

## GAS HEATING VENTING TABLES

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### INTRODUCTION

This Chapter consists solely of gas venting tables. These tables are from the American Gas Association (AGA), which co-publishes them with the National Fire Protection Association (NFPA). The tables are found in the AGA and NFPAs publication called the National Fuel Gas Code, part 11 Sizing of Category I Venting Systems. It is the latest version that was originally published in 1996, ANSI Z223.1, NFPA 54.

### