

DURA-VANE II



ARCHITECTURAL
FINNED TUBE RADIATION





TABLE OF CONTENTS

Design Features.....3

JDV4 14, 20 & 24 Dimensions and Ratings.....4-6

JDV3 14, 20 & 24 Dimensions and Ratings.....7, 8

JDV3 7 & JDV4 7 Dimensions and Ratings.....9

JDV3 10LI & JDV4 10LI Dimensions and Ratings.....10

JDVP41 & JDVP42 Dimensions and Ratings.....11-13

JDVP31 & JDVP32 Dimensions and Ratings.....14-16

Trough Dimensions and Ratings.....17

Accessory and Installation Detail.....18-21

Design Data.....22-24

General Specifications.....25

STYLE	DESIGN
<p>JDV Pages 4-8</p>	
<p>JDV 7 Page 9</p>	
<p>JDV 10LI Page 10</p>	
<p>JDVP Pages 11-16</p>	

Vulcan DURA-VANE II finned tube heating combines the smooth-flowing lines of extruded aluminum linear grilles with rugged steel enclosure. It complements the linear treatment of contemporary architecture, while providing a draft-free, comfortable environment.

ENCLOSURES

The cold rolled steel enclosures are available in 16 gauge as standard, with an option for 14 gauge. The enclosures and accessories are degreased and phosphatized and sealer coated. They are painted with a baked powder finish.

Dura-Vane II enclosures are provided with slip joints welded to the interior of the enclosure front skirt. Their use permits one enclosure to engage another in a firm and flush fit. Internal gussets are provided to further strengthen the enclosure.

All Vulcan commercial hydronic products are made from recycled materials. Recycled material contents can be obtained from your local Vulcan representative.

EXTRUDED ALUMINUM OUTLET GRILLES

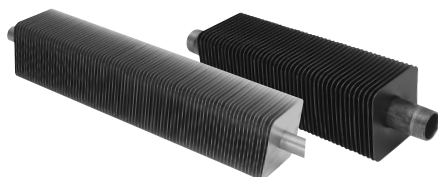
The extruded aluminum outlet grille is provided with a clear anodized finish. It features a unique “bull-nose” design that extends the extrusion over the top of the enclosure front skirt. It allows an extra measure of protection to help guard the painted enclosure from damage caused by incidental contact.

Forward sloping air discharge vanes direct the heated air toward the occupied areas. The outlets are 3/16" deep on 3/8" centers. The uninterrupted lineal flow of the “pencil-proof” vanes is maintained by the use of alignment pins installed between adjacent grilles. The aluminum grille is factory assembled to the enclosure front skirt.



ELEMENTS

Vulcan offers a wide variety of heating elements with aluminum fins on copper tube or steel fins on steel tube. All are available in a wide range of tube size, fin size, fin thickness and fin spacing to provide the desired heating output. The tubing is mechanically expanded to bond the fins securely for maximum heat transfer.

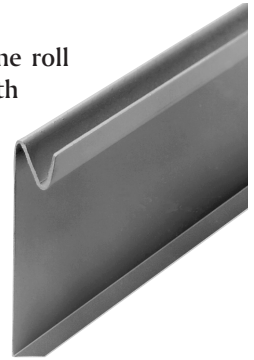


BACKPLATE

The mounting system assures a rugged, well-fitting, quiet-operating, fast and accurate installation.

All full backplates will be one piece construction, 20 gauge galvanized steel (18 gauge optional) with a die-formed mounting channel into which the enclosure shall self-locate and secure. Self-adhesive closed cell neoprene air seal gasket to be provided when requested to prevent dirt streaking (specify factory or field installed).

All partial backplates are to be machine roll formed, pre-painted, 20 gauge steel with formed mounting channel into which the enclosure shall self-locate and secure. 18 gauge partial backplates will be provided as galvanized finish. Self-adhesive closed cell neoprene air seal gasket to be provided when requested to prevent dirt streaking (specify factory or field installed).



BRACKET HANGERS

All brackets and hangers are to be die-formed 14 gauge galvanized steel with channel type wiped edge construction for rigidity. Nickel-chromium plated ball bearings inserted into a nylon isolator insert are to be used in conjunction with an 18 gauge galvanized die-formed element support cradle to provide friction-free lateral movement during expansion and contraction. Brackets are to have pre-formed contour at the top allowing the bracket to interlock with the backplate channel. Brackets are to be self-locating in the vertical (height) position. Hangers are to provide for vertical element adjustment when pitch is required (steam). Water jobs will not require adjustable hangers. Full engagement enclosure locks are to be supplied with each bracket. Bracket locations are recommended to be 2'6" to 4'0" on center located not more than 12" in from ends of enclosure based on individual design applications.

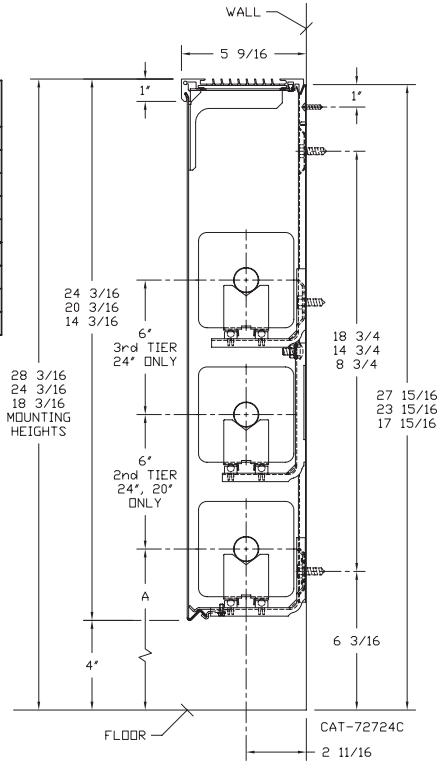


FINISH

Dura-Vane II enclosures and accessories are provided with a factory applied baked powder finish. Twelve standard colors are available, including three metallic colors at an additional cost. Custom colors can be formulated to match any décor.

STYLES JDV4 14, 20 & 24 DURA-VANE II

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A
3/4" COPPER	3 5/8" x 4 1/4"	2	7"
3/4" COPPER	4 1/4" x 4 1/4"	3A	7 3/8"
1" COPPER	3 5/8" x 4 1/4"	2	7 3/16"
1" COPPER	4 1/4" x 4 1/4"	2	7 3/16"
1 1/4" COPPER	3 5/8" x 4 1/4"	2	7 5/16"
1 1/4" COPPER	4 1/4" x 4 1/4"	2	7 5/16"
1" STEEL	4 1/4" x 4 1/4"	2	7 5/16"
1 1/4" STEEL	4 1/4" x 4 1/4"	2	7 1/2"
2" STEEL	4 1/4" x 4 1/4"	1	7 1/4"



COPPER/ALUMINUM ELEMENT RATINGS					ENCL HEIGHT IN INCHES	TIERS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)									
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES									
									200°	190°	180°	170°	160°	150°	140°	130°	120°	
									1.00	0.86	0.78	0.69	0.61	0.53	.45	.40	.33	.26
3/4"	VC3/4-433	3-5/8" x 4-1/4"	32	.020	14-3/16	1	18-3/16	1360	1170	1060	940	830	720	610	540	450	350	
					20-3/16	1	24-3/16	1400	1200	1090	970	850	740	630	560	460	360	
					20-3/16	2-6 CL	24-3/16	2220	1910	1730	1530	1350	1180	1000	890	730	580	
					24-3/16	1	28-3/16	1425	1230	1110	980	870	760	640	570	470	370	
					24-3/16	2-6 CL	28-3/16	2270	1950	1770	1570	1380	1200	1020	910	750	590	
3/4"	VC3/4-434	3-5/8" x 4-1/4"	40	.020	24-3/16	3-6 CL	28-3/16	2610	2240	2040	1800	1590	1380	1170	1040	860	680	
					14-3/16	1	18-3/16	1620	1390	1260	1120	990	860	730	650	530	420	
					20-3/16	1	24-3/16	1710	1470	1330	1180	1040	910	770	680	560	440	
					20-3/16	2-6 CL	24-3/16	2390	2060	1860	1650	1460	1270	1080	960	790	620	
					24-3/16	1	28-3/16	1800	1550	1400	1240	1100	950	810	720	590	470	
3/4"	VC3/4-435	3-5/8" x 4-1/4"	50	.020	24-3/16	2-6 CL	28-3/16	2490	2140	1940	1720	1520	1320	1120	1000	820	650	
					14-3/16	1	18-3/16	1780	1530	1390	1230	1090	940	800	710	590	460	
					20-3/16	1	24-3/16	1940	1670	1510	1340	1180	1030	870	780	640	500	
					20-3/16	2-6 CL	24-3/16	2400	2060	1870	1660	1460	1270	1080	960	790	620	
					24-3/16	1	28-3/16	2080	1790	1620	1440	1270	1100	940	830	690	540	
1"	VC433	3-5/8" x 4-1/4"	32	.020	24-3/16	2-6 CL	28-3/16	2530	2180	1970	1750	1540	1340	1140	1010	830	660	
					14-3/16	1	18-3/16	1410	1210	1100	970	860	750	630	560	470	370	
					20-3/16	1	24-3/16	1450	1250	1130	1000	880	770	650	580	480	380	
					20-3/16	2-6 CL	24-3/16	2320	2000	1810	1600	1420	1230	1040	930	770	600	
					24-3/16	1	28-3/16	1480	1270	1150	1020	900	780	670	590	490	380	
1"	VC434	3-5/8" x 4-1/4"	40	.020	24-3/16	2-6 CL	28-3/16	2410	2070	1880	1660	1470	1280	1080	960	800	630	
					14-3/16	1	18-3/16	1410	1210	1100	970	860	750	630	560	470	370	
					20-3/16	1	24-3/16	1450	1250	1130	1000	880	770	650	580	480	380	
					20-3/16	2-6 CL	24-3/16	2320	2000	1810	1600	1420	1230	1040	930	770	600	
					24-3/16	1	28-3/16	1480	1270	1150	1020	900	780	670	590	490	380	
1"	VC435	3-5/8" x 4-1/4"	50	.020	24-3/16	3-6 CL	28-3/16	2860	2460	2230	1970	1740	1520	1290	1140	940	740	
					14-3/16	1	18-3/16	1410	1210	1100	970	860	750	630	560	470	370	
					20-3/16	1	24-3/16	1450	1250	1130	1000	880	770	650	580	480	380	
					20-3/16	2-6 CL	24-3/16	2320	2000	1810	1600	1420	1230	1040	930	770	600	
					24-3/16	1	28-3/16	1480	1270	1150	1020	900	780	670	590	490	380	
1-1/4"	VC1433	3-5/8" x 4-1/4"	32	.020	24-3/16	2-6 CL	28-3/16	2860	2460	2230	1970	1740	1520	1290	1140	940	740	
					14-3/16	1	18-3/16	1410	1210	1100	970	860	750	630	560	470	370	
					20-3/16	1	24-3/16	1450	1250	1130	1000	880	770	650	580	480	380	
					20-3/16	2-6 CL	24-3/16	2320	2000	1810	1600	1420	1230	1040	930	770	600	
					24-3/16	1	28-3/16	1480	1270	1150	1020	900	780	670	590	490	380	

STYLES JDV4 14, 20 & 24 DURA-VANE II

COPPER/ALUMINUM ELEMENT RATINGS					ENCL HEIGHT IN INCHES	TIERS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)									
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES									
									200°	190°	180°	170°	160°	150°	140°	130°	120°	
1-1/4"	VC1434	3-5/8" x 4-1/4"	40	.020	14-3/16	1	18-3/16	1660	1430	1290	1150	1010	880	750	660	550	430	
					20-3/16	1	24-3/16	1760	1510	1370	1210	1070	930	790	700	580	460	
					20-3/16	2-6 CL	24-3/16	2460	2120	1920	1700	1500	1300	1110	980	810	640	
					24-3/16	1	28-3/16	1850	1590	1440	1280	1130	980	830	740	610	480	
					24-3/16	2-6 CL	28-3/16	2600	2240	2030	1790	1590	1380	1170	1040	860	680	
1-1/4"	VC1435	3-5/8" x 4-1/4"	50	.020	14-3/16	1	18-3/16	1760	1510	1370	1210	1070	930	790	700	580	460	
					20-3/16	1	24-3/16	1920	1650	1500	1320	1170	1020	860	770	630	500	
					20-3/16	2-6 CL	24-3/16	2370	2040	1850	1640	1450	1260	1070	950	780	620	
					24-3/16	1	28-3/16	2050	1760	1600	1410	1250	1090	920	820	680	530	
					24-3/16	2-6 CL	28-3/16	2500	2150	1950	1720	1530	1330	1130	1000	830	650	
3/4"	VC3/4-43	4-1/4" SQ.	32	.020	14-3/16	1	18-3/16	1470	1260	1150	1010	900	780	660	590	490	380	
					20-3/16	1	24-3/16	1540	1320	1200	1060	940	820	690	620	510	400	
					20-3/16	2-6 CL	24-3/16	2310	1990	1800	1590	1410	1220	1040	920	760	600	
					24-3/16	1	28-3/16	1570	1350	1220	1080	960	830	710	630	520	410	
					24-3/16	2-6 CL	28-3/16	2410	2070	1880	1660	1470	1280	1080	960	800	630	
3/4"	VC3/4-44	4-1/4" SQ.	40	.020	14-3/16	1	18-3/16	1840	1580	1440	1270	1120	980	830	740	610	480	
					20-3/16	1	24-3/16	1950	1680	1520	1350	1190	1030	880	780	640	510	
					20-3/16	2-6 CL	24-3/16	2660	2290	2070	1840	1620	1410	1200	1060	880	690	
					24-3/16	1	28-3/16	2070	1780	1610	1430	1260	1100	930	830	680	540	
					24-3/16	2-6 CL	28-3/16	2580	2220	2010	1780	1570	1370	1160	1030	850	670	
3/4"	VC3/4-45	4-1/4" SQ.	50	.020	14-3/16	1	18-3/16	1870	1610	1460	1290	1140	990	840	750	620	490	
					20-3/16	1	24-3/16	2050	1760	1600	1410	1250	1090	920	820	680	530	
					20-3/16	2-6 CL	24-3/16	2480	2130	1930	1710	1510	1310	1120	990	820	640	
					24-3/16	1	28-3/16	2200	1890	1720	1520	1340	1170	990	880	730	570	
					24-3/16	2-6 CL	28-3/16	2670	2300	2080	1840	1630	1420	1200	1070	880	690	
1"	VC43	4-1/4" SQ.	32	.020	14-3/16	1	18-3/16	1470	1260	1150	1010	900	780	660	590	490	380	
					20-3/16	1	24-3/16	1540	1320	1200	1060	940	820	690	620	510	400	
					20-3/16	2-6 CL	24-3/16	2340	2010	1830	1610	1430	1240	1050	940	770	610	
					24-3/16	1	28-3/16	1580	1360	1230	1090	960	840	710	630	520	410	
					24-3/16	2-6 CL	28-3/16	2440	2100	1900	1680	1490	1290	1100	980	810	630	
1"	VC44	4-1/4" SQ.	40	.020	14-3/16	1	18-3/16	1720	1480	1340	1190	1050	910	770	690	570	450	
					20-3/16	1	24-3/16	1810	1560	1410	1250	1100	960	810	720	600	470	
					20-3/16	2-6 CL	24-3/16	2510	2160	1960	1730	1530	1330	1130	1000	830	650	
					24-3/16	1	28-3/16	1920	1650	1500	1320	1170	1020	860	770	630	500	
					24-3/16	2-6 CL	28-3/16	2600	2240	2030	1790	1590	1380	1170	1040	860	680	
1"	VC45	4-1/4" SQ.	50	.020	14-3/16	1	18-3/16	1900	1630	1480	1310	1160	1010	860	760	630	490	
					20-3/16	1	24-3/16	2090	1800	1630	1440	1270	1110	940	840	690	540	
					20-3/16	2-6 CL	24-3/16	2510	2160	1960	1730	1530	1330	1130	1000	830	650	
					24-3/16	1	28-3/16	2250	1940	1760	1550	1370	1190	1010	900	740	590	
					24-3/16	2-6 CL	28-3/16	2710	2330	2110	1870	1650	1440	1220	1080	890	700	
1-1/4"	VC143	4-1/4" SQ.	32	.020	14-3/16	1	18-3/16	1440	1240	1120	990	880	760	650	580	480	370	
					20-3/16	1	24-3/16	1510	1300	1180	1040	920	800	680	600	500	390	
					20-3/16	2-6 CL	24-3/16	2300	1980	1790	1590	1400	1220	1040	920	760	600	
					24-3/16	1	28-3/16	1550	1330	1210	1070	950	820	700	620	510	400	
					24-3/16	2-6 CL	28-3/16	2390	2060	1860	1650	1460	1270	1080	960	790	620	
1-1/4"	VC144	4-1/4" SQ.	40	.020	14-3/16	1	18-3/16	1690	1450	1320	1170	1030	900	760	680	560	440	
					20-3/16	1	24-3/16	1780	1530	1390	1230	1090	940	800	710	590	460	
					20-3/16	2-6 CL	24-3/16	2460	2120	1920	1700	1500	1300	1110	980	810	640	
					24-3/16	1	28-3/16	1890	1630	1470	1300	1150	1000	850	760	620	490	
					24-3/16	2-6 CL	28-3/16	2550	2190	1990	1760	1560	1350	1150	1020	840	660	
1-1/4"	VC145	4-1/4" SQ.	50	.020	14-3/16	1	18-3/16	1870	1610	1460	1290	1140	990	840	750	620	490	
					20-3/16	1	24-3/16	2050	1760	1600	1410	1250	1090	920	820	680	530	
					20-3/16	2-6 CL	24-3/16	2460	2120	1920	1700	1500	1300	1110	980	810	640	
					24-3/16	1	28-3/16	2210	1900	1720	1520	1350	1170	990	880	730	570	
					24-3/16	2-6 CL	28-3/16	2650	2280	2070	1830	1620	1400	1190	1060	870	690	
24-3/16	3-6 CL	28-3/16	2990	2570	2330	2060	1820	1580	1350	1200	990	780						

Copper tube furnished flared one end standard.

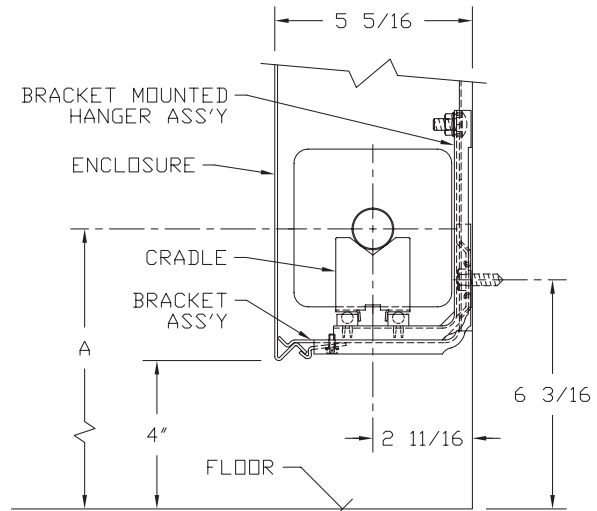
STYLES JDV4 14, 20 & 24 DURA-VANE II

STEEL ELEMENT RATINGS					ENCL HEIGHT IN INCHES	TIERS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)								
ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT									200°	190°	180°	170°	160°	150°	140°	130°	120°
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES	CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES												
					1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26			
1"	VS43	4-1/4" SQ.	32	.032	14-3/16	1	18-3/16	1210	1040	940	830	740	640	540	480	400	310
					20-3/16	1	24-3/16	1270	1090	990	880	770	670	570	510	420	330
					20-3/16	2-6 CL	24-3/16	2080	1790	1620	1440	1270	1100	940	830	690	540
					24-3/16	1	28-3/16	1310	1130	1020	900	800	690	590	520	430	340
					24-3/16	2-6 CL	28-3/16	2120	1820	1650	1460	1290	1120	950	850	700	550
1"	VS44	4-1/4" SQ.	40	.032	14-3/16	1	18-3/16	1440	1240	1120	990	880	760	650	580	480	370
					20-3/16	1	24-3/16	1530	1320	1190	1060	930	810	690	610	500	400
					20-3/16	2-6 CL	24-3/16	2330	2000	1820	1610	1420	1230	1050	930	770	610
					24-3/16	1	28-3/16	1600	1380	1250	1100	980	850	720	640	530	420
					24-3/16	2-6 CL	28-3/16	2395	2060	1870	1650	1460	1270	1080	960	790	620
1"	VS45	4-1/4" SQ.	50	.032	14-3/16	1	18-3/16	1490	1280	1160	1030	910	790	670	600	490	390
					20-3/16	1	24-3/16	1565	1350	1220	1080	950	830	700	630	520	410
					20-3/16	2-6 CL	24-3/16	2285	1970	1780	1580	1390	1210	1030	910	750	590
					24-3/16	1	28-3/16	1620	1390	1260	1120	990	860	730	650	530	420
					24-3/16	2-6 CL	28-3/16	2320	2000	1810	1600	1420	1230	1040	930	770	600
1-1/4"	VS143	4-1/4" SQ.	32	.032	14-3/16	1	18-3/16	1110	950	870	770	680	590	500	440	370	290
					20-3/16	1	24-3/16	1170	1010	910	810	710	620	530	470	390	300
					20-3/16	2-6 CL	24-3/16	1910	1640	1490	1320	1170	1010	860	760	630	500
					24-3/16	1	28-3/16	1200	1030	940	830	730	640	540	480	400	310
					24-3/16	2-6 CL	28-3/16	1940	1670	1510	1340	1180	1030	870	780	640	500
1-1/4"	VS144	4-1/4" SQ.	40	.032	14-3/16	1	18-3/16	1430	1230	1120	990	870	760	640	570	470	370
					20-3/16	1	24-3/16	1520	1310	1190	1050	930	810	680	610	500	400
					20-3/16	2-6 CL	24-3/16	2240	1930	1750	1550	1370	1190	1010	900	740	580
					24-3/16	1	28-3/16	1590	1370	1240	1100	970	840	720	640	520	410
					24-3/16	2-6 CL	28-3/16	2300	1980	1790	1590	1400	1220	1040	920	760	600
1-1/4"	VS145	4-1/4" SQ.	50	.032	14-3/16	1	18-3/16	1460	1260	1140	1010	890	770	660	580	480	380
					20-3/16	1	24-3/16	1535	1320	1200	1060	940	810	690	610	510	400
					20-3/16	2-6 CL	24-3/16	2240	1930	1750	1550	1370	1190	1010	900	740	580
					24-3/16	1	28-3/16	1595	1370	1240	1100	970	850	720	640	530	410
					24-3/16	2-6 CL	28-3/16	2275	1960	1770	1570	1390	1210	1020	910	750	590
2"	VS242	4-1/4" SQ.	25	.032	14-3/16	1	18-3/16	1090	940	850	750	660	580	490	440	360	280
					20-3/16	1	24-3/16	1130	970	880	780	690	600	510	450	370	290
					20-3/16	2-6 CL	24-3/16	1830	1570	1430	1260	1120	970	820	730	600	480
					24-3/16	1	28-3/16	1150	990	900	790	700	610	520	460	380	300
					24-3/16	2-6 CL	28-3/16	1850	1590	1440	1280	1130	980	830	740	610	480
2"	VS243	4-1/4" SQ.	32	.032	14-3/16	1	18-3/16	1290	1110	1010	890	790	680	580	520	430	340
					20-3/16	1	24-3/16	1330	1140	1040	920	810	700	600	530	440	350
					20-3/16	2-6 CL	24-3/16	2030	1750	1580	1400	1240	1080	910	810	670	530
					24-3/16	1	28-3/16	1380	1190	1080	950	840	730	620	550	460	360
					24-3/16	2-6 CL	28-3/16	2060	1770	1610	1420	1260	1090	930	820	680	540
24-3/16	3-6 CL	28-3/16	2370	2040	1850	1640	1450	1260	1070	950	780	620					

NPT threads furnished on steel elements. Please use domestic fittings for proper installation.

"4" OFFSET

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A MIN	A MAX
3/4 COPPER	3 5/8 x 4 1/4	2	7 3/8	8 3/4
	4 1/4 x 4 1/4	3A	7 11/16	9 1/16
1" COPPER	3 5/8 x 4 1/4	2	7 1/2	8 7/8
	4 1/4 x 4 1/4			
1 1/4 COPPER	3 5/8 x 4 1/4	2	7 5/8	9"
	4 1/4 x 4 1/4			
1" STEEL	4 1/4 x 4 1/4	2	7 5/8	9"
1 1/4 STEEL	4 1/4 x 4 1/4	2	7 7/8	9 1/4
2" STEEL	4 1/4 x 4 1/4	1	7 5/8	9"

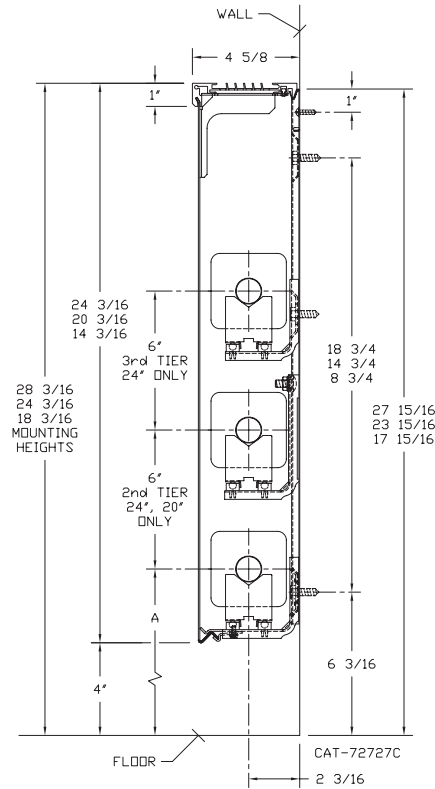


CAT-49262H

Drawing shows enclosure with steam bracket and bracket mounted hanger.

STYLES JDV3 14, 20 & 24 DURA-VANE II

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A
3/4" COPPER	3 1/4 x 3 1/4	2	7"
1" COPPER	3 1/4 x 3 1/4	2	7 3/16"
1 1/4" COPPER	3 1/4 x 3 1/4	1	6 5/8"
1" STEEL	3 1/4 x 3 1/4	2	7 5/16"
1 1/4" STEEL	3 1/4 x 3 1/4	1	6 13/16"



COPPER/ALUMINUM ELEMENT RATINGS					ENCL HEIGHT IN INCHES	TIERS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)									
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					200°	190°	180°	170°	160°	150°	140°	130°	120°	
ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT									CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES									
									1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26
3/4"	VC3/4-33	3-1/4" SQ.	32	.020	14-3/16	1	18-3/16	1050	900	820	720	640	560	470	420	350	270	
					20-3/16	1	24-3/16	1110	950	870	770	680	590	500	440	370	290	
					20-3/16	2-6 CL	24-3/16	1660	1430	1290	1150	1010	880	750	660	550	430	
					24-3/16	1	28-3/16	1160	1000	900	800	710	610	520	460	380	300	
					24-3/16	2-6 CL	28-3/16	1740	1500	1360	1200	1060	920	780	700	570	450	
3/4"	VC3/4-34	3-1/4" SQ.	40	.020	14-3/16	1	18-3/16	1230	1060	960	850	750	650	550	490	410	320	
					20-3/16	1	24-3/16	1300	1120	1010	900	790	690	590	520	430	340	
					20-3/16	2-6 CL	24-3/16	1890	1630	1470	1300	1150	1000	850	760	620	490	
					24-3/16	1	28-3/16	1390	1200	1080	960	850	740	630	560	460	360	
					24-3/16	2-6 CL	28-3/16	2010	1730	1570	1390	1230	1070	900	800	660	520	
3/4"	VC3/4-35	3-1/4" SQ.	50	.020	14-3/16	1	18-3/16	1370	1180	1070	950	840	730	620	550	450	360	
					20-3/16	1	24-3/16	1460	1260	1140	1010	890	770	660	580	480	380	
					20-3/16	2-6 CL	24-3/16	2040	1750	1590	1410	1240	1080	920	820	670	530	
					24-3/16	1	28-3/16	1550	1330	1210	1070	950	820	700	620	510	400	
					24-3/16	2-6 CL	28-3/16	2170	1870	1690	1500	1320	1150	980	870	720	560	
1"	VC33	3-1/4" SQ.	32	.020	14-3/16	1	18-3/16	1130	970	880	780	690	600	510	450	370	290	
					20-3/16	1	24-3/16	1190	1020	930	820	730	630	540	480	390	310	
					20-3/16	2-6 CL	24-3/16	1780	1530	1390	1230	1090	940	800	710	590	460	
					24-3/16	1	28-3/16	1250	1080	980	860	760	660	560	500	410	330	
					24-3/16	2-6 CL	28-3/16	1870	1610	1460	1290	1140	990	840	750	620	490	
1"	VC34	3-1/4" SQ.	40	.020	14-3/16	1	18-3/16	1270	1090	990	880	770	670	570	510	420	330	
					20-3/16	1	24-3/16	1340	1150	1050	920	820	710	600	540	440	350	
					20-3/16	2-6 CL	24-3/16	1940	1670	1510	1340	1180	1030	870	780	640	500	
					24-3/16	1	28-3/16	1430	1230	1120	990	870	760	640	570	470	370	
					24-3/16	2-6 CL	28-3/16	1920	1650	1500	1320	1170	1020	860	770	630	500	
1"	VC35	3-1/4" SQ.	50	.020	14-3/16	1	18-3/16	1290	1110	1010	900	790	680	570	510	420	330	
					20-3/16	1	24-3/16	1400	1200	1090	970	850	740	630	560	460	360	
					20-3/16	2-6 CL	24-3/16	1950	1680	1520	1350	1190	1030	880	780	640	510	
					24-3/16	1	28-3/16	1490	1280	1160	1030	910	790	670	600	490	390	
					24-3/16	2-6 CL	28-3/16	2080	1790	1620	1440	1270	1100	940	830	690	540	
1-1/4"	VC133	3-1/4" SQ.	32	.020	14-3/16	1	18-3/16	1130	970	880	780	690	600	510	450	370	290	
					20-3/16	1	24-3/16	1190	1020	930	820	730	630	540	480	390	310	
					20-3/16	2-6 CL	24-3/16	1780	1530	1390	1230	1090	940	800	710	590	460	
					24-3/16	1	28-3/16	1250	1080	980	860	760	660	560	500	410	330	
					24-3/16	2-6 CL	28-3/16	1870	1610	1460	1290	1140	990	840	750	620	490	
24-3/16	3-6 CL	28-3/16	2150	1850	1680	1480	1310	1140	970	860	710	560						

STYLES JDV3 14, 20 & 24 DURA-VANE II

COPPER/ALUMINUM ELEMENT RATINGS					ENCL HEIGHT IN INCHES	TIERS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)									
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES									
									200°	190°	180°	170°	160°	150°	140°	130°	120°	
1-1/4"	VC134	3-1/4" SQ.	40	.020	14-3/16	1	18-3/16	1250	1080	980	860	760	660	560	500	410	330	
					20-3/16	1	24-3/16	1320	1140	1030	910	810	700	590	530	440	340	
					20-3/16	2-6 CL	24-3/16	1920	1650	1500	1320	1170	1020	860	770	630	500	
					24-3/16	1	28-3/16	1410	1210	1100	970	860	750	630	560	470	370	
					24-3/16	2-6 CL	28-3/16	1890	1630	1470	1300	1150	1000	850	760	620	490	
					24-3/16	3-6 CL	28-3/16	2150	1850	1680	1480	1310	1140	970	860	710	560	
1-1/4"	VC135	3-1/4" SQ.	50	.020	14-3/16	1	18-3/16	1300	1120	1010	900	790	690	590	520	430	340	
					20-3/16	1	24-3/16	1390	1200	1080	960	850	740	630	560	460	360	
					20-3/16	2-6 CL	24-3/16	1940	1670	1510	1340	1180	1030	870	780	640	500	
					24-3/16	1	28-3/16	1470	1260	1150	1010	900	780	660	590	490	380	
					24-3/16	2-6 CL	28-3/16	2050	1760	1600	1410	1250	1090	920	820	680	530	
					24-3/16	3-6 CL	28-3/16	2320	2000	1810	1600	1420	1230	1040	930	770	600	

Copper tube furnished flared one end standard.

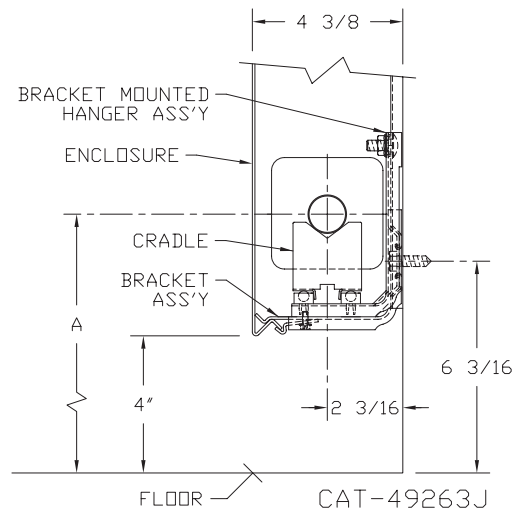
STEEL ELEMENT RATINGS					ENCL HEIGHT IN INCHES	TIERS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)									
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES									
									200°	190°	180°	170°	160°	150°	140°	130°	120°	
1"	VS33	3-1/4" SQ.	32	.032	14-3/16	1	18-3/16	1030	890	800	710	630	550	460	410	340	270	
					20-3/16	1	24-3/16	1130	970	880	780	690	600	510	450	370	290	
					20-3/16	2-6 CL	24-3/16	1640	1410	1280	1130	1000	870	740	660	540	430	
					24-3/16	1	28-3/16	1170	1010	910	810	710	620	530	470	390	300	
					24-3/16	2-6 CL	28-3/16	1700	1460	1330	1170	1040	900	770	680	560	440	
					24-3/16	3-6 CL	28-3/16	1950	1680	1520	1350	1190	1030	880	780	640	510	
1"	VS34	3-1/4" SQ.	40	.032	14-3/16	1	18-3/16	1100	950	860	760	670	580	500	440	360	290	
					20-3/16	1	24-3/16	1280	1100	1000	880	780	680	580	510	420	330	
					20-3/16	2-6 CL	24-3/16	1800	1550	1400	1240	1100	950	810	720	590	470	
					24-3/16	1	28-3/16	1315	1130	1030	910	800	700	590	530	430	340	
					24-3/16	2-6 CL	28-3/16	1860	1600	1450	1280	1130	990	840	740	610	480	
					24-3/16	3-6 CL	28-3/16	2120	1820	1650	1460	1290	1120	950	850	700	550	
1"	VS35	3-1/4" SQ.	50	.032	14-3/16	1	18-3/16	1175	1010	920	810	720	620	530	470	390	310	
					20-3/16	1	24-3/16	1340	1150	1050	920	820	710	600	540	440	350	
					20-3/16	2-6 CL	24-3/16	1870	1610	1460	1290	1140	990	840	750	620	490	
					24-3/16	1	28-3/16	1390	1200	1080	960	850	740	630	560	460	360	
					24-3/16	2-6 CL	28-3/16	1930	1660	1510	1330	1180	1020	870	770	640	500	
					24-3/16	3-6 CL	28-3/16	2180	1870	1700	1500	1330	1160	980	870	720	570	
1-1/4"	VS133	3-1/4" SQ.	32	.032	14-3/16	1	18-3/16	1020	880	800	700	620	540	460	410	340	270	
					20-3/16	1	24-3/16	1120	960	870	770	680	590	500	450	370	290	
					20-3/16	2-6 CL	24-3/16	1680	1440	1310	1160	1020	890	760	670	550	440	
					24-3/16	1	28-3/16	1160	1000	900	800	710	610	520	460	380	300	
					24-3/16	2-6 CL	28-3/16	1740	1500	1360	1200	1060	920	780	700	570	450	
					24-3/16	3-6 CL	28-3/16	2000	1720	1560	1380	1220	1060	900	800	660	520	
1-1/4"	VS134	3-1/4" SQ.	40	.032	14-3/16	1	18-3/16	1110	950	870	770	680	590	500	440	370	290	
					20-3/16	1	24-3/16	1290	1110	1010	890	790	680	580	520	430	340	
					20-3/16	2-6 CL	24-3/16	1800	1550	1400	1240	1100	950	810	720	590	470	
					24-3/16	1	28-3/16	1330	1140	1040	920	810	700	600	530	440	350	
					24-3/16	2-6 CL	28-3/16	1860	1600	1450	1280	1130	990	840	740	610	480	
					24-3/16	3-6 CL	28-3/16	2120	1820	1650	1460	1290	1120	950	850	700	550	
1-1/4"	VS135	3-1/4" SQ.	50	.032	14-3/16	1	18-3/16	1145	980	890	790	700	610	520	460	380	300	
					20-3/16	1	24-3/16	1305	1120	1020	900	800	690	590	520	430	340	
					20-3/16	2-6 CL	24-3/16	1830	1570	1430	1260	1120	970	820	730	600	480	
					24-3/16	1	28-3/16	1350	1160	1050	930	820	720	610	540	450	350	
					24-3/16	2-6 CL	28-3/16	1890	1630	1470	1300	1150	1000	850	760	620	490	
					24-3/16	3-6 CL	28-3/16	2140	1840	1670	1480	1310	1130	960	860	710	560	

NPT threads furnished on steel elements. Please use domestic fittings for proper installation.

"3" OFFSET

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A MIN	A MAX
3/4" COPPER	3 1/4 x 3 1/4	2	7 3/8	9 5/8
1" COPPER	3 1/4 x 3 1/4	2	7 1/2	9 3/4
1 1/4" COPPER	3 1/4 x 3 1/4	2	7 5/8	9 7/8
1" STEEL	3 1/4 x 3 1/4	2	7 5/8	9 3/4
1 1/4" STEEL	3 1/4 x 3 1/4	1	7 3/16	9 3/8

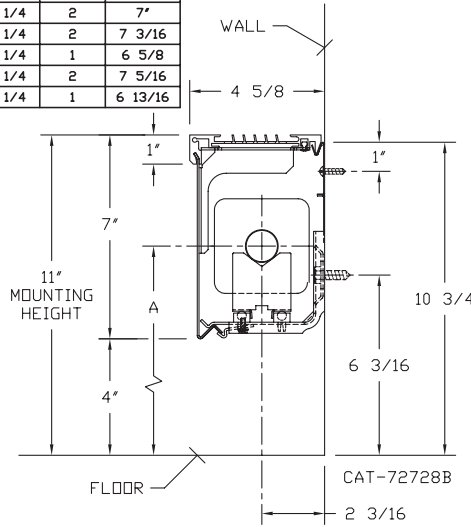
Drawing shows enclosure with steam bracket and bracket mounted hanger.



STYLES JDV3 7 & JDV4 7 DURA-VANE II LOW PROFILE

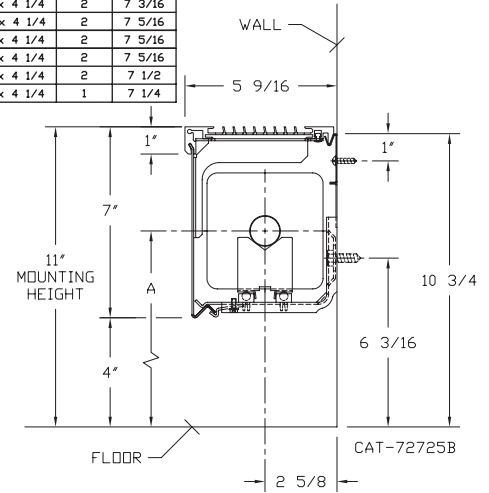
JDV3 7

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A
3/4 COPPER	3 1/4 x 3 1/4	2	7"
1" COPPER	3 1/4 x 3 1/4	2	7 3/16"
1 1/4 COPPER	3 1/4 x 3 1/4	1	6 5/8"
1" STEEL	3 1/4 x 3 1/4	2	7 5/16"
1 1/4 STEEL	3 1/4 x 3 1/4	1	6 13/16"



JDV4 7

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A
3/4 COPPER	3 5/8 x 4 1/4	2	7"
3/4 COPPER	4 1/4 x 4 1/4	3A	7 3/8"
1" COPPER	3 5/8 x 4 1/4	2	7 3/16"
1" COPPER	4 1/4 x 4 1/4	2	7 3/16"
1 1/4 COPPER	3 5/8 x 4 1/4	2	7 5/16"
1 1/4 COPPER	4 1/4 x 4 1/4	2	7 5/16"
1" STEEL	4 1/4 x 4 1/4	2	7 5/16"
1 1/4 STEEL	4 1/4 x 4 1/4	2	7 1/2"
2" STEEL	4 1/4 x 4 1/4	1	7 1/4"



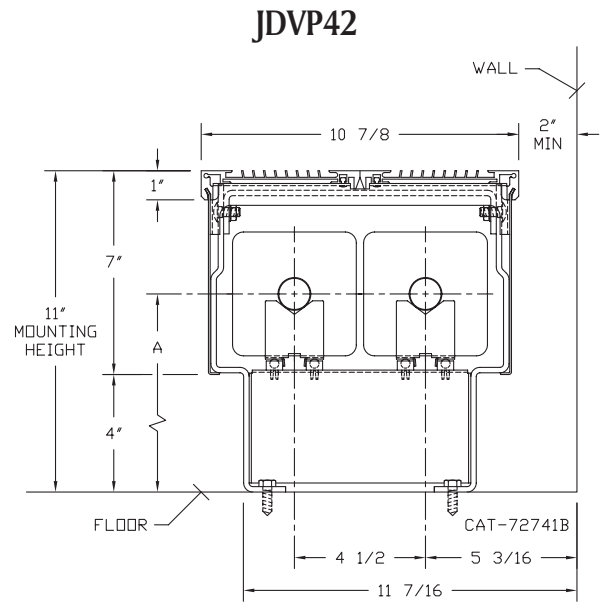
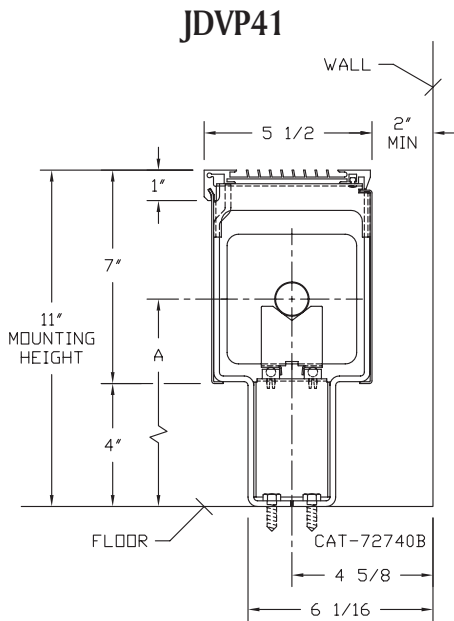
COPPER/ALUMINUM ELEMENT RATINGS					ENCL HEIGHT IN INCHES	ENCL DEPTH IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)								
ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT									CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES								
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					200°	190°	180°	170°	160°	150°	140°	130°	120°
3/4"	VC3/4-33	3-1/4" SQ.	32	.020	7	4-5/8	11	820	710	640	570	500	430	370	330	270	210
3/4"	VC3/4-34	3-1/4" SQ.	40	.020	7	4-5/8	11	1000	860	780	690	610	530	450	400	330	260
3/4"	VC3/4-35	3-1/4" SQ.	50	.020	7	4-5/8	11	1010	870	790	700	620	540	450	400	330	260
1"	VC33	3-1/4" SQ.	32	.020	7	4-5/8	11	840	720	660	580	510	450	380	340	280	220
1"	VC34	3-1/4" SQ.	40	.020	7	4-5/8	11	970	830	760	670	590	510	440	390	320	250
1"	VC35	3-1/4" SQ.	50	.020	7	4-5/8	11	980	840	760	680	600	520	440	390	320	250
1 1/4"	VC133	3-1/4" SQ.	32	.020	7	4-5/8	11	810	700	630	560	490	430	360	320	270	210
1 1/4"	VC134	3-1/4" SQ.	40	.020	7	4-5/8	11	930	800	730	640	570	490	420	370	310	240
1 1/4"	VC135	3-1/4" SQ.	50	.020	7	4-5/8	11	940	810	730	650	570	500	420	380	310	240
3/4"	VC3/4-433	3-5/8" x 4-1/4"	32	.020	7	5-9/16	11	1065	920	830	730	650	560	480	430	350	280
3/4"	VC3/4-434	3-5/8" x 4-1/4"	40	.020	7	5-9/16	11	1240	1070	970	860	760	660	560	500	410	320
3/4"	VC3/4-435	3-5/8" x 4-1/4"	50	.020	7	5-9/16	11	1320	1140	1030	910	810	700	590	530	440	340
1"	VC433	3-5/8" x 4-1/4"	32	.020	7	5-9/16	11	1150	990	900	790	700	610	520	460	380	300
1"	VC434	3-5/8" x 4-1/4"	40	.020	7	5-9/16	11	1260	1080	980	870	770	670	570	500	420	330
1"	VC435	3-5/8" x 4-1/4"	50	.020	7	5-9/16	11	1360	1170	1060	940	830	720	610	540	450	350
1-1/4"	VC1433	3-5/8" x 4-1/4"	32	.020	7	5-9/16	11	1120	960	870	770	680	590	500	450	370	290
1-1/4"	VC1434	3-5/8" x 4-1/4"	40	.020	7	5-9/16	11	1240	1070	970	860	760	660	560	500	410	320
1-1/4"	VC1435	3-5/8" x 4-1/4"	50	.020	7	5-9/16	11	1330	1140	1040	920	810	700	600	530	440	350
3/4"	VC3/4-43	4-1/4" SQ.	32	.020	7	5-9/16	11	1250	1080	980	860	760	660	560	500	410	330
3/4"	VC3/4-44	4-1/4" SQ.	40	.020	7	5-9/16	11	1360	1170	1060	940	830	720	610	540	450	350
3/4"	VC3/4-45	4-1/4" SQ.	50	.020	7	5-9/16	11	1380	1190	1080	950	840	730	620	550	460	360
1"	VC43	4-1/4" SQ.	32	.020	7	5-9/16	11	1260	1080	980	870	770	670	570	500	420	330
1"	VC44	4-1/4" SQ.	40	.020	7	5-9/16	11	1390	1200	1080	960	850	740	630	560	460	360
1"	VC45	4-1/4" SQ.	50	.020	7	5-9/16	11	1410	1210	1100	970	860	750	630	560	470	370
1-1/4"	VC143	4-1/4" SQ.	32	.020	7	5-9/16	11	1230	1060	960	850	750	650	550	490	410	320
1-1/4"	VC144	4-1/4" SQ.	40	.020	7	5-9/16	11	1370	1180	1070	950	840	730	620	550	450	360
1-1/4"	VC145	4-1/4" SQ.	50	.020	7	5-9/16	11	1390	1200	1080	960	850	740	630	560	460	360

Copper tube furnished flared one end standard.

STEEL ELEMENT RATINGS					ENCL HEIGHT IN INCHES	ENCL DEPTH IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)								
ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT									CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES								
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					200°	190°	180°	170°	160°	150°	140°	130°	120°
1"	VS33	3-1/4" SQ.	32	.032	7	4-5/8	11	780	670	610	540	480	410	350	310	260	200
1"	VS34	3-1/4" SQ.	40	.032	7	4-5/8	11	860	740	670	590	520	460	390	340	280	220
1"	VS35	3-1/4" SQ.	50	.032	7	4-5/8	11	900	770	700	620	550	480	410	360	300	230
1-1/4"	VS133	3-1/4" SQ.	32	.032	7	4-5/8	11	770	660	600	530	470	410	350	310	250	200
1-1/4"	VS134	3-1/4" SQ.	40	.032	7	4-5/8	11	870	750	680	600	530	460	390	350	290	230
1-1/4"	VS135	3-1/4" SQ.	50	.032	7	4-5/8	11	885	760	690	610	540	470	400	350	290	230
1"	VS43	4-1/4" SQ.	32	.032	7	5-9/16	11	1100	950	860	760	670	580	500	440	360	290
1"	VS44	4-1/4" SQ.	40	.032	7	5-9/16	11	1210	1040	940	830	740	640	540	480	400	310
1"	VS45	4-1/4" SQ.	50	.032	7	5-9/16	11	1295	1110	1010	890	790	690	580	520	430	340
1-1/4"	VS143	4-1/4" SQ.	32	.032	7	5-9/16	11	1010	870	790	700	620	540	450	400	330	260
1-1/4"	VS144	4-1/4" SQ.	40	.032	7	5-9/16	11	1210	1040	940	830	740	640	540	480	400	310
1-1/4"	VS145	4-1/4" SQ.	50	.032	7	5-9/16	11	1270	1090	990	880	770	670	570	510	420	330
2"	VS242	4-1/4" SQ.	25	.032	7	5-9/16	11	950	820	740	660	580	500	430	380	310	250
2"	VS243	4-1/4" SQ.	32	.032	7	5-9/16	11	1130	970	880	780	690	600	510	450	370	290

NPT threads furnished on steel elements. Please use domestic fittings for proper installation.

