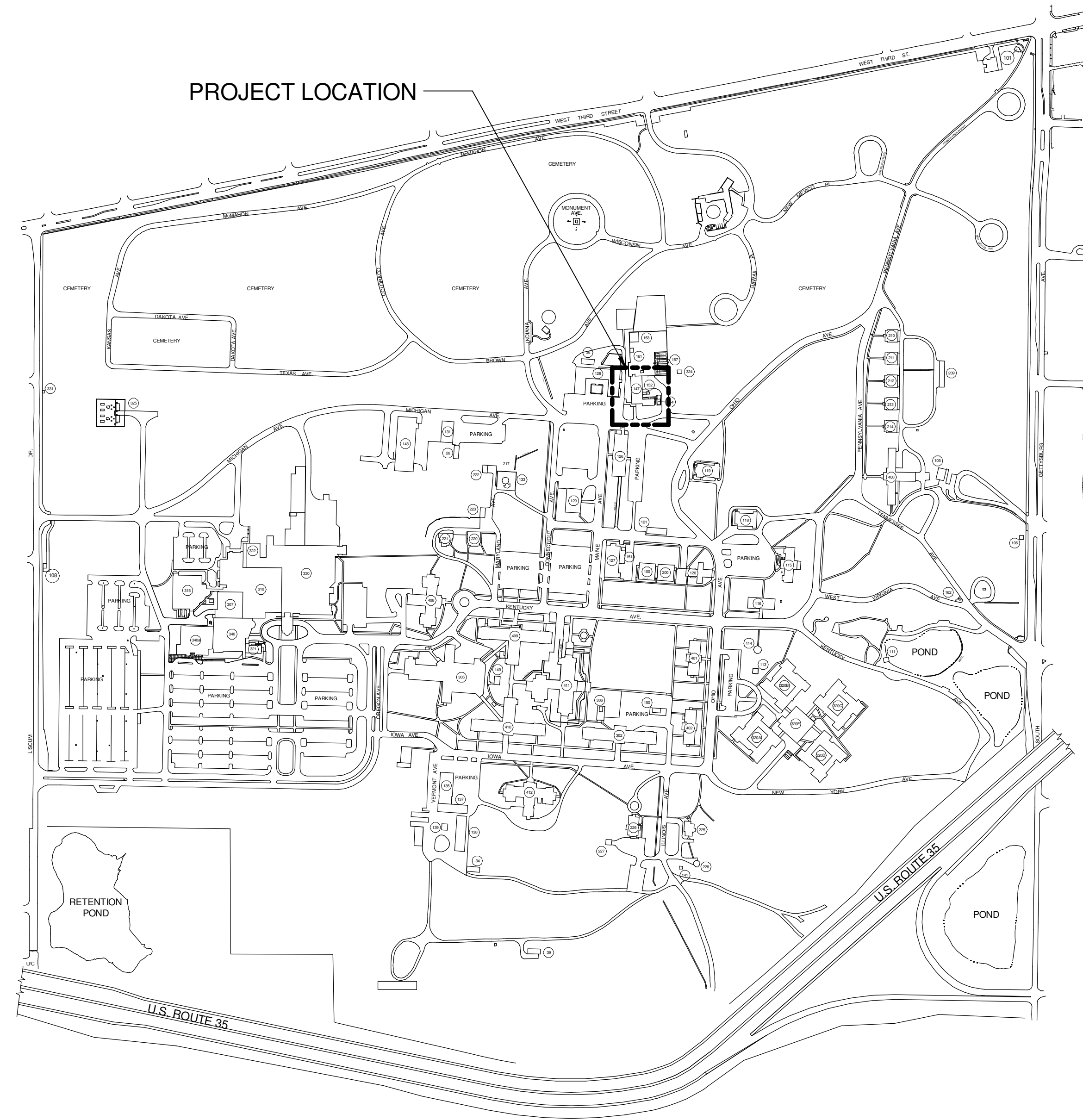




MODERNIZE BOILER PLANT B-147

DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTER
 4100 WEST THIRD STREET
 DAYTON, OHIO 45428



CAMPUS PLAN
 SCALE: 1" = 300'-0"
 PROJECT



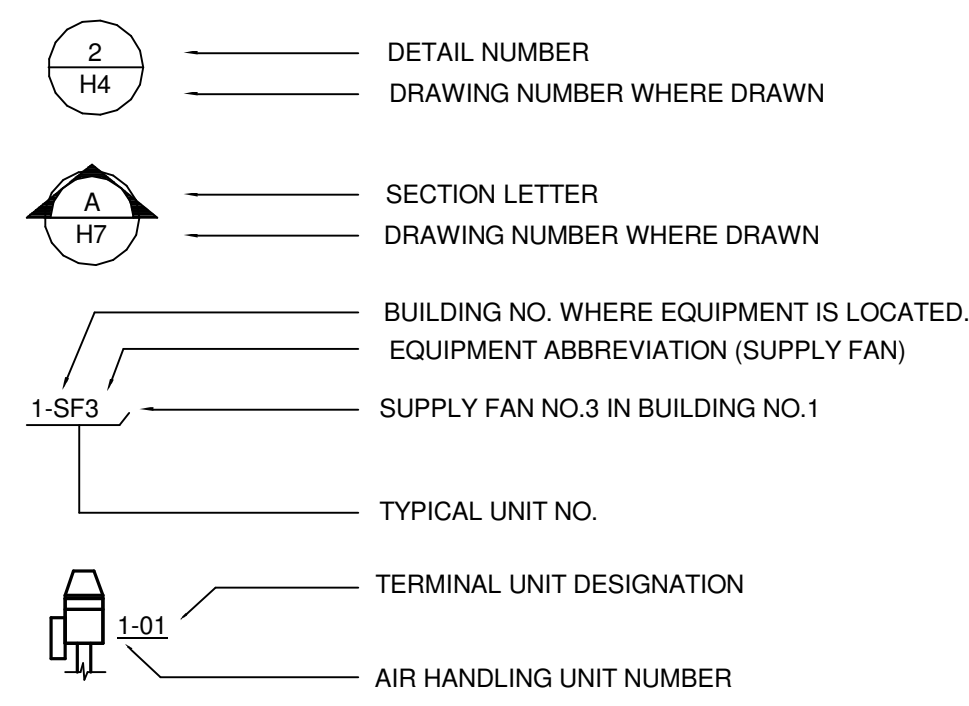
VICINITY MAP

DRAWING INDEX	
SHEET	DESCRIPTION
147-GI001	COVER SHEET
147-M001	INDEX, LEGEND, AND GENERAL NOTES
147-M501	SCHEDULES AND DETAILS
147-M502	DETAILS
147-MD101	FIRST FLOOR - REMOVALS
147-MD102	SECOND FLOOR - REMOVALS
147-MP101	FIRST FLOOR - NEW WORK
147-MP102	SECOND FLOOR - NEW WORK
147-MP103	ROOF AND SITE - NEW WORK
147-E501	SYMBOLS AND INDEX
147-E501	SCHEDULES AND DETAILS
147-EP101	FIRST FLOOR - NEW WORK
147-EP102	SECOND FLOOR - POWER

