

Single Appliance Venting Notes and Tables

1999 National Fuel Gas Code

Chapter 10 Sizing of Category I Venting Systems

10-1 Additional Requirements to Single Appliance Vent Tables 10.1 through 10.5.

10-1.1 These venting tables shall not be used where obstructions, as described in the exceptions to Section 7.15, are installed in the venting system. The installation of vents serving listed appliances with vent dampers shall be in accordance with the appliance manufacturer's instructions or in accordance with the following:

- (1) The maximum capacity of the vent system shall be determined using the "NAT Max" column.
- (2) The minimum capacity shall be determined as if the appliance were a fan-assisted appliance, using the "FAN Min" column to determine the minimum capacity of the vent system. Where the corresponding "FAN Min" is "NA," the vent configuration shall not be permitted and an alternative venting configuration shall be utilized.

10-1.2 If the vent size determined from the tables is smaller than the appliance draft hood outlet or flue collar, the smaller size shall be permitted to be used provided the following requirements are met:

- (1) The total vent height (H) is at least 10 ft (3 m).
- (2) Vents for appliance draft hood outlets or flue collars 12 in. (300 mm) in diameter or smaller are not reduced more than one table size.
- (3) Vents for appliance draft hood outlets or flue collars larger than 12 in. (300 mm) in diameter are not reduced more than two table sizes.
- (4) The maximum capacity listed in the tables for a fan-assisted appliance is reduced by 10 percent ($0.90 \times$ maximum table capacity).
- (5) The draft hood outlet is greater than 4 in. (100 mm) in diameter. Do not connect a 3-in. (8-cm) diameter vent to a 4-in. (10-cm) diameter draft hood outlet. This provision shall not apply to fan-assisted appliances.

10-1.3 Single-appliance venting configurations with zero (0) lateral lengths in Tables 10.1, 10.2, and 10.5 shall have no elbows in the venting system. For vent configurations with lateral lengths, the venting tables include allowance for two 90-degree turns. For each additional 90-degree turn, or equivalent, the maximum capacity listed in the venting tables shall be reduced by 10 percent ($0.90 \times$ maximum table capacity). Two or more turns, the combined angles of which equal 90 degrees, shall be considered equivalent to one 90-degree turn.

10-1.4 Zero (0) lateral (L) shall apply only to a straight vertical vent attached to a top outlet draft hood or flue collar.

10-1.5 Sea level input ratings shall be used when determining maximum capacity for high altitude installation. Actual input (derated for altitude) shall be used for determining minimum capacity for high altitude installation.

10-1.6 For appliances with more than one input rate, the minimum vent capacity (FAN Min) determined from the tables shall be less than the lowest appliance input rating, and the maximum vent capacity (FAN Max/NAT Max) determined from the tables shall be greater than the highest appliance rating input.

10-1.7 Listed corrugated metallic chimney liner systems in masonry chimneys shall be sized by using Table 10.1 or 10.2 for Type B vents with the maximum capacity reduced by 20 percent ($0.80 \times$ maximum capacity) and the minimum capacity as shown in Table 10.1 or 10.2. Corrugated metallic liner systems installed with bends or offsets shall have their maximum capacity further reduced in accordance with 10.2.3.

10-1.8 If the vertical vent has a larger diameter than the vent connector, the vertical vent diameter shall be used to determine the minimum vent capacity, and the connector diameter shall be used to determine the maximum vent capacity. The flow area of the vertical vent shall not exceed seven times the flow area of the listed appliance categorized vent area, flue collar area, or draft hood outlet area unless designated in accordance with approved engineering methods.

10-1.9 Tables 10.1, through 10.5 shall be used for chimneys and vents not exposed to the outdoors below the roof line. A Type B vent or listed chimney lining system passing through an unused masonry chimney flue shall not be considered to be exposed to the outdoors. Table 10.3 in combination with Table 10.11 shall be used for clay-tile-lined exterior masonry chimneys, provided all of the following are met:

- (1) Vent connector is Type B double-wall.
- (2) Vent connector length is limited to 1½ ft for each inch (180 mm/mm) of vent connector diameter.
- (3) The appliance is draft hood-equipped.
- (4) The input rating is less than the maximum capacity given by Table 10.3.
- (5) For a water heater, the outdoor design temperature shall not be less than 5°F (-15°C).
- (6) For a space-heating appliance, the input rating is greater than the minimum capacity given by Table 10.11.

Exception: The installation of vents serving listed appliances shall be permitted to be in accordance with the appliance manufacturer's instructions and the terms of the listing.

10-1.10 Vent connectors shall not be upsized more than two sizes greater than the listed appliance categorized vent diameter, flue collar diameter, or draft hood outlet diameter.

10-1.11 In a single run of vent or vent connector, more than one diameter and type shall be permitted to be used, provided that all the sizes and types are permitted by the tables.

