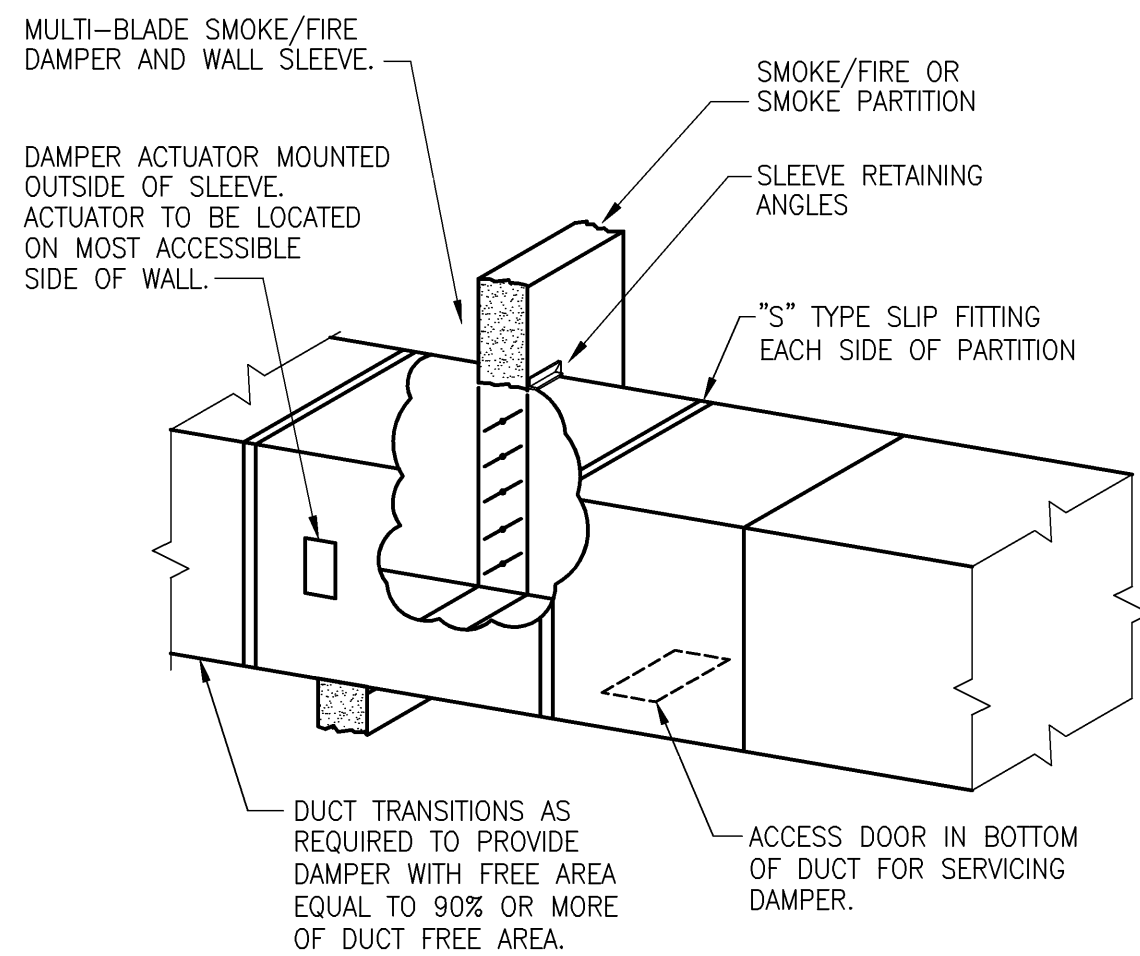


TYPE "C" NOMINAL 100% FREE AREA
FIRE DAMPER DETAIL

Sm-2



SMOKE / FIRE DAMPER (MOTOR OPERATED)