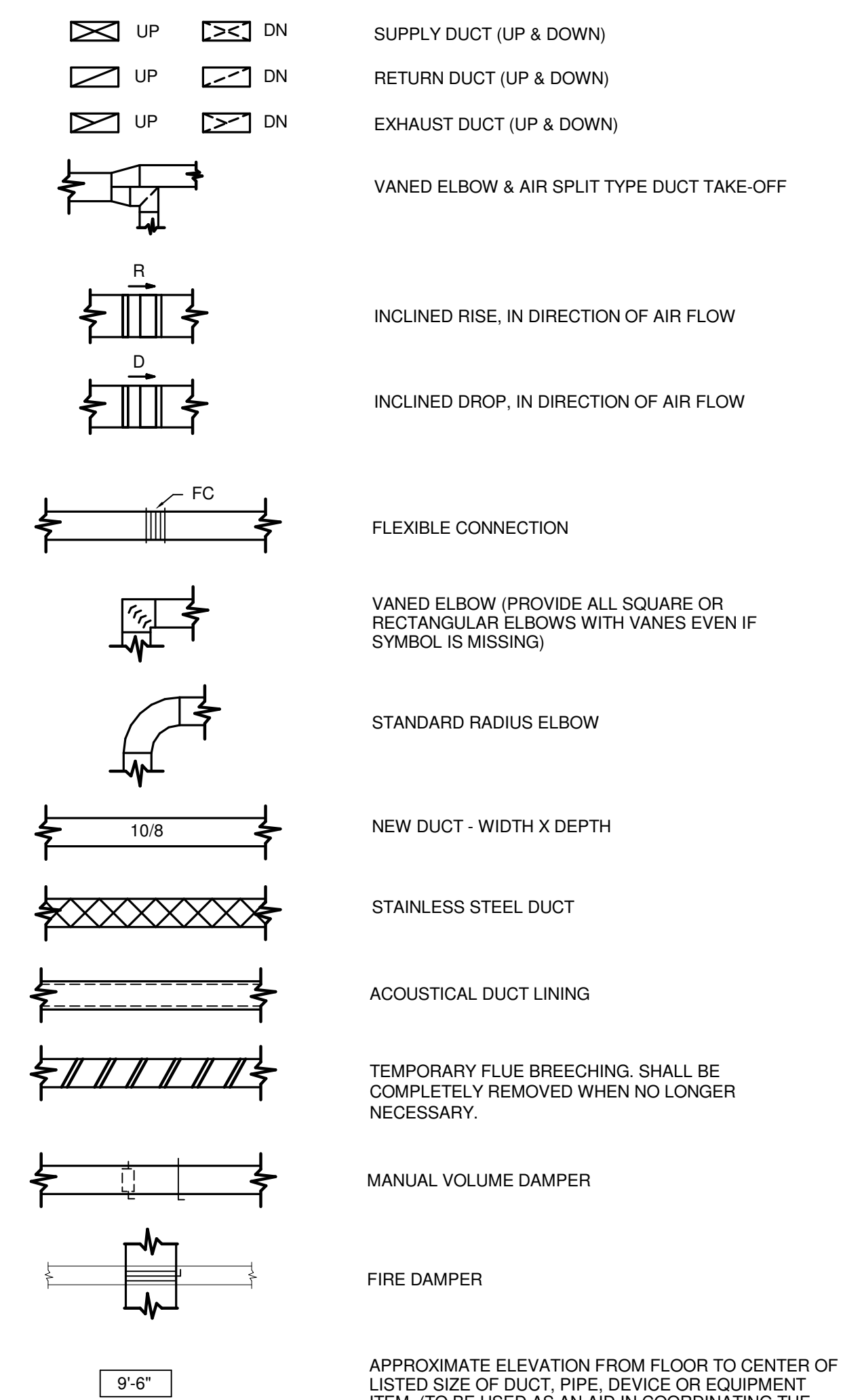
100% SUBMITTAL

Revisions Date	CONSULTANTS:	PROJECT NO. 2012-04027 	ARCHITECT/ENGINEERS: Heapy Engineering Mechanical Electrical Commissioning Technology <i>Nationally Recognized Leader in Sustainability / LEED</i> 1400 W Dorothy Lane, Dayton OH 45409-1310 Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com	Drawing Title <p style="text-align: center;">COVER SHEET</p>	Project Title <p style="text-align: center;">Modernize Boiler Plant B-147</p>	Project No. VA Project No. 552-13-305 Heapy Project No. 2012-04027	Office of Construction and Facilities Management
	Date	Location <p style="text-align: center;">Dayton, Ohio</p>	Building Number <p style="text-align: center;">147</p>	Drawing Number <p style="text-align: center;">147-GI001</p>	Date 12/06/2012	Checked DLE	

