

GENERAL NOTES:

- 1. ALL SYMBOLS AND ABBREVIATIONS MAY NOT APPLY TO THIS PROJECT.
2. BOUNDARY LINES SHOWN ON THE DRAWINGS DO NOT LIMIT THE SCOPE OF WORK FOR THE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK NOTED ON THE DRAWINGS.
3. CONTRACTOR SHALL COMPLY WITH ALL REGULATIONS AND LAWS OF AUTHORITIES HAVING JURISDICTION.
4. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND NOTIFY THE ENGINEER AT ONCE OF ANY DISCREPANCIES.
5. ALL PENETRATIONS THROUGH DESIGNATED FIRE RATED WALLS, CEILINGS AND FLOOR SLABS (WHICH ARE 2-HOUR RATED) SHALL BE PROPERLY SEALED WITH AN APPROVED RATED FIRE AND SMOKE STOPPING MATERIAL. ALL FIRE AND SMOKE STOPPING MATERIAL SHALL BE SUPPLIED AND WORK PERFORMED AS PER PROJECT SPECIFICATIONS. CONTRACTOR SHALL SUBMIT MANUFACTURER'S CATALOG DATA AND INSTALLATION DETAIL AS PER SPECIFICATIONS FOR FIRE AND SMOKE STOPPING TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR INSTALLATION.
6. THE CONTRACTOR SHALL NOT BE ALLOWED ANY STORAGE AREA OTHER THAN THAT AVAILABLE WITHIN THE LIMITS OF THE STAGING AREA AS DIRECTED BY THE CITY OF READING, CONFINES OF THE WORK AREA, OR AS DESIGNATED BY THE OWNER.
7. ALL WORK AND MATERIALS SHALL COMPLY WITH APPLICABLE CODES, ORDINANCES AND REGULATIONS.
8. A COPY OF THE CURRENT SET OF CONTRACT DOCUMENTS (WITH AS-BUILT INFORMATION) SHALL BE KEPT AT THE JOB SITE AT ALL TIMES BY THE CONTRACTOR.
9. EACH CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS OF ALL TRADES FOR A THOROUGH UNDERSTANDING OF PROJECT AND ANY CROSS REFERENCING OF WORK. REVIEW ALL PROJECT REQUIREMENTS PRIOR TO BIDDING. IN CASE OF DISCREPANCIES, THE MOST STRINGENT SHALL GOVERN.
10. THE CONTRACTOR SHALL GUARANTEE THE ENTIRE INSTALLATION FOR A PERIOD OF ONE YEAR (EXCEPT WHERE EXTENSIONS OF THIS ONE YEAR PERIOD ARE NOTED) FROM THE DATE OF ACCEPTANCE OF THE SYSTEM AS A WHOLE. ANY DEFECTS, IN WORKMANSHIP, MATERIALS, MALFUNCTION OF EQUIPMENT OR UNSATISFACTORY PERFORMANCE, AND ALL OTHER WORK OR PARTS OF THE BUILDING DAMAGED THEREBY, AS A RESULT OF THE WORK OF THE CONTRACTOR, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL PAY ALL REPAIR COSTS ACCORDINGLY WITHOUT ADDITIONAL COSTS TO OWNER.
11. IN ADDITION TO SPECIFICATIONS, AS MAY BE DEFINED HEREAFTER, THE CONTRACTOR SHALL PROTECT THE WORK SITE AND ALL HIS OR HER WORK AGAINST ANY DAMAGE (INCLUDING BUT NOT LIMITED TO WATER, DUST, HEAT, FREEZING, ETC.) UNTIL FINAL COMPLETION AND ACCEPTANCE BY THE OWNER.
12. CONTRACTOR SHALL, UPON COMPLETION OF THE WORK, SUBMIT AS-BUILT RECORD DRAWINGS SHOWING ALL CHANGES FROM THE CONTRACT DRAWINGS MADE IN THE INSTALLATION, AND SHOWING DIMENSION LOCATIONS OF CONCEALED EQUIPMENT.
13. PRIOR TO DELIVERY OF ANY MATERIALS TO THE SITE, THE CONTRACTOR SHALL PROVIDE MATERIAL SAFETY DATA SHEETS FOR ALL ITEMS AND MATERIALS USED IN THIS WORK.
14. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL CAPACITIES AND LOCATIONS OF EQUIPMENT TO BE REMOVED. CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE TO DETERMINE ACTUAL PHYSICAL SIZE, CAPACITIES, AND LOCATIONS OF EXISTING EQUIPMENT TO BE REMOVED.
15. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS, COORDINATE ALL REQUIRED EQUIPMENT AND SYSTEMS SHUTDOWN WITH OWNER, AND PROVIDE OWNER TWO WEEKS NOTICE OF THE SAME.
16. THE MECHANICAL CONTRACTOR SHALL COORDINATE DEMOLITION WORK WITH ALL OTHER TRADES. PHASE WORK IN CONJUNCTION WITH OTHER TRADE PHASING AND PHASING DRAWINGS.
17. CONTRACTOR SHALL FIELD VERIFY OTHER EQUIPMENT/UTILITIES NOT ASSOCIATED WITH THIS WORK BUT LYING WITHIN THE WORK AREA, AND WILL NOT DISTURB THOSE EQUIPMENT/UTILITIES. THOSE EQUIPMENT/UTILITIES SHALL BE PROTECTED SO THAT THE SERVICE IS NOT INTERRUPTED. CONTRACTOR SHALL REPAIR ANY DAMAGE DONE TO THE EQUIPMENT/UTILITIES IN PERFORMANCE OF THE WORK.
18. CONTRACTOR SHALL KEEP WORK AREA CLEAN, ORDERLY, AND WORKMAN LIKE, AND REMOVE ALL DEMOLISHED TRASH/ RUBBLE/CONSTRUCTION DEBRIS ON A DAILY BASIS FROM THE WORK AREA AND OFF OWNERS PROPERTY. ALL TRASH/RUBBLE/CONSTRUCTION DEBRIS DEEMED AS HAZARDOUS WASTE/MATERIAL SHALL BE DISPOSED OF IN ACCORDANCE WITH EPA OR ANY OTHER PERTINENT GOVERNING AGENCY AND DISPOSED OF ACCORDINGLY AT AN APPROVED HAZARDOUS WASTE DUMPSITE WITH ALL OF THE APPROVED/REQUIRED DOCUMENTATION.
19. THE MECHANICAL CONTRACTOR SHALL COORDINATE AND PHASE WORK IN CONJUNCTION WITH OTHER TRADE PHASING.
20. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL HIS EMPLOYEES WITH SAFE AND HEALTHY WORKING CONDITIONS AS PRESCRIBED IN THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION OF THE U.S. DEPARTMENT OF LABOR.
21. SECURE AND DELIVER TO THE OWNER'S REPRESENTATIVE ALL CERTIFICATES OF COMPLIANCE REQUIRED BY LOCAL AUTHORITIES.
22. ALL SMALL MOTORS UNDER 1 HORSEPOWER SHALL HAVE INTEGRAL OVERLOAD PROTECTION PER NEC 430.32 AND 430.53(A) IF FLANNING TO BE INSTALLED ON ONE BRANCH CIRCUIT DUE TO SMALL LOADS.

MECHANICAL GENERAL NOTES:

- 1. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL SYSTEMS IN THIS SECTION OF WORK IN ACCORDANCE WITH ALL APPLICABLE CODES.
2. CONTRACTOR SHALL FURNISH AND COMPLETE ALL PIPING SYSTEMS TO ALL EQUIPMENT REQUIRING SUCH. VERIFY ALL ROUGH-IN LOCATIONS AND COORDINATE PIPING LOCATIONS WITH WORK UNDER OTHER DISCIPLINES AND DIVISIONS OF THE SPECIFICATIONS TO AVOID CONFLICTS.
3. CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE HVAC DUCT SYSTEM TO ALL DIFFUSERS AND/OR EQUIPMENT REQUIRING SUCH. VERIFY ALL ROUGH-IN LOCATIONS AND COORDINATE HVAC LOCATIONS WITH WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS TO AVOID CONFLICTS.
4. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, INSPECTION CERTIFICATES, ETC. REQUIRED UNDER THE PROJECT SCOPE.
5. CONTRACTOR SHALL FIELD VERIFY CONDITIONS AND DIMENSIONS PRIOR TO CONSTRUCTION, AND NOTIFY ENGINEERS OF ANY DISCREPANCIES BETWEEN THE PLAN AND CONDITIONS AND/OR POTENTIAL PROBLEMS OBSERVED PRIOR TO CONTINUING WORK.
6. DO NOT SCALE THE PLANS. FIELD VERIFY EXACT LOCATIONS OF DOORS, WINDOWS, WALL DIMENSIONS, ETC.
7. CONTRACTOR WILL GIVE SUITABLE NOTICE TO ALL APPLICABLE UTILITY COMPANIES AND OWNER PRIOR TO PERFORMING WORK INVOLVING UTILITIES PER PA ONE CALL.
8. ALL EQUIPMENT SHALL BE HANDLED, STORED, AND PROTECTED TO PREVENT DAMAGE BEFORE AND DURING INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
9. ALL EQUIPMENT SHALL BE LOCATED AND INSTALLED IN A READILY ACCESSIBLE LOCATION SO AS TO PERMIT ACCESS FOR SERVICE WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS, PER MANUFACTURER'S INSTRUCTIONS AND APPLICABLE CODES.
10. ALL MATERIALS SHALL BE NEW AND SHALL FIT THE SPACE AVAILABLE. VERIFY DIMENSIONS AT SITE.
11. ALL PIPING, APPARATUS, AND EQUIPMENT, ETC. SHALL BE PROPERLY SUPPORTED, BRACED VERTICALLY AND HORIZONTALLY IN ACCORDANCE WITH APPLICABLE CODES.
12. VALVES AND FITTINGS SHALL BE OF THE SAME SIZE AS THE PIPING FOR WHICH THEY ARE INSTALLED, UNLESS OTHERWISE NOTED.
13. CONTRACTOR SHALL VERIFY AND CORRECT SYSTEMS AS REQUIRED TO MEET ALL CODES AND REGULATIONS AND VERIFY AND CORRECT ANY/all POSSIBLE DISCREPANCIES BETWEEN TYPE AND SIZE OF CONNECTIONS SPECIFIED IN THE EQUIPMENT SCHEDULES AND EQUIPMENT ACTUALLY INSTALLED.
14. CONTRACTOR IS RESPONSIBLE FOR COORDINATING INSTALLATION OF ALL EQUIPMENT SHOWN ON PLANS, INCLUDING COORDINATION OF ANY EQUIPMENT OF ALTERNATE MANUFACTURER. CONTRACTOR SHALL PROVIDE COMPOSITE DRAWINGS AS REQUIRED FOR INSTALLATION OF EQUIPMENT SHOWN ON PLAN FOR APPROVAL BY ENGINEER.
15. ALL ROOF ACCESSORIES SHALL BE COMPATIBLE WITH ROOFING SYSTEMS AS REQUIRED.
16. CONTRACTOR SHALL BECOME FAMILIAR WITH ALL CONDITIONS AFFECTING THIS PROJECT AND COORDINATE WITH ALL OTHER DISCIPLINES.
17. PRIOR TO ACCEPTANCE OF THE SPACE, ALL SYSTEMS SHALL BE TESTED, BALANCED, AND OPERATED TO DEMONSTRATE TO THE OWNER, OR HIS OR HER DESIGNATED REPRESENTATIVE, THAT THE INSTALLATION AND PERFORMANCE OF THESE SYSTEMS AND/OR PARTS THEREOF CONFORM TO THE DESIGN INTENT.
18. CONTRACTOR SHALL INSTALL DUCTWORK SYSTEMS PER LATEST SMACNA MANUALS. DUCT WORK SYSTEMS SHALL BE GALVANIZED G90 SHELL STEEL RATED FOR A PRESSURE CLASS OF 2" WG.
19. CONTRACTOR SHALL REPAIR/PATCH ALL SURFACES/WALLS/ROOF AREAS DAMAGED BY CONSTRUCTION.
20. UPON COMPLETION OF THE CONTRACT, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH THREE (3) COMPLETE SETS OF THE MANUFACTURER'S OPERATING, MAINTENANCE AND PREVENTIVE MAINTENANCE INSTRUCTIONS (IN BOUND BOOK FORM) INCLUDING PARTS LIST, AND COMPLETE PROCUREMENT INFORMATION SPECIFYING EQUIPMENT NUMBERS AND DESCRIPTIONS. OPERATING STAFF PERSONNEL SHALL BE INSTRUCTED AS TO PROPER OPERATING AND SERVICE REQUIREMENTS OF THE SYSTEMS AND EQUIPMENT.