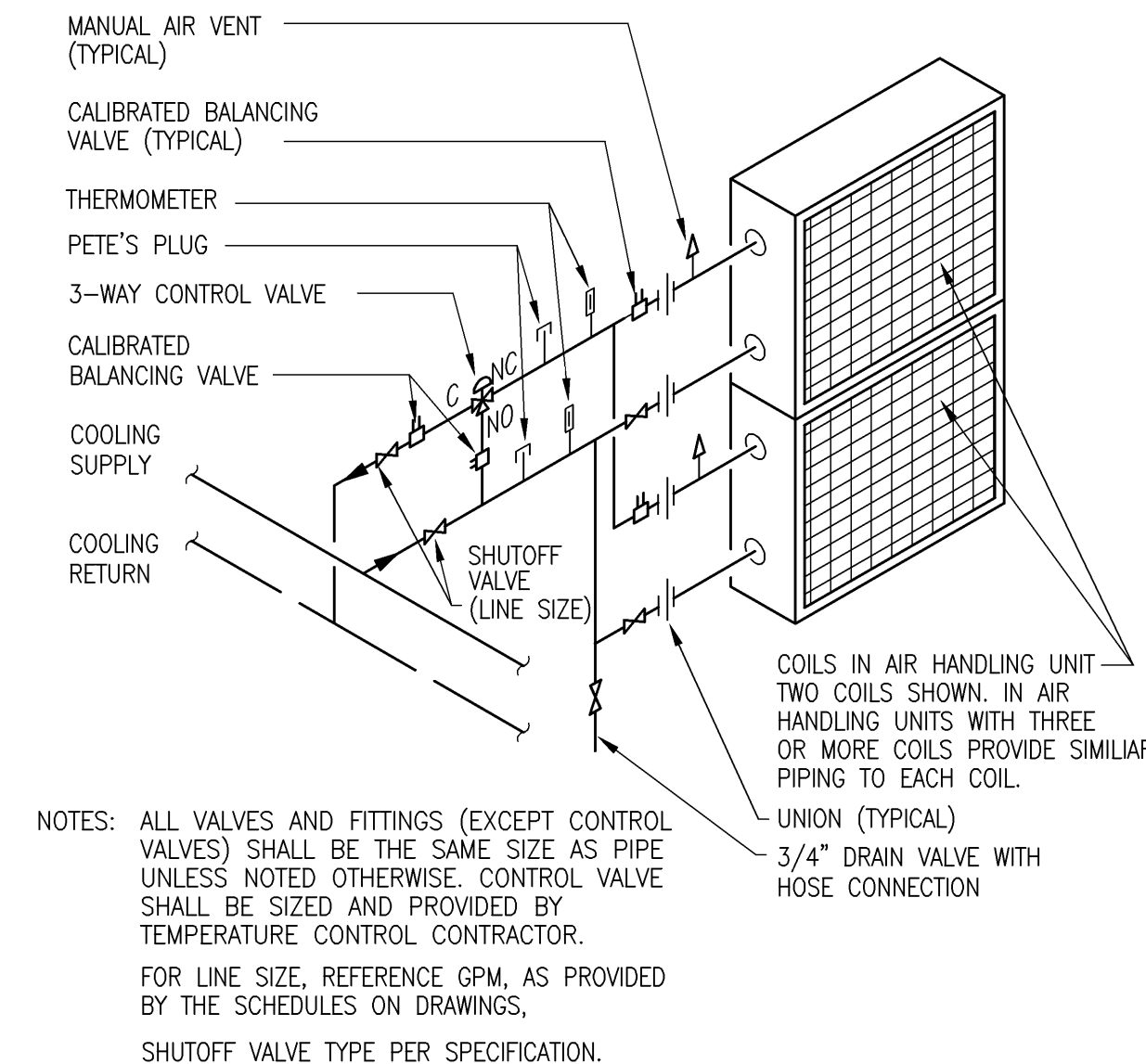
Sm-11

NOTE:

- ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
- WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
- ALL SINGLE THICKNESS VANES SHALL HAVE A 2" [50mm] RADIUS, 1 1/2" [40mm] MAXIMUM SPACE BETWEEN VANES AND A 3/4" [20mm] TRAILING EDGE.
- WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" [500mm] VANES SHALL BE DOUBLE VANE TYPE.