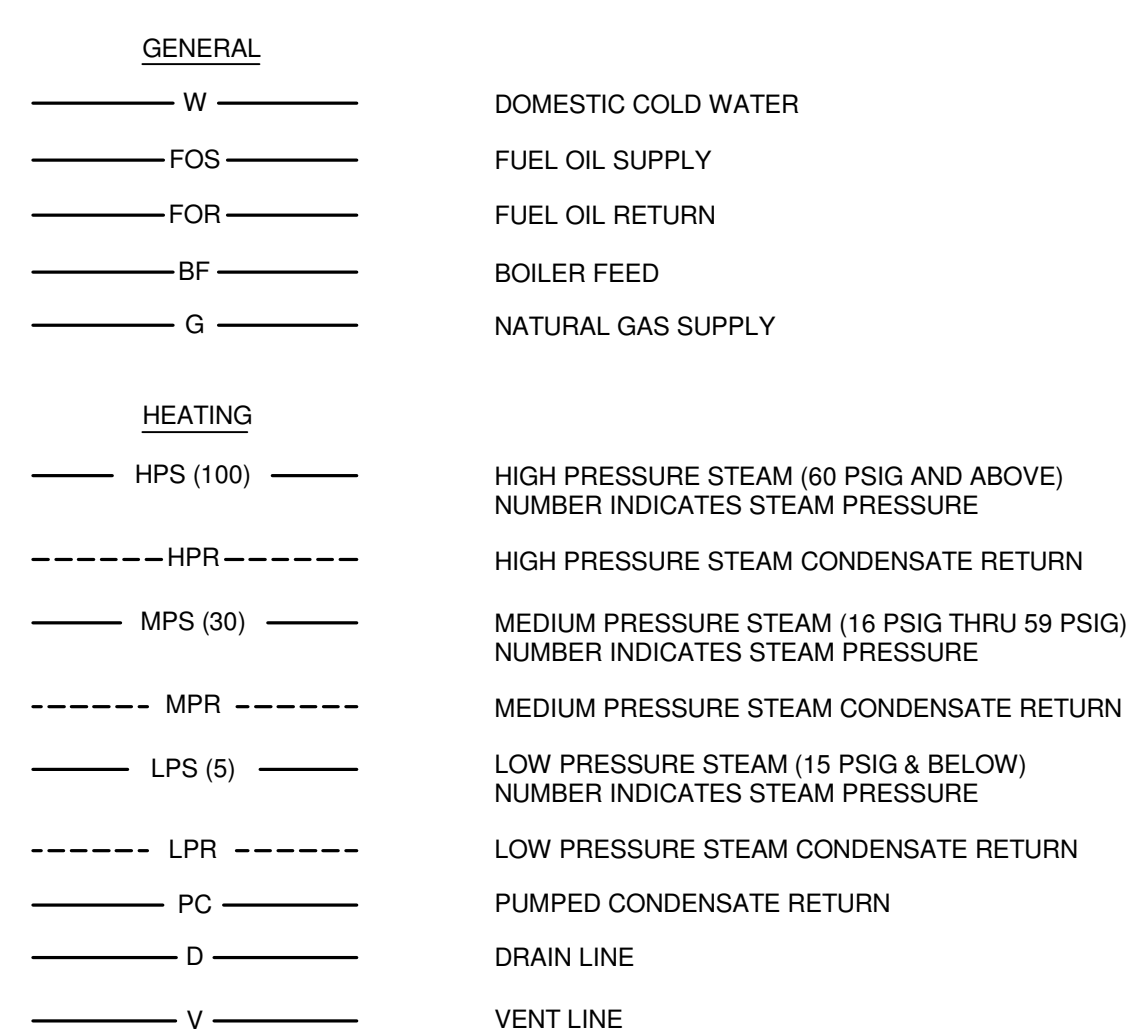
DRAWING SYMBOLS



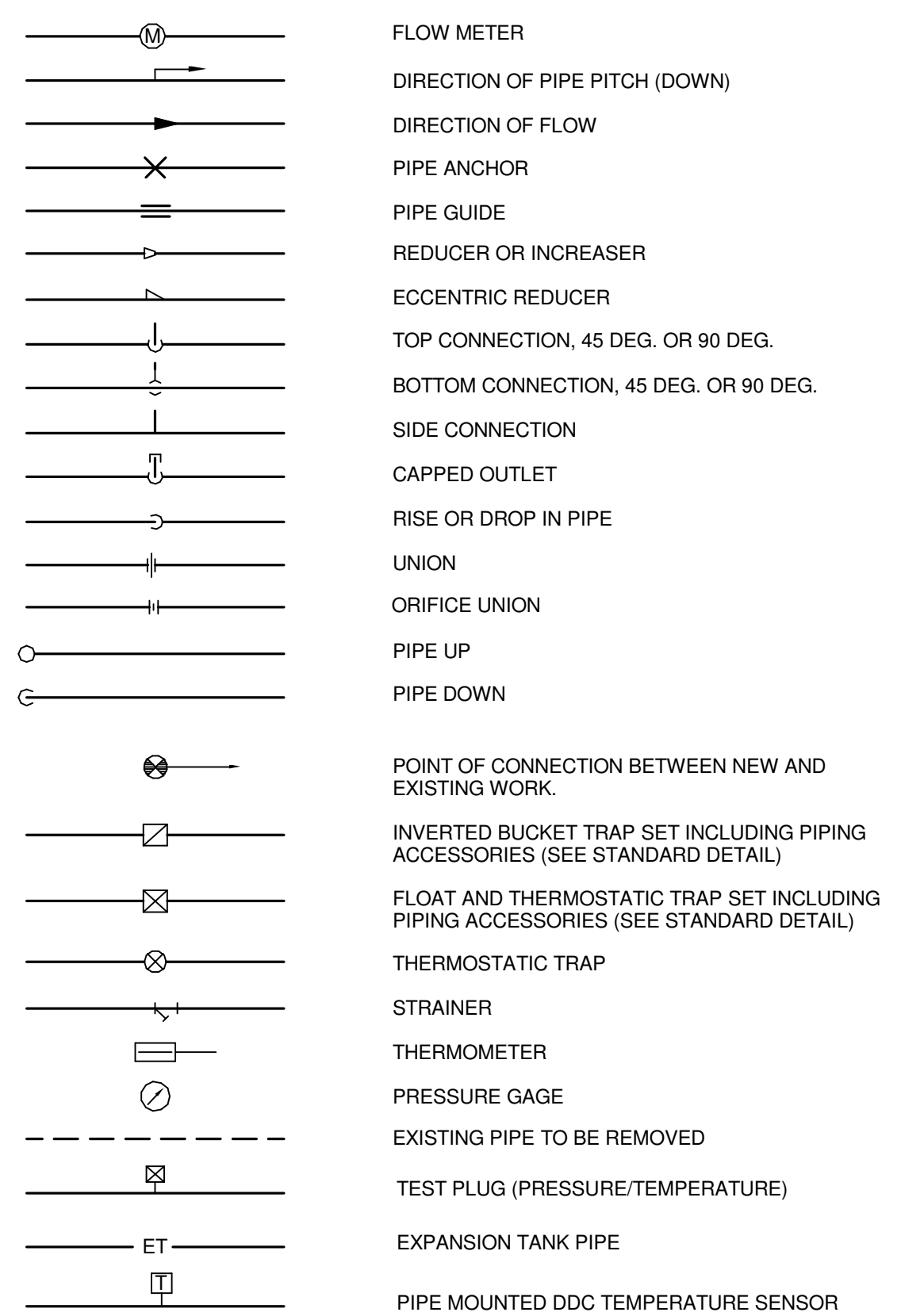
DUCTWORK SYMBOLS



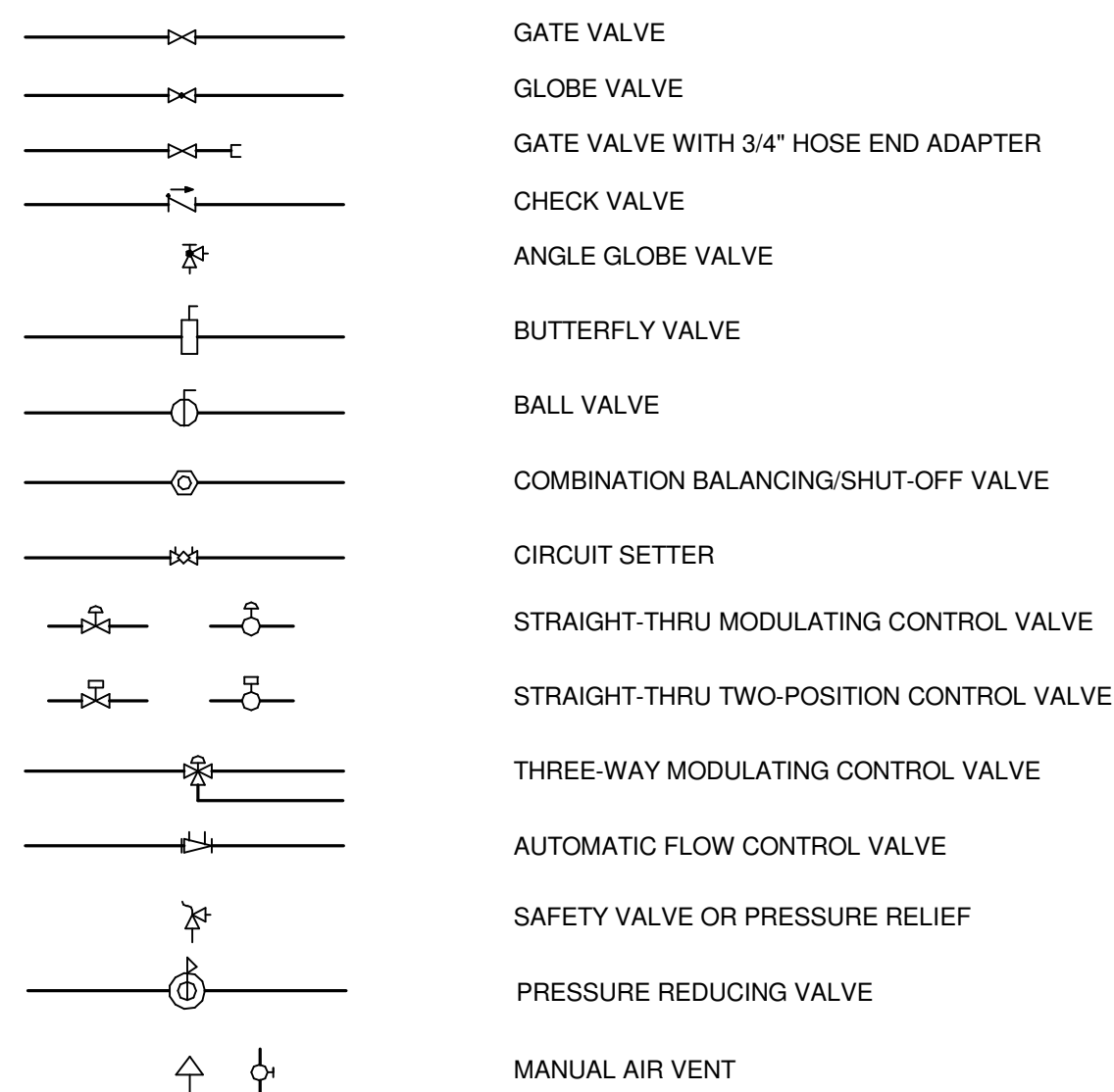
PIPING SYMBOLS



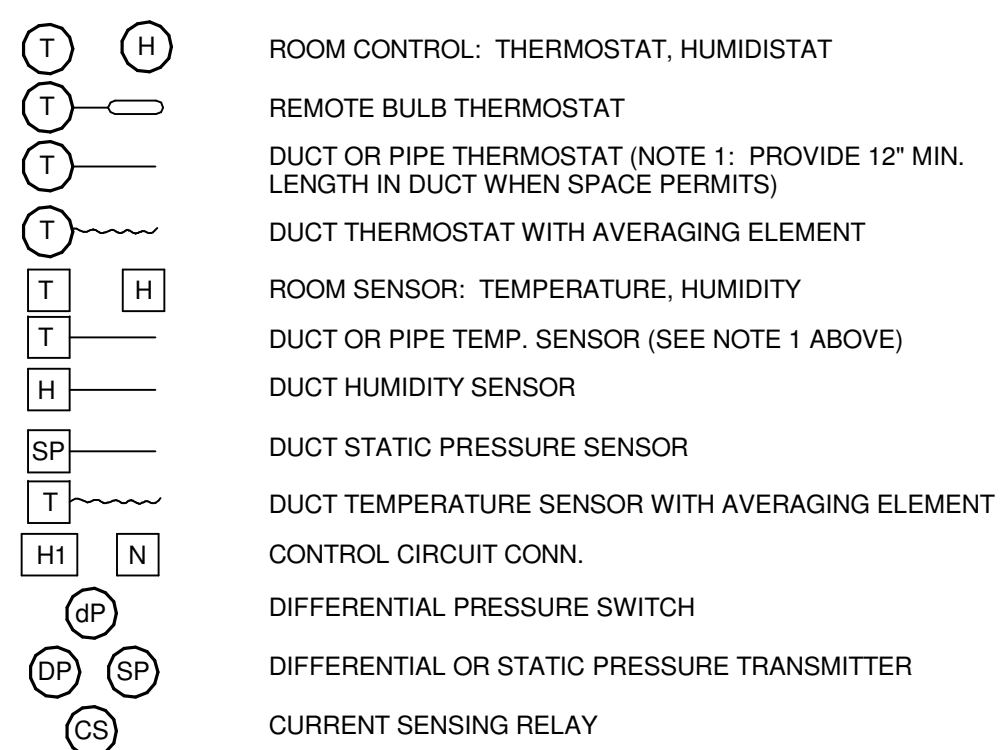
GENERAL



VALVES



CONTROLS



ABBREVIATIONS

Table of abbreviations for various components like wheels, doors, floors, devices, fans, horsepower, units, controls, pumps, sensors, dampers, valves, and hoods.

ABBREVIATIONS

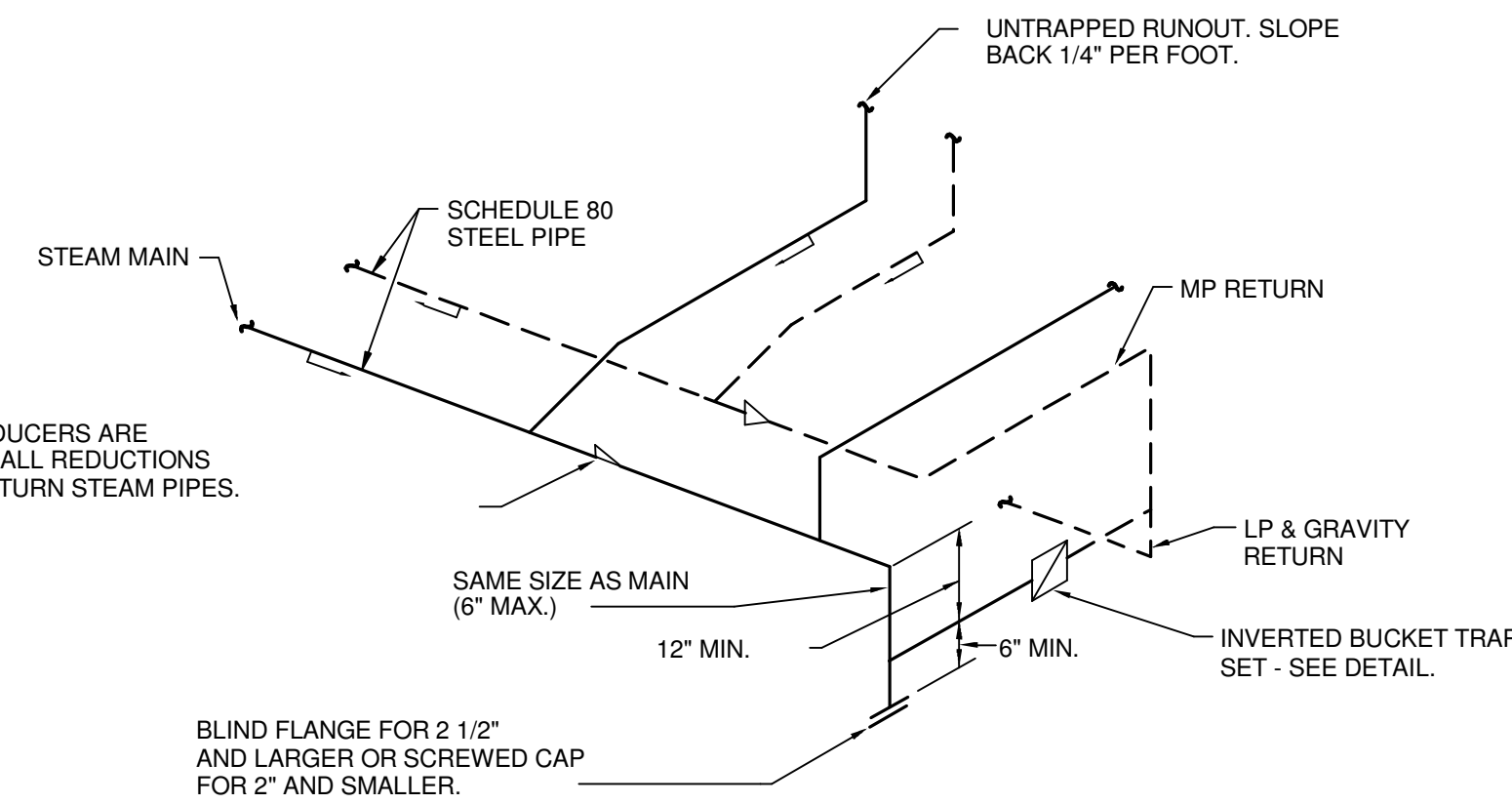
Table of abbreviations for flow rates, heads, horsepower, steam returns, supplies, fans, inches, columns, gauges, temperatures, pressures, panels, leaving, maximum, mixing boxes, BTUH, minimum, return, supply, vents, criteria, nominal, outside air, pumps, condensate, pressure drops, propellers, power operated, damper, pressure reducing, heaters, humidity, revolutions, roof ventilators, static pressure, gravity, steam pressure, sensors, single width, door undercut, unit heaters, utility set fans, valves, air volume, frequency drive, wet bulb, water filter, and wall ventilators.