SPECIFICATIONS:

IN ADDITION TO BELOW, PLEASE REFER TO 230000-SERIES BOOK SPECIFICATION SECTIONS.
DUCTWORK:
COMPLY WITH SMACNA'S HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESS, AND DUCT CONSTRUCTION METHODS UNLESS OTHERWISE INDICATED. SHEET METAL MATERIALS SHALL BE FREE OF PITTING, SEAM MARKERS, ROLLER MARKS, STAINS, DISCOLORATIONS, AND OTHER IMPERFECTIONS.
CONDENSATE DRAIN PIPING:
CONDENSATE DRAIN PIPING SHALL BE TYPE M, DRAWN-TEMPER COPPER TUBING, WROUGHT COPPER FITTINGS, AND SOLDERED JOINTS. ROUTE PIPE TO SPLASH BLOCK.
NATURAL GAS PIPING:
NATURAL GAS PIPING SHALL BE STEEL PIPE COMPLYING WITH ASTM A53/A53M, BLACK STEEL, SCHEDULE 40, TYPE E OR S, GRADE B.

ABBREVIATIONS:

Table with 2 columns: Abbreviation and Description. Includes entries like ABV ABOVE, AC AIR CONDITIONING UNIT, AD ACCESS DOOR, AFF ABOVE FINISHED FLOOR, AP ACCESS PANEL, BAS BUILDING AUTOMATION SYSTEM, BD BALANCING (VOLUME) DAMPER, BDD BACKDRAFT DAMPER, BLW BELOW, BOD BOTTOM OF DUCT, BOP BOTTOM OF PIPE, BTUH BRITISH THERMAL UNITS PER HOUR, CFM CUBIC FEET PER MINUTE, CLG COOLING, CM CONSTRUCTION MANAGER, CNTRL CONTROL, CO CLEAN OUT, COND CONDENSATE, CONT CONTINUED, CP CONDENSATE PUMP, CUH CABINET UNIT HEATER, DB DRY BULB TEMPERATURE, DBA DECIBEL A-WEIGHTED, DB DECIBEL, DIA DIAMETER, DIM DIMENSION, DN DOWN, DSD DUCT SMOKE DETECTOR, DWG DRAWING, (E) EXISTING, EA EXHAUST AIR, EAT ENTERING AIR TEMPERATURE, EC ELECTRICAL CONTRACTOR, EDB ENTERING DRY BULB TEMPERATURE, EER ENERGY EFFICIENCY RATIO, EF EXHAUST FAN, EG EXHAUST GRILLE, EL ELEVATION, ELEC ELECTRIC, EQUIP EQUIPMENT, ER EXHAUST REGISTER, EST ESTIMATED, EUH ELECTRIC UNIT HEATER, EWB ENTERING WET BULB TEMPERATURE, EXT EXTERNAL, F DEGREES FAHRENHEIT, FD FIRE DAMPER, FLR FLOOR, FPM FEET PER MINUTE, FSD FIRE/SMOKE DAMPER, FT FEET, G NATURAL GAS PIPING, GA GAUGE, GPH GALLONS PER HOUR, GS GALVANIZED STEEL, HP HORSEPOWER, HTG HEATING, IEER INTEGRATED ENERGY EFFICIENCY RATIO, IN INCH, IN WG INCHES WATER GAGE, INV EL INVERT ELEVATION, JAN JANITOR'S, KW KILOWATTS, LAT LEAVING AIR TEMPERATURE, LBS POUNDS, LRA LOCKED ROTOR AMPS, LV LOUVER, LWB LEAVING WET BULB TEMPERATURE, MBH BTU-H IN 1000'S, MCA MAXIMUM CIRCUIT AMPACITY, MFS MAXIMUM FUSE SIZE, MISC MISCELLANEOUS

Table with 2 columns: Abbreviation and Description. Includes entries like MOCPP MAXIMUM OVERCURRENT PROTECTION, NC NORMALLY CLOSED, NIC NOT IN CONTRACT, NO NORMALLY OPEN, NTS NOT TO SCALE, OA OUTSIDE AIR, OD OUTSIDE DIAMETER, OED OPEN END DUCT, RG RETURN GRILLE, RPM REVOLUTIONS PER MINUTE, SCH SCHEDULE, SEER SEASONAL ENERGY EFFICIENCY RATIO, SENS SENSIBLE, SG SUPPLY GRILLE, SMACNA SHEET METAL & AIR-CONDITIONING CONTRACTOR NATIONAL ASSOCIATION SPECIFICATIONS, SS STAINLESS STEEL, STA STATION, STD STANDARD, SUC SUCTION, TYP TYPICAL, UH UNIT HEATER, UON UNLESS OTHERWISE NOTED, V VENT LINE, VPH/Hz VOLTS/PHASE/HERTZ, VAV VARIABLE AIR VOLUME, VD VOLUME DAMPER, VFD VARIABLE FREQUENCY DRIVE, W WITH, W/O WITHOUT, WB WET BULB TEMPERATURE, WMS WIRE MESH SCREEN

APPLICABLE CODES:

- 1. 2015 INTERNATIONAL MECHANICAL CODE (2015 IMC)
2. NFPA-90A STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS
3. NFPA-90B STANDARD FOR THE INSTALLATION OF WARM AIR HEATING AND AIR-CONDITIONING SYSTEMS
4. NFPA-72 NATIONAL FIRE ALARM AND SIGNALING CODE
5. 2015 INTERNATIONAL FUEL GAS CODE (2015 IFGC)
6. 2015 INTERNATIONAL ENERGY CONSERVATION CODE (2015 IECC)
7. 2015 INTERNATIONAL BUILDING CODE (2015 IBC)
8. 2015 INTERNATIONAL EXISTING BUILDING CODE (2015 IEBCC)

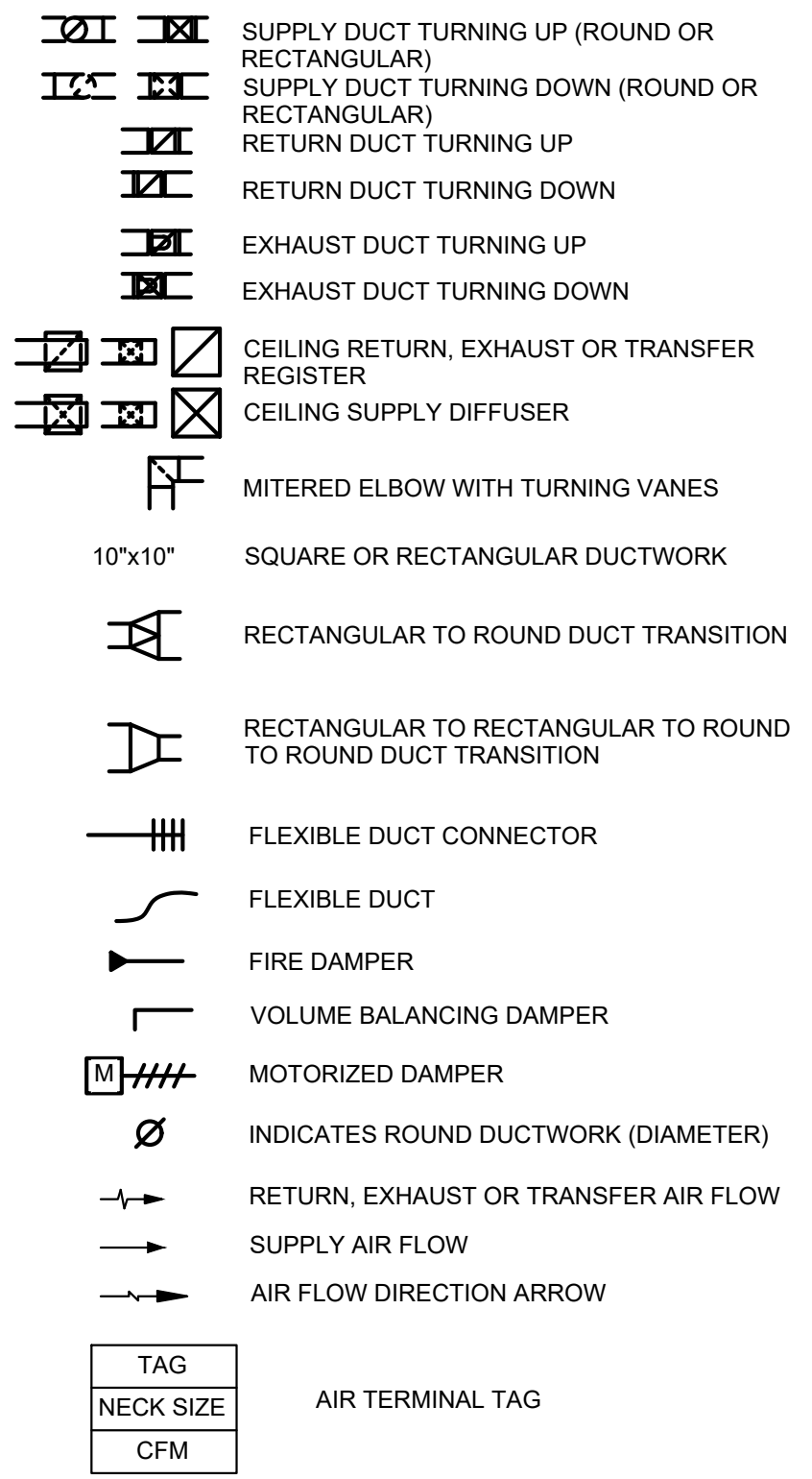
NOTES:

- 1. THE SPLIT LEVEL MAIN ENTRY CONSISTING OF THE FOLLOWING ROOMS CONNECTED BY A COMMON STAIRWAY (LANDING 021, WAITING 103, AND RECEPTION 201) DOES NOT CONSTITUTE AN ATRIUM CONNECTING MORE THAN TWO LEVELS UNDER THE 2015 INTERNATIONAL BUILDING CODE AS DETERMINED BY THE CITY OF READING CODE REVIEWER.
2. THE LARGEST OF THE NEW AIR HANDLING UNITS (AHU-3) IS DESIGNED TO SUPPLY MAXIMUM 5840 CFM AND 20% OUTDOOR AIR. THE PROJECT TAKES PLACE IN CLIMATE ZONE 5A, PER TABLE C403.7.4 (1) ENERGY RECOVERY REQUIREMENT (VENTILATION SYSTEMS OPERATING LESS THAN 8,000 HOURS PER YEAR) IN THE 2015 IECC, ENERGY RECOVERY IS ONLY REQUIRED IF THE DESIGNED SUPPLY FAN AIRFLOW IS OVER 16,000 CFM AT 20-30% OUTDOOR AIRFLOW. THEREFORE, ENERGY RECOVERY IS NOT REQUIRED.

