
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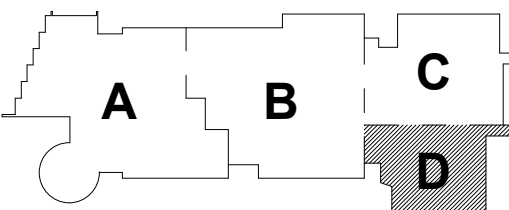
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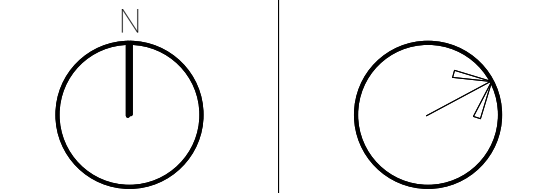
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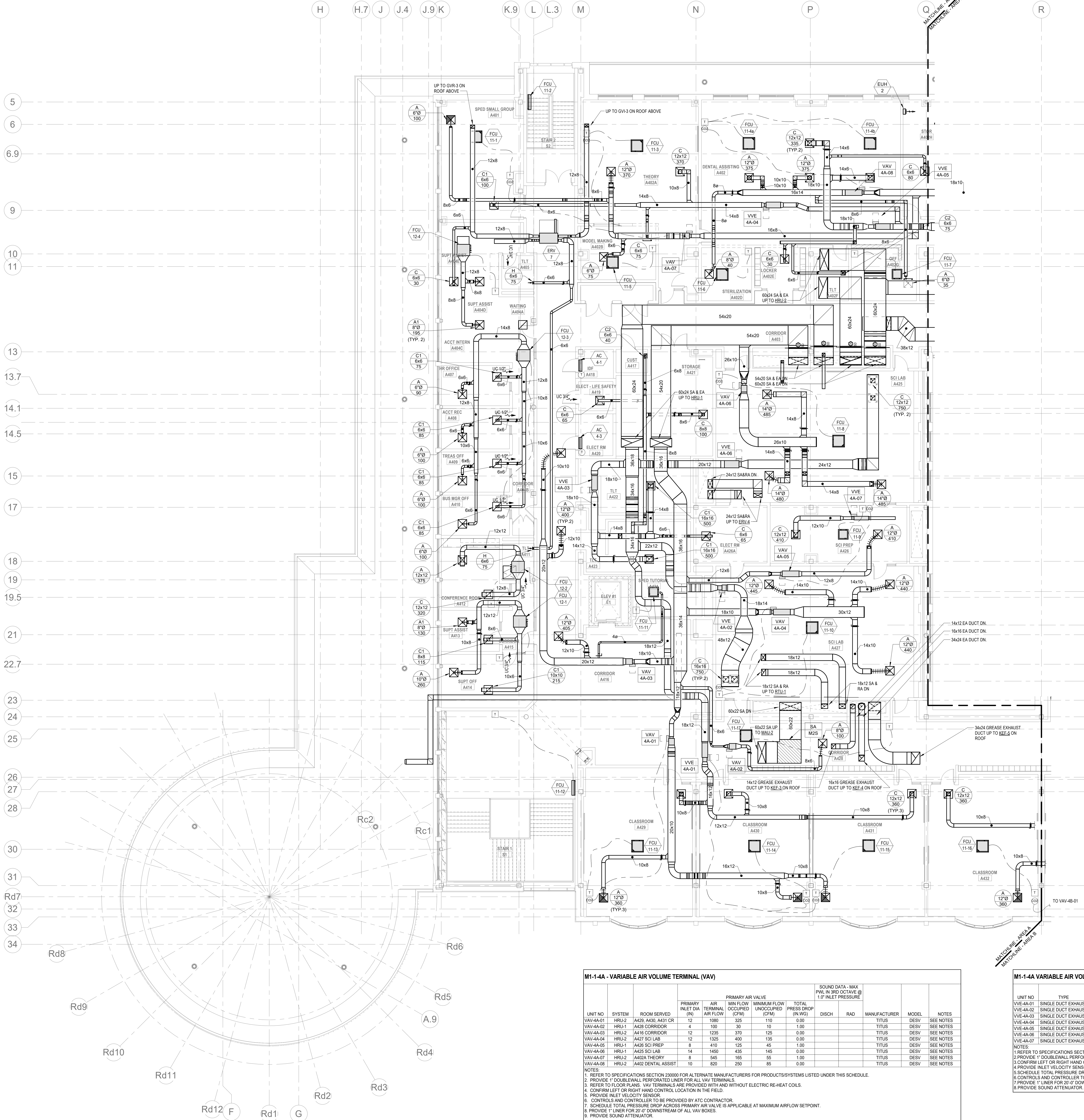
PROJECT NORTH MAGNETIC NORTH



MECHANICAL
DUCTWORK
THIRD FLOOR
PLAN - AREA D

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

M1-1-3D



HVAC DRAWING NOTES

M1-1-4A DIRECT DUCTED OUTSIDE AIR FLOW (CFM)

UNIT NO	LOCATION	REF CONDENSING UNIT	OUTSIDE AIR FLOW (CFM)	NOTES
FCU-11-1	A401 SPED SMALL GROUP	CU-11	100	SEE NOTES 1-10
FCU-11-3	A402 THEORY	CU-11	0	SEE NOTES 1-10
FCU-11-4a	A402 DENTAL ASSISTING	CU-11	0	SEE NOTES 1-10
FCU-11-4b	A402 DENTAL ASSISTING	CU-11	0	SEE NOTES 1-10
FCU-11-5	A402B MODEL MAKING	CU-11	0	SEE NOTES 1-10
FCU-11-6	A402B STERILIZATION	CU-11	0	SEE NOTES 1-10
FCU-11-7	A402B OFFICE	CU-11	0	SEE NOTES 1-10
FCU-11-8	A425 SCI LAB	CU-11	0	SEE NOTES 1-10
FCU-11-9	A426 SCI PREP	CU-11	0	SEE NOTES 1-10
FCU-11-10	A427 SCI LAB	CU-11	0	SEE NOTES 1-10
FCU-11-11	A424 SPED TUTORIAL	CU-11	30	SEE NOTES 1-10
FCU-11-13	A428 CLASSROOM	CU-11	0	SEE NOTES 1-10
FCU-11-14	A430 CLASSROOM	CU-11	0	SEE NOTES 1-10
FCU-11-15	A431 CLASSROOM	CU-11	0	SEE NOTES 1-10
FCU-11-16	A432 CLASSROOM	CU-11	0	SEE NOTES 1-10
FCU-11-17	A438 CORRIDOR	CU-11	0	SEE NOTES 1-10
FCU-12-1	A415 CORRIDOR	CU-12	80	SEE NOTES 1-10
FCU-12-2	A411 TLT	CU-12	80	SEE NOTES 1-10
FCU-12-3	A404B ACCT INTERN	CU-12	80	SEE NOTES 1-10
FCU-12-4	A404E SUPT ASSIST	CU-12	80	SEE NOTES 1-10
FCU-13-1a	A419 COLLAB	CU-13	0	SEE NOTES 1-10
FCU-13-1b	A419 COLLAB	CU-13	0	SEE NOTES 1-10
FCU-14-12a	A402 DENTAL ASSISTING	CU-14	0	SEE NOTES 1-10
FCU-14-12b	A402 DENTAL ASSISTING	CU-14	0	SEE NOTES 1-10
FCU-14-13	A402B STERILIZATION	CU-14	0	SEE NOTES 1-10
FCU-14-14	A402B INTERIOR	CU-14	0	SEE NOTES 1-10
FCU-14-15	A403 CORRIDOR	CU-14	0	SEE NOTES 1-10
FCU-14-16	A402B INTRACOR	CU-14	0	SEE NOTES 1-10

1. ALL DIRECT DUCTED VRF FAN COIL UNITS SHALL HAVE A MANUAL BALANCING DAMPER LOCATED AT THE BRANCH DUCT CONNECTION TO THE MAIN OUTSIDE AIR SUPPLY DUCT. MANUAL BALANCING DAMPER SHALL BE BALANCED TO THE OUTSIDE AIR FLOW (CFM) NOTED IN THIS SCHEDULE.

M1-1-4A - VARIABLE AIR VOLUME TERMINAL (VAV)

UNIT NO	SYSTEM	ROOM SERVED	PRIMARY AIR FLOW (CFM)	AIR TERMINAL OCCUPIED (CFM)	MIN FLOW UNOCCUPIED (CFM)	TOTAL PRESS DROP (IN WG)	DISCH	RAD	MANUFACTURER	MODEL	NOTES
VAV-4A-01	HRU-2	A429 A430 A431 CR	12	1080	325	110	0.00		TTTUS	DESV	SEE NOTES
VAV-4A-02	HRU-1	A426 CORRIDOR	4	100	30	10	1.00		TTTUS	DESV	SEE NOTES
VAV-4A-03	HRU-2	A416 CORRIDOR	12	1235	370	125	0.00		TTTUS	DESV	SEE NOTES
VAV-4A-04	HRU-2	A427 SCI LAB	12	1325	400	135	0.00		TTTUS	DESV	SEE NOTES
VAV-4A-05	HRU-1	A426 SCI PREP	8	410	125	45	1.00		TTTUS	DESV	SEE NOTES
VAV-4A-06	HRU-1	A425 SCI LAB	14	1450	435	145	0.00		TTTUS	DESV	SEE NOTES
VAV-4A-07	HRU-2	A402A THEORY	9	545	165	55	1.00		TTTUS	DESV	SEE NOTES
VAV-4A-08	HRU-2	A402 DENTAL ASSIST	10	620	250	85	0.00		TTTUS	DESV	SEE NOTES

NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. REFER TO FLOOR PLANS. VAV TERMINALS ARE PROVIDED WITH AND WITHOUT ELECTRIC RE-HEAT COILS.
4. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
5. PROVIDE INLET VELOCITY SENSOR.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
7. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
8. PROVIDE 1" LINER FOR 20' DOWNSTREAM OF ALL VAV BOXES.
9. PROVIDE SOUND ATTENUATOR.

M1-1-4A VARIABLE AIR VOLUME EXHAUST AIR TERMINAL SCHEDULE (VVE)

UNIT NO	TYPE	INLET DIAMETER (IN)	DISCHARGE SIZE WxH (IN)	MAX AIRFLOW (CFM)	MIN AIRFLOW (CFM)	MAX PD (IN WG)	MAX NC PRESSURE (IN WG)	MAX NC RATING DISCH	RAD	MANUFACTURER	MODEL	REMARKS
VVE-4A-01	SINGLE DUCT EXHAUST	12	16x15	1080	125	0.00	0.00			TTTUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-4A-02	SINGLE DUCT EXHAUST	12	16x15	1080	1400	0.00	0.00			TTTUS	DESV	
VVE-4A-03	SINGLE DUCT EXHAUST	10	16x15	1140	600	0.00	0.00			TTTUS	DESV	1, 2, 3, 4, 5, 6, 7
VVE-4A-04	SINGLE DUCT EXHAUST	10	16x15	945	240	0.00	0.00			TTTUS	DESV	
VVE-4A-05	SINGLE DUCT EXHAUST	10	16x15	775	240	0.00	0.00			TTTUS	DESV	
VVE-4A-06	SINGLE DUCT EXHAUST	14	20x17.5	1500	125	0.50	1.50	47		TTTUS	DESV	
VVE-4A-07	SINGLE DUCT EXHAUST	8	10x10	410	125	0.00	0.00			TTTUS	DESV	

NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLEWALL PERFORATED LINER FOR ALL VAV TERMINALS.
3. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
4. PROVIDE INLET VELOCITY SENSOR.
5. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATC CONTRACTOR.
7. PROVIDE 1" LINER FOR 20' DOWNSTREAM OF ALL VAV BOXES.
8. PROVIDE SOUND ATTENUATOR.

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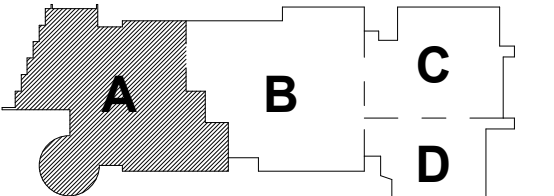
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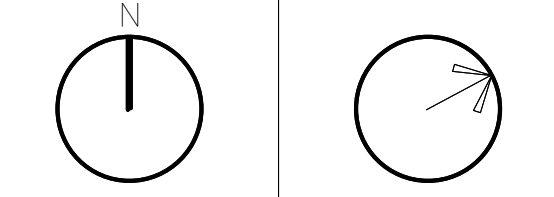
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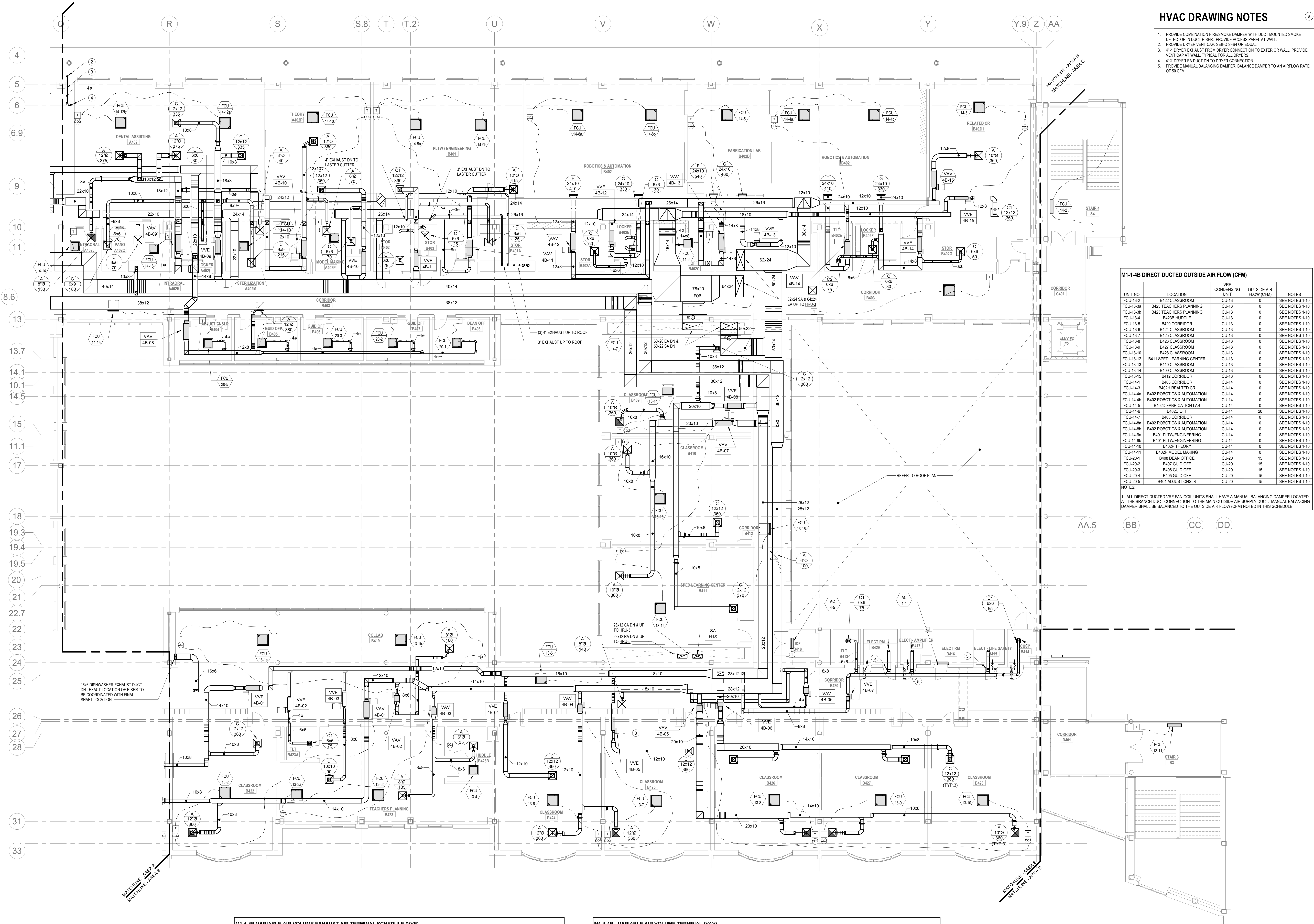
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MECHANICAL
DUCTWORK
FOURTH FLOOR
PLAN - AREA A

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

M1-1-4A



HVAC DRAWING NOTES

1. PROVIDE COMBINATION FRESMOKE DAMPER WITH DUCT MOUNTED SMOKE DETECTOR IN DUCT RISER. PROVIDE ACCESS PANEL AT WALL.
2. PROVIDE DRYER VENT CAP 50" DIA OR EQUAL.
3. 4" Ø DRYER EXHAUST FROM DRYER CONNECTION TO EXTERIOR WALL. PROVIDE VENT CAP AT WALL. TYPICAL FOR ALL DRYERS.
4. 4" Ø DRYER EA DUCT ON TO DRYER CONNECTION.
5. PROVIDE MANUAL BALANCING DAMPER. BALANCE DAMPER TO AN AIRFLOW RATE OF 30 CFM.

M1-1-4B DIRECT DUCTED OUTSIDE AIR FLOW (CFM)

UNIT NO	LOCATION	REF CONDENSING UNIT	OUTSIDE AIR FLOW (CFM)	NOTES
FCU-13-2	B422 CLASSROOM	CU-13	0	SEE NOTES 1-10
FCU-13-3a	B423 TEACHERS PLANNING	CU-13	0	SEE NOTES 1-10
FCU-13-3b	B423 TEACHERS PLANNING	CU-13	0	SEE NOTES 1-10
FCU-13-4	B423B HUBBLE	CU-13	0	SEE NOTES 1-10
FCU-13-5	B423 CORRIDOR	CU-13	0	SEE NOTES 1-10
FCU-13-6	B424 CLASSROOM	CU-13	0	SEE NOTES 1-10
FCU-13-7	B425 CLASSROOM	CU-13	0	SEE NOTES 1-10
FCU-13-8	B426 CLASSROOM	CU-13	0	SEE NOTES 1-10
FCU-13-9	B427 CLASSROOM	CU-13	0	SEE NOTES 1-10
FCU-13-10	B428 CLASSROOM	CU-13	0	SEE NOTES 1-10
FCU-13-12	B411 SPEED LEARNING CENTER	CU-13	0	SEE NOTES 1-10
FCU-13-13	B410 CLASSROOM	CU-13	0	SEE NOTES 1-10
FCU-13-14	B429 CLASSROOM	CU-13	0	SEE NOTES 1-10
FCU-13-15	B412 CORRIDOR	CU-13	0	SEE NOTES 1-10
FCU-14-1	B403 CORRIDOR	CU-14	0	SEE NOTES 1-10
FCU-14-3	B402H RELATED CR	CU-14	0	SEE NOTES 1-10
FCU-14-4a	B402 ROBOTICS & AUTOMATION	CU-14	0	SEE NOTES 1-10
FCU-14-4b	B402 ROBOTICS & AUTOMATION	CU-14	0	SEE NOTES 1-10
FCU-14-5	B402D FABRICATION LAB	CU-14	0	SEE NOTES 1-10
FCU-14-6	B402C OFF	CU-14	20	SEE NOTES 1-10
FCU-14-7	B403 CORRIDOR	CU-14	0	SEE NOTES 1-10
FCU-14-8a	B402 ROBOTICS & AUTOMATION	CU-14	0	SEE NOTES 1-10
FCU-14-8b	B402 ROBOTICS & AUTOMATION	CU-14	0	SEE NOTES 1-10
FCU-14-9a	B401 PLTWENGINEERING	CU-14	0	SEE NOTES 1-10
FCU-14-9b	B401 PLTWENGINEERING	CU-14	0	SEE NOTES 1-10
FCU-14-10	B402P THEORY	CU-14	0	SEE NOTES 1-10
FCU-14-11	B402P MODEL MAKING	CU-14	0	SEE NOTES 1-10
FCU-20-1	B408 DEAN OFFICE	CU-20	15	SEE NOTES 1-10
FCU-20-2	B407 GUID OFF	CU-20	15	SEE NOTES 1-10
FCU-20-3	B406 GUID OFF	CU-20	15	SEE NOTES 1-10
FCU-20-4	B405 GUID OFF	CU-20	15	SEE NOTES 1-10
FCU-20-5	B404 ADJUST CNSLR	CU-20	15	SEE NOTES 1-10

NOTES:
1. ALL DIRECT DUCTED VRF FAN COIL UNITS SHALL HAVE A MANUAL BALANCING DAMPER LOCATED AT THE BRANCH DUCT CONNECTION TO THE MAIN OUTSIDE AIR SUPPLY DUCT. MANUAL BALANCING DAMPER SHALL BE BALANCED TO THE OUTSIDE AIR FLOW (CFM) NOTED IN THIS SCHEDULE.

M1-1-4B VARIABLE AIR VOLUME EXHAUST AIR TERMINAL SCHEDULE (VVE)

UNIT NO	TYPE	INLET DIAMETER (IN)	DISCHARGE SIZE WH (IN)	MAX AIRFLOW (CFM)	MIN TURNDOWN (CFM)	MAX PO PRESSURE (IN WG)	MAX NC RATING DISCH. RAD	MANUFACTURER	MODEL	REMARKS
VVE-4B-01	SINGLE DUCT EXHAUST	10	16x15	720	370	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-02	SINGLE DUCT EXHAUST	4	10x10	75	75	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-03	SINGLE DUCT EXHAUST	4	10x10	80	75	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-04	SINGLE DUCT EXHAUST	6	12x10	360	125	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-05	SINGLE DUCT EXHAUST	6	10x10	360	0	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-06	SINGLE DUCT EXHAUST	12	16x15	1080	125	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-07	SINGLE DUCT EXHAUST	6	10x10	150	125	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-08	SINGLE DUCT EXHAUST	10	16x15	720	125	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-09	SINGLE DUCT EXHAUST	7	16x15	1165	240	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-10	SINGLE DUCT EXHAUST	6	12x10	430	105	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-11	SINGLE DUCT EXHAUST	8	12x10	880	105	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-12	SINGLE DUCT EXHAUST	8	12x10	410	105	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-13	SINGLE DUCT EXHAUST	8	12x10	540	105	0.00	0.00	TITUS	DESV	SEE NOTES 1-7
VVE-4B-14	SINGLE DUCT EXHAUST	8	12x10	485	105	0.00	0.00	TITUS	DESV	SEE NOTES 1-9
VVE-4B-15	SINGLE DUCT EXHAUST	6	10x10	360	125	0.00	0.00	TITUS	DESV	SEE NOTES 1-9

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLE ENDED PERFORATED LINER FOR ALL VAV TERMINALS.
3. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
4. PROVIDE INLET VELOCITY SENSOR.
5. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATO CONTRACTOR.
7. PROVIDE 1" LINER FOR 20'-0" DOWNSTREAM OF ALL VAV BOXES.
8. PROVIDE SOUND ATTENUATOR.

M1-1-4B - VARIABLE AIR VOLUME TERMINAL (VAV)

UNIT NO	SYSTEM	ROOM SERVED	INLET DIA (IN)	AIR FLOW (CFM)	MIN FLOW (CFM)	MINIMUM FLOW UNOCCUPIED (CFM)	TOTAL PRESS DROP (IN WG)	DISCH	RAD	MANUFACTURER	MODEL	NOTES
VAV-4B-01	HRU-2	B422 CLASSROOM	10	720	220	75	0.00			TITUS	DESV	SEE NOTES
VAV-4B-02	HRU-3	B419 COLLAB	4	160	35	20	1.00			TITUS	DESV	SEE NOTES
VAV-4B-03	HRU-3	B423 PLANNING	4	170	35	20	1.00			TITUS	DESV	SEE NOTES
VAV-4B-04	HRU-3	B425 CLASSROOM	8	370	115	45	0.00			TITUS	DESV	SEE NOTES
VAV-4B-05	HRU-2	B426 CLASSROOM	12	1080	325	110	0.00			TITUS	DESV	SEE NOTES
VAV-4B-06	HRU-3	B420 CORRIDOR	4	240	75	25	1.00			TITUS	DESV	SEE NOTES
VAV-4B-07	HRU-3	B429 CLASSROOM	12	1080	325	110	0.00			TITUS	DESV	SEE NOTES
VAV-4B-08	HRU-3	B404 ADJUST CNSLR	8	455	140	50	0.00			TITUS	DESV	SEE NOTES
VAV-4B-09	HRU-2	A402, A402J	12	920	305	105	0.00			TITUS	DESV	SEE NOTES
VAV-4B-10	HRU-2	A402P THEORY	8	480	140	50	0.00			TITUS	DESV	SEE NOTES
VAV-4B-11	HRU-2	B401 PLTW ENG	8	415	105	45	0.00			TITUS	DESV	SEE NOTES
VAV-4B-12	HRU-2	B402 ROBOTICS	8	410	125	45	0.00			TITUS	DESV	SEE NOTES
VAV-4B-13	HRU-2	B402D FAB LAB	8	540	165	55	0.00			TITUS	DESV	SEE NOTES
VAV-4B-14	HRU-2	B402 ROBOTICS	8	410	125	45	0.00			TITUS	DESV	SEE NOTES
VAV-4B-15	HRU-2	B402H RELATED CR	8	360	110	40	0.00			TITUS	DESV	SEE NOTES

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE 1" DOUBLE ENDED PERFORATED LINER FOR ALL VAV TERMINALS.
3. REFER TO FLOOR PLANS. VAV TERMINALS ARE PROVIDED WITH AND WITHOUT ELECTRIC RE-HEAT COILS.
4. CONFIRM LEFT OR RIGHT HAND CONTROL LOCATION IN THE FIELD.
5. PROVIDE INLET VELOCITY SENSOR.
6. CONTROLS AND CONTROLLER TO BE PROVIDED BY ATO CONTRACTOR.
7. SCHEDULE TOTAL PRESSURE DROP ACROSS PRIMARY AIR VALVE IS APPLICABLE AT MAXIMUM AIRFLOW SETPOINT.
8. PROVIDE 1" LINER FOR 20'-0" DOWNSTREAM OF ALL VAV BOXES.
9. PROVIDE SOUND ATTENUATOR.

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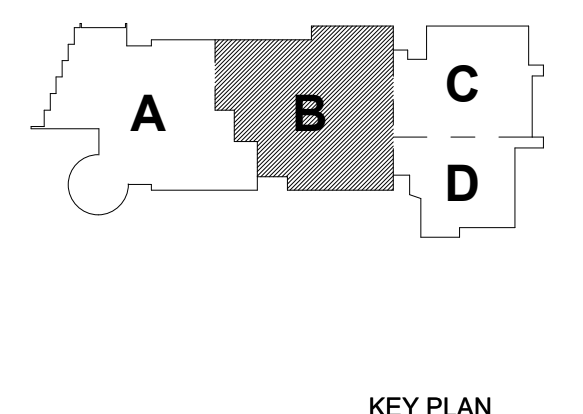
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Submittal
May 12th, 2023



MECHANICAL DUCTWORK FOURTH FLOOR PLAN - AREA B

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

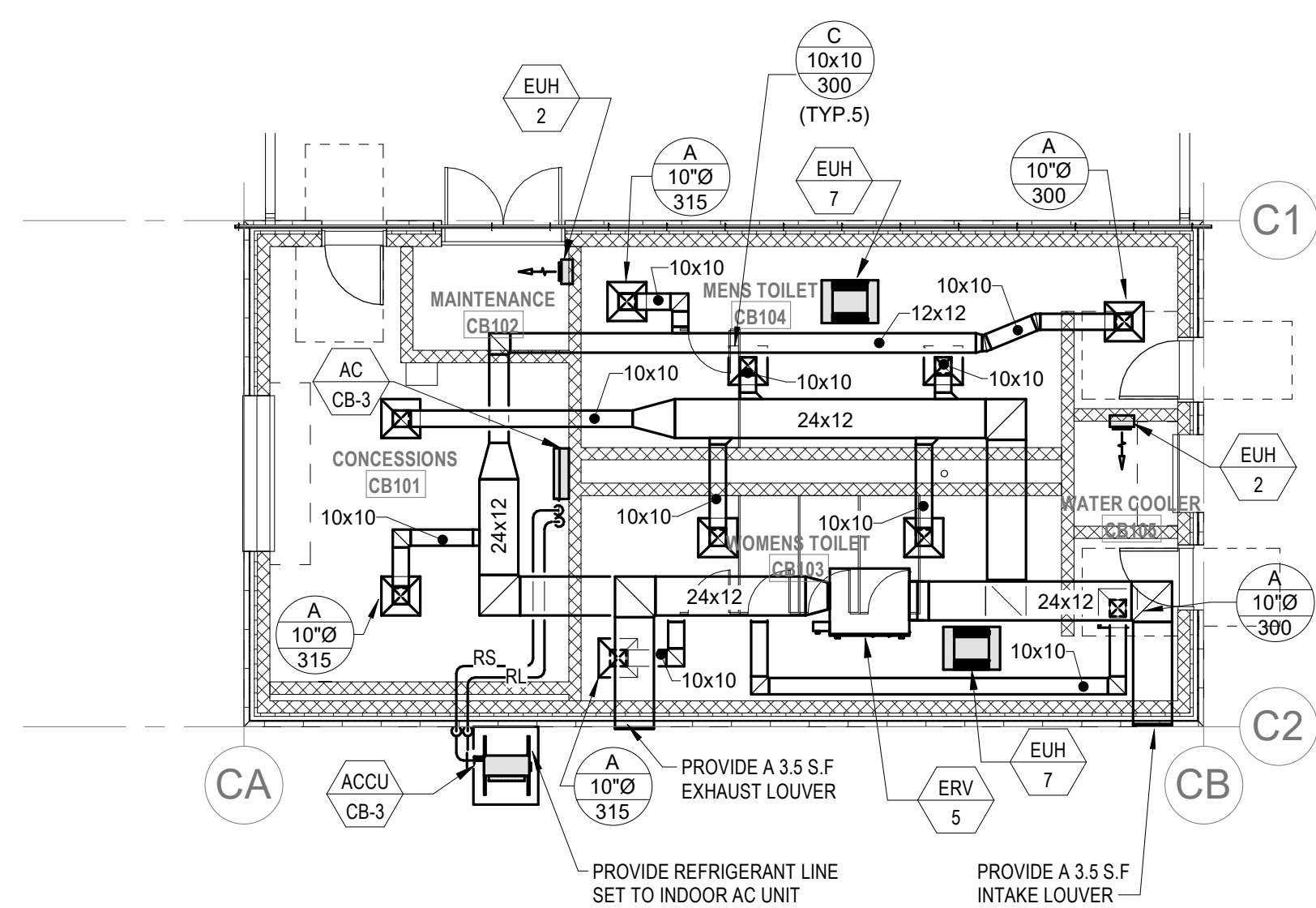
M1-1-4B



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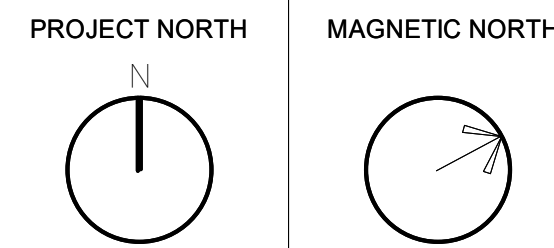


① MECHANICAL Concessions Building (ADD ALTERNATE)
1/8" = 1'-0"

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May 12th, 2023



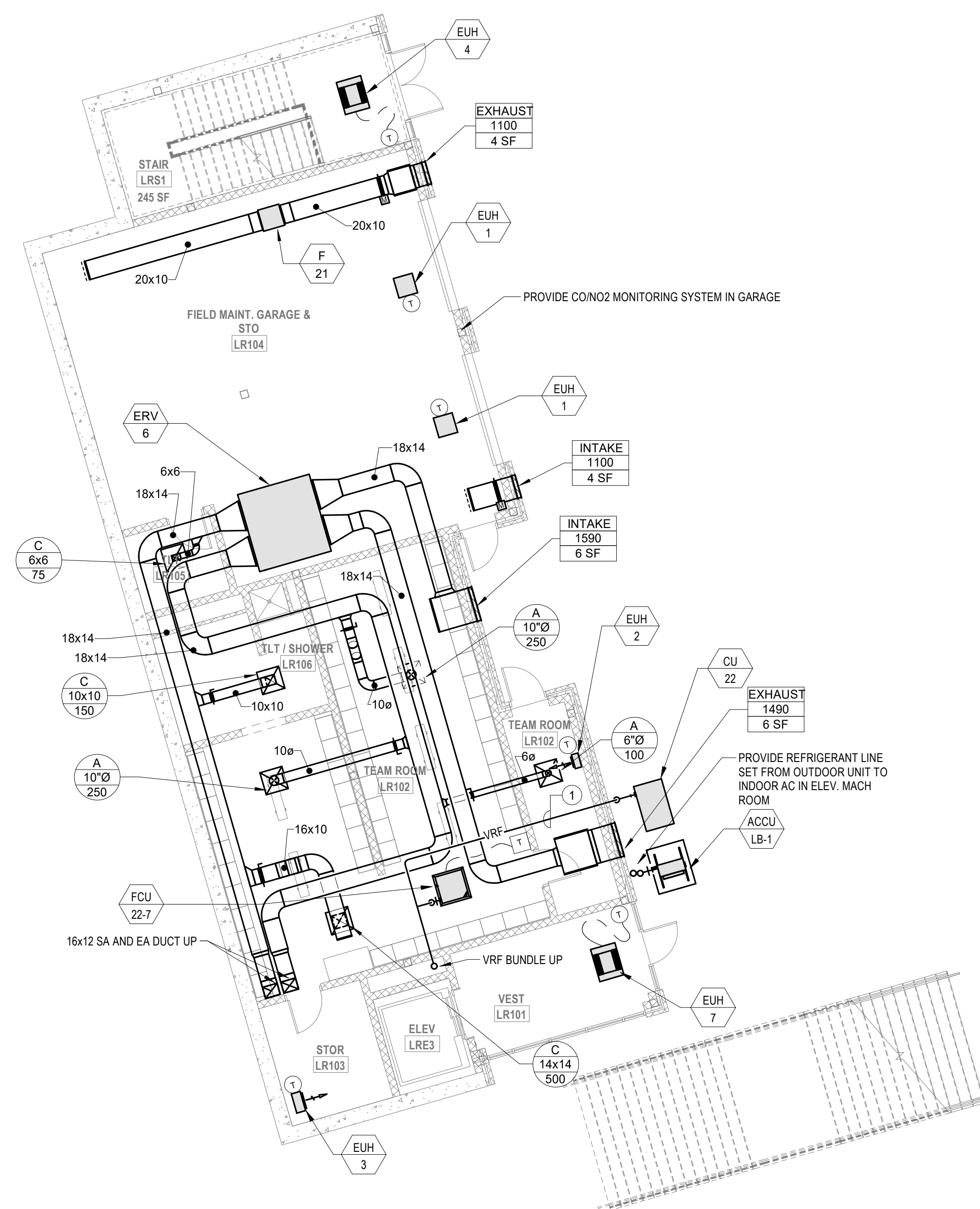
MECHANICAL
CONCESSION
BUILDING PLAN

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

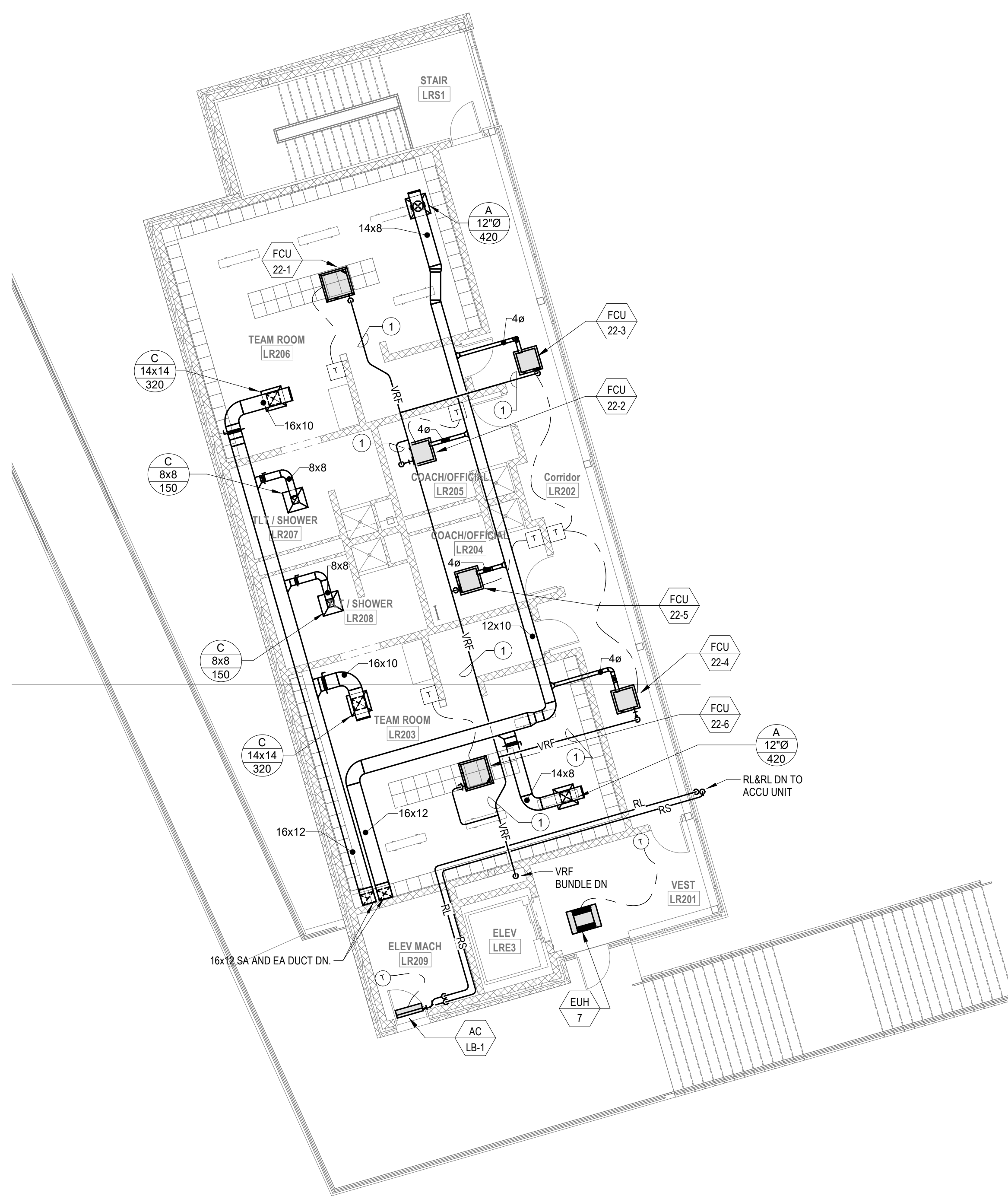
M1-1-CB

HVAC DRAWING NOTES

1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.



1 MECHANICAL Locker Building First Floor (ADD ALTERNATE)
M1-1-LB
1/8" = 1'-0"



2 MECHANICAL Locker Building Second Level (ADD ALTERNATE)
M1-1-LB
1/8" = 1'-0"

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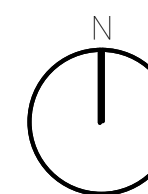
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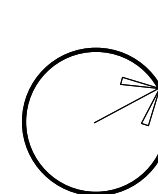
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PROJECT NORTH



MAGNETIC NORTH



MECHANICAL LOCKER BUILDING PLAN

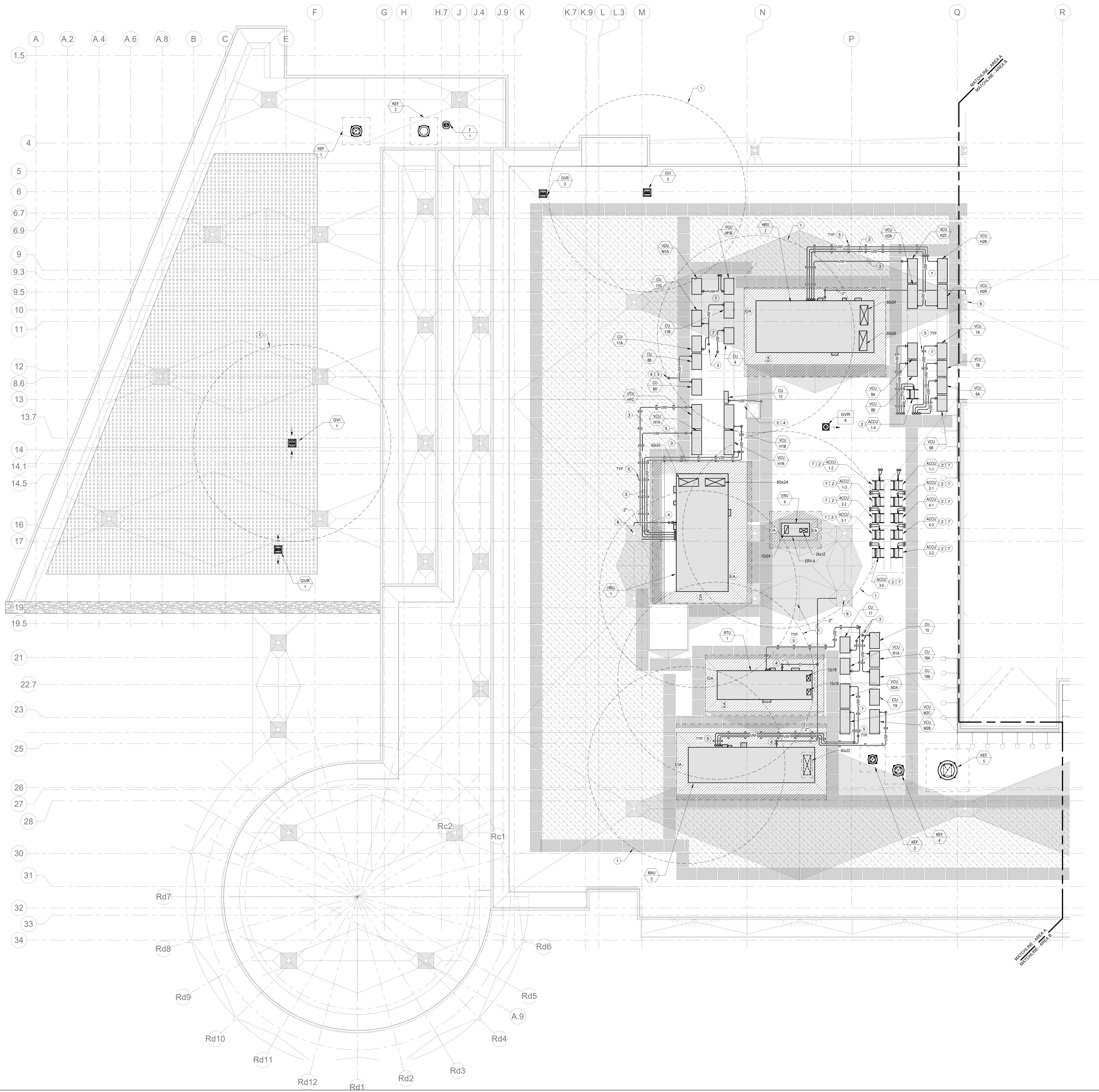
Scale: 1/8" = 1'-0"

Job No.: 60-20-409

Drawn By: KJL

Date: May 12th, 2023

M1-1-LB



HVAC DRAWING NOTES

- 25'-0" FRESH AIR INTAKE CLEARANCE FROM ALL HAZARDOUS/ODOROUS CONTAMINATES SHALL BE MAINTAINED. DIV. 23 CONTRACTOR SHALL VERIFY BASED UPON EQUIPMENT INSTALLATION.
- PROVIDE REFRIGERANT LINE SET FROM ACCU TO INDOOR AC UNIT COORDINATE LENGTH OF PIPING RUN WITH MANUFACTURER FOR SIZING. REFER TO PIPE ROOF PENETRATION DETAIL #11 ON DWG M4-1.
- VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M4 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
- REFER TO DETAIL #14 ON DRAWING M4-1 FOR CONDENSATE TRAP DETAIL.
- PROVIDE ROOF MOUNTED SUPPORT AS PER DETAIL #13 ON DRAWING M4-2.
- CONDENSATE DRAIN TO NEAREST ROOF DRAIN. FIELD PAINT PIPING ORANGE TO ALERT FOR TRIP HAZARD. PROVIDE PIPE SUPPORT EVERY 4 FEET.
- PIPING SHOWN DIAGRAMATICALLY. PIPING SHALL BE ROUTED TIGHT TO DRAINAGE TO ALLOW ACCESS TO EACH CONDENSING UNIT.

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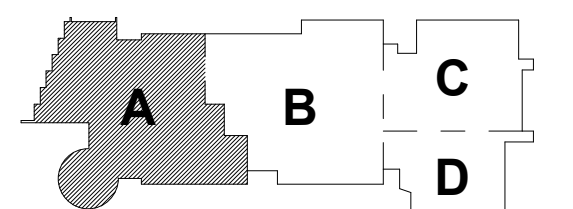
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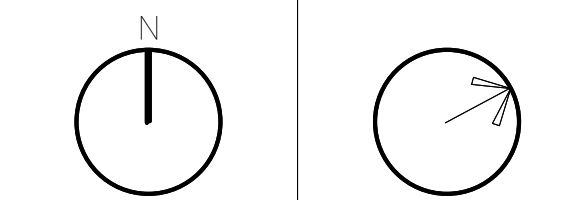
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KEY PLAN

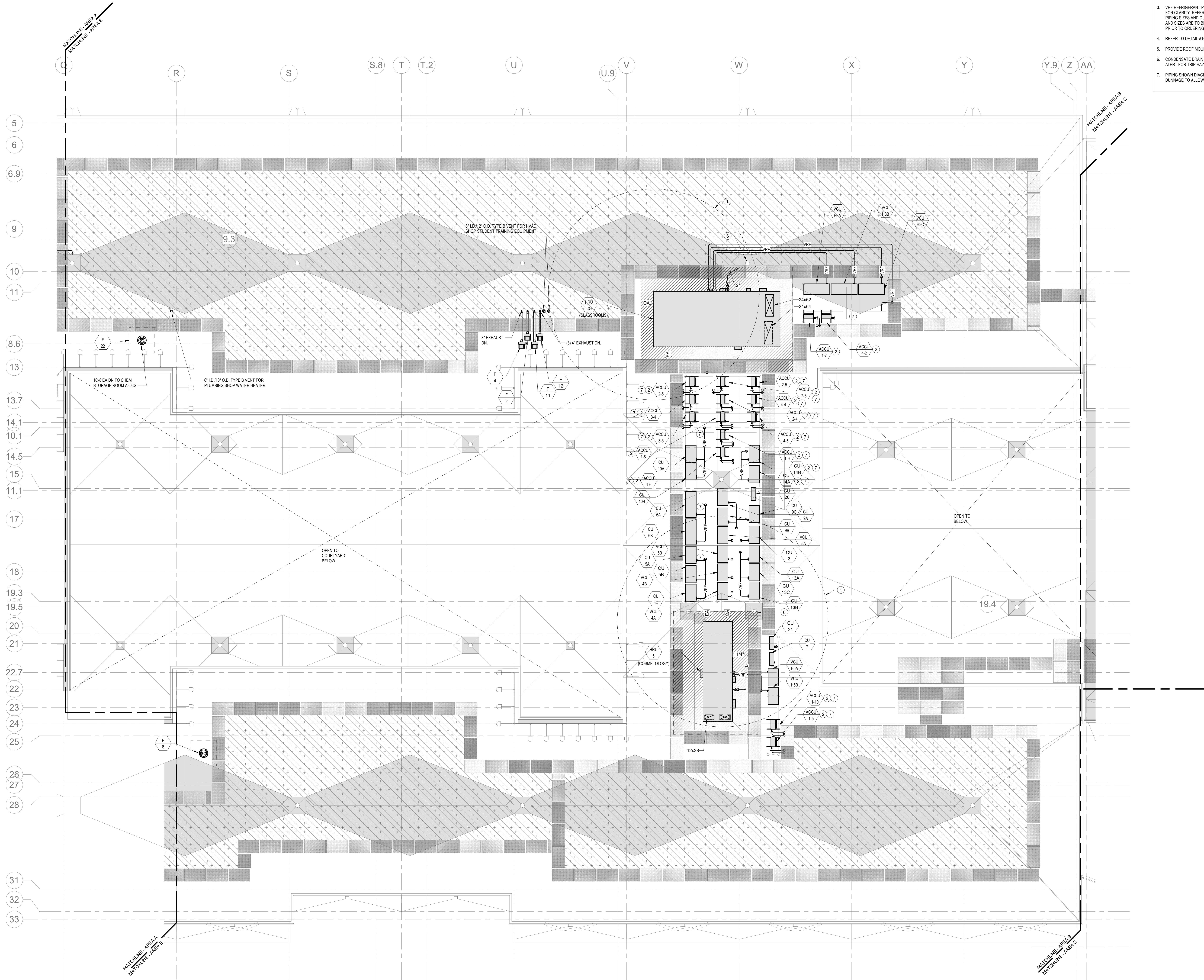
PROJECT NORTH MAGNETIC NORTH



**MECHANICAL
ROOF PLAN -
AREA A**

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

M1-2-1A



HVAC DRAWING NOTES

- 25'-0" FRESH AIR INTAKE CLEARANCE FROM ALL HAZARDOUS/ODOROUS CONTAMINATES SHALL BE MAINTAINED. DIV. 23 CONTRACTOR SHALL VERIFY BASED UPON EQUIPMENT INSTALLATION.
- PROVIDE REFRIGERANT LINE SET FROM ACCU TO INDOOR AC UNIT COORDINATE LENGTH OF PIPING RUN WITH MANUFACTURER FOR SIZING. REFER TO PIPE ROOF PENETRATION DETAIL #11 ON DWG M4-0-1.
- VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M4 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
- REFER TO DETAIL #14 ON DRAWING M4-0-1 FOR CONDENSATE TRAP DETAIL.
- PROVIDE ROOF MOUNTED SUPPORT AS PER DETAIL #13 ON DRAWING M4-0-2.
- CONDENSATE DRAIN TO NEAREST ROOF DRAIN. FIELD PAINT PIPING ORANGE TO ALERT FOR TRIP HAZARD. PROVIDE PIPE SUPPORT EVERY 4 FEET.
- PIPING SHOWN DIAGRAMMATICALLY. PIPING SHALL BE ROUTED TIGHT TO DUNNAGE TO ALLOW ACCESS TO EACH CONDENSING UNIT.

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HVAC DRAWING NOTES

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- PROVIDE REFRIGERANT LINE SET FROM ACCU TO INDOOR AC UNIT. COORDINATE LENGTH OF PIPING RUN WITH MANUFACTURER FOR SIZING. REFER TO PIPE ROOF PENETRATION DETAIL #11 ON DWG M4-6-1.
- VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M4 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
- PIPING SHOWN DIAGRAMMATICALLY. PIPING SHALL BE ROUTED TIGHT TO DUNNAGE TO ALLOW ACCESS TO EACH CONDENSING UNIT.