GENERAL NOTES

- 23 numbered general notes providing instructions on roofing work, duct dimensions, static pressure, piping connections, water pipe connections, duct removal, pressure listings, cutting and patching, annular space, asbestos discovery, equipment removal, field verification, abandoned piping, control devices, access requirements, work coordination, outages, and component standards.

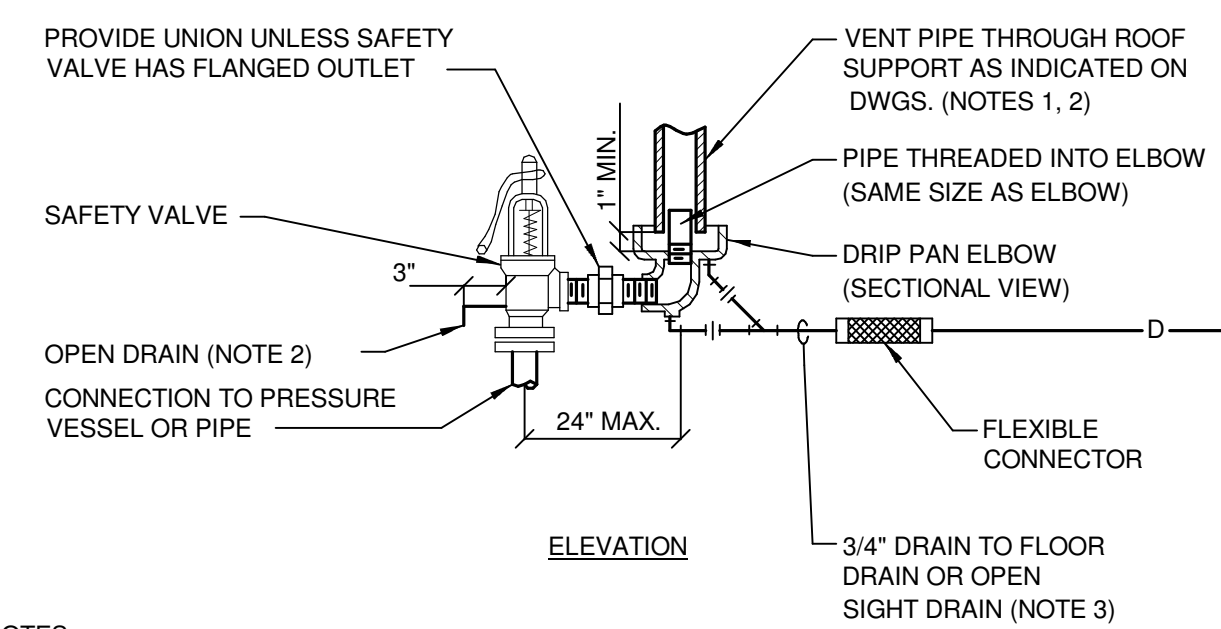
100% SUBMITTAL

Project information block containing Revisions, CONSULTANTS, PROJECT NO. 2012-04027, ARCHITECT/ENGINEERS: Heapy Engineering (Mechanical Electrical Commissioning Technology), Drawing Title: INDEX, LEGEND, AND GENERAL NOTES, Project Title: Modernize Boiler Plant B-147, Location: Dayton, Ohio, Date: 12/06/2012, Checked: DLE, Drawn: PCW, Drawing Number: 147-M001, and Office of Construction and Facilities Management, Department of Veterans Affairs.



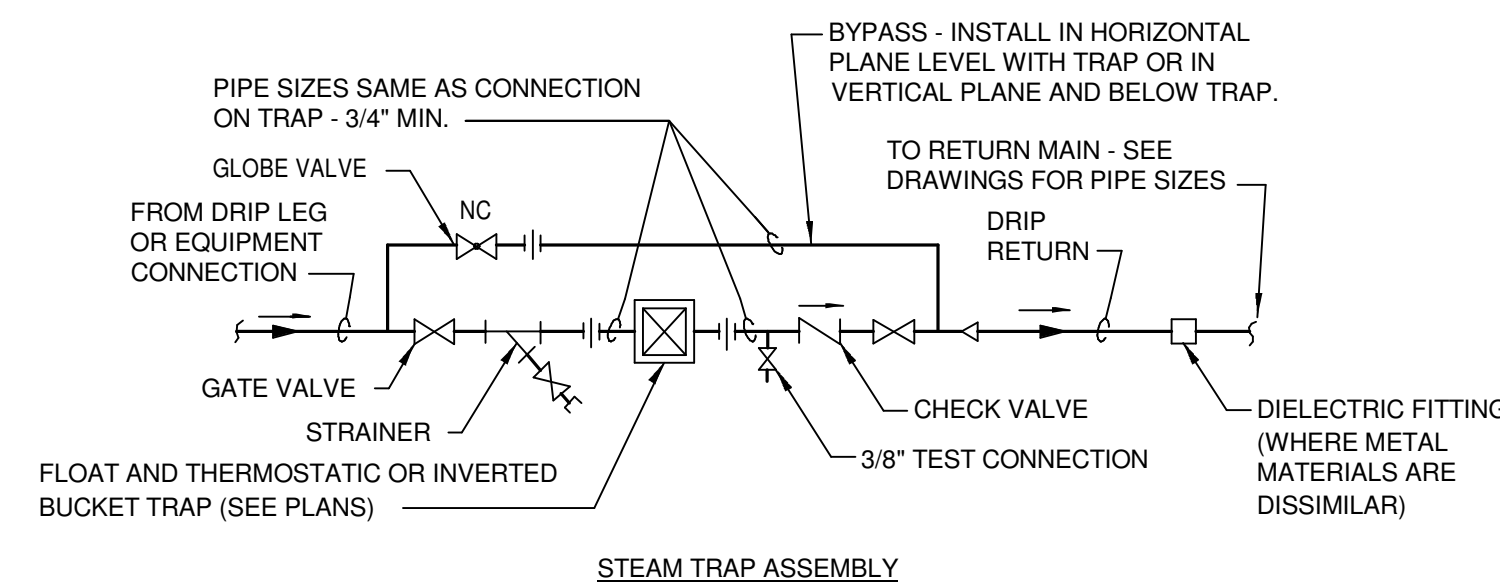
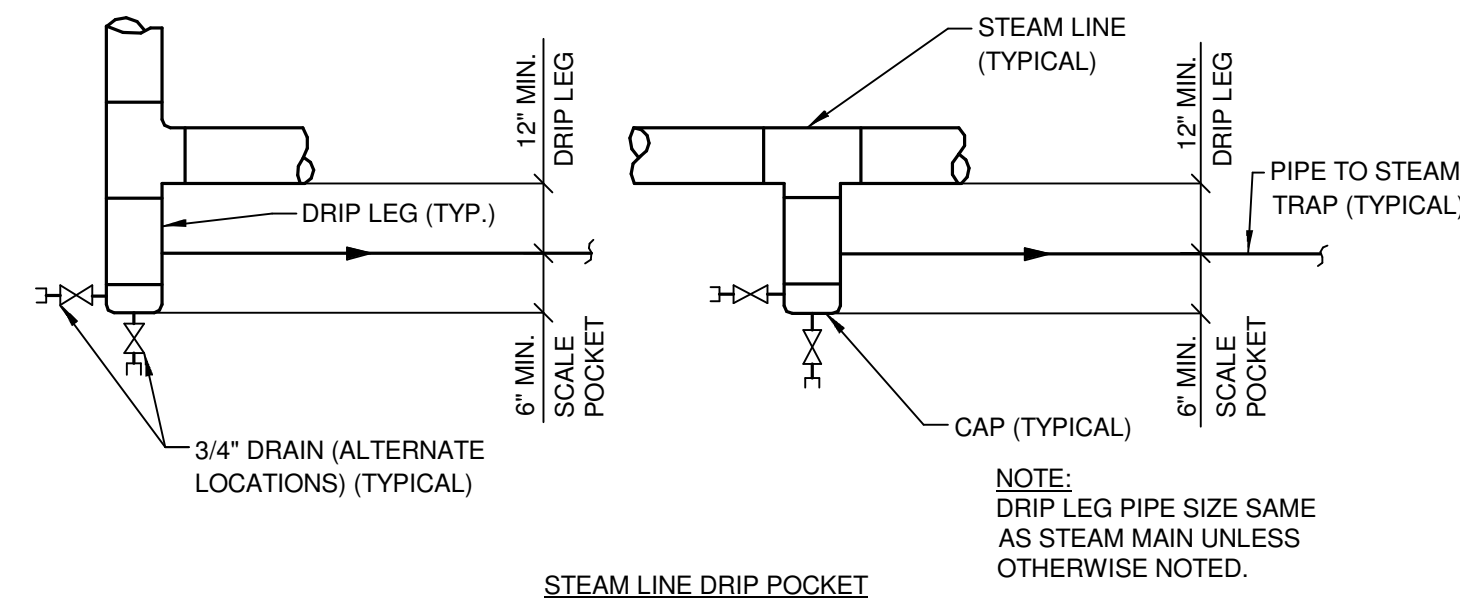
- NOTES:**
- SLOPE MAINS AND BRANCHES DOWN 1" PER 40 FEET IN DIRECTION OF FLOW UNLESS SHOWN OTHERWISE.
 - LIMIT UNTRAPPED, COUNTERFLOW, RUNOUTS TO 10 FEET MAXIMUM.
 - END OF MAIN SHOWN, LOW POINT IN STEAM MAIN SIMILAR.

