

GENERAL DEMOLITION NOTES

- OWNER SHALL HAVE FIRST CLAIM TO ALL REMOVED EQUIPMENT, REFRIGERANTS AND MATERIALS.
- ALL EXISTING DUCTWORK, PIPING, FITTINGS, HANGERS, EQUIPMENT, APPURTENANCES, AND SUPPORTS MADE OBSOLETE BY THIS PROJECT SHALL BE REMOVED AND LEGALLY DISPOSED OFF SITE. THIS CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MEANS OF DISPOSAL - ALL METAL SHALL BE SEPARATED AND RECYCLED.
- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REMOVALS REQUIRED FOR THE INSTALLATION OF NEW WORK, WHETHER OR NOT IT IS SPECIFICALLY INDICATED OR NOTED IN THESE DOCUMENTS.
- ON DEMOLITION DRAWINGS, ALL EQUIPMENT AND PIPING SHOWN BOLD, DASHED, HATCHED OR MARKED WITH AN "X" SHALL BE REMOVED. REFER TO SPECIFIC DEMOLITION NOTES FOR ADDITIONAL DETAILS.
- GENERAL TRADES CONTRACTOR IS RESPONSIBLE FOR PATCHING AND SEALING ALL FLOOR, ROOF AND EXTERIOR WALL PENETRATIONS ABANDONED DUE TO DEMOLITION OF DUCT, PIPE OR EQUIPMENT.
- REFER TO ARCHITECTURAL, ELECTRICAL, PLUMBING AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION RELATED TO MECHANICAL EQUIPMENT DEMOLITION.
- EVAQUATE AND DISPOSE OF ALL REFRIGERANTS PER LOCAL, STATE AND FEDERAL CODES AND PROCEDURES PRIOR TO DEMOLITION OF ANY EQUIPMENT CONTAINING REFRIGERANTS.

GENERAL CONTROLS NOTES

- ALL PUBLIC SPACE THERMOSTATS AND SENSORS SHALL BE PROVIDED WITH A CLEAR, LOCKABLE ENCLOSURE. COORDINATE THERMOSTAT AND SENSOR LOCATIONS WITH ALL OTHER TRADES.
- COORDINATE THERMOSTAT LOCATIONS REQUIRING LOCKABLE COVERS WITH OWNER.
- AMBIENT O/A TEMP, RH, PRESSURE AND CO2 SENSOR LOCATIONS SHALL BE APPROVED BY ENGINEER.
- COORDINATE LOCATIONS OF TEMPERATURE SENSORS AND/OR THERMOSTATS WITH ALL ELECTRICAL SWITCHES AND OCCUPANCY SENSORS. MOUNT ALL SENSORS AND/OR THERMOSTATS AT 48" AFF. MOUNTING HEIGHT IS TO CENTERLINE.

GENERAL PIPING NOTES

REFRIGERANT PIPING

- REFRIGERANT PIPING SHALL BE COPPER WITH BRAZED JOINTS OR PRE-MANUFACTURED, PRE-INSULATED COPPER TUBE REFRIGERANT LINESETS WITH BRAZED JOINTS OR BRASS FITTINGS.
- SIZE, ROUTE AND INSTALL ALL REFRIGERANT PIPING PER THE MANUFACTURER'S WRITTEN RECOMMENDATIONS AND REQUIREMENTS.
- ALL REFRIGERANT PIPING SHALL BE INSULATED WITH ELASTOMERIC FOAM INSULATION - SEE SPECIFICATIONS. OUTDOOR, EXPOSED, ELASTOMERIC REFRIGERANT PIPING INSULATION SHALL HAVE METAL JACKET APPLIED.

CONDENSATE DRAIN PIPING

- ALL CONDENSATE DRAIN PIPING SHALL COPPER PITCHED AT MIN. 1%.
- TRAP ALL AIR HANDLING UNIT CONDENSATE PIPING AS SHOWN IN THE MECHANICAL DETAILS.

GENERAL CONSTRUCTION NOTES

- READ ALL SPECIFICATIONS FOR REQUIREMENTS PERTAINING TO THESE DOCUMENTS.
- THIS CONTRACTOR IS REQUIRED TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH THE LOCATION OF EQUIPMENT, DUCTWORK, PIPING AND STRUCTURES PRIOR TO SUBMITTING THEIR BID.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THIS WORK WITH ALL OTHER TRADES ASSOCIATED WITH THIS PROJECT.
- DRAWINGS ARE DIAGRAMMATIC; THEREFORE, DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN THE FIELD.
- ALL NEW BUILDING PENETRATIONS SHALL BE FLASHED AND SEALED PER THE SPECIFICATION REQUIREMENTS.
- THIS CONTRACTOR IS RESPONSIBLE FOR LOCATION AND COORDINATION OF ALL APPLICABLE BELOW AND ABOVE GROUND UTILITIES, PIPING AND EQUIPMENT.
- THIS CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION AND CLEANLINESS OF EXISTING AND ADJACENT STRUCTURES, FACILITIES AND EQUIPMENT DURING CONSTRUCTION.
- ALL WORK SHALL BE PERFORMED IN A NEAT, PROFESSIONAL AND SAFE MANNER, AND SHALL COMPLY WITH LOCAL, STATE AND NATIONAL CODES.
- DURING CONSTRUCTION, ALL PIPING AND DUCTWORK SHALL BE SEALED ON THE ENDS TO PREVENT DUST AND DEBRIS FROM ENTERING THE PIPING BETWEEN PHASES. SEALING SHALL INVOLVE A PLASTIC FILM COVERING WITH AN ELASTIC BAND TO RESTRAIN COVER.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE INSTALLATION OF ALL NEW EQUIPMENT, DUCTWORK AND PIPING REQUIRED PRIOR TO THE DEMOLITION AND REMOVAL OF EXISTING.
- MOUNTING HEIGHTS INDICATED FOR WALL MOUNTED EQUIPMENT IS TO EQUIPMENT CENTERLINE, UNLESS NOTED OTHERWISE.
- AT ALL TIMES, THIS CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONDITIONS OF THE JOBSITE, INCLUDING MEANS AND METHODS OF CONSTRUCTION AND SAFETY OF PERSONS AND PROPERTY. GENERAL HOUSEKEEPING OF ALL JOB SITE AREAS SHALL BE PERFORMED DAILY.
- REFER TO CONTRACT SCOPE DOCUMENTS FOR ADDITIONAL INFORMATION AND SCOPE DEFINITION. PRIME CONTRACTOR'S BID SHALL PROVIDE COMPLETE AND WORKABLE SYSTEM.

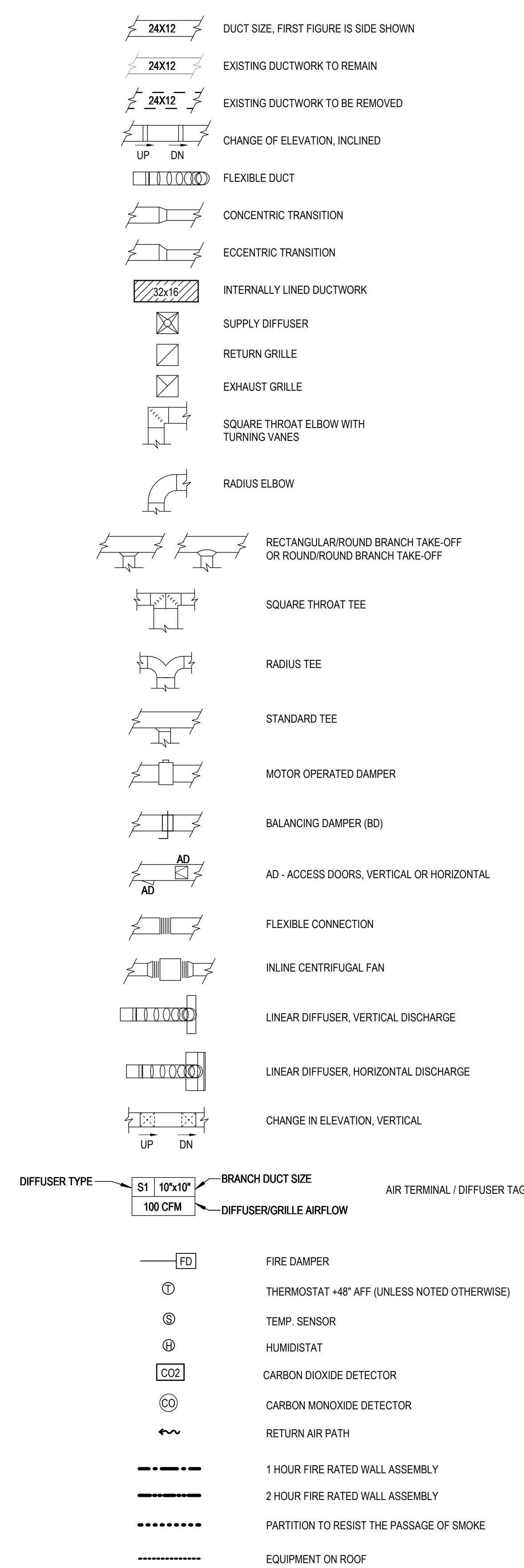
GENERAL MECHANICAL NOTES

- ALL DUCTWORK, PIPING AND EQUIPMENT SHALL BE IDENTIFIED PER THE SPECIFICATIONS.
- CONTRACTOR SHALL COORDINATE WORK WITH ALL OTHER TRADES. LOCATE ALL DUCTWORK, PIPING, AND EQUIPMENT AS TO MAINTAIN ACCESS TO FILTERS, CONTROL CABINETS AND MECHANICAL EQUIPMENT.
- SEE ARCHITECTURAL DRAWINGS FOR GRAPHIC SYMBOL, EXPLANATION OF FIRE RATINGS. PROVIDE THROUGH PENETRATION FIRE STOP SYSTEMS FOR RATED WALL PENETRATIONS. SEE SPECIFICATIONS SECTION 078413 FOR REQUIREMENTS.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR FINAL DIFFUSER LOCATIONS. COORDINATE ANY CONFLICTS WITH THE ARCHITECT.
- FURNISH CEILING AND WALL ACCESS PANELS FOR ACCESS TO ALL CONCEALED DEVICES FOR INSTALLATION BY THE GENERAL TRADES CONTRACTOR.
- WORK SCOPE INCLUDES BALANCING OF ALL AIR SYSTEM TO CFM 'S INDICATED ON THE PLANS AND IN THE EQUIPMENT SCHEDULES.
- COORDINATE LOCATIONS OF THERMOSTATS OR TEMPERATURE SENSORS WITH OCCUPANCY SENSORS.
- WORK SCOPE INCLUDES PROVIDING EXTERNAL INSULATION FOR ALL SUPPLY, RETURN, OUTDOOR, TRANSFER AND RELIEF AIR DUCTS. REFER TO SPECIFICATIONS FOR INSULATION REQUIREMENTS.
- HIGH-EFFICIENCY BRANCH CONNECTIONS TO VAV AND FRP TERMINAL UNITS ARE REQUIRED. SPIN-IN FITTINGS NOT ACCEPTABLE. SEE DETAILS.
- PROVIDE MINIMUM FOUR DUCT DIAMETERS OF STRAIGHT DUCT UPSTREAM OF VAV, FRP TERMINAL BOXES, AND VVT ZONE DAMPERS, REGARDLESS OF WHETHER SHOWN ON THE PLANS OR NOT.
- DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS. PROVIDE INTERNALLY LINED DUCTWORK AS NOTED ON PLANS. SEAL AND SECURE ALL EDGES OF LINER EXPOSED TO AIR STREAM. FOR ALL DUCTS TO BE INTERNALLY LINED, ADJUST CONSTRUCTED SHEETMETAL DIMENSIONS ACCORDINGLY.
- NO NEW EQUIPMENT, DUCTWORK, PIPING, ACCESSORIES, OR WIRING SHALL BE INSTALLED AND SUPPORTED BY OR HUNG FROM ANY COMPONENTS OF THE FIRE PROTECTION SYSTEM OR ROOF DECK.
- ALL DUCTWORK TERMINATING WITHIN A SPACE, NOT INDICATED TO HAVE A GRILLE OR TO BE CAPPED, SHALL BE TERMINATED WITH A METAL FRAME AND 1" x 1" WIRE MESH SCREEN APPROVED BY ENGINEER.
- PROVIDE DUCT MOUNTED MANUAL VOLUME DAMPER FOR EACH DIFFUSER (U.N.O.). LOCATE DAMPER AS FAR FROM DIFFUSER AS POSSIBLE WHILE ENSURING DAMPER ACCESSIBILITY.
- INSTALL DUCT SMOKE DETECTORS FURNISHED BY DIVISION 26.
- PROVIDE ACOUSTICAL SEALANT ON ALL DUCTS, PIPES, ETC. THAT PENETRATE ACOUSTICALLY RATED WALLS.
- PROVIDE 1" OF DUCT LINING FOR ALL TRANSFER DUCTWORK FOR SOUND ATTENUATION.

APPLICABLE CODES AND STANDARDS

- 2021 VIRGINIA BUILDING CODE
- 2021 VIRGINIA EXISTING BUILDING CODE
- 2021 VIRGINIA MECHANICAL CODE
- 2021 VIRGINIA ENERGY CONSERVATION CODE
- 2016 ASHRAE STANDARD 90.1 (ENERGY STANDARD)
- 2016 ASHRAE STANDARD 62.1 (VENTILATION STANDARD)
- SMACNA STANDARDS FOR SHEETMETAL DUCTWORK AND FITTINGS

DUCT SYMBOLS LEGEND



ABBREVIATIONS

- AFF ABOVE FINISHED FLOOR
- BD BALANCING DAMPER
- BV BALL VALVE
- C CONDENSATE DRAIN
- CL CENTER LINE
- CO CARBON MONOXIDE
- CO2 CARBON DIOXIDE
- DN DOWN
- EX EXHAUST
- MCD MOTOR OPERATED DAMPER
- OA OUTSIDE AIR
- RA RETURN AIR
- RF RELIEF AIR
- SA SUPPLY AIR
- TA TRANSFER AIR
- TOD TOP OF DUCT
- U.N.O. UNLESS NOTED OTHERWISE
- VFD VARIABLE FREQUENCY DRIVE
- WMS WIRE MESH SCREEN
- R REFRIGERANT LINES

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COMMONWEALTH OF VIRGINIA
 JAMES W. LOWERY
 Lic. No. 402082255
 PROFESSIONAL ENGINEER
 03/27/2026

#	DESCRIPTION	DATE
1	BID / PERMIT	3/27/2026

RENOVATION AND EXPANSION TO
 ROANOKE COUNTY PUBLIC LIBRARY
HOLLINS LIBRARY
 6624 PETERS CREEK RD., ROANOKE VA 24019

PROJECT NO:
22017

ISSUED DATE:
MARCH 27, 2026

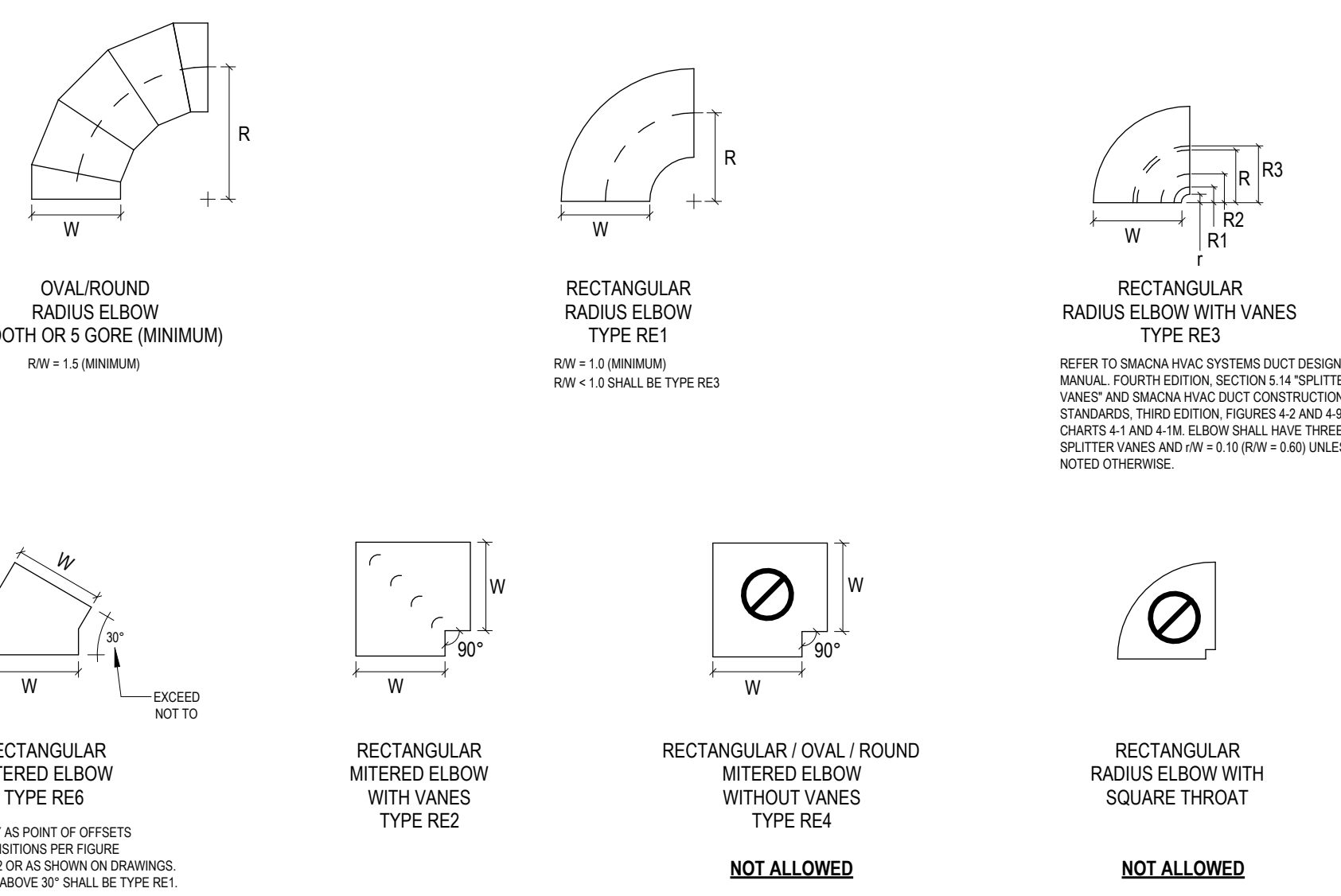
SCALE:
As indicated

HVAC
SYMBOLS,
LEGEND AND
GENERAL
NOTES

M0.00

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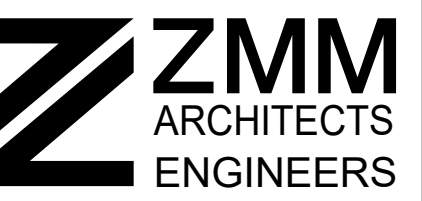
- NOTES:**
- BEAD, CROSSBREAK AND REINFORCE FLAT SURFACES AS IN STRAIGHT DUCT.
 - REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - DEFAULT ELBOW SHALL BE "RE1".
 - ELBOW TYPES SHALL BE INSTALLED AS SHOWN AND NOT BE SUBSTITUTED WITHOUT PERMISSION. EXCEPTION: RE1 OR RE3 MAY BE SUBSTITUTED FOR RE2.

1 ELBOW CONSTRUCTION
 NO SCALE

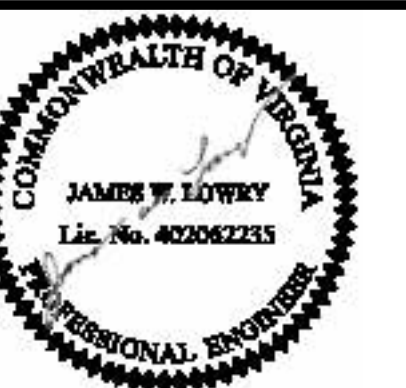
NOTE: SOME NOTES AND SYMBOLS ON THIS SHEET MAY NOT PERTAIN TO THIS PROJECT

KEYED NOTES

1 CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ROUTINGS OF EXISTING DUCTWORK. DEMOLISH EXISTING DIFFUSERS, FLEXIBLE AND HARD DUCTWORK.

