

SAFETY NOTES:

1.

SPECIAL PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR SO THAT EQUIPMENT ON THE APPLICATION AND ITS INSTALLATION WILL NOT AFFECT THE FOLLOWING:
- EGRESS TO AND FROM THE BUILDING FIRE SAFETY OR CREATE A FIRE HAZARD
- STRUCTURAL SAFETY OF THE BUILDING.
- ACCUMULATION OF DUST AND DEBRIS. THE CONTRACTOR SHALL LEAVE THE SITE BROOM CLEAN EACH DAY.
2.

ASBESTOS MUST FIRST BE INVESTIGATED AND VERIFIED IN FIELD BEFORE ANY DEMOLITION OR CONSTRUCTION WORK TO BE PERFORMED. ASBESTOS FREE MUST BE CERTIFIED FOR ALL HVAC EQUIPMENT, DUCTWORK, AND ALL PIPING INSULATION.
3.

CONSTRUCTION WORK SHALL BE CONFINED TO WORK AREAS NOTED ON THE DRAWINGS AND SHALL INVOLVE TEMPORARY INTERRUPTION OF HEATING, WATER AND ELECTRIC SERVICES TO THE BUILDING SYSTEMS ONLY AS SCHEDULED WITH NEW YORK CITY.
4.

FIRE SAFETY: ALL BUILDING MATERIALS STORED IN CONSTRUCTION AREA, AND/OR IN ANY AREA OF THE BUILDING ARE TO BE SECURED IN A LOCKED AREA. ACCESS TO SUCH AREAS TO BE CONTROLLED BY THE FACILITY AND/OR GENERAL CONTRACTOR.
5.

CONTRACTOR SHALL PROVIDE BARRICADES AROUND WORK AREAS AS REQUIRED TO PREVENT UNAUTHORIZED PERSONS FROM ENTERING THEREIN.
6.

THE CONTRACTOR SHALL SUBMIT SAFETY PLAN FOR CONSTRUCTION MANAGER'S APPROVAL.
7.

CONFINED SPACES: ALL WORK WITHIN CONFINED SPACES SHALL BE CONDUCTED IN ACCORDANCE WITH OSHA REGULATIONS. THE BUILDING 'E' TUNNEL LEVEL AND THE 'DEEP SIX' TUNNEL HAVE ONLY ONE ENTRANCE/EXIT AND SHALL BE CONSIDERED CONFINED SPACES.

MECHANICAL DEMOLITION NOTES:

1.

DEMOLITION/RELOCATIONS: CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND RELOCATIONS OF SERVICES, EQUIPMENT AND MATERIAL RELATING TO HIS/HER RESPECTIVE TRADE. INCLUDE IN BID THE COST TO PROVIDE DEMOLITION OF ALL ELECTRICAL EQUIPMENT AND SYSTEMS ASSOCIATED WITH THE RENOVATION WORK. ALL DEMOLITION WORK SHALL COORDINATE WITH OWNER.
2.

WHERE EXISTING WALLS, FLOORS OR CEILINGS ARE REMOVED OR PENETRATED, AND WHERE EXISTING END WALLS OF THE BUILDING ARE POINTS OF CONNECTION OF ADDITIONS, ALL SERVICES, PIPING, CONDUIT, CONTROL AND/OR SWITCH DEVICES, LIGHTS, OR OTHER HVAC, PLUMBING, FIRE PROTECTION OR ELECTRICAL EQUIPMENT SHALL BE REMOVED (AND/OR RELOCATED WHERE THEY MUST REMAIN IN SERVICE), OR SERVE, AREAS BEYOND THE IMMEDIATE WORK) CONTRACTOR SHALL FIELD VERIFY CONDITIONS AT THE SITE.
3.

PRIOR TO DEMOLITION CONTRACTOR SHALL REVIEW WITH OWNER ALL MATERIALS TO BE REMOVED. SHOULD THE OWNER OPT TO KEEP ANY MATERIALS THE CONTRACTOR SHALL REMOVE AND DELIVER THE PARTS TO THE OWNER ON THE SITE WHERE SO DIRECTED. OTHERWISE ALL DEMOLISHED OR REMOVED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND BE DISPOSED OF IN A LEGAL MANNER.
4.

DEMOLITION SHALL INCLUDE REMOVAL OF ALL PARTS AND PIECES IN THEIR ENTIRETY BACK TO POINTS INDICATED OR IF NOT INDICATED BACK TO THEIR POINT OF SOURCE. REMOVE CONDUCTORS FROM REMAINING CONDUITS WHERE IT IS INDICATED. WHERE CONDUCTORS REMAINED IN CONDUITS-DISCONNECT, ISOLATE AND CAPPED THEM TO ENSURE SAFETY AND PROTECTION. WHERE CONDITIONS PROHIBIT TOTAL REMOVAL OF THE WORK, THE REMAINING PORTION SHALL BE CUT FLUSH WITH THE SURROUNDING SURFACE, AND BE CAPPED, PLUGGED OR SEALED AND THE SURROUNDING SURFACE SHALL BE REFINISHED IN AN APPROVED MANNER.
5.

MAINTAIN EXISTING UTILITIES INDICATED OR REQUIRED TO REMAIN, KEEP IN SERVICE, AND PROTECT AGAINST DAMAGE DURING DEMOLITION OPERATIONS. DO NOT INTERRUPT EXISTING UTILITIES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN SCHEDULED WITH THE OWNER.
6.

DO NOT REMOVE EXISTING STRUCTURAL WORK. DO NOT REMOVE OPERATIONAL ELEMENTS AND SAFETY-RELATED COMPONENTS IN A MANNER RESULTING IN A REDUCTION OF CAPACITIES TO PERFORM IN THE MANNER INTENDED OR RESULTING IN DECREASED OPERATIONAL LIFE, INCREASED MAINTENANCE, OR DECREASED SAFETY.
7.

REMOVALS, DISCONNECTIONS, AND RELOCATIONS SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE INVOLVED AND SHALL BE EMPLOYED BY A CONTRACTOR LICENSED IN THE TRADE INVOLVED. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ACCEPTED TRADE PRACTICES.
8.

PROVIDE ADEQUATE TEMPORARY SUPPORT FOR WORK TO REMAIN, TO PREVENT FAILURE. DO NOT ENDANGER OTHER WORK.
9.

PROTECTION: PROVIDE ADEQUATE PROTECTION WHERE REQUIRED FOR THE PRESENT BUILDING AND ITS CONTENTS. TEMPORARY DUSTPROOF BARRIERS AND BARRICADES SHALL BE ERECTED WHERE REQUIRED FOR PROTECTION OF PERSONNEL. PROTECTION FROM DUST AND DIRT, FOR SECURITY, FIRE AND WEATHER PROTECTIVE REASONS, CONTRACTOR SHALL TAKE EVERY PRECAUTION AGAINST FIRE BY EMPLOYING FIRE DEPARTMENT TYPE HOSES AND PORTABLE FIRE EXTINGUISHERS AS REQUIRED BY OSHA AND/OR THE OWNER'S INSURANCE UNDERWRITER.
10.

USE TEMPORARY ENCLOSURES, OR OTHER SUITABLE METHODS TO LIMIT DUST AND DIRT RISING AND SCATTERING TO LOWEST PRACTICAL LEVEL. COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
11.

ALL EXISTING EQUIPMENT REQUIRED TO BE REUSED SHALL BE CLEANED, RECONDITIONED, CALIBRATED AND ADJUSTED. IN ALL INSTANCES WHERE CONTRACTOR FINDS THAT EXISTING EQUIPMENT IS DEFECTIVE TO THE POINT WHERE IT CANNOT BE PROPERLY RESTORED AND WILL NOT OPERATE PROPERLY, HE SHALL REPORT THE SPECIFIC INSTRUMENTS OR EQUIPMENT TO THE OWNER/ENGINEER FOR DIRECTIONS.
12.

TEMPORARY SHUTDOWNS OF SERVICE OF EXISTING ELECTRICAL, HEATING, AIR CONDITIONING, AND VENTILATION SYSTEMS SHALL BE PERFORMED WITH A MINIMUM OF DISRUPTION OF SERVICE, HELD TO AN ABSOLUTE MINIMUM DURATION OF TIME, AND ONLY AFTER HAVING NOTIFIED THE BUILDING OPERATIONS MANAGEMENT AT LEAST TWO WEEKS IN ADVANCE AND HAVING RECEIVED THEIR PERMISSION IN WRITING, AT LEAST TWO WEEKS PRIOR TO THE SCHEDULED SHUTDOWN. COMMUNICATIONS SHALL BE RELAYED THROUGH THE PROJECT OFFICER.
13.

ELECTRICAL CONTRACTOR SHALL RING OUT AND IDENTIFY ALL CIRCUITS REMAINING IN CONTRACT AREA. AFTER DEMOLITION, REMOVE ALL CIRCUITS BACK TO POINT OF SOURCE. MARK PANEL CIRCUITS NO LONGER IN USE "SPARE".

GENERAL NOTES

1.

THE FULL DEMOLITION SCOPE IS NOT SPECIFICALLY SHOWN ON THE DRAWINGS. PROVIDE DEMOLITION WORK CONSIDERED NECESSARY FOR THE COMPLETION OF THE WORK. SURVEY THE PREMISES TO ACCURATELY DETERMINE THE FULL SCOPE OF THE REMOVAL AND DISPOSAL WORK. NO ADDITIONAL PAYMENTS WILL BE MADE DUE TO CONTRACTOR'S FAILURE TO ADEQUATELY SURVEY THE PREMISES.
2.

CONTRACTOR TO REMOVE AND PROPERLY DISPOSE OF EQUIPMENT FROM SITE INDICATED FOR DEMOLITION, UNLESS OTHERWISE DIRECTED BY THE AUTHORITY.
3.

THE MECHANICAL CONTRACTOR SHALL PROVIDE POWER SUPPLIES, ELECTRICAL WIRING AND CONDUIT FOR POWER AND CONTROL TO PNEUMATIC OR MOTORIZED DAMPER AND VALVE OPERATORS, THERMOSTATS, AUTOMATIC CONTROL INSTRUMENTATION. COORDINATE WITH THE ELECTRICAL CONTRACTOR TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.
4.

FOR POWERED EQUIPMENT INTENDED FOR DEMOLITION, THE CONTRACTOR SHALL COORDINATE SHUT-OFF POWER SUPPLIES AND DISCONNECT SWITCHES ASSOCIATED WITH THE EQUIPMENT TO BE DISCONNECTED. RECONNECT ELECTRICAL POWER TO NEW EQUIPMENT AFTER INSTALLATION. PROVIDE ELECTRICAL MATERIAL AND LABOR AS REQUIRED FOR A COMPLETE AND FUNCTIONAL INSTALLATION.
5.

TEMPORARY SHUTDOWNS OF SERVICE OF EXISTING ELECTRICAL, STEAM, HEATING, AIR CONDITIONING AND VENTILATION SYSTEMS SHALL BE PERFORMED WITH A MINIMUM OF DISRUPTION OF SERVICE, HELD TO AN ABSOLUTE MINIMUM DURATION OF TIME, AND ONLY AFTER HAVING NOTIFIED THE BUILDING OPERATIONS MANAGEMENT AT LEAST TWO WEEKS IN ADVANCE AND HAVING RECEIVED THEIR PERMISSION IN WRITING, AT LEAST TWO WEEKS PRIOR TO THE SCHEDULED SHUTDOWN. COMMUNICATIONS SHALL BE RELAYED THROUGH THE OWNER'S REPRESENTATIVE.
6.

LOAD CALCULATIONS HAVE BEEN PERFORMED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS, SPECIFICALLY ASHRAE HANDBOOK - FUNDAMENTALS.
7.

CONTRACTOR SHALL PERFORM ALL TESTS AND STARTUP PROCEDURES FOR EACH VENTILATION SYSTEM IN ACCORDANCE WITH THE MANUFACTURER AND SPECIFICATIONS.
8.

ALL THERMOSTATIC CONTROLS SHALL BE TESTED FOR FUNCTIONALITY AND PROPER OPERATION AS REQUIRED BY NYS ECC.
9.

ELECTRIC MOTORS SHALL COMPLY WITH THE REQUIREMENTS OF THE ENERGY POLICY ACT OF 1992 AS SHOWN IN ASHRAE 90.1-2013 TABLE #10.8.
10.

IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO PROVIDE CONTROL WIRING. THE MECHANICAL CONTRACTOR SHALL ALSO PROVIDE ALL POWER SUPPLIES, ELECTRICAL WIRING AND CONDUIT FOR POWER AND CONTROL TO ALL VALVE OPERATORS, THERMOSTATS AND AUTOMATIC CONTROL INSTRUMENTATION. ELECTRICAL CONTRACTOR TO INSTALL AND ROUTE POWER WIRING FOR EACH MECHANICAL SYSTEM.
11.

MOUNTING HEIGHTS FOR ASSOCIATED MECHANICAL THERMOSTAT CONTROLS, ETC. SHALL MEET THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDING AND FACILITIES. MOUNTING HEIGHTS FOR ALL THERMOSTATS, ETC SHALL BE 48" AFF.

HVAC DESIGN CRITERIA

- A.

SITE (BASED ON NEAREST AVAILABLE DATA: ASHRAE 2013 HANDBOOK CLIMATIC DESIGN INFORMATION, WESTCHESTER CO, NY):
1. 41.07°N, 73.71°W
2. ELEVATION: 397 FT
3. CLIMATE ZONE 5A.
- B.

OUTSIDE DESIGN CONDITIONS (BASED ON NEAREST AVAILABLE DATA: ASHRAE 2013 CLIMATIC DESIGN INFORMATION, WESTCHESTER CO, NY):
1. HEATING DB (99.6%): 9.0°F DB
2. COOLING DB/MCWB (1%): 86.5°F DB, 72.1°F WB
- C.

INSIDE DESIGN CONDITIONS (PER NYSMD MANUAL OF PLANNING STANDARDS S602-6 B. AND 2015 ASHRAE HANDBOOK CH 7 TABLE 6):
1. HEATING INDOOR SETPOINT: 72°F
2. COOLING INDOOR SETPOINT: 78°F, 60% RH
- D.

ACOUSTICS (PER NYSMD MANUAL OF PLANNING STANDARDS, TABLE S304-1):
1. DESIGN REQUIREMENTS FOR HVAC SYSTEM NOISE FOR CLASSROOMS, 7-12: RC 25-30.
- E.

FILTRATION: MERV 13 (PER NYSMD MANUAL OF PLANNING STANDARDS).
- F.

DEMAND CONTROLLED VENTILATION NOT REQUIRED PER ECONY'S C403.2.6.1 EXCEPTION #3.

SEQUENCE OF OPERATIONS

1.

REFER TO SEQUENCE OF OPERATION SPECIFICATION.

HVAC NOTES:

1.

PROVIDE LABOR, MATERIALS, TOOLS, MACHINERY, EQUIPMENT, AND SERVICES NECESSARY TO COMPLETE THE HVAC WORK UNDER THIS CONTRACT. ALL SYSTEMS AND EQUIPMENT SHALL BE COMPLETE IN EVERY ASPECT AND ALL ITEMS OF MATERIAL, EQUIPMENT AND LABOR SHALL BE PROVIDED FOR A FULLY OPERATIONAL SYSTEM AND READY FOR USE. COORDINATE THE WORK WITH THE WORK OF THE OTHER SUBCONTRACTORS IN ORDER TO RESOLVE ALL CONFLICTS WITHOUT IMPEDING THE JOB PROGRESS.
2.

EXAMINE THE ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL DRAWINGS AND OTHER DIVISIONS, AND SECTIONS OF THE SPECIFICATIONS IN ORDER TO DETERMINE THE EXTENT OF THE WORK REQUIRED TO BE COMPLETED UNDER THIS DIVISION. FAILURE TO EXAMINE ALL THE CONTRACT DOCUMENTS FOR THIS PROJECT WILL NOT RELIEVE THIS CONTRACTOR OF HIS RESPONSIBILITIES TO PERFORM THE WORK REQUIRED FOR A COMPLETE FULLY OPERATIONAL AND SATISFACTORY INSTALLATION.
3.

START-UP SERVICES SHALL BE INCLUDED.
4.

ALL SYSTEMS, EQUIPMENT AND SERVICES SPECIFIED HEREIN SHALL BE PROVIDED COMPLETE AND READY FOR USE. ALL EQUIPMENT, DUCTWORK, PIPING, DAMPERS, OUTLETS ARE NEW, FURNISHED AND INSTALLED BY THIS CONTRACTOR, UNLESS OTHERWISE NOTED.
5.

DUCTWORK AND PIPING ARE SHOWN DIAGRAMMATICALLY AND DO NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF ENGINEER. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER SUBCONTRACTORS IS REQUIRED. PROVIDE COORDINATION DRAWINGS SHOWING ALL TRADES WORK AND EXISTING CONDITION.
6.

INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES INVOLVING EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
7.

VERIFY FINAL LOCATIONS FOR ROUGH WORK WITH FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT BEING CONNECTED.
8.

PROVIDE A COMPLETE SYSTEM OF VIBRATION ISOLATION FOR EACH ITEM OF HVAC EQUIPMENT AND APPARATUS AS SPECIFIED HEREIN, AS SHOWN ON THE DRAWINGS AND AS NEEDED FOR A COMPLETE AND PROPER INSTALLATION.
9.

THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.
10.

CONTRACTOR IS RESPONSIBLE TO ATTEND COORDINATION MEETING WITH ALL TRADES TO DETERMINE LOCATIONS OF DEVICES AND DISCOVER IF ANY CONFLICTS MAY EXIST.
11.

ALL PIPING EXPOSED OR INSULATED, DUCTWORK, CONDUIT AND CONTROL WIRING SHALL BE CONCEALED IN CEILINGS, WALLS AND FLOORS OR CONCEALED IN NEW SOFFITS OR FRAMED ENCLOSURES.
12.

ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THE 2020 NYS BUILDING CODE, 2020 NYS MECHANICAL CODE, AND 2020 NYS ENERGY CONSERVATION CONSTRUCTION CODE, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
13.

PROVIDE A COMPLETE OPERABLE SYSTEM IN A WORKMANLIKE MANNER. OUTLINE DESCRIPTION AND EQUIPMENT; DO NOT LIMIT CONTRACTOR'S LIABILITY FOR THE INSTALLATION OF A COMPLETE OPERABLE SYSTEM.
14.

VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE DUE FOR FAILURE TO DO SO.
15.

CONTRACTOR TO BE RESPONSIBLE FOR REVIEWING THE FULL SET OF BID DOCUMENTS TO BE AWARE OF THE TOTAL SCOPE PRIOR TO SUBMITTING BID. ALL WORK SHOWN ON THE DRAWINGS NOT SPECIFICALLY CALLED OUT AS EXISTING SHALL BE CONSIDERED WORK TO BE PERFORMED UNDER THIS CONTRACT.
16.

BIDDERS, BEFORE SUBMITTING A PROPOSAL, SHALL VISIT AND CAREFULLY EXAMINE THE SITE TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND WITH THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED. NO ALLOWANCE WILL SUBSEQUENTLY BE MADE TO THE CONTRACTOR BY REASON OF ANY ERROR DUE TO THE CONTRACTOR'S NEGLIGENCE TO COMPLY WITH THIS REQUIREMENT. REPORT ANY DISCREPANCIES BETWEEN DRAWINGS AND FIELD CONDITIONS TO THE ENGINEER.
17.

BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FILE ALL REQUIRED CERTIFICATES OF INSURANCE WITH THE BUILDING DEPARTMENT. OBTAIN ALL REQUIRED PERMITS AND PAY ALL FEES REQUIRED.
18.

THE CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING REQUIRED TO COMPLETE THE WORK OR TO MAKE ITS PARTS FIT TOGETHER PROPERLY WITHOUT COMPROMISING THE QUALITY OF THE WORK. RESTORE WALLS AND CEILINGS TO MATCH EXISTING.
19.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGE, BREAKAGE, COLLAPSE, DISTORTIONS, AND OFF ALIGNMENTS ACCORDING TO CODES AND STANDARDS OF GOOD PRACTICE.
20.

THE TERM "FINISH FLOOR" SHALL MEAN THE NORMAL FINISHED SURFACE OF THE FLOOR LEVEL. ALL ELEVATIONS GIVEN FOR EXISTING BUILDINGS ARE TO FINISHED FLOOR. THE CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS FOR EXISTING STRUCTURES PRIOR TO THE COMMENCEMENT OF WORK.
21.

THE CONTRACTOR SHALL PATCH AND REPAIR ALL FLOORS, WALLS, CEILINGS, ETC. DAMAGED OR EXPOSED DUE TO WORK OR REMOVALS AND FINISH TO MATCH ADJOINING SURFACES.
22.

WHERE MANUFACTURERS NAMES AND PRODUCT NUMBERS ARE INDICATED ON THE DRAWINGS IT SHALL BE CONSTRUED TO MEAN THE ESTABLISHING OF QUALITY AND PERFORMANCE STANDARDS OF SUCH ITEMS. ALL OTHER PRODUCTS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE THEY SHALL BE DEEMED EQUAL.
23.

DRAWINGS ARE NOT TO BE SCALED. USE DIMENSIONS ONLY. ALL DIMENSIONS AND CONDITIONS SHOWN AND ASSUMED ON THE DRAWINGS MUST BE VERIFIED AT THE SITE BY THE CONTRACTOR BEFORE ORDERING ANY MATERIAL OR DOING ANY WORK. ANY DISCREPANCIES IN THE DRAWINGS AND SPECIFICATIONS SHALL BE REPORTED TO THE ENGINEER. NO CHANGE IN DRAWINGS OR SPECIFICATIONS IS PERMISSIBLE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.
24.

ALL WORK ON THESE DRAWINGS SHALL BE CONSIDERED NEW WORK WHETHER STATED OR NOT EXCEPT WHERE SPECIFICALLY NOTED AS "EXISTING TO REMAIN".
25.

DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER, SHALL BE INCLUDED IN THE WORK THE SAME AS IF HEREIN SPECIFIED OR INDICATED.
26.

ALL WORK SHALL BE INSTALLED SO THAT ALL PARTS REQUIRED ARE READILY ACCESSIBLE FOR INSPECTION, OPERATION, MAINTENANCE AND REPAIR.
27.

CONTRACTOR SHALL KEEP WORK SITE FREE FROM DEBRIS AND ACCUMULATED REFUSE, AND SHALL HAVE SOLE RESPONSIBILITY FOR PROTECTING ALL DANGEROUS AREAS FROM ENTRY BY UNAUTHORIZED PARTIES. WORK AREA WILL BE LEFT BROOM CLEAN AT THE END OF COMPLETION OF WORK AND UNTIL THE SPACE IS READY TO BE OCCUPIED.
28.

PROVIDE BARRICADES AROUND WORK AREAS AS REQUIRED TO PREVENT UNAUTHORIZED PERSONS FROM ENTERING THEREIN.
29.

THE WORD "PROVIDE" USED ON DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT MEANS "FURNISH AND INSTALL". WHEN ONLY ONE PART OF ACTION IS REQUIRED, EITHER "FURNISH" OR "INSTALL" WILL BE USED ACCORDINGLY (TYP., U.O.W.N.).
30.

ALL DISCONNECT SWITCHES, STARTERS, AND VARIABLE FREQUENCY DRIVES SHALL BE FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR.
31.

PROVIDE OPERATING AND MAINTENANCE MANUALS FOR ALL EQUIPMENT SPECIFIED IN THE SCHEDULES ON THIS DRAWING TO THE BUILDING OWNER WITHIN 90 DAYS AFTER SYSTEM ACCEPTANCE.

ABBREVIATIONS

ABBREVIATION:	DESCRIPTION:
A	AMPERE
AC	AIR CONDITIONING
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AMP	AMPERE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS
	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
	AUXILIARY
ASME	BUILDING MANAGEMENT SYSTEM
AUX	AUXILIARY
BC	BRANCH CONTROLLER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BMS	BUILDING MANAGEMENT SYSTEM
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CW	COLD WATER
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG.	DEGREES
DP	DEW POINT
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
ESP	EXTERNAL STATIC PRESSURE
F	FAHRENHEIT
FA	FIRE ALARM
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER
FDR	FLOOR DRAIN
FLA	FULL LOAD AMPS
FPI	FINS PER INCH
PFM	FEET PER MINUTE
FS	COMBINATION FIRE/SMOKE DAMPER
FT	FEET
G	NATURAL GAS
GAL	GALLON
GALV	GALVANIZED
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HOA	HAND/OFF/AUTO
HP	HEAT LAT PUMP
HR	HOURL
HP	HORSEPOWER
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HZ	HERTZ
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
IN	INCHES
KW	KILOWATTS
LxWxH	LENGTH BY WIDTH BY HEIGHT
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LF	LINEAR FEET
LRA	LOCKED ROTOR AMPS
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1,000 BTUH
MCA	MINIMUM CIRCUIT AMPACITY
MHP	MOTOR HORSEPOWER
MIN	MINIMUM, MINUTE
MM	MILLIMETER
MOP	MAXIMUM OVER-CURRENT PROTECTION
OAT	OUTSIDE AIR TEMPERATURE
OC	ON CENTER
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
PH	PHASE
PRESS	PRESSURE
PSIA	POUNDS PER SQUARE INCH, ABSOLUTE
PSIG	POUNDS PER SQUARE INCH, GAUGE
QTY	QUANTITY
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
REQD	REQUIRED
REV	REVISION
RM	ROOM
RTU	ROOFTOP UNIT
S	SECONDS
SD	SMOKE DAMPER
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SENS	SENSIBLE
SF	SQUARE FEET
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
TEMP	TEMPERATURE
THK	THICK
TOD	TOP OF DUCT
TON	12,000 BTU/H COOLING CAPACITY
TYP	TYPICAL
UH	UNIT HEATER
V	VENT, VOLTS, OR VOLUME
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
VIF	VERIFY IN FIELD
VRF	VARIABLE REFRIGERANT FLOW
W	WATTS, WIDTH
WB	WET BULB
WC	WATER COLUMN



Revisions	
No.	Date
1	03-04-25
BIDDING DOCUMENTS	

Drawn by	VF /AW
Checked by	EF
Project No.	4-3040
Scale	AS NOTED
Date	03-04-25

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Mechanical Electrical Engineer:	Structural Engineer:

UNIVENT REPLACEMENT AT STONY POINT THIELLS, WEST HAVESTRAW ELEMENTARY SCHOOL	SED# 50-02-01-06-0-014-012 SED# 50-02-01-06-0-025-018 SED# 50-02-01-06-0-024-015
1 GREENMAN PEDERSEN, INC 2 STONY POINT, NY 10980	2 GREENMAN PEDERSEN, INC 2 STONY POINT, NY 10980

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Drawing Title GENERAL NOTES AND ABBREVIATIONS	Drawing No. M-001
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SUMMARY OF WORK STONY POINT:

THE WORK OF THIS PROJECT INCLUDES HVAC UPGRADES AT STONY POINT ELEMENTARY SCHOOL. PROVIDE MATERIALS AND SERVICES AS FOLLOWS. THE FOLLOWING IS NOT INTENDED TO BE A COMPLETE DESCRIPTION OF THE WORK; PERFORM THE WORK AS HEREINAFTER DESCRIBED IN THESE CONTRACT DOCUMENTS.

- A. REPLACE UNIT VENTILATORS THROUGHOUT THE BUILDING WHERE INDICATED. CONNECT ALL NEW UNIT VENTILATORS TO THE NEW VRF SYSTEM WITH NEWLY INSTALLED REFRIGERANT PIPING. UNIT VENTILATORS TO DX COOLING AND HEATING AND ALSO HYDRONIC HOT WATER HEATING COIL TO BE TIED IN AND CONTROLLED VIA SEPARATE THERMOSTAT . TYP. 50 TO BE TIED INTO EXISTING BMS SYSTEM.
- B. PROVIDE NINE (9) NEW CEILING CASSETTE HVAC UNITS WITH DX COOLING AND HEATING. CONNECTED TO NEW OR EXISTING FRESH AIR DUCTWORK WITH NEW THERMOSTATS. TO BE TIED INTO EXISTING BMS SYSTEM.
- B. PROVIDE EIGHT (8) NEW WALL HUNG HVAC UNITS WITH DX COOLING AND HEATING WITH NEW THERMOSTATS. TO BE TIED INTO EXISTING BMS SYSTEM.
- C. PROVIDE SEVEN (7) NEW DUCTLESS VRF OUTDOOR CONDENSING UNITS.
- D. PROVIDE AND INSTALL THREE (3) ROOFTOP HVAC UNITS. ONE (1) FOR THE LIBRARY, TIE INTO EXISTING DUCT WORK AND EXTEND NEW DUCTWORK INTO THREE ROOM. TWO (2) FOR THE GYM AND SUPPLY AND RETURN DUCTWORK ALL THREE NEW THERMOSTATS AND CONNECT TO BMS.
- E. LIBRARY SUPPLY DUCTWORK TO HAVE NEW HOT WATER COILS TO BE TIED INTO EXISTING HOT WATER SYSTEM. CONNECT TO NEW THERMOSTAT AND BMS.

SUMMARY OF WORK - THIELLS:

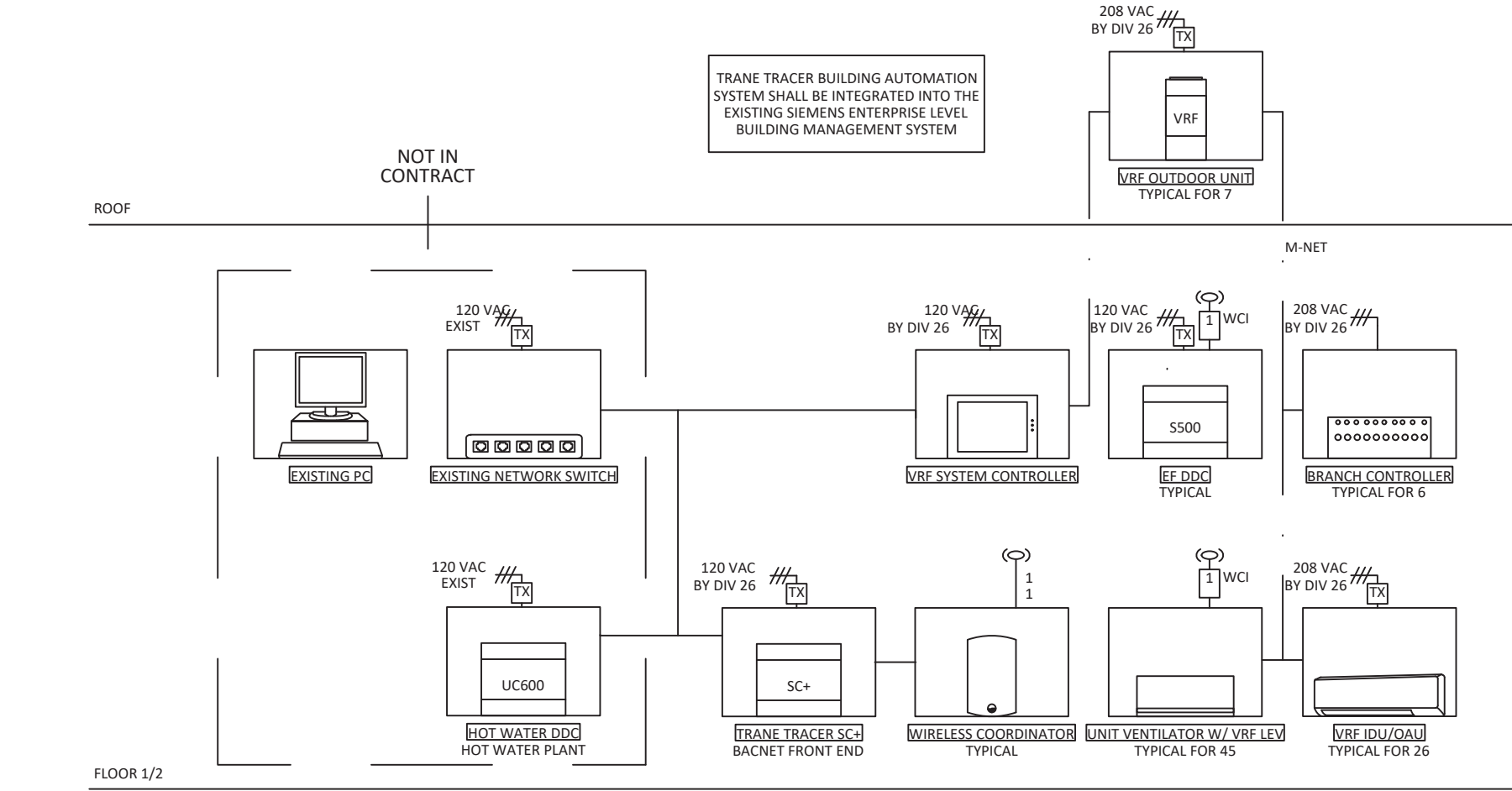
THE WORK OF THIS PROJECT INCLUDES HVAC UPGRADES AT THIELLS ELEMENTARY SCHOOL. PROVIDE MATERIALS AND SERVICES AS FOLLOWS. THE FOLLOWING IS NOT INTENDED TO BE A COMPLETE DESCRIPTION OF THE WORK; PERFORM THE WORK AS HEREINAFTER DESCRIBED IN THESE CONTRACT DOCUMENTS.

- A. REPLACE UNIT VENTILATORS THROUGHOUT THE BUILDING WHERE INDICATED. CONNECT ALL NEW UNIT VENTILATORS TO THE NEW VRF SYSTEM WITH NEWLY INSTALLED REFRIGERANT PIPING. UNIT VENTILATORS TO DX COOLING AND HEATING AND ALSO HYDRONIC HOT WATER HEATING COIL TO BE TIED IN AND CONTROLLED VIA SEPARATE THERMOSTAT . TYP. 51 TO BE TIED INTO EXISTING BMS SYSTEM.
- B. PROVIDE NINE (9) NEW CEILING CASSETTE HVAC UNITS WITH DX COOLING AND HEATING. CONNECTED TO NEW OR EXISTING FRESH AIR DUCTWORK WITH NEW THERMOSTATS. TO BE TIED INTO EXISTING BMS SYSTEM.
- B. PROVIDE EIGHT (8) NEW WALL HUNG HVAC UNITS WITH DX COOLING AND HEATING WITH NEW THERMOSTATS. TO BE TIED INTO EXISTING BMS SYSTEM.
- C. PROVIDE SEVEN (7) NEW DUCTLESS VRF OUTDOOR CONDENSING UNITS.