STYLES JDVP41 & JDVP42 DURA-VANE II



ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A
3/4" COPPER	3 5/8" x 4 1/4"	2	6 5/8"
3/4" COPPER	4 1/4" x 4 1/4"	3A	7"
1" COPPER	3 5/8" x 4 1/4"	2	6 13/16"
1" COPPER	4 1/4" x 4 1/4"	2	6 13/16"
1 1/4" COPPER	3 5/8" x 4 1/4"	2	6 15/16"
1 1/4" COPPER	4 1/4" x 4 1/4"	2	6 15/16"
1" STEEL	4 1/4" x 4 1/4"	2	6 15/16"
1 1/4" STEEL	4 1/4" x 4 1/4"	2	7 1/8"
2" STEEL	4 1/4" x 4 1/4"	1	6 7/8"

COPPER/ALUMINUM ELEMENT RATINGS ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT					ENCL DEPTH IN INCHES	ROWS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)									
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					200°	190°	180°	170°	160°	150°	140°	130°	120°	
									CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES									
									1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26
3/4"	VC3/4-433	3-5/8" x 4-1/4"	32	.020	5 1/2	1	11	1040	890	810	720	630	550	470	420	340	270	
					10 7/8	2-4 1/2	11	2080	1790	1620	1440	1270	1100	940	830	690	540	
3/4"	VC3/4-434	3-5/8" x 4-1/4"	40	.020	5 1/2	1	11	1250	1080	980	860	760	660	560	500	410	330	
					10 7/8	2-4 1/2	11	2490	2140	1940	1720	1520	1320	1120	1000	820	650	
3/4"	VC3/4-435	3-5/8" x 4-1/4"	50	.020	5 1/2	1	11	1380	1190	1080	950	840	730	620	550	460	360	
					10 7/8	2-4 1/2	11	2750	2370	2150	1900	1680	1460	1240	1100	910	720	
1"	VC433	3-5/8" x 4-1/4"	32	.020	5 1/2	1	11	1080	930	840	750	660	570	490	430	360	280	
					10 7/8	2-4 1/2	11	2170	1870	1690	1500	1320	1150	980	870	720	560	
1"	VC434	3-5/8" x 4-1/4"	40	.020	5 1/2	1	11	1210	1040	940	830	740	640	540	480	400	310	
					10 7/8	2-4 1/2	11	2430	2090	1900	1680	1480	1290	1090	970	800	630	
1"	VC435	3-5/8" x 4-1/4"	50	.020	5 1/2	1	11	1380	1190	1080	950	840	730	620	550	460	360	
					10 7/8	2-4 1/2	11	2750	2370	2150	1900	1680	1460	1240	1100	910	720	
1-1/4"	VC1433	3-5/8" x 4-1/4"	32	.020	5 1/2	1	11	1130	970	880	780	690	600	510	450	370	290	
					10 7/8	2-4 1/2	11	2250	1940	1760	1550	1370	1190	1010	900	740	590	
1-1/4"	VC1434	3-5/8" x 4-1/4"	40	.020	5 1/2	1	11	1240	1070	970	860	760	660	560	500	410	320	
					10 7/8	2-4 1/2	11	2480	2130	1930	1710	1510	1310	1120	990	820	640	
1-1/4"	VC1435	3-5/8" x 4-1/4"	50	.020	5 1/2	1	11	1380	1190	1080	950	840	730	620	550	460	360	
					10 7/8	2-4 1/2	11	2750	2370	2150	1900	1680	1460	1240	1100	910	720	
3/4"	VC3/4-43	4-1/4" SQ.	32	.020	5 1/2	1	11	1150	990	900	790	700	610	520	460	380	300	
					10 7/8	2-4 1/2	11	2300	1980	1790	1590	1400	1220	1040	920	760	600	
3/4"	VC3/4-44	4-1/4" SQ.	40	.020	5 1/2	1	11	1380	1190	1080	950	840	730	620	550	460	360	
					10 7/8	2-4 1/2	11	2750	2370	2150	1900	1680	1460	1240	1100	910	720	
3/4"	VC3/4-45	4-1/4" SQ.	50	.020	5 1/2	1	11	1420	1220	1110	980	870	750	640	570	470	370	
					10 7/8	2-4 1/2	11	2840	2440	2220	1960	1730	1510	1280	1140	940	740	
1"	VC43	4-1/4" SQ.	32	.020	5 1/2	1	11	1150	990	900	790	700	610	520	460	380	300	
					10 7/8	2-4 1/2	11	2300	1980	1790	1590	1400	1220	1040	920	760	600	
1"	VC44	4-1/4" SQ.	40	.020	5 1/2	1	11	1280	1100	1000	880	780	680	580	510	420	330	
					10 7/8	2-4 1/2	11	2560	2200	2000	1770	1560	1360	1150	1020	840	670	
1"	VC45	4-1/4" SQ.	50	.020	5 1/2	1	11	1440	1240	1120	990	880	760	650	580	480	370	
					10 7/8	2-4 1/2	11	2890	2490	2250	1990	1760	1530	1300	1160	950	750	
1-1/4"	VC143	4-1/4" SQ.	32	.020	5 1/2	1	11	1200	1030	940	830	730	640	540	480	400	310	
					10 7/8	2-4 1/2	11	2410	2070	1880	1660	1470	1280	1080	960	800	630	
1-1/4"	VC144	4-1/4" SQ.	40	.020	5 1/2	1	11	1430	1230	1120	990	870	760	640	570	470	370	
					10 7/8	2-4 1/2	11	2860	2460	2230	1970	1740	1520	1290	1140	940	740	
1-1/4"	VC145	4-1/4" SQ.	50	.020	5 1/2	1	11	1470	1260	1150	1010	900	780	660	590	490	380	
					10 7/8	2-4 1/2	11	2940	2530	2290	2030	1790	1560	1320	1180	970	760	

Copper tube furnished flared one end standard.

STYLES JDVP41 & JDVP42 DURA-VANE II

STEEL ELEMENT RATINGS					ENCL DEPTH IN INCHES	ROWS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)									
ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT									200°	190°	180°	170°	160°	150°	140°	130°	120°	
I.P.S. SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES									
							1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26		
1"	VS43	4-1/4" SQ.	32	.032	5 1/2	1	1140	980	890	790	700	600	510	460	380	300		
					10 7/8	2 - 4 1/2	2270	1950	1770	1570	1380	1200	1020	910	750	590		
1"	VS44	4-1/4" SQ.	40	.032	5 1/2	1	1280	1100	1000	880	780	680	580	510	420	330		
					10 7/8	2 - 4 1/2	2560	2200	2000	1770	1560	1360	1150	1020	840	670		
1"	VS45	4-1/4" SQ.	50	.032	5 1/2	1	1360	1170	1060	940	830	720	610	540	450	350		
					10 7/8	2 - 4 1/2	2720	2340	2120	1880	1660	1440	1220	1090	900	710		
1-1/4"	VS143	4-1/4" SQ.	32	.032	5 1/2	1	1050	900	820	720	640	560	470	420	350	270		
					10 7/8	2 - 4 1/2	2100	1810	1640	1450	1280	1110	950	840	690	550		
1-1/4"	VS144	4-1/4" SQ.	40	.032	5 1/2	1	1270	1090	990	880	770	670	570	510	420	330		
					10 7/8	2 - 4 1/2	2550	2190	1990	1760	1560	1350	1150	1020	840	660		
1-1/4"	VS145	4-1/4" SQ.	50	.032	5 1/2	1	1330	1140	1040	920	810	700	600	530	440	350		
					10 7/8	2 - 4 1/2	2670	2300	2080	1840	1630	1420	1200	1070	880	690		
2"	VS242	4-1/4" SQ.	25	.032	5 1/2	1	980	840	760	680	600	520	440	390	320	250		
					10 7/8	2 - 4 1/2	1960	1690	1530	1350	1200	1040	880	780	650	510		
2"	VS243	4-1/4" SQ.	32	.032	5 1/2	1	1280	1100	1000	880	780	680	580	510	420	330		
					10 7/8	2 - 4 1/2	2560	2200	2000	1770	1560	1360	1150	1020	840	670		

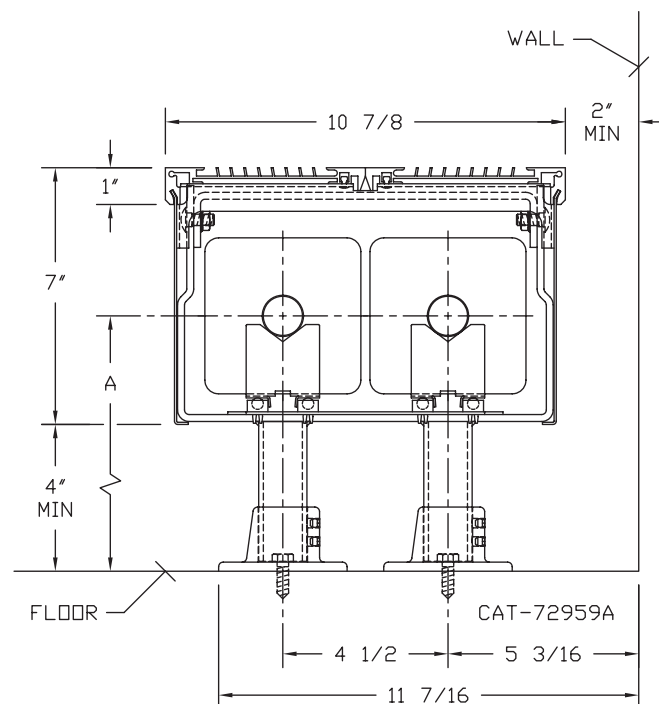
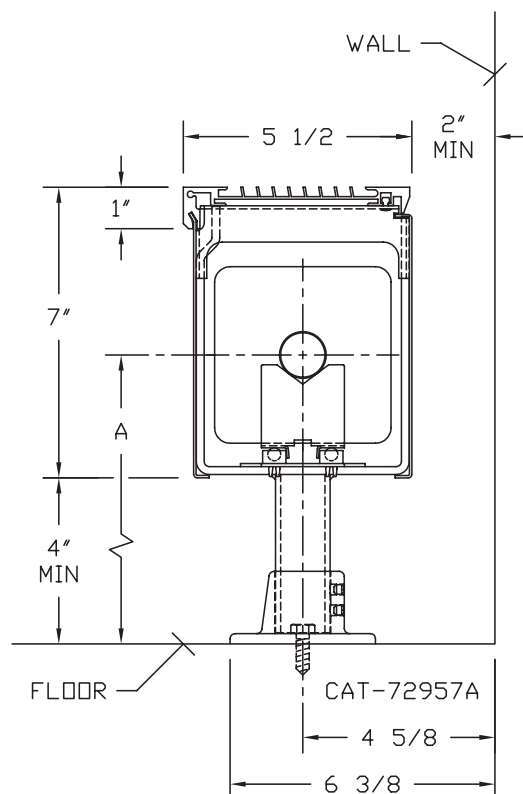
NPT threads furnished on steel elements. Please use domestic fittings for proper installation.

Optional Adjustable Pedestal Bracket Assembly with Aluminum Floor Flange

JDVP41

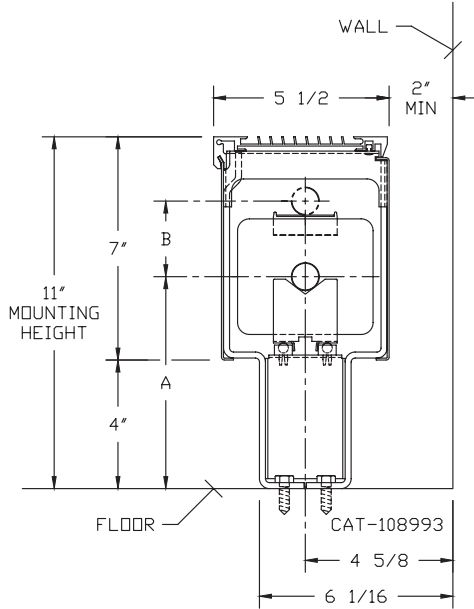
JDVP42

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A MIN	A MAX
3/4" COPPER	3 5/8 x 4 1/4	2	6 13/16	7 11/16
3/4" COPPER	4 1/4 x 4 1/4	3A	7 3/16	8 1/16
1" COPPER	3 5/8 x 4 1/4	2	6 15/16	7 13/16
1" COPPER	4 1/4 x 4 1/4	2	6 15/16	7 13/16
1 1/4" COPPER	3 5/8 x 4 1/4	2	7 1/8	8"
1 1/4" COPPER	4 1/4 x 4 1/4	2	7 1/8	8"
1" STEEL	4 1/4 x 4 1/4	2	7 1/16	7 15/16
1 1/4" STEEL	4 1/4 x 4 1/4	2	7 5/16	8 3/16
2" STEEL	4 1/4 x 4 1/4	1	7 1/16	7 15/16

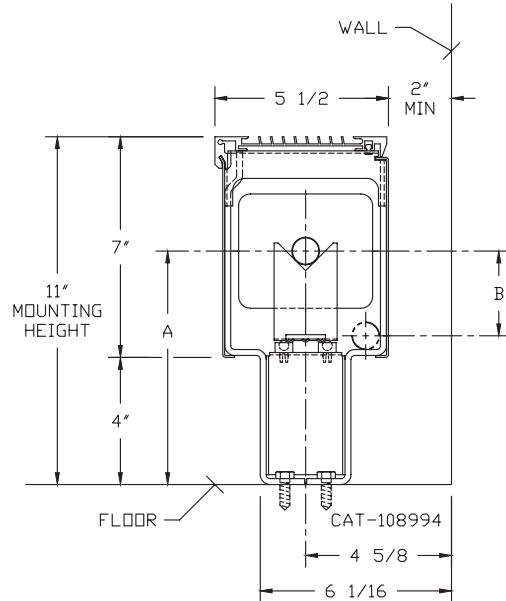


RETURN PIPING OPTIONS - JDVP41 & JDVP42

JDVP41

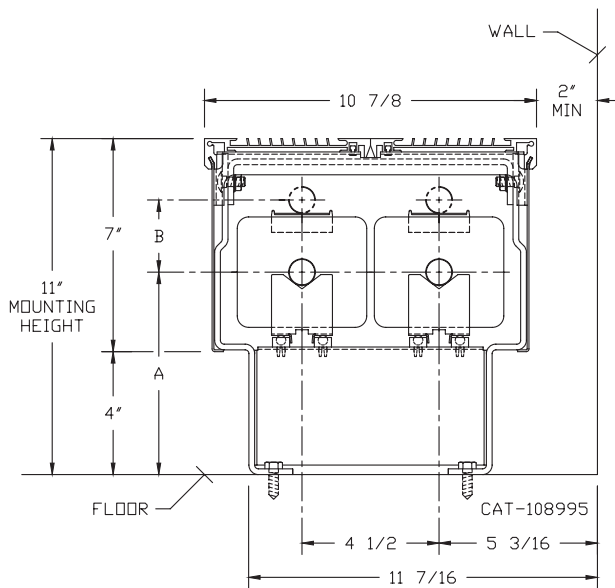


ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A	B WITH 3/4 HWR
3/4 COPPER	3 5/8 x 4 1/4	2	6 5/8	2 3/8

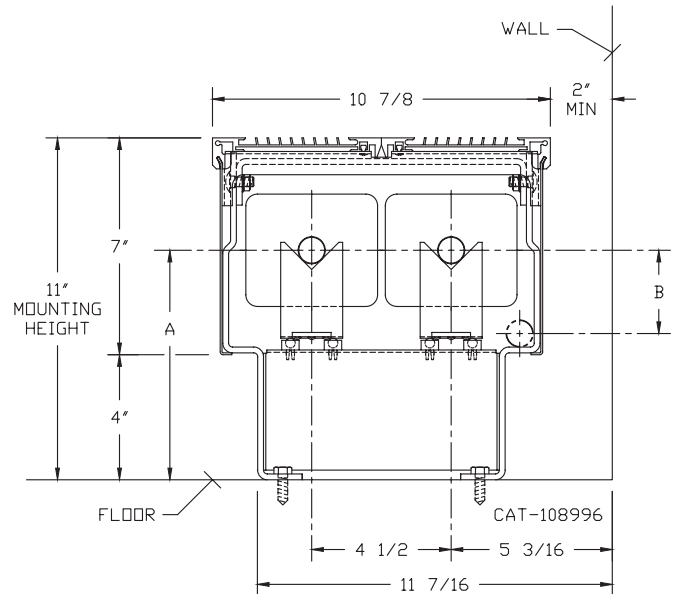


ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A	B WITH 3/4 HWR	B WITH 1" HWR
3/4 COPPER	3 5/8 x 4 1/4	6	7 3/8	2 11/16	N/A
1" COPPER	3 5/8 x 4 1/4	6	7 9/16	N/A	2 3/4

JDVP42



ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A	B WITH 3/4 HWR
3/4 COPPER	3 5/8 x 4 1/4	2	6 5/8	2 3/8



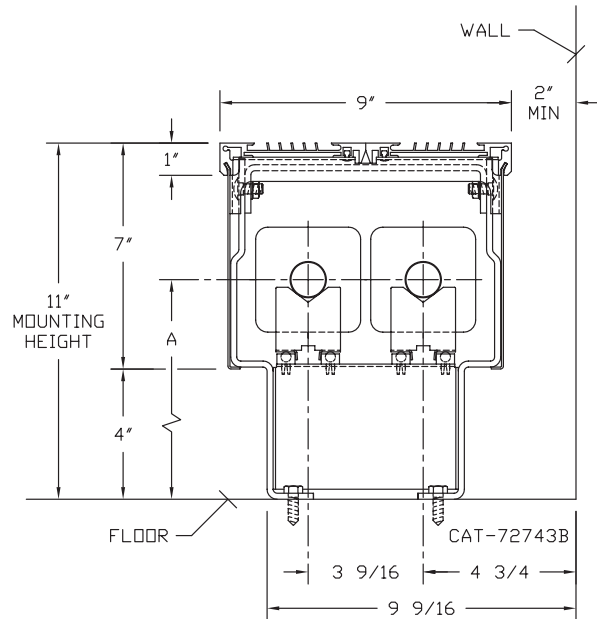
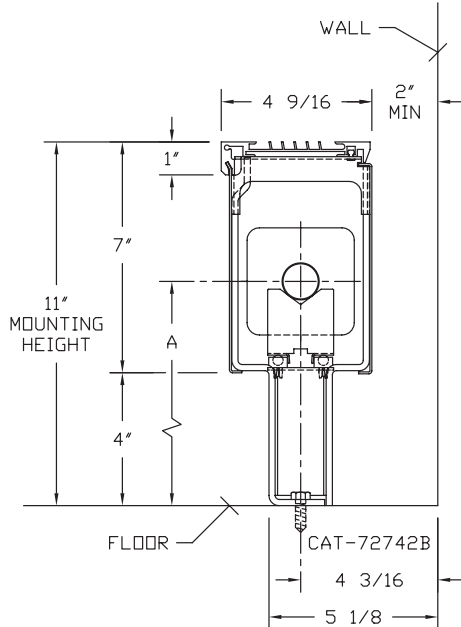
ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A	B WITH 3/4 HWR	B WITH 1" HWR
3/4 COPPER	3 5/8 x 4 1/4	6	7 3/8	2 11/16	2 9/16

