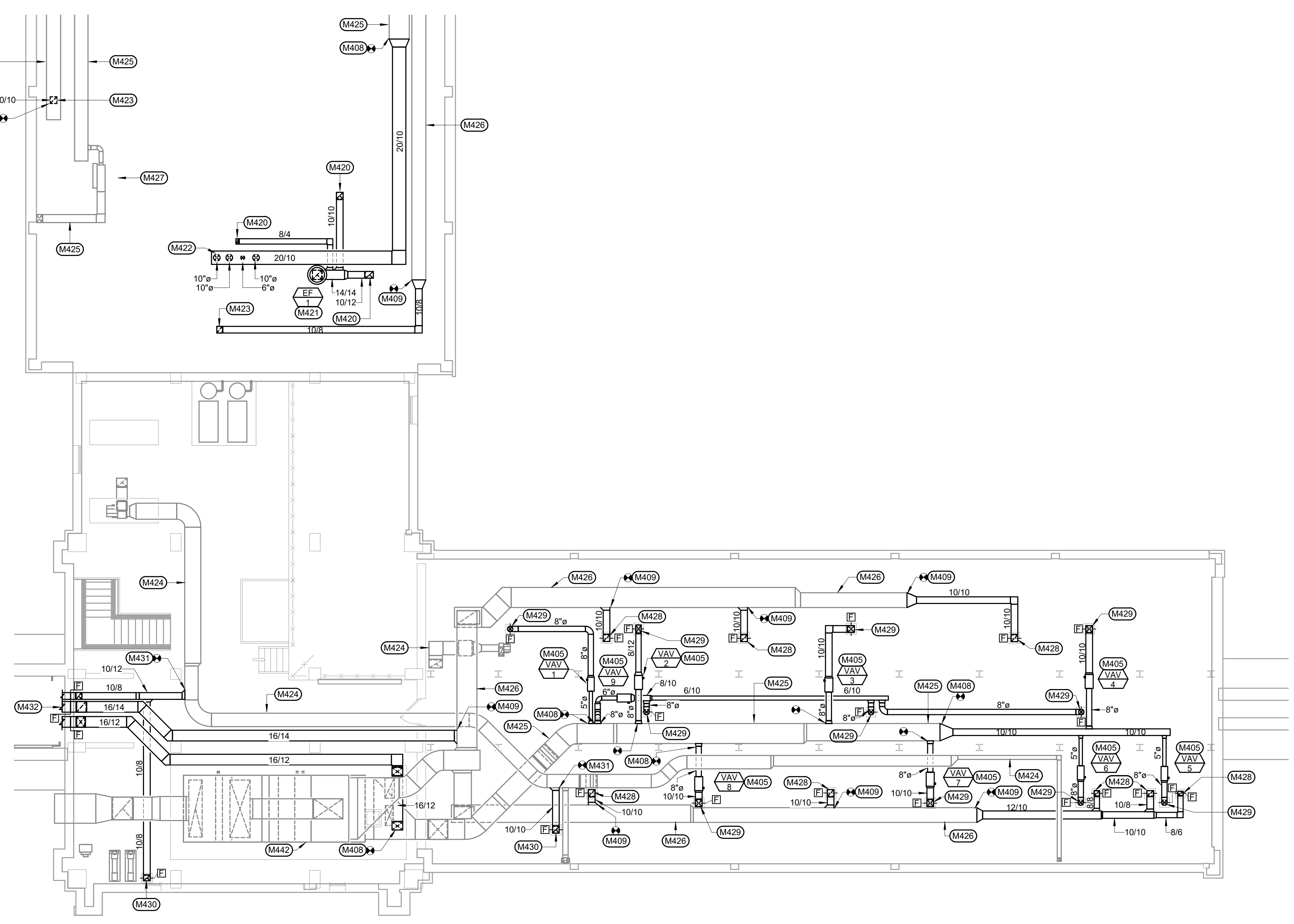


**KEYNOTES:**

- MECHANICAL SPECIFIC NOTES**
- M405 MOUNT VAV BOX IN ACCESSIBLE LOCATION. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCE. PROVIDE DUCT ACCESS DOOR FOR ACCESS TO REHEAT COIL. ACCESS DOOR SHALL BE LOCATED TO ALLOW FOR MAXIMUM ACCESSIBILITY. SEE DUCT CONNECTIONS - AIR TERMINAL UNITS DETAIL 3MH501. SUPPLY DUCT TAKEOFF - AIR TERMINAL UNIT 3MH502. ALTERNATE SUPPLY DUCT TAKEOFF - AIR TERMINAL UNIT 2MH501.
  - M408 CONNECT NEW SUPPLY AIR DUCT TO EXISTING SUPPLY AIR DUCT IN THIS LOCATION. VERIFY EXACT SIZE AND LOCATION OF EXISTING. PROVIDE FIRE DAMPER AT FLOOR. SEE VERTICAL DUCT FIRE DAMPER DETAIL 11MH501 AND SECTION THRU FIRE DAMPER INSTALLATION DETAIL 11MH502. COORDINATE ALL WALL, CEILING, AND FLOOR CUTTING AND PATCHING WITH GENERAL CONTRACTOR. VERIFY EXACT SIZE AND LOCATION OF EXISTING.
  - M409 CONNECT NEW RETURN AIR DUCT TO EXISTING RETURN AIR DUCT IN THIS LOCATION. VERIFY EXACT SIZE AND LOCATION OF EXISTING.
  - M420 EXHAUST AIR DUCT DN THRU CEILING LID. SEE HVAC VENTILATION PLAN - FIFTH FLOOR FOR CONTINUATION. COORDINATE ALL WALL, CEILING, AND FLOOR CUTTING AND PATCHING WITH GENERAL CONTRACTOR. VERIFY EXACT SIZE AND LOCATION OF EXISTING.
  - M421 14/14 UP TO EXHAUST FAN LOCATED ON ROOF. TRANSITION UP TO FULL SIZE OPENING AS REQUIRED. SEE EXHAUST FAN DETAIL 6MH502.
  - M422 SUPPLY AIR DUCT DN THRU CEILING LID. SEE HVAC VENTILATION PLAN - FIFTH FLOOR FOR CONTINUATION. COORDINATE ALL WALL, CEILING, AND FLOOR CUTTING AND PATCHING WITH GENERAL CONTRACTOR. VERIFY EXACT SIZE AND LOCATION OF EXISTING.
  - M423 RETURN AIR DUCT DN THRU CEILING LID. SEE HVAC VENTILATION PLAN - FIFTH FLOOR FOR CONTINUATION. COORDINATE ALL WALL, CEILING, AND FLOOR CUTTING AND PATCHING WITH GENERAL CONTRACTOR. VERIFY EXACT SIZE AND LOCATION OF EXISTING.
  - M424 EXISTING EXHAUST DUCTWORK TO REMAIN.
  - M425 EXISTING SUPPLY DUCTWORK TO REMAIN.
  - M426 EXISTING RETURN DUCTWORK TO REMAIN.
  - M427 EXISTING VAV BOX TO REMAIN.
  - M428 RETURN AIR DUCT DN THRU FLOOR. SEE HVAC VENTILATION PLAN - FIFTH FLOOR FOR CONTINUATION. PROVIDE FIRE DAMPER AT FLOOR. SEE VERTICAL DUCT FIRE DAMPER DETAIL 11MH501 AND SECTION THRU FIRE DAMPER DETAIL INSTALLATION 11MH502. COORDINATE ALL WALL, CEILING, AND FLOOR CUTTING AND PATCHING WITH GENERAL CONTRACTOR. VERIFY EXACT SIZE AND LOCATION OF EXISTING.
  - M429 SUPPLY AIR DUCT DN THRU FLOOR. SEE HVAC VENTILATION PLAN - FIFTH FLOOR FOR CONTINUATION. PROVIDE FIRE DAMPER AT FLOOR. SEE VERTICAL DUCT FIRE DAMPER DETAIL 11MH501 AND SECTION THRU FIRE DAMPER DETAIL INSTALLATION 11MH502. COORDINATE ALL WALL, CEILING, AND FLOOR CUTTING AND PATCHING WITH GENERAL CONTRACTOR. VERIFY EXACT SIZE AND LOCATION OF EXISTING.
  - M430 EXHAUST AIR DUCT DN THRU FLOOR. SEE HVAC VENTILATION PLAN - FIFTH FLOOR FOR CONTINUATION. PROVIDE FIRE DAMPER AT FLOOR. SEE VERTICAL DUCT FIRE DAMPER DETAIL 11MH501 AND SECTION THRU FIRE DAMPER DETAIL INSTALLATION 11MH502. COORDINATE ALL WALL, CEILING, AND FLOOR CUTTING AND PATCHING WITH GENERAL CONTRACTOR. VERIFY EXACT SIZE AND LOCATION OF EXISTING.
  - M431 CONNECT NEW EXHAUST AIR DUCT TO EXISTING EXHAUST AIR DUCT IN THIS LOCATION. VERIFY EXACT SIZE AND LOCATION OF EXISTING.
  - M432 SUPPLY AIR DUCT, RETURN AIR DUCT, AND EXHAUST AIR DUCT DN ALONG WALL AND THRU WALL INTO FIFTH FLOOR CEILING SPACE. SEE HVAC VENTILATION PLAN - FIFTH FLOOR FOR CONTINUATION. PROVIDE FIRE DAMPER AT EACH WALL PENETRATION. SEE VERTICAL DUCT FIRE DAMPER DETAIL 11MH501 AND SECTION THRU FIRE DAMPER DETAIL INSTALLATION 11MH502. COORDINATE ALL WALL, CEILING, AND FLOOR CUTTING AND PATCHING WITH GENERAL CONTRACTOR. VERIFY EXACT SIZE AND LOCATION OF EXISTING.
  - M442 PROVIDE SHEET METAL BLANK OFF SECTION ON ONE RETURN FAN SECTION AND PROVIDE SHEET METAL BLANK OFF SECTION ON ONE SUPPLY FAN SECTION. CONTACT AIR HANDLING UNIT MANUFACTURER FOR BOLT PATTERN ON THE SUPPLY AND RETURN FAN BLANK OFFS. VERIFY EXACT SIZE AND LOCATION OF BLANK OFF SECTION.

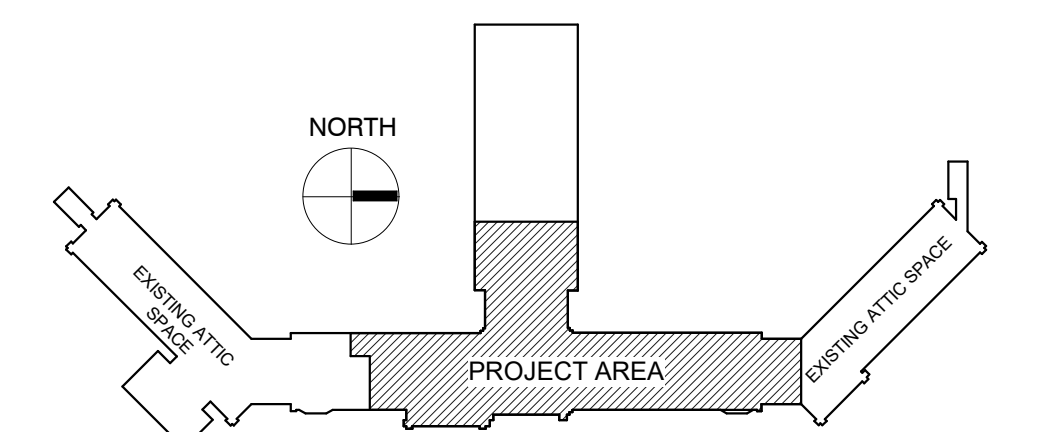


**HVAC VENTILATION PLAN - PENTHOUSE**  
SCALE: 1/8" = 1'-0"

**GENERAL NOTES:**

- A ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A FURRED CHASE OR ABOVE THE HARD SUSPENDED CEILING.
- B THE FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED.
- C DUCT SIZES ARE NET INSIDE DIMENSIONS.
- D ACCESS PANELS IN HARD SUSPENDED CEILINGS ARE REQUIRED FOR ALL VALVES, TRAPS, DAMPERS, CLEANOUTS, CONTROLS, ETC. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS.
- E TOTAL STATIC PRESSURE NOTED IN THE SCHEDULES INCLUDES DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC.
- F FOR TYPICAL STEAM AND WATER PIPING CONNECTIONS TO EQUIPMENT, SEE STANDARD EQUIPMENT DETAILS.
- G DIFFUSER, REGISTER AND GRILLE SIZES SHOWN ON FLOOR PLANS ARE NECK SIZES.
- H WATER PIPE CONNECTIONS TO AIR HEATING AND COOLING COILS SHALL BE MADE TO PROVIDE COUNTER FLOW BETWEEN WATER AND AIR.
- I WALL TYPE EXHAUST REGISTERS NOTED AS "BR" ON DRAWINGS ARE TO BE INSTALLED WITH BOTTOM ELEVATION OF REGISTER AT 7" (175MM) ABOVE FINISHED FLOOR.
- J REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF CEILING DIFFUSERS, REGISTERS, AND GRILLES.
- K ALL PRESSURES LISTED ARE GAGE PRESSURE UNLESS OTHERWISE NOTED.