10-1.12 Interpolation shall be permitted in calculating capacities for vent dimensions that fall between table entries. (*See Example 3, Appendix G.*)

10-1.13 Extrapolation beyond the table entries shall not be permitted.

For SI units: 1 in. = 25 mm; 1 ft = 0.305 m; 1000 Btu/hr = 0.293 kW; 1 in.² = 645 mm².

10-1.14 For vent heights lower than 6 ft and higher than shown in the tables, engineering methods shall be used to calculate vent capacities.

Table 10.1 Capacity of Type B Double-Wall Gas Vents when Connected Directly to a Single Category I Appliance

VentDiameter – D																						
		3"			4"			5"			6"			7"			8"			9"		
Height H (ft)	Lateral L (ft)	Appliance Input Rating in Thousands of Btu per Hour																				
		FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT
		Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max
6	0	0	78	46	0	152	86	0	251	141	0	375	205	0	524	285	0	698	370	0	897	470
	2	13	51	36	18	97	67	27	157	105	32	232	157	44	321	217	53	425	285	63	543	370
	4	21	49	34	30	94	64	39	153	103	50	227	153	66	316	211	79	419	279	93	536	362
	6	25	46	32	36	91	61	47	149	100	59	223	149	78	310	205	93	413	273	110	530	354
8	0	0	84	50	0	165	94	0	276	155	0	415	235	0	583	320	0	780	415	0	1006	537
	2	12	57	40	16	109	75	25	178	120	28	263	180	42	365	247	50	483	322	60	619	418
	5	23	53	38	32	103	71	42	171	115	53	255	173	70	356	237	83	473	313	99	607	407
	8	28	49	35	39	98	66	51	164	109	64	247	165	84	347	227	99	463	303	117	596	396
10	0	0	88	53	0	175	100	0	295	166	0	447	255	0	631	345	0	847	450	0	1096	585
	2	12	61	42	17	118	81	23	194	129	26	289	195	40	402	273	48	533	355	57	684	457
	5	23	57	40	32	113	77	41	187	124	52	280	188	68	392	263	81	522	346	95	671	446
	10	30	51	36	41	104	70	54	176	115	67	267	175	88	376	245	104	504	330	122	651	427
15	0	0	94	58	0	191	112	0	327	187	0	502	285	0	716	390	0	970	525	0	1263	682
	2	11	69	48	15	136	93	20	226	150	22	339	225	38	475	316	45	633	414	53	815	544
	5	22	65	45	30	130	87	39	219	142	49	330	217	64	463	300	76	620	403	90	800	529
	10	29	59	41	40	121	82	51	206	135	64	315	208	84	445	288	99	600	386	116	777	507
	15	35	53	37	48	112	76	61	195	128	76	301	198	98	429	275	115	580	373	134	755	491
20	0	0	97	61	0	202	119	0	349	202	0	540	307	0	776	430	0	1057	575	0	1384	752
	2	10	75	51	14	149	100	18	250	166	20	377	249	33	531	346	41	711	470	50	917	612
	5	21	71	48	29	143	96	38	242	160	47	367	241	62	519	337	73	697	460	86	902	599
	10	28	64	44	38	133	89	50	229	150	62	351	228	81	499	321	95	675	443	112	877	576
	15	34	58	40	46	124	84	59	217	142	73	337	217	94	481	308	111	654	427	129	853	557
	20	48	52	35	55	116	78	69	206	134	84	322	206	107	464	295	125	634	410	145	830	537
30	0	0	100	64	0	213	128	0	374	220	0	587	336	0	853	475	0	1173	650	0	1548	855
	2	9	81	56	13	166	112	14	283	185	18	432	280	27	613	394	33	826	535	42	1072	700
	5	21	77	54	28	160	108	36	275	176	45	421	273	58	600	385	69	811	524	82	1055	688
	10	27	70	50	37	150	102	48	262	171	59	405	261	77	580	371	91	788	507	107	1028	668
	15	33	64	NA	44	141	96	57	249	163	70	389	249	90	560	357	105	765	490	124	1002	648
	20	56	58	NA	53	132	90	66	237	154	80	374	237	102	542	343	119	743	473	139	977	628
	30	NA	NA	NA	73	113	NA	88	214	NA	104	346	219	131	507	321	149	702	444	171	929	594
50	0	0	101	67	0	216	134	0	397	232	0	633	363	0	932	518	0	1297	708	0	1730	952
	2	8	86	61	11	183	122	14	320	206	15	497	314	22	715	445	26	975	615	33	1276	813
	5	20	82	NA	27	177	119	35	312	200	43	487	308	55	702	438	65	960	605	77	1259	798
	10	26	76	NA	35	168	114	45	299	190	56	471	298	73	681	426	86	935	589	101	1230	773
	15	59	70	NA	42	158	NA	54	287	180	66	455	288	85	662	413	100	911	572	117	1203	747
	20	NA	NA	NA	50	149	NA	63	275	169	76	440	278	97	642	401	113	888	556	131	1176	722
	30	NA	NA	NA	69	131	NA	84	250	NA	99	410	259	123	605	376	141	844	522	161	1125	670
100	0	NA	NA	NA	0	218	NA	0	407	NA	0	665	400	0	997	560	0	1411	770	0	1908	1040
	2	NA	NA	NA	10	194	NA	12	354	NA	13	566	375	18	831	510	21	1155	700	25	1536	935
	5	NA	NA	NA	26	189	NA	33	347	NA	40	557	369	52	820	504	60	1141	692	71	1519	926
	10	NA	NA	NA	33	182	NA	43	335	NA	53	542	361	68	801	493	80	1118	679	94	1492	910
	15	NA	NA	NA	40	174	NA	50	321	NA	62	528	353	80	782	482	93	1095	666	109	1465	895
	20	NA	NA	NA	47	166	NA	59	311	NA	71	513	344	90	763	471	105	1073	653	122	1438	880
	30	NA	NA	NA	NA	NA	NA	78	290	NA	92	483	NA	115	726	449	131	1029	627	149	1387	849
	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	147	428	NA	180	651	405	197	944	575	217	1288	787