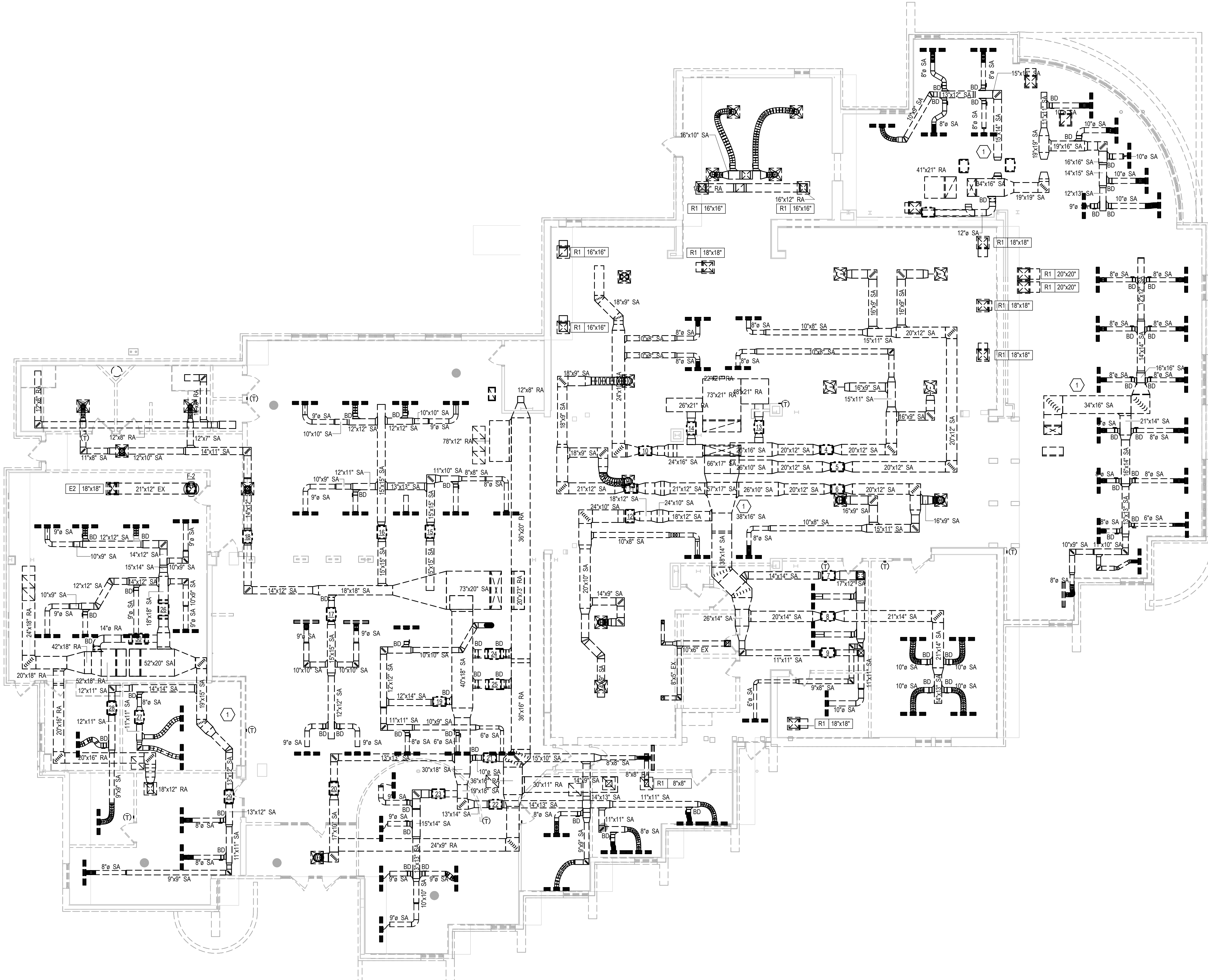


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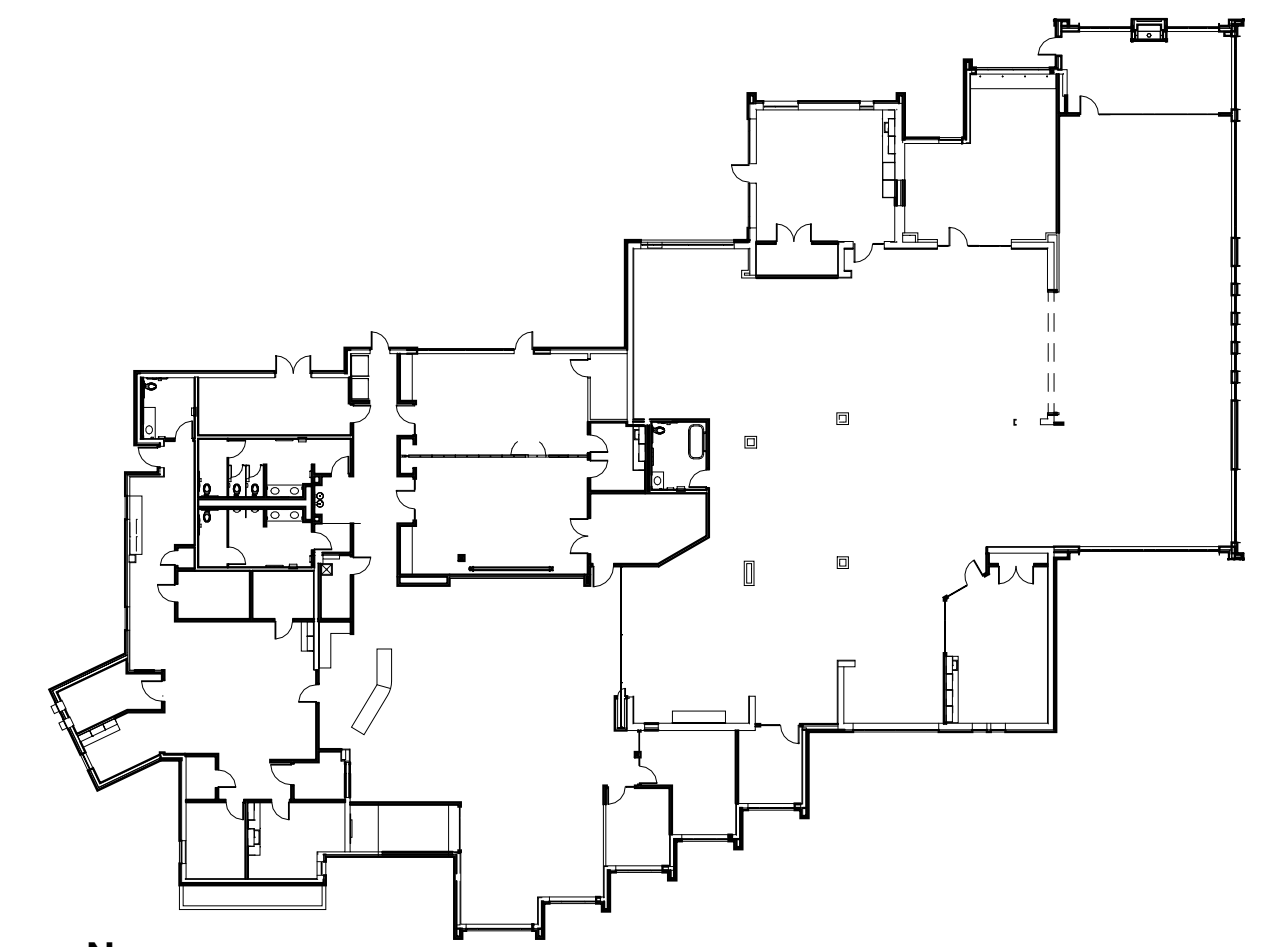
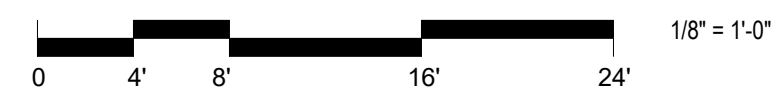


03/27/2026

#	DATE	DESCRIPTION
1	3/27/2026	BID / PERMIT



HVAC DEMOLITION PLAN



KEY PLAN
NOT TO SCALE

RENOVATION AND EXPANSION TO
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HOLLINS LIBRARY
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HVAC
DEMOLITION
PLAN

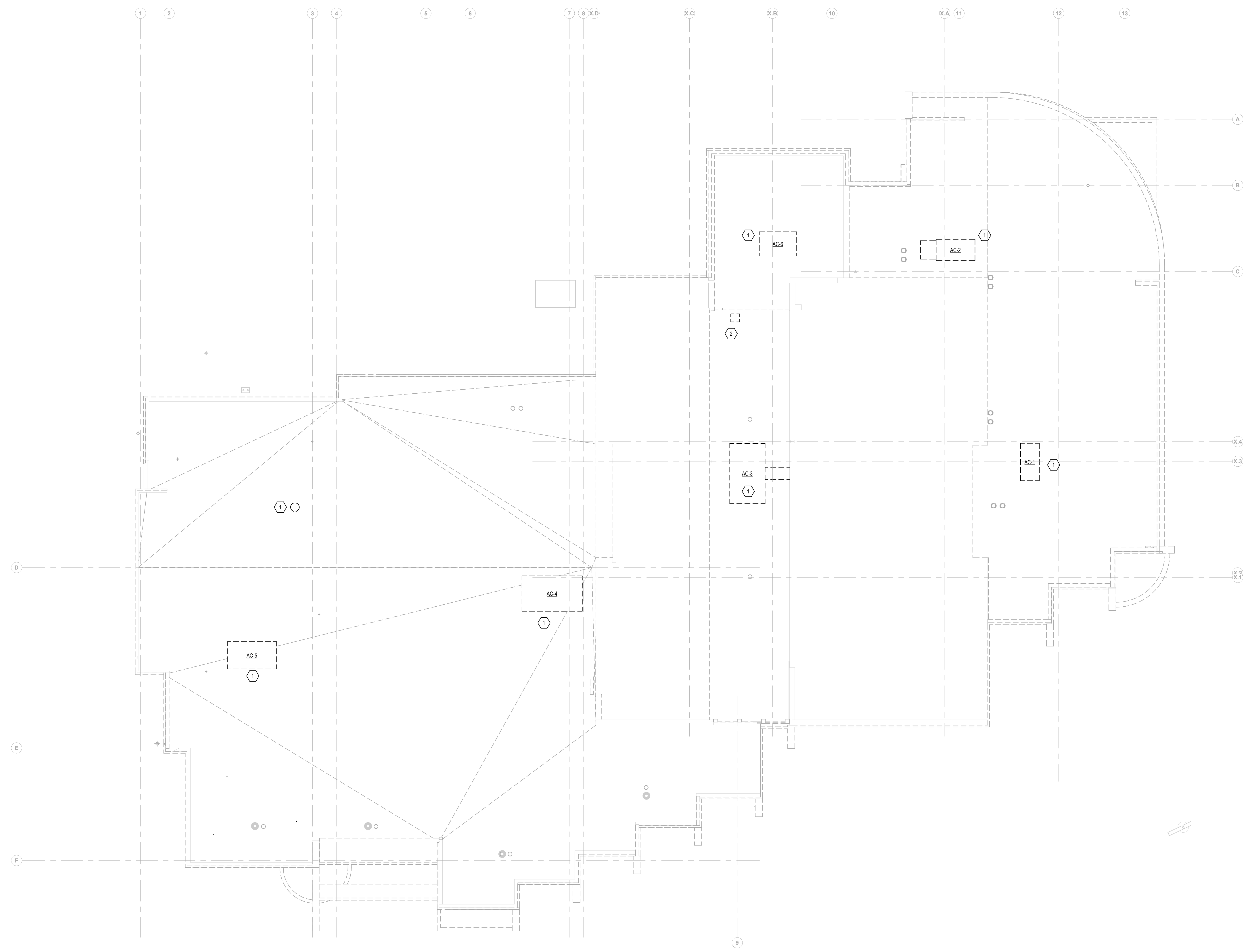
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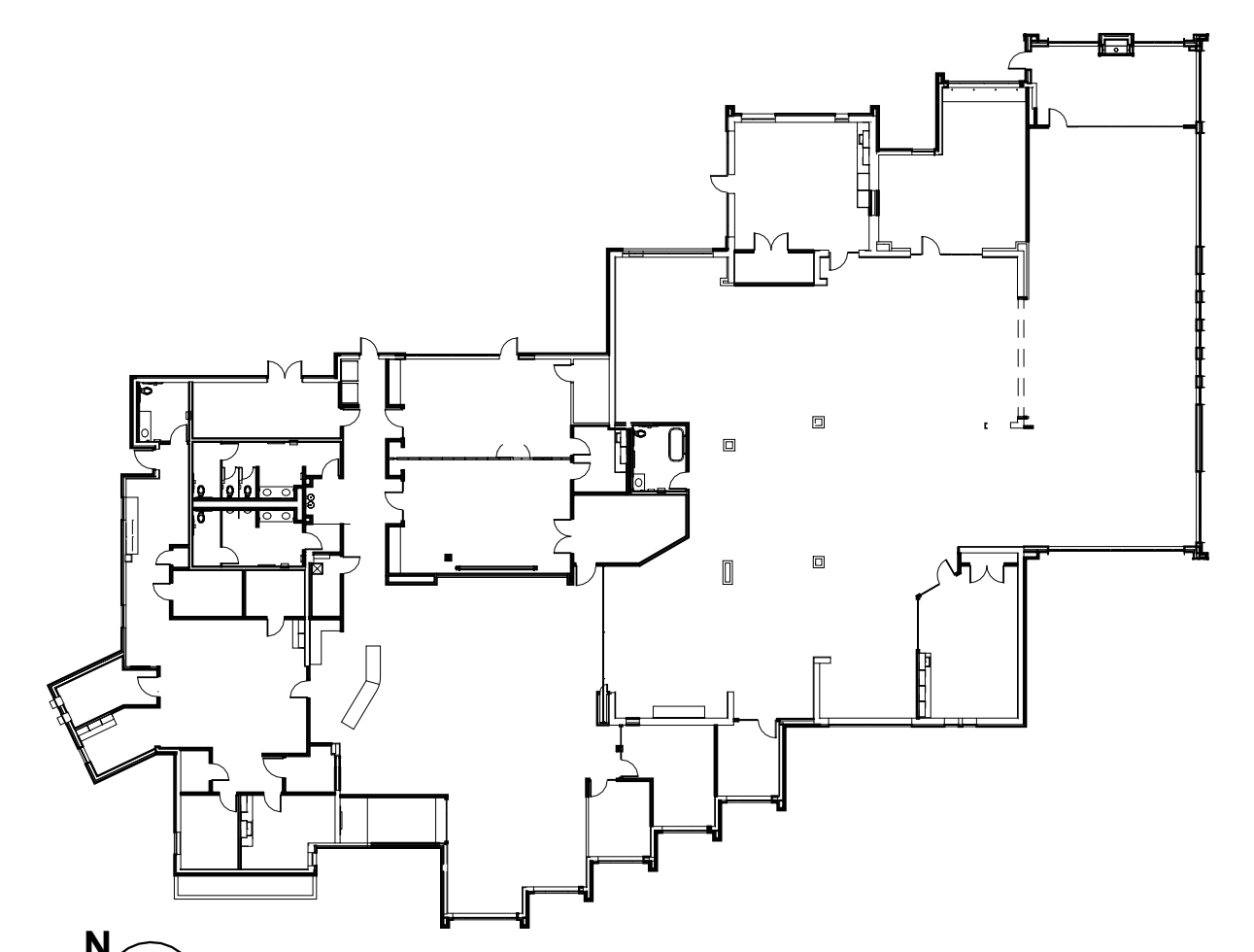
HBM Architects, LLC
1382 W. Ninth Street, Suite 300
Cleveland, Ohio 44113
PH: 216.241.1100

KEYED NOTES

- 1 DEMOLISH EXISTING ROOF MOUNTED EQUIPMENT, CURB, DUCTWORK, VENTS, ETC AND ALL ASSOCIATED CONTROLS. REFER TO ARCHITECTURAL PLANS FOR ROOF PATCHING AND WARRANTIES.
- 2 DEMOLISH EXISTING SPLIT SYSTEM, REFRIGERANT PIPING AND ALL ASSOCIATED ACCESSORIES.



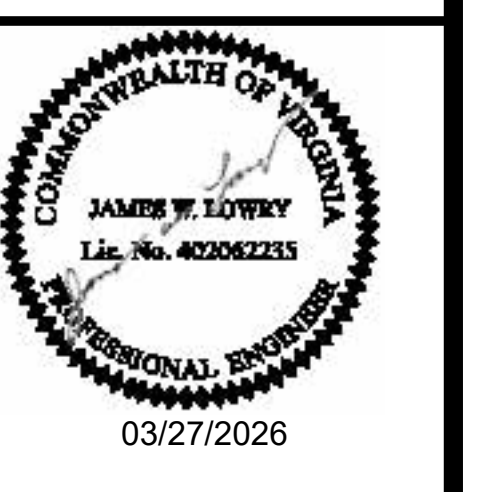
HVAC DEMOLITION ROOF PLAN



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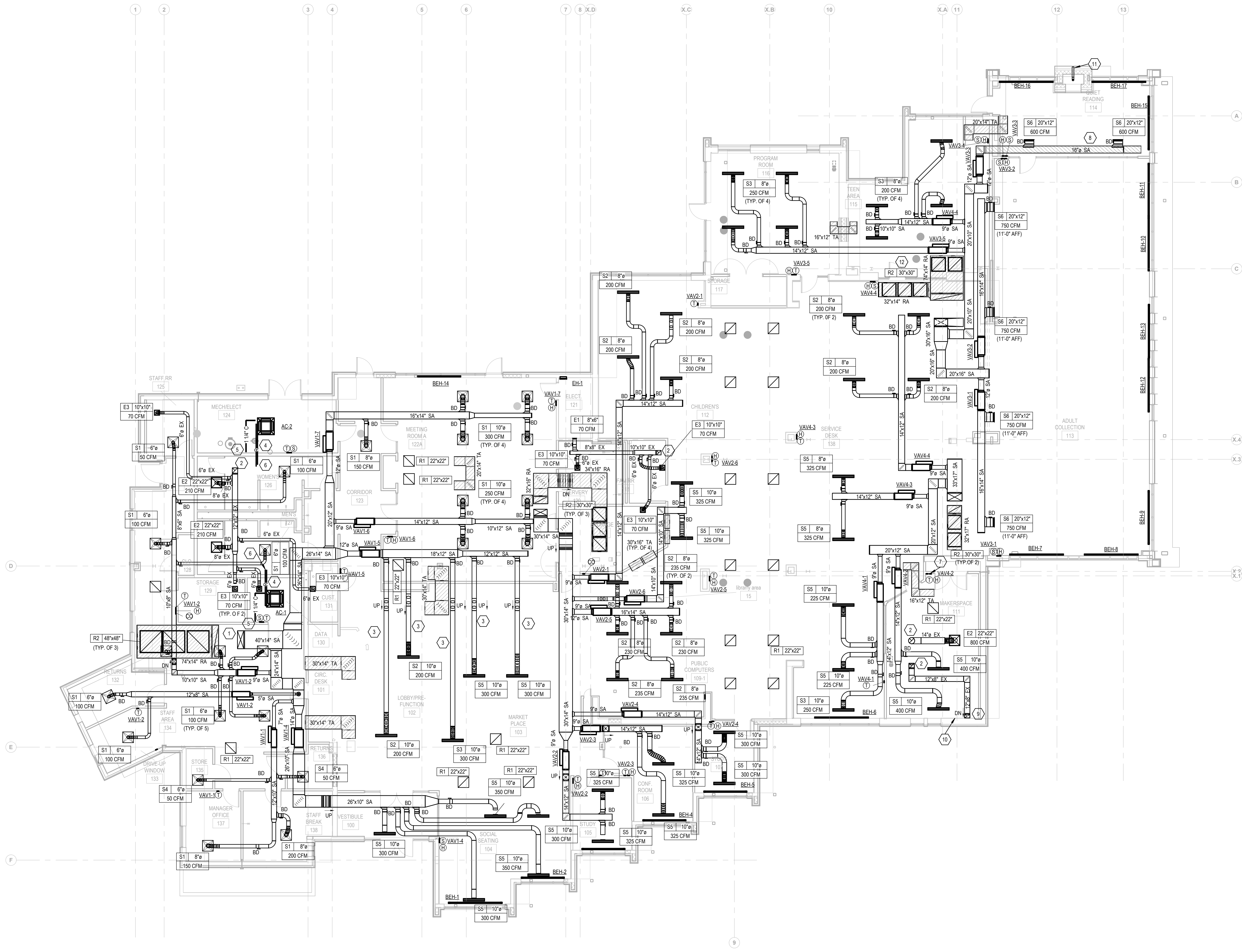
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 DEMOLITION
 ROOF PLAN