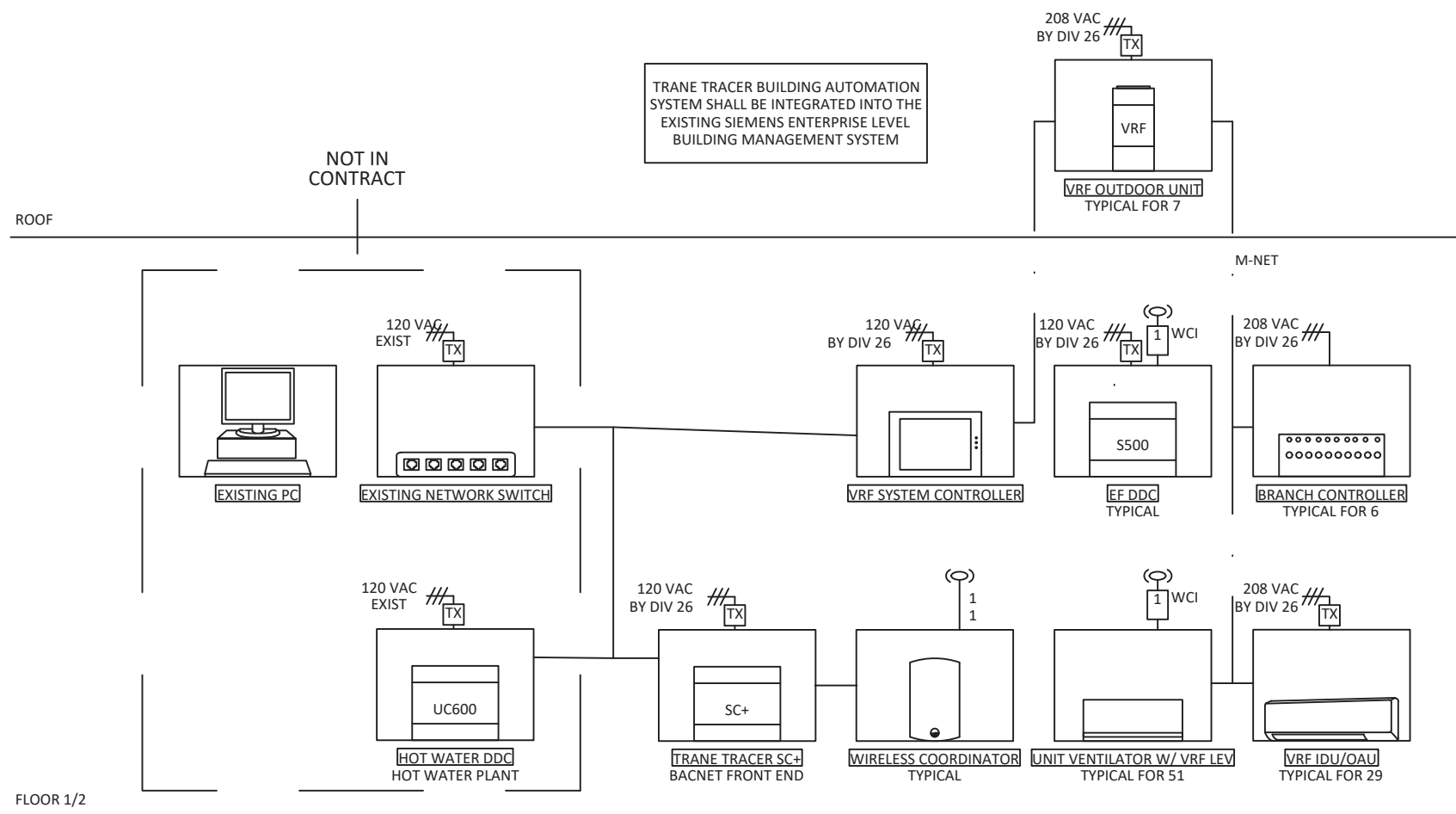
SUMMARY OF WORK WEST HAVERSTRAW:

THE WORK OF THIS PROJECT INCLUDES HVAC UPGRADES AT WEST HAVERSTRAW ELEMENTARY SCHOOL. PROVIDE MATERIALS AND SERVICES AS FOLLOWS. THE FOLLOWING IS NOT INTENDED TO BE A COMPLETE DESCRIPTION OF THE WORK; PERFORM THE WORK AS HEREINAFTER DESCRIBED IN THESE CONTRACT DOCUMENTS.

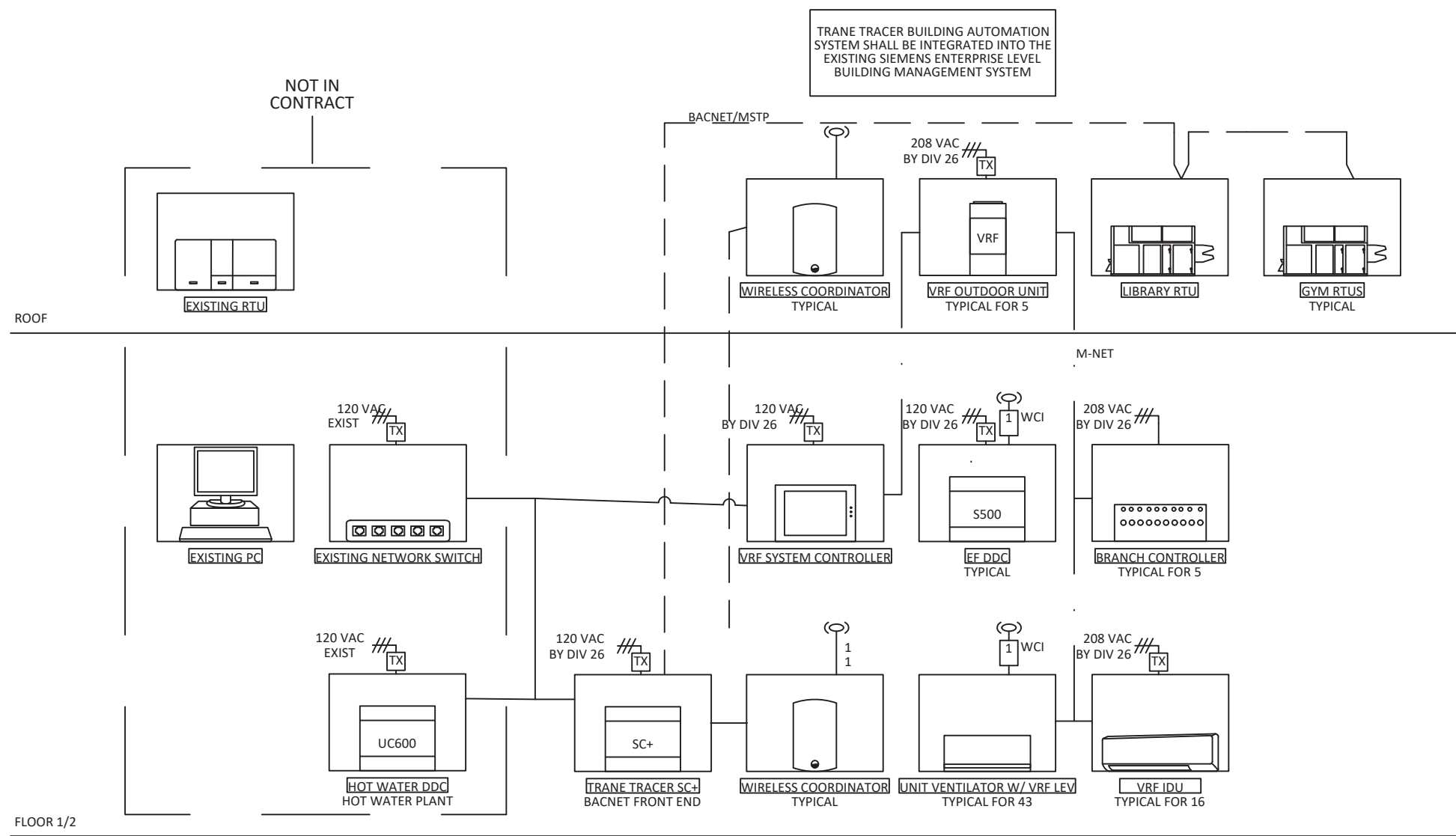
- A. REPLACE UNIT VENTILATORS THROUGHOUT THE BUILDING WHERE INDICATED. CONNECT ALL NEW UNIT VENTILATORS TO THE NEW VRF SYSTEM WITH NEWLY INSTALLED REFRIGERANT PIPING. UNIT VENTILATORS TO DX COOLING AND HEATING AND ALSO HYDRONIC HOT WATER HEATING COIL TO BE TIED IN AND CONTROLLED VIA SEPARATE THERMOSTAT . TYP. 50 TO BE TIED INTO EXISTING BMS SYSTEM.
- B. PROVIDE NINE (9) NEW CEILING CASSETTE HVAC UNITS WITH DX COOLING AND HEATING. CONNECTED TO NEW OR EXISTING FRESH AIR DUCTWORK WITH NEW THERMOSTATS. TO BE TIED INTO EXISTING BMS SYSTEM.
- B. PROVIDE EIGHT (8) NEW WALL HUNG HVAC UNITS WITH DX COOLING AND HEATING WITH NEW THERMOSTATS. TO BE TIED INTO EXISTING BMS SYSTEM.
- C. PROVIDE SEVEN (7) NEW DUCTLESS VRF OUTDOOR CONDENSING UNITS.



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SCALE: N.T.S.



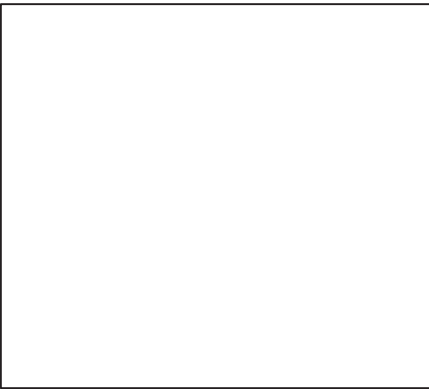
2 HVAC UPGRADE BMS-CONTROLS (WEST HAVERSTRAW)
SCALE: N.T.S.



3 HVAC UPGRADE BMS-CONTROLS (STONY POINT)
SCALE: N.T.S.

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IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

No.	Date	Revisions
1	03-04-25	BIDDING DOCUMENTS



Drawn by	VF /AW
Checked by	EF
Project No.	43040
Scale	AS NOTED
Date	03-04-25

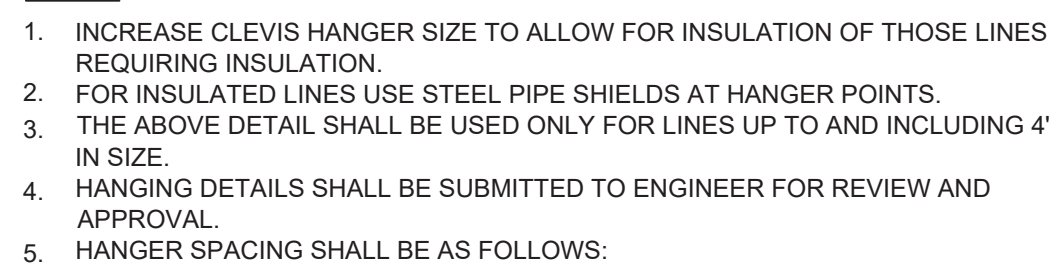
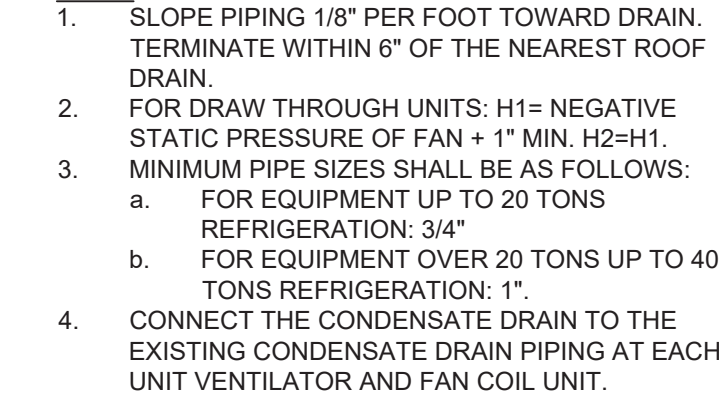
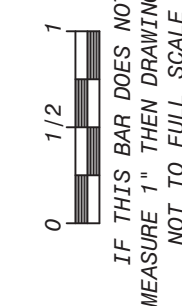
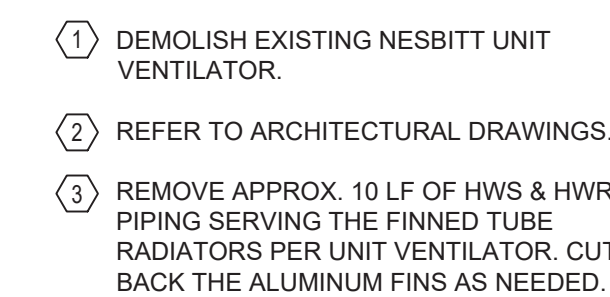
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Mechanical Structural Engineer:	Structural Engineer:

UNIVENT REPLACEMENT AT STONY POINT, THIELLS, WEST HAVERSTRAW ELEMENTARY SCHOOL	SED# 50-02-01-06-0-014-012 SED# 50-02-01-06-0-025-018 SED# 50-02-01-06-0-024-015
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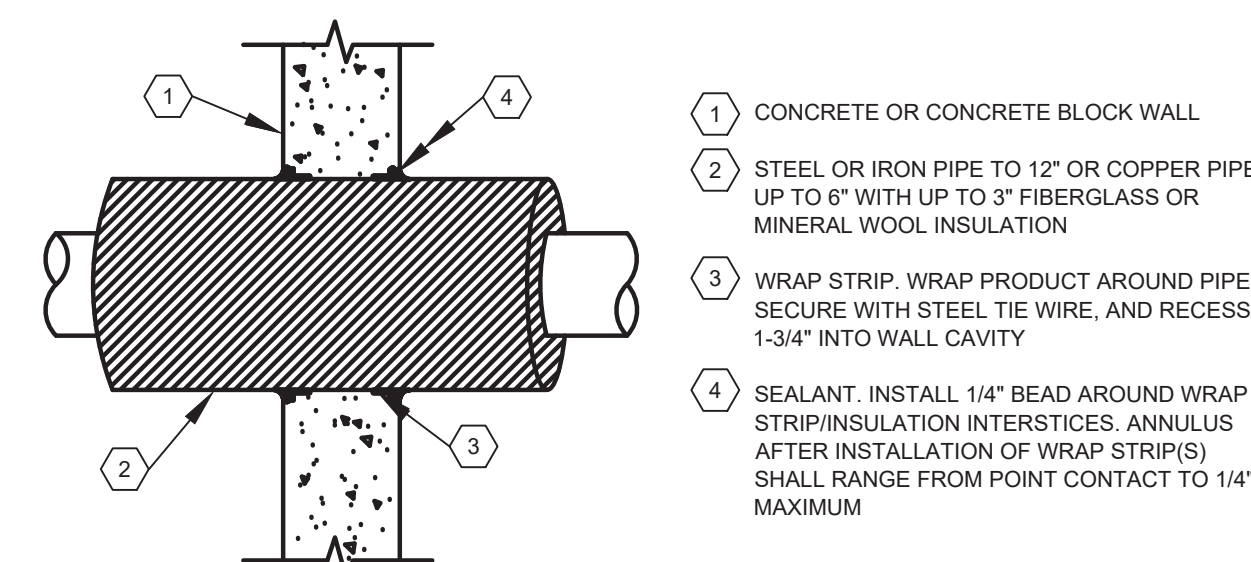
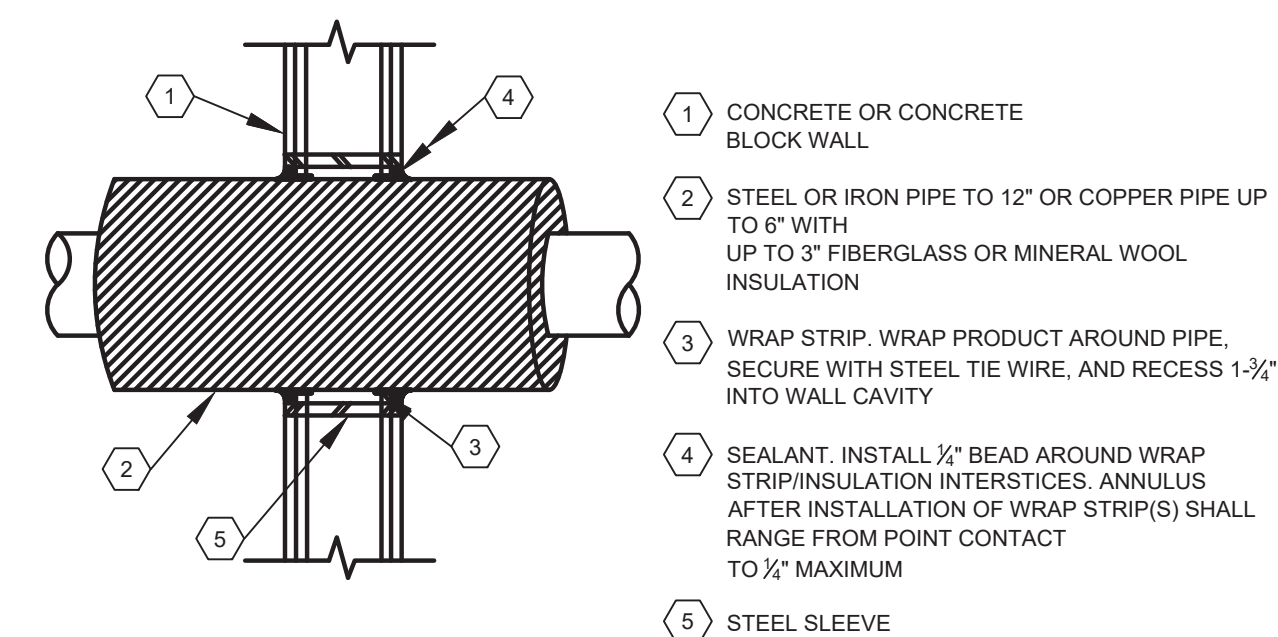
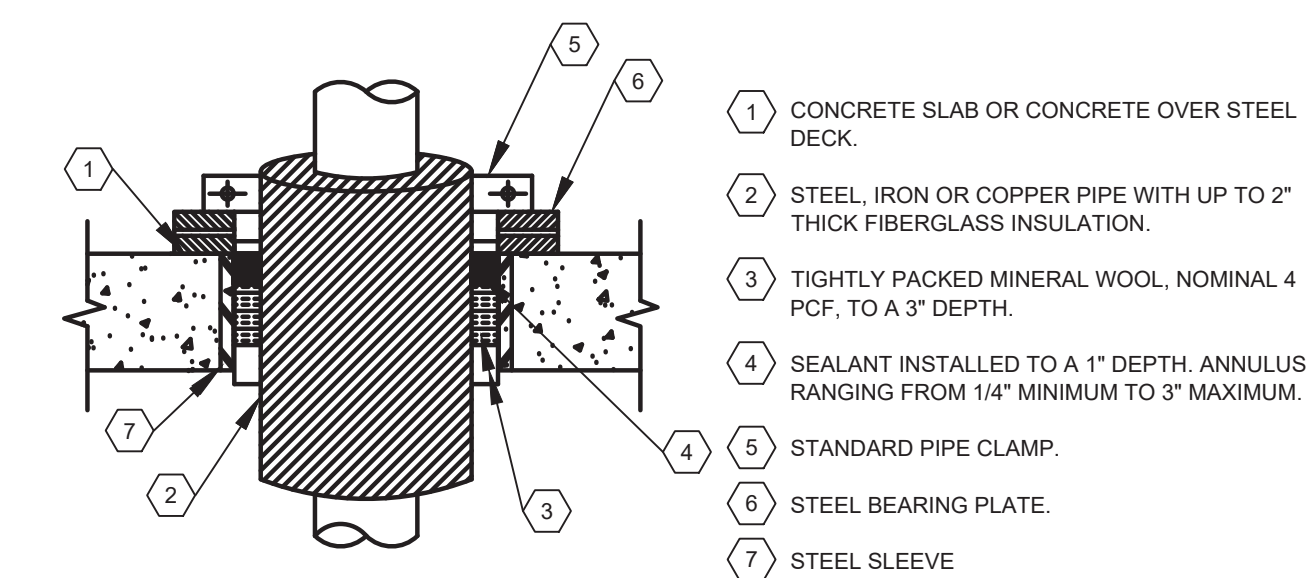
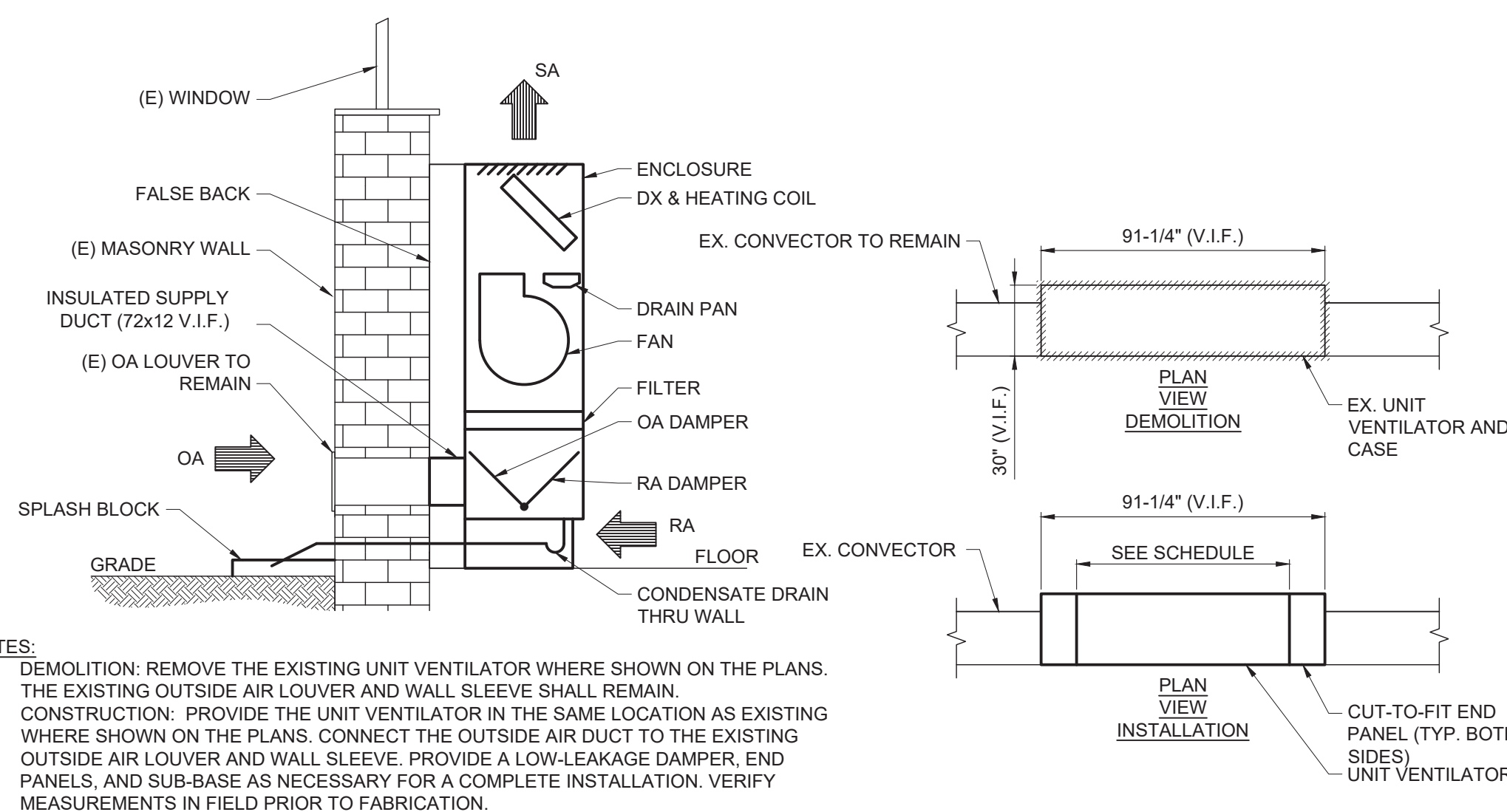
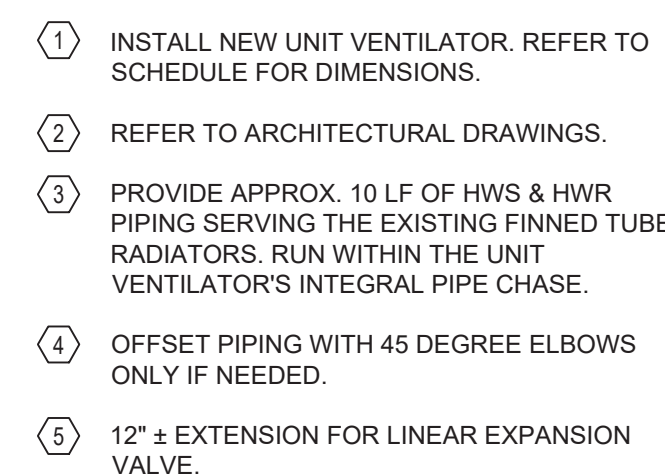
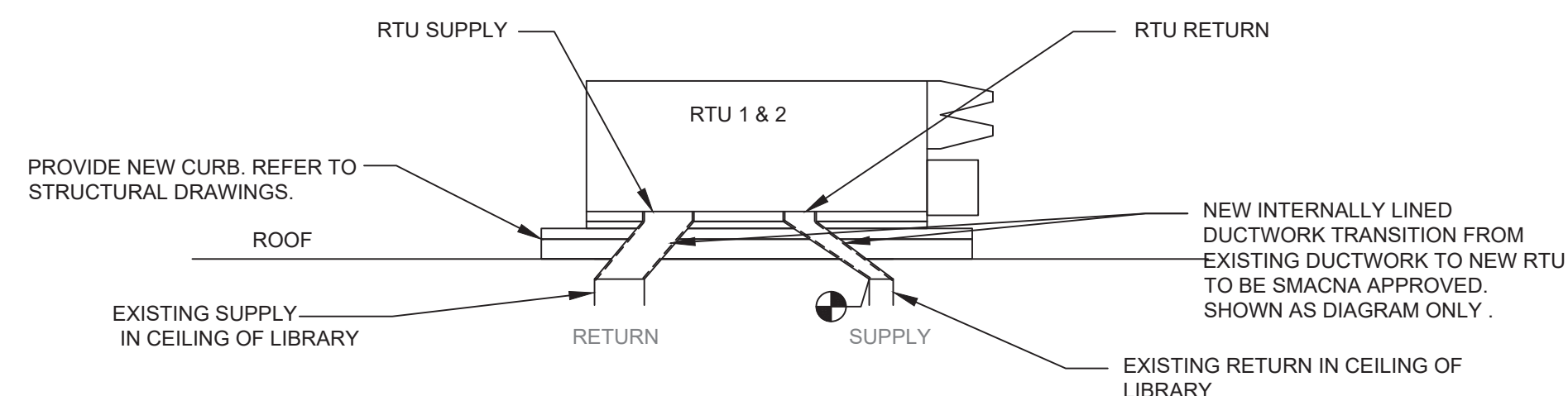
MSA	MICHAEL SHILAE ARCHITECTS, LLP 140 Park Avenue New York, NY 10065 Tel 845-708-9200 www.shilae.com
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MECHANICAL SCOPE OF WORK	Drawing No. M-002
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<u>PIPE SIZE</u>	<u>MAX. HANGER SPACING</u>	<u>MIN. ROD SIZE</u>
1/2" TO 1"	7' O.C.	3/8"
1-1/4" TO 2"	9' O.C.	1/2"
2-1/2" TO 4"	10' O.C.	1/2"

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Checked by	EF
Project No.	43040
Scale	AS NOTED
Date	03-04-25

<p>Mechanical & Electrical Engineer:</p>	<p>GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD SUITE 200 SUFFERN, NY 10901 PHON. NO.: NYT-2300127.00</p>
<p>Structural Engineer:</p>	<p>GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD SUITE 200 SUFFERN, NY 10901</p>

**UNIVENT REPLACEMENT
AT STONY POINT,
THIELS, WEST HAV
ELEMENTARY SCHOOL**

SED# 50-02-01-06-0-014-XXX
SED# 50-02-01-06-0-025-XXX
SED# 50-02-01-06-0-024-XXX

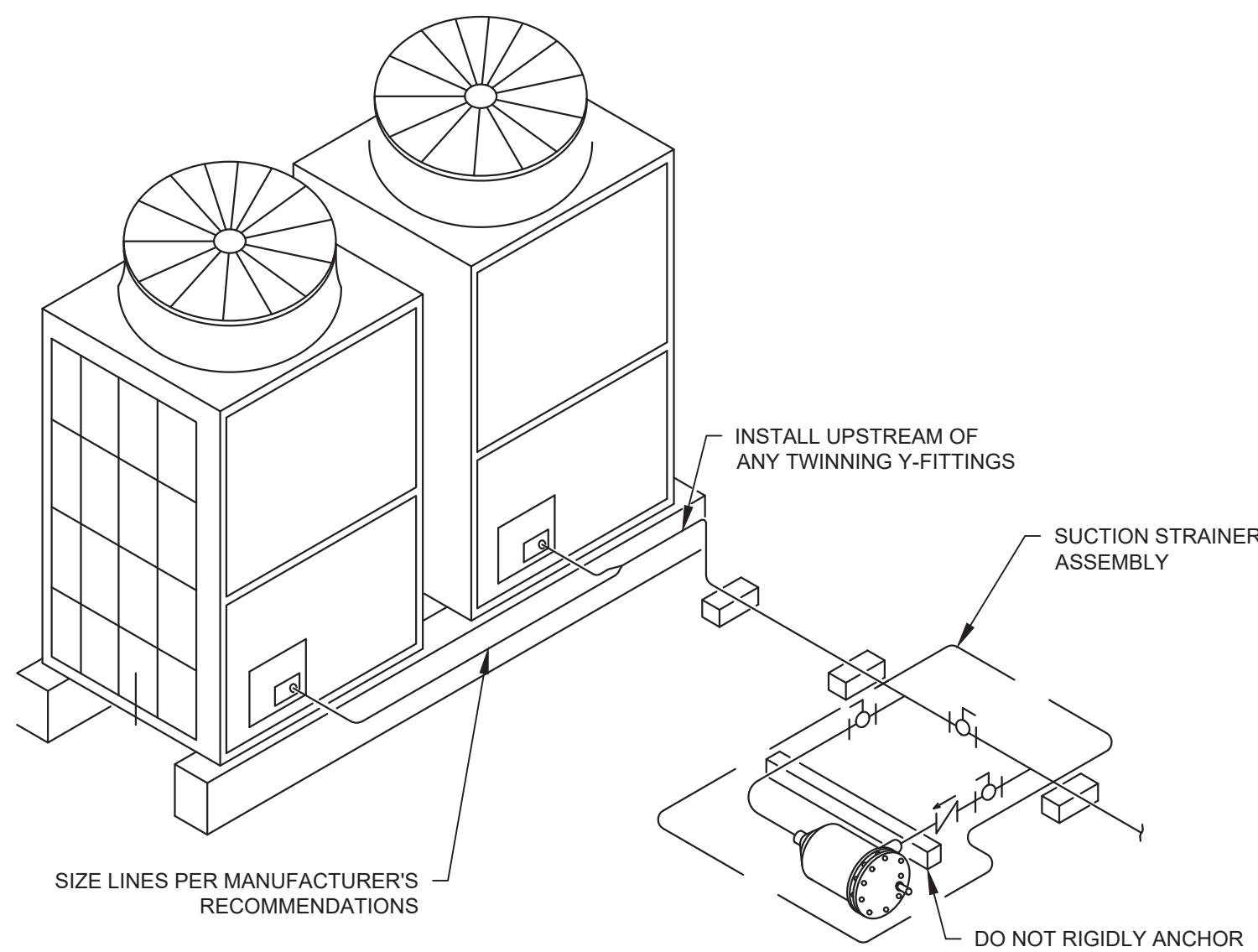
11 BLAUVELT AVE., WEST HAVERTOWN, PA 19381

MSA

MICHAEL SHUALE ARCHITECTS, LLP.

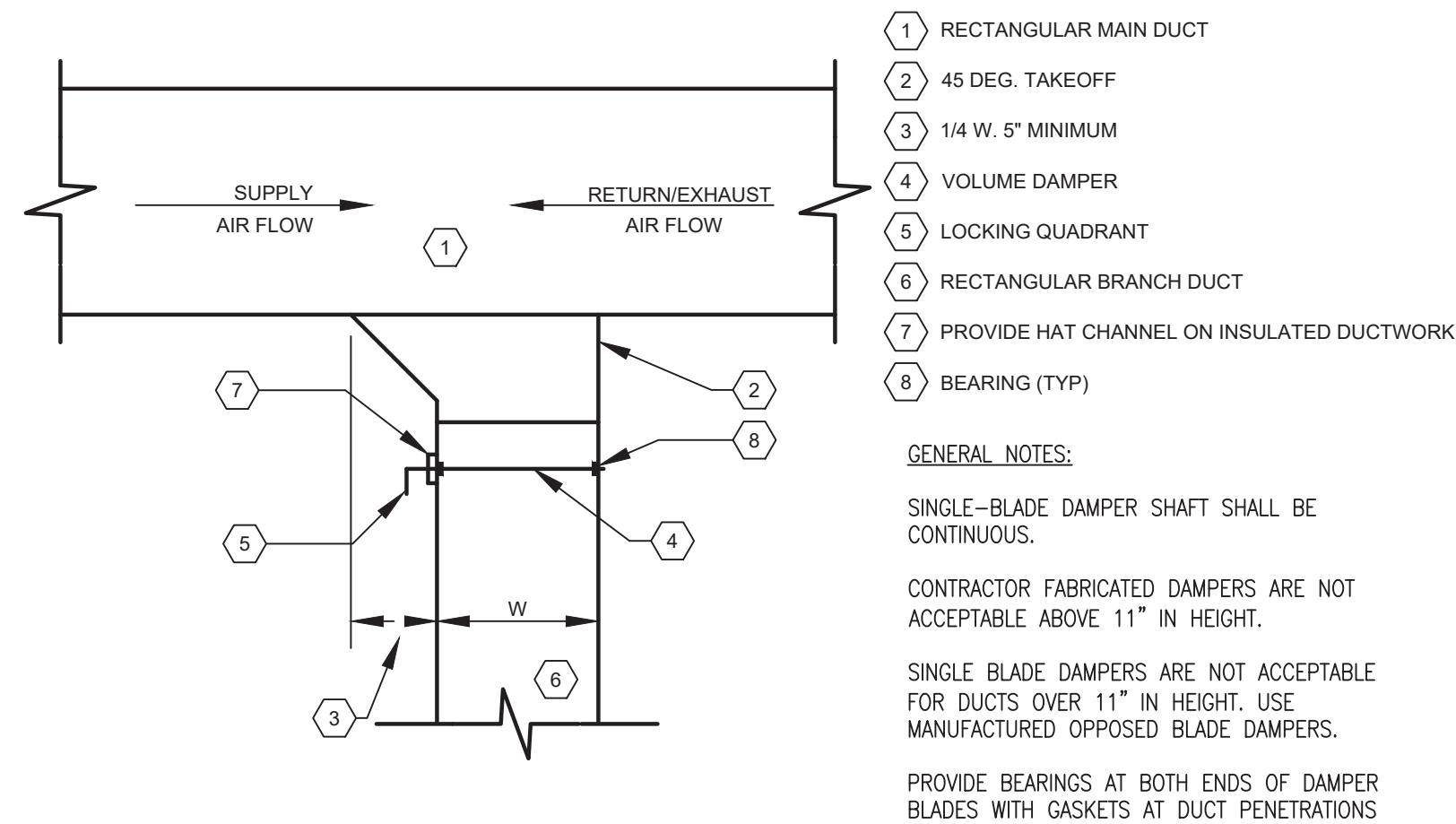
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Drawing Title
MECHANICAL DETAILS
- 1



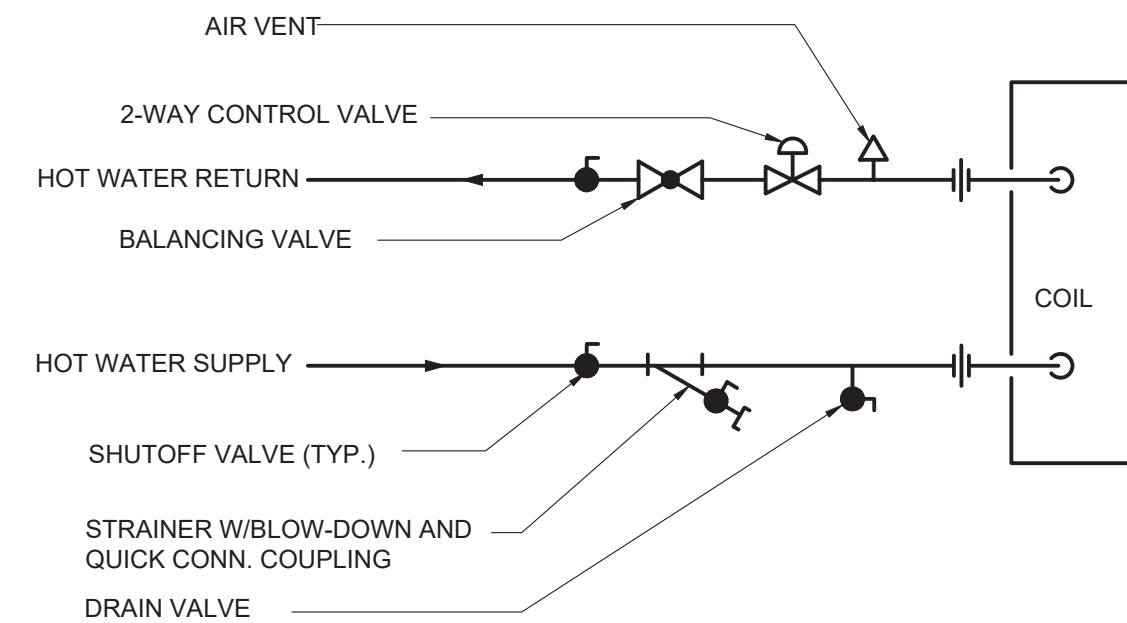
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SCALE: N.T.S.



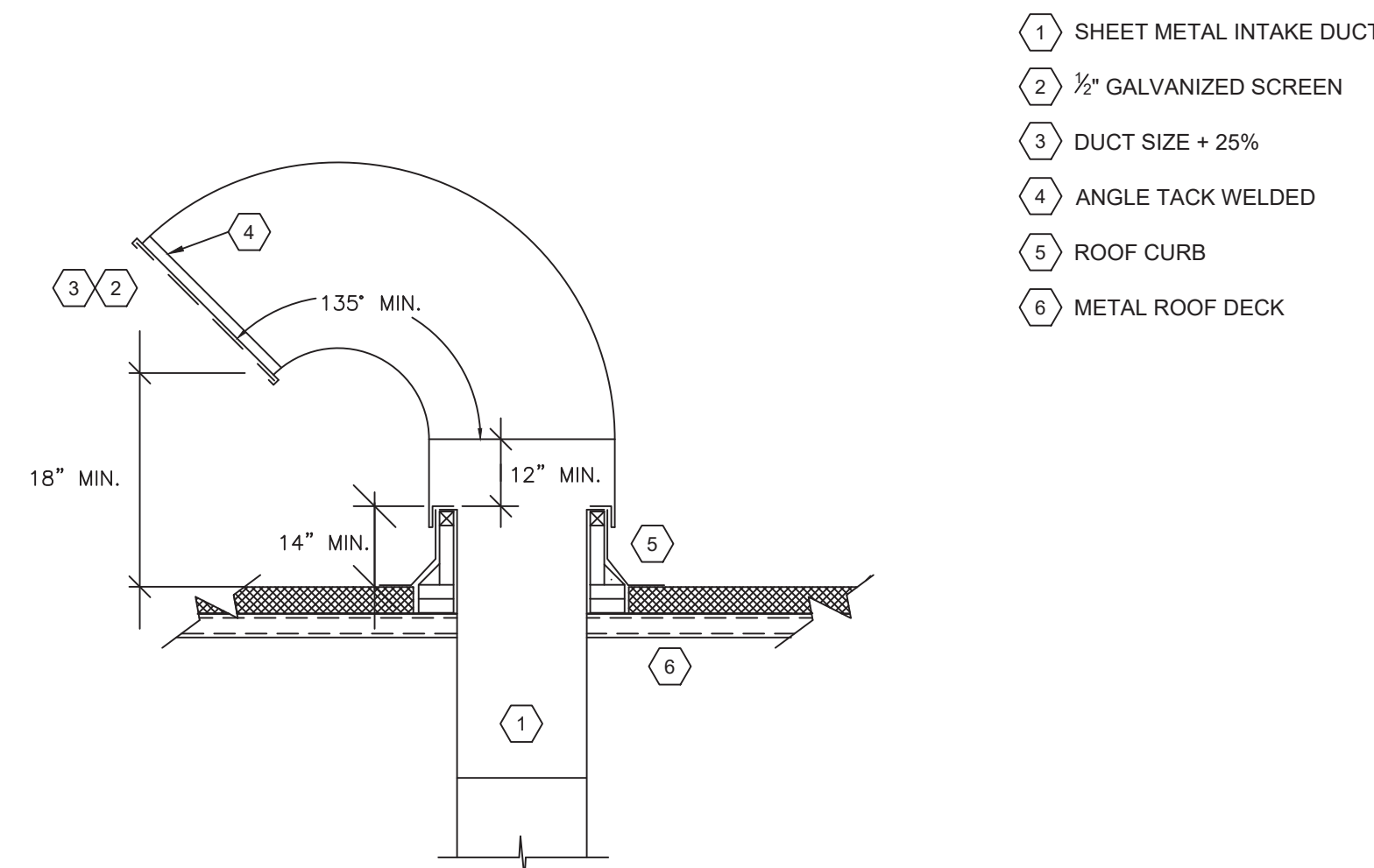
2 RECTANGULAR DUCT TAP W/ DAMPER

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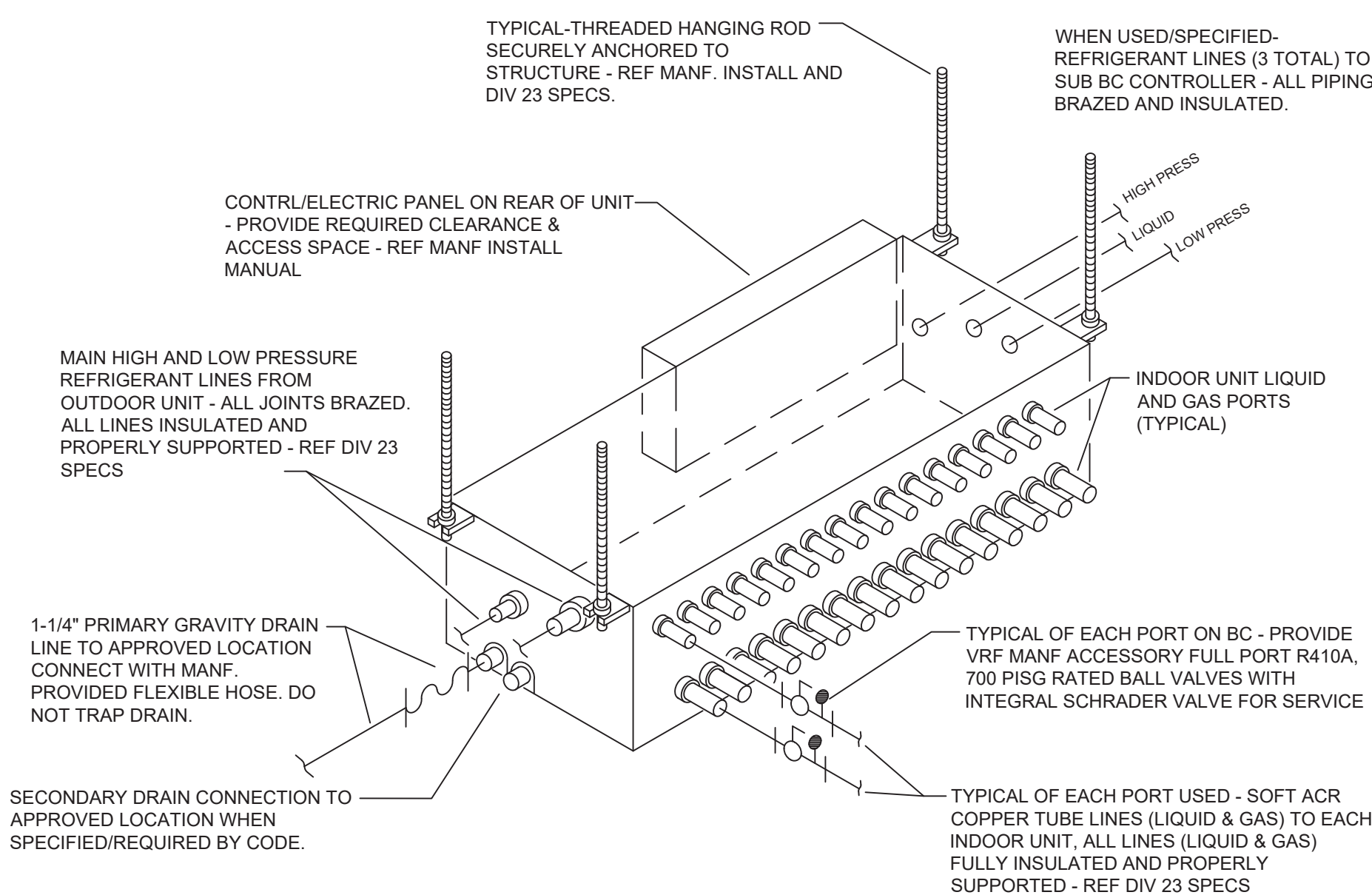
3 HOT WATER PIPING AT VENTILATOR

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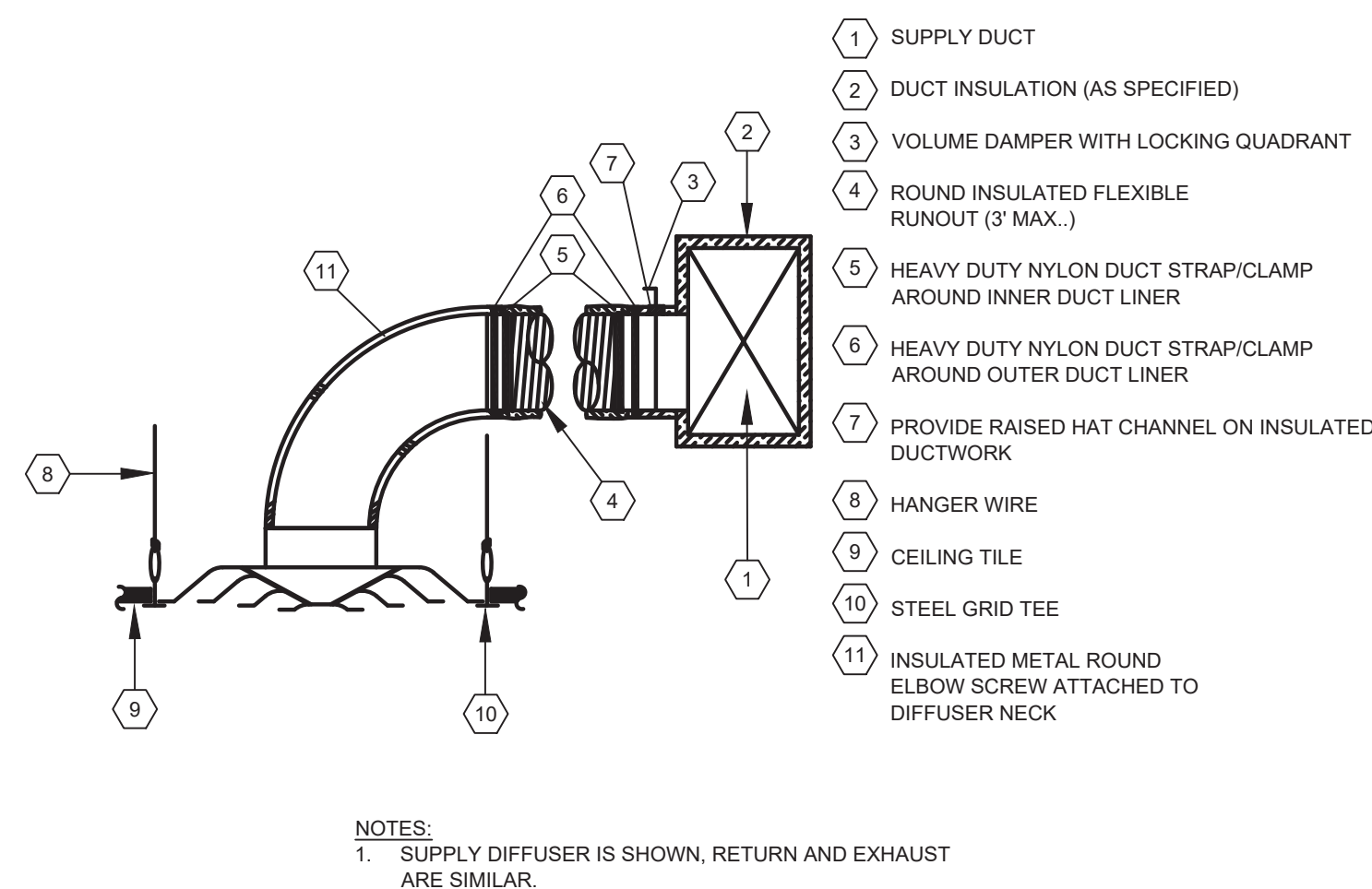
4 INTAKE GOOSE DETAIL

SCALE: N.T.S.



