

X:\30271\30271.dwg Plot: P:\30271\30271.dwg Plot Date: 12/15/2022 12:15:10 PM Plotter: HP DesignJet 5000 Series Plot Size: 11x17 inches Plot Scale: 1:1 Plot Style: h2m.ctb Plot Color: Black Plot Lineweight: 0.25 Plot Linetype: Solid Plot Font: Arial, 10pt Plot Title: HVAC LEGENDS, SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES

ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR
BCU	BUILDING CONTROL UNIT
BTU	BRITISH THERMAL UNIT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CLS	CEILING
COMM	COMMUNICATION
CV	CONTROL VALVE
(D)	DEMOLISH
DB	DRY BULB
DCV	DEMAND CONTROLLED VENTILATION
DEG F	DEGREES FAHRENHEIT
DIA	DIAMETER
DX	DIRECT EXPANSION
E	ELECTRICAL CONTRACTOR
(E)	EXISTING
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATING
ESP	EXTERNAL STATIC PRESSURE
FAI	FRESH AIR INTAKE
FD	FLOOR DRAIN
FLA	FULL LOAD AMPS
FT H2O	FEET OF WATER
G	GENERAL CONSTRUCTION CONTRACTOR
GPM	GALLONS PER MINUTE
GPH	GALLONS PER HOUR
H	HEIGHT
H	HVAC CONTRACTOR
HP	HORSEPOWER
IN.	INCHES
IN. W.C. (W.G.)	INCHES WATER COLUMN (WATER GAUGE)
KW	KILOWATTS
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LCD	LIQUID CRYSTAL DISPLAY
LDB	LEAVING DRY BULB TEMPERATURE
LWB	LEAVING WET BULB TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
M	METER
MAX	MAXIMUM
MBH	1,000 BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MIN	MINIMUM
MNF	MANUFACTURER
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OAI	OUTDOOR AIR INTAKE
OD	OUTER DIAMETER
ODD	OPEN ENDED DUCT
PP	PLUMBING CONTRACTOR
PD	PRESSURE DROP
PSIG	LBS / SQUARE INCH (GAUGE PRESSURE)
RD	ROOF DRAIN
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE ZONE
SAT	SUPPLY AIR TEMPERATURE
SEER	SEASONAL ENERGY EFFICIENCY RATING
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TYP	TYPICAL
VFD	VARIABLE FREQUENCY DRIVE
W	WIDTH
WB	WET BULB
WMS	WIRE MESH SCREEN

SYMBOL	ABBREV	DESCRIPTION
		DUCTWORK BRANCH CONNECTION
	VD	VOLUME DAMPER
	CD	ROUND FACE SUPPLY DIFFUSER
	SEE AIR DEVICE SCHEDULE	SIDEWALL SUPPLY, RETURN OR EXHAUST GRILLE/REGISTER
	SEE AIR DEVICE SCHEDULE	SQUARE FACE SUPPLY DIFFUSER
	SEE AIR DEVICE SCHEDULE	BOTTOM RETURN OR EXHAUST GRILLE/REGISTER
	FC	FLEXIBLE CONNECTION
		TURNING VANES
		RECTANGULAR TO ROUND TRANSITION
	AL	ACOUSTICAL LINING
		END CAP
	SEE AIR DEVICE SCHEDULE	SUPPLY DIFFUSER WITH DIRECTIONAL FLOW (SOLID HATCH INDICATES BLANK OFF PANEL)
		SUPPLY DUCT DROP (TURN DOWN)
		RETURN/EXHAUST DUCT DROP (TURN DOWN)
		SUPPLY DUCT RISE
		RETURN/EXHAUST DUCT RISE
	DSD	DUCT SMOKE DETECTOR
	MD	MOTORIZED DAMPER WITH ACTUATOR
	AD	ACCESS DOOR
	FD/AD	FIRE DAMPER WITH ACCESS DOOR
	FSD/AD	FIRE SMOKE DAMPER WITH ACCESS DOOR
		FAN
		WORK TO BE REMOVED
		POINT OF DISCONNECTION FROM EXISTING
		POINT OF CONNECTION TO EXISTING

SYMBOL	ABBREV	DESCRIPTION
		CARBON MONOXIDE SENSOR
		THERMOSTAT
		DIGITAL TEMPERATURE SENSOR
		CARBON DIOXIDE SENSOR

SYMBOL	ABBREV	DESCRIPTION
		NEW WORK
		PIPING DOWN/ PIPING UP
		BALL VALVE WITH HOSE END CONNECTION
	TH	THERMOMETER
	U	UNION
	FFC	FLEXIBLE PIPE CONNECTION
		DIRECTION OF FLOW
	PSR	PRESSURE SAFETY AND RELIEF VALVE
	PRV	PRESSURE REDUCING VALVE
	BV	BALL VALVE
	BA	BALANCING VALVE
	BFV	BUTTERFLY VALVE
		TEMPERATURE SENSOR WITH THERMOWELL
	GA	GATE VALVE
	GV	GLOBE VALVE
	AV	AUTOMATIC AIR VENT
	CV	2-WAY ELECTRONIC CONTROL VALVE
	CV	3-WAY ELECTRONIC CONTROL VALVE
	CV	2-WAY PNEUMATIC CONTROL VALVE
	CV	3-WAY PNEUMATIC CONTROL VALVE
	STR	STRAINER WITH BLOW OFF VALVE WITH HOSE END CONNECTION
	FD	FLOOR DRAIN
		AIR SEPARATOR
		STEAM TRAPS (INDICATE TYPE)
	CH	CHECK VALVE
	PG	PRESSURE GAUGE WITH GAUGE COCK
	RED	REDUCER
	CO	CLEANOUT END CAP
		PIPE GUIDE
		PIPE ANCHOR
		CAPPED PIPE
		PUMP
		WORK TO BE REMOVED
		POINT OF DISCONNECTION FROM EXISTING
		POINT OF CONNECTION TO EXISTING
	TDV	TRIPLE DUTY VALVE

BMS NOTES:
PROVIDE MATERIALS AND LABOR TO PROVIDE A BMS SYSTEM FOR ALL NEW EQUIPMENT ASSOCIATE WITH THIS PROJECT. SYSTEM SHALL BE WEB BASED USER INTERFACE. BMS SYSTEM SHALL INCLUDE ABILITY FOR COMMAND ENTRY, INFORMATION MANAGEMENT, NETWORK ALARM MANAGEMENT, AND DATABASE MANAGEMENT FUNCTIONS. A REAL TIME CONTROLS FUNCTION, INCLUDING SCHEDULING, HISTORY COLLECTION AND ALARMING SHALL BE RESIDENT IN THE BMS NETWORK. SYSTEM COMMUNICATIONS SHALL BE BACNET AND/OR MODBUS STANDARD 157-2016 AT ALL LEVELS OF THE ARCHITECTURE. THE BMS SHALL USE AN OPEN ARCHITECTURE AND FULLY SUPPORT A MULTI-VENDOR ENVIRONMENT.

GENERAL NOTES

- PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
- THE CONTRACTOR, BY PRESENTING THEIR BID FOR THE WORK, REPRESENTS THAT HE/SHE HAS INSPECTED THE SITE AND IS COMPLETELY FAMILIAR WITH THE SCOPE OF WORK AND ALL FIELD CONDITIONS RELATED TO, AND AFFECTING THE WORK AND ITS PERFORMANCE. EXCEPTIONS AFFECTING THE WORK AND ITS PERFORMANCE, OR CONFLICTS BETWEEN FIELD CONDITIONS, SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE SUBMISSION OF BIDS.
- PERFORM ALL WORK IN ACCORDANCE WITH THE PLUMBING CODE, FIRE CODE, MECHANICAL CODE, ENERGY CONSERVATION CONSTRUCTION CODE, AND FUEL GAS CODE OF NEW YORK STATE AND THE REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION.
- COMPLY WITH THE NATIONAL ELECTRIC CODE AND THE REQUIREMENTS OF DIVISION 26 FOR ALL ELECTRICAL INSTALLATIONS.
- PRE STOP ALL OPENINGS IN FIRE RATED CONSTRUCTION FOR PIPING, DUCTWORK, CONDUIT, ETC. PROVIDE FIRE DAMPERS AND ACCESS DOORS IN ALL OPENINGS IN FIRE RATED FLOORS, PARTITIONS, AND WALLS FOR DUCTWORK AS PER THE MECHANICAL CODE OF NEW YORK STATE. (SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED CONSTRUCTION.)
- DO NOT SCALE DRAWINGS. DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE. COORDINATE CONTRACT DOCUMENTS, PROJECT REQUIREMENTS, WORK OF OTHERS, AND EQUIPMENT AND MATERIALS PURCHASED WITH FIELD DIMENSIONS. INSTALL ALL EQUIPMENT AS PER MANUFACTURER'S REQUIREMENTS TO PROVIDE PROPER CLEARANCE FOR INSTALLATION, OPERATION, AND MAINTENANCE. CONTRACTORS INTENDED MEANS AND METHODS OF INSTALLATION AND CONTRACTORS FABRICATED ITEMS SHALL ENSURE A PROPER "FIT" AND INSTALLATION, BRING ANY CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER DURING THE SUBMITTAL PHASE FOR RESOLUTION PRIOR TO PURCHASING ANY EQUIPMENT.
- MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS, WHERE HEADROOM AND SPACE CONDITIONS APPEAR INADEQUATE. NOTIFY THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING WITH INSTALLATION. MAINTAIN A MINIMUM OF 8'-0" CLEARANCE FROM FINISHED FLOOR TO UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
- FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION. MAKE MODIFICATIONS IN THE LAYOUT AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES OR FOR PROPER EXECUTION OF THE WORK. OBTAIN THE APPROVAL OF THE ARCHITECT/ENGINEER FOR MODIFICATIONS.
- PROVIDE PRODUCTS OF ONE MANUFACTURER WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF MATERIAL OR EQUIPMENT IS REQUIRED.
- INSTALL ALL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS. REFER TO DETAILS FOR ADDITIONAL PIPING AND EQUIPMENT INSTALLATION REQUIREMENTS.
- LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UP- AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER TO ENSURE MANUFACTURER CERTIFIED ACCURACY.
- COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL PIPING AND DUCT TRANSITIONS REQUIRED FOR FINAL CONNECTIONS TO EQUIPMENT.
- COORDINATE LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS WITH ALL OTHER TRADES. COORDINATE ALL PIPING AND EQUIPMENT SUPPORTED FROM STRUCTURE WITH GENERAL CONSTRUCTION WORK.
- COORDINATE INSTALLATION OF SUPPLY AND RETURN GRILLES WITH INSTALLATION OF FINISHED CEILINGS.
- COMPLETE ALL PRESSURE TESTS BEFORE ANY MECHANICAL EQUIPMENT, DUCTWORK, OR PIPING INSULATION IS APPLIED.
- TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABO) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). PERFORM ALL TESTING, ADJUSTING, AND BALANCING IN ACCORDANCE WITH THE SPECIFICATIONS.
- MAKE ALL ATTACHMENTS TO JOISTS, TRUSSES, OR JOIST GIRDERS AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. THE USE OF C-CLAMPS IS NOT PERMITTED.
- PROVIDE CONCRETE PADS FOR ALL FLOOR MOUNTED EQUIPMENT. EXTEND PAD 6 INCHES BEYOND THE EQUIPMENT ON ALL SIDES.
- LINE ALL SUPPLY AND RETURN DUCTWORK WITHIN 20 FEET UPSTREAM AND DOWNSTREAM OF FANS WITH 1" THICK INSULATION. SEE DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE TRAPPED DRAIN PIPING FROM DRAIN PANS OF ALL COOLING COILS, FANS, AND OTHER ACTIVE DRAINS EXPOSED TO SYSTEM AIR STREAM. PROVIDE TRAP AT CONNECTION. WATER SEAL DEPTH 1 INCH GREATER THAN UNIT OPERATING PRESSURE. DIRECT DRAINS TO NEAREST FLOOR DRAIN, MOP SINK, OR OTHER LOCATION APPROVED BY THE ARCHITECT/ENGINEER.
- INSTALL PIPING, DUCTWORK, AND CONDUIT CONCEALED IN AREAS HAVING HUNG CEILINGS AND/OR FURRED SPACES UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

SCOPE NOTES

- SUBMIT LOUVER COLOR AND CONFIGURATION TO THE ARCHITECT/ENGINEER FOR APPROVAL.
- INSTALL SMOKE DETECTORS IN DUCTWORK FOR AIR HANDLING UNITS RATED AT 2,000 CFM OR GREATER.
- FURNISH AND INSTALL ALL NECESSARY CONTROL WIRING, CONDUIT, AND ACCESSORIES AS REQUIRED TO PROVIDE FULLY FUNCTIONING SYSTEMS AND SEQUENCES OF OPERATION.
- REMOVE CHASE ENCLOSURE COVER WHEN PERFORMING WORK IN ANY CHASE, AND REINSTALL THE CHASE ENCLOSURE COVER WHEN WORK IS COMPLETE.
- PERFORM ALL CUTTING AND ROUGH PATCHING AS REQUIRED IN THE EXECUTION OF THE WORK.

LEGENDS/ABBREVIATIONS NOTES

- ABBREVIATIONS AND SYMBOLS ON THIS SHEET DO NOT DEFINE THE SCOPE OF WORK.

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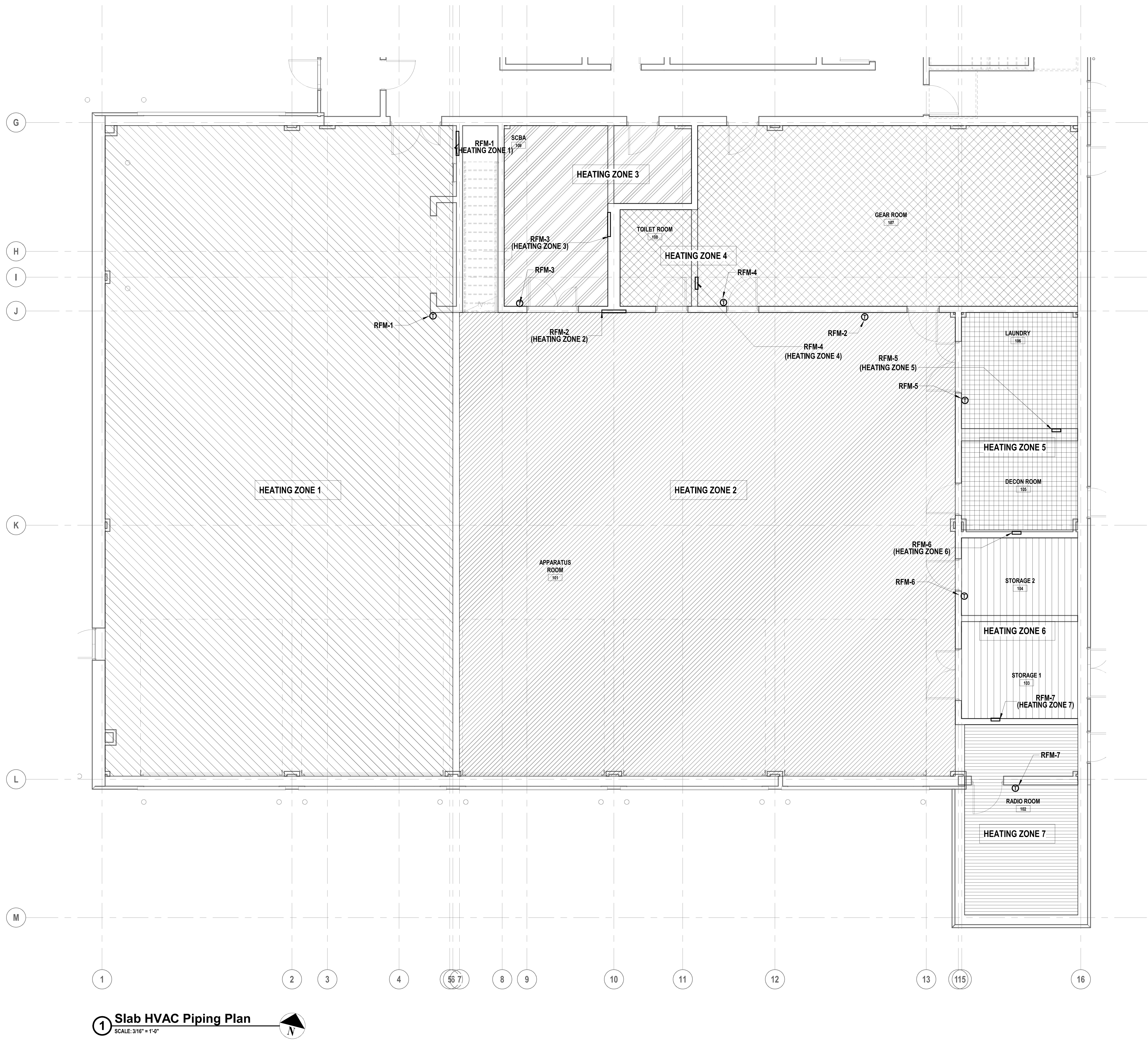
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PROJECT: [blank] DATE: [blank] SCALE: [blank]
PROJECT NO.: VGF020001 DATE: JULY 2022 SCALE: AS SHOWN

VAILE'S GATE FIRE DISTRICT

New Storage Building (Phase I)
New Fire Station (Phase II)

872 Blooming Grove Turnpike
New Windsor, NY 12553

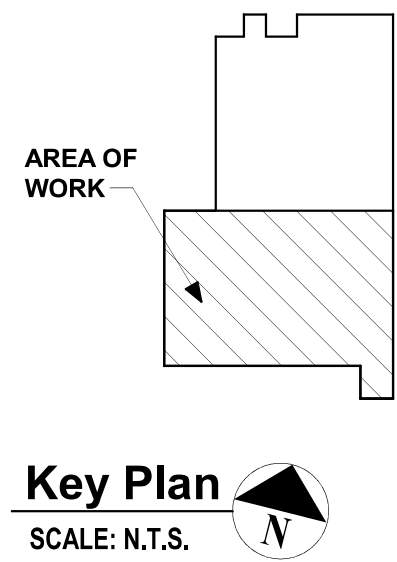
CONTRACT	CONTRACT G GENERAL CONSTRUCTION
STATUS	FINAL BID DOCUMENT
SHEET TITLE	HVAC LEGENDS, SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES
DRAWING NO.	M2 001.00



1 Slab HVAC Piping Plan
SCALE: 3/16" = 1'-0"

RADIANT FLOOR ZONE LEGEND:

- = ZONE 1, CONTAINS RADIANT FLOOR PIPING WITH 10 CIRCUITS TO MANIFOLD RFM-1.
- = ZONE 2, CONTAINS RADIANT FLOOR PIPING WITH 10 CIRCUITS TO MANIFOLD RFM-2.
- = ZONE 3, CONTAINS RADIANT FLOOR PIPING WITH 2 CIRCUITS TO MANIFOLD RFM-3.
- = ZONE 4, CONTAINS RADIANT FLOOR PIPING WITH 4 CIRCUITS TO MANIFOLD RFM-4.
- = ZONE 5, CONTAINS RADIANT FLOOR PIPING WITH 2 CIRCUITS TO MANIFOLD RFM-5.
- = ZONE 6, CONTAINS RADIANT FLOOR PIPING WITH 2 CIRCUITS TO MANIFOLD RFM-6.
- = ZONE 7, CONTAINS RADIANT FLOOR PIPING WITH 2 CIRCUITS TO MANIFOLD RFM-7.



Key Plan
SCALE: N.T.S.

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CONSULTANTS:

MARK	DATE	DESCRIPTION

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CHECKED BY: MAM
REVIEWED BY: JML
PROJECT NO.: VF02001
DATE: JULY 2022
SCALE: AS SHOWN

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VAILS GATE FIRE DISTRICT

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New Fire Station (Phase II)

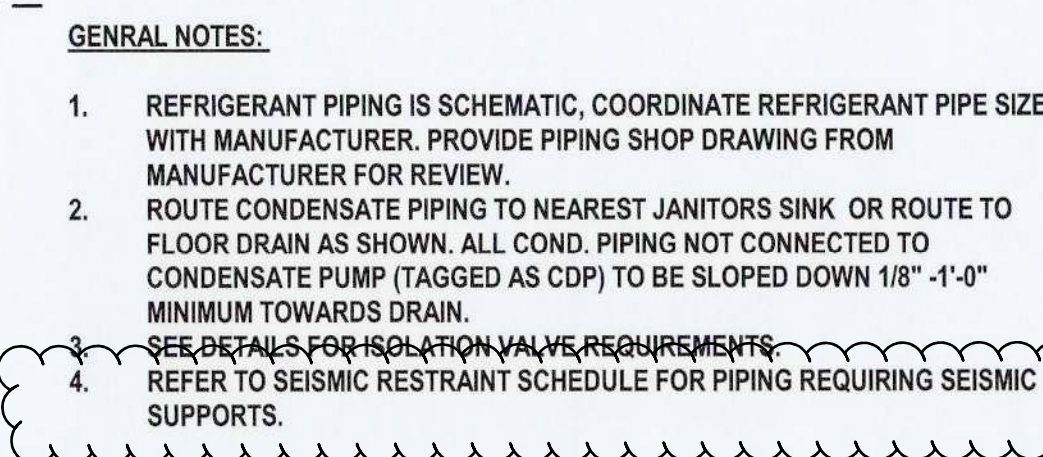
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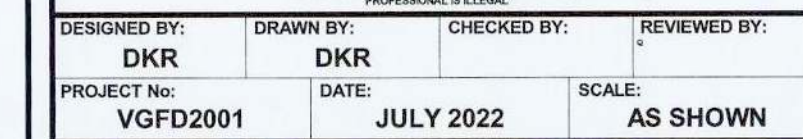
SHEET TITLE
SLAB HVAC PIPING PLAN AREA A

DRAWING NO.
M2 100A.00



1. REFRIGERANT PIPING IS SCHEMATIC, COORDINATE REFRIGERANT PIPE SIZE WITH MANUFACTURER. PROVIDE PIPING SHOP DRAWINGS FROM MANUFACTURER FOR REVIEW.
2. ROUTE CONDENSATE PIPING TO NEAREST JANITORS SINK OR ROUTE TO FLOOR DRAIN AS SHOWN. ALL COND. PIPING NOT CONNECTED TO CONDENSATE PUMP (TAGGED AS CDP) TO BE SLOPED DOWN 1/8" -1/4" MINIMUM TOWARDS DRAIN.
3. SEE DETAILS FOR ISOLATION VALVE REQUIREMENTS
4. REFER TO SEISMIC RESTRAINT SCHEDULE FOR PIPING REQUIRING SEISMIC SUPPORTS

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VAILS GATE FIRE DISTRICT



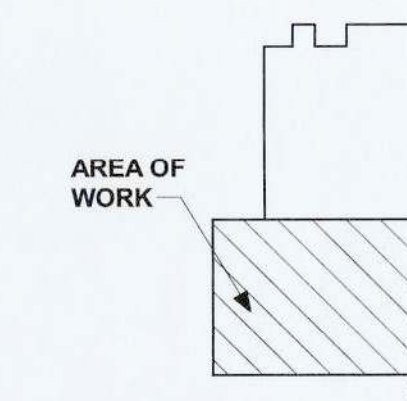
CONTRACT	CONTRACT G
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STATUS	FINAL BID DOCUMENT
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**FIRST FLOOR HVAC PIPING PLAN
AREA A**

DRAWING No. **M2 101A.02**

1 First Floor HVAC Piping Plan
SCALE: 3/16" = 1'-0" 



Key Plan
SCALE: N.T.S.

MARK	DATE	DESCRIPTION
2	12/22/2022	REVS. PER TOWN COMMENT

[illegible]

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PROJECT No: VGFD2001			DATE: JULY 2022			SCALE: AS SHOWN			

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**VAILS GATE FIRE
DISTRICT**

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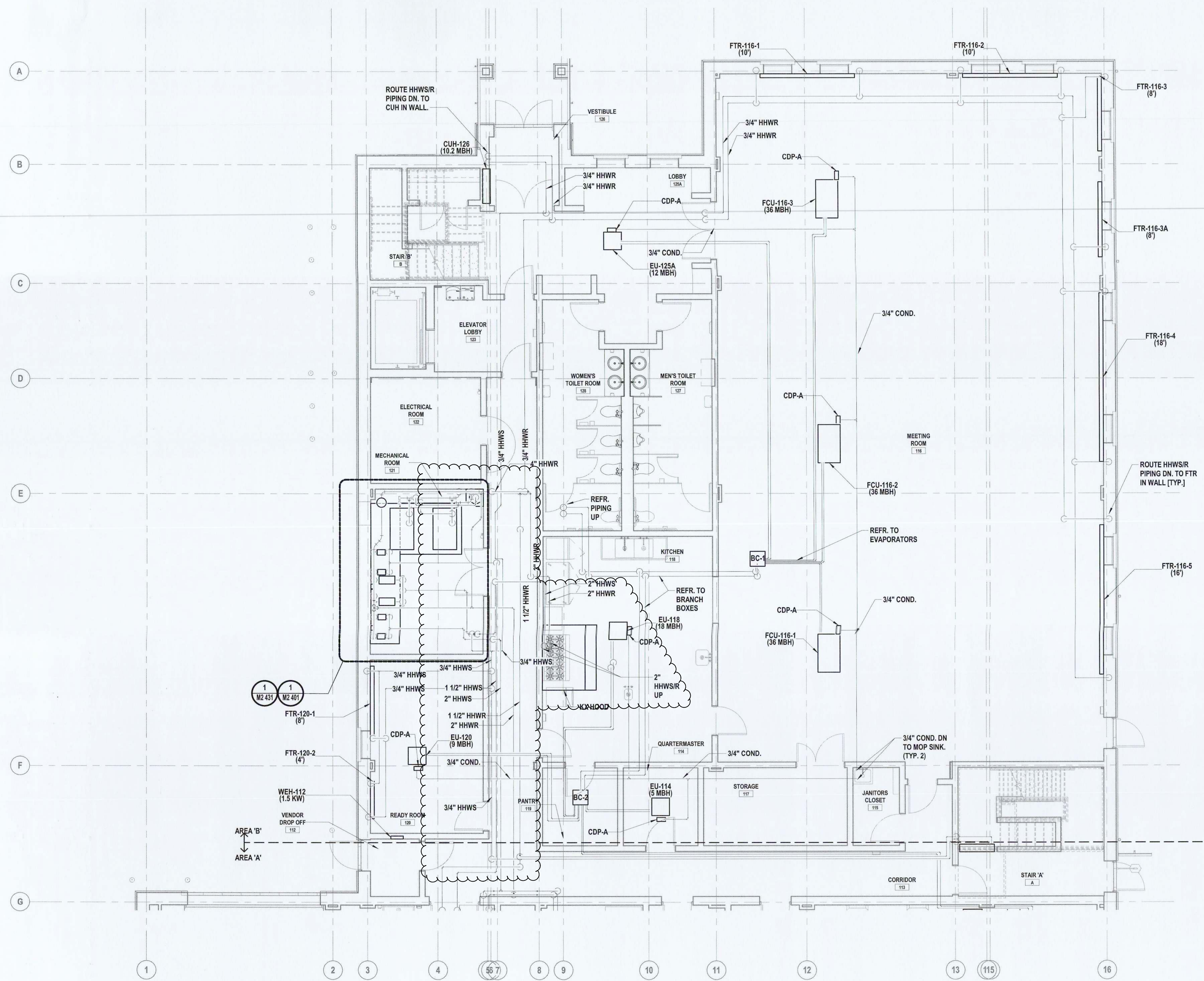
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**FIRST FLOOR HVAC PIPING PLAN
AREA B**

DRAWING No.

DRAWING No. **M2 101B.02**



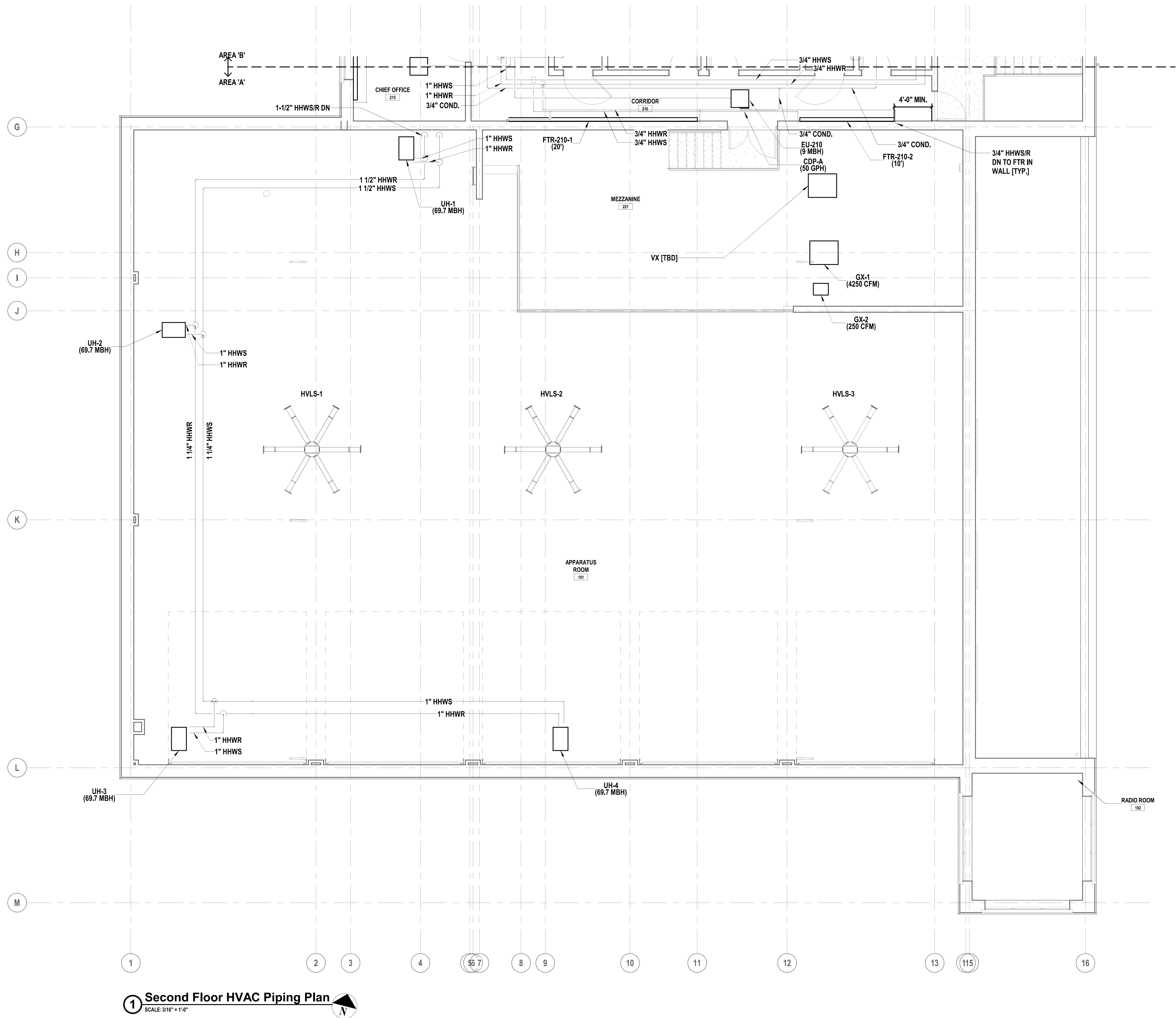
1 First Floor HVAC Piping Plan
SCALE: 3/16" = 1'-0"

Key Pla
SCALE: N.T.S.

GENERAL NOTES:

1. REFRIGERANT PIPING IS SCHEMATIC. COORDINATE REFRIGERANT PIPE SIZE WITH MANUFACTURER. PROVIDE PIPING SHOP DRAWING FROM MANUFACTURER FOR REVIEW.
2. ROUTE CONDENSATE PIPING TO NEAREST JANITORS SINK OR ROUTE TO FLOOR DRAIN AS SHOWN. ALL COND. PIPING NOT CONNECTED TO CONDENSATE SUMP (TAGGED AS CDP) TO BE SLOPED DOWN 1/8" - 1/4" MINIMUM TOWARDS DRAIN.
3. SEE DETAILS FOR ISOLATION VALVE REQUIREMENTS
4. REFER TO SEISMIC RESTRAINT SCHEDULE FOR PIPING REQUIRING SEISMIC SUPPORTS

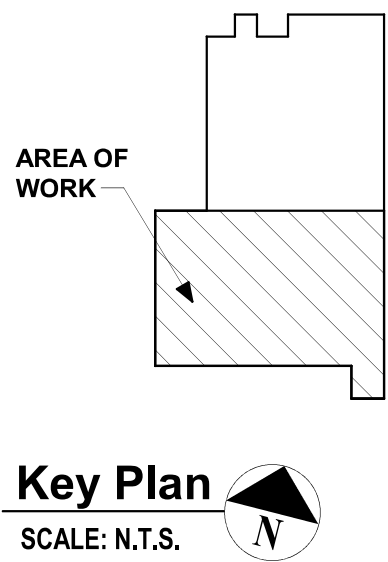
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1 Second Floor HVAC Piping Plan
SCALE: 3/16" = 1'-0"

- GENERAL NOTES:**
- REFRIGERANT PIPING IS SCHEMATIC. COORDINATE REFRIGERANT PIPE SIZE WITH MANUFACTURER. PROVIDE PIPING SHOP DRAWING FROM MANUFACTURER FOR REVIEW.
 - ROUTE CONDENSATE PIPING TO NEAREST JANITORS SINK OR ROUTE TO FLOOR DRAIN AS SHOWN. ALL COND. PIPING NOT CONNECTED TO CONDENSATE PUMP (TAGGED AS CDP) TO BE SLOPED DOWN 1/8" - 1/4" MINIMUM TOWARDS DRAIN.
 - SEE DETAILS FOR ISOLATION VALVE REQUIREMENTS.

KEYED NOTES:
VX BY DISTRICT FOR REFERENCE ONLY



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CONSULTANTS:

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CHECKED BY: MAM
REVIEWED BY: JML
PROJECT NO.: VF2001
DATE: JULY 2022
SCALE: AS SHOWN

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SHEET TITLE
**SECOND FLOOR HVAC PIPING PLAN
AREA A**

DRAWING NO.
M2 102A.00

GENERAL NOTES:

- REFRIGERANT PIPING IS SCHEMATIC. COORDINATE REFRIGERANT PIPE SIZE WITH MANUFACTURER. PROVIDE PIPING SHOP DRAWING FROM MANUFACTURER FOR REVIEW.
- ROUTE CONDENSATE PIPING TO NEAREST JANITORS SINK OR ROUTE TO FLOOR DRAIN AS SHOWN. ALL COND. PIPING NOT CONNECTED TO CONDENSATE PUMP (TAGGED AS CDP) TO BE SLOPED DOWN 1/8" - 1'-0" MINIMUM TOWARDS DRAIN.
- SEE DETAILS FOR ISOLATION VALVE REQUIREMENTS. REFER TO SEISMIC RESTRAINT SCHEDULE FOR PIPING REQUIRING SEISMIC SUPPORTS

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SCALE: AS SHOWN

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SHEET TITLE
**SECOND FLOOR HVAC PIPING
PLAN AREA B**

DRAWING No.:
M2 102B.02



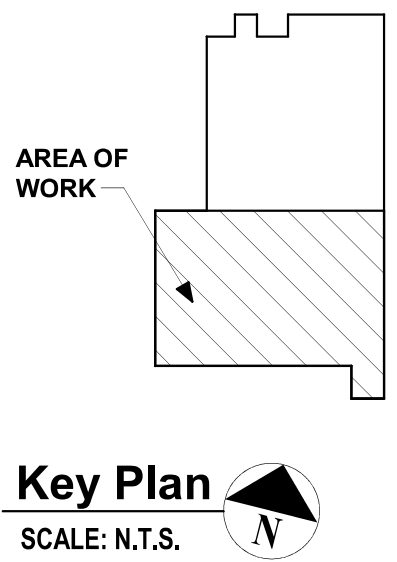
1 Second Floor HVAC Piping Plan
SCALE: 3/16" = 1'-0"

AREA OF WORK

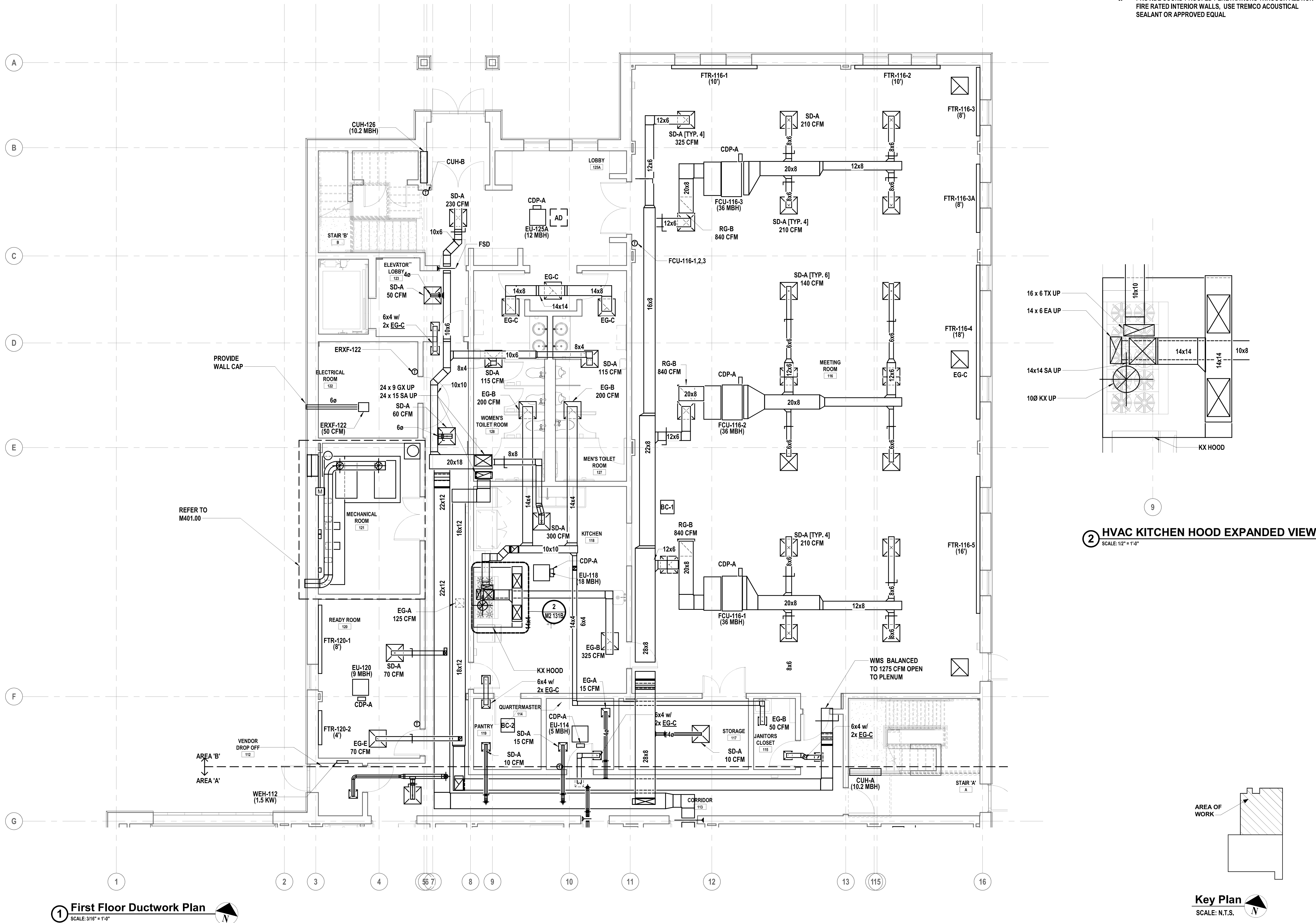
Key Plan
SCALE: N.T.S.



1. ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS. REFER TO SPECIFICATIONS FOR ALL DUCT CONSTRUCTION REQUIREMENTS.
2. ALL SUPPLY, RETURN AND EXHAUST BRANCH DUCTWORK SHALL BE PROVIDED WITH VOLUME DAMPERS.
3. MAINTAIN 10'-0" CLEARANCE BETWEEN OUTSIDE AIR AND EXHAUST AIR TERMINATIONS ON ROOF.
4. PROVIDE SOUND PROOFED PENETRATIONS THROUGH ALL NON FIRE RATED INTERIOR WALLS. USE TREMCO ACOUSTICAL SEALANT OR APPROVED EQUAL



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- GENERAL NOTES:
1. ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS. REFER TO SPECIFICATIONS FOR ALL DUCT CONSTRUCTION REQUIREMENTS.
 2. ALL SUPPLY, RETURN AND EXHAUST BRANCH DUCTWORK SHALL BE PROVIDED WITH VOLUME DAMPERS.
 3. MAINTAIN 1'-0" CLEARANCE BETWEEN OUTSIDE AIR AND EXHAUST AIR TERMINATIONS ON ROOF.
 4. COORDINATE WITH NEW STRUCTURE, OFFSET AS REQUIRED.
 5. MAINTAIN HEADROOM FOR ALL NEW HORIZONTAL DUCTWORK (6'-8" MINIMUM).
 6. PROVIDE SOUND PROOFED PENETRATIONS THROUGH ALL NON FIRE RATED INTERIOR WALLS. USE TREMCO ACOUSTICAL SEALANT OR APPROVED EQUAL.

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CONTRACT
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GENERAL CONSTRUCTION**

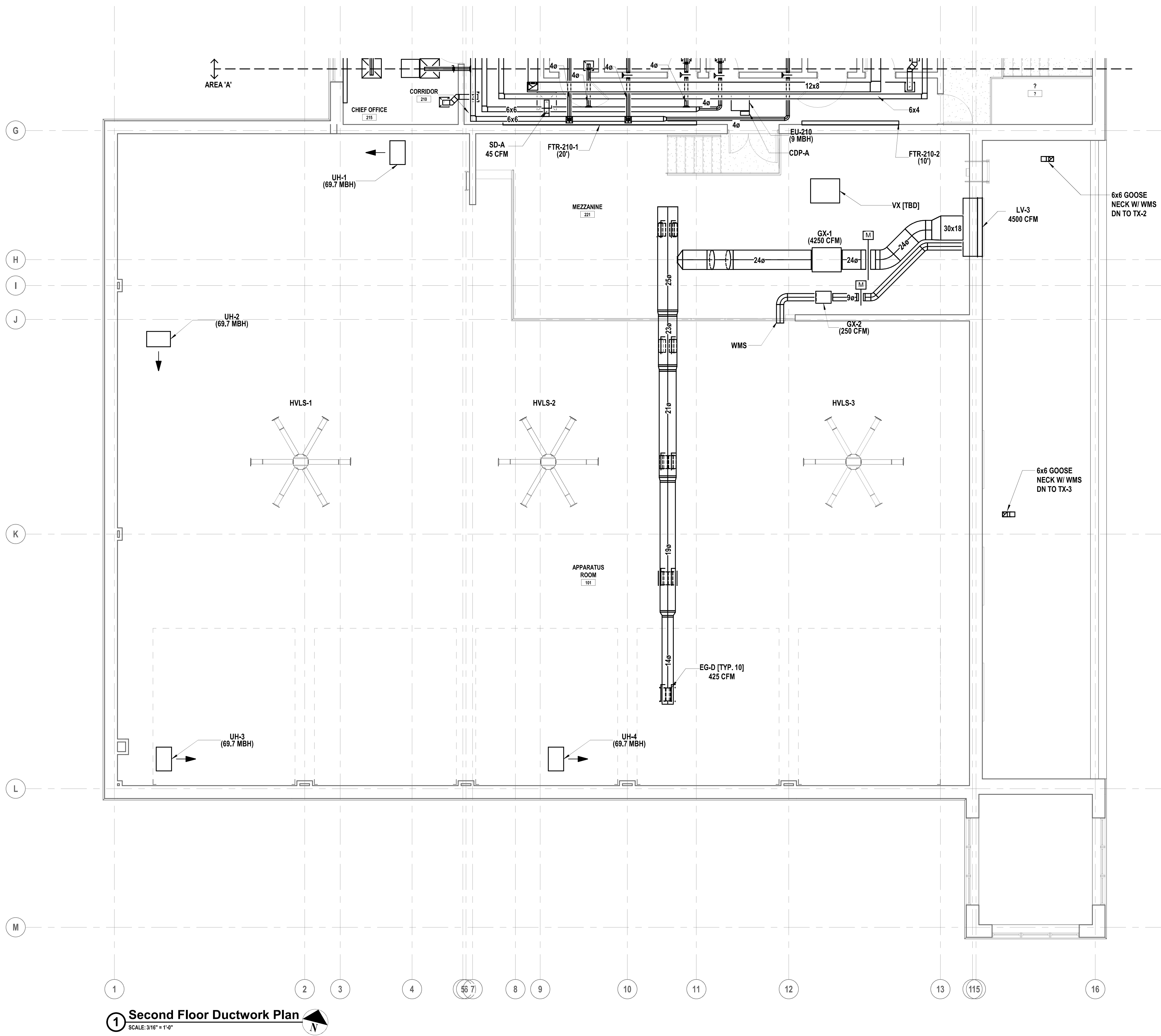
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**FIRST FLOOR DUCTWORK PLAN
AREA B**

DRAWING NO.
M2 131B.00

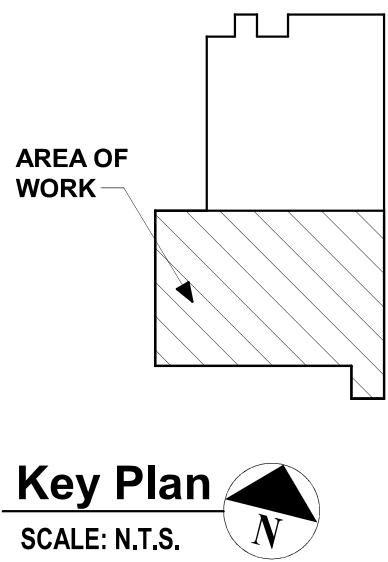
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GENERAL NOTES:

1. ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS. REFER TO SPECIFICATIONS FOR ALL DUCT CONSTRUCTION REQUIREMENTS.
2. ALL SUPPLY, RETURN AND EXHAUST BRANCH DUCTWORK SHALL BE PROVIDED WITH VOLUME DAMPERS.
3. MAINTAIN 1/2" CLEARANCE BETWEEN OUTSIDE AIR AND EXHAUST AIR TERMINATIONS ON ROOF.
4. PROVIDE SOUND PROOFED PENETRATIONS THROUGH ALL NON FIRE RATED INTERIOR WALLS. USE TREMCO ACOUSTICAL SEALANT OR APPROVED EQUAL.



H2M

architects
+
engineers

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Melville, NY 11747
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CONSULTANTS:

MARK	DATE	DESCRIPTION

DESIGNED BY: DKR
PROJECT NO.: VF02001

DRAWN BY: DKR
DATE: JULY 2022

CHECKED BY: MAM
SCALE: AS SHOWN

REVIEWED BY: JML

CLIENT
VAILS GATE FIRE DISTRICT

New Storage Building (Phase I)
New Fire Station (Phase II)

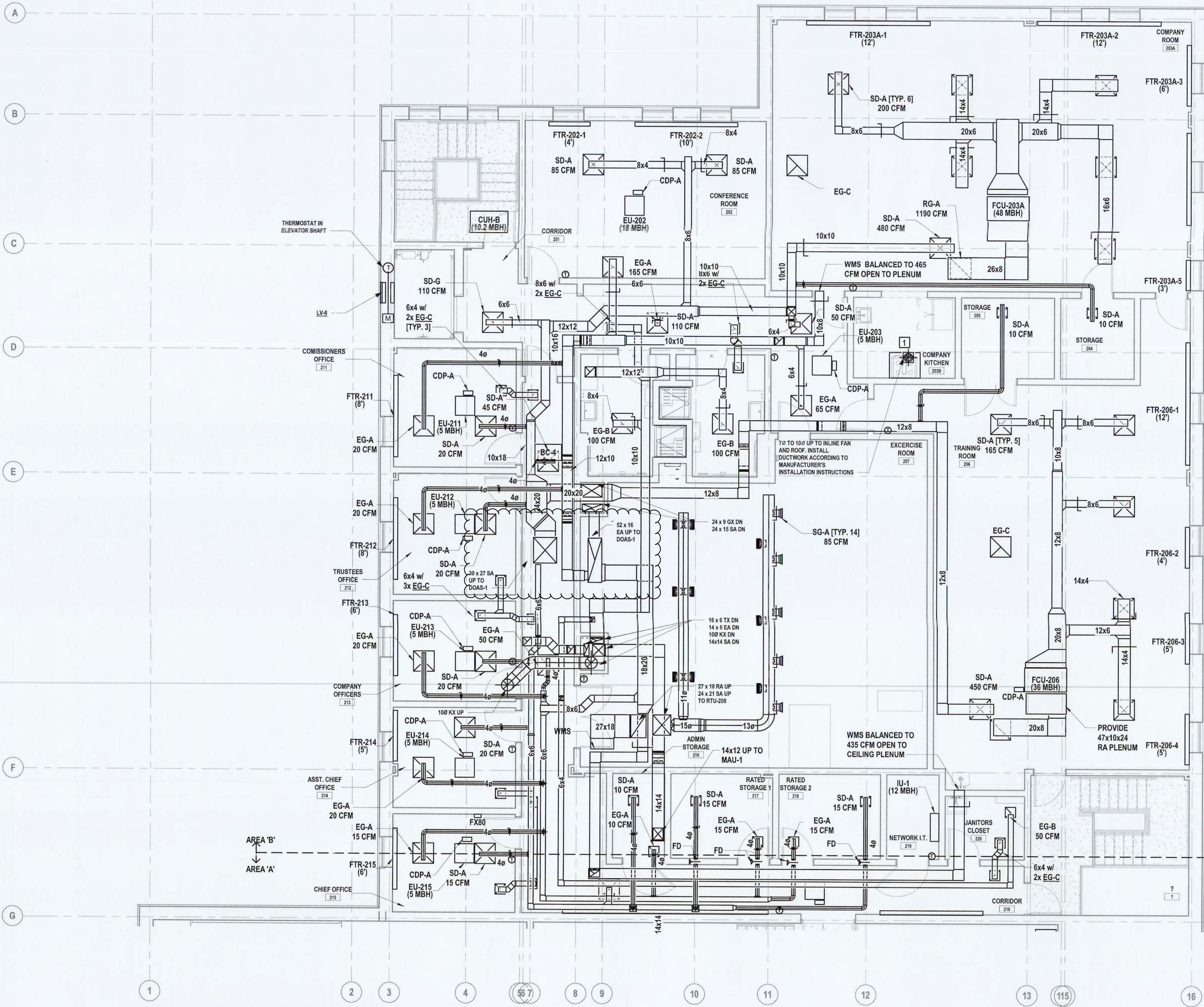
872 Blooming Grove Turnpike
New Windsor, NY 12553

CONTRACT
**CONTRACT G
GENERAL CONSTRUCTION**

STATUS
FINAL BID DOCUMENT

SHEET TITLE
**SECOND FLOOR DUCTWORK PLAN
AREA A**

DRAWING NO.
M2 132A.00



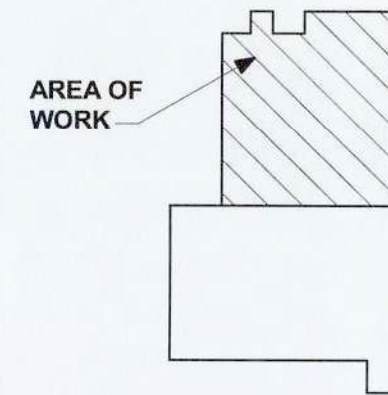
1 Second Floor Ductwork Plan
SCALE: 3/16" = 1'-0"

GENERAL NOTES:

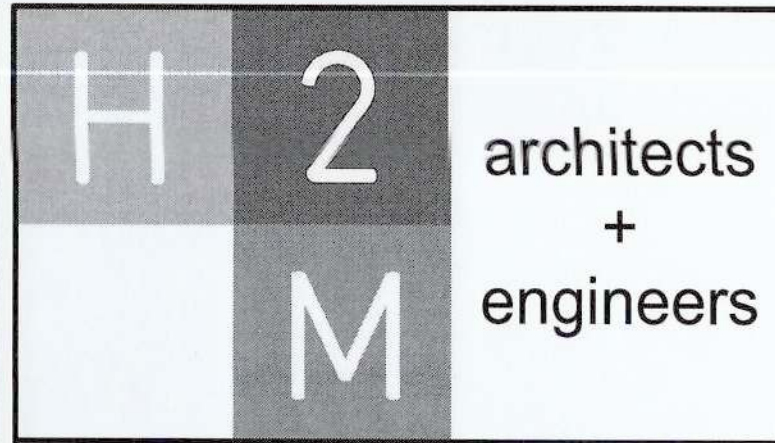
1. ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS. REFER TO SPECIFICATIONS FOR ALL DUCT CONSTRUCTION REQUIREMENTS.
2. ALL SUPPLY, RETURN AND EXHAUST BRANCH DUCTWORK SHALL BE PROVIDED WITH VOLUME DAMPERS.
3. MAINTAIN 10'-0" CLEARANCE BETWEEN OUTSIDE AIR AND EXHAUST AIR TERMINATIONS ON ROOF.
4. COORDINATE WITH NEW STRUCTURE, OFFSET AS REQUIRED.
5. MAINTAIN HEADROOM FOR ALL NEW HORIZONTAL DUCTWORK (6'-0" MINIMUM).
6. PROVIDE SOUND PROOFED PENETRATIONS THROUGH ALL NON FIRE RATED INTERIOR WALLS. USE TRENCO ACUSTICAL SEALANT OR APPROVED EQUAL.
7. REFER TO SEISMIC RESTRAINT SCHEDULE FOR DUCTWORK AND EQUIPMENT REQUIRING SEISMIC SUPPORTS.

KEYED NOTES:

- 1 DENLAR D1030-D-4F-G HOOD AND FAN SHOWN. REFER TO ARCHITECTURAL DRAWINGS.



Key Plan
SCALE: N.T.S.



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CONSULTANTS:

MARK	DATE	DESCRIPTION
2	12/22/2022	REVS. PER TOWN COMMENT



DESIGNED BY	DRAWN BY	CHECKED BY	REVIEWED BY
DKR	DKR	DKR	DKR
PROJECT NO.	DATE	SCALE	
VGFD2001	JULY 2022	AS SHOWN	

CLIENT

VAILS GATE FIRE DISTRICT

New Storage Building (Phase I)
New Fire Station (Phase II)



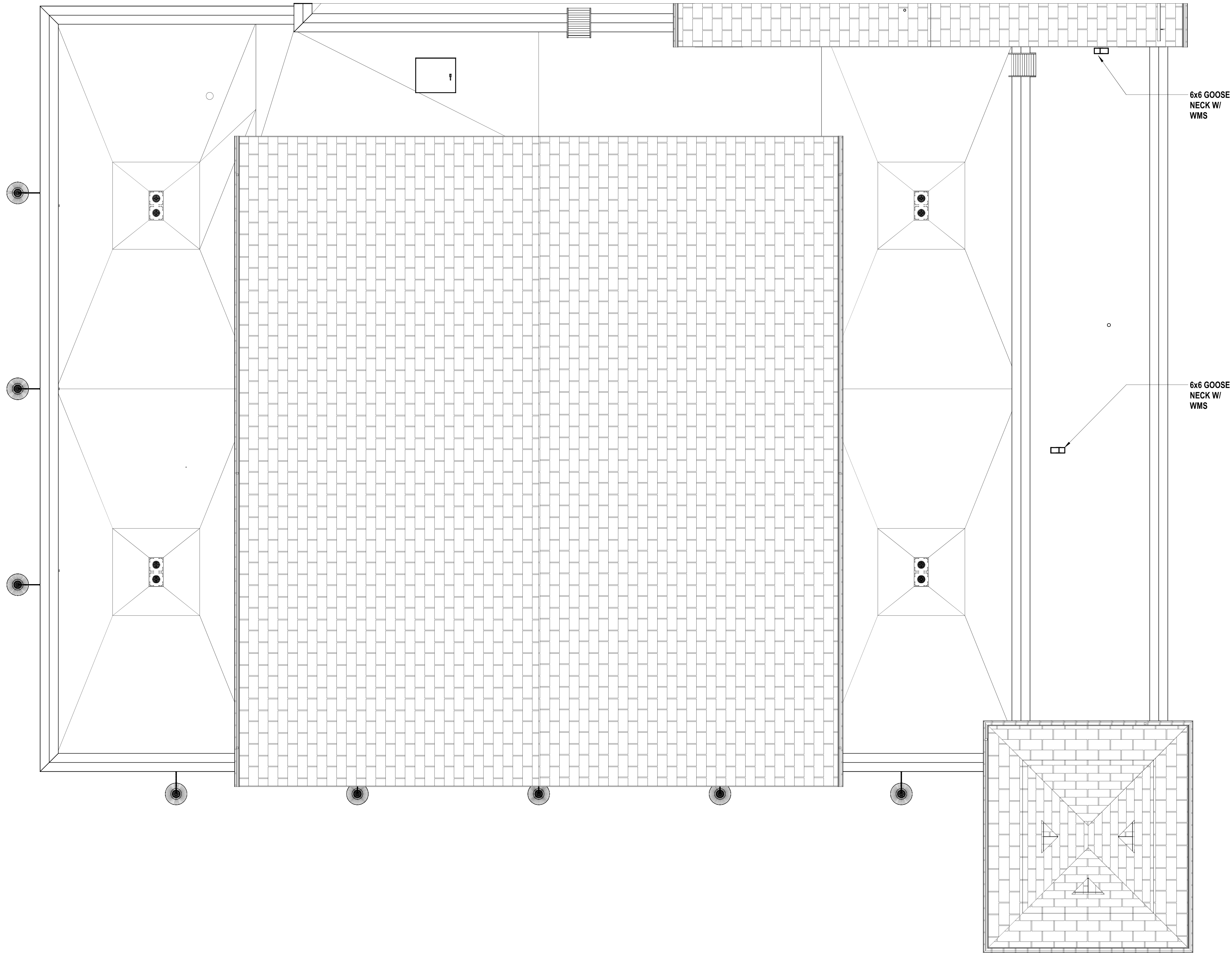
872 Blooming Grove Turnpike
New Windsor, NY 12553

CONTRACT
**CONTRACT G
GENERAL CONSTRUCTION**

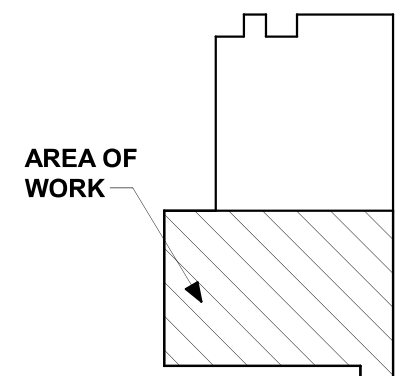
STATUS
FINAL BID DOCUMENT

SHEET TITLE
**SECOND FLOOR DUCTWORK
PLAN AREA B**

DRAWING NO.
M2 132B.02



1 ROOF AREA A
SCALE: 3/16" = 1'-0"




Key Plan
SCALE: N.T.S.

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CONSULTANTS:		

MARK	DATE	DESCRIPTION




DESIGNED BY: DKR DRAWN BY: DKR CHECKED BY: MAM REVIEWED BY: JML
PROJECT NO.: VF02001 DATE: JULY 2022 SCALE: AS SHOWN

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VAILS GATE FIRE DISTRICT

New Storage Building (Phase I)
New Fire Station (Phase II)



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New Windsor, NY 12553

CONTRACT

CONTRACT G
GENERAL CONSTRUCTION

STATUS

FINAL BID DOCUMENT

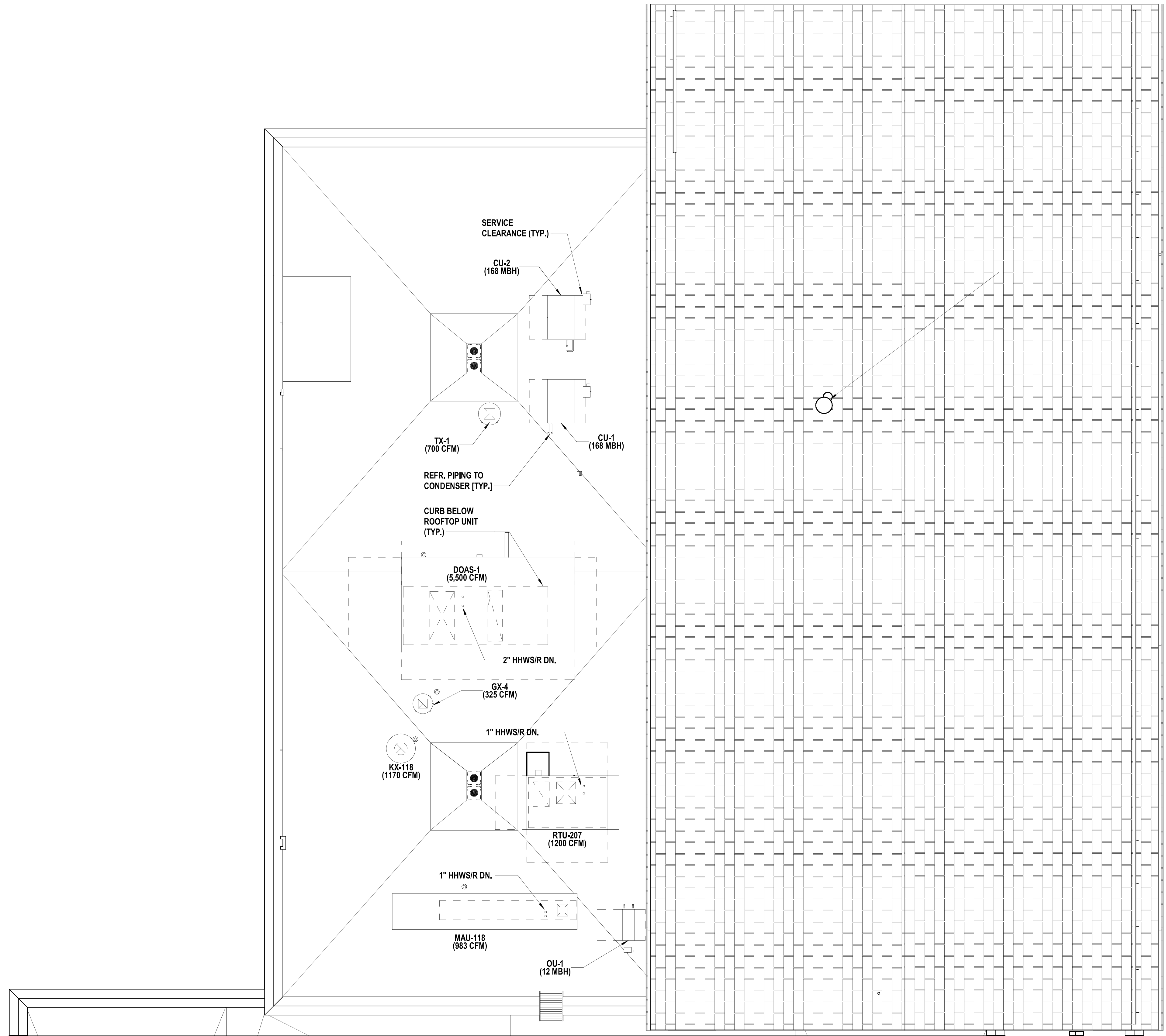
SHEET TITLE

HVAC ROOF PLAN AREA A

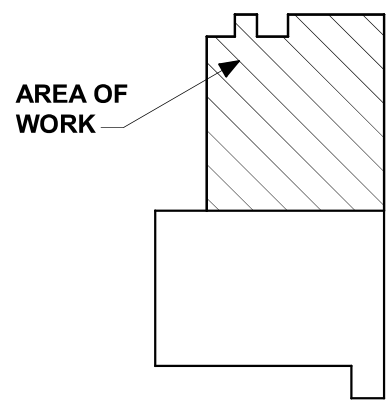
DRAWING NO.

M2 133A.00

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PROVIDE ROOF CAP ASSOCIATED WITH DENLAR D1630-04F-8 HOOD AND FAN. INSTALL ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS



Key Plan
SCALE: N.T.S.

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CONSULTANTS:

MARK	DATE	DESCRIPTION

DESIGNED BY: DKR
DRAWN BY: DKR
CHECKED BY: MMY
REVIEWED BY: JML
PROJECT NO.: VF2001
DATE: JULY 2022
SCALE: AS SHOWN

CLIENT
VAILS GATE FIRE DISTRICT

New Storage Building (Phase I)
New Fire Station (Phase II)

872 Blooming Grove Turnpike
New Windsor, NY 12553

CONTRACT
**CONTRACT G
GENERAL CONSTRUCTION**

STATUS
FINAL BID DOCUMENT

SHEET TITLE
HVAC ROOF PLAN AREA B

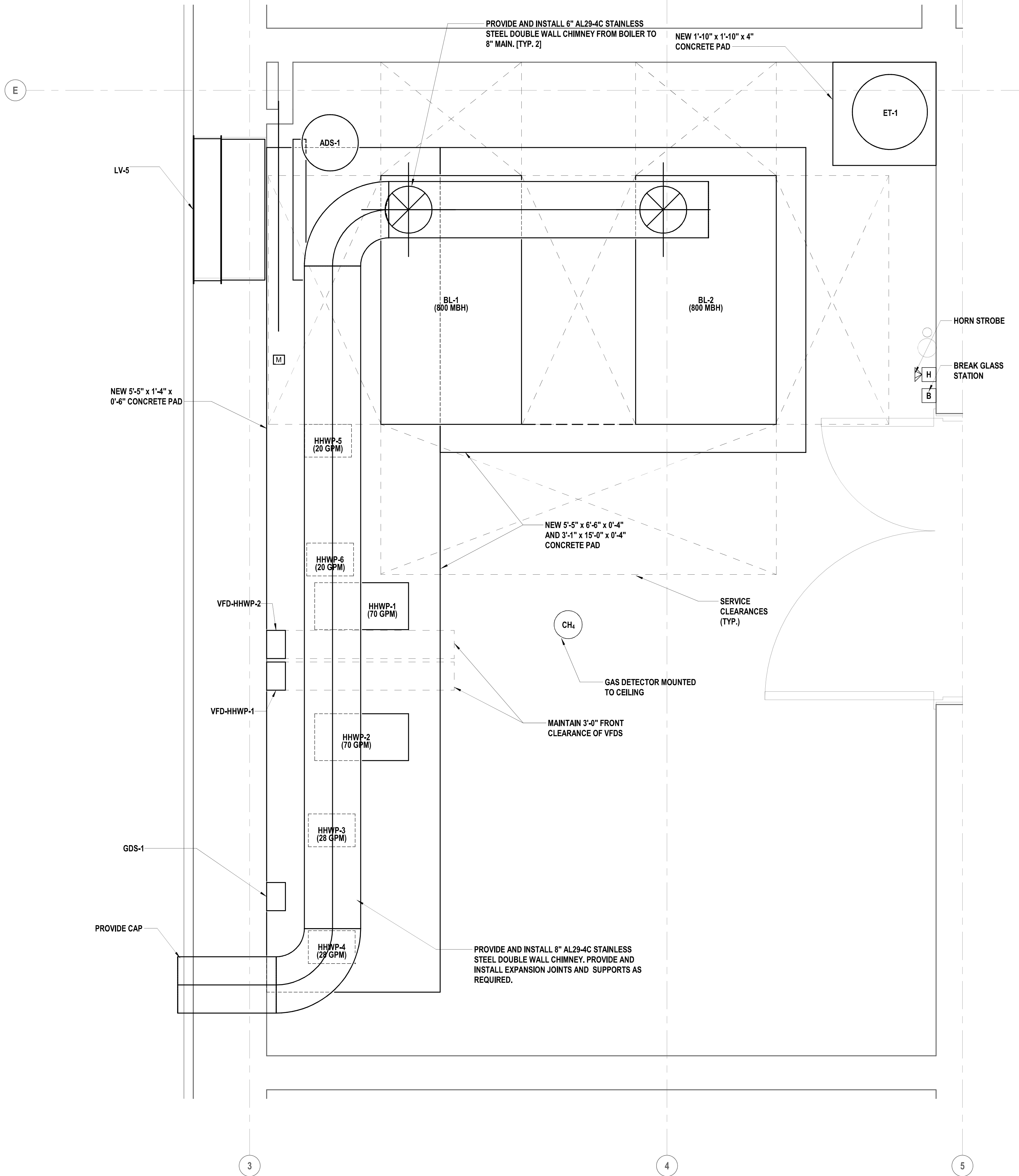
DRAWING NO.
M2 133B.00



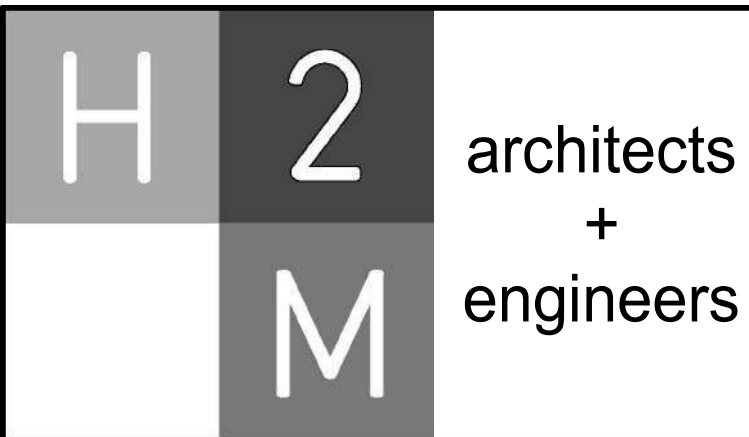
FREE AREA REQUIRED:
 $1,720 \text{ MBH} \times (1 \text{ IN}^2 / 3,000 \text{ BTU/HR}) = 573.33 \text{ IN}^2 \times 1 \text{ FT}^2 / 144 \text{ IN}^2 = 3.98 \text{ FT}^2$
 COMBUSTION AIR FREE AREA PROVIDED: $4.07 \text{ FT}^2 > 3.98 \text{ FT}^2$

DRAWING No. **M2 401.02**

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1 Boiler Room Partial Equipment and Breeching Floor Plan
SCALE: 1" = 1'-0"



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CONSULTANTS:

MARK	DATE	DESCRIPTION



DESIGNED BY:	DRAWN BY:	CHECKED BY:	REVIEWED BY:
JML	DKR	MLV	JML
PROJECT NO.:	DATE:	SCALE:	
VF02001	JULY 2022	AS SHOWN	

CLIENT

VAILS GATE FIRE DISTRICT

New Storage Building (Phase I)
New Fire Station (Phase II)



872 Blooming Grove Turnpike
New Windsor, NY 12553

CONTRACT

**CONTRACT G
GENERAL CONSTRUCTION**

STATUS

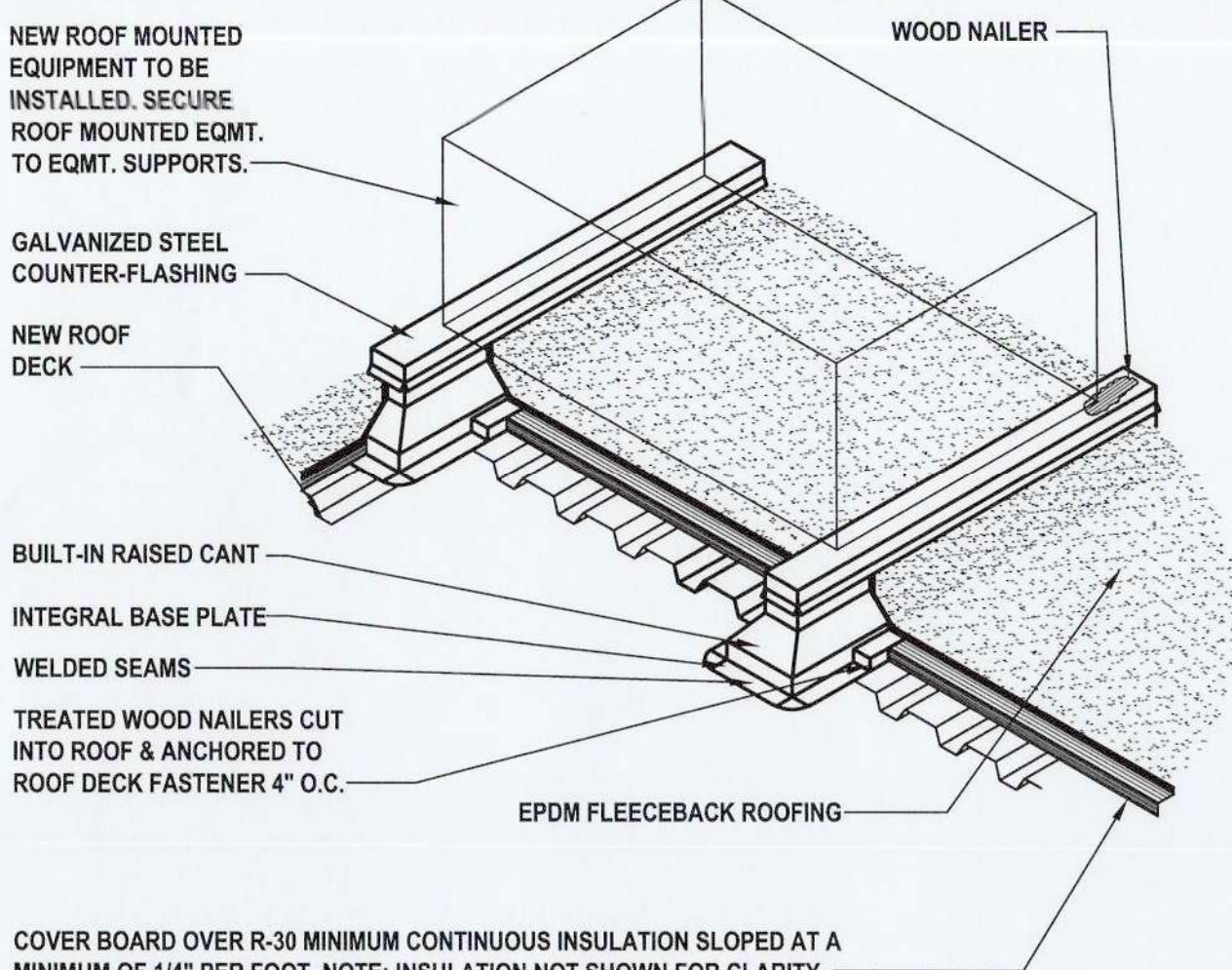
FINAL BID DOCUMENT

SHEET TITLE

**BOILER ROOM EXPANDED HVAC
EQUIPMENT AND DUCTWORK PLAN**

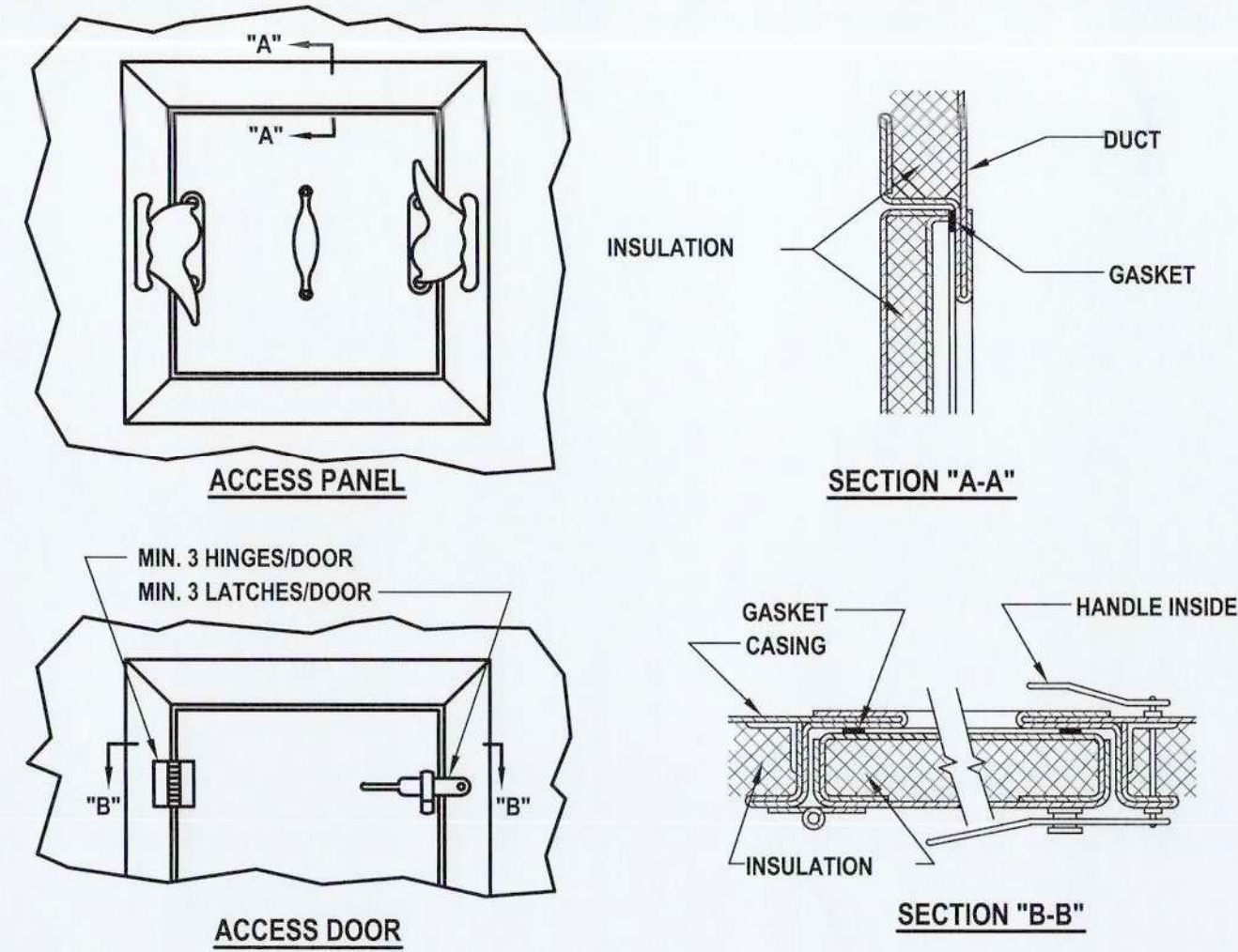
DRAWING NO.

M2 431.00



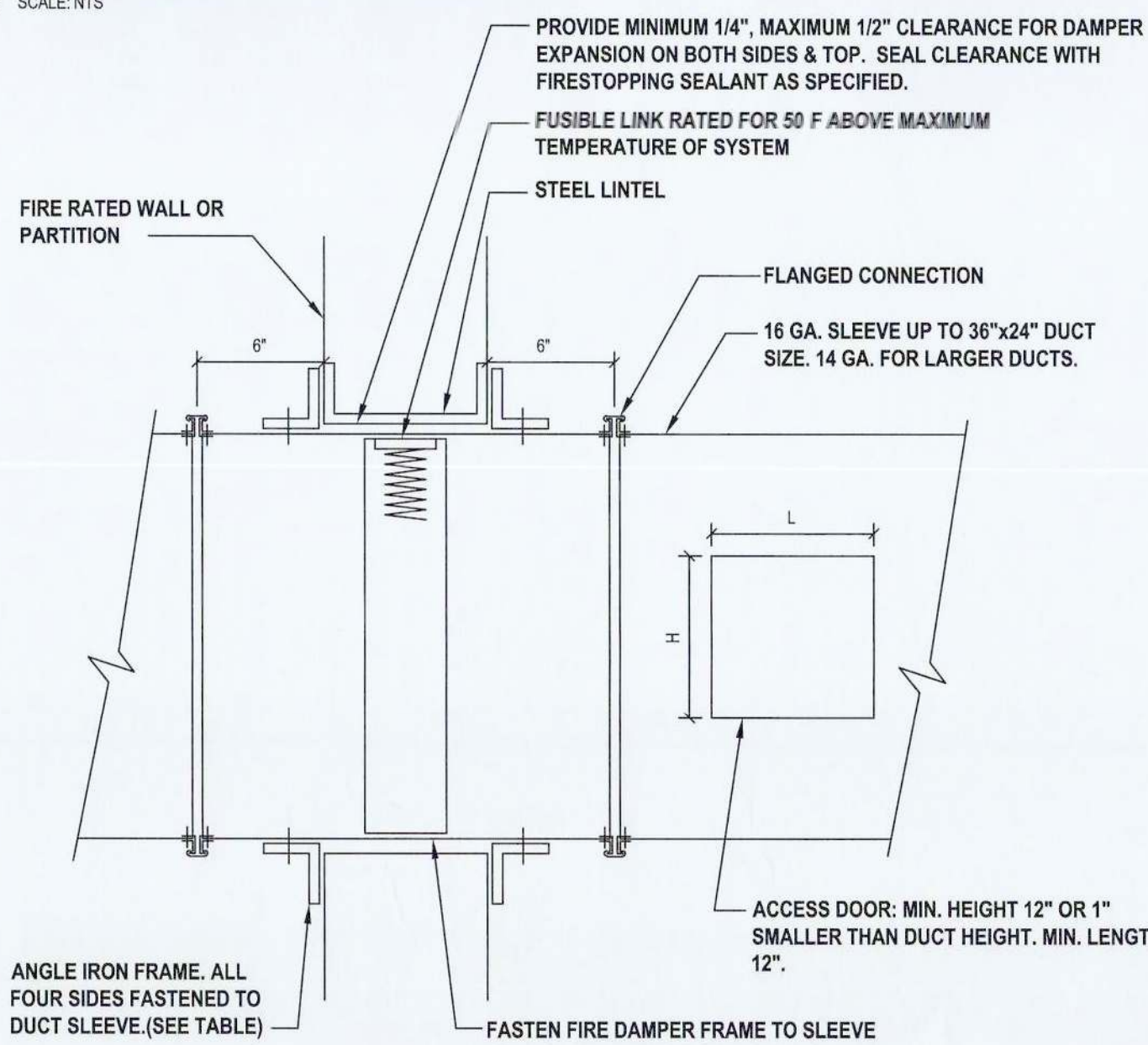
1. IF VERTICAL SPLICE IS NOT LOCATED AT CORNER, 8" WIDE UNCURED ELASTOFORM FLASHING OR PRESSURE-SENSITIVE FLASHING MUST BE CENTERED OVER FIELD SPLICE AT ANGLE CHANGE.
2. FASTENING PLATES MAY BE INSTALLED VERTICALLY.
3. APPLY PRIMER PRIOR TO INSTALLING SecurTAPE.
4. LAP SEALANT IS REQUIRED ON ALL FLASHING EDGES.

SCALE: NTS

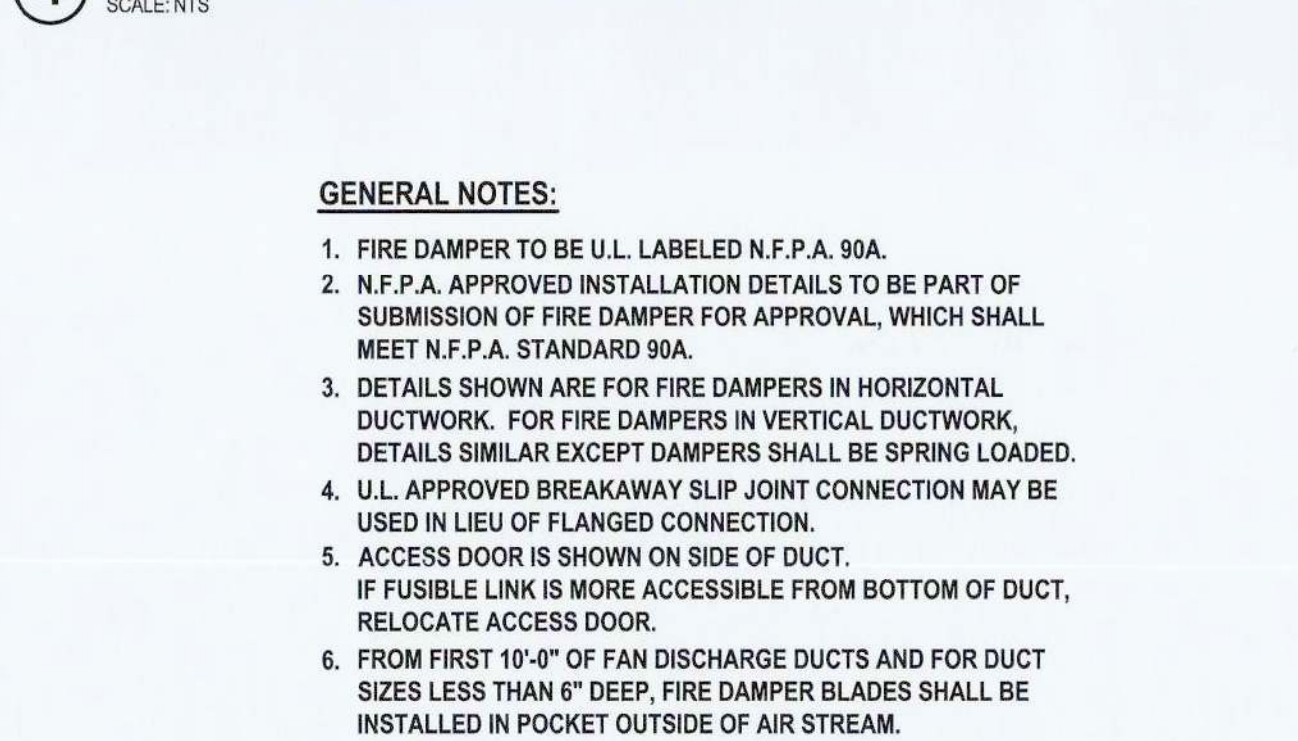


1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
2. HINGES ON THE ACCESS DOORS SHALL HAVE NON-CORROSIVE PINS.
3. PROVIDE ACCESS DOORS ON AIR HANDLING UNITS AND DUCTWORK INSTALLED IN EQUIPMENT ROOMS. PROVIDE ACCESS PANELS ON ALL EQUIPMENT AND DUCTWORK INSTALLED ABOVE FINISHED CEILINGS WHERE SPACE LIMITATIONS DO NOT ALLOW HINGED DOORS TO OPEN.

SCALE: NTS



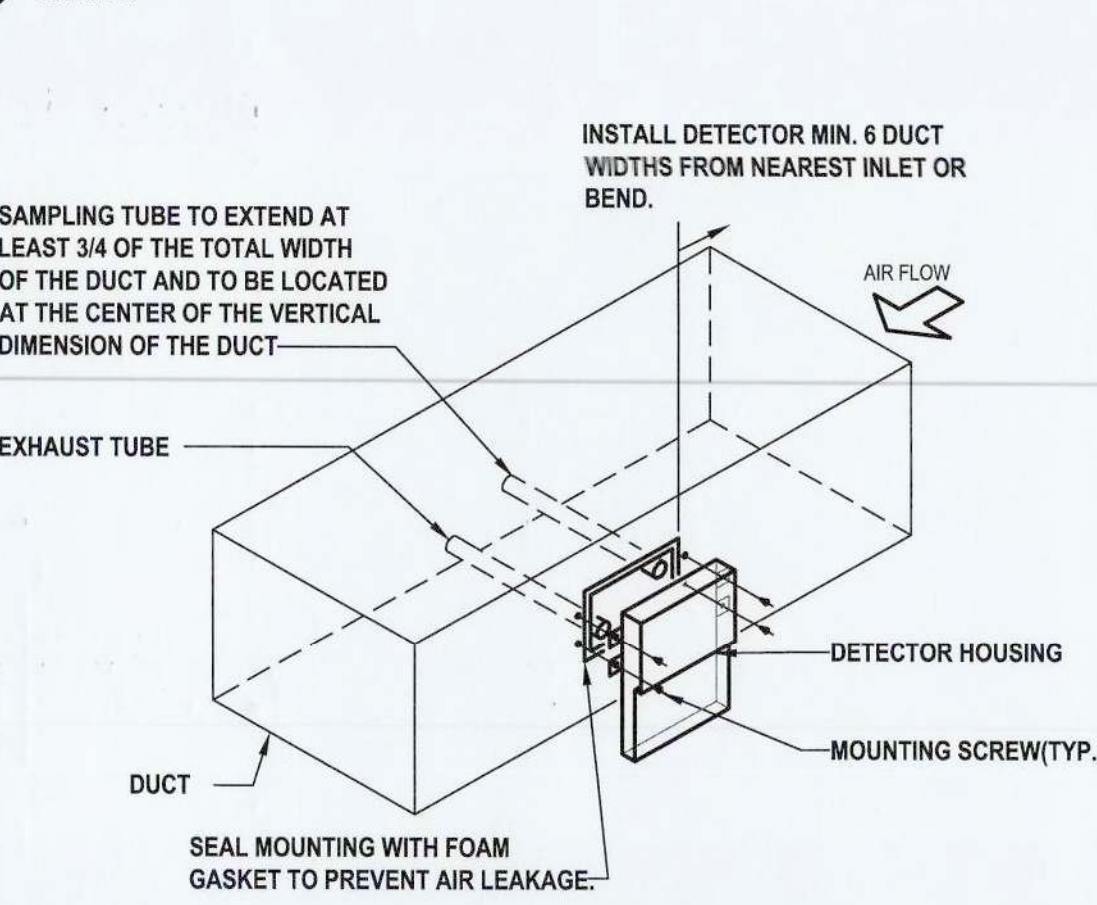
SCALE: NTS



1. FIRE DAMPER TO BE U.L. LABELED N.F.P.A. 90A.
2. N.F.P.A. APPROVED INSTALLATION DETAILS TO BE PART OF SUBMISSION OF FIRE DAMPER FOR APPROVAL, WHICH SHALL MEET N.F.P.A. STANDARD 90A.
3. DETAILS SHOWN ARE FOR FIRE DAMPERS IN HORIZONTAL DUCTWORK. FOR FIRE DAMPERS IN VERTICAL DUCTWORK, DETAILS SIMILAR EXCEPT DAMPERS SHALL BE SPRING LOADED.
4. U.L. APPROVED BREAKAWAY SLIP JOINT CONNECTION MAY BE USED IN LINE OF FLANGED CONNECTION.
5. ACCESS DOOR IS TO BE ON INSIDE OF DUCT.
IF FUSIBLE LINK IS MORE ACCESSIBLE FROM BOTTOM OF DUCT, RELOCATE ACCESS DOOR.
6. FROM FIRST 10" OF FAN DISCHARGE DUCTS AND FOR DUCT SIZES LESS THAN 6" DEEP, FIRE DAMPER BLADES SHALL BE INSTALLED IN POCKET OUTSIDE OF AIR STREAM.

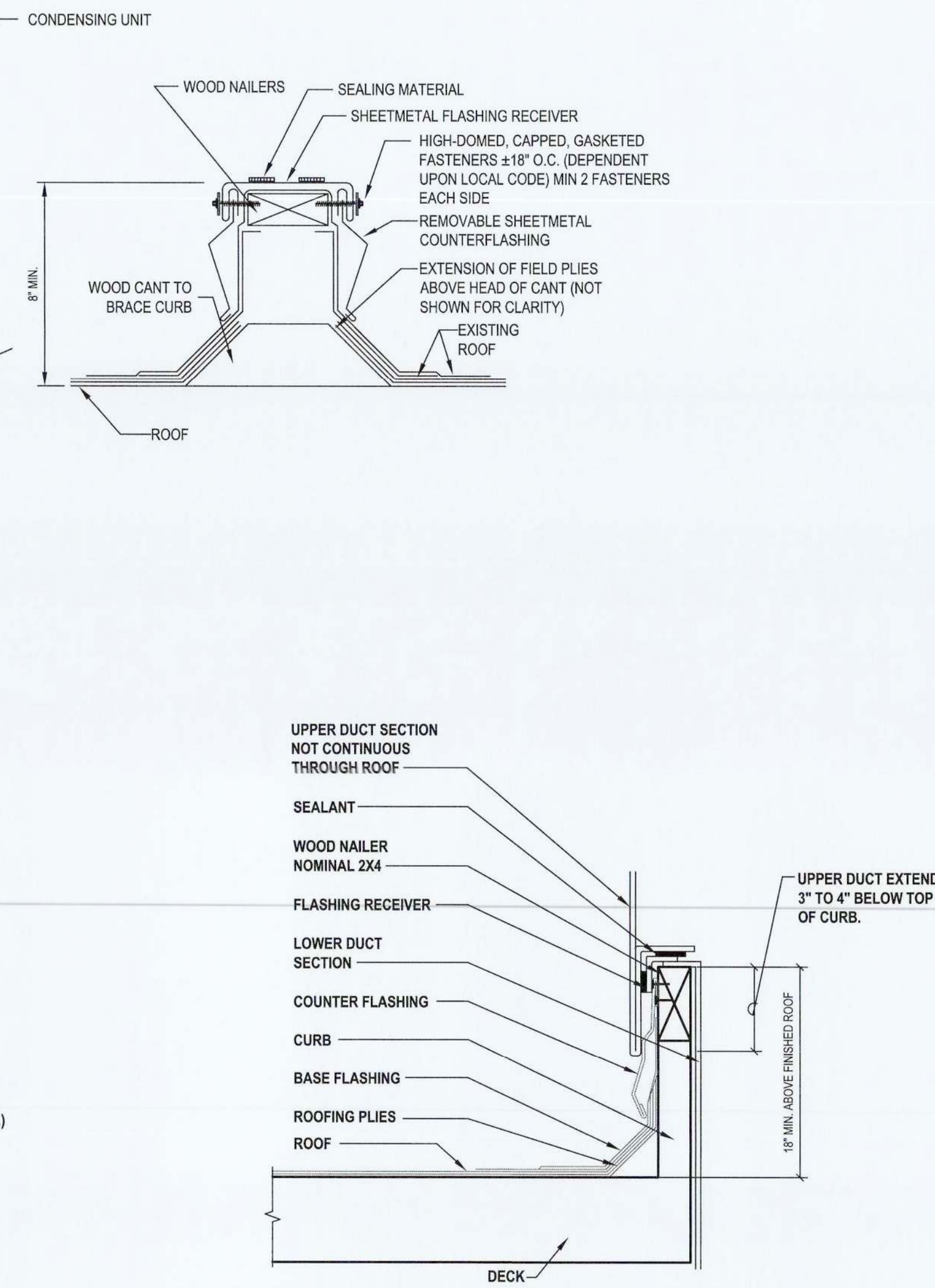
ANGLE IRON TABLE	
WALL OPENING	ANGLE SIZE
UP TO 30"	1"x1"x1/8"
31" TO 54"	1-1/2"x1-1/2"x1/8"
55" TO 84"	3"x2"x3/16"
85" TO 120"	3"x2"x3/16"

SCALE: NTS



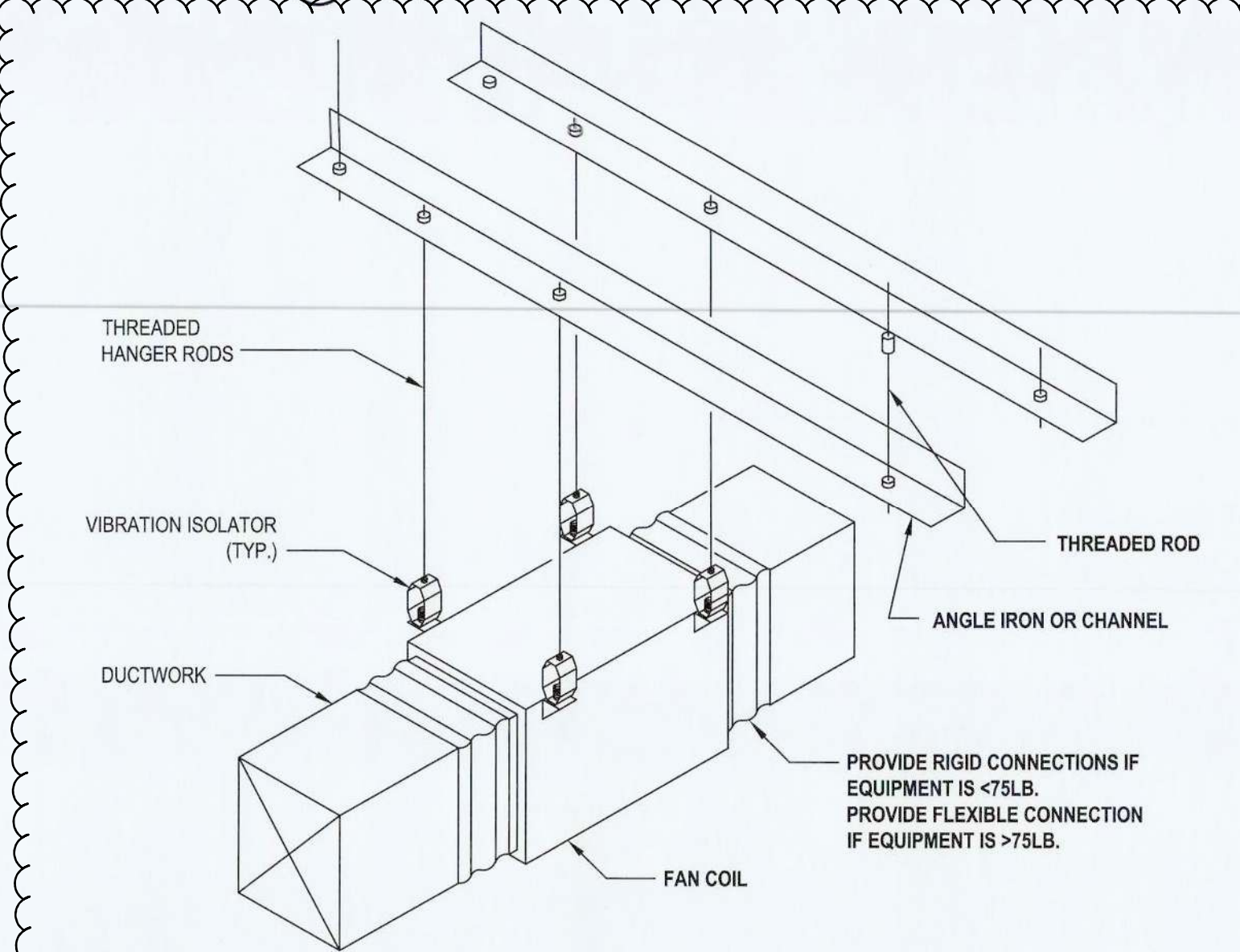
1. INTERFACE OF NEW DUCT SMOKE DETECTORS W/ EXISTING BUILDING FIRE ALARM SYSTEM BY CONTRACT 'E'.