**KEY PLAN:**

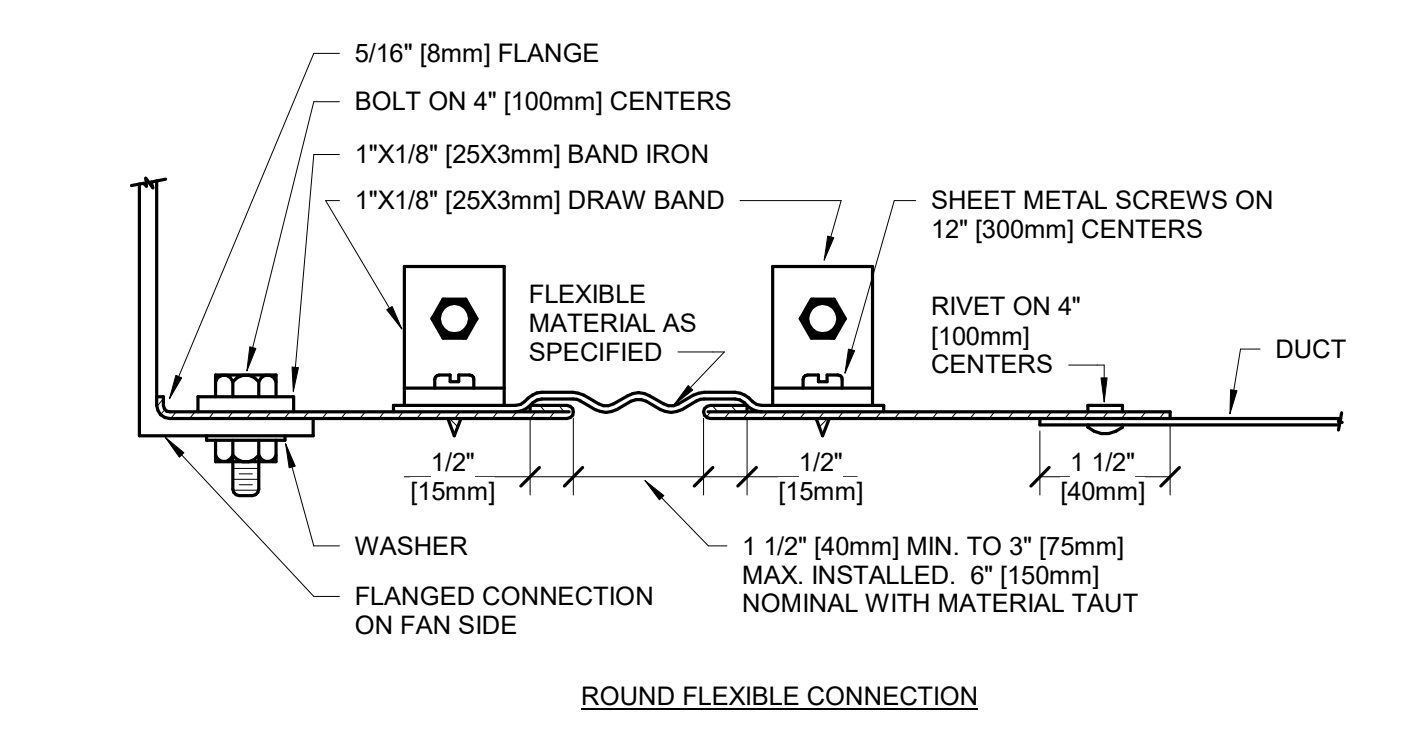
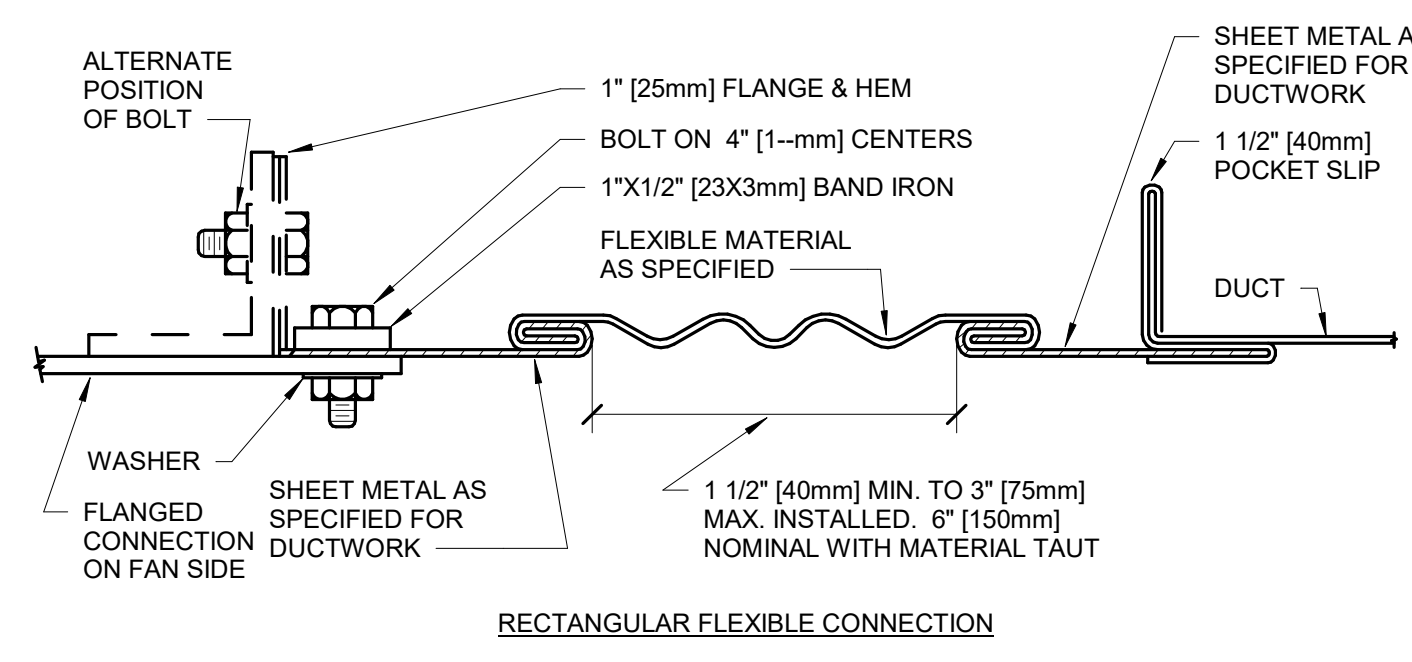


**PHASING PLAN NOTE:**  
SEE ARCHITECTURAL PLANS FOR PHASING OF PROJECT

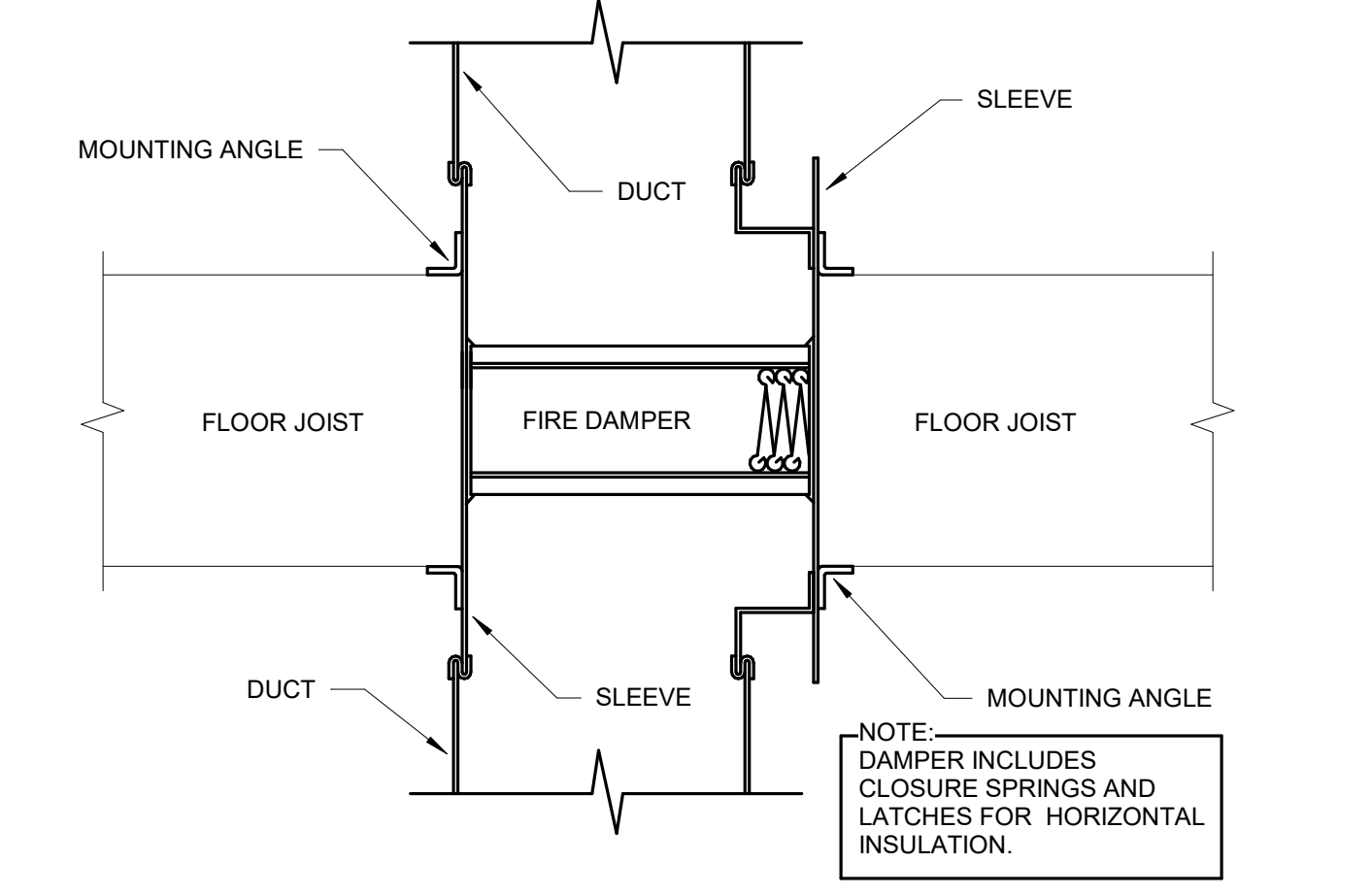
**100% CONSTRUCTION DRAWINGS**

<p>Revisions:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50px; height: 20px;"> </td> <td style="width: 50px; height: 20px;"> </td> </tr> <tr> <td style="width: 50px; height: 20px;"> </td> <td style="width: 50px; height: 20px;"> </td> </tr> <tr> <td style="width: 50px; height: 20px;"> </td> <td style="width: 50px; height: 20px;"> </td> </tr> <tr> <td style="width: 50px; height: 20px;"> </td> <td style="width: 50px; height: 20px;"> </td> </tr> </table>									<p><b>CONSULTANTS:</b></p> <p><b>WPE WEST PLAINS ENGINEERING, INC.</b> WPE #: BS15052 4609 SOUTH TECHLINK CIRCLE • SIOUX FALLS, SD 57106 PHONE: (605) 362-3753 • FAX: (605) 362-3759 WWW.WESTPLAINSENGINEERING.COM RAPID CITY, SD • SIOUX FALLS, SD • CASPER, WY • CEDAR RAPIDS, IA • BISMARCK, ND</p>	<p><b>ARCHITECTS/ ENGINEERS:</b></p> <p><b>RISE STRUCTURAL ASSOCIATES, INC.</b> 101 Railroad Ave. - PO Box 39 Harrisburg, SD 57032 (605) 743-2510 fax(605) 743-2513</p>	<p><b>MSH ARCHITECTS</b> 625 S. MINNESOTA AVENUE, SUITE 204 SIOUX FALLS, SOUTH DAKOTA 57104-4873 TELE: (605) 332-7850 FAX: (605) 332-3539</p>	<p>Drawing Title <b>HVAC VENTILATION PLAN - PENTHOUSE</b></p> <p>Approved: Project Director</p>	<p>Project Title <b>V.A. HEALTH CARE SYSTEM RENOVATE 5TH FLOOR SURGERY</b></p> <p>Project Number <b>438-15-201</b></p> <p>Building Number <b>5</b></p> <p>Location <b>SIOUX FALLS, SOUTH DAKOTA</b></p> <p>Date <b>OCTOBER 17, 2017</b></p> <p>Checked <b>WM</b></p> <p>Drawn <b>DNT</b></p> <p>Drawing Number <b>5-MH103</b></p> <p>Dwg. 45 of 60</p>	<p>Office of Construction and Facilities Management</p>