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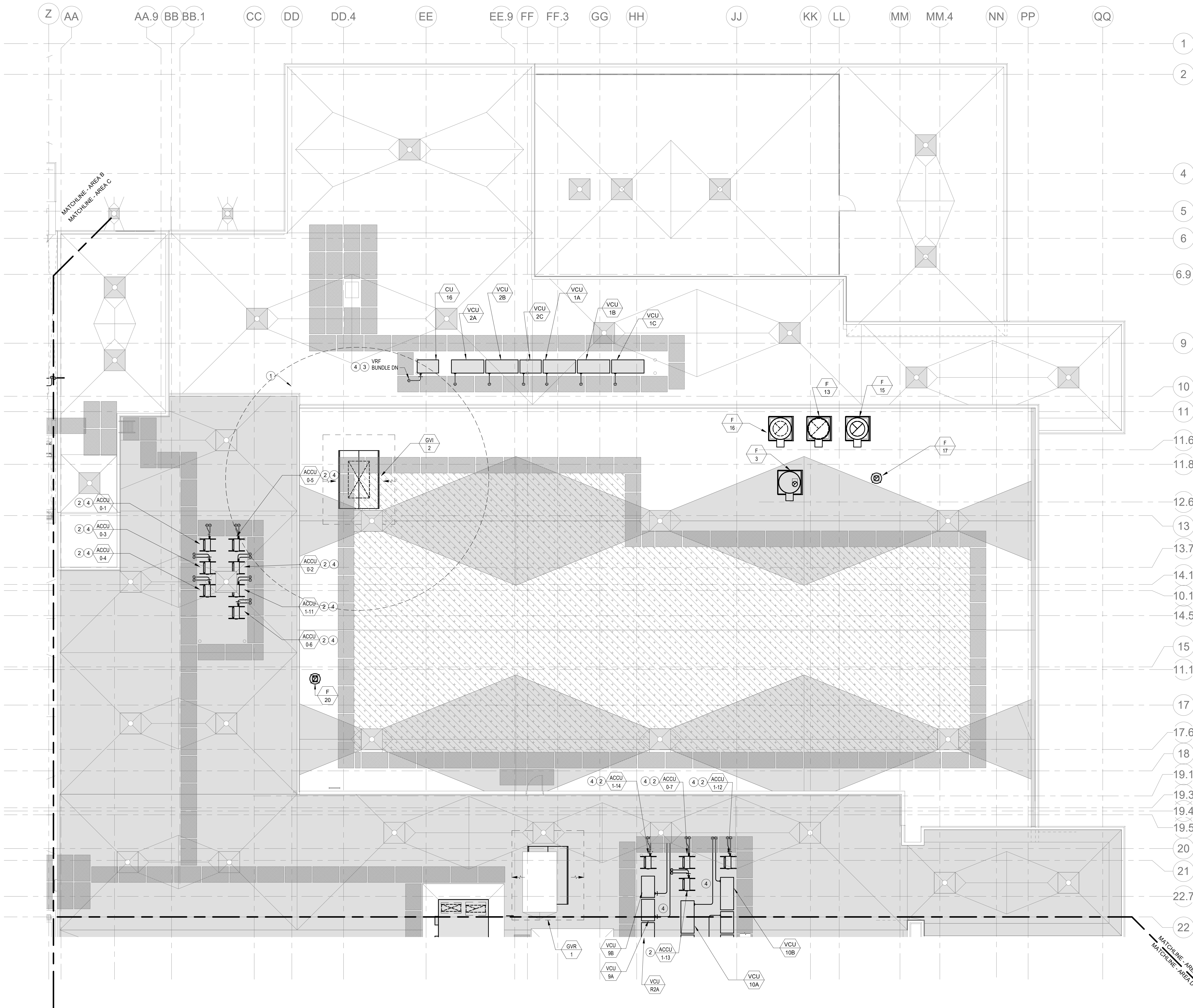
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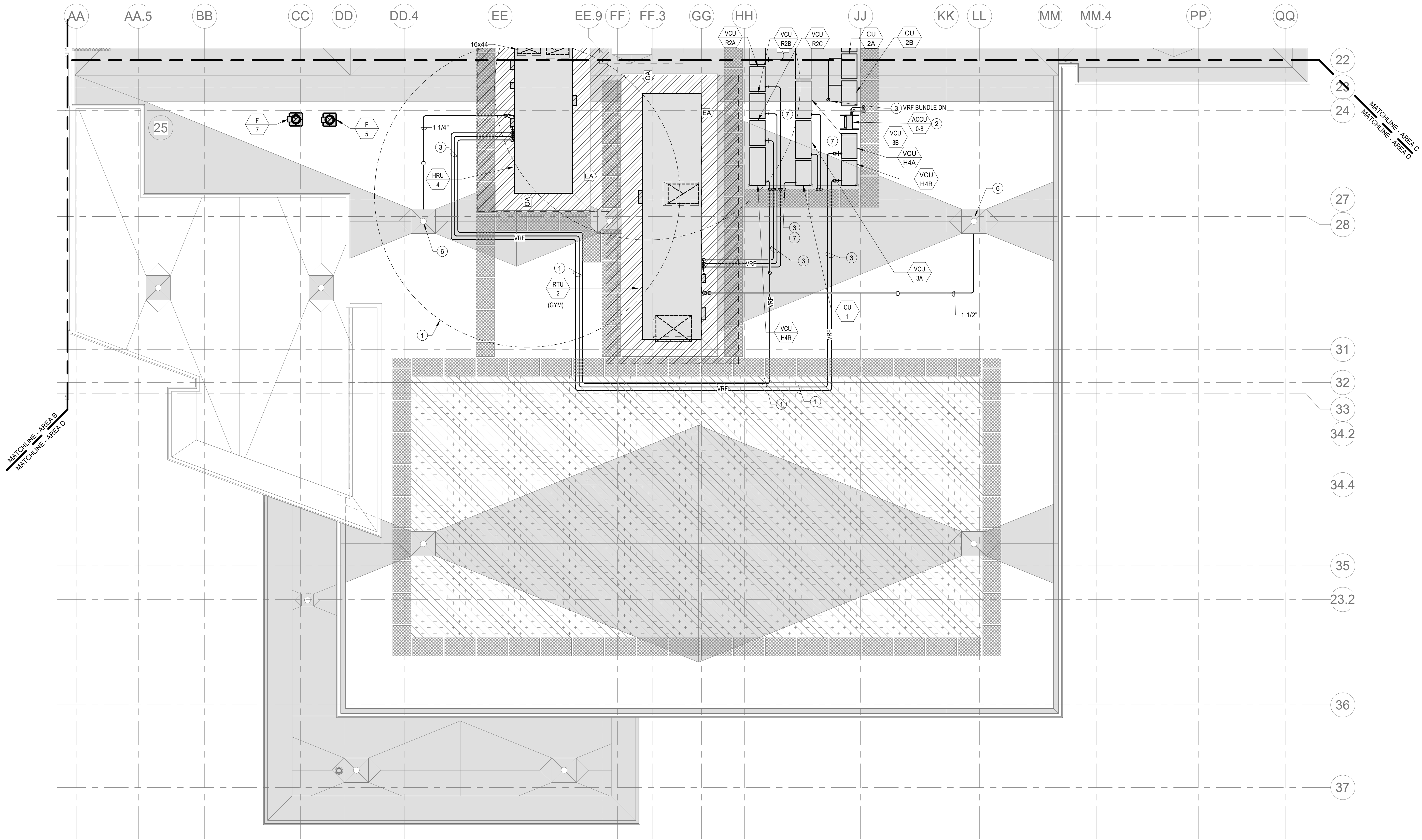
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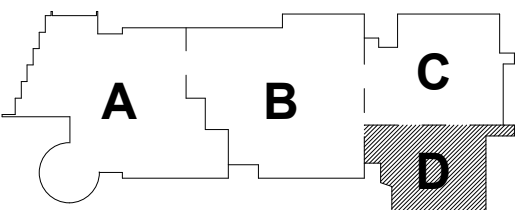
HVAC DRAWING NOTES

- 25'-0" FRESH AIR INTAKE CLEARANCE FROM ALL HAZARDOUS/ODOROUS CONTAMINATES SHALL BE MAINTAINED. DIV. 23 CONTRACTOR SHALL VERIFY BASED UPON EQUIPMENT INSTALLATION.
- PROVIDE REFRIGERANT LINE SET FROM ACU TO INDOOR AC UNIT. COORDINATE LENGTH OF PIPING RUN WITH MANUFACTURER FOR SIZING. REFER TO PIPE ROOF PENETRATION DETAIL #11 ON DWG M4-0-1.
- VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M4 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
- REFER TO DETAIL #14 ON DRAWING M4-0-1 FOR CONDENSATE TRAP DETAIL.
- PROVIDE ROOF MOUNTED SUPPORT AS PER DETAIL #13 ON DRAWING M4-0-2.
- CONDENSATE DRAIN TO NEAREST ROOF DRAIN. FIELD PAINT PIPING ORANGE TO ALERT FOR TRIP HAZARD. PROVIDE PIPE SUPPORT EVERY 4 FEET.
- PIPING SHOWN DIAGRAMMATICALLY. PIPING SHALL BE ROUTED TIGHT TO DUNNAGE TO ALLOW ACCESS TO EACH CONDENSING UNIT.

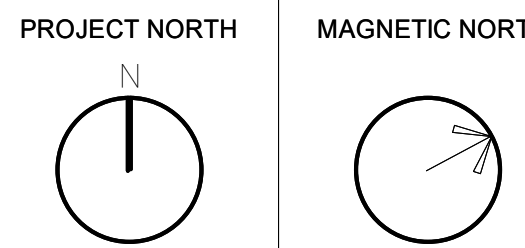


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May 12th, 2023



KEY PLAN



MECHANICAL
ROOF PLAN -
AREA D

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

M1-2-1D

1. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

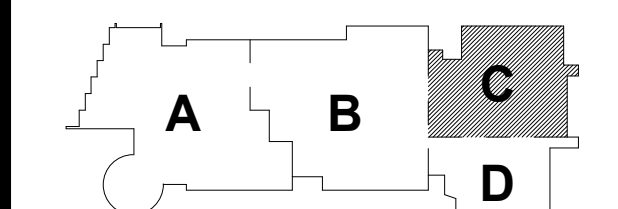
1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC FOR CLARITY. REFER TO THE AC SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
2. PROVIDE REFRIGERANT LINE SET FROM EACH AC UNIT TO ASSOCIATED CONDENSING UNIT ON ROOF. INTEGRAL CONDENSATE PUMP, AND CONDENSATE DRAIN PIPING TO NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR IS ON P. 22
3. PROVIDE 1" CONDENSATE DRAIN FROM DEHUMIDIFIER TO NEAREST CONDENSATE RECEPTOR

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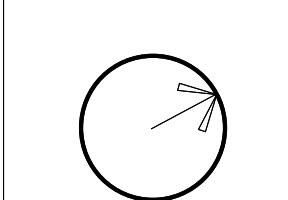
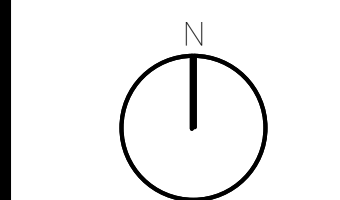
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KEY PLAN

PROJECT NORTH

MAGNETIC NORTH



**MECHANICAL
PIPING LOWER
LEVEL FLOOR
PLAN - AREA C**

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

M1-3-0C

1. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

- ## HVAC DRAWING NOTES

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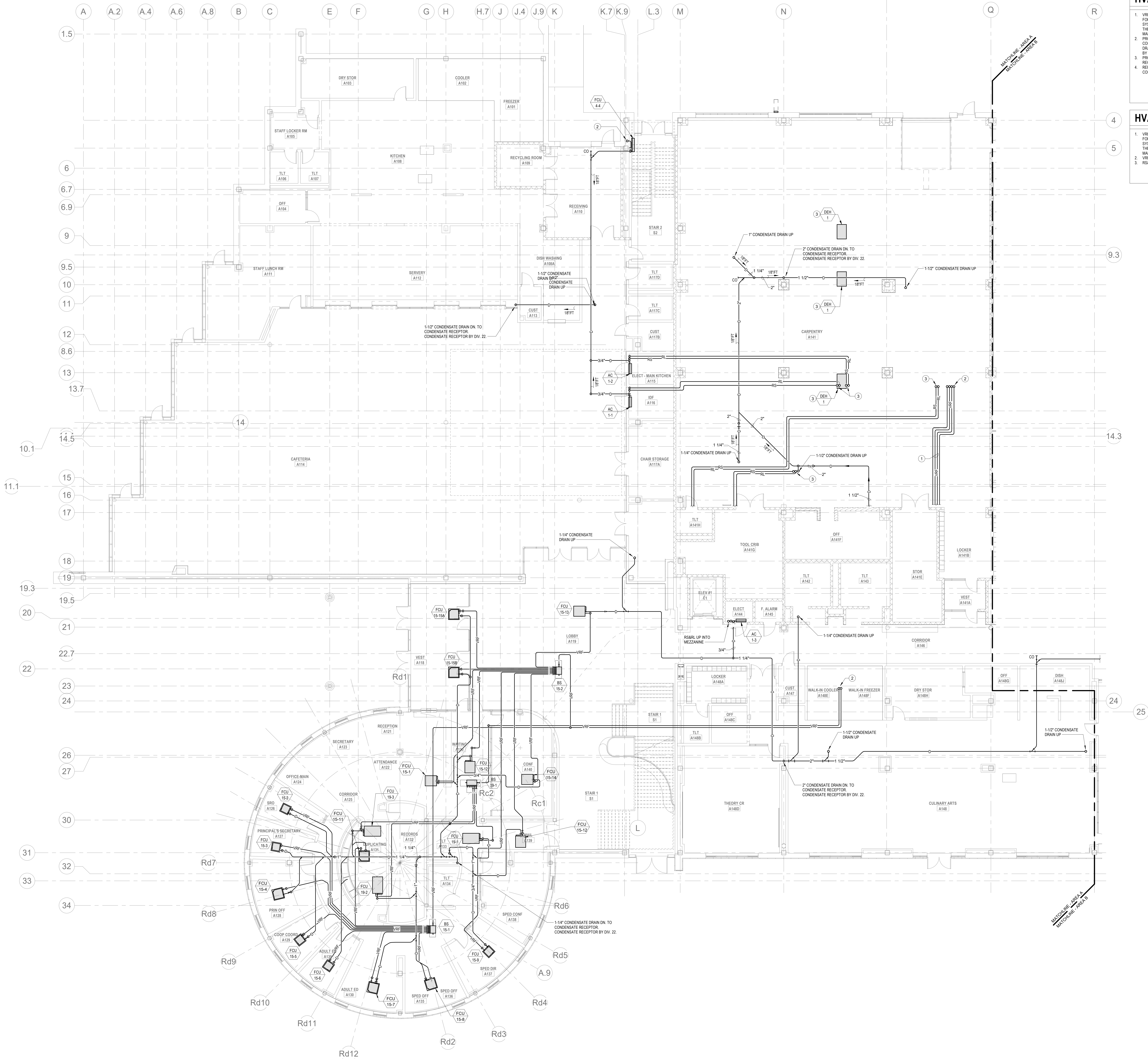
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M1-3-0D



HVAC GENERAL NOTES

1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
2. PROVIDE REFRIGERANT LINE SET FROM EACH AC UNIT TO ASSOCIATED CONDENSING UNIT ON ROOF. INTEGRAL CONDENSATE PUMP AND CONDENSATE DRAIN PIPING TO NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR BY DIV. 22.
3. PROVIDE 1" CONDENSATE DRAIN FROM DEHUMIDIFIER TO NEAREST CONDENSATE RECEPTOR.
4. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

HVAC DRAWING NOTES

1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
2. VRF PIPING BUNDLES ON ROOF.
3. RSARL UP TO ACU ON ROOF.

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KEY PLAN

PROJECT NORTH

MAGNETIC NORTH

MECHANICAL
PIPING FIRST
FLOOR PLAN -
AREA A

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

M1-3-1A

HVAC GENERAL NOTES

1. PROVIDE REFRIGERANT LINE SET FROM EACH AC UNIT TO ASSOCIATED CONDENSING UNIT ON ROOF. INTEGRAL CONDENSATE PUMP AND CONDENSATE DRAIN PIPING TO NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR BY DIV. 22.
2. PROVIDE 1" CONDENSATE DRAIN FROM DEHUMIDIFIER TO NEAREST CONDENSATE RECEPTOR.
3. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

HVAC DRAWING NOTES

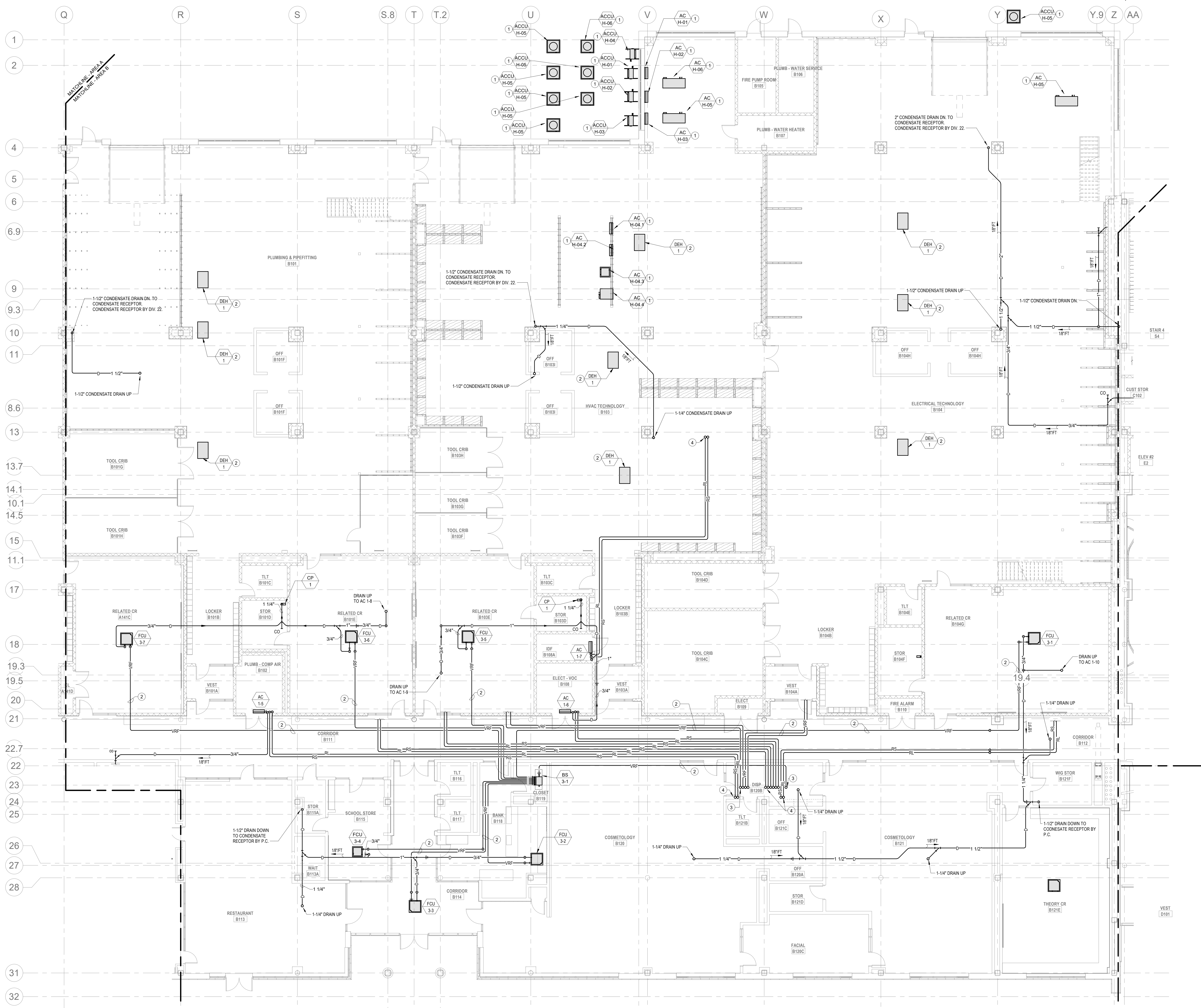
1. PIPING FOR STUDENT TRAINING EQUIPMENT SHALL NOT BE INSTALLED UNDER THIS CONTRACT.
2. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
3. VRF PIPING BUNDLES UP.
4. RSRL UP TO ACCU ON ROOF.

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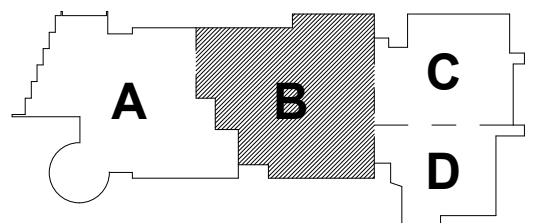
Wakefield, MA 01880



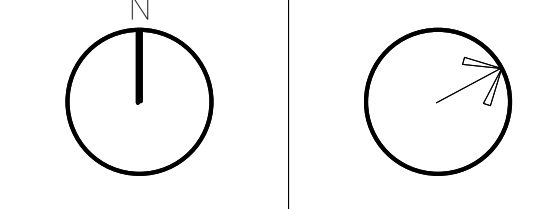
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PROJECT NORTH
MAGNETIC NORTH



MECHANICAL
PIPING FIRST
FLOOR PLAN -
AREA B

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023
M1-3-1B

1. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
2. PROVIDE REFRIGERANT LINE SET FROM EACH AC UNIT TO ASSOCIATED CONDENSING UNIT ON ROOF. INTEGRAL CONDENSATE PUMP, AND CONDENSATE DRAIN PIPING TO NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR BY DIV. 22
3. VRF BUNDLE UP TO VCU ON ROOF.

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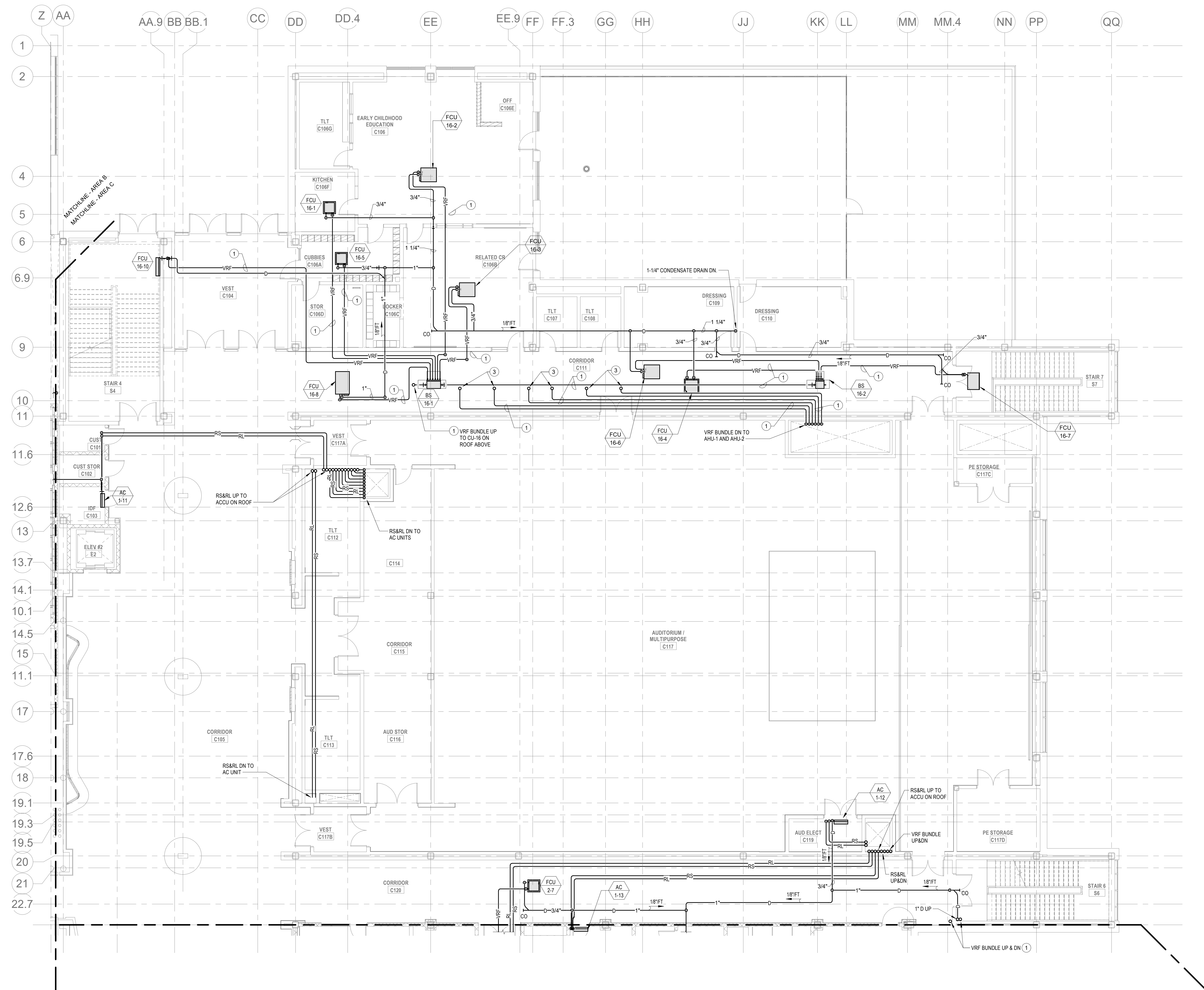
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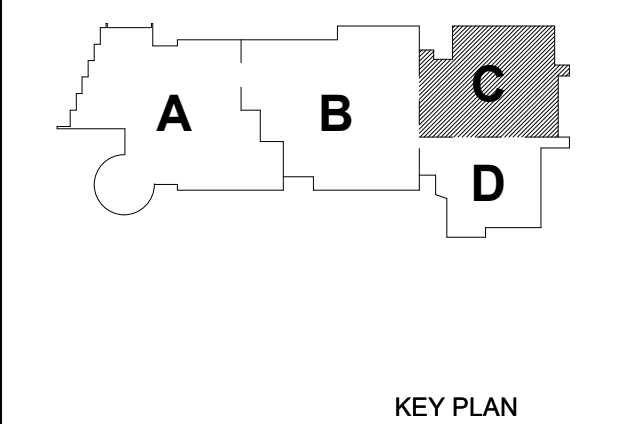
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**MECHANICAL
PIPING FIRST
FLOOR PLAN -
AREA C**

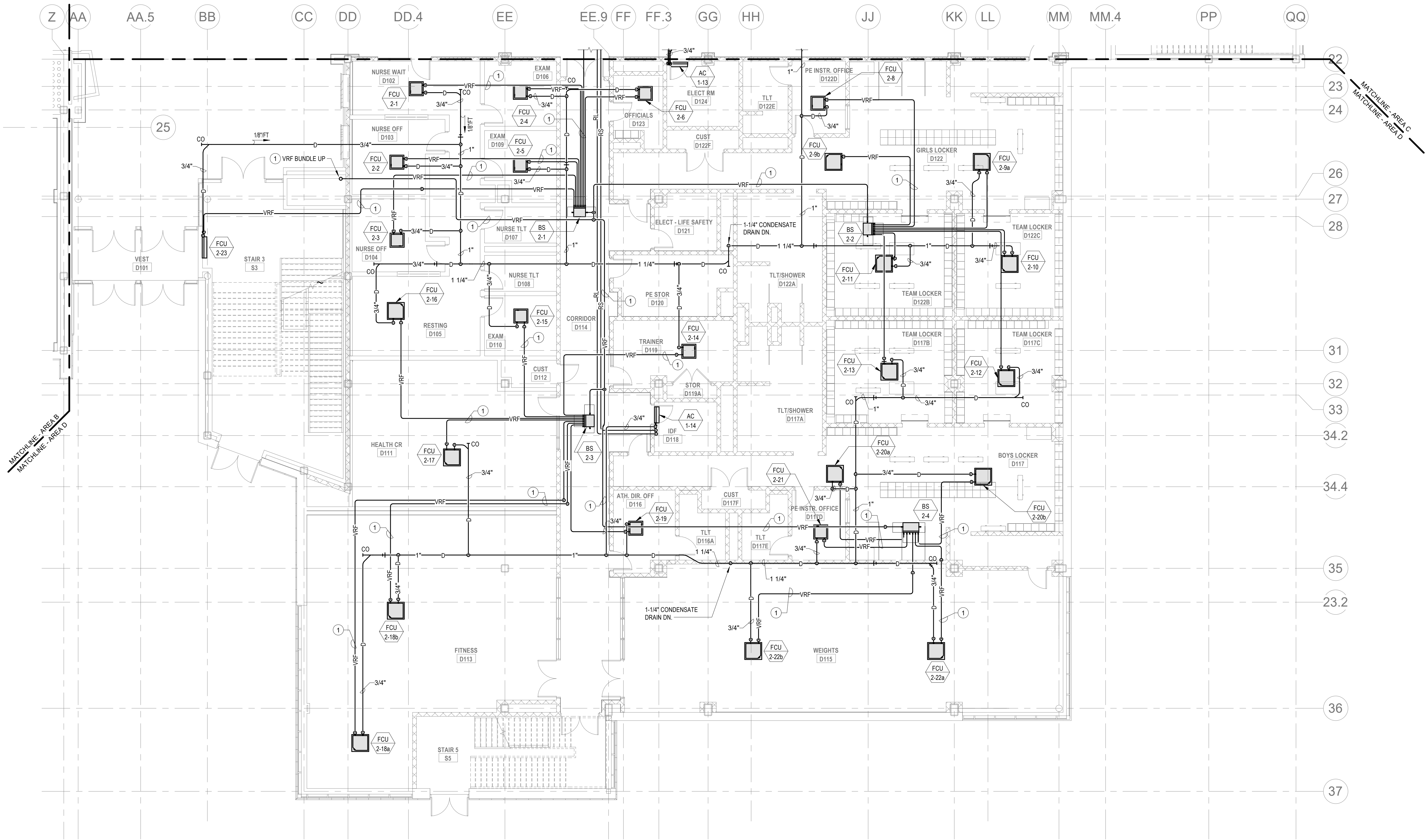
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Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

HVAC DRAWING NOTES

1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE ME SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
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HVAC GENERAL NOTES

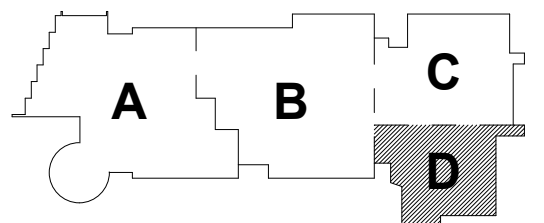
1. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.



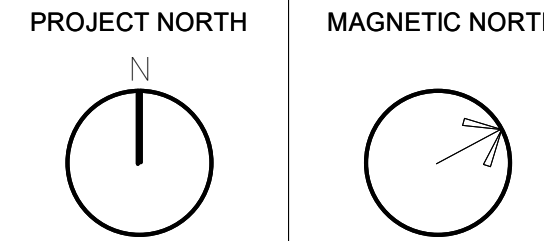
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KEY PLAN



MECHANICAL
PIPING FIRST
FLOOR PLAN -
AREA D

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

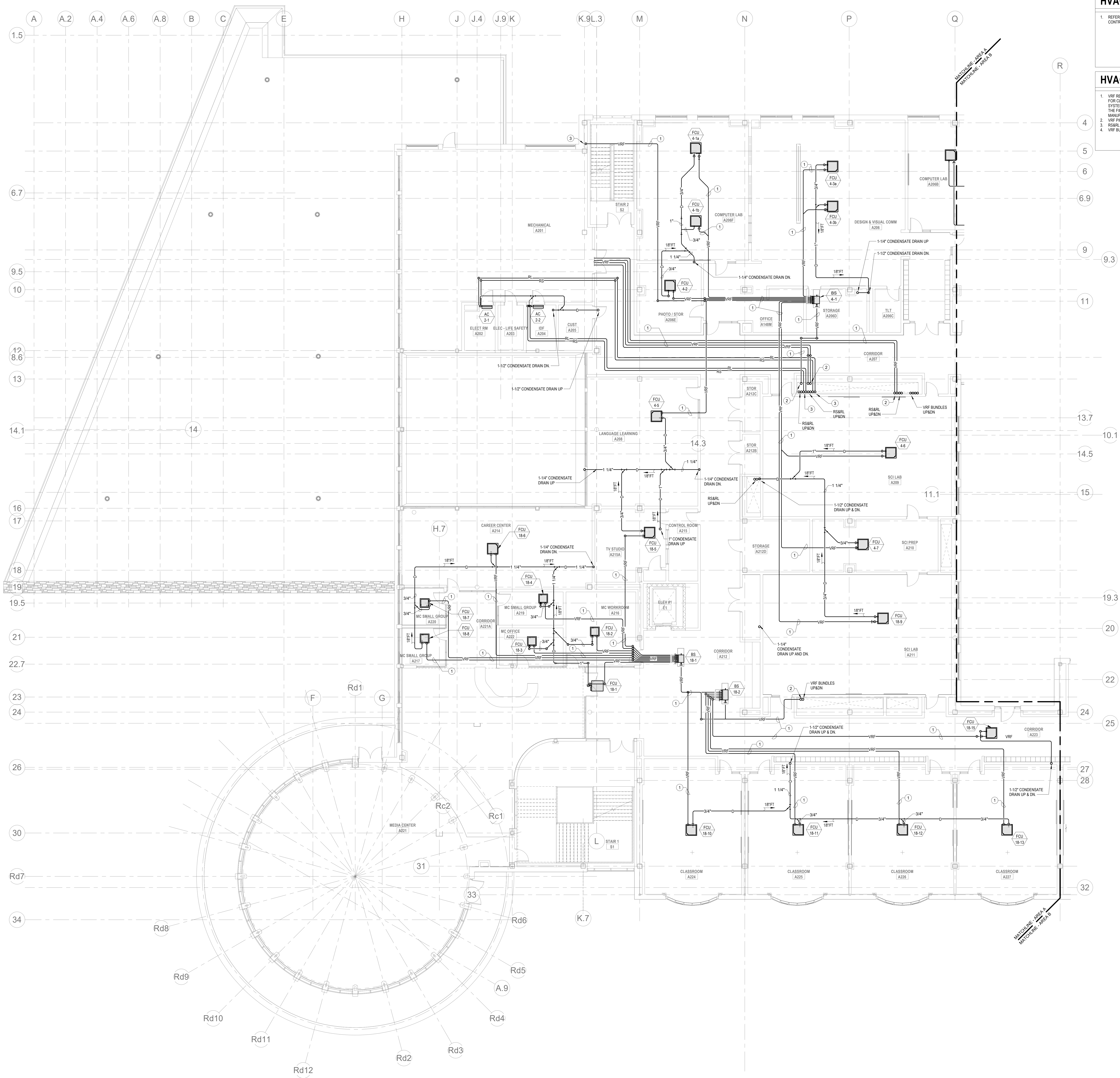
M1-3-1D

HVAC GENERAL NOTES

1. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

HVAC DRAWING NOTES

1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
2. VRF PIPING BUNDLES UP.
3. RSRL UP TO ACU ON ROOF.
4. VRF BUNDLE DOWN TO AC UNIT BELOW.



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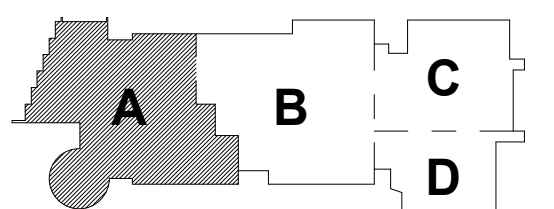
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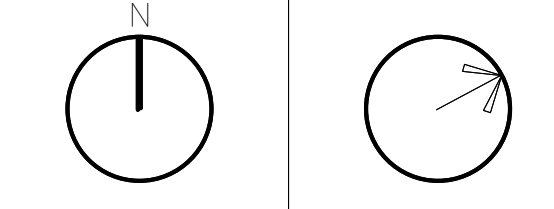
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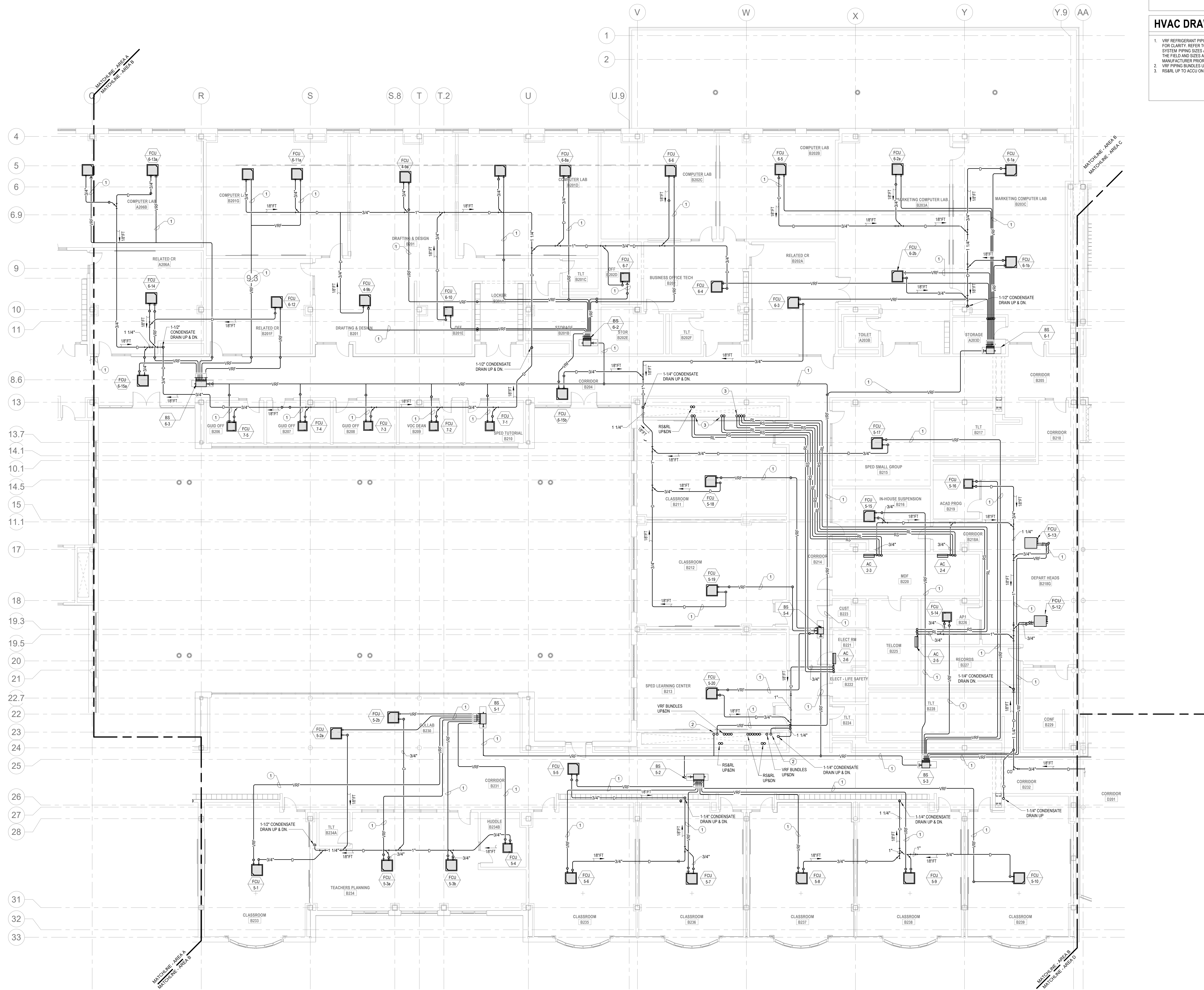
PROJECT NORTH MAGNETIC NORTH



**MECHANICAL
PIPING SECOND
FLOOR PLAN -
AREA A**

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023
M1-3-2A

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HVAC GENERAL NOTES

1. PROVIDE REFRIGERANT LINE SET FROM EACH AC UNIT TO ASSOCIATED CONDENSING UNIT ON ROOF. INTEGRAL CONDENSATE PUMP AND CONDENSATE DRAIN PIPING TO NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR BY DIV. 22
2. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

HVAC DRAWING NOTES

1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE MECHANICAL DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
2. VRF PIPING BUNDLES UP.
3. RSRL UP TO ACU ON ROOF.

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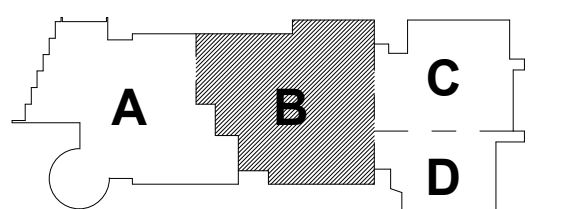
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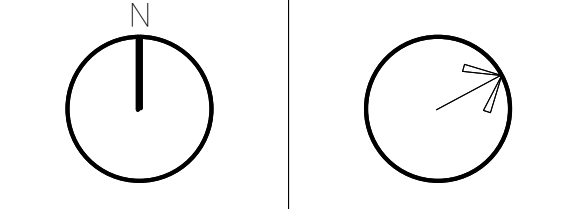
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KEY PLAN

PROJECT NORTH
MAGNETIC NORTH



MECHANICAL
PIPING SECOND
FLOOR PLAN -
AREA B

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023
M1-3-2B

1. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

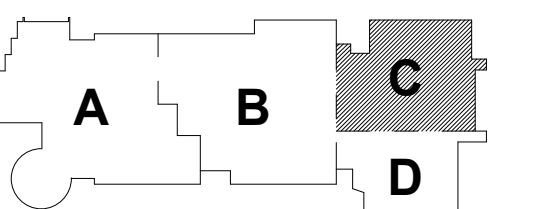
1. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

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2. PROVIDE REFRIGERANT LINE SET FROM AC UNIT TO ASSOCIATED CONDENSING UNIT ON ROOF, INTEGRAL CONDENSATE PUMP, AND CONDENSATE DRAIN PIPING TO NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR BY DIV. 22.

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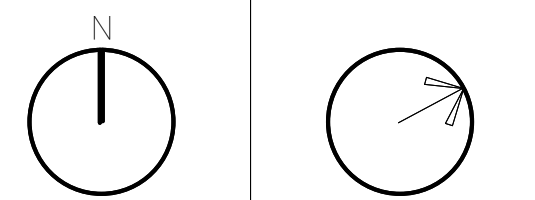
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KEY PLAN

PROJECT NORTH	MAGNETIC NORTH
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**MECHANICAL
PIPING SECOND
FLOOR PLAN -
AREA C**

1/8" = 1'-0"
 60-20-409
 M1-3-2C
 May 12th, 2023

M1-3-2C

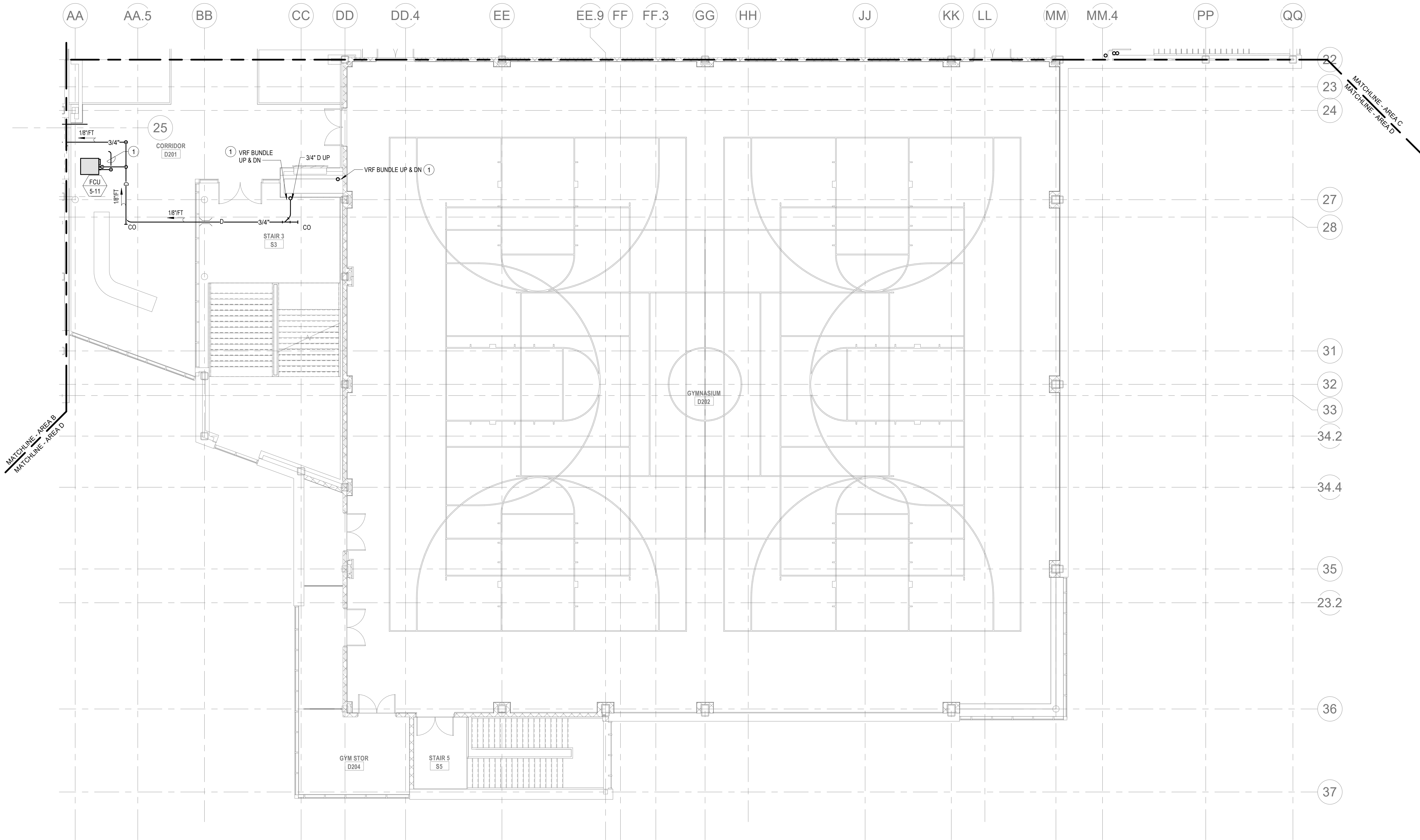
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HVAC GENERAL NOTES

1. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

HVAC DRAWING NOTES

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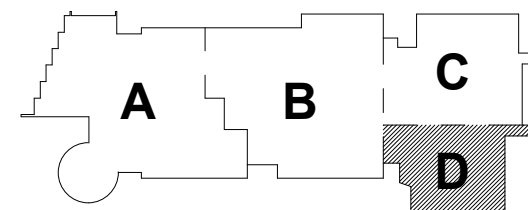
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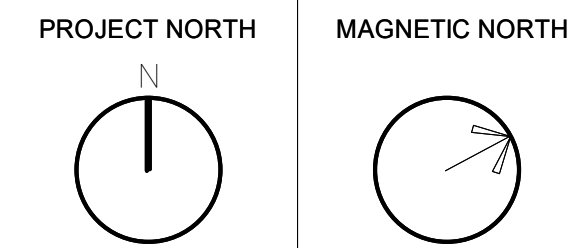
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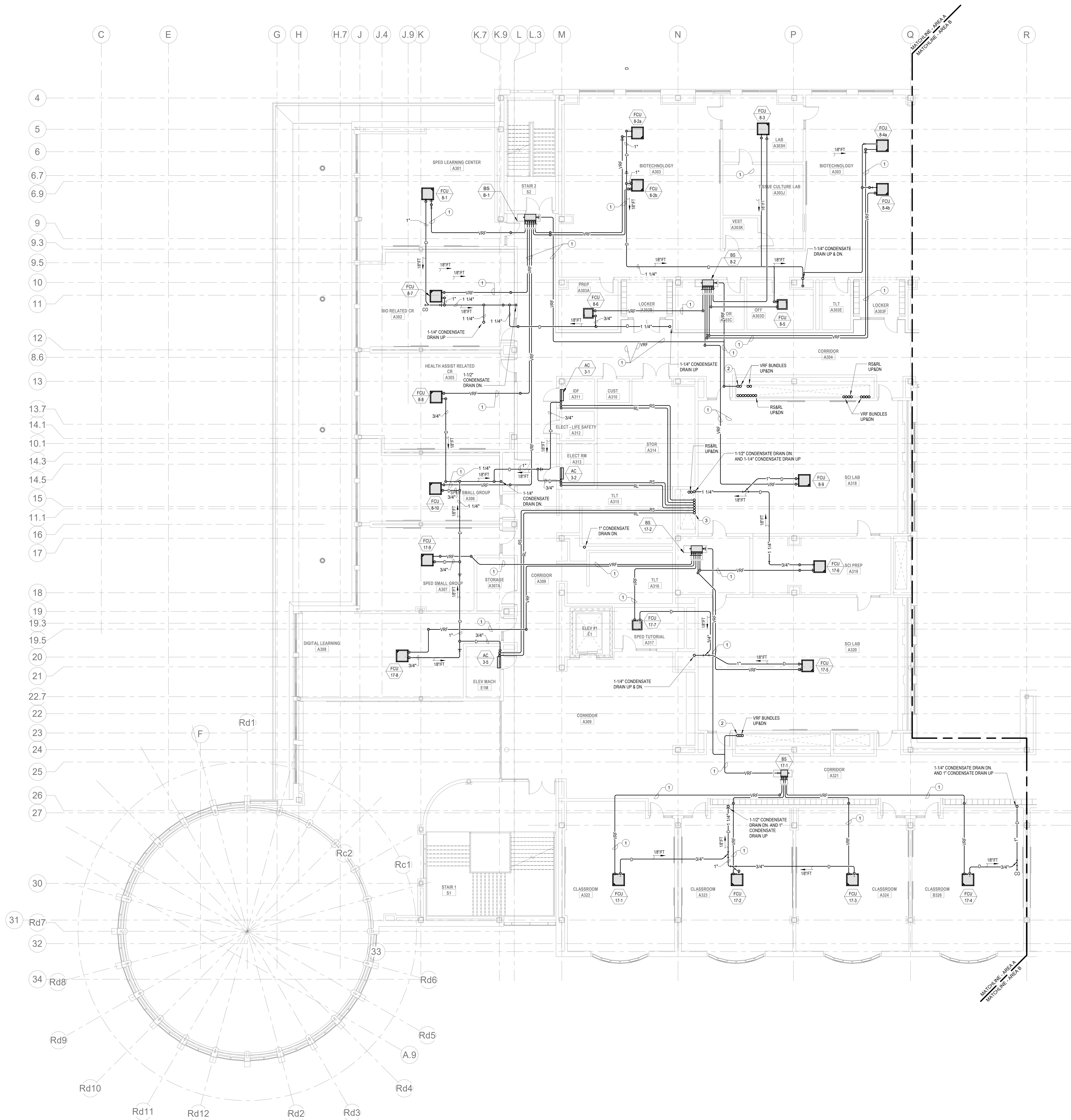
KEY PLAN



**MECHANICAL
PIPING SECOND
FLOOR PLAN -
AREA D**

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

M1-3-2D



HVAC GENERAL NOTES

1. PROVIDE REFRIGERANT LINE SET FROM EACH AC UNIT TO ASSOCIATED CONDENSING UNIT ON ROOF. INTEGRAL CONDENSATE PUMP AND CONDENSATE DRAIN PIPING TO NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR BY DIV. 22
2. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

HVAC DRAWING NOTES

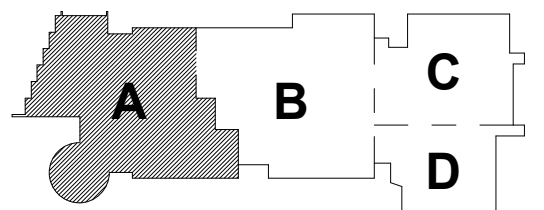
1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
2. VRF PIPING BUNDLES UP.
3. RSRL UP TO ACU ON ROOF.

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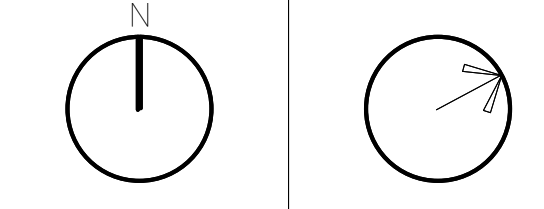
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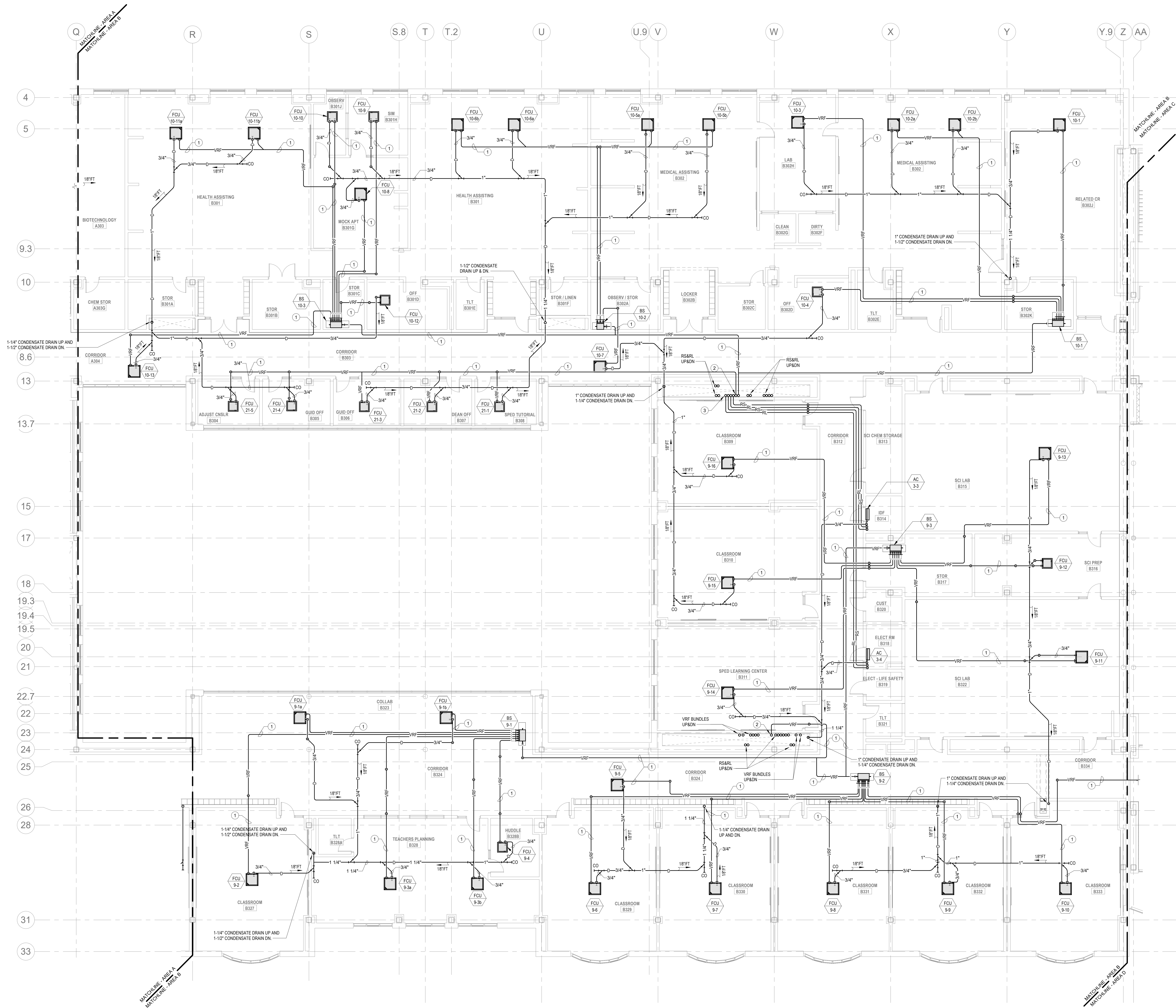
PROJECT NORTH MAGNETIC NORTH



MECHANICAL
PIPING THIRD
FLOOR PLAN -
AREA A

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

M1-3-3A



HVAC GENERAL NOTES

1. PROVIDE REFRIGERANT LINE SET FROM EACH AC UNIT TO ASSOCIATED CONDENSING UNIT ON ROOF. INTEGRAL CONDENSATE PUMP AND CONDENSATE DRAIN PIPING TO NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR BY DIV. 22
2. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

HVAC DRAWING NOTES

1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE ME SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
2. VRF PIPING BUNDLES UP.
3. RSRL UP TO ACU ON ROOF.

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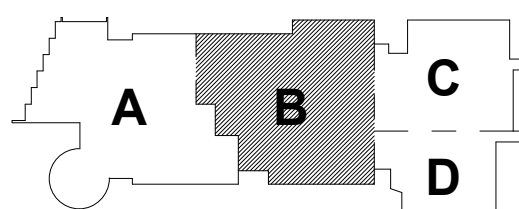
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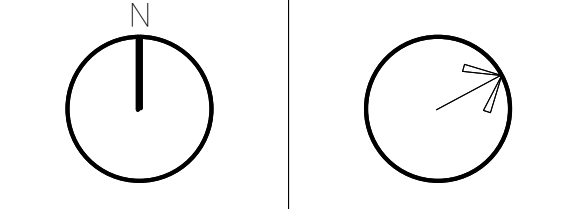
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KEY PLAN

PROJECT NORTH MAGNETIC NORTH



MECHANICAL
PIPING THIRD
FLOOR PLAN -
AREA B

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

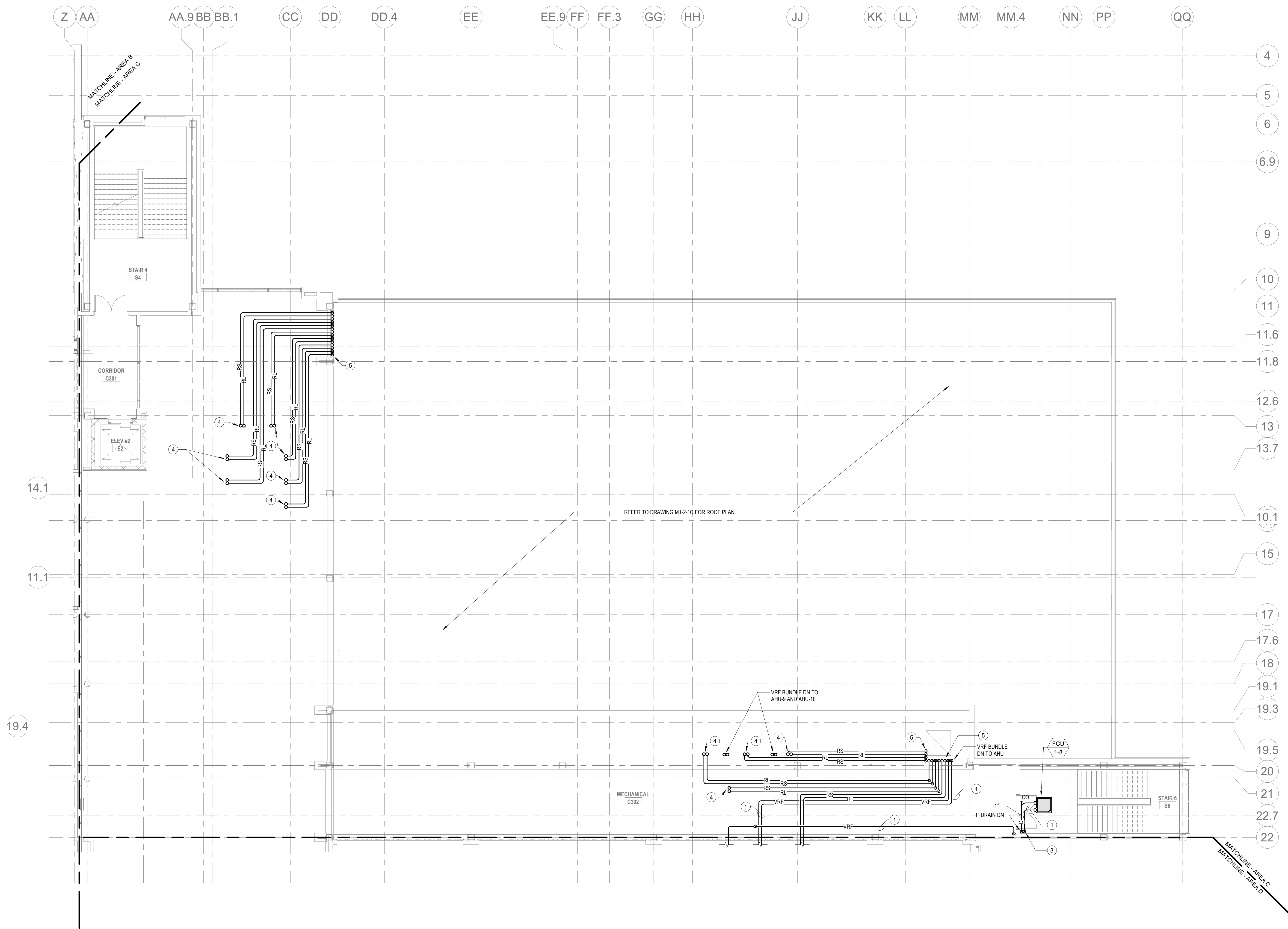
M13-3-B

HVAC GENERAL NOTES

1. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

HVAC DRAWING NOTES

1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
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3. VRF PIPING BUNDLES DN.
4. RS&RL UP TO AC CU ON ROOF.
5. RS&RL DN TO AC UNITS.



DRA

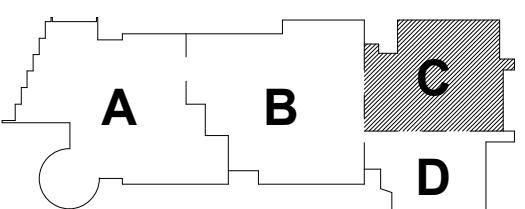
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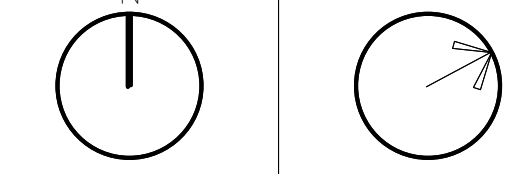
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KEY PLAN

PROJECT NORTH MAGNETIC NORTH



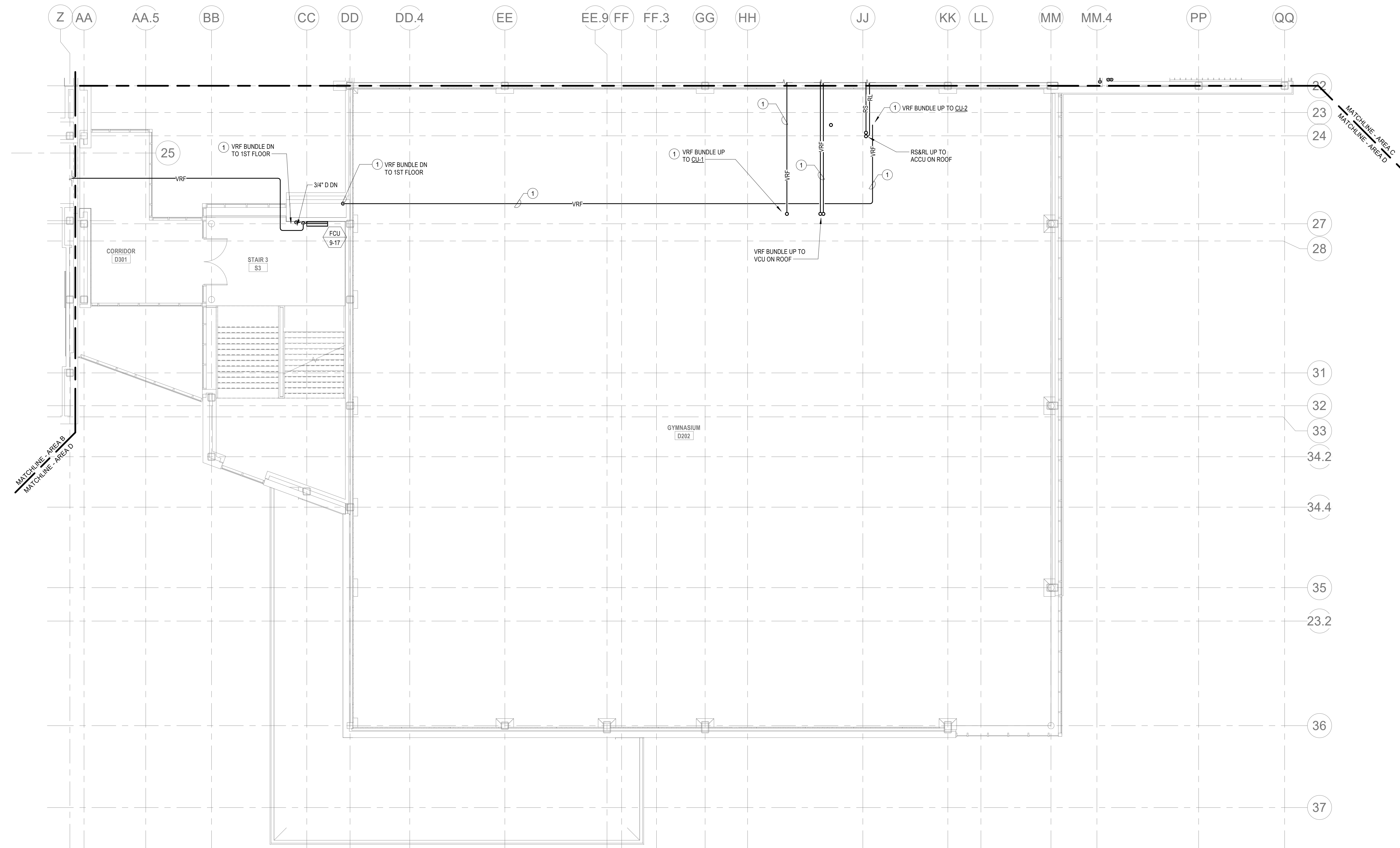
MECHANICAL
PIPING THIRD
FLOOR PLAN -
AREA C

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

M1-3-3C

1. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

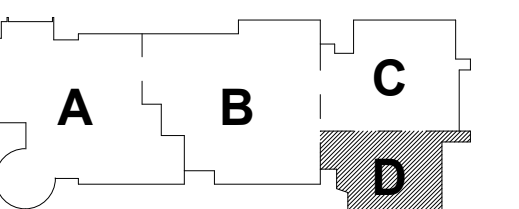
1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND ANTI-TWIST. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
2. PROVIDE REFRIGERANT LINE SET FROM AC UNIT TO ASSOCIATED CONDENSING UNIT ON ROOF, INTEGRAL CONDENSATE PUMP, AND CONDENSATE DRAIN PIPING TO NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR BY DIV. 22.



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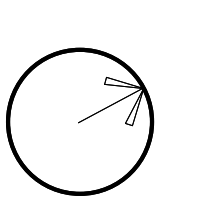
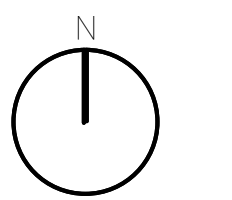
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PLAN

PROJECT NORTH

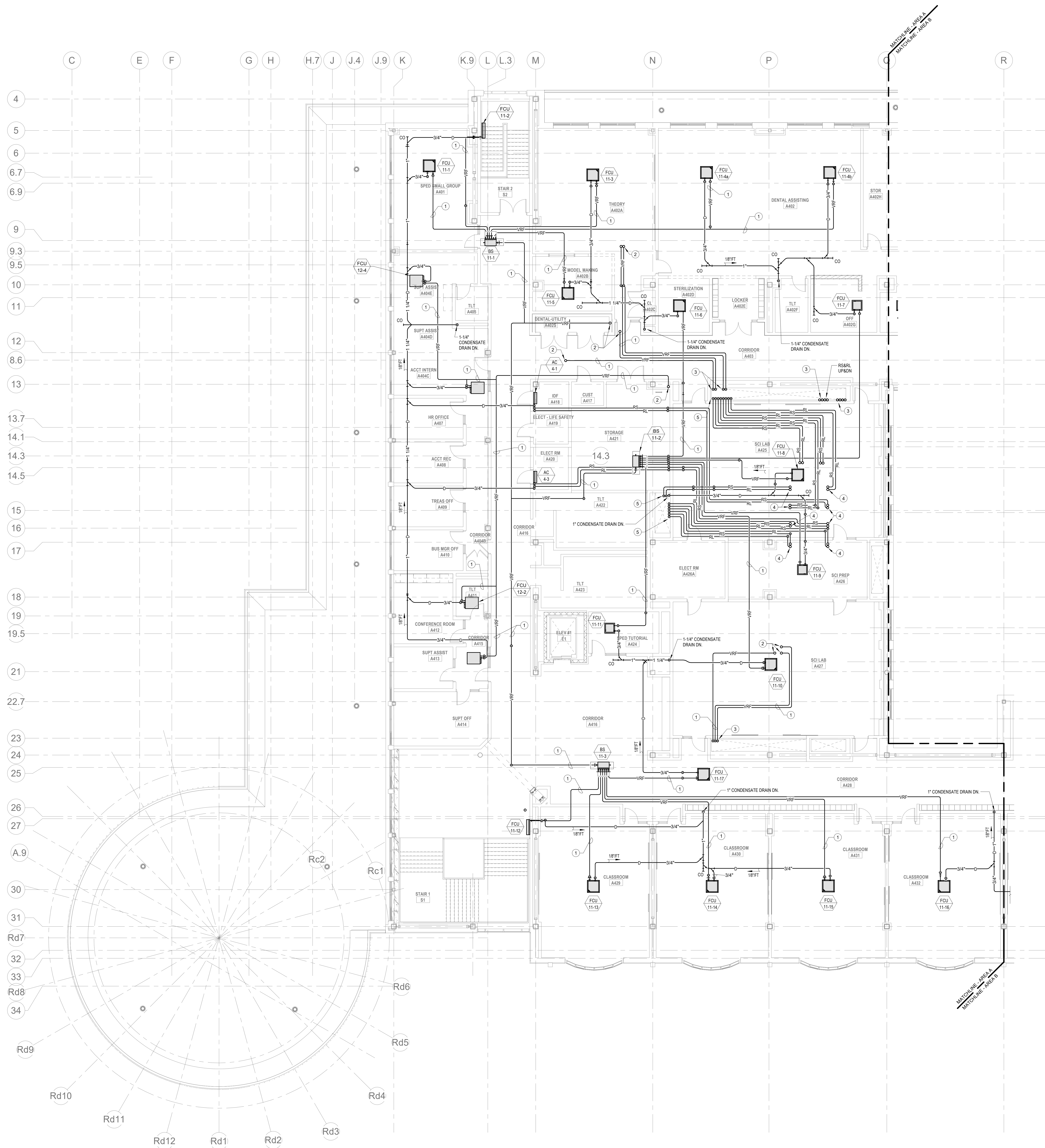
MAGNETIC NORTH



**MECHANICAL
PIPING THIRD
FLOOR PLAN -
AREA D**

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

11-3-3D



HVAC GENERAL NOTES

1. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

HVAC DRAWING NOTES

1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
2. VRF PIPING BUNDLES UP.
3. VRF PIPING BUNDLES DN.
4. RS&RL UP TO ACQU ON ROOF.
5. RS&RL DN TO AC UNITS.

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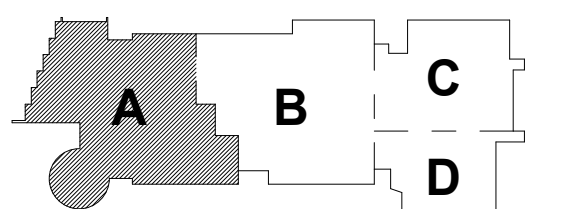
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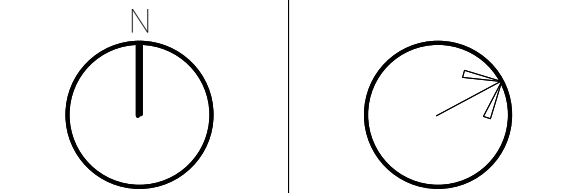
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KEY PLAN

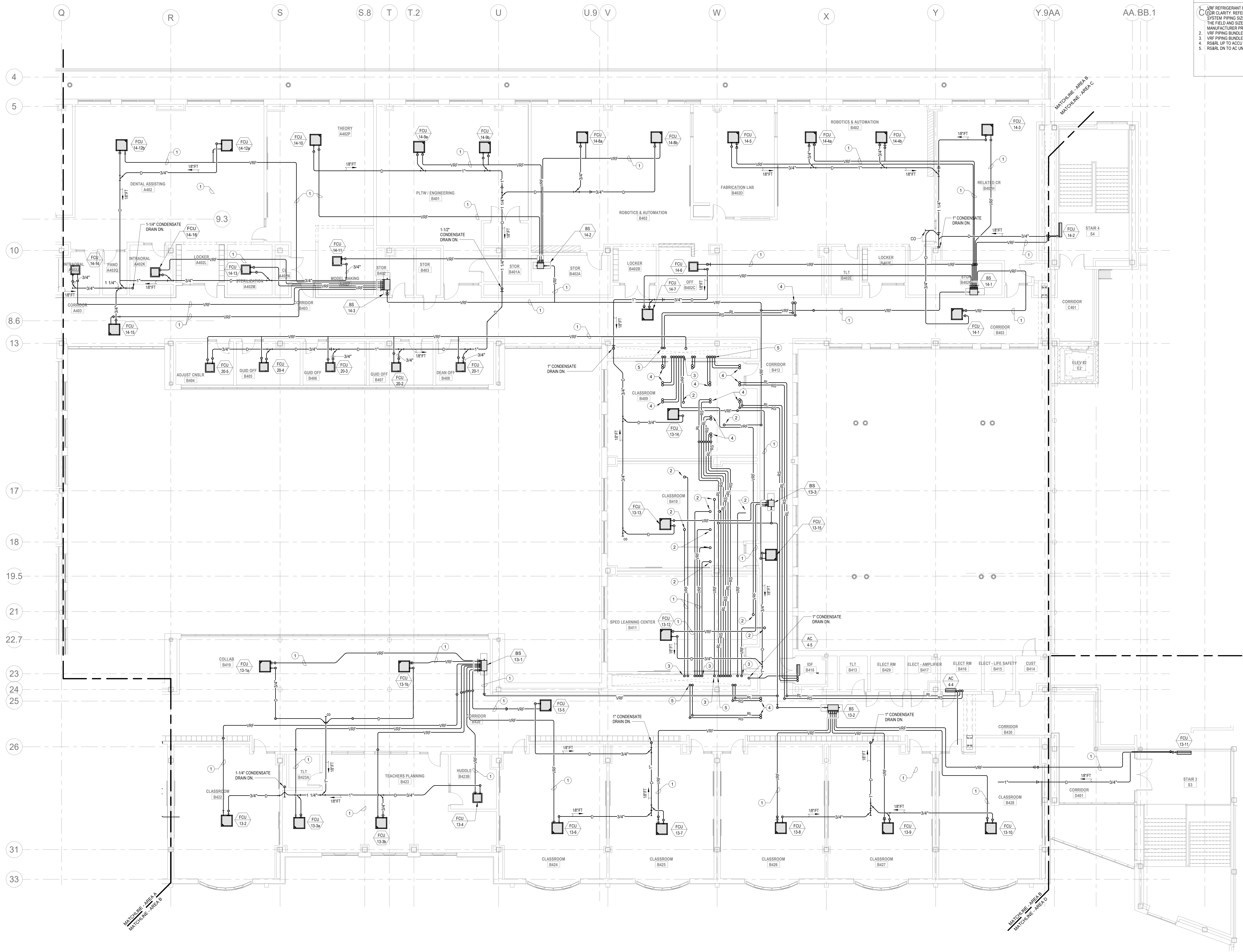
PROJECT NORTH MAGNETIC NORTH



**MECHANICAL
PIPING FOURTH
FLOOR PLAN -
AREA A**

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

M1-3-4A



HVAC GENERAL NOTES

1. REFER TO VRF PIPING DIAGRAMS ON THE M2 SERIES DRAWINGS FOR REFRIGERANT PIPING DISTRIBUTION. PROVIDE A CONDENSATE DRAIN FROM EACH FAN COIL UNIT TO THE NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR BY DIV. 22.
2. PROVIDE REFRIGERANT LINE SET FROM EACH AC UNIT TO ASSOCIATED CONDENSING UNIT ON ROOF. INTEGRAL CONDENSATE PUMP AND CONDENSATE DRAIN PIPING TO NEAREST CONDENSATE RECEPTOR. CONDENSATE RECEPTOR BY DIV. 22.
3. REFER TO DUCTWORK PLANS FOR DUCTWORK LAYOUT, CONNECTIONS, AND CONTROLS.

HVAC DRAWING NOTES

1. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.
2. VRF PIPING BUNDLES UP.
3. VRF PIPING BUNDLES DN.
4. RS&RL UP TO ACU ON ROOF.
5. RS&RL DN TO AC UNITS.

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KEY PLAN

PROJECT NORTH
MAGNETIC NORTH

MECHANICAL
PIPING FOURTH
FLOOR PLAN -
AREA B

Scale: 1/8" = 1'-0"
Job No.: 60-20-409
Drawn By: K.J.L.
Date: May 12th, 2023

M1-3-4B

1. PROVIDE A LITTLE GIANT VCMA-15ULS OR EQUAL CONDENSATE PUMP WITH CONDENSATE PIPING FROM AHU CONDENSATE DISCHARGE TO NEAREST CONDENSATE RECEPTOR, TYPICAL FOR EACH AHU.
2. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.

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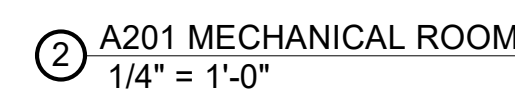
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Scale: 1/4" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

M2-0-1

1. PROVIDE A LITTLE GIANT VCMA-15ULS OR EQUAL CONDENSATE PUMP WITH CONDENSATE PIPING FROM AHU CONDENSATE DISCHARGE TO NEAREST CONDENSATE RECEPTOR, TYPICAL FOR EACH AHU.
2. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFIRMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.

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Drawn By: KJL

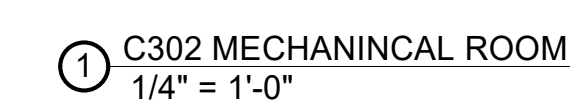
M2-0-2

1. PROVIDE A LITTLE GALT VCMA-19ULS OR EQUAL CONDENSATE PUMP WITH CONDENSATE PIPING FROM EACH CONDENSATE DISCHARGE TO NEAREST CONDENSATE RECEPTOR, TYPICAL FOR EACH AHU.
2. PROVIDE MANUAL BALANCING DAMPER, BALANCE DAMPER TO AN AIRFLOW OF 25 CFM.
3. VRF REFRIGERANT PIPING IS SHOWN IN A SINGLE LINE DIAGRAMATIC LAYOUT FOR CLARITY. REFER TO THE M2 SERIES DRAWINGS FOR DETAILS ON VRF SYSTEM PIPING SIZES AND QUANTITIES. ALL LENGTHS ARE TO BE CONFORMED IN THE FIELD AND SIZES ARE TO BE COORDINATED WITH THE VRF SYSTEM MANUFACTURER PRIOR TO ORDERING.

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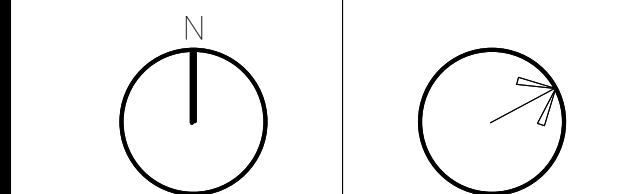


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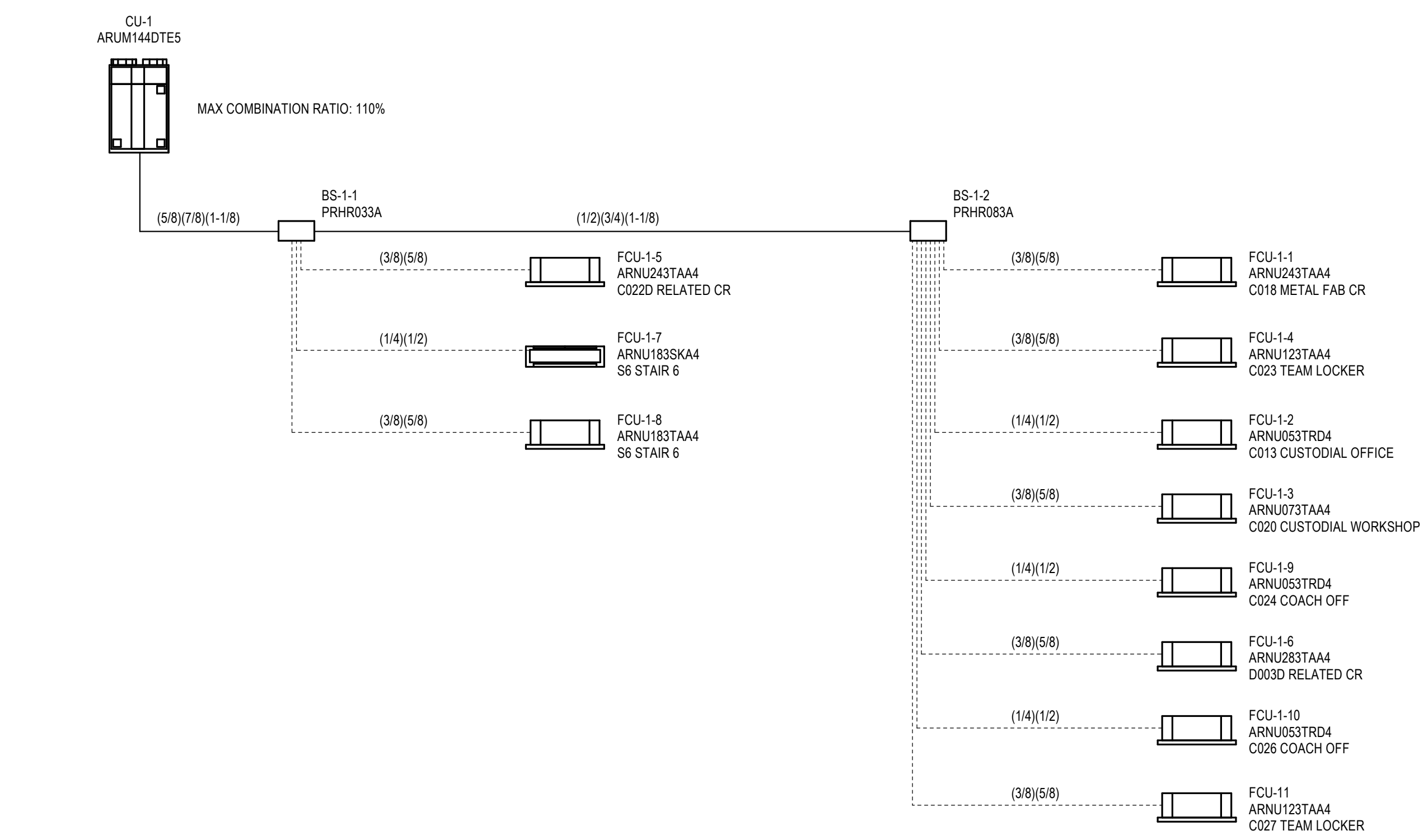
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PROJECT NORTH	MAGNETIC NORTH
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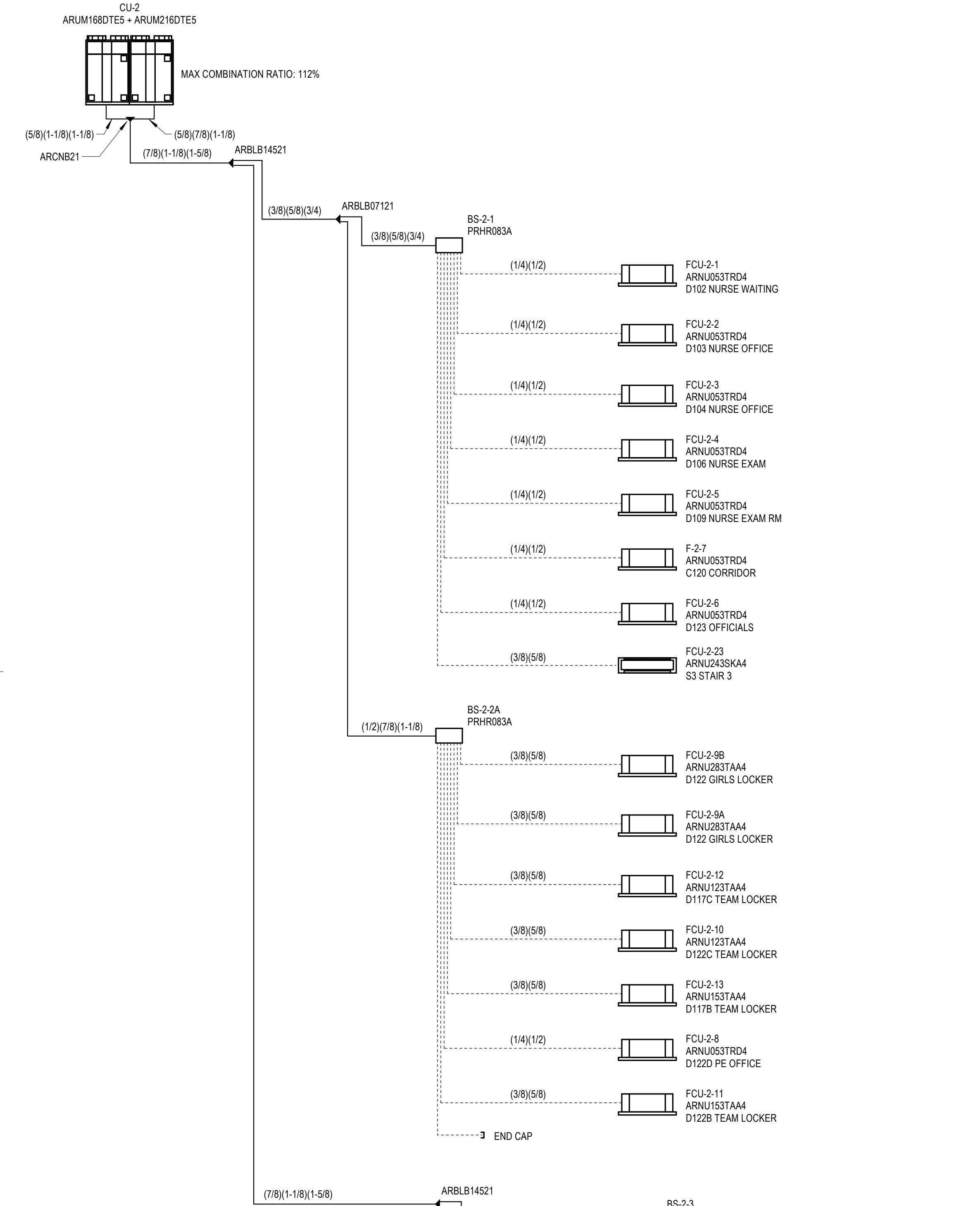


Scale: 1/4" = 1'-0"
Job No.: 60-20-409
Drawn By: KJL
Date: May 12th, 2023

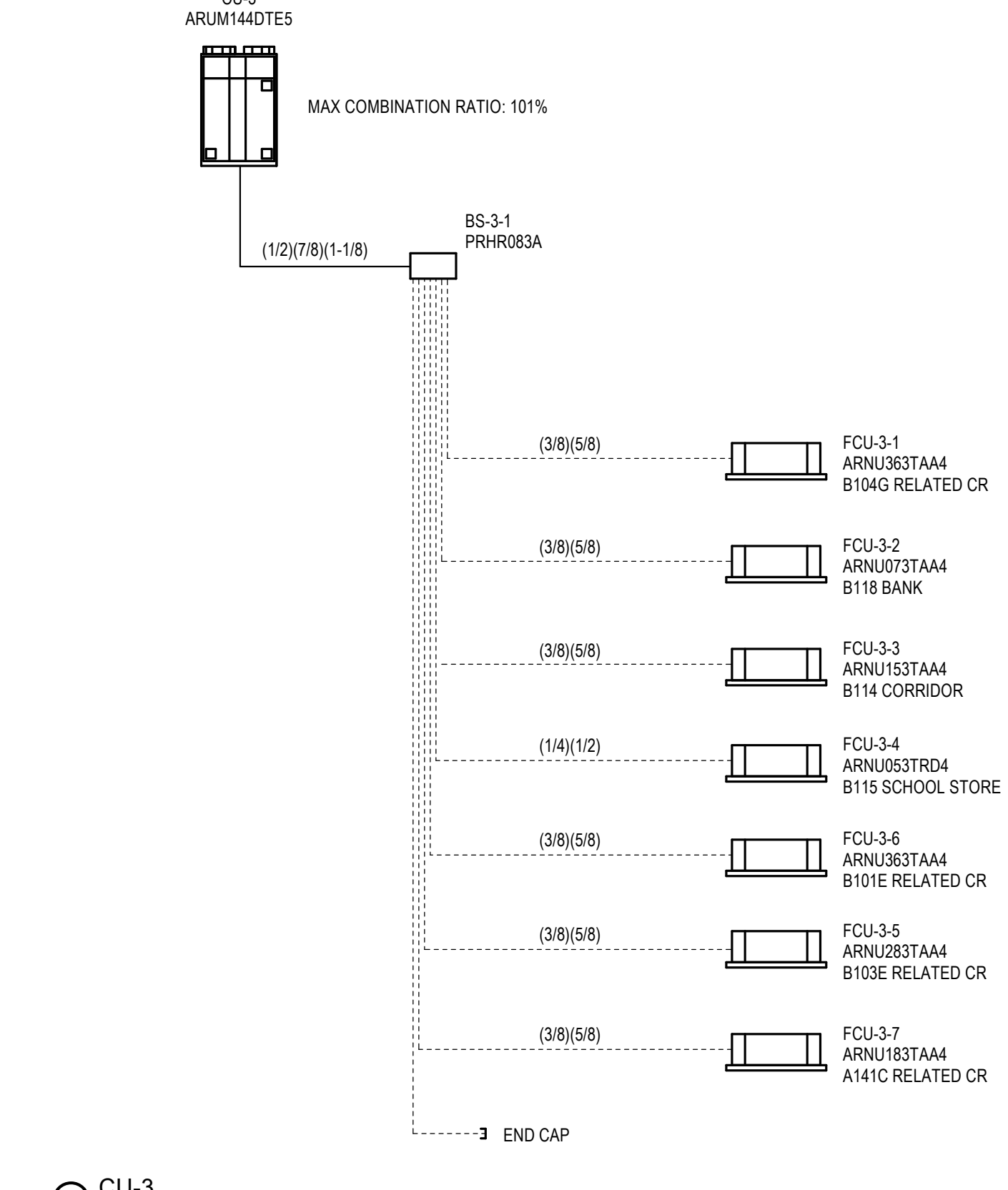
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Job No.: 60-20-409
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Date: May 12th, 2023



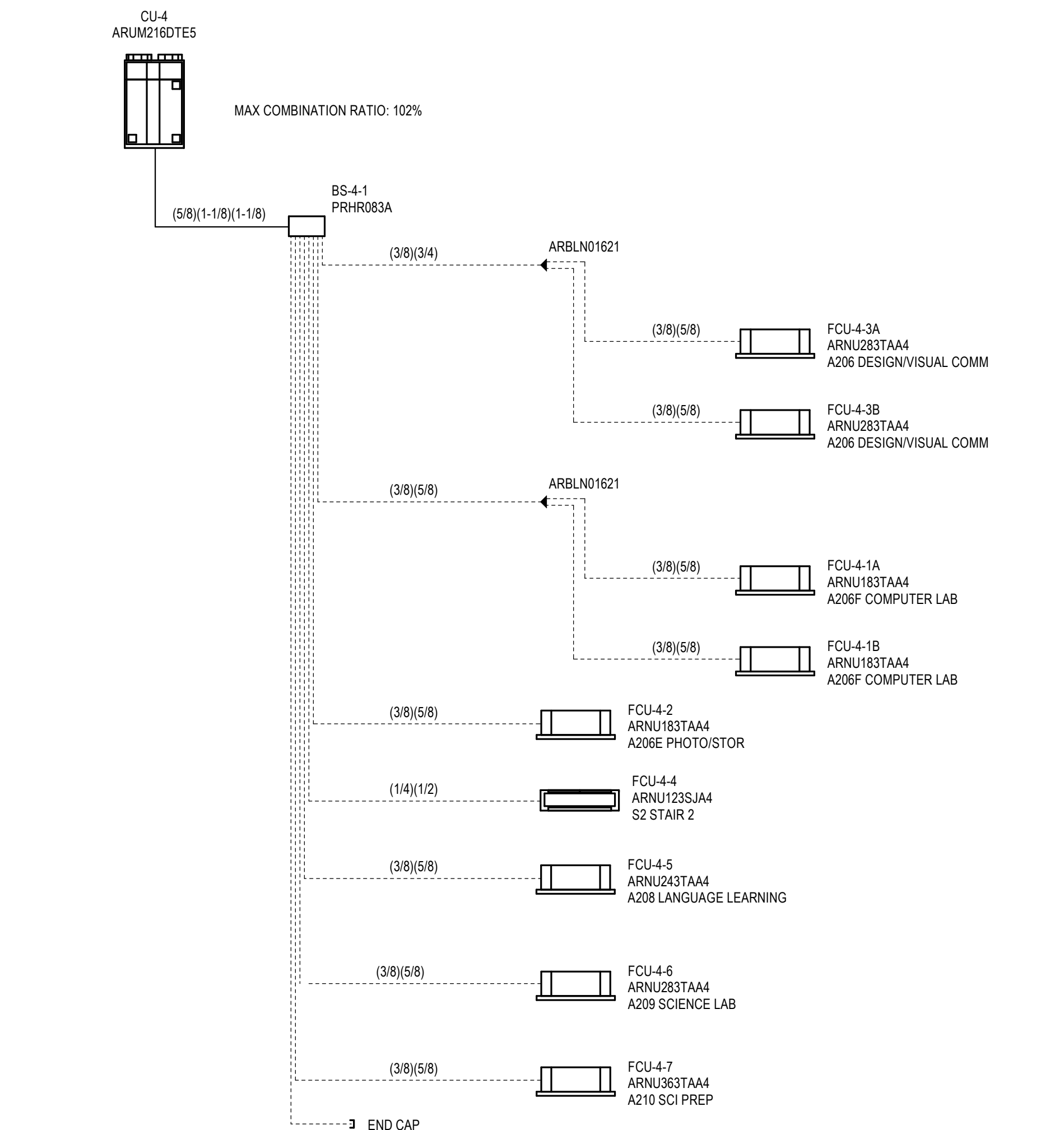
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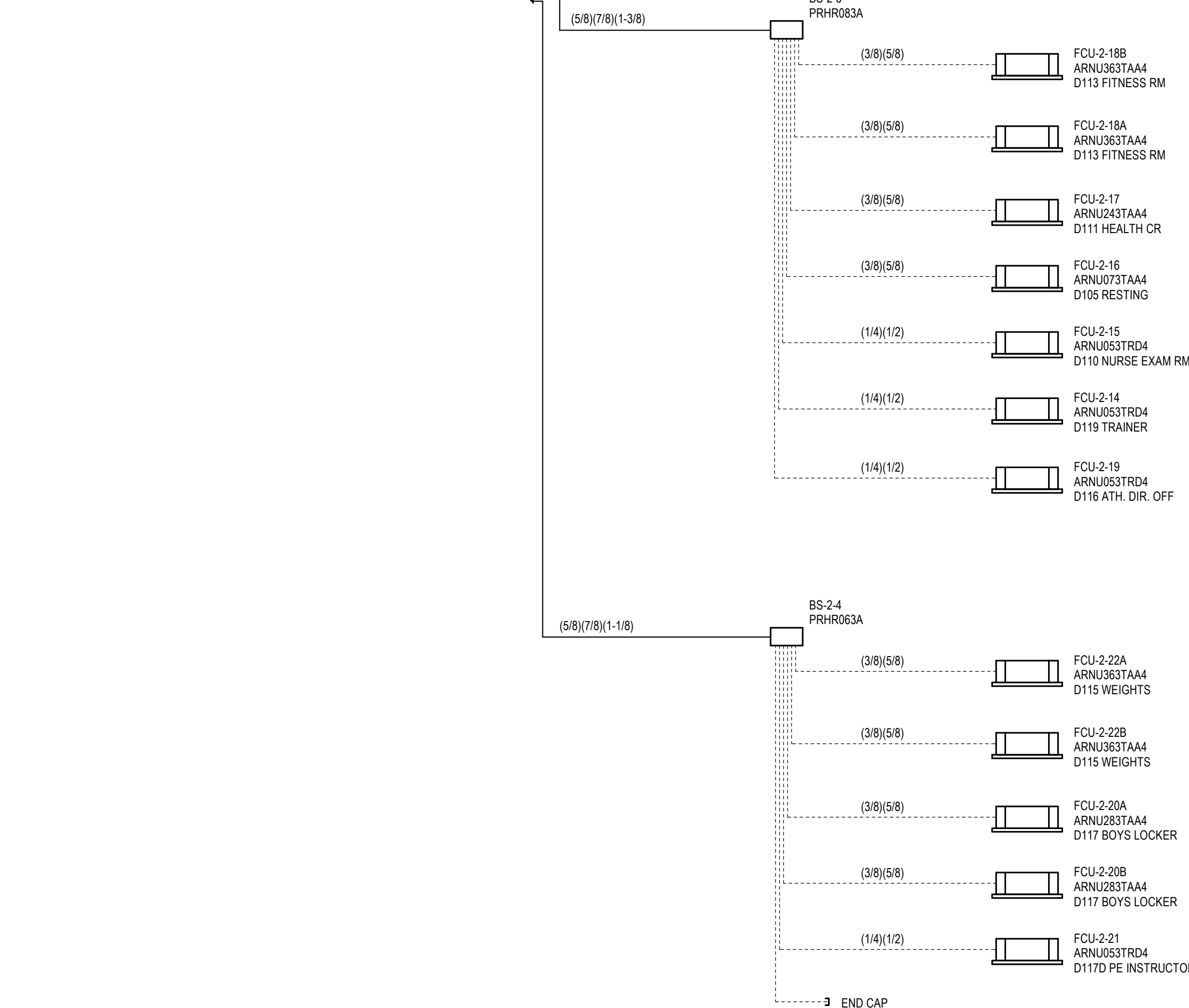
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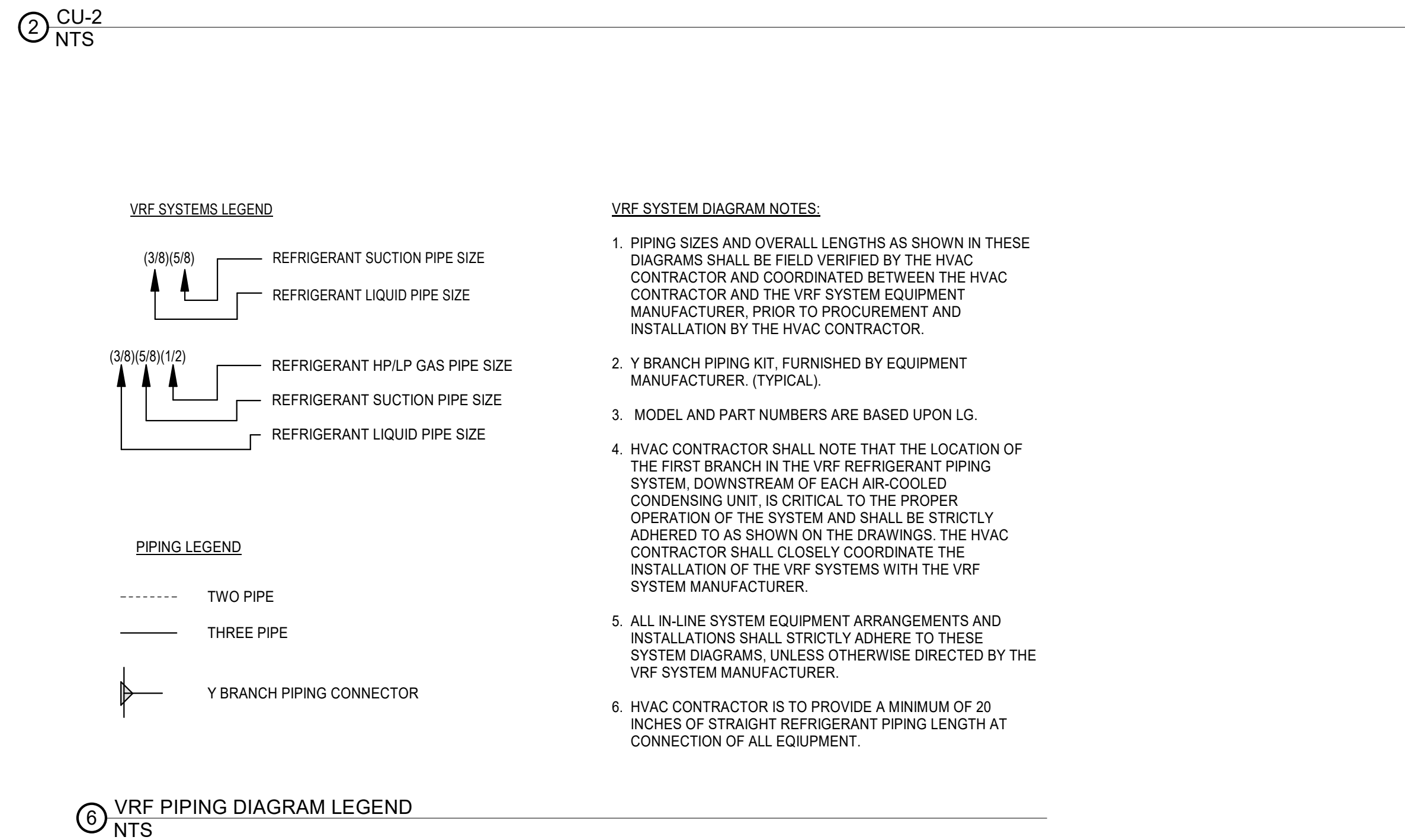
3 CU-3
NTS



4 CU-4
NTS



5 CU-5
NTS



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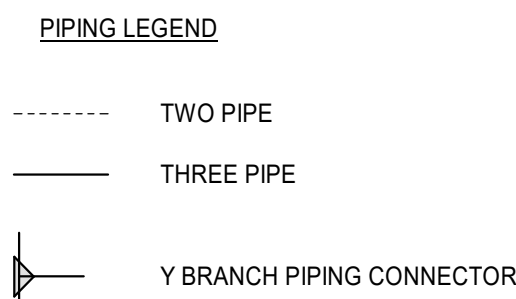


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**MECHANICAL
VRF SYSTEM
DIAGRAMS
SHEET #1**

Scale: NTS
Job No.: 60-20-409
Drawn by: PK
Date: May 12th, 2023
M3-0-1

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⑤ $\frac{VRI}{NTS}$

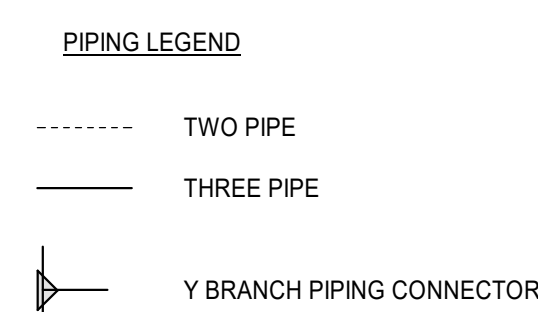
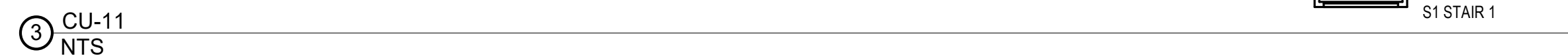
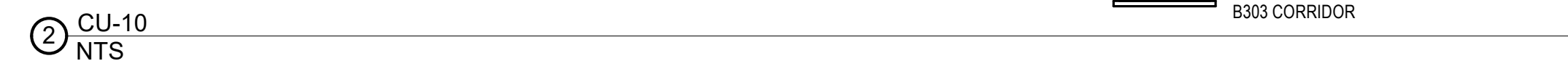
5. ALL IN-LINE SYSTEM EQUIPMENT ARRANGEMENTS AND INSTALLATIONS SHALL STRICTLY ADHERE TO THESE SYSTEM DIAGRAMS, UNLESS OTHERWISE DIRECTED BY THE VRF SYSTEM MANUFACTURER.
6. HVAC CONTRACTOR IS TO PROVIDE A MINIMUM OF 20 INCHES OF STRAIGHT REFRIGERANT PIPING LENGTH AT CONNECTION OF ALL EQUIPMENT.

May 12th, 2023

DIAGRAMS SHEET #2

M3-0-2

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⑥ VRF PIPING LEGEND

1. PIPING SIZES AND OVERALL LENGTHS AS SHOWN IN THESE DIAGRAMS SHALL BE FIELD VERIFIED BY THE HVAC CONTRACTOR. THE HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR THE HVAC CONTRACTOR AND THE VRF SYSTEM EQUIPMENT MANUFACTURER, PRIOR TO PROCUREMENT AND INSTALLATION OF THE VRF SYSTEMS WITH THE VRF SYSTEM MANUFACTURER.

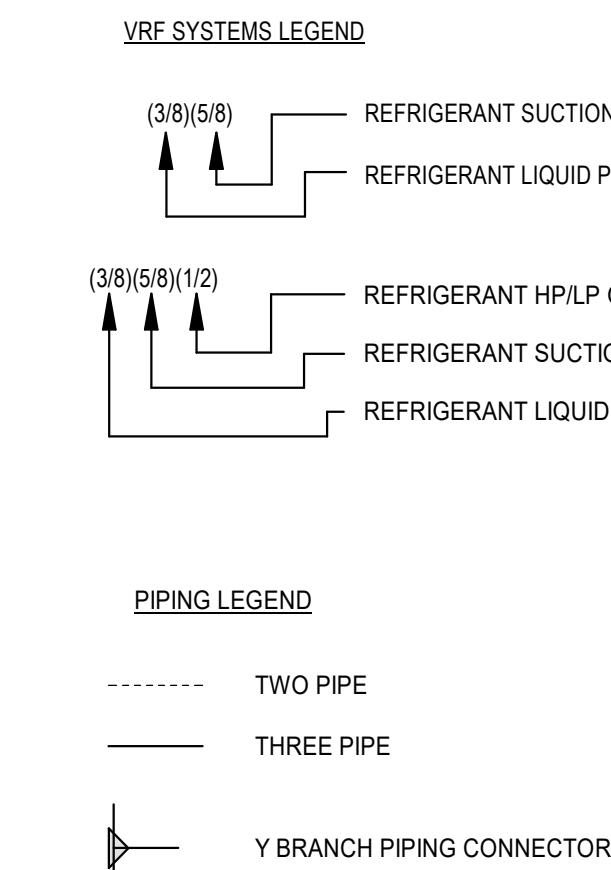
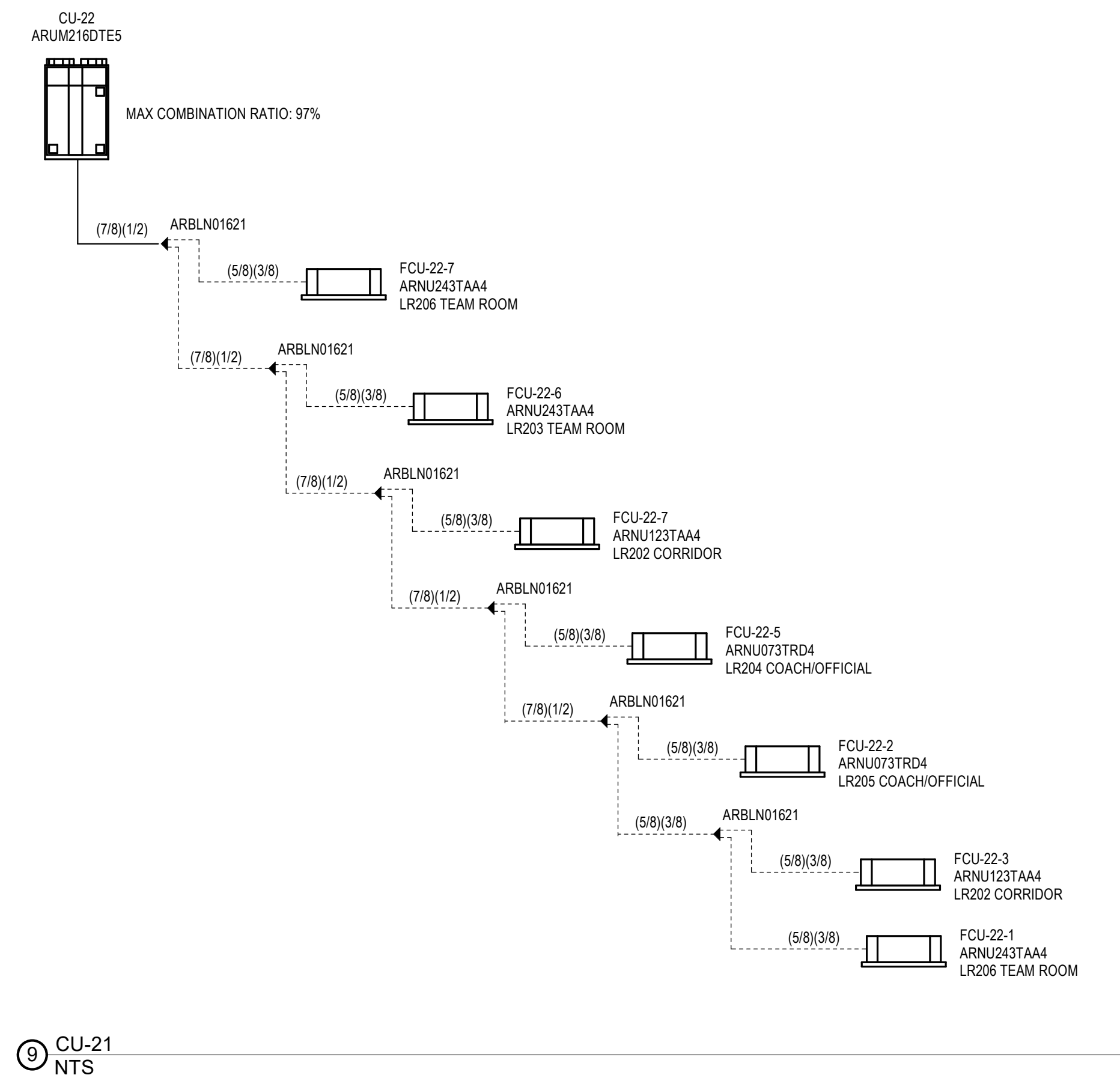
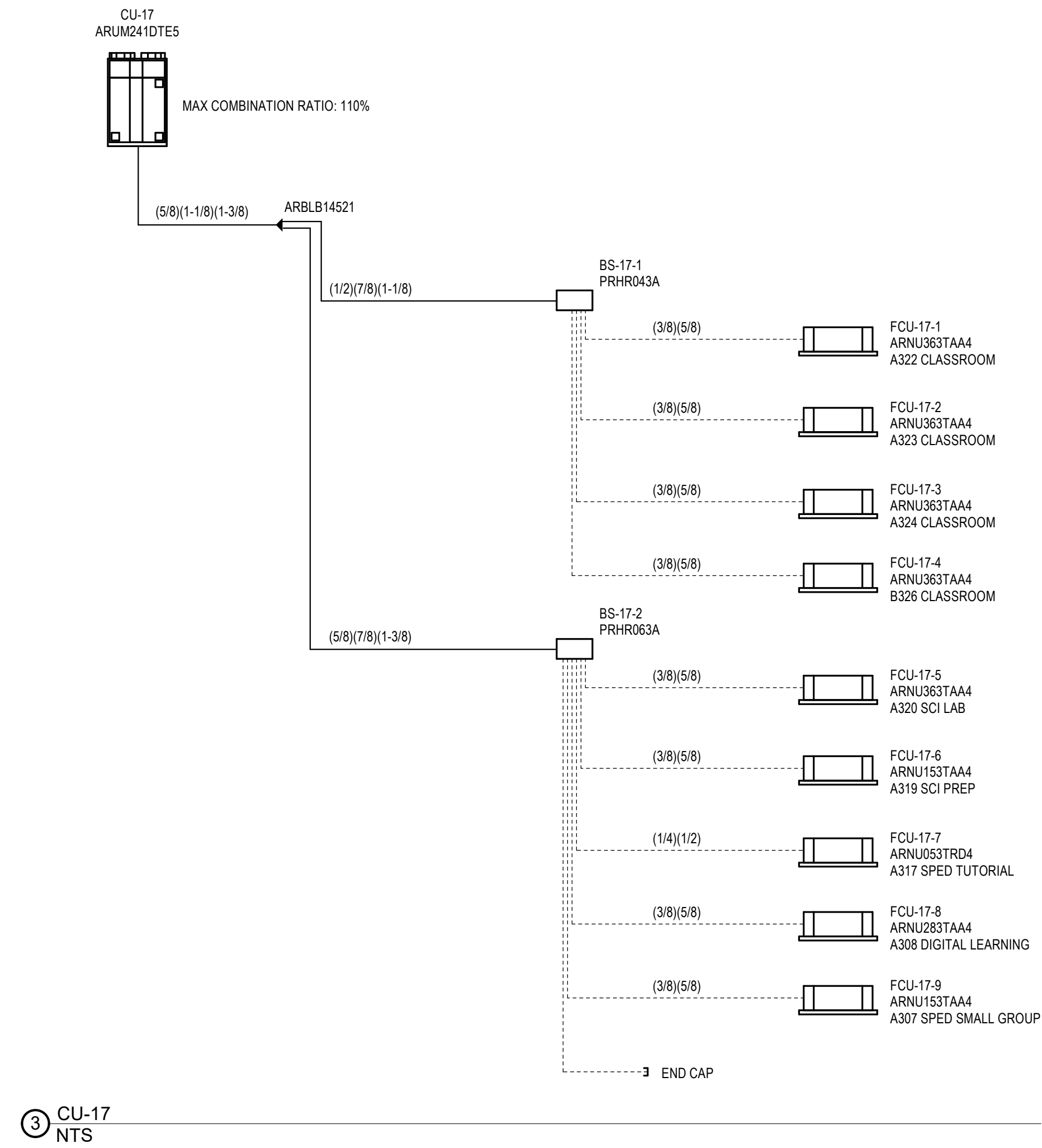
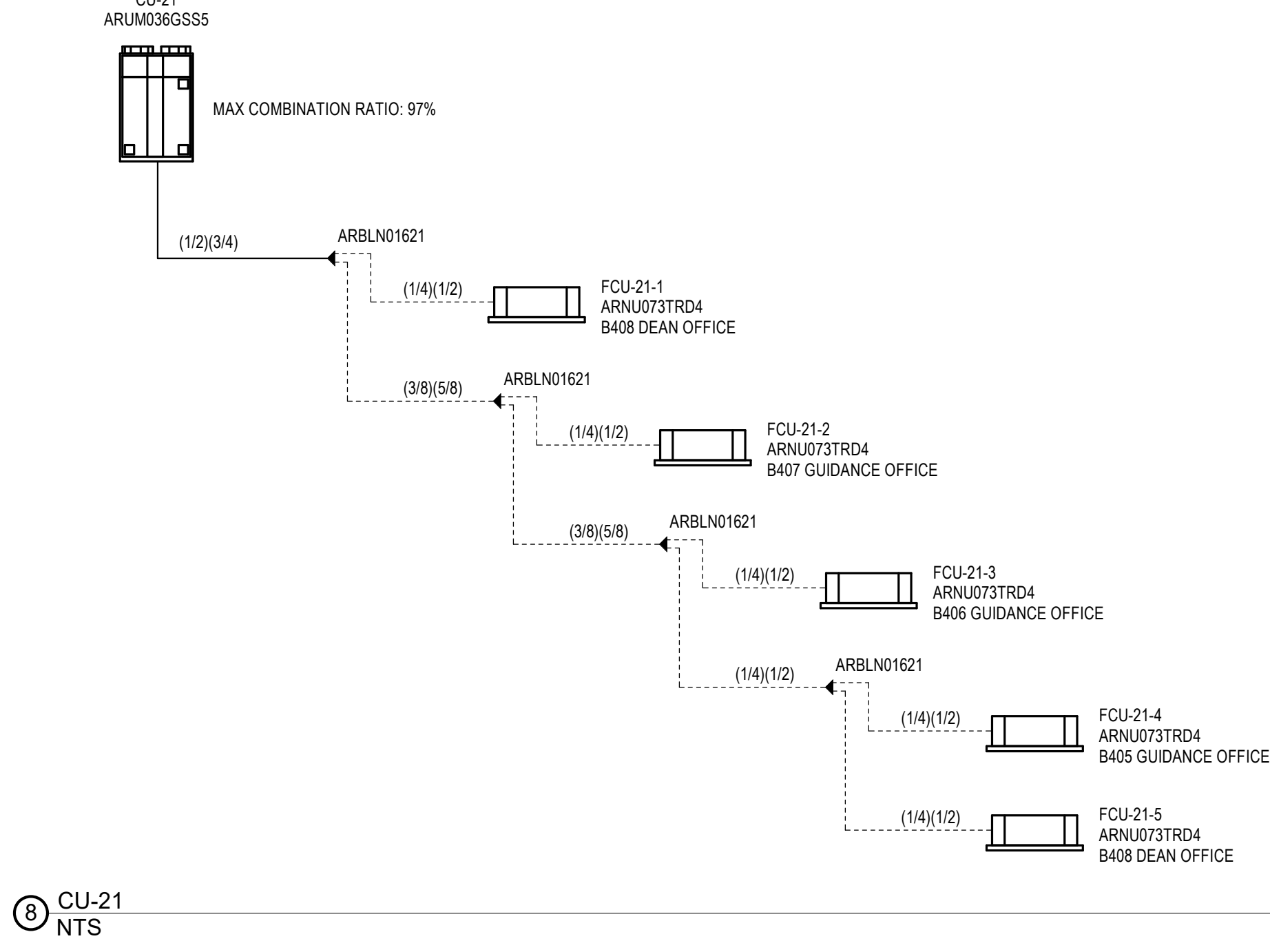
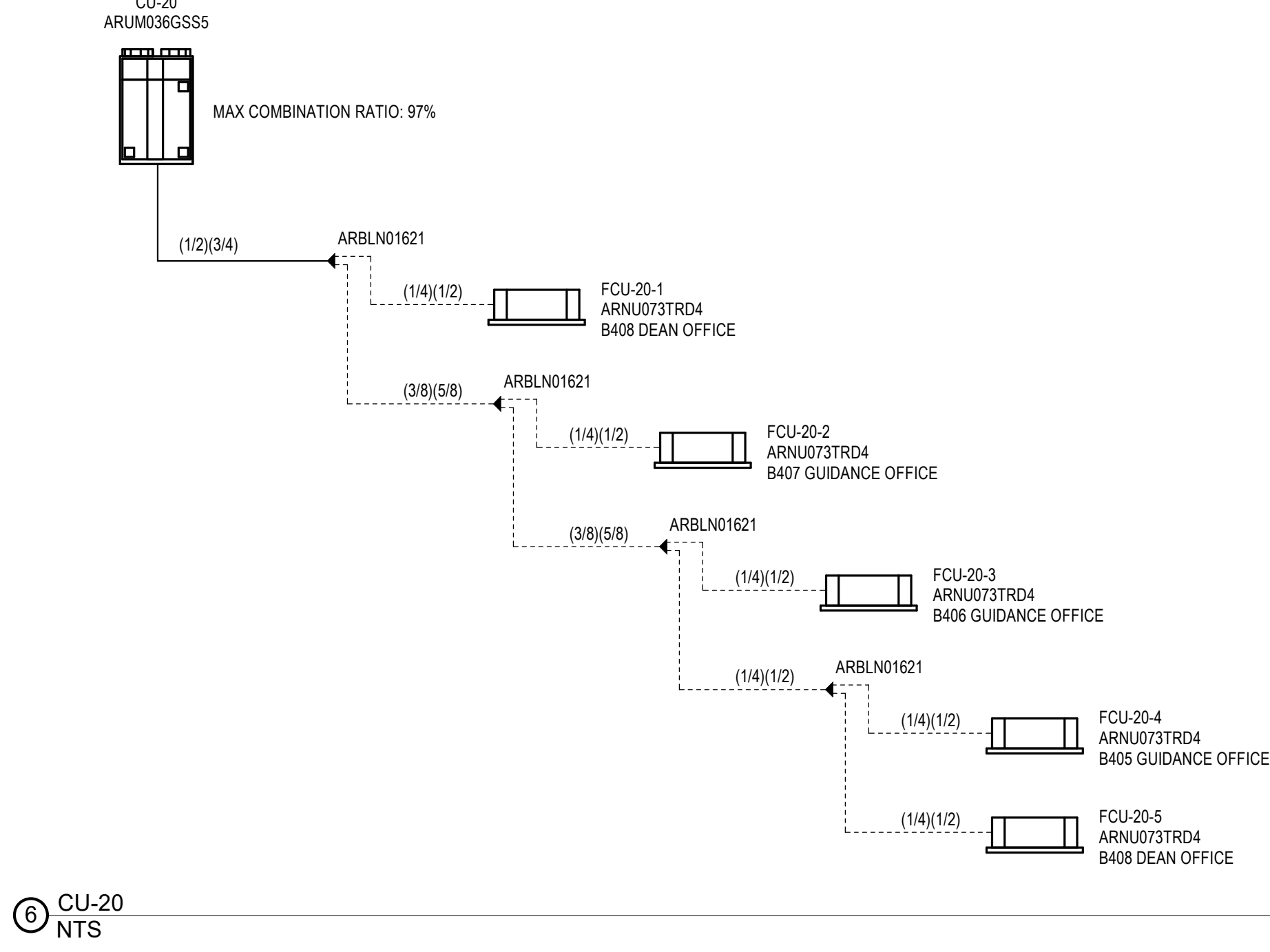
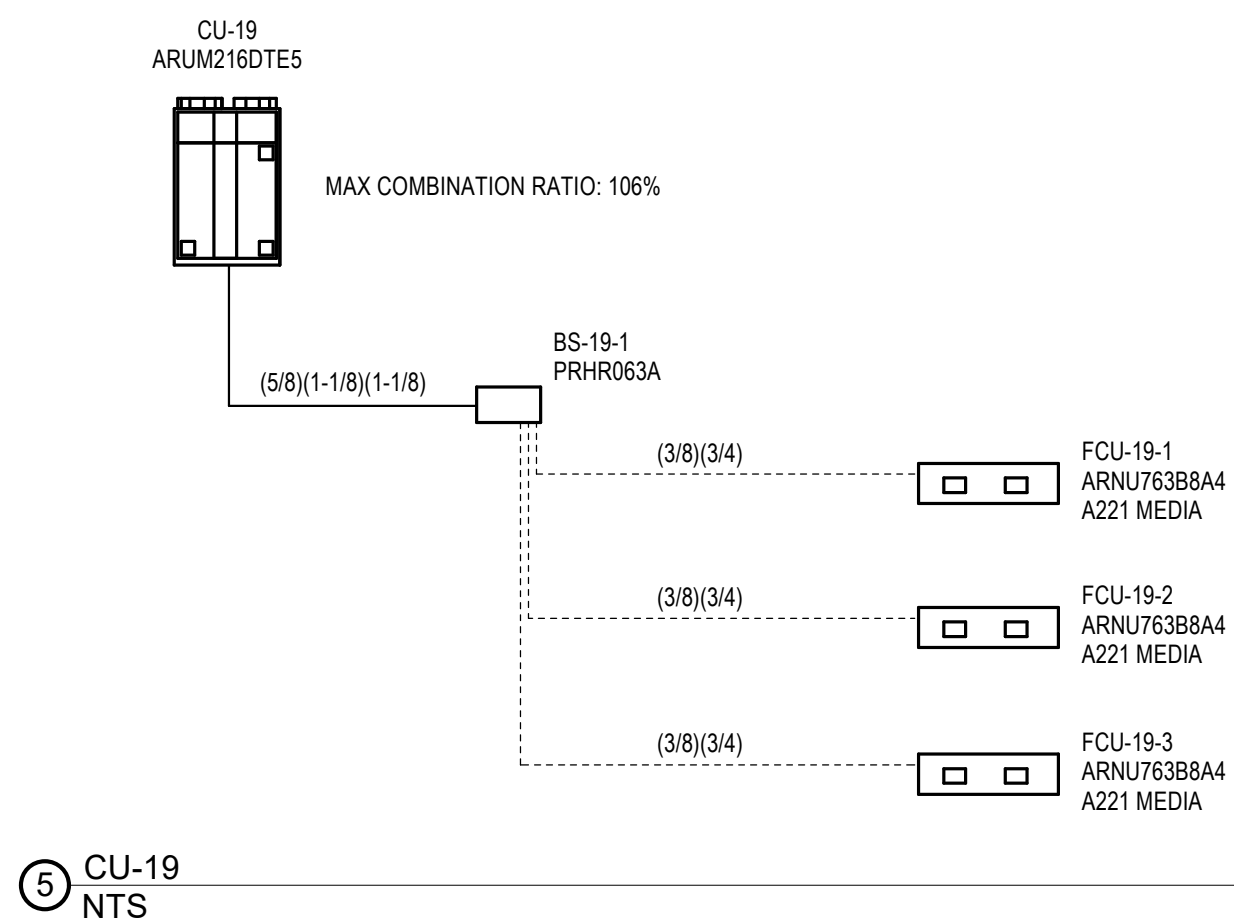
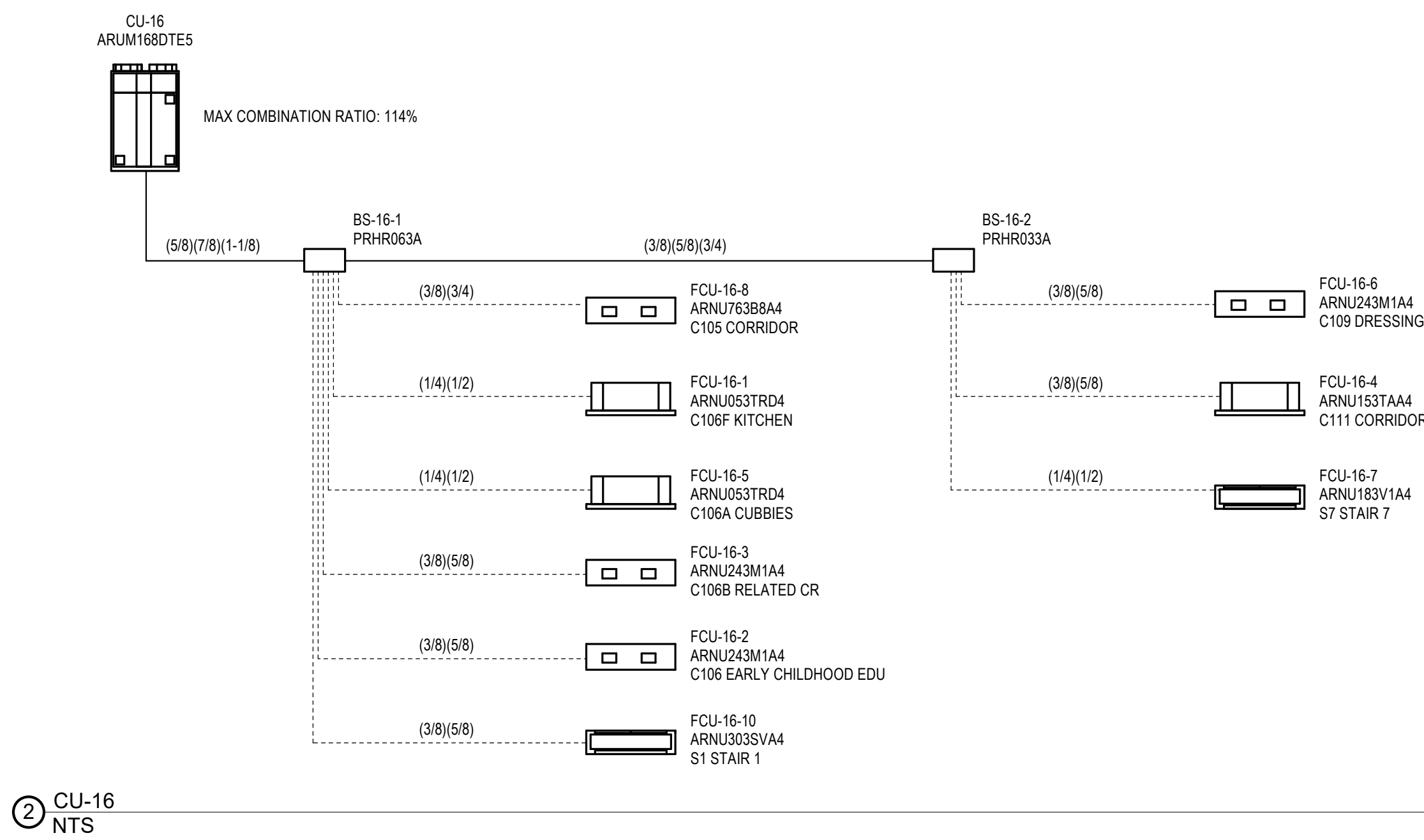
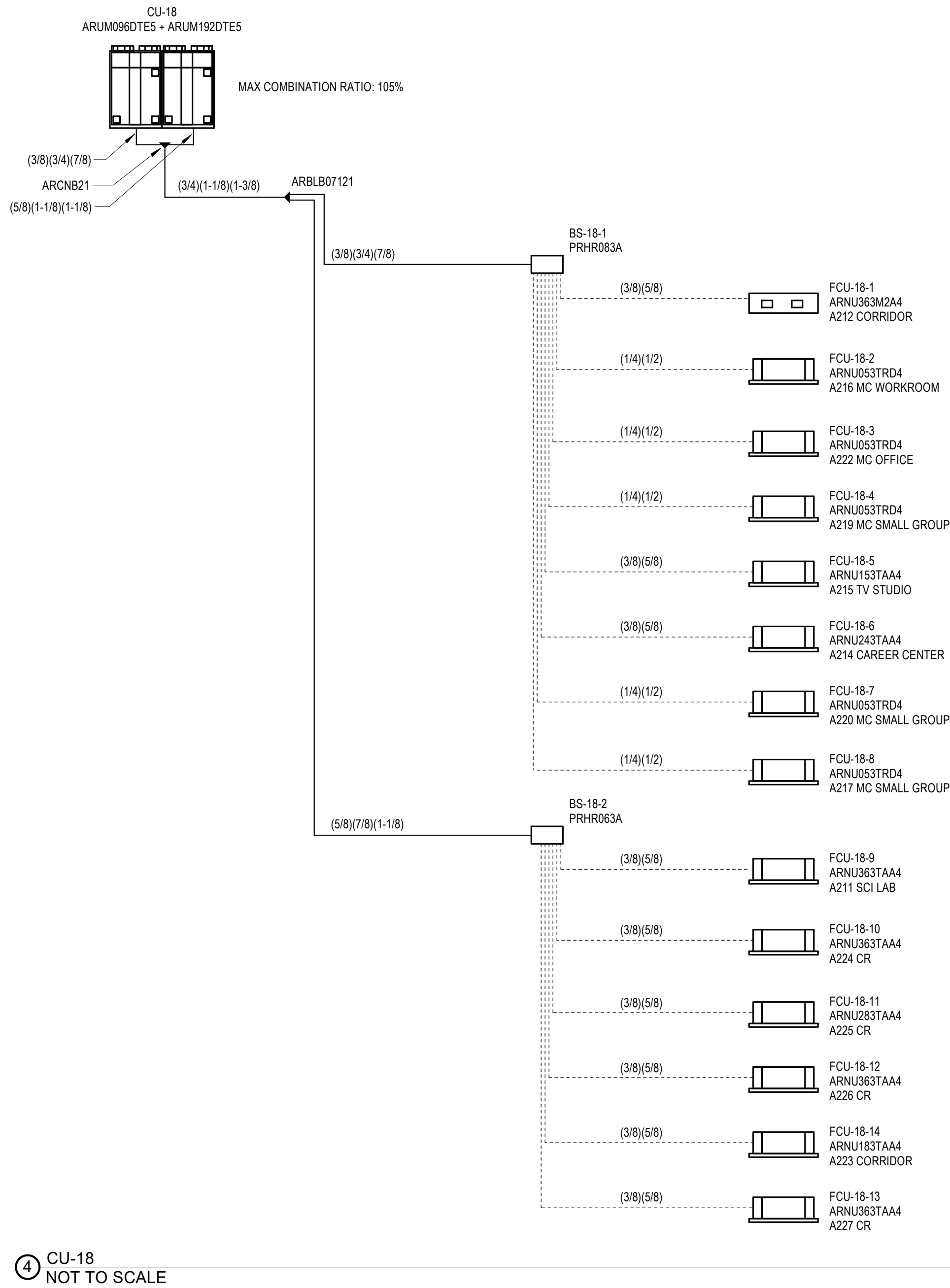
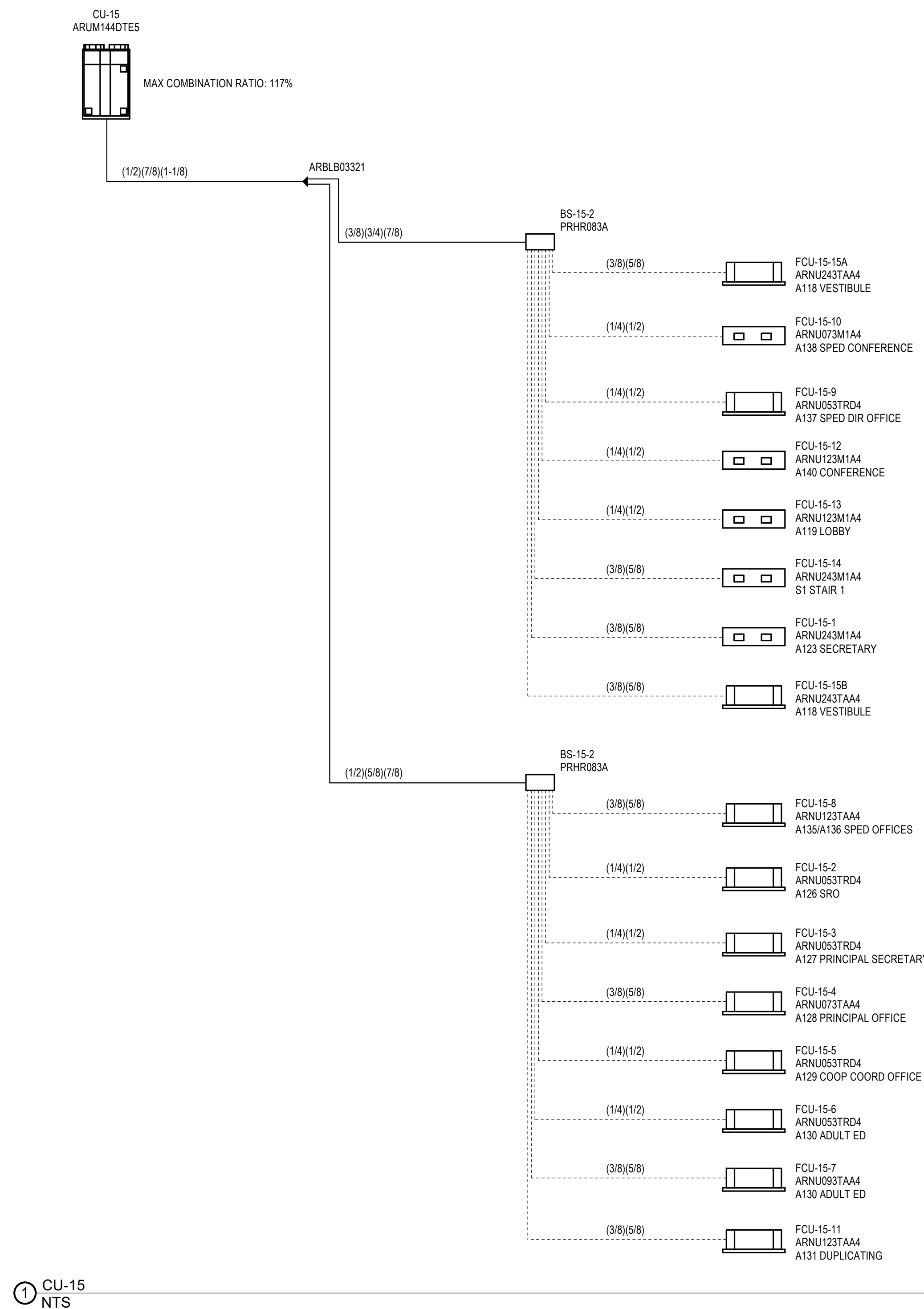
2. Y BRANCH PIPING KIT, FURNISHED BY EQUIPMENT MANUFACTURER, (TYPICAL).

3. MODEL AND PART NUMBERS ARE BASED UPON LG L

4. HVAC CONTRACTOR SHALL NOTE THAT THE LOCATION OF THE FIRST BRANCH IN THE VRF REFRIGERANT PIPING SYSTEM SHALL BE THE CONDENSING UNIT. THE CONDENSING UNIT IS CRITICAL TO THE PROPER OPERATION OF THE SYSTEM AND SHALL BE STRICTLY REPERATED TO THE SHOWN DRAWINGS. THE HVAC CONTRACTOR SHALL CLOSELY COORDINATE THE INSTALLATION OF THE VRF SYSTEMS WITH THE VRF SYSTEM MANUFACTURER.

5. ALL IN-LINE SYSTEM EQUIPMENT ARRANGEMENTS AND INSTALLATIONS SHALL STRICTLY ADHERE TO THESE DRAWINGS AND ANY OTHERS DERIVED THEREBY BY THE VRF SYSTEM MANUFACTURER.

6. HVAC CONTRACTOR IS TO PROVIDE A MINIMUM OF 20 INCHES OF STRAIGHT REFRIGERANT PIPE LENGTH AT EACH CONDENSING UNIT.



- VRF SYSTEM DIAGRAM NOTES:
1. PIPING SIZES AND OVERALL LENGTHS AS SHOWN IN THESE DIAGRAMS SHALL BE FIELD VERIFIED BY THE HVAC CONTRACTOR AND COORDINATED BETWEEN THE HVAC CONTRACTOR AND THE VRF SYSTEM EQUIPMENT MANUFACTURER, PRIOR TO PROCUREMENT AND INSTALLATION BY THE HVAC CONTRACTOR.
 2. Y BRANCH PIPING KIT, FURNISHED BY EQUIPMENT MANUFACTURER, (TYPICAL).
 3. MODEL AND PART NUMBERS ARE BASED UPON I.G.
 4. HVAC CONTRACTOR SHALL NOTE THAT THE LOCATION OF THE FIRST BRANCH IN THE VRF REFRIGERANT PIPING SYSTEM, DOWNSTREAM OF EACH AIR-COOLED CONDENSING UNIT, IS CRITICAL TO THE PROPER OPERATION OF THE SYSTEM AND SHALL BE STRICTLY ADHERED TO AS SHOWN ON THE DRAWINGS. THE HVAC CONTRACTOR SHALL CLOSELY COORDINATE THE INSTALLATION OF THE VRF SYSTEMS WITH THE VRF SYSTEM MANUFACTURER.
 5. ALL IN-LINE SYSTEM EQUIPMENT ARRANGEMENTS AND INSTALLATIONS SHALL STRICTLY ADHERE TO THESE SYSTEM DIAGRAMS, UNLESS OTHERWISE DIRECTED BY THE VRF SYSTEM MANUFACTURER.
 6. HVAC CONTRACTOR IS TO PROVIDE A MINIMUM OF 20 INCHES OF STRAIGHT REFRIGERANT PIPING LENGTH AT CONNECTION OF ALL EQUIPMENT.

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**MECHANICAL
VRF SYSTEM
DIAGRAMS
SHEET #4**

Scale: NTS
Job No.: 60-20-409
Drawn By: PK
Date: May 12th, 2023

M3-0-4



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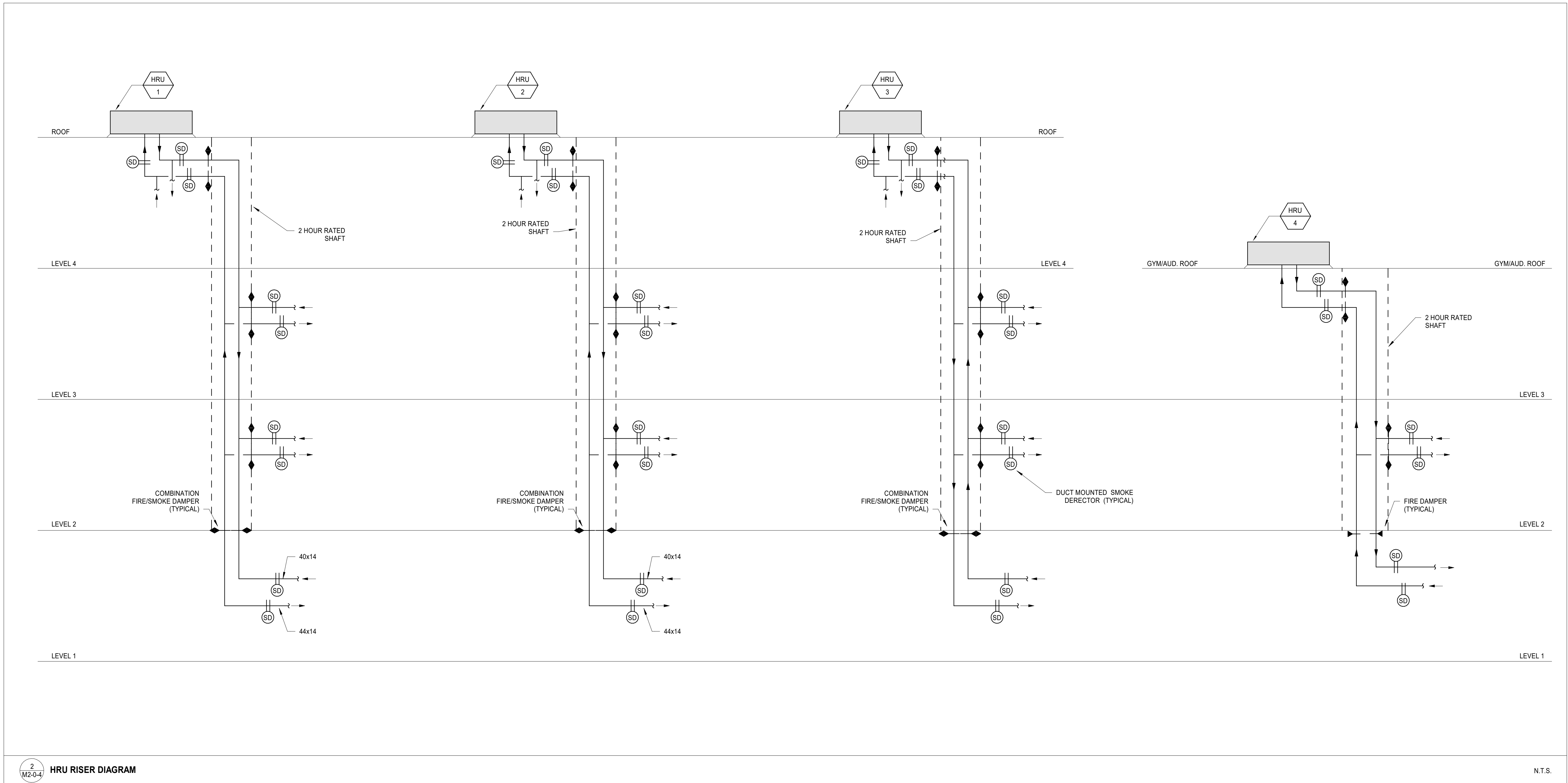
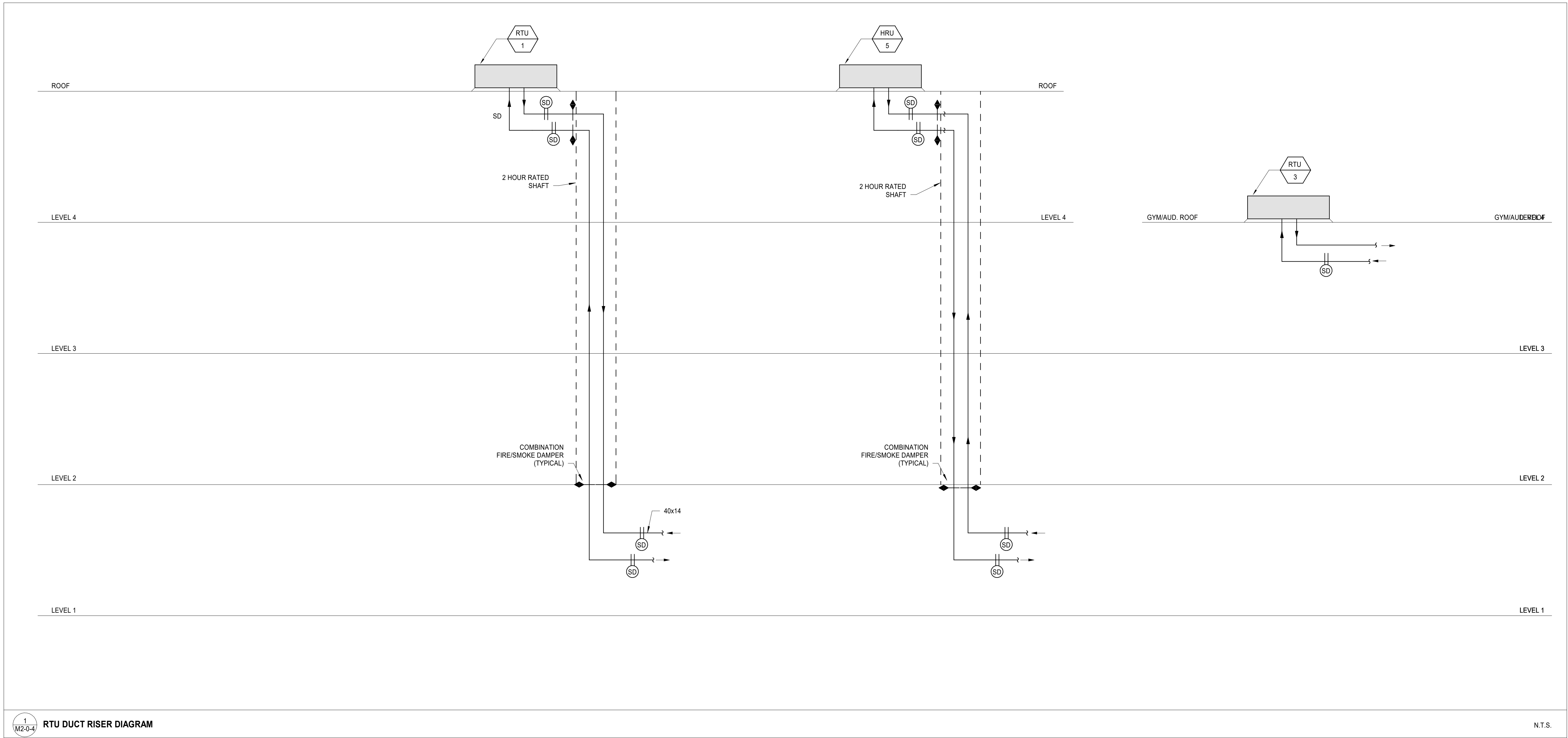