Table 10.1 Capacity of Type B Double-Wall Gas Vents when Connected Directly to a Single Category I Appliance

		Vent Diameter – D																							
		10"		12"		14"		16"		18"		20"		22"		24"									
Heigh t H (ft)	Lateral L (ft)	Appliance Input Rating in Thousands of Btu per Hour																							
		FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT			
		Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max
6	0	0	1121	570	0	1645	850	0	2267	1170	0	2983	1530	0	3802	1960	0	4721	2430	0	5737	2950	0	6853	3520
	2	75	675	455	103	982	650	138	1346	890	178	1769	1170	225	2250	1480	296	2782	1850	360	3377	2220	426	4030	2670
	4	110	668	445	147	975	640	191	1338	880	242	1761	1160	300	2242	1475	390	2774	1835	469	3370	2215	555	4023	2660
	6	128	661	435	171	967	630	219	1330	870	276	1753	1150	341	2235	1470	437	2767	1820	523	3363	2210	618	4017	2650
8	0	0	1261	660	0	1858	970	0	2571	1320	0	3399	1740	0	4333	2220	0	5387	2750	0	6555	3360	0	7838	4010
	2	71	770	515	98	1124	745	130	1543	1020	168	2030	1340	212	2584	1700	278	3196	2110	336	3882	2560	401	4634	3050
	5	115	758	503	154	1110	733	199	1528	1010	251	2013	1330	311	2563	1685	398	3180	2090	476	3863	2545	562	4612	3040
	8	137	746	490	180	1097	720	231	1514	1000	289	2000	1320	354	2552	1670	450	3163	2070	537	3850	2530	630	4602	3030
10	0	0	1377	720	0	2036	1060	0	2825	1450	0	3742	1925	0	4782	2450	0	5955	3050	0	7254	3710	0	8682	4450
	2	68	852	560	93	1244	850	124	1713	1130	161	2256	1480	202	2868	1890	264	3556	2340	319	4322	2840	378	5153	3390
	5	112	839	547	149	1229	829	192	1696	1105	243	2238	1461	300	2849	1871	382	3536	2318	458	4301	2818	540	5132	3371
	10	142	817	525	187	1204	795	238	1669	1080	298	2209	1430	364	2818	1840	459	3504	2280	546	4268	2780	641	5099	3340
15	0	0	1596	840	0	2380	1240	0	3323	1720	0	4423	2270	0	5678	2900	0	7099	3620	0	8665	4410	0	10393	5300
	2	63	1019	675	86	1495	985	114	2062	1350	147	2719	1770	186	3467	2260	239	4304	2800	290	5232	3410	346	6251	4080
	5	105	1003	660	140	1476	967	182	2041	1327	229	2696	1748	283	3442	2235	355	4278	2777	426	5204	3385	501	6222	4057
	10	135	977	635	177	1446	936	227	2009	1289	283	2659	1712	346	3402	2193	432	4234	2739	510	5159	3343	599	6175	4019
	15	155	953	610	202	1418	905	257	1976	1250	318	2623	1675	385	3363	2150	479	4192	2700	564	5115	3300	665	6129	3980
20	0	0	1756	930	0	2637	1350	0	3701	1900	0	4948	2520	0	6376	3250	0	7988	4060	0	9785	4980	0	11753	6000
	2	59	1150	755	81	1694	1100	107	2343	1520	139	3097	2000	175	3955	2570	220	4916	3200	269	5983	3910	321	7154	4700
	5	101	1133	738	135	1674	1079	174	2320	1498	219	3071	1978	270	3926	2544	337	4885	3174	403	5950	3880	475	7119	4662
	10	130	1105	710	172	1641	1045	220	2282	1460	273	3029	1940	334	3880	2500	413	4835	3130	489	5896	3830	573	7063	4600
	15	150	1078	688	195	1609	1018	248	2245	1425	306	2988	1910	372	3835	2465	459	4786	3090	541	5844	3795	631	7007	4575
	20	167	1052	665	217	1578	990	273	2210	1390	335	2948	1880	404	3791	2430	495	4737	3050	585	5792	3760	689	6953	4550
30	0	0	1977	1060	0	3004	1550	0	4252	2170	0	5725	2920	0	7420	3770	0	9341	4750	0	11483	5850	0	13848	7060
	2	54	1351	865	74	2004	1310	98	2786	1800	127	3696	2380	159	4734	3050	199	5900	3810	241	7194	4650	285	8617	5600
	5	96	1332	851	127	1981	1289	164	2759	1775	206	3666	2350	252	4701	3020	312	5863	3783	373	7155	4622	439	8574	5552
	10	125	1301	829	164	1944	1254	209	2716	1733	259	3617	2300	316	4647	2970	386	5803	3739	456	7090	4574	535	8505	5471
	15	143	1272	807	187	1908	1220	237	2674	1692	292	3570	2250	354	4594	2920	431	5744	3695	507	7026	4527	590	8437	5391
	20	160	1243	784	207	1873	1185	260	2633	1650	319	3523	2200	384	4542	2870	467	5686	3650	548	6964	4480	639	8370	5310
	30	195	1189	745	246	1807	1130	305	2555	1585	369	3433	2130	440	4442	2785	540	5574	3565	635	6842	4375	739	8239	5225
50	0	0	2231	1195	0	3441	1825	0	4934	2550	0	6711	3440	0	8774	4460	0	11129	5635	0	13767	6940	0	16694	8430
	2	41	1620	1010	66	2431	1513	86	3409	2125	113	4554	2840	141	5864	3670	171	7339	4630	209	8980	5695	251	10788	6860
	5	90	1600	996	118	2406	1495	151	3380	2102	191	4520	2813	234	5826	3639	283	7295	4597	336	8933	5654	394	10737	6818
	10	118	1567	972	154	2366	1466	196	3332	2064	243	4464	2767	295	5763	3585	355	7224	4542	419	8855	5585	491	10652	6749
	15	136	1536	948	177	2327	1437	222	3285	2026	274	4409	2721	330	5701	3534	396	7155	4511	465	8779	5546	542	10570	6710
	20	151	1505	924	195	2288	1408	244	3239	1987	300	4356	2675	361	5641	3481	433	7086	4479	506	8704	5506	586	10488	6670
	30	183	1446	876	232	2214	1349	287	3150	1910	347	4253	2631	412	5523	3431	494	6953	4421	577	8557	5444	672	10328	6603
100	0	0	2491	1310	0	3925	2050	0	5729	2950	0	7914	4050	0	10485	5300	0	13454	6700	0	16817	8600	0	20578	10300
	2	30	1975	1170	44	3027	1820	72	4313	2550	95	5834	3500	120	7591	4600	138	9577	5800	169	11803	7200	204	14264	8800
	5	82	1955	1159	107	3002	1803	136	4282	2531	172	5797	3475	208	7548	4566	245	9528	5769	293	11748	7162	341	14204	8756
	10	108	1923	1142	142	2961	1775	180	4231	2500	223	5737	3434	268	7478	4509	318	9447	5717	374	11658	7100	436	14105	8683
	15	126	1892	1124	163	2920	1747	206	4182	2469	252	5678	3392	304	7409	4451	358	9367	5665	418	11569	7037	487	14007	8610
	20	141	1861	1107	181	2880	1719	226	4133	2438	277	5619	3351	330	7341	4394	387	9289	5613	452	11482	6975	523	13910	8537
	30	170	1802	1071	215	2803	1663	265	4037	2375	319	5505	3267	378	7209	4279	446	9136	5509	514	11310	6850	592	13720	8391
50	241	1688	1000	292	2657	1550	350	3856	2250	415	5289	3100	486	6956	4050	572	8841	5300	659	10979	6600	752	13354	8100	

Table 10.2 Capacity of Type B Double-Wall Vents with Single-Wall Metal Connectors Serving a Single Category I Appliance

		Vent Diameter – D																										
		3"			4"			5"			6"			7"			8"			9"			10"			12"		
Height H (ft)	Lateral L (ft)	Appliance Input Rating in Thousands of Btu per Hour																										
		FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT
		Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max
6	0	38	77	45	59	151	85	85	249	140	126	373	204	165	522	284	211	695	369	267	894	469	371	1118	569	537	1639	849
	2	39	51	36	60	96	66	85	156	104	123	231	156	159	320	213	201	423	284	251	541	368	347	673	453	498	979	648
	4	NA	NA	33	74	92	63	102	152	102	146	225	152	187	313	208	237	416	277	295	533	360	409	664	443	584	971	638
	6	NA	NA	31	83	89	60	114	147	99	163	220	148	207	307	203	263	409	271	327	526	352	449	656	433	638	962	627
8	0	37	83	50	58	164	93	83	273	154	123	412	234	161	580	319	206	777	414	258	1002	536	360	1257	658	521	1852	967
	2	39	56	39	59	108	75	83	176	119	121	261	179	155	363	246	197	482	321	246	617	417	339	768	513	486	1120	743
	5	NA	NA	37	77	102	69	107	168	114	151	252	171	193	352	235	245	470	311	305	604	404	418	754	500	598	1104	730
	8	NA	NA	33	90	95	64	122	161	107	175	243	163	223	342	225	280	458	300	344	591	392	470	740	486	665	1089	715
10	0	37	87	53	57	174	99	82	293	165	120	444	254	158	628	344	202	844	449	253	1093	584	351	1373	718	507	2031	1057
	2	39	61	41	59	117	80	82	193	128	119	287	194	153	400	272	193	531	354	242	681	456	332	849	559	475	1242	848
	5	52	56	39	76	111	76	105	185	122	148	277	186	190	388	261	241	518	344	299	667	443	409	834	544	584	1224	825
	10	NA	NA	34	97	100	68	132	171	112	188	261	171	237	369	241	296	497	325	363	643	423	492	808	520	688	1194	788
15	0	36	93	57	56	190	111	80	325	186	116	499	283	153	713	388	195	966	523	244	1259	681	336	1591	838	488	2374	1237
	2	38	69	47	57	136	93	80	225	149	115	337	224	148	473	314	187	631	413	232	812	543	319	1015	673	457	1491	983
	5	51	63	44	75	128	86	102	216	140	144	326	217	182	459	298	231	616	400	287	795	526	392	997	657	562	1469	963
	10	NA	NA	39	95	116	79	128	201	131	182	308	203	228	438	284	284	592	381	349	768	501	470	966	628	664	1433	928
	15	NA	NA	NA	NA	NA	72	158	186	124	220	290	192	272	418	269	334	568	367	404	742	484	540	937	601	750	1399	894
20	0	35	96	60	54	200	118	78	346	201	114	537	306	149	772	428	190	1053	573	238	1379	750	326	1751	927	473	2631	1346
	2	37	74	50	56	148	99	78	248	165	113	375	248	144	528	344	182	708	468	227	914	611	309	1146	754	443	1689	1098
	5	50	68	47	73	140	94	100	239	158	141	363	239	178	514	334	224	692	457	279	896	596	381	1126	734	547	1665	1074
	10	NA	NA	41	93	129	86	125	223	146	177	344	224	222	491	316	277	666	437	339	866	570	457	1092	702	646	1626	1037
	15	NA	NA	NA	NA	NA	80	155	208	136	216	325	210	264	469	301	325	640	419	393	838	549	526	1060	677	730	1587	1005
	20	NA	NA	NA	NA	NA	NA	186	192	126	254	306	196	309	448	285	374	616	400	448	810	526	592	1028	651	808	1550	973
30	0	34	99	63	53	211	127	76	372	219	110	584	334	144	849	472	184	1168	647	229	1542	852	312	1971	1056	454	2996	1545
	2	37	80	56	55	164	111	76	281	183	109	429	279	139	610	392	175	823	533	219	1069	698	296	1346	863	424	1999	1308
	5	49	74	52	72	157	106	98	271	173	136	417	271	171	595	382	215	806	521	269	1049	684	366	1324	846	524	1971	1283
	10	NA	NA	NA	91	144	98	122	255	168	171	397	257	213	570	367	265	777	501	327	1017	662	440	1287	821	620	1927	1243
	15	NA	NA	NA	115	131	NA	151	239	157	208	377	242	255	547	349	312	750	481	379	985	638	507	1251	794	702	1884	1205
	20	NA	NA	NA	NA	NA	NA	181	223	NA	246	357	228	298	524	333	360	723	461	433	955	615	570	1216	768	780	1841	1166
	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	389	477	305	461	670	426	541	895	574	704	1147	720	937	1759	1101
50	0	33	99	66	51	213	133	73	394	230	105	629	361	138	928	515	176	1292	704	220	1724	948	295	2223	1189	428	3432	1818
	2	36	84	61	53	181	121	73	318	205	104	495	312	133	712	443	168	971	613	209	1273	811	280	1615	1007	401	2426	1509
	5	48	80	NA	70	174	117	94	308	198	131	482	305	164	696	435	204	953	602	257	1252	795	347	1591	991	496	2396	1490
	10	NA	NA	NA	89	160	NA	118	292	186	162	461	292	203	671	420	253	923	583	313	1217	765	418	1551	963	589	2347	1455
	15	NA	NA	NA	112	148	NA	145	275	174	199	441	280	244	646	405	299	894	562	363	1183	736	481	1512	934	668	2299	1421
	20	NA	NA	NA	NA	NA	NA	176	257	NA	236	420	267	285	622	389	345	866	543	415	1150	708	544	1473	906	741	2251	1387
	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	315	376	NA	373	573	NA	442	809	502	521	1086	649	674	1399	848	892	2159	1318
100	0	NA	NA	NA	49	214	NA	69	403	NA	100	659	395	131	991	555	166	1404	765	207	1900	1033	273	2479	1300	395	3912	2042
	2	NA	NA	NA	51	192	NA	70	351	NA	98	563	373	125	828	508	158	1152	698	196	1532	933	259	1970	1168	371	3021	1817
	5	NA	NA	NA	67	186	NA	90	342	NA	125	551	366	156	813	501	194	1134	688	240	1511	921	322	1945	1153	460	2990	1796
	10	NA	NA	NA	85	175	NA	113	324	NA	153	532	354	191	789	486	238	1104	672	293	1477	902	389	1905	1133	547	2938	1763
	15	NA	NA	NA	132	162	NA	138	310	NA	188	511	343	230	764	473	281	1075	656	342	1443	884	447	1865	1110	618	2888	1730
	20	NA	NA	NA	NA	NA	NA	168	295	NA	224	487	NA	270	739	458	325	1046	639	391	1410	864	507	1825	1087	690	2838	1696
	30	NA	NA	NA	NA	NA	NA	231	264	NA	301	448	NA	355	685	NA	418	988	NA	491	1343	824	631	1747	1041	834	2739	1627
	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	540	584	NA	617	866	NA	711	1205	NA	895	1591	NA	1138	2547	1489