STYLES JDVP31 & JDVP32 DURA-VANE II PEDESTAL

JDVP31

JDVP32

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A
3/4" COPPER	3 1/4 x 3 1/4	2	6 5/8
1" COPPER	3 1/4 x 3 1/4	2	6 13/16
1 1/4" COPPER	3 1/4 x 3 1/4	1	6 1/4
1" STEEL	3 1/4 x 3 1/4	2	6 15/16
1 1/4" STEEL	3 1/4 x 3 1/4	1	6 7/16



COPPER/ALUMINUM ELEMENT RATINGS					ENCL. DEPTH IN INCHES	ROWS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)									
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES									
ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT																		
					200°	190°	180°	170°	160°	150°	140°	130°	120°					
3/4"	VC3/4-33	3-1/4" SQ.	32	.020	4 9/16	1	11	1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26	
					9"	2-3 9/16	11	830	710	650	570	510	440	370	330	270	220	
3/4"	VC3/4-34	3-1/4" SQ.	40	.020	4 9/16	1	11	1670	1440	1300	1150	1020	890	750	670	550	430	
					9"	2-3 9/16	11	980	840	760	680	600	520	440	390	320	250	
3/4"	VC3/4-35	3-1/4" SQ.	50	.020	4 9/16	1	11	1960	1690	1530	1350	1200	1040	880	780	650	510	
					9"	2-3 9/16	11	1080	930	840	750	660	570	490	430	360	280	
1"	VC33	3-1/4" SQ.	32	.020	4 9/16	1	11	2170	1870	1690	1500	1320	1150	980	870	720	560	
					9"	2-3 9/16	11	830	710	650	570	510	440	370	330	270	220	
1"	VC34	3-1/4" SQ.	40	.020	4 9/16	1	11	1670	1440	1300	1150	1020	890	750	670	550	430	
					9"	2-3 9/16	11	930	800	730	640	570	490	420	370	310	240	
1"	VC35	3-1/4" SQ.	50	.020	4 9/16	1	11	1860	1600	1450	1280	1130	990	840	740	610	480	
					9"	2-3 9/16	11	1040	890	810	720	630	550	470	420	340	270	
1-1/4"	VC133	3-1/4" SQ.	32	.020	4 9/16	1	11	2080	1790	1620	1440	1270	1100	940	830	690	540	
					9"	2-3 9/16	11	830	710	650	570	510	440	370	330	270	220	
1-1/4"	VC134	3-1/4" SQ.	40	.020	4 9/16	1	11	1670	1440	1300	1150	1020	890	750	670	550	430	
					9"	2-3 9/16	11	910	780	710	630	560	480	410	360	300	240	
1-1/4"	VC135	3-1/4" SQ.	50	.020	4 9/16	1	11	1820	1570	1420	1260	1110	960	820	730	600	470	
					9"	2-3 9/16	11	1010	870	790	700	620	540	450	400	330	260	
					9"	2-3 9/16	11	2010	1730	1570	1390	1230	1070	900	800	660	520	

Copper tube furnished flared one end standard.

STEEL ELEMENT RATINGS					ENCL. DEPTH IN INCHES	ROWS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)									
I.P.S. SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES					CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES									
ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT																		
					200°	190°	180°	170°	160°	150°	140°	130°	120°					
1"	VS33	3-1/4" SQ.	32	.032	4 9/16	1	11	1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26	
					9"	2-3 9/16	11	780	670	610	540	480	410	350	310	260	200	
1"	VS34	3-1/4" SQ.	40	.032	4 9/16	1	11	1570	1350	1220	1080	960	830	710	630	520	410	
					9"	2-3 9/16	11	850	730	660	590	520	450	380	340	280	220	
1"	VS35	3-1/4" SQ.	50	.032	4 9/16	1	11	1700	1460	1330	1170	1040	900	770	680	560	440	
					9"	2-3 9/16	11	910	780	710	630	560	480	410	360	300	240	
1-1/4"	VS133	3-1/4" SQ.	32	.032	4 9/16	1	11	1820	1570	1420	1260	1110	960	820	730	600	470	
					9"	2-3 9/16	11	770	660	600	530	470	410	350	310	250	200	
1-1/4"	VS134	3-1/4" SQ.	40	.032	4 9/16	1	11	1550	1330	1210	1070	950	820	700	620	510	400	
					9"	2-3 9/16	11	860	740	670	590	520	460	390	340	280	220	
1-1/4"	VS135	3-1/4" SQ.	50	.032	4 9/16	1	11	1720	1480	1340	1190	1050	910	770	690	570	450	
					9"	2-3 9/16	11	890	770	690	610	540	470	400	360	290	230	
					9"	2-3 9/16	11	1770	1520	1380	1220	1080	940	800	710	580	460	

NPT threads furnished on steel elements. Please use domestic fittings for proper installation.

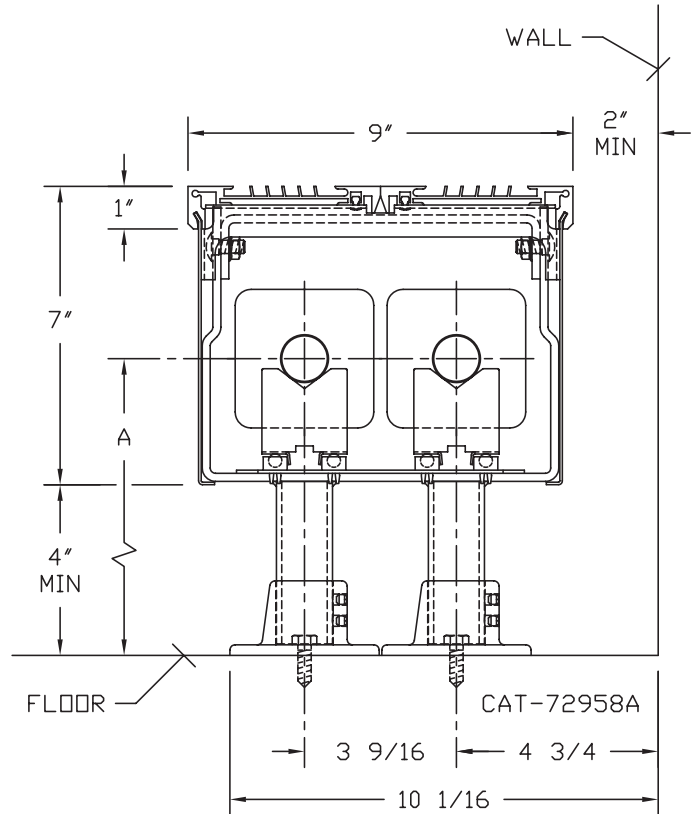
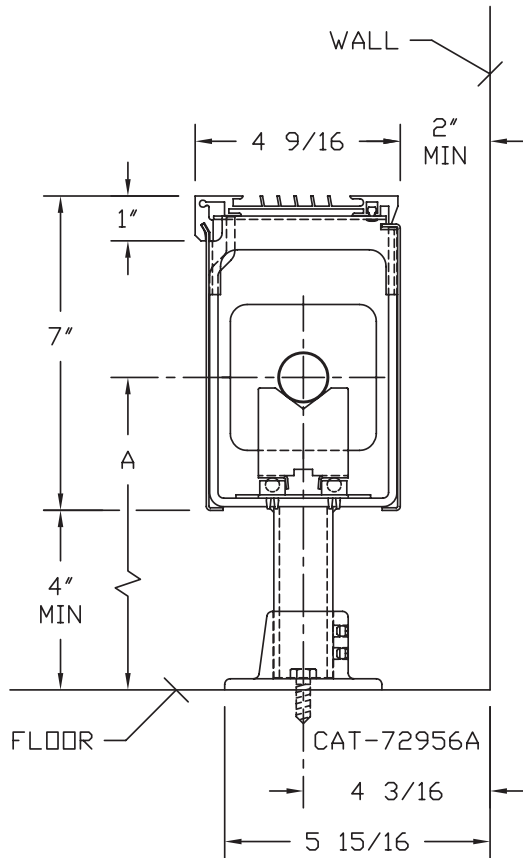
STYLES JDVP31 & JDVP32 DURA-VANE II PEDESTAL

Optional Adjustable Pedestal Bracket Assembly with Aluminum Floor Flange

JDVP31
Adjustable Pedestal Brk't

JDVP32
Adjustable Pedestal Brk't

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A MIN	A MAX
3/4" COPPER	3 1/4 x 3 1/4	2	6 13/16	7 11/16
1" COPPER	3 1/4 x 3 1/4	2	6 15/16	7 13/16
1 1/4" COPPER	3 1/4 x 3 1/4	1	6 7/16	7 5/16
1" STEEL	3 1/4 x 3 1/4	2	7 1/16	7 15/16
1 1/4" STEEL	3 1/4 x 3 1/4	1	6 5/8	7 1/2

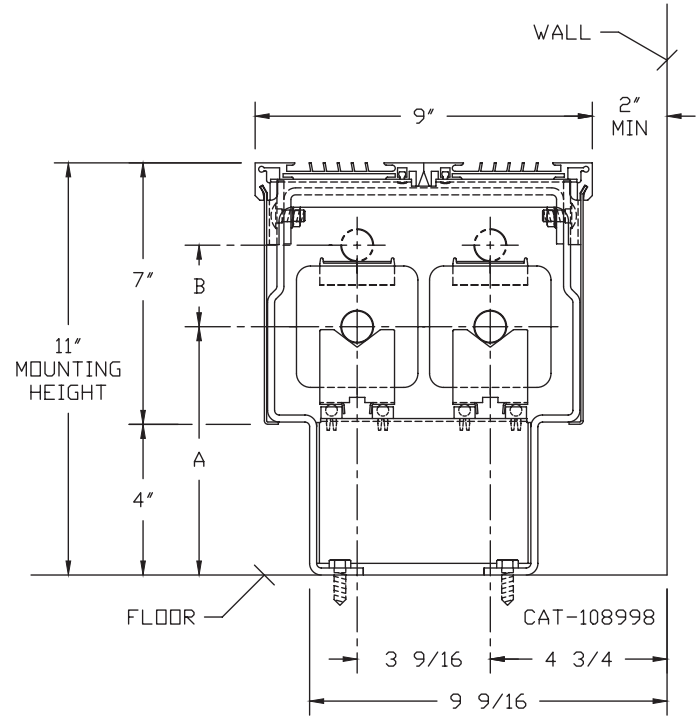
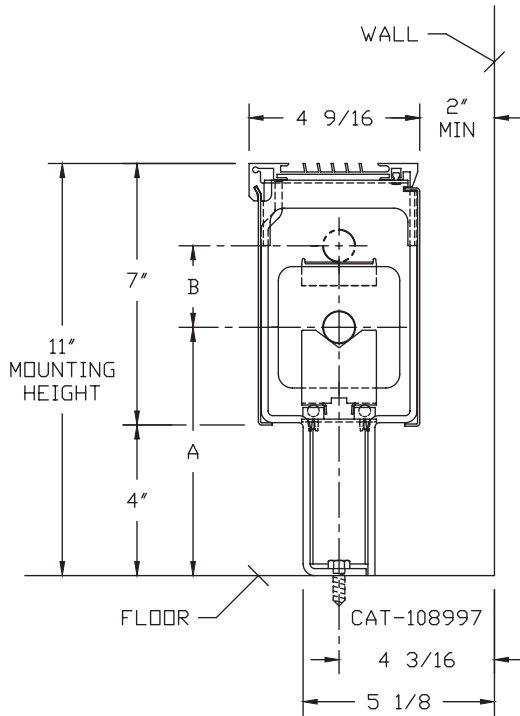


RETURN PIPING OPTIONS - JDVP31 & JDVP32

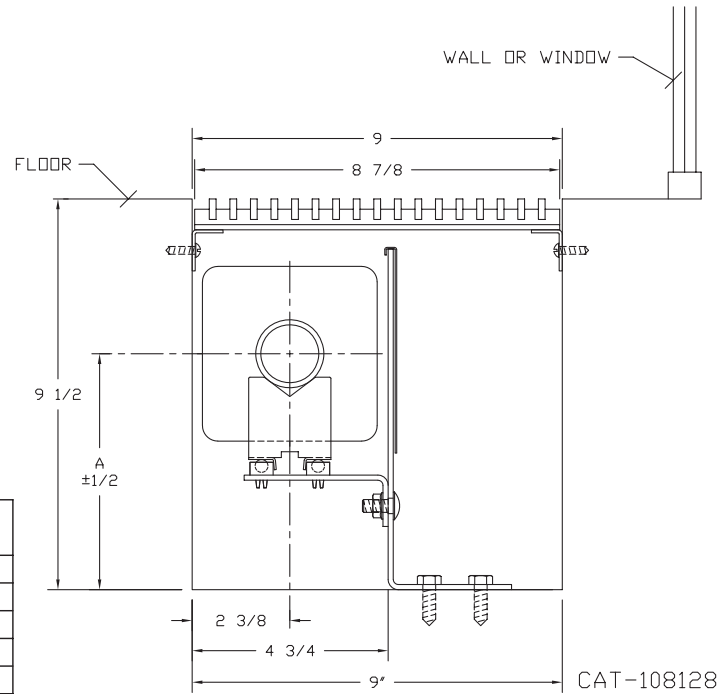
JDVP31

JDVP32

ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A	B WITH 3/4 HWR	B WITH 1" HWR	B WITH 1 1/4 HWR
3/4 COPPER	3 1/4 x 3 1/4	2	6 5/8	2 3/16	N/A	N/A
1" COPPER	3 1/4 x 3 1/4	2	6 13/16	N/A	2 5/16	N/A
1 1/4 COPPER	3 1/4 x 3 1/4	1	6 1/4	N/A	N/A	2 7/16



DURA-VANE TROUGH STYLE TR-BG



ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A
3/4" COPPER	3 5/8" x 4 1/4"	2	5 3/16"
3/4" COPPER	4 1/4" x 4 1/4"	3A	5 9/16"
1" COPPER	3 5/8" x 4 1/4"	2	5 3/8"
1" COPPER	4 1/4" x 4 1/4"	2	5 3/8"
1 1/4" COPPER	3 5/8" x 4 1/4"	2	5 1/2"
1 1/4" COPPER	4 1/4" x 4 1/4"	2	5 1/2"
1" STEEL	4 1/4" x 4 1/4"	2	5 1/2"
1 1/4" STEEL	4 1/4" x 4 1/4"	2	5 11/16"
2" STEEL	4 1/4" x 4 1/4"	1	5 7/16"

NOTES:

1. Trough Liner Optional (Not Shown).
2. Grille not rated for foot traffic.

COPPER/ALUMINUM ELEMENT RATINGS					TROUGH DEPTH AND HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)								
ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT							200°	190°	180°	170°	160°	150°	140°	130°	120°
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT x WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES			CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES								
					1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26	
3/4"	VC3/4-433	3-5/8" x 4-1/4"	32	.020	9 1/2 x 9	1120	960	870	770	680	590	500	450	370	290
	VC3/4-434		40		9 1/2 x 9	1340	1150	1050	920	820	710	600	540	440	350
	VC3/4-435		50		9 1/2 x 9	1480	1270	1150	1020	900	780	670	590	490	380
1"	VC433	3-5/8" x 4-1/4"	32	.020	9 1/2 x 9	1170	1010	910	810	710	620	530	470	390	300
	VC434		40		9 1/2 x 9	1300	1120	1010	900	790	690	590	520	430	340
	VC435		50		9 1/2 x 9	1480	1270	1150	1020	900	780	670	590	490	380
1-1/4"	VC1433	3-5/8" x 4-1/4"	32	.020	9 1/2 x 9	1210	1040	940	830	740	640	540	480	400	310
	VC1434		40		9 1/2 x 9	1330	1140	1040	920	810	700	600	530	440	350
	VC1435		50		9 1/2 x 9	1480	1270	1150	1020	900	780	670	590	490	380
3/4"	VC3/4-43	4-1/4" SQ.	32	.020	9 1/2 x 9	1240	1070	970	860	760	660	560	500	410	320
	VC3/4-44		40		9 1/2 x 9	1480	1270	1150	1020	900	780	670	590	490	380
	VC3/4-45		50		9 1/2 x 9	1530	1320	1190	1060	930	810	690	610	500	400
1"	VC43	4-1/4" SQ.	32	.020	9 1/2 x 9	1240	1070	970	860	760	660	560	500	410	320
	VC44		40		9 1/2 x 9	1380	1190	1080	950	840	730	620	550	460	360
	VC45		50		9 1/2 x 9	1550	1330	1210	1070	950	820	700	620	510	400
1-1/4"	VC143	4-1/4" SQ.	32	.020	9 1/2 x 9	1300	1120	1010	900	790	690	590	520	430	340
	VC144		40		9 1/2 x 9	1540	1320	1200	1060	940	820	690	620	510	400
	VC145		50		9 1/2 x 9	1580	1360	1230	1090	960	840	710	630	520	410

Notes:

- 1) Ratings are based on 24 sq. in. of free area per linear foot of air inlet and outlet each.
- 2) For systems using steam, consult factory.