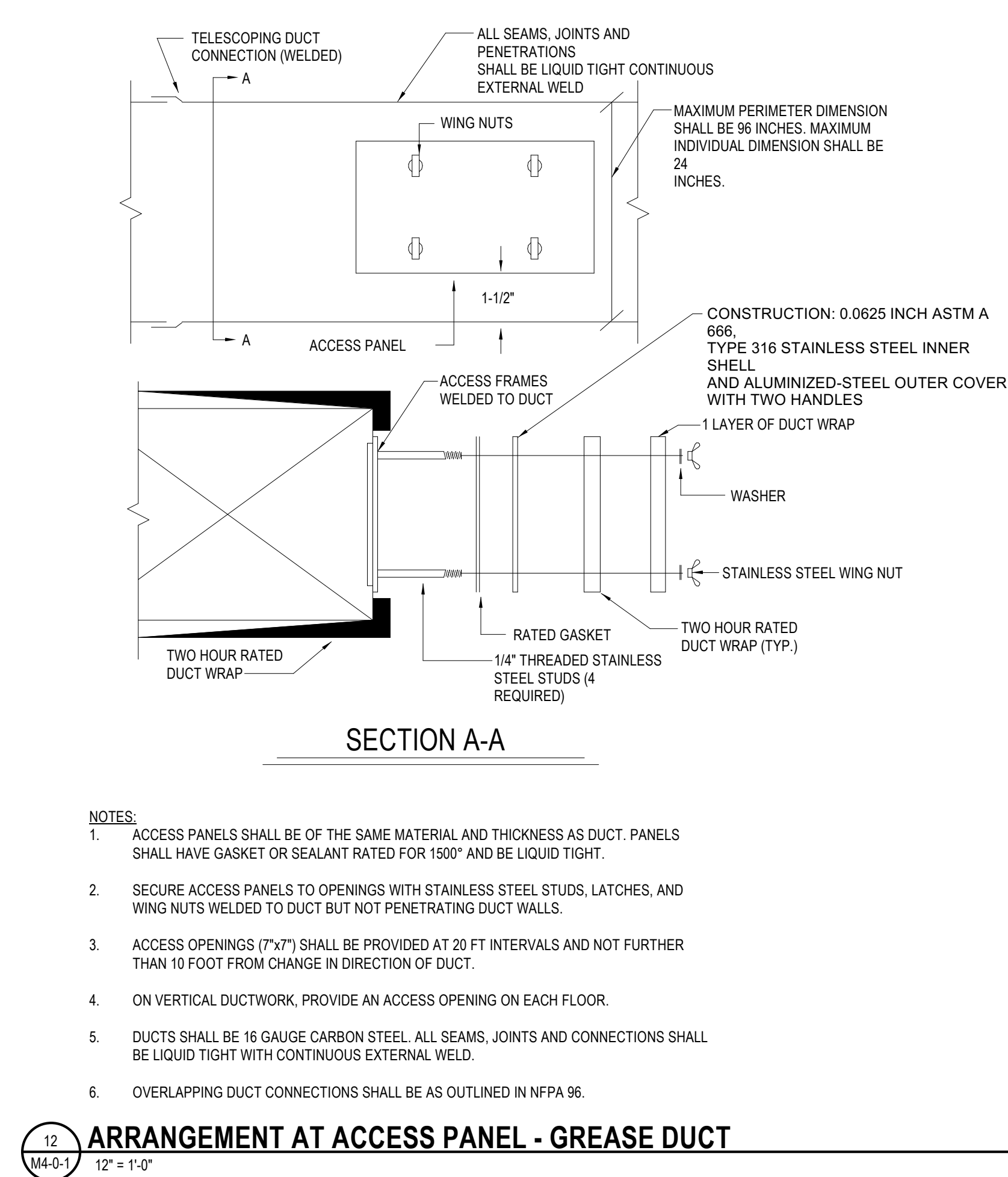
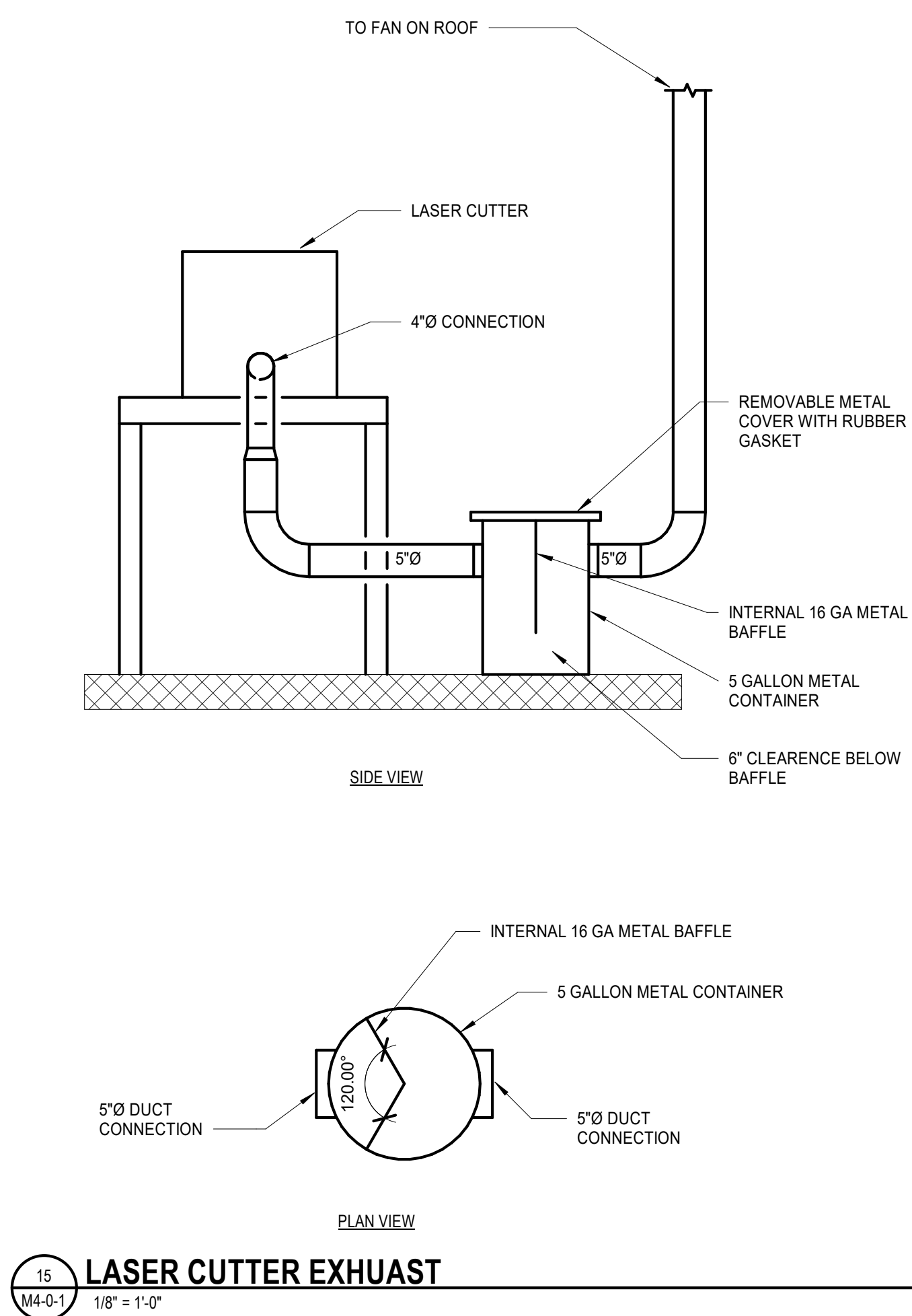
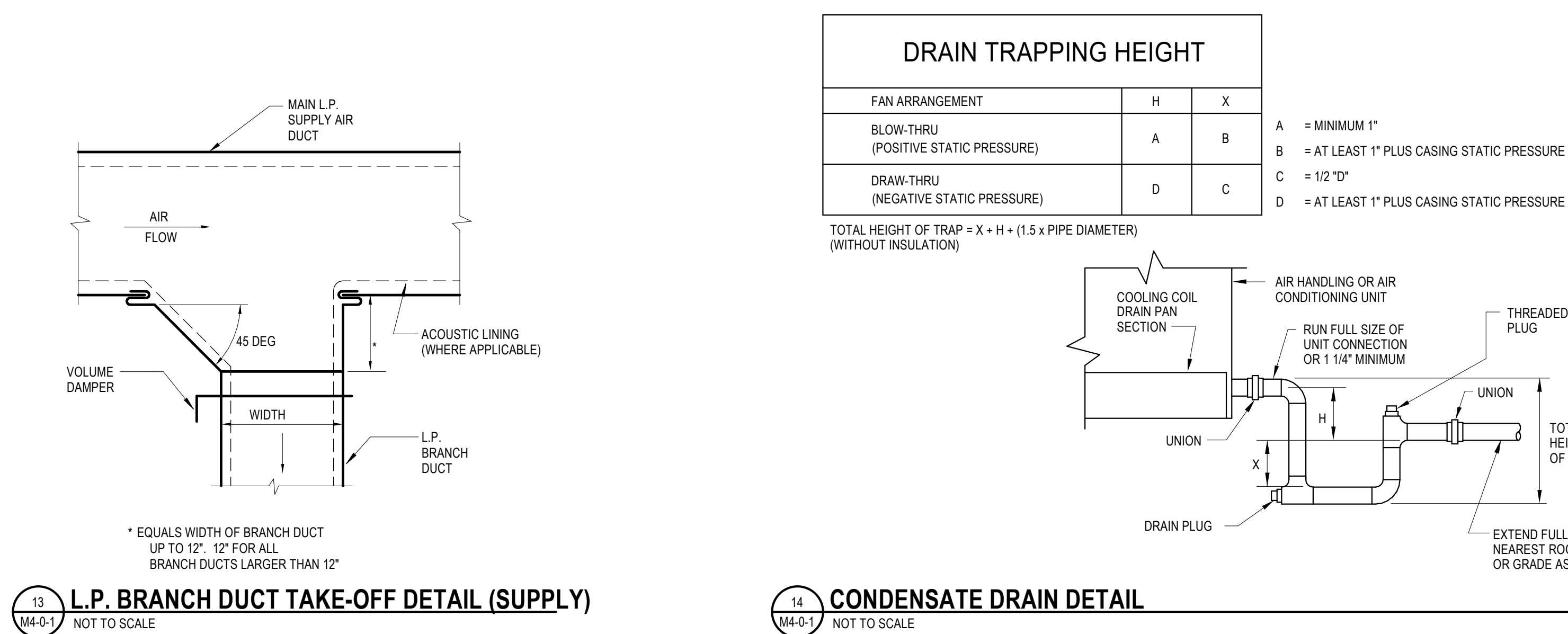
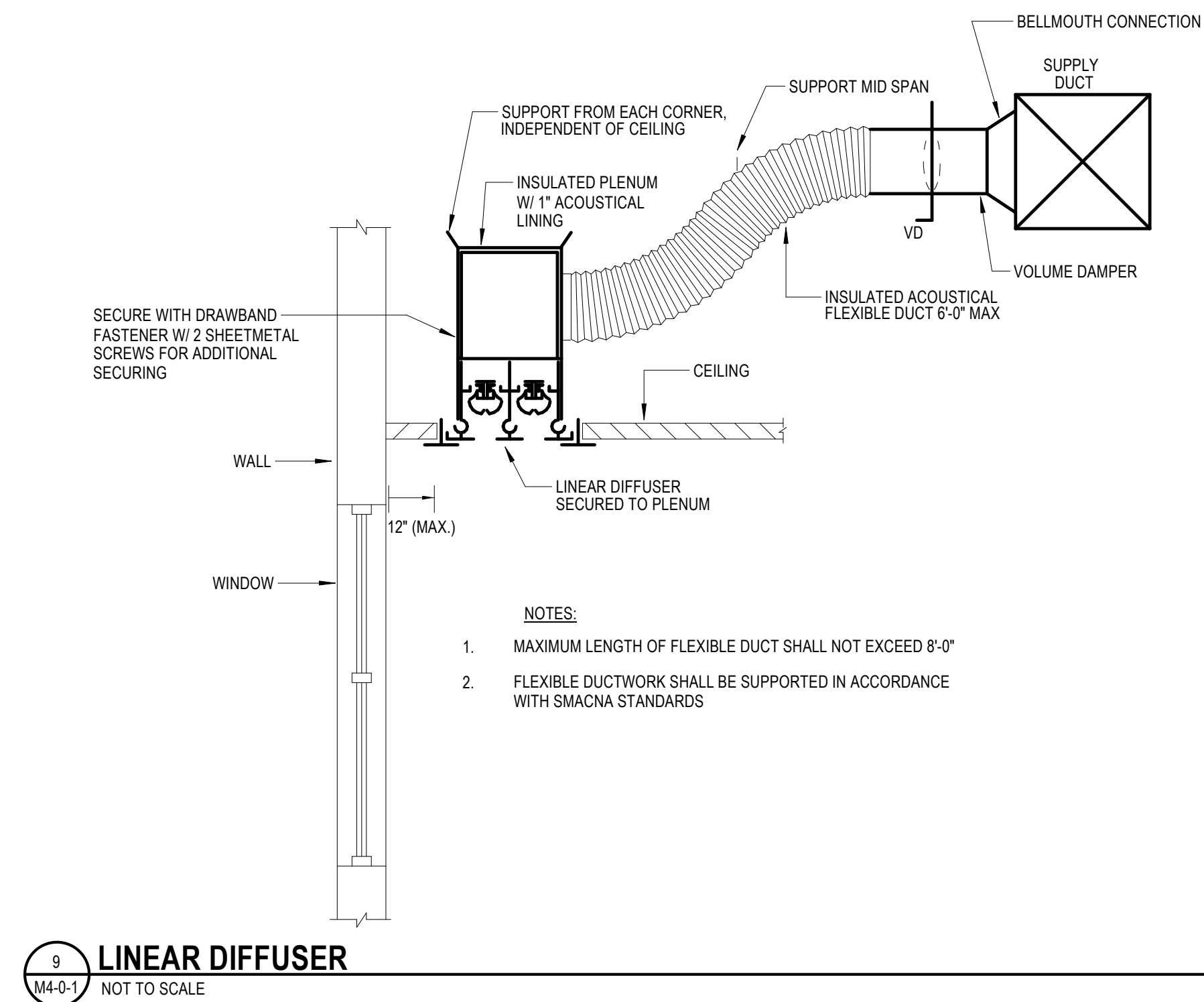
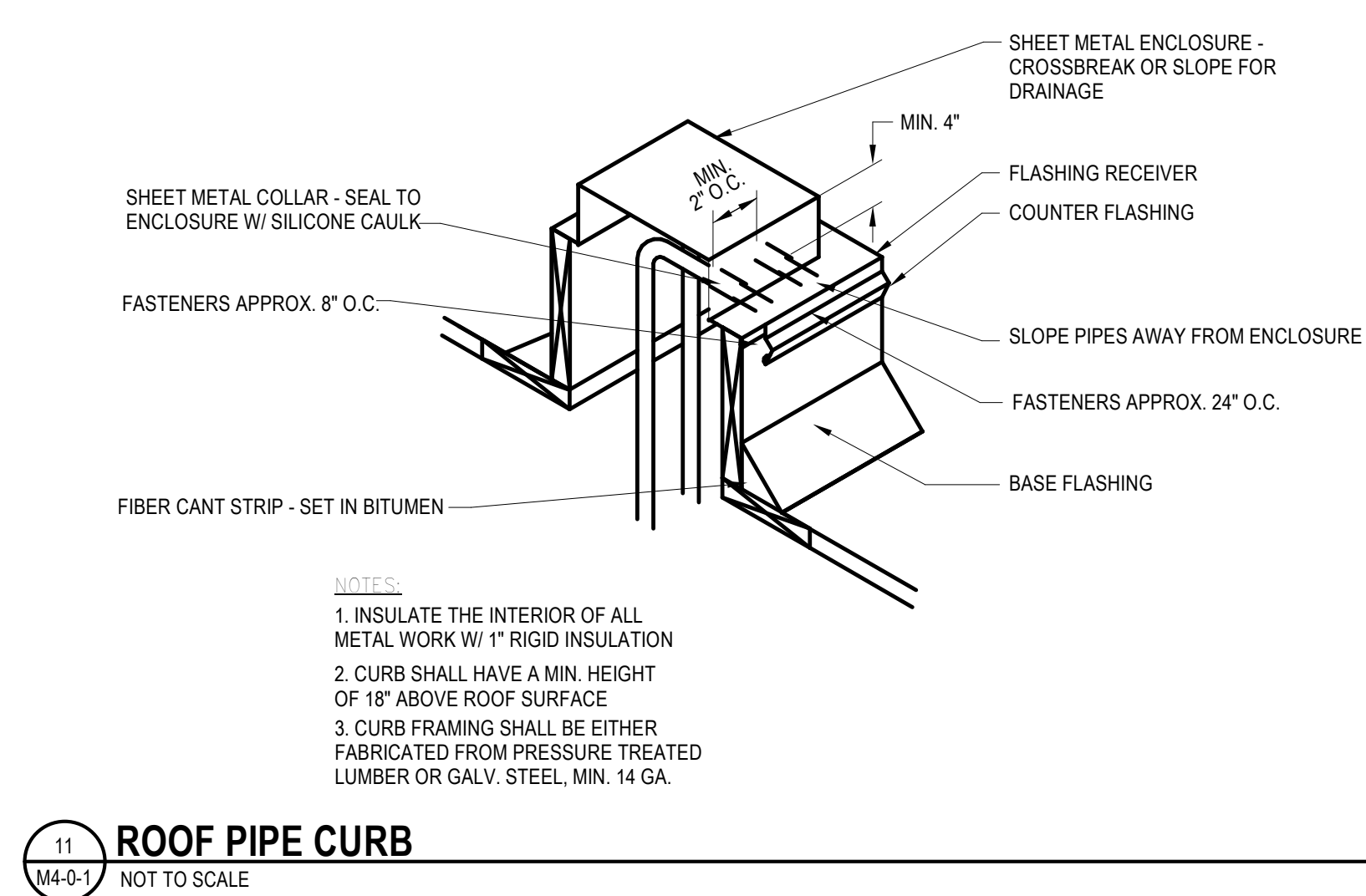
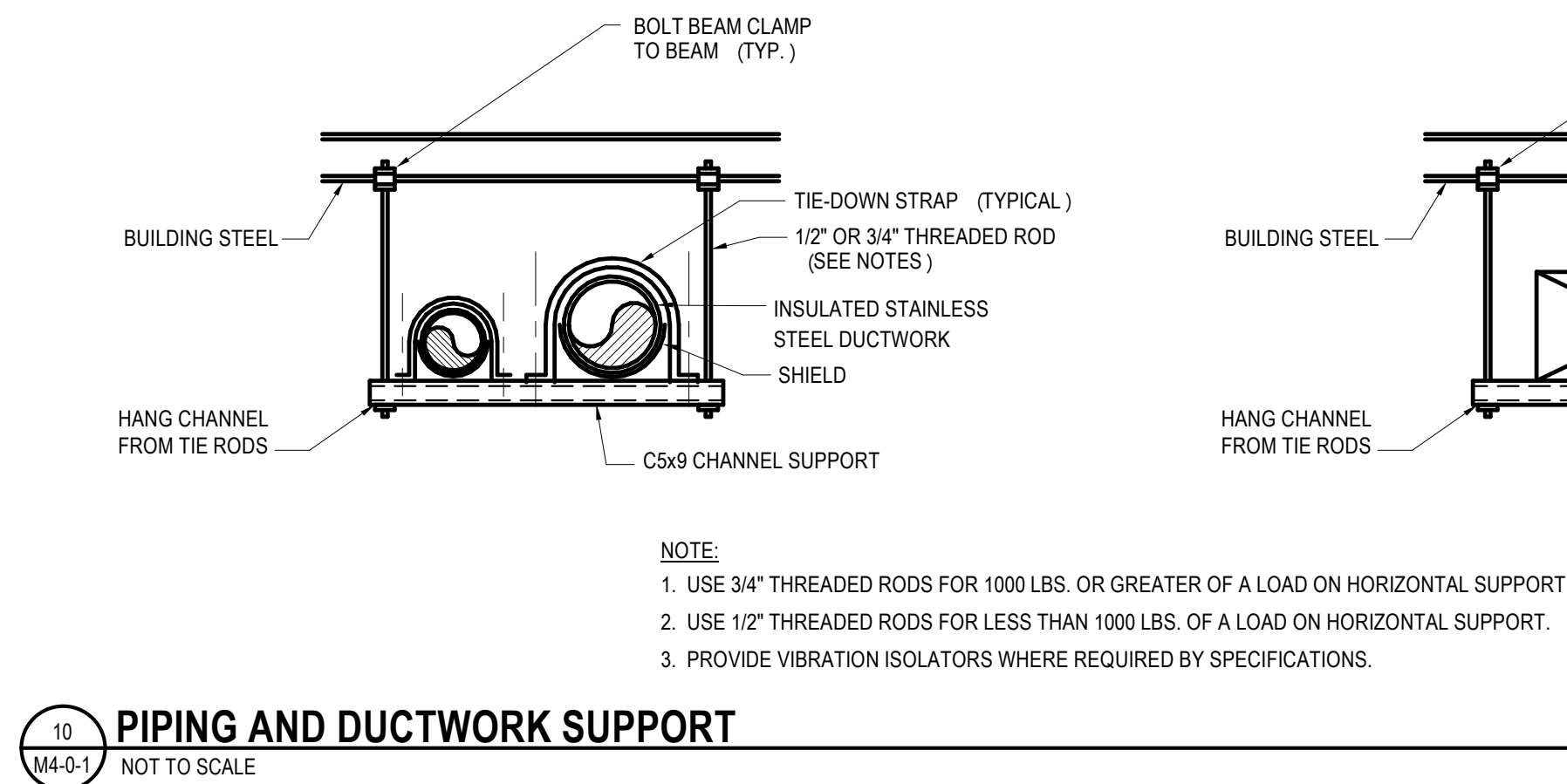
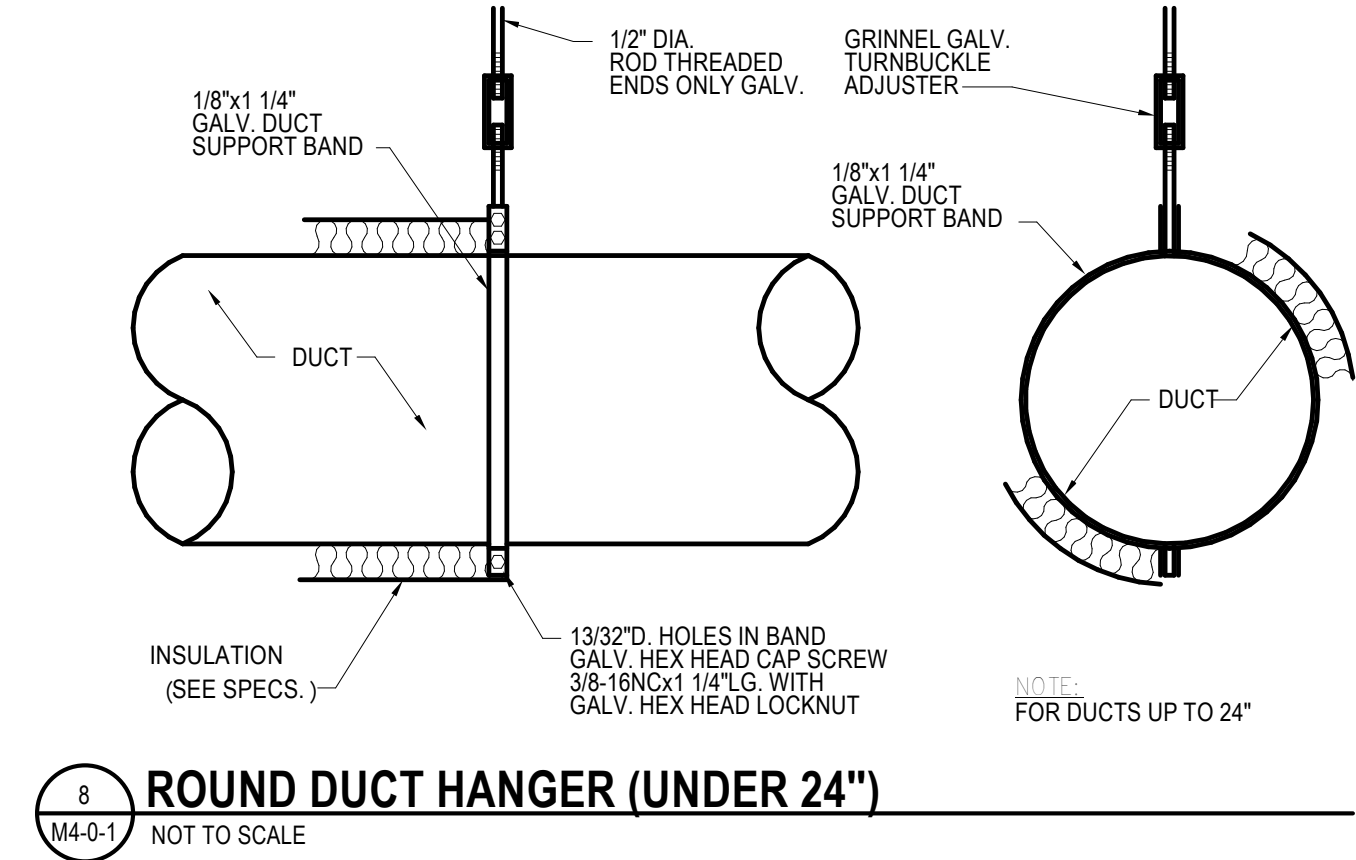
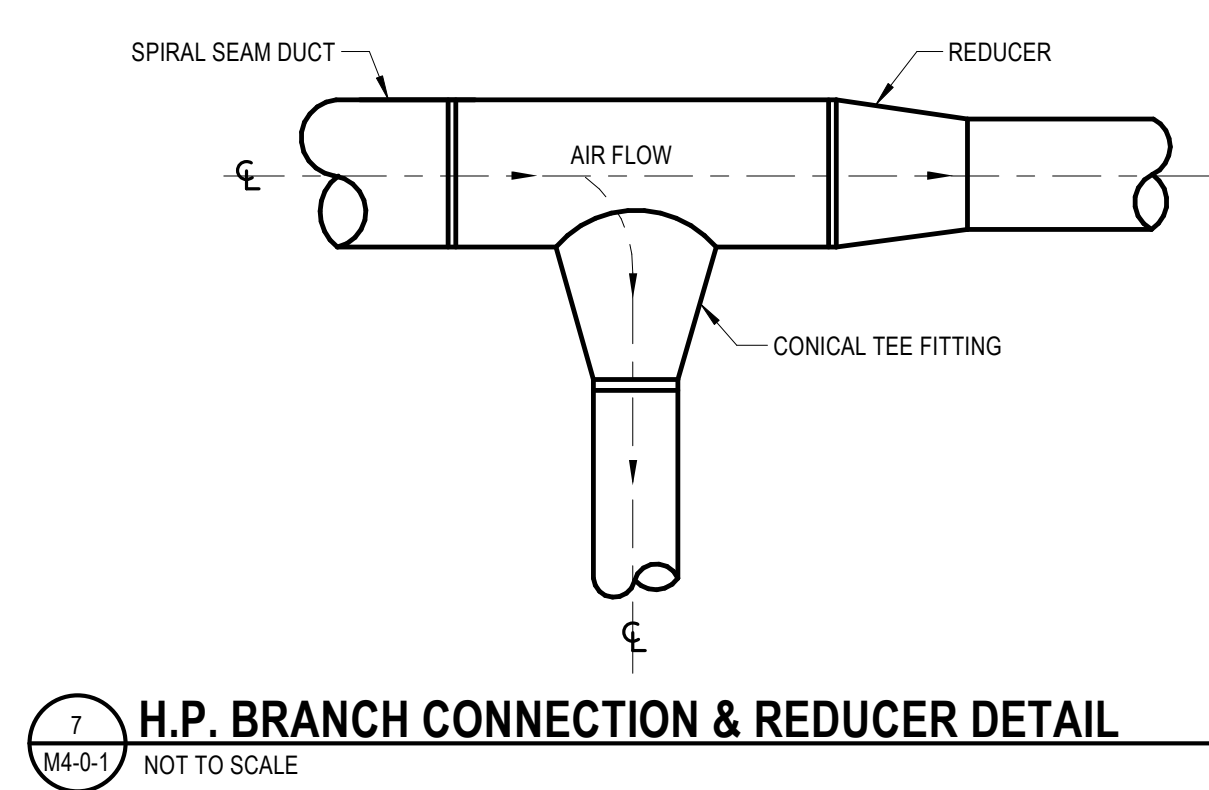
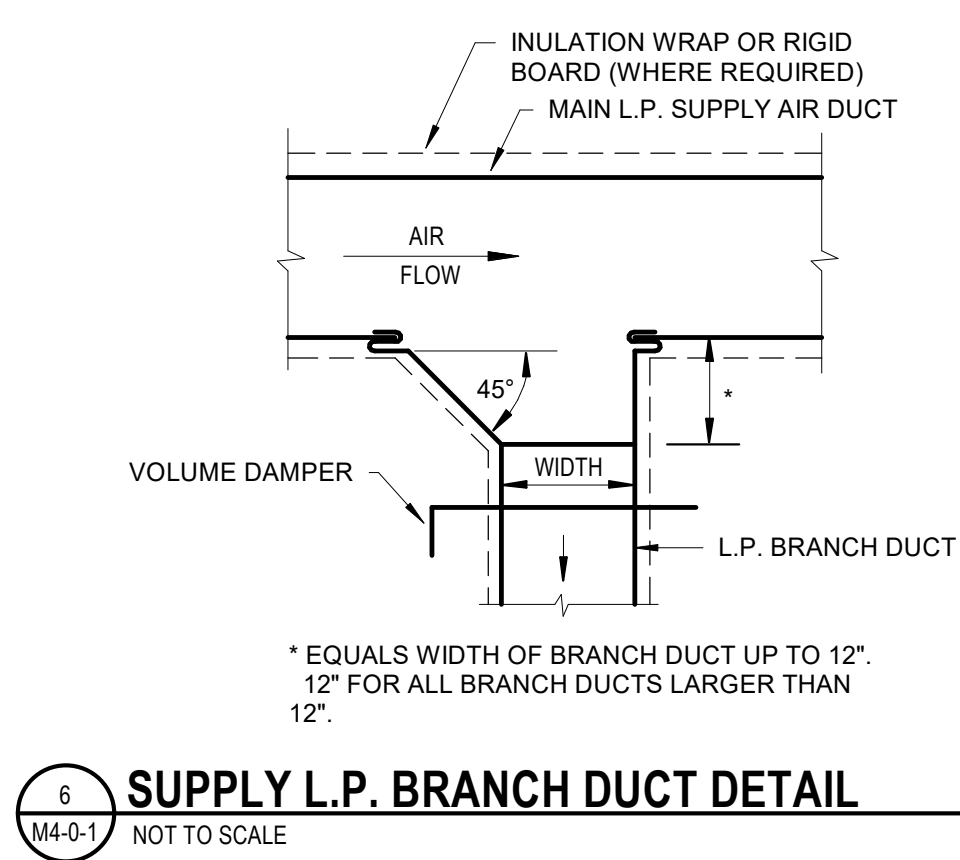
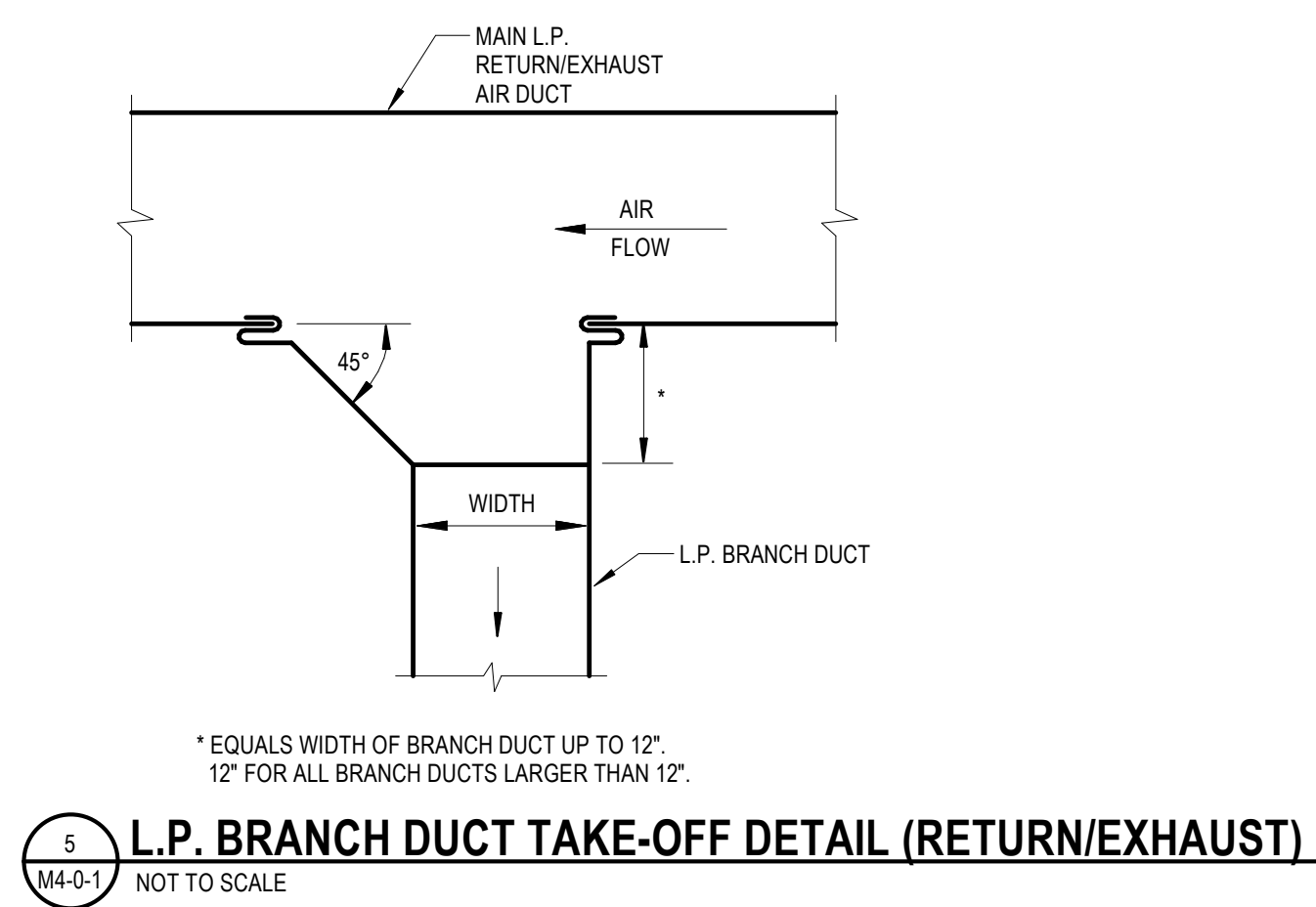
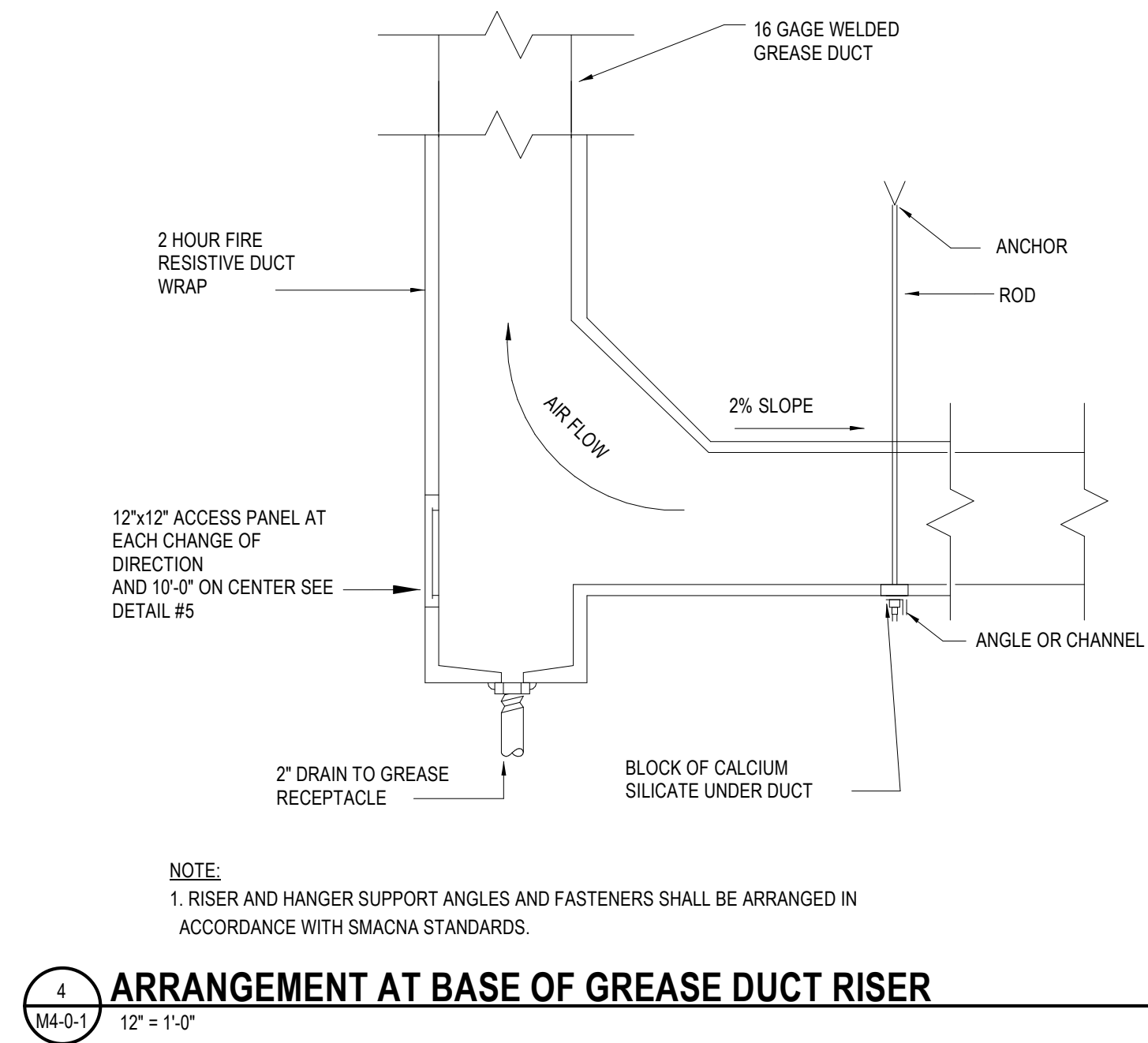
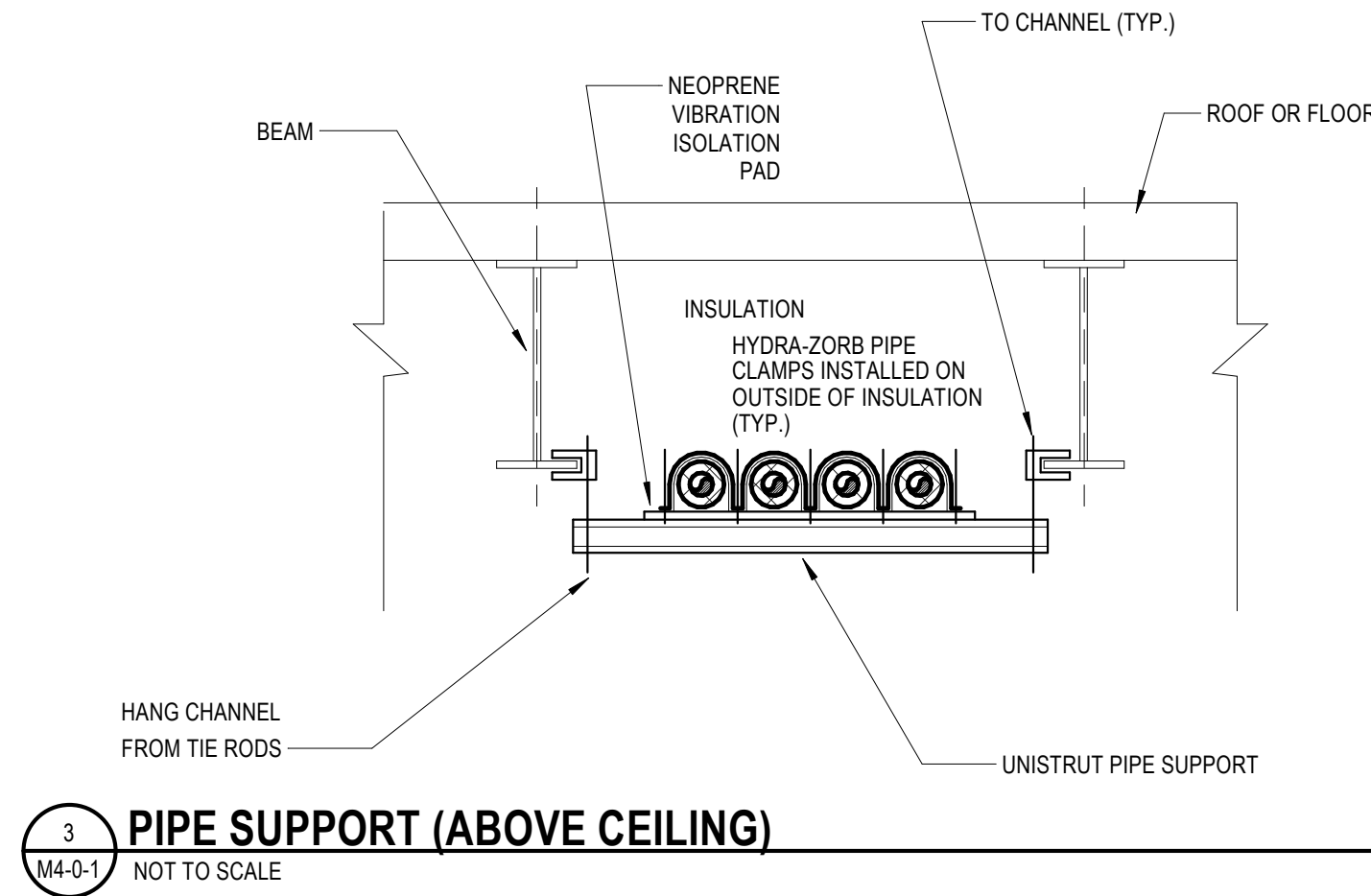
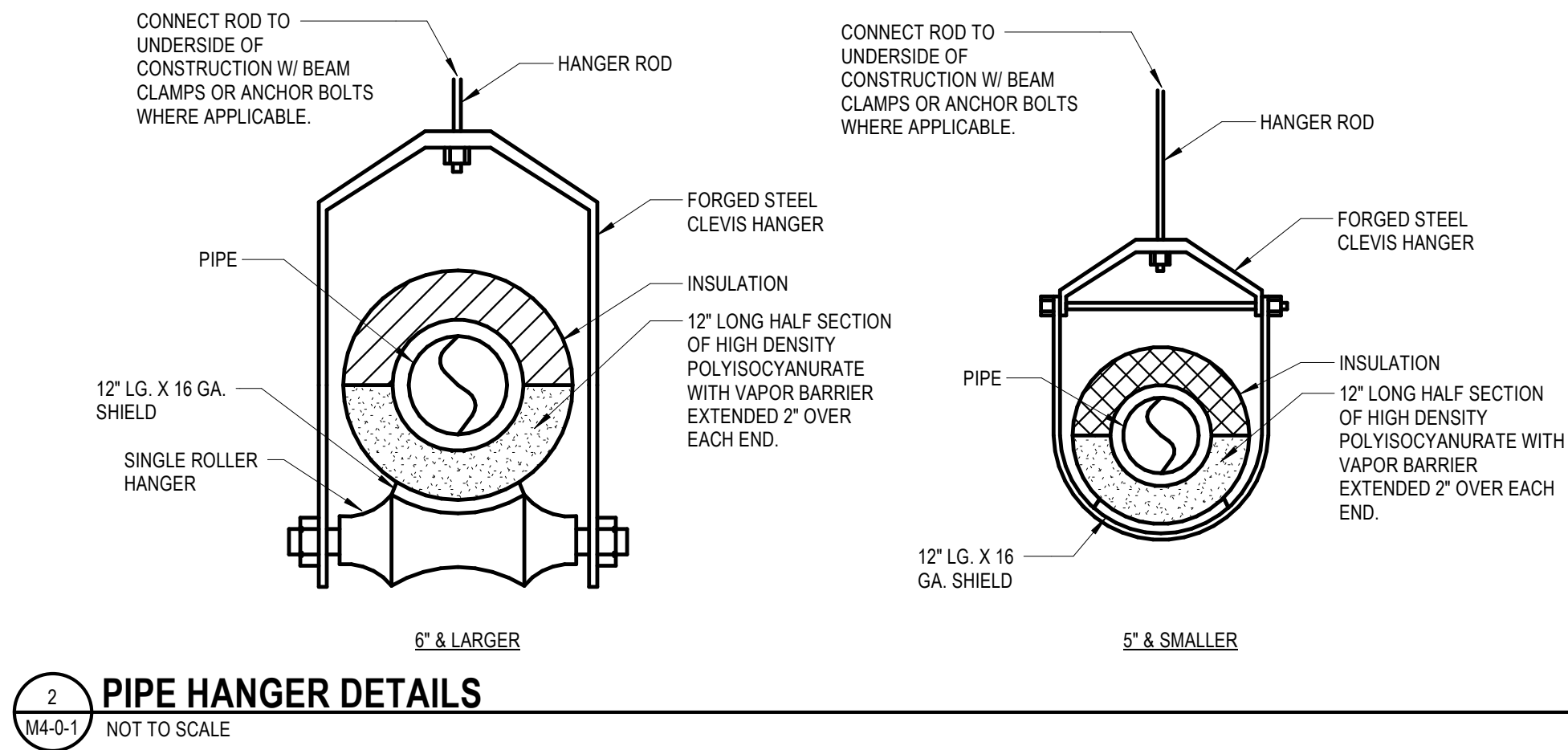
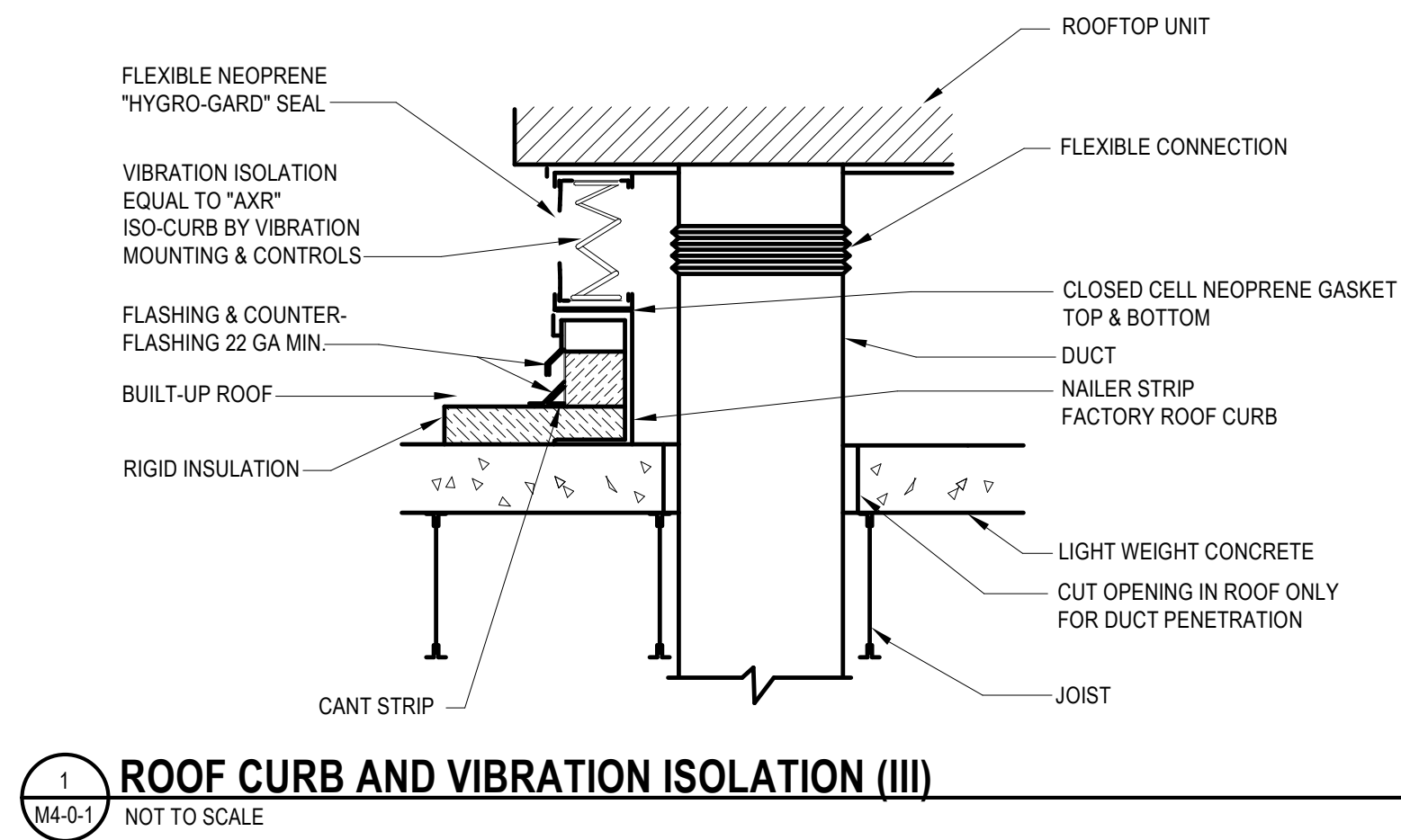
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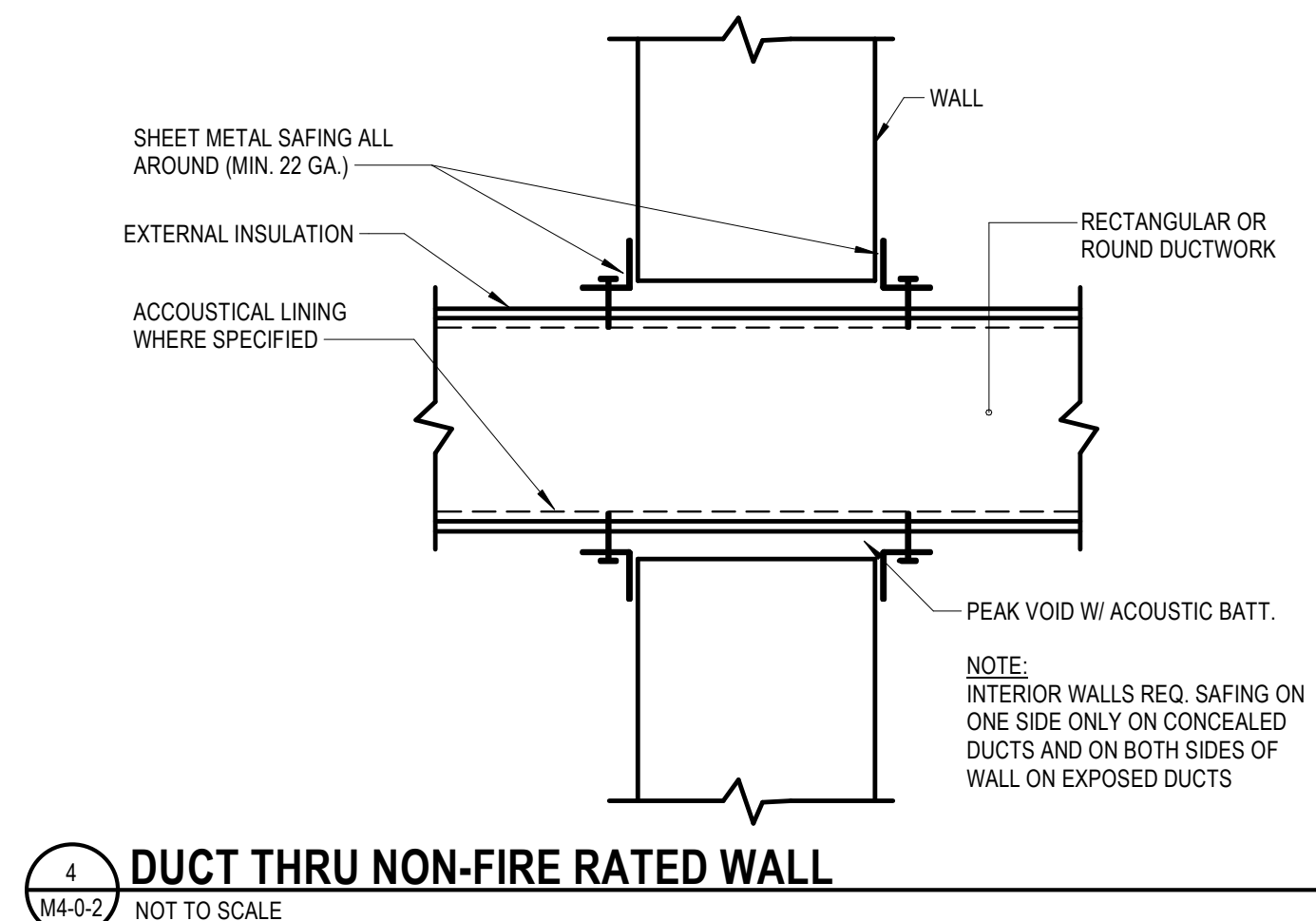
**MECHANICAL
AIR RISER
DIAGRAMS**

Scale: NTS
Job No.: 60-20-409
Drawn By: PK
Date: May 12th, 2023

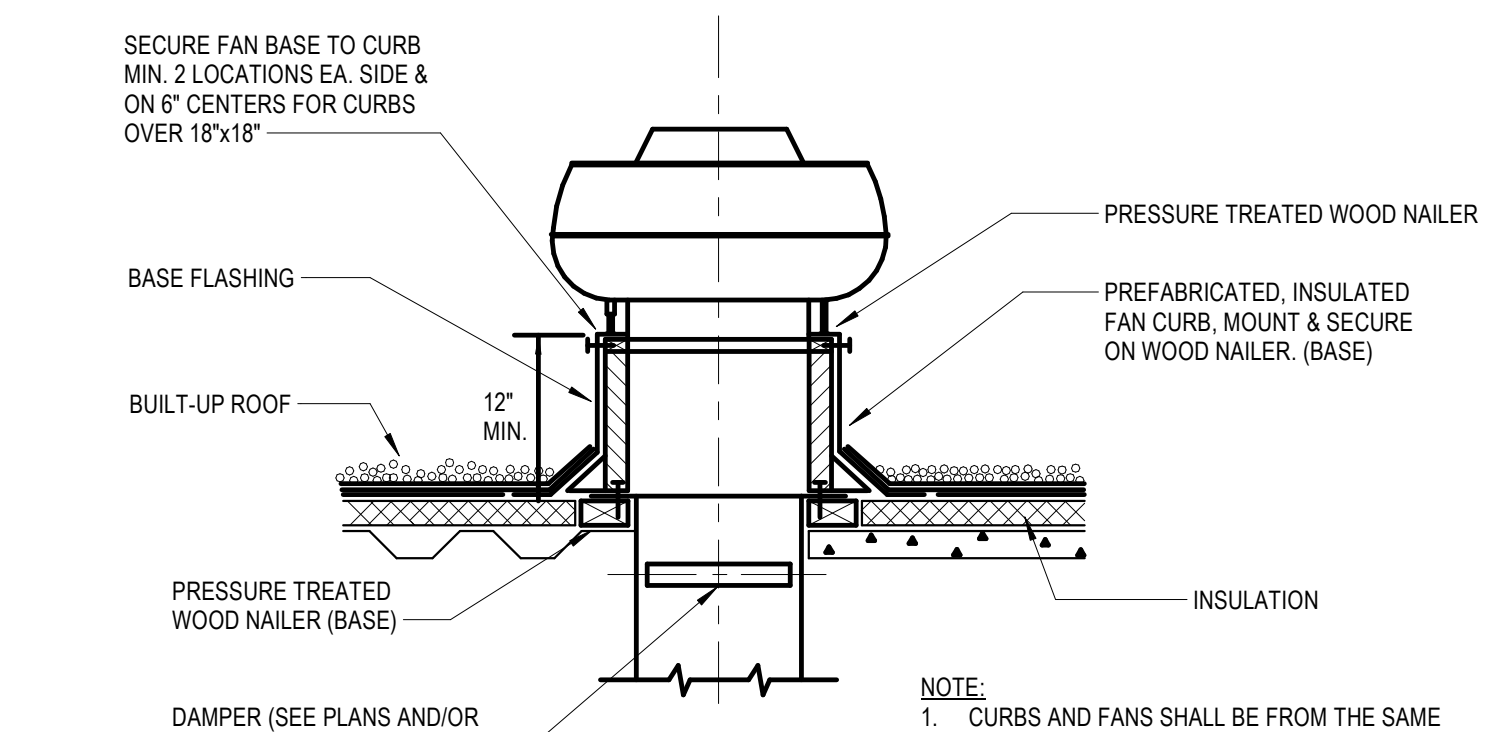
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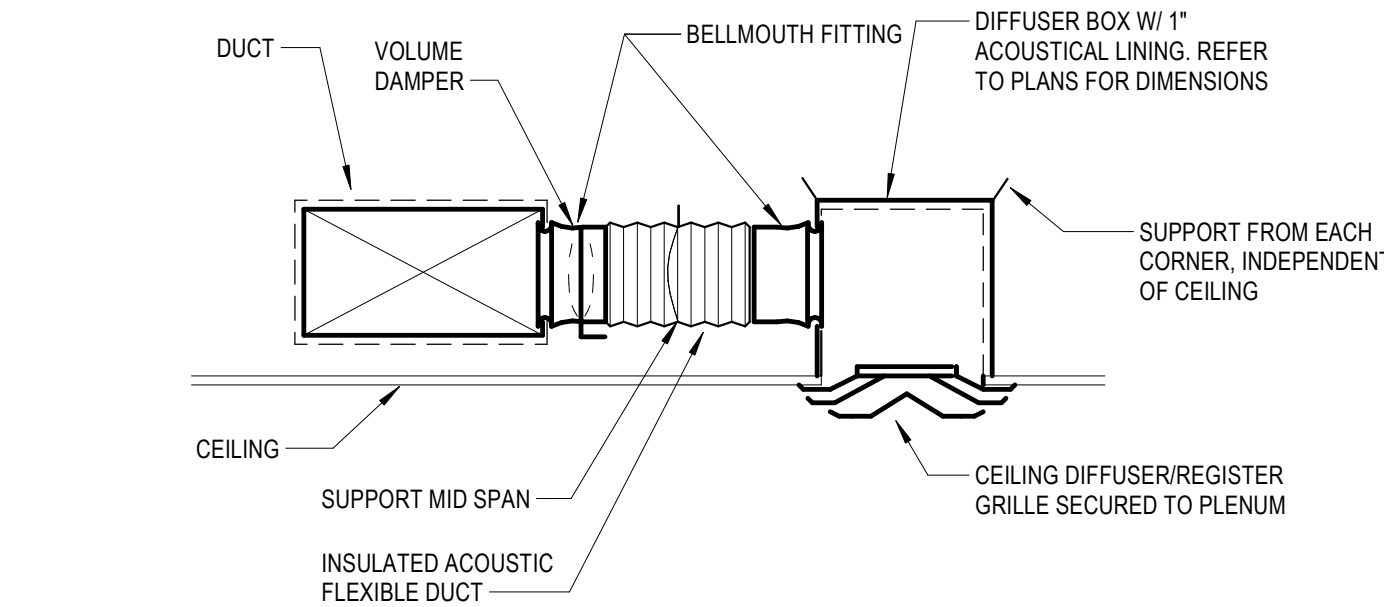




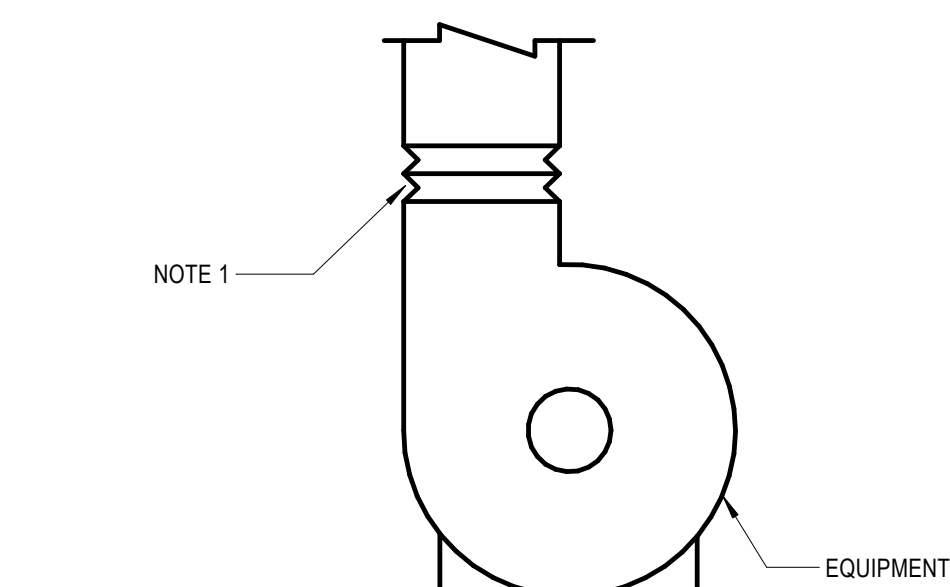
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M4-0-2 NOT TO SCALE



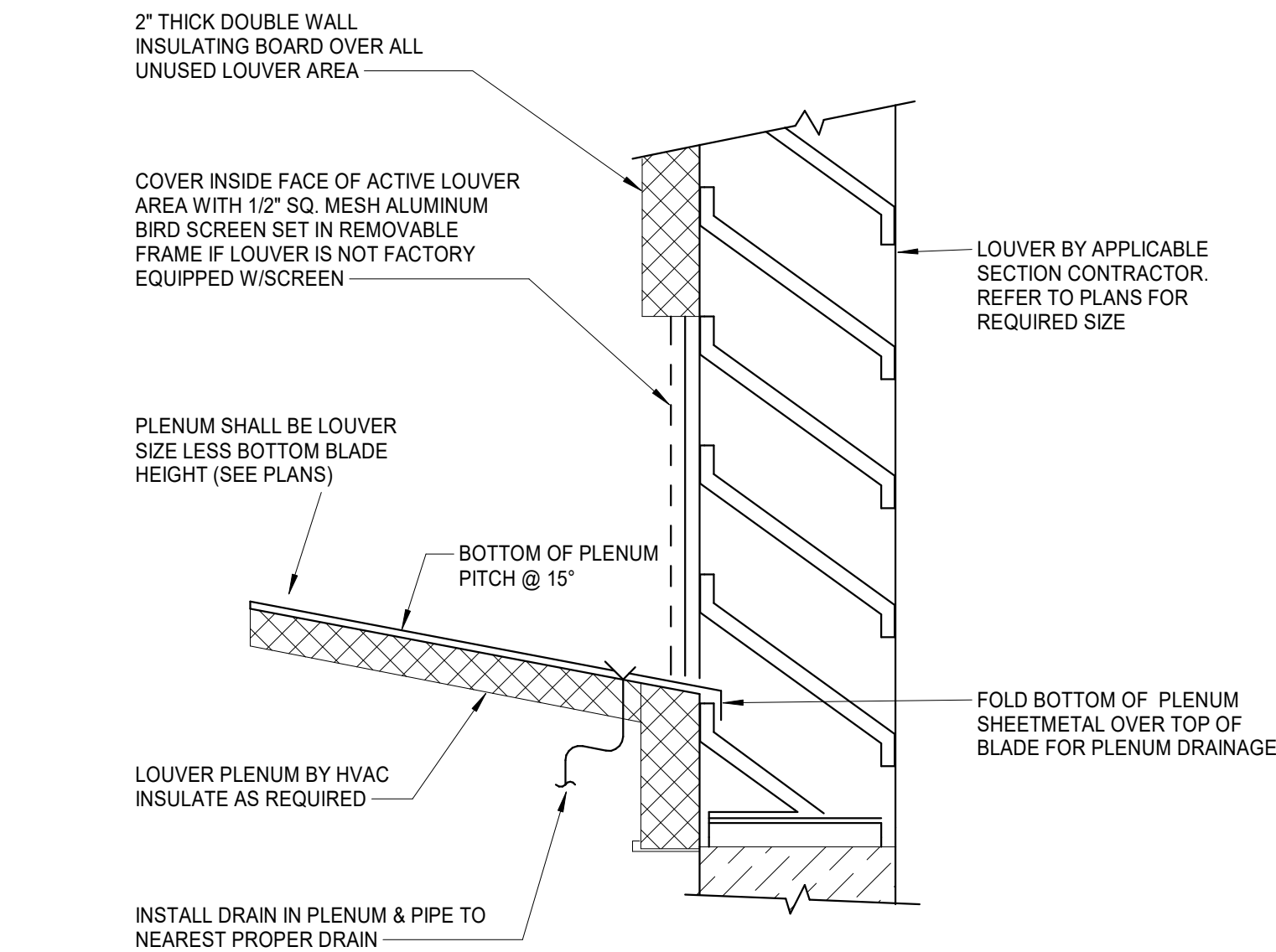
3 UPBLAST ROOF FAN MOUNTING
M4-0-2 NOT TO SCALE



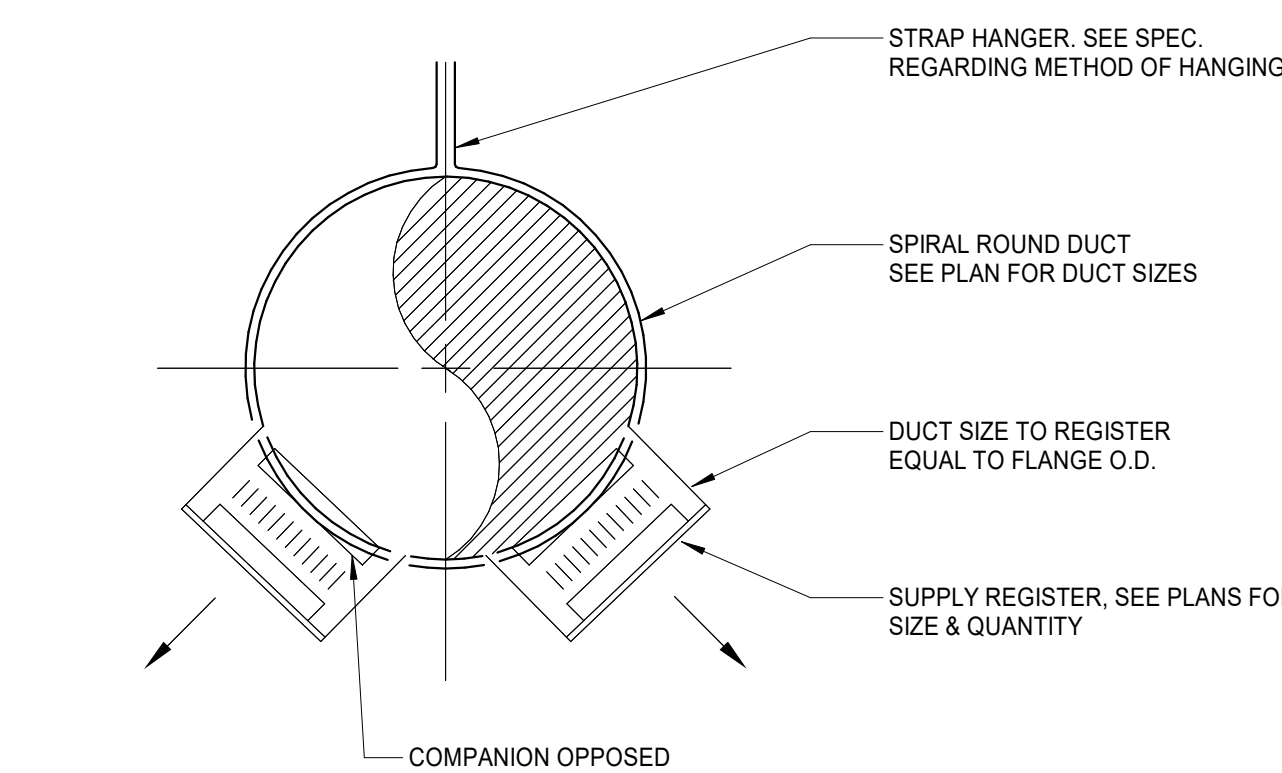
4 FLEXIBLE DUCT CONNECTION
M4-0-2 NOT TO SCALE



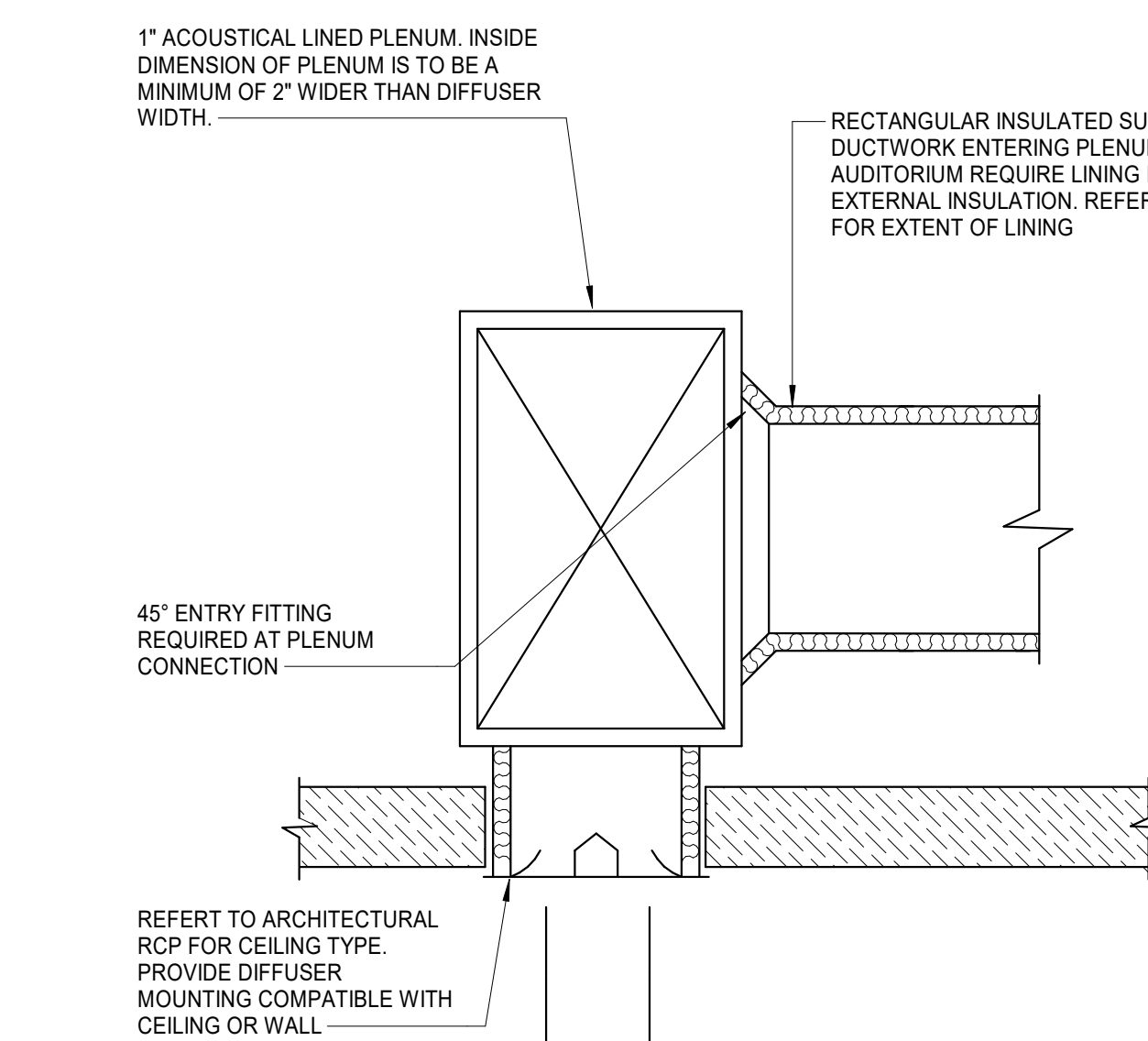
5 FLEXIBLE CONNECTION INSTALLATION
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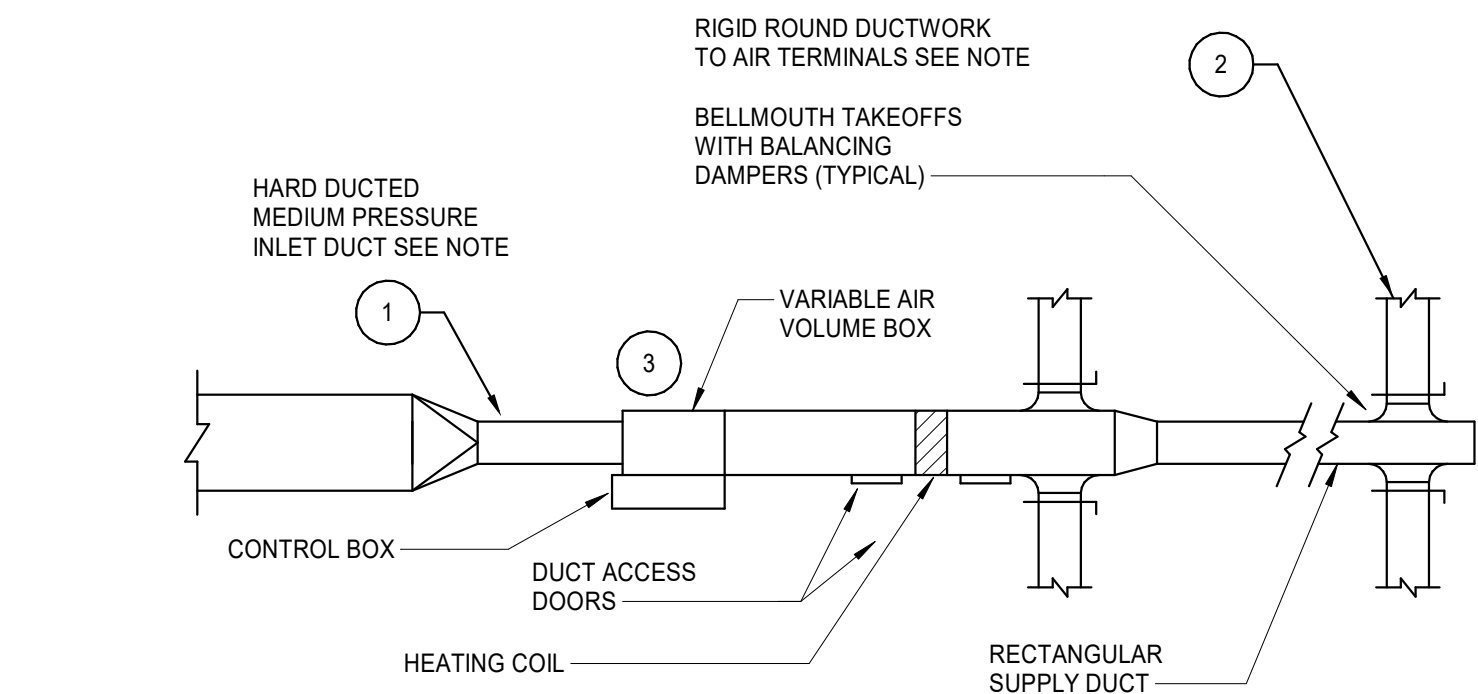
6 LOUVER/PLENUM
M4-0-2 18" x 1'-0"



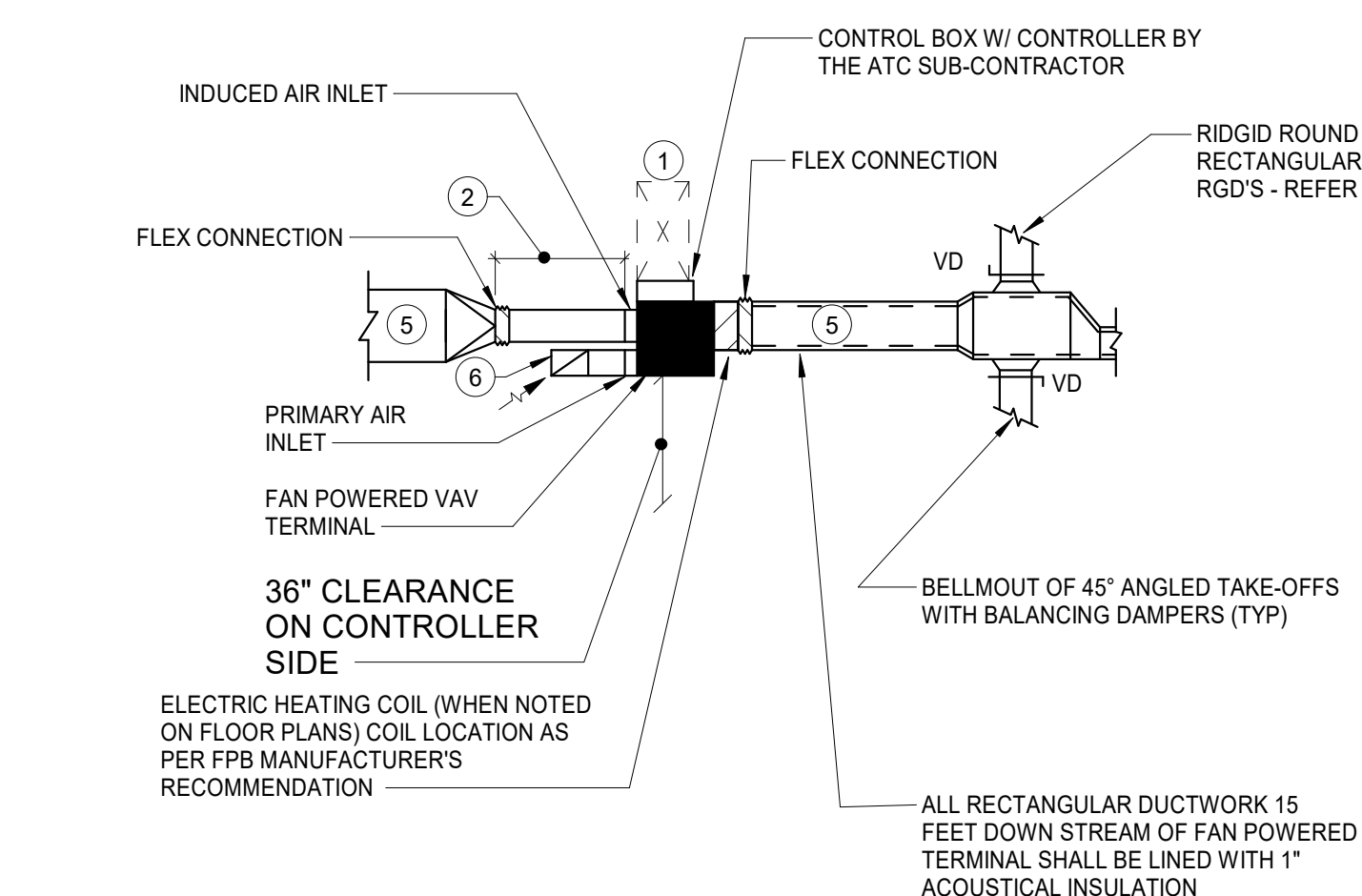
7 SUPPLY REGISTER (ROUND DUCTWORK)
M4-0-2 18" x 1'-0"