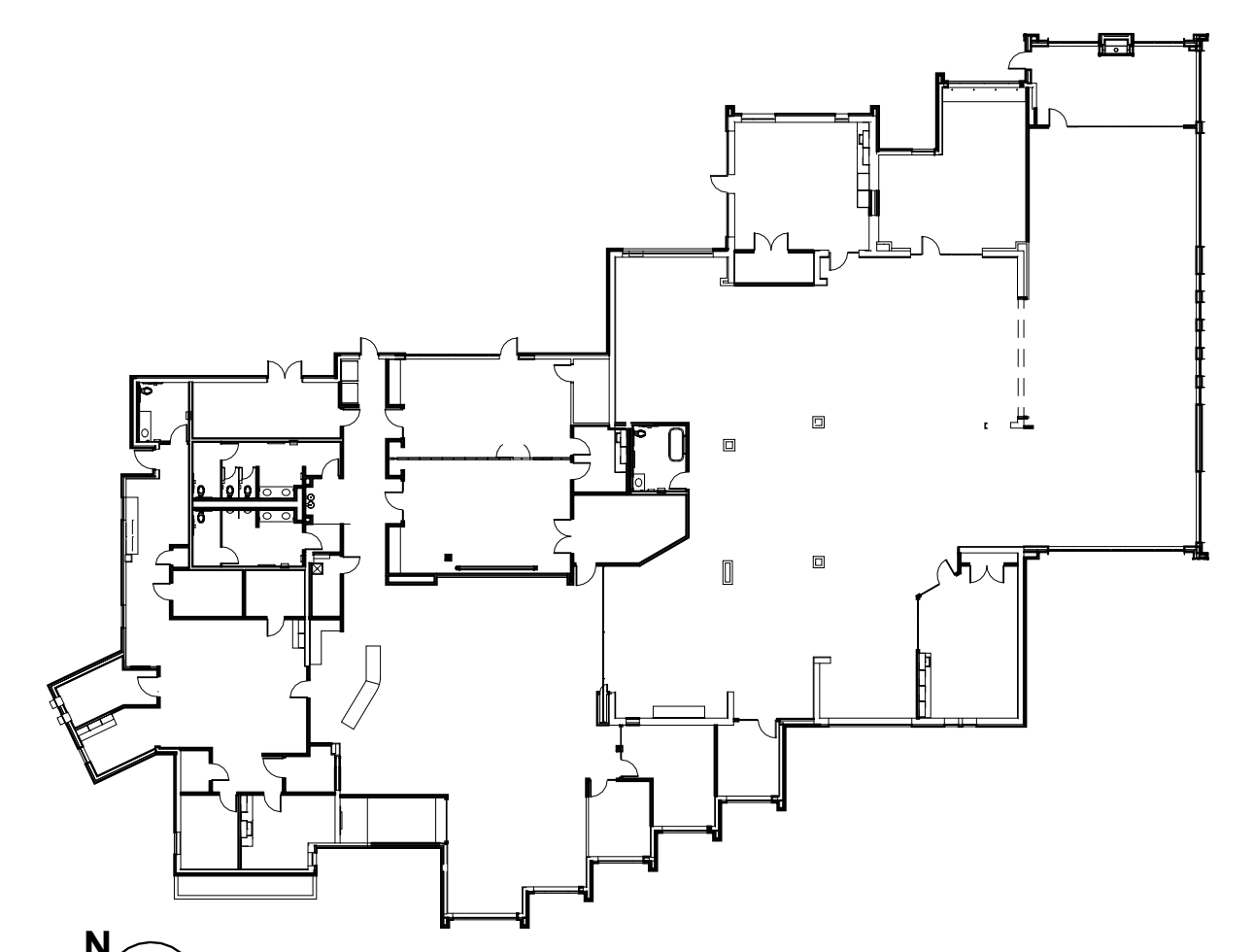
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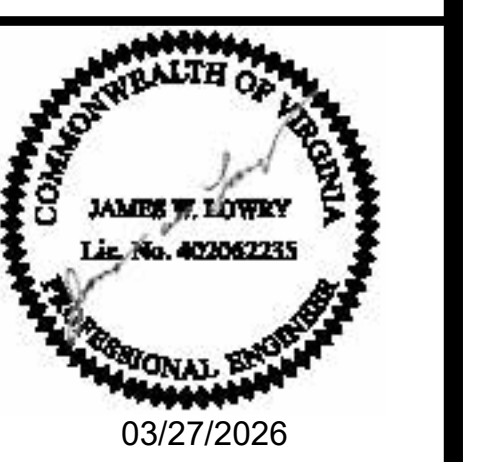


HVAC PLAN
 0 4' 8' 16' 24' 1/8" = 1'-0"

- KEYED NOTES**
- 1 DUCT UP TO RTU ON ROOF.
 - 2 DUCT UP TO EF ON ROOF.
 - 3 CONTRACTOR SHALL FIELD VERIFY EXISTING STRUCTURAL MEMBERS AND ROUTE DUCT UP BETWEEN STRUCTURAL JOISTS.
 - 4 SIZE AND ROUTE REFRIGERANT PIPING IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
 - 5 ROUTE CONDENSATE DRAIN TO JANITORS' SINK. SEE DETAILS FOR ADDITIONAL INFORMATION.
 - 6 REFRIGERANT PIPING DOWN TO AC, UP TO CU ON ROOF.
 - 7 CONTRACTOR SHALL PROVIDE A WALL-MOUNTED PUSHBUTTON FOR EF-3. PROVIDE LABEL INDICATING "EXHAUST PURGE ON".
 - 8 EXPOSED DUCTWORK SHALL BE DOUBLE-WALLED. PAINT DUCTWORK AND DIFFUSERS IN THIS AREA. COLOR SELECTION BY ARCHITECT.
 - 9 CONTRACTOR SHALL ROUTE DUCTWORK DOWN TO THE LASER CUTTER IN THIS AREA. COORDINATE FINAL LOCATION WITH GENERAL CONTRACTOR PRIOR TO ROUTING DUCTWORK. MAKE FINAL CONNECTION TO LASER PRINTER WITH 4" ROUND DUCT. INSTALL IN ACCORDANCE WITH LASER CUTTER MANUFACTURERS' RECOMMENDATIONS.
 - 10 PROVIDE 120V SWITCH FOR EF-4. PROVIDE ENGRAVED SIGN LABELED "SWITCH EXHAUST FAN ON PRIOR TO ENABLING LASER CUTTER". AT SWITCH AND LASER CUTTER. COORDINATE FINAL LOCATION WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION.
 - 11 FIREPLACE COMBUSTION AND OUTSIDE AIR VENTING. SIZE AND ROUTE IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
 - 12 TYPICAL OF 3. GRILLS SHALL BE MOUNTED TO RETURN DUCTWORK.



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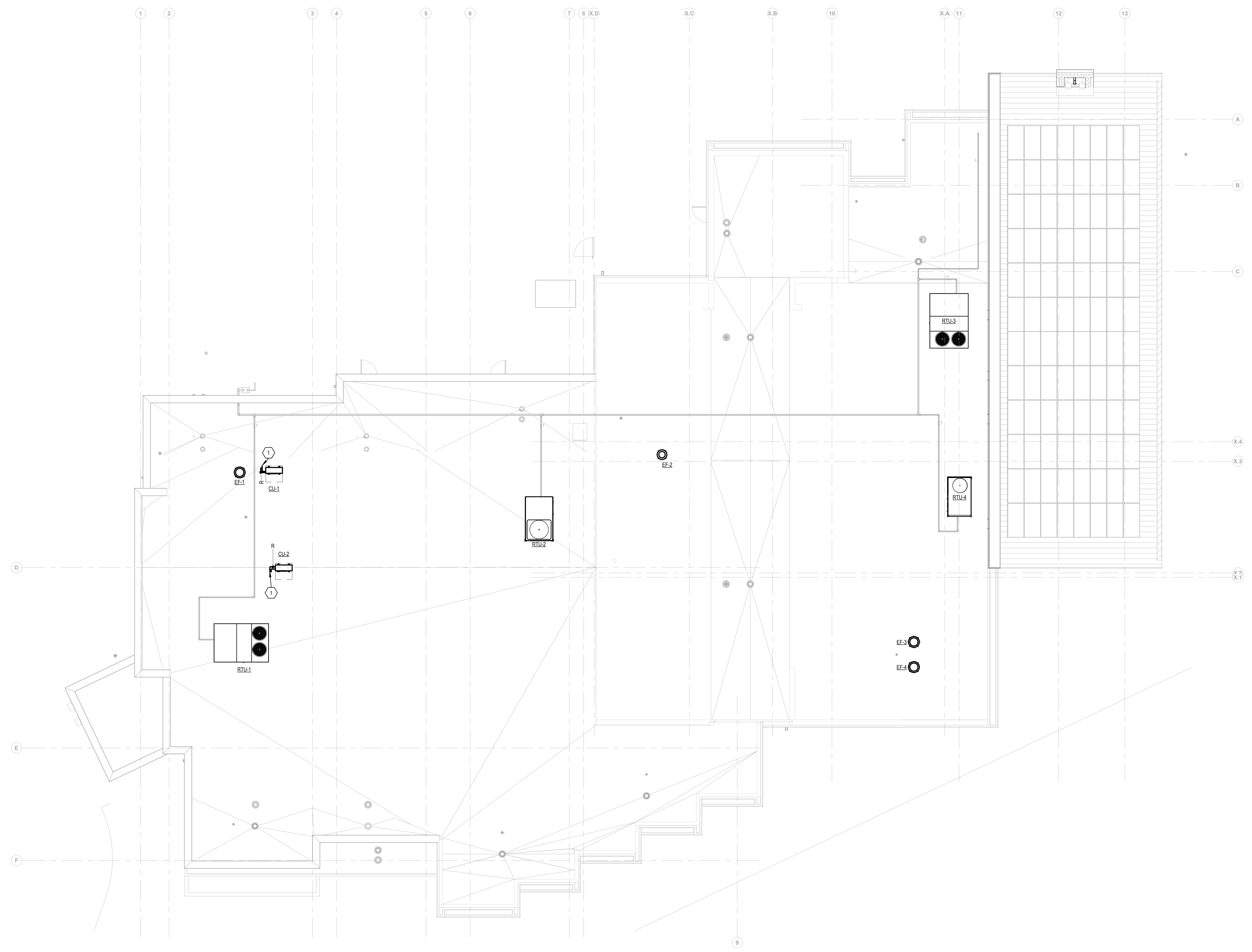
HVAC PLAN

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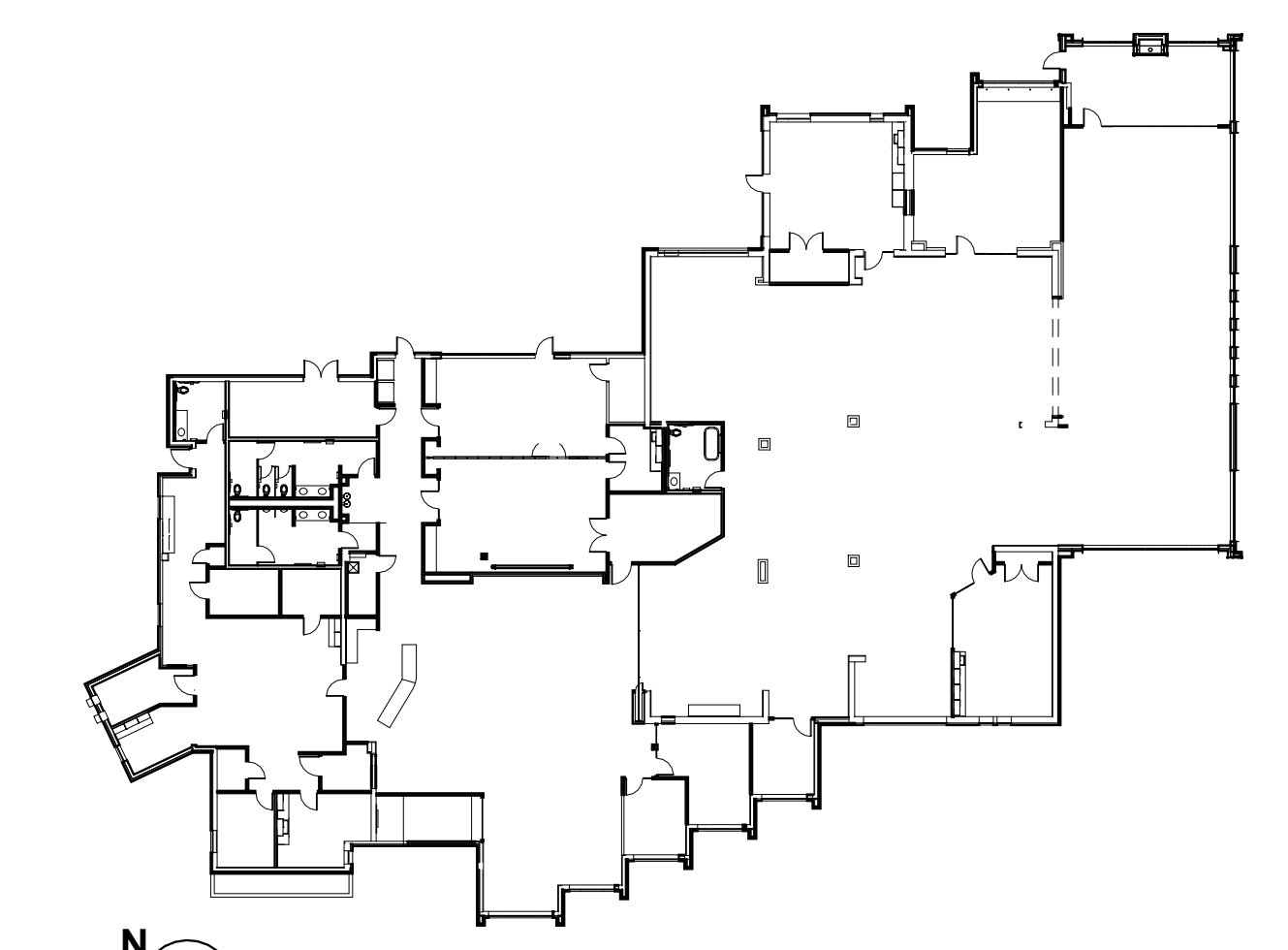
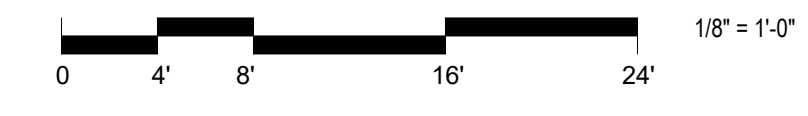
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KEYED NOTES

1 SIZE AND ROUTE REFRIGERANT PIPING IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.



HVAC ROOF PLAN



KEY PLAN
NOT TO SCALE

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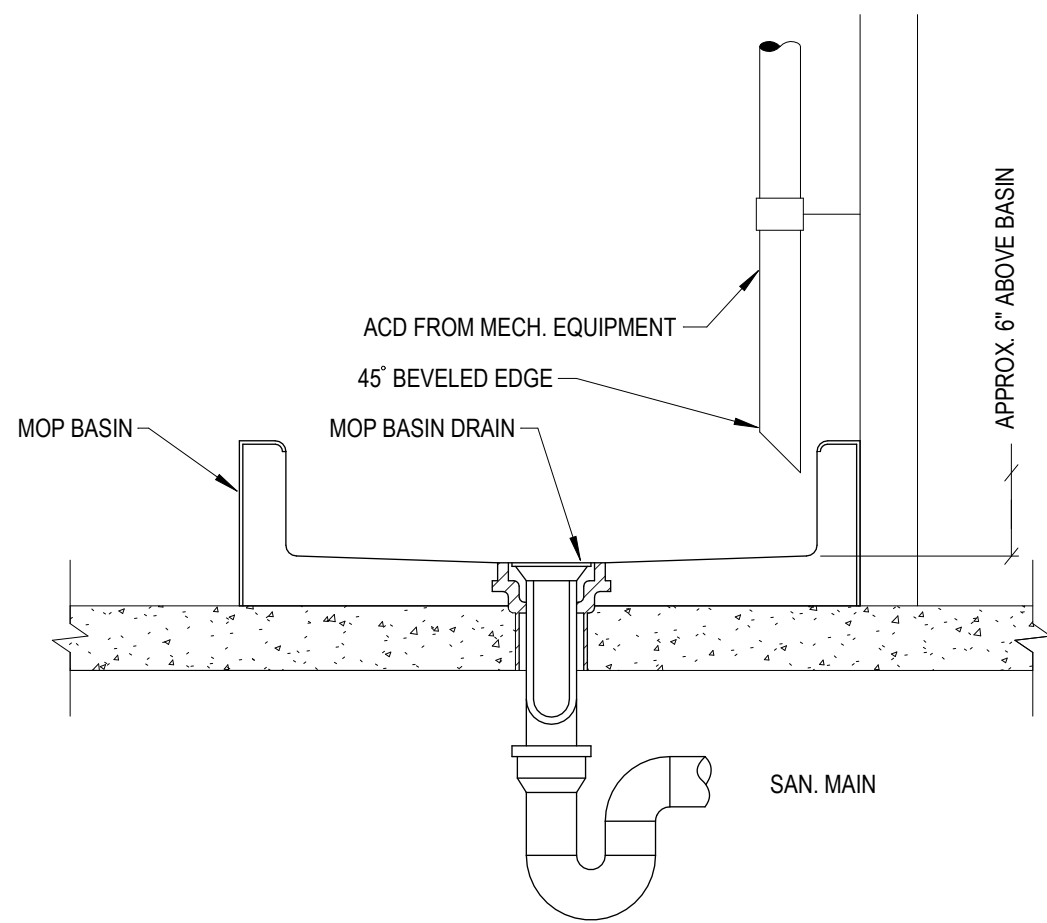
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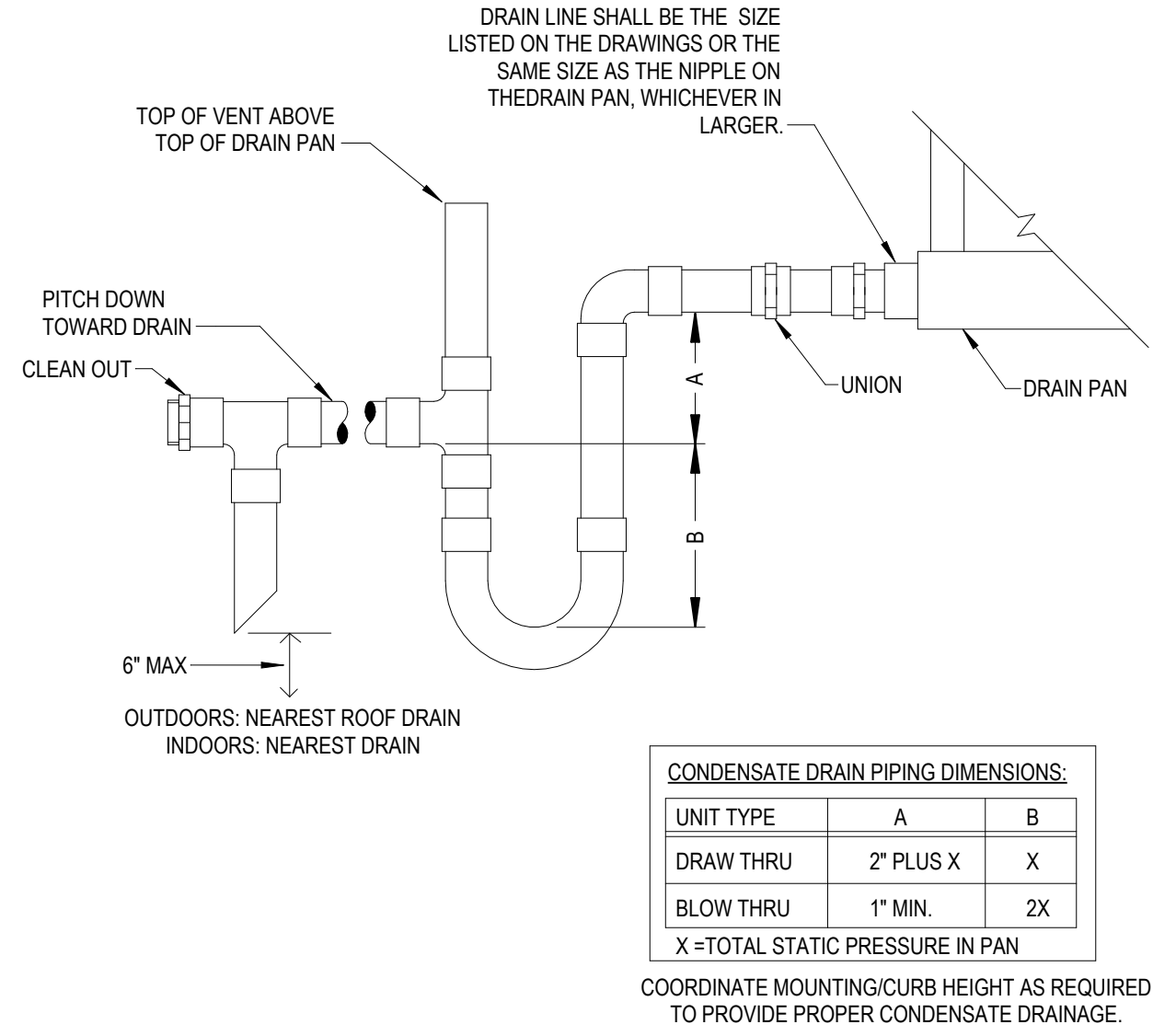
HVAC ROOF PLAN