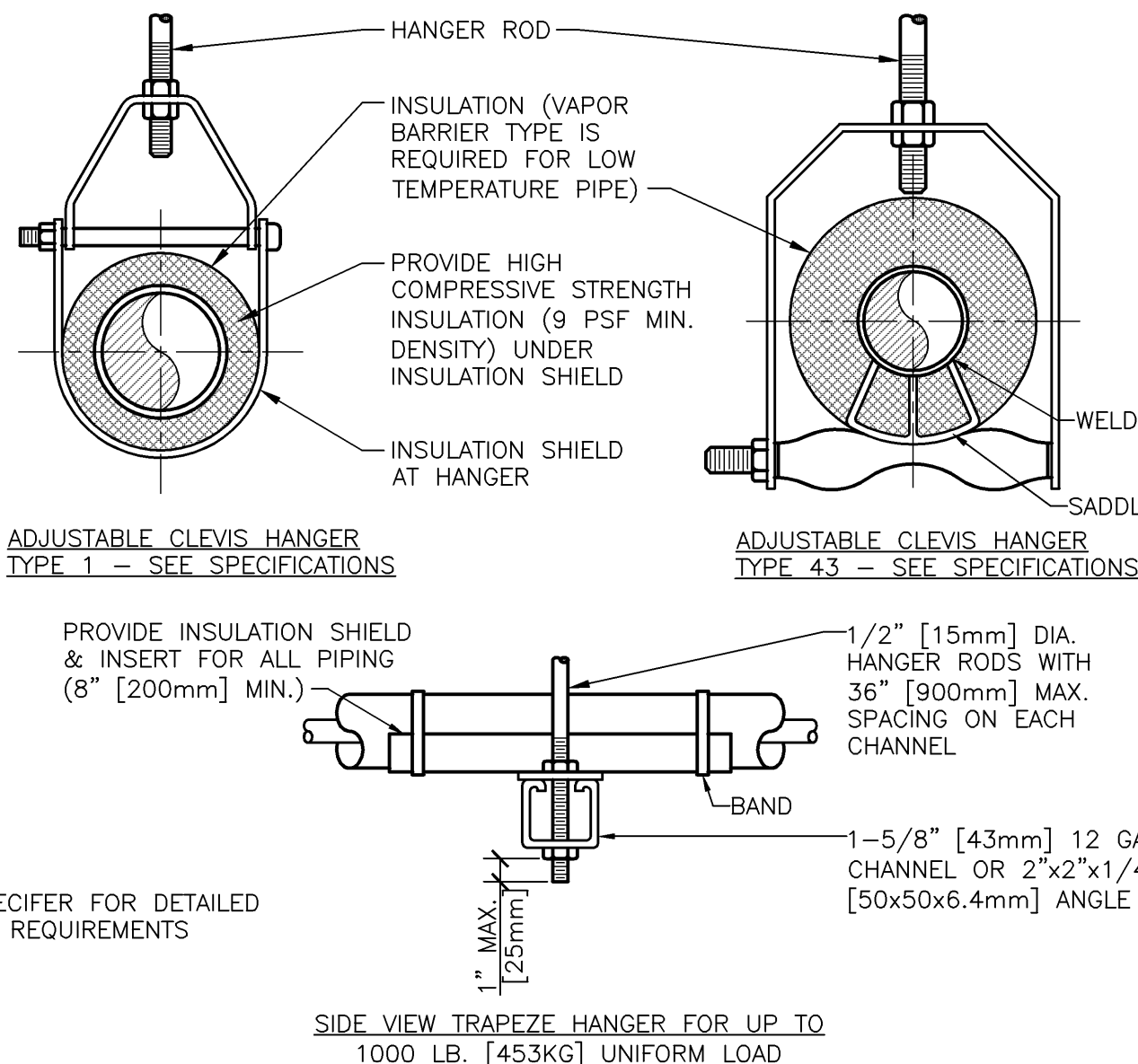
DUCTWORK SQUARE VANE ELBOWS

NTS



MULTIPLE COOLING COIL PIPING

Sp-2



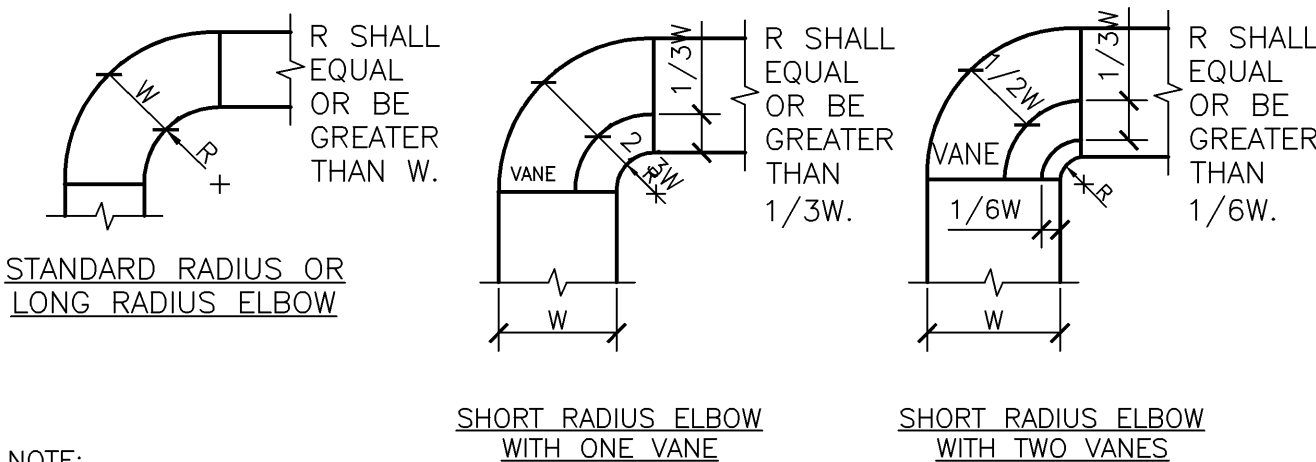
MAXIMUM PIPE/TUBING SUPPORT SPACING															
NOM. SIZE	IN.	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	14
FT.	[25]	[32]	[40]	[50]	[63]	[75]	[100]	[125]	[150]	[200]	[250]	[300]	[350]	[400]	[450]
TUBING	[1500]	[1800]	[2100]	[2400]	[2700]	[3000]	[3300]	[3700]	[4100]	[4500]	[5000]	[5800]	[6700]	[7000]	[7600]

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.