SCALE: NTS

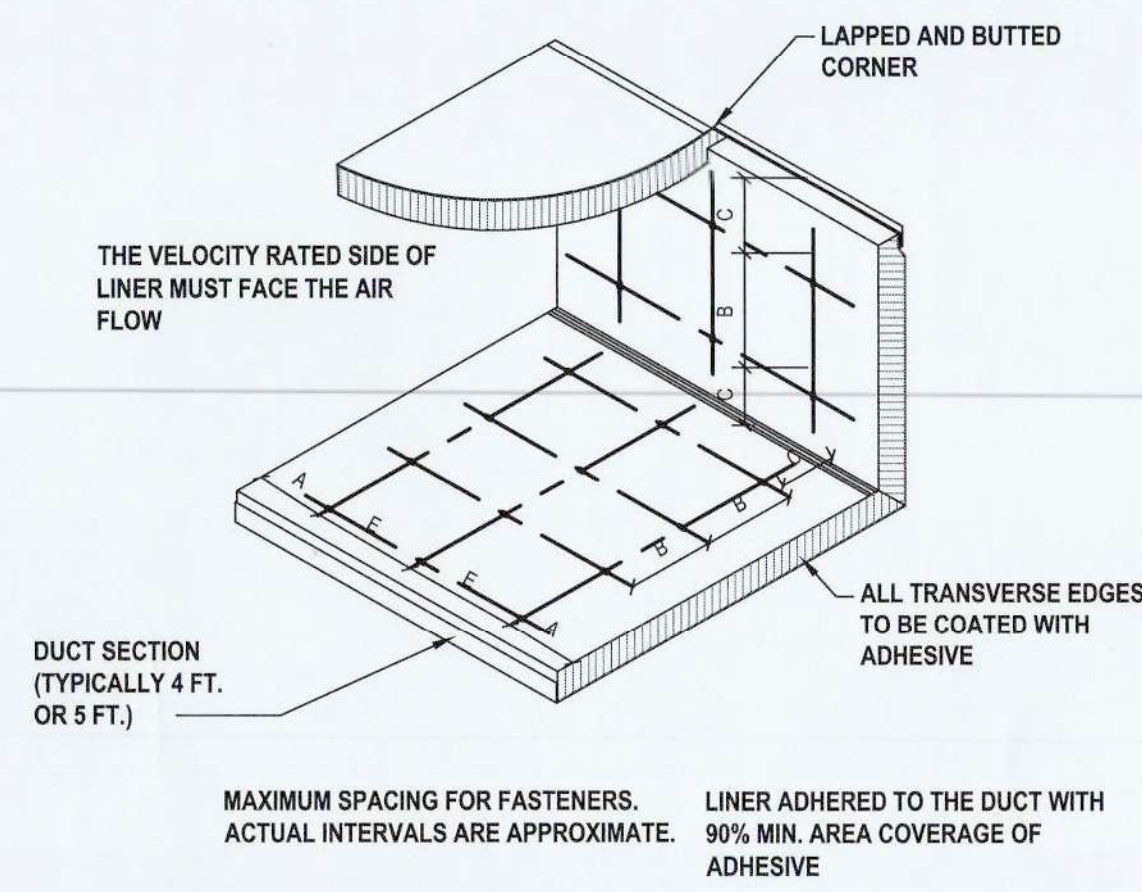


SCALE:NTS

SCALE: NTS



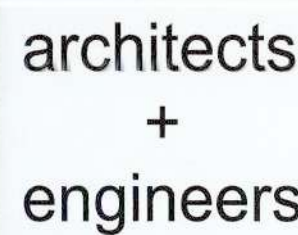
SCALE: NT8



VELOCITY*	DIMENSIONS			
	A	B	C	E
0-1500 FPM	3"	12"	4"	18"
1501-3500 FPM	3"	6"	4"	16"

- * UNLESS A LOWER LEVEL IS SET BY MANUFACTURER OR LISTING AGENCY

SCALE:NTS



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CONSULTANTS

[illegible]

DESIGNED BY: DKR	DRAWN BY: DKR	CHECKED BY: MJV	REVIEWED BY: JML
PROJECT No.: VGFD2001	DATE: JULY 2022	SCALE: AS SHOWN	

CLIENT

New Storage Building (Phase I)
New Fire Station (Phase II)



872 Blooming Grove Turnpike
New Windsor, NY 12553

CONTRACT

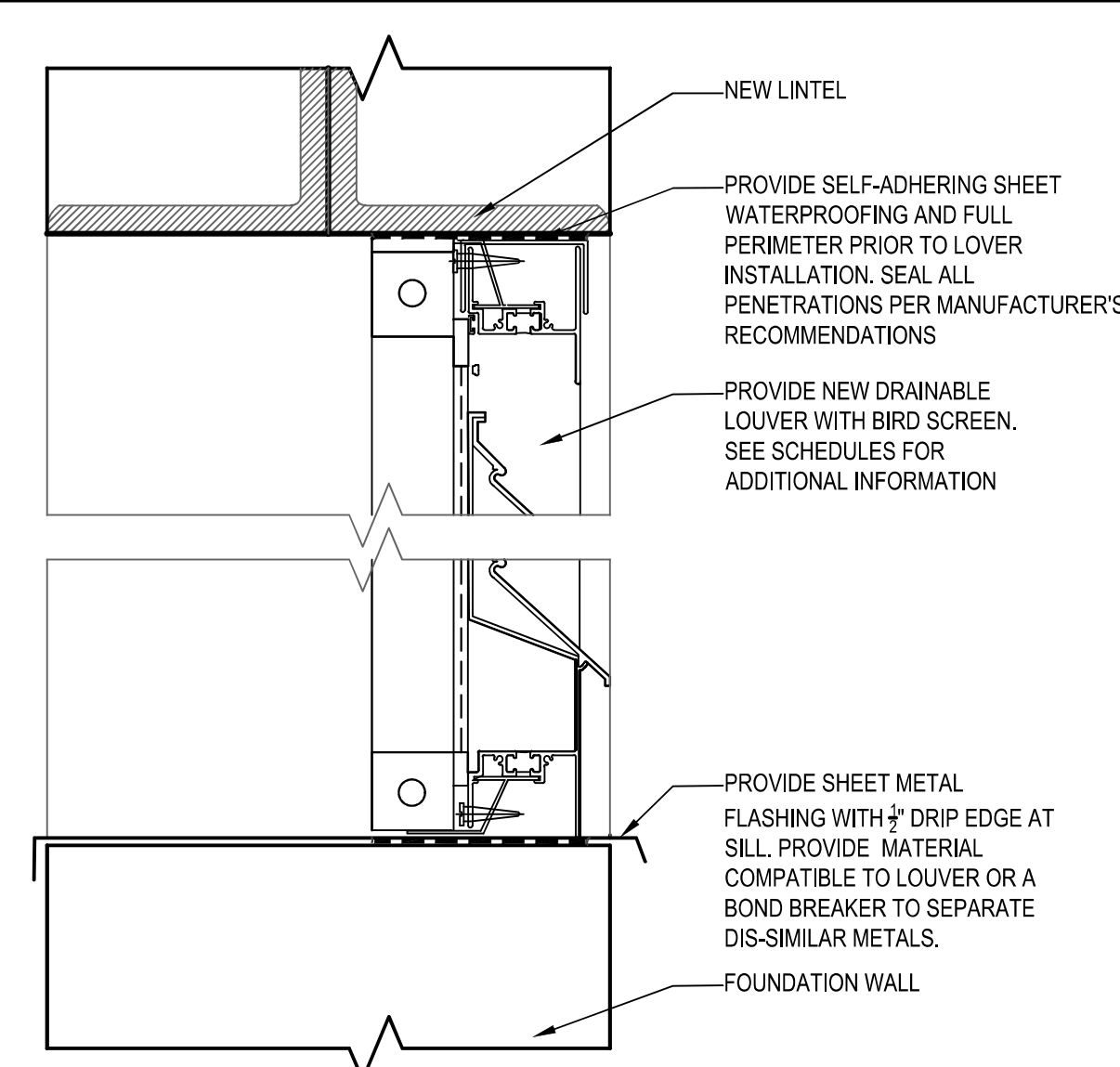
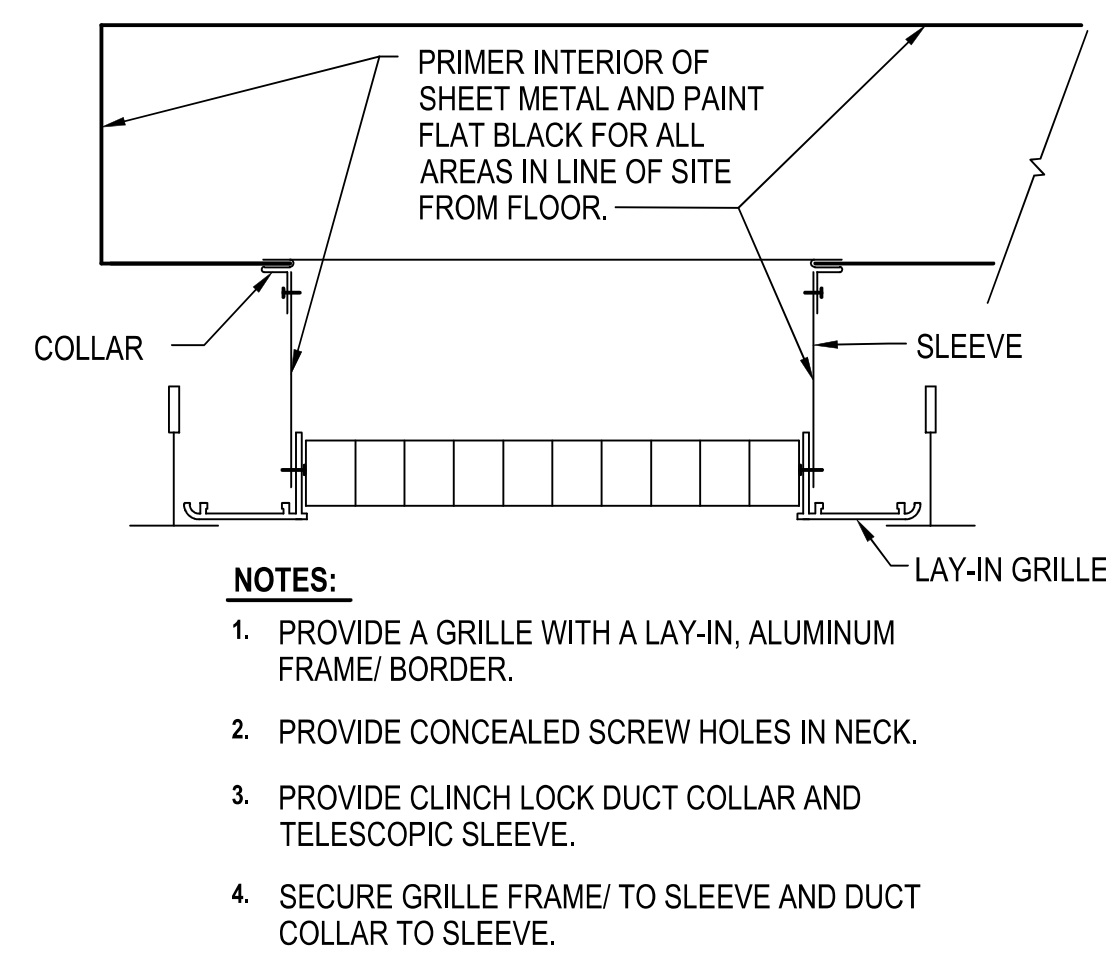
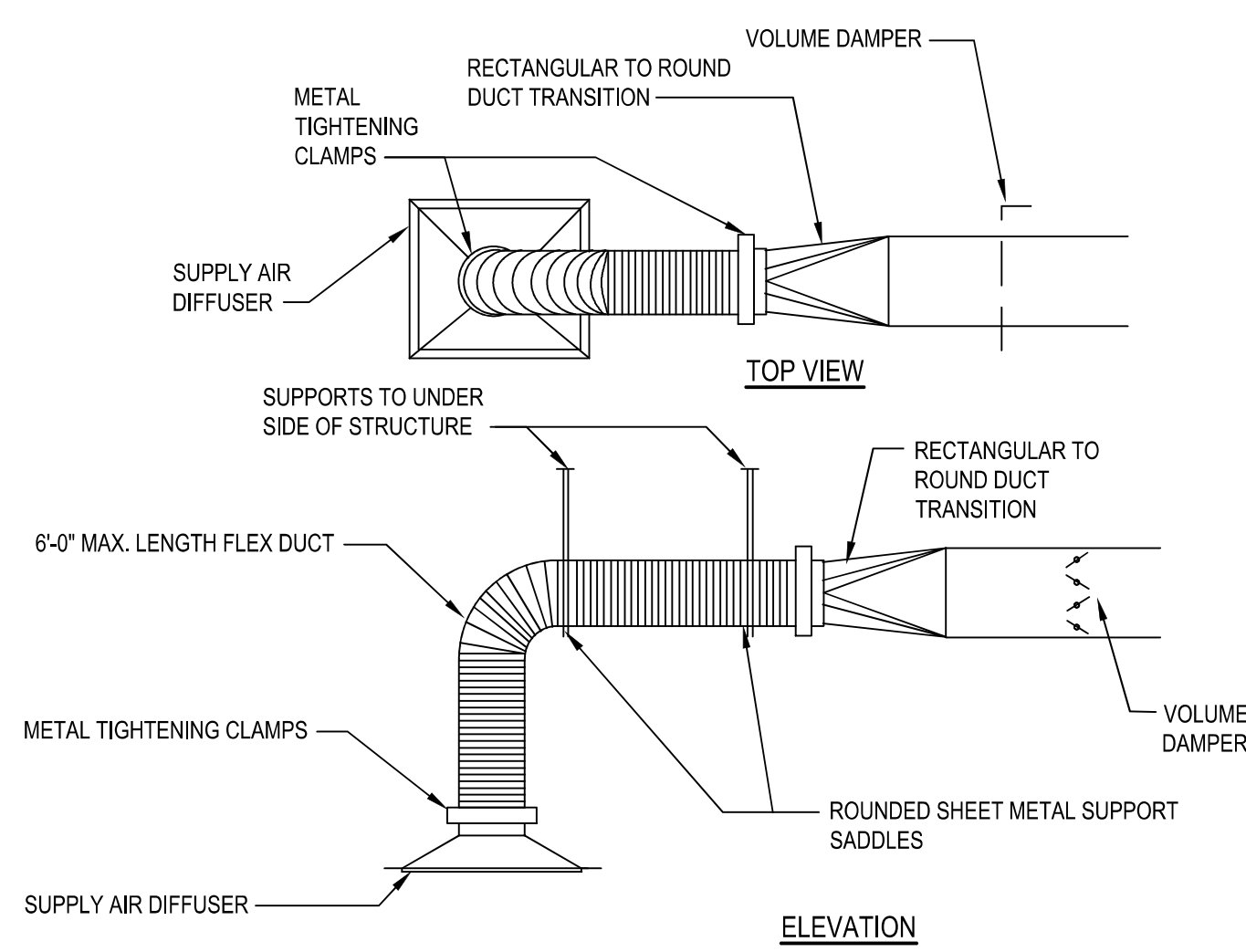
STATUS

SHEET TITLE

HVAC DETAILS (1 OF 4)

DRAWING

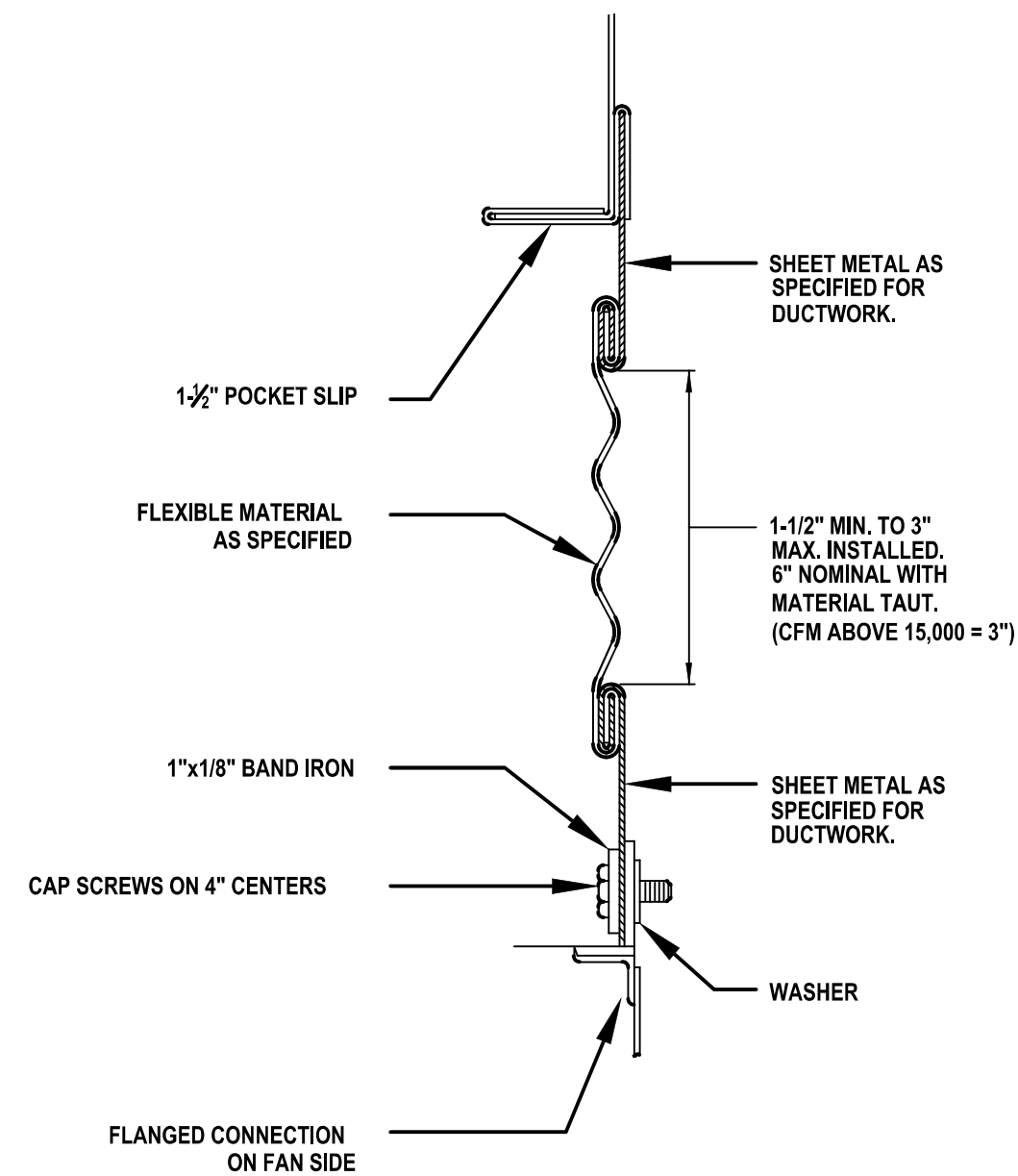
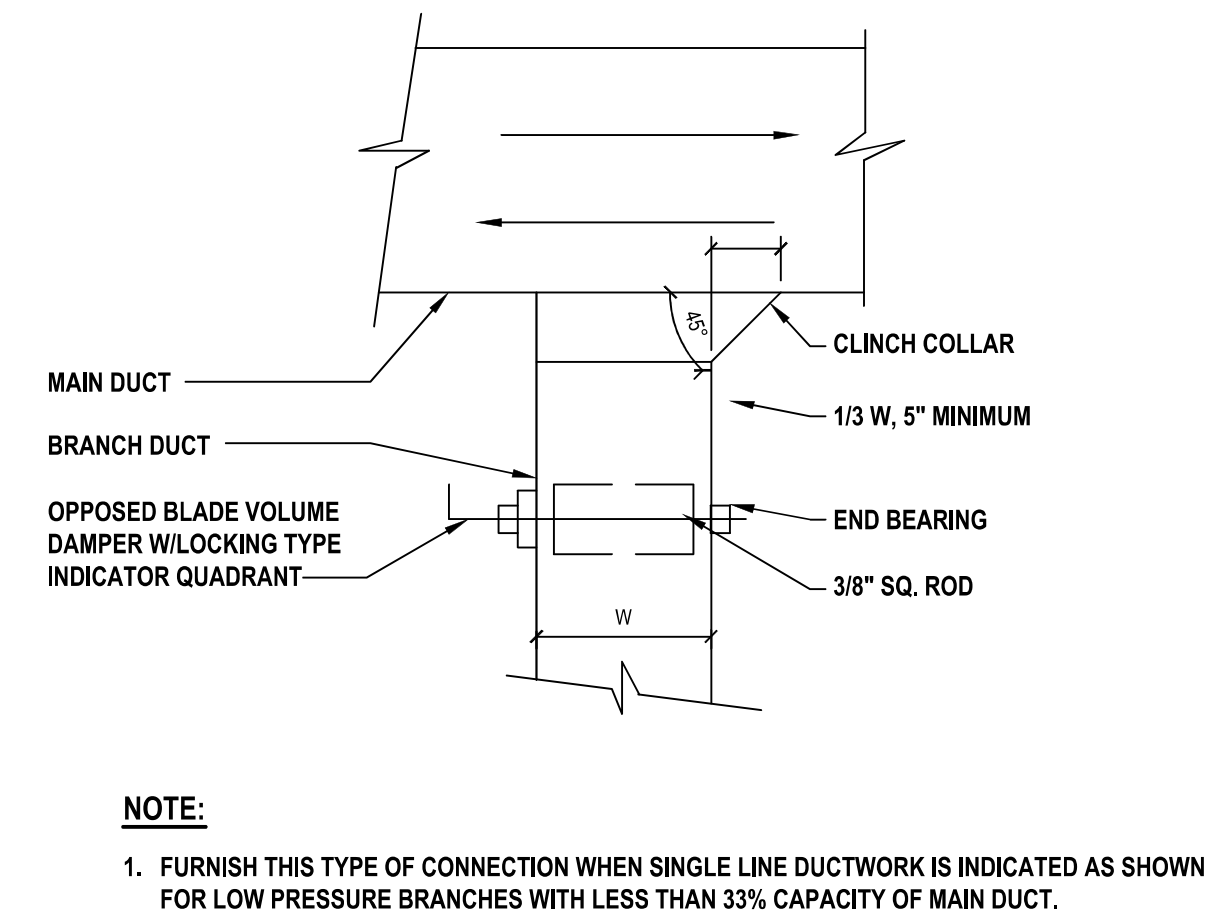
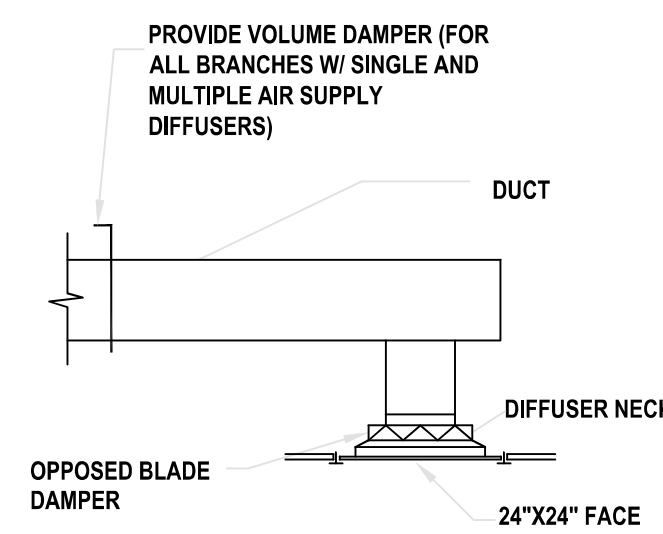
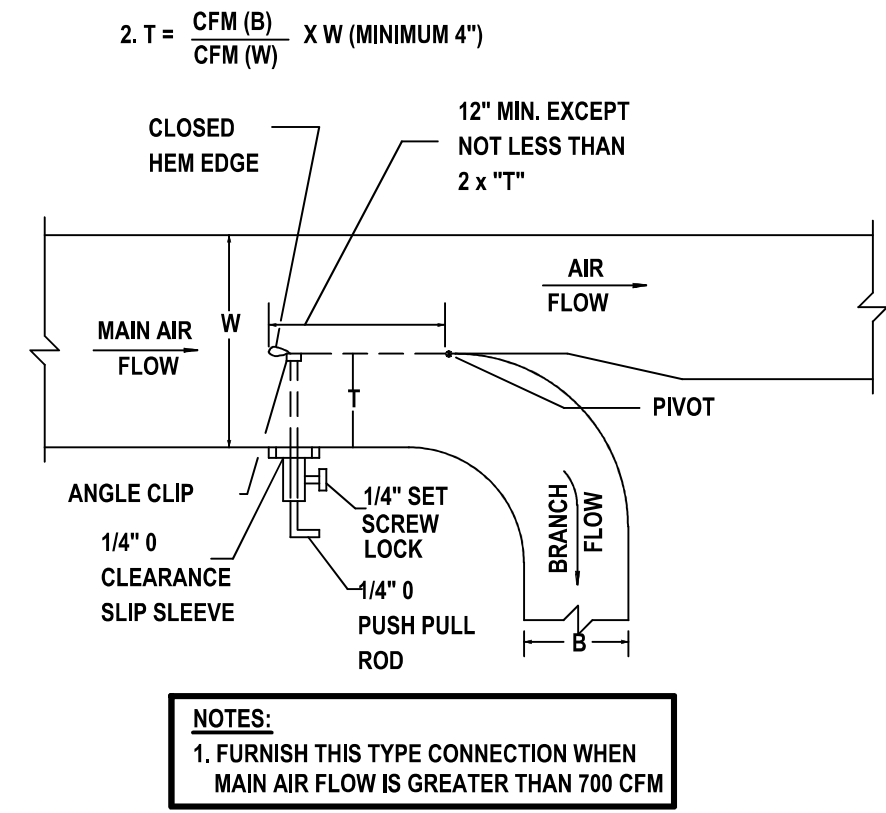
M2 500.02



2 Round Neck Diffusers

3 Ducted Exhaust Ceiling Grille Detail

4 Typical Louver Detail

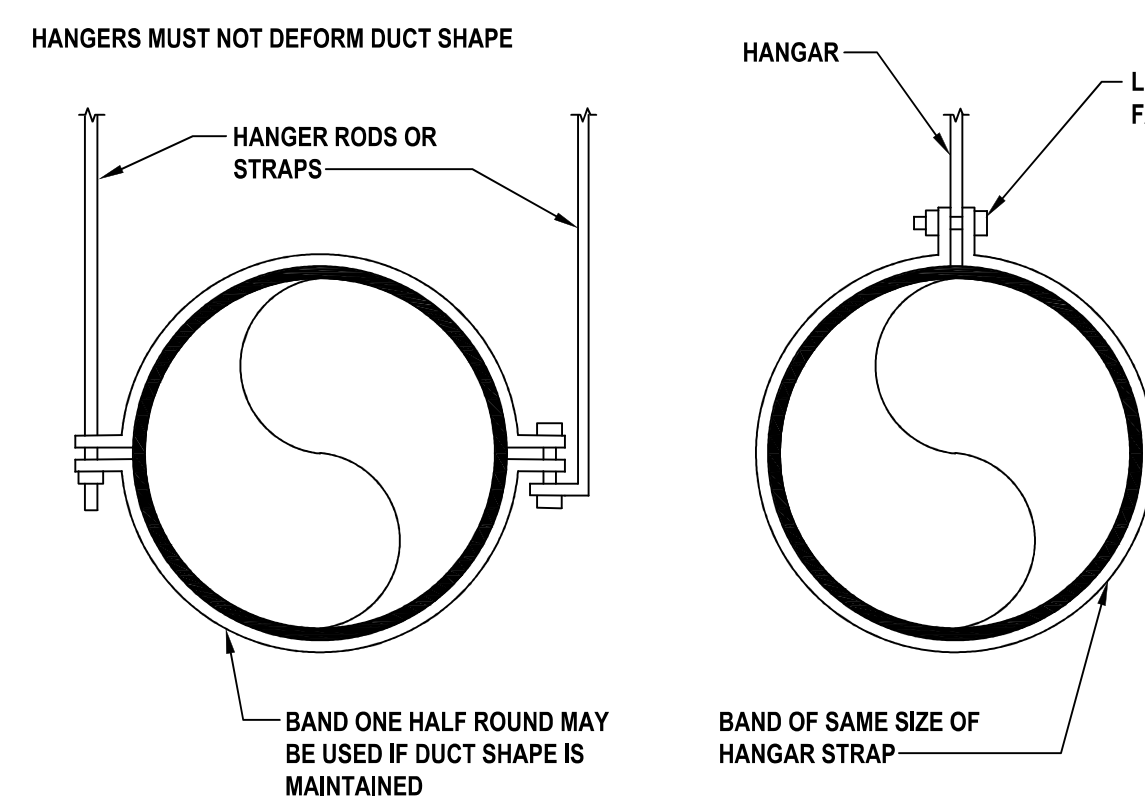
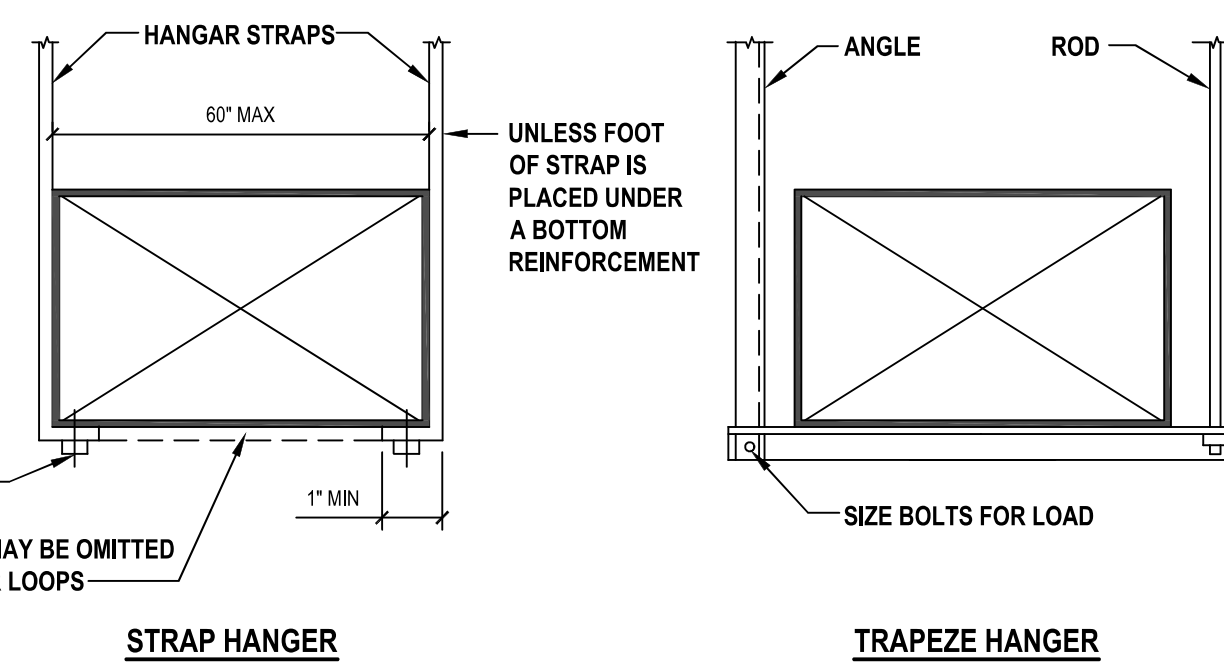
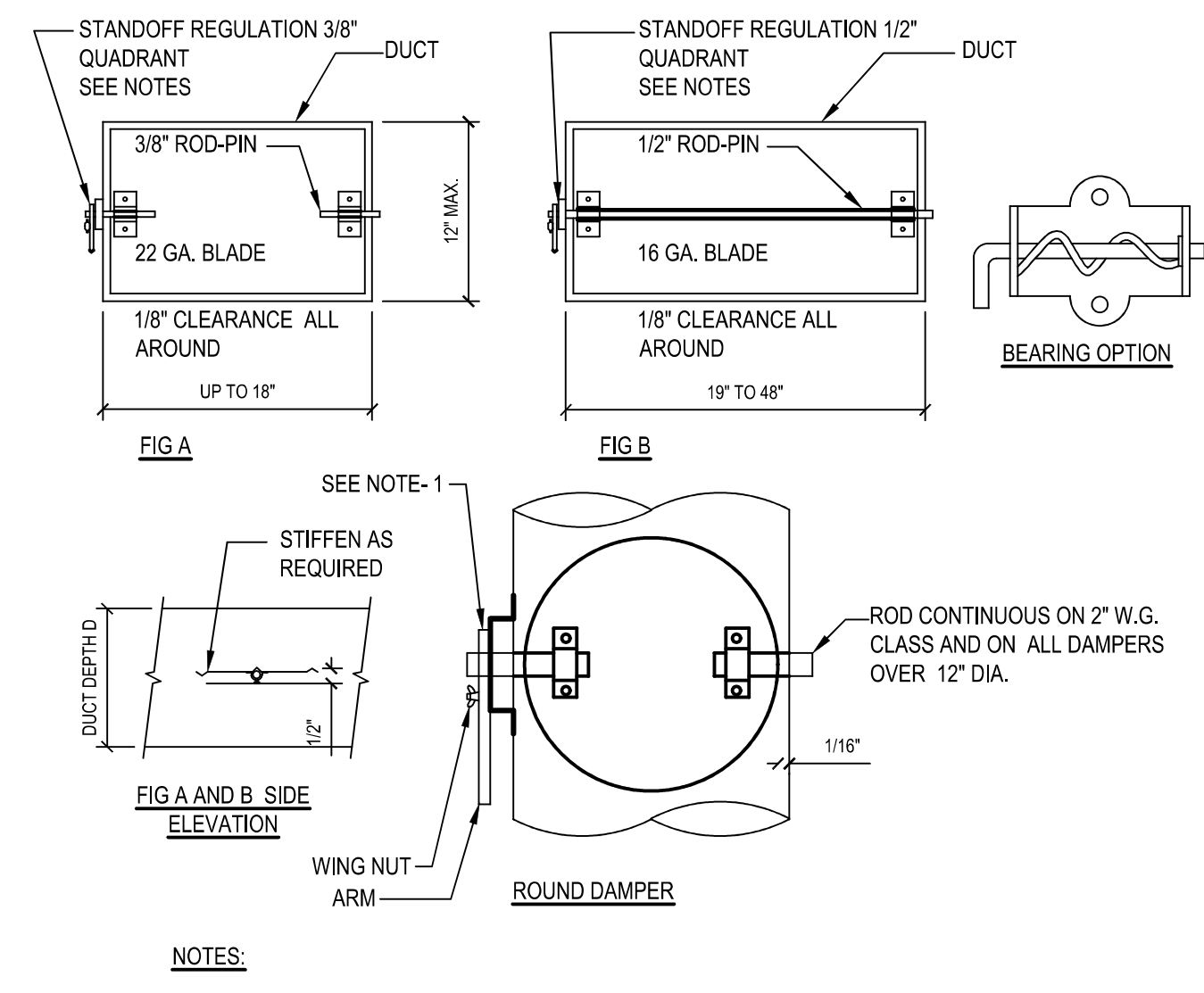


5 Throat & Splitter Damper Supply Duct Branch
SCALE: NTS

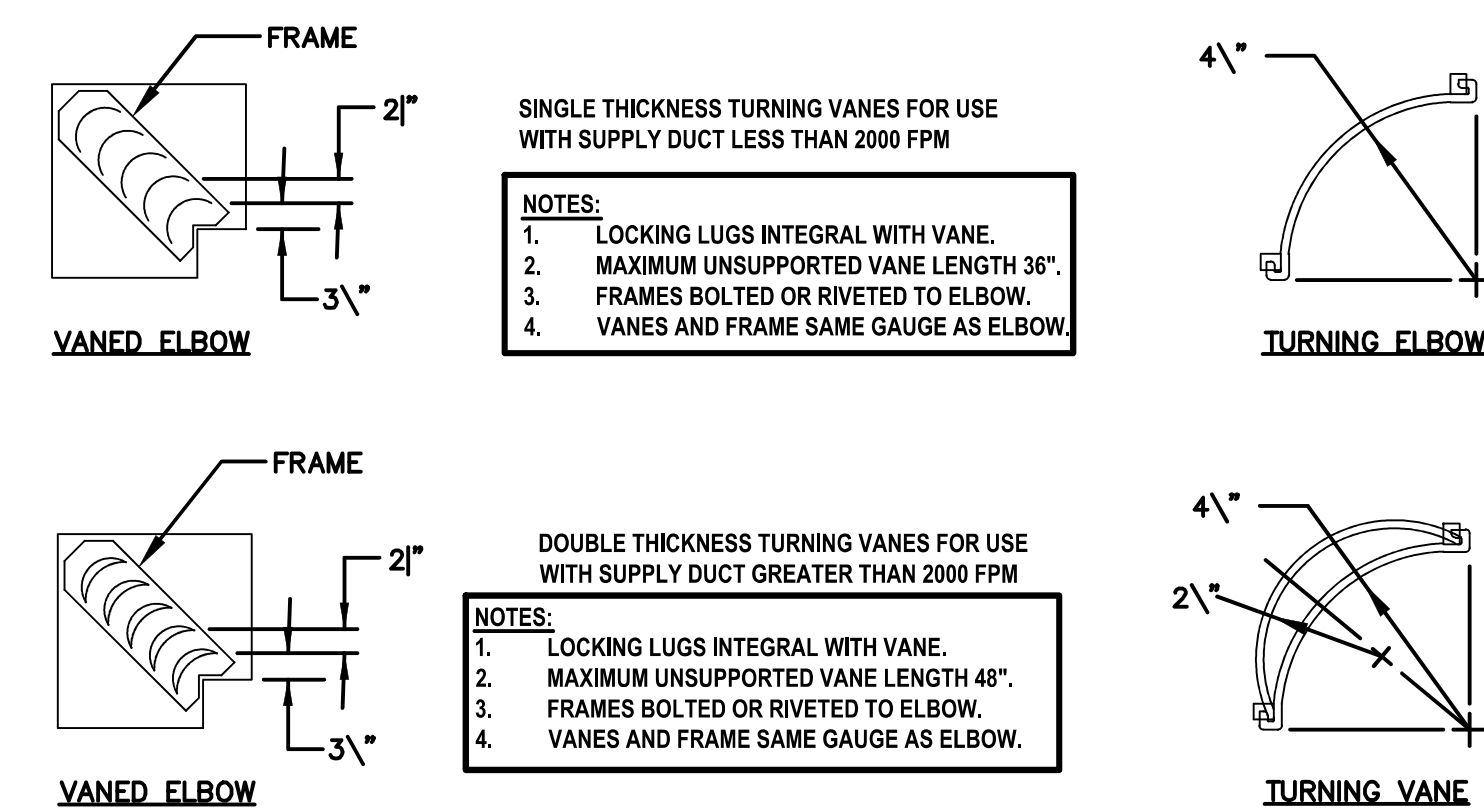
6 Diffuser Detail Supply Air
SCALE: NTS

7 Duct Branch Takeoff For Low Pressure Ductwork

8 Flexible Duct Connection Detail



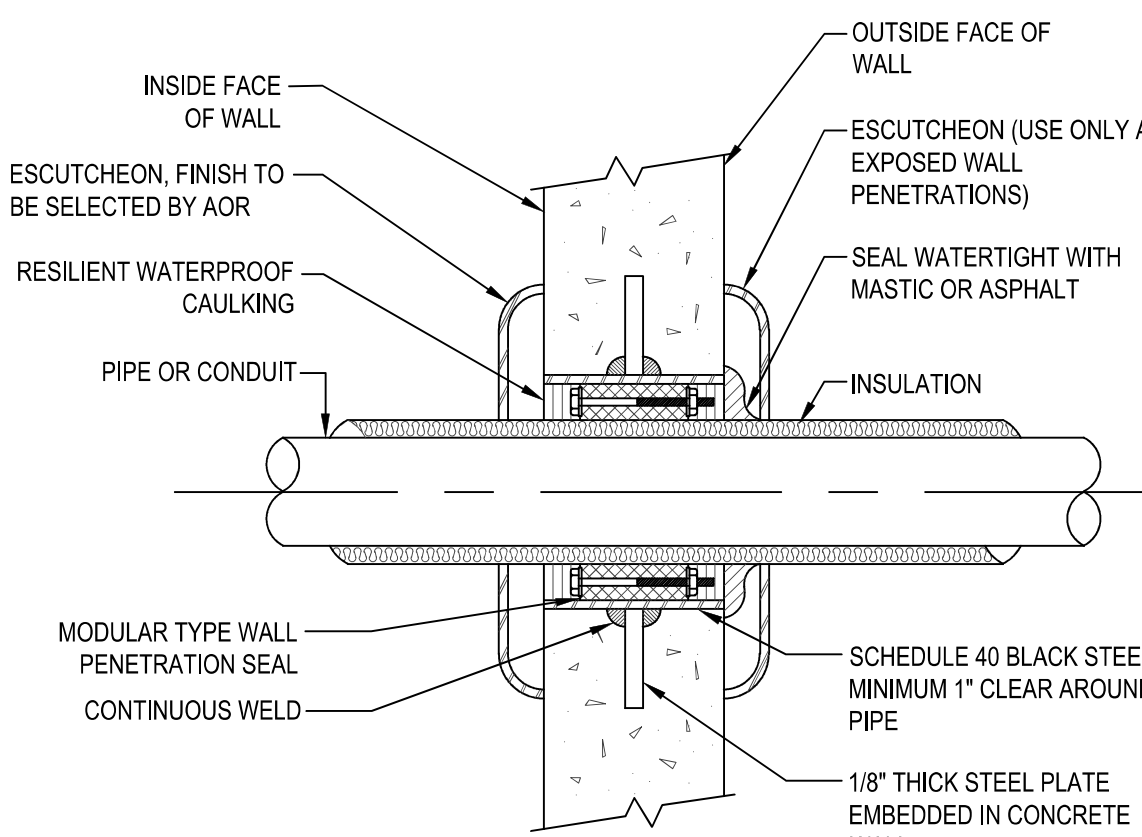
DUCT DIAMETER	BLK. OR GALV. ROD	GALVE STEEL STRAP
TO 10"	1/4"	1" X 22 GA.
11" TO 18"	1/4"	1" X 22 GA.
19" TO 24"	1/4"	1" X 22 GA.