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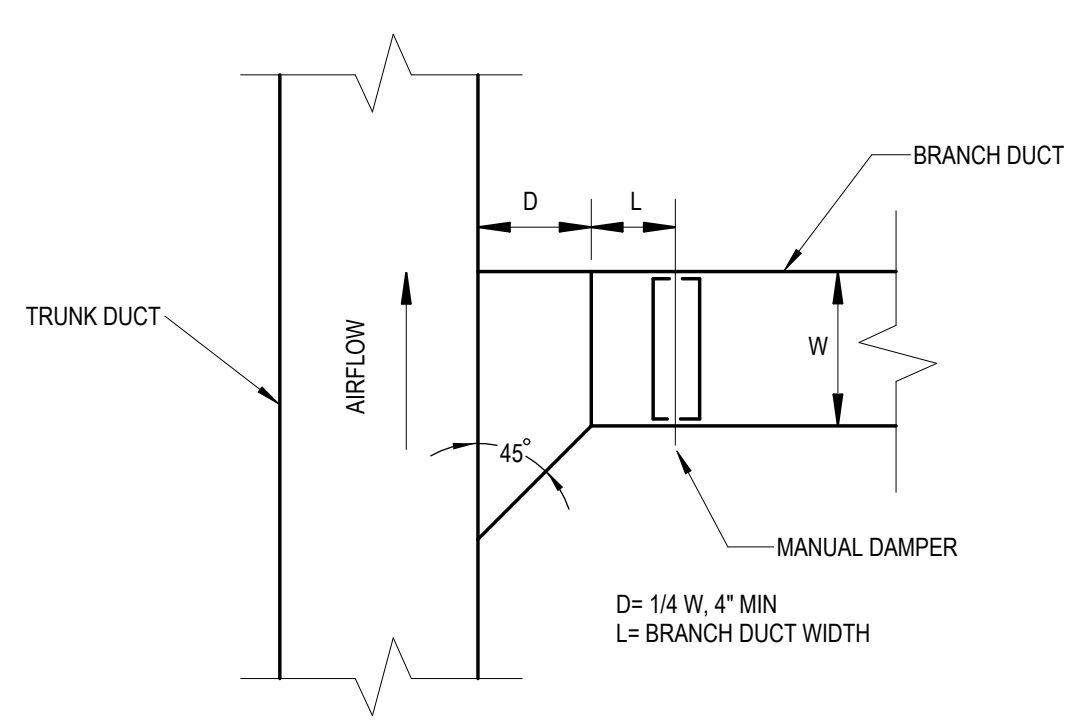
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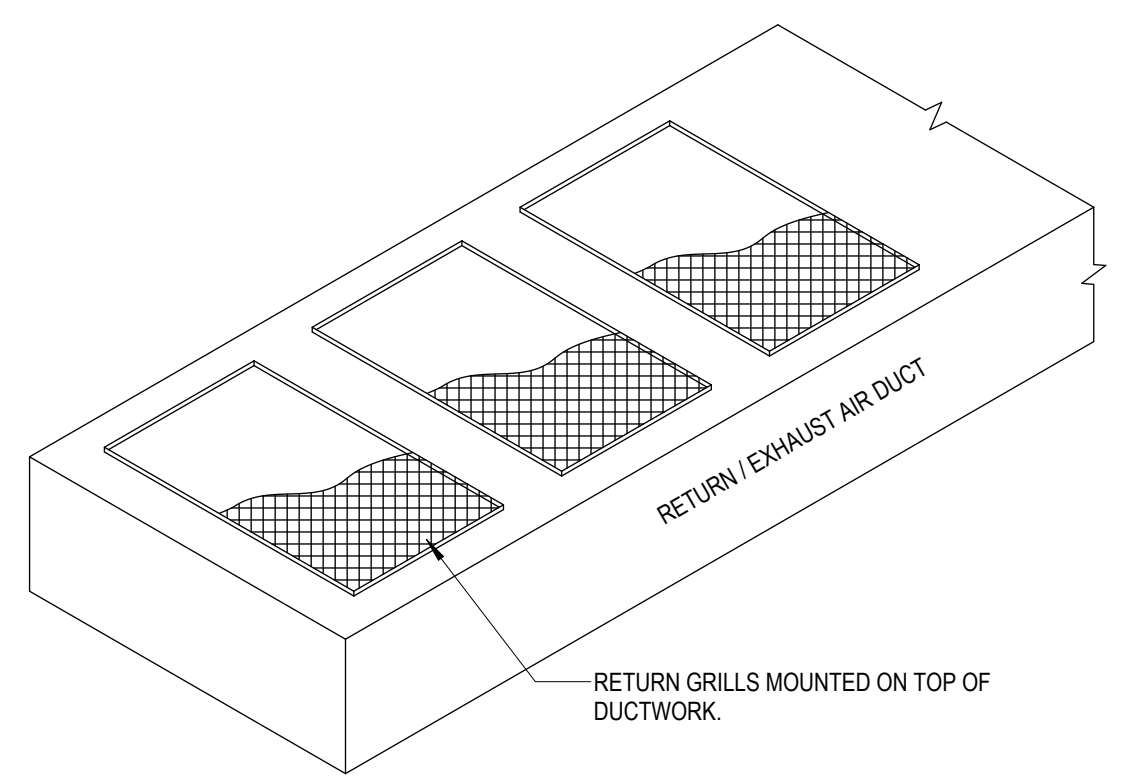
1 CONDENSATE DRAIN TERMINATION
NO SCALE



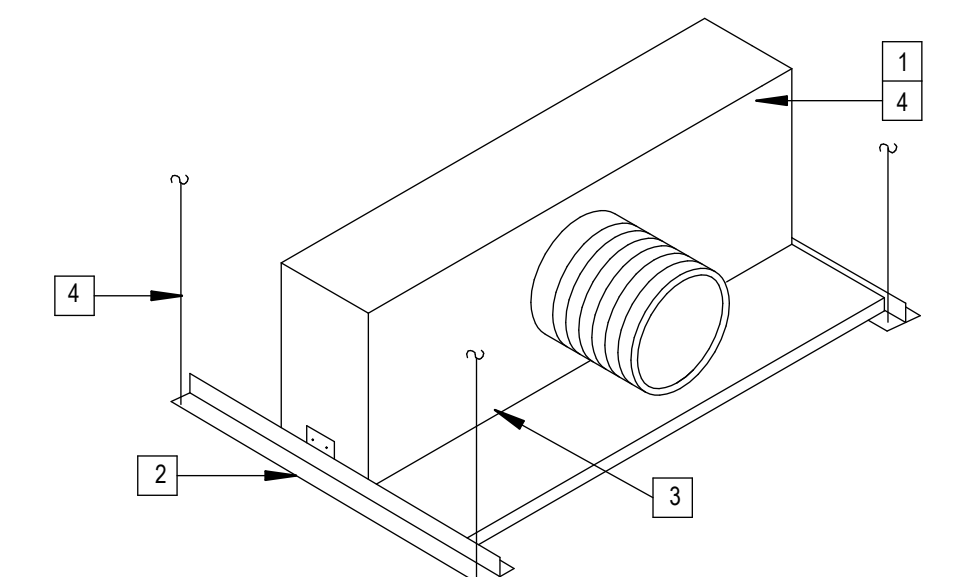
2 CONDENSATE DRAIN TRAP
NO SCALE



3 CV DUCT BRANCH TAKEOFF CONNECTION
NO SCALE



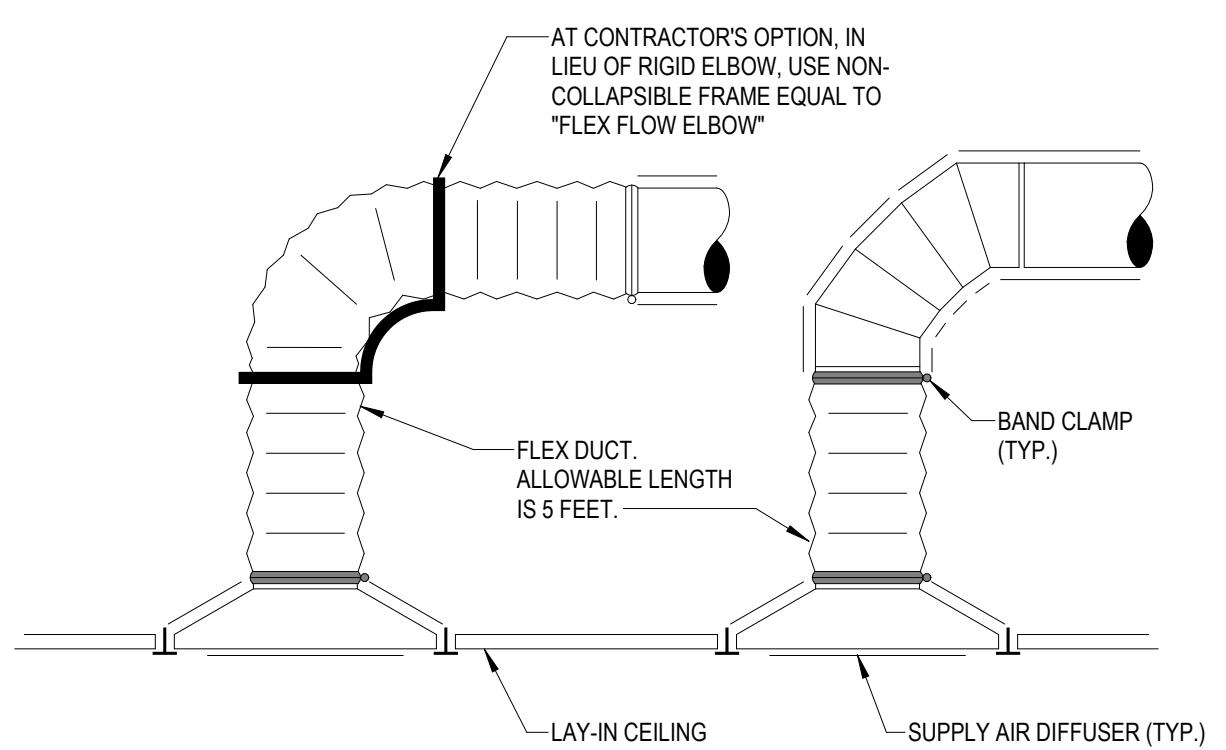
4 RETURN AIR DUCT ASSEMBLY 3
NO SCALE



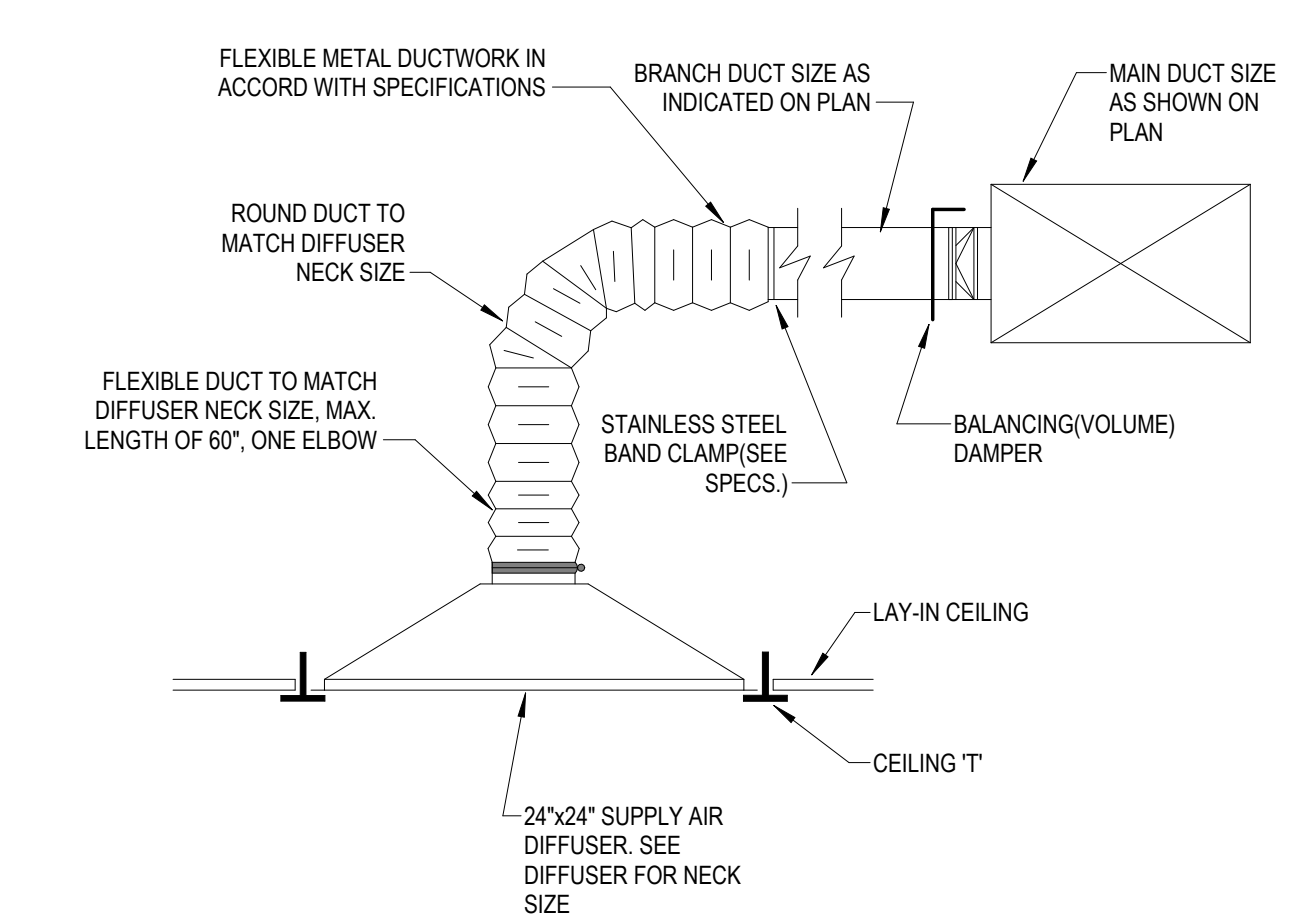
5 SLOT DIFFUSER INSTALLATION
NO SCALE

- 12 SWG GALVANIZED STEEL WIRE SUPPORT ON DIAGONAL CORNERS OF DIFFUSER GRID MODULE BY M.C. (2 REQ.)
- CENTER UNIT IN GRID MODULE AND SECURE WITH SECURITY CLIPS FASTENED OVER THE TOP OF THE GRID MEMBER AS PER MANUFACTURER'S INSTALLATION RECOMMENDATIONS.
- TEE BAR SUPPORT ALL 4 SIDES OF DIFFUSER.
- SEE ARCH. DRAWINGS FOR TYPICAL WIRE CONNECTION TO STRUCTURE.

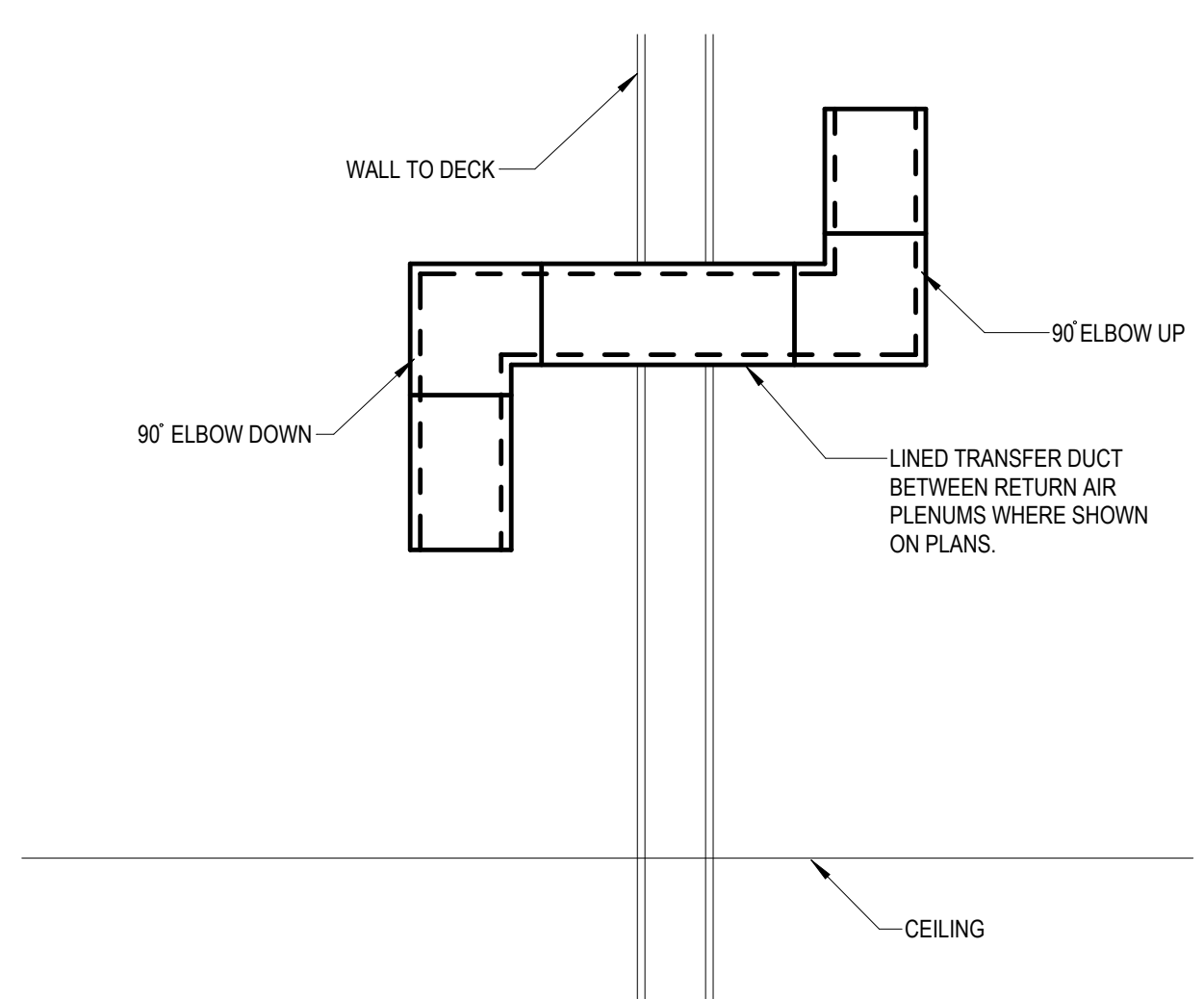
INSTALLATION SHALL COMPLY TO ALL OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.