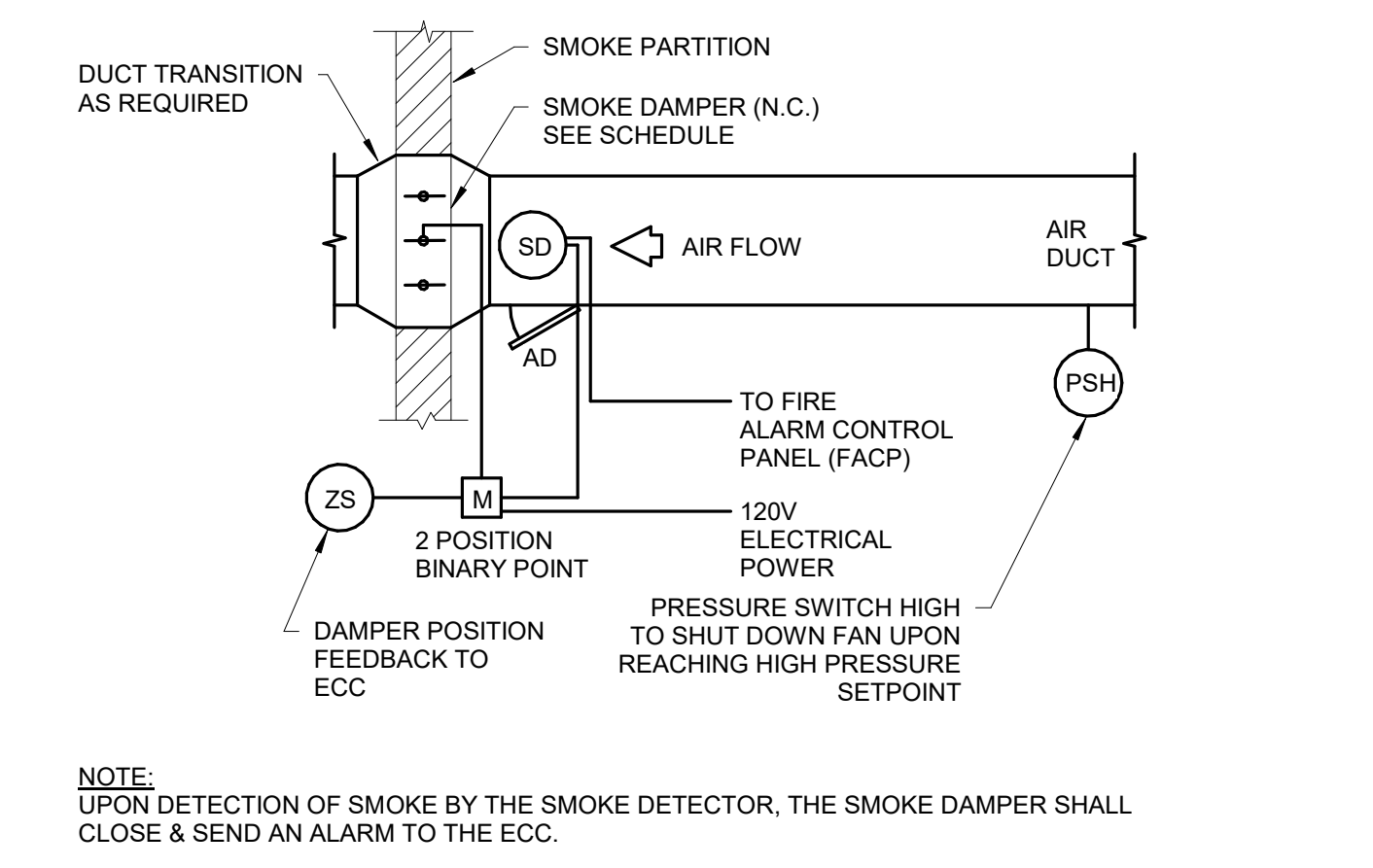
one eighth inch = one foot  
 one quarter inch = one foot  
 three eighths inch = one foot  
 one half inch = one foot  
 three quarters inch = one foot  
 one inch = one foot  
 one and one half inches = one foot  
 three inches = one foot  
 one foot = one foot



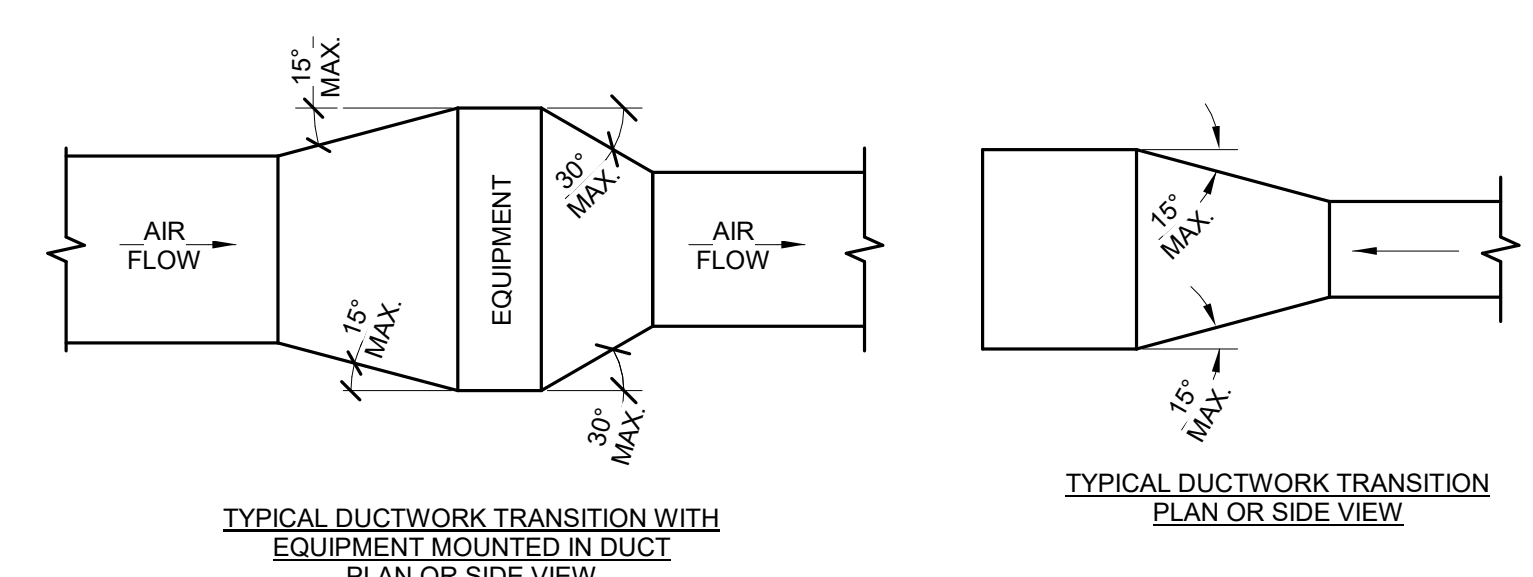
**10 FLEXIBLE DUCT CONNECTIONS**  
SCALE: NO SCALE



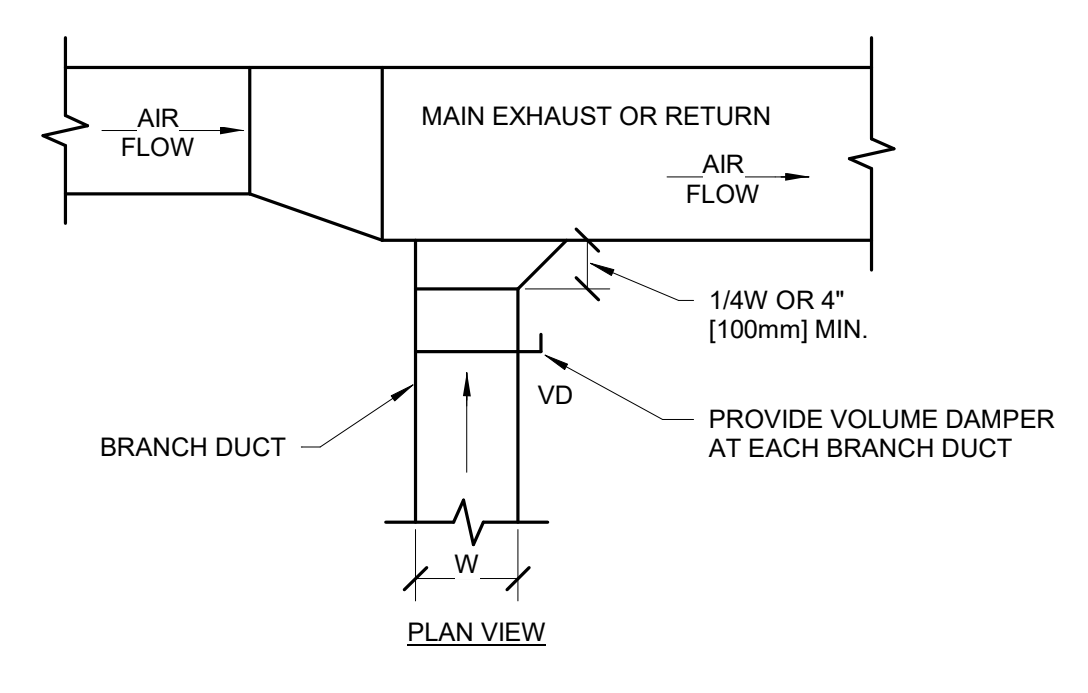
**11 VERTICAL DUCT FIRE DAMPER DETAIL**  
SCALE: NO SCALE



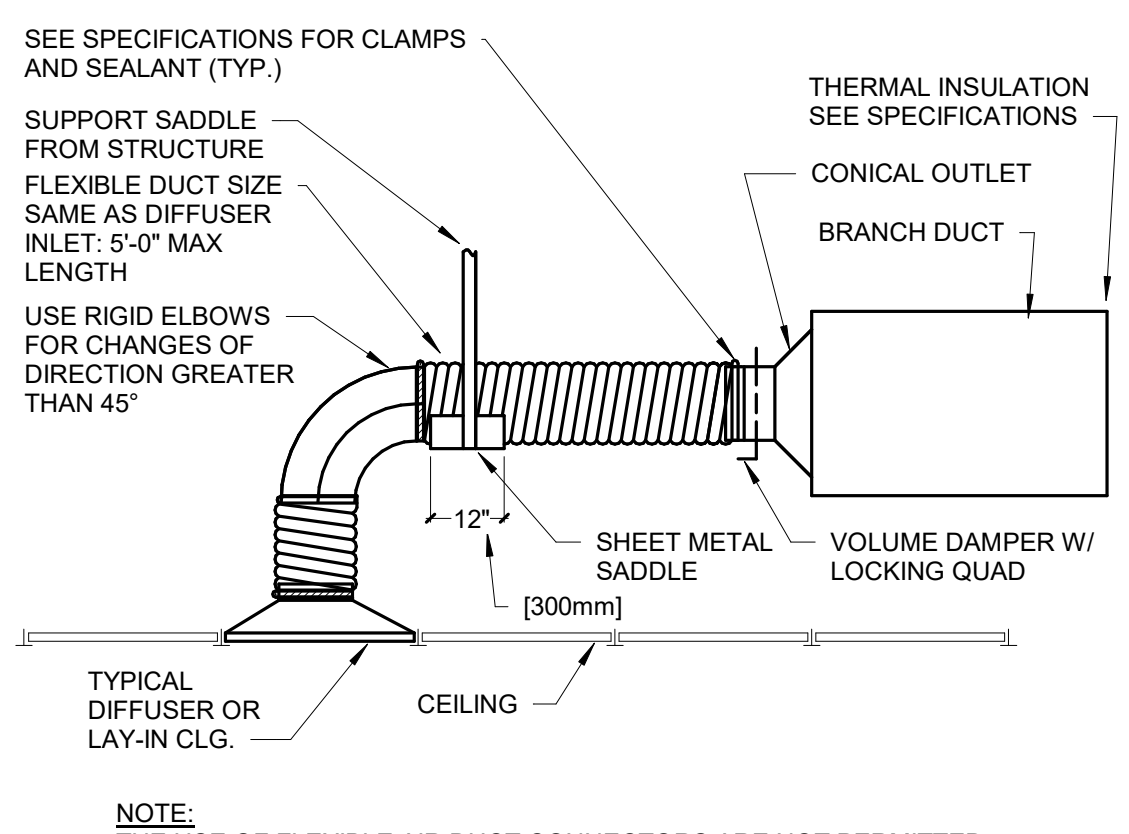
**12 SMOKE DAMPER CONTROL DIAGRAM**  
SCALE: NO SCALE



