





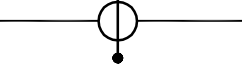
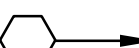
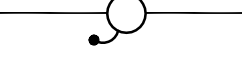




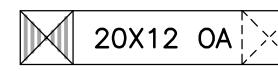

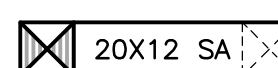

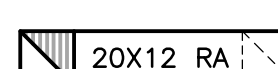

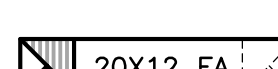
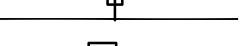




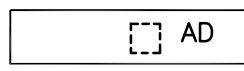

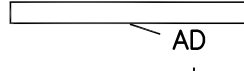

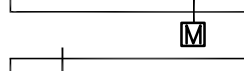
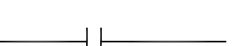
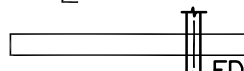
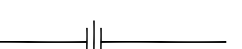
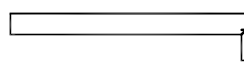
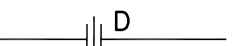

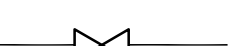


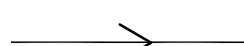
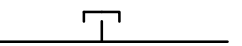

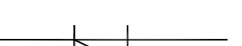



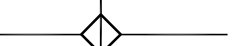

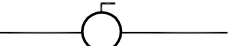

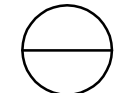


MECHANICAL LEGEND			
AFF	ABOVE FINISHED FLOOR		CONCENTRIC REDUCER
TYP	TYPICAL		BUTTERFLY VALVE
NTS	NOT TO SCALE		CHECK VALVE
NO	NORMALLY OPEN		GLOBE VALVE
NC	NORMALLY CLOSED		O S & Y VALVE (GATE)
	CONNECT TO EXISTING		PRESSURE REDUCING VALVE (STEAM)
	TAGGED NOTE		SAFETY OR RELIEF VALVE
— E(NAME) —	EXISTING PIPING (THIN SOLID LINE)		PRESSURE REDUCING VALVE (WATER)
— CD —	CONDENSATE DRAIN LINE		REDUCED PRESSURE BACKFLOW PREVENTER
— GS —	GEOTHERMAL WATER SUPPY		CONTROL VALVE (2-WAY)
— GR —	GEOTHERMAL WATER RETURN		CONTROL VALVE (3-WAY)
	EXISTING OUTSIDE AIR DUCT – INSIDE DIMENSION – (TURNED UP/DOWN)		TRIPLE DUTY VALVE
	SUPPLY AIR DUCT – INSIDE DIMENSION – 20”HORZ.X12”VERT. (TURNED UP/DOWN)		THERMOMETER
	RETURN AIR DUCT – INSIDE DIMENSION – (TURNED UP/DOWN)		DIGITAL THERMOMETER
	EXHAUST AIR DUCT – INSIDE DIMENSION – (TURNED UP/DOWN)		MANUAL AIR VENT
	OUTSIDE AIR DUCT – INSIDE DIMENSION – (TURNED UP/DOWN)		PRESSURE GAUGE
	FLEXIBLE DUCT		PIPING ELBOW (TURNED UP/DOWN)
	ACCESS DOOR IN BOTTOM OF DUCT		PIPING TEE (TURNED UP/DOWN)
	ACCESS DOOR IN SIDE OF DUCT		FLEXIBLE CONNECTOR
	OPPOSED BLADE DAMPER (MOTORIZED)		FLANGE
	VOLUME DAMPER (MANUAL)		UNION
	FIRE DAMPER		DIELECTRIC UNION
	TURNING VANES		GATE VALVE (NORMALLY OPEN)
	PIPING TRANSITION		GATE VALVE (NORMALLY CLOSED)
	DIRECTION OF FLOW (PIPING)		PETE’S PLUG OR EQUIVALENT
	TEMPERATURE SENSOR		STRAINER
	THERMOSTAT		GAS COCK
	DUCT SMOKE DETECTOR		BALANCING VALVE
	CO2 SENSOR		BALL VALVE
			INDICATES AIR DISTRIBUTION DEVICE SPECIFICATION (L=LOUVER, T=TRANSFER GRILLE, S=SUPPLY DIFFSER OR REGISTER, R=RETURN GRILLE OR REGISTER, E= EXHAUST GRILLE OR REGISTER)
			MECHANICAL EQUIPMENT DESIGNATOR

- GENERAL NOTES (APPLICABLE TO ALL DRAWINGS):
- EACH CONTRACTOR, SUPPLIER AND, OR MANUFACTURER SHALL REFER TO ALL DOCUMENTS PERTAINING TO THIS PROJECT AND COORDINATE ACCORDINGLY SO AS TO ENSURE ADEQUACY OF FIT, COMPLIANCE WITH SPECIFICATIONS, PROPER VOLTAGE AND CURRENT CHARACTERISTICS AND AVOID CONFLICT WITH ANY OTHER BUILDINGS SYSTEMS. VERIFY SAME WITH SHOP DRAWINGS.
  - ALL OFFSETS, TURNS, FITTINGS, TRIM, DETAIL, ETC., MAY NOT BE INDICATED, BUT SHALL BE PROVIDED AS REQUIRED. ADDITIONAL ALLOWANCES SHALL BE INCLUDED FOR SAME AT EACH PROPOSERS' DISCRETION.
  - INSTALL NO PIPING, CONDUIT, DUCTWORK, ETC., IN A LOCATION OR IN A MANNER WHICH WILL ALLOW FREEZING AND/OR THE COLLECTION OF CONDENSATION THEREON.
  - OBSERVE ALL APPLICABLE CODES, RULES AND REGULATIONS (CITY, COUNTY, LOCAL, STATE, FEDERAL, MUNICIPALITY, UTILITY COMPANY, OSHA, ETC.).
  - ALL SYSTEMS, EQUIPMENT AND MATERIALS ARE TO BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. WORK NOT DONE SO SHALL BE REMOVED AND REINSTALLED SATISFACTORILY.
  - WHERE MOUNTING HEIGHTS ARE NOT INDICATED OR ARE IN CONFLICT WITH ANY OTHER BUILDING SYSTEM, CONTACT THE ENGINEERS BEFORE INSTALLATION. REFER ALSO TO ARCHITECTURAL WALL INTERIOR AND EXTERIOR WALL ELEVATIONS, CEILING HEIGHTS AND OTHER DETAIL OF THESE DOCUMENTS.
  - DO NOT SCALE FROM DRAWINGS, PRINTING DISTORTS SCALE. WORK SHALL BE LAID OUT FROM DIMENSIONED DRAWINGS, OR DIMENSIONS SUPPLIED TO THE CONTRACTOR.
  - THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED FOR HIS WORK. ALL CUTTING AND PATCHING SHALL MATCH EXISTING ADJACENT SURFACES AND BE IN ACCORD WITH JCPS STANDARDS FOR SUCH WORK.
  - TURNING VANES SHALL BE INSTALLED IN ALL SUPPLY, RETURN, AND EXHAUST DUCT WORK ELBOWS. TURNING VANES NOT REQUIRED FOR KITCHEN EXHAUSTS.
  - THESE DRAWINGS ARE ACCURATE TO THE BEST OF OUR KNOWLEDGE, HOWEVER LOCATIONS, DEPTHS, ELEVATIONS AND SIZES WERE TAKEN FROM DIFFERENT SOURCES AND ARE SUBJECT TO DEVIATION. THE CONTRACTOR SHALL ASSUME SOME DEVIATIONS AND INCLUDE OFFSETS, ADDITIONAL PIPING, ETC AT THE TIME OF BID.
  - WHERE PENETRATING ROOFING MEMBRANE OR OTHER MATERIALS USED FOR WEATHERPROOFING THE BUILDING, MAKE SUCH PENETRATIONS IN A WAY THAT WILL NOT VOID OR DIMINISH THE ROOFING WARRANTY OR INTEGRITY IN ANY WAY. COORDINATE ALL SUCH PENETRATIONS WITH THE ROOFING INSTALLER.
  - ADVISE THE ENGINEERS OF ANY CONFLICTS, ERRORS, OMISSIONS, ETC. AT LEAST TEN DAYS PRIOR TO BID DATE, TO ALLOW CLARIFICATION BY WRITTEN ADDENDUM.
  - DEVIATION FROM SPECIFICATIONS OR PLANS REQUIRES PRIOR WRITTEN APPROVAL FROM THE ENGINEERS AND MUST BE SUBMITTED IN WRITING NO LATER THAN TEN DAYS PRIOR TO THE BID DATE.
  - COORDINATE THE LOCATION OF DRAINS, ELECTRICAL OUTLETS, ETC. WITH ALL MECHANICAL ROOM EQUIPMENT, ETC. PRIOR TO COMMENCING INSTALLATION. WORK NOT SO COORDINATED SHALL BE REMOVED AND PROPERLY INSTALLED AT THE EXPENSE OF THE RESPONSIBLE CONTRACTOR(S).
  - THE PURPOSE AND INTENT OF ALL THE DOCUMENTS PERTAINING TO THIS PROJECT IS TO PROVIDE A COMPLETE, FUNCTIONAL, SAFE, LIKE NEW FACILITY. ANYTHING LESS SHALL BE UNACCEPTABLE.
  - ANY VIBRATING, OSCILLATING OR OTHER NOISE OR MOTION PRODUCING EQUIPMENT SHALL BE ISOLATED FROM SURROUNDING SYSTEMS IN AN APPROVED MANNER. NOISY OR STRUCTURALLY DAMAGING INSTALLATIONS SHALL BE SATISFACTORILY REPLACED OR REPAIRED AT THE INSTALLING CONTRACTOR'S EXPENSE. THE FINAL DECISION ON THE SUITABILITY OF A PARTICULAR INSTALLATION'S ACCEPTABILITY SHALL BE THAT OF THE ENGINEER.
  - INSTALL EQUIPMENT, MATERIALS, ETC. IN STRICT ACCORD WITH MANUFACTURER'S RECOMMENDATIONS AND DIRECTIONS. IF IN CONFLICT WITH THE DESIGN INDICATED IN CONTRACT DOCUMENTS, ADVISE THE ENGINEERS PRIOR TO INSTALLATION FOR CLARIFICATION.
  - ALL SUPPORTS FOR EQUIPMENT, DEVICES OR FIXTURES SHALL BE UNIQUE, FROM THE BUILDING STRUCTURE. DO NOT SUPPORT WORK FROM OTHER TRADES. EQUIPMENT OR SUPPORTS WITHOUT WRITTEN PERMISSION FROM THE ENGINEER AND CONSENT OF THE OTHER TRADE, IN WRITING. DO NOT SUPPORT EQUIPMENT FROM WALLS OR PARTITIONS
  - DEVIATIONS IN SIZE, CAPACITIES, FIT, FINISH, ETC. FOR EQUIPMENT FROM THAT PRIME SPECIFIED SHALL BE THE RESPONSIBILITY OF THE PURCHASER OF THAT EQUIPMENT. ANY PROVISIONS REQUIRED TO ACCOMMODATE A DEVIATION, WHETHER APPROVED BY THE ENGINEERS OR NOT, SHALL BE THE RESPONSIBILITY OF THE PURCHASER.
  - THE GENERAL CONTRACTOR FOR THIS CONSTRUCTION IS RESPONSIBLE FOR THE COORDINATION, APPEARANCE, SCHEDULING AND TIMELINESS OF THE WORK OF ALL TRADES, CONTRACTORS, SUPPLIERS, INSTALLERS, ETC. EACH TRADE SHALL COORDINATE THEIR WORK WITH OTHER TRADES AND THE GENERAL CONTRACTOR.
  - VALVES, BALANCING DAMPERS OR ANY MECHANICAL/ELECTRICAL ITEM SHALL NOT BE LOCATED ABOVE A HARD CEILING. IF THIS IS NOT POSSIBLE, THEN AN APPROPRIATELY SIZED ACCESS DOOR SHALL BE PLACED UNDER THE ITEM TO ALLOW EASY MAINTENANCE AND ADJUSTMENT.
  - ENSURE PROPER COORDINATION BETWEEN ALL TRADES SUCH THAT CONDUITS, PIPING, DUCTWORK, ETC. DO NOT BLOCK ACCESS TO VALVES, EQUIPMENT, DUCT ACCESS DOORS, ETC. ITEMS THAT HAVE BEEN INSTALLED WHERE ACCESS IS COMPROMISED SHALL BE RELOCATED AT THE CONTRACTOR'S EXPENSE.
  - INCLUDE IN BID ALL COST ASSOCIATED WITH DRAINING AND FILLING ALL PIPING SYSTEMS AS REQUIRED TO INSTALL WORK.