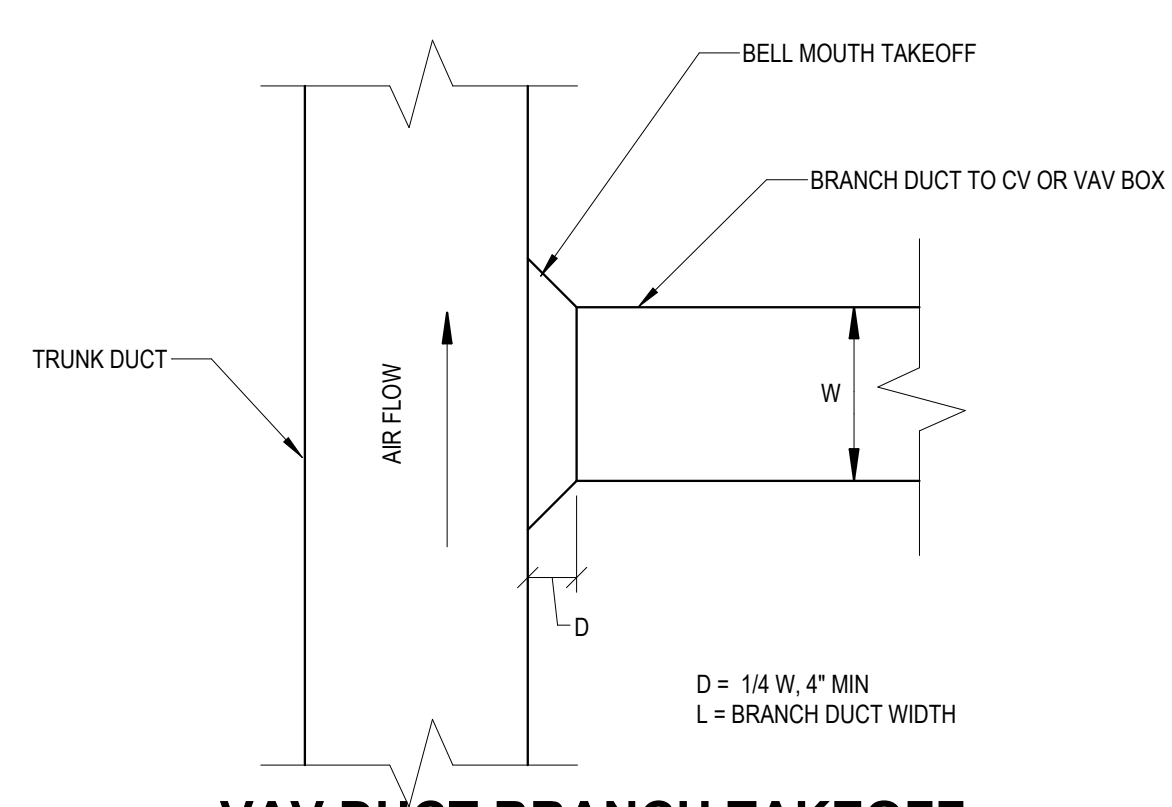
6 SUPPLY AIR DIFFUSER
NO SCALE



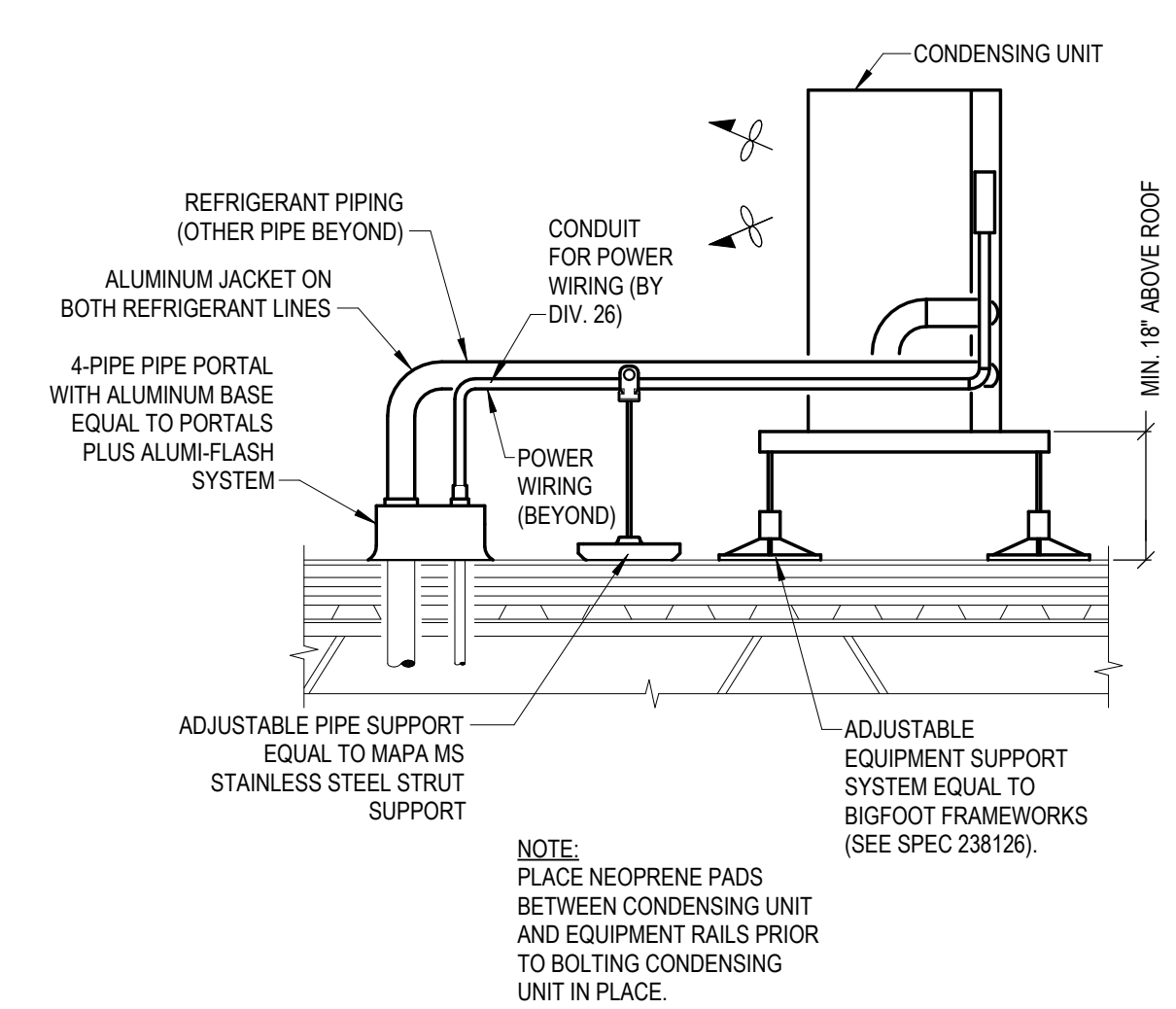
7 TYPICAL TAKEOFF TO CEILING DIFFUSER
NO SCALE



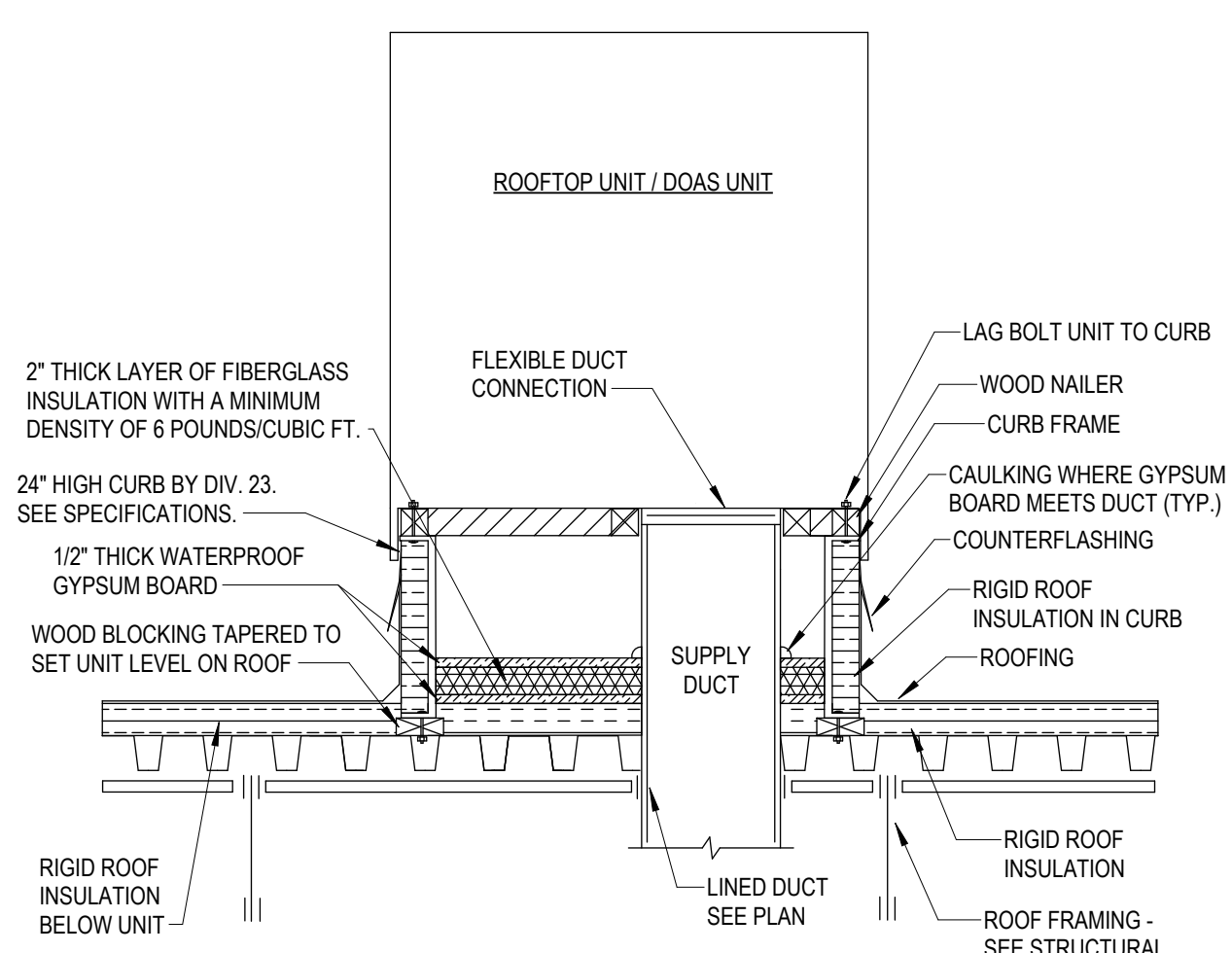
8 TRANSFER DUCT DETAIL
NO SCALE



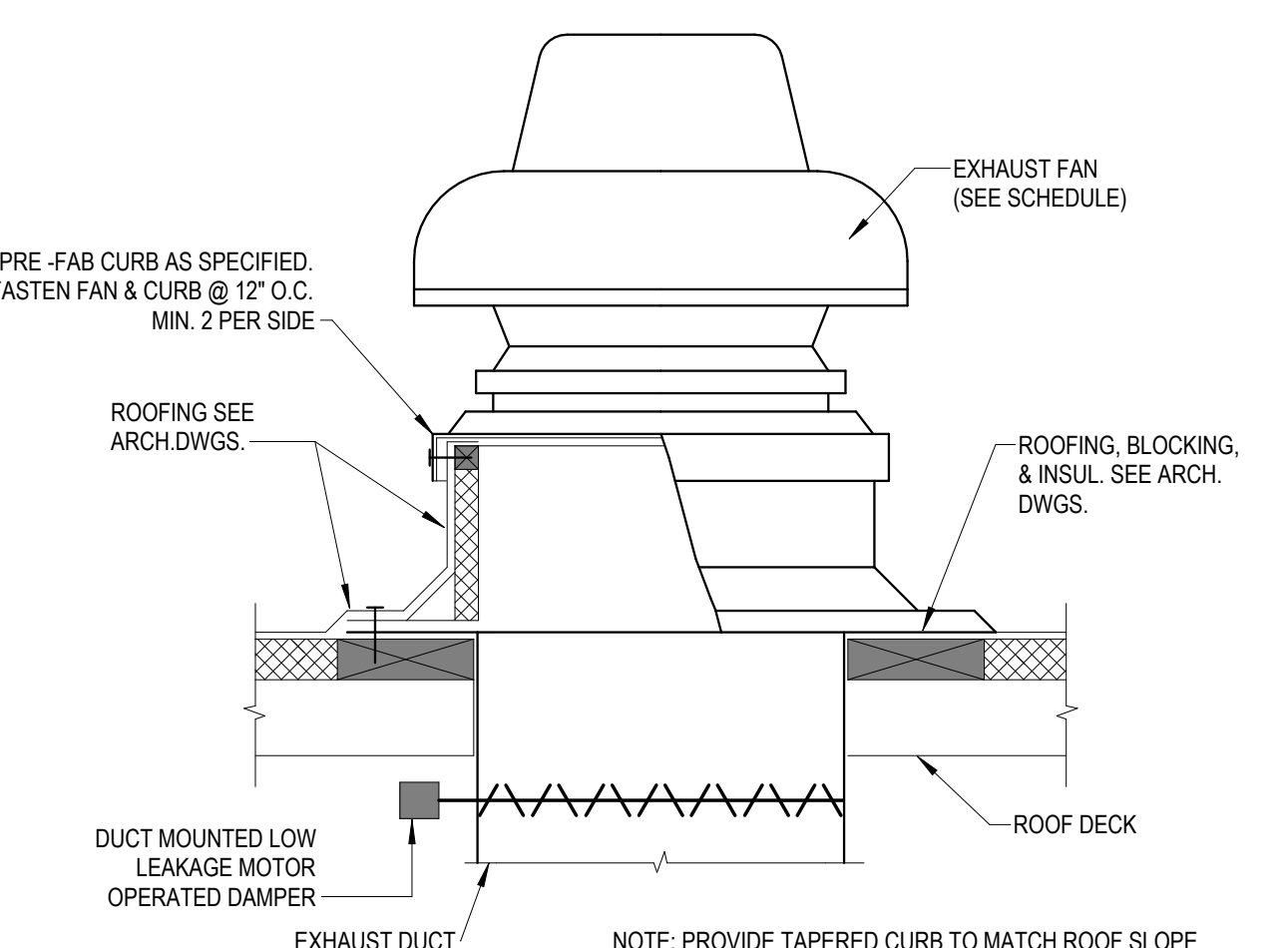
9 VAV DUCT BRANCH TAKEOFF CONNECTION
NO SCALE



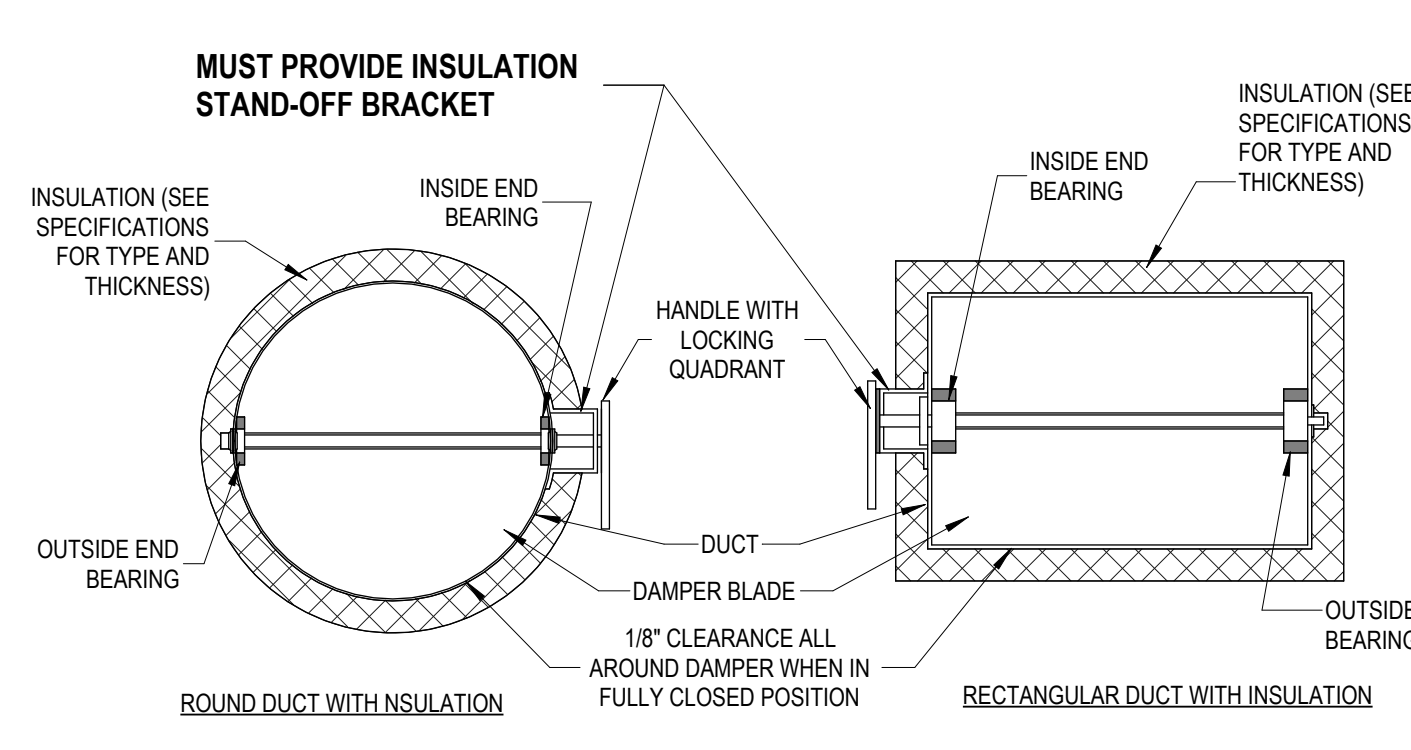
10 DX CONDENSING UNIT
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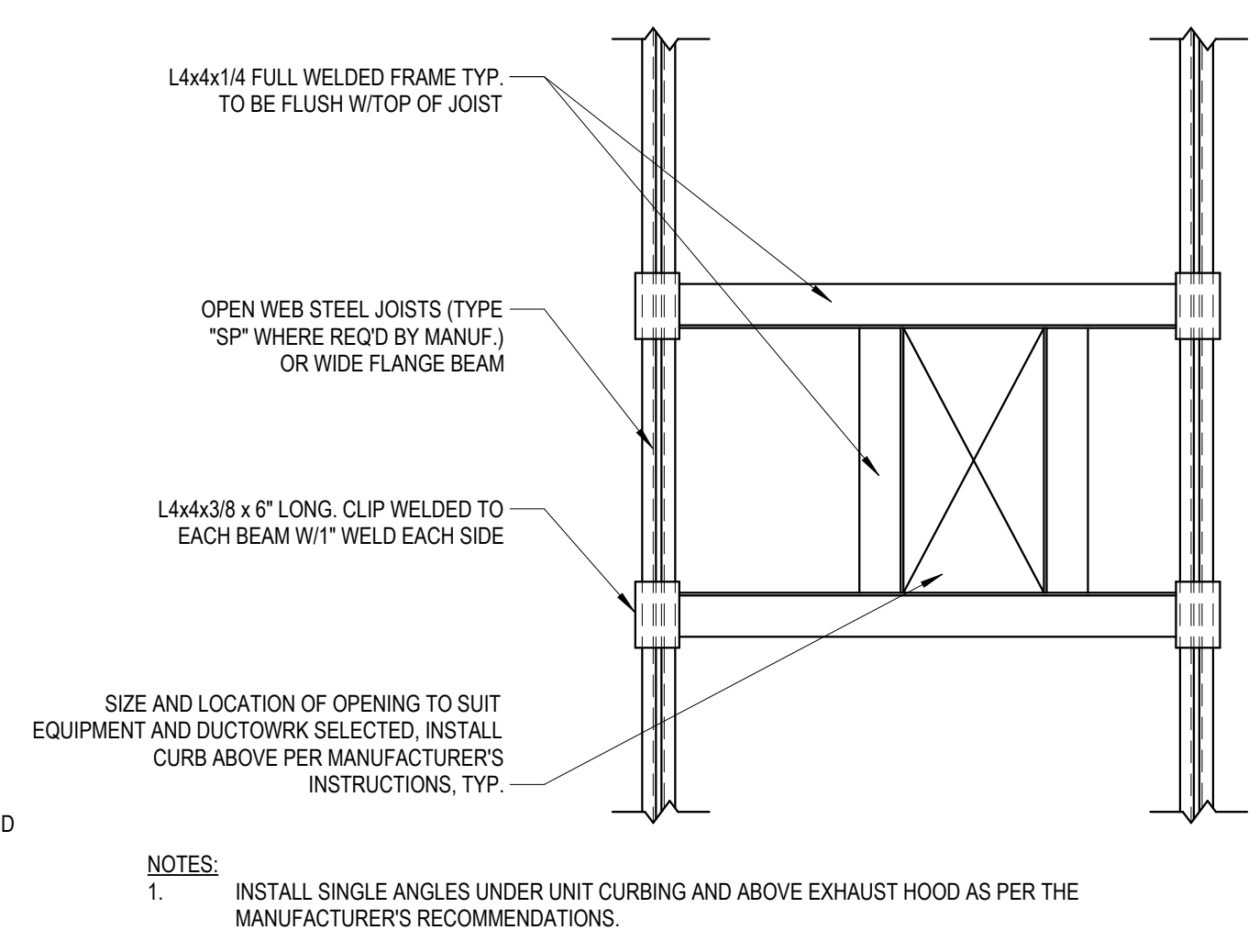
11 ROOFTOP UNIT CURB
NO SCALE