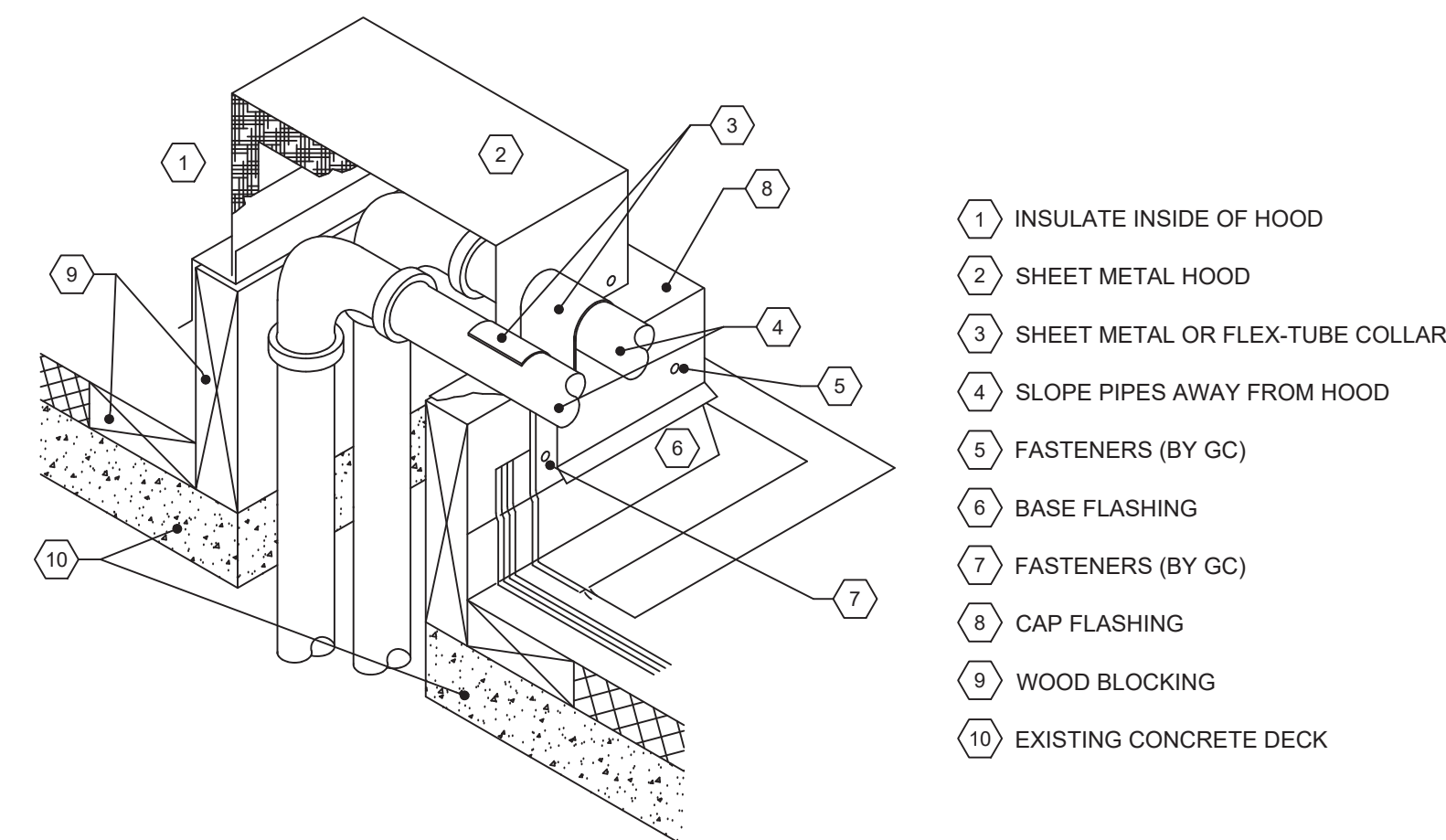
5 BC CONTROLLER DETAIL

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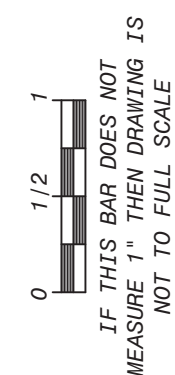
6 DIFFUSER/ GRILL CONNECTION DETAIL

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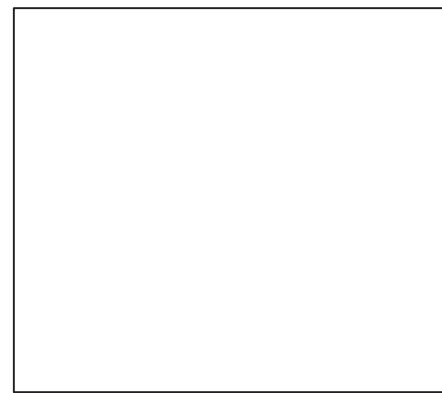


7 ROOFTOP PIPE PENETRATION

SCALE: N.T.S.



Revisions	
No.	Date
1	03-04-25 BIDDING DOCUMENTS



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Project No.	43040
Scale	AS NOTED
Date	03-04-25

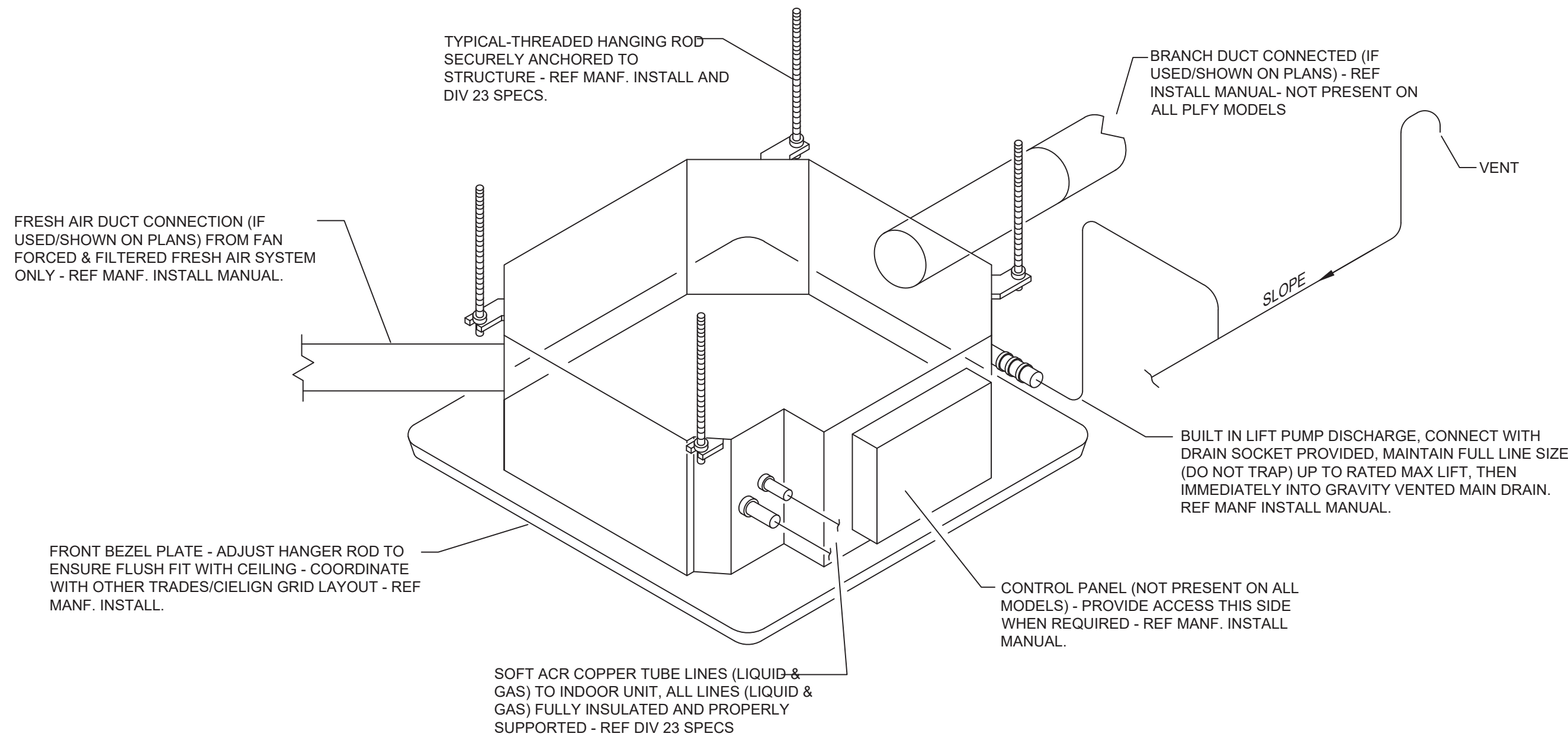
Mechanical Structural Engineer:	GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD SUITE 200 ROCKY HILL, CT 06067 TEL: 860-514-1100 FAX: 860-514-1101 PROJ. NO.: MNY-5000127.00
Structural Engineer:	GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD SUITE 200 ROCKY HILL, CT 06067 TEL: 860-514-1100 FAX: 860-514-1101 PROJ. NO.: MNY-5000127.00

UNIVENT REPLACEMENT AT STONY POINT, THIELS, WEST HAV ELEMENTARY SCHOOL SED# 50-02-01-06-0-014-XXX SED# 50-02-01-06-0-025-XXX SED# 50-02-01-06-0-024-XXX NY REG. NO. 10993 MICHAEL SHILALE ARCHITECTS, P.C.
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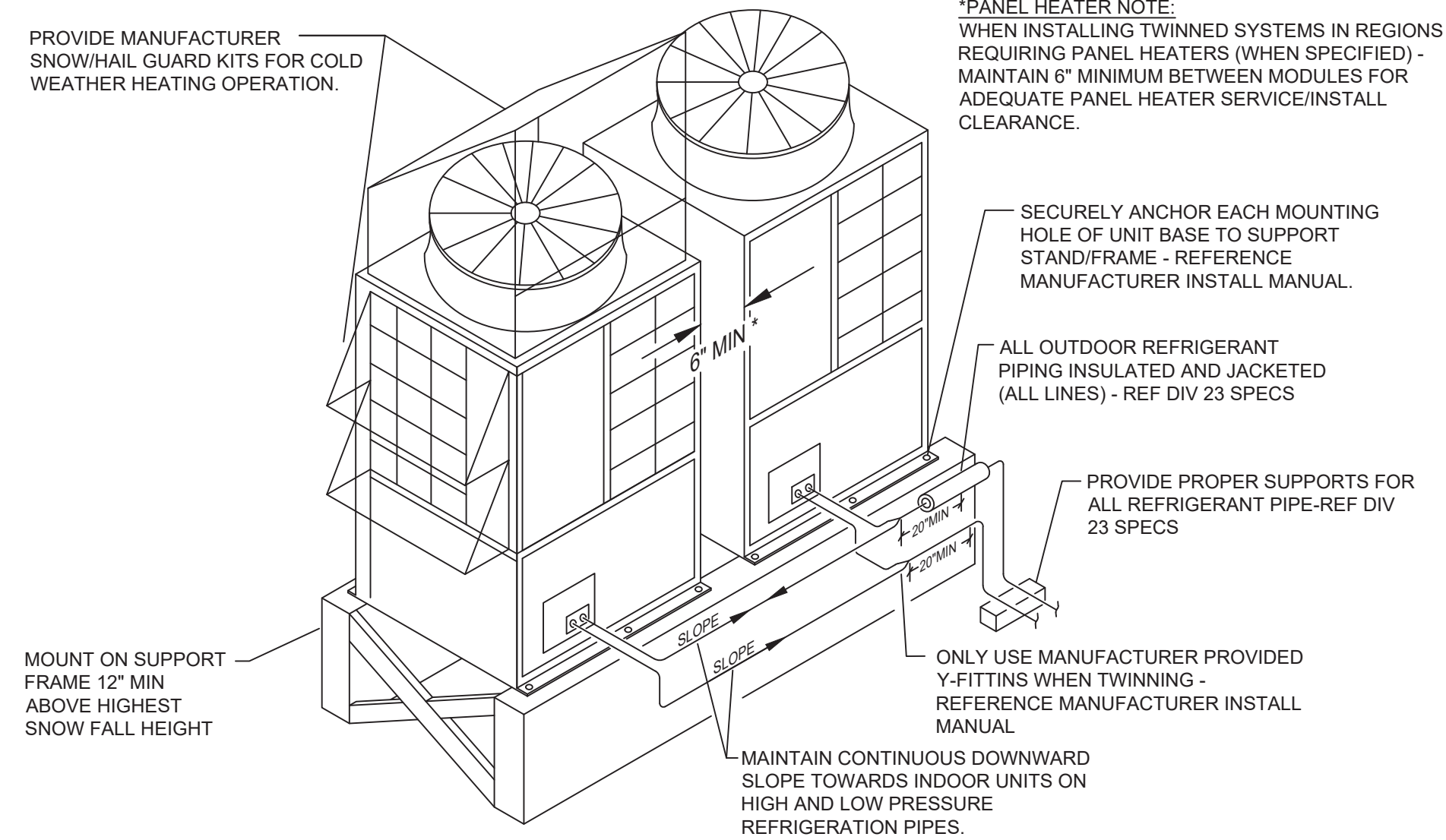
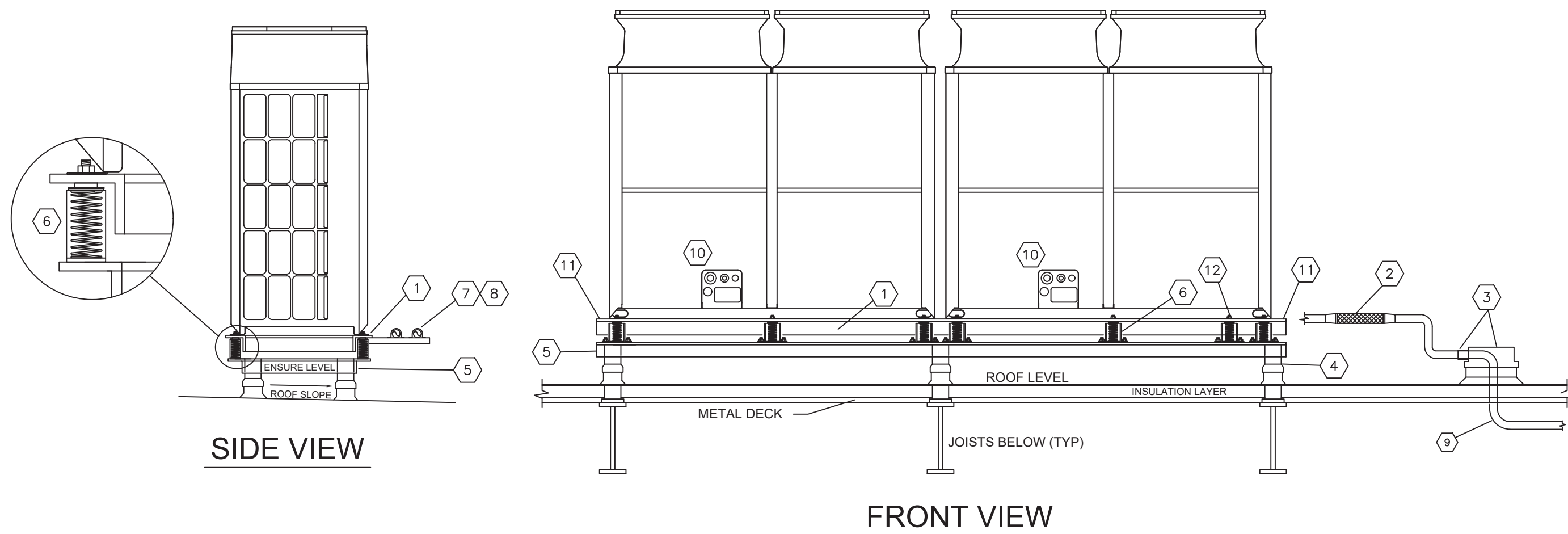
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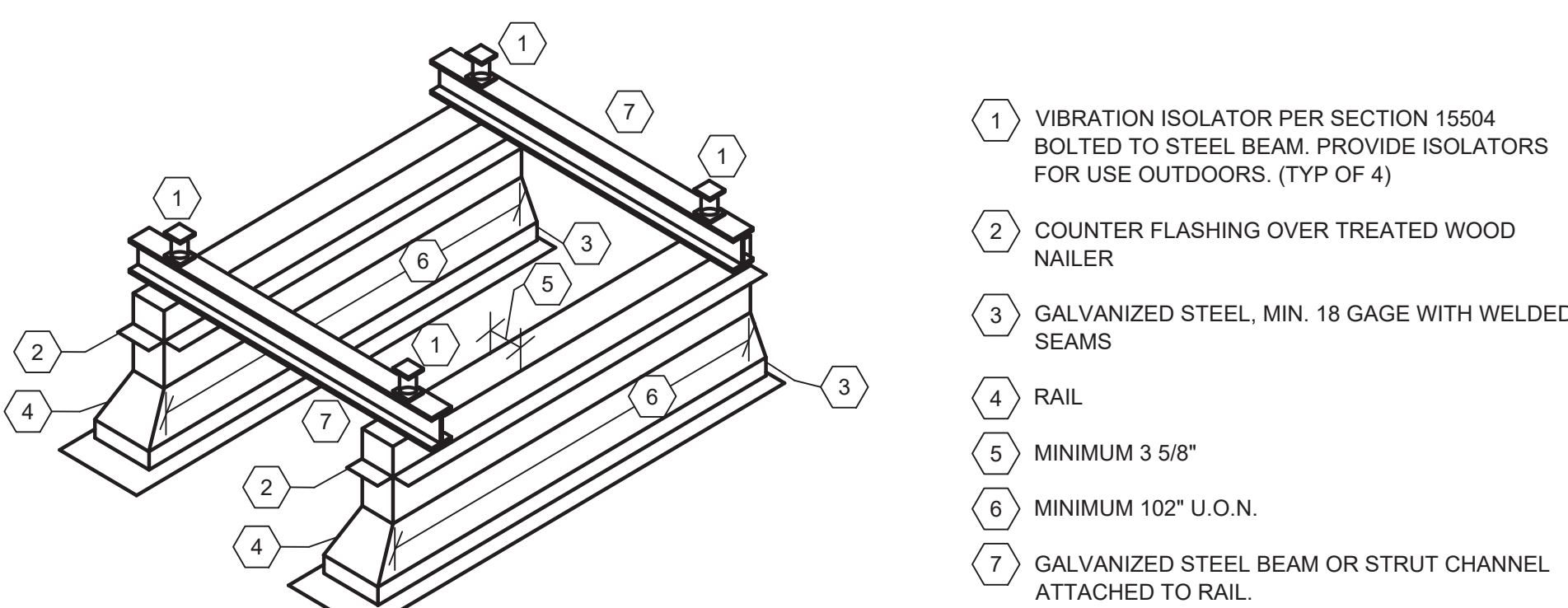
1 CEILING CASSETTE INSTALLATION DETAIL

SCALE: N.T.S.



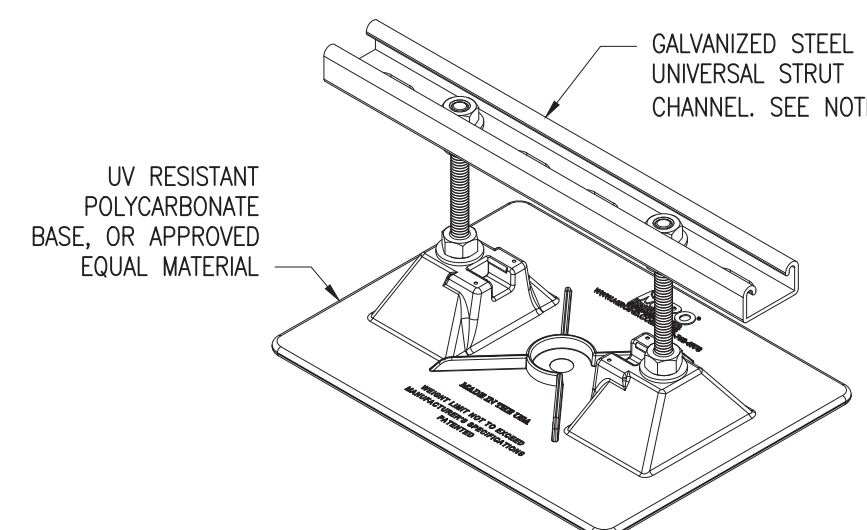
2 ACCU OUTDOOR UNIT TWINNING DETAIL

SCALE: N.T.S.



4 ACCU ROOFTOP SUPPORT RAIL DETAIL

SCALE: N.T.S.



- NOTES:
- MINIMUM SUPPORT SPACING SHALL BE AS FOLLOWS:
 - COPPER TUBE (1 1/4" AND SMALLER): 6'-0" O.C.
 - COPPER TUBE (1 1/2" AND LARGER): 10'-0" O.C.
 - PVC: 4'-0" O.C.
 - FOR SIZES AND MATERIALS NOT LISTED ABOVE, COMPLY WITH 2015 MCNYS 305.4.
 - VERIFY IN FIELD REQUIRED STRUT CHANNEL HEIGHT. SECURE PIPING TO CHANNEL USING CLAMP CONSTRUCTED OF COMPATIBLE MATERIAL.
 - BASIS OF DESIGN: MIRO IND. MODEL 2.5-CS.

5 SUPPORT FOR ROOFTOP CONDENSATE PIPING

SCALE: N.T.S.

3 ACCU OUTDOOR UNIT MOUNTING DETAIL

SCALE: N.T.S.

- CODED NOTES:
- PROVIDE STRUCTURAL INTERSTITIAL ANGLE IRON MOUNTING MEMBER OR SIMILAR ATTACHED DIRECTLY TO BOTTOM OF UNIT MOUNTING FLANGE AND PROVIDE CROSS BRACING FOR RIGIDITY. ENSURE IT CARRIES FULL MOUNTING FOOT WIDTH ON UNIT. FINAL SPECIFICATION OF MEMBER BY STRUCTURAL ENGINEER OF RECORD.
 - PROVIDE BRAIDED COPPER FLEXIBLE CONNECTOR, R410A RATED, 650PSI MAX WORKING PRESSURE, PACKLESS INDUSTRIES OR EQUAL ON ALL MAIN PIPING DOWNSTREAM OF TWINNING KITS/CONVERGING FITTINGS PRIOR TO PENETRATION THROUGH ROOF.
 - PIPE ROOF CURB, FLASHED AND SEALED WATER TIGHT, PROVIDE FLEXIBLE WATER TIGHT COLLAR TO ALLOW FOR MOVEMENT WHERE PIPE ENTERS CURB. DO NOT ENTER PIPE CURB FROM VERTICAL DIRECTION.
 - TYPICAL BASE SUPPORT POSTS, SECURELY ANCHORED TO BUILDING STRUCTURE BELOW, QUANTITY, SIZE, AND CARRYING CAPACITY DETERMINED BY STRUCTURAL ENGINEER OF RECORD.
 - STRUCTURAL ANGLE IRON BASE MOUNTING FRAME WITH CROSS MEMBERS FOR RIGIDITY - FINAL SIZING BY STRUCTURAL ENGINEER OF RECORD.
 - VIBRATION SPRING SLR TYPE ISOLATORS (MASON INDUSTRIES OR EQUIV.) WITH RUBBER BASE PADS, SECURELY FASTENED TO STRUCTURAL BASE AND TO VRF UNIT INTERSTITIAL SUPPORT STEEL. SPRING ISOLATOR TO PROVIDE MINIMUM 1" DEFLECTION OR 10 TIMES THE STATIC DEFLECTION OF THE ROOF DECK FROM EQUIPMENT WEIGHT - DETERMINED BY STRUCTURAL ENGINEER OF RECORD. AT A MINIMUM, PROVIDE SPRING ISOLATORS AT EACH EQUIPMENT BASE MOUNTING HOLE LOCATION.
 - IF REQUIRED, ONLY SUPPORT LATERAL PIPE EMANATING FROM VRF UNIT CONNECTIONS BY CROSS MEMBER SUPPORT THAT IS ATTACHED DIRECTLY TO VRF UNIT MOUNTING ANGLE IRON FRAME ABOVE SPRING ISOLATORS. DO NOT ATTACH ANY PIPING TO LOWER FIXED SUPPORT BASE.
 - USE NEOPRENE ISOLATION COLLARS ON PIPE CLAMS WHEN FASTENING PIPING TO SUPPORTS.
 - USE LONG RADIUS SWEEPING COPPER ACR TUBE PIPE BENDS WHERE PIPE ENTERS BUILDING AT FIRST ELBOW INTO CEILING SPACE TO MINIMIZE REFRIGERANT FLOW NOISE AND VIBRATION.
 - ALL ELECTRICAL CONNECTIONS TO UNITS TO BE VIA FLEXIBLE CONDUIT, PROVIDE SUFFICIENT SLACK TO ALLOW FOR UNIT MOVEMENT ON SPRING ISOLATORS.
 - ENSURE CROSS MEMBERS OF INTERSTITIAL FRAME AND BOTTOM SUPPORT FRAME ARE NOT DIRECTLY BELOW ENDS OF MODULES IN ALL LOCATIONS AND DO NOT BLOCK DRAINAGE WEEP HOLES IN BOTTOM OF UNIT CASING, FAILURE TO DO THIS MAY RESULT IN ICE DAMMING/BUILDUP BENEATH UNIT AND SUBSEQUENT BUILDUP OF ICE IN BOTTOM OF UNIT CASING BELOW COIL AND POTENTIAL DAMAGE TO BOTTOM OF COIL.
 - WHEN SELECTING SPRING ISOLATORS ALWAYS CONSIDER WEIGHT DISTRIBUTION BY REFERENCING EQUIPMENT WEIGHT AND CENTER OF GRAVITY. NEAR RIGHT ENDS OF UNITS (VIEWED FROM FRONT PANEL) SPRING WEIGHT CAPACITY MAY BE LARGER. IF HIGHER SPRING WEIGHT CAPACITY IS REQUIRED VS OTHER SPRING LOCATIONS, CONSIDER AN ADDITIONAL SPRING OF EQUAL "K" VALUE (lbs/in) NEAR RIGHT END OF LAST MODULE. IN GENERAL IT IS RECOMMENDED TO SELECT ALL MOUNTING SPRINGS OF EQUIVALENT "K" VALUE (lbs/in).

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IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

No.	Date	Revisions
1	03-04-25	BIDDING DOCUMENTS



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Checked by	EF
Project No.	43040
Scale	AS NOTED
Date	03-04-25

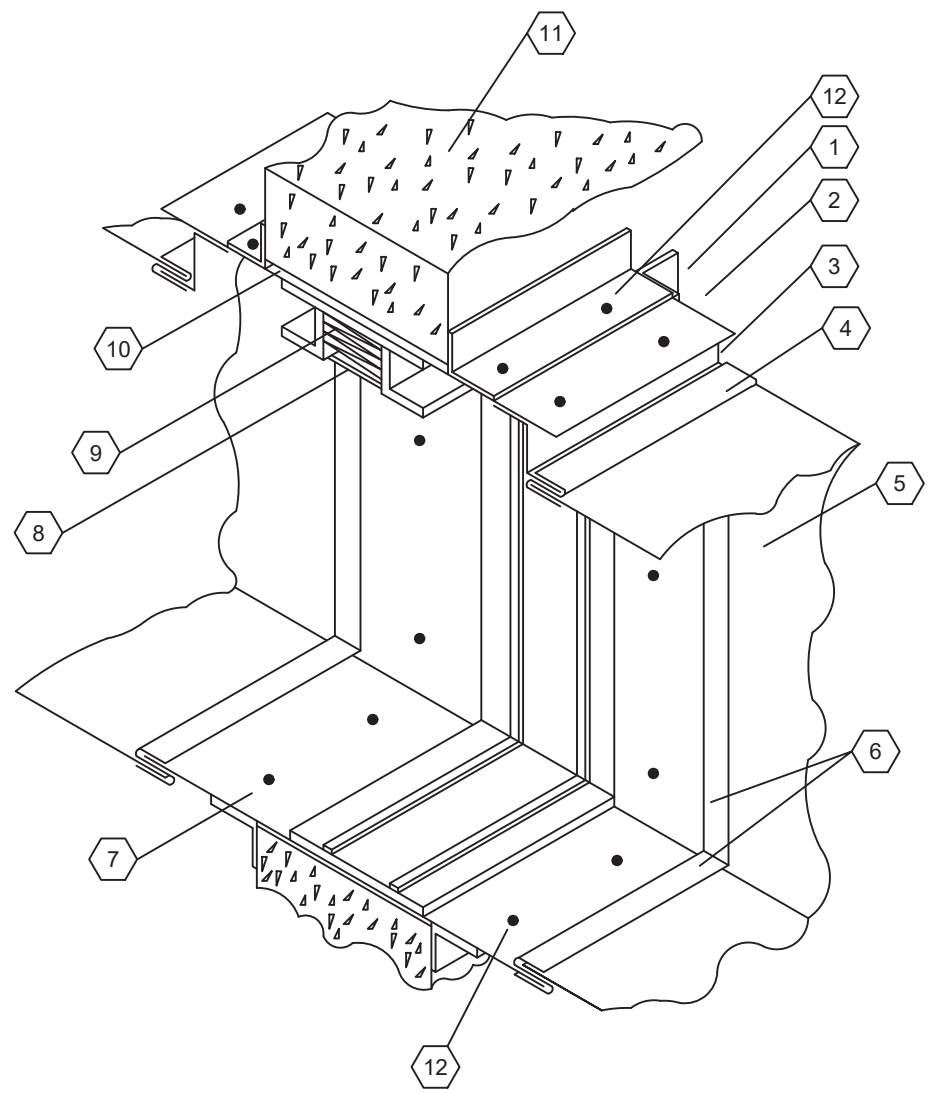
GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD SUFFERN, NY 10901 PROJ. NO. : MNY-5000127.00	GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD SUFFERN, NY 10901
Mechanical Structural Engineer:	Structural Engineer:

UNIVENT REPLACEMENT AT STONY POINT, THIELS, WEST HAV ELEMENTARY SCHOOL SDD# 50-02-01-06-0-014-XXX SDD# 50-02-01-06-0-025-XXX SDD# 50-02-01-06-0-024-XXX NY, NJ, AND CT ARE REGISTERED IN NY

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Drawing Title MECHANICAL DETAILS - 3	Drawing No. M-503
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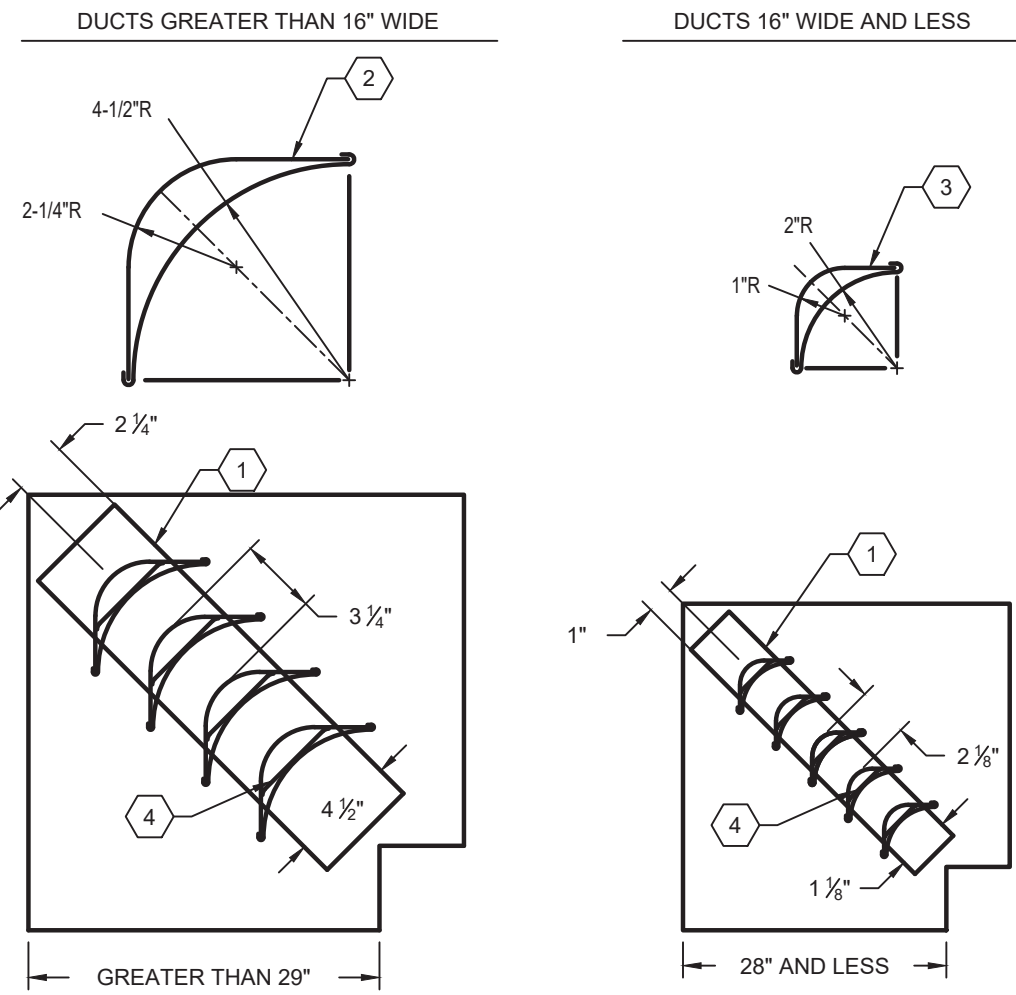


- 1 RETAINING ANGLE
- 2 STEEL SLEEVE
- 3 COLLAR EXTENSION
- 4 "S" SLIP BREAKAWAY CONNECTION
- 5 SHEET METAL DUCT
- 6 "S" SLIP CONNECTION
- 7 TYPICAL SLEEVE ATTACHMENT TO RETAINING ANGLE
- 8 FUSIBLE LINK
- 9 CURTAIN TYPE BLADES
- 10 CLEARANCE FOR EXPANSION
- 11 RATED SEPARATION
- 12 RETAINING ANGLE FASTENERS. (FASTENERS SPACED 8" APART) (MINIMUM 2 FASTENERS ON ALL 4 SIDES)