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NELSON COUNTY SCHOOL DISTRICT  
288 WILDCAT LANE  
BARDSTOWN, KENTUCKY 40004

MECHANICAL LEGEND  
NELSON COUNTY SCHOOLS - WEST CAMPUS  
THOMAS NELSON H.S.  
PHASE III  
2885 NEW SHEPHERDSVILLE ROAD (HWY 245) BARDSTOWN, KENTUCKY 40004

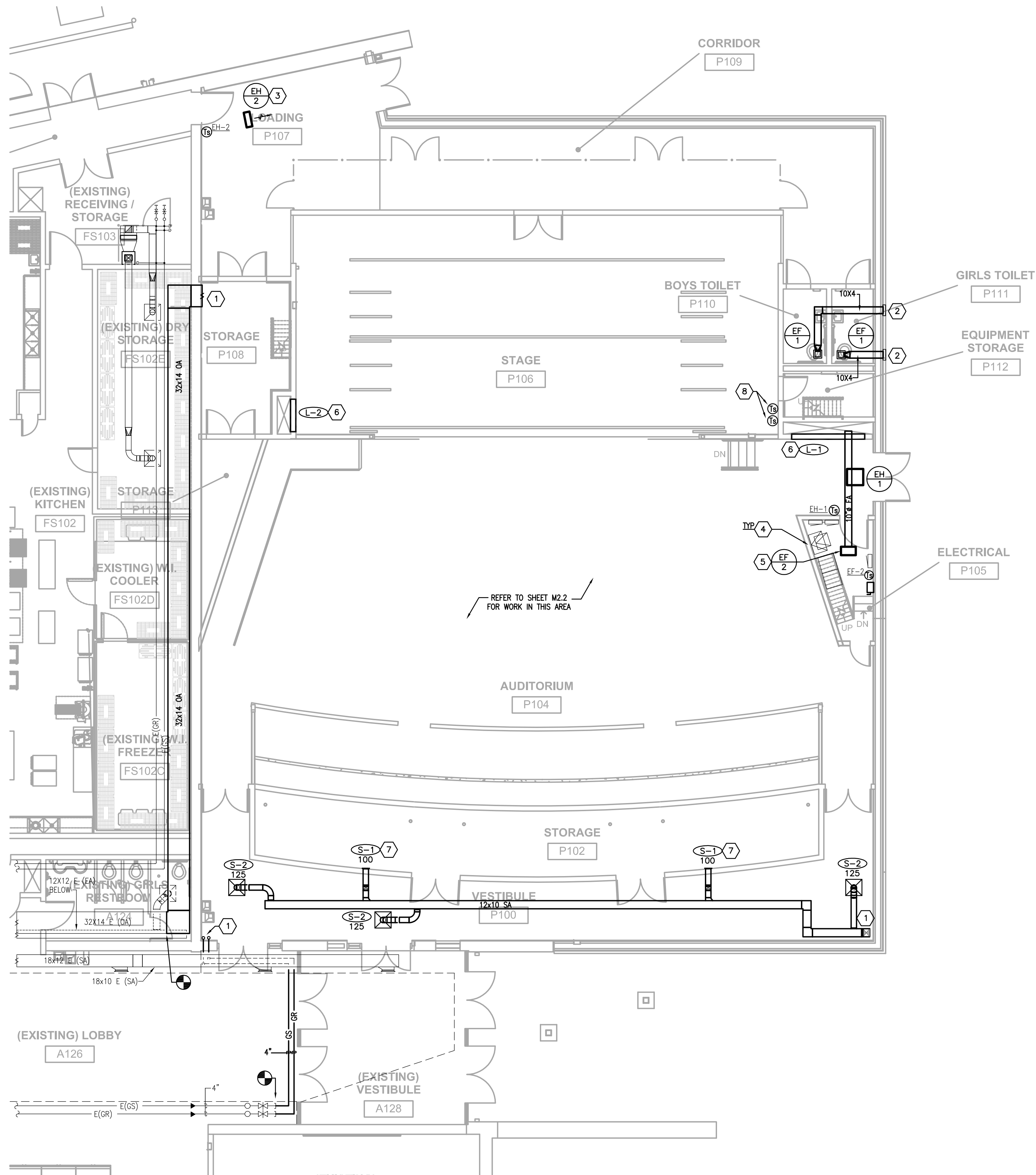
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DATE : 08/17/2015  
DRAWN BY : CG  
CHECKED BY : DH  
REVISIONS :

2011-02

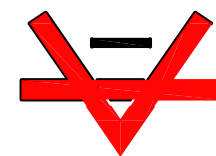
PHASE - 3

M1.1  
HS



- MECHANICAL TAG NOTES:
1. REFER TO DRAWING M2.2 FOR CONTINUATION OF DUCTWORK/PIPING.
  2. PROVIDE A RUSKIN BRICK VENT MODEL BV-100, 16X4 CLEAR ANODIZED ALUMINUM VENT. MOUNT BOTTOM OF VENT AT 8'-3" ABOVE THE FINISHED FLOOR.
  3. SUSPEND EH-2 FROM STRUCTURE; MOUNT THE BOTTOM AT 9'-0" ABOVE THE FINISHED FLOOR.
  4. ELECTRICAL EQUIPMENT. NO PIPING OR DUCTWORK TO BE ROUTED OVER EQUIPMENT. REFER TO ELECTRICAL DRAWINGS FOR MORE DETAIL.
  5. MOUNT THE BOTTOM OF THE EF-2 AT 9'-0" ABOVE THE FINISHED FLOOR. DISCHARGE THE 10" DUCT INTO THE RETURN AIR PLENUM AS INDICATED.
  6. MOUNT THE BOTTOM OF THE LOUVER AT 16" ABOVE THE FINISHED FLOOR ELEVATION.
  7. MOUNT BOTTOM OF GRILLE AT 8'-4" ABOVE THE FINISHED FLOOR ELEVATION.
  8. PROVIDE TEMPERATURE SENSOR WITH OVERRIDE SWITCH.

**A**  
M2.1  
**FIRST FLOOR MECHANICAL**  
Scale: 1/8" = 1'-0"



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FIRST FLOOR MECHANICAL

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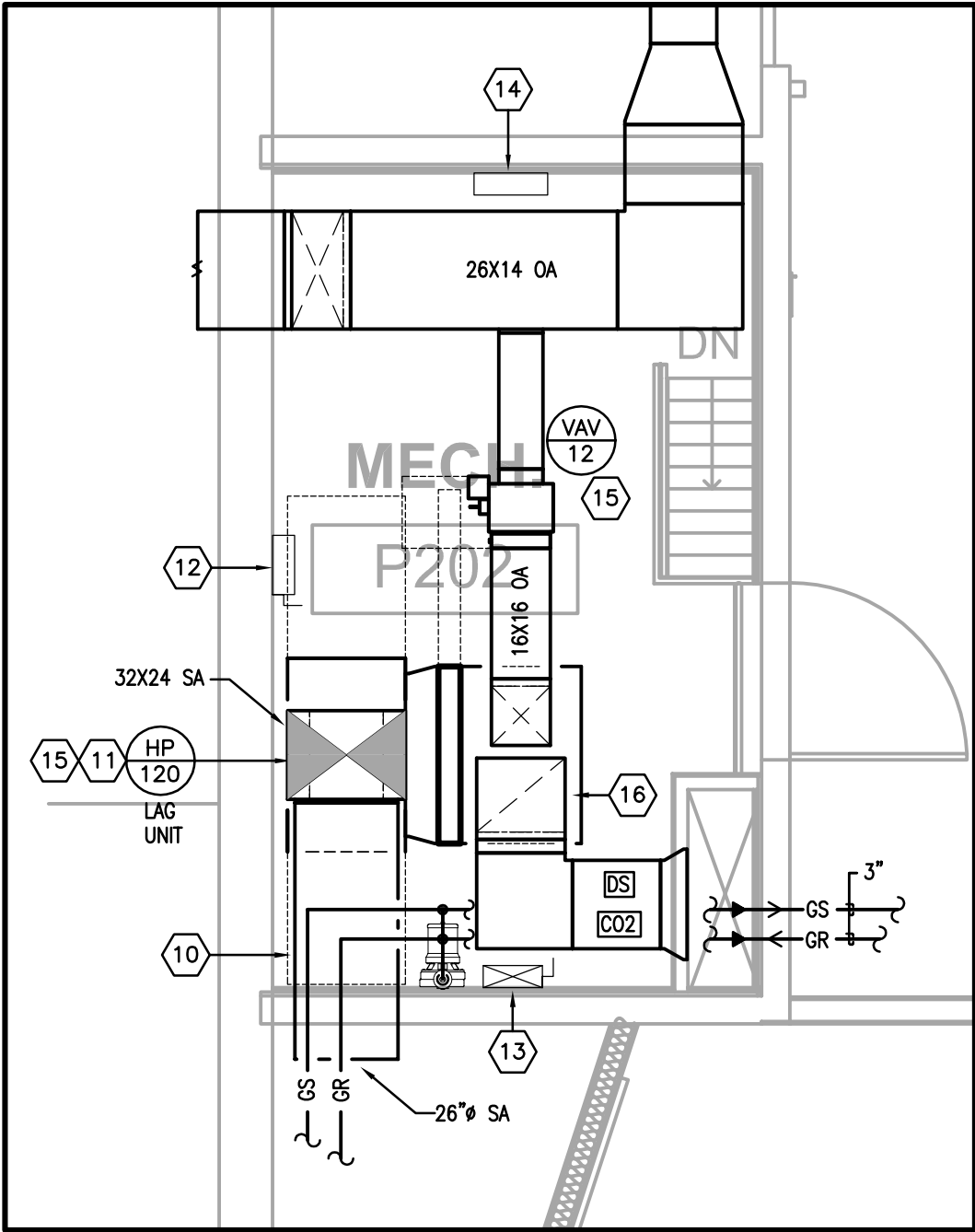
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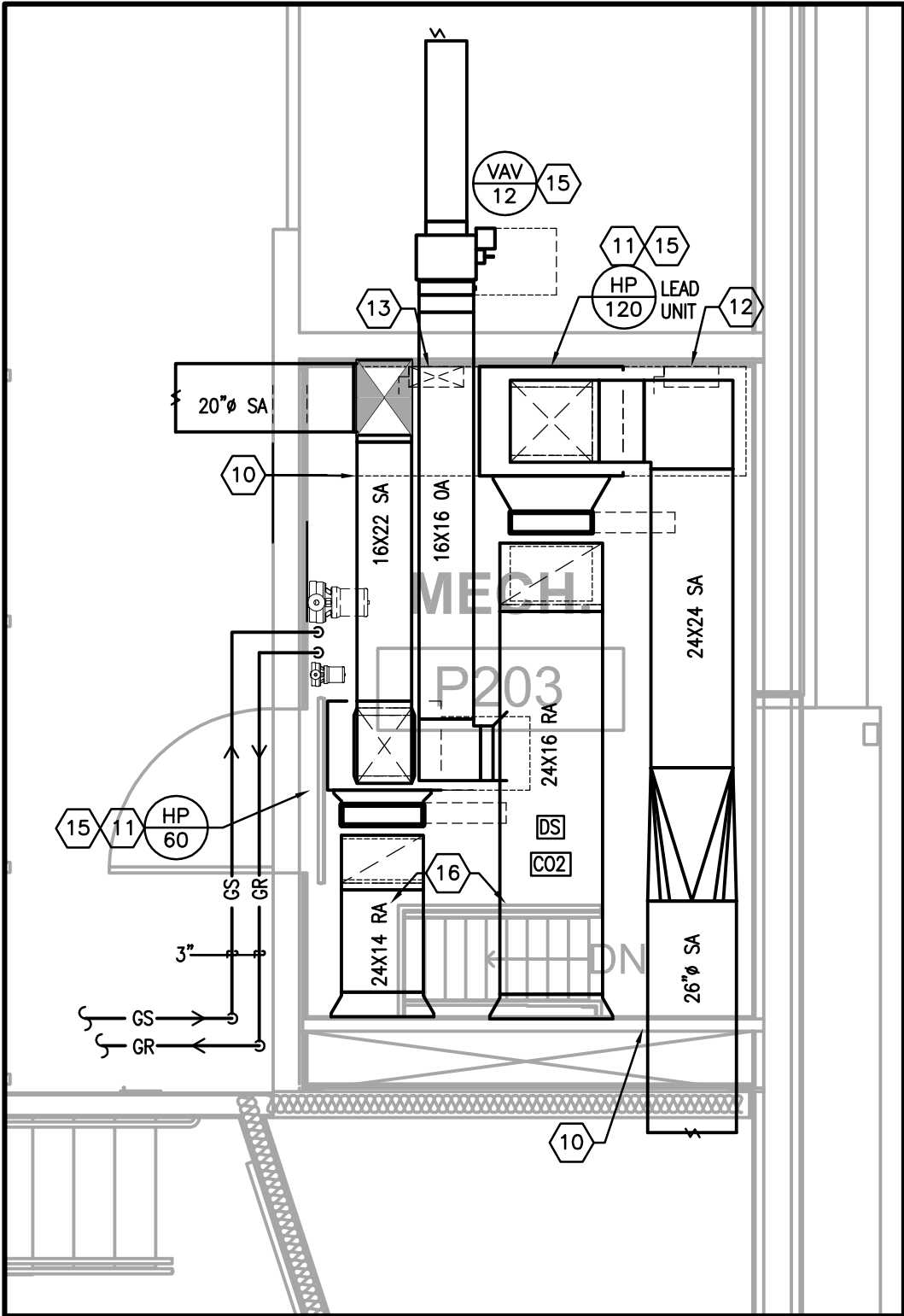
**M2.1**

HS

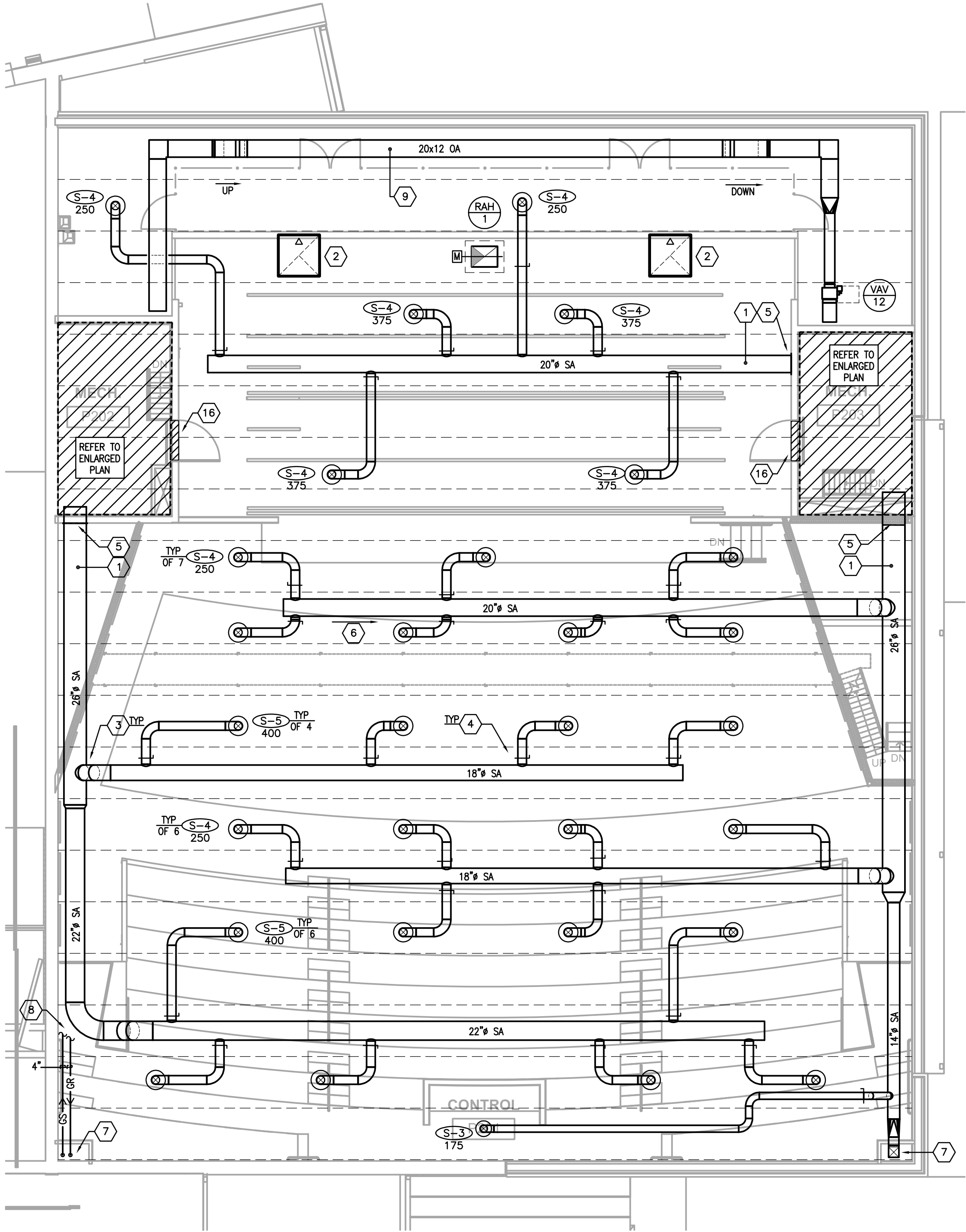




**B** MECHANICAL MEZZANINE P202  
M2.2  
Scale: 1/4" = 1'-0"

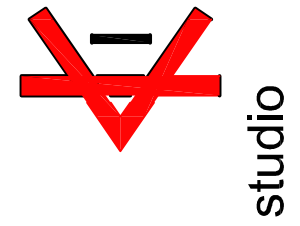


**C** MECHANICAL MEZZANINE P203  
M2.2  
Scale: 1/4" = 1'-0"



**A** SECOND FLOOR MECHANICAL  
M2.2  
Scale: 1/8" = 1'-0"

GENERAL NOTE:	
A. COORDINATE DIFFUSER LOCATIONS AND ELEVATIONS WITH ACoustICAL PANELS AND LIGHTS. REFER TO FLOOR PLANS FOR LOCATIONS.	
MECHANICAL TAG NOTES:	
#	
1. EXPOSED DUCTWORK TO BE DOUBLE WALL AND PAINTED; ARCHITECT TO SELECT COLOR. DUCTWORK TO BE SUSPENDED FROM STRUCTURE WITH AIRCRAFT CABLE.	
2. NEW SMOKE VENT ON ROOF. PROVIDE ACOUSTICALLY RATED BILOO DOUBLE LEAF FIRE VENTS -- MODEL ACDSH6096 (ACCEPTABLE ALTERNATE MANUFACTURERS ARE NYSTROM OR MILCOR.) VENT TO BE OPERATED BY THERMOLATCH MECHANISM MANUALLY AT STAGE LEVEL OR BY HEAT AT 165° FUSIBLE LINK. PROVIDE ANY PULLEYS, CONDUIT AND ACCESSORIES NEEDED TO ROUTE CABLE TO STAGE LEVEL. COORDINATE OPENING WITH ROOF STRUCTURE SO THAT OPENING IS BETWEEN JOIST ROUTING. REFER TO STRUCTURAL PLANS FOR DETAILS.	
3. ROUTE DUCTWORK UP BETWEEN JOISTS, TYPICAL OF BRANCH DUCTWORK. MOUNT DUCT TAKE-OFF AT 45° OFF OF THE DUCT MAIN.	
4. HIGH EFFICIENCY DUCT TAKEOFF; REFER TO DETAIL ON SHEET M4.1 FOR ADDITIONAL INFORMATION, TYPICAL.	
5. PATCH HOLE AROUND DUCT OPENING AIR TIGHT AND COVER WITH AN ESCUTCHEON PLATE. ALL PENETRATIONS SHALL BE ACOUSTICALLY SEALED. REFER TO THE DUCT WALL PENETRATION DETAIL ON SHEET M4.1 FOR ADDITIONAL INFORMATION.	
6. SLOPE DUCTWORK WITH STRUCTURE, TYPICAL.	
7. REFER TO DRAWING M2.1 FOR CONTINUATION OF DUCTWORK/PIPING.	
8. ROUTE 4" GS/OR ABOVE DUCTWORK TO MECHANICAL MEZZANINE. REFER TO ENLARGED PLANS ON THIS SHEET FOR CONTINUATION.	
9. EXPOSED DUCTWORK TO BE SINGLE WALL WITH RIGID INSULATION AND CANVAS JACKET. PAINT CANVAS JACKET; ARCHITECT TO SELECT COLOR. DUCTWORK TO BE SUSPENDED FROM STRUCTURE WITH AIRCRAFT CABLE.	
10. PROVIDE ACOUSTICAL WRAP ON SUPPLY AIR DUCTWORK BEFORE EXISTING MECHANICAL MEZZANINE.	
11. PROVIDE A VIBRATION ISOLATION PAD (RUBBER OR CORK) AT UNIT BASE.	
12. FUSIBLE DISCONNECT FOR HEAT PUMP. REFER TO ELECTRICAL DRAWINGS FOR MORE DETAIL.	
13. PUMP STARTER/DISCONNECT. REFER TO ELECTRICAL DRAWINGS FOR MORE DETAIL.	
14. ELECTRICAL PANEL. NO PIPING OR DUCTWORK TO BE ROUTED OVER EQUIPMENT. REFER TO ELECTRICAL DRAWINGS FOR MORE DETAIL.	
15. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCE FOR EQUIPMENT.	
16. INTERNALLY LINE RETURN AIR DUCTWORK AND PLENUM WITH 1" THICK FLEXIBLE ELASTOMERIC INSULATION.	



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SECOND FLOOR MECHANICAL

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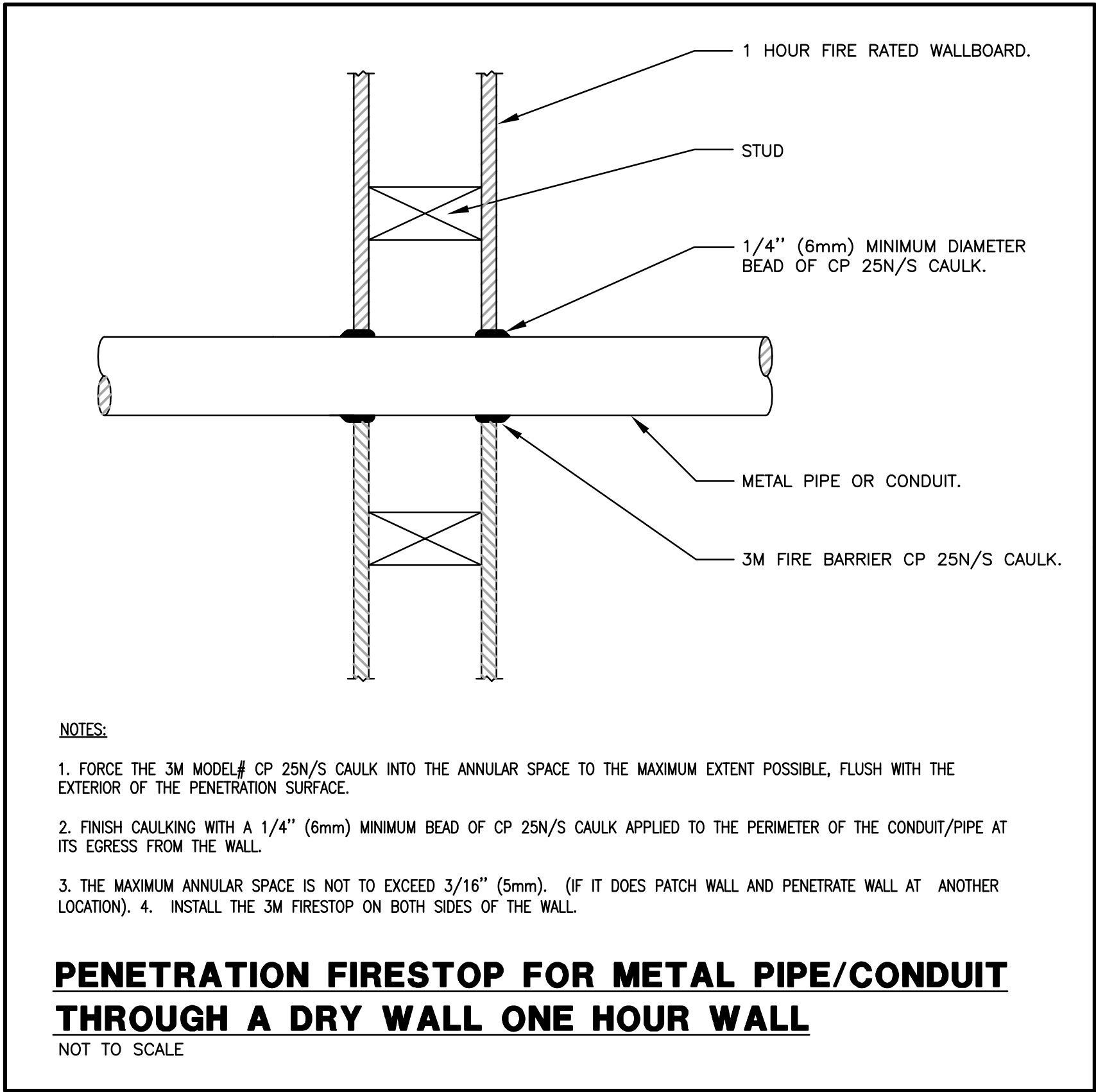
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PHASE - 3