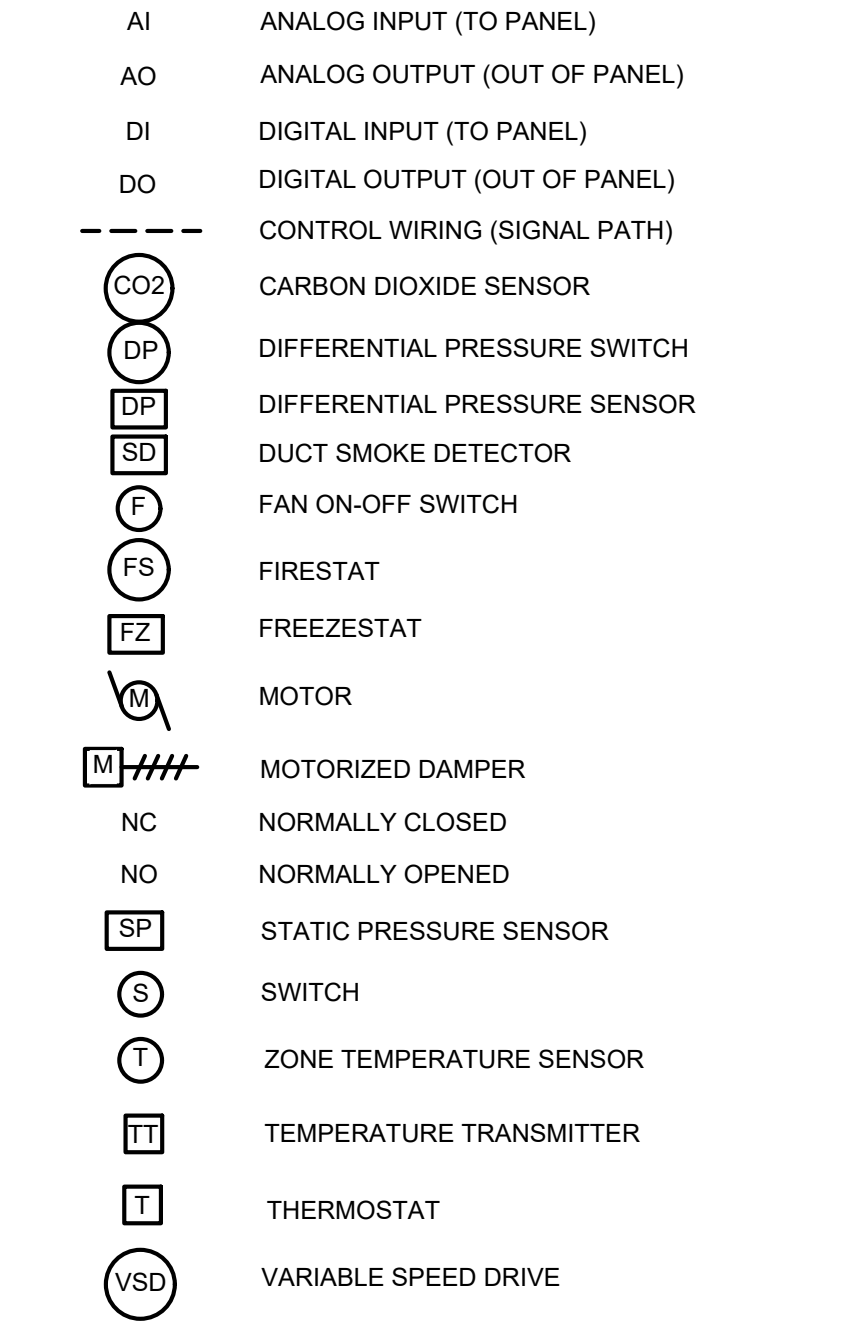
DESIGN CONDITIONS:

THE MECHANICAL SYSTEMS WERE DESIGNED TO MAINTAIN THE FOLLOWING INSIDE CONDITIONS PER 2015 ICC.
SUMMER: 75°F AND 50% RH
WINTER: 70°F. HUMIDIFICATION WILL NOT BE PROVIDED.
DESIGN LOADS:
THE MECHANICAL SYSTEMS WERE DESIGNED BASED ON THE FOLLOWING OUTSIDE CONDITIONS FOR READING, PA. (BASED ON ASHRAE 0.4% FOR COOLING AND 99.6% FOR HEATING):
SUMMER CONDITIONS: 95°F DRY BULB, 75°F WET BULB
WINTER CONDITIONS: 12°F DRY BULB

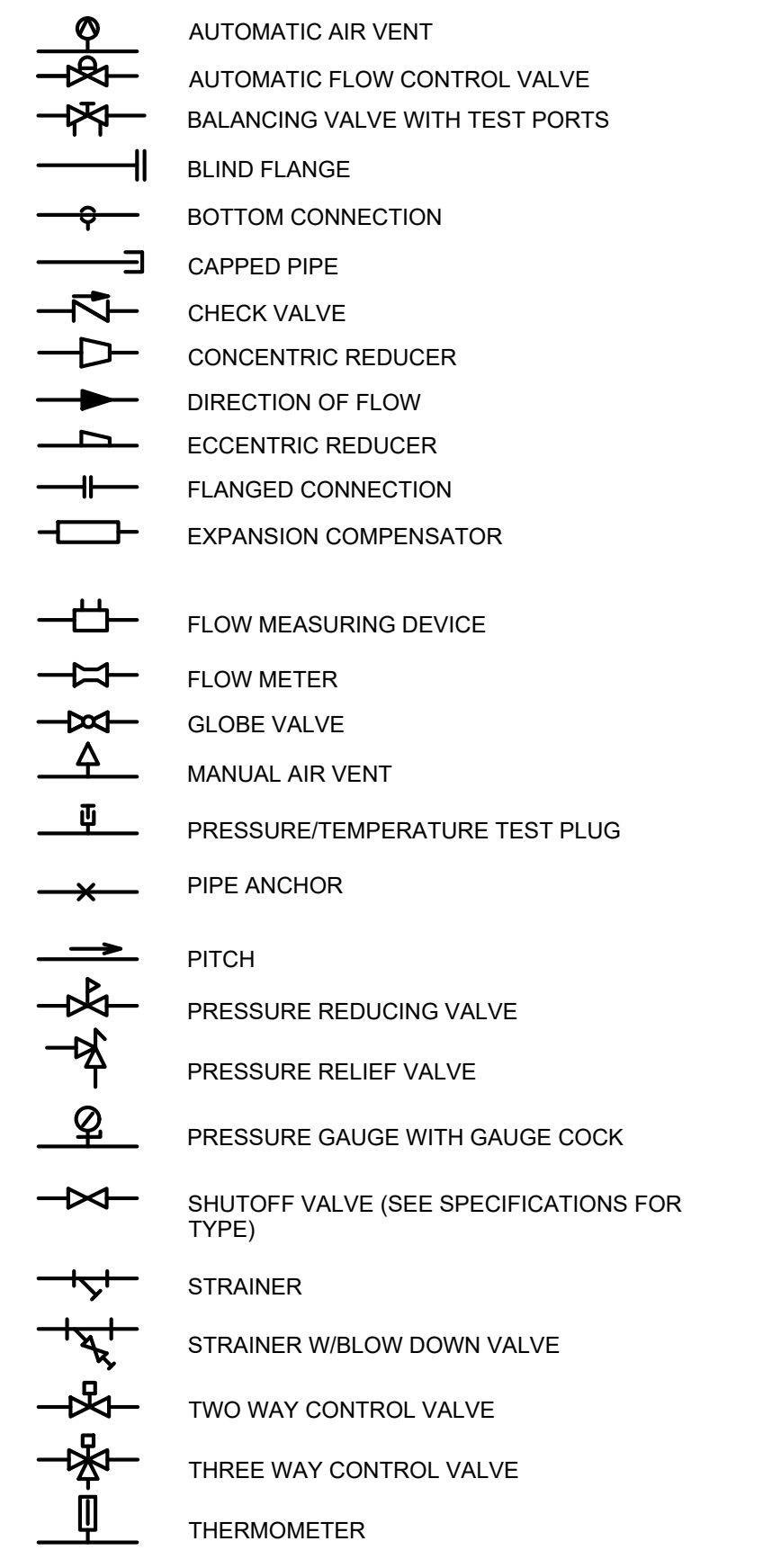
DUCT SYMBOLS:



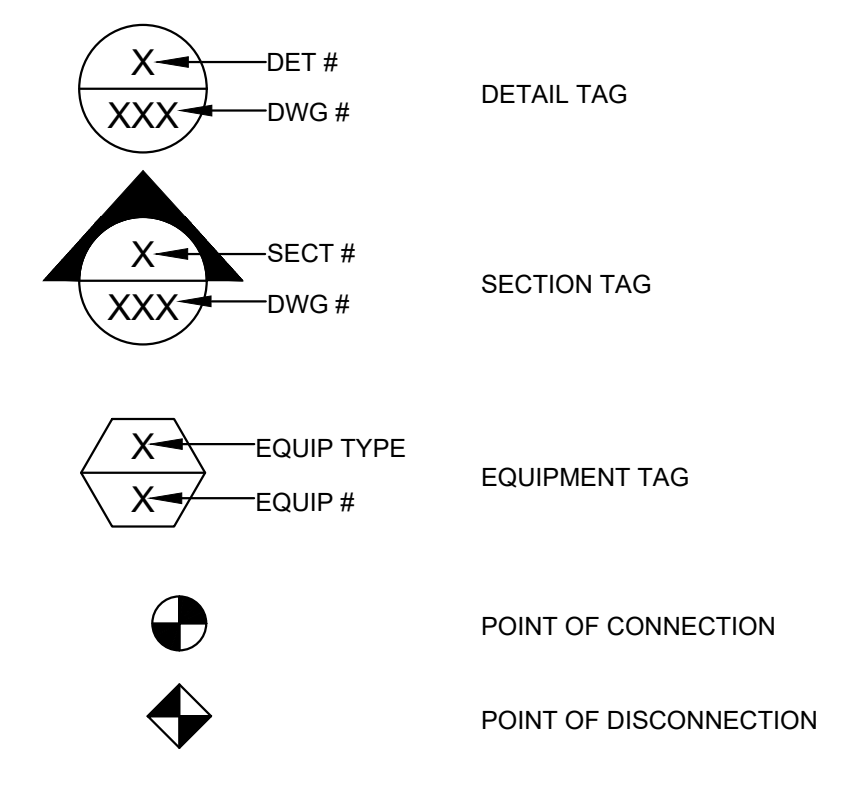
CONTROLS:



VALVES AND ACCESSORIES:



GENERAL SYMBOLS:



MEP / FP Engineer



Architect

Civil Engineer

Structural Engineer

Seal

Revisions:

Table with 3 columns: NO., DESCRIPTION, DATE. Contains one empty row.

3RD AND SPRUCE RECREATION CENTER
320 S 3RD ST, READING PA 19602
CITY OF READING DEPARTMENT OF PUBLIC WORKS

MECHANICAL NOTES, SYMBOLS AND ABBREVIATIONS

Table with 2 columns: Field, Value. Includes Project Number (131021.001), Date (05/13/2022), Drawn By (AM), Checked By (DM).