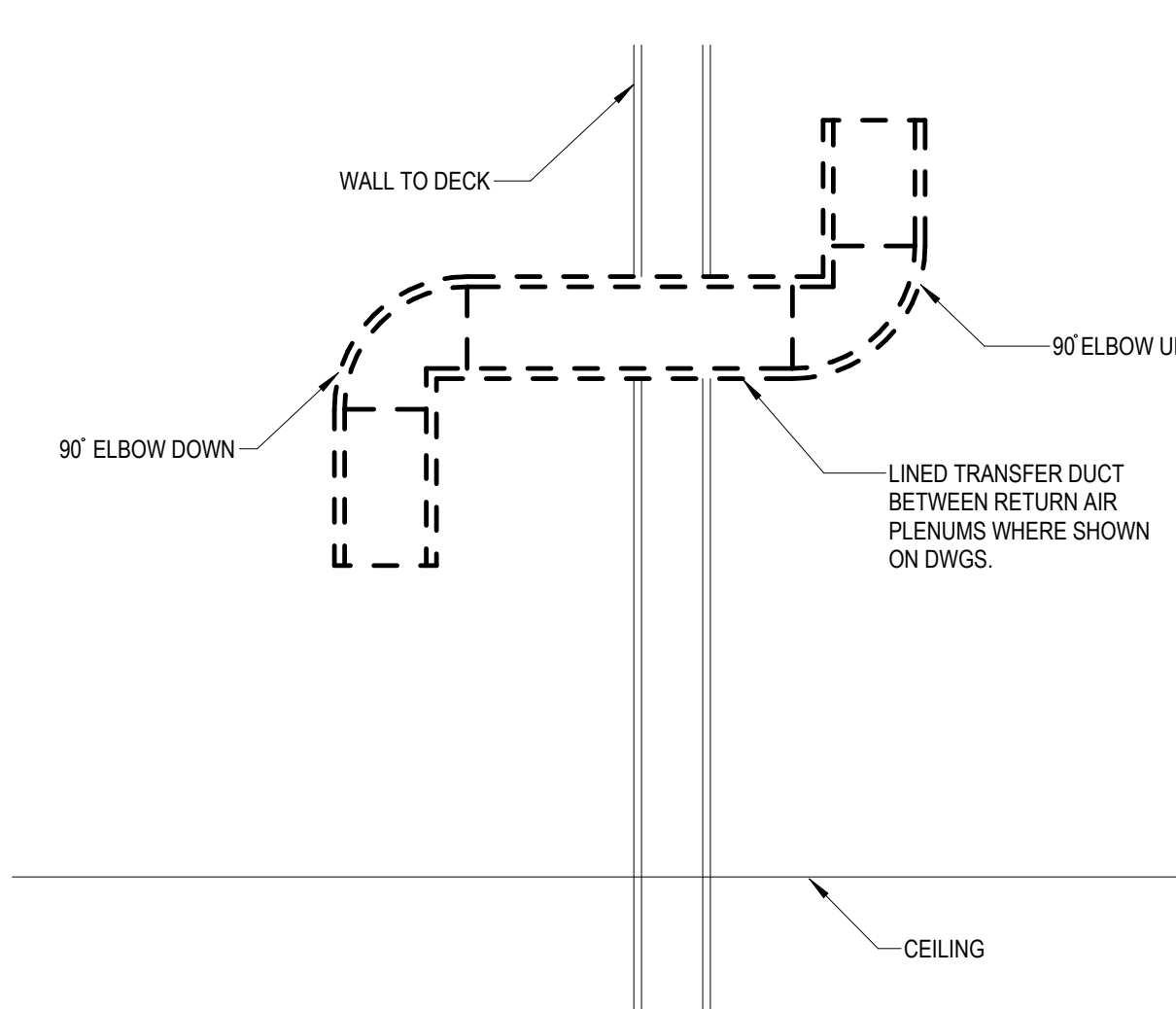
12 ROOF EXH FAN
NO SCALE



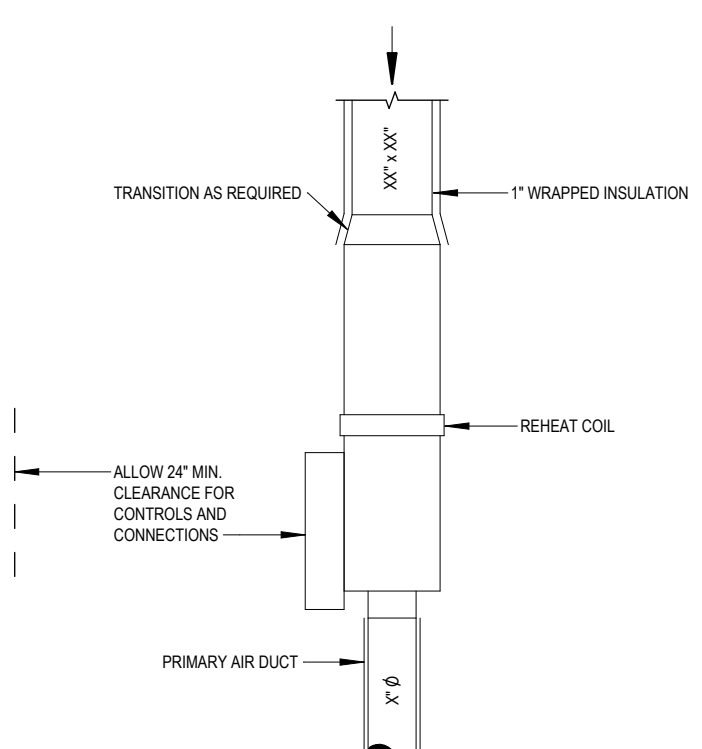
13 INSULATED DUCT MANUAL VOLUME DAMPER
NO SCALE



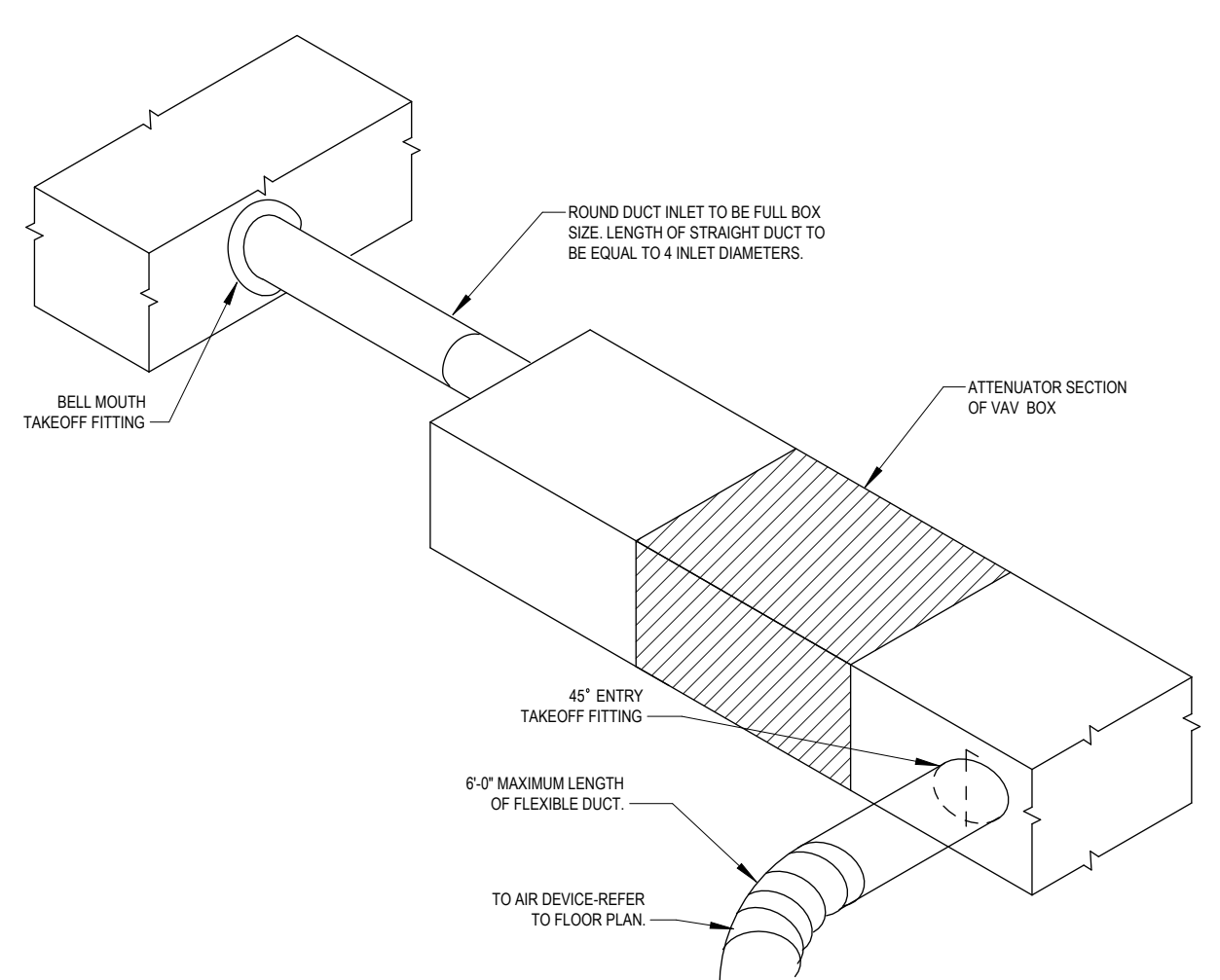
14 TYP. OPENING THROUGH METAL DECK
NO SCALE



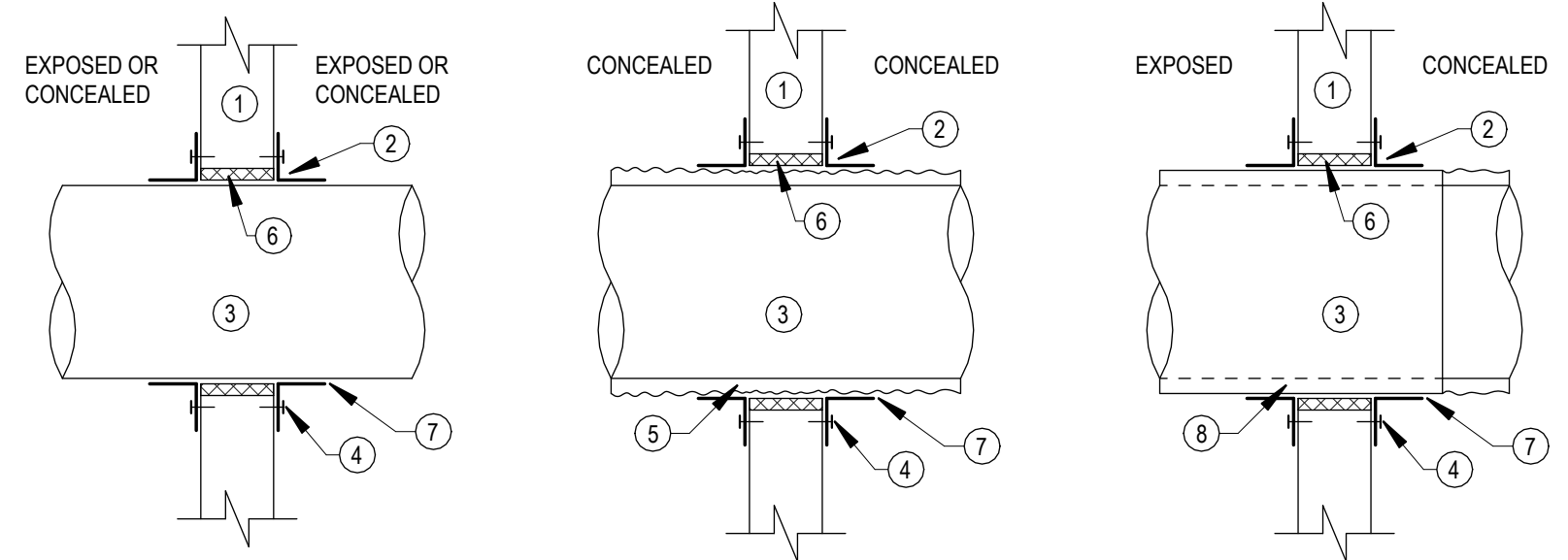
15 TRANSFER BOOT DETAIL
NO SCALE



16 TYPICAL SHUT-OFF VAV BOX
NO SCALE



17 VAV EQUIP - INSTALLATION WITH ATTEN.
NO SCALE



19 DUCT THROUGH WALL
NO SCALE

ZMM ARCHITECTS ENGINEERS
222 Lee Street, West
Charleston, West Virginia 25302
Phone: 304.342.0199
Fax: 304.345.8144
www.zmm.com

COMMONWEALTH OF VIRGINIA
JAMES W. LOWERY
Lic. No. 402082355
03/27/2026

#	DATE	DESCRIPTION
1	3/27/2026	BID / PERMIT

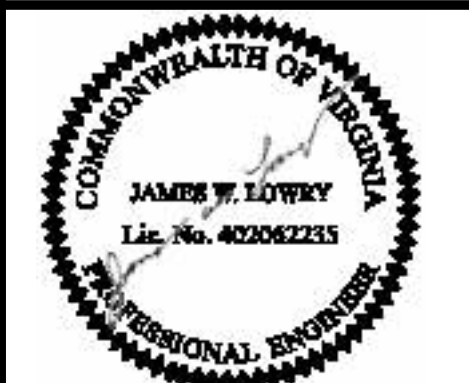
RENOVATION AND EXPANSION TO
ROANOKE COUNTY PUBLIC LIBRARY
HOLLINS LIBRARY
6624 PETERS CREEK RD., ROANOKE VA 24019

PROJECT NO:
22017
ISSUED DATE:
MARCH 27, 2026
SCALE:
As indicated

DETAILS

M3.00

HBM ARCHITECTURE INTERIOR DESIGN
HBM Architects, LLC
1382 W. Ninth Street, Suite 300
Cleveland, Ohio 44113
PH: 216.241.1100



03/27/2026

DATE	DESCRIPTION
3/27/2026	1 BID / PERMIT

#	DESCRIPTION
1	BID / PERMIT

RENOVATION AND EXPANSION TO
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SCHEDULES

M4.00

AIR HANDLING UNIT SCHEDULE																														
MARK	MFR	MODEL	EER	IEER	APPROX WEIGHT (LBS.)	AIRFLOWS			COOLING COIL DATA						GAS HEATING DATA				SUPPLY FAN DATA			VOLTS	PHASE	MCA	MOCP	CONTROLS	REMARKS			
						DESIGN OA (CFM)	MINIMUM OA (CFM)	TOTAL SA (CFM)	TOTAL (MBH)	SENSIBLE (MBH)	AIR DB/WB TEMP (F)	ENT DB	ENT WB	LVG DB	LVG WB	COIL TYPE	INPUT (MBH)	OUTPUT (MBH)	EAT (F)	LAT (F)	COIL TYPE							TURNDOWN	ESP (IN H2O)	RPM
RTU-1	TRANE - PRECEDENT	YSK240A3SBL	9.8	13.5	3,000	1,300	400	7,000	241.6	166.9	78.2	66.4	56.1	55	DX	250	202.5	55	81	NATURAL GAS	10:1	1.5	1,488	4.2 / 4.6	208	3	113	150	MULTI ZONE VAV	-
RTU-2	TRANE - PRECEDENT	YSK150A3SBL	10.8	14.5	2,000	700	400	4,200	144.3	98.9	77.9	66.3	54.5	54.0	DX	150	121	55	83	NATURAL GAS	10:1	1.5	1,562	2.5 / 4.6	208	3	67	90	MULTI ZONE VAV	-
RTU-3	TRANE - PRECEDENT	YSK240A3SBL	9.8	16.1	3,000	1,100	410	6,200	236.3	157.3	78.1	66.4	54.6	53.6	DX	250	202.5	55	85	NATURAL GAS	10:1	1.5	1,426	3.7 / 4.6	208	3	113	150	MULTI ZONE VAV	-
RTU-4	TRANE - PRECEDENT	YSK102A3SBL	11	15.4	2,000	635	400	3,300	110.2	77.6	77	65.9	55	54.7	DX	120	97	55	80	NATURAL GAS	10:1	1.5	1,460	2 / 3	208	3	53	70	MULTI ZONE VAV	-

- REMARKS:
- CAPACITIES SHOWN ARE MINIMUM.
 - EXTERNAL STATIC PRESSURE DOES NOT INCLUDE DIRTY FILTER ALLOWANCE OR SUPPLY EXIT LOSS.
 - PROVIDE STAINLESS STEEL HEAT EXCHANGERS.
 - PROVIDE MINIMUM 18" TALL INSULATED ROOF CURB.
 - PROVIDE STAINLESS STEEL JAG CONDENSATE DRAIN PAN PITCHED TO OUTLET.
 - PROVIDE COMPARATIVE ENTHALPY ECONOMIZER.
 - PROVIDE WEATHER RESISTANT 120V CONVENIENCE OUTLET - FACTORY INSTALLED AND WIRED.
 - PROVIDE PHASE LOSS PROTECTION AND PHASE FAILURE MONITOR.
 - PROVIDE CONDENSOR COIL HAIL GUARDS.
 - PROVIDE THROUGH THE BASE ELECTRICAL CONNECTION.
 - PROVIDE 4" MERV 13 FILTERS.
 - PROVIDE SINGLE POINT POWER CONNECTION WITH FACTORY MOUNTED NON-FUSED DISCONNECT.
 - PROVIDE STANDARD ONE YEAR WARRANTY, FIVE YEAR COMPRESSOR, TEN YEAR HEAT EXCHANGER.
 - SEE SPECIFICATION FOR ADDITIONAL INFORMATION ON EQUIPMENT REQUIREMENTS.
 - SEE CONTROLS SCHEMATICS FOR ADDITIONAL ACCESSORIES AND APPURTENANCES. PROVIDE UNIT WITH BACNET CONTROLS INTERFACED. ALL CONTROLS PRONT SHALL BE FURNISH ED UNLOCKED OF INTEGRATION OF CONTROLS.
 - REFER TO DDC SPECIFICATION SECTION 250923 FOR CONTROLS OPTIONS FOR BUILDING AUTOMATION SYSTEMS OTHER THAN BASIS OF DESIGN.