TYPICAL STEAM LINE & DRIP PIPING

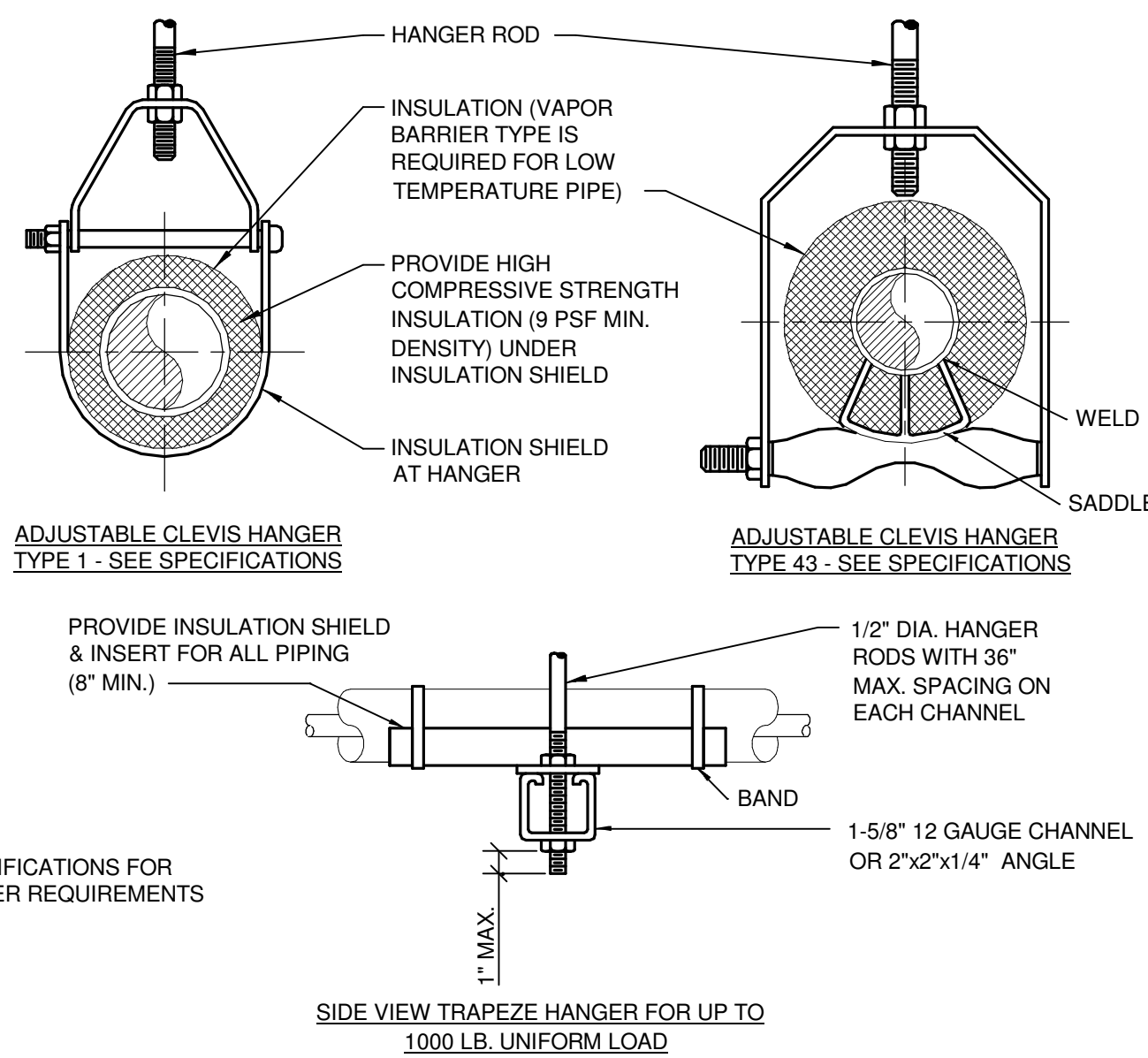


- NOTES:**
- UNLESS OTHERWISE SHOWN ON THE DRAWINGS, SIZE THE VENT PIPE SO THAT STEAM IS NOT BLOWN OUT AT THE VENT PIPE ENTRANCE. UTILIZE THE CALCULATION METHOD CONTAINED IN ANSI B31.1 - POWER PIPING CODE, APPENDIX II.
 - DISCHARGE OF DRAIN MUST BE DIRECTED AWAY FROM PLATFORMS OR OTHER AREAS WHICH PERSONNEL MAY OCCUPY.
 - DO NOT CONNECT ANY OTHER DRAIN TO THE DRIP PAN ELBOW DRAIN PIPE.

STEAM SAFETY VALVE



**STEAM LINE DRIP POCKET
STEAM TRAP ASSEMBLY**

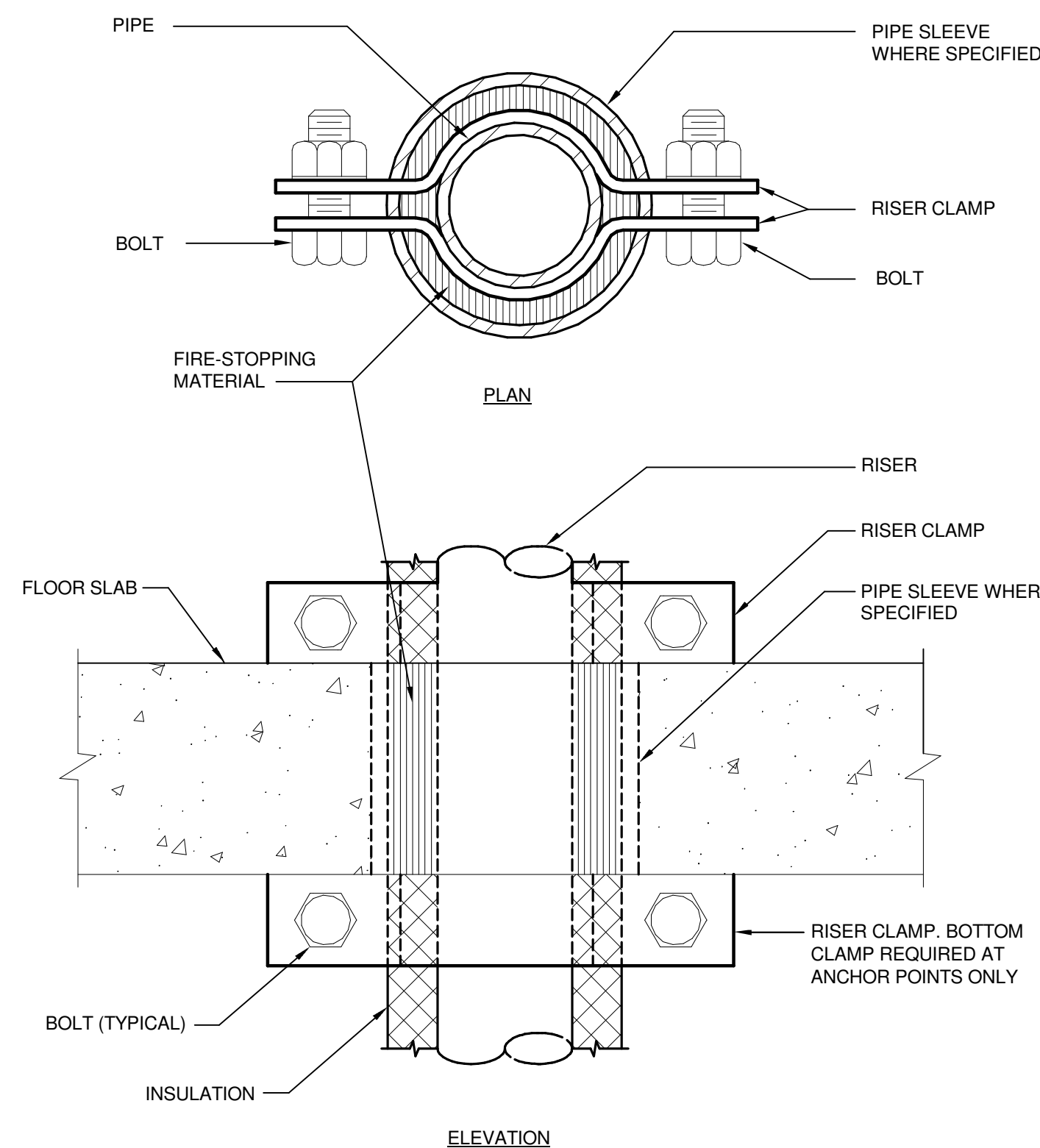


MAXIMUM PIPE/TUBING SUPPORT SPACING

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	16	18	20	24
PIPE	FT.	7	7	7	9	10	11	12	14	16	17	19	22	23	25	27	28	30	32
TUBING	FT.	5 FT	6	7	8	8	9	10	12	13	14	16	-	-	-	-	-	-	-