8 TYPICAL LINEAR DIFFUSER PLENUM
M4-0-2 18" x 1'-0"

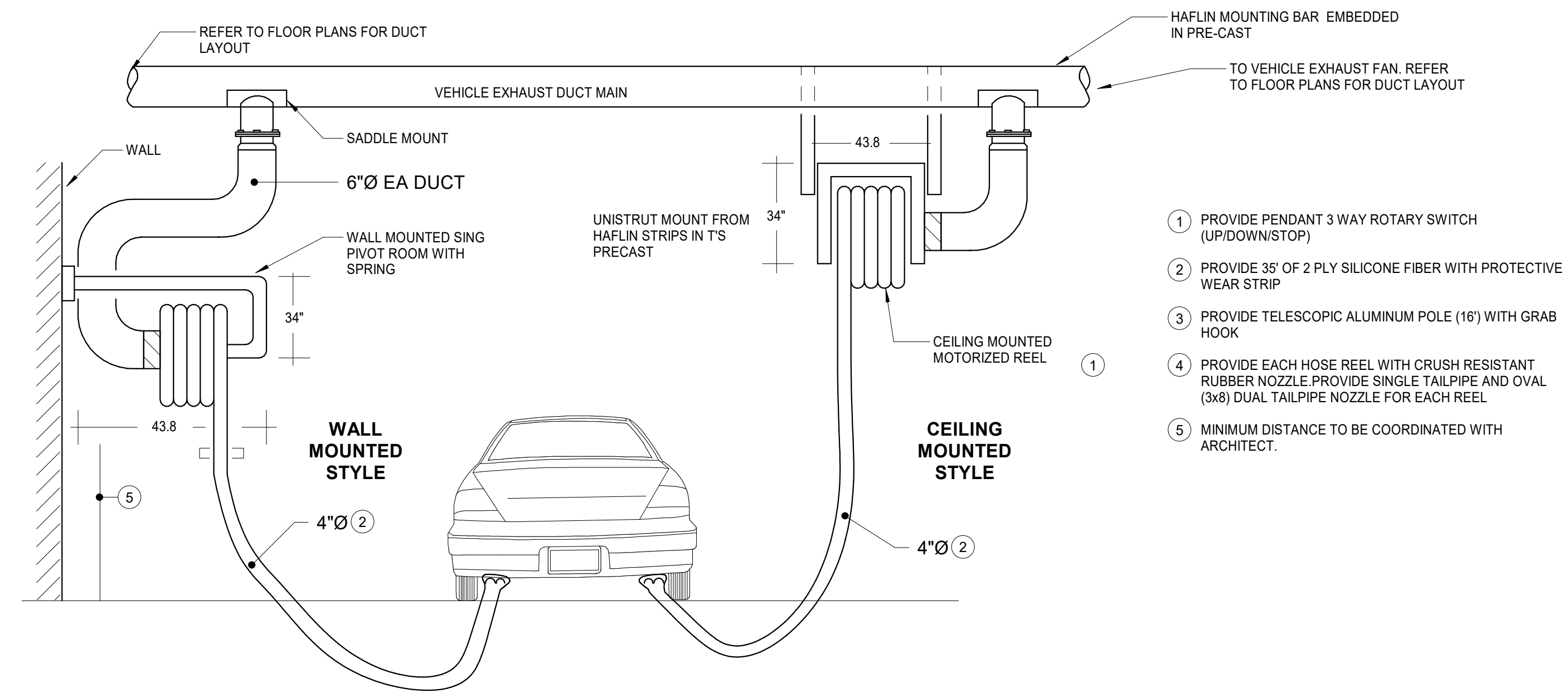


9 VAV BOX AND DUCT TAKE-OFFS
M4-0-2 18" x 1'-0"

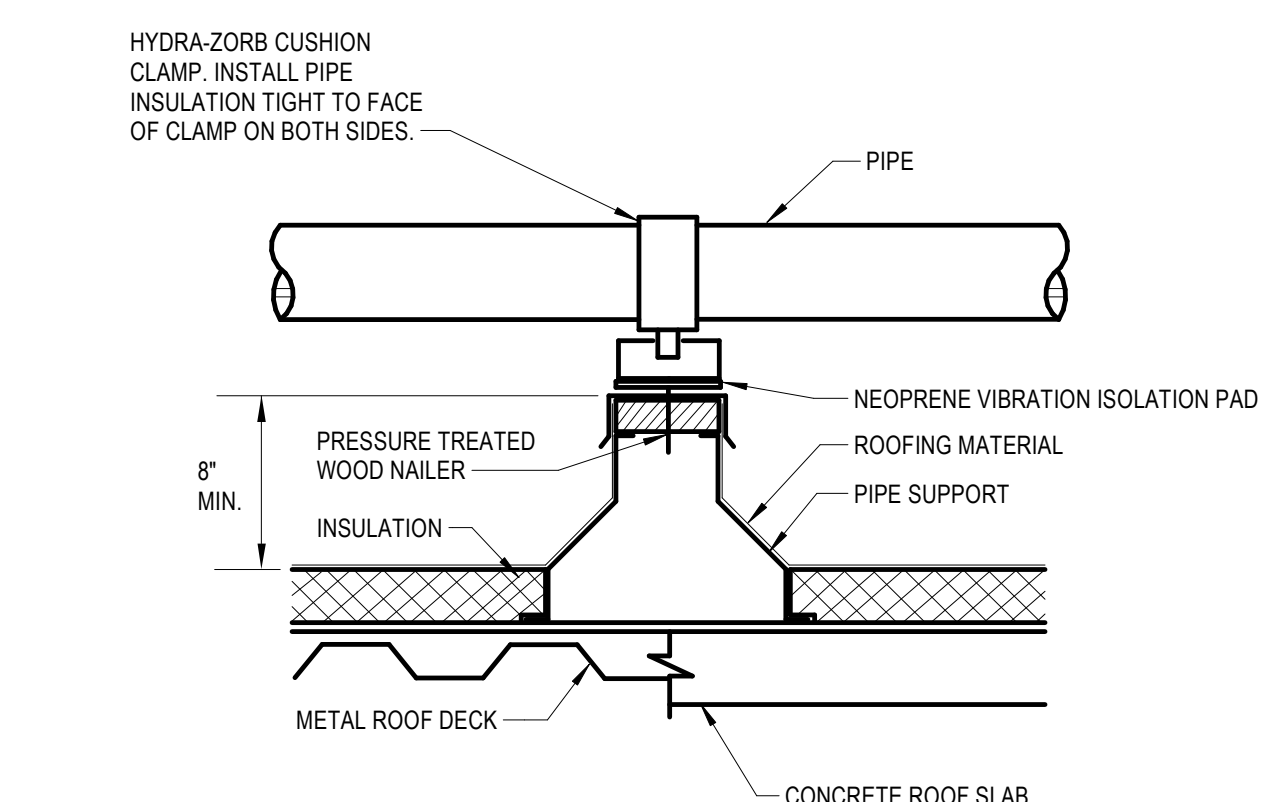


10 FAN-POWERED VAV TERMINAL AND TAKE-OFFS
M4-0-2 18" x 1'-0"

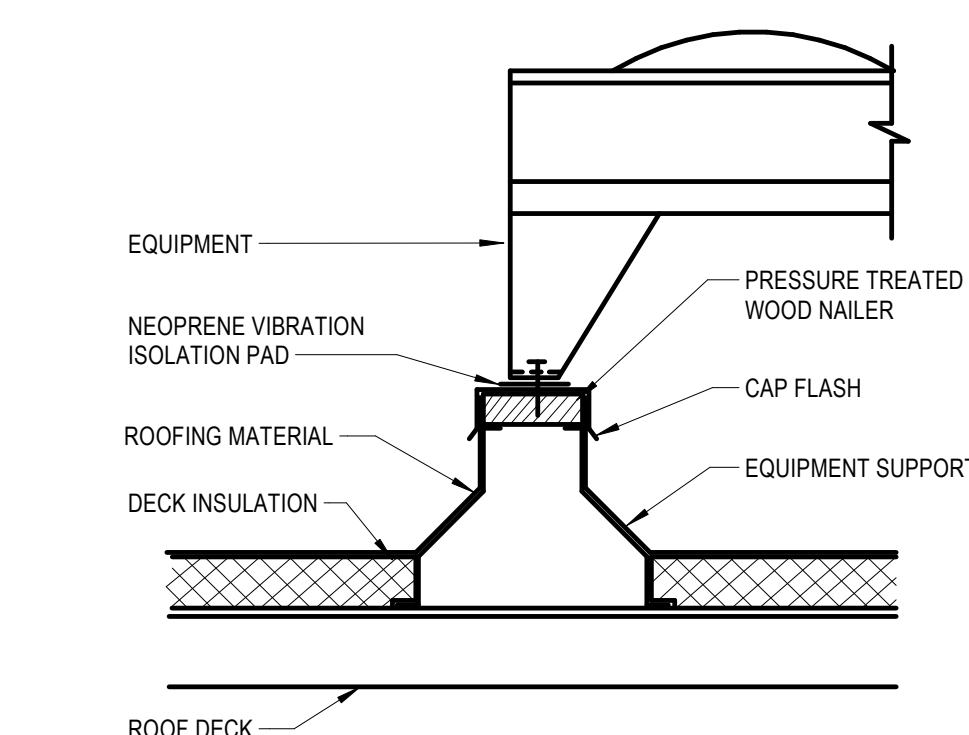
- NOTES:
1. PROVIDE A MINIMUM OF 36" CLEARANCE IN FRONT OF THE ELECTRIC CONTROL PANEL(S) AS PER THE NATIONAL ELECTRIC CODE AND PIPING DUCTWORK BUILDING STRUCTURE, ETC. SHALL BE IN THIS MAINTENANCE ZONE COORDINATE WITH ALL TRADES. INSTALL BOX W/ REQUIRED MANUFACTURER'S CLEARANCES ALL AROUND.
 2. 24" MINIMUM LENGTH OF INLET-SIZE STRAIGHT DUCTWORK FROM TERMINAL CONNECTION TO DUCTWORK TRANSITION AT THE RECTANGULAR PRESSURE.
 3. ALL BOXES SHALL BE INSTALLED PER THIS DETAIL.
 4. BRANCH DUCT SIZE SHALL BE AS SHOWN ON FLOOR PLAN OR SHALL BE THE SAME SIZE AS DIFFUSER NECK IF NOT INDICATED.
 5. DUCT SIZE TO BE AS SHOWN ON PLANS. TRANSITION TO BOX CONNECTION INLET/DISCHARGE SIZES AS REQUIRED.
 6. LINED SOUND DEFLECTION RA DUCT BOOT, TAPERED UP AT ANGLE W/ OPENING AT TOP PROVIDED BY BOX MFR. DUCT BOOT SIZE TO MATCH BOX RA OPENING SIZE. PROVIDE MIN. 4" HORIZ. RUN.
 7. FRP TO BE WRAPPED IN MASS-LOADED VINYL (SOUNDSEAL B-10 OR EQUAL) W/ MIN. SURFACE DENSITY OF 1.0 LBP AND A 1" QUILTED INSULATING UNDERLAY. SERVICE ACCESS PANELS TO BE MAINTAINED BY VELCRO ATTACHMENT OF WRAP TO PANELS.



11 OVERHEAD CAR EXHAUST SYSTEM
M4-0-2 18" x 1'-0"



12 ROOF PIPE SUPPORT CURB
M4-0-2 NOT TO SCALE



13 EQUIPMENT CURB
M4-0-2 NOT TO SCALE

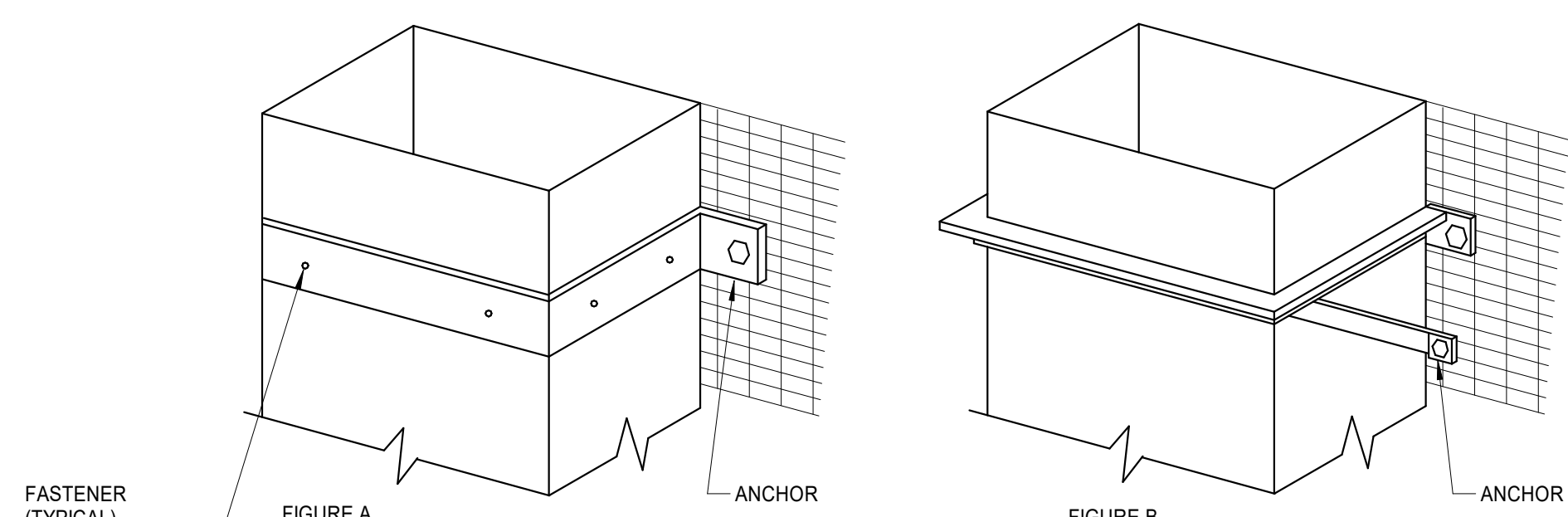


FIGURE A SUGGESTED SIZING		FIGURE B SUGGESTED SIZING	
DUCT SIZE	BAND	DUCT SIZE	BAND
18" x 12" 24" x 20"	1-1/2"x18 Ga 1"x18"	30"x12"	1"x1"x18"
		36"x18"	1"x1"x18"
		42"x24"	1-1/4"x1"x1-1/4"x18"
		48"x30"	1-1/4"x1"x1-1/4"x18"
DUCT GAUGE		ALLOWABLE LOAD PER FASTENER	
		28.26	25 LB
		24.22-30	35 LB
		18.16	50 LB

14 DUCTWORK SUPPORT FROM WALL
M4-0-2 18" x 1'-0"

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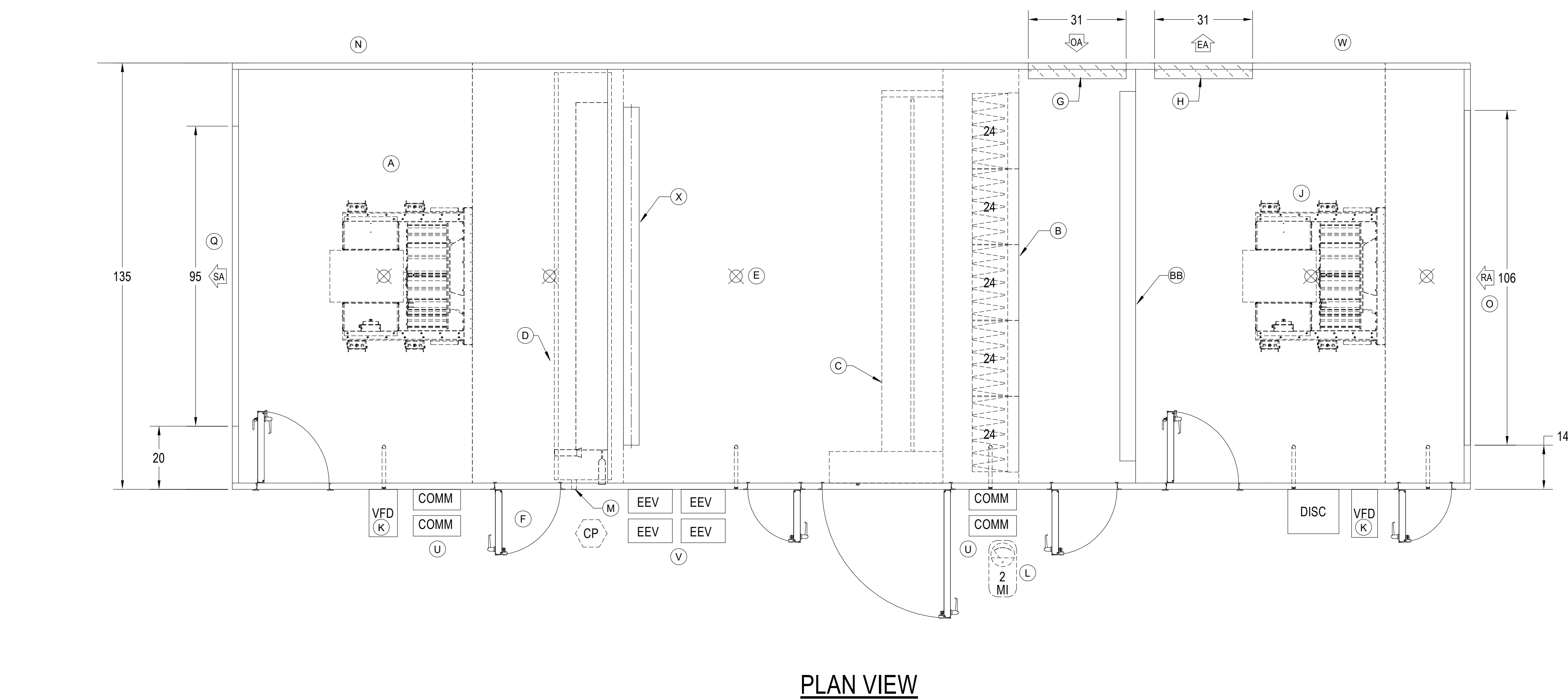
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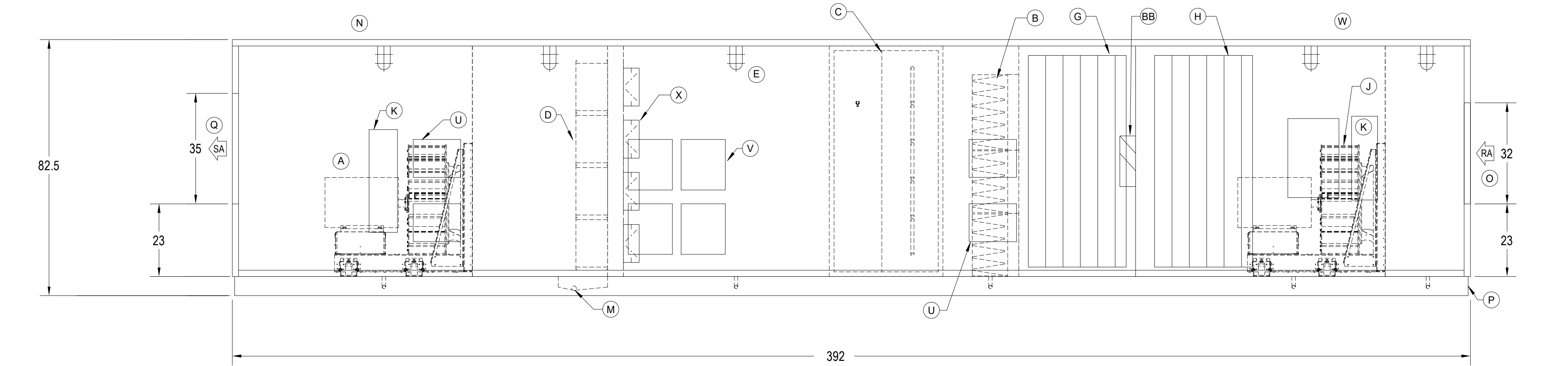
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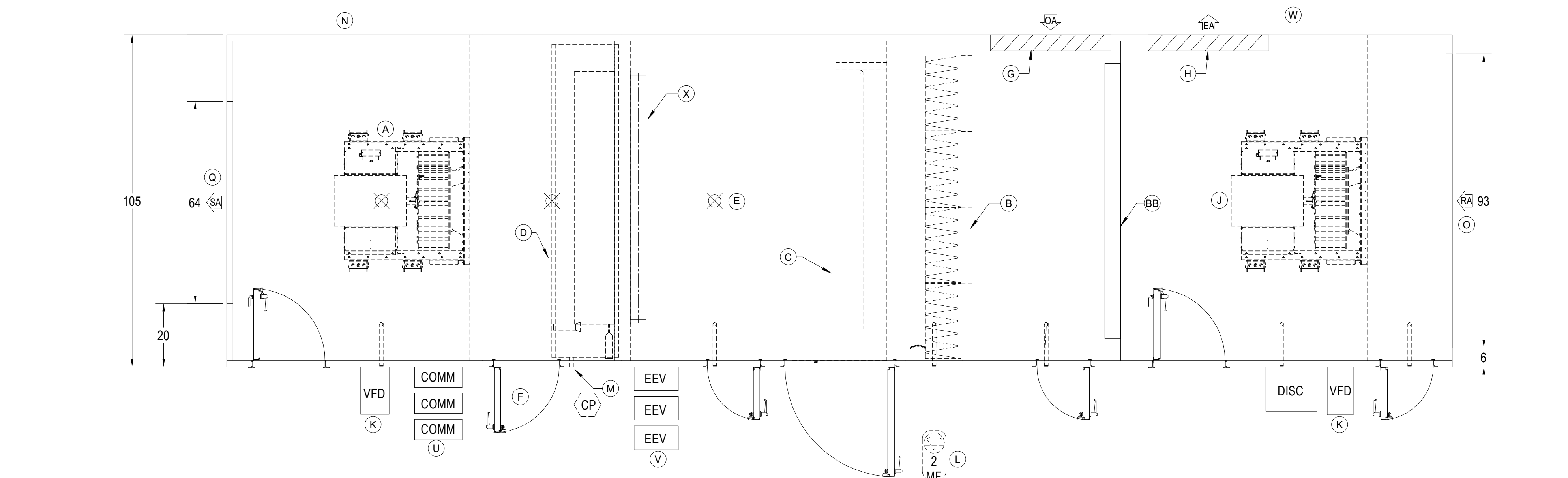


PLAN VIEW

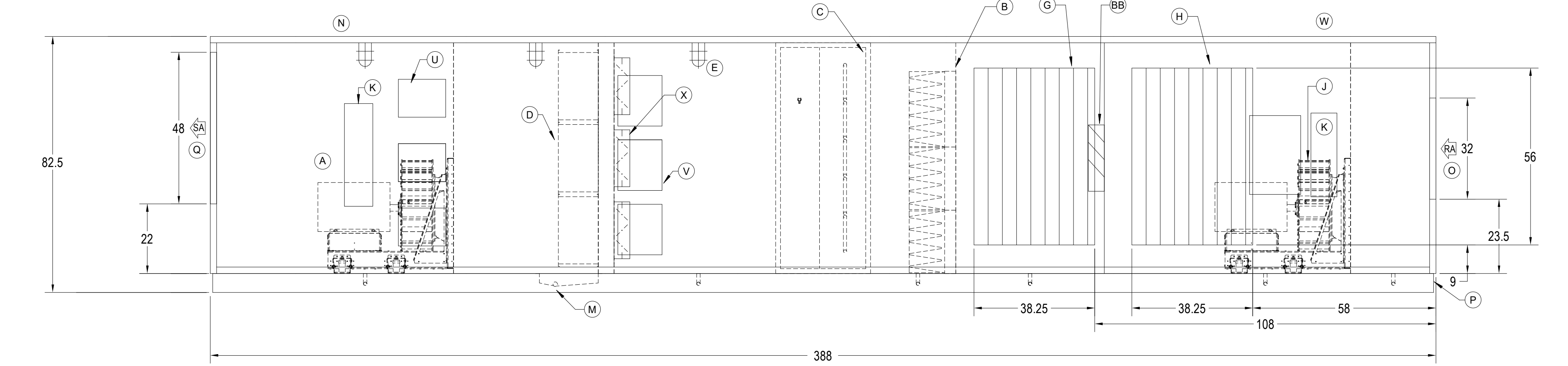


ELEVATION VIEW

1 AHU-1
NTS



PLAN VIEW

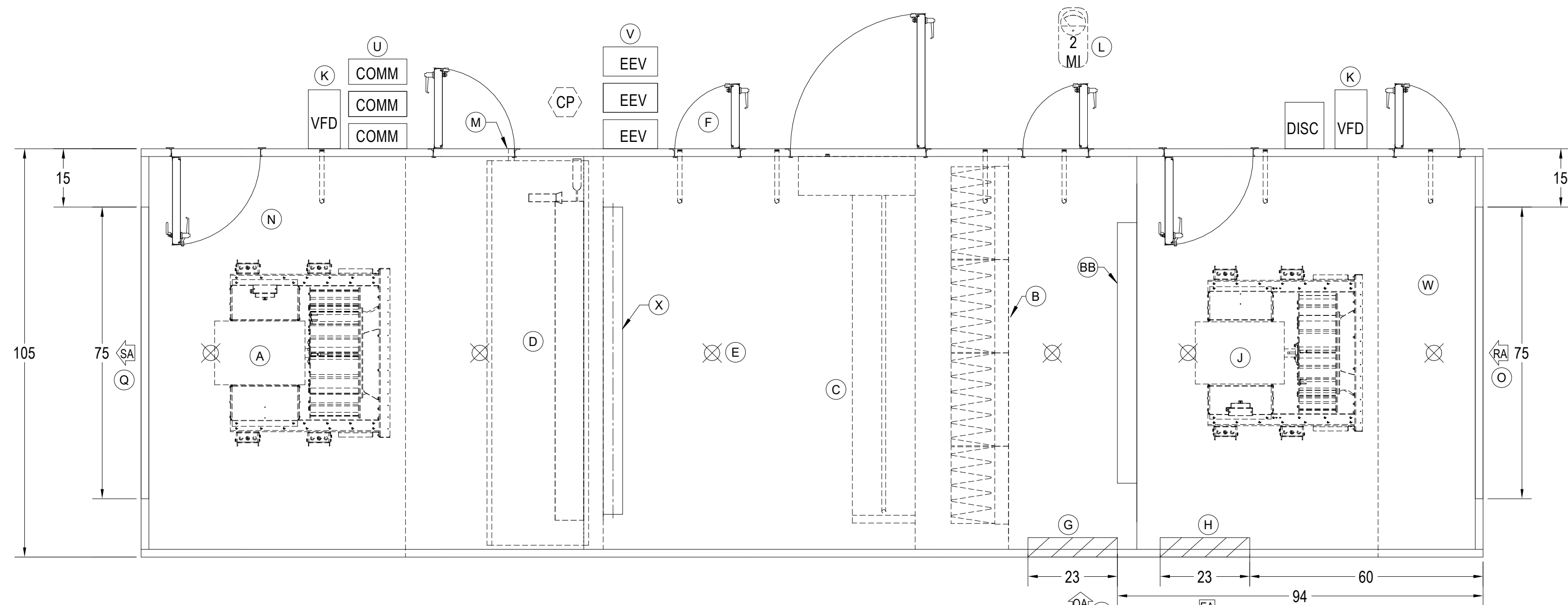


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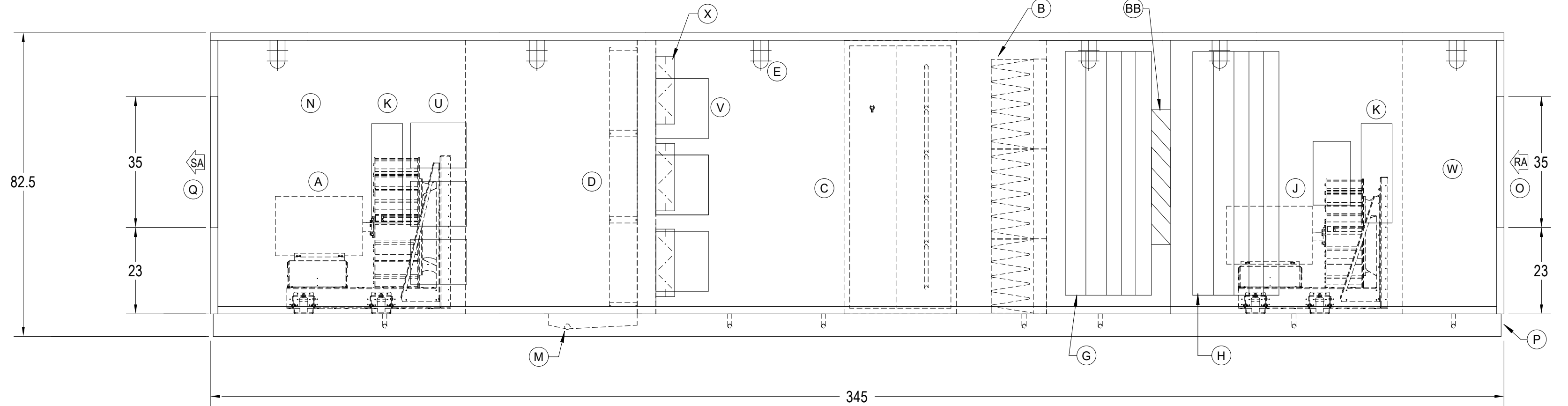
3 AHU-3
NTS

KEY NOTES:			
(A) SUPPLY FAN	(P) F BASE RAIL	(S) 2" MERV-10 FILTER	(V) VRF REFRIGERANT (EEV KIT) ENCLOSURE
(B) FILTER BANK 2" MERV-10, 12" MERV-13	(Q) SUPPLY DISCHARGE OPENING	(T) ENERGY RECOVERY WHEEL	(W) RETURN AIR INTAKE PLENUM SECTION
(C) ELECTRIC HEATING COIL	(R) OUTSIDE AIR INTAKE HOOD	(U) VRF COMMUNICATION CONTROL ENCLOSURE	(X) COIL BYPASS DAMPERS
(D) VRF COOLING/HEATING COIL	(S) 2" MERV-10 FILTER	(V) VRF REFRIGERANT (EEV KIT) ENCLOSURE	(Y) EXHAUST AIR HOOD
(E) LIGHT (TYPICAL)	(T) ENERGY RECOVERY WHEEL	(W) RETURN AIR INTAKE PLENUM SECTION	(Z) F BASE RAIL
(F) ACCESS DOOR (TYPICAL)	(U) VRF COMMUNICATION CONTROL ENCLOSURE	(X) COIL BYPASS DAMPERS	(AA) WHEEL BYPASS DAMPER
(G) OUTSIDE AIR DAMPER (PARALLEL BLADE)	(V) VRF REFRIGERANT (EEV KIT) ENCLOSURE	(Y) EXHAUST AIR HOOD	(BB) RECIRCULATION DAMPER
(H) EA DISCHARGE DAMPER (OPPOSED BLADE)	(W) RETURN AIR INTAKE PLENUM SECTION	(Z) F BASE RAIL	(CC) ENERGY RECOVERY WHEEL VFD
(I) RETURN AIR DAMPER (PARALLEL BLADE)	(X) COIL BYPASS DAMPERS	(AA) WHEEL BYPASS DAMPER	
(J) RETURN FAN	(Y) EXHAUST AIR HOOD	(BB) RECIRCULATION DAMPER	
(K) FAN VFD	(Z) F BASE RAIL	(CC) ENERGY RECOVERY WHEEL VFD	
(L) MAGNETIC FILTER GAUGE	(AA) WHEEL BYPASS DAMPER		
(M) CONDENSATE DRAIN OUTLET	(BB) RECIRCULATION DAMPER		
(N) SUPPLY AIR DISCHARGE PLENUM SECTION	(CC) ENERGY RECOVERY WHEEL VFD		
(O) RETURN INTAKE OPENING			

AHU DRAWINGS LEGEND
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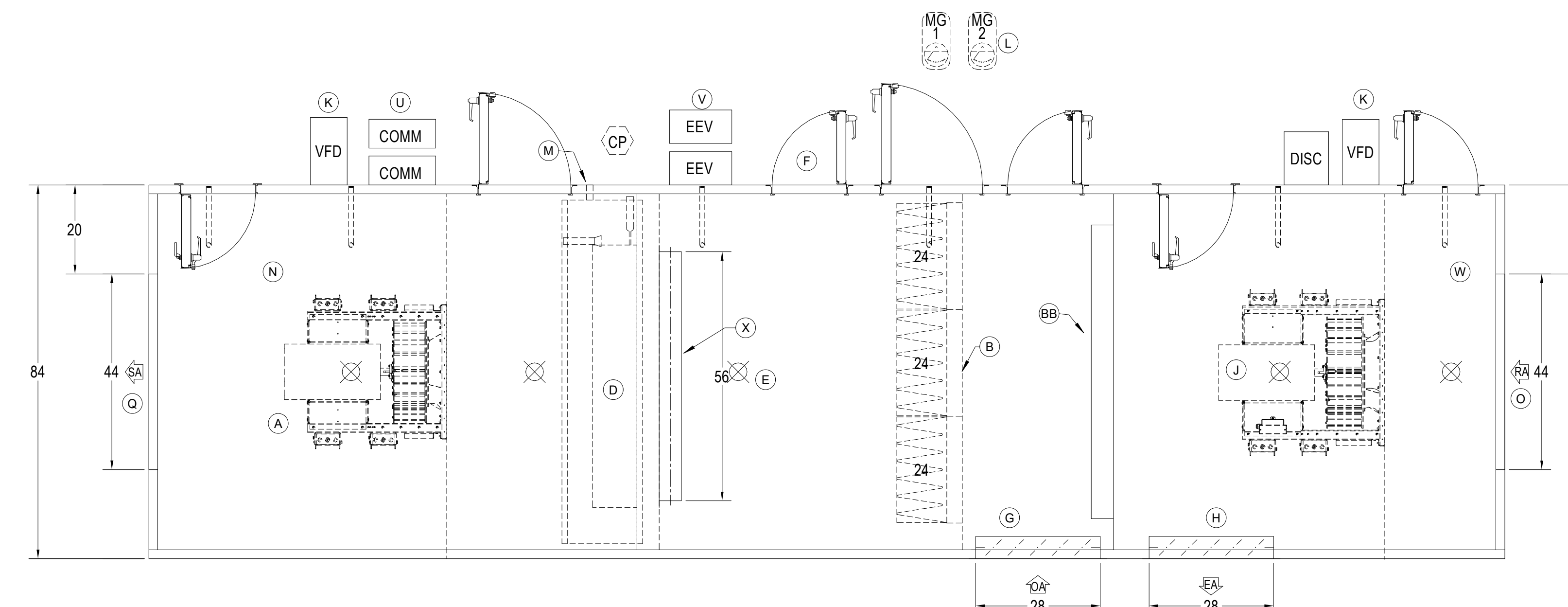


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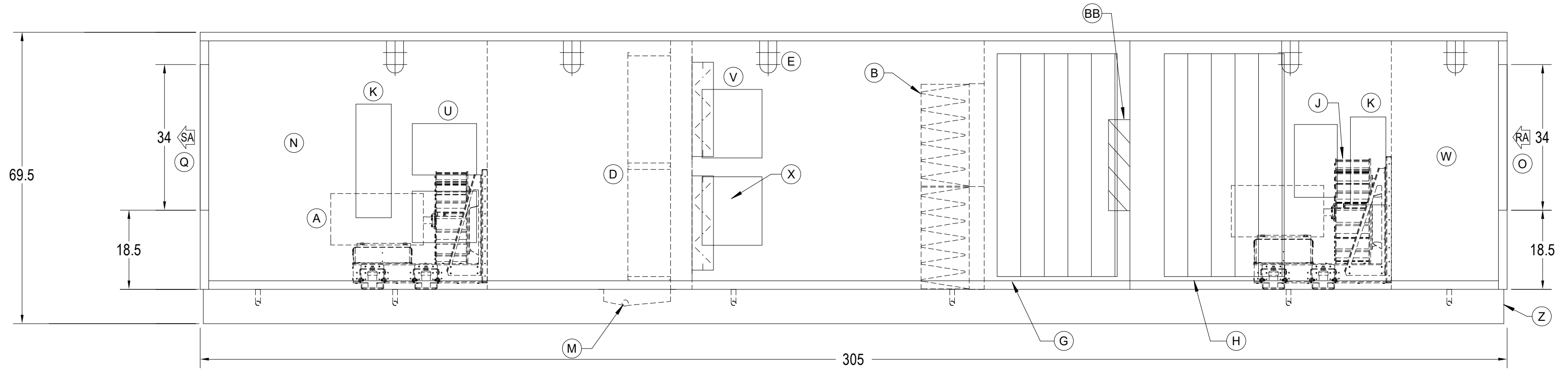


ELEVATION VIEW

2 AHU-2
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PLAN VIEW



ELEVATION VIEW

4 AHU-4
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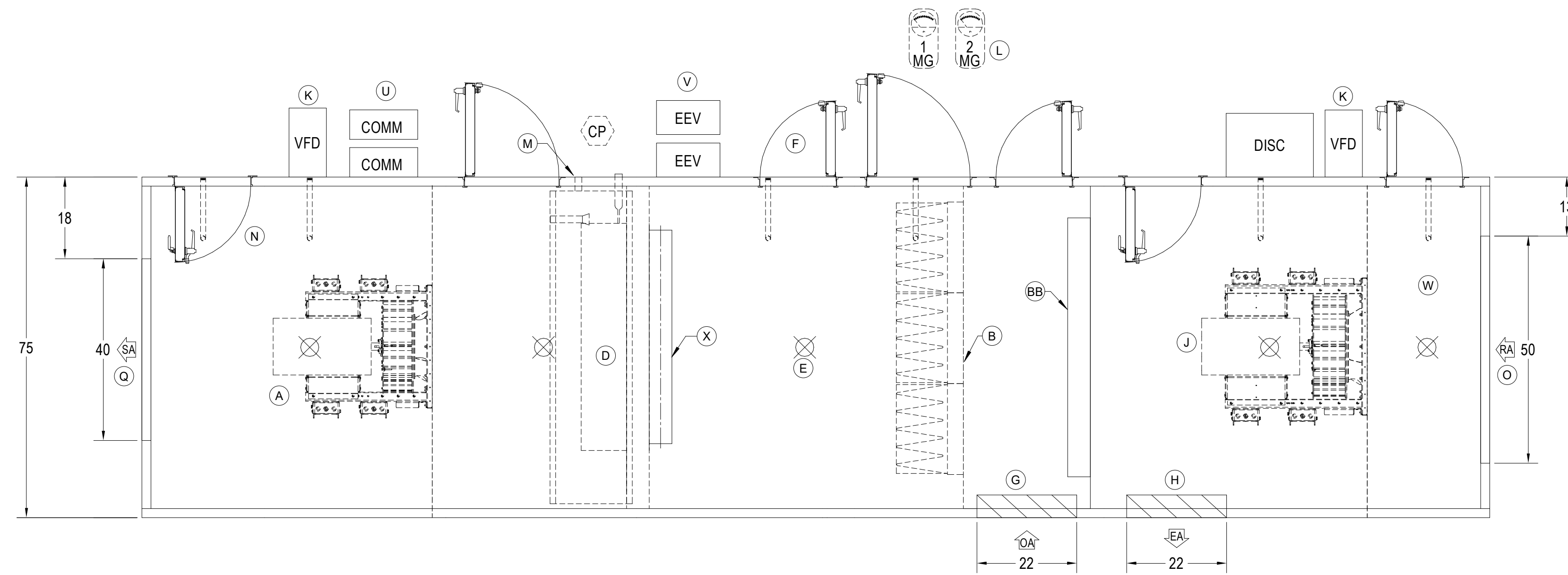
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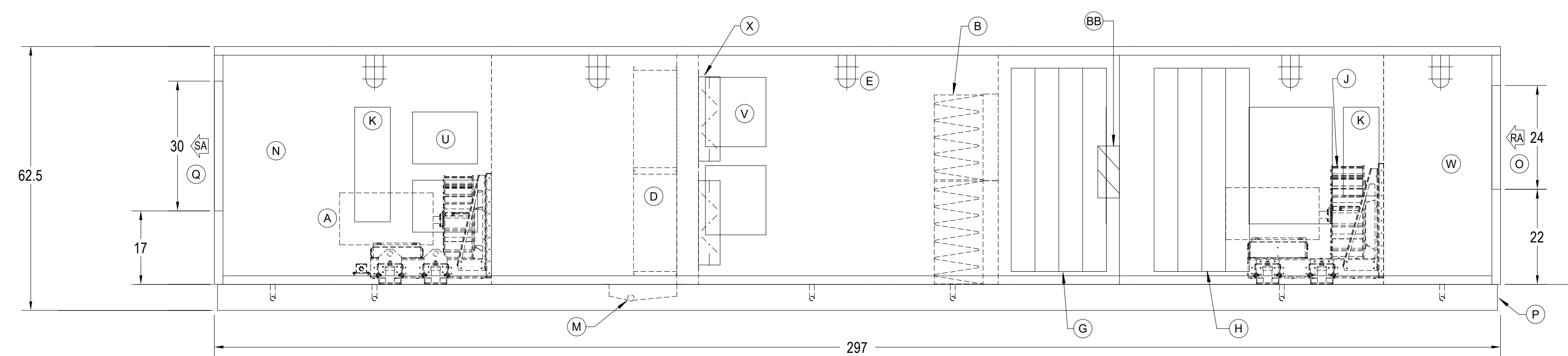
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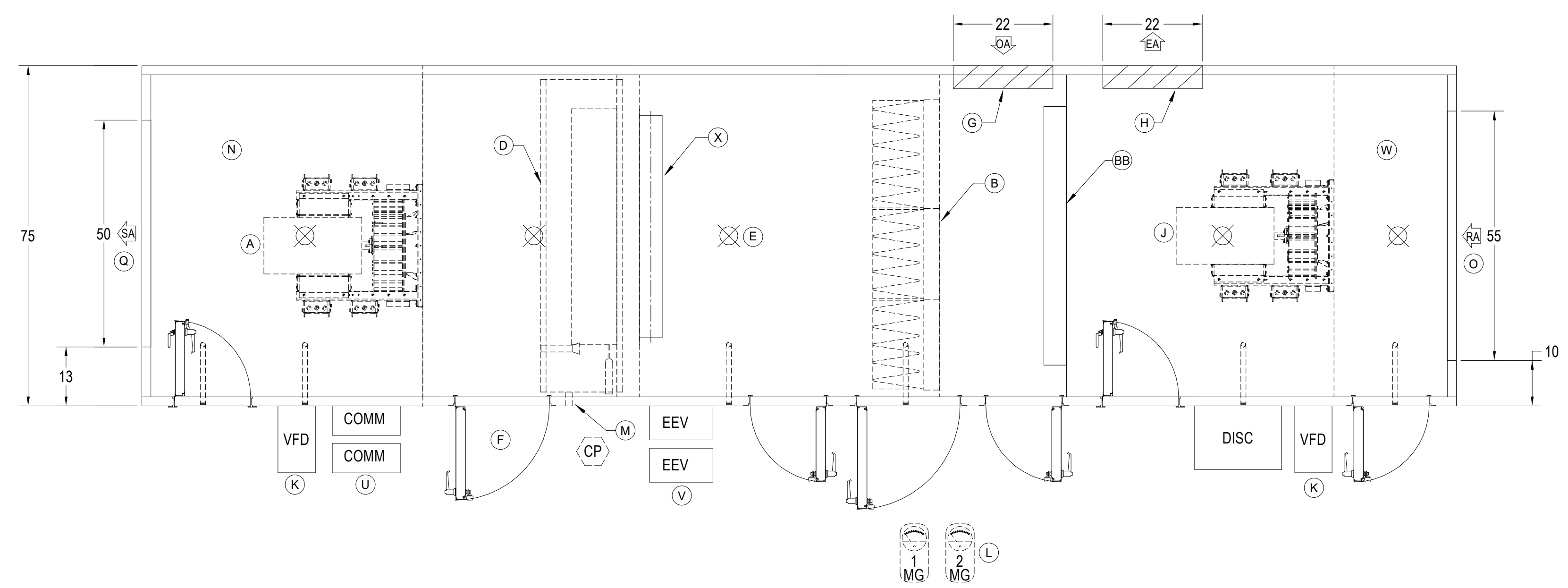


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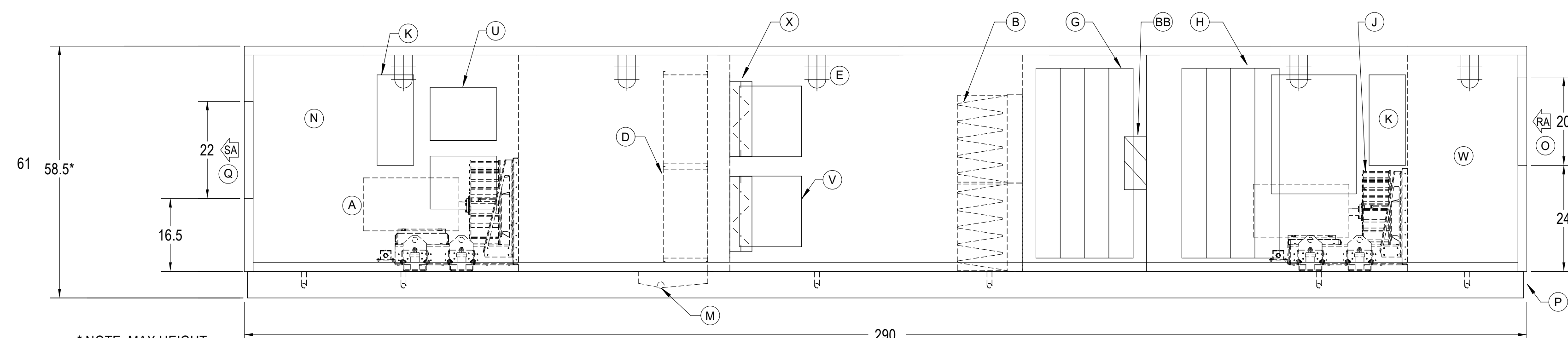


ELEVATION VIEW

① AHU-5
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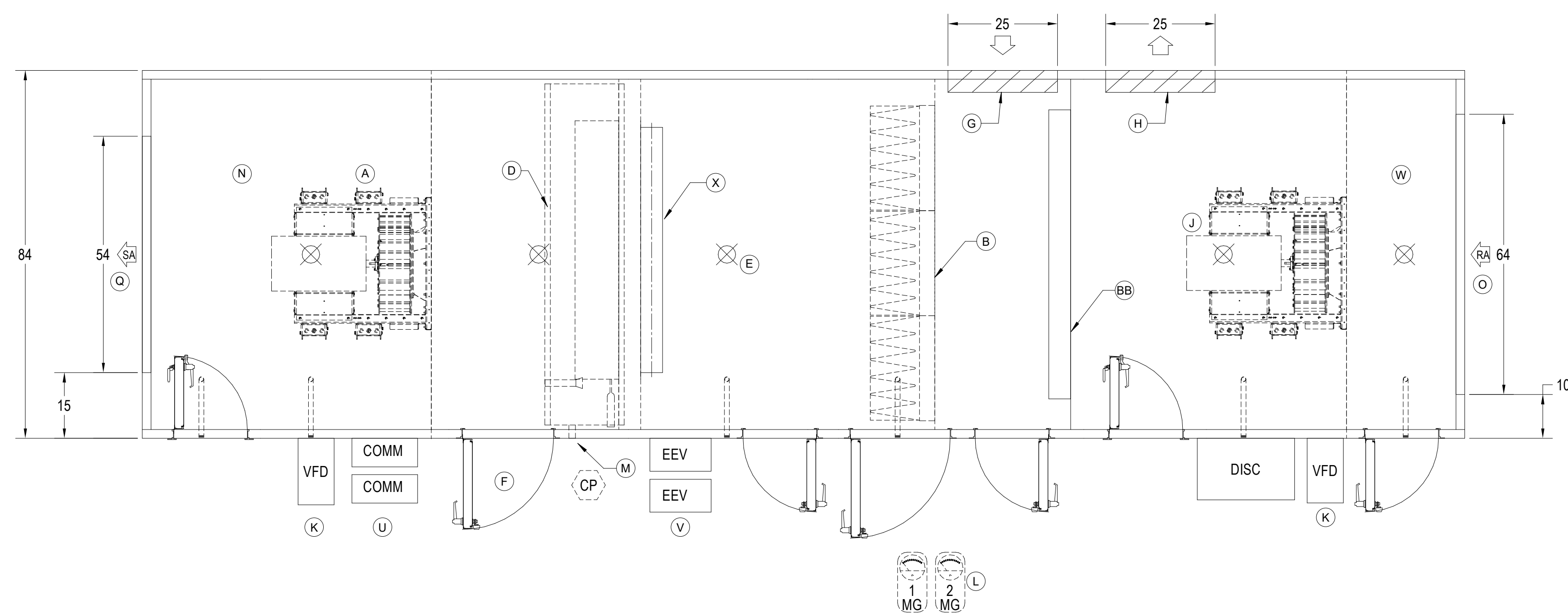


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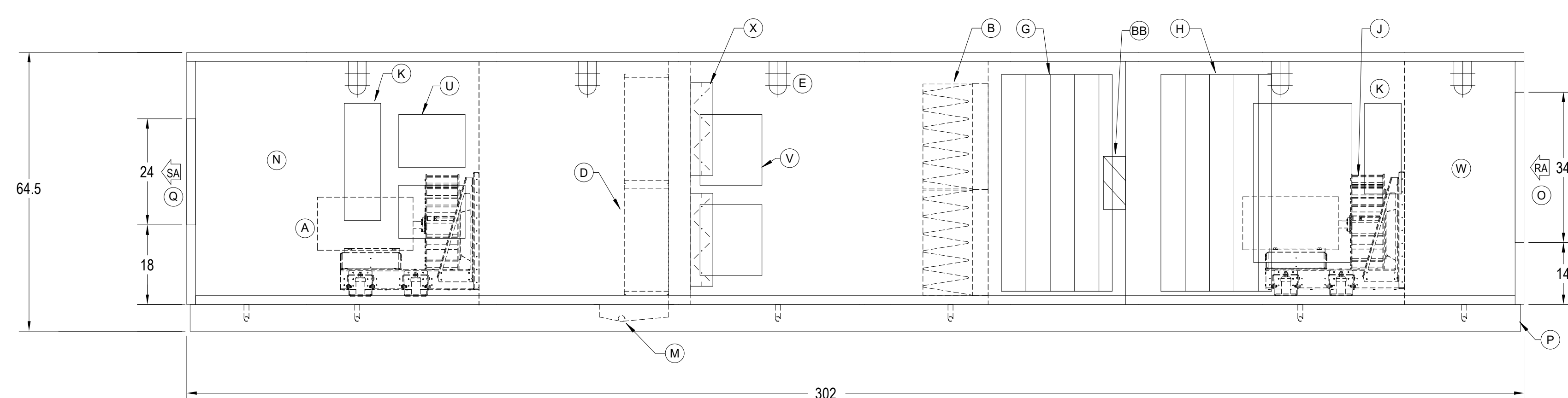


ELEVATION VIEW

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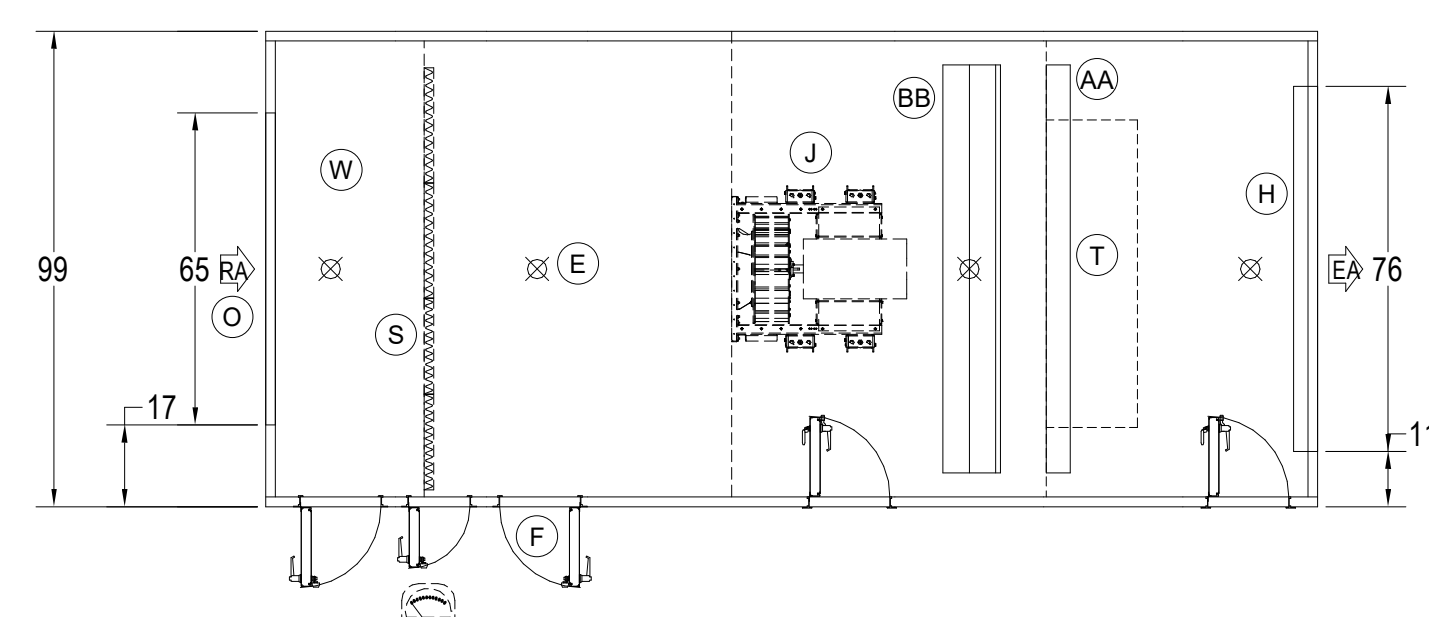