M000
Scale As Noted

ISSUED FOR BID

J:\ACTIVE\1131021.001 - HVAC D&C 3rd & Spruce Rec.Center\DWGS\CAD\MPHASE 2

THIS DRAWING IS FORMATTED TO BE PRINTED AT 30" X 42"



**GENERAL NOTES:**

1. REFER TO DRAWING M000 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.

**KEYED NOTES:**

- 1 DISCONNECT AND REMOVE (E) AHU-3 AND (E) AHU-4. REMOVE ROOF CURB, CONDENSATE DRAIN LINE, ELECTRICAL CONNECTIONS, AND CONTROLS. PREP FOR NEW ROOF CURB AND NEW AHU INSTALLATION. CONTRACTOR SHALL DISCONNECT GAS PIPING, CAP, AND PREP FOR NEW CONNECTION TO NEW AHU.
- 2 DISCONNECT AND REMOVE EXHAUST FAN SERVING UPPER LEVEL RESTROOMS. PREP FOR NEW EXHAUST FAN INSTALLATION.
- 3 DISCONNECT AND REMOVE (E) CU-5 AND (E) CU-6. REMOVE ROOF CURB, ELECTRICAL CONNECTIONS, AND CONTROLS. PREP FOR NEW ROOF CURB AND NEW CU INSTALLATION.

MEP / FP Engineer



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Architect

Civil Engineer

Structural Engineer

Seal

Revisions:

NO.	DESCRIPTION	DATE

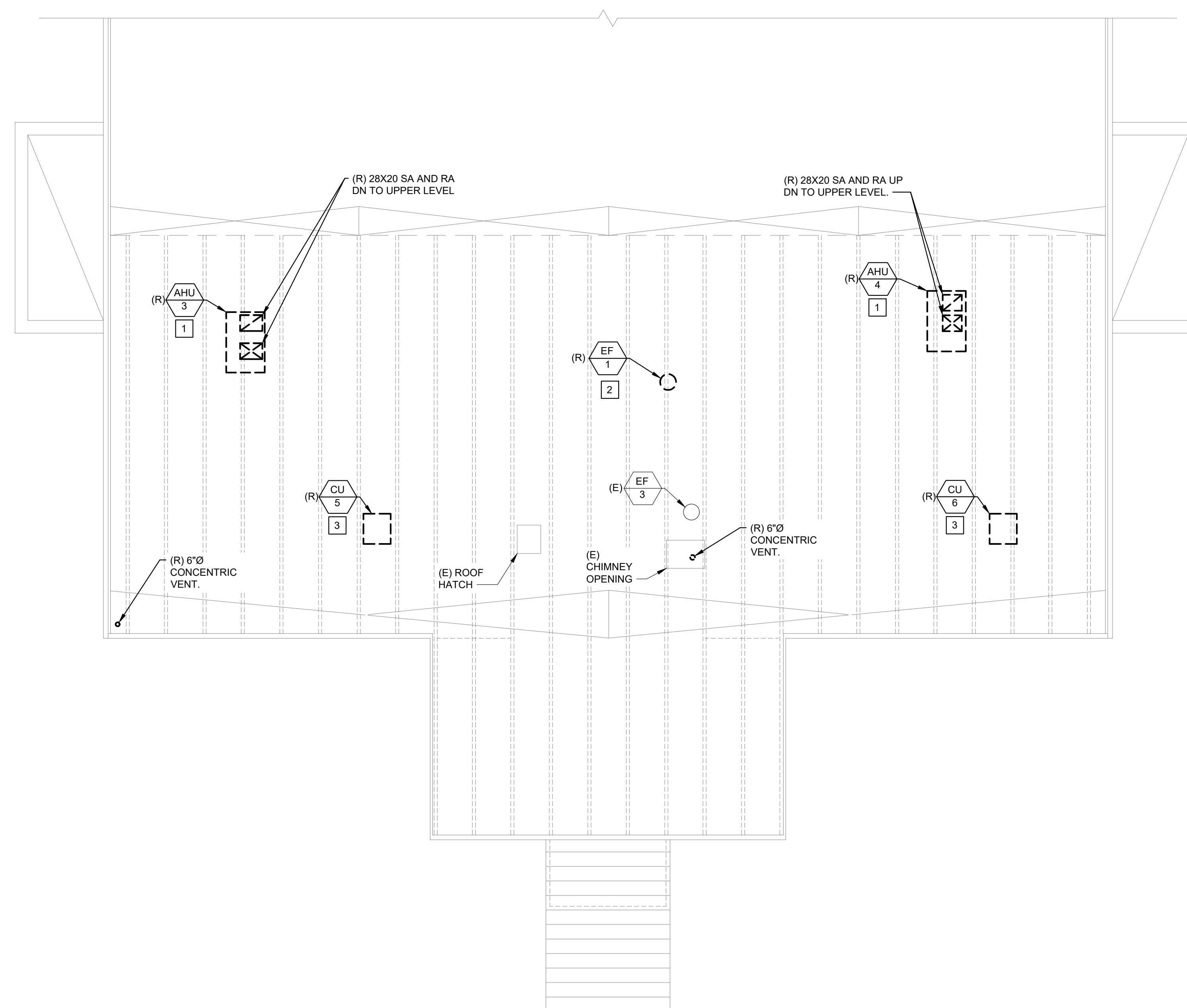
**3RD AND SPRUCE RECREATION CENTER**  
320 S 3RD ST,  
READING PA 19602  
CITY OF READING DEPARTMENT  
OF PUBLIC WORKS

**MECHANICAL DEMOLITION - ROOF LEVEL**

Project Number	131021.001
Date	05/13/2022
Drawn By	AM
Checked By	DM

**M101**

Scale 1/8"=1'-0"



1 MECHANICAL DEMOLITION - ROOF LEVEL  
M101 Scale: 1/8" = 1'-0"

THIS DRAWING IS FORMATTED TO BE PRINTED AT 30" X 42"

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ISSUED FOR BID

NO.	DESCRIPTION	DATE

**3RD AND SPRUCE RECREATION CENTER**  
 320 S 3RD ST.  
 READING PA 19602  
 CITY OF READING DEPARTMENT OF PUBLIC WORKS

**MECHANICAL NEW WORK - LOWER LEVEL AND UPPER LEVEL**

Project Number 131021.001  
 Date 05/13/2022  
 Drawn By AM  
 Checked By DM

**M200**  
 Scale 1/8"=1'-0"

**GENERAL NOTES:**

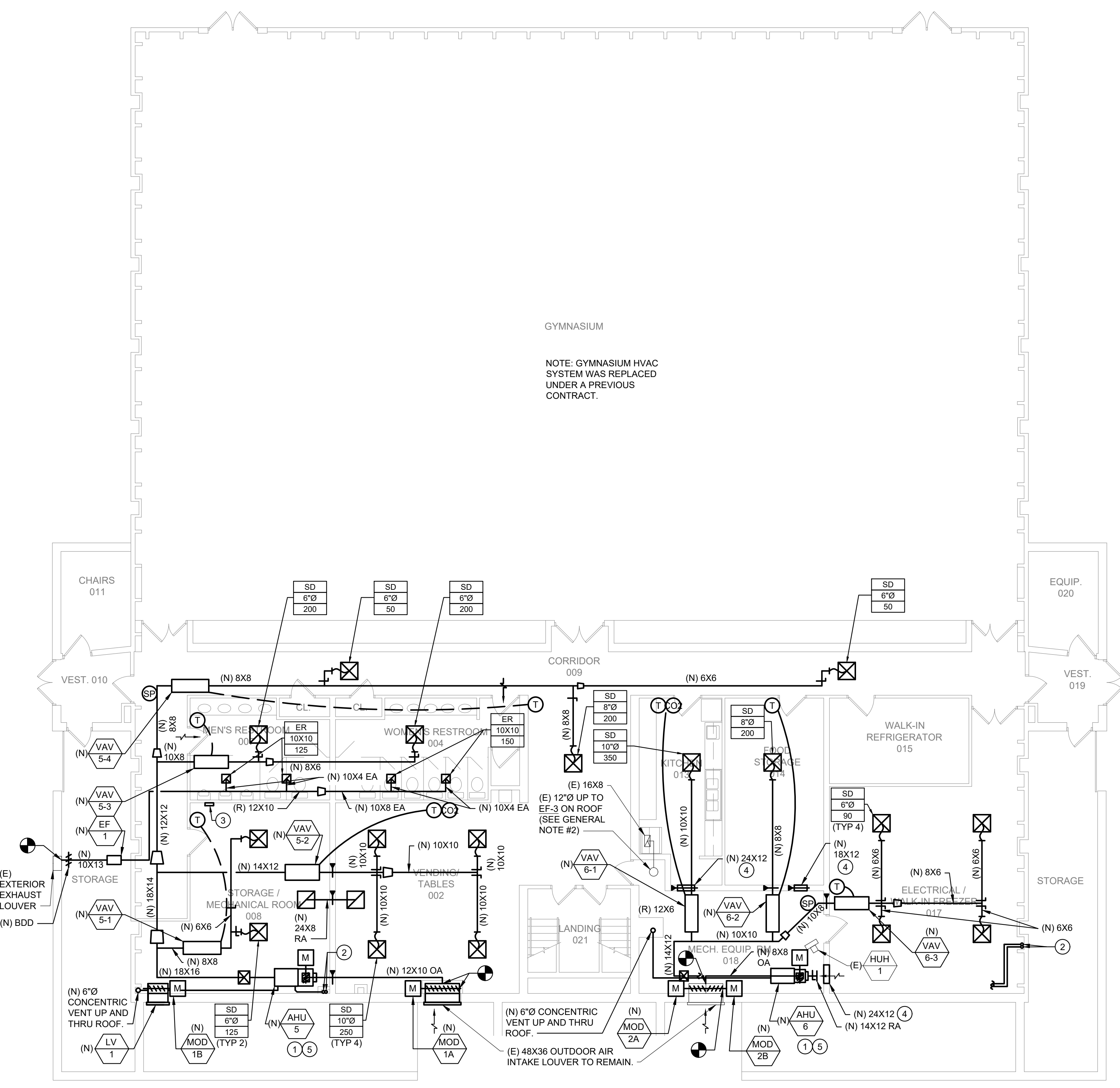
- REFER TO DRAWING M000 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
- CONTRACTOR SHALL RUN CONTROLS/COMMUNICATION WIRE(S) BETWEEN THE AHU AND CONTROL PANEL LOCATION SHOWN ON PLAN IN A CONDUIT AS PER MANUFACTURER'S RECOMMENDATION.
- FLEXIBLE DUCT SHALL CONNECT ALL SUPPLY DIFFUSERS TO HARD DUCT. FLEXIBLE DUCT SIZE SHALL MATCH SD NECK SIZE INDICATED ON DIFFUSER TAG.
- ALL DIFFUSERS ARE 4-WAY BLOW PATTERN UNLESS OTHERWISE NOTED.