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

PIPE HANGERS



SUPPORT/ANCHOR FOR PIPE RISERS

FLUE GAS/FEEDWATER ECONOMIZER SCHEDULE

MARK	LOCATION	SYSTEM	QUANTITY	MIN. HEAT EXCHANGED (MBTUH)	WATER FLOW (GPM)	EXHAUST FLOW RATE (SCFM)	MAX PRESSURE DROP WATER SIDE (PSIG)	MIN PRESSURE DROP GAS SIDE WC (IN)	NOTES
147-FHX1	SECOND FLOOR	MAIN BOILER PLANT	1	1,586	180	14,000	0.32	2.3	1,2,3

- NOTES:**
- FEEDWATER INLET TEMPERATURE SHALL BE 218 °F.
 - MINIMUM HEAT EXCHANGED AT 100% BOILER LOAD.
 - PROVIDE TEMPORARY BREECHING AND TEMPORARY INSULATED BAFFLE INSIDE OF BREECHING TO ALLOW BOILER OPERATION DURING EQUIPMENT REPLACEMENT.

FAN SCHEDULE

FAN NO.	LOCATION	FAN CFM	FAN E.S.P.	FAN TYPE	DESCRIPTION	WHEEL TYPE	MIN. DIA.(S)	DRIVE	MOTOR				SEE NOTE
									MAX. BHP	NOM. HP (2)	VOLT. PHASE	VFD	
147-FD1	ON BURNER, FIRST FLOOR	EXISTING	EXISTING	EXISTING	FORCED DRAFT BURNER FAN	EXISTING	DIRECT	34	40	460-3	YES	-	1,2,3
147-IDF1	SECOND FLOOR	EXISTING	EXISTING	EXISTING	INDUCED DRAFT BOILER FAN	EXISTING	DIRECT	21.3	25	460-3	YES	900	1,2,3
147-FD2	ON BURNER, FIRST FLOOR	EXISTING	EXISTING	EXISTING	FORCED DRAFT BURNER FAN	EXISTING	DIRECT	34	40	460-3	YES	-	1,2,3
147-IDF2	SECOND FLOOR	EXISTING	EXISTING	EXISTING	INDUCED DRAFT BOILER FAN	EXISTING	DIRECT	21.3	25	460-3	YES	900	1,2,3
147-FD3	ON BURNER, FIRST FLOOR	EXISTING	EXISTING	EXISTING	FORCED DRAFT BURNER FAN	EXISTING	DIRECT	17	20	460-3	YES	-	1,2,3
147-IDF3	SECOND FLOOR	EXISTING	EXISTING	EXISTING	INDUCED DRAFT BOILER FAN	EXISTING	DIRECT	12.8	15	460-3	YES	900	1,2,3
147-FD4	ON BURNER, FIRST FLOOR	EXISTING	EXISTING	EXISTING	FORCED DRAFT BURNER FAN	EXISTING	DIRECT	17	20	460-3	YES	-	1,2,3
147-IDF4	SECOND FLOOR	EXISTING	EXISTING	EXISTING	INDUCED DRAFT BOILER FAN	EXISTING	DIRECT	12.8	15	460-3	YES	900	1,2,3

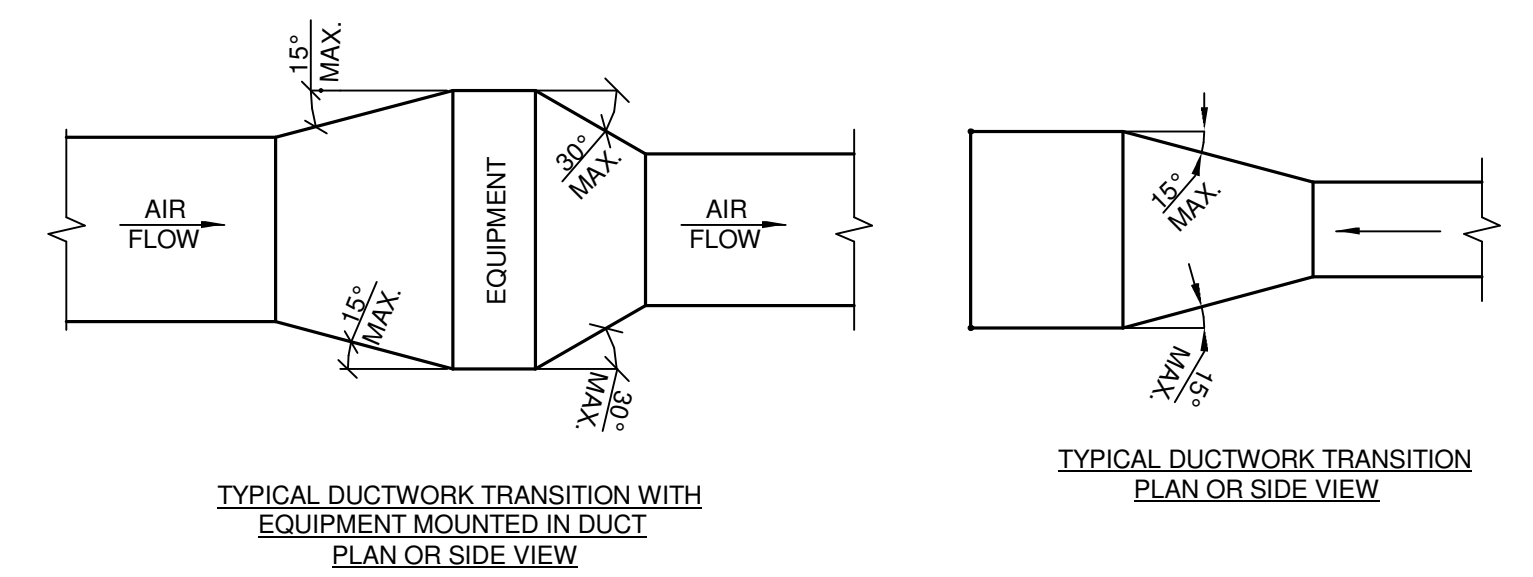
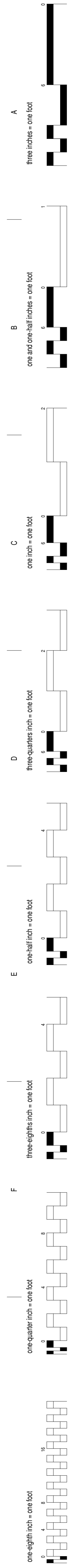
- NOTES:**
- DRAFT FAN IS EXISTING TO REMAIN. PROVIDE A NEW INVERTER DUTY MOTOR, RATED FOR USE WITH WITH A VFD.
 - MOTORS SHALL BE PREMIUM EFFICIENCY TYPE.
 - FIELD VERIFY ALL MOTOR REQUIREMENTS (HP,VOLT,PH,RPM) PRIOR TO ORDERING. PROVIDE COUPLING TO MATCH FAN AND NEW MOTOR SHAFT.

100% SUBMITTAL

Revisions Date	CONSULTANTS:	PROJECT NO. 2012-04027 	ARCHITECT/ENGINEERS: Heapy Engineering Mechanical Electrical Commissioning Technology <i>Nationally Recognized Leader in Sustainability / LEED</i> 1400 W Dorothy Lane, Dayton OH 45409-1310 Ph: 937-224-0861 Fax: 937-224-5777 www.heapy.com	Drawing Title SCHEDULES AND DETAILS	Project Title Modernize Boiler Plant B-147	Project No. VA Project No. 552-13-305 Heapy Project No. 2012-04027 Building Number 147 Drawing Number 147-M501 Dwg. of	Office of Construction and Facilities Management
	Approved: CHIEF ENGINEER	Date 12/06/2012	Checked DLE	Drawn PCW	Location Dayton, Ohio	Date 12/06/2012	Department of Veterans Affairs