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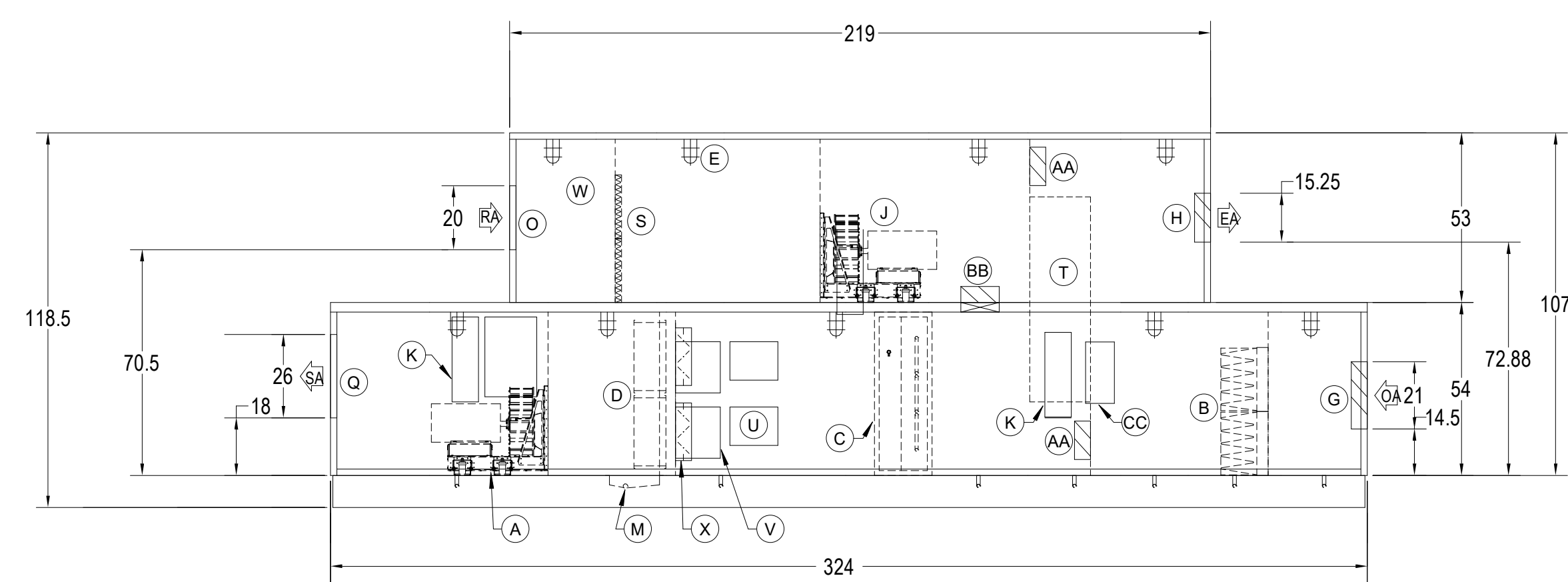


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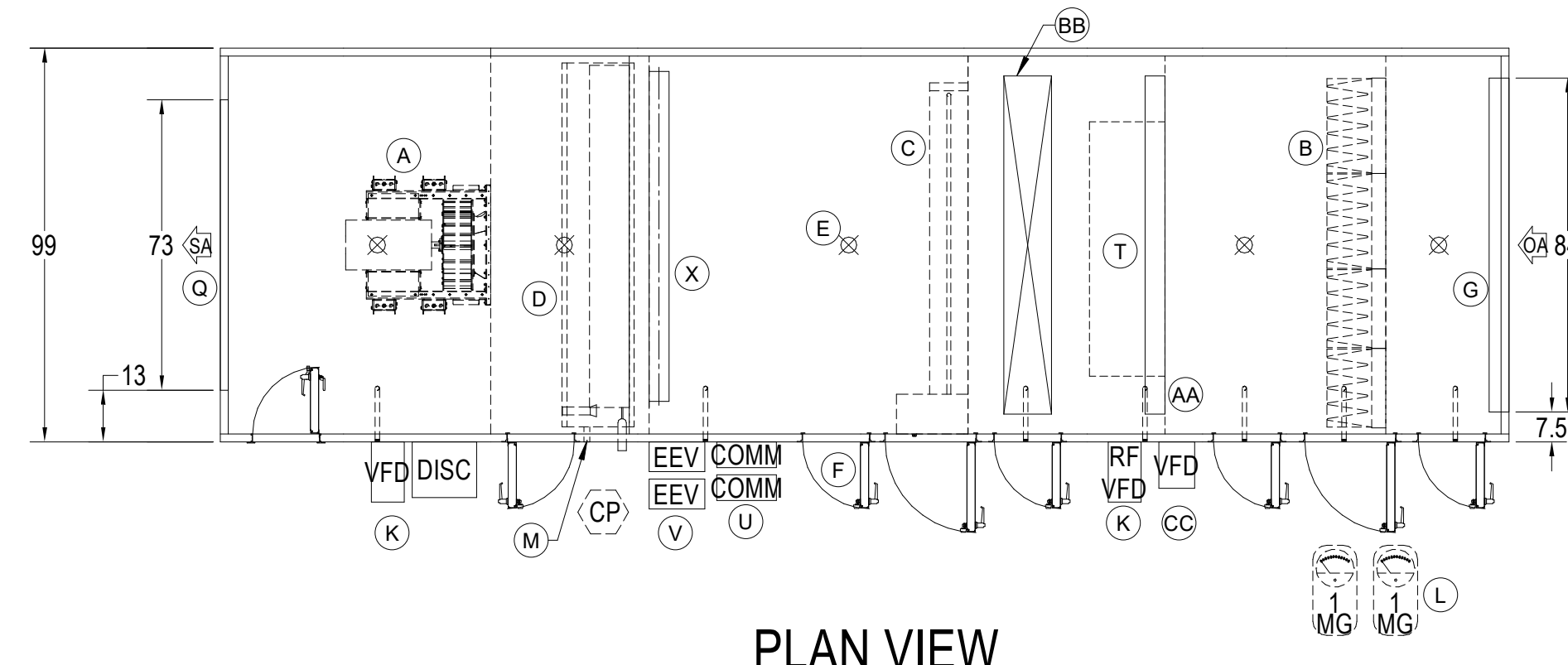
③ AHU-7
NOT TO SCALE



PLAN VIEW
TIER 2



ELEVATION VIEW



PLAN VIEW
TIER 1

④ AHU-8
NOT TO SCALE

KEY NOTES:	
(A) SUPPLY FAN	(P) 8" BASE RAIL
(B) FILTER BANK 2" MERV-10, 12" MERV-13	(Q) SUPPLY DISCHARGE OPENING
(C) ELECTRIC HEATING COIL	(R) OUTSIDE AIR INTAKE HOOD
(D) VRF COOLING/HEATING COIL	(S) 2" MERV-10 FILTER
(E) LIGHT (TYPICAL)	(T) ENERGY RECOVERY WHEEL
(F) ACCESS DOOR (TYPICAL)	(U) VRF COMMUNICATION CONTROL ENCLOSURE
(G) OUTSIDE AIR DAMPER (PARALLEL BLADE)	(V) VRF REFRIGERANT (EEV KIT) ENCLOSURE
(H) EA DISCHARGE DAMPER (OPPOSED BLADE)	(W) RETURN AIR INTAKE PLENUM SECTION
(I) RETURN AIR DAMPER (PARALLEL BLADE)	(X) COIL BYPASS DAMPERS
(J) RETURN FAN	(Y) EXHAUST AIR HOOD
(K) FAN VFD	(Z) 8" BASE RAIL
(L) MAGNETIC FILTER GAUGE	(AA) WHEEL BYPASS DAMPER
(M) CONDENSATE DRAIN OUTLET	(BB) RECIRCULATION DAMPER
(N) SUPPLY AIR DISCHARGE PLENUM SECTION	(CC) ENERGY RECOVERY WHEEL VFD
(O) RETURN INTAKE OPENING	

○ AHU DRAWINGS LEGEND
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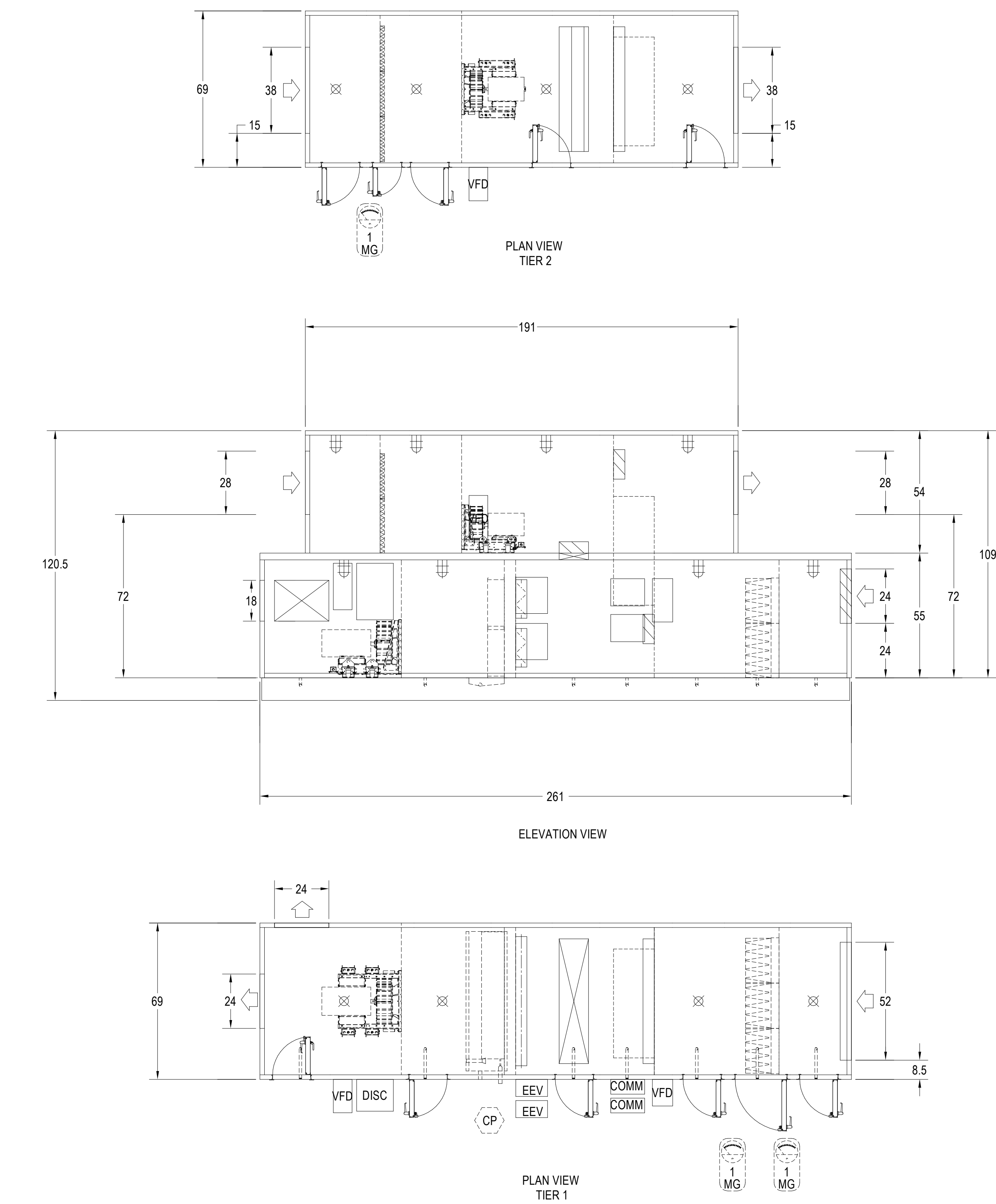
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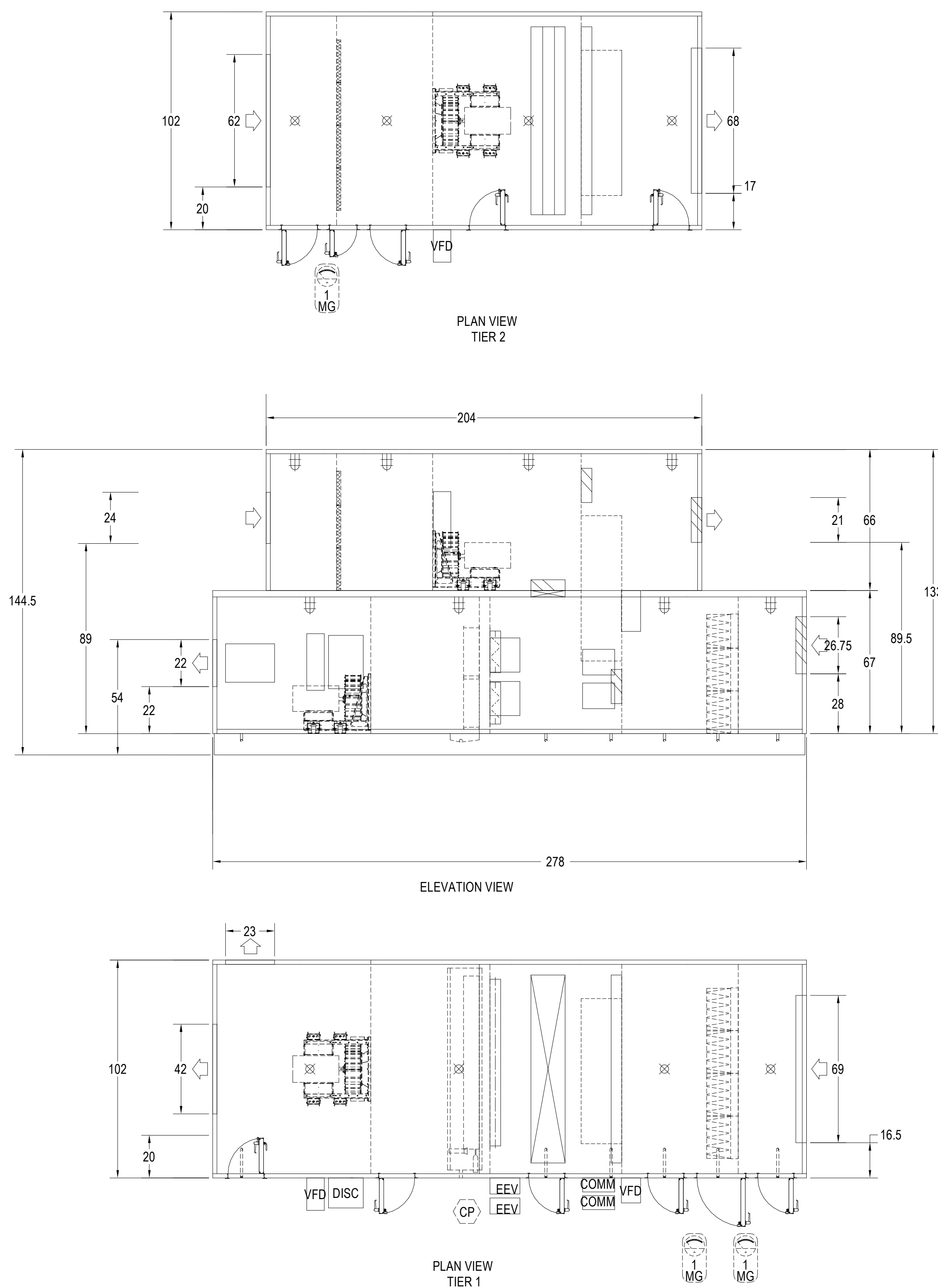
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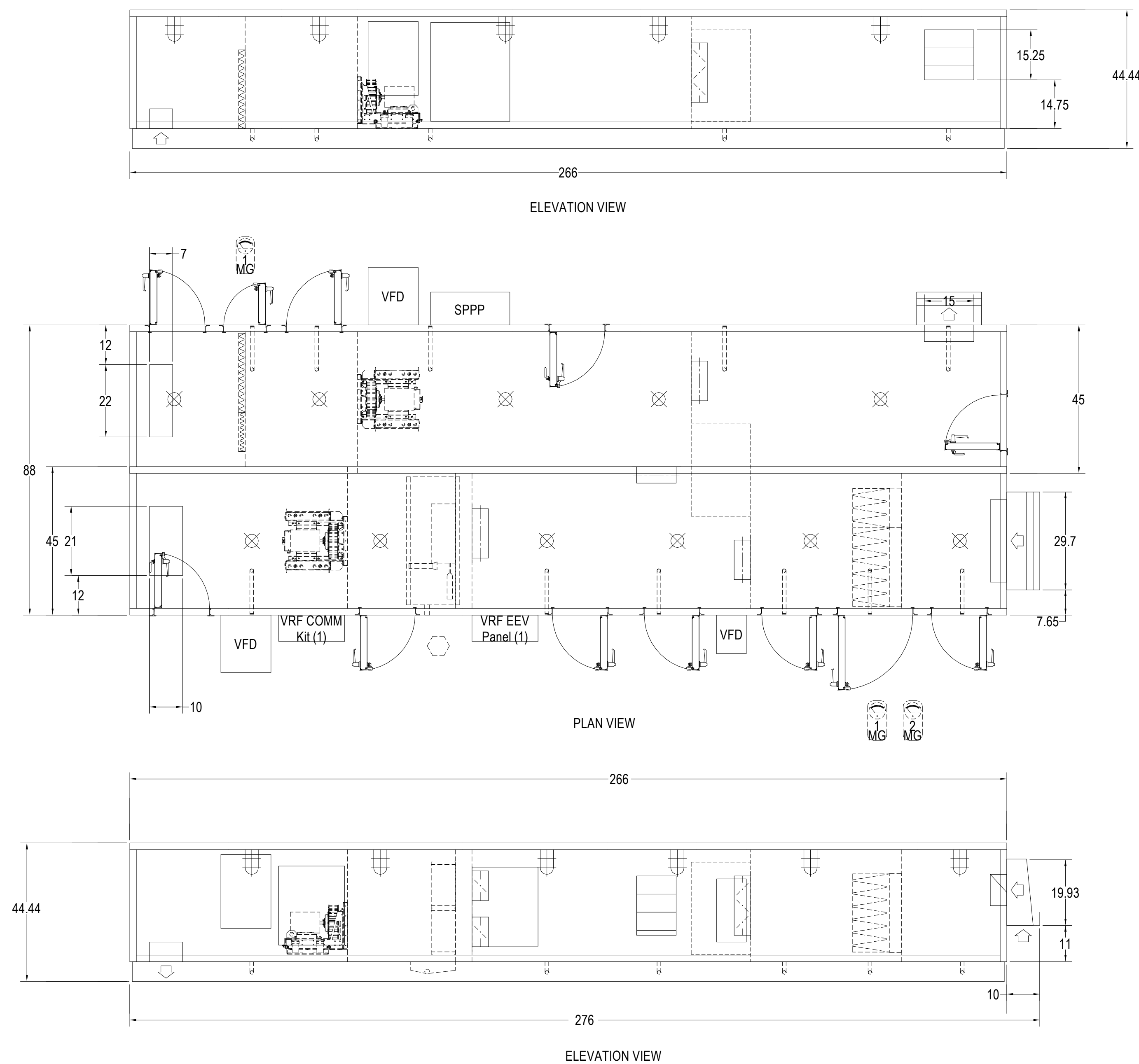
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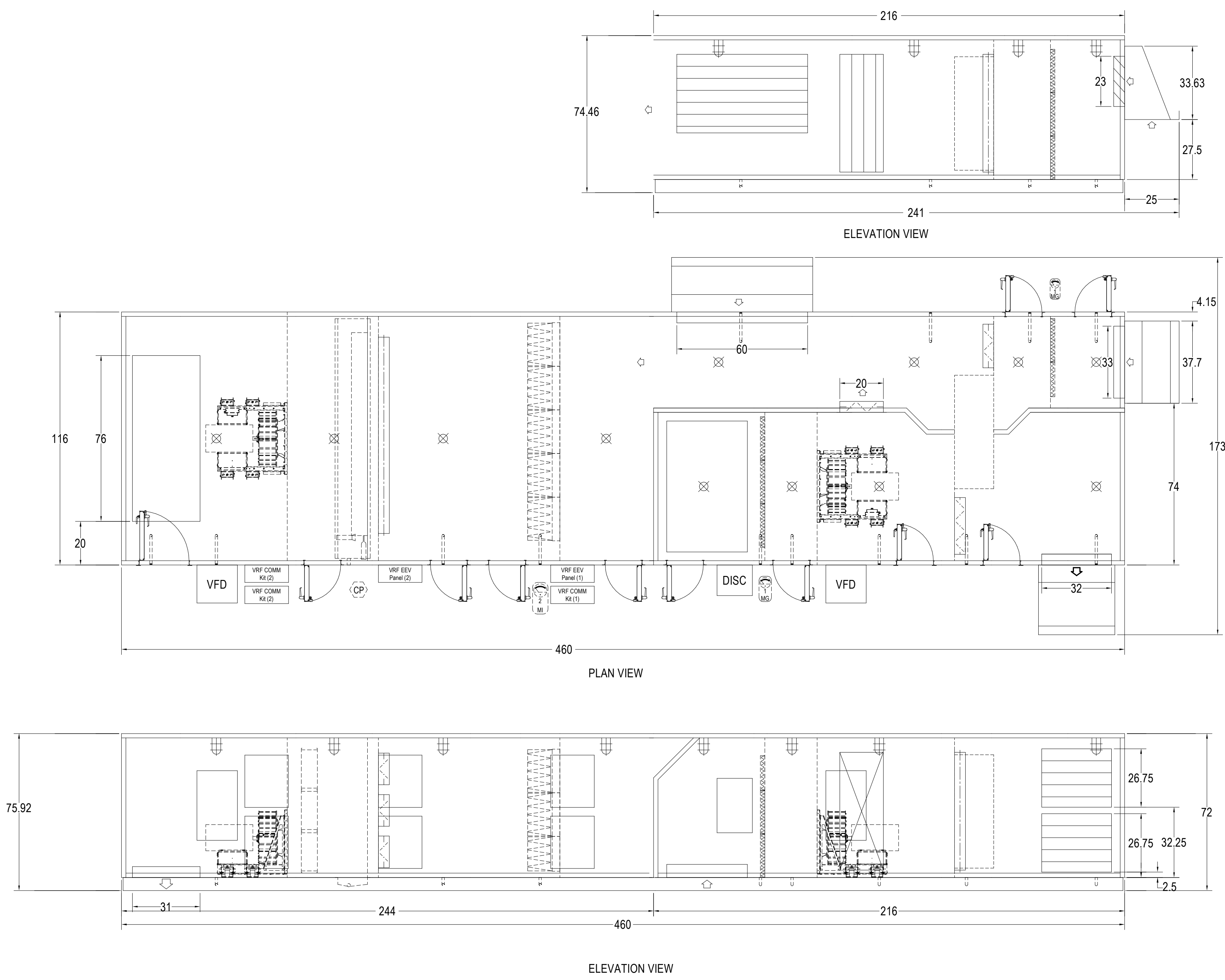
2 AHU-10
NOT TO SCALE

KEY NOTES:	
(A) SUPPLY FAN	(P) 6" BASE RAIL
(B) FILTER BANK 2" MERV-10, 12" MERV-13	(Q) SUPPLY DISCHARGE OPENING
(C) ELECTRIC HEATING COIL	(R) OUTSIDE AIR INTAKE HOOD
(D) VRF COOLING/HEATING COIL	(S) 2" MERV-10 FILTER
(E) LIGHT (TYPICAL)	(T) ENERGY RECOVERY WHEEL
(F) ACCESS DOOR (TYPICAL)	(U) VRF COMMUNICATION CONTROL ENCLOSURE
(G) OUTSIDE AIR DAMPER (PARALLEL BLADE)	(V) VRF REFRIGERANT (EEV KIT) ENCLOSURE
(H) EA DISCHARGE DAMPER (OPPOSED BLADE)	(W) RETURN AIR INTAKE PLENUM SECTION
(I) RETURN AIR DAMPER (PARALLEL BLADE)	(X) COIL BYPASS DAMPERS
(J) RETURN FAN	(Y) EXHAUST AIR HOOD
(K) FAN VFD	(Z) 8" BASE RAIL
(L) MAGNETIC FILTER GAUGE	(AA) WHEEL BYPASS DAMPER
(M) CONDENSATE DRAIN OUTLET	(BB) RECIRCULATION DAMPER
(N) SUPPLY AIR DISCHARGE PLENUM SECTION	(CC) ENERGY RECOVERY WHEEL VFD
(O) RETURN INTAKE OPENING	

3 AHU DRAWINGS LEGEND
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4 RTU-1
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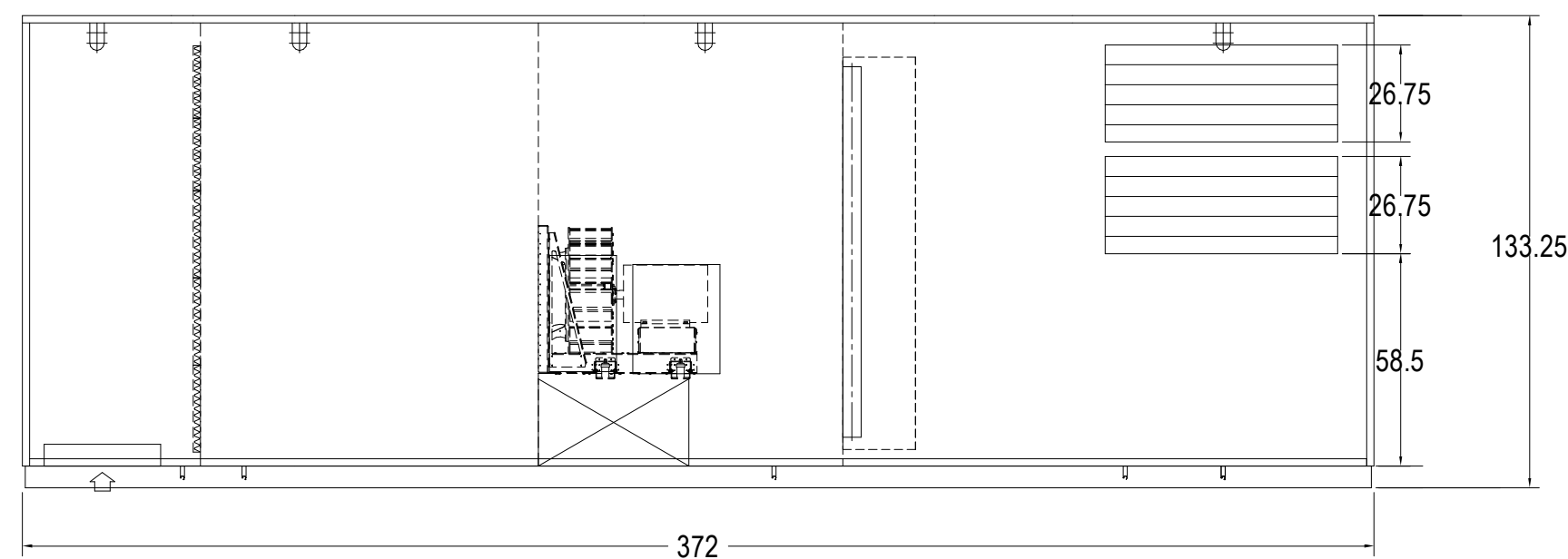
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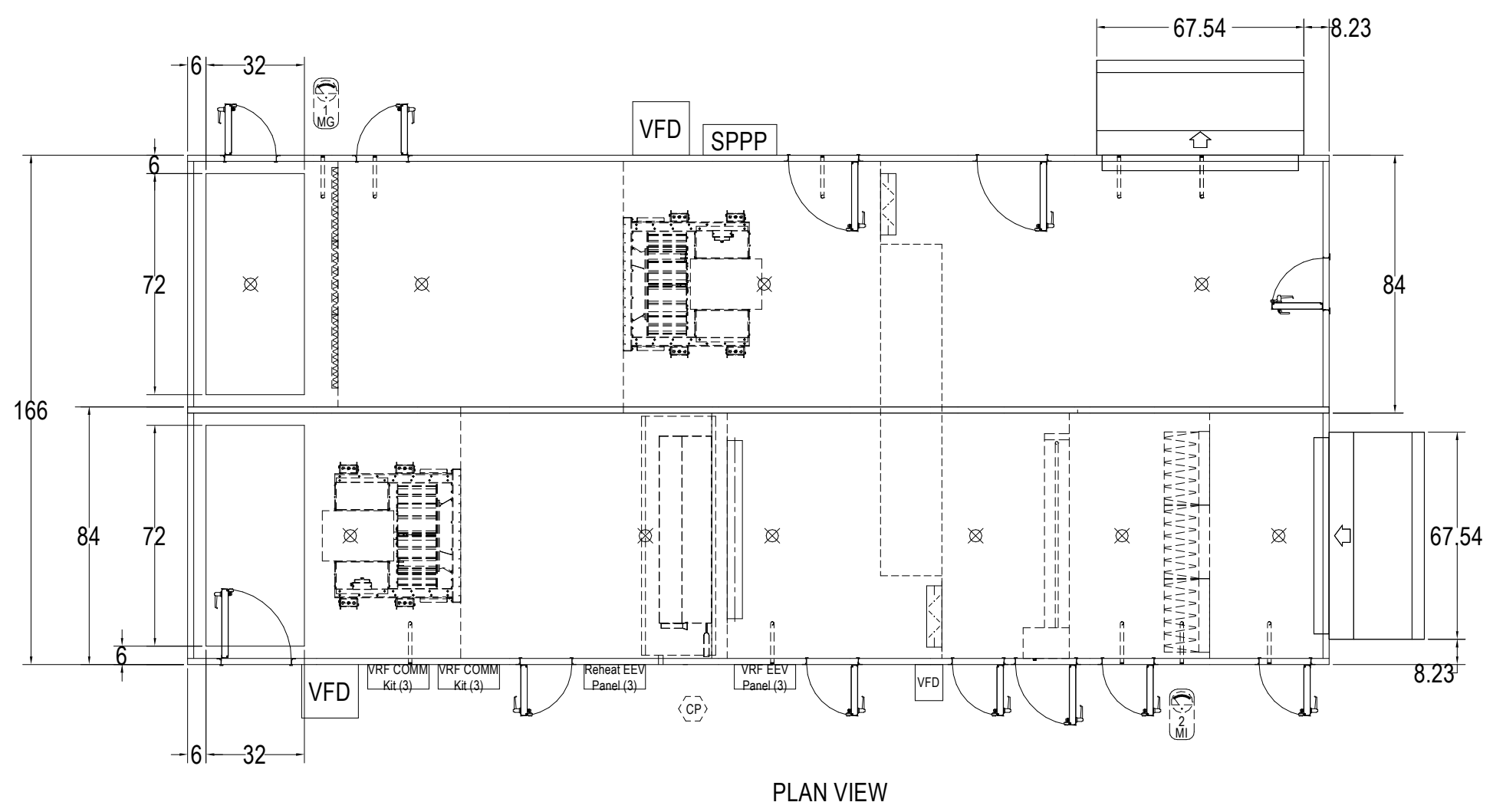
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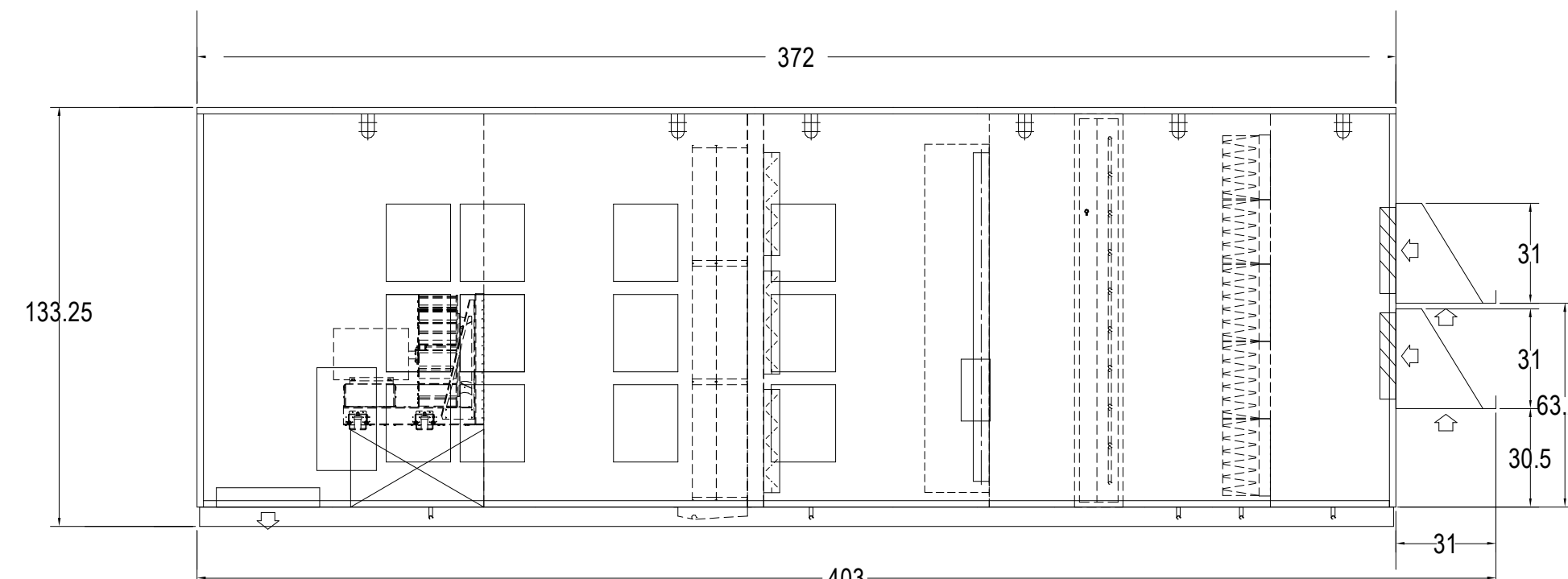
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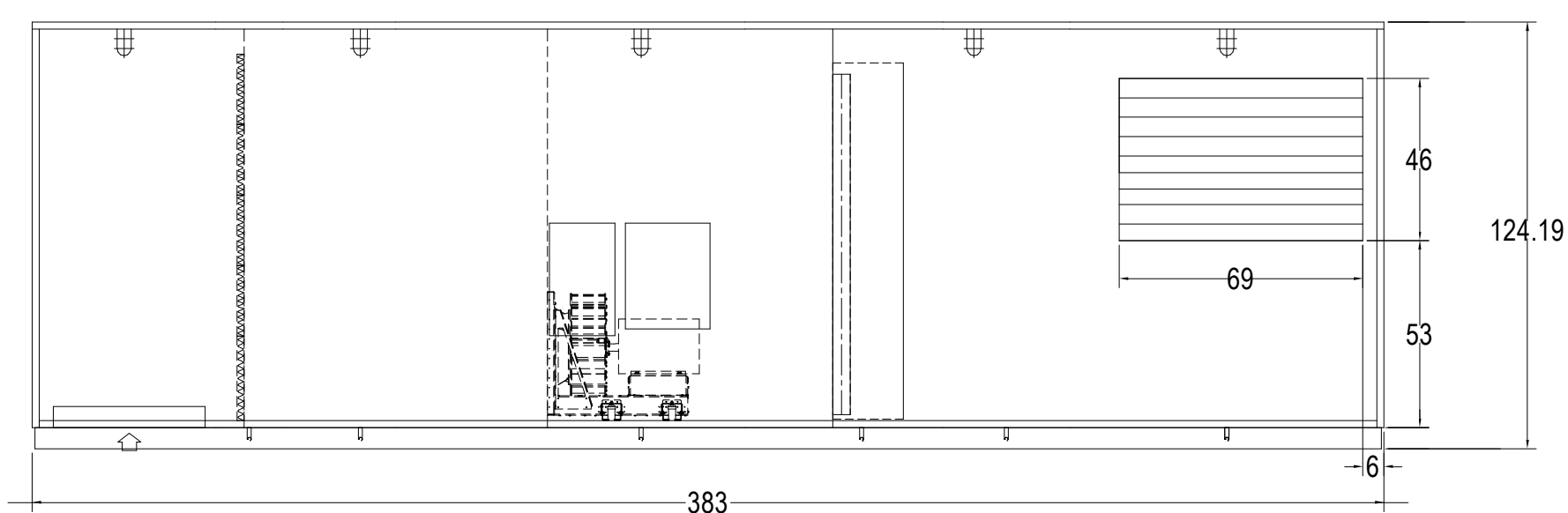


PLAN VIEW

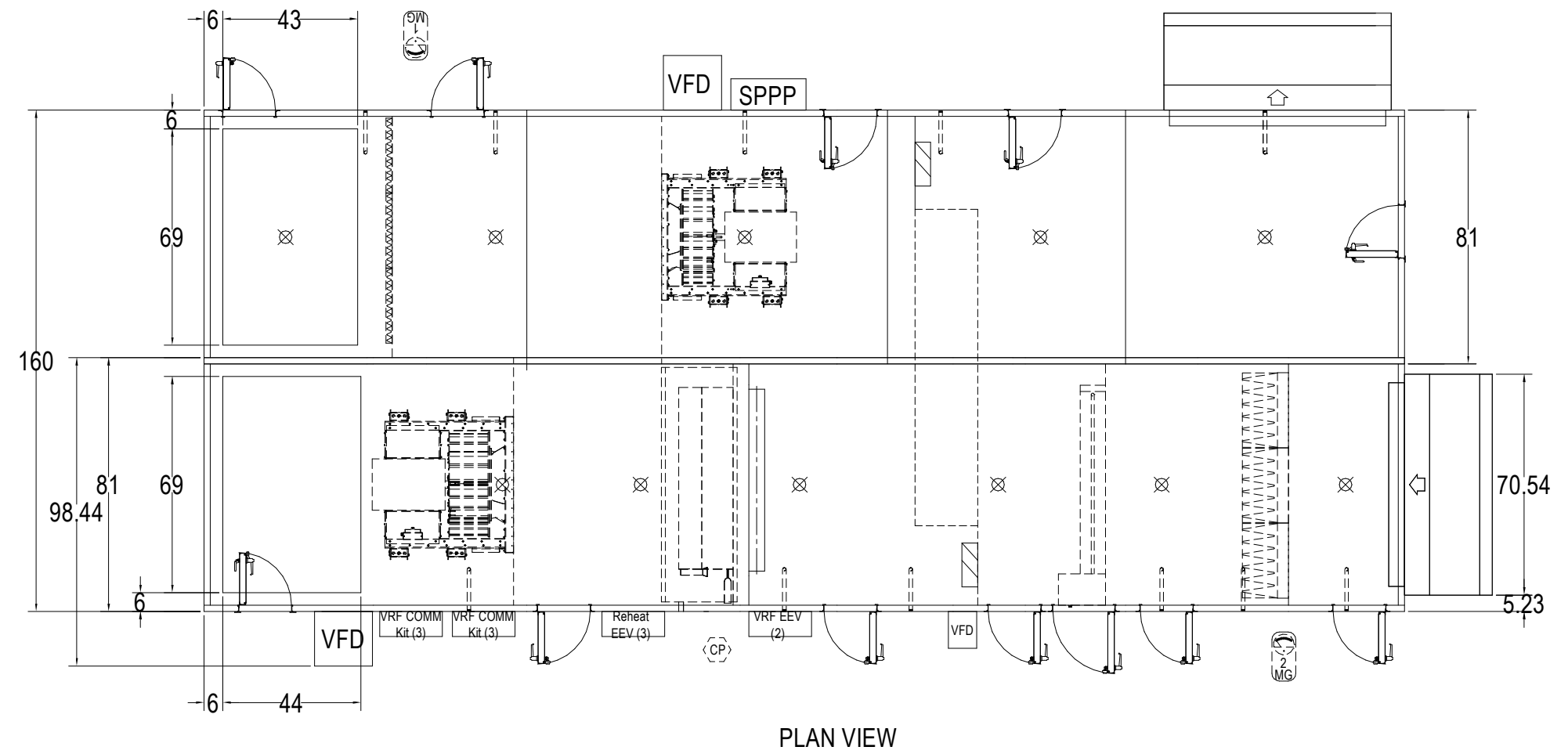


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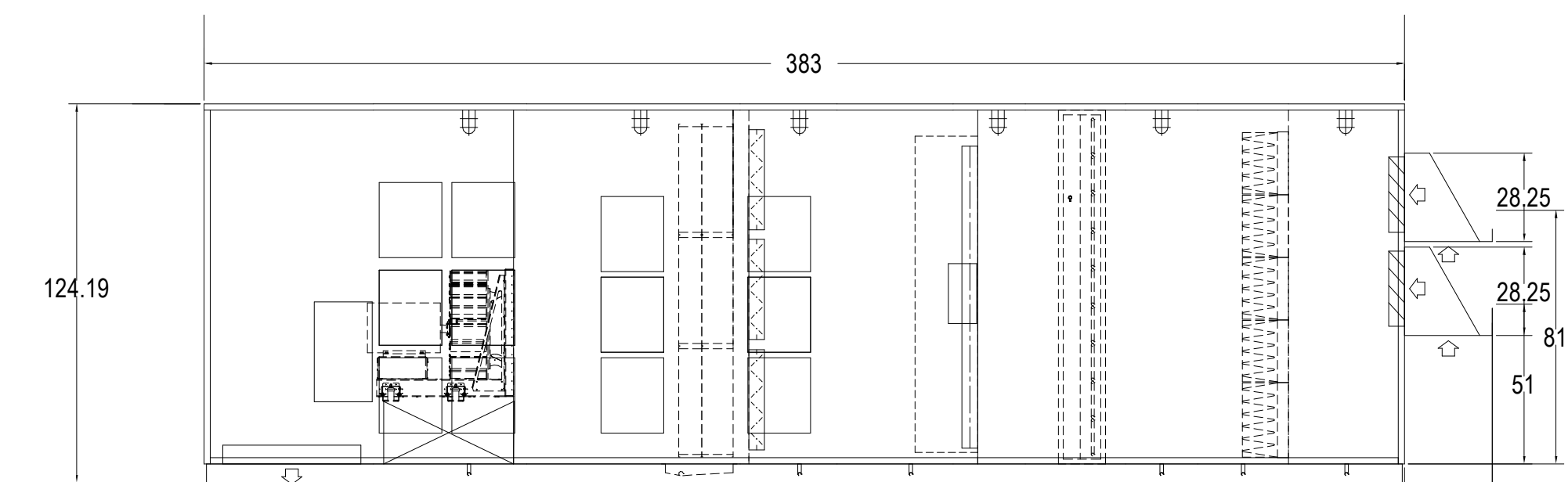
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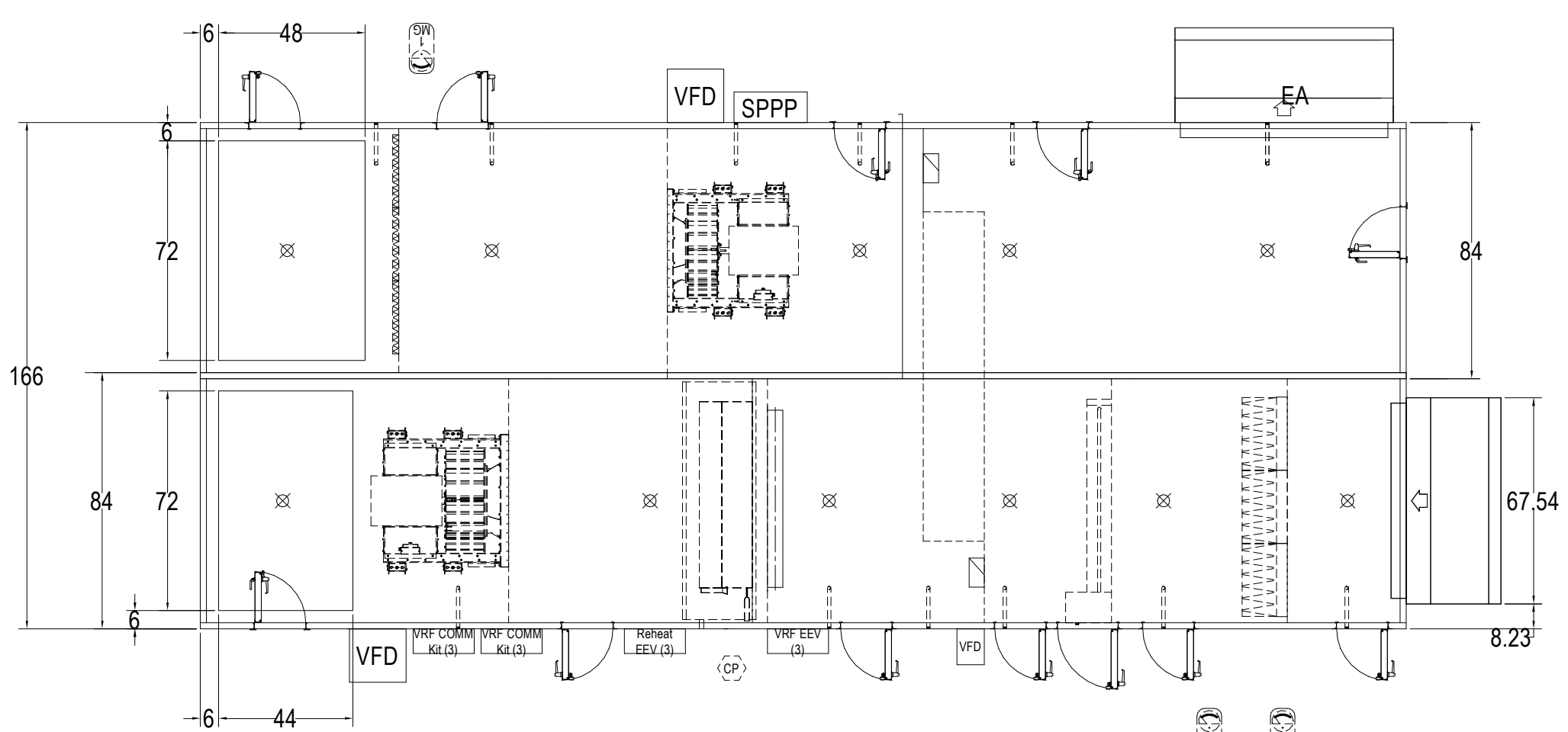
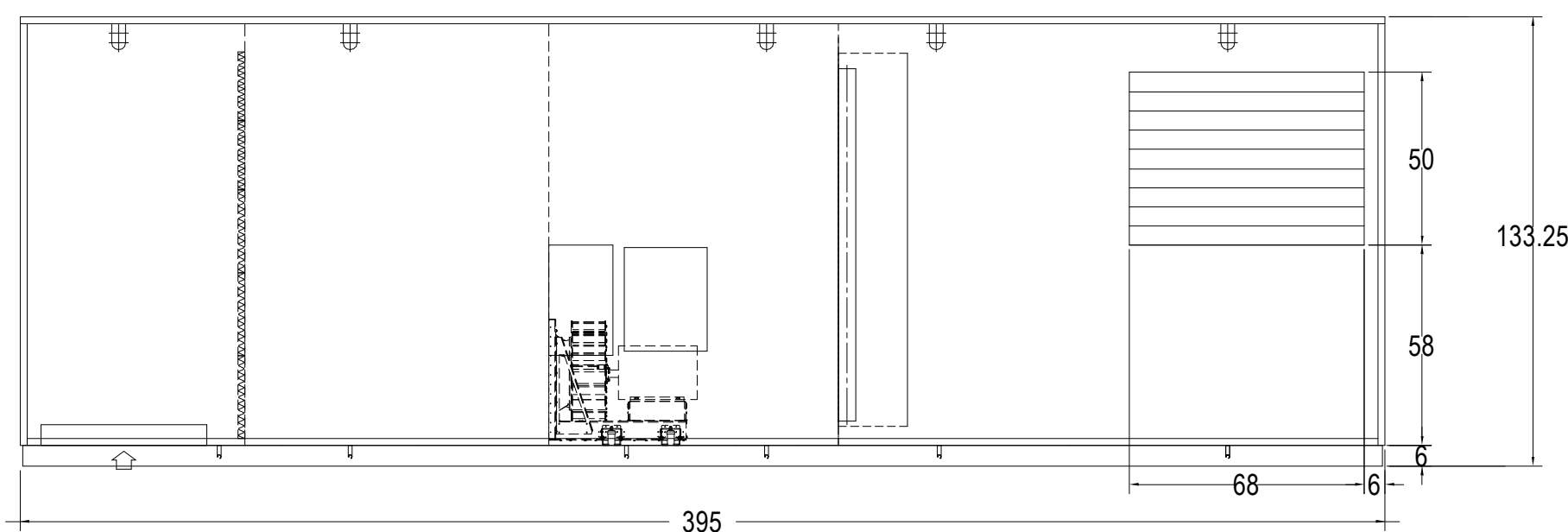


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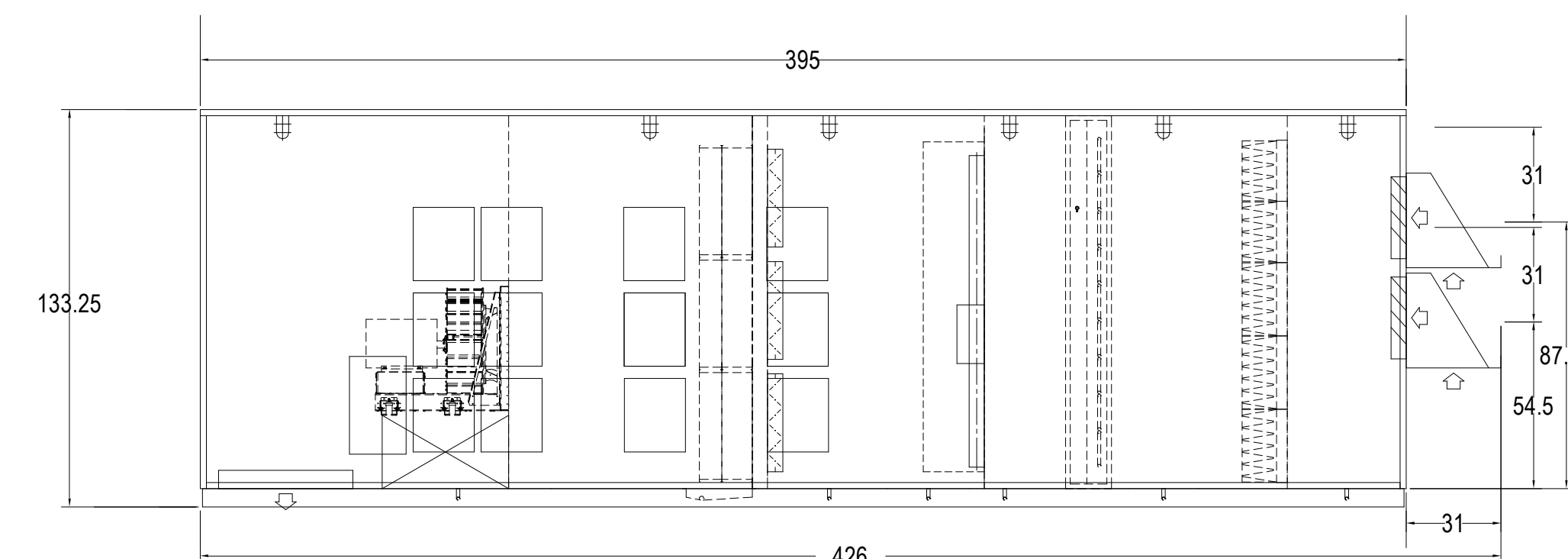


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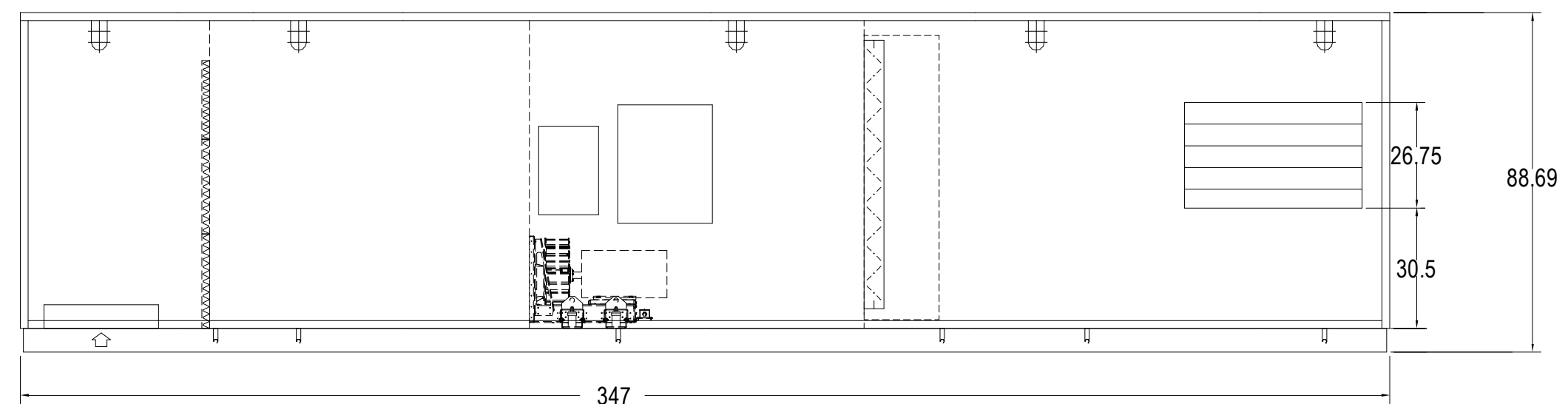
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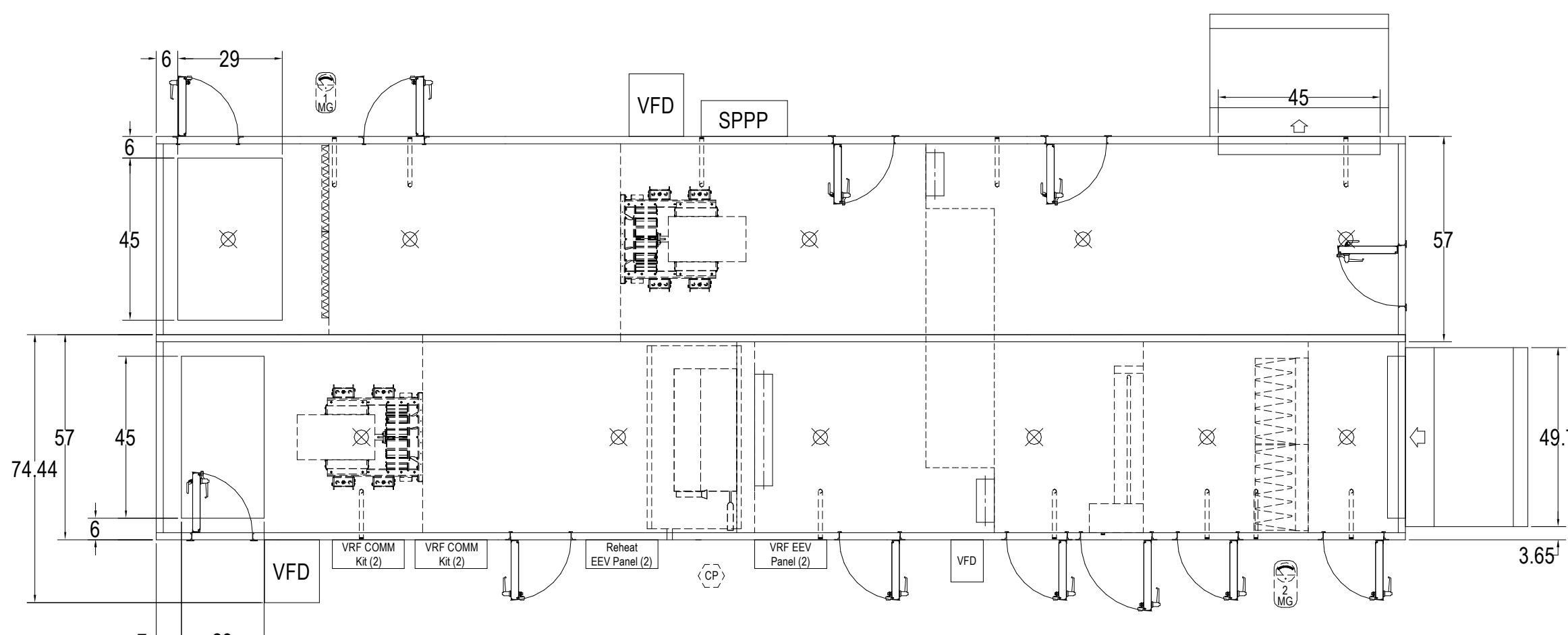
ELEVATION VIEW

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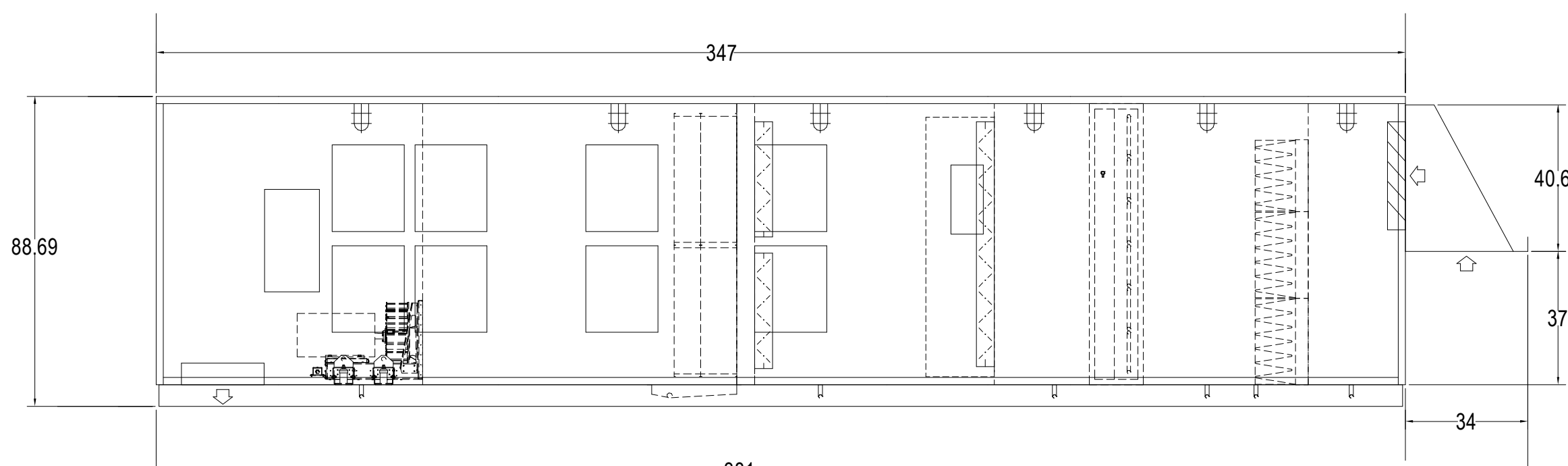
KEY NOTES:			
(A)	SUPPLY FAN	(P)	6" BASE RAIL
(B)	FILTER BANK 2" MERV-10, 12" MERV-13	(Q)	SUPPLY DISCHARGE OPENING
(C)	HOT WATER PRE-HEAT COIL	(R)	OUTSIDE AIR INTAKE HOOD
(D)	VRF COOLING/HEATING COIL	(S)	2" MERV-10 FILTER
(E)	LIGHT (TYPICAL)	(T)	ENERGY RECOVERY WHEEL
(F)	ACCESS DOOR (TYPICAL)	(U)	VRF COMMUNICATION CONTROL ENCLOSURE
(G)	OUTSIDE AIR DAMPER (PARALLEL BLADE)	(V)	VRF REFRIGERANT (EEV KIT) ENCLOSURE
(H)	EA DISCHARGE DAMPER (OPPOSED BLADE)	(W)	RETURN AIR INTAKE PLENUM SECTION
(I)	RETURN AIR DAMPER (PARALLEL BLADE)	(X)	COIL BYPASS DAMPERS
(J)	RETURN FAN	(Y)	EXHAUST AIR HOOD
(K)	FAN VFD	(Z)	8" BASE RAIL
(L)	MAGNETIC FILTER GAUGE	(AA)	WHEEL BYPASS DAMPER
(M)	CONDENSATE DRAIN OUTLET	(BB)	RECIRCULATION DAMPER
(N)	SUPPLY AIR DISCHARGE PLENUM SECTION		
(O)	RETURN INTAKE OPENING		



ELEVATION VIEW



PLAN VIEW



ELEVATION VIEW

④ HRU-4
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Job No: 1960-20-409
Drawn By: PK
Date: May 12th, 2023

M4-0-6

ELECTRIC UNIT HEATER (EUH)															
		AIR		ELECTRICAL				VIBRATION ISOLATION							
UNIT NO.	LOCATION	CAPACITY (FM)	EAT (FM)	LAT (FT)	KW	CONTROL	MOTOR SIZE (HP)	V	PH	TYPE	DEFLEC (FT)	MANUFACTURER	MODEL	NOTES	
EUH-1	REFER TO PLANS	51.1	91.0	130.0	15.0	THERMOSTAT	1/20	480	3	HSN	1.5	BERKO	HUAAH1548	SEE NOTES	
EUH-2	REFER TO PLANS	51.1	91.0	130.0	15.0	THERMOSTAT	1/20	480	3	HSN	1.5	BERKO	PHC1548	SEE NOTES	
EUH-3	REFER TO PLANS	102	350	77.0	37.0	THERMOSTAT	1/100	480	3	HSN	1.5	BERKO	MUMJ0381	SEE NOTES	
EUH-4	REFER TO PLANS	34.1	50.0	103.0	10.0	THERMOSTAT	1/20	480	3	N/A	NA	BERKO	CUH5855		
EUH-5	REFER TO PLANS	34.1	50.0	118.0	10.0	THERMOSTAT	1/20	480	3	HSN	1.5	BERKO	MUM-04	SEE NOTES	
EUH-6	REFER TO PLANS	17.0	250	60.0	122.0	5.0 THERMOSTAT	1/30	480	3	NA	NA	BERKO	CUH935	SEE NOTES	
EUH-7	REFER TO PLANS	20.5	250	60.0	139.0	6.0 THERMOSTAT	1/30	480	3	NA	NA	BERKO	CUH935	SEE NOTES	

NOTES

- REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
- PROVIDE GROUNDING.
- MOUNT USING HSN VIBRATION ISOLATOR WITH 1.5" STATIC DEFLECTION.
- PROVIDE WITH DISCONNECT SWITCH.
- PROVIDE WITH REMOTE WALL MOUNTED THERMOSTAT.
- PROVIDE ACCESS TRIM.
- PROVIDE ON-OFF SWITCH.
- PROVIDE NUT LOCK FOR FRONT COVER.
- CUH SHALL BE DEMOUNTED, INVERTED FLIP WITH GRILLES ON FRONT.