PIPE HANGERS

NTS

S2320511-21

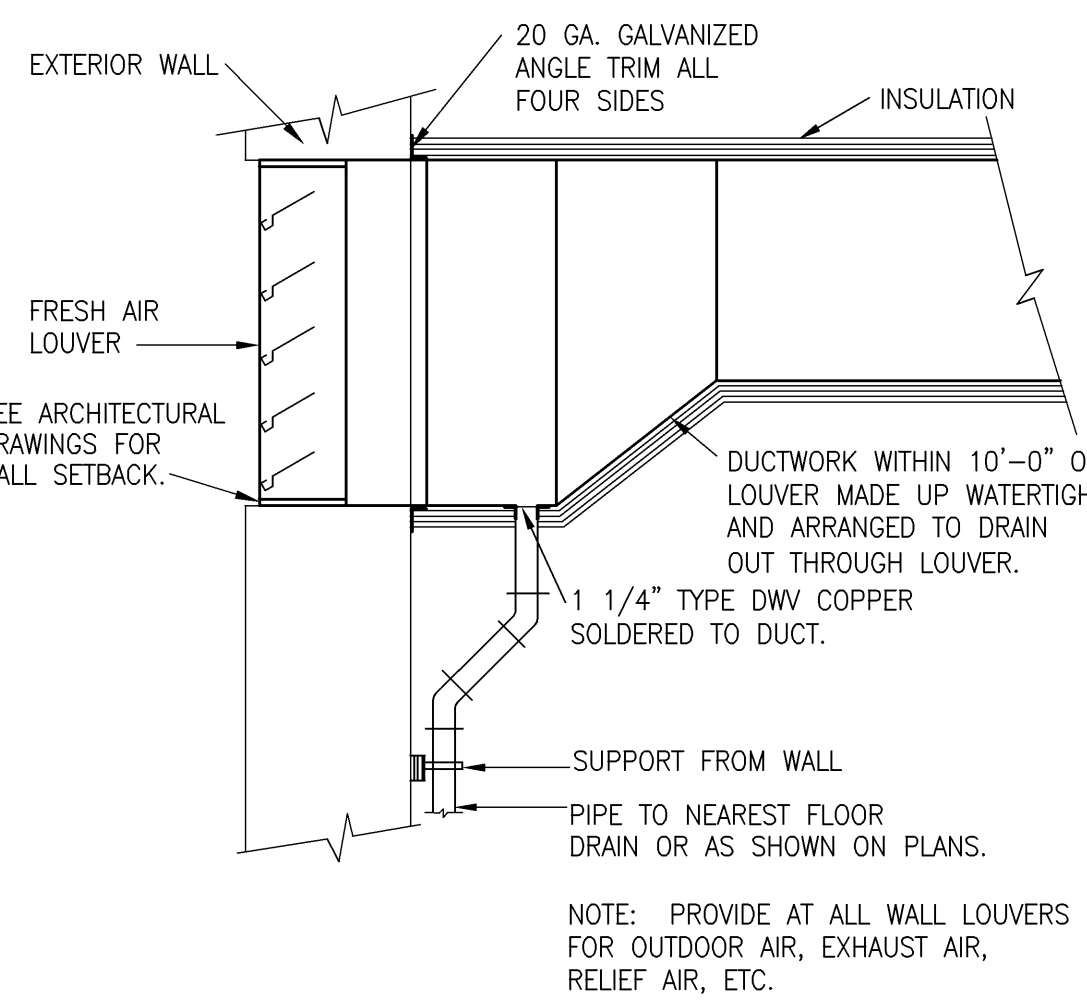


NOTE:

- THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
- ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

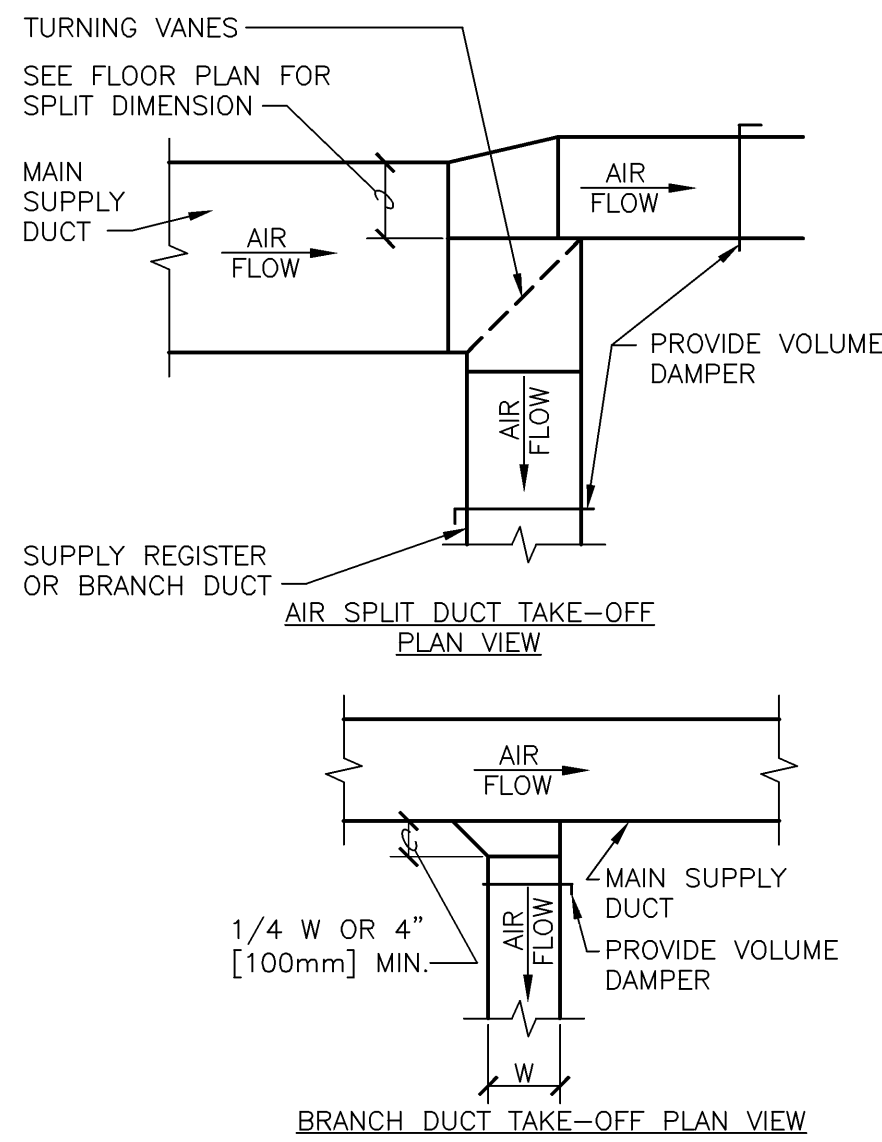
DUCTWORK RADIUS ELBOWS

NTS



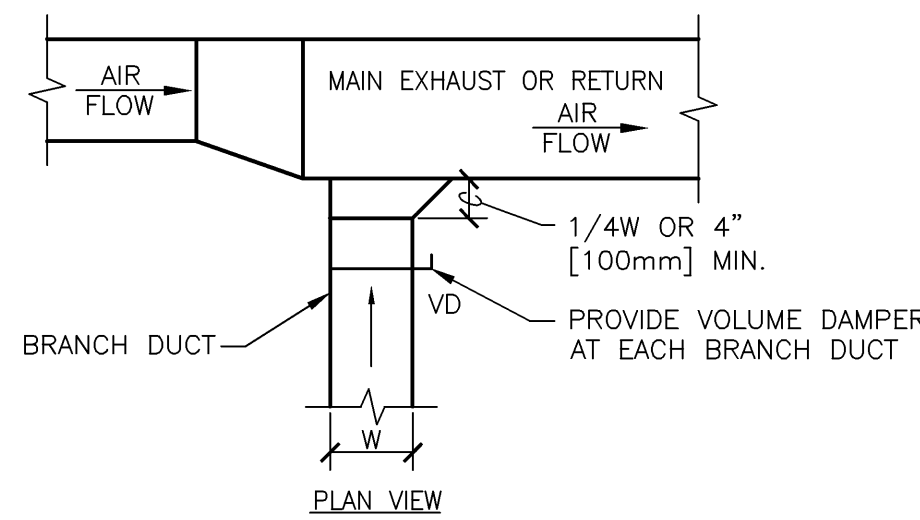
WALL LOUVER AND DUCT DRAIN

Sm-15



SUPPLY DUCTWORK TAKE-OFFS

NTS



EXHAUST OR RETURN BRANCH DUCTWORK

NTS

HVAC SYMBOLS

PIPING SYMBOLS

- AIR VENT
- ANCHOR
- EXPANSION JOINT
- FLEXIBLE JOINT
- GUIDE
- PRESSURE GAUGE
- STEAM PRESSURE SENSOR
- SUPPLY PIPING
- RETURN PIPING
- STRAINER
- PETE'S PLUG
- THERMOMETER
- UNION
- METER (TYPE, SEE PLANS)
- STEAM TRAP (TYPE, SEE PLANS)
- CONNECT NEW TO EXISTING