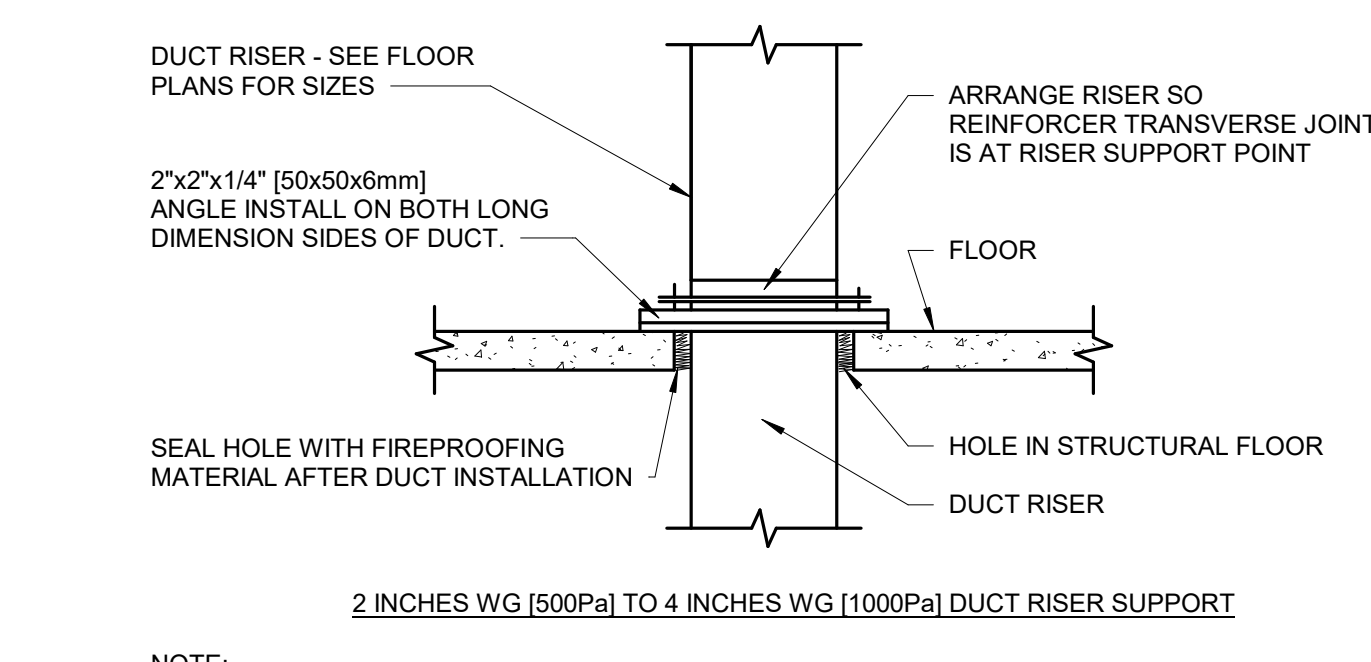
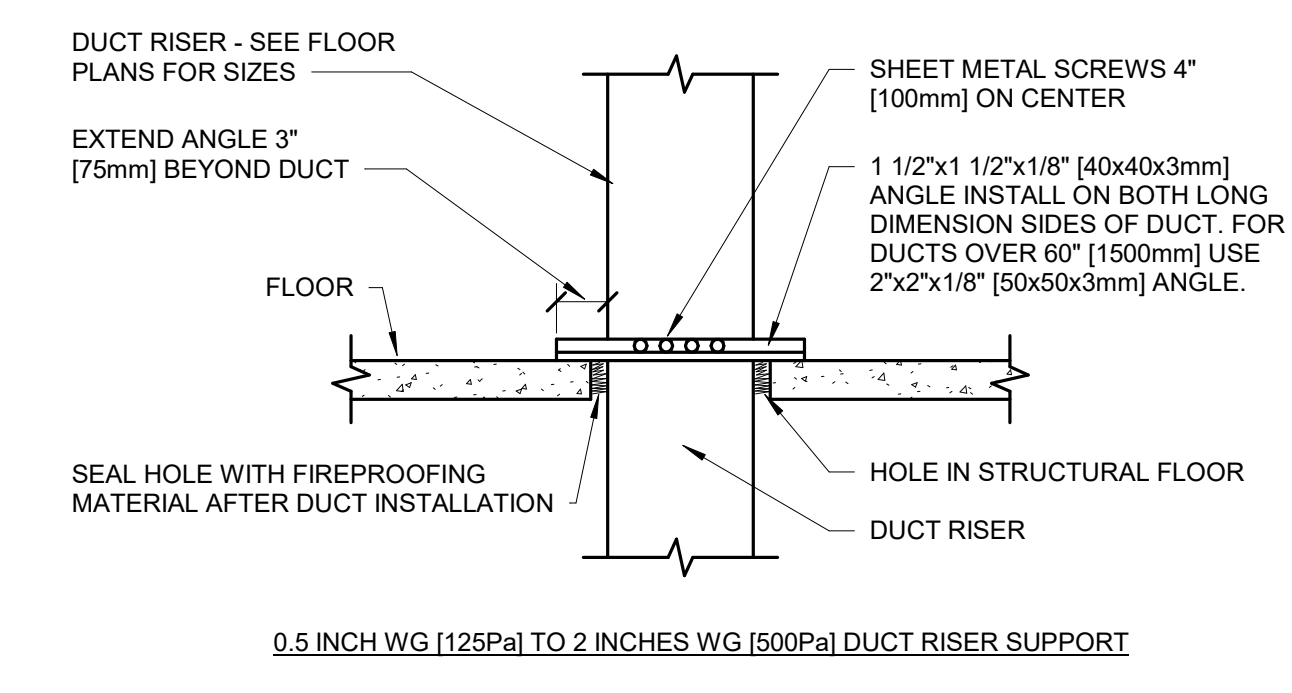
**7 DUCTWORK TRANSITIONS (WITH EQUIPMENT MOUNTED IN DUCT)**  
SCALE: NO SCALE



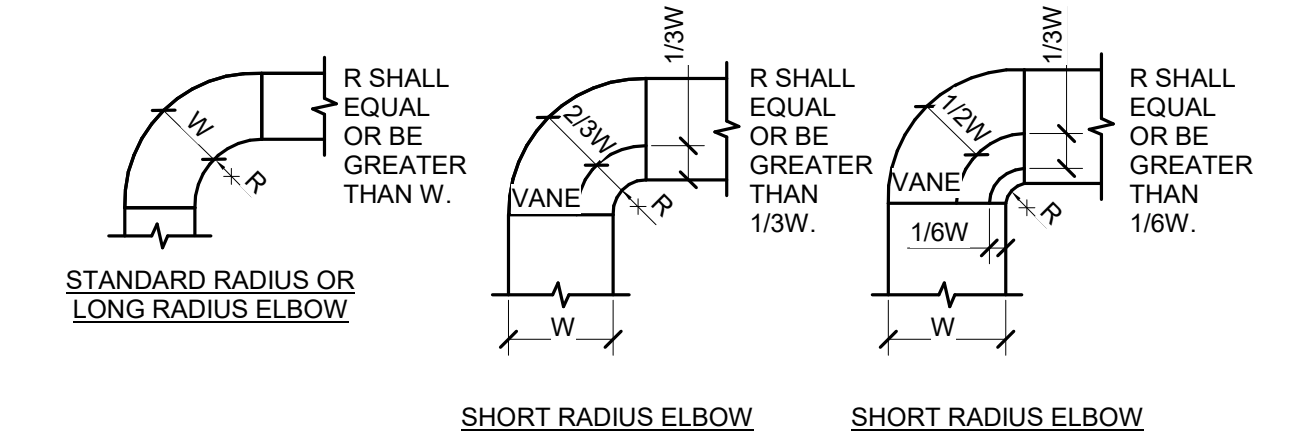
**8 EXHAUST OR RETURN BRANCH DUCTWORK**  
SCALE: NO SCALE



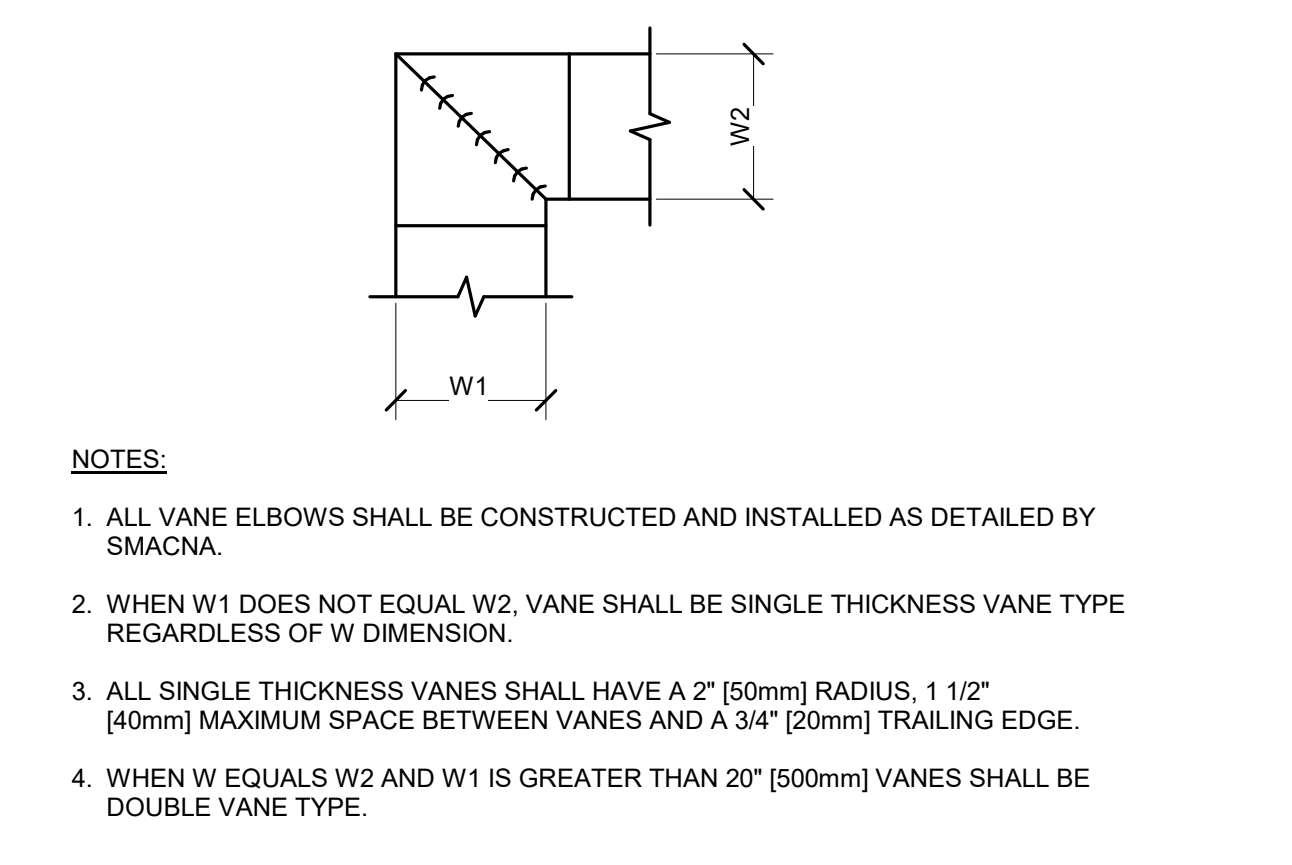
**9 FLEXIBLE AIR DUCT CONNECTOR**  
SCALE: NO SCALE