[illegible]

MAKE-UP AIR UNIT - DX COOLING/HEATING WITH ELECTRIC PRE-HEAT (MAU)																																						
UNIT NO.		LOCATION	SERVICE	SUPPLY FAN										COOLING COIL										ELECTRICAL										DIMENSIONS L x W x H (IN/MM)	WEIGHT (LBS/KG)	MANUFACTURER	MODEL	REMARKS
				MAX AIRFLOW (CFM)	MAX AIRFLOW (CFM)	TSP (IN.WG)	ESP (IN.WG)	BHP	MOTOR HP	BLADE TYPE	MAX FACE AREA (FPM)	WET COIL APF	DB (°F)	WB (°F)	DB (°F)	WB (°F)	TOTAL CAP (MBH)	SENS. CAP (MBH)	SUCTION TEMP (°F)	REFRIG RANK	MIN NO CIRCUITS	MAX FACE VELOC (FPM)	EAT DB (°F)	LAT DB (°F)	EAT WB (°F)	LAT WB (°F)	KW	V	PH	FLA	MCA	CPD						
MAU-1	MECHANICAL	281	KITCHEN	6010	6510	3.87	1.50	5.75	7.5	SWIS/AF	500	0.28	59.0	73.0	57.0	56.0	379.5	239.2	42	R-410A	2	500	0.02	0.0	46.0	98.5	460	3	138	139.5	150	253.7K/656	7500.00	YORK CUSTOM	YU-48478	SEE NOTES		
MAU-2	MECHANICAL	282	CLUBHOUSE KITCHEN	6010	6510	3.87	1.50	5.75	7.5	SWIS/AF	500	0.28	59.0	73.0	57.0	56.0	379.5	239.2	42	R-410A	2	500	0.01	0.0	46.0	92.5	460	3	137	138.4	150	380.0/1062	18000.00	YORK CUSTOM	YU-48478	SEE NOTES		
NOTES:																																						
1. REFER TO SPECIFICATIONS SECTION 20000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.																																						
2. INCLUDES UP TO 1" W/C OF DIRTY FILTER (LOADING) ALLOWANCE.																																						
3. PROVIDE SEPARATE ELECTRICAL FEED, 20 AMPS, 120V, 1 PH FOR SERVICE OUTLET AND INTERIOR UNIT LIGHTS.																																						
4. PROVIDE 22-INCH SPRING ROOF CURB.																																						
5. PROVIDE REFRIGERANT PIPING BETWEEN MAU AND VCU CONDENSING UNIT.																																						
6. LIGHTS AND OUTLETS SHALL BE ON A SEPARATE 120V/1PH CIRCUIT WITH A MOP OF 20 AMPS. CIRCUIT PROVIDED BY DIV. 26.																																						

ROOFTOP AIR HANDLING UNIT - DX COOLING/HEATING WITH ELECTRIC PRE-HEAT (RTU)																																																							
		OUTDOOR AIRFLOW		SUPPLY FAN										RETURN FAN										COOLING COIL										ELECTRIC PRE-HEAT COIL										ELECTRICAL						DIMENSIONS L x W x H		WEIGHT	MANUFACTURER	MODEL	REMARKS
				MAX	MIN	TSP	ESP	INCH	W/B	MOTOR	BLADE	MAX	TSP	ESP	INCH	W/B	MOTOR	BLADE	ENERGY RECOVERY TYPE	MAX	WET COIL	EAT	LAAT	TOTAL	SENS	SUCTION	REFRIG	MIN NO	MAX	FACE	APD	EAT	LAAT	PH	FLA	MCA	GPD																		
UNIT NO.	LOCATION	SERVICE	MAX	MIN	W/B	ESP	INCH	W/B	MOTOR	BLADE	MAX	TSP	ESP	INCH	W/B	MOTOR	BLADE	ENERGY RECOVERY TYPE	VELOC (FPM)	WET COIL (IN/WB)	EAT (IN)	LAAT (IN)	TOTAL CAP (IN)	SENS CAP (IN)	SUCTION (IN)	REFRIG RANT (IN)	MIN NO CRN	MAX FACE VELOC (FPM)	APD (IN)	EAT (IN)	LAAT (IN)	PH	FLA	MCA	GPD	20000	10000	YORK CUSTOM	YCO-3645	SEE NOTES															
RTU1	ROOM A AREA	CULINARY	1165	680	1165	4.40	2.00	1.3	15	SWIS AF	14000	3.15	2.00	0.85	15	SWIS AF	ALUMINUM W/MOLECULAR SIEVE 4A	500	0.22	78.2	65.7	56.2	54.50	39.8	29.0	42	R-410A	3	500	0.01	45.0	58.0	58.0	45.0	480	3	111.6	135.0	150	483x116x12	20000	10000	YORK CUSTOM	YCO-3645	SEE NOTES										
RTU2	ROOM A AREA	GYMNASIUM	14000	4050	14000	5.40	2.00	18.13	20	SWIS AF	14000	4.01	2.00	14.39	20	SWIS AF	ALUMINUM W/MOLECULAR SIEVE 4A	500	0.27	78.3	65.5	54.4	53.75	545.0	348.3	42	R-410A	3	500	0.01	45.0	55.0	55.0	45.0	480	3	111.6	135.0	150	483x116x12	20000	10000	YORK CUSTOM	YCO-3645	SEE NOTES										

1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.

2. REFER TO ENERGY RECOVERY WHEEL SCHEDULE

3. PROVIDE 2 INCH MERV-13 FILTER FOR OUTDOOR AIR.

4. PROVIDE OUTSIDE AIR INTAKE HOOD

5. PROVIDE 2 INCH MERV EXHAUST FILTER

6. MAXIMUM FILTER VELOCITY TO BE 400 FPM

7. PROVIDE SINGLE POINT POWER CONNECTION

8. PROVIDE CONVENIENCE OUTLET POWERED BY DEDICATED 120V/1PH/20AMP FEED (BY DIV. 26)

9. PROVIDE FROST CONTROL

10. PROVIDE REFRIGERANT PIPING BETWEEN RTU1 AND VCU1 CONDENSING UNIT

11. LIGHTS AND OUTLETS SHALL BE ON A SEPARATE 120V/1PH CIRCUIT WITH A MOP OF 20 AMPS. CIRCUIT PROVIDED BY DIV. 26

12. RTU2 RETURN FAN SHALL BE IN THE EXHAUST CONFIGURATION

[illegible]

ENERGY RECOVERY WHEEL DATA																												
UNIT NO.	MANUFACTURER	MODEL	SUMMER CONDITIONS										WINTER CONDITIONS										MAX PO (IN WG)	DRIVE MOTOR SIZE (HP)	REMARKS			
			SUPPLY					EXHAUST					SUPPLY					EXHAUST										
			AIRFLOW (CFM)	EAT °F	DB °F	LAT °F		AIRFLOW (CFM)	DB °F	WB °F		EAT °F	LAT °F		TOTAL WHEEL COOLING (BTU/H)	AIRFLOW (CFM)	EAT °F	DB °F	WB °F	AIRFLOW (CFM)	EAT °F	DB °F				WB °F	TOTAL WHEEL HEATING (BTU/H)	
AH-8	YORK CUSTOM	TC-91MHP	7100	81.3	75.0	79.9	78.50	8845	77.0	65.0	65.9	50.80	215266	7100	4.1	3.0	57.6	46.0	8845	72.0	54.0	29.5	18.9	525466		0.33	ALUMINUM WING/LECULAR SIEVE-4A	SEE NOTES
AH-10	YORK CUSTOM	TC-10MHP	6500	81.3	75.0	77.5	69.20	8945	77.0	65.0	65.9	50.80	215266	6500	7.0	6.0	52.8	42.7	8008	72.0	54.0	16.0	13.4	79.01	0.36	1	ALUMINUM WING/LECULAR SIEVE-4A	SEE NOTES
AH-10	YORK CUSTOM	TC-10M4SP	6500	87.0	74.0	78.3	66.60	9485	75.0	63.0	58.8	72.00	76.87	6500	7.0	6.0	52.8	42.7	9485	72.0	54.0	16.0	13.4	79.01	0.96	1	ALUMINUM WING/LECULAR SIEVE-4A	SEE NOTES
HR-1	YORK CUSTOM	TF-261MHP	19450	91.3	75.0	80.9	67.90	19450	77.0	65.0	67.1	50.15	553157	19450	4.1	3.0	53.5	43.9	19450	72.0	54.0	22.2	14.7	124213	0.69	0.5	ALUMINUM WING/LECULAR SIEVE-4A	SEE NOTES
HR-2	YORK CUSTOM	TF-223MHP	18735	91.3	75.0	81.2	68.10	18030	77.0	65.0	67.4	51.50	510876	18735	4.1	3.0	52.0	42.6	18030	72.0	54.0	22.2	14.7	124109	0.77	0.5	ALUMINUM WING/LECULAR SIEVE-4A	SEE NOTES
HR-3	YORK CUSTOM	TF-261MHP	19395	91.3	74.0	81.1	68.20	19395	77.0	65.0	67.9	51.70	539462	19395	4.1	3.0	52.9	43.0	19395	72.0	54.0	20.7	13.8	1351461	0.69	0.5	ALUMINUM WING/LECULAR SIEVE-4A	SEE NOTES
HR-4	YORK CUSTOM	TF-181MHP	7070	91.3	75.0	80.1	77.80	6780	77.0	65.0	68.1	51.80	205461	7070	4.1	3.0	54.6	44.3	6780	72.0	54.0	19.3	12.5	495243	0.54	0.33	ALUMINUM WING/LECULAR SIEVE-4A	SEE NOTES
HR-5	YORK CUSTOM	PE5M-3H2SSA-15	2760	91.3	75.0	83.2	71.80	2725	77.0	65.0	85.2	66.70	34740	2760	7.0	6.0	52.9	42.7	2760	72.0	54.0	16.7	12.4	79.01	0.86	0	AIR T PLATE PLATE HEX	SEE NOTES
RTU-1	YORK CUSTOM	TC-10M5SP	6500	81.3	75.0	80.9	72.0	8845	77.0	65.0	65.9	50.80	215266	6500	7.0	6.0	52.8	42.7	8008	72.0	54.0	16.0	13.4	79.01	0.36	0.25	ALUMINUM WING/LECULAR SIEVE-4A	SEE NOTES
RTU-2	YORK CUSTOM	TC-60MHP	4050	91.3	75.0	80.9	78.00	3850	77.0	65.0	68.0	51.73	114353	4050	4.1	3.0	53.5	43.6	3850	72.0	54.0	20.0	13.1	277145	0.86	0.25	ALUMINUM WING/LECULAR SIEVE-4A	SEE NOTES

NOTES:

1. REFER TO SPECIFICATIONS SECTION 220000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS LISTED UNDER THIS SCHEDULE

2. THIS ENERGY RECOVERY WHEEL IS AN INTEGRAL PART OF THE REFERENCED AIR HANDLING UNIT LISTED IN THE UNIT NUMBER FIELD OF THIS SCHEDULE. REFER TO THE AIR HANDLING UNIT'S SCHEDULE FOR ADDITIONAL INFORMATION.

GRAVITY VENT SCHEDULE (GV)											
UNIT NO	SERVICE	TYPE	MATERIAL	AIR FLOW (CFM)	THROAT SIZE (IN) LWH	OVERALL SIZE (IN) LWH	MAX PD AIR (IN) WG	CURB HEIGHT (IN)	MANUFACTURER	MODEL	REMARKS
GV-2	AHJ-2	LOUVERED	ALUMINUM	15465	48x48	92x132	0.05	2'-0"	GREENECOX	FGI	
GV-1	AHJ-2	LOUVERED	ALUMINUM	15465	48x48	92x132	0.05	2'-0"	GREENECOX	FGI	
GV-4	F-6	HOOD	ALUMINUM	190	8x8	20.5x	0.05	2'-0"	GREENECOX	GRSR	

DESTRATIFICATION FAN (DF)										
UNIT	ELEC DATA									
NO	BLADE DIA (FT)	MAXIMUM CFM	V	PH	HP	WATTS	RPM	SERVICE		MANUFACTURER
DF-1	18		480	3	2.0	0.0	86	G/YM		BAF
									MODEL	REMARKS
									BASIC 6	SEE NOTES

NOTES:

- REFER TO SPECIFICATIONS SECTION 200000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
- PROVIDE WIRE CAGE/GUARD FOR FAN AND DOWN DROPS.

VRF FAN COIL UNIT (FCU)				COOLING										HEATING										ELECTRICAL										MAX FAN SPEED		MAX SOUND RATING (dBA)		MANUFACTURER		MODEL		NOTES	
UNIT NO.	TYPE	LOCATION	VRF CONDENSING UNIT	SERVING	NOMINAL (TONS)	AIRFLOW (CFM)	ESP (IN. WG)	EAT (°F)	WB (°F)	DB (°F)	TOTL (°F)	SENSIBLE (BTU/H)	EAT (°F)	LAT (°F)	CAPACITY (TONS)	REFRIG. (TONS)	PH	RLA	MCA	HML	HML	SETTING	V	PH	RLA	MCA	HML	MANUFACTURER	MODEL	NOTES													
FCU-1-1	360 CEILING CASSETTE	C019 METAL FAB CR	CU-1	C019 METAL FAB CR	2.00	740	0.15	75.0	63.0	56.6	19.8	15.6	70.0	100.4	25.13	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-1-2	262 CEILING CASSETTE	C015 COURT OFF	CU-1	C015 COURT OFF	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-1-3	262 CEILING CASSETTE	C020 CUST WORKSHOP	CU-1	C020 CUST WORKSHOP	0.80	0	0	0.15	75.0	63.0	0.0	0.0	0.0	70.0	0.0	0.00																											
FCU-1-4	360 CEILING CASSETTE	C023 TEAM LOCKER	CU-1	C023 TEAM LOCKER	1.00	685	0.15	75.0	63.0	56.6	19.8	15.6	70.0	100.4	25.13	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-1-5	360 CEILING CASSETTE	C020 AUTO COLL CR	CU-1	C020 AUTO COLL CR	2.00	740	0.15	75.0	63.0	56.6	19.8	15.6	70.0	100.4	25.13	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-1-6	360 CEILING CASSETTE	D0030 AUTO TECH CR	CU-1	D0030 AUTO TECH CR	2.00	740	0.15	75.0	63.0	56.6	19.8	15.6	70.0	100.4	25.13	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-1-7	WALL MOUNTED	STAR1 LVL OFF	CU-1	STAR1	1.50	495	0.15	75.0	63.0	56.6	19.8	15.6	70.0	100.4	25.13	R410A	NA	208	1	0.50	0.65	HIGH	43	LG	ARNU135SAA4	SEE NOTES 1-10	ARNU135SAA4	SEE NOTES 1-10	ARNU135SAA4	SEE NOTES 1-10	ARNU135SAA4	SEE NOTES 1-10											
FCU-1-8	360 CEILING CASSETTE	STAR1 LVL OFF	CU-1	STAR1	1.50	495	0.15	75.0	63.0	56.6	19.8	15.6	70.0	100.4	25.13	R410A	NA	208	1	0.50	0.65	HIGH	43	LG	ARNU135SAA4	SEE NOTES 1-10	ARNU135SAA4	SEE NOTES 1-10	ARNU135SAA4	SEE NOTES 1-10	ARNU135SAA4	SEE NOTES 1-10											
FCU-1-9	262 CEILING CASSETTE	C024 COACH OFF	CU-1	C024 COACH OFF	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-1-10	262 CEILING CASSETTE	C028 COACH OFF	CU-1	C028 COACH OFF	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-1-11	360 CEILING CASSETTE	C027 TEAM LOCKER	CU-1	C027 TEAM LOCKER	1.00	685	0.15	75.0	63.0	56.6	19.8	15.6	70.0	100.4	25.13	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-2-1	262 CEILING CASSETTE	D102 NURSE WAIT	CU-2	D102 NURSE WAIT	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-2-2	262 CEILING CASSETTE	D103 NURSE OFFICE	CU-2	D103 NURSE OFFICE	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-2-3	262 CEILING CASSETTE	D104 NURSE OFFICE	CU-2	D104 NURSE OFFICE	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-2-4	262 CEILING CASSETTE	D106 EXAM	CU-2	D106 EXAM	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-2-5	262 CEILING CASSETTE	D109 EXAM	CU-2	D109 EXAM	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-2-6	262 CEILING CASSETTE	D123 OFFICIALS	CU-2	D123 OFFICIALS	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-2-7	262 CEILING CASSETTE	C120 CORRIDOR	CU-2	C120 CORRIDOR	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-2-8	262 CEILING CASSETTE	D122 PE INSTR. OFF	CU-2	D122 PE INSTR. OFF	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-2-9	360 CEILING CASSETTE	D122 GIRLS LOCKER	CU-2	D122 GIRLS LOCKER	2.30	855	0.15	75.0	63.0	56.6	24.7	18.5	70.0	103.0	31.50	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-2-10	360 CEILING CASSETTE	D122 TEAM LOCKER	CU-2	D122 TEAM LOCKER	1.00	685	0.15	75.0	63.0	56.6	19.8	15.6	70.0	100.4	25.13	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-2-11	360 CEILING CASSETTE	D122 TEAM LOCKER	CU-2	D122 TEAM LOCKER	1.30	710	0.15	75.0	63.0	56.6	27.1	20.9	70.0	106.8	40.60	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-2-12	360 CEILING CASSETTE	D1170 TEAM LOCKER	CU-2	D1170 TEAM LOCKER	1.00	685	0.15	75.0	63.0	56.6	19.8	15.6	70.0	100.4	25.13	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-2-13	360 CEILING CASSETTE	D1178 TEAM LOCKER	CU-2	D1178 TEAM LOCKER	1.30	710	0.15	75.0	63.0	56.6	27.1	20.9	70.0	106.8	40.60	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-2-14	262 CEILING CASSETTE	D119 TRAINER	CU-2	D119 TRAINER	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-2-15	262 CEILING CASSETTE	D110 EXAM	CU-2	D110 EXAM	0.50	265	0.15	75.0	63.0	56.6	4.9	3.4	70.0	90.7	6.10	R410A	MERV-13	208	1	0.20	0.25	HIGH	29	LG	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10	ARNU135TAA4	SEE NOTES 1-10											
FCU-2-16	262 CEILING CASSETTE	D105 RESTING	CU-2	D105 RESTING	0.75	690	0.15	75.0	63.0	56.6	6.6	4.9	70.0	91.7	8.50	R410A	MERV-13	208	1	1.70	2.09	HIGH	30	LG	ARNU136TAA4	SEE NOTES 1-10	ARNU136TAA4	SEE NOTES 1-10	ARNU136TAA4	SEE NOTES 1-10	ARNU136TAA4	SEE NOTES 1-10											
FCU-2-17	360 CEILING CASSETTE	D111 HEALTH CR	CU-2	D111 HEALTH CR	1.50	535	0.15	75.0	63.0	56.6	19.8	15.6	70.0	100.4	25.13	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-2-18	360 CEILING CASSETTE	D111 FITNESS	CU-2	D111 FITNESS	3.00	985	0.15	75.0	63.0	56.6	32.0	23.2	70.0	106.8	40.60	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-2-19	360 CEILING CASSETTE	D111 FITNESS	CU-2	D111 FITNESS	3.00	985	0.15	75.0	63.0	56.6	32.0	23.2	70.0	106.8	40.60	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10	ARNU123TAA4	SEE NOTES 1-10											
FCU-2-20	360 CEILING CASSETTE	D114 4TH DRK OFF	CU-2	D114 4TH DRK OFF	1.50	495	0.15	75.0	63.0	56.6	19.8	15.6	70.0	100.4	25.13	R410A	MERV-13	208	1	1.67	2.09	MED	33.5	LG	ARNU123TAA4	SEE NOTES 1-10																	

GRILLES, REGISTERS, AND DIFFUSERS

TAG NO	SERVICE	MOUNTING	MAX NC	CONSTRUCTION MATERIAL	FACE SIZE (IN) OR SLOT WIDTH	ACCESSORIES	MANUFACTURER	MODEL	NOTES
A	SUPPLY	LAY-IN	20	ALUMINUM	24x24	NA	TITUS	TDC	SEE NOTES
A1	SUPPLY	SURFACE	20	ALUMINUM	24x24	NA	TITUS	TDC	SEE NOTES
A3	SUPPLY	SIDEWALL	20	ALUMINUM	DUCT SIZE +1-5/8"	NA	TITUS	TDC	SEE NOTES
B	EXHAUST/RETURN	LAY-IN	20	ALUMINUM	24x24	NA	TITUS	350FLF2	SEE NOTES
C	EXHAUST/RETURN	LAY-IN	20	ALUMINUM	24x24	NA	TITUS	350FL	SEE NOTES
C1	EXHAUST/RETURN	SURFACE	20	ALUMINUM	12x12	NA	TITUS	350FL	SEE NOTES
C2	EXHAUST/RETURN	SIDEWALL	20	ALUMINUM	DUCT SIZE +1-5/8"	NA	TITUS	350FL	SEE NOTES
C3	EXHAUST/RETURN	SIDEWALL	20	ALUMINUM	DUCT SIZE +1-5/8"	NA	TITUS	350FL	SEE NOTES
D	SUPPLY	LAY-IN	20	ALUMINUM	(2) 1/5 SLOTS	INSULATED PLENUM	TITUS	FL-15HT	SEE NOTES
D1	SUPPLY	MID-IN	20	ALUMINUM	(1) 1/5 SLOTS	NA	TITUS	FL-10HT	SEE NOTES
D2	SUPPLY	MID-IN	20	ALUMINUM	(2) 1/5 SLOTS	NA	TITUS	FL-10HT	SEE NOTES
E	SUPPLY	SURFACE	20	ALUMINUM	41" SLOTS	BLACK INSULATED PLENUM	TITUS	ML-39	SEE NOTES
F	SUPPLY	DUCT MOUNTED	20	ALUMINUM	DUCT SIZE +3"	NA	TITUS	S300FL	SEE NOTES
G	EXHAUST/RETURN	DUCT MOUNTED	20	ALUMINUM	DUCT SIZE +5"	NA	TITUS	SBF	SEE NOTES
H	EXHAUST/RETURN	SURFACE	20	ALUMINUM	41" SLOTS	NA	TITUS	MLR-39	SEE NOTES
I	SUPPLY	FLOOR MOUNTED	20	ALUMINUM	120" BARS 30 DEG DEFLEC	NA	TITUS	CT-PP-3	SEE NOTES

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 23000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. FINISH SHALL BE SELECTED BY THE ARCHITECT.
3. FRAME BORDER SHALL MATCH CEILING TYPE. COORDINATE WITH THE ARCHITECTURAL PLANS.
4. SEE DRAWINGS FOR NECK SIZE AND AIR FLOW PATTERN. PROVIDE DIRECTIONAL CLIPS. THE CONTRACTOR SHALL INSTALL BLOW CLIPS IF THE FLOOR GRILLE SHALL BE PROVIDED AND INSTALLED BY ACCESS FLOOR CONTRACTOR.
5. PROVIDE WITH STAINLESS STEEL FACE AND ALUMINUM BACK PAN.
6. PROVIDE FAN CONNECTOR + V-BRANCH ACCESSORY.
7. THE LINEAR SLOT DIFFUSERS SHALL BE ADJUSTED FOR TWO WAY PATTERN.

SOUND ATTENUATOR SCHEDULE (SA)

UNIT NO.	LOCATION	SA FLOW (CFM)	OVERALL SIZE (IN)	FACE VELOCITY (FPM)	PD (IN)	MINIMUM DYNAMIC INSERTION LOSS (DB)	AIRFLOW FORWARD REVERSE	HTL CASING REVERSE	MANUFACTURER	MODEL	REMARKS
SA-A1R1	C004 METAL SHOP MEZZ	20000	106x32x48	849	0.10	5 10 17 23 23 17 13 10	REVERSE	NO	VIBRO-ACOUSTICS	RD-MV-F3	SEE NOTES
SA-A1S1	C004 METAL SHOP MEZZ	20000	96x36x108	833	0.05	7 18 21 32 44 39 29 18	FORWARD	NO	VIBRO-ACOUSTICS	RED-LHV-F4	SEE NOTES
SA-A2E1	C004 METAL SHOP MEZZ	15485	48x24x48	1105	0.13	7 11 25 44 16 27 16	REVERSE	NO	VIBRO-ACOUSTICS	RD-MV-F1	SEE NOTES
SA-A2S1	C002 AUTO COLL. MEZZ	15485	76x36x72	814	0.04	5 9 16 26 24 18 13 10	FORWARD	NO	VIBRO-ACOUSTICS	RD-MV-F3	SEE NOTES
SA-A3R1	D008 AUTO TECH MEZZ	15745	84x36x108	754	0.04	7 17 17 31 43 38 28 18	REVERSE	NO	VIBRO-ACOUSTICS	RED-LHV-F4	SEE NOTES
SA-A3S1	D008 AUTO TECH MEZZ	15745	64x48x96	738	0.06	5 9 23 35 16 25 14	FORWARD	NO	VIBRO-ACOUSTICS	RD-MV-F1	SEE NOTES
SA-A4R1	E104 ELEC TECH MEZZ	9405	60x34x72	684	0.05	8 11 17 31 26 26 19 17	REVERSE	NO	VIBRO-ACOUSTICS	RED-MV-F1	SEE NOTES
SA-A4S1	E103 HVAC TECH MEZZ	7525	60x34x72	514	0.02	9 9 12 25 25 26 18 17	REVERSE	NO	VIBRO-ACOUSTICS	RED-LHV-F4	SEE NOTES
SA-A5R1	E103 HVAC TECH MEZZ	7275	48"x12x22	480	0.01	10 17 29 38 25 19 14	FORWARD	NO	VIBRO-ACOUSTICS	RD-MV-F1	SEE NOTES
SA-A5S1	M101 PLUMBING MEZZ	6570	56x26x72	645	0.07	6 12 18 30 29 29 22 20	REVERSE	NO	VIBRO-ACOUSTICS	RED-MV-F2	SEE NOTES
SA-A6S1	M101 PLUMBING MEZZ	6570	50x24x36	860	0.12	3 6 13 20 27 24 17 12	FORWARD	NO	VIBRO-ACOUSTICS	SRD-MV-F7	SEE NOTES
SA-JR1T	M101 CARPENTRY MEZZ	8285	64x34x48	547	0.04	5 6 13 22 23 63 7	REVERSE	NO	VIBRO-ACOUSTICS	RD-MV-F1	SEE NOTES
SA-JS1T	M101 CARPENTRY MEZZ	8285	54x24x36	920	0.02	1 2 6 12 9 8 6 3	FORWARD	NO	VIBRO-ACOUSTICS	RFL-LHV-F2	SEE NOTES
SA-AJ1R1	A201 MECHANICAL ROOM	8850	60x24x144	885	0.11	12 23 29 37 49 38 25 28	REVERSE	NO	VIBRO-ACOUSTICS	RED-MV-F1	SEE NOTES
SA-AJ1S1	A201 MECHANICAL ROOM	10555	60x24x18	1055	0.13	1 4 6 13 19 21 20 11	FORWARD	NO	VIBRO-ACOUSTICS	RD-MV-F2	SEE NOTES
SA-AJ1R1	A201 MECHANICAL ROOM	10555	60x26x24	975	0.15	4 5 12 19 17 12 7 6	REVERSE	NO	VIBRO-ACOUSTICS	SRD-MV-F1	SEE NOTES
SA-AJ1R1	A201 MECHANICAL ROOM	9485	54x24x108	1054	0.09	8 19 31 39 36 25 18 15	REVERSE	NO	VIBRO-ACOUSTICS	RD-MV-F2	SEE NOTES
SA-AJ1S1	A201 MECHANICAL ROOM	9485	54x24x60	1054	0.08	5 11 19 25 25 18 15 12	FORWARD	NO	VIBRO-ACOUSTICS	RD-MV-F2	SEE NOTES
SA-HS5	LEVEL 4 AREA C SHFT	2760	28x12x60	1183	0.15	6 11 15 27 27 27 21 18	FORWARD	NO	VIBRO-ACOUSTICS	RED-MV-F2	SEE NOTES
SA-M1S1	A201 MECHANICAL ROOM	6510	40x18x72	1302	0.13	5 9 9 15 22 38 39 25 19	FORWARD	NO	VIBRO-ACOUSTICS	RED-LHV-F4	SEE NOTES
SA-M2S	A402 CORRIDOR	15655	60x24x64	1702	0.18	9 10 13 24 27 20 19	FORWARD	NO	VIBRO-ACOUSTICS	RED-LHV-F1	SEE NOTES
SA-R1R1	D202 GYMNASIUM	14000	70x64x72	609	0.02	2 9 20 31 29 15 11 11	REVERSE	NO	VIBRO-ACOUSTICS	RD-MV-F4	SEE NOTES
SA-R2S1	D202 GYMNASIUM	9120	50"x10x100	669	0.01	7 13 22 28 24 16 12 9	FORWARD	NO	VIBRO-ACOUSTICS	RD-MV-F1	SEE NOTES
SA-R2S2	D202 GYMNASIUM	14000	70x64x64	628	0.07	7 14 23 32 41 39 32 27	REVERSE	NO	VIBRO-ACOUSTICS	RED-MV-F7	SEE NOTES

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 23000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.
2. PROVIDE ELBOW SOUND ATTENUATORS CUSTOM DESIGNED TO ATTACH DIRECTLY TO ROOFTOP UNIT DUCT CONNECTION. ROUTE THROUGH ROOF CURB AND PENETRATE ROOF DECK, EXTEND DOWNWARD TO CLEAR STRUCTURE BEFORE TURNING INTO A HORIZONTAL POSITION. SEAL ROOF PENETRATIONS TO SOUND ATTENUATORS.
3. PROVIDE "T" SHAPED DOUBLE ELBOW TYPE SOUND ATTENUATORS CUSTOM DESIGNED TO ATTACH DIRECTLY TO ROOFTOP UNIT DUCT CONNECTION. ROUTE THROUGH ROOF CURB AND PENETRATE ROOF DECK, EXTEND DOWNWARD TO CLEAR STRUCTURE BEFORE TURNING INTO A HORIZONTAL POSITION. SEAL ROOF PENETRATIONS TO SOUND ATTENUATORS.
4. ALL SOUND ATTENUATORS OVERALL WIDTH AND LENGTH SHALL MATCH THE ASSOCIATED AIR HANDLERS DUCT CONNECTION SIZE. CONTRACTOR TO COORDINATE WITH SUBMITTED AIR HANDLER SHOP DRAWING PRIOR TO ORDERING SOUND ATTENUATORS.

VRF BRANCH CIRCUIT SELECTOR SCHEDULE (BS)

UNIT NO.	NUMBER OF PORTS	MAX CAPACITY PER PORT (MBH)	REFRIGERANT USED	V	PH	ELEC DATA	RATED AMPS	MANUFACTURER	MODEL	NOTES
BS-1-1	3	60.0	R410A	208	1	0.06	LG	PRHR03SA	SEE NOTES	
BS-1-2	8	60.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-2-1	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-2-2	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-2-3	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-2-4	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-3-1	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-4-1	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-5-1	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-5-2	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-5-3	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-5-4	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-1	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-2	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-3	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-4	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-5	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-6	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-7	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-8	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-9	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-10	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-11	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-12	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-13	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-14	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-15	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-16	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-17	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-18	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	
BS-6-19	0.0	0.0	R410A	208	1	0.09	LG	PRHR03SA	SEE NOTES	

- NOTES:
1. REFER TO SPECIFICATIONS SECTION 23000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE.

AIR COOLED VRF CONDENSING UNIT (CU)

UNIT NO	LOCATION	NOMINAL CAPACITY (TONS)	RATED COOLING (MBH)	RATED HEATING (MBH)	REFRIG ERANT TYPE	REFRIGERANT (R410A)	CONDENSER COIL			ELECTRICAL				SOUND RATING (DB)	MANUFACTURER	MODEL	NOTES	
							COOLING	HEATING	FCM	V	PH	MCA	FLA					MOCP
CU-1	ROOF AREA C	12	144.0	162.0	R410A	EEV	95.0	0.0	9300	480	3	26.4	23.8	35	60	LG	ARJUM140TES	SEE NOTES
CU-2A	ROOF AREA D	12	144.0	162.0	R410A	EEV	95.0	0.0	9300	480	3	26.5	23.8	35	60	LG	ARJUM140TES	CU-2A AND CU-2B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM300TES)
CU-2B	ROOF AREA D	18	216.0	243.0	R410A	EEV	95.0	0.0	10300	480	3	38.3	34.4	50	64	LG	ARJUM160TES	CU-2A AND CU-2B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM300TES)
CU-3	ROOF AREA B	10	119.7	135.0	R410A	EEV	95.0	0.0	8400	480	3	18.4	15.7	25	59	LG	ARJUM120TES	SEE NOTES
CU-4	ROOF AREA A	18	216.0	243.0	R410A	EEV	95.0	0.0	10300	480	3	38.3	34.4	50	64	LG	ARJUM160TES	SEE NOTES
CU-5A	ROOF AREA B	10	119.7	135.0	R410A	EEV	95.0	0.0	8400	480	3	18.4	15.7	25	59	LG	ARJUM120TES	SEE NOTES
CU-5B	ROOF AREA B	10	119.7	135.0	R410A	EEV	95.0	0.0	8400	480	3	18.4	15.7	25	59	LG	ARJUM120TES	CU-5A, CU-5B, AND SC ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-5C	ROOF AREA B	16	192.0	216.0	R410A	EEV	95.0	0.0	10300	480	3	35.7	32.0	50	62	LG	ARJUM120TES	CU-5A, CU-5B, AND SC ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-6A	ROOF AREA A	16	192.0	216.0	R410A	EEV	95.0	0.0	10300	480	3	35.7	32.0	50	62	LG	ARJUM120TES	CU-6A AND CU-6B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-6B	ROOF AREA A	18	216.0	243.0	R410A	EEV	95.0	0.0	10300	480	3	38.3	34.4	50	64	LG	ARJUM160TES	CU-6A AND CU-6B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-7	ROOF AREA B	3	36.0	42.0	R410A	EEV	95.0	0.0	4208	208	1	23.5	18.0	40	53	LG	ARJUM005SSS	SEE NOTES
CU-8A	ROOF AREA A	16	192.0	216.0	R410A	EEV	95.0	0.0	10300	480	3	35.7	32.0	50	62	LG	ARJUM120TES	CU-8A AND CU-8B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM120TES)
CU-8B	ROOF AREA B	8	96.0	108.0	R410A	EEV	95.0	0.0	7400	480	3	16.4	14.1	25	58	LG	ARJUM090TES	SEE NOTES
CU-9A	ROOF AREA B	10	119.7	135.0	R410A	EEV	95.0	0.0	8400	480	3	18.4	15.7	25	59	LG	ARJUM120TES	CU-9A AND CU-9B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-9B	ROOF AREA B	12	144.0	162.0	R410A	EEV	95.0	0.0	9300	480	3	26.4	23.8	35	60	LG	ARJUM140TES	CU-9A, CU-9B, AND 9C ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-9C	ROOF AREA B	18	216.0	243.0	R410A	EEV	95.0	0.0	10300	480	3	38.3	34.4	50	64	LG	ARJUM160TES	CU-9A, CU-9B, AND 9C ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-10A	ROOF AREA A	18	216.0	243.0	R410A	EEV	95.0	0.0	10300	480	3	38.3	34.4	50	64	LG	ARJUM160TES	CU-10A AND CU-10B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-10B	ROOF AREA B	12	144.0	162.0	R410A	EEV	95.0	0.0	9300	480	3	26.4	23.8	35	60	LG	ARJUM140TES	CU-10A AND CU-10B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-11A	ROOF AREA A	18	216.0	243.0	R410A	EEV	95.0	0.0	10300	480	3	38.3	34.4	50	64	LG	ARJUM160TES	CU-11A, CU-11B, AND 11C ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-11B	ROOF AREA A	10	119.7	135.0	R410A	EEV	95.0	0.0	8400	480	3	18.4	15.7	25	59	LG	ARJUM120TES	CU-11A, CU-11B, AND 11C ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-11C	ROOF AREA A	10	119.7	135.0	R410A	EEV	95.0	0.0	8400	480	3	18.4	15.7	25	59	LG	ARJUM120TES	CU-11A, CU-11B, AND 11C ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-12	ROOF AREA B	6	60.0	64.0	R410A	EEV	95.0	0.0	3885	208	1	25.4	19.5	40	57	LG	ARJUM005SSS	SEE NOTES
CU-13A	ROOF AREA B	10	119.7	135.0	R410A	EEV	95.0	0.0	8400	480	3	18.4	15.7	25	59	LG	ARJUM120TES	CU-13A, CU-13B, AND 13C ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-13B	ROOF AREA B	10	119.7	135.0	R410A	EEV	95.0	0.0	8400	480	3	18.4	15.7	25	59	LG	ARJUM120TES	CU-13A, CU-13B, AND 13C ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-13C	ROOF AREA B	18	216.0	243.0	R410A	EEV	95.0	0.0	10300	480	3	38.3	34.4	50	64	LG	ARJUM160TES	CU-13A, CU-13B, AND 13C ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM430TES)
CU-14A	ROOF AREA B	18	216.0	243.0	R410A	EEV	95.0	0.0	10300	480	3	38.3	34.4	50	64	LG	ARJUM160TES	CU-14A AND CU-14B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM120TES)
CU-14B	ROOF AREA C	8	96.0	108.0	R410A	EEV	95.0	0.0	7400	480	3	16.4	14.1	25	58	LG	ARJUM090TES	CU-14A AND CU-14B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM120TES)
CU-15	ROOF AREA C	12	144.0	162.0	R410A	EEV	95.0	0.0	9300	480	3	26.4	23.8	35	60	LG	ARJUM140TES	SEE NOTES
CU-16	ROOF AREA C	14	168.0	180.0	R410A	EEV	95.0	0.0	10300	480	3	29.5	26.5	40	61	LG	ARJUM160TES	SEE NOTES
CU-17	ROOF AREA A	20	232.0	243.0	R410A	EEV	95.0	0.0	10300	480	4	31.4	37.2	50	65	LG	ARJUM201TES	SEE NOTES
CU-18A	ROOF AREA B	18	216.0	216.0	R410A	EEV	95.0	0.0	10300	480	3	35.7	32.0	50	62	LG	ARJUM120TES	CU-18A AND CU-18B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM120TES)
CU-18B	ROOF AREA A	8	96.0	108.0	R410A	EEV	95.0	0.0	7400	480	3	16.4	14.1	25	58	LG	ARJUM090TES	CU-18A AND CU-18B ARE JOINED TOGETHER TO CREATE ONE VRF CONDENSING SYSTEM (MODEL ARJUM120TES)
CU-19	ROOF AREA A	18	216.0	243.0	R410A	EEV	95.0	0.0	10300	480	3	38.3	34.4	50	64	LG	ARJUM160TES	SEE NOTES
CU-20	ROOF AREA B	3	36.0	42.0	R410A	EEV	95.0	0.0	4208	208	1	23.5	18.0	40	53	LG	ARJUM005SSS	SEE NOTES
CU-21	ROOF AREA B	3	36.0	42.0	R410A	EEV	95.0	0.0	4208	208	1	23.5	18.0	40	53	LG	ARJUM005SSS	SEE NOTES
CU-22	LOCKER ROOM	0.0	0.0	0.0	R410A	EEV	95.0	0.0	460	3	26.3	23.8	35	60	0	LG	ARJUM002TES	SEE NOTES

**Northeast
Metropolitan
Regional
Vocational High
School**

Wakefield, MA 01880

AIR CONDITIONING UNITS - DX SPLIT SYSTEMS (AC)																			
UNIT NO	AREA SERVED	TYPE	FAN		ELECTRICAL CHARACTERISTICS					DX REFRIGERANT COOLING				SOUND LEVEL (DBA)	MANUFACTURER	MODEL	NOTES	STARTER TYPE	
			MIN AIRFLOW (CFM)	MAX AIRFLOW (CFM)	MCA (AMP)	V	PH	TOTAL CAPACITY (MBH)	TEMP (°F)	DESIGN SPACE CONDITION	RH (%)	REFRIGERANT USED							
AC-6-1	MAIN ELECTRICAL - C001	WALL MOUNTED	670	915	0.81	208	1	36.0	80.0	50	R410A	52	LG	ARNJ363SV4	1,2,3,4,5		PS		
AC-6-2	IDF - C009	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-6-3	ELECT VOC - C006A	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-6-4	PLUMBING C008	WALL MOUNTED	670	915	0.81	208	1	36.0	80.0	50	R410A	52	LG	ARNJ363SV4	1,2,3,4,5		PS		
AC-6-5	ELEV MACHINE RM - C012	WALL MOUNTED	670	915	0.81	208	1	36.0	80.0	50	R410A	52	LG	ARNJ363SV4	1,2,3,4,5		PS		
AC-6-6	ELECTRIC RM - M02A	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-6-7	ELECT - C024	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-6-8	ELECTRIC RM - M03A	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-1-1	MAIN KITCHEN ELECTRICAL - A115	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-1-2	IDF - A116	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-1-3	ELEC A144	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-1-4	ELECT RM M101A	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-1-5	PLUMBING - COMPRESSED AIR - B102	WALL MOUNTED	670	915	0.81	208	1	36.0	80.0	50	R410A	52	LG	ARNJ363SV4	1,2,3,4,5		PS		
AC-1-6	ELECT VOC B108	WALL MOUNTED	670	915	0.81	208	1	36.0	80.0	50	R410A	52	LG	ARNJ363SV4	1,2,3,4,5		PS		
AC-1-7	IDF B104	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-1-8	ELECT RM M102A	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-1-9	ELECT RM M103A	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-1-10	ELECT RM M104A	WALL MOUNTED	670	915	0.81	208	1	36.0	80.0	50	R410A	52	LG	ARNJ363SV4	1,2,3,4,5		PS		
AC-1-11	IDF - C103	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-1-12	AUD ELECT - C119	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-1-13	ELECTRIC RM - D124	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-1-14	IDF - D118	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-2-1	ELECTRIC RM - 370	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-2-2	IDF - 372	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-2-3	IDF - 220	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-2-4	IDF - 220	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-2-5	TELECOM - 142	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-2-6	ELECTRIC RM - 200	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-3-1	IDF - 221	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-3-2	ELECTRIC RM - 199	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-3-3	IDF - 223	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-3-4	ELECTRIC RM - 198	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-3-5	ELEV MACHINE RM - E1M	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-4-1	IDF - 219	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-4-3	ELECTRIC RM - 195	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-4-4	ELECTRIC RM - 196	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-4-5	IDF - 384	WALL MOUNTED	370	540	0.52	208	1	24.0	80.0	50	R410A	49	LG	ARNJ243SK4	1,2,3,4,5		PS		
AC-6B-1	ELEV MACHINE RM - E4M	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-6B-2	PRESS BOOTH - C001	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
AC-6B-3	CONCESSIONS - C001	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
ACH-01	HVAC TECH B103 - STUDENT TRAINER	WALL MOUNTED	370	705	0.00	208	1	18.0	80.0	50	R410A	49	LG	LSN181HSV5	7				
ACH-02	HVAC TECH B103 - STUDENT TRAINER	WALL MOUNTED	370	705	0.00	208	1	18.0	80.0	50	R410A	49	LG	LSN181HSV5	7				
ACH-03	HVAC TECH B103 - STUDENT TRAINER	WALL MOUNTED	370	705	0.00	208	1	18.0	80.0	50	R410A	49	LG	LSN181HSV5	7				
ACH-04	HVAC TECH B103 - STUDENT TRAINER	WALL MOUNTED	370	705	0.00	208	1	18.0	80.0	50	R410A	49	LG	LSN181HSV5	7				
ACH-04-1	HVAC TECH B103 - STUDENT TRAINER	WALL MOUNTED	370	705	0.00	208	1	18.0	80.0	50	R410A	49	LG	LSN181HSV5	7				
ACH-04-2	HVAC TECH B103 - STUDENT TRAINER	WALL MOUNTED	370	705	0.00	208	1	18.0	80.0	50	R410A	49	LG	LSN181HSV5	7				
ACH-04-3	HVAC TECH B103 - STUDENT TRAINER	2x2 CEILING CASSETTE	0	0.00	208	1	18.0	80.0			0		LG	ARNJ183TQ4	7				
ACH-04-4	HVAC TECH B103 - STUDENT TRAINER	DUCTED	0	0.00	208	1	18.0				0		LG	ARNJ183TN4	7				
ACH-05	HVAC TECH B103 - STUDENT TRAINER	DUCTED	0	0.00	208	1	48.0				0		TRANE	TAMBA04C48V1DA	7				
ACH-05	HVAC TECH B103 - STUDENT TRAINER	DUCTED	0	0.00	208	1	48.0				0		TRANE	TAMBA04C48V1DA	7				
ACH-06	HVAC TECH B103 - STUDENT TRAINER	DUCTED	0	0.00	208	1	48.0				0		TRANE	TAMBA04C48V1DA	7				
ACH-LB-1	ELEV MACHINE RM - LR209	WALL MOUNTED	390	810	0.00	208	1	24.0	80.0	50	R410A	47	LG	LSN243HLV3	1,2,3,4,5,6		PS		
NOTES: 1. REFER TO SPECIFICATIONS SECTION 230000 FOR ALTERNATE MANUFACTURERS FOR PRODUCTS/SYSTEMS LISTED UNDER THIS SCHEDULE. 2. PROVIDE BUILT-IN CONDENSATE PUMP. 3. PROVIDE REMOTE WALL MOUNTED WIRED CONTROLLER. 4. UNITS SHALL OPERATE AT HIGH SPEED. 5. UNIT MANUFACTURE IS TO PROVIDE INTEGRAL FLOAT SWITCH FOR ATC TO TIE INTO FOR ALARM. 6. INDOOR UNIT IS POWERED FROM OUTDOOR UNIT. DW. 20 SHALL PROVIDE FEEDER FROM OUTDOOR UNIT TO INDOOR UNIT. 7. STUDENT TRAINER. DW.23 SHALL FURNISH AND MOUNT EQUIPMENT.																			

AIR-COOLED CONDENSING UNIT (ACCU)

UNIT NO.	SYSTEM	LOCATION	NOMINAL CAPACITY (TONS)	REFRIG	AMBIENT AIR TEMP. (°F)	ELECTRIC CONNECTION					MINIMUM EER	VIBRATION ISOLATION		DIMENSIONS (LxWxH) (IN)	WEIGHT (LBS)	MANUFACTURER	MODEL	NOTES
						V	PH	MCA	MOCP			TYPE	DEFLEC (IN)					
ACCU-0-1	AC-0-1	ROOF AREA C	3.0	R410A	95.0	208	1	23.5	40	15.5	NP	0.2	38x16x54	270		LG	ARJN036GSS5	SEE NOTES
ACCU-0-2	AC-0-2	ROOF AREA C	2.0	R410A	95.0	208	1	19.6	30	13	NP	0.2	37x13x32	200		LG	ARJN024GSS4	SEE NOTES
ACCU-0-3	AC-0-3	ROOF AREA C	2.0	R410A	95.0	208	1	19.6	30	13	NP	0.2	37x13x32	200		LG	ARJN024GSS4	SEE NOTES
ACCU-0-4	AC-0-4	ROOF AREA C	3.0	R410A	95.0	208	1	23.5	40	15.5	NP	0.2	38x16x54	270		LG	ARJN036GSS5	SEE NOTES
ACCU-0-5	AC-0-5	ROOF AREA C	3.0	R410A	95.0	208	1	23.5	40	15.5	NP	0.2	38x16x54	270		LG	ARJN036GSS5	SEE NOTES
ACCU-0-6	AC-0-6	ROOF AREA C	2.0	R410A	95.0	208	1	19.6	30	13	NP	0.2	37x13x32	200		LG	ARJN024GSS4	SEE NOTES
ACCU-0-7	AC-0-7	ROOF AREA C	2.0	R410A	95.0	208	1	19.0	30	13	NP	0.2	38x16x33	200		LG	LSN243HLV3	SEE NOTES
ACCU-0-8	AC-0-8	ROOF AREA D	2.0	R410A	95.0	208	1	19.6	30	13	NP	0.2	37x13x32	200		LG	ARJN024GSS4	SEE NOTES
ACCU-1-1	AC-1-1	ROOF AREA A	2.0	R410A	95.0	208	1	19.6	30	13	NP	0.2	37x13x32	200		LG	ARJN024GSS4	SEE NOTES
ACCU-1-2	AC-1-2	ROOF AREA A	2.0	R410A	95.0	208	1	19.6	30	13	NP	0.2	37x13x32	200		LG	ARJN024GSS4	SEE NOTES