M2.2

HS



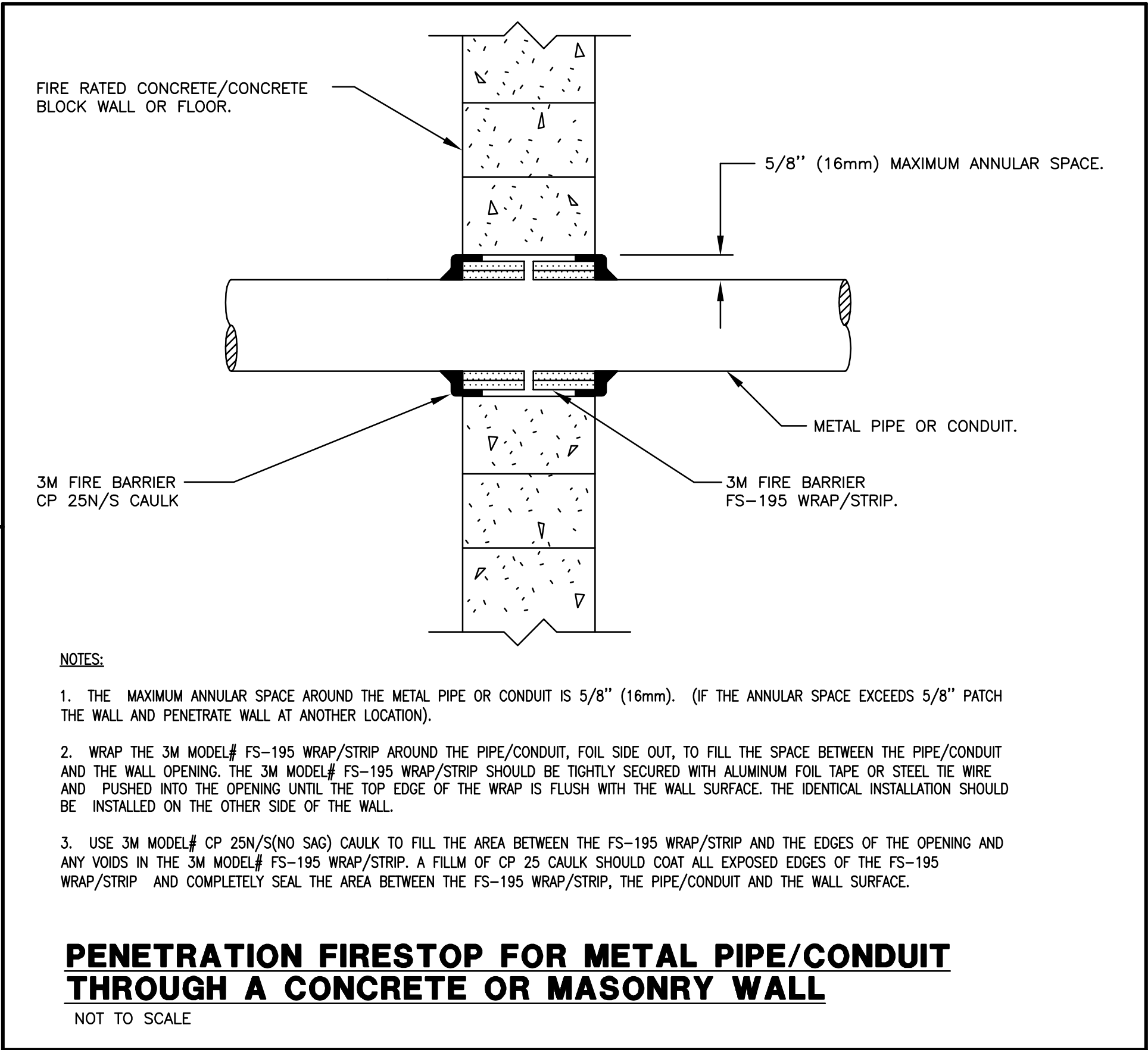


**FIRE STOPPING NOTES:**

1. FIRE STOPPING IS CRITICAL AND MUST BE ACCOMPLISHED. ALL PIPES MUST BE FIRESTOPPED WHERE THEY PENETRATE FIRE RESISTIVE, FIRE RATED, AND SMOKE RESISTIVE WALLS OR FLOORS. ALL FLOORS CORRIDOR WALLS, STAIR WALLS, MECHANICAL ROOM WALLS, STORAGE ROOM WALLS AND OTHER HAZARDOUS ROOM WALLS ARE ONE HOUR RATED. COORDINATE WITH ARCHITECT AND ARCHITECTURAL DRAWINGS.

2. ALL PENETRATIONS WILL BE REVIEWED BY THE ARCHITECT AND ENGINEER. PRIOR TO INSPECTION, ALL CEILING TILES BENEATH THE PENETRATIONS SHALL BE REMOVED BY THE CONTRACTOR.

3. ALL FIRE STOPPING SHALL BE INSTALLED AND PERFORMED PER THE MANUFACTURER'S RECOMMENDATIONS. REFER TO MECHANICAL SPECIFICATION SECTION 15030 FOR MORE DETAIL.



**NOTES:**

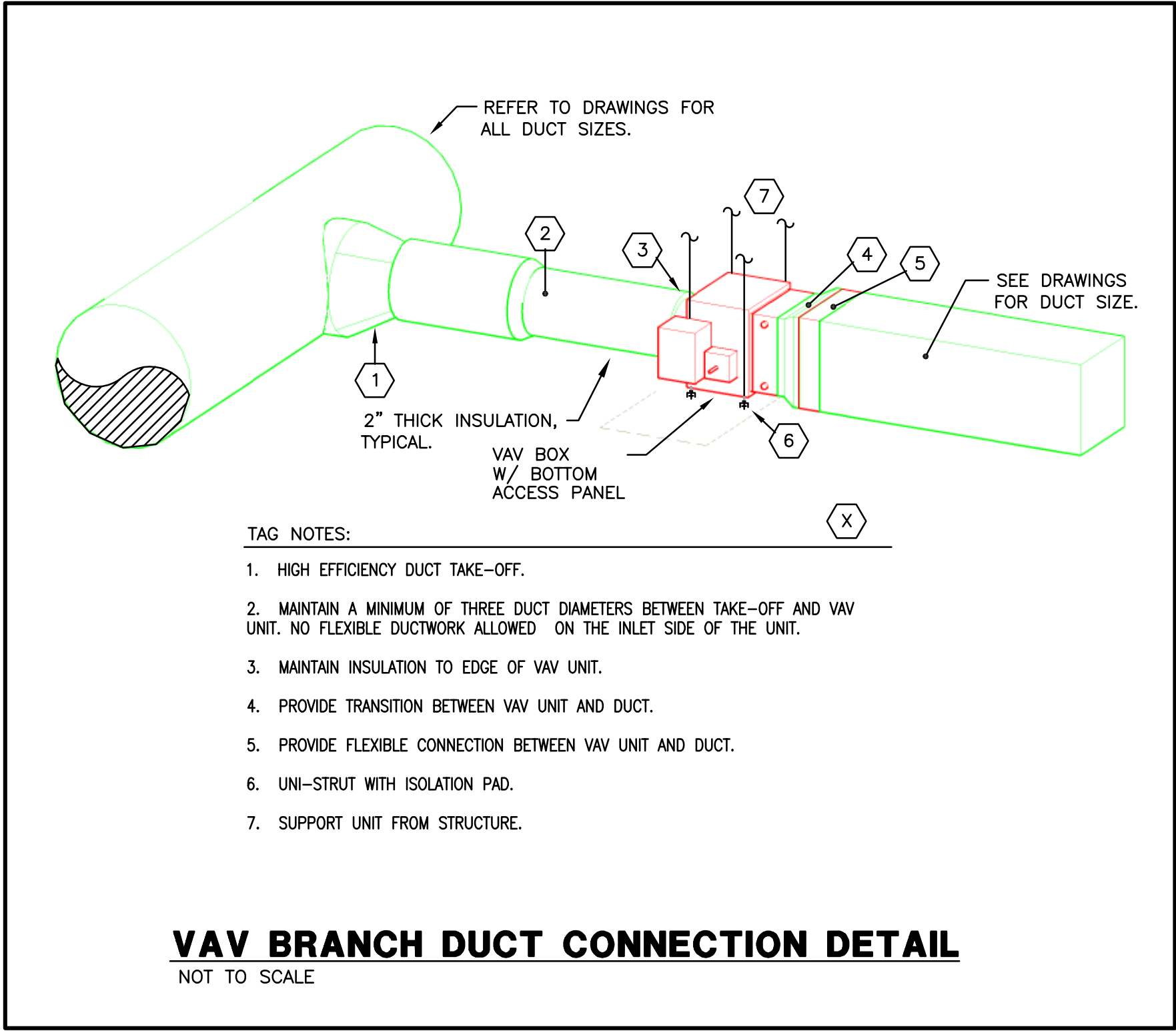
1. THE MAXIMUM ANNULAR SPACE AROUND THE METAL PIPE OR CONDUIT IS 5/8" (16mm). (IF THE ANNULAR SPACE EXCEEDS 5/8" PATCH THE WALL AND PENETRATE WALL AT ANOTHER LOCATION).