Table 10.3 Capacity of Masonry Chimney Flue with Type B Double-Wall Vent Connectors Serving a Single Category I Appliance

		Type B Double-Wall Connector Diameter – D To be used with chimney areas within the size limits at bottom																										
		3"		4"		5"		6"		7"		8"		9"		10"		12"										
Appliance Input Rating in Thousands of Btu per Hour																												
Height (ft)	Lateral (ft)	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT			
		Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max			
6	2	NA	NA	28	NA	NA	52	NA	NA	86	NA	NA	130	NA	NA	180	NA	NA	247	NA	NA	320	NA	NA	401	NA	NA	581
	5	NA	NA	25	NA	NA	49	NA	NA	82	NA	NA	117	NA	NA	165	NA	NA	231	NA	NA	298	NA	NA	376	NA	NA	561
8	2	NA	NA	29	NA	NA	55	NA	NA	93	NA	NA	145	NA	NA	198	NA	NA	266	84	590	350	100	728	446	139	1024	651
	5	NA	NA	26	NA	NA	52	NA	NA	88	NA	NA	134	NA	NA	183	NA	NA	247	NA	NA	328	149	711	423	201	1007	640
	8	NA	NA	24	NA	NA	48	NA	NA	83	NA	NA	127	NA	NA	175	NA	NA	239	NA	NA	318	173	695	410	231	990	623
10	2	NA	NA	31	NA	NA	61	NA	NA	103	NA	NA	162	NA	NA	221	68	519	298	82	655	388	98	810	491	136	1144	724
	5	NA	NA	28	NA	NA	57	NA	NA	96	NA	NA	148	NA	NA	204	NA	NA	277	124	638	365	146	791	466	196	1124	712
	10	NA	NA	25	NA	NA	50	NA	NA	87	NA	NA	139	NA	NA	191	NA	NA	263	155	610	347	182	762	444	240	1093	668
15	2	NA	NA	35	NA	NA	67	NA	NA	114	NA	NA	179	53	475	250	64	613	336	77	779	441	92	968	562	127	1376	841
	5	NA	NA	35	NA	NA	62	NA	NA	107	NA	NA	164	NA	NA	231	99	594	313	118	759	416	139	946	533	186	1352	828
	10	NA	NA	28	NA	NA	55	NA	NA	97	NA	NA	153	NA	NA	216	126	565	296	148	727	394	173	912	567	229	1315	777
	15	NA	NA	NA	NA	NA	48	NA	NA	89	NA	NA	141	NA	NA	201	NA	NA	281	171	698	375	198	880	485	259	1280	742
20	2	NA	NA	38	NA	NA	74	NA	NA	124	NA	NA	201	51	522	274	61	678	375	73	867	491	87	1083	627	121	1548	953
	5	NA	NA	36	NA	NA	68	NA	NA	116	NA	NA	184	80	503	254	95	658	350	113	845	463	133	1059	597	179	1523	933
	10	NA	NA	NA	NA	NA	60	NA	NA	107	NA	NA	172	NA	NA	237	122	627	332	143	811	440	167	1022	566	221	1482	879
	15	NA	NA	NA	NA	NA	NA	NA	NA	97	NA	NA	159	NA	NA	220	NA	NA	314	165	780	418	191	987	541	251	1443	840
	20	NA	NA	NA	NA	NA	NA	NA	NA	83	NA	NA	148	NA	NA	206	NA	NA	296	186	750	397	214	955	513	277	1406	807
30	2	NA	NA	41	NA	NA	82	NA	NA	137	NA	NA	216	47	581	303	57	762	421	68	985	558	81	1240	717	111	1793	1112
	5	NA	NA	NA	NA	NA	76	NA	NA	128	NA	NA	198	75	561	281	90	741	393	106	962	526	125	1216	683	169	1766	1094
	10	NA	NA	NA	NA	NA	67	NA	NA	115	NA	NA	184	NA	NA	263	115	709	373	135	927	500	158	1176	648	210	1721	1025
	15	NA	NA	NA	NA	NA	NA	NA	NA	107	NA	NA	171	NA	NA	243	NA	NA	353	156	893	476	181	1139	621	239	1679	981
	20	NA	NA	NA	NA	NA	NA	NA	NA	91	NA	NA	159	NA	NA	227	NA	NA	332	176	860	450	203	1103	592	264	1638	940
	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	188	NA	NA	288	NA	NA	416	249	1035	555	318	1560	877
50	2	NA	NA	NA	NA	NA	92	NA	NA	161	NA	NA	251	NA	NA	351	51	840	477	61	1106	633	72	1413	812	99	2080	1243
	5	NA	NA	NA	NA	NA	NA	NA	NA	151	NA	NA	230	NA	NA	323	83	819	445	98	1083	596	116	1387	774	155	2052	1225
	10	NA	NA	NA	NA	NA	NA	NA	NA	138	NA	NA	215	NA	NA	304	NA	NA	424	126	1047	567	147	1347	733	195	2006	1147
	15	NA	NA	NA	NA	NA	NA	NA	NA	127	NA	NA	199	NA	NA	282	NA	NA	400	146	1010	539	170	1307	702	222	1961	1099
	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	185	NA	NA	264	NA	NA	376	165	977	511	190	1269	669	246	1916	1050
	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	327	NA	NA	468	233	1196	623	295	1832	984
Minimum Internal Area of Chimney Square Inches		12		19		28		38		50		63		78		95		132										
Maximum Internal Area of Chimney Square Inches		49		88		137		198		269		352		445		550		792										