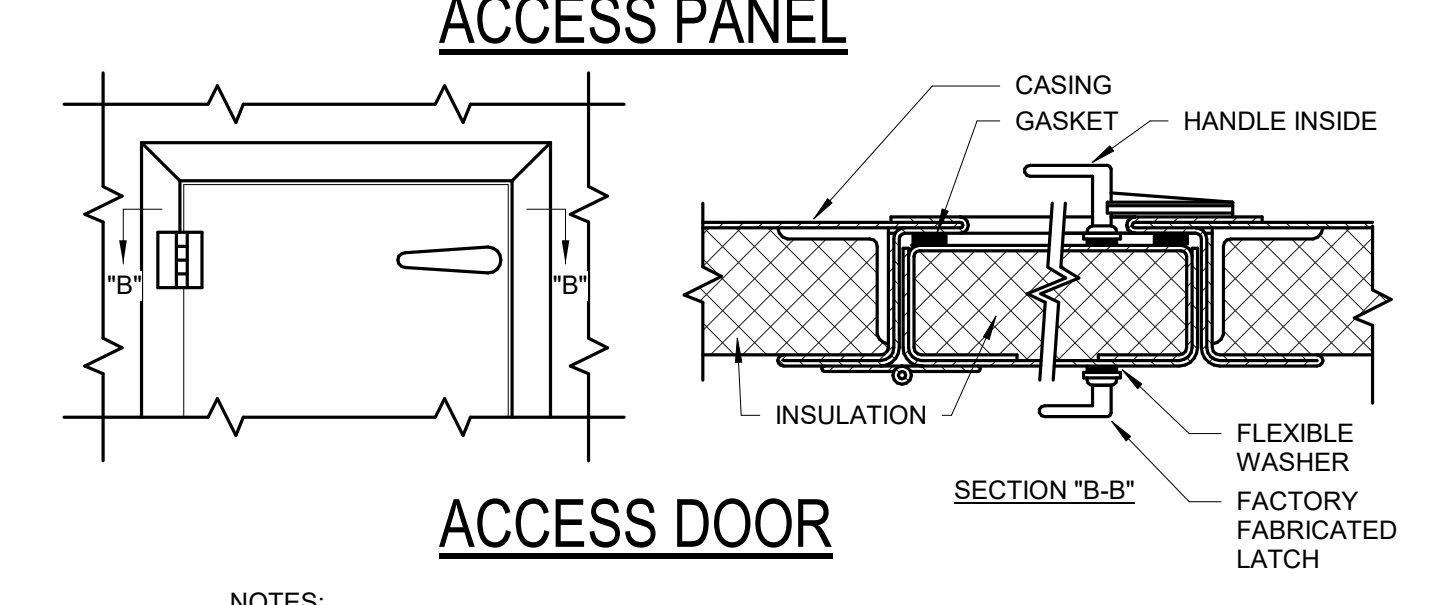
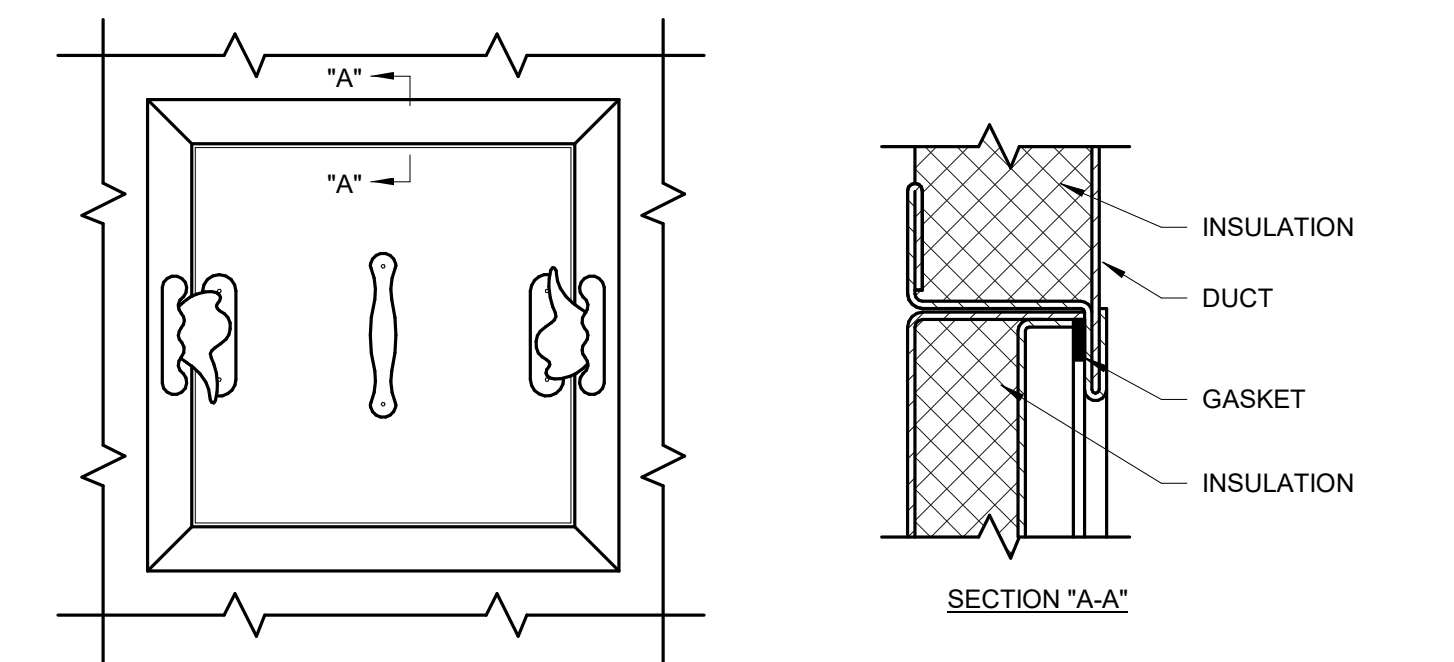
**4 DUCT RISER SUPPORTS**  
SCALE: NO SCALE



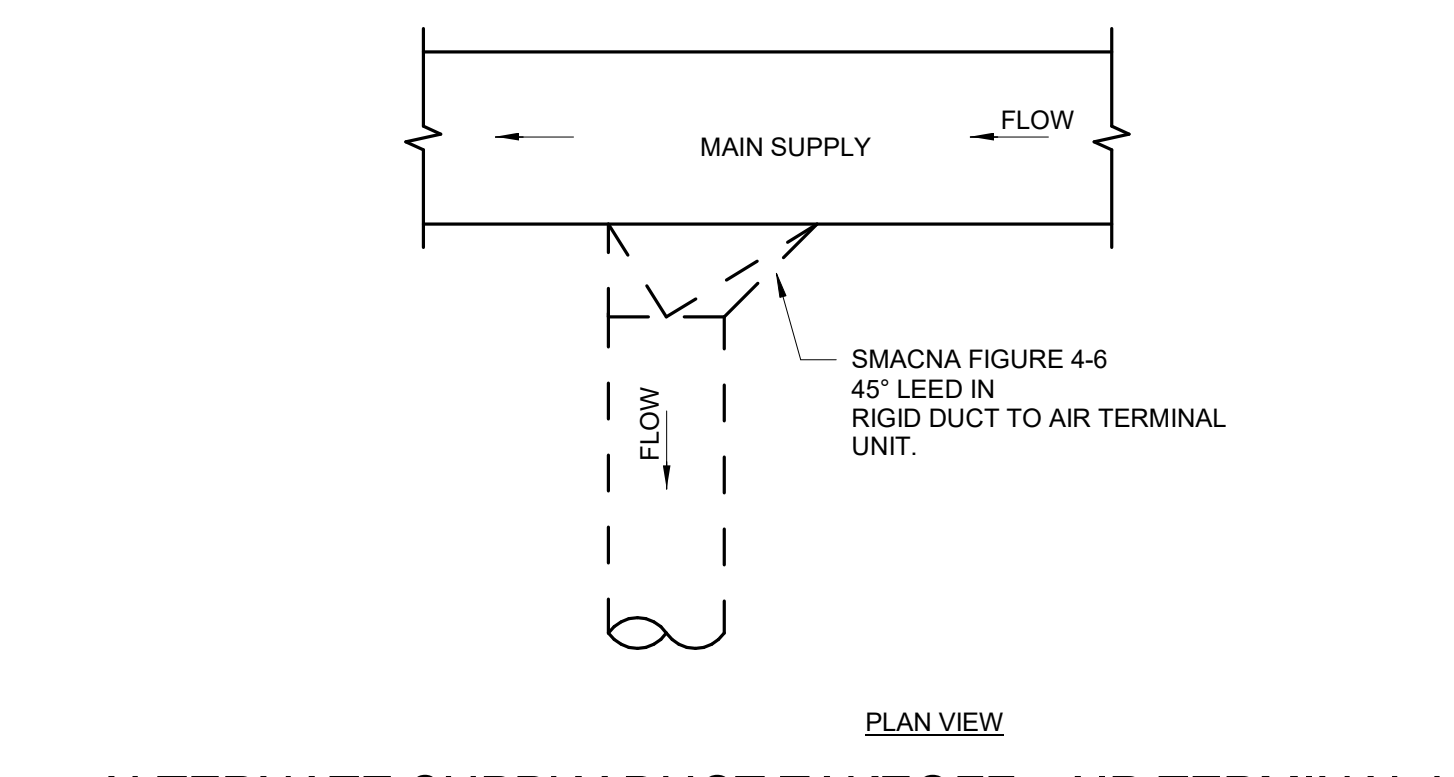
**5 DUCTWORK RADIUS ELBOWS**  
SCALE: NO SCALE



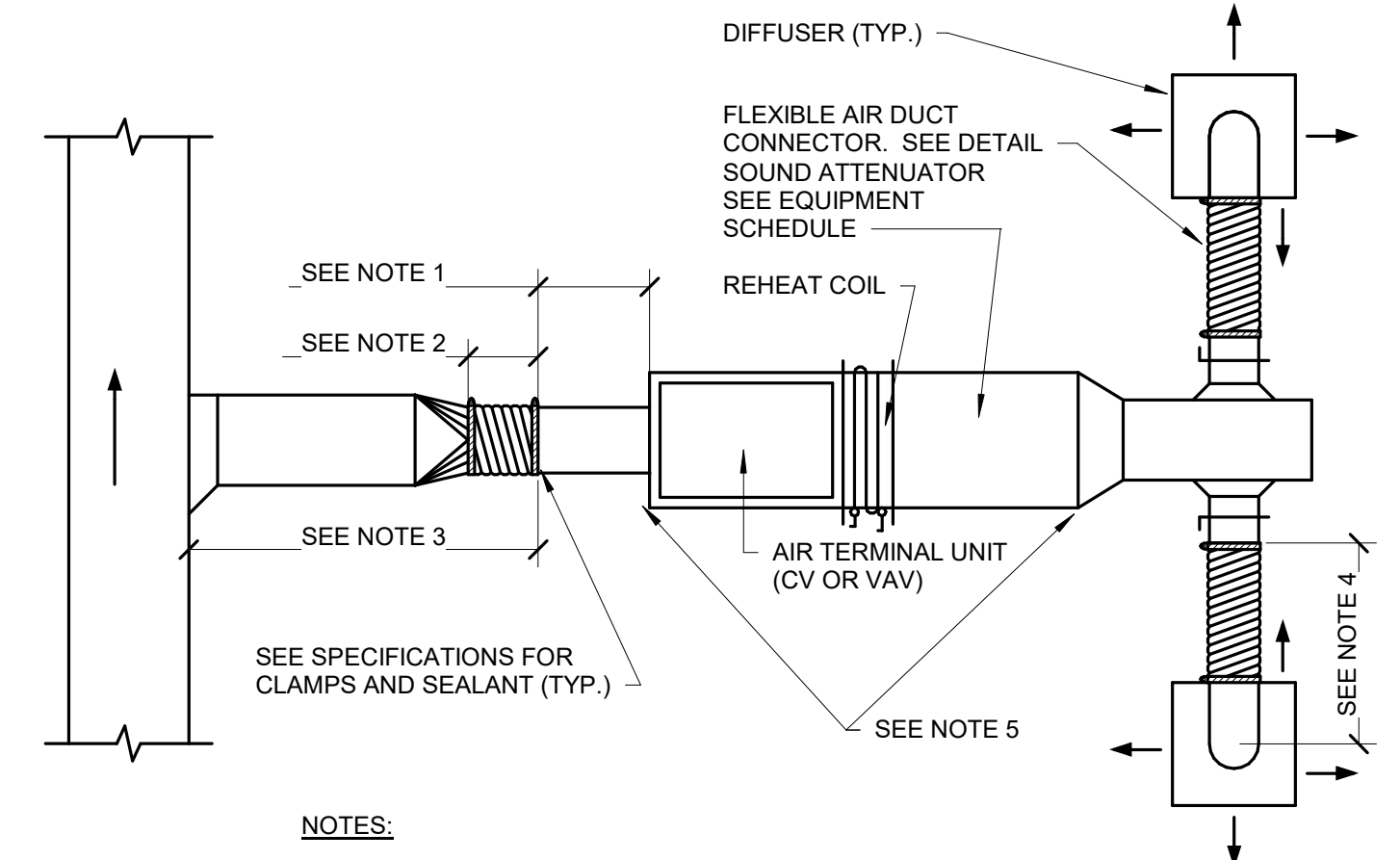
**6 DUCTWORK SQUARE VANE ELBOWS**  
SCALE: NO SCALE



**1 ACCESS PANEL AND DOOR DETAIL**  
SCALE: NO SCALE



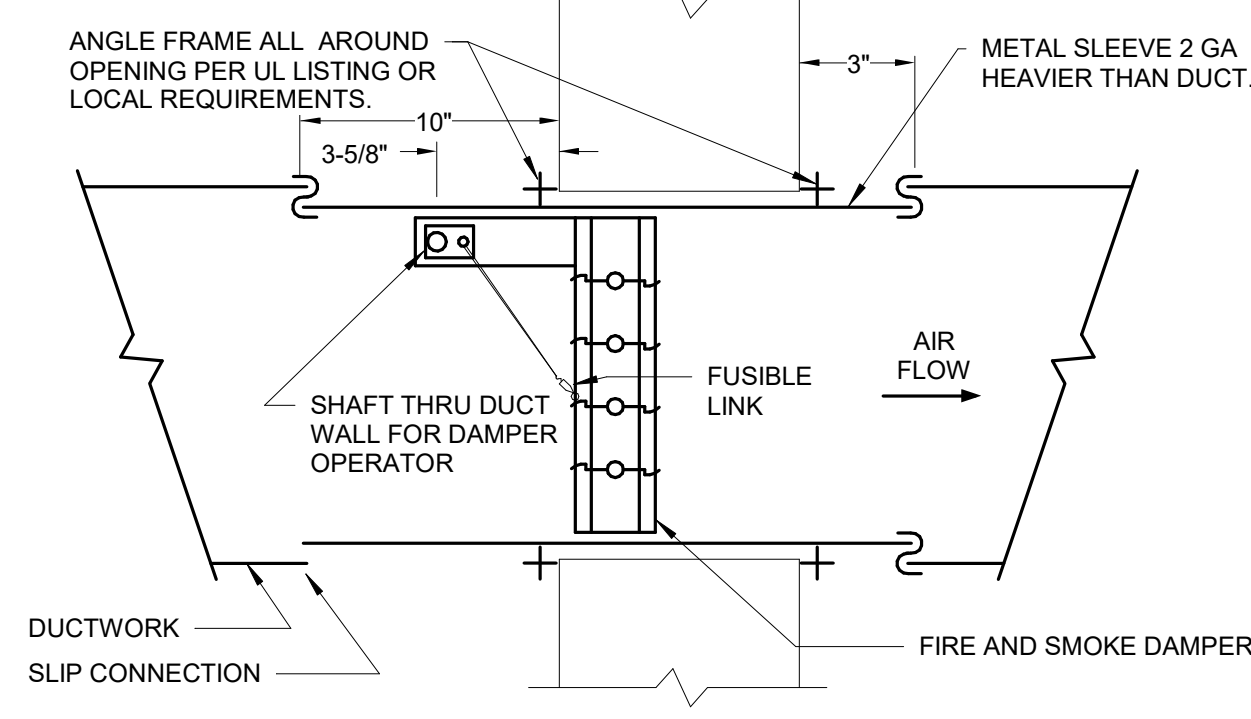
**2 ALTERNATE SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS**  
SCALE: NO SCALE