STEEL ELEMENT RATINGS					TROUGH DEPTH AND HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.)								
ALL RATINGS ARE BASED ON 3 FPS VELOCITY, 65° EAT							200°	190°	180°	170°	160°	150°	140°	130°	120°
TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT x WIDTH	FIN PER FT.	FIN THICKNESS IN INCHES			CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES								
					1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26	
1"	VS43	4-1/4" SQ.	32	.032	9 1/2 x 9	1220	1050	950	840	740	650	550	490	400	320
	VS44		40		9 1/2 x 9	1380	1190	1080	950	840	730	620	550	460	360
	VS45		50		9 1/2 x 9	1460	1260	1140	1010	890	770	660	580	480	380
1-1/4"	VS143	4-1/4" SQ.	32	.032	9 1/2 x 9	1130	970	880	780	690	600	510	450	370	290
	VS144		40		9 1/2 x 9	1370	1180	1070	950	840	730	620	550	450	360
	VS145		50		9 1/2 x 9	1430	1230	1120	990	870	760	640	570	470	370
2"	VS242	4-1/4" SQ.	25	.032	9 1/2 x 9	1050	900	820	720	640	560	470	420	350	270
	VS243		32		9 1/2 x 9	1380	1190	1080	950	840	730	620	550	460	360

Notes:

- 1) Ratings are based on 24 sq. in. of free area per linear foot of air inlet and outlet each.
- 2) For systems using steam, consult factory.

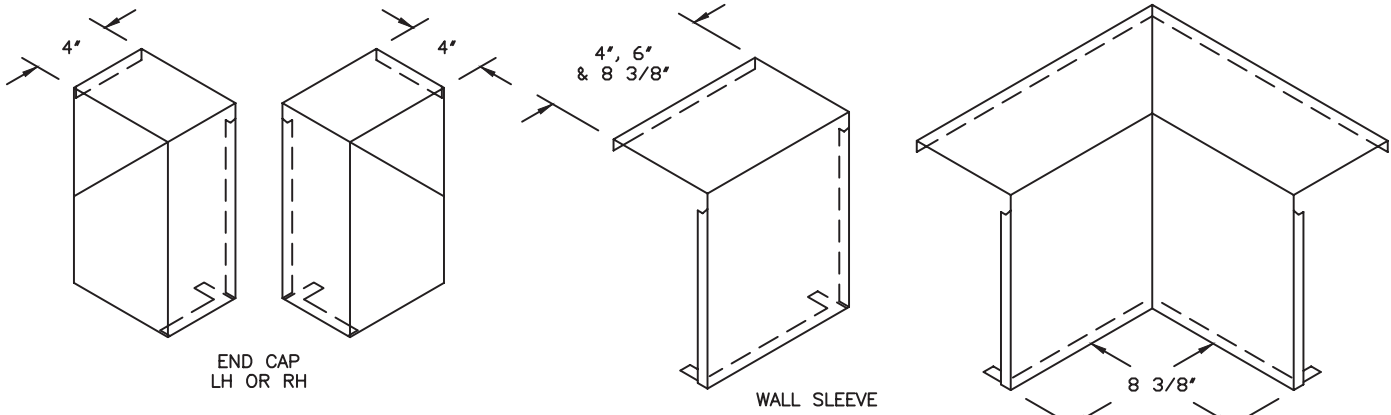
DURA-VANE II ACCESSORIES

Overlapping Accessories (allow for wall-length variation when running corner-to-corner).

Dura-Vane II wall mounted enclosure accessories fit securely with no visible fasteners. All are flanged for rigidity, overlap the backplate and have bendable tabs at the bottom to secure the accessory to the enclosure.

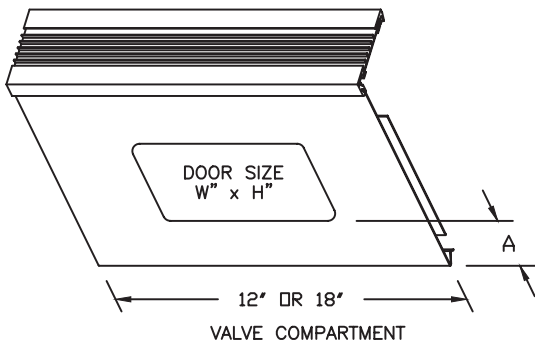
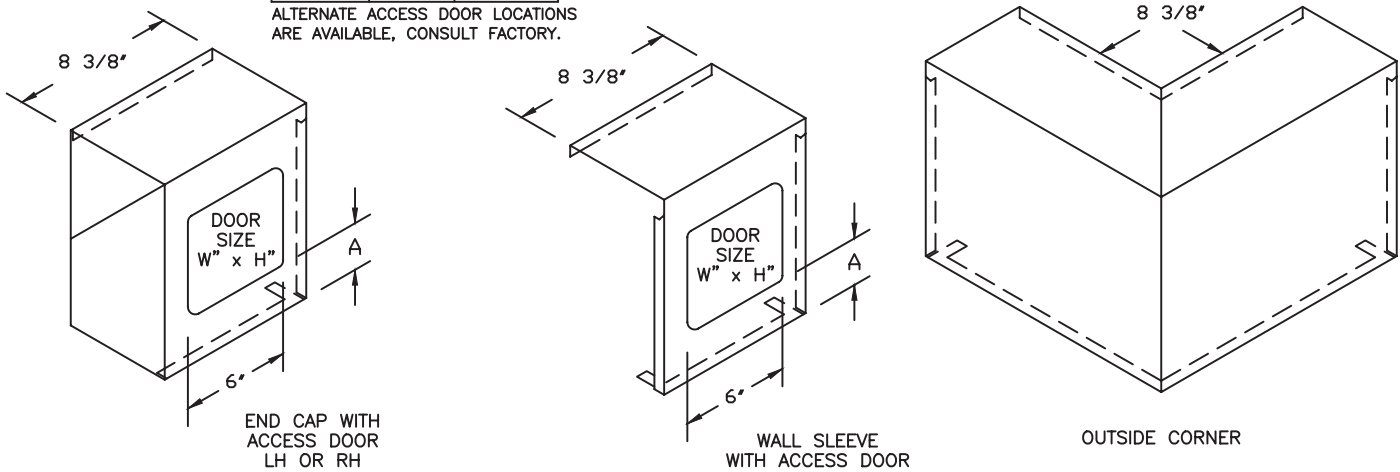
Dura-Vane II JDV3 10LI and JVD4 10LI wall mounted enclosure accessories fit securely and use visible bottom fasteners in lieu of tabs. All are flanged for rigidity and overlap the back plate.

Wall sleeves are intended to extend to the wall. End caps are placed at the end where the enclosure does not terminate at wall. Inside and outside corners have a solid top. Special angle corners (other than 90 and 135 degrees) are also available.



PRODUCT	A DIM	DOOR SIZE
JDV 07	1 1/16"	6" x 5"
JDV 10LI	3"	6" x 5"
JDV 14	1 1/2"	6" x 9"
JDV 20		
JDV 24		

ALTERNATE ACCESS DOOR LOCATIONS ARE AVAILABLE, CONSULT FACTORY.

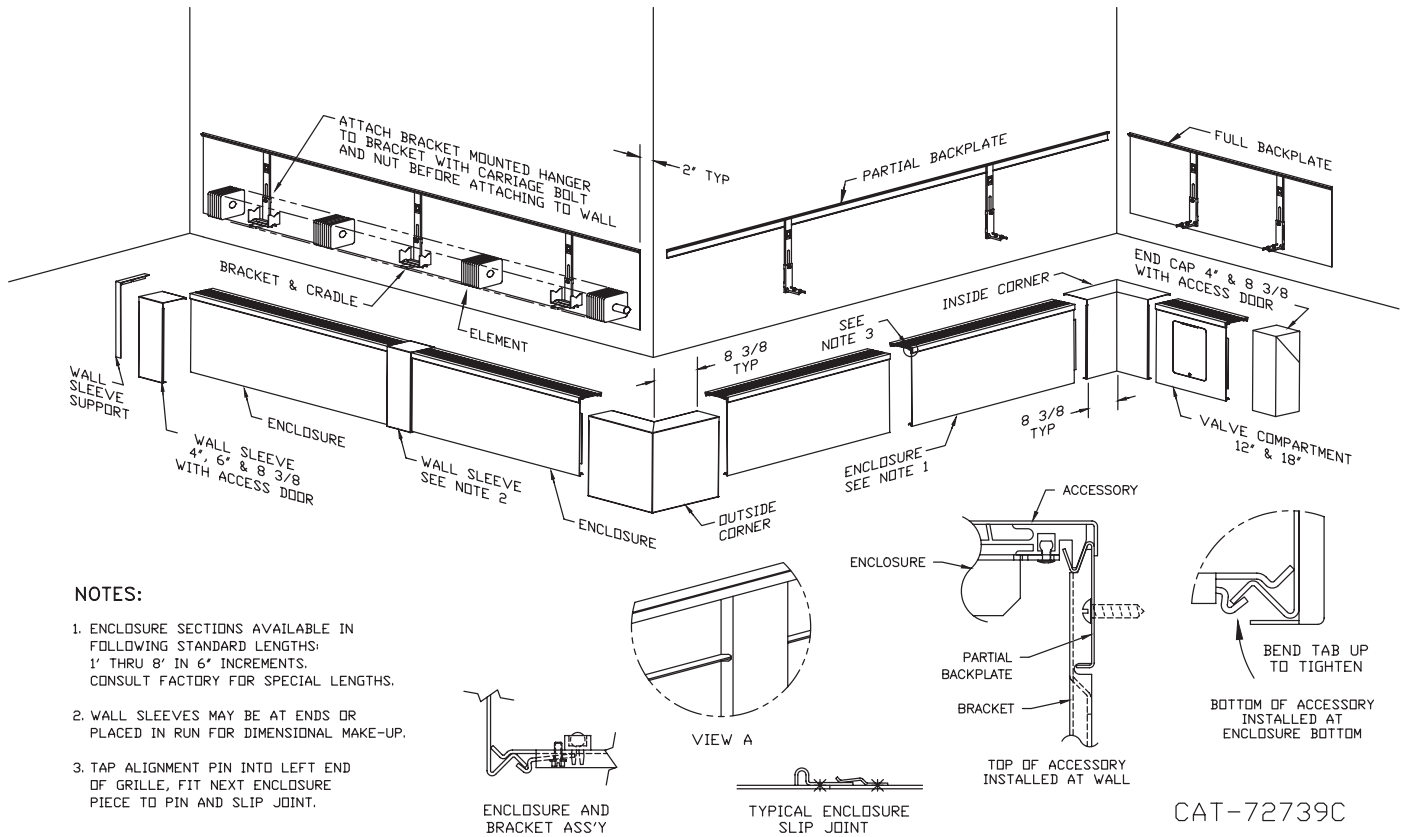


PRODUCT	A DIM	DOOR SIZE
JDV 07	9/16"	6" x 5"
JDV 10LI	2"	
JDV 14	1 3/4"	9" x 6"
JDV 20	4 1/4"	
JDV 24	7 3/4"	

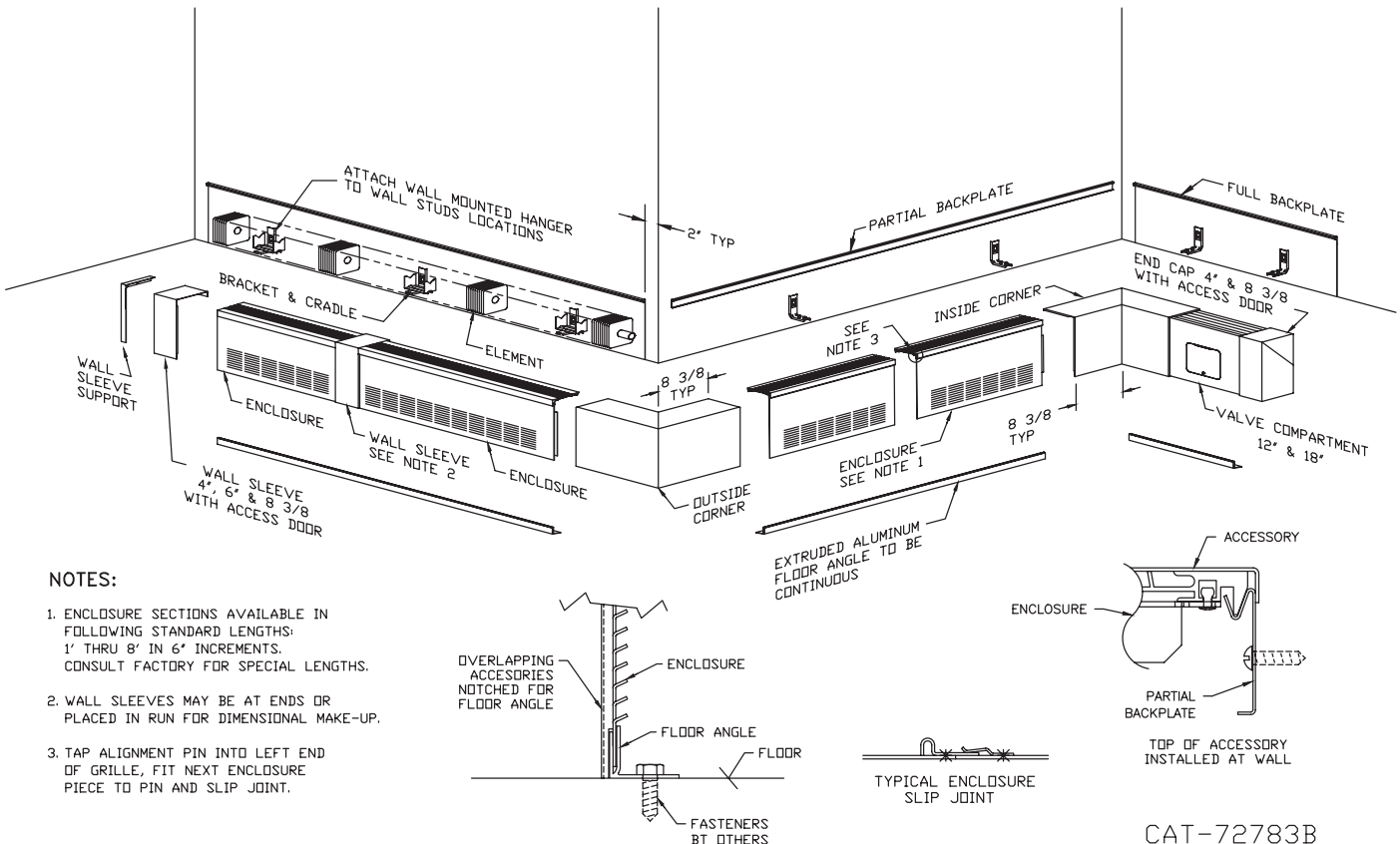
CAT-107124

INSTALLATION

STYLES JDV3 & JDV4 WALL MOUNTED INSTALLATION AND ACCESSORY DETAILS

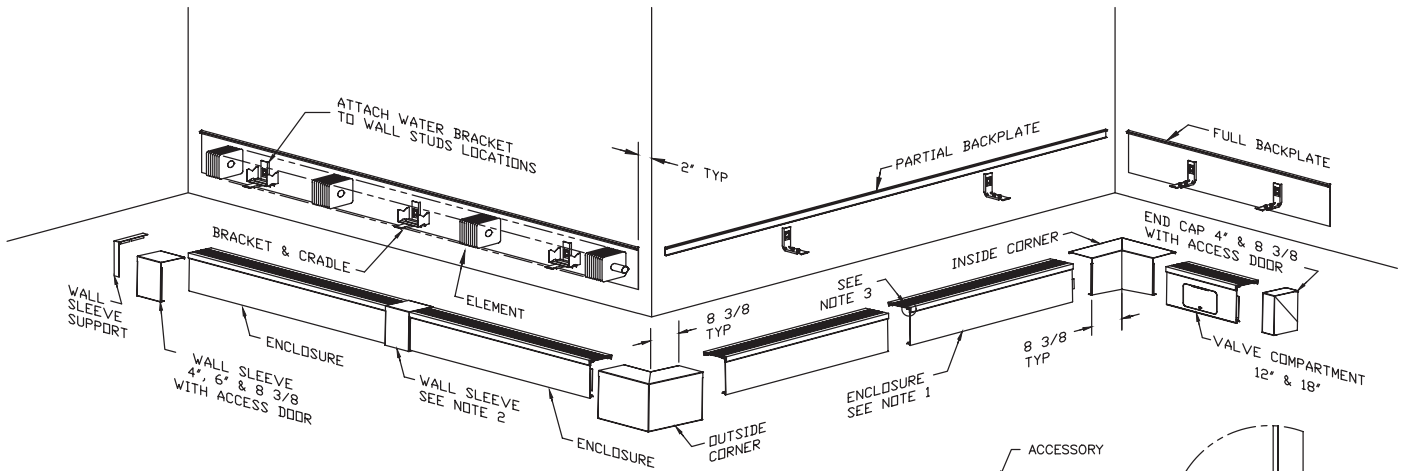


STYLES JDV3 10LI & JDV4 10LI WALL MOUNTED INSTALLATION AND ACCESSORY DETAILS



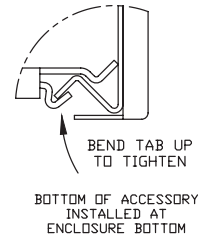
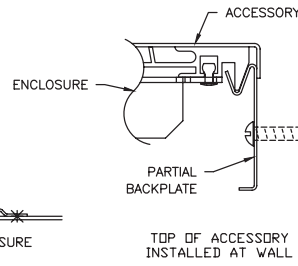
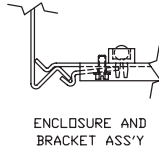
INSTALLATION