**LOWER LEVEL KEYED NOTES:**

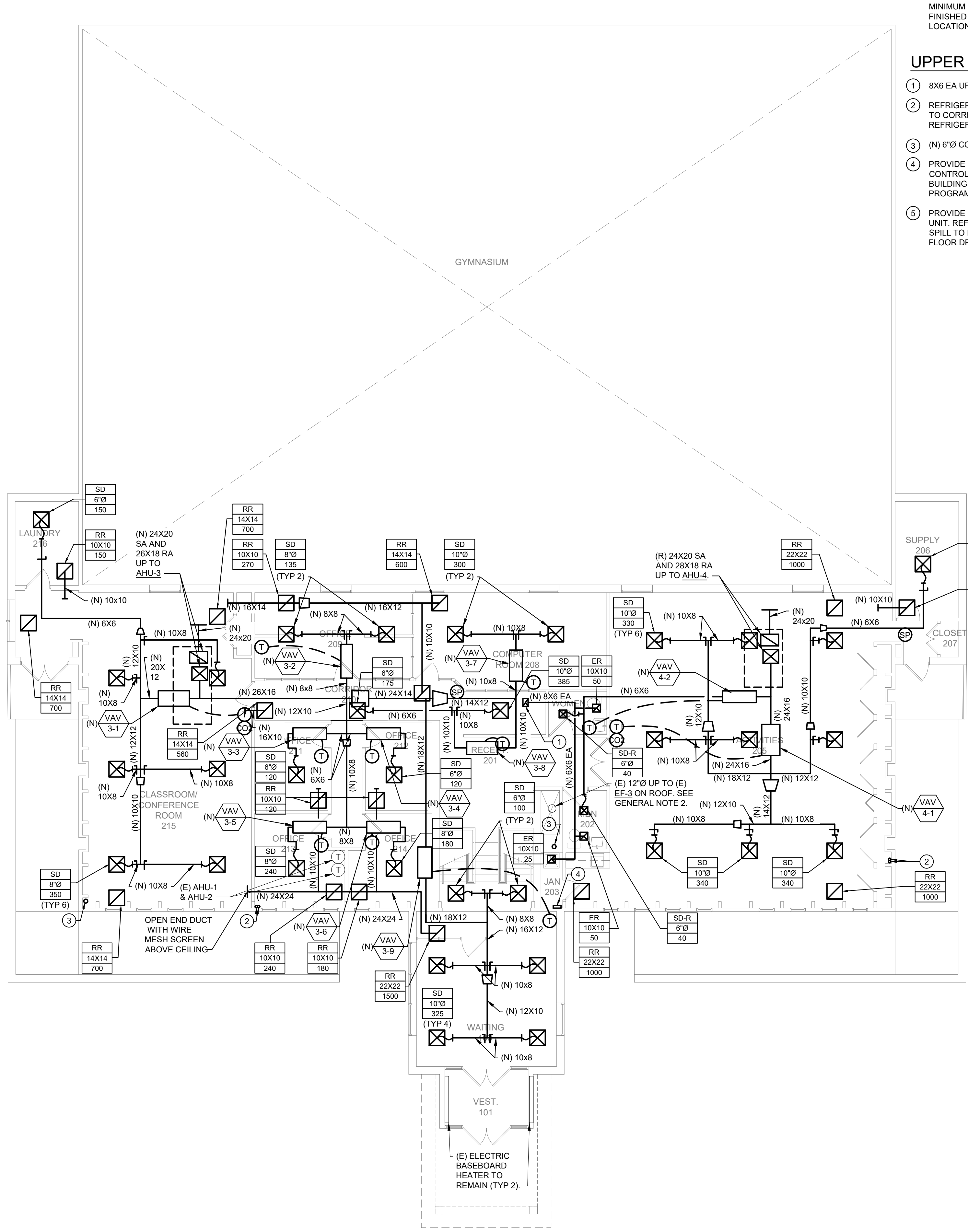
- NEW SPLIT AIR HANDLING UNIT. CONDENSING UNIT SHALL BE LOCATED ON ROOF (SEE ROOF PLAN). ROUTE CONDENSATE TO NEAREST FLOOR DRAIN WITHIN ROOM. PROVIDE NEW AHU-5 AND AHU-6 WITH NEW GAS PRESSURE REGULATOR AND SHUT-OFF VALVE. CONNECT TO EXISTING GAS PIPING AND MODIFY PIPING AS REQUIRED. FIELD VERIFY EXISTING GAS PIPE SIZE AND MATCH NEW PIPE SIZE TO EXISTING PIPE SIZE. CONTRACTOR SHALL DETERMINE EXISTING GAS PRESSURE AND COORDINATE NEW AHU-5 AND AHU-6 GAS PRESSURE REQUIREMENTS.
- REFRIGERANT PIPING UP TO CORRESPONDING CONDENSING UNIT ON ROOF. SIZE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATION.
- PROVIDE ELECTRONIC PROGRAMMABLE 247/365 TIMELOCK TO CONTROL TOILET EXHAUST FAN EF-1. FAN SHALL RUN DURING BUILDING OCCUPIED PERIOD AND NOT RUN OTHERWISE, AS PROGRAMMED INTO TIMELOCK.
- PROVIDE WALL OPENING WITH FIRE DAMPER AND WALL SLEEVE OF SIZE INDICATED IN WALL BELOW ROOM CEILING. PROVIDE MINIMUM 50% FREE AREA FIXED HORIZONTAL BLADE GRILLE ON FINISHED SIDE OF WALL. SEE SPACES FOR TYPE. COORDINATE LOCATION WITH CITY OF READING.

**UPPER LEVEL KEYED NOTES:**

- 8X6 EA UP TO EF-2 ON ROOF.
- REFRIGERANT PIPING FROM AIR HANDLER ON LOWER LEVEL UP TO CORRESPONDING CONDENSING UNIT ON ROOF. SIZE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATION.
- (N) 6"Ø CONCENTRIC VENT UP AND THRU ROOF.
- PROVIDE ELECTRONIC PROGRAMMABLE 247/365 TIMELOCK TO CONTROL TOILET EXHAUST FAN EF-2. FAN SHALL RUN DURING BUILDING OCCUPIED PERIOD AND NOT RUN OTHERWISE, AS PROGRAMMED INTO TIMELOCK.
- PROVIDE 3/4" CONDENSATE DRAIN PIPING FROM AIR HANDLING UNIT. REFER TO DETAIL 2 ON SHEET M301. CONDENSATE SHALL SPILL TO EXISTING FLOOR DRAIN. CONTRACTOR TO VERIFY FLOOR DRAIN LOCATION IN FIELD.



**1 MECHANICAL NEW WORK-LOWER LEVEL**  
 Scale: 1/8" = 1'-0"



**2 MECHANICAL NEW WORK-UPPER LEVEL**  
 Scale: 1/8" = 1'-0"

Architect

Civil Engineer

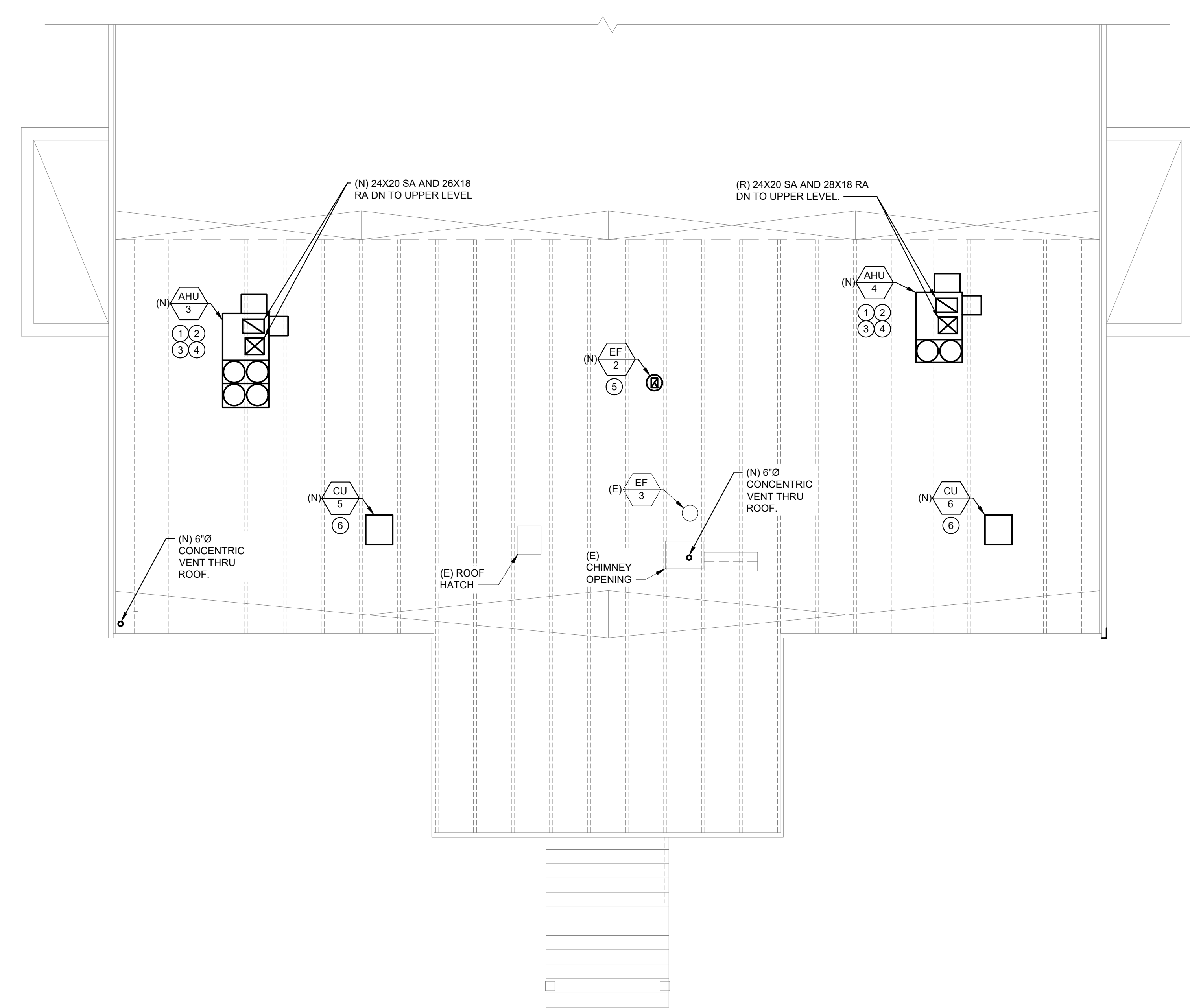
Structural Engineer

**GENERAL NOTES:**

1. REFER TO DRAWING M000 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.

**KEYED NOTES:**

- ① NEW MULTIZONE VAV AIR HANDLING UNIT LOCATED AT SAME LOCATION AS REMOVED AHU-3 AND AHU-4.
- ② PROVIDE 1" CONDENSATE PIPE WITH TRAP TO SPLASH BLOCK ON ROOF.
- ③ PROVIDE NEW AHU-3 AND AHU-4 WITH NEW GAS PRESSURE REGULATOR AND SHUT-OFF VALVE. CONNECT TO EXISTING GAS PIPING AND MODIFY PIPING AS REQUIRED. FIELD VERIFY EXISTING GAS PIPE SIZE AND MATCH NEW PIPE SIZE TO EXISTING PIPE SIZE. CONTRACTOR SHALL DETERMINE EXISTING GAS PRESSURE AND COORDINATE NEW AHU-3 AND AHU-4 GAS PRESSURE REQUIREMENTS.
- ④ PROVIDE NEW AHU-1 AND AHU-2 WITH NEW ROOF CURB. CONTRACTOR SHALL PROVIDE 1/4" NEOPRENE GASKET BETWEEN AHU AND ROOF CURB. PROVIDE 3" MINIMUM SEMI-RIGID INSULATION OVER ROOF INSIDE CURB. COVER WITH 2 LAYERS OF 5/8" WATER RESISTANT GYPSUM BOARD WITH STAGGERED JOINTS. SEAL JOINTS AND EDGES WITH NON-HARDENING SEALER. MODIFY ROOF FLASHING TO PROVIDE WEATHER TIGHT CONDITION. PACK ALL OPENING THROUGH ROOF WITH ACOUSTIC/FIREPROOF MATERIAL. PROVIDE NON-HARDENING SEALER ABOVE AND BELOW.
- ⑤ PROVIDE AND INSTALL NEW EXHAUST FAN SERVING UPPER LEVEL RESTROOMS. PROVIDE WITH GRAVITY BACKDRAFT DAMPER.
- ⑥ PROVIDE AND INSTALL (N) CU-5 AND (N) CU-6 ON (N) ROOF CURB AT SAME LOCATION AS REMOVED CU-5 AND CU-6. CONTRACTOR SHALL PROVIDE 1/4" NEOPRENE GASKET BETWEEN CU AND ROOF CURB. PROVIDE 3" MINIMUM SEMI-RIGID INSULATION OVER ROOF INSIDE CURB. COVER WITH 2 LAYERS OF 5/8" WATER RESISTANT GYPSUM BOARD WITH STAGGERED JOINTS. SEAL JOINTS AND EDGES WITH NON-HARDENING SEALER. MODIFY ROOF FLASHING TO PROVIDE WEATHER TIGHT CONDITION. PACK ALL OPENING THROUGH ROOF WITH ACOUSTIC/FIREPROOF MATERIAL. PROVIDE NON-HARDENING SEALER ABOVE AND BELOW.