**3 DUCT CONNECTIONS - AIR TERMINAL UNITS**  
SCALE: NO SCALE

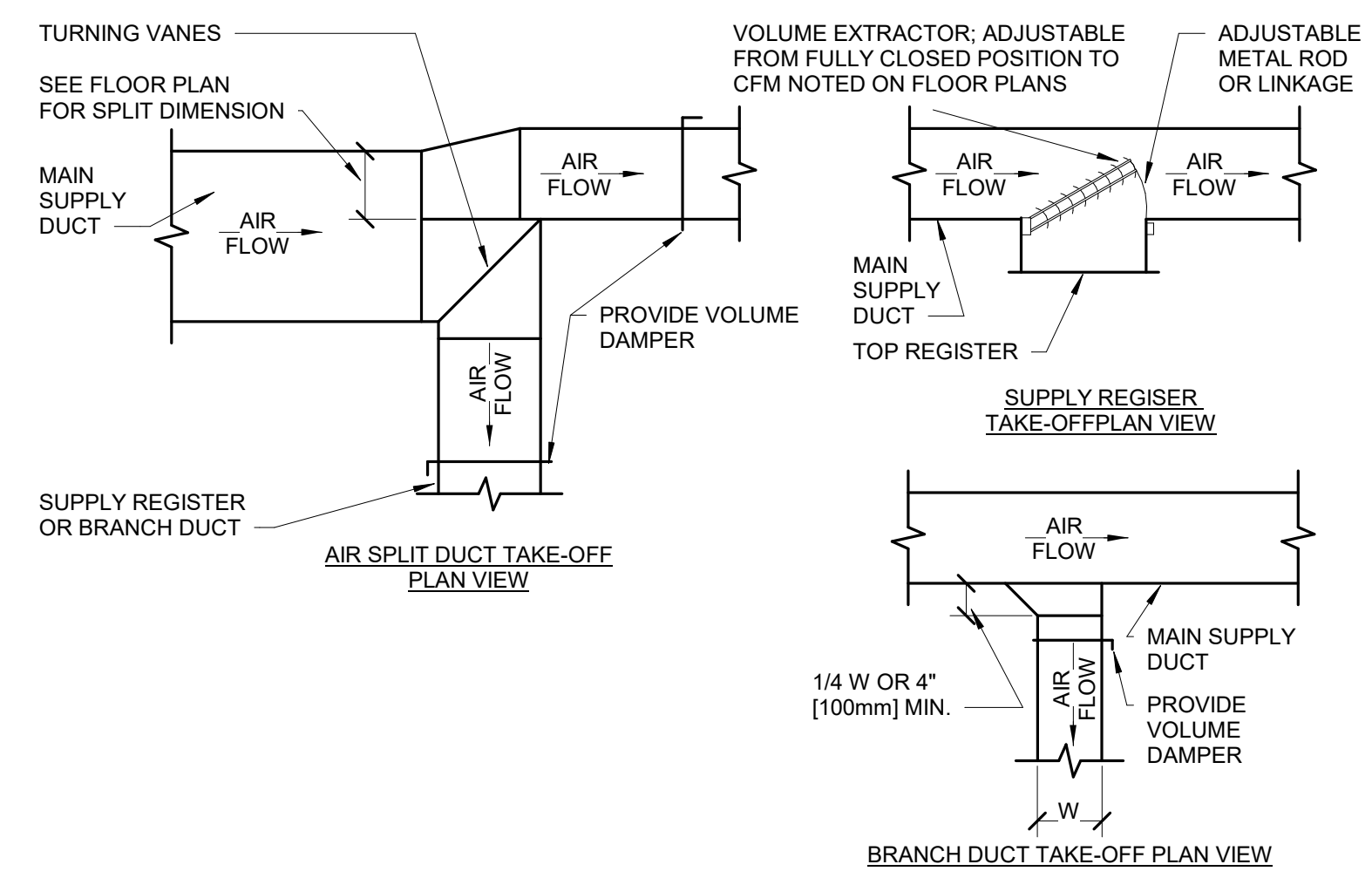
**100% CONSTRUCTION DRAWINGS**

<b>CONSULTANTS:</b> <b>WPE WEST PLAINS ENGINEERING, INC.</b> WPE #: BS15052 4609 SOUTH TECHLINK CIRCLE • SIOUX FALLS, SD 57106 PHONE: (605) 362-3753 • FAX: (605) 362-3759 WWW.WESTPLAINSENGINEERING.COM RAPID CITY, SD • SIOUX FALLS, SD • CASPER, WY • CEDAR RAPIDS, IA • BISMARCK, ND		<b>ARCHITECTS/ ENGINEERS:</b> <b>MSH ARCHITECTS</b> 625 S. MINNESOTA AVENUE, SUITE 204 SIOUX FALLS, SOUTH DAKOTA 57104-4873 TELE: (605) 332-7850 FAX: (605) 332-3539		Drawing Title <b>MECHANICAL DETAILS</b> Approved: Project Director		Project Title <b>V.A. HEALTH CARE SYSTEM RENOVATE 5TH FLOOR SURGERY</b> Project Number <b>438-15-201</b> Building Number <b>5</b> Drawing Number <b>5-MH501</b> Dwg. 46 of 60		Location <b>SIOUX FALLS, SOUTH DAKOTA</b> Date <b>OCTOBER 17, 2017</b> Checked <b>WM</b> Drawn <b>DNT</b>		Office of Construction and Facilities Management	
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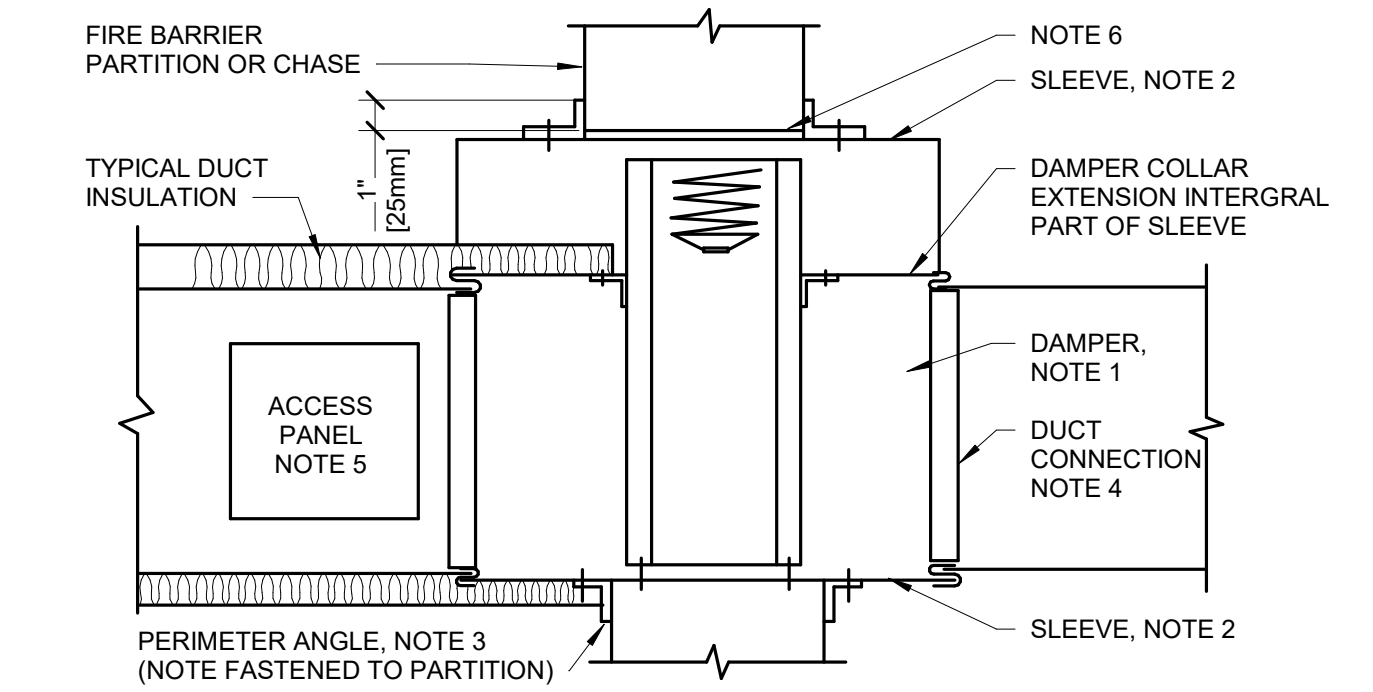


- NOTE:**
1. WALL MOUNTING ANGLES AND SLEEVES SHALL BE SECURED TO DAMPER FRAME BY WELDING AT 6" O.C. OR 14" BOLTS AND NUTS AT 8" O.C.
  2. FUSIBLE LINK SHALL BE ACCESSIBLE THRU ACCESS DOOR.
  3. THIS DETAIL REPRESENTS TYPICAL INSTALLATION REQUIREMENTS. INSTALL DAMPERS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FURNISHED W/ EACH RESPECTIVE DAMPER.
  4. FOR INSTALLATION IN SHEET ROCK/STUD WALLS PROVIDE STUD WALL FRAMING AND SHEET ROCK AS REQUIRED BY THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