2. WRAP THE 3M MODEL# FS-195 WRAP/STRIP AROUND THE PIPE/CONDUIT, FOIL SIDE OUT, TO FILL THE SPACE BETWEEN THE PIPE/CONDUIT AND THE WALL OPENING. THE 3M MODEL# FS-195 WRAP/STRIP SHOULD BE TIGHTLY SECURED WITH ALUMINUM FOIL TAPE OR STEEL TIE WIRE AND PUSHED INTO THE OPENING UNTIL THE TOP EDGE OF THE WRAP IS FLUSH WITH THE WALL SURFACE. THE IDENTICAL INSTALLATION SHOULD BE INSTALLED ON THE OTHER SIDE OF THE WALL.

3. USE 3M MODEL# CP 25N/S(NO SAG) CAULK TO FILL THE AREA BETWEEN THE FS-195 WRAP/STRIP AND THE EDGES OF THE OPENING AND ANY VOIDS IN THE 3M MODEL# FS-195 WRAP/STRIP. A FILM OF CP 25 CAULK SHOULD COAT ALL EXPOSED EDGES OF THE FS-195 WRAP/STRIP AND COMPLETELY SEAL THE AREA BETWEEN THE FS-195 WRAP/STRIP, THE PIPE/CONDUIT AND THE WALL SURFACE.

### PENETRATION FIRESTOP FOR METAL PIPE/CONDUIT THROUGH A CONCRETE OR MASONRY WALL

NOT TO SCALE



**TAG NOTES:**

1. HIGH EFFICIENCY DUCT TAKE-OFF.

2. MAINTAIN A MINIMUM OF THREE DUCT DIAMETERS BETWEEN TAKE-OFF AND VAV UNIT. NO FLEXIBLE DUCTWORK ALLOWED ON THE INLET SIDE OF THE UNIT.

3. MAINTAIN INSULATION TO EDGE OF VAV UNIT.

4. PROVIDE TRANSITION BETWEEN VAV UNIT AND DUCT.

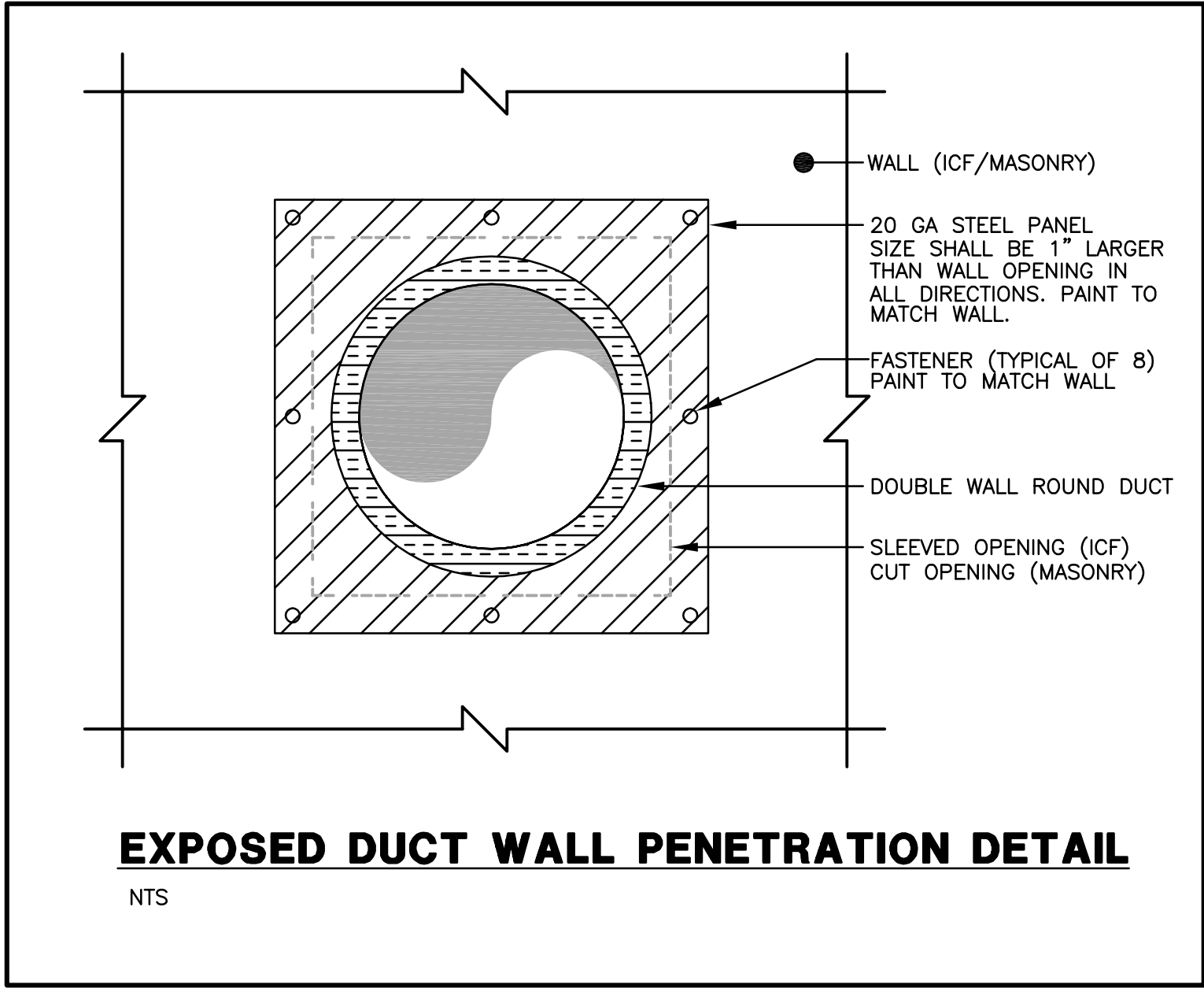
5. PROVIDE FLEXIBLE CONNECTION BETWEEN VAV UNIT AND DUCT.