SPLIT SYSTEM INDOOR UNIT SCHEDULE													
MARK	MODEL	MOUNTING	APPROX. WEIGHT (LBS.)	COOLING RATED (MBH)	HEATING RATED (MBH)	AIRFLOW (CFM)			PIPING DATA		ELECTRICAL DATA		
						LOW	MED	HIGH	LIQUID O.D.	GAS O.D.	VOLTS	PHASE	WATTS
AC-1	PLA-A18EA7	CEILING MOUNTED	50	18	23	420	460	490	1/4	1/2	208	1	50
AC-2	PLA-A18EA7	CEILING MOUNTED	50	18	23	420	460	490	1/4	1/2	208	1	50

- NOTES:
- COOLING MBH @ 80/67 HEATING MBH @ 57° OUTDOOR.
 - FUSED ELECTRICAL DISCONNECT PROVIDED BY DIVISION 26.
 - SEE CONDENSING UNIT INSTALLATION DETAIL.

SPLIT SYSTEM OUTDOOR UNIT SCHEDULE												
MARK	MODEL	LOCATION	APPROX. WEIGHT (LBS.)	COOLING RATED (MBH)	HEATING RATED (MBH)	REFRIGERANT DATA		ELECTRICAL DATA				REMARKS
						LIQUID O.D.	GAS O.D.	VOLTS	PHASE	MCA	MOCP	
CU-1	PUZ-A18NKAT	ROOF MOUNTED	120	18	23	1/4	1/2	208	3	11	28	-
CU-2	PUZ-A18NKAT	ROOF MOUNTED	120	18	23	1/4	1/2	208	3	11	28	-

- NOTES:
- COOLING MBH @ 80/67 HEATING MBH @ 57° OUTDOOR.
 - FUSED ELECTRICAL DISCONNECT PROVIDED BY DIVISION 26.
 - SEE CONDENSING UNIT INSTALLATION DETAIL.
 - PROVIDE UNIT WITH HAIL GUARDS.

DESIGN CRITERIA

MODE	INSIDE TEMP	OUTSIDE TEMP
COOLING	74 db/71.5 wb	92 db / 72.6 wb
HEATING	72 db	0 db

ALTITUDE: 1,100 FEET

DIFFUSER SCHEDULE				
MARK	DIFFUSER TYPE	MODEL	DESCRIPTION	
E1	EXHAUST	TITUS 350FL	SURFACE MOUNTED GRILLE	
E2	EXHAUST	TITUS 45F	24x24 PERFORATED GRILLE	
E3	EXHAUST	TITUS 45F	10x10 PERFORATED GRILLE	
R1	RETURN	TITUS 45F	24x24 SIGHTPROOF EGGRATE GRILLE	
R2	RETURN	TITUS 23R	SURFACE MOUNTED GRILLE	
S1	SUPPLY	TITUS OMNI	24x24 PLAQUE DIFFUSER	
S2	SUPPLY	TITUS TBDI-30	48" LINEAR SLOT DIFFUSER WITH THREE 3/4" SLOTS AND INSULATED PLENUM 2-WAY THROW, UNLESS NOTED OTHERWISE ON PLANS	
S3	SUPPLY	TITUS TBDI-30	48" LINEAR SLOT DIFFUSER WITH FOUR 3/4" SLOTS AND INSULATED PLENUM 2-WAY THROW, UNLESS NOTED OTHERWISE ON PLANS	
S4	SUPPLY	TITUS OMNI	12x12 PLAQUE DIFFUSER	
S5	SUPPLY	TITUS TBDI-30	48" LINEAR SLOT DIFFUSER WITH SIX 3/4" SLOTS AND INSULATED PLENUM 2-WAY THROW, UNLESS NOTED OTHERWISE ON PLANS	
S6	SUPPLY	DL-SV	DRUM LOUVER	

COORDINATE COLOR SELECTION BY ARCHITECT.

VAV BOX SCHEDULE																		
MARK	MODEL	INLET DUCT SIZE	VAV BOX OA	VAV BOX MINIMUM OA	COOLING			ELECTRIC REHEAT COIL			ELECTRICAL DATA				CONTROLS	REMARKS		
					DESIGN AIR FLOW	MIN AIR FLOW	HEATING AIRFLOW	CAPACITY	EAT	LAT	VOLTS	PHASE	MCA	MOCP				
VAV1-1	DESV	7	110	110	450	135	225	2.5	55	85	208	1	15	15	VAV BOX WITH REHEAT	-		
VAV1-2	DESV	5	30	30	200	60	100	1	55	85	208	1	10.4	15	VAV BOX WITH REHEAT	-		
VAV1-3	DESV	9	90	90	850	255	425	4	55	85	208	1	24	25	VAV BOX WITH REHEAT	-		
VAV1-4	DESV	14	175	50	1,600	480	800	8	55	85	208	1	48.1	50	VAV BOX WITH REHEAT AND BEH	-		
VAV1-5	DESV	12	330	125	1,300	390	650	6.5	55	85	208	1	39.1	40	VAV BOX WITH REHEAT	-		
VAV1-6	DESV	09	285	35	1,000	300	500	5	55	85	208	1	30	30	VAV BOX WITH REHEAT	-		
VAV1-7	DESV	12	285	55	1,400	400	700	7	55	85	208	1	42.1	45	VAV BOX WITH REHEAT AND BEH	-		
VAV2-1	DESV	09	240	180	800	240	400	4	55	85	208	1	24	25	VAV BOX WITH REHEAT	-		
VAV2-2	DESV	09	45	15	650	195	325	3.5	55	85	208	1	21	25	VAV BOX WITH REHEAT AND BEH	-		
VAV2-3	DESV	09	55	15	650	195	325	3.5	55	85	208	1	21	25	VAV BOX WITH REHEAT AND BEH	-		
VAV2-4	DESV	09	30	10	600	180	300	3	55	85	208	1	18	20	VAV BOX WITH REHEAT AND BEH	-		
VAV2-5	DESV	12	190	90	1,400	400	700	7	55	85	208	1	42.1	45	VAV BOX WITH REHEAT	-		
VAV2-6	DESV	09	55	15	650	195	325	3.5	55	85	208	1	21	25	VAV BOX WITH REHEAT	-		
VAV3-1	DESV	14	175	130	1,500	500	750	7.5	55	85	208	1	45.1	50	VAV BOX WITH REHEAT AND BEH	-		
VAV3-2	DESV	14	175	130	1,500	500	750	7.5	55	85	208	1	45.1	50	VAV BOX WITH REHEAT AND BEH	-		
VAV3-3	DESV	14	105	55	1,200	360	600	6	55	85	208	1	36.1	40	VAV BOX WITH REHEAT AND BEH	-		
VAV3-5	DESV	09	415	65	1,000	300	500	5	55	85	208	1	30	30	VAV BOX WITH REHEAT	-		
VAV4-1	DESV	9	95	45	700	210	350	3.5	55	85	208	1	21	25	VAV BOX WITH REHEAT AND BEH	-		
VAV4-2	DESV	9	115	80	800	240	400	4	55	85	208	1	24	25	VAV BOX WITH REHEAT AND BEH	-		
VAV4-3	DESV	09	55	15	650	195	325	3.5	55	85	208	1	21	25	VAV BOX WITH REHEAT	-		
VAV4-4	DESV	09	240	180	800	240	400	4	55	85	208	1	24	25	VAV BOX WITH REHEAT	-		
VAV4-4	DESV	09	115	80	800	240	400	4	55	85	208	1	24	25	VAV BOX WITH REHEAT	-		

1. BASIS OF DESIGN, TITUS - SEE SPECIFICATIONS FOR ALTERNATE MANUFACTURERS
2. PROVIDE UNIT WITH FACTORY MOUNTED CONTROLS ENCLOSURE - CONTROLLER PROVIDED BY BAS CONTRACTOR (FIELD OR FACTORY INSTALLED)

FAN SCHEDULE															
MARK	MFR	MODEL	APPROX. WEIGHT (LBS.)	AIRFLOW	RPM	IN WC	SOUND	DRIVE TYPE	MOTOR			STARTER/VFD	DISCONNECT	CONTROLS	
									SIZE	VOLTS	PHASE				
EF-1	GREENHECK	G-120-VG	75	700	1,116	0.5	7.6	DIRECT	1/4	115	1	SPEED CONTROLLER	UNIT MOUNTED	BAS INTERLOCKED TO RTU-1	
EF-2	GREENHECK	G-095-VG	60	260	1,328	0.4	7.1	DIRECT	1/8	115	1	SPEED CONTROLLER	UNIT MOUNTED	BAS INTERLOCKED TO RTU-2	
EF-3	GREENHECK	G-120-VG	75	800	905	0.3	5.6	DIRECT	1/4	115	1	SPEED CONTROLLER	UNIT MOUNTED	PUSH BUTTON ON WALL FOR 1 HR TIMER	
EF-4	GREENHECK	G-100-VG	75	400	1,214	0.5	4.1	DIRECT	1/4	115	1	SPEED CONTROLLER	UNIT MOUNTED	WALL MOUNTED SWITCH CONTROL	

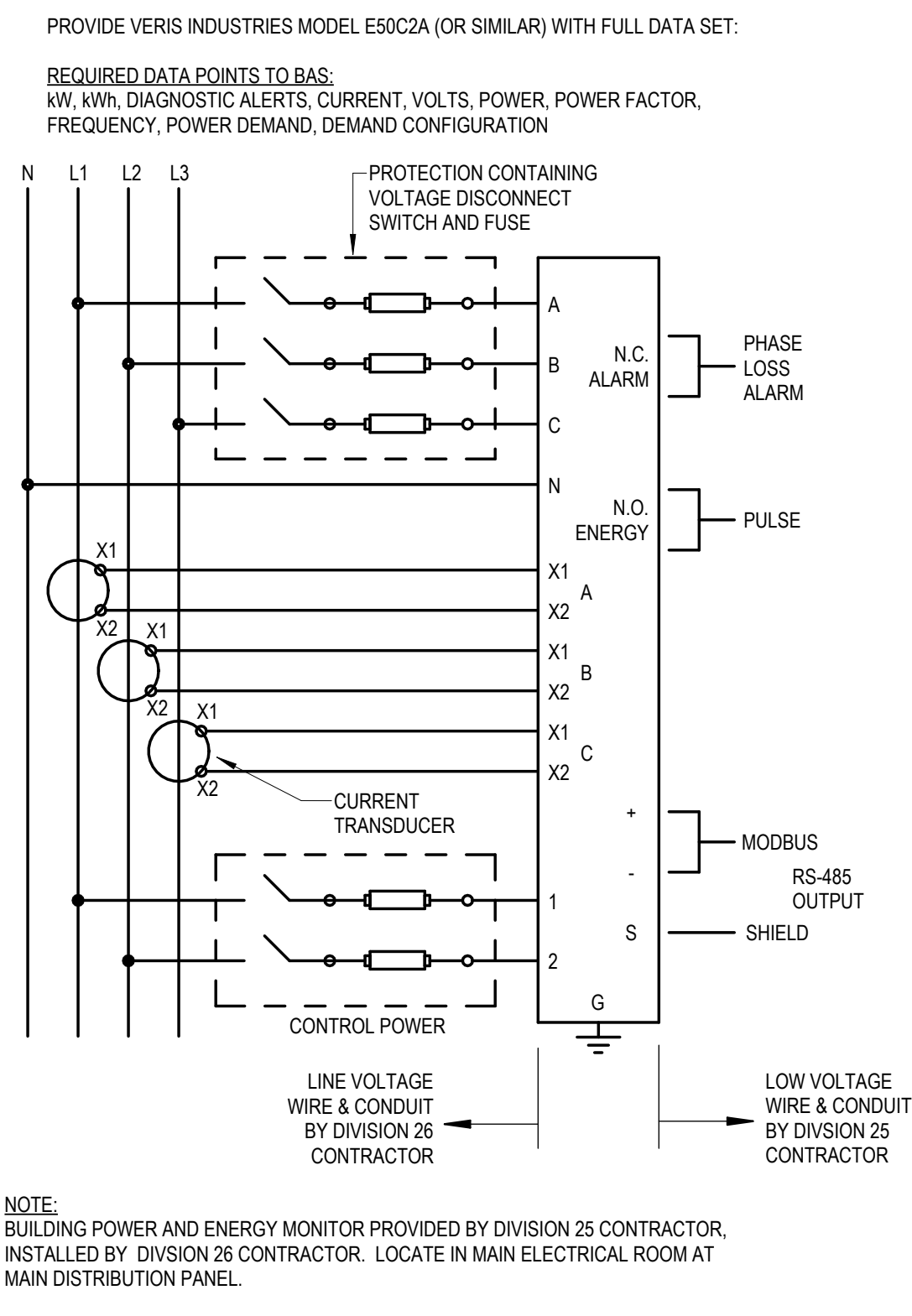
- ACCESSORIES / OPTIONS:
- MOTORIZED BACKDRAFT DAMPER
 - ALUM. BIRD SCREEN
 - ROOF CURB
 - WEATHER COVER
 - RUBBER VIBRATION ISOLATORS
 - SPEED CONTROLLER

ELECTRIC HEATER SCHEDULE								
MARK	MFR	MODEL	AIR FLOW CFM	HEAT CAPACITY	ELECTRICAL DATA			REMARKS
					VOLTS	PHASE	AMPS	
EH-1	BERKO	FRCS12F	300	1.5 KW	120	1	12.5	-

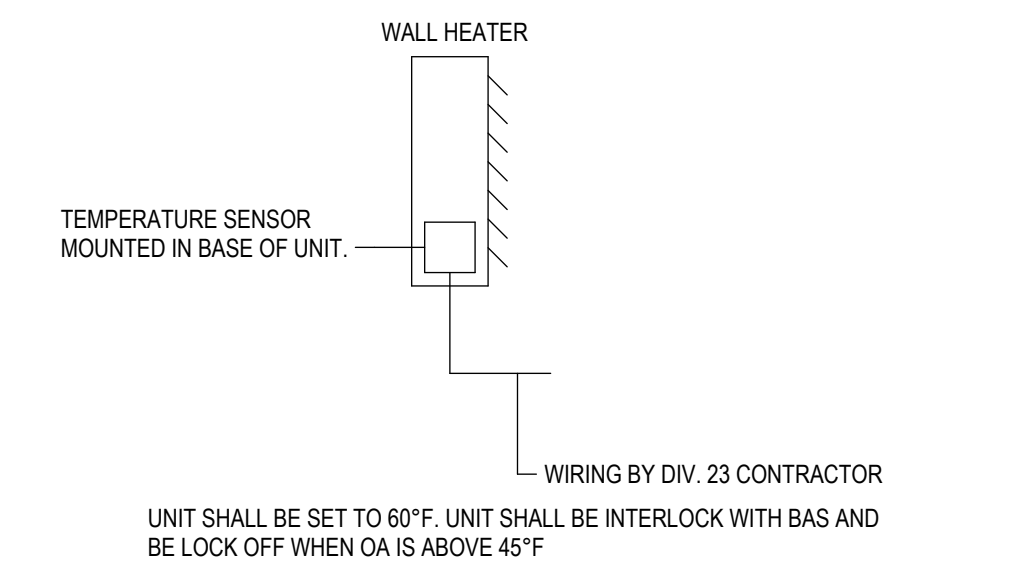
- NOTES:
- PROVIDE UNITS WITH DISCONNECT.
 - PROVIDE UNITS WITH INTEGRAL THERMOSTAT.
 - PROVIDE UNITS WITH RELAY 24V CONTROL VOLTAGE.
 - PROVIDE UNITS WITH RECESS MOUNTING FRAME.
 - PROVIDE UNITS WITH MOUNTING BRACKET.

BASEBOARD ELECTRIC HEATER SCHEDULE								
MARK	MFR	MODEL	LENGTH (INCH)	HEAT CAPACITY KW	ELECTRICAL DATA			REMARKS
					VOLTS	PHASE	AMPS	
BEH-1	RUNTAL	EBD-120D	120	1,466	120	1	20	-
BEH-2	RUNTAL	EBD-120D	96	1,172	120	1	20	-
BEH-3	RUNTAL	EBD-120D	0 96	1,172	120	1	20	-
BEH-4	RUNTAL	EBD-120D	0 96	1,172	120	1	20	-
BEH-5	RUNTAL	EBD-120D	0 96	1,172	120	1	20	-
BEH-6	RUNTAL	EBD-120D	120	1,466	120	1	20	-
BEH-7	RUNTAL	EBD-120D	120	1,466	120	1	20	-
BEH-8	RUNTAL	EBD-120D	120	1,466	120	1	20	-
BEH-9	RUNTAL	EBD-120D	120	1,466	120	1	20	-
BEH-10	RUNTAL	EBD-120D	120	1,466	120	1	20	-
BEH-11	RUNTAL	EBD-120D	120	1,466	120	1	20	-
BEH-12	RUNTAL	EBD-120D	120	1,466	120	1	20	-
BEH-13	RUNTAL	EBD-120D	120	1,466	120	1	20	-
BEH-14	RUNTAL	EBD-120D	96	1,172	120	1	20	-
BEH-15	RUNTAL	EBD-120D	120	1,466	120	1	20	-
BEH-16	RUNTAL	EBD-120D	120	1,466	120	1	20	-
BEH-17	RUNTAL	EBD-120D	120	1,466	120	1	20	-

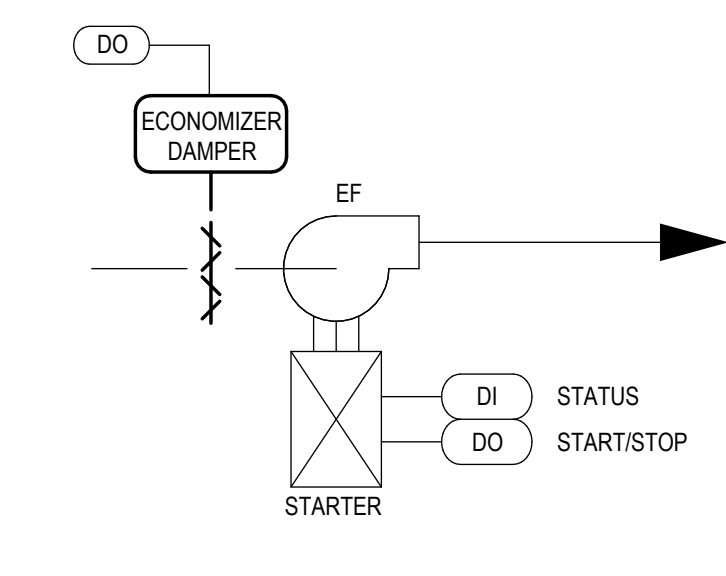
- NOTES:
- PROVIDE UNITS WITH TRIM SELECTION FOR WALL TO WALL APPEARANCES.
 - DISCONNECT
 - LINE VOLTAGE RELAY CONTROL VOLTAGE