**7 FIRE AND SMOKE DAMPER DETAIL**  
SCALE: NO SCALE

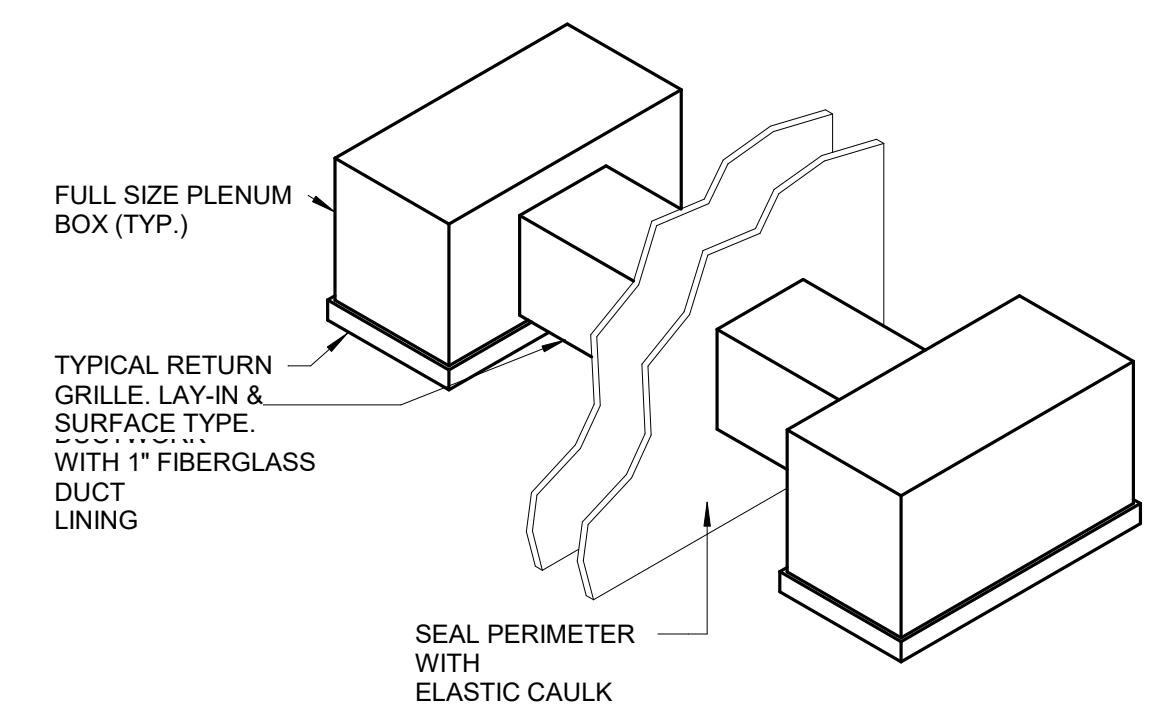


**4 SUPPLY DUCTWORK TAKE-OFFS**  
SCALE: NO SCALE

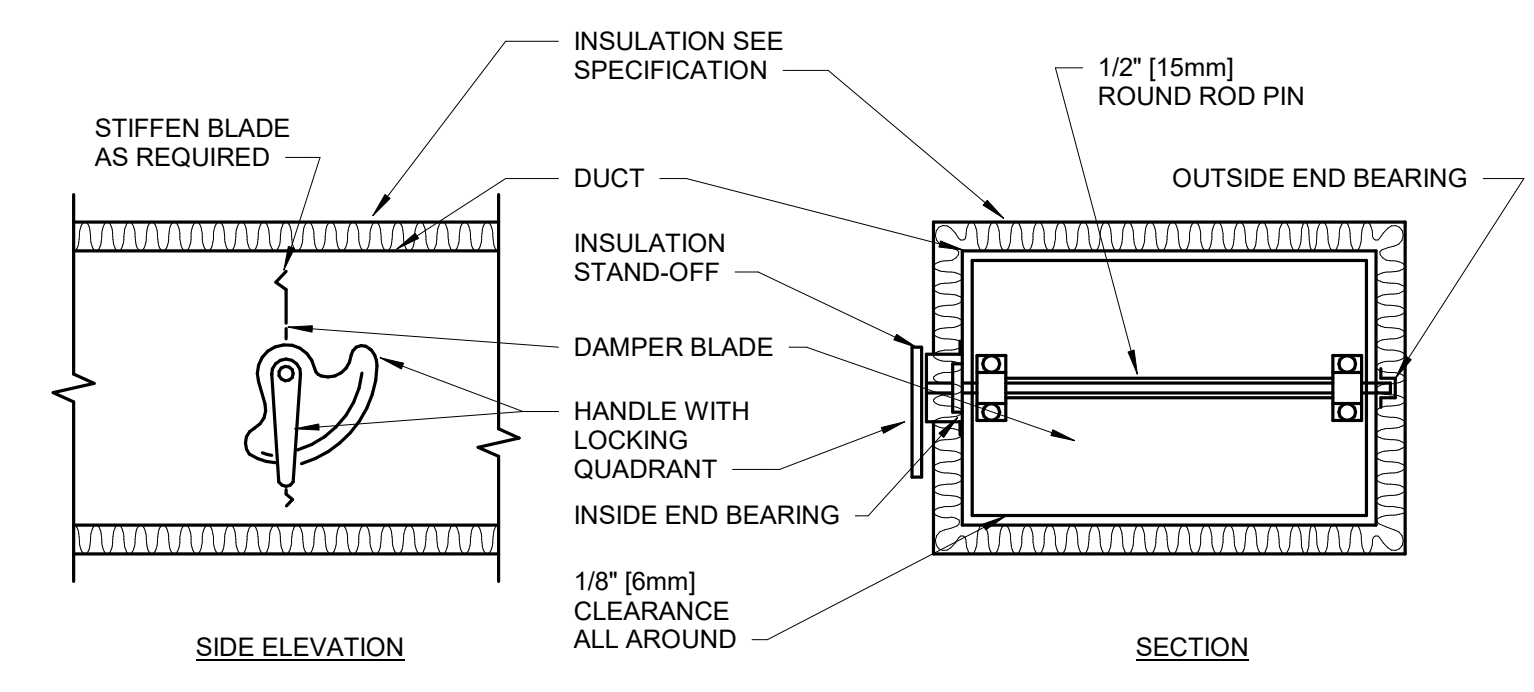


- NOTE:**
1. A VERTICAL DAMPER IS SHOWN. HORIZONTAL DAMPER INSTALLATION, IS SIMILAR. FOLLOW DAMPER MANUFACTURER'S INSTRUCTIONS, INCLUDING FASTENER OPTIONS AND GAGES FOR SLEEVE AND PERIMETER ANGLES. FIRE DAMPERS MUST BE INSTALLED IN THE PARTITION OR FLOOR AND NOT OUTSIDE THE PENETRATION.
  2. GALVANIZED SLEEVE. GAGE NOT LESS THAN CONNECTING DUCT. FASTEN SLEEVE TO DAMPER FRAME AND TO PERIMETER ANGLES.
  3. PERIMETER ANGLE IS GALVANIZED STEEL. NOT LESS THAN 1 1/2"x1 1/2" (40x40mm), 14 GAGE, TO PROVIDE 1" (25mm) MINIMUM OVERLAP OF OPENING ON ALL 4 SIDES.
  4. BREAKAWAY DUCT CONNECTION: CONTRACTOR'S OPTION OF TYPES SHOWN IN SMACNA.
  5. ACCESS PANELS: SIZE AND LOCATION TO PERMIT SERVICING THE FUSIBLE LINK OR LINKS.
  6. PROVIDE 1/4" TO 1/2" (6 TO 15mm) CLEARANCE ON HEIGHT AND WIDTH. FILL OPEN SPACE WITH ROCK WOOL FIRESTOP FIBER.
  7. ALL DUCT WORK RISERS WHICH ARE RUN EXPOSED, SUCH AS THRU ATTIC FLOORS AND MECHANICAL ROOM FLOORS, SHALL BE PROVIDED WITH 3" (75mm) HIGH CONCRETE CURB AROUND OPENING FOR DUCT.

**1 SECTION THRU FIRE DAMPER INSTALLATION**  
SCALE: NO SCALE

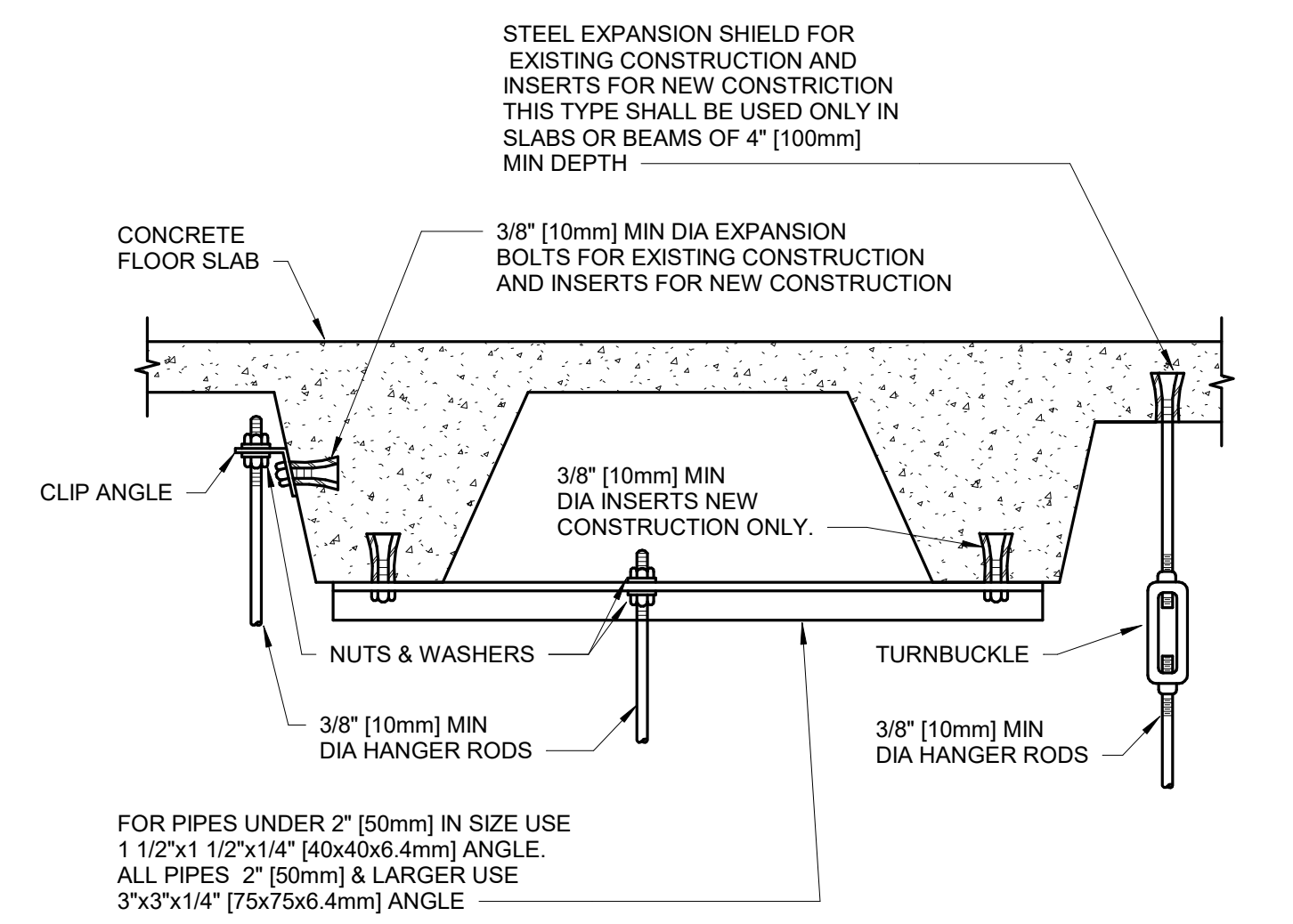


**8 RETURN AIR TRANSFER DUCT DETAIL**  
SCALE: NO SCALE

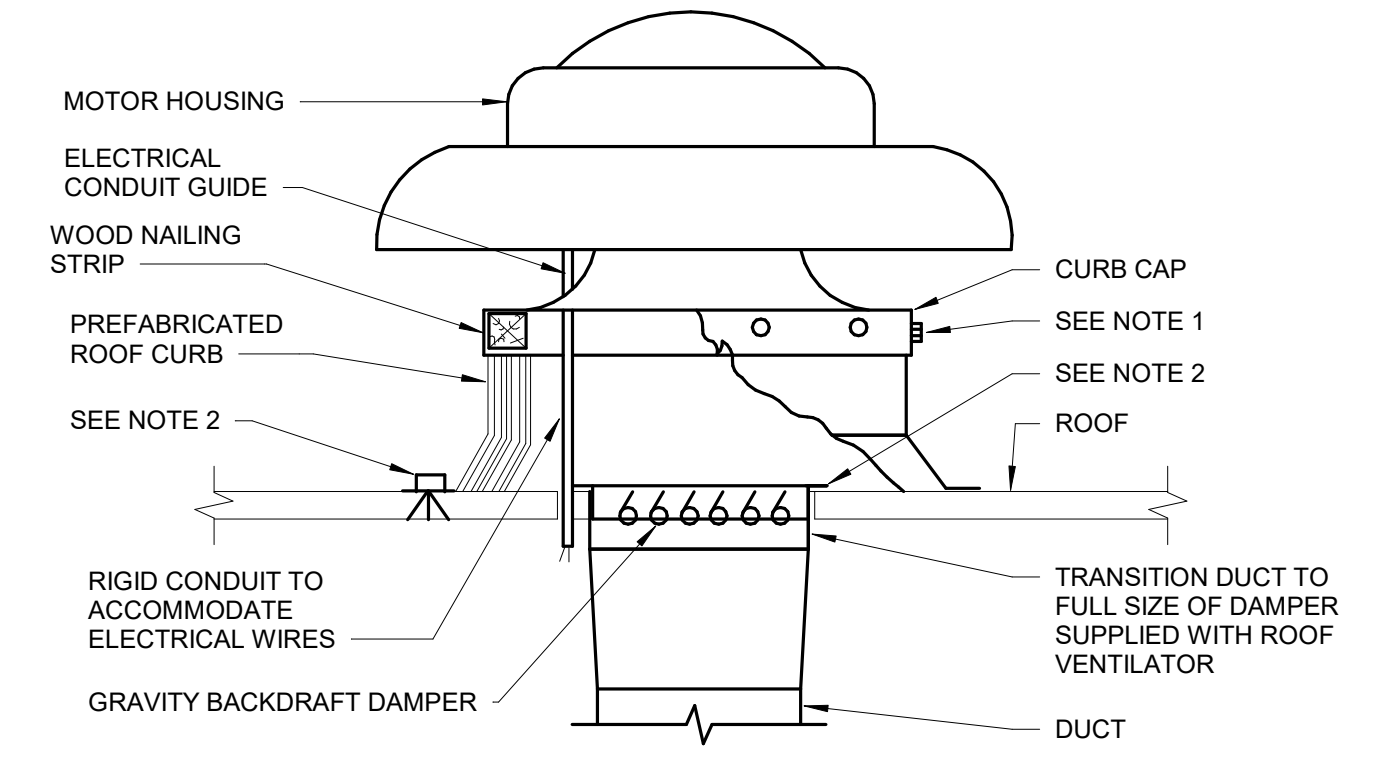


- NOTE:**
1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
  2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