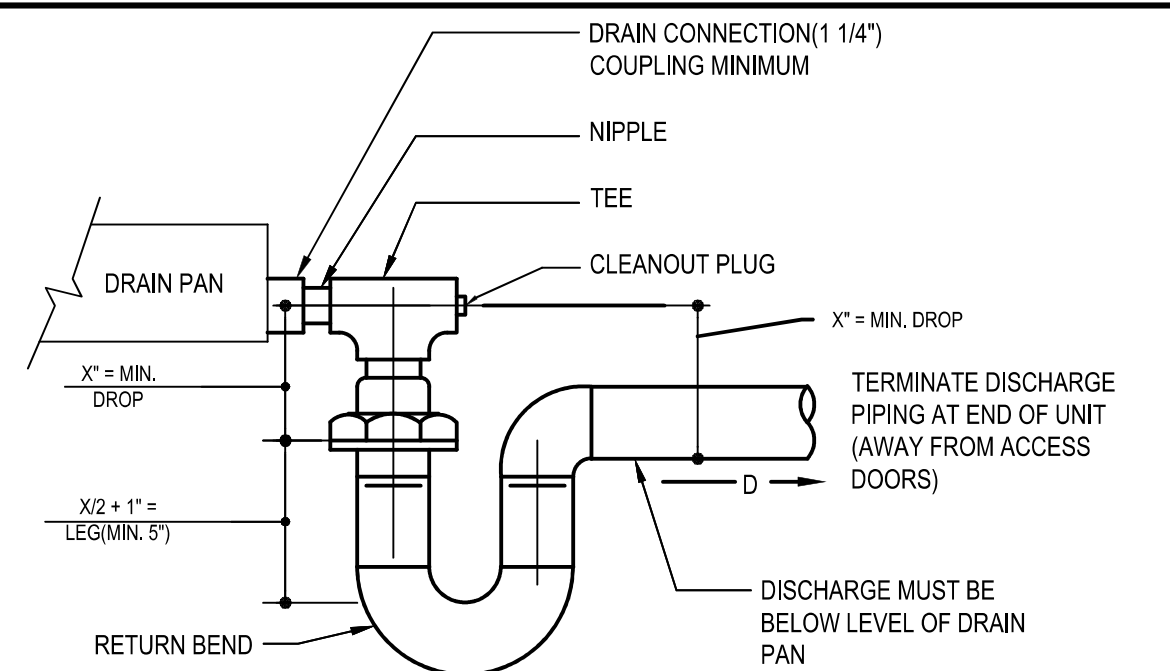
10 Hanger Detail

11 Round Duct Hangers

12 Turning Vanes For Square Elbows



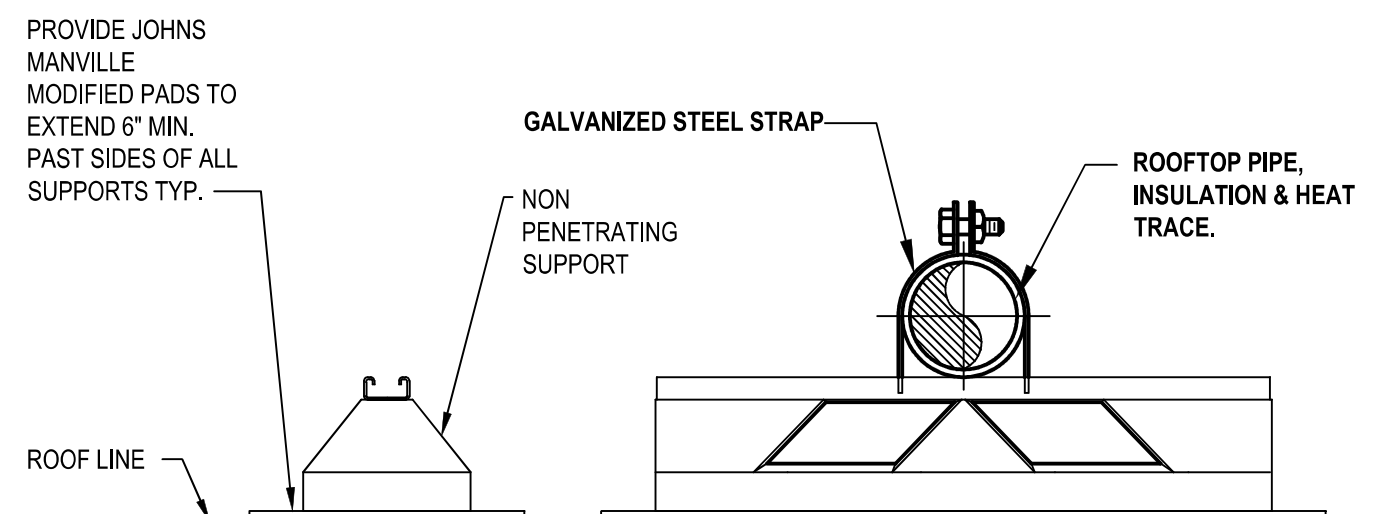
Pipe or Conduit Penetration Through Exterior Walls



X = NEGATIVE INTERNAL STATIC PRESSURE AT FAN INLET(IN.

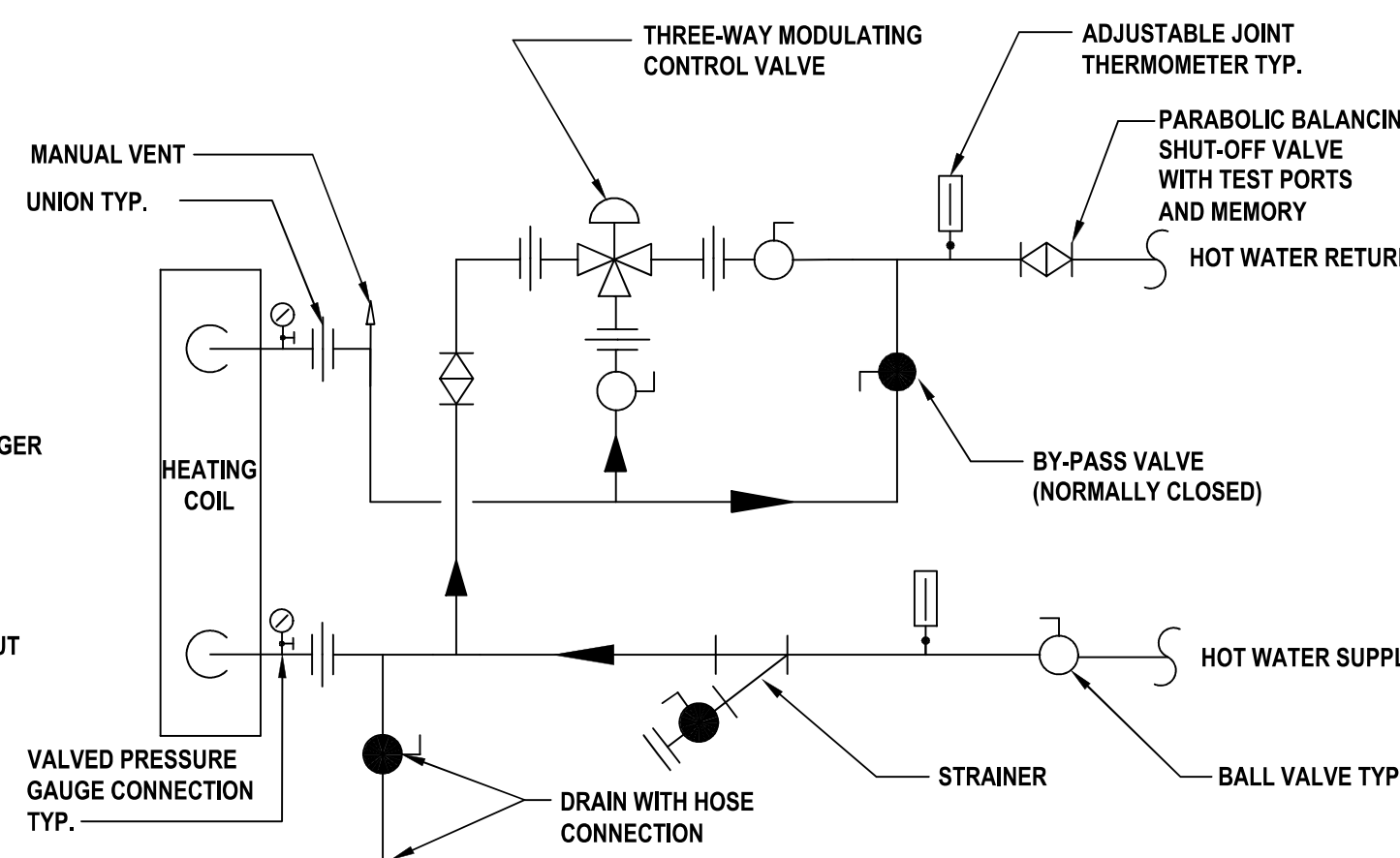
- NOTES:**
1. ALLOW SUFFICIENT SPACE BELOW DRAIN PAN FOR TRAP.
 2. PITCH DRAIN FOR PROPER RUN-OFF.
 3. MANUALLY PRIME FILL TRAP BEFORE START-UP TO FORM INITIAL DRAIN SEAL.
 4. SUPPORT LENGTHY DRAIN LINES TO PREVENT SAG AND CONDENSATE OVERFLOW.
 5. PROVIDE DRAIN SEAL AT EACH AC UNIT.

4 Drain Pan Water Seal Piping Draw-Thru Unit



- ## NOTES

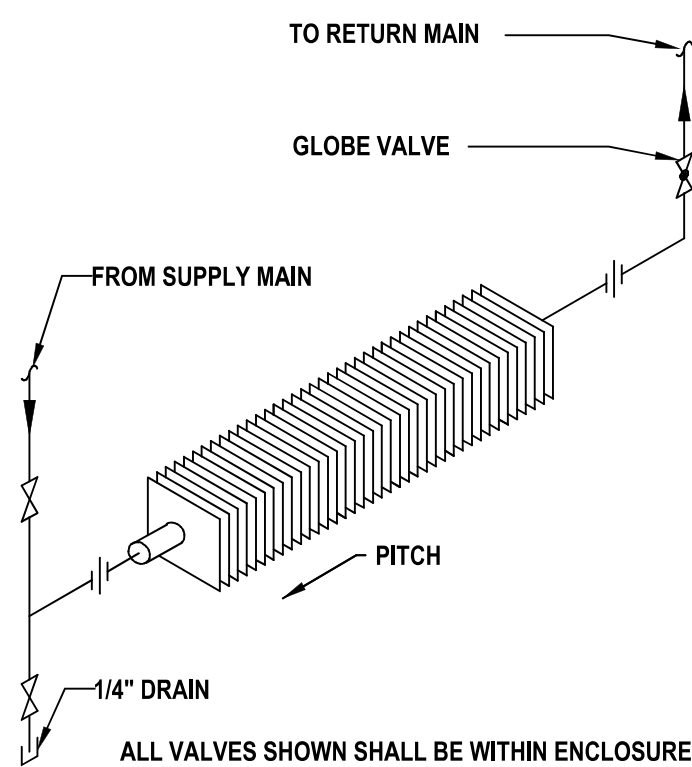
1. INSTALLATION ALSO TYPICAL FOR ROLLER ROOFTOP PIPE SUPPORTS
2. SEE SPECIFICATION SECTION 230529 FOR INFORMATION ON ROOF TOP PIPE SUPPORT SYSTEM.



- ## NOTES

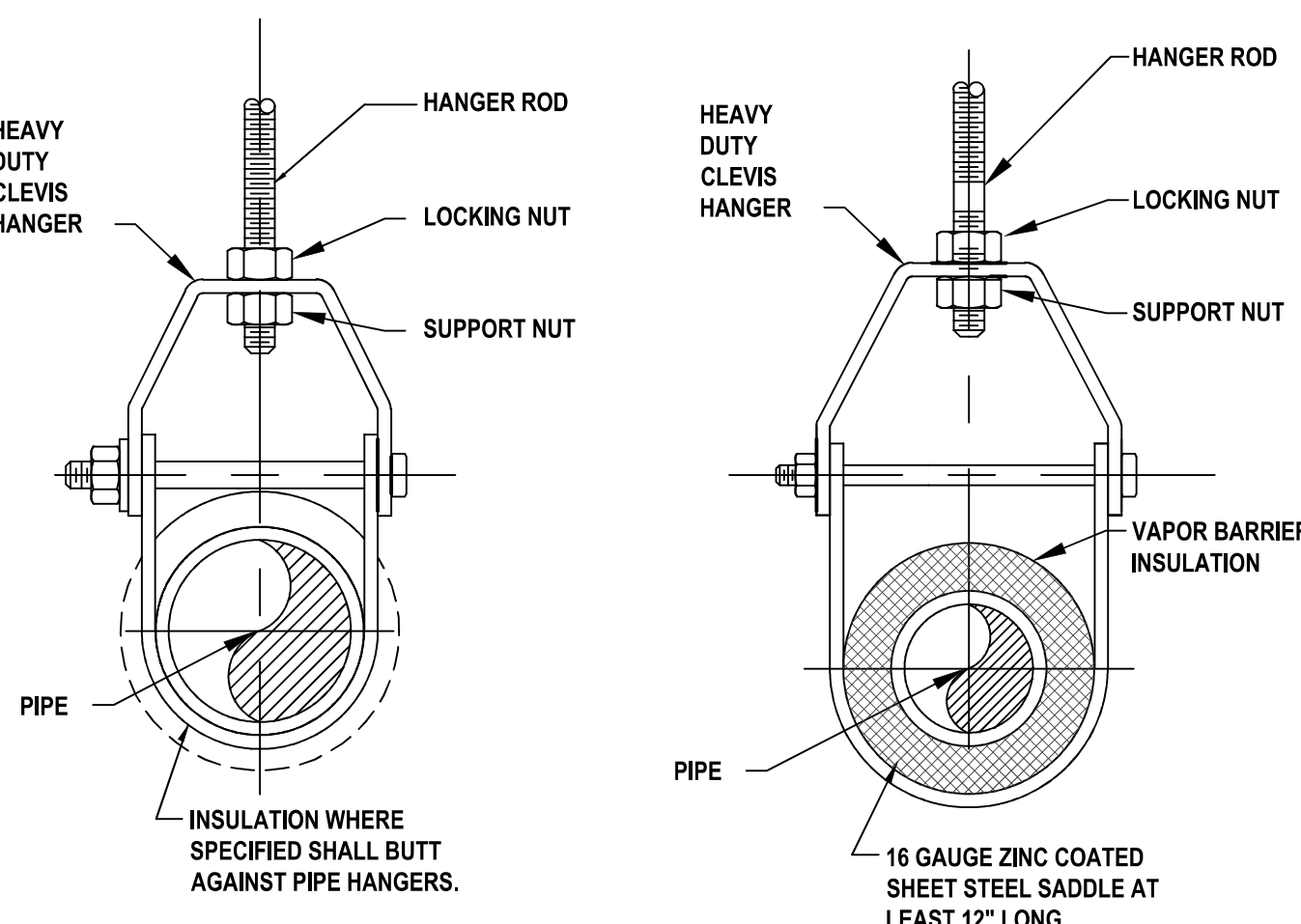
1. ARRANGE PIPING TO ALLOW FOR COIL REMOVAL

Pitch Pocket Detail



9 Hot Water Fin Tube Radiation Down Feed Piping
SCALE: NTS (DETAILS)

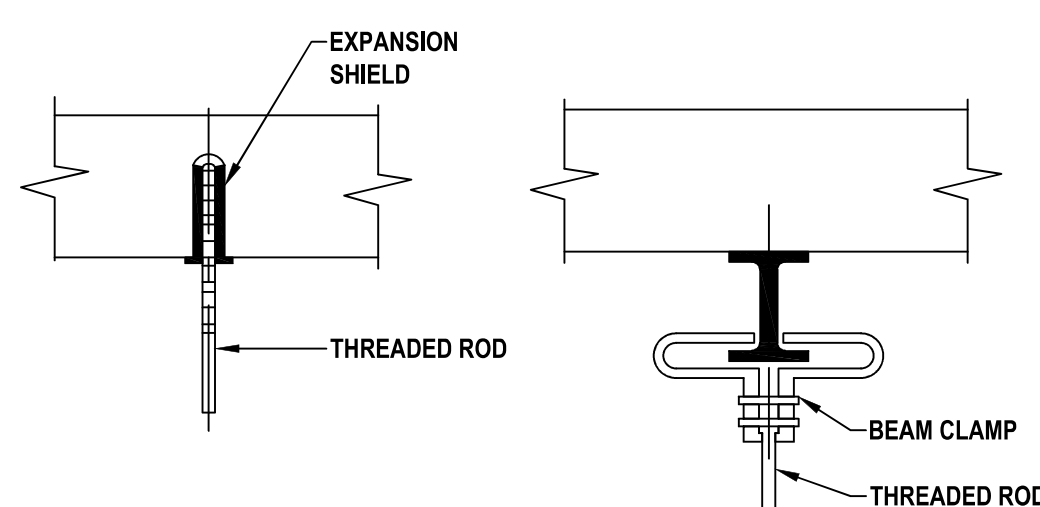
6 Roof Pipe Support Detail



HANGER ROD SCHEDULE			
PIPE SIZE	ROD SIZE	PIPE SIZE	ROD SIZE
UP TO 2"	3/8" DIA.	4" THRU 5"	5/8" DIA.
2 1/2" THRU 3"	1/2" DIA		

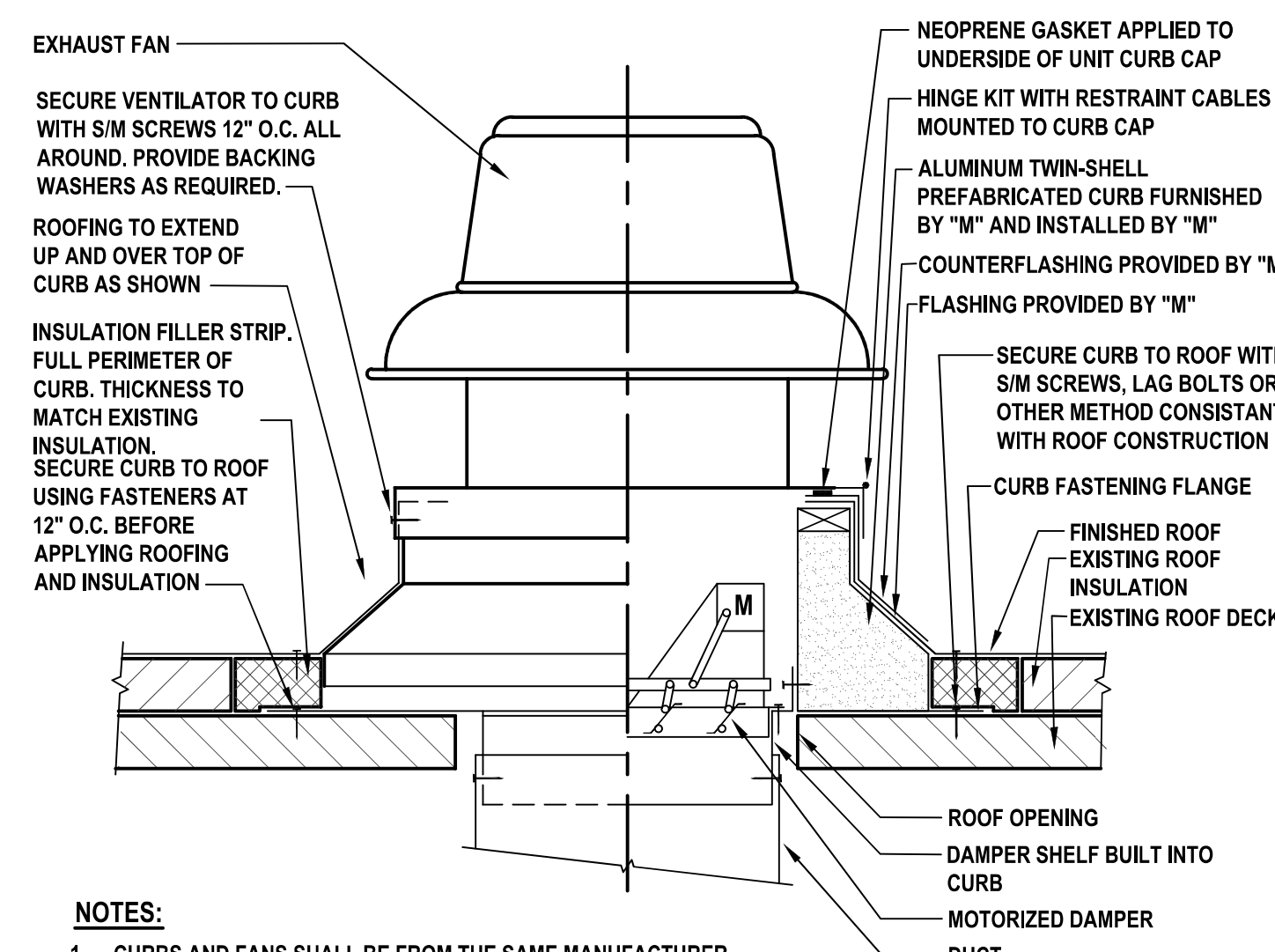
10 Steel Pipe Hanger

7 Copper Tubing Hanger Details



11 PIPE HANGER SUPPORT DETAIL

8 Heating Hot Water Coil Piping Diagram - Three Way Valve

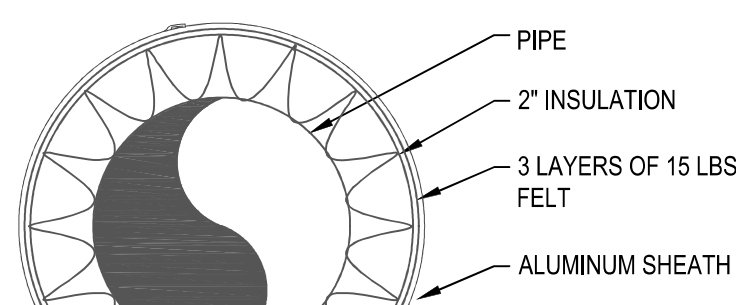


- ## NOTES

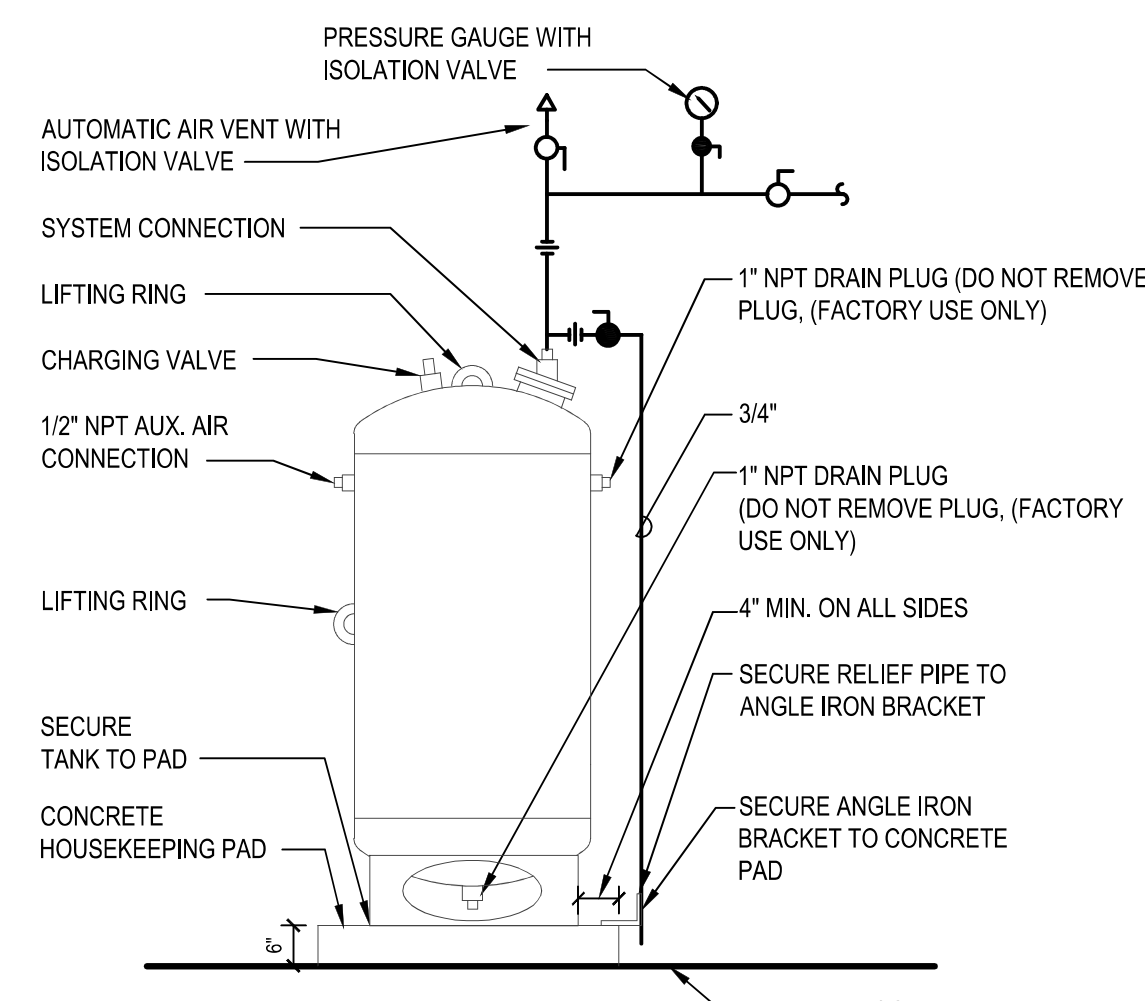
1. CURBS AND FANS SHALL BE FROM THE SAME MANUFACTURER
2. ROOF OPENING IN ACCORDANCE WITH MANUFACTURER'S APPROVED SHOP DRAWINGS
3. CURB HEIGHT SHALL BE 12" ABOVE FINISHED ROOF.

12 Roof Exhaust Fan & Curb

[illegible]



PIPE SECTION



NOTE:

1. ADJUST FACTORY AIR CHARGE PRESSURE TO BUILDING OPERATING STATIC HEAD PRESSURE PRIOR TO FILLING TANK WITH WATER.



1. CONTRACTOR SHALL RETAIN THE SERVICES OF A UTILITY MARKOUT COMPANY TO LOCATE UTILITIES BENEATH THE SLAB PRIOR TO INSTALLING NEW DOWELS.

④ Typical Piping Heat Tracing Detail

1 SCALE: NTS



2 SCALE: NTS



6 SCALE: N



(7) SCALE: N



SCALE: NTS



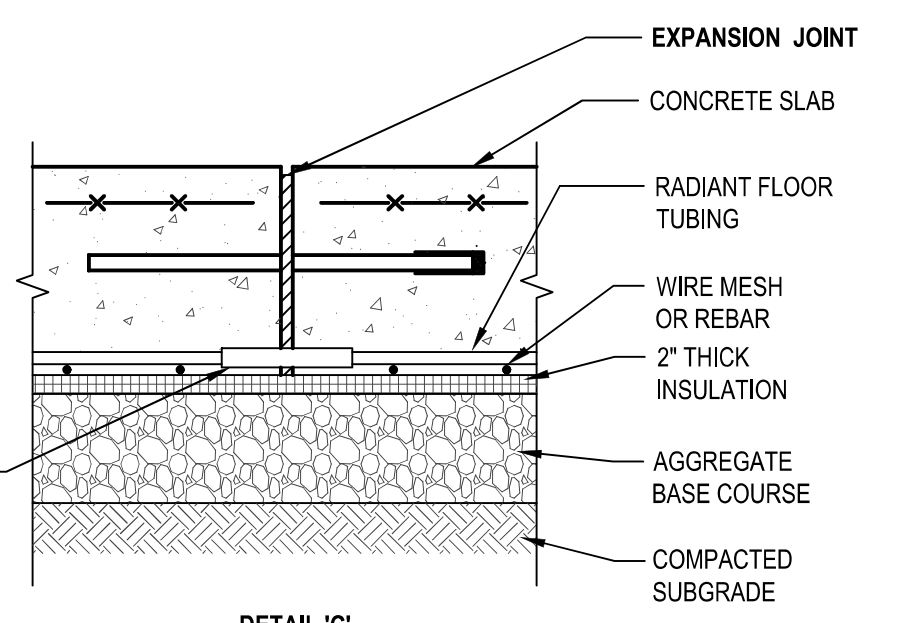
8 SCALE: NTS



SCALE: NTS



9 SCALE: NT



18 Radiant Floor Tubing Installation Detail

10 SCALE: NTS

- NOTES:**
1. DETAIL 'A' & 'B' FOR STAMPED CONCRETE SIDEWALK - STANDARD DUTY. SIMILAR FOR HANDICAP RAMPS, STAIRS, ETC.
 2. DETAIL 'C' FOR CONCRETE PAVEMENT - HEAVY DUTY SUCH AS APP BAYS.
 3. REFER TO STRUCTURAL DRAWINGS FOR SLAB CONSTRUCTION AND DETAILS.
 4. THIS DETAIL PROVIDES GENERAL INSTALLATION REQUIREMENTS AND IS PROVIDED FOR REFERENCE ONLY. INSTALL TUBING ACCORDING TO SPECIFIC VENDOR INSTRUCTION. IN CASE OF ANY CONFLICTING REQUIREMENTS, THE VENDOR REQUIREMENTS SHALL SUPERCEDE THIS DETAIL.



SCALE: NTS
NOTES:

1. ALL DIMENSIONS AND QUANTITIES ARE FOR REFERENCE ONLY.
2. COORDINATE ENCLOSURE SIZE WITH EQUIPMENT AND REQUIRED SERVICE CLEARANCES.
3. COORDINATE LOCATION, SIZE AND QUANTITY OF PIPING/TUBING CONDUITS WITH APPROVED SNOW MELT VENDOR DESIGN DRAWINGS.
4. APPROXIMATE ENCLOSURE DEPTH 30" (30" HEIGHT = 30" +/-).
5. COORDINATE CONCRETE PAD SIZE WITH ENCLOSURE SIZE.
6. REFER TO STRUCTURAL DRAWINGS FOR CONCRETE PAD DETAILS.
7. REFER TO CIVIL DRAWINGS AND SPECIFICATIONS FOR EXACT PAD LOCATIONS, UNDERGROUND UTILITIES, EXCAVATION, COMPACTION AND BACK-FILL REQUIREMENTS.