BUILDING POWER MONITOR
NO SCALE

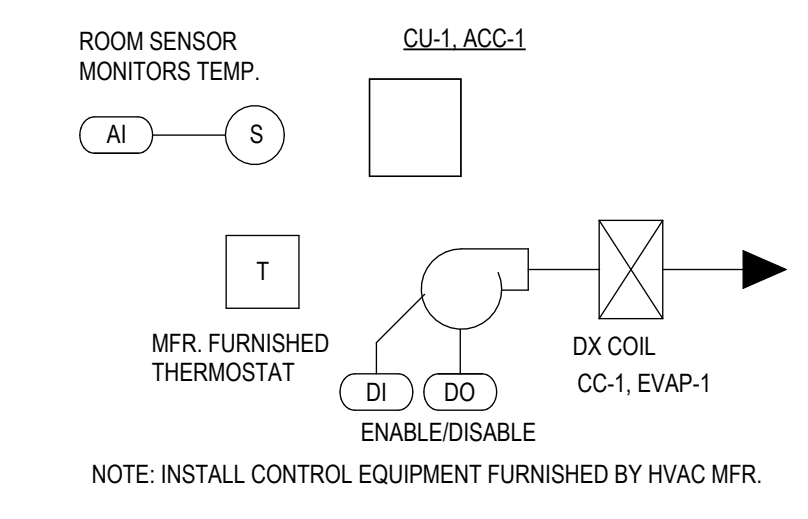


ELECTRIC HEATER
NO SCALE

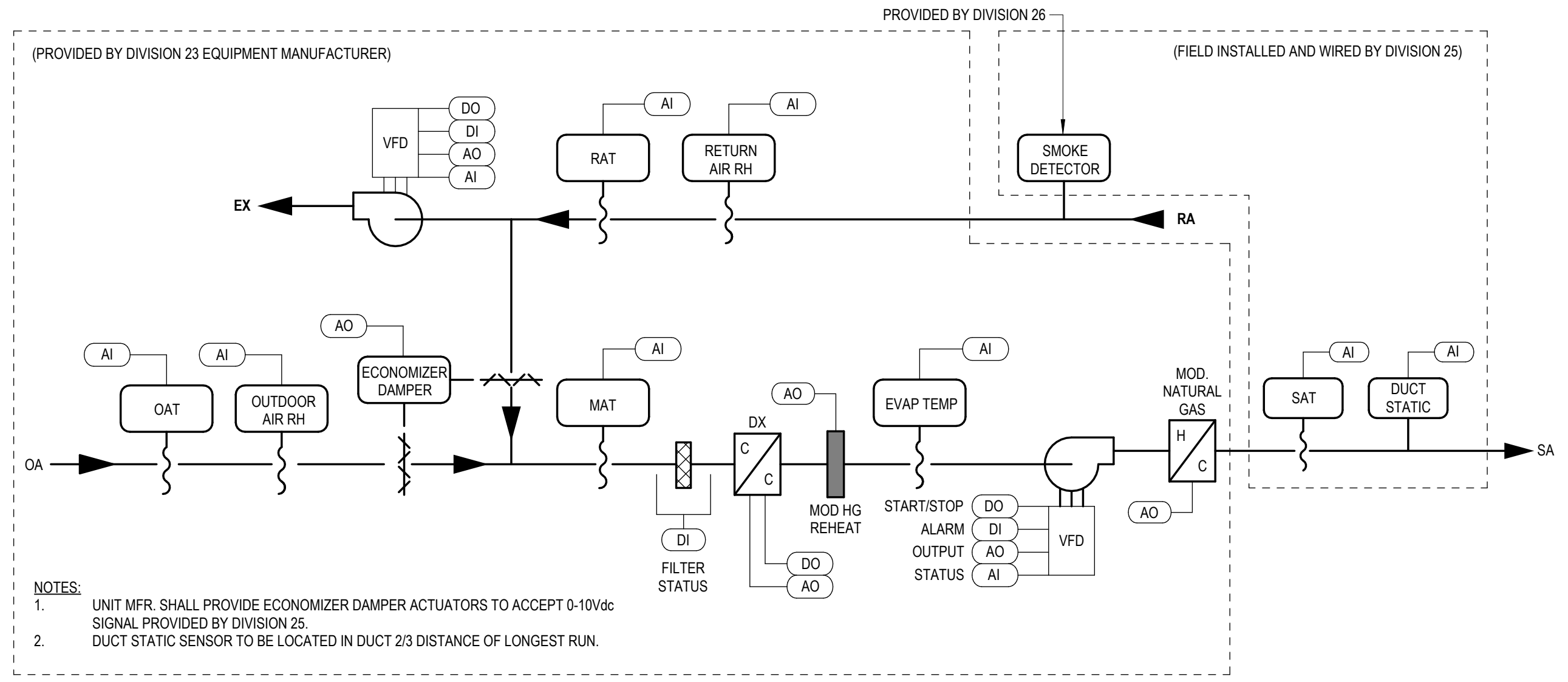


NOTES:
 1. SEE SEQUENCE OF OPERATION FOR EXHAUST FAN INTERLOCK TO AHU OCCUPIED MODE OF OPERATION.
 2. SEE EXHAUST FAN SCHEDULE FOR FANS THAT REQUIRE MANUAL SWITCH TO BE PROVIDED BY ELECTRICAL CONTRACTOR.

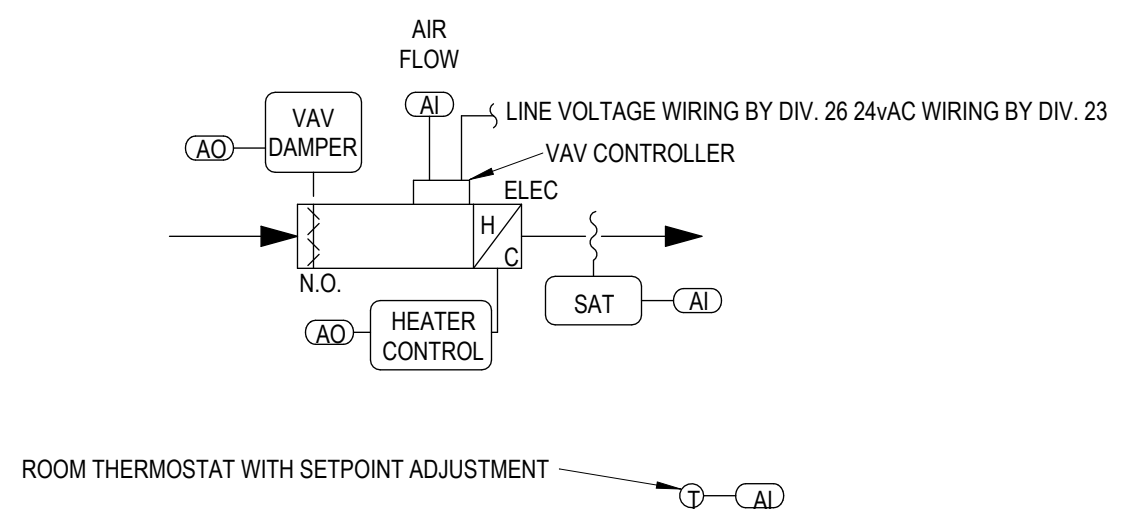
GENERAL EXHAUST FAN
NO SCALE



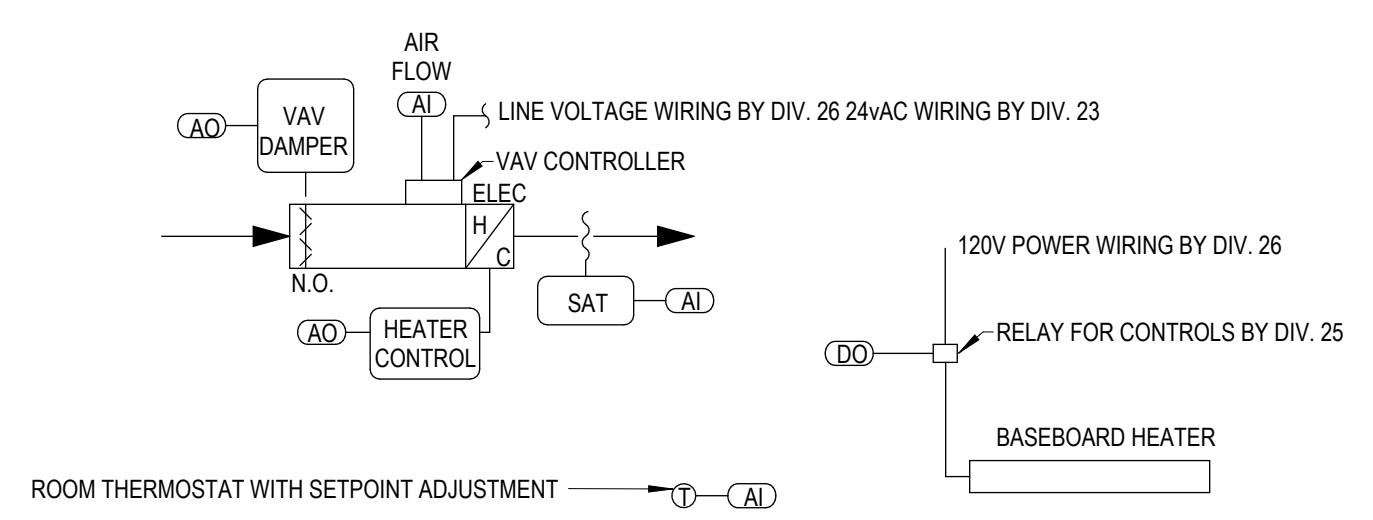
SPLIT SYSTEM
NO SCALE



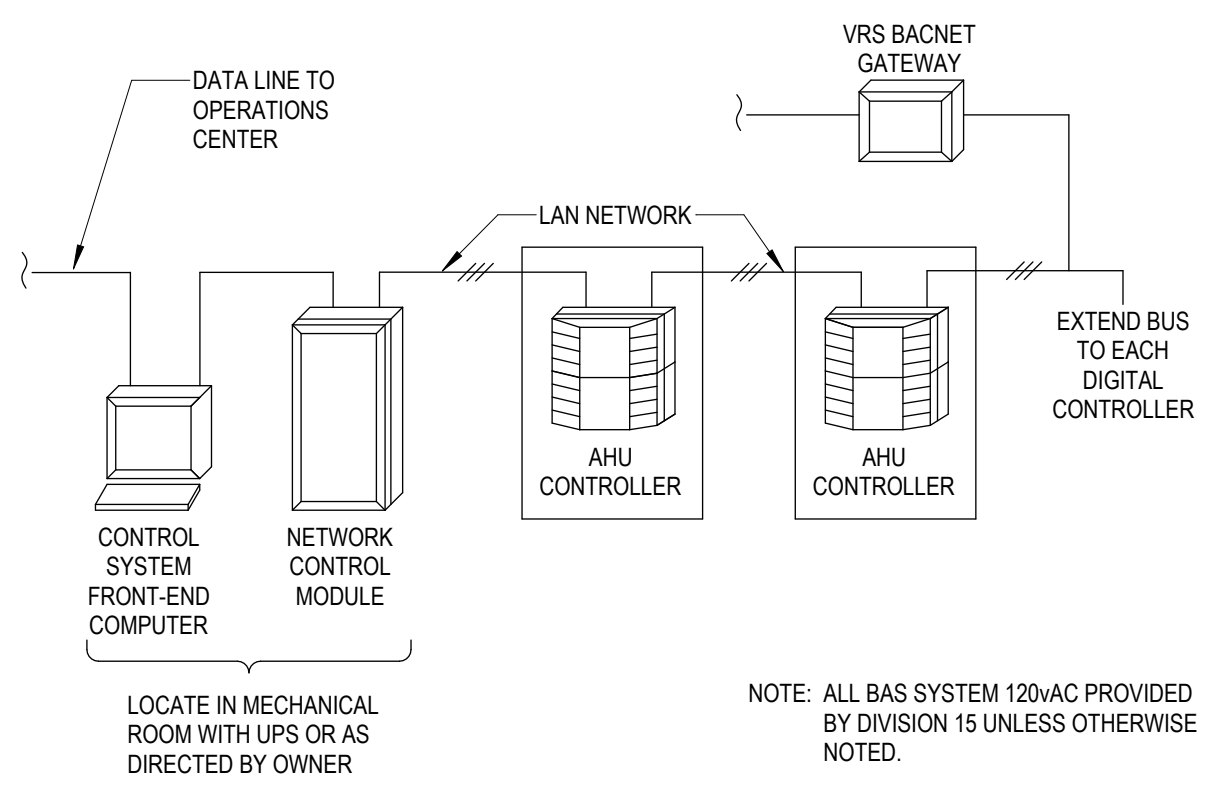
MULTIZONE VARIABLE AIR VOLUME (VAV) ROOFTOP UNIT
NO SCALE



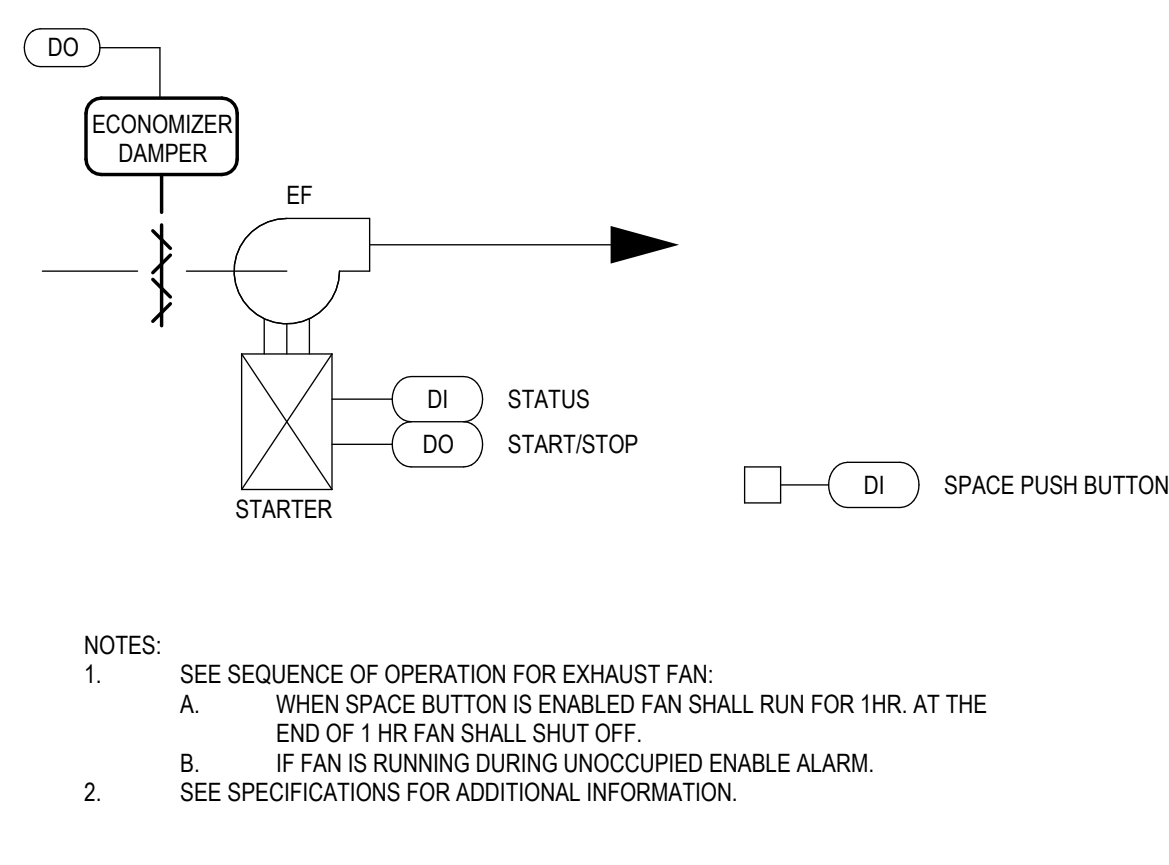
VAV BOX WITH REHEAT COIL
NO SCALE



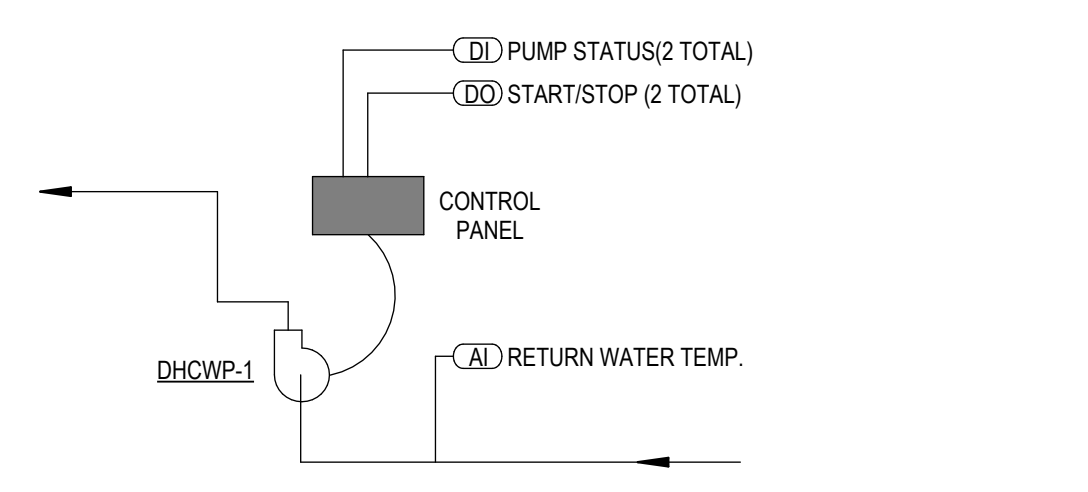
VAV BOX WITH REHEAT AND BEH
NO SCALE



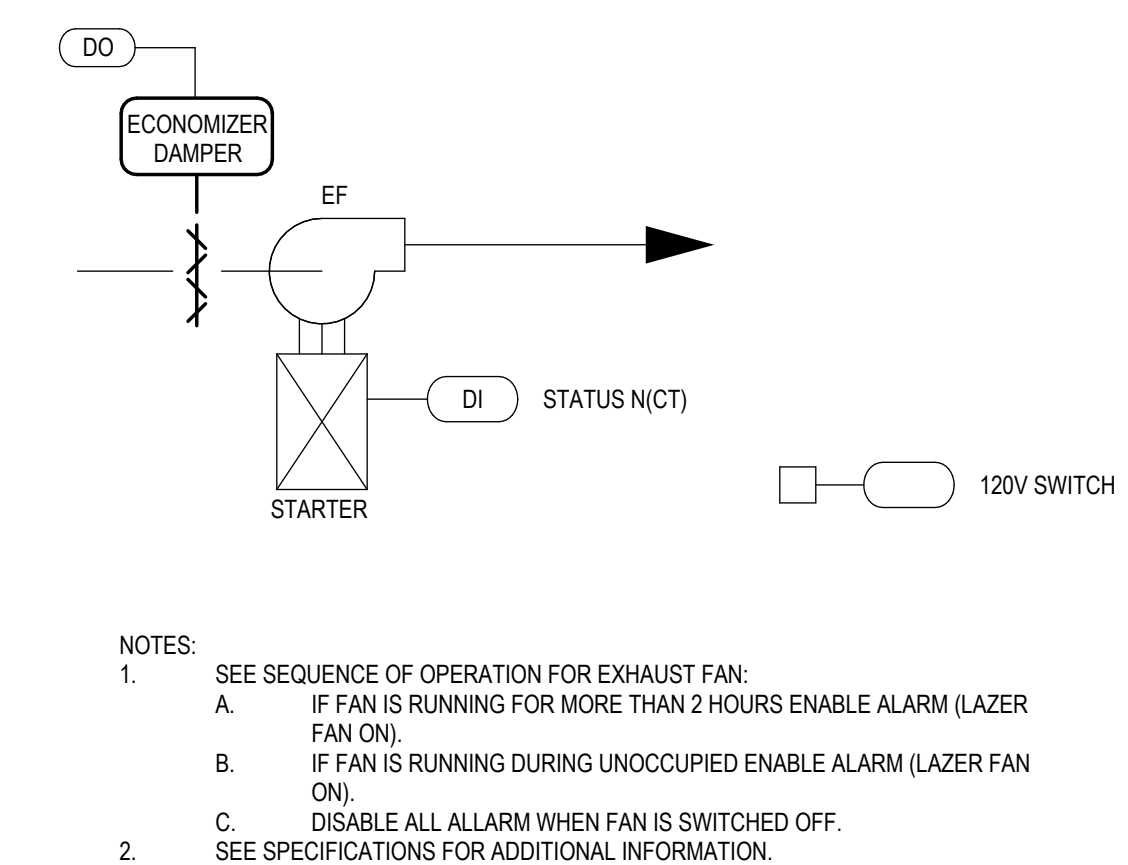
SYSTEM RISER DIAGRAM
NO SCALE



GENERAL EXHAUST FAN
NO SCALE



DOMESTIC HW RECIRCULATION PUMPS
NO SCALE



GENERAL EXHAUST FAN
NO SCALE

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CONTROLS

M5.00