Seal

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**3RD AND SPRUCE RECREATION CENTER**  
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**MECHANICAL NEW WORK - ROOF LEVEL**

Project Number	131021.001
Date	05/13/2022
Drawn By	AM
Checked By	DM

**M201**  
 Scale 1/8"=1'-0"

1 MECHANICAL NEW WORK - ROOF LEVEL  
 M201 Scale: 1/8" = 1'-0"



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3RD AND SPRUCE RECREATION CENTER
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MECHANICAL SCHEDULES

Project Number 131021.001

Date 05/13/2022

Drawn By AM

Checked By DM

M300

Scale As Noted

ISSUED FOR BID

DIFFUSER, REGISTER AND GRILLE SCHEDULE
Table with columns: TAG, SERVICE, CFM RANGE, NECK DIA, FACE SIZE, MAX PD, MAX NOISE, THROW @ 100 FPM, THROW PATTERN, MANUFACTURER AND MODEL NUMBER, REMARKS

VENTILATION CALCULATIONS-AHU-3
Table with columns: SPACE, FLOOR AREA, CODE USE GROUP, NUMBER OF OCC/1000 SF, NUMB OF OCC, NUMB OF PLUMB FIXT, OA CFM PER OCC, OCC OA REQD (CFM), OA CFM PER SF REQD, AREA OA REQD (CFM), TOT. OA (CFM), ZONE EFFECTIVENESS (Ez), TOT. OA REQD (CFM), TOT. SA (CFM), TOT. OA (CFM), OA PER OCC, OA %, EA CFM PER SF REQD, SF EA CFM REQD, EA CFM PER FIXT REQD, FIXT EA CFM REQD, TOT. EA REQD (CFM), TOT. EA (CFM)

VENTILATION CALCULATIONS-AHU-4
Table with columns: SPACE, FLOOR AREA, CODE USE GROUP, NUMBER OF OCC/1000 SF, NUMB OF OCC, NUMB OF PLUMB FIXT, OA CFM PER OCC, OCC OA REQD (CFM), OA CFM PER SF REQD, AREA OA REQD (CFM), TOT. OA (CFM), ZONE EFFECTIVENESS (Ez), TOT. OA REQD (CFM), TOT. SA (CFM), TOT. OA (CFM), OA PER OCC, OA %, EA CFM PER SF REQD, SF EA CFM REQD, EA CFM PER FIXT REQD, FIXT EA CFM REQD, TOT. EA REQD (CFM), TOT. EA (CFM)

VENTILATION CALCULATIONS-AHU-5
Table with columns: SPACE, FLOOR AREA, CODE USE GROUP, NUMBER OF OCC/1000 SF, NUMB OF OCC, NUMB OF PLUMB FIXT, OA CFM PER OCC, OCC OA REQD (CFM), OA CFM PER SF REQD, AREA OA REQD (CFM), TOT. OA (CFM), ZONE EFFECTIVENESS (Ez), TOT. OA REQD (CFM), TOT. SA (CFM), TOT. OA (CFM), OA PER OCC, OA %, EA CFM PER SF REQD, SF EA CFM REQD, EA CFM PER FIXT REQD, FIXT EA CFM REQD, TOT. EA REQD (CFM), TOT. EA (CFM)

VENTILATION CALCULATIONS-AHU-6
Table with columns: SPACE, FLOOR AREA, CODE USE GROUP, NUMBER OF OCC/1000 SF, NUMB OF OCC, NUMB OF PLUMB FIXT, OA CFM PER OCC, OCC OA REQD (CFM), OA CFM PER SF REQD, AREA OA REQD (CFM), TOT. OA (CFM), ZONE EFFECTIVENESS (Ez), TOT. OA REQD (CFM), TOT. SA (CFM), TOT. OA (CFM), OA PER OCC, OA %, EA CFM PER SF REQD, SF EA CFM REQD, EA CFM PER FIXT REQD, FIXT EA CFM REQD, TOT. EA REQD (CFM), TOT. EA (CFM)

VARIABLE AIR VOLUME TERMINAL SCHEDULE
Table with columns: TAG, CORRESPONDING AHU, SERVICE, LOCATION, MAXIMUM TOTAL CFM, MINIMUM TOTAL CFM, DUCT CONNECTIONS, HEATING COIL DATA, ELECTRICAL DATA, MAXIMUM DIMENSIONS, BASIS OF DESIGN, REMARKS

EXHAUST FAN SCHEDULE
Table with columns: TAG, FAN TYPE, SERVICE, DRIVE, AIRFLOW (CFM), E.S.P. (IN. WG), FAN RPM, VOLUME CONTROL, MOTOR, BASIS OF DESIGN, REMARKS

PACKAGED GAS-FIRED MULTI-ZONE VAV AIR HANDLING UNIT SCHEDULE
Table with columns: TAG, SUPPLY AIR FLOW, OUTDOOR AIR FLOW, FILTER, TYPE, EXT. S.P., FAN SPEED CONTROL, MOTOR HP, FAN RPM, TOT. CAP, SENS. CAP, REFRIGERANT, COOLING, HEATING DATA, ELECTRICAL-AHU, ELECTRICAL-CU, DIMENSIONS-AHU, DIMENSIONS-CU, WEIGHT, BASIS OF DESIGN, REMARKS

SPLIT GAS-FIRED MULTI-ZONE VAV AIR HANDLING UNIT SCHEDULE
Table with columns: TAG, SUPPLY AIR FLOW, OUTDOOR AIR FLOW, FILTER, TYPE, EXT. S.P., FAN SPEED CONTROL, MOTOR HP, TOT. CAP, SENS. CAP, REFRIGERANT, COOLING, HEATING DATA, ELECTRICAL-AHU, ELECTRICAL-CU, DIMENSIONS-AHU, DIMENSIONS-CU, WEIGHT, BASIS OF DESIGN, REMARKS

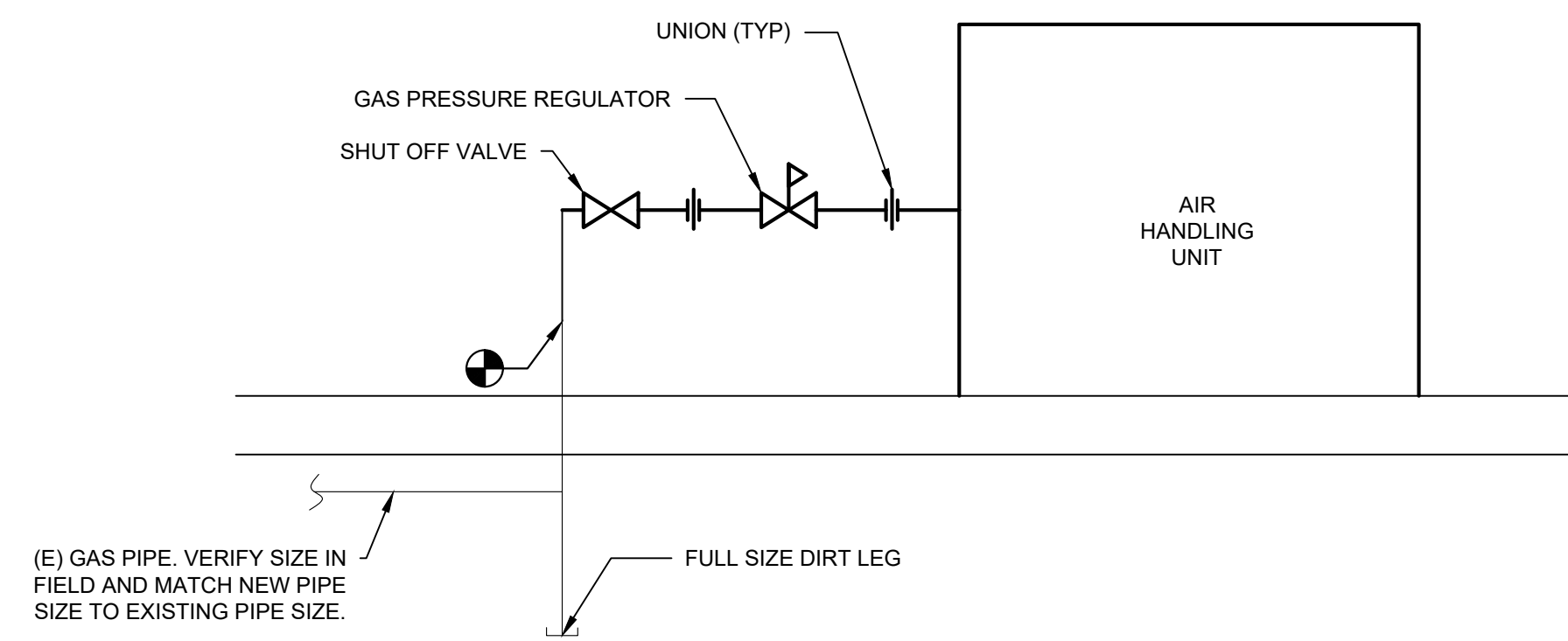
FIXED WEATHERPROOF LOUVER SCHEDULE
Table with columns: TAG, DESIGN AIRFLOW, DESIGN FREE AREA, DESIGN FREE AREA VELOCITY, LOCATION, ASSOCIATED CONTROL DAMPER, TYPE, BLADE ORIENTATION, PHYSICAL CHARACTERISTICS, MANUFACTURER AND MODEL NUMBER, REMARKS

MOTOR OPERATED DAMPER SCHEDULE
Table with columns: TAG, LOCATION, TYPE, CONTROL METHOD, MOTOR OPERATOR, PHYSICAL CHARACTERISTICS, DAMPER BLADE ORIENTATION, DAMPER LEAKAGE CLASS, BLADE R-VALUE, MANUFACTURER AND MODEL NUMBER, REMARKS

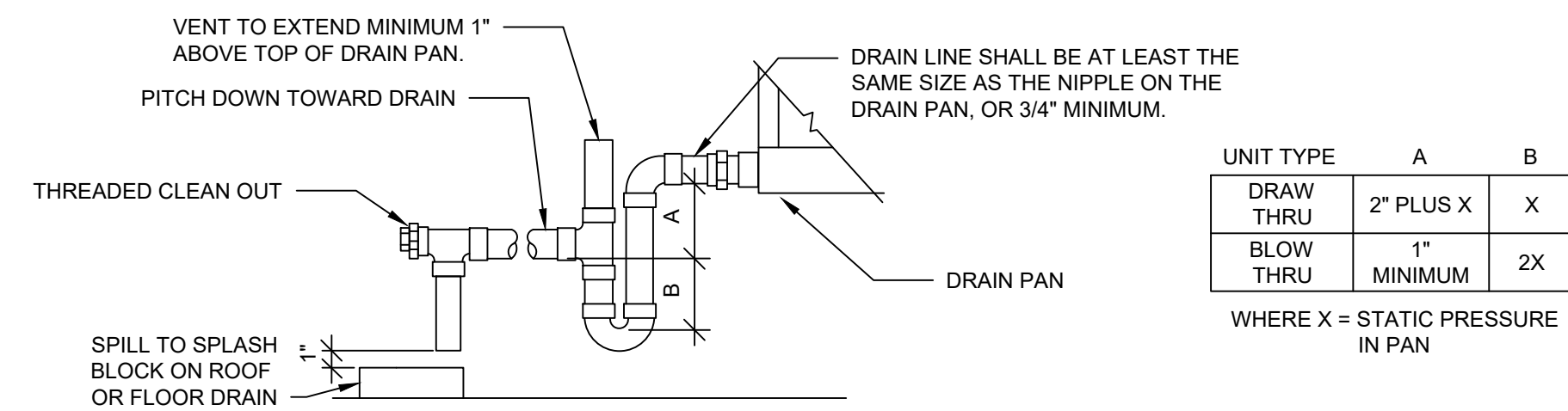
J:\ACTIVE\131021.001 - HVAC D&C 3rd & Spruce Rec.Center\DWGS\CAD\MPHASE 2

THIS DRAWING IS FORMATTED TO BE PRINTED AT 30" X 42"

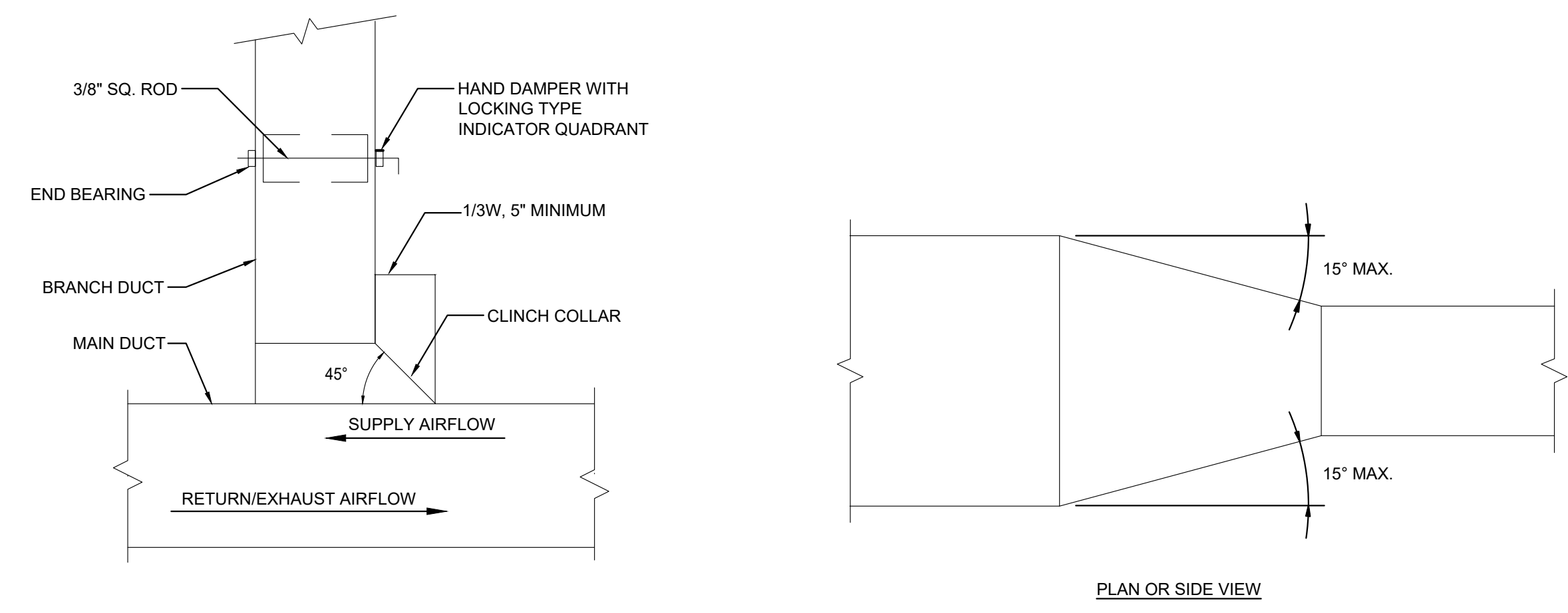
Architect  
 Civil Engineer  
 Structural Engineer



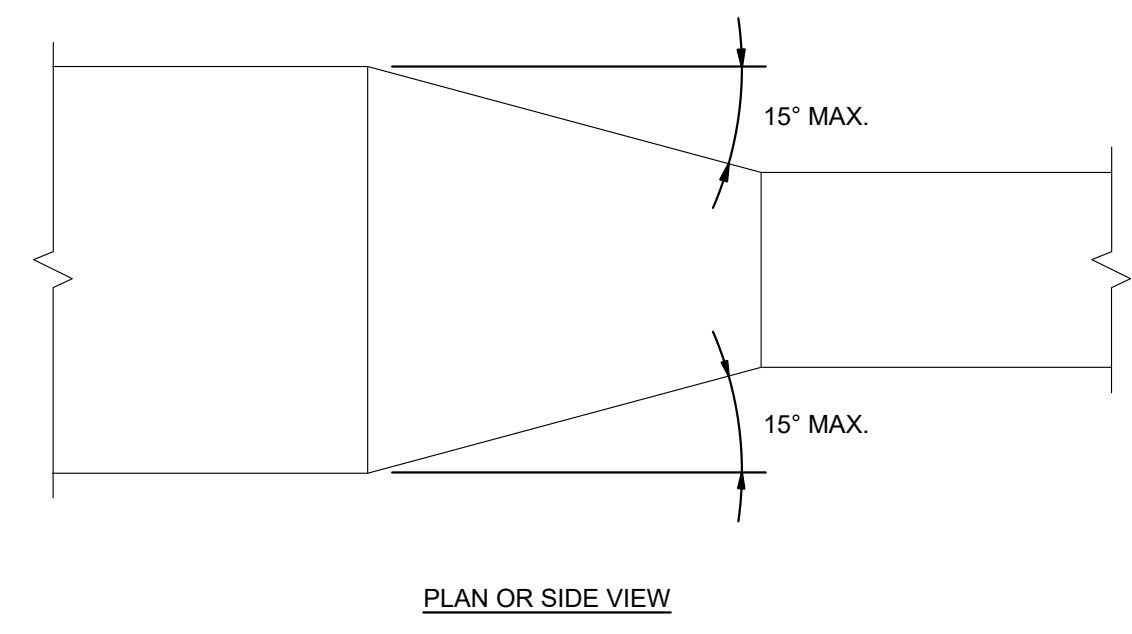
**1 AIR HANDLING UNIT GAS CONNECTION DETAIL**  
 Scale: NOT TO SCALE



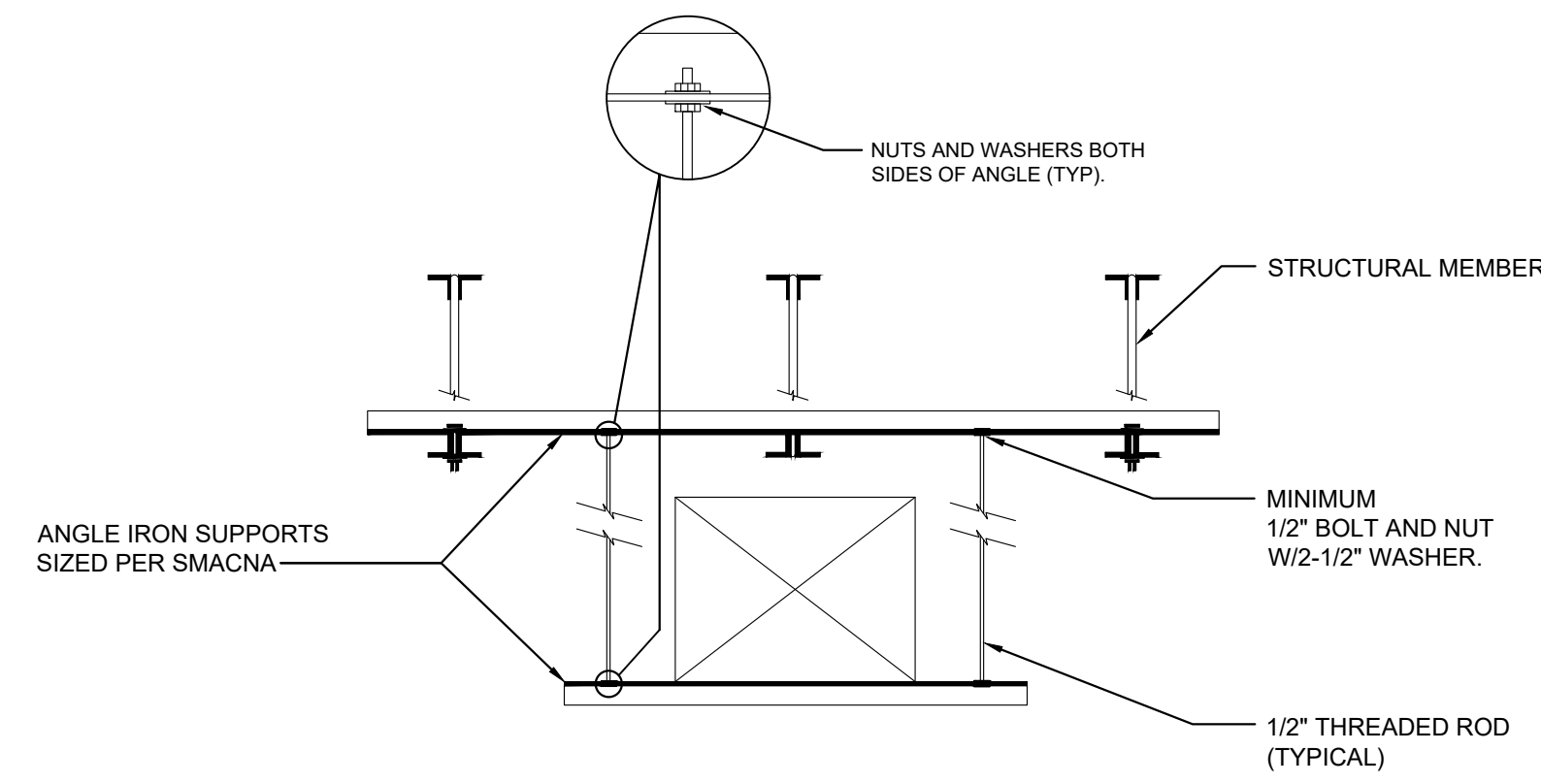
**2 AHU CONDENSATE DRAIN AND TRAP DETAIL**  
 Scale: NOT TO SCALE