VENTILATION INDEX BASED ON 2020 NEW YORK STATE MECHANICAL CODE													
ROOM NUMBER	ROOM NAME	OCCUPANCY CLASSIFICATION	FLOOR AREA (SF)	OCCUPANCY LOAD (PERSONS/1000 SF)	NUMBER OF OCCUPANTS	OCCUPANT BASED OA RATE (CFM/OCCUPANT)	AREA BASED OUTSIDE AIR RATE (CFM/SF)	EXHAUST RATE (CFM/SF)	FIXTURES	UNCORRECTED OA (CFM)	E _s EFFICIENCY FACTOR (HEATING)	CORRECTED OA (HEATING) (CFM)	EXHAUST REQUIRED (CFM)
101 / 223	APP BAY	GARAGE	5051	0	0	0	0.00	0.75	0	0	0.80	0	3788
	MEZZANINE	GARAGE	900	0	0	0	0.00	0.75	0	0	0.80	0	675
102	RADIO ROOM	OFFICE	158	5	1	5	0.06	0.00	0	14	0.80	18	0
103	STORAGE1	STORAGE	121	0	0	0	0.12	0.00	8	15	0.80	18	0
104	STORAGE2	STORAGE	97	0	0	0	0.12	0.00	0	12	0.80	15	0
105	DECON	TOILET	117	0	0	0	0.00	0.00	2	-	-	-	100
106	LAUNDRY	LAUNDRY	145	20	3	7	0.12	0.00	0	40	0.80	50	0
107	GEAR ROOM	LOCKER	735	0	0	0	0.00	0.25	0	-	-	-	184
108	TOILET	TOILET	67	0	0	0	0.00	0.00	1	-	-	-	50
109	SCBA	OFFICE	201	5	2	5	0.06	0.00	0	22	0.80	28	0
111	SPARE TURNOUT GEAR	STORAGE	65	0	0	0	0.06	0.00	0	4	0.80	5	0
112	VENDOR DROP OFF	CORRIDOR	45	0	0	0	0.06	0.00	0	3	0.80	3	0
113	CORRIDOR	CORRIDOR	556	0	0	0	0.06	0.00	0	33	0.80	42	0
114	QUARTERMASTER	OFFICE	66	5	1	5	0.06	0.00	0	9	0.80	11	0
115	JC	JC	41	0	0	0	0.00	0.00	1	-	-	-	50
116	MEETING	CONFERENCE	3000	50	150	5	0.06	0.00	0	930	0.80	1163	0
117	STORAGE	STORAGE	126	0	0	0	0.06	0.00	0	15	0.80	19	0
118	KITCHEN	KITCHEN	433	20	9	7	0.12	0.70	0	119	0.80	149	303
119	PANTRY	STORAGE	66	0	0	0	0.06	0.00	0	4	0.80	5	0
120	READY ROOM	DAY ROOM	221	30	7	5	0.06	0.00	0	48	0.80	60	0
123	ELEVATOR LOBBY	CORRIDOR	45	0	0	0	0.06	0.00	0	3	0.80	3	0
125A	LOBBY	LOBBY	353	10	4	5	0.06	0.00	0	41	0.80	51	0
126	VESTIBULE	CORRIDOR	53	0	0	0	0.00	0.00	0	0	0.80	0	0
127	TOILET	TOILET	187	0	0	0	0.00	0.00	4	-	-	-	200
128	TOILET	TOILET	185	0	0	0	0.00	0.00	4	-	-	-	200
201	CORRIDOR	CORRIDOR	186	0	0	0	0.06	0.00	0	11	0.80	14	0
202	MEETING	CONFERENCE	381	50	20	5	0.06	0.00	0	123	0.80	154	0
203	MEMBER VESTIBULE	LOBBY/PREUNCTION	126	30	4	7	0.06	0.00	0	38	0.80	47	0
203A	COMPANY ROOM	CONFERENCE	1082	50	55	5	0.06	0.00	0	340	0.80	425	0
203B	KITCHEN	KITCHEN	78	20	2	7	0.12	0.70	0	24	0.80	30	55
204	STORAGE	STORAGE	39	0	0	0	0.06	0.00	0	5	0.80	6	0
205	STORAGE	STORAGE	78	0	0	0	0.06	0.00	0	9	0.80	12	0
206	TRAINING ROOM	CONFERENCE	1005	50	51	5	0.06	0.00	0	315	0.80	394	0
207	EXERCISE ROOM	WEIGHT ROOM	1000	19	19	20	0.06	0.00	0	280	0.80	325	0
208	BATHROOM	BATHROOM	95	0	0	0	0.00	0.00	2	-	-	-	100
209	BATHROOM	BATHROOM	95	0	0	0	0.00	0.00	2	-	-	-	100
210	CORRIDOR	CORRIDOR	505	0	0	0	0.06	0.00	0	30	0.80	38	0
211	COMMISSIONER'S OFFICE	OFFICE	144	5	1	5	0.06	0.00	0	14	0.80	17	0
212	TRUSTEE'S OFFICE	OFFICE	142	5	1	5	0.06	0.00	0	14	0.80	17	0
213	COMPANY OFFICERS	OFFICE	118	5	1	5	0.06	0.00	0	12	0.80	15	0
214	ASST. CHIEF'S OFFICE	OFFICE	118	5	1	5	0.06	0.00	0	12	0.80	15	0
215	CHIEF'S OFFICE	OFFICE	115	5	1	5	0.06	0.00	0	12	0.80	15	0
216	ADMIN STORAGE	STORAGE	42	0	0	0	0.06	0.00	0	5	0.80	6	0
217	RATED STORAGE 1	STORAGE	82	0	0	0	0.06	0.00	0	10	0.80	12	0
218	RATED STORAGE 1	STORAGE	82	0	0	0	0.06	0.00	0	10	0.80	12	0
220	JC	JC	64	0	0	0	0.00	0.00	1	-	-	-	50

LOUVERS

			PERFORMANCE/CONSTRUCTION REQUIREMENTS						BASIS OF DESIGN INFORMATION					
EQMT. TAG	LOCATION	SERVING	CFM	EXT S. P. (IN. W.C.)	FACE VELOCITY (FPM)	FREE AREA (FT²)	FRAME THICKNESS (IN.)	BLADE THICKNESS (IN.)	MNF	MODEL NO.	NOMINAL DIMENSIONS (W" x H" x D")	WEIGHT (LBS.)	NOTES	
LV-1	APPARATUS BAY	APPARATUS BAY	2,250	0.03	431	5.13	.125	.081	GREENHECK	ESD-435	72 x 24 x 6	39	1.3	
LV-2	APPARATUS BAY	APPARATUS BAY	2,250	0.03	431	5.13	.125	.081	GREENHECK	ESD-435	72 x 24 x 6	39	1.3	
LV-3	WORK ROOM	APPARATUS BAY	4,500	0.12	954	4.78	.125	.081	GREENHECK	ESD-435	72 x 24 x 6	39	2.3	
LV-4	GEAR ROOM	GEAR ROOM	200	0.07	671	0.29	.081	.081	GREENHECK	ESD-435	12 x 12 x 4	3	3.4	
LV-5	BOILER ROOM	BOILER ROOM	N/A	N/A	N/A	4.07	.125	.081	GREENHECK	ESD-435	30 x 36 x 6	30	1.3	
LV-6	ELEVATOR	ELEVATOR	N/A	N/A	N/A	1.82	.081	.081	GREENHECK	ESD-435	24 x 24 x 4	15	5.8	

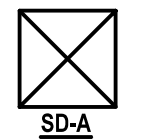
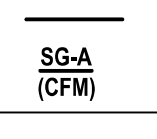
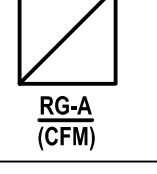
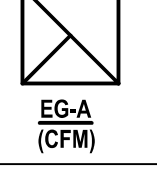
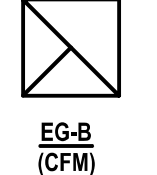
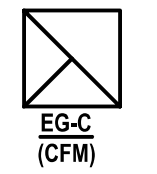

- NOTES:
1. PROVIDE 14" SLEEVE WITH VCD-23 MOTORIZED DAMPER 115V/ 1 INTERLOCKED WITH OPERATION OF APPARATUS BAY GENERAL EXHAUST.
2. PROVIDE 18" SLEEVE AND BLANK OFF PANEL.
3. PROVIDE WITH INTERNAL BIRSCREEN.
4. PROVIDE 12" SLEEVE.
5. PROVIDE WITH (120V/1) VCD-23 MOTORIZED DAMPER W/ INTERNAL ACTUATOR
6. MOUNTING CLIPS TO REMOVE LOUVER AND ACCESS DAMPER FROM BUILDING EXTERIOR
7. DAMPER CONTROLLED BY THERMOSTAT SET TO OPEN DAMPER AT 90F
8. CONFIRM INSTALL WITH ELEVATOR MANUFACTURER

HIGH VOLUME LOW SPEED FANS

FAN NO.	AREA SERVED	BASIS OF DESIGN INFORMATION								REMARKS
		FAN/MOTOR RPM	MNF	MODEL NO.	NOMINAL DIMENSION (DIA" x H" x)	WEIGHT (LBS.)	VOLTS /PHASE	OPERATING AMPERAGE	MOTOR HP	
HVL5-1 THRU 3	APPARATUS BAY	148	BIG ASS FANS	BASIC6-10	120 x 48.5	135	208 / 3	19 A	1.0	1.2

- NOTES:
1. MANUFACTURER TO PROVIDE VFD MOTOR.
2. PROVIDE BAFCON CONTROLLER SERVING ALL HVL5 FANS IN AREA SERVED. PROVIDE MULTIFAN KIT.

AIR OUTLETS

SYMBOL	BASIS OF DESIGN: MNF/ MODEL NO.	DESCRIPTION	FACE SIZE (IN)	AIR FLOW RANGE (CFM)	NECK SIZE (IN.)	REMARKS
	NALOR AUM	SQUARE FACE CEILING DIFFUSER	24 x 24 OR 12 X 12, SEE DRAWINGS	0-200 201-230 231-250 251-400	6"Ø 8"Ø 10"Ø 12"Ø	1
	NALOR 910V-O	DOUBLE DEFLECTION SUPPLY GRILLE	8 x 8 12 x 8 14 x 8	101-225 226-290	8 x 6 10 x 6 12 x 6	1
	NALOR 61FBA5-O	RETURN GRILLE	24 X 24	0-1190	26 x 20	1,3
	NALOR 614B4-O	EXHAUST GRILLE	24 X 24 OR 12 X 12, SEE DRAWINGS	0-150 151-420	6x6 12 x 10	1
	NALOR 514B9-OA	EXHAUST GRILLE	24 X 24 OR 12 X 12, SEE DRAWINGS	0-100 101-200 201-325	6x6 8x6 12x8	1,2
	NALOR 5144H	EXHAUST GRILLE	24 x 24 OR 12 x 12, SEE DRAWINGS	N/A [MATCH DUCTWORK OR OPEN TO FLENUM]	N/A [MATCH DUCTWORK OR OPEN TO FLENUM]	1,2
	NALOR 6148HC	EXHAUST GRILLE	18 x 10	0-450	16 x 8	1

- NOTES:
1. PROVIDE VOLUME DAMPERS FOR ALL AIR INLETS AND OUTLETS
2. ALL ALUMINUM CONSTRUCTION (TERMINAL AND DAMPER). PROVIDE ALUMINUM CONSTRUCTION IN SHOWER AREAS.
3. PROVIDE WITH 2" FILTER BOX AND MERV-8 FILTER.

VEHICLE GAS DETECTION SYSTEM

EQMT. NO.	LOCATION	SYSTEM SERVED	BASIS OF DESIGN INFORMATION				NOTES
			MNF	MODEL NO.	NOMINAL DIMENSIONS L" x W" x H"	VOLTS / PHASE	
GDS-2	APPARATUS BAY	GX-2	RKI BEACON	410A (4 CHANNEL)	10.5 x 6.5 x 14	120V/1	1-7

- NOTES:
1. INCLUDE FOUR CHANNEL DIGITAL CONTROLLER IN NEMA 4 ENCLOSURE FOR WALL MOUNT.
2. LED DISPLAY FOR ALL FOUR CHANNELS FOR NO2 AND CO
3. INCLUDE (2) NITROGEN DIOXIDE SENSORS AND (2) CARBON MONOXIDE SENSORS
4. PROVIDE CONFIGURABLE ALARM OUTPUTS WITH ISOLATION RELAYS FOR INTERLOCK WITH THE EF & FACP.
5. PROVIDE PANEL MOUNTED ADJUSTABLE ALARM AND SILENCING SWITCH
6. PROVIDE ALARM HORN WITH STROBE.
7. PROVIDE STARTUP, TEST AND CALIBRATION REPORT.

EXHAUST FANS

PERFORMANCE/CONSTRUCTION REQUIREMENTS						BASIS OF DESIGN INFORMATION						NOTES
FAN NO.	SYSTEM SERVED	CFM	EXT S. P. (IN. W.C.)	FAN/MOTOR RPM	BHP	MNF	MODEL NO.	NOMINAL DIMENSION (DIA" x H" x W" x H")	WEIGHT (LBS.)	ELECTRICAL DATA VOLTS /PHASE MOTOR HP		
GX-1	APPARATUS ROOM	4,250	0.60	728	2.52	GREENHECK	QED-22	36.5 x 30 x 35.5	370	208V / 3	3	3.4,10
GX-2	APPARATUS ROOM	250	0.30	1,550	0.03	GREENHECK	SQ-990-VG	19 x 15 x 15	72	115V / 1	1/10	2.4,6.9
GX-3	GEAR ROOM	200	0.30	1,550	0.03	GREENHECK	SQ-990-VG	19 x 15 x 15	72	115V / 1	1/10	2.3,5.6
GX-4	KITCHEN	325	0.40	1,625	0.22	GREENHECK	G-980-VG	220 x 27	62	115V / 1	1/10	2.3,6-8
TX-1	TOILET EXHAUST	700	0.60	1,625	0.22	GREENHECK	G-980-VG	24.50 x 25.5	78	115V / 1	1/4	2.3,6-8
TX-2	APP BAY TOILET	100	0.25	1,550	0.02	GREENHECK	SQ-960-D	16 x 12 x 12	34	115V / 1	1/40	2.3,5
TX-3	DECON ROOM 185	100	0.25	1,550	0.02	GREENHECK	SQ-960-D	16 x 12 x 12	34	115V / 1	1/40	2.3,5
BRXF-122	ELECTRIC ROOM 122	58	0.34	1,550	0.02	GREENHECK	SQ-960-D	16 x 12 x 12	34	115V / 1	1/40	2.11,12

- NOTES:
1. CONTRACTOR TO PROVIDE WITH DISCONNECT SWITCH.
2. MANUFACTURER PROVIDED DISCONNECT SWITCH.
3. PROVIDE WITH 115VAC (WITH 115 VAC TRANSFORMER) MOTORIZED DAMPER WITH END SWITCH.
4. FAN TO OPERATE BASED ON SIGNALS FROM INTERLOCKED TEMPERATURE SENSOR OR GAS DETECTIONS SYSTEM IN ADDITION TO 35-MINUTE SPRING TIMER.
5. ELECTRICAL TO INTERLOCK WITH LIGHT SWITCH.
6. PROVIDE WITH DIAL FOR BALANCING ONLY
7. PROVIDE 12" INSULATED ROOF CURB WITH BUILT-IN DAMPER TRAY.
8. ELECTRICAL TO PROVIDE TIME CLOCK
9. ELECTRICAL TO PROVIDE WALL SWITCH
10. REFER TO MOTORIZED DAMPER SCHEDULES
11. FAN TO OPERATE BASED ON THERMOSTAT IN SPACE
12. PROVIDE GRAVITY BACKDRAFT DAMPER

MOTORIZED DAMPERS

EQMT. TAG	PERFORMANCE/CONSTRUCTION REQUIREMENTS					BASIS OF DESIGN INFORMATION								REMARKS
	CFM	EXT S. P. (IN. W.C.)	FACE VELOCITY (FPM)	FRAME THICKNESS	FAILURE MODE	MNF	MODEL NO.	ACTUATOR MNF	ACTUATOR MODEL NO.	ACTUATOR COUNT	NOMINAL DIMENSIONS (W" x H" x D")	ELECTRICAL DATA VOLTAGE	POWER DRAW (W)	
MD-1	4,250	0.095	905	16 GAUGE	CLOSED	GREENHECK	VCD-23	HONEYWELL	MS8104F1210	1	26 x 28 x 5	24VAC	10	1-4

- NOTES:
1. TWO POSITION W/ SPRING RETURN
2. EXTERNALLY MOUNTED ACTUATOR, COORDINATE LOCATION IN FIELD
3. PROVIDE WITH STANDARD SLEEVE
4. INTERLOCK WITH OPERATION OF GX-1
5. ELECTRICAL CONTRACTOR TO PROVIDE 208V/3 TO 24VAC TRANSFORMER

AIR SCRUBBERS

EQUIPMENT NO.	LOCATION	PERFORMANCE/ CONSTRUCTION REQUIREMENTS				BASIS OF DESIGN INFORMATION				NOTES	
		FAN DATA		FILTER DATA		MNF	MODEL NO.	NOMINAL DIMENSIONS L" x W" x H"	NOMINAL OPERATING WEIGHT (LBS.)		
		AIR FLOW (CFM) [LO-MED-H]	SOUND LEVEL (dBA) [LO-MED-H]	VOLTS / PHASE	OPERATING CURRENT (A)						FILTER EFFICIENCY
LRS-1	GEAR ROOM	450 - 825 - 1,150	53 - 57 - 61	120V / 1	8.0	95% @ 0.3 MICRONS	HONEYWELL	F111C1012W-3S	48 x 24 x 21.5	198	1-3

- NOTES:
1. PROVIDE WITH THREE SPEED SWITCH
2. ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT SWITCH.
3. PROVIDE WITH CPZ ODOR ELIMINATION MODULE.


H2M

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Melville, NY 11747
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CONSULTANTS


MARK	DATE	DESCRIPTION



DESIGNED BY: DKR | DRAWN BY: DKR | CHECKED BY: MCV | REVIEWED BY: JML
PROJECT NO: VGF020001 | DATE: JULY 2022 | SCALE: AS SHOWN

CLIENT
VAILES GATE FIRE DISTRICT

New Storage Building (Phase I)
New Fire Station (Phase II)



872 Blooming Grove Turnpike
New Windsor, NY 12553

ROOFTOP UNITS

EQUIPMENT NO.	LOCATION	QUANTITY	AREA SERVED	PERFORMANCE/ CONSTRUCTION REQUIREMENTS																		BASIS OF DESIGN INFORMATION										NOTES
				SUPPLY FAN			COOLING COIL						HEATING COIL									MNF	MODEL NO.	NOMINAL DIMENSIONS LxWxH (IN.)	NOMINAL OPERATION WEIGHT (LBS)	ELECTRICAL DATA						
				MAXIMUM FLOW (CFM)	EXT. S.P. (IN W.G.)	BHP	OUTSIDE AIR FLOW (CFM)	REFRIGERANT TYPE	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	EER	SEER	AIR DATA		MIN TOTAL CAPACITY (MBH)	FLOW RATE (GPM)	EWI (°F)	LWT (°F)	COIL WATER ΔP (FT H2O)	EAT (°F)	COIL LAT (°F)					VOLTS/ PHASE	SUPPLY FAN HP	UNIT MCA/MOCP				
RTU-207	ROOF	1	207 TRAINING ROOM	1,290	0.60	0.57	325	R-410A	33.0	26.7	12.2	14.7	80.0 / 67.0	59.4 / 58.4	65.6	4.4	150	119.9	0.8	55	105.1	TEMPMASTER	ZR03TC0082B8AC1A2	89 x 59 x 42	962	208/3	1.50	41.3 / 50	1-18			

- NOTES:
1. 4" PLEATED MERV-13 FILTERS WITH FOUR (4) SETS OF SPARE FILTER MEDIA.
2. HINGED ACCESS DOORS.
3. DISCONNECT SWITCH (FACTORY MOUNTED).
4. DIRTY FILTER INDICATOR SWITCH.
5. POWERED CONVENIENCE OUTLET.
6. CONDENSER HAL GUARD.
7. LOW LEAK COMPARATIVE ENTHALPY ECONOMIZER.
8. ELECTRICAL CONTRACTOR TO FURNISH AND WIRE SUPPLY AND RETURN AIR SMOKE DETECTORS.
9. MECHANICAL CONTRACTOR TO INSTALL.
10. BACNET DDC COMMUNICATION, INTERLOCK WITH BMS.
11. 14" ROOF CURB AND THRU BASE ELECTRICAL CONNECTIONS.
12. PHASE MONITOR (PHASE LOSS PROTECTION).
13. PROVIDE SPACE TEMPERATURE SENSOR(S) WITH DIGITAL DISPLAY, SETPOINT ADJUSTMENT, OCCUPANCY SCHEDULE.
14. SINGLE ZONE VARIABLE AIR VOLUME CONFIGURATION.
15. VARIABLE FREQUENCY DRIVE.
16. SINGLE POINT POWER FEED TO RTU AND CONVENIENCE OUTLET
17. HOT GAS REHEAT DEHUMIDIFICATION
18. TWO STAGES OF COOLING

DEDICATED OUTDOOR AIR UNITS

EQUIPMENT NO.	AREA SERVED	PERFORMANCE/ CONSTRUCTION REQUIREMENTS																BASIS OF DESIGN INFORMATION																NOTES					
		SUPPLY FAN				EXHAUST FAN				COOLING COIL								HEATING COIL				MNF	MODEL NO.	NOMINAL DIMENSIONS L' x W' x H'	NOMINAL OPERATION WEIGHT (LBS)	ELECTRICAL DATA													
		OUTSIDE AIR FLOW (CFM)	MOTOR HP	BHP	EXT. S.P. (IN W.C.)	TOTAL S.P. (IN W.C.)	AIR FLOW (CFM)	MOTOR HP	BHP	EXT. S.P. (IN W.C.)	TOTAL S.P. (IN W.C.)	REFRIGERANT TYPE	IMRRE	TOTAL SYSTEM CAPACITY (MBH)	SENSEBLE UNIT CAPACITY (MBH)	AIR DATA				MIN TOTAL CAPACITY (MBH)	FLOW RATE (GPM)					EWI (°F)	LWT (°F)	COL. WATER ΔP (IN. W.C.)	OA DB (°F)	RA DB (°F)	EAT (°F)	MAX COIL LAT (°F)	UNIT LAT (°F)	VOLTS PHASE	MCA	MOCP			
DOAS-1	1ST AND 2ND FLOOR VENTILATION	4,500	5	2.97	1.00	2.677	2,800	2	1.16	1.00	1.596	R-410A	6.8	206.9	143.7	0.24	95.0 / 75.0	70.0 / 63.0	84.2 / 69.2	55.1 / 54.7	75.50%	295.8	18.1	150	120	0.7	12.0	70.0	40.8	95.7	75	LG	ARDE-212-32-15H-15D	180.5 x 96.5 x 76.5	4,527	208/3	84.4	100	1-19

- NOTES:
1. ENERGY RECOVERY WHEEL.
2. HORIZONTAL DISCHARGE/EXHAUST CONFIGURATION
3. FACTORY PROVIDED INTEGRAL NONFUSED DISCONNECT
4. POWERED CONVENIENCE OUTLET
5. PROVIDE 14" ROOF CURB W/ THRU BASE CONNECTIONS
6. SINGLE POINT POWER FEED
7. BACNET DDC COMMUNICATION, INTEGRATE WITH BMS
8. FROST CONTROL (MODULATING WHEEL)
9. STAINLESS STEEL DRAIN PAN
10. DIRTY FILTER INDICATOR SWITCH
11. HAL GUARDS
12. MODULATING HOT GAS REHEAT
13. DIGITAL SCROLL COMPRESSOR FOR ALL CIRCUITS
14. MANUFACTURER TO PROVIDE FACTORY INSTALLED UNIT CONTROLLER
15. PHASEBROWN OUT PROTECTION
16. SUPPLY AIR FLOW MONITORING
17. 2" PLEATED MERV-8 FILTERS, PROVIDE WITH FOUR (4) SETS OF SPARE FILTER MEDIA.
18. ELECTRICAL CONTRACTOR TO FURNISH AND WIRE SUPPLY AND RETURN AIR SMOKE DETECTORS.
19. MECHANICAL CONTRACTOR TO INSTALL.
20. HINGED ACCESS DOORS

SPLIT CONDENSING UNITS

EQMT. #	LOCATION	TYPE	INDOOR UNITS SERVED	COOLING PERFORMANCE										HEATING PERFORMANCE					BASIS OF DESIGN INFORMATION							NOTES
				REFRIGERANT	ESTIMATED CONDENSER CHARGE (LB)	TOTAL CAPACITY (MBH)	MIN OPER. TEMP. (°F)	MAX OPER. TEMP. (°F)	EER	IEER (SEER)	TOTAL CAPACITY (MBH) @ 0°F DB / -2°F WB [-3°F DB / -4°F WB]	MIN OPER. TEMP. (°F)	MAX OPER. TEMP. (°F)	COP @ 47°F [HSPF]	COP @ 17°F	MANUF.	MODEL #	NOMINAL DIMENSIONS L x W x H (IN.)	NOMINAL OPERATING WEIGHT (LBS.)	ELECTRICAL DATA						
																				VOLTS / PHASE / HZ	MCA	MOCP				
CU-1	ROOF	MULTI-ZONE HEAT RECOVERY	SEE EVAPORATOR UNIT SCHEDULE	R410A	26.5	168	5	122	11.1	21.9	163.6	-22	61	3.20	2.38	LG	ARUM168BTES	49 x 30 x 67	639	208/60/3	53.6	70	1-8			
CU-2	ROOF	MULTI-ZONE HEAT RECOVERY	SEE EVAPORATOR UNIT SCHEDULE	R410A	26.5	168	5	122	11.1	21.9	163.7	-22	61	3.20	2.38	LG	ARUM168BTES	49 x 30 x 67	639	208/60/3	53.6	70	1-8			
CU-1	ROOF	1 TO 1 HEAT PUMP	IU-1	R410A	2.21	13.8	14	118	12.5	22.7	[10.36]	-4	65	[11.4]	-	LG	LSU120HSV5	30.5 x 12.5 x 21.5	74	208-230/60/1	10.0	15	1-4,7,8			

- NOTES:
1. REFRIGERANT CHARGE IS SOLEY PRE-CHARGE FROM CONDENSERS. CONTRACTOR TO NOTIFY ENGINEER IF ADDITIONAL SYSTEM CHARGE IS REQUIRED.
2. ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT SWITCH FOR OUTDOOR UNIT IN NEMA-4X ENCLOSURE.
3. PROVIDE AND INSTALL REFRIGERANT PIPING SPECIALTIES PER MANUFACTURER'S RECOMMENDATIONS.
4. CONTRACTOR TO PROVIDE 14" HIGH RAIS.
5. MANUFACTURER TO PROVIDE HAL GUARD KIT
6. MANUFACTURER PROVIDED AIR GUIDE
7. MANUFACTURER PROVIDED LOW AMBIENT BAFFLE KIT
8. MANUFACTURER PROVIDED BASE PAN HEATER

SPLIT EVAPORATING UNITS

UNIT TAG	UNIT LOCATION	TYPE	PAIRED EQUIPMENT	REFRIGERANT	PERFORMANCE/ CONSTRUCTION REQUIREMENTS								BASIS OF DESIGN INFORMATION								NOTES
					DRY AIRFLOW (CFM) [H1-ME-D-LQ]	EXTERNAL STATIC (IN. W.C.) [H1 TO LQ]	SOUND LEVEL LOW TO HIGH [dB(A)]	SUPPLY UNIT DATA			HEATING CAPACITY (MBH) @ 0°F DB / -2°F WB [-3°F DB / -4°F WB]	MANUF.	MODEL	NOMINAL DIMENSIONS L" x W" x H"	NOMINAL OPERATING WEIGHT (LBS.)	ELECTRICAL DATA					
								NOMINAL SIZE (IN.)	TOTAL COOLING CAPACITY (MBH)	SENSIBLE COOLING CAPACITY (MBH)						VOLTS/ PHASE/ HZ	MCA (A)	MOCP (A)			
EU-102	RADIO ROOM 102	CEILING CASSETTE	BC-1	CU-1	R410A	396-386-353	-	34/35/37	18	19.15	13.82	22.2	LG	ARNU183TQD4	24.5 x 24.5 x 10	35	208/160	0.25	15	1-6	
EU-114	114 QUARTERMASTER	CEILING CASSETTE			R410A	265-247-212	-	26/27/29	5	5.52	3.90	6.3	LG	ARNU053TRD4	22.5 x 22.5 x 8.5	29	208/160	0.25	15	1-6	
EU-118	118 KITCHEN	CEILING CASSETTE			R410A	396-386-353	-	34/35/37	18	19.15	13.82	22.2	LG	ARNU183TQD4	24.5 x 24.5 x 10	35	208/160	0.25	15	1-6	
EU-120	120 READY ROOM	CEILING CASSETTE			R410A	283-265-251	-	27/29/30	9	9.63	6.91	11.2	LG	ARNU093TRD4	24.5 x 24.5 x 10	32	208/160	0.25	15	1-6	
FCU-116-1	116 MEETING	CONCEALED FAN COIL	BC-2	CU-1	R410A	1554-676	0.71 - 0.16	60/62/65	36	36.31	26.84	42.0	LG	ARNU2363M2A4	27.5 x 54 x 11	86	208/160	2.90	15	1-6	
FCU-116-2	116 MEETING	CONCEALED FAN COIL			R410A	1554-676	0.71 - 0.16	60/62/65	36	36.31	26.84	42.0	LG	ARNU2363M2A4	27.5 x 54 x 11	86	208/160	2.90	15	1-6	
FCU-116-3	116 MEETING	CONCEALED FAN COIL			R410A	1554-676	0.71 - 0.16	60/62/65	36	36.31	26.84	42.0	LG	ARNU2363M2A4	27.5 x 54 x 11	86	208/160	2.90	15	1-6	
EU-125A	125A LOBBY	CEILING CASSETTE	BC-3	CU-1	R410A	307-283-247	-	27/30/32	12	12.34	8.91	14.1	LG	ARNU123TRD4	24.5 x 24.5 x 10	32	208/160	0.25	15	1-6	
EU-202	202 MEETING	CEILING CASSETTE			R410A	396-386-353	-	34/35/37	18	19.15	13.82	22.2	LG	ARNU183TQD4	24.5 x 24.5 x 10	35	208/160	0.25	15	1-6	
EU-203	203 VESTIBULE	CEILING CASSETTE			R410A	265-247-212	-	26/27/29	5	5.52	3.90	6.3	LG	ARNU053TRD4	22.5 x 22.5 x 8.5	29	208/160	0.25	15	1-6	
FCU-203A	203A COMPANY ROOM	CONCEALED FAN COIL			R410A	2075-522	0.79 - 0.16	62/64/67	48	46.24	36.16	56.0	LG	ARNU483M5A4	27.5 x 30.5 x 12	96/10	208/160	3.10	15	1-6	
FCU-206	206 TRAINING	CONCEALED FAN COIL	BC-4	CU-1	R410A	1554-676	0.71 - 0.16	60/62/65	36	36.31	26.84	42.0	LG	ARNU2363M2A4	27.5 x 54 x 11	86	208/160	2.90	15	1-6	
EU-210	210 CORRIDOR	CEILING CASSETTE			R410A	283-265-251	-	27/29/30	9	9.63	6.91	11.2	LG	ARNU093TRD4	24.5 x 24.5 x 10	32	208/160	0.25	15	1-6	
EU-211	211 OFFICE	CEILING CASSETTE			R410A	265-247-212	-	26/27/29	5	5.52	3.90	6.3	LG	ARNU053TRD4	22.5 x 22.5 x 8.5	29	208/160	0.25	15	1-6	
EU-212	212 OFFICE	CEILING CASSETTE			R410A	265-247-212	-	26/27/29	5	5.52	3.90	6.3	LG	ARNU053TRD4	22.5 x 22.5 x 8.5	29	208/160	0.25	15	1-6	
EU-213	213 OFFICE	CEILING CASSETTE			R410A	265-247-212	-	26/27/29	5	5.52	3.90	6.3	LG	ARNU053TRD4	22.5 x 22.5 x 8.5	29	208/160	0.25	15	1-6	
EU-214	214 OFFICE	CEILING CASSETTE			R410A	265-247-212	-	26/27/29	5	5.52	3.90	6.3	LG	ARNU053TRD4	22.5 x 22.5 x 8.5	29	208/160	0.25	15	1-6	
EU-215	215 OFFICE	CEILING CASSETTE			R410A	265-247-212	-	26/27/29	5	5.52	3.90	6.3	LG	ARNU053TRD4	22.5 x 22.5 x 8.5	29	208/160	0.25	15	1-6	
IU-1	219 IT	WALL MOUNT	OU-1	R410A	338-317-229	-	39/33/23	12	13.785	-	(10.36)	LG	LSN120HSV5	30 x 12 x 7.5	18.30	208-230/160	-	-	1-3,5-4		

- NOTES:
1. MANUFACTURER TO PROVIDE HARDWIRED, WALL MOUNTED, PROGRAMMABLE THERMOSTAT.
2. PROVIDE WITH 208V / 1 CONDENSATE PUMP TAGGED AS COP-4 (LITTLE GIANT MODEL VCCA-29ULST)
3. DRAIN PAN LEVEL SENSOR THE UNIT SHALL TURN OFF IF WATER IS SENSED.
4. ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT SWITCH
5. FURNISH AND INSTALL BACNET INTERFACE AND INTEGRATE WITH BMS.
6. INSTALL ALL EQUIPMENT AND COMPONENTS ACCORDING TO MANUFACTURER'S INSTRUCTIONS. POWERED BY PAIRED CONDENSER.
7. ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT SWITCH BETWEEN INDOOR AND OUTDOOR UNIT
8. PROVIDE PIPE COVER FOR ALL EXPOSED REFRIGERANT PIPING. PROVIDE CJO INNOVATIONS OR APPROVED EQUAL. COORDINATE FINISH WITH ARCHITECT/OWNER.

VRF BRANCH CONTROL BOXES

EQMT NO.	LOCATION	CNDSR. PAIRING	# OF INDOOR UNIT PORTS	BASIS OF DESIGN INFORMATION							NOTES
				MNF	MODEL NO.	NOMINAL DIMENSIONS L" x W" x H"	NOMINAL OPERATING WEIGHT (LBS.)	ELECTRICAL DATA			
								VOLTS/ PHASE	MCA	MOCP	
BC-1	FIRST FLOOR	CU-1	4	LG	PRHR043A	19 x 19 x 8.5	40	208-230/1	0.17	15	1.2
BC-2	FIRST FLOOR	CU-2	4	LG	PRHR043A	19 x 19 x 8.5	40	208-230/1	0.17	15	1.2
BC-3	SECOND FLOOR	CU-3	4	LG	PRHR043A	19 x 19 x 8.5	40	208-230/1	0.17	15	1.2
BC-4	SECOND FLOOR	CU-3	6	LG	PRHR063A	31 x 19 x 8.5	60	208-230/1	0.27	15	1.2

- NOTES:
1. PROVIDE BALL VALVES
2. CONDENSATE DRAIN NOT REQUIRED FOR THIS MANUFACTURER

REFRIGERANT DENSITY CALCULS

SYSTEM	EFFECTIVE PIPE LENGTH (FT.)	EFFECTIVE FURTHEST PIPE RUN (FT.)	TOTAL NUMBER OF ELBOWS	TOTAL REFRIGERANT AMOUNT (LBS)	ZONE SMALLEST SPACE, TOTAL AREA (SQFT.)	ZONE SMALLEST SPACE, TOTAL VOLUME (FT3)	REFRIGERANT DENSITY (LB/1000FT3)
CU-1 & 2	-	-	-	38.15 [NOTE 1]	503	4,024	19.64
	-	-	-	39.82 [NOTE 1]			
CU-1	88	88	0	3.34	42	336	9.91

- NOTES:
1. LINE LENGTHS ARE ESTIMATED BY MANUFACTURER VRF DESIGN SOFTWARE. REFRIGERANT LINE LENGTHS, SIZES & CHARGES TO BE VERIFIED BY EQUIPMENT MANUFACTURER.
2. CONTRACTOR TO NOTIFY ENGINEER IF ADDITIONAL SYSTEM CHARGE IS REQUIRED.