6. UNI-STRUT WITH ISOLATION PAD.

7. SUPPORT UNIT FROM STRUCTURE.

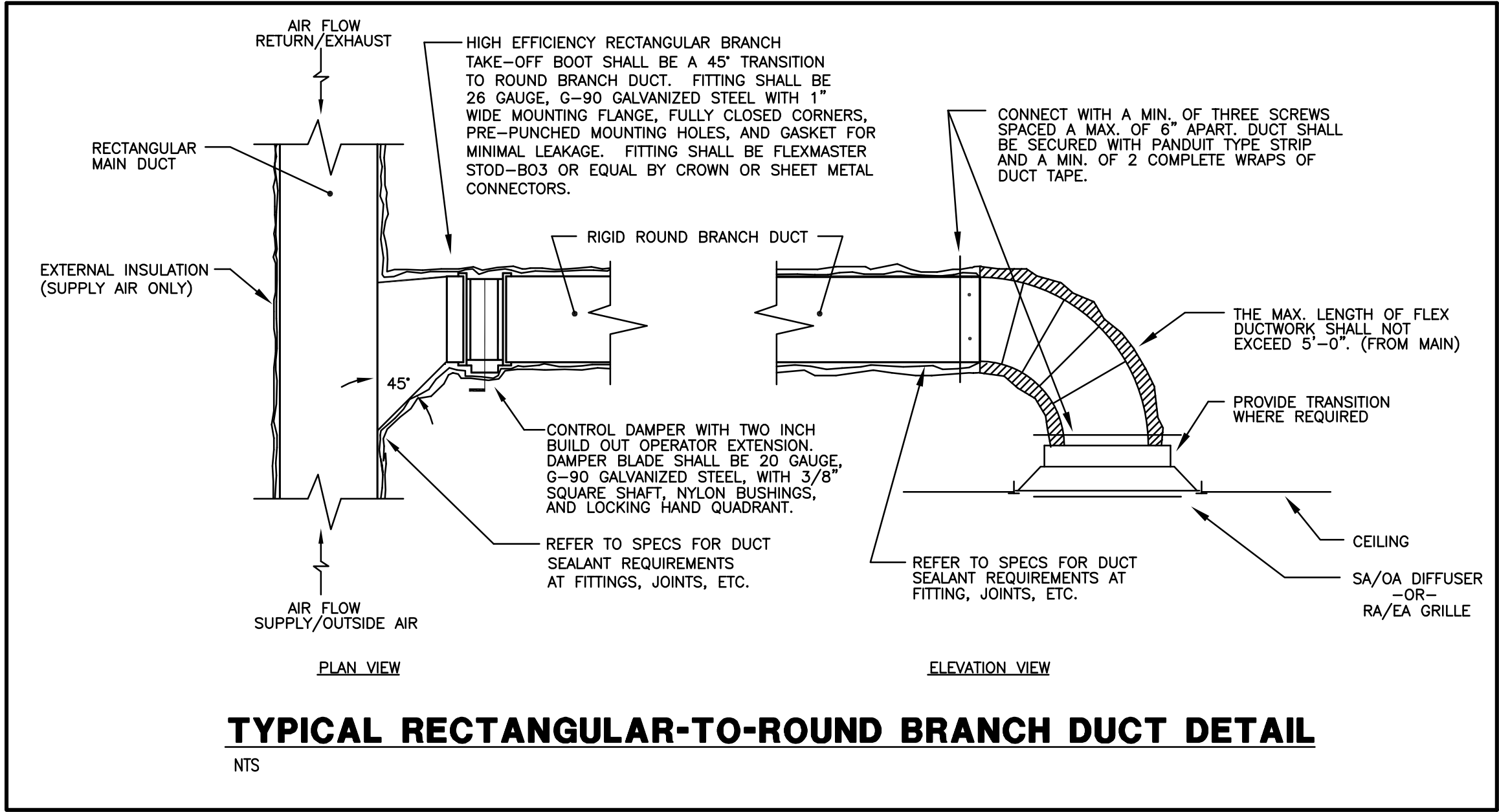
### VAV BRANCH DUCT CONNECTION DETAIL

NOT TO SCALE



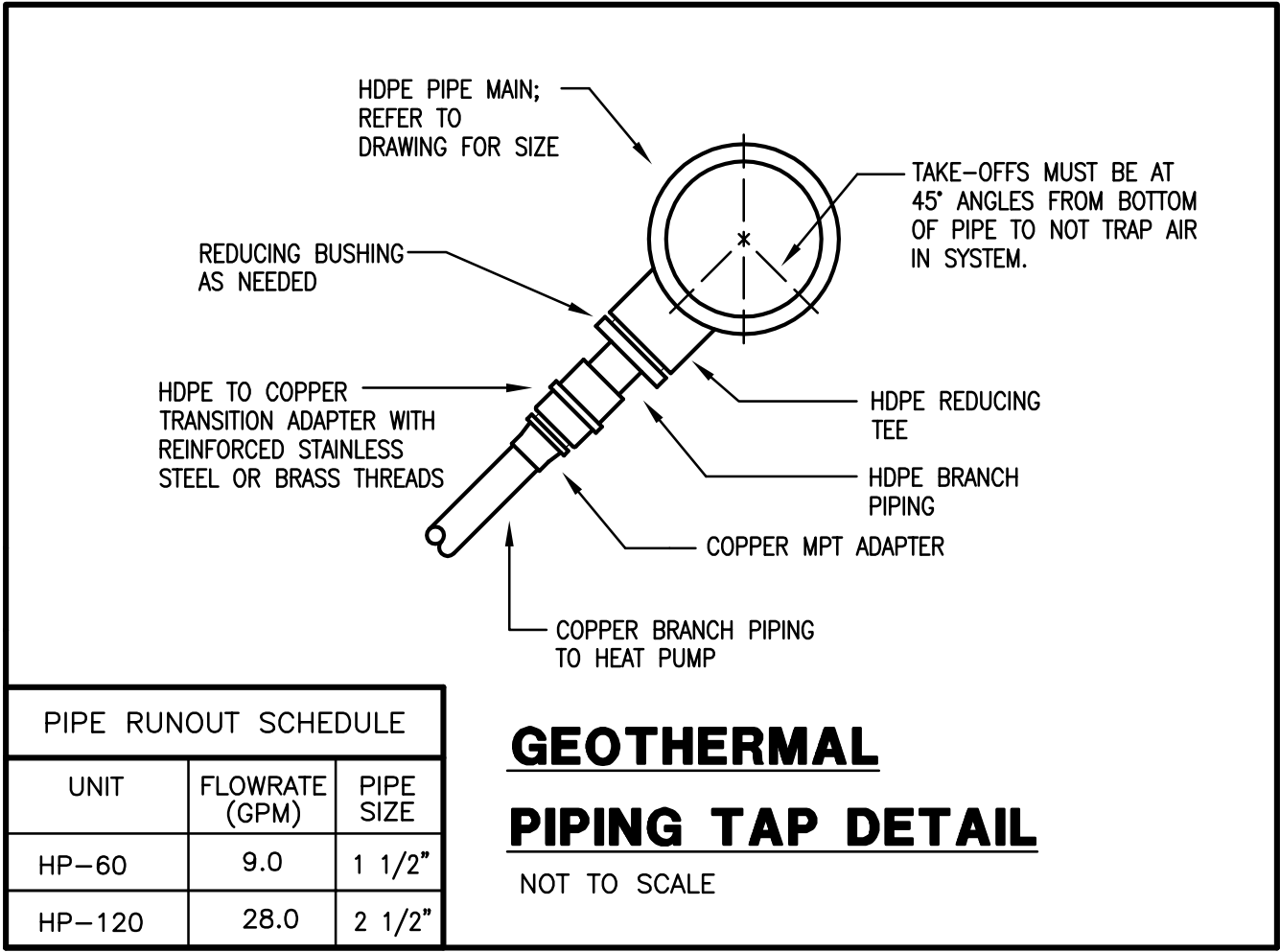
### EXPOSED DUCT WALL PENETRATION DETAIL

NTS



### TYPICAL RECTANGULAR-TO-ROUND BRANCH DUCT DETAIL

NTS

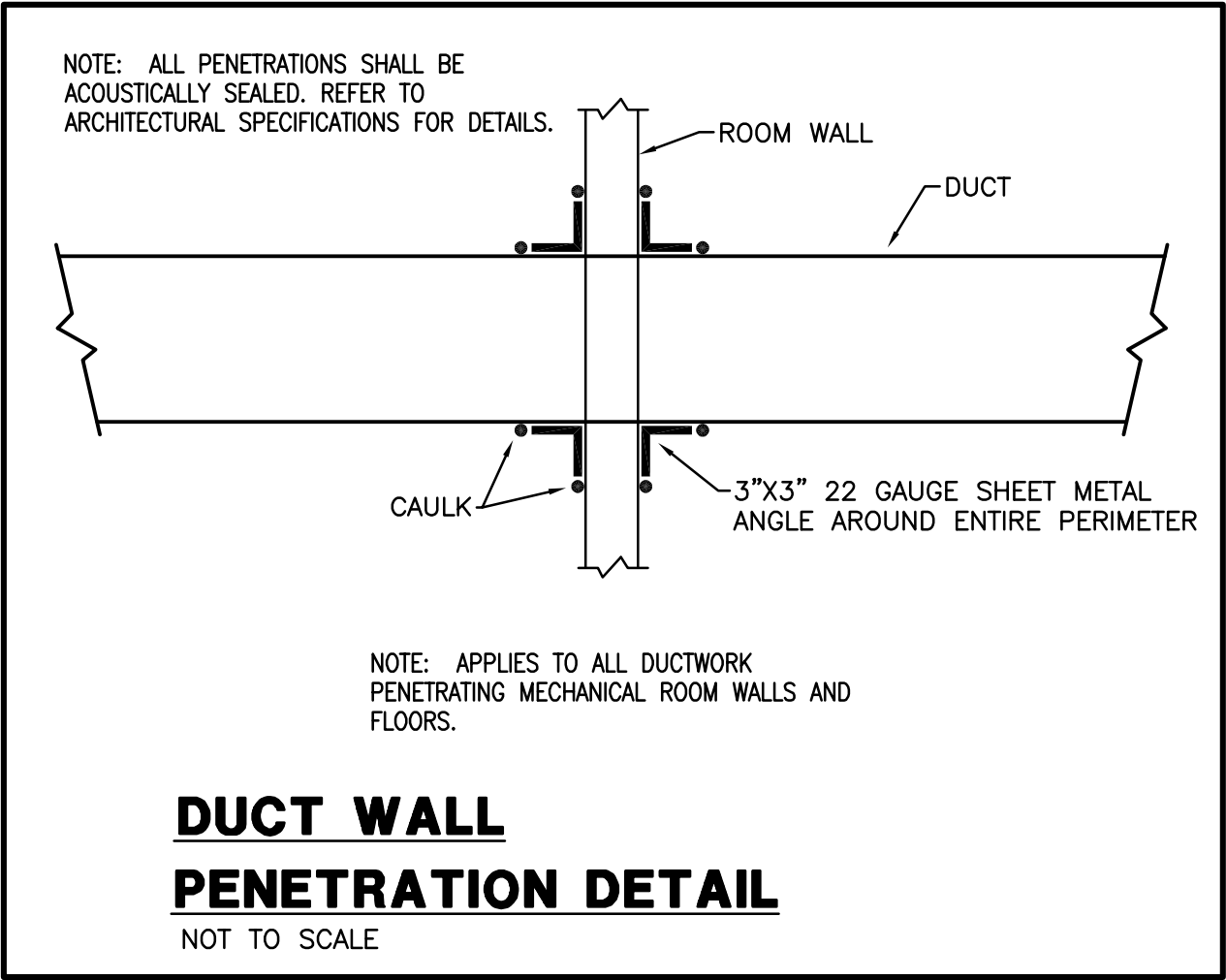


### PIPE RUNOUT SCHEDULE

UNIT	FLOWRATE (GPM)	PIPE SIZE
HP-60	9.0	1 1/2"
HP-120	28.0	2 1/2"

### GEOTHERMAL PIPING TAP DETAIL

NOT TO SCALE



### DUCT WALL PENETRATION DETAIL

NOT TO SCALE



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NELSON COUNTY SCHOOL DISTRICT  
288 WILDCAT LANE  
BARDSTOWN, KENTUCKY 40004

MECHANICAL DETAILS

NELSON COUNTY SCHOOLS - WEST CAMPUS

THOMAS NELSON H.S.

PHASE III

2885 NEW SHEPHERDSVILLE ROAD (HWY 245) BARDSTOWN, KENTUCKY 40004

BG 15-229

DATE : 08/17/2015

DRAWN BY : CG

CHECKED BY : DH

REVISIONS :

2011-02

PHASE - 3

M4.1

HS



ELECTRIC HEATERS		
SYMBOL	EH-1	EH-2
MANUF. & MODEL	MARKEL SERIES 3480	MARKEL - SERIES 5100
TYPE	VERTICAL DISCHARGE	HORIZONTAL MOUNT
KW	3.0	5.0
CFM	400	400
V/ø/HZ	460/1/60	460/3/60
DISCONNECT SWITCH	YES	YES
THERMOSTAT TYPE	SEE DDC CONTROLS	SEE DDC CONTROLS
REMARKS	1, 2, 3, 5	1, 3, 4, 5

REMARKS:

1. PROVIDE WITH MANUFACTURER'S FIELD INSTALLED DISCONNECT SWITCH.
2. PROVIDE WITH MOUNTING BRACKET AND STD. LOUVER.
3. PROVIDE WITH THERMAL OVERHEAT PROTECTION.
4. PROVIDE WITH WALL AND HEATER BRACKETS.
5. APPROVED MANUFACTURERS: MARKEL, DAYTON, REZNOR, AND TRANE.

EXHAUST FAN SCHEDULE		
SYMBOL	EF-1	EF-2
MANUF. & MODEL	TWIN CITY T100	TWIN CITY T500
TYPE	CEILING VENTILATOR	CEILING EXHAUST FAN
SERVICE	RESTROOM	IDF ROOM
CFM/TSP	100/0.125"	350/0.25"
SUM OF GRILLES	100	350
DRIVE/FAN RPM	DIRECT / 640	DIRECT / 681
FAN H.P.	1/8	1/3
ELECTRICAL	120/1/60	120/1/60
SONES	1.0	2.4
REMARKS	1, 2, 3, 4, 6	1, 2, 4, 5, 6

REMARKS:

1. PROVIDE WITH GRAVITY BACKDRAFT DAMPER.
2. THE EXHAUST FAN SHALL BE UL LISTED.
3. INTERLOCK OPERATION OF EXHAUST FAN WITH LIGHT SWITCH IN ROOM.
4. PROVIDE AN ALUMINUM EXHAUST GRILLE WITH FAN.
5. PROVIDE WITH VIBRATION ISOLATION HANGING/SUPPORT KIT. (NEOPRENE)
6. APPROVED MANUFACTURERS: TWIN CITY, JENCO, GREENHECK, PENN, ACME, COOK.

LOUVER SCHEDULE		
GENERAL		
SYMBOL	L-1	L-2
MANUF. & MODEL	RUSKIN L330	ARROW L330
SERVICE	RETURN AIR	RETURN AIR
DEPTH	4" DEPTH	4" DEPTH
CONSTRUCTION	16 GAUGE STEEL	16 GAUGE STEEL
CAPACITY		
CFM	6,000	4,000
APD	0.05" WG	0.05" WG
PHYSICAL SIZE	108"W X 48"H	48"W X 72"H
FREE AREA (SQ. FT.)	18	12
ACCESSORIES		
FINISH	BAKED ENAMEL	BAKED ENAMEL
CUSTOM COLOR	PRIME COAT	PRIME COAT
BIRD SCREEN	YES	YES
DRAINABLE BLADE	NO	NO
REMARKS	1, 2, 3	1, 2, 3

REMARKS:

1. FREE AREA LISTED IS MINIMUM ACCEPTABLE. ALTERNATE LOUVER MANUFACTURERS SHALL MEET OR EXCEED AREA LISTED. NO EXCEPTIONS!
2. LOUVER SHALL BE PROVIDED WITH FACTORY PRIME COAT FOR FIELD PAINTING.
3. APPROVED MANUFACTURERS: ARROW, GREENHECK, RUSKIN.

GEOTHERMAL HEAT PUMP SCHEDULE		
GENERAL		
SYMBOL	HP-60	HP-120
MANF. & MODEL	FHP MODEL ES 061	FHP MODEL EC 120
BOX TYPE	VERTICAL UNIT	VERTICAL UNIT
NOMINAL CFM/ESP	2200 / 0.8"	4000 / 0.8"
# COMPR. / # STAGES	1 / 2	2 / 2
ECM MOTOR	YES	NO
REFRIGERANT	410A	410A
VOLTS/PHASE/HZ	460/3/60	460/3/60
MCA/MOP	18.0 / 30	25.1 / 40
REVERSE CYCLE HEATING CAPACITY -- 70°F EAT - 50°F EWT		
TOTAL HEAT (MBH)	60.3	127.5
HEAT OF ABSORPTION (MBH)	45.8	93.3
COP @ ARI (PARTIAL LOAD/FULL LOAD)	4.7 / 4.2	3.7
COOLING CAPACITY -- 75°F/63°F EAT - 85°F EWT		
SENSIBLE (MBH)	41.3	86.6
TOTAL (MBH)	54.7	112.2
HEAT OF REJECTION (MBH)	69.1	144.7
EER @ ARI (PARTIAL LOAD/FULL LOAD)	17.2 / 13.0	NA / 11.8
GPM/WPD (FT)	14.0 / 9.7	28.0 / 13.2
PUMP INFORMATION		
SYMBOL	P-1	P-2
MANUFACTURER & MODEL	BELL & GOSSETT SERIES PL-55	BELL & GOSSETT SERIES 90 1-1/2A
TYPE	IN-LINE BOOSTER	IN-LINE CENTRIFUGAL
GPM / TDH	14.0 / 42 FT	35.0 / 45 FT
MOTOR HP / RPM	0.40 / 3250	1.0 / 1750
V / ø / Hz	120 / 1 / 60	460 / 3 / 60
IMPELLER DIAMETER	3.800"	6.500"

REMARKS:

1. PROVIDE WITH FILTER RACK AND SETS OF FILTERS PER SECTION 200100 AND 230200.
2. HP-36 SHALL BE PROVIDED WITH INTEGRAL DISCONNECT COMPLIANT WITH NEC. IF MANUFACTURER CANNOT ACCOMMODATE, A DISCONNECT SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR. HP-120 SHALL HAVE A DISCONNECT PROVIDED BY THE ELECTRICAL CONTRACTOR.
3. PROVIDE PUMPS WITH VALVED FLANGE KITS.
4. APPROVED HEAT PUMP MANUFACTURERS: FHP, WATER FURNACE, HYDRO-TEMP, CLIMATE MASTER, AND MAMMOTH.
5. APPROVED PUMP MANUFACTURERS: BELL AND GOSSETT, PATTERSON, TACO, ARMSTRONG, AND PACO.

GRAVITY RELIEF HOOD	
SYMBOL	RAH-1
MANUF. & MODEL	CREATIVE METALS AGV 200
TYPE	ALUMINUM EXHAUST HOOD
SERVICE	RELIEF AIR
CFM/APD	2000 / 0.11"
HOOD SIZE	37"x45"
THROAT SIZE	24"x30"
HEIGHT	17"
RATIO	1:1
ROOF CURB	YES
FINISH	BAKED ENAMEL
BIRD SCREEN	YES

REMARKS:

1. PROVIDE WITH 12" TALL INSULATED ROOF CURB. BOTTOM OF HOOD SHALL BE A MINIMUM OF 14" ABOVE FINISHED ROOF. CONTRACTOR IS TO VERIFY DIMENSIONS OF ROOF DECK AND INSULATION PRIOR TO ORDERING ROOF CURB.
2. CUSTOM COLOR TO BE SELECTED BY ARCHITECT.
3. APPROVED MANUFACTURERS: CREATIVE METALS, GREENHECK, RUSKIN.

VARIABLE AIR VOLUME BOX	
GENERAL	
SYMBOL	VAV-12
MANUFACTURER & MODEL	ETI SDR12
BOX TYPE	SINGLE INLET VAV
TOTAL APD AT MAXIMUM CFM	0.25" WG
VOLUME CONTROL DAMPER	
MAXIMUM AIRFLOW	1700
INLET SIZE	12"ø
LEAKAGE RATE AT 2.0" SP	2.0%
PRESSURE INDEPENDENT CONTROLS	YES


REMARKS:

1. ALL BOXES SHALL BE SINGLE WALL WITH 1/2" FOIL FACED INSULATION.
2. PROVIDE EACH BOX WITH AN INDEPENDENT CONTROLLER. NO BOX SHALL BE OPERATED BY ANOTHER CONTROLLER LOCATED ON ANOTHER BOX.
3. APPROVED MANUFACTURERS: ETI, TRANE, TITUS, JCI, CARRIER.


REGISTERS, GRILLES, AND DIFFUSERS							
SYMBOL	MANUFACTUER & MODEL	MATERIAL & TYPE	CFM RANGE	INLET DUCT SIZE	FACE SIZE	NECK SIZE	REMARKS
S-1	TITUS 300FS	EXTRUDED ALUMINUM LOUVERED DOUBLE DEFLECTION	0-100	8X4	10X6	8X4	2, 5, 8
S-2	TITUS OMNI AA	EXTRUDED ALUMINUM SQUARE PLAQUE FACE	101-225	8"ø	18X18	8"ø	1, 2, 3, 8
S-3	TITUS R-OMNI	HEAVY GAUGE STEEL ADJUSTABLE ROUND PLAQUE FACE WITH 360° DISCHARGE PATTERN	175	8"ø	13.5"ø	8"ø	4, 6, 7, 8
S-4	TITUS R-OMNI	HEAVY GAUGE STEEL ADJUSTABLE ROUND PLAQUE FACE WITH 360° DISCHARGE PATTERN	225-375	10"ø	18"ø	10"ø	4, 6, 7, 8
S-5	TITUS R-OMNI	HEAVY GAUGE STEEL ADJUSTABLE ROUND PLAQUE FACE WITH 360° DISCHARGE PATTERN	400-600	12"ø	22"ø	12"ø	4, 6, 7, 8

REMARKS:


1. CEILING T-BAR MOUNTED IN 24"x24" ALUMINUM PANEL.
2. PROVIDE WHITE IN COLOR.
3. PROVIDE DIFFUSER WITH MOLDED THERMAL BLANKET.
4. SET DIFFUSER CONE TO DOWN POSITION.
5. GRILLE SHALL BE PROVIDED WITH 1" BORDER TO BE SURFACE MOUNTED.
6. CUSTOM COLOR TO BE SELECTED BY ARCHITECT.
7. NOISE CRITERIA FOR DIFFUSER MUST BE LESS THAN 25.
8. APPROVED MANUFACTURERS: TITUS, METALAIRE, PRICE, KRUEGER, MAILER, TUTTLE & BAILEY, ANEMOSTAT, CARNES.



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