Table 10.4 Capacity of Masonry Chimney Flue with Single-Wall Vent Connectors Serving a Single Category I Appliance

		Single-Wall Metal Connector Diameter – D To be used with chimney areas within the size limits at bottom																										
		3"		4"		5"		6"		7"		8"		9"		10"		12"										
Appliance Input Rating in Thousands of Btu per Hour																												
Height (ft)	Lateral (ft)	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT	FAN		NAT			
		Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max			
6	2	NA	NA	28	NA	NA	52	NA	NA	86	NA	NA	130	NA	NA	180	NA	NA	247	NA	NA	319	NA	NA	400	NA	NA	580
	5	NA	NA	25	NA	NA	48	NA	NA	81	NA	NA	116	NA	NA	164	NA	NA	230	NA	NA	297	NA	NA	375	NA	NA	560
8	2	NA	NA	29	NA	NA	55	NA	NA	93	NA	NA	145	NA	NA	197	NA	NA	265	NA	NA	349	382	725	445	549	1021	650
	5	NA	NA	26	NA	NA	51	NA	NA	87	NA	NA	133	NA	NA	182	NA	NA	246	NA	NA	327	NA	NA	422	673	1003	638
	8	NA	NA	23	NA	NA	47	NA	NA	82	NA	NA	126	NA	NA	174	NA	NA	237	NA	NA	317	NA	NA	408	747	985	621
10	2	NA	NA	31	NA	NA	61	NA	NA	102	NA	NA	161	NA	NA	220	216	518	297	271	654	387	373	808	490	536	1142	722
	5	NA	NA	28	NA	NA	56	NA	NA	95	NA	NA	147	NA	NA	203	NA	NA	276	334	635	364	459	789	465	657	1121	710
	10	NA	NA	24	NA	NA	49	NA	NA	86	NA	NA	137	NA	NA	189	NA	NA	261	NA	NA	345	547	758	441	771	1088	665
15	2	NA	NA	35	NA	NA	67	NA	NA	113	NA	NA	178	166	473	249	211	611	335	264	776	440	362	965	560	520	1373	840
	5	NA	NA	32	NA	NA	61	NA	NA	106	NA	NA	163	NA	NA	230	261	591	312	325	755	414	444	942	531	637	1348	825
	10	NA	NA	27	NA	NA	54	NA	NA	96	NA	NA	151	NA	NA	214	NA	NA	294	392	722	392	531	907	504	749	1309	774
	15	NA	NA	NA	NA	NA	46	NA	NA	87	NA	NA	138	NA	NA	198	NA	NA	278	452	692	372	606	873	481	841	1272	738
20	2	NA	NA	38	NA	NA	73	NA	NA	123	NA	NA	200	163	520	273	206	675	374	258	864	490	252	1079	625	508	1544	950
	5	NA	NA	35	NA	NA	67	NA	NA	115	NA	NA	183	NA	NA	252	255	655	348	317	842	461	433	1055	594	623	1518	930
	10	NA	NA	NA	NA	NA	59	NA	NA	105	NA	NA	170	NA	NA	235	312	622	330	382	806	437	517	1016	562	733	1475	875
	15	NA	NA	NA	NA	NA	NA	NA	NA	95	NA	NA	156	NA	NA	217	NA	NA	311	442	773	414	591	979	539	823	1434	835
	20	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	NA	144	NA	NA	202	NA	NA	292	NA	NA	392	663	944	510	911	1394	800
30	2	NA	NA	41	NA	NA	81	NA	NA	136	NA	NA	215	158	578	302	200	759	420	249	982	556	340	1237	715	489	1789	1110
	5	NA	NA	NA	NA	NA	75	NA	NA	127	NA	NA	196	NA	NA	279	245	737	391	306	958	524	417	1210	680	600	1760	1090
	10	NA	NA	NA	NA	NA	66	NA	NA	113	NA	NA	182	NA	NA	260	300	703	370	370	920	496	500	1168	644	708	1713	1020
	15	NA	NA	NA	NA	NA	NA	NA	NA	105	NA	NA	168	NA	NA	240	NA	NA	349	428	884	471	572	1128	615	798	1668	975
	20	NA	NA	NA	NA	NA	NA	NA	NA	88	NA	NA	155	NA	NA	223	NA	NA	327	NA	NA	445	643	1089	585	883	1624	932
	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	182	NA	NA	281	NA	NA	408	NA	NA	544	1055	1539	865
50	2	NA	NA	NA	NA	NA	91	NA	NA	160	NA	NA	250	NA	NA	350	191	837	475	238	1103	631	323	1408	810	463	2076	1240
	5	NA	NA	NA	NA	NA	NA	NA	NA	149	NA	NA	228	NA	NA	321	NA	NA	442	293	1078	593	398	1381	770	571	2044	1220
	10	NA	NA	NA	NA	NA	NA	NA	NA	136	NA	NA	212	NA	NA	301	NA	NA	420	355	1038	562	447	1337	728	674	1994	1140
	15	NA	NA	NA	NA	NA	NA	NA	NA	124	NA	NA	195	NA	NA	278	NA	NA	395	NA	NA	533	546	1294	695	761	1945	1090
	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180	NA	NA	258	NA	NA	370	NA	NA	504	616	1251	660	844	1898	1040
	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	318	NA	NA	458	NA	NA	610	1009	1805	970
Minimum Internal Area of Chimney Square Inches		12		19		28		38		50		63		78		95		132										
Maximum Internal Area of Chimney Square Inches		49		88		137		198		269		352		445		550		792										