ELECTRIC HEAT TRACE

EQMT. TAG	EQMT. SERVED	SERVING	DESIGN CONDITIONS	
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EQUIPMENT NO.	LOCATION	RATE GROSS N/PT (M\$H)	RATED GROSS N/PT (M\$H)	PERFORMANCE/ CONSTRUCTION REQUIREMENTS										BASIS OF DESIGN INFORMATION								NOTES
				GAS (%)	WATER DATA			GAS DATA			BOILER VENT (%)	MANUFACTURER	MODEL NO.	NOMINAL DIMENSIONS (L x W x H)	WEIGHT (LBS)	ELECTRICAL DATA						
					FLOW RATE (GPM)	MAX RATED PRESS. (PSIG)	INLET TEMP. (DEG. F)	OUTLET TEMP. (DEG. F)	CFH	MIN PRESSURE (IN. W.C.)						MAX PRESSURE (IN. W.C.)	VOLTAGE	FLA	MCA	MOPC		
BL-1 & BL-2	MECHANICAL ROOM	800	768.8	96.1	45.3			114	150	800	4	13.5	6	RIELO	ARRAY 800	29.5 x 32.5 x 33.5	926	115V1	15.5	16	20	1-7

- ## HEATING HOT WATER PUMPS

EQMT. NO.	LOCATION	SYSTEM SERVED	PERFORMANCE/CONSTRUCTION REQUIREMENTS					BASIS OF DESIGN INFORMATION					REMARKS
			WORKING FLUID	FLOW RATE (GPM)	TOTAL HEAD (FT.)	HP	PUMP SPEED (RPM)	M/NF	MODEL NO.	NOMINAL DIMENSIONS L X W X H	NOMINAL OPERATING WEIGHT (LBS.)	VOLTS/ PHASE	
HHWP-162	MECHANICAL ROOM	BUILDING HW HEAT	WATER	70	65	3.0	1,760	TACO	SKV-156D-A-2-PD	22inX30in	246	208/3	1-9
HHWP-364	MECHANICAL ROOM	RADIANT FLOOR	WATER	28	40	0.9	-	TACO	VR15H	10x7x15.5	226	208/1	2,4-6-8-10
HHWP-586	MECHANICAL ROOM	UNIT HEATERS	WATER	20	35	0.6	-	TACO	VR15M	10x7x15	226	208/1	2,4-6-8-10

- ## AIR/DIRT SEPARATORS

EQMT. NO.	LOCATION	SYSTEM SERVED	PERFORMANCE REQUIREMENTS		BASIS OF DESIGN INFORMATION				NOTES
			FLOW RATE (GPM)	MAX. PD (FT. H2O)	MNF	MODEL NO.	NOMINAL DIMENSION DIA. x H	NOMINAL OPERATING WEIGHT (LBS.)	
ADS-1	BOILER ROOM	HOT WATER LOOPS	118	1.07	TACO	4904AD-125	12 x 25	75	1-2

- ## EXPANSION TANKS

EQUIPMENT NO.	LOCATION	SYSTEM SERVED	PERFORMANCE/CONSTRUCTION REQUIREMENTS			BASIS OF DESIGN INFORMATION					REMARKS
			SYSTEM DATA			MNF	MODEL NO.	NOMINAL DIMENSION DIA. x H.	TANK VOLUME (GAL.)	SHIPPING WEIGHT (LBS.)	
			ESTIMATED VOLUME (GAL.)	MAX. OPERATING PRESS. RANGE (PSIG)	MAX. OPERATING TEMP. RANGE (°F)						
ET-1	BOILER ROOM	HOT WATER	500	17-47	40-150	TACO	CA140-150	16 x 40.5	37	195	1

- ## FIN TUBE RADIATOR

EQMT. NO.	AREA SERVED	TOTAL CAPACITY (MBH)	PERFORMANCE / CONSTRUCTION REQUIREMENTS							REMARKS	
			HEATING COIL DATA				MNF	MODEL NO.	NOMINAL DIMENSIONS L"XW"XH"		
			BTU/FT	PIPE DIA	FINS/FT	FIN DIMS W" x H"					GPM
FTR-116-1	116 MEETING	5.2	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	10' x 5.25" x 12"	1-2
FTR-116-2	116 MEETING	5.2	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	10' x 5.25" x 12"	1-2
FTR-116-3.1	116 MEETING	4.1	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	8' x 5.25" x 12"	1-2
FTR-116-3.2	116 MEETING	4.1	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	8' x 5.25" x 12"	1-2
FTR-116.4	116 MEETING	9.3	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	18' x 5.25" x 12"	1-2
FTR-116.5	116 MEETING	8.3	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	16' x 5.25" x 12"	1-2
FTR-120-1	120 READY ROOM	4.1	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	8' x 5.25" x 12"	1-2
FTR-120-2	120 READY ROOM	2.1	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	4' x 5.25" x 12"	1-2
FTR-202-1	202 CONFERENCE	5.2	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	10' x 5.25" x 12"	1-2
FTR-202-2	202 CONFERENCE	5.2	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	10' x 5.25" x 12"	1-2
FTR-203A-1	COMPANY ROOM 203A	6.2	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	12' x 5.25" x 12"	1-2
FTR-203A-2	COMPANY ROOM 203A	6.2	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	12' x 5.25" x 12"	1-2
FTR-203A-3	COMPANY ROOM 203A	3.1	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	6' x 5.25" x 12"	1-2
FTR-203A-4	COMPANY ROOM 203A	2.1	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	4' x 5.25" x 12"	1-2
FTR-203A-5	COMPANY ROOM 203A	1.5	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	3' x 5.25" x 12"	1-2
FTR-206-1	TRAINING ROOM 206	6.2	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	12' x 5.25" x 12"	1-2
FTR-206-2	TRAINING ROOM 206	2.1	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	4' x 5.25" x 12"	1-2
FTR-206-3	TRAINING ROOM 206	2.6	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	5' x 5.25" x 12"	1-2
FTR-206-4	TRAINING ROOM 206	2.6	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	5' x 5.25" x 12"	1-2
FTR-210-1	CORRIDOR 210	10.3	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	20' x 5.25" x 12"	1-2
FTR-210-2	CORRIDOR 210	5.2	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	10' x 5.25" x 12"	1-2
FTR-212	212 OFFICE	4.1	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	8' x 5.25" x 12"	1-2
FTR-213	212 OFFICE	4.1	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	8' x 5.25" x 12"	1-2
FTR-214	215 OFFICE	2.6	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	5' x 5.25" x 12"	1-2
FTR-215	214 OFFICE	3.1	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	6' x 5.25" x 12"	1-2
FTR-216	215 OFFICE	3.1	516	3/4"	50	4.25 X 4.25	2.5	MOODIE	S912	6' x 5.25" x 12"	1-2

- ## CONTROL VALVES

QTY.	PERFORMANCE/CONSTRUCTION REQUIREMENTS													NOTES	
	VALVE FAMILY	CONFIG.	FAIL POSITION	VALVE SIZE	MEDIUM	VALVE COEFFICIENT (CV)	VALVE CLOSE OFF (PSI)	TRIM MATERIAL	CONNECTION	INF.	MODEL NUMBER	ACTUATOR POWER	ACTUATOR CONTROL		
MV-1	1	BALL VALVE	3-WAY	LAST POSITION	1-1/2"	WATER	23.5	40	BRASS	THREADED	GRISWOLD CONTROLS	UR3EEFM	24VAC	2-10VDC MODULATING	

EQMT. NO.	LOCATION	PERFORMANCE/ CONSTRUCTION REQUIREMENTS					BASIS OF DESIGN INFORMATION				NOTES
		FLOW (CFM)	TOTAL CAPACITY (MGH)	HEATING COIL DATA			MNF	MODEL NO.	NOMINAL DIMENSIONS L" X W" X H"	NOMINAL OPERATING WEIGHT (LBS.)	
				ELECTRIC DATA							
				VOLTS/PHASE	TOTAL KW	AMPS					
WEH-112	112 VENDOR DROPOFF	100	5.1	20181	1.5	7.2	QMARK / MARLEY	AWH44046*	16' x 4' x 19.5	25	1-1

- NOTES:**
1. BUILT IN THERMOSTAT.
 2. MANUFACTURER PROVIDED DISCONNECT SWITCH
 3. FIELD WIRED FOR HALF WATTAGE, COORDINATE WITH 'E' AND MANUFACTURER'S INSTALLATION INSTRUCTIONS

EQUIP. NO.	AREA SERVED	FLOOR AREA SERVED (FT ²)	PERFORMANCE/CONSTRUCTION REQUIREMENTS						NOTES	
			TOTAL CAPACITY (BTU/Hr)	HEATING COIL DATA		MNF	MODEL NO.	NOMINAL DIMENSIONS "L"X"W"X"H"		
				WT (F)	HTM COIL					
RFM-1	APPARATUS ROOM	2429	99621	123.6	9.7	10	UPONOR	A2721092	28 x 3.5 x 1.5	1-5
RFM-2	APPARATUS ROOM	2903	102663	123.6	18	10	UPONOR	A2721092	28 x 3.5 x 1.5	1-5
RFM-3	APPARATUS ROOM	266	8962	123.6	0.9	2	UPONOR	A2720922	11 x 3.5 x 1.5	1-5
RFM-4	APPARATUS ROOM	265	25634	123.6	2.4	2	UPONOR	A2724002	15 x 3.5 x 1.5	1-5
RFM-5	APPARATUS ROOM	260	6376	123.6	0.6	2	UPONOR	A2720922	11 x 3.5 x 1.5	1-5
RFM-6	APPARATUS ROOM	217	6973	123.6	0.7	2	UPONOR	A2720922	11 x 3.5 x 1.5	1-5
RFM-7	APPARATUS ROOM	229	6320	123.6	0.6	2	UPONOR	A2720922	11 x 3.5 x 1.5	1-5

- NOTES:
1. MANIFOLD TO BE CONSTRUCTED OF STAINLESS STEEL.

SYSTEM

EQMT. NO.	LOCATION	SYSTEM SERVED	BASIS OF DESIGN INFORMATION				REMARKS
			MAN	MODEL NO.	NOMINAL DIMENSIONS L" x W" x H"	VOLTAGE / PHASE	
GDS-1	MECHANICAL ROOM	BOILERS BL-1, BL-2	RKI BEACON	410A (4 CHANNEL)	10.5 x 6.5 x 14	120/1	1-7

- NOTES:**
1. INCLUDE TWO CHANNEL DIGITAL CONTROLLER IN NEMA 4 ENCLOSURE FOR WALL MOUNT.
 2. LED DISPLAY FOR LEL AND CO.
 3. INCLUDE COMBUSTIBLE GAS SENSOR AND CARBON MONOXIDE SENSOR.
 4. PROVIDE CONFIGURABLE ALARM OUTPUTS WITH ISOLATION RELAYS FOR INTERLOCK WITH BOILER AND FACP
 5. PROVIDE PANEL MOUNTED AUDIBLE ALARM AND SILENCING SWITCH
 6. PROVIDE ALARM HORN WITH STROBE.
 7. PROVIDE STARTUP, TEST AND CALIBRATION REPORT

" VIBRATION ISOLATION / SEISMIC & WIND RESTRAINTS SCHEDULE [2020 New York State Building Code, SDC = C, RISK CAT = IV"]

UNIT TAG	EQUIPMENT TYPE	LOCATION (PL LEVEL)	OUNTING METHOD	BASE TYPE	MANUF	ISOLATOR TYPE	NOM DEF. IN.	RESTRAINT REQD	SEISMIC COMPONENT IMPORTANCE FACTOR, I _p	NOTES (I.P. 2.)
HVS-12.3	RWLS FANS	VARIOUS	SUSPENDED	---	VIBRO-ACOUSTICS	---	---	SEIS	1.5	6
GK-4	EXHAUST FANS	MECH MEZ	SUSPENDED	---	VIBRO-ACOUSTICS	SHR	2.00	SEIS	1.5	6.7
GK-4, TX-1	FANLS FANS	ROOF	---	---	VIBRO-ACOUSTICS	---	---	SEISWIND	1.5	
VX [TBD]	VEHICLE EXHAUST	MECH MEZ	SUSPENDED	---	VIBRO-ACOUSTICS	SHR	---	SEIS	1.5	6.7
LRS-1	AIR SCRUBBERS	GEAR ROOM	SUSPENDED	---	VIBRO-ACOUSTICS	---	---	SEIS	1.5	6
RTU-297, DOAS-1	ROOFTOP UNITS	ROOF	ROOF	RC	VIBRO-ACOUSTICS	VCR	2.00	SEISWIND	1.5	
CU-1, 2, OU-1	CONDENSING UNIT	ROOF	ROOF	---	VIBRO-ACOUSTICS	NP	0.18	SEISWIND	1.5	
EU-102 THRU 215	SPLIT SYSTEM INDOOR	VARIOUS	SUSPENDED	---	VIBRO-ACOUSTICS	SHR	1.00	SEIS	1.5	6.7
BC-1, 2, 3, 4	VRF BRANCH CONTROL	VARIOUS	SUSPENDED	---	VIBRO-ACOUSTICS	---	---	SEIS	1.5	6
BL-1, 2	BOILER	MECH ROOM	FLOOR	---	VIBRO-ACOUSTICS	NP	0.18	SEIS	1.5	6.5
HHWP1 THRU 6	PUMPS	MECH ROOM	FLOOR	CIB	VIBRO-ACOUSTICS	SFS+ SIPS	2.00	SEIS	1.5	4.5
ADS-1	AIR DIRT SEPARATOR	MECH ROOM	SUSPENDED	---	VIBRO-ACOUSTICS	---	---	SEIS	1.5	6
ET-1	EXPANSION TANK	MECH ROOM	FLOOR	---	VIBRO-ACOUSTICS	---	---	SEIS	1.5	
CUHA, B, 126	CABINET UNIT HEATER	VARIOUS	SUSPENDED	---	VIBRO-ACOUSTICS	SHR	2.00	SEIS	1.5	6.7
UHT THRU 4	UNIT HEATER	VARIOUS	SUSPENDED	---	VIBRO-ACOUSTICS	SHR	2.00	SEIS	1.5	6.8
KITCHEN HOOD	KITCHEN HOOD	KITCHEN	---	---	VIBRO-ACOUSTICS	---	---	SEIS	1.5	6
MAU-118	MAKE-UP AIR	ROOF	ROOF	RC	VIBRO-ACOUSTICS	VCR	2.00	SEISWIND	1.5	
KX-118	EXHAUST FANS	ROOF	ROOF	---	VIBRO-ACOUSTICS	---	---	SEISWIND	1.5	6.7
DUCTWORK (≥ 6" CLEAR AREA)	DUCTWORK	VARIOUS	SUSPENDED	---	VIBRO-ACOUSTICS	---	---	SEIS	1.5	
HVAC PIPING (>2" NOMINAL DIAMETER)	PIPING	VARIOUS	SUSPENDED	---	VIBRO-ACOUSTICS	---	---	SEIS	1.5	

- | NOTES: | BASE TYPE: | ISOLATOR TYPE: |
|--|------------------------------|----------------------------------|
| 1. BASIS OF DESIGN: VIBRO-ACOUSTICS. | CIB - CONCRETE INERTIA BASE | NP - RUBBER PAD |
| 2. SEISMICALLY RATED FOR PROJECT CONDITIONS. | VCR - ADJUSTABLE SPRING CURB | SFS - SEISMIC INLINE PUMP STANDS |
| 3. STAND SUPPORT MUST BE ABLE TO MEET CALCULATED SEISMIC LOADS | RC: ROOF CURB | SFS - SEISMIC FLOOR MOUNT |
| 4. PROVIDE FLEXIBLE PIPING CONNECTORS | | SHR - SPRING + RUBBER HANGER |
| 5. PROVIDE TYPE SHR OR SFS ISOLATORS ON ADJACENT PIPING/DUCTWORK. | | |
| 6. PROVIDE SEISMIC RESTRAINT CABLES. PROVIDE ROO STIFFENERS AS REQUIRED. | | |
| 7. PROVIDE SEISMIC UPLIFT STOP WASHER. | | |
| 8. SUPPORT INLINE PUMP AT FLANGE CONNECTION. | | |

CABINET UNIT HEATERS

EQMT NO.	LOCATION	CONFIGURATION	FAN DATA		TOTAL CAPACITY (MBH)	AIR DATA		HEATING COIL DATA				MNF	MODEL NO.	NOMINAL DIMENSIONS L x W x H	NOMINAL OPERATING WEIGHT (LBS.)	NOTES	
			FLOW (CFM)	HP		VOLTS/ PHASE	ENT. DB TEMP. (DEG. F)	LVG. DB TEMP. (DEG. F)	WATER								
									ENT. TEMP. (DEG. F)	LVG. TEMP. (DEG. F)	FLOW (GPM)						MAX. P.D. (FT. H2O)
CUH-A	STAIR A	STANDALONE CABINET	280	0.03	115V/1	10.2	70	98	159	122.1	1.5	0.20	MODINE	C 0030	44 x 9.5 x 25	90	1.2
CUH-B	STAIR B	CEILING MOUNTED	280	0.03	115V/1	10.2	70	98	159	122.1	1.5	0.20	MODINE	CW 0035	44 x 9.5 x 25	100	2.3
CUH-126	VESTIBULE 126	CEILING MOUNTED	280	0.03	115V/1	10.2	70	98	150	122.1	1.5	0.20	MODINE	CW 0035	44 x 9.5 x 25	100	2.3

- NOTES:**
1. UNIT MOUNTED THERMOSTAT.
 2. MANUFACTURER PROVIDED UNIT MOUNTED DISCONNECT SWITCH
 3. REMOTE MOUNTED THERMOSTAT

HOT WATER UNIT HEATERS

EQUIPMENT NO.	AREA SERVED	BASIS OF DESIGN																				NOTES
		FAN DATA		TOTAL CAPACITY (MG)	AIR DATA				HEATING COIL DATA				ELECTRIC DATA			MNF	MODEL NO.	NOMINAL DIMENSIONS L"X"W"X"H"	NOMINAL OPERATING WEIGHT (LBS.)	MAX MOUNTING HEIGHT (FT)		
		FLOW (CFM)	RPM		EAT (°F)	LAT (°F)	THRU (FT)	FPM	EW (FT)	LW (FT)	GPM	ΔP (FT WL.C.)	VOLTS/PHASE	AMPS	HP							
UH-1 THRU 4	APPARATUS ROOM	3.240	1,075	69.7	60	80	53	870	150	120	12	4.8	1.3	1151	4.6	1.3	MODINE	HC 1658S01SA	29.5 x 19 x 26.5	92	25	1-5

- NOTES:**
1. MANUFACTURER TO PROVIDE TIP STARTER DISCONNECT SWITCH TO BE INSTALLED BY ELECTRICAL CONTRACTOR
 2. ELECTRICAL TO PROVIDE WITH LINE VOLTAGE WALL MOUNTED THERMOSTAT.
 3. MANUFACTURER TO PROVIDE WITH AQUASTAT.
 4. MANUFACTURER TO PROVIDE WITH CEILING SUSPENSION KIT.
 5. INTERLOCK WITH APPARATUS BAY DOORS

AC-PSP (UNITED STATES) - US PATENT 7963830 B2.
AC-PSP WALL (CANADA) - CA PATENT 2820509.
AC-PSP ISLAND (CANADA) - CA PATENT 2520330.

HOLD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TIME	TYPE	APPLIANCE DUTY	DESIGN CFM	TOTAL EXHAUST CFM	EXHAUST FLOW METER					TOTAL SUPPLY CFM	HOLD CONSTRUCTION		HOLD CONFIG			
										WIDTH	LENGTH	HEIGHT	DIA	CFM		VEL	SP	TO END	FROM	TO END	FROM
1		5424 ND-2-PSP-F	CAPTIVEAIRE	6' 0"	600 DEG	1	HEAVY	195	1170			4"	10'	1170	2145	-0.936"	983		430 SS WHERE EXPOSED	ALONE	ALONE

HOLD NO	TAG	TYPE	FILTER(S)			EFFICIENCY @ 7 MICRONS	LIGHT(S)			WIRE GUARD	LOCATION	SIZE	UTILITY CABINET(S)				FIRE PIPING	HOLD WEIGHT
			QTY	HEIGHT	LENGTH		QTY	TYPE	FIRE SYSTEM				ELECTRICAL	SWITCHES				
									TYPE						SIZE	MODEL #		
1		CAPTRATE SOLD FILTER	4	16"	16"	85% SEC FILTER SPEC	2	RECESSED ROUND	NO	LEFT	12"x54"x24"	TANK FS	4.0	DCV-1111	1 LIGHT 1 FAN	YES	704 LBS	

HEAD NO.	TAG	OPTION
1		FIELD WRAPPER 19.00' HIGH FRONT, LEFT, RIGHT.
		BACKSPLASH 80.00' HIGH X 84.00' LONG 430 SS VERTICAL.
		RIGHT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
		LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
		SENSOR-CV.

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S)				
							WIDTH	LENG	DIA	CFM	SP
1		Front	84'	14'	6'	MJA	12"	20"		491	0.133'
						MJA	12"	20"		491	0.133'

FIRE SYSTEM NO	TAG	TYPE	SIZE	FLOW POINTS	INSTALLATION	
					SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0	16	FIRE CABINET LEFT	LEFT, HOOD 1

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	2.000	CAPTIVEAIRE SYSTEMS

FIRE SYSTEM NO.	TAG	KEY NUMBER - PART DESCRIPTION	QTY BY FAB	QTY BY DIST
		0 - 0 - 12-FR8001-32144-DT-360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO. CLOSE IN TEMP RISE AT 360°F.	1	0
		0 - 0 - 87-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	1	0
		0 - 87-300030-001 PRIMARY ACTUATOR KIT (RWS - ACTUATOR AND CABLE, SILENDED ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	1	0
		0 - 87-300132-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	4	0
		0 - 986949151 HARDWARE, DATANKLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - A0034332 JUNCTION BOX FOR MANUAL PULL STATION, 15" DEEP BACK BOX, RED COLOR.	1	0
		0 - 0 - DATANKLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	1	0
1		0 - 0 - SLPCDN-10FT SUPERVISED LOOP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LOOP BETWEEN END TO END HOODS WITH LESS THAN A 9' GAP OR BACK TO BACK HOODS. KIT CONTAINS 12 FEET OF BLACK MG WIRE, 12 FEET OF TAN MG WIRE, 10 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS.	1	0
		0 - 0 - TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION.	3	0
		0 - 0 - TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - WX-183956-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	1	0
		34 - 34 - A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT, RED COLOR.	1	0
		ADDITIONAL PARTS TO BE DETERMINED...		

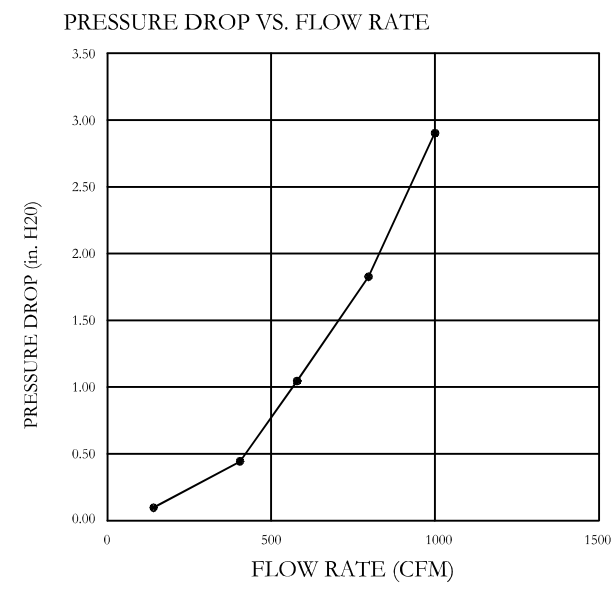
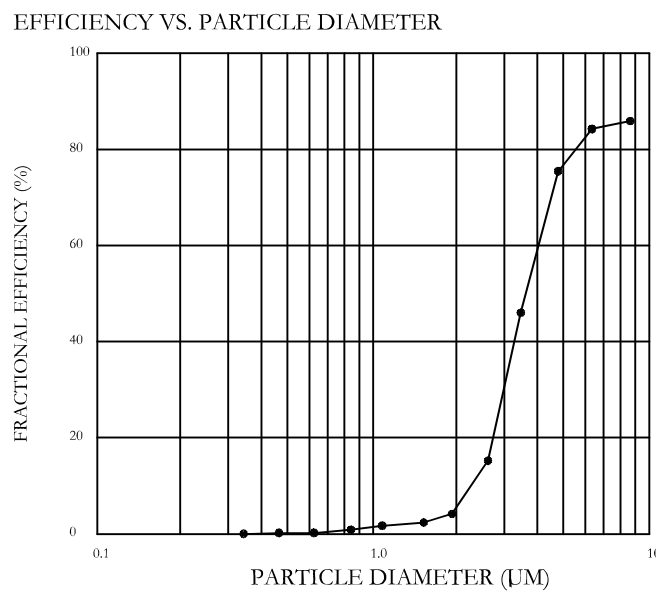
THE CAPTRATE GREASE-STOP SOLD FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

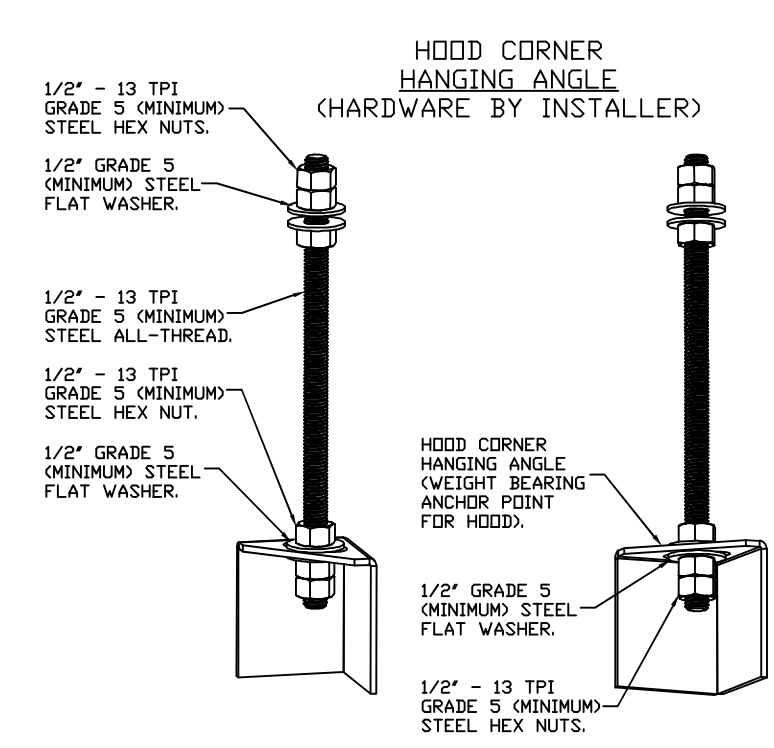
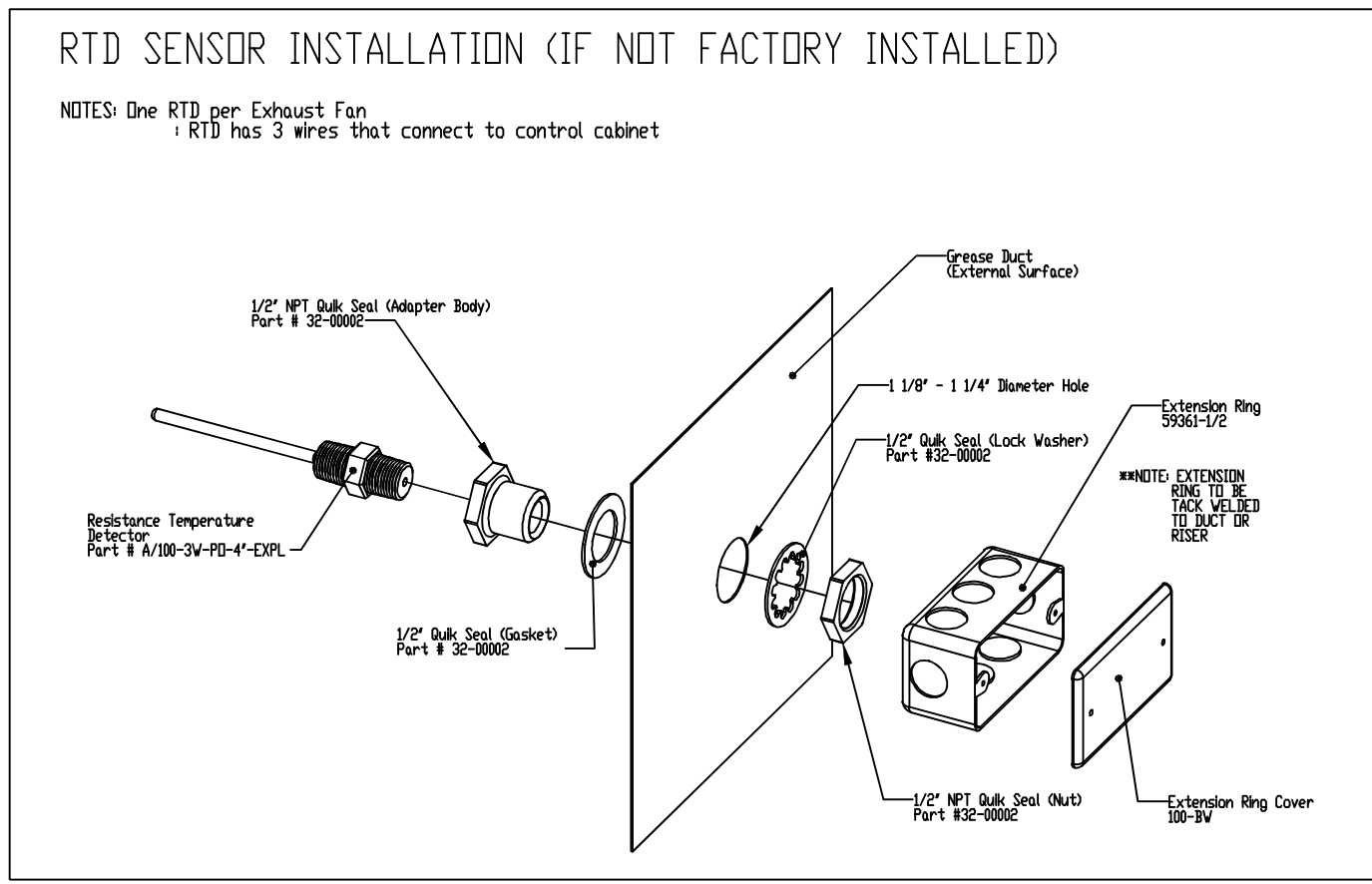
UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND

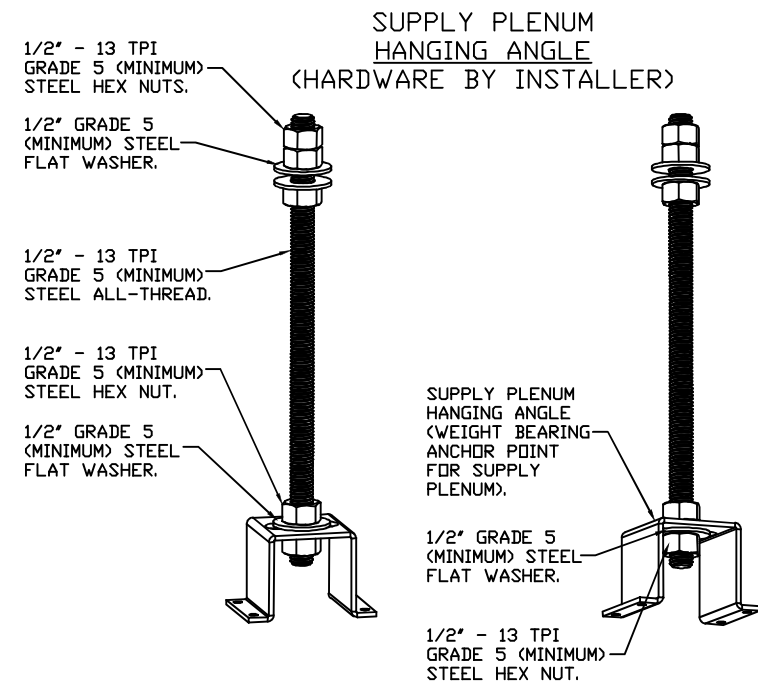
LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE. THE CAPTRATE GREASE-STOP SOLD WAS TESTED TO ASTM STANDARD ASTM F2519-05. MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.



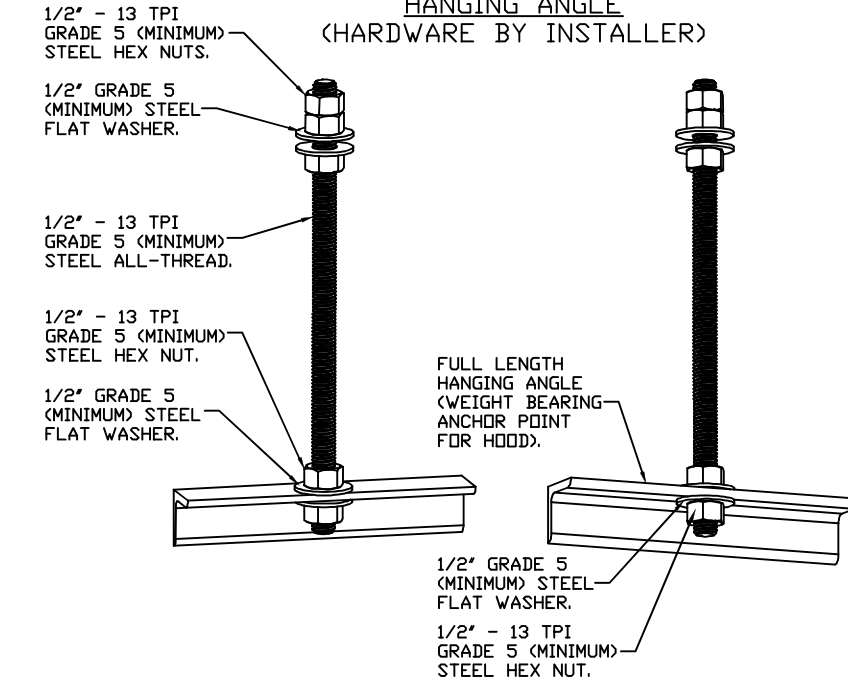
CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH:
NEDA #96



HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI
GRADE 5 (MINIMUM) ALL-THREAD, SANDWICH HANGING
ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5
(MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI
GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE
DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING
ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF
EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE
ALL HEX NUTS TO 57 FT-LBS.