STYLES JDV3 07 & JDV4 07 WALL MOUNTED INSTALLATION AND ACCESSORY DETAILS



NOTES:

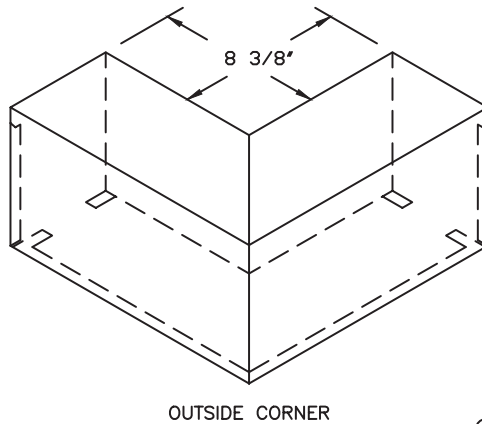
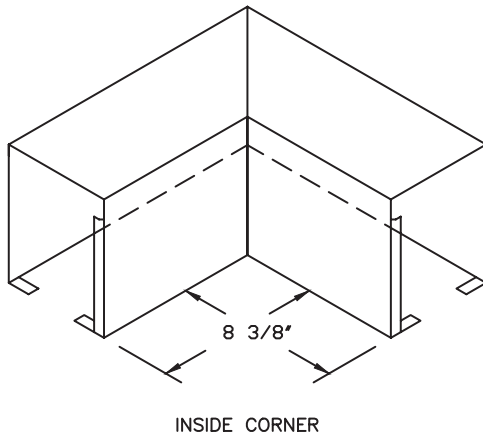
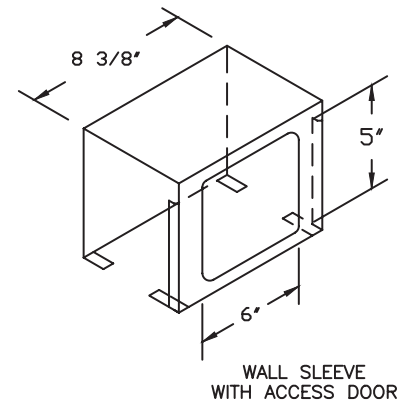
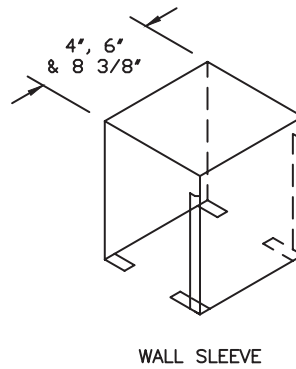
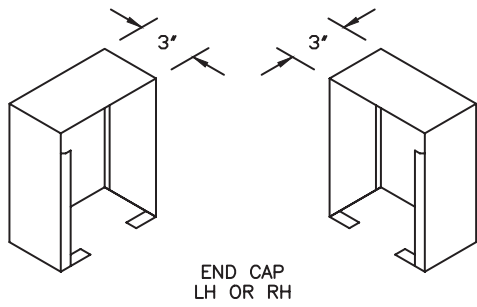
1. ENCLOSURE SECTIONS AVAILABLE IN FOLLOWING STANDARD LENGTHS: 1' THRU 8' IN 6" INCREMENTS. CONSULT FACTORY FOR SPECIAL LENGTHS.
2. WALL SLEEVES MAY BE AT ENDS OR PLACED IN RUN FOR DIMENSIONAL MAKE-UP.
3. TAP ALIGNMENT PIN INTO LEFT END OF GRILLE, FIT NEXT ENCLOSURE PIECE TO PIN AND SLIP JOINT.



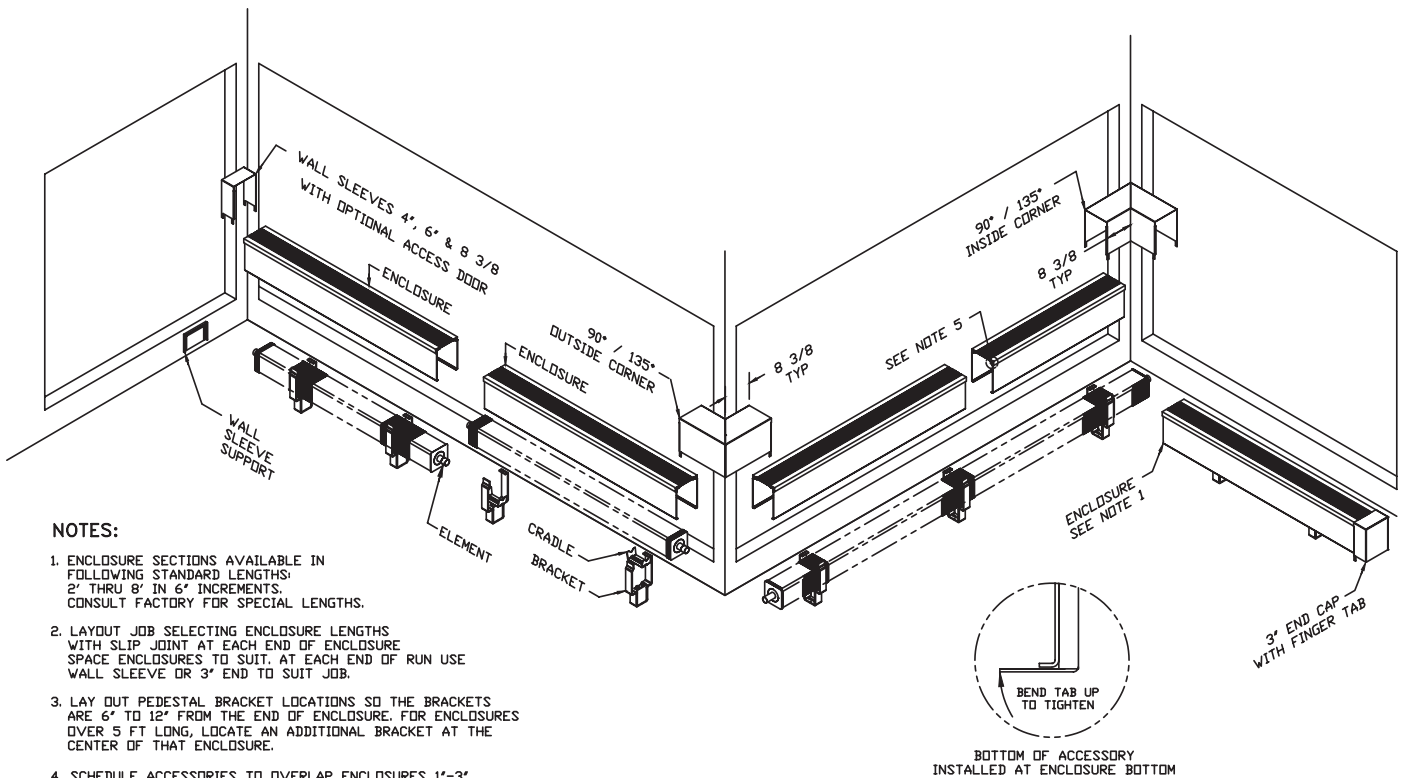
CAT-72782B

ACCESSORIES

STYLES JDVP 31/32 & JDVP 41/42 PEDESTAL MOUNTED INSTALLATION AND ACCESSORY DETAILS



CAT-107195



NOTES:

- ENCLOSURE SECTIONS AVAILABLE IN FOLLOWING STANDARD LENGTHS: 2' THRU 8' IN 6" INCREMENTS. CONSULT FACTORY FOR SPECIAL LENGTHS.
- LAYOUT JOB SELECTING ENCLOSURE LENGTHS WITH SLIP JOINT AT EACH END OF ENCLOSURE. SPACE ENCLOSURES TO SUIT. AT EACH END OF RUN USE WALL SLEEVE OR 3" END TO SUIT JOB.
- LAY OUT PEDESTAL BRACKET LOCATIONS SO THE BRACKETS ARE 6" TO 12" FROM THE END OF ENCLOSURE. FOR ENCLOSURES OVER 5 FT LONG, LOCATE AN ADDITIONAL BRACKET AT THE CENTER OF THAT ENCLOSURE.
- SCHEDULE ACCESSORIES TO OVERLAP ENCLOSURES 1"-3" EXCEPT ENDS 1"-2". WITH ACCESS DOOR OVERLAP MAX. 1".
- TAP ALIGNMENT PINS INTO LEFT END OF GRILLE. FIT NEXT ENCLOSURE PIECE TO PIN AND SLIP JOINT.

CAT-72754B

DESIGN DATA

COMMERCIAL FINNED TUBE CHARTS FOR RATING CORRECTIONS

For assistance with ratings and selection, please use our online Specifier.

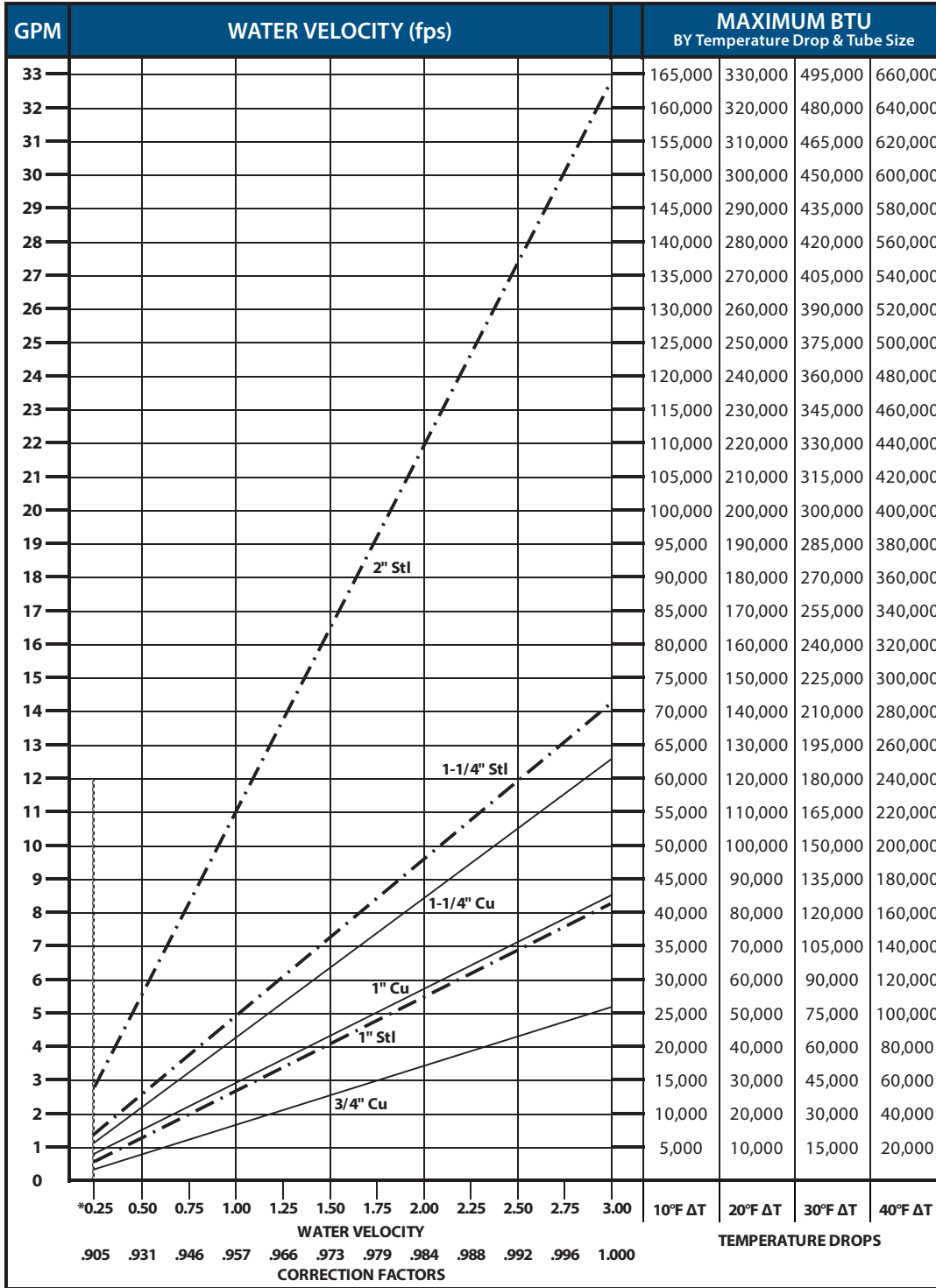
CORRECTION FACTORS FOR WATER TEMPERATURES AND AIR TEMPERATURES OTHER THAN STANDARD															
AVERAGE WATER TEMP. °F	ENTERING AIR TEMPERATURE °F														
	45	55	STD 65	70	75	80	85	90	95	100	110	120	130	140	150
90	.19	.13	.11	.06											
100	.25	.19	.15	.11	.08	.06									
110	.31	.25	.20	.16	.13	.11	.08	.06							
120	.38	.31	.26	.21	.19	.16	.13	.11	.08	.06					
130	.45	.38	.33	.28	.25	.21	.19	.16	.13	.11	.06				
140	.53	.45	.40	.34	.31	.28	.25	.21	.19	.16	.11	.06			
150	.61	.53	.45	.41	.38	.34	.31	.28	.25	.21	.16	.11	.06		
160	.69	.61	.53	.49	.45	.41	.38	.34	.31	.28	.21	.16	.11	.06	
170	.77	.69	.61	.57	.53	.49	.45	.41	.38	.34	.28	.21	.16	.11	.06
180	.86	.77	.69	.65	.61	.57	.53	.49	.45	.41	.34	.28	.21	.16	.11
190	.95	.86	.78	.73	.69	.65	.61	.57	.53	.49	.41	.34	.28	.21	.16
200	1.05	.95	.86	.82	.77	.73	.69	.65	.61	.57	.49	.41	.34	.28	.21
210	1.14	1.05	.95	.91	.86	.82	.77	.73	.69	.65	.57	.49	.41	.34	.28
▶ 215 (STD.)	1.19	1.09	1.00	.95	.91	.86	.82	.77	.73	.69	.61	.53	.45	.38	.31
220	1.24	1.14	1.05	1.00	.95	.91	.86	.82	.77	.73	.65	.57	.49	.41	.34
230	1.34	1.24	1.14	1.09	1.05	1.00	.95	.91	.86	.82	.73	.65	.57	.49	.41
240	1.44	1.34	1.25	1.19	1.14	1.09	1.05	1.00	.95	.91	.82	.73	.65	.57	.49
250	1.55	1.44	1.34	1.29	1.24	1.19	1.14	1.09	1.05	1.00	.91	.82	.73	.65	.57
260	1.66	1.55	1.44	1.39	1.34	1.29	1.24	1.19	1.14	1.09	1.00	.91	.82	.73	.65
270	1.76	1.66	1.55	1.50	1.44	1.39	1.34	1.29	1.24	1.19	1.09	1.00	.91	.82	.73
280	1.87	1.76	1.66	1.60	1.55	1.50	1.44	1.39	1.34	1.29	1.19	1.09	1.00	.91	.82
290	1.99	1.87	1.76	1.71	1.66	1.60	1.55	1.50	1.44	1.39	1.29	1.19	1.09	1.00	.91
300	2.10	1.99	1.87	1.82	1.76	1.71	1.66	1.60	1.55	1.50	1.39	1.29	1.19	1.09	1.00

CORRECTION FACTORS FOR STEAM PRESSURES AND AIR TEMPERATURES OTHER THAN STANDARD																	
STEAM		ENTERING AIR TEMPERATURE °F															
PRESSURE		TEMP. °F	45	55	STD 65	70	75	80	85	90	100	110	120	130	140	150	
GAUGE	ABS. PSI																
(VAC) 15" HG	7.32	178.9	0.90	0.80	0.70	0.65	0.60	0.56	0.51	0.45	0.39	0.32	0.25	0.18	0.13	0.08	
(VAC) 10"	9.78	192.2	1.02	0.91	0.81	0.76	0.71	0.66	0.62	0.55	0.48	0.40	0.33	0.26	0.20	0.14	
(VAC) 5"	12.25	202.9	1.11	1.00	0.90	0.85	0.79	0.75	0.70	0.63	0.56	0.48	0.40	0.33	0.27	0.20	
▶ 0 PSI	14.696	212.0	1.19	1.09	0.97	0.92	0.87	0.82	0.77	0.70	0.63	0.54	0.46	0.38	0.31	0.25	
	.899	15.595	215.0	1.22	1.11	1.00	0.95	0.90	0.84	0.80	0.75	0.65	0.57	0.48	0.40	0.33	0.26
	5	19.70	227.1	1.34	1.22	1.11	1.05	1.00	0.95	0.90	0.81	0.75	0.66	0.57	0.49	0.41	0.34
10	24.70	239.4	1.45	1.33	1.22	1.17	1.11	1.05	1.00	0.91	0.85	0.75	0.66	0.58	0.50	0.42	
	15	29.70	249.8	1.55	1.43	1.31	1.26	1.20	1.14	1.09	0.94	0.84	0.75	0.66	0.57	0.49	
	20	34.70	258.5	1.63	1.52	1.40	1.33	1.28	1.23	1.17	1.07	1.02	0.92	0.82	0.73	0.64	0.55
25	39.70	266.8	1.71	1.59	1.47	1.41	1.36	1.30	1.25	1.15	1.09	0.98	0.89	0.80	0.71	0.62	
	30	44.70	274.0	1.78	1.66	1.54	1.48	1.42	1.37	1.31	1.21	1.15	1.05	0.95	0.85	0.76	0.68
	40	54.70	286.7	1.91	1.79	1.66	1.61	1.54	1.49	1.43	1.32	1.27	1.16	1.06	0.97	0.87	0.78
50	64.70	297.7	2.02	1.90	1.77	1.71	1.65	1.60	1.54	1.42	1.37	1.26	1.16	1.06	0.96	0.87	
	60	74.70	307.3	2.10	2.00	1.87	1.81	1.75	1.69	1.63	1.51	1.47	1.35	1.25	1.15	1.05	0.95
	70	84.70	316.0	2.20	2.09	1.95	1.89	1.83	1.77	1.71	1.59	1.55	1.44	1.33	1.23	1.12	1.03
80	94.70	323.9	2.27	2.17	2.03	1.97	1.91	1.85	1.80	1.69	1.63	1.52	1.41	1.31	1.20	1.10	
	90	104.70	331.2	2.36	2.24	2.11	2.05	1.98	1.93	1.87	1.74	1.70	1.59	1.48	1.38	1.28	1.17
	100	114.70	337.9	2.43	2.31	2.18	2.11	2.05	2.00	1.94	1.81	1.77	1.65	1.54	1.44	1.33	1.23
125	139.70	352.9	2.59	2.47	2.33	2.27	2.21	2.16	2.10	1.96	1.92	1.80	1.69	1.59	1.48	1.38	
	150	164.70	365.9	2.73	2.62	2.47	2.43	2.35	2.29	2.23	2.08	1.94	1.82	1.72	1.61	1.51	
	175	189.70	377.4	2.86	2.74	2.60	2.54	2.47	2.41	2.35	2.21	2.17	2.05	1.95	1.85	1.73	1.63
200	214.70	387.8	2.95	2.85	2.71	2.63	2.58	2.52	2.47	2.31	2.29	2.17	2.06	1.96	1.84	1.75	

From Keenan and Keyes — Linear Interpolation. NOTE: Gauge pressure should be corrected for altitude.