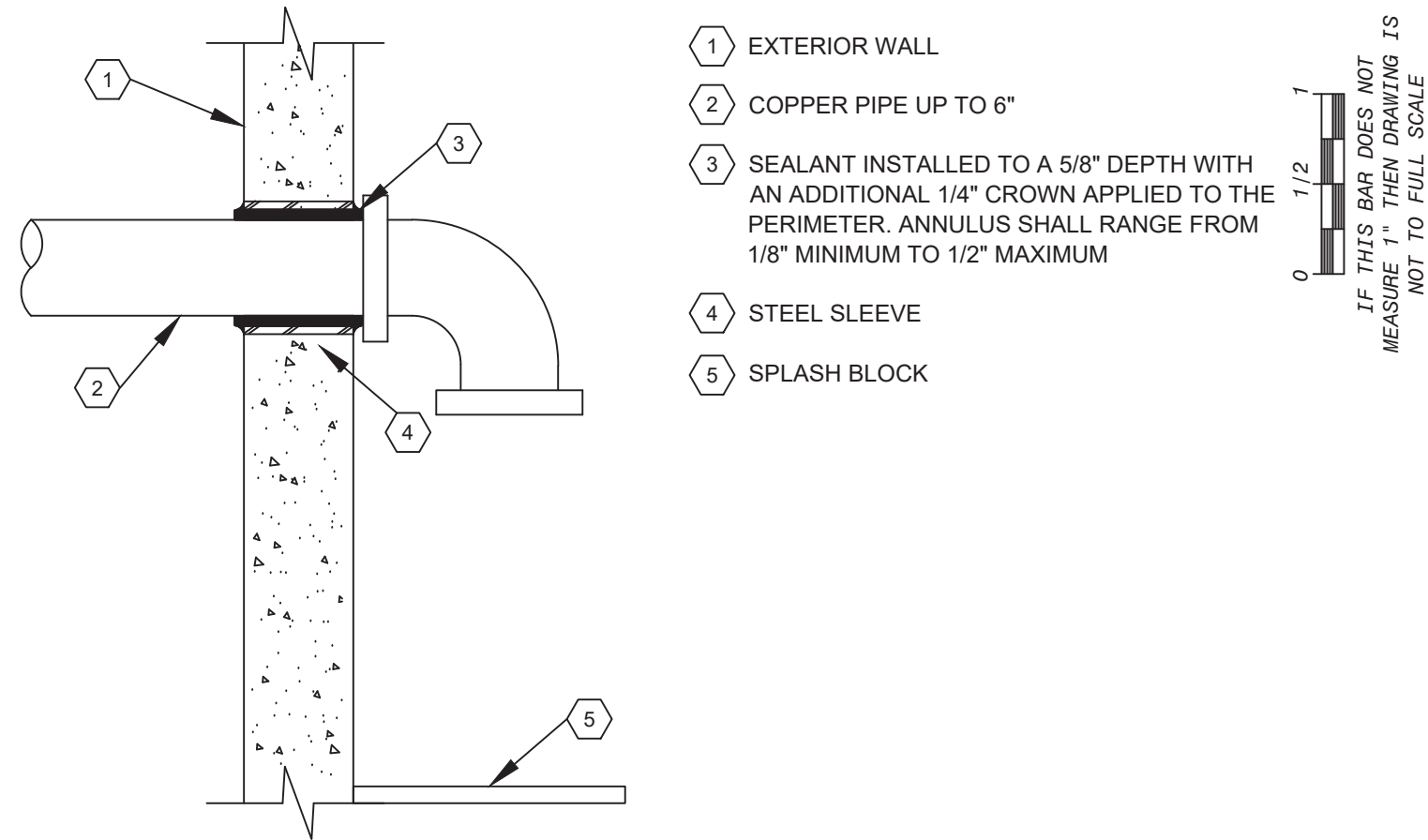
NOTES:
REFER TO SMACNA FIRE DAMPER GUIDE FOR CONSTRUCTION DETAILS

DAMPERS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURES PRINTED INSTRUCTIONS

PROVIDE DUCT ACCESS DOOR MINIMUM 16"X16" OR DUCT WIDTH BY 16" AT EACH FIRE DAMPER. LABEL EACH DOOR WITH 1/2" TALL LETTERS "FD". POSITION ACCESS DOOR TO PROVIDE SERVICE ACCESS OF THE FIRE DAMPER TO INCLUDE FUSIBLE LINK REPLACEMENT.



- 1 22 GA VANE RUNNER BOLTED, SCREWED OR WELDED TO DUCT
- 2 LARGE DOUBLE VANE, MIN 34 GA, 72" MAX UNSUPPORTED VANE LENGTH
- 3 SMALL DOUBLE VANE, MIN 28 GA, 48" MAX UNSUPPORTED VANE LENGTH
- 4 TURNING VANE MOUNTED ON EACH TAB OF RUNNER. EVERY RUNNER TAB MUST RECEIVE A TURNING VANE.



- 1 EXTERIOR WALL
- 2 COPPER PIPE UP TO 6"
- 3 SEALANT INSTALLED TO A 5/8" DEPTH WITH AN ADDITIONAL 1/4" CROWN APPLIED TO THE PERIMETER. ANNULUS SHALL RANGE FROM 1/8" MINIMUM TO 1/2" MAXIMUM
- 4 STEEL SLEEVE
- 5 SPLASH BLOCK

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

7 METALLIC PIPING THROUGH EXTERIOR WALL

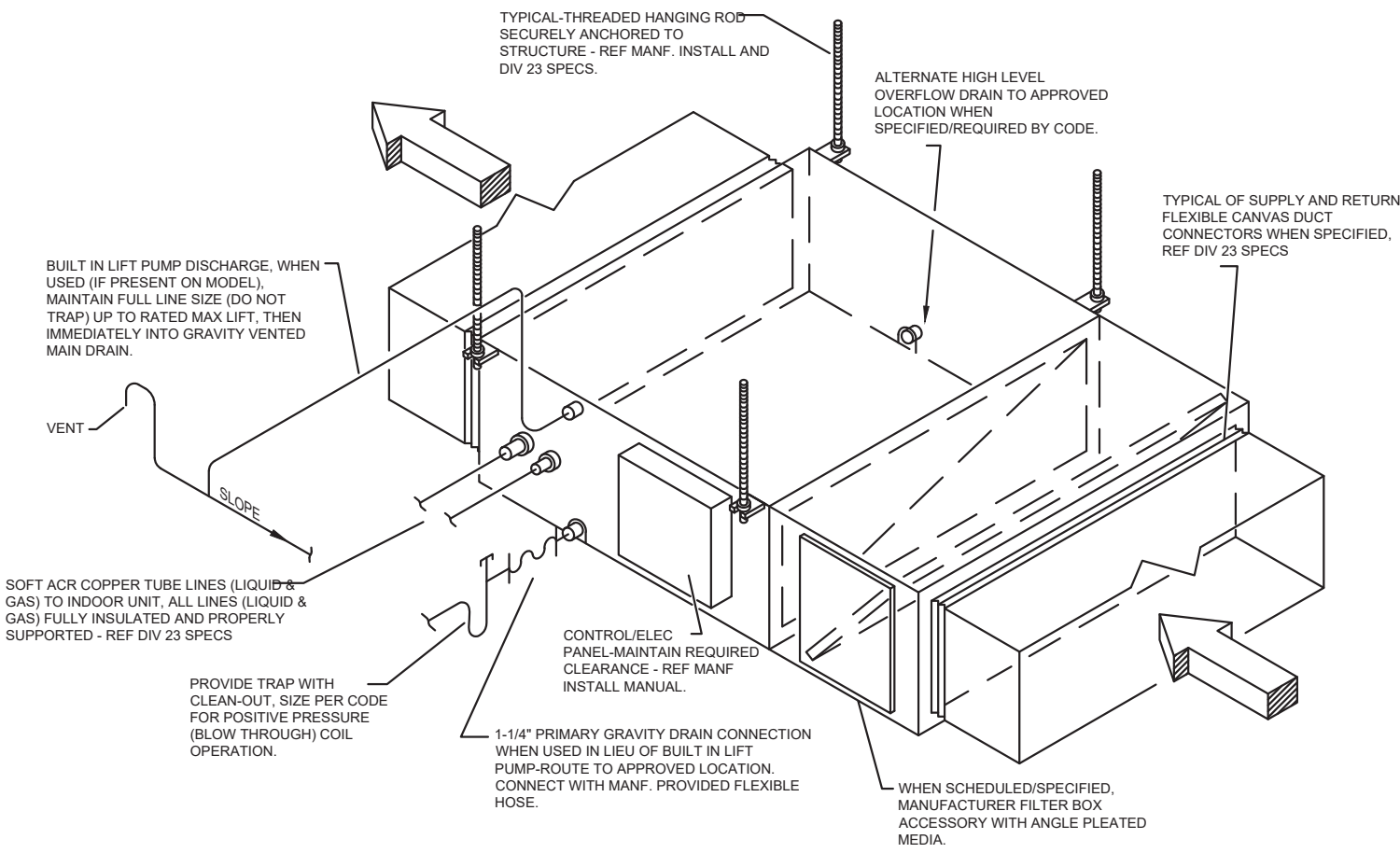
SCALE: N.T.S.

1 TYPE B DAMPER AT WALL PENETRATION

SCALE: N.T.S.

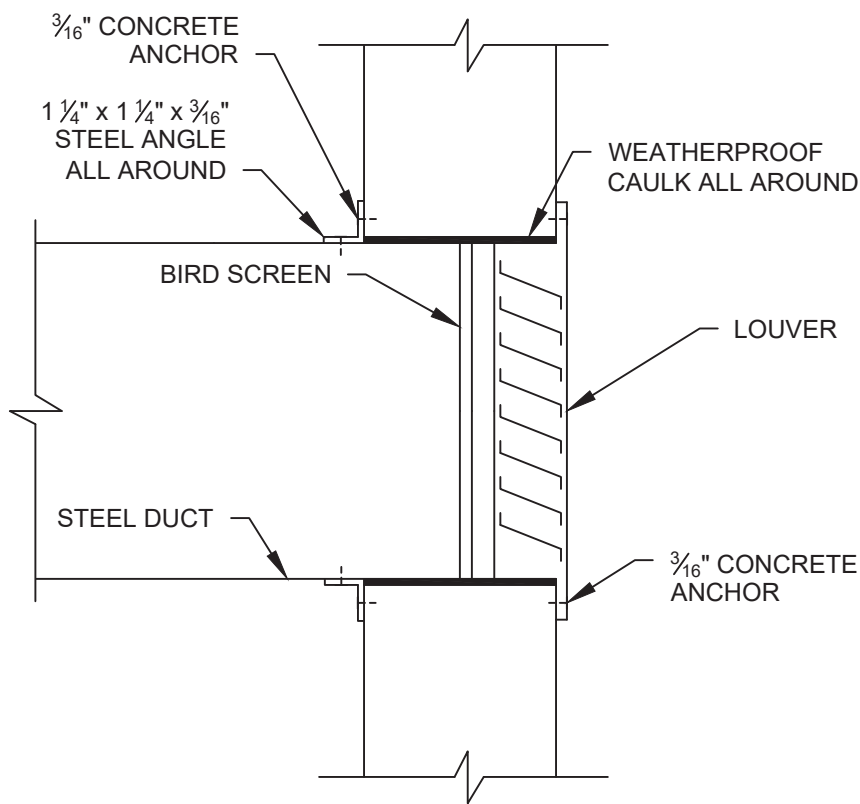
2 DUCT ELBOW WITH TURNING VANES

SCALE: N.T.S.



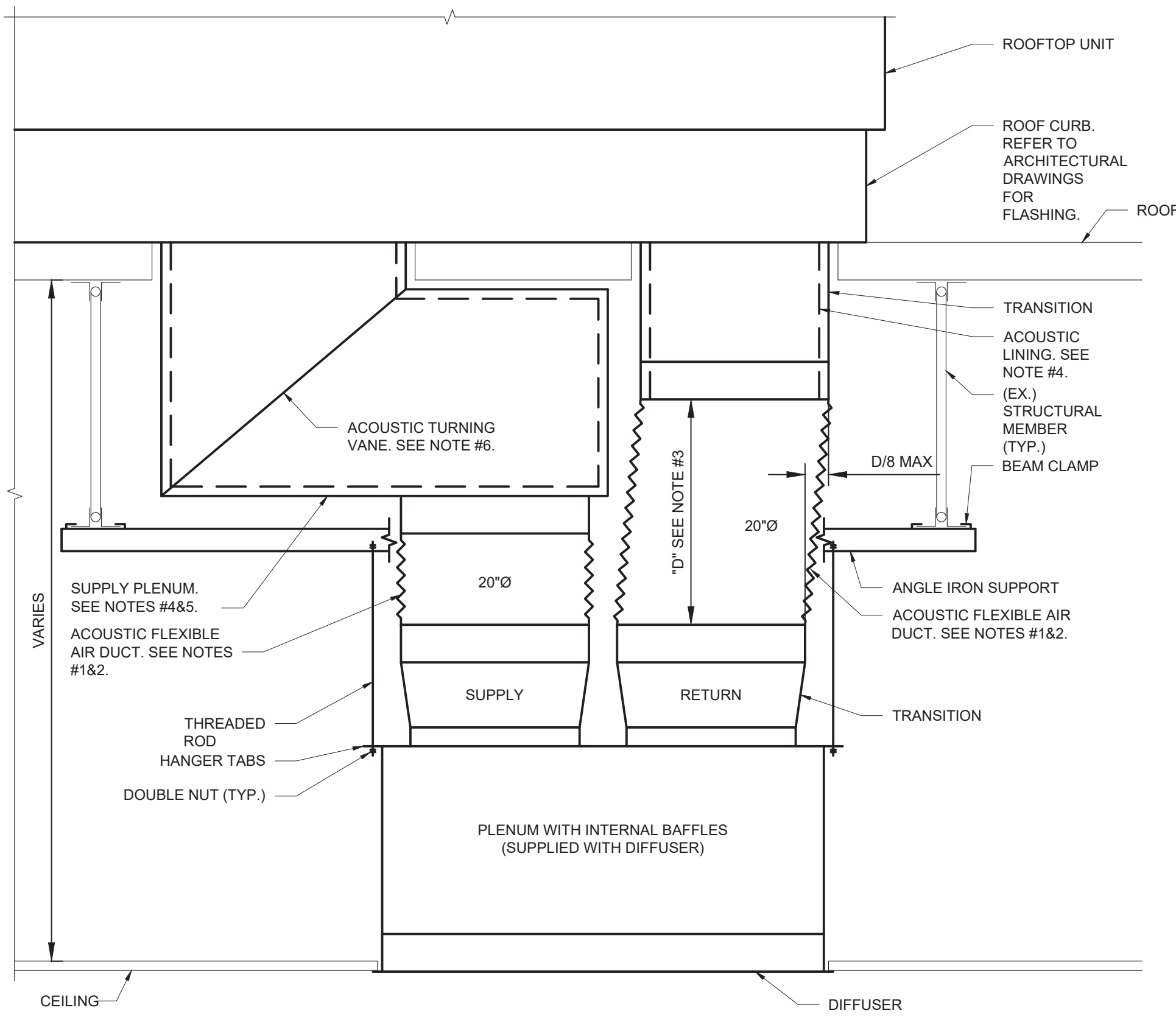
4 OUTSIDE AIR UNIT INSTALLATION DETAIL

SCALE: N.T.S.



5 LOUVER WITH BIRDSCREEN DETAIL

SCALE: N.T.S.



- NOTES:
1. PROVIDE A UL LISTED ACOUSTIC FLEXIBLE AIR DUCT FACTORY COMPOSED OF A RESILIENT CALENDERED FILM LINER DUCT PERMANENTLY BONDED TO A COATED SPRING STEEL WIRE HELIX AND SUPPORTING A FIBERGLASS INSULATING BLANKET WITH LOW PERMEABILITY OUTER VAPOR BARRIER OF FIBERGLASS REINFORCED FILM LAMINATE. DUCT SHALL BE 24"Ø UNLESS OTHERWISE NOTED ON THE PLANS. BASIS OF DESIGN, THERMAFLEX M-KE.
 2. MAXIMUM OFFSET FOR FLEXIBLE DUCT SHALL BE 1/8 OF ITS INSTALLED LENGTH. USE ROUND, LONG RADIUS GALVANIZED STEEL ELBOWS IF A GREATER OFFSET IS REQUIRED. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
 3. FLEXIBLE DUCT SHALL BE LIMITED TO 5 FEET IN LENGTH.
 4. DUCT SHALL BE INTERNALLY LINED WITH 1" THICK ACOUSTIC FIBERGLASS DUCT LINER (JOHNS MANVILLE LINACOUSTIC RC-HP OR EQUAL).
 5. CLEAR INSIDE DIMENSIONS OF SUPPLY PLENUM SHALL BE 24"X24" MINIMUM.
 6. PROVIDE 4" DOUBLE WALL ACOUSTIC TURNING VANES WHERE SHOWN (DUCTMATE 4AVGA24 OR EQUAL).

6 CONCENTRIC DIFFUSER RTU 3-6 DETAIL

SCALE: NONE

No.	Date	Revisions
1	03-04-25	BIDDING DOCUMENTS



Drawn by	VF /AW
Checked by	EF
Project No.	43040
Scale	AS NOTED
Date	03-04-25

GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD ROCKY HILL, CT 06067 TEL: 860-261-1100 FAX: 860-261-1101 WWW.GPM-ARCHITECTS.COM	GREENMAN PEDERSEN, INC 2 EXECUTIVE BOULEVARD ROCKY HILL, CT 06067 TEL: 860-261-1100 FAX: 860-261-1101 WWW.GPM-ARCHITECTS.COM
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UNIVENT REPLACEMENT AT STONY POINT, THIELS, WEST HAVEN, CT ELEMENTARY SCHOOL SED# 50-02-01-06-0-014-XXX SED# 50-02-01-06-0-025-XXX SED# 50-02-01-06-0-024-XXX TEL: 860-261-1100 FAX: 860-261-1101 WWW.GPM-ARCHITECTS.COM
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MECHANICAL DETAILS - 4 -	M-504
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