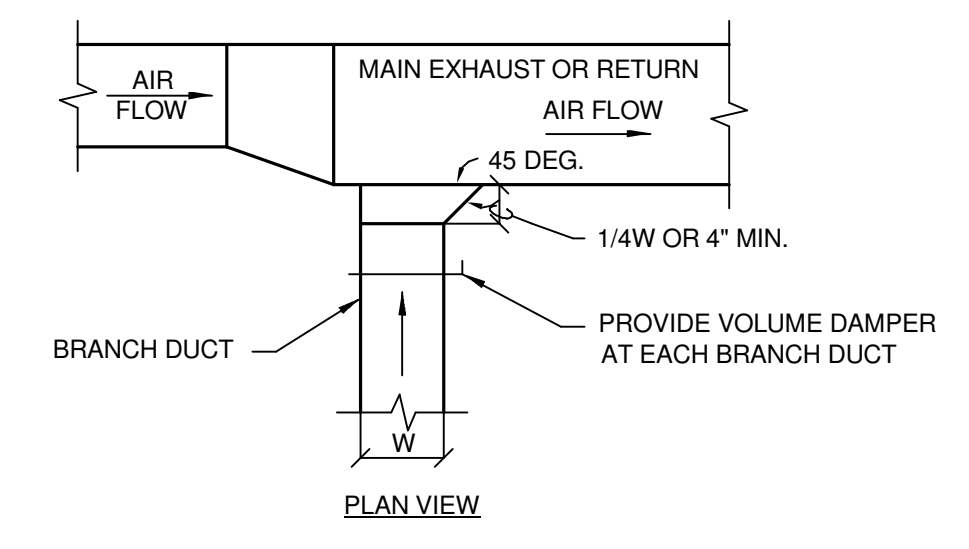
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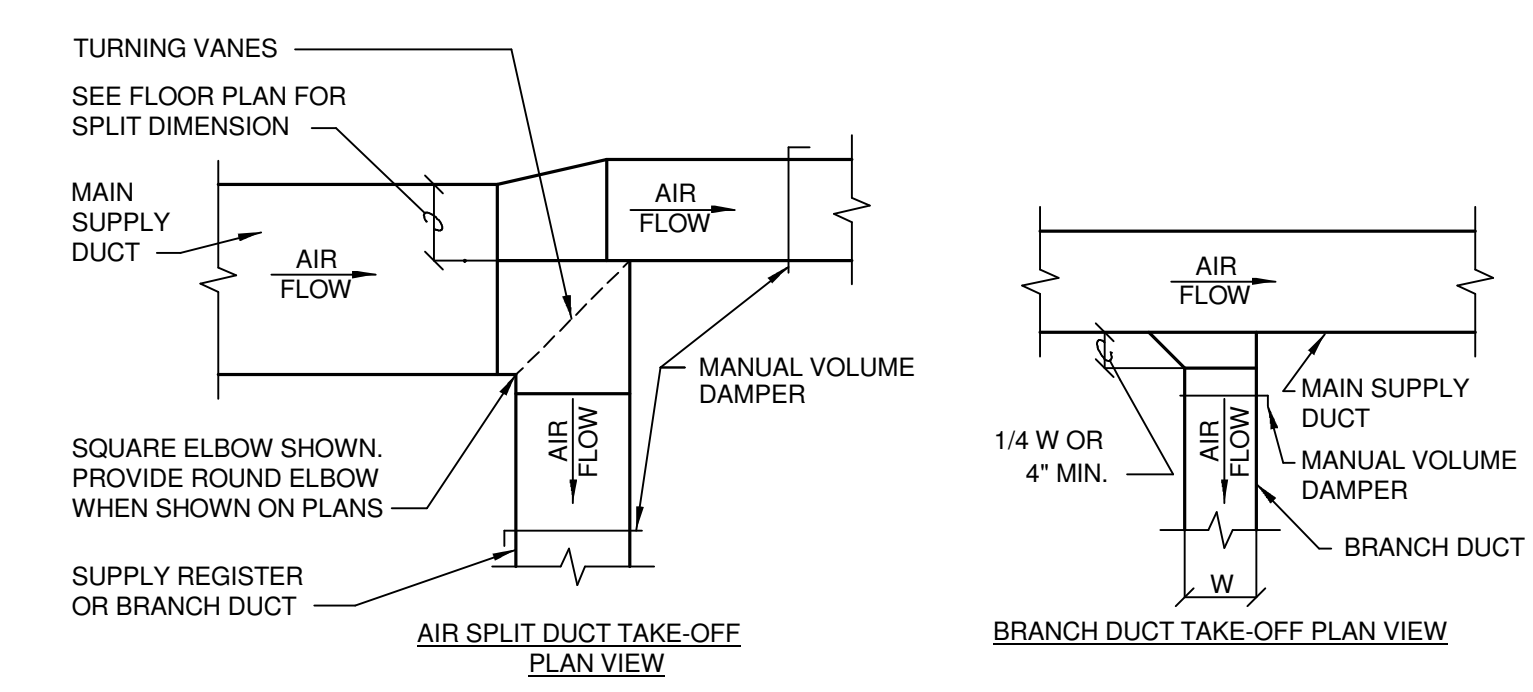


NOTE: UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

DUCTWORK TRANSITIONS



EXHAUST OR RETURN BRANCH DUCTWORK



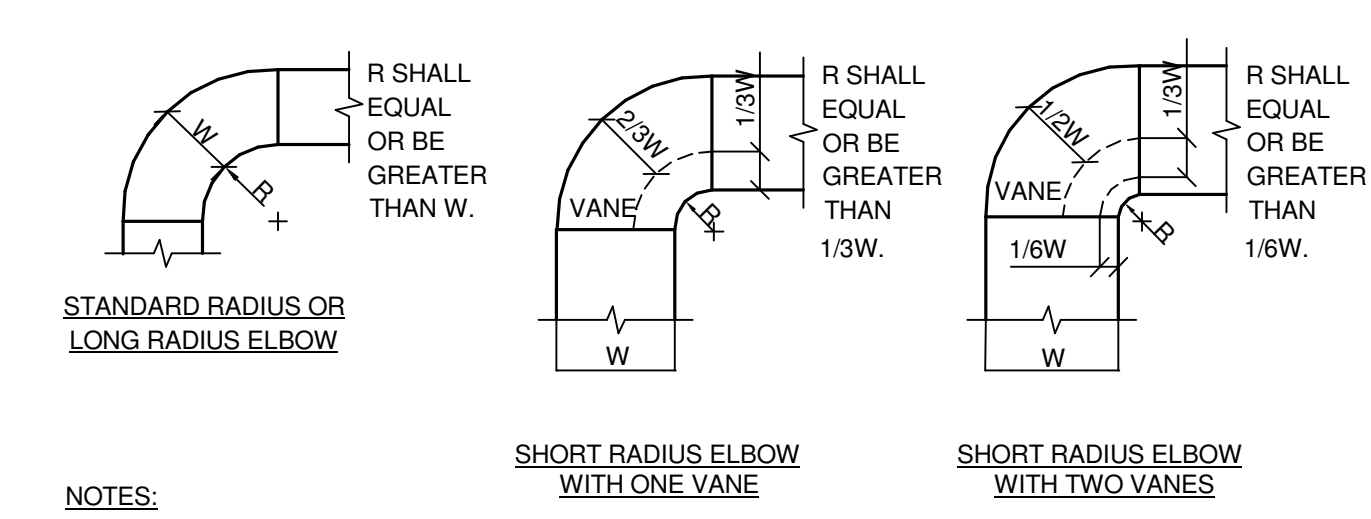
THE BRANCH DUCT TAKE-OFF MAY BE USED FOR UP TO 15% OF THE MAIN DUCT CFM ANYTIME, AND UP TO 40% WHEN THE MAIN DUCT VELOCITY IS 1000 FPM OR LESS. THE AIR SPLIT DUCT TAKE-OFF SHALL BE USED IN ALL OTHER CASES.

SUPPLY DUCTWORK TAKE-OFFS

- NOTES:
- 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" RADIUS, 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
 - WHEN W EQUALS W2 AND W1 IS GREATER THAN 20", VANES SHALL BE DOUBLE VANE TYPE.