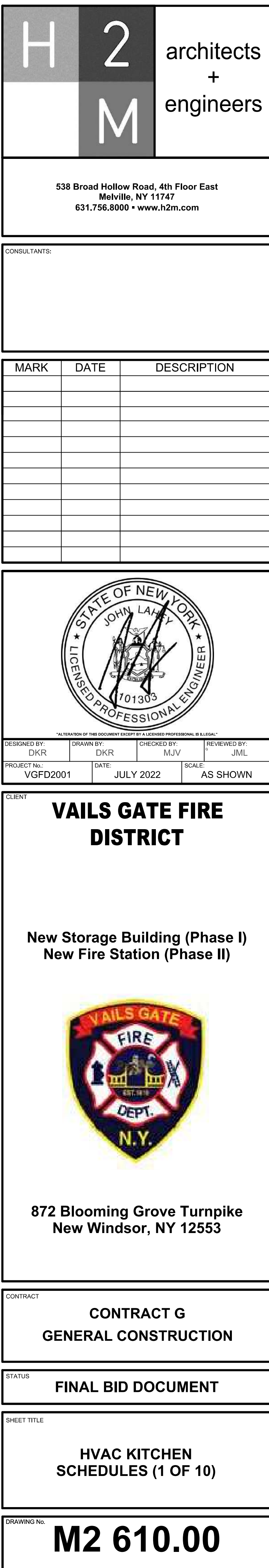


HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI
GRADE 5 (MINIMUM) ALL-THREAD, SANDWICH HANGING
ANGLE AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5
(MINIMUM) STEEL WASHERS AND 1/2" - 13 TPI
GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE
DOUBLED HEX NUT CONFIGURATION ABOVE CEILING
ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS
ACCEPTABLE FOR PSP HANGING ANGLES. MAINTAIN 1/4" OF
EXPOSED THREADS BENEATH TOP HEX NUT. TORQUE
ALL HEX NUTS TO 57 FT-LBS.



ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI
GRADE 5 (MINIMUM) ALL-THEAD, SANDWICH HANGING
ANGLES AND CEILING ANCHORS. POINT WITH 1/2" GRADE 5
(MINIMUM) ALL-THEAD AND 1/2" - 13 TPI
GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE
DOUBLED HEX NUT CONFIGURATION ABOVE CEILING
ANCHORS. SINGLE HEX NUT BENEATH HANGING ANGLE IS
ACCEPTABLE FOR FULL LENGTH HANGING ANGLES.
MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM
HEX NUT. TORQUE ALL HEX NUTS TO 57 FT.-LBS.



FAN UNIT NO.	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL.	HP	BHP	PHASE	VOL.T	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	KX-118	1	DUBSHFA	CAPTIVEAIRE	1170	1.500	1391	TEAO-ECM	0.750	0.4880	1	208	5.2	370 FPM	88	13.1

FAN UNIT NO	TAG	FAN UNIT MODEL #	CONDENSER NO	TONNAGE	VOLTAGE	PHASE	FREQUENCY	MCA	RLA	MAX FUSE SIZE	MIN WIRE SIZE	SEER
2	MAU-118	A1-1SD-MPU	1	3	208-230	3 PHASE	60 HZ	14.5 AMPS	11.9 AMPS	20 AMPS	14 AWG	14

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MDCP	WEIGHT (LBS)	SQFTES
2	MAU-116	1	A1-15D-MPU	15MF-1-MOD	A1	450	983	0.500	1536	DDP,PREMIUM	1.000	0.5230	3	208	3.1	3.9A	15A	1120	17.4

FAN UNIT NO.	TAG	COIL TYPE	DESIGN CFM	COOLING										HEATING											
				ENTERING DB	ENTERING WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	ENTERING DB	LEAVING DB	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	STEAM PRESSURE	TOTAL CAPACITY	SENSIBLE CAPACITY		
2	MAU-118	DX AND HOT WATER	983	86.0°F	72.0°F	66.9°F	61.1°F	---	---	---	---	---	---	36.0 MBH	20.0 MBH	16.0 MBH	0°F	70.32°F	150.0°F	120.0°F	5.07 GAL/MIN	---	---	75 MBH	75 MBH

UNIT NO	TAG	QTY	DESCRIPTION
1	KX-118	1	GREASE BOX
		1	ECH WIRING PACKAGE - PWM SIGNAL FROM ECPM3 PREWIRE (TELED MOTOR), CCW ROTATION
		2	2 YEAR PARTS WARRANTY
		1	SIZE 1 UNTEMPERED COMMERCIAL DOWN DISCHARGE FOR DRIVE ALUM
		1	MOTORIZED BACKDRIFT DAMPER FOR SIZE 1 HOUSING - MEETS AMCA CLASS I/A RATING
		1	HOT WATER COOL SECTION A1-2 ROW, TEMPERATURE CONTROLS, MIXING VALVES, THERMOSTATS, AND FREEZE PROTECTION BY OTHERS
		1	INSULATED BLOWER SECTION SIZE 1-2 COMMERCIAL
2	MAU-118	1	MIXING BOX SHELL FOR SIZE 1 MID PACKAGE UNIT CONDENSER SUPPORT
		1	SEPARATE 180V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VED) - THREE PHASE ONLY
		1	3 TON SINGLE CIRCUIT MODULAR PACKAGE AC COOLING OPTION FOR SIZE 1 MUA (450 TO 1200 CFM), 088V/230V, 3 PHASE, COOLING THERMOSTAT DR PROGRAMMABLE STAT REQUIRED FOR PROPER OPERATION
		1	MID PACKAGE UNIT AC CONTROLS FOR UNTEMPERED FANS
		2	2 YEAR PARTS WARRANTY

FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	KX-118	YES						
2	MAU-118						YES	

NO	EN FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	KX-110	36 LBS	CURB	23.000"W X 23.000"L X 20.000"H ALONG LENGTH, RIGHT VENTED HINGED.
2	# 2		89 LBS	RAIL	6.000"W X 21.000"L X 20.000"H RIGHT.
	# 2			RAIL	6.000"W X 21.000"L X 20.000"H RIGHT.
	# 2			RAIL	6.000"W X 21.000"L X 20.000"H RIGHT.
2	# 2		89 LBS	CURB	21.000"W X 21.000"L X 20.000"H ALONG LENGTH, RIGHT.

CONSULTANTS

[illegible]

DESIGNED BY: DKR	DRAWN BY: DKR	CHECKED BY: MJV	REVIEWED BY: JML
PROJECT No: VGFD2001	DATE: JULY 2022	SCALE: AS SHOWN	

CLIENT

**VAILS GATE FIRE
DISTRICT**

New Storage Building (Phase I)
New Fire Station (Phase II)



872 Blooming Grove Turnpike
New Windsor, NY 12553

CONTRACT

CONTRACT G
GENERAL CONSTRUCTION

STATU

FINAL BID DOCUMENT

SHEET TITLE

HVAC KITCHEN SCHEDULES (3 OF 10)

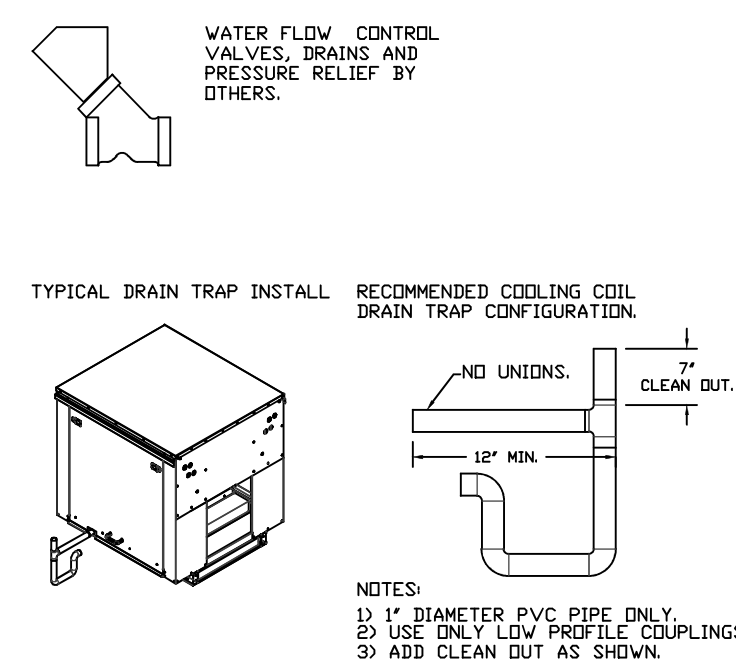
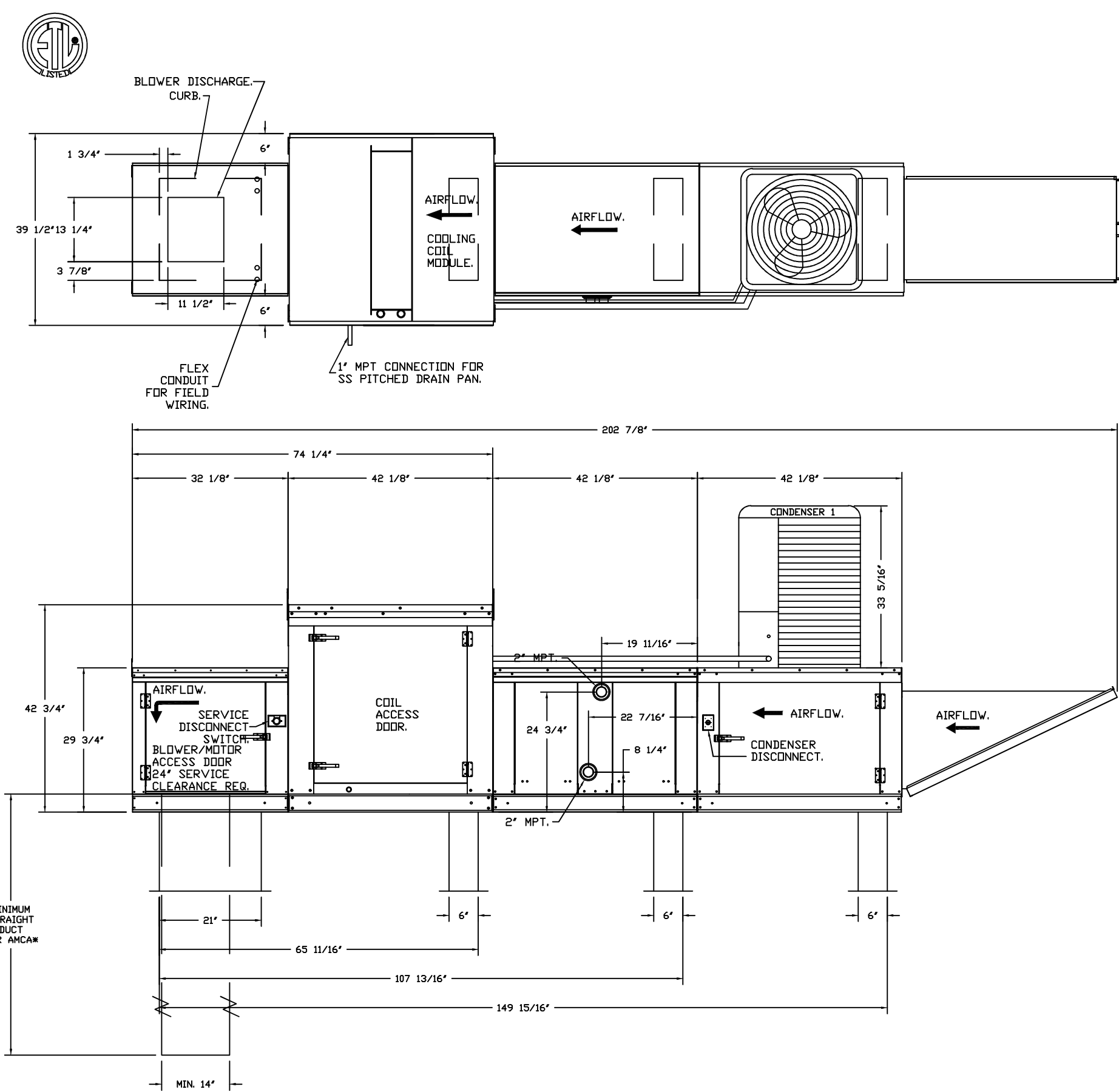
DRAFTING No.

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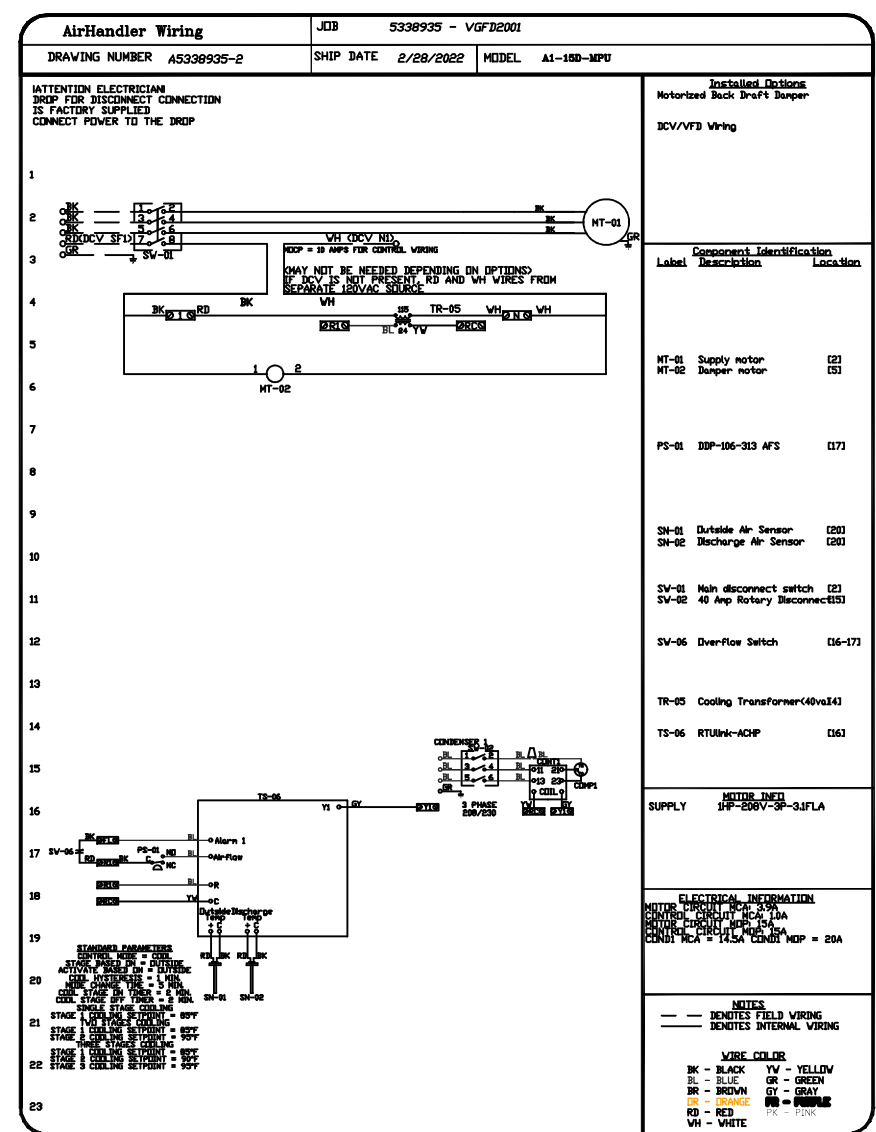
NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNITS TO SUPPORT DUCT IN ANY MANNER. IMPROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.

SUGGESTED STRAIGHT DUCT SIZE IS 14" x 14".



IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY EQUAL TO CAPTIVEAIRE SYSTEMS MODEL *DW- 2R, 2R TYPE HT, 3R, OR 3Z* ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

CUSTOMER APPROVAL TO MANUFACTURE:	
APPROVED AS NOTED	<input type="checkbox"/>
APPROVED WITH NO EXCEPTION TAKEN	<input type="checkbox"/>
REVEAL AND RESUBMIT	<input type="checkbox"/>
SIGNATURE _____	
YOUR TITLE _____	DATE _____



	architects + engineers	
<p align="center">538 Broad Hollow Road, 4th Floor East Melville, NY 11747 631.756.8000 • www.h2m.com</p>		
<small>CORRECTIONS:</small>		
MARK	DATE	DESCRIPTION

DESIGNED BY: DLKR	DRAWN BY: DLKR	CHECKED BY: RJCV	REVIEWED BY: JML
PROJECT NO.: VGFD2001	DATE: JULY 2022	SHEET: AS SHOWN	SCALE:

CLIENT

VAILS GATE FIRE DISTRICT

New Storage Building (Phase I)
New Fire Station (Phase II)

872 Blooming Grove Turnpike
New Windsor, NY 12553

<small>CONTRACT</small>	CONTRACT G GENERAL CONSTRUCTION
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<small>TITLE SHEET</small>	FINAL BID DOCUMENT
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<small>HVAC KITCHEN SCHEDULES (5 OF 10)</small>

<small>DRAWING NO.</small>	M2 614.00
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[illegible]

Diagram illustrating a typical control center installation. The components and their connections are labeled as follows:

- TEMPERATURE SENSOR
- REMOTE MANUAL PULL STATION
- ROOM TEMPERATURE SENSOR
- CONTROL PANEL
- CASHM INTERFACE

The diagram shows a rack-mounted system with a control panel and a cashm interface. A temperature sensor is connected to the system. A remote manual pull station is connected to the system via a dashed line. A room temperature sensor is connected to the system via a dashed line.

TYPICAL CONTROL CENTER INSTALLATION

HOOD CONTROL PACKAGE INTERFACE
with LCD Screen

ALARM INDICATING LCD SCREEN
BUTTON FUNCTIONS VARY BY
MODEL TYPE

DEMAND CONTROL VENTILATION
SAVINGS INDICATOR

CAT-5 CONNECTION ON REVERSE
CONNECTED TO HOOD CONTROL
PANEL

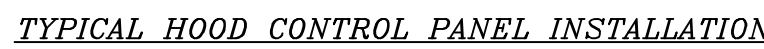
SAVINGS: 73%
LIGHTS FANS

MOUNTS IN STANDARD DOUBLE
GANG JUNCTION BOX



- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.2.8 (2015).

- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
 - TEMPERATURE PROBES LOCATED IN THE EXHAUST HOOD RISER(S) SHALL BE CONSTRUCTED OF STAINLESS STEEL.
 - A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND HOOD TEMPERATURE SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.11.
 - A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
 - A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFD'S) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFD'S BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
 - AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
 - THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
 - A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
 - A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA Dry CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
- a. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
 - b. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (AND RESET RELAY REQUIRED).
 - c. VFD RUN DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
 - d. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
 - e. MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
 - f. A SINGLE LED VOLTAGE CAT-5 RJ-45 WIRING CONNECTION.
 - g. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFD'S.



THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:

- AUTOMATIC: THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL. THRESHOLD, DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS CONFIGURED AS DYNAMIC, THE SYSTEM WILL AUTOMATICALLY ADJUST FAN SPEEDS TO MAINTAIN A CONSTANT TEMPERATURE DIFFERENTIAL. PANELS CONFIGURED WITH A USER-DEFINED RANGE, BASED ON THE TEMPERATURE DIFFERENTIAL, PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS "STATIC," FANS WILL RUN AT A SET SPEED (CALCULATED OR USER-DEFINED) AND WILL NOT ADJUST. PANELS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN ITC 4032.8.
- MANUAL: THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
- SCHEDULE: A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT A CONFIGURABLE MODE AND FOLLOW THE SCHEDULED PROCEDURE. A SCHEDULED MODE CAN BE SET TO THIS TIME, DURING UNOCCUPIED TIMES, THE SYSTEM WILL HAVE AN OFF MODE TO PREVENT UNWANTED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
- OTHER: THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (CDC, BMS OR HARD-WIRED INTERLOCK).
- FIRE: UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR THE EXHAUST FAN TO RUN AT A USER-DEFINED SPEED. THE EXHAUST FAN WILL SHUT OFF AT A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.

IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS RESOLVED A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND BILLED FOR THE WORK. SHOULD A RETURN TRIP BE REQUIRED DUE TO ANY FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

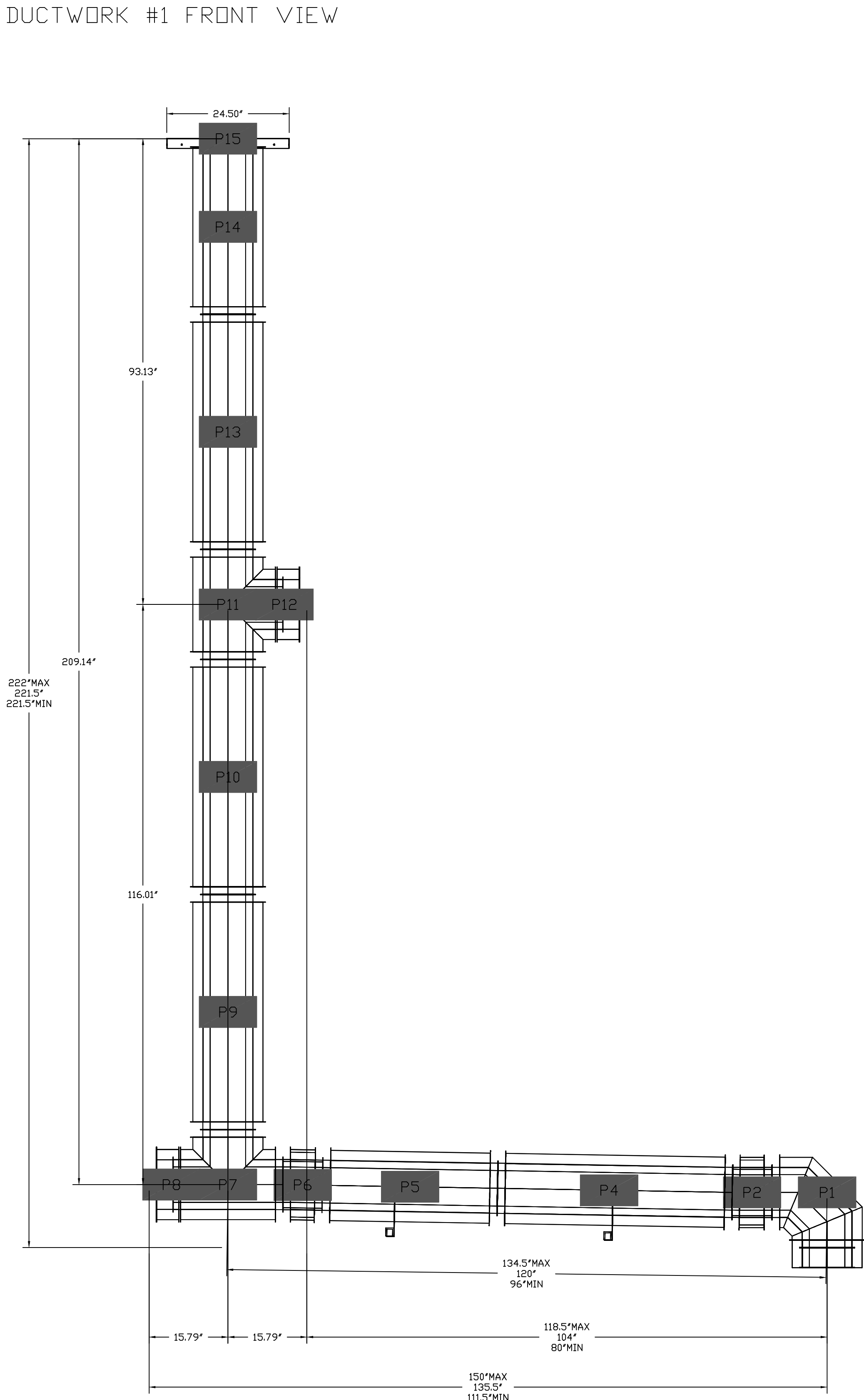
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DOUBLE WALL FACTORY BUILT DUCTWORK

- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE ENTIRE INSTALLATION AND OPERATION MANUAL.
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

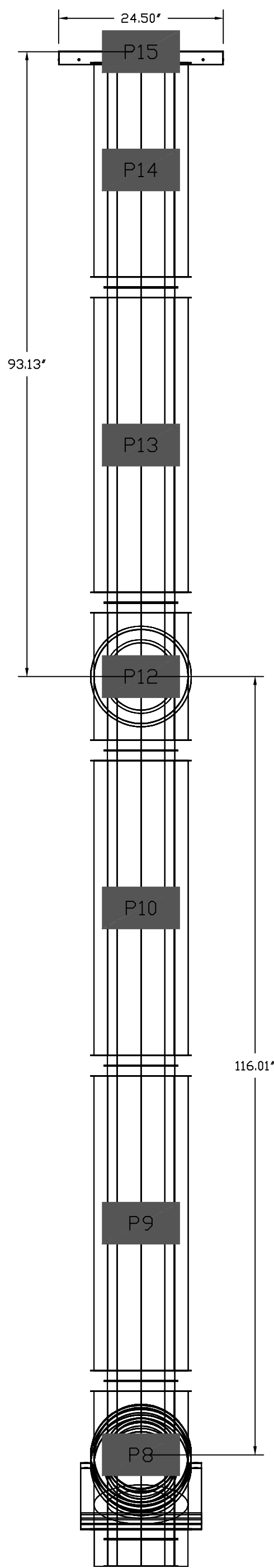
VERTICAL			
TYPE	WALL SUPPORT (FT)	CURB SUPPORT (FT)	FLOOR SUPPORT (FT)
2R & 2R HT (5'-16')	20'	24'	24'
2R (18')	18'	24'	
3R & 3Z (5'-24')	10'	24'	24'
3Z (26' -36')	10'	20'	20'

DO NOT LEAK TEST USING SMOKE BOMBS CONTAINING
CHLORINES/CHLORIDES. CONSULT WITH CAPTIVEAIRE
FOR PROPER LEAK TESTING METHODS.

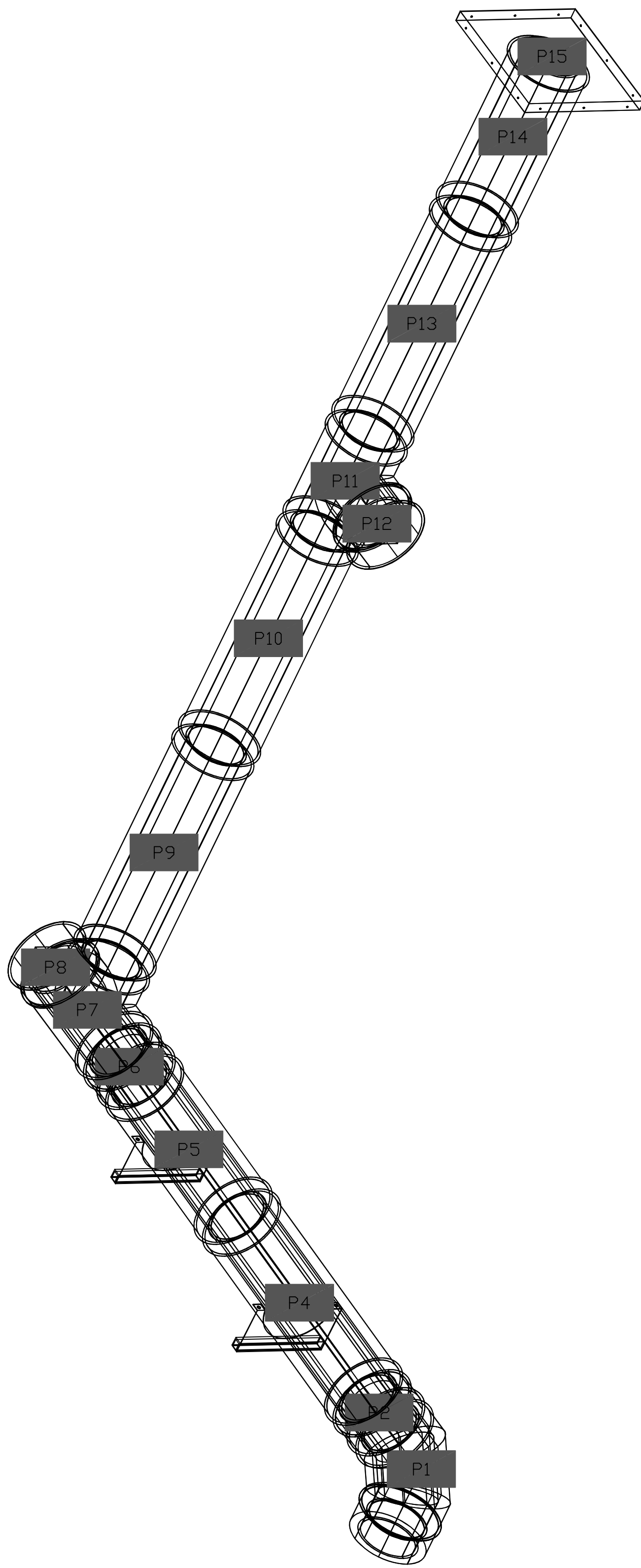
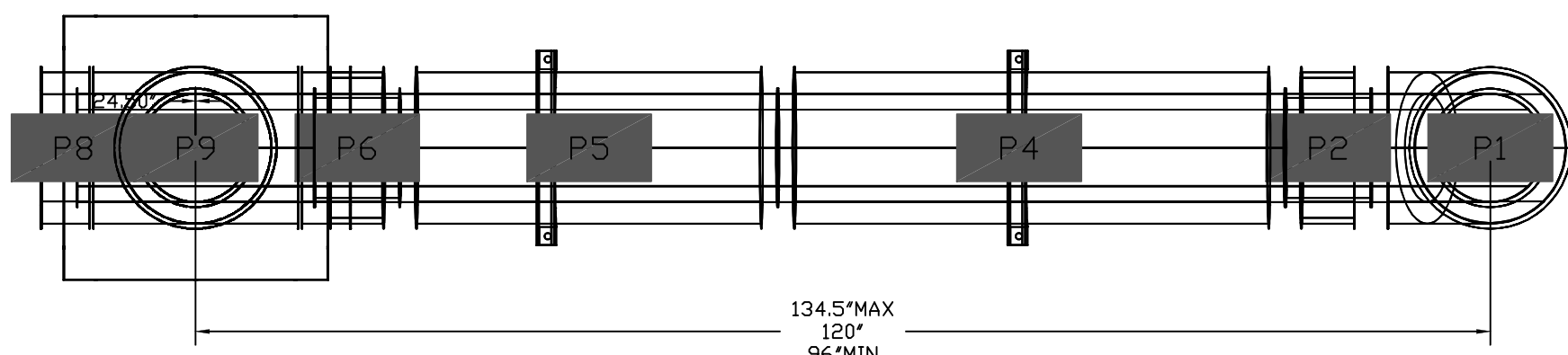
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DUCTWORK #1 SIDE VIEW



DUCTWORK #1 TOP VIEW



H2M

architects
+
engineers

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Melville, NY 11747
631.756.8000 • www.h2m.com

CONSULTANTS

MARK	DATE	DESCRIPTION

STATE OF NEW YORK

JOHN LAMAY

101303

REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY

CHECKED BY

PROJECT NO.

DATE

SCALE

CHKR

CHKR

VGFD2001


JULY 2022

AS SHOWN

CLIENT

VAILS GATE FIRE DISTRICT

New Storage Building (Phase I)
New Fire Station (Phase II)



872 Blooming Grove Turnpike
New Windsor, NY 12553

CONTRACT

CONTRACT G
GENERAL CONSTRUCTION

STATUS

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SHEET TITLE

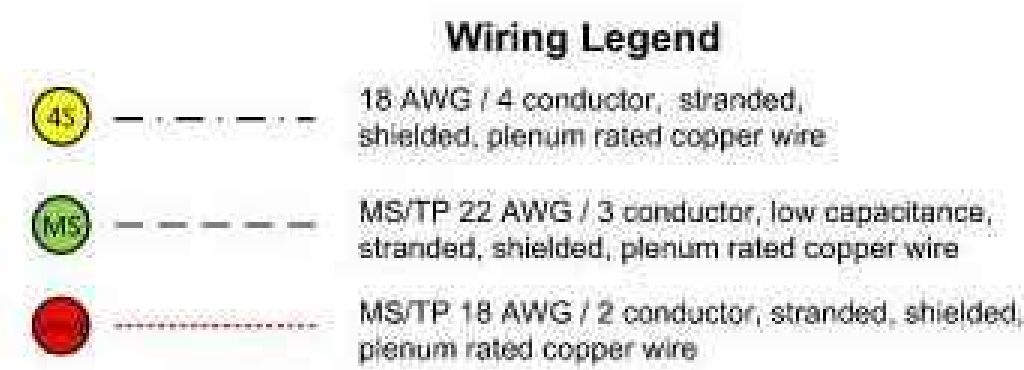
HVAC KITCHEN
SCHEDULES (10 OF 10)

DRAWING NO.

M2 619.00



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<div style="font-size: 10px; margin: 0;">DRAWING NO.</div> <div style="text-align: center; padding: 10px;"> <div style="font-size: 36px; font-weight: bold; margin: 0;">M2 640.02</div> </div>																																		



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PROJECT NO.: VGFD2001	DATE: JULY 2022	SCALE: AS SHOWN	

CUT

VAILS GATE FIRE DISTRICT

New Storage Building (Phase I)
New Fire Station (Phase II)



872 Blooming Grove Turnpike
New Windsor, NY 12553

CONTRACT

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SHEET TITLE

HVAC CONTROLS DIAGRAM (1 OF 1)

DRAWING No.

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