Rate of pitch for steam 1/2" drop over 20-foot run.

DESIGN DATA



DYNAMIC FORMULAS

$$BTU = GPM \times 500 \times TD$$

$$GPM = \left(\frac{BTU}{500} \right) \div TD$$

$$TD = \left(\frac{BTU}{500} \right) \div GPM$$

*Do not design below .25 fps.

Pressure Drop at Given Water Velocities (Feet of Water per 100 ft. of pipe) based on Hazen - Williams calculation

Nominal Pipe Size	Water Velocity (ft/sec)											
	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00
3/4" Copper	0.06	0.20	0.42	0.72	1.09	1.53	2.04	2.61	3.25	3.95	4.71	5.53
1" Copper	0.04	0.15	0.32	0.54	0.81	1.14	1.52	1.94	2.42	2.94	3.50	4.11
1 1/4" Copper	0.03	0.12	0.25	0.43	0.64	0.90	1.20	1.54	1.92	2.33	2.78	3.26
1" Steel	0.04	0.15	0.32	0.54	0.81	1.14	1.52	1.95	2.42	2.94	3.51	4.12
1 1/4" Steel	0.03	0.11	0.23	0.40	0.60	0.84	1.12	1.44	1.79	2.17	2.59	3.05
2" Steel	0.02	0.07	0.14	0.25	0.37	0.52	0.69	0.89	1.10	1.34	1.60	1.88

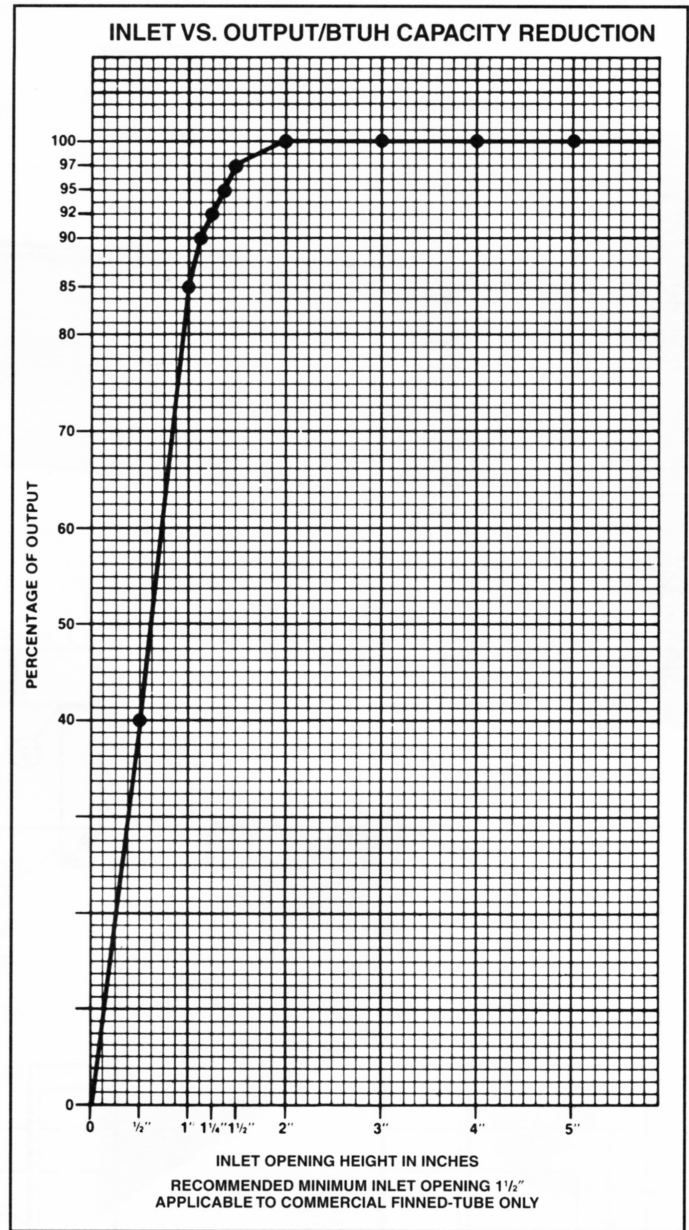
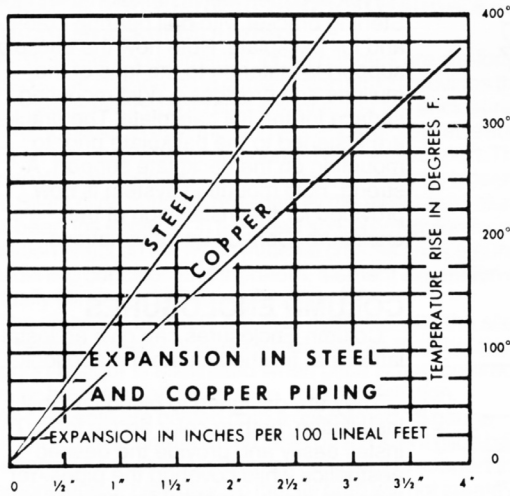
DESIGN DATA

GUARANTEED WORKING PRESSURES

- 1" IPS — 780 at Temperatures up to 650°F.
- 1-1/4" IPS — 660 at Temperatures up to 650°F.
- 2" IPS — 405 at Temperatures up to 650°F.
- 1-1/4" CU — 194 at Temperatures up to 300°F.
- 1" CU 204 at Temperatures up to 300°F.
- 3/4" CU 218 PSI at Temperatures up to 300°F.

MAXIMUM PRESSURES AT OTHER TEMPERATURES ARE AVAILABLE UPON REQUEST.

Pipe Water Capacities and Quantities Circulated at Velocity of 3 Feet Per Second			
Nominal Pipe Size	Pipe I.D. (inches)	Gals Per Lin. Ft.	GPM @ 3' per sec Velocity
3/4" Copper	0.835	0.028	5.12
1" Copper	1.077	0.047	8.52
1 1/4" Copper	1.315	0.071	12.70
1" Steel	1.075	0.047	8.49
1 1/4" Steel	1.395	0.079	14.29
2" Steel	2.115	0.183	32.85



Glycol Correction Factors

Fluid Temperature 200°F

% Solution	Ethylene Glycol	Propylene Glycol
20	.952	.988
30	.921	.968
40	.888	.943
50	.852	.912

Fluid Temperature 180°F

% Solution	Ethylene Glycol	Propylene Glycol
20	.946	.982
30	.913	.961
40	.879	.934
50	.842	.902

Fluid Temperature 140°F

% Solution	Ethylene Glycol	Propylene Glycol
20	.934	.97
30	.898	.946
40	.861	.916
50	.821	.881

ALTITUDE FACTORS		
Approximate factors for convective heat value at varying altitudes		
Altitude	Ferrous Units	Copper Alum. Units
Sea Level	1.000	1,000
1,000 ft.	.984	.969
2,000 ft.	.968	.938
3,000 ft.	.952	.908
4,000 ft.	.936	.878
5,000 ft.	.920	.850
6,000 ft.	.904	.822
7,000 ft.	.889	.795
8,000 ft.	.874	.768
9,000 ft.	.859	.743
10,000 ft.	.844	.718
15,000 ft.	.771	.603
20,000 ft.	.703	.502

SUGGESTED GENERAL SPECIFICATIONS

Furnish and install Dura-Vane II finned tube heating elements and enclosures as indicated on plans, together with required mounting components and accessories, all as manufactured by Vulcan.

HEATING ELEMENTS

All copper/aluminum heating elements shall be manufactured with seamless copper tubing mechanically expanded into the diameter of the equally spaced aluminum fins. The ends of the copper tube shall be furnished O.D. (male) and furnished I.D. (female, swaged) as to allow the use of standard domestic copper fittings.

All steel heating elements shall be manufactured with steel pressure tubing mechanically expanded into the diameter of the equally spaced steel (.024, .032) fins. The ends of the steel tube shall be threaded to accept all domestic NPT threaded fittings or cut square and chamfered for welding in field. All steel fins shall be pre-painted black with an enamel based black paint.

BACKPLATE

All full backplates will be one piece construction, 20 gauge galvanized steel (18 gauge optional) with a die-formed mounting channel into which the enclosure shall self-locate and secure. Self-adhesive closed cell neoprene air seal gasket to be provided when requested to prevent dirt streaking (specify factory or field installed).

All partial backplates are to be machine roll formed, pre-painted, 20 gauge steel with formed mounting channel into which the enclosure shall self-locate and secure. 18 gauge partial backplates will be provided as galvanized finish. Self-adhesive closed cell neoprene air seal gasket to be provided when requested to prevent dirt streaking (specify factory or field installed).

BRACKET HANGERS

All brackets and hangers are to be die-formed 14 gauge galvanized steel with channel type wiped edge construction for rigidity. Nickel-chromium plated ball bearings inserted into a nylon isolator insert are to be used in conjunction with an 18 gauge galvanized die-formed element support cradle to provide friction free lateral movement during expansion and contraction. Brackets are to have pre-formed contour at the top

allowing the bracket to interlock with the backplate channel. Brackets are to be self-locating in the vertical (height) position. Hangers are to provide for vertical element adjustment when pitch is required (steam). Water jobs will not require adjustable hangers. Full engagement enclosure locks are to be supplied with each bracket. Bracket locations are recommended to be 2'6" to 4'0" on center located not more than 12" in from ends of enclosure based on individual design applications.

ENCLOSURE AND ACCESSORIES

Dura-Vane II Finned Tube Enclosures are to be of style and size as shown on plans. Material will be 16 gauge standard, 14 gauge optional, degreased and phosphatized and sealer coated cold rolled steel with a baked powder finish. Internally welded 14 gauge gussets shall occur at regular intervals to which the "pencil proof" clear anodized extruded aluminum grille will be affixed. The extruded aluminum grille is designed to engage the backplate at installation. All enclosures will be manufactured with male and female slip joints at opposing ends, providing positive engagement and alignment of adjoining enclosures at installation. The slip joints are to be of such design and form that they will provide vertical stiffening for the front skirt.

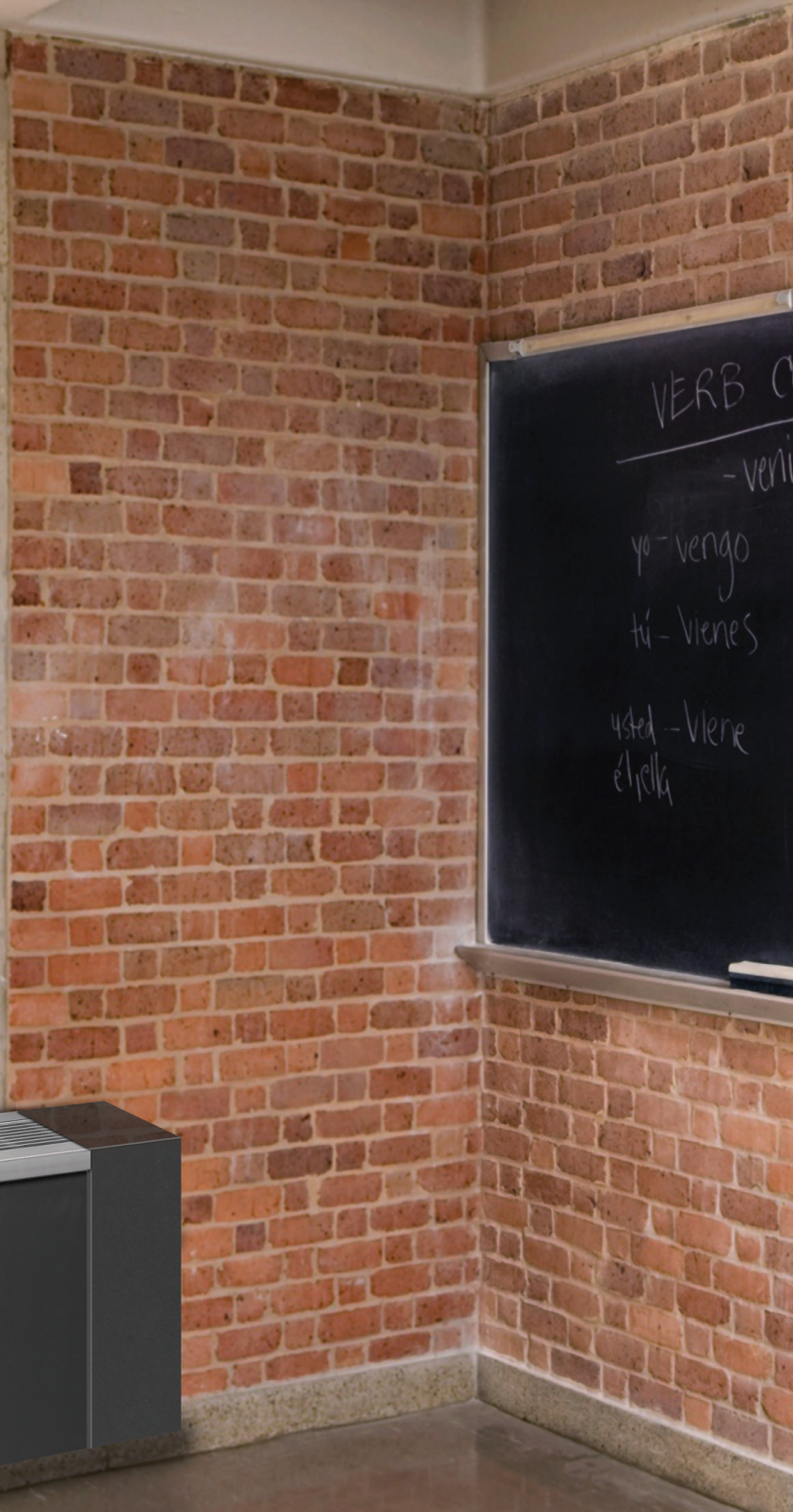
Accessories; with the exception of valve compartments; shall overlap the enclosure and fit securely with no visible fasteners. Wall sleeves shall be provided where enclosures extend to the wall. Ends shall be provided where the enclosure does not terminate at a wall. Inside and outside corners shall be furnished with no outlet grille.

ACCESS DOORS

When indicated, access doors will be provided at mixer, shut-off or flow control valves. Doors will be 6" x 9" (or 5" x 6") and hinged at top. Access doors will be located in accessories or enclosure as noted on plans. Door latch head shall be of tamper resistant type.

PIPE ENCLOSURES

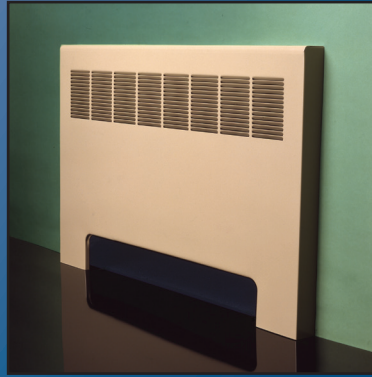
Column enclosure kits shall be provided when piping is installed around columns. Vertical and horizontal pipe enclosures shall be provided to conceal risers and other connecting piping.



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