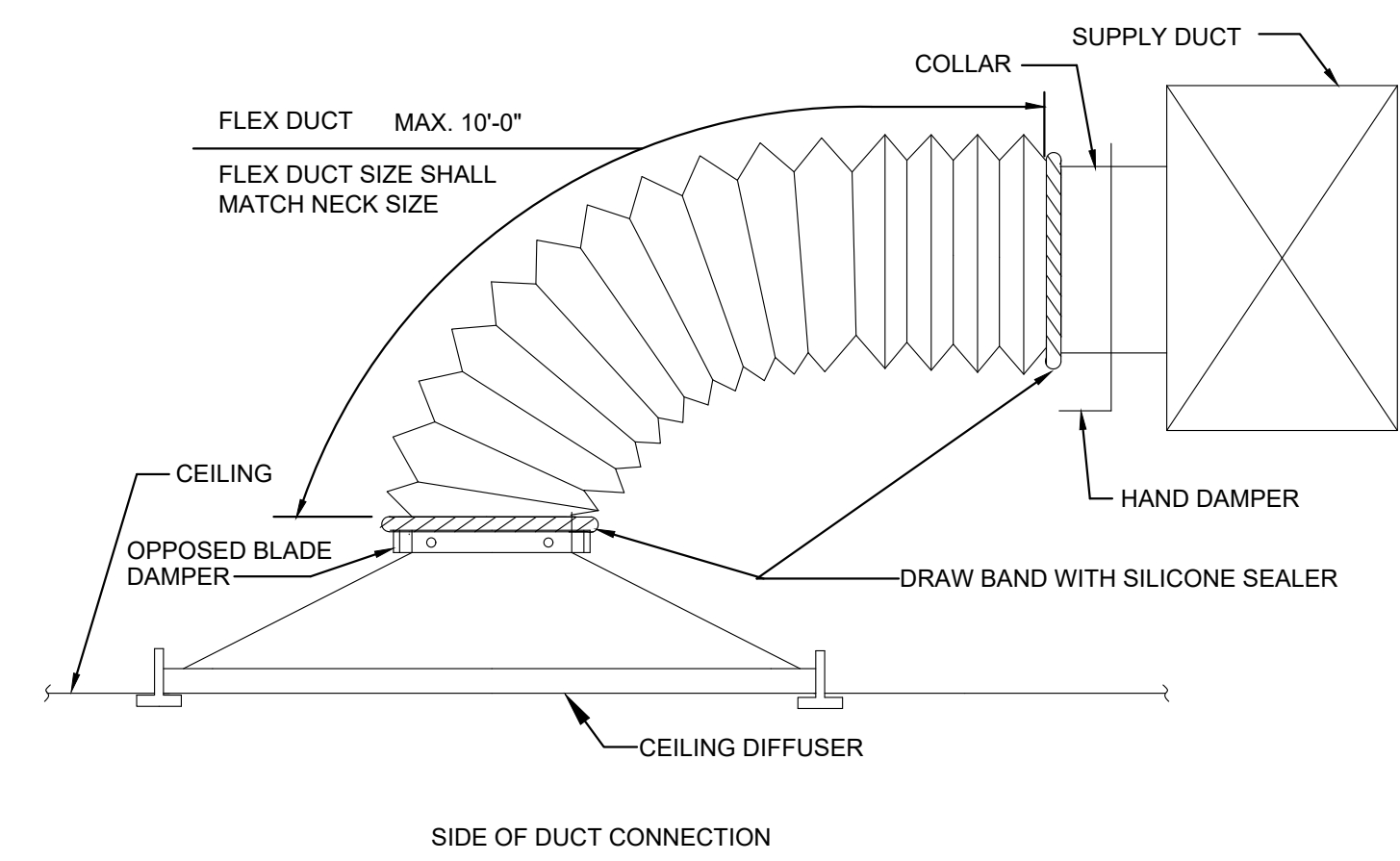
**3 BRANCH DUCT CONNECT DETAIL**  
 Scale: NTS



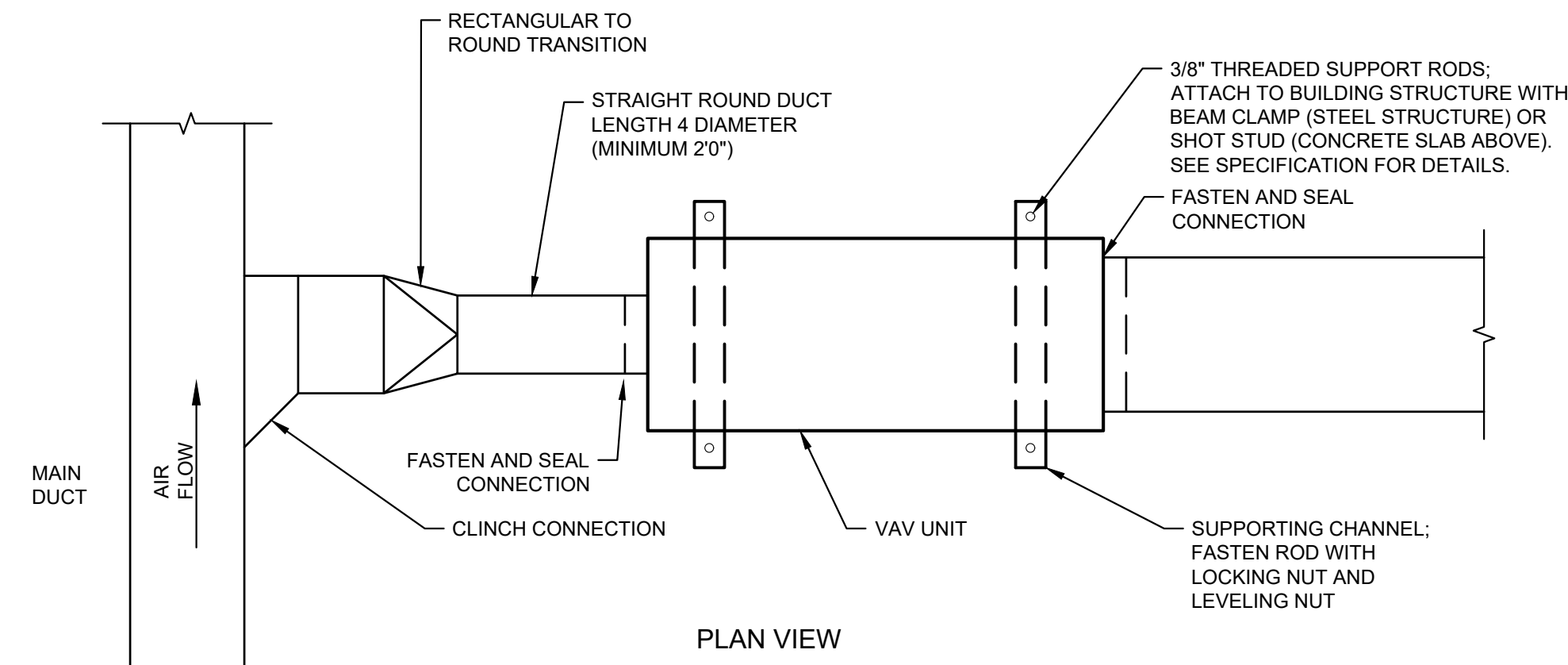
**4 DUCT TRANSITION DETAIL**  
 Scale: NTS



**5 DUCT HANGER DETAIL**  
 Scale: NTS

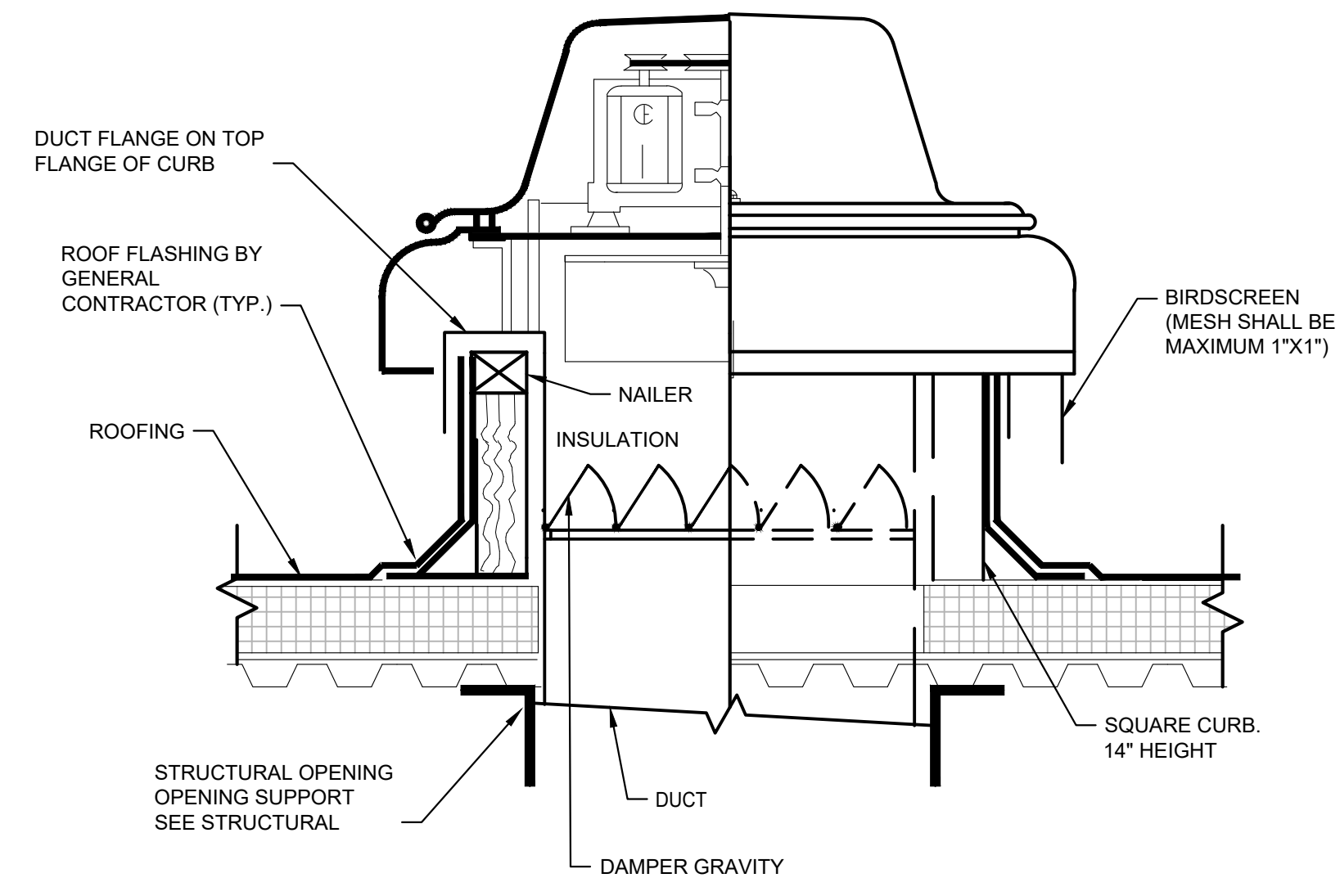


**6 TYPICAL DIFFUSER CONNECTION DETAIL**  
 Scale: NTS



- NOTES:
- THE OPERATION OF VARIABLE VOLUME TERMINAL UNITS ARE AFFECTED BY EXCESSIVE TURBULENCE ON THE ENTERING SIDE OF EACH TERMINAL UNIT THEREFORE, TERMINAL UNITS MUST NOT BE INSTALLED TOO CLOSE TO MAIN DUCTS, ELBOWS AND FITTINGS.
  - WHEN MINIMUM UPSTREAM STRAIGHT DUCT CONNECTION TO TERMINALS AS INDICATED ABOVE CANNOT BE MAINTAINED, PROVIDE ORIFICE PLATE, STRAIGHTENING VANES OR OTHER DEVICE AS RECOMMENDED BY TERMINAL UNIT MANUFACTURER AND SUBMIT TO ENGINEER FOR REVIEW PRIOR TO INSTALLATION.
  - MANUFACTURER OF TERMINAL UNIT SHALL COORDINATE LOCATION OF UNIT MOUNTED CONTROLS ON LEFT OR RIGHT SIDE AS REQUIRED BY MANUFACTURER CLEARANCE REQUIREMENTS AND FIELD CONDITIONS.
  - ARRANGE ACCESS TO PERMIT EASY FIELD BALANCE AND MAINTENANCE OF TERMINAL UNIT.

**7 TYPICAL VAV TERMINAL INSTALLATION DETAIL**  
 Scale: NTS



**8 ROOF MOUNTED EXHAUST FAN SCHEDULE**  
 Scale: NTS

Seal

Revisions:

NO.	DESCRIPTION	DATE

**3RD AND SPRUCE RECREATION CENTER**  
 320 S 3RD ST,  
 READING PA 19602  
 CITY OF READING DEPARTMENT OF PUBLIC WORKS

**MECHANICAL DETAILS**

Project Number	131021.001
Date	05/13/2022
Drawn By	AM
Checked By	DM

**M301**  
 Scale: As Noted

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THIS DRAWING IS FORMATTED TO BE PRINTED AT 30" X 42"