VALVE SYMBOLS

- BALANCING COCK OR PLUG VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CIRCUIT SETTER OR CALIBRATED BALANCING VALVE
- CHECK VALVE
- CONTROL VALVE
- GATE VALVE
- GLOBE VALVE
- PRESSURE REDUCING VALVE
- PRESSURE RELIEF VALVE
- 3-WAY CONTROL VALVE
- MOTORIZED BUTTERFLY CONTROL VALVE

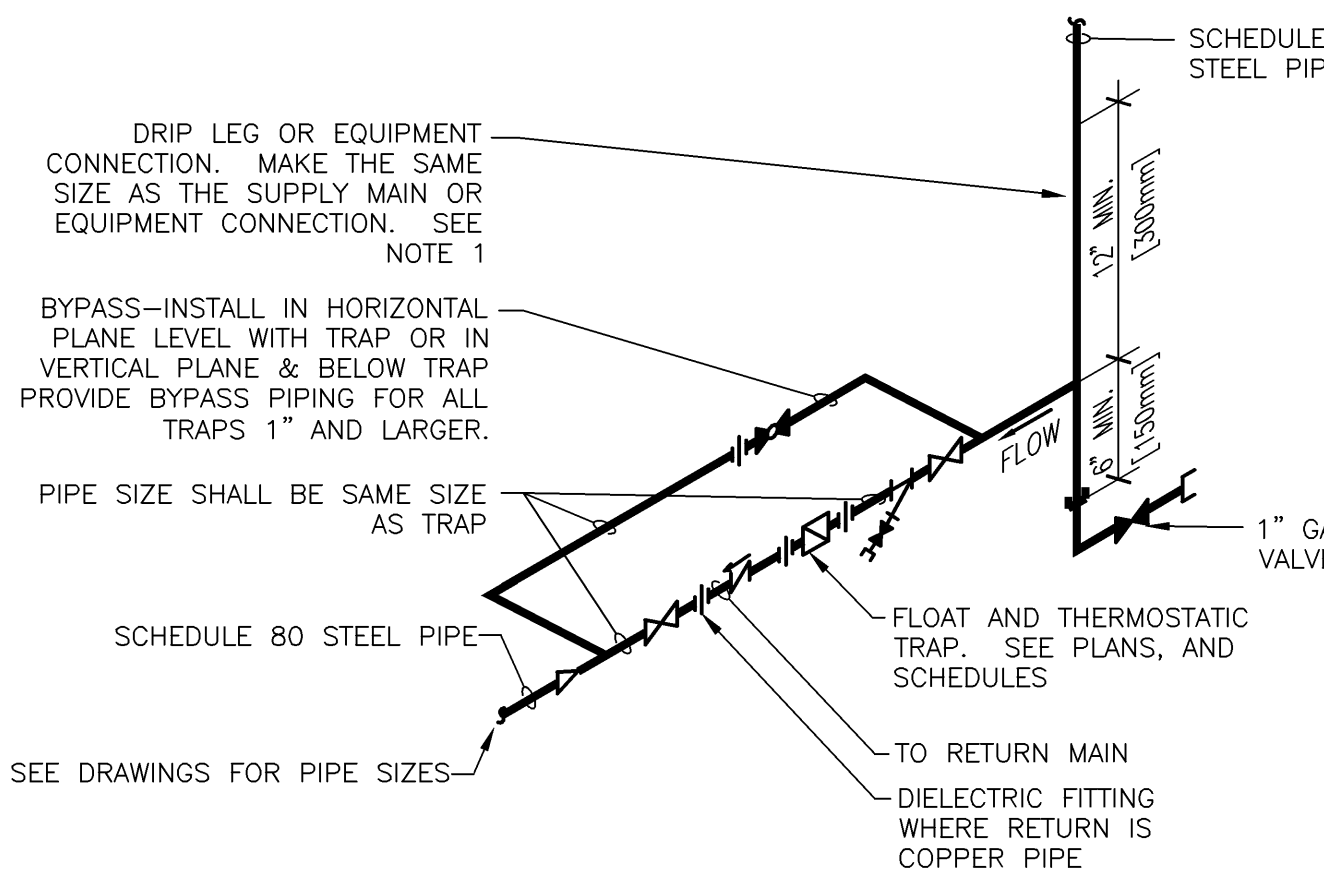
DUCT SYMBOLS

- EXHAUST FAN ON ROOF
- OAH OR RAH ON ROOF
- CEILING MOUNT EXHAUST FAN
- ACOUSTICALLY LINED DUCT (ALSO SEE SPECIFICATIONS)
- FLEXIBLE CONNECTION
- EXHAUST OR RETURN DUCT SECTION
- SUPPLY DUCT SECTION
- TURNING VANES
- MOTORIZED CONTROL DAMPER
- VOLUME CONTROL DAMPER
- BACKDRAFT DAMPER
- FIRE DAMPER IN HORIZONTAL DUCT
- FIRE DAMPER IN VERTICAL DUCT
- COMBINATION FIRE/SMOKE DAMPER IN HORIZ. DUCT
- COMBINATION FIRE/SMOKE DAMPER IN VERTICAL DUCT
- SMOKE DAMPER IN HORIZONTAL DUCT
- SMOKE DAMPER IN VERTICAL DUCT