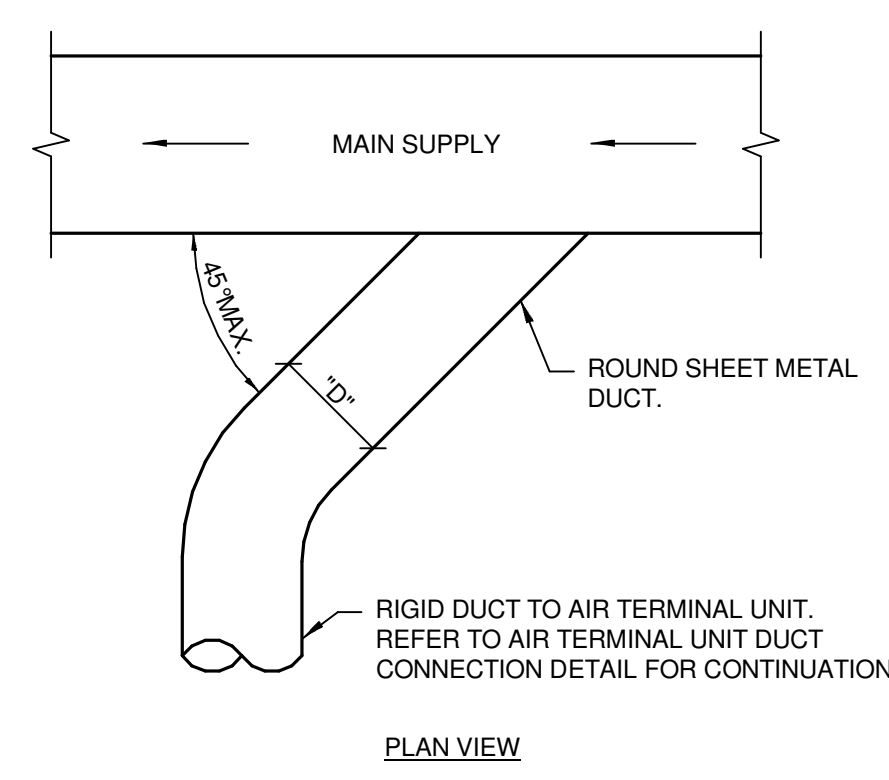
DUCTWORK SQUARE VANE ELBOWS

100% SUBMITTAL

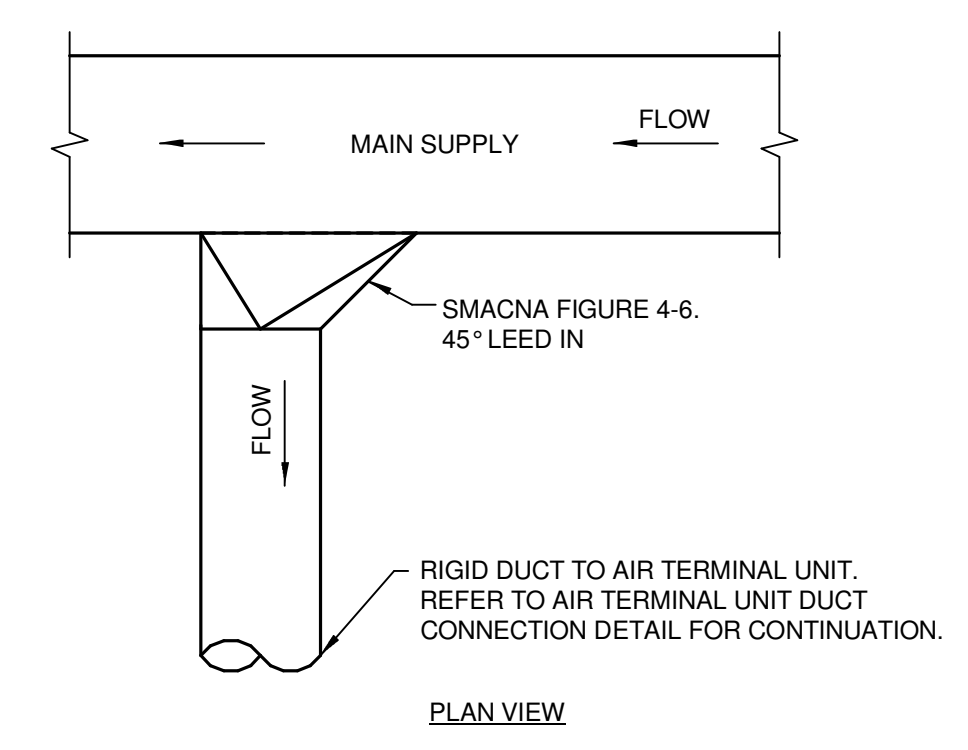


- NOTES:
- THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
 - ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

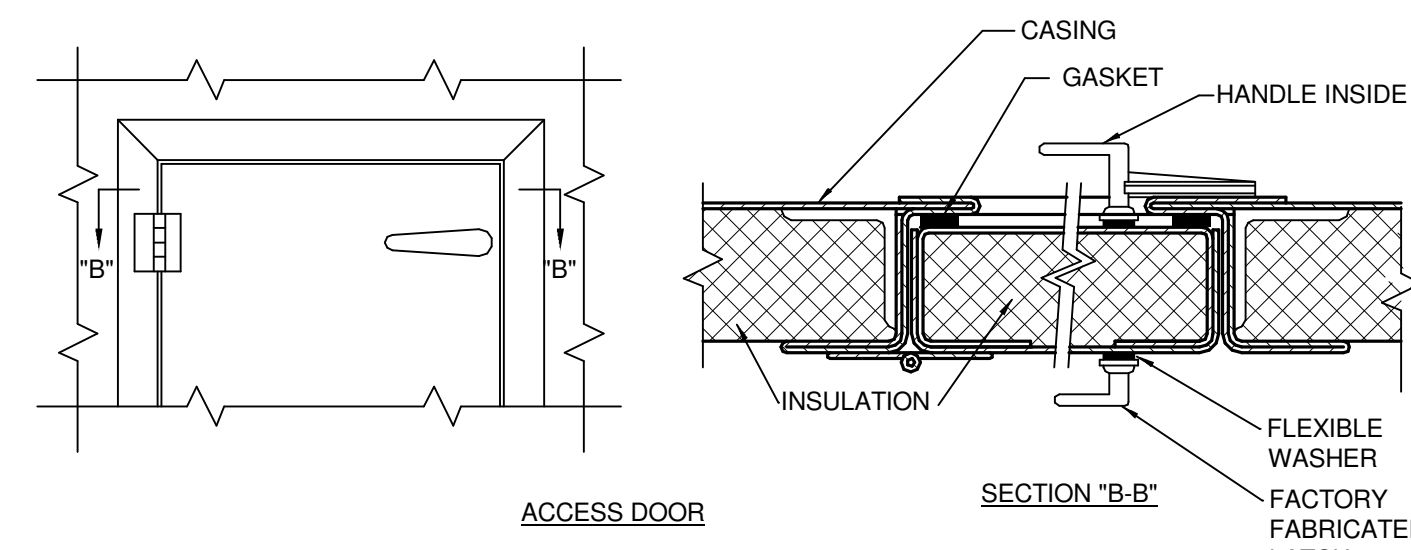
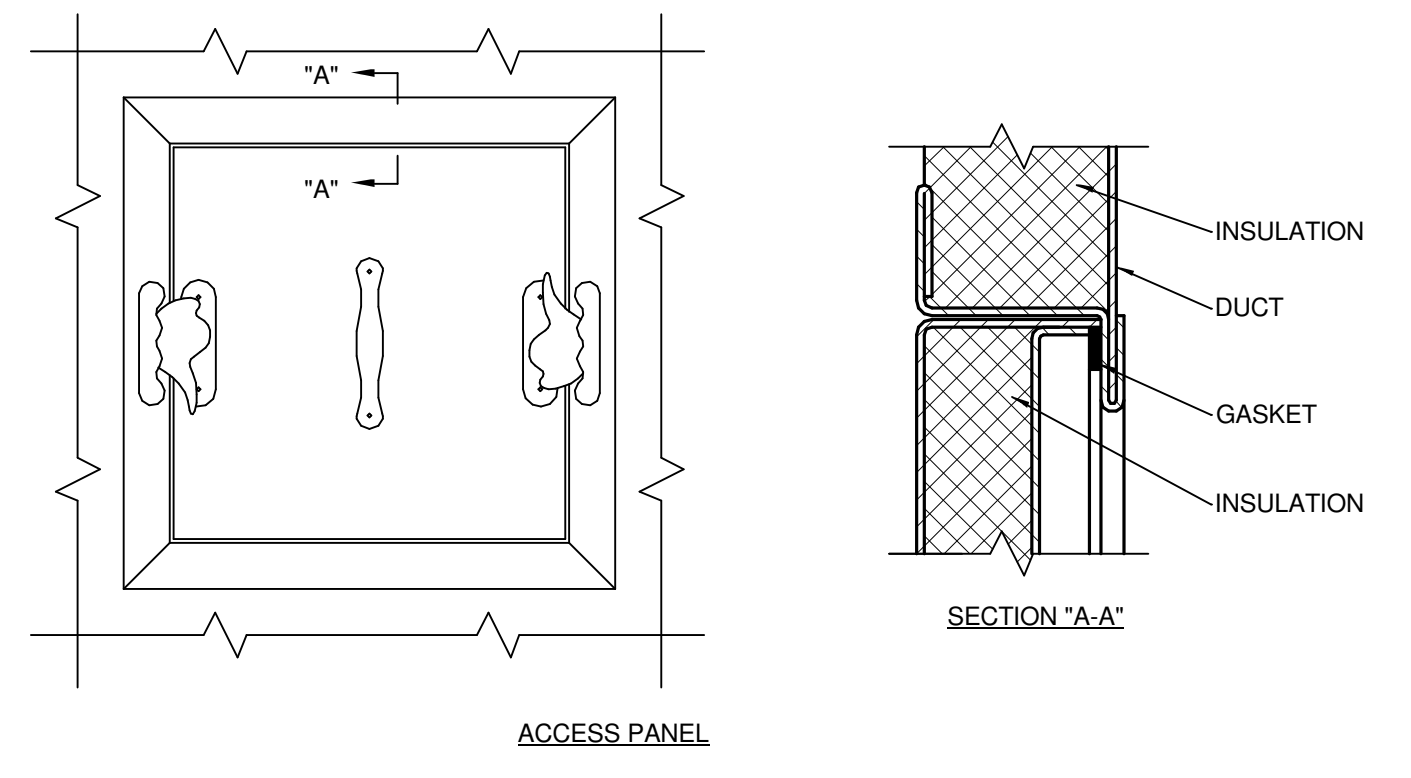
DUCTWORK RADIUS ELBOWS



SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS



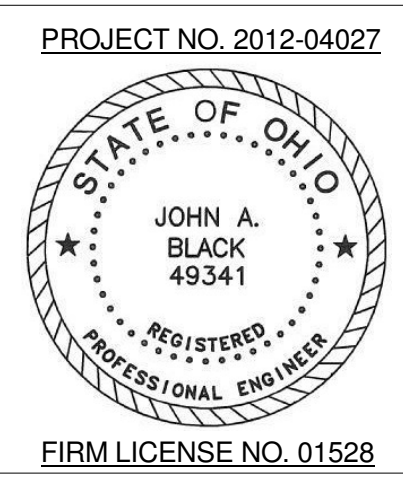
ALTERNATE SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS



- NOTES:
- LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
 - HINGES ON THE ACCESS DOORS SHALL HAVE NON-CORROSIVE PINS.
 - SEE SMACNA 2005, FIGURE 9-15

ACCESS PANEL AND DOOR DETAIL

Revisions	Date	CONSULTANTS:	PROJECT NO. 2012-04027	ARCHITECT/ENGINEERS:	Drawing Title	Project Title	Project No.	Office of Construction and Facilities Management
					DETAILS	Modernize Boiler Plant B-147	VA Project No. 552-13-305 Heapy Project No. 2012-04027	
					Approved: CHIEF ENGINEER	Location	Building Number	Department of Veterans Affairs
						Dayton, Ohio	147	
						Date	Drawing Number	
						12/06/2012	147-M502	
						Checked	Dwg. of	
						DLE		
						Drawn		
						PCW		



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