**5 VOLUME DAMPER DETAIL**  
SCALE: NO SCALE

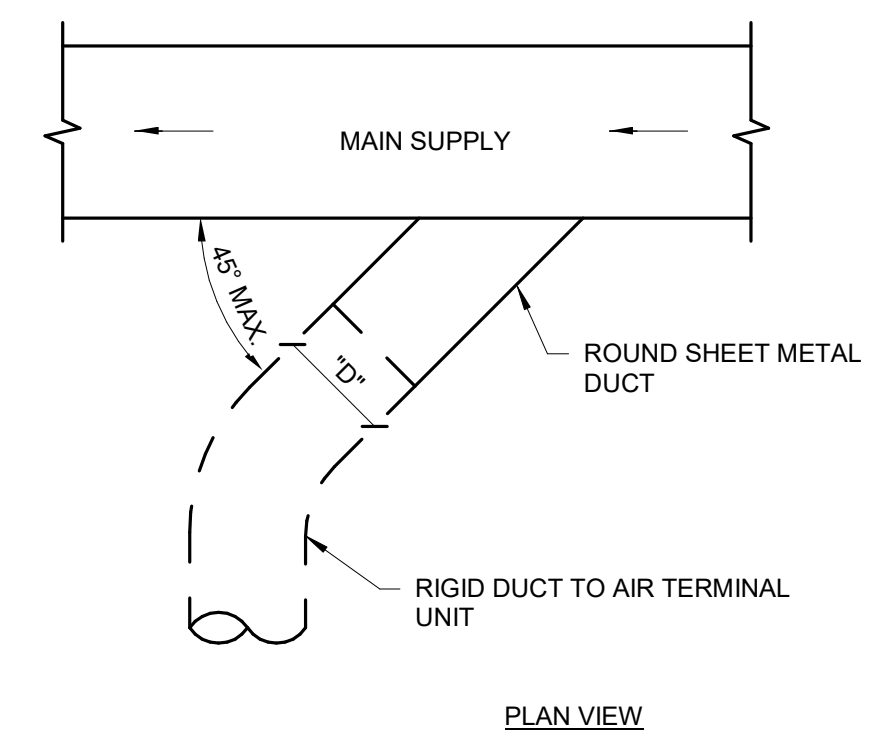


**2 SECURING HANGER RODS IN CONCRETE**  
SCALE: NO SCALE



- NOTES:**
1. SECURE CURB CAP TO WOOD NAILING STRIP WITH 3/8" (10mm) CADMIUM PLATED LAG BOLTS NOT OVER 12" (300mm) ON CENTER.
  2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK AND BAR JOIST ROOF).
  3. RUN ELECTRICAL LINES THROUGH CLEARANCE HOLE PROVIDED IN GRAVITY DAMPER, THEN THROUGH VENTILATOR ELECTRICAL CONDUIT GUIDE.
  4. INSTALLATION SHALL BE WEATHER TIGHT.
  5. MONITORED BY TEMPERATURE CONTROL SYSTEM.

**6 POWER ROOF VENTILATOR**  
SCALE: NO SCALE



**3 SUPPLY DUCT TAKEOFF - AIR TERMINAL UNIT**  
SCALE: NO SCALE

**100% CONSTRUCTION DRAWINGS**

Revisions:	Date

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Drawing Title  
**MECHANICAL DETAILS**

Approved: Project Director

Project Title  
**V.A. HEALTH CARE SYSTEM RENOVATE 5TH FLOOR SURGERY**

Project Number  
**438-15-201**

Building Number  
**5**

Location  
**SIOUX FALLS, SOUTH DAKOTA**

Date  
**OCTOBER 17, 2017**

Checked  
**WM**

Drawn  
**DNT**

Drawing Number  
**5-MH502**

Dwg. 47 of 60

Office of Construction and Facilities Management

### VAV - SINGLE DUCT TERMINAL UNIT SCHEDULE - ELECTRIC HEAT COIL

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	SIZE		CFM			STATIC PRESSURE			NC LEVELS		ELECTRIC HEAT COIL				COMMENTS				
				UNIT	OUTLET	MAX	MIN	INLET	DOWN	MIN	RAD	DIS	CFM	KW	VOLTS	PHASES	STEPS		EAT	LAT	MCA	MOP
VAV	14	TITUS	DESV	8"	12X10	540	315	1.00	0.25	0.02	20	18	315	3.5	208	3	CONTROL S INCLUDED	55	90.1	12.1	15	1.2,3,4,5,6,7
VAV	15	TITUS	DESV	8"	12X10	440	265	1.00	0.25	0.02	18	17	265	3	208	3	CONTROL S INCLUDED	55	90.8	10.4	15	1.2,3,4,5,6,7
VAV	16	TITUS	DESV	8"	12X10	200	120	1.00	0.25	0.02	15	18	120	1.5	208	3	CONTROL S INCLUDED	55	94.5	5.2	15	1.2,3,4,5,6,7
VAV	17	TITUS	DESV	8"	12X10	265	150	1.00	0.25	0.02	23	21	265	3.5	208	3	CONTROL S INCLUDED	55	96.7	12.1	15	1.2,3,4,5,6,7

### FAN SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	LOCATION	SERVICE	VIBRATION ISOLATION	CFM	S.P.D.	MAX RPM	HP	MOTOR ELEC.	SONES	COMMENTS
EF	1	AEROVENT	ACXD 120BE	ROOF	EXHAUST	---	1080	0.50 in-wg	1447	0.5	BY TEMP. CONTROL	12.5	1.2,3,4,5

COMMENTS:  
1 PROVIDE WITH ECM MOTOR, 0-10 VDC LEAD - FACTORY INSTALLED, STANDARD PREWIRE DISCONNECT.  
2 PROVIDE WITH THERMAL OVERLOAD.  
3 PROVIDE WITH 18" ROOF CURB, MOTORIZED BACKDRAFT DAMPER, GALVANIZED BIRDSCREEN.  
4 ATC CONTRACTOR TO PROVIDE EXHAUST DUCT STATIC PRESSURE SENSOR AND MODULATE FAN TO MAINTAIN DUCT STATIC SETPOINT.  
5 FAN SHALL BE DIRECT DRIVE.

### VAV - SINGLE DUCT TERMINAL UNIT SCHEDULE - STEAM HEAT COIL

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	SIZE		CFM			STATIC PRESSURE			NC LEVELS		STEAM HEAT COIL										COMMENTS
				UNIT	OUTLET	MAX	MIN	INLET	DOWN	MIN	RAD	DIS	CFM	MBH	EAT	EWI	LAT	APD	LBS/HR	Rows	PSI	FPI		
VAV	1	TITUS	DESV	5"	12X8	120	95	1.75	0.25	0.02	-	17	95	8.46	55	180	137.15	0.01	9	1-RH	5	10	1.2,3,4,5,6	
VAV	2	TITUS	DESV	6"	12X10	410	360	1.75	0.25	0.06	18	23	390	22.27	55	180	107.64	0.06	23	1-RH	5	10	1.2,3,4,5,6	
VAV	3	TITUS	DESV	8"	12X10	450	360	1.75	0.25	0.05	20	24	360	21.30	55	180	109.57	0.07	22	1-RH	5	10	1.2,3,4,5,6	
VAV	4	TITUS	DESV	8"	12X10	450	360	1.75	0.25	0.05	20	24	360	21.30	55	180	109.57	0.07	22	1-RH	5	10	1.2,3,4,5,6	
VAV	5	TITUS	DESV	5"	12X8	150	120	1.75	0.25	0.02	13	19	120	9.85	55	180	130.68	0.01	10	1-RH	5	10	1.2,3,4,5,6	
VAV	6	TITUS	DESV	5"	12X8	200	100	1.75	0.25	0.03	18	23	100	8.75	55	180	135.72	0.01	9	1-RH	5	10	1.2,3,4,5,6	
VAV	7	TITUS	DESV	8"	12X10	450	360	1.75	0.25	0.05	20	24	360	21.30	55	180	109.57	0.07	22	1-RH	5	10	1.2,3,4,5,6	
VAV	8	TITUS	DESV	8"	12X10	450	360	1.75	0.25	0.05	20	24	360	21.30	55	180	109.57	0.07	22	1-RH	5	10	1.2,3,4,5,6	
VAV	9	TITUS	DESV	6"	12X8	300	90	1.75	0.25	0.08	20	23	90	8.17	55	180	138.67	0.01	8	1-RH	5	10	1.2,3,4,5,6	
VAV	10	TITUS	DESV	8"	12X10	500	425	1.75	0.25	0.06	22	25	425	23.33	55	180	105.61	0.09	24	1-RH	5	10	1.2,3,4,5,6	
VAV	11	TITUS	DESV	8"	12X10	500	425	1.75	0.25	0.06	22	25	425	23.33	55	180	105.61	0.09	24	1-RH	5	10	1.2,3,4,5,6	
VAV	12	TITUS	DESV	5"	12X8	180	180	1.75	0.25	0.04	15	20	180	12.85	55	180	119.80	0.02	13	1-RH	5	10	1.2,3,4,5,6	
VAV	13	TITUS	DESV	6"	12X8	240	240	1.75	0.25	0.08	18	21	240	14.96	55	180	112.46	0.03	16	1-RH	5	10	1.2,3,4,5,6	
VAV	18	TITUS	DESV	8"	12X10	445	145	1.75	0.25	0.02	20	24	145	12.33	55	180	133.39	0.01	13	1-RH	5	10	1.2,3,4,5,6	
VAV	19	TITUS	DESV	6"	12X8	360	110	1.75	0.25	0.12	23	27	110	10.27	55	180	141.11	0.01	11	1-RH	5	10	1.2,3,4,5,6	

COMMENTS:  
1 SELECTIONS ARE BASED ON TITUS AS MANUFACTURER.  
2 ALL PERFORMANCE BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASHRAE 130-2008 AND AHRI 880-2008.  
3 ALL NC LEVELS DETERMINED USING AHRI 885-2008 APPENDIX E.  
4 ALL AIRFLOW, PRESSURE LOSSES AND HEATING PERFORMANCE VALUES HAVE BEEN CORRECTED FOR ALTITUDE.  
5 UNITS OF MEASURE: DIMENSIONS (IN), AIRFLOW (CFM), WATER FLOW (GPM), AIR PRESSURE (IN WG), WATER HEAD LOSSES (FT) AND TEMPERATURES (DEGF).  
6 WATER PRESSURE DROP (WPD) UNITS IS IN FT. WATER.

### REGISTER GRILLES AND DIFFUSER SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	NOMINAL SIZE		THROAT SIZE		MAX CFM	THROW	S.P.D.	NC	FRAME	COMMENTS
				WIDTH	LENGTH	WIDTH	LENGTH						
E	1	KRUEGER	EGC15	12"	24"	10"	22"	600	N/A	0.02 in-wg	15	LAY-IN	1
R	1	KRUEGER	EGC15	12"	24"	10"	22"	600	N/A	0.02 in-wg	15	LAY-IN	1
S	1	KRUEGER	1400A	24"	24"	-	-	6"	100	0.09 in-wg	24	LAY-IN	1
S	2	KRUEGER	1400A	24"	24"	-	-	8"	240	0.11 in-wg	29	LAY-IN	1
S	3	KRUEGER	1400A	24"	24"	-	-	10"	370	0.10 in-wg	28	LAY-IN	1
T	1	KRUEGER	EGC15	24"	12"	22"	10"	600	N/A	0.02 in-wg	15	LAY-IN	1

COMMENTS:  
1 COORDINATE FRAME STYLE WITH CEILING AND/OR WALL.

### EXHAUST - SINGLE DUCT TERMINAL UNIT SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	SIZE		CFM			STATIC PRESSURE			NC LEVELS		COMMENTS
				UNIT	OUTLET	MAX	MIN	INLET	DOWN	MIN	NC	DIS		
VAV	E1	TITUS	DECV	8"	7.9	440	265	0.33	0.15	0.06	-	-	22	1.2,3,4,5,6
VAV	E2	TITUS	DECV	8"	7.9	540	315	0.33	0.15	0.09	14	19	1.2,3,4,5,6	
VAV	E3	TITUS	DECV	6"	5.9	100	100	0.33	0.15	0.01	-	-	-	1.2,3,4,5,6
VAV	E4	TITUS	DECV	8"	7.9	400	100	0.33	0.15	0.09	14	22	1.2,3,4,5,6	
VAV	E5	TITUS	DECV	8"	7.9	400	100	0.33	0.15	0.09	14	22	1.2,3,4,5,6	

COMMENTS:  
1 SELECTIONS ARE BASED ON TITUS AS MANUFACTURER.  
2 ALL PERFORMANCE BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASHRAE 130-2008 AND AHRI 880-2008.  
3 ALL NC LEVELS DETERMINED USING AHRI 885-2008 APPENDIX E.  
4 ALL AIRFLOW, PRESSURE LOSSES AND HEATING PERFORMANCE VALUES HAVE BEEN CORRECTED FOR ALTITUDE.  
5 UNITS OF MEASURE: DIMENSIONS (IN), AIRFLOW (CFM), WATER FLOW (GPM), AIR PRESSURE (IN WG), WATER HEAD LOSSES (FT) AND TEMPERATURES (DEGF).  
6 WATER PRESSURE DROP (WPD) UNITS IS IN FT. WATER.

# 100% CONSTRUCTION DRAWINGS

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				Building Number <b>5</b>
Revisions: Date		Approved: Project Director	Location <b>SIOUX FALLS, SOUTH DAKOTA</b>	Drawing Number <b>5-MH601</b>
				Date <b>OCTOBER 17, 2017</b>