CONTROL SYMBOLS

- AIR FLOW MEASURING STATION
- CARBON DIOXIDE SENSOR
- HUMIDISTAT
- TEMPERATURE SENSOR (ELECTRONIC)
- THERMOSTAT (ELECTRIC)
- REVERSE-ACTING THERMOSTAT (ELECTRIC)
- THERMOSTAT (PNEUMATIC)
- VOC SENSOR
- SWITCH - WALL MOUNT
- DIFFERENTIAL PRESSURE SENSOR
- MOTORIZED DAMPER
- VELOCITY PROBE
- DUCT SMOKE DETECTOR BY OTHERS
- TOP - JUNCTION BOX
- TOP - PANEL
- PHONE JACK FOR BMS COMMUNICATION
- "LAN/WAN" JACK FOR BMS COMMUNICATION
- STATIC PRESSURE PROBE

NOTE: DUCTWORK SHOWN ON DRAWINGS MAY BE DRAWN SINGLE LINE IN LIEU OF DOUBLE LINE.



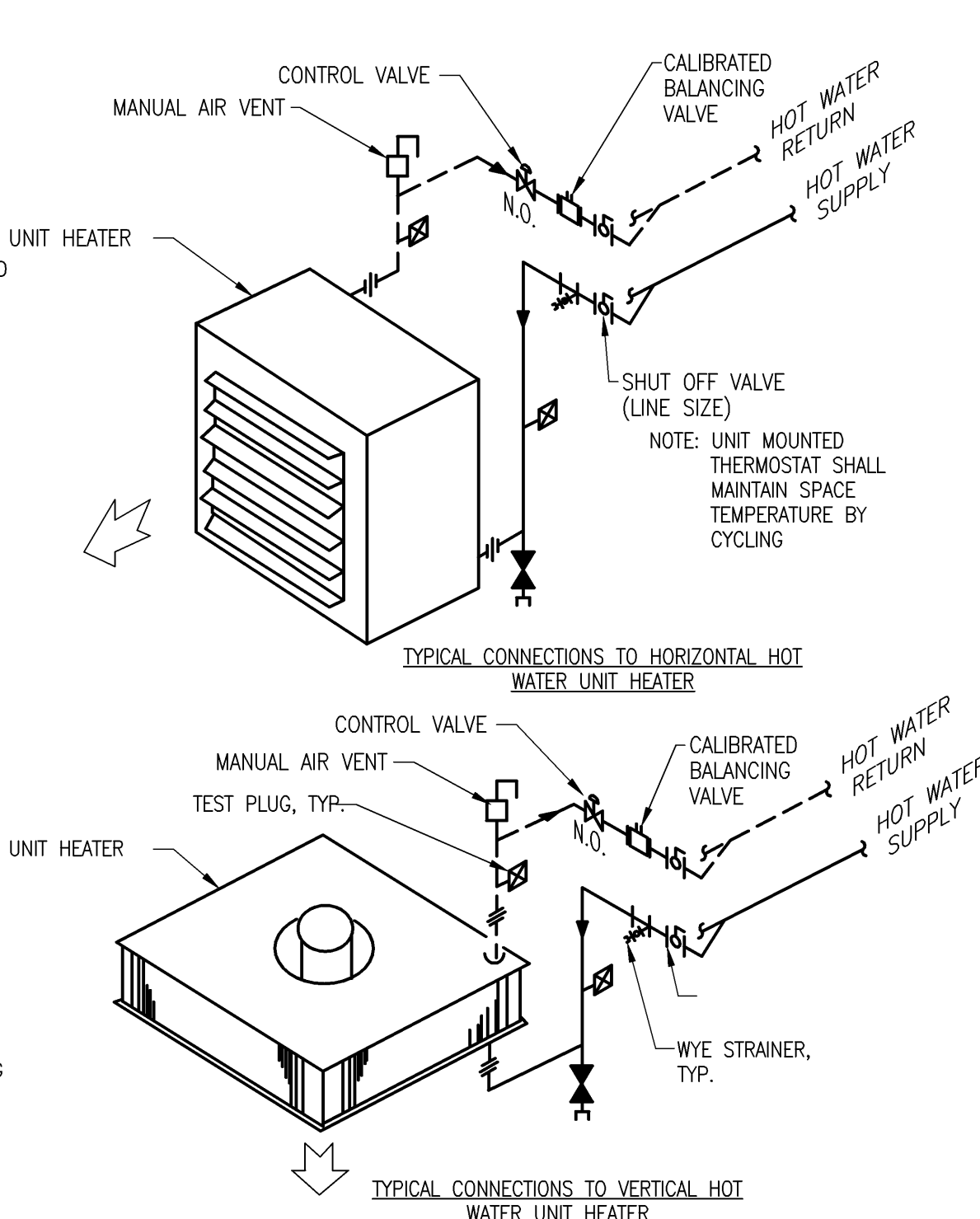
NOTE:

- ALL DRIP POINTS ON STEAM MAINS SHALL BE PROVIDED WITH A 12" MINIMUM HIGH DRIP LEG FROM BOTTOM OF STEAM MAIN TO TRAP INLET. DRIP LEG SHALL HAVE 6" SCALE POCKET BELOW TRAP INLET.

FLOAT AND THERMOSTATIC STEAM TRAP ASSEMBLY

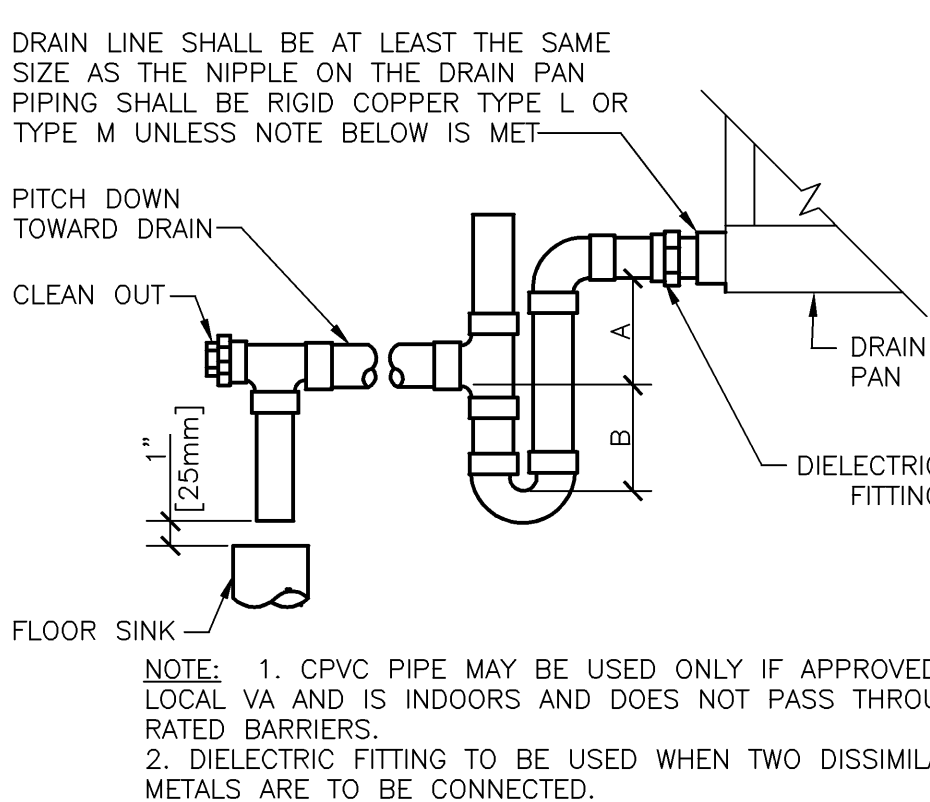
NTS

S2320213-03



UNIT HEATERS (HOT WATER) - PIPING CONNECTIONS

NTS



NOTE: 1. CPVC PIPE MAY BE USED ONLY IF APPROVED BY LOCAL VA AND IS INDOORS AND DOES NOT PASS THROUGH RATED BARRIERS.
2. DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.

UNIT TYPE	A	B
DRAW THRU	2" [50mm] PLUS X	X
BLOW THRU	1" [25mm] MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN

AIR HANDLING UNIT DRAIN TRAP DETAIL

NTS

S2320113-08

100% DOCUMENTS	11/30/2011
Revisions	Date

Architect	stamp
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URS

3950 SPARKS DRIVE, SE
GRAND RAPIDS, MI
816-574-8500
PROJ. NO. 12342721

stamp

DATE	ENGINEERING MANAGER	DATE
DATE	CARELINE MANAGER	DATE
DATE	CHIEF OF STAFF	DATE

Drawing Title	HVAC STANDARD DETAILS
Medical Center Director	DATE
Associate Medical Center Director	DATE

Project Title	FCA - REPLACE HVAC SYSTEM PROJ. NO. 515-10-109 CONTRACT NO. VA251-P-0592
Building Number	82
Location	V.A.M.C. BATTLE CREEK, MICHIGAN

Date	11/30/2011
Station No.	515
MH500	