Table 10.5 Capacity of Single-Wall Metal Pipe or Type B Asbestos Cement Vents Serving a Single Draft Hood-Equipped Appliance

Height H (ft)	Lateral L (ft)	Vent Diameter – D							
		3"	4"	5"	6"	7"	8"	10"	12"
		Maximum Appliance Input Rating in Thousands of Btu per Hour							
6	0	39	70	116	170	232	312	500	750
	2	31	55	94	141	194	260	415	620
	5	28	51	88	128	177	242	390	600
8	0	42	76	126	185	252	340	542	815
	2	32	61	102	154	210	284	451	680
	5	29	56	95	141	194	264	430	648
	10	24	49	86	131	180	250	406	625
10	0	45	84	138	202	279	372	606	912
	2	35	67	111	168	233	311	505	760
	5	32	61	104	153	215	289	480	724
	10	27	54	94	143	200	274	455	700
	15	NA	46	84	130	186	258	432	666
15	0	49	91	151	223	312	420	684	1040
	2	39	72	122	186	260	350	570	865
	5	35	67	110	170	240	325	540	825
	10	30	58	103	158	223	308	514	795
	15	NA	50	93	144	207	291	488	760
	20	NA	NA	82	132	195	273	466	726
20	0	53	101	163	252	342	470	770	1190
	2	42	80	136	210	286	392	641	990
	5	38	74	123	192	264	364	610	945
	10	32	65	115	178	246	345	571	910
	15	NA	55	104	163	228	326	550	870
	20	NA	NA	91	149	214	306	525	832
30	0	56	108	183	276	384	529	878	1370
	2	44	84	148	230	320	441	730	1140
	5	NA	78	137	210	296	410	694	1080
	10	NA	68	125	196	274	388	656	1050
	15	NA	NA	113	177	258	366	625	1000
	20	NA	NA	99	163	240	344	596	960
	30	NA	NA	NA	NA	192	295	540	890
50	0	NA	120	210	310	443	590	980	1550
	2	NA	95	171	260	370	492	820	1290
	5	NA	NA	159	234	342	474	780	1230
	10	NA	NA	146	221	318	456	730	1190
	15	NA	NA	NA	200	292	407	705	1130
	20	NA	NA	NA	185	276	384	670	1080
	30	NA	NA	NA	NA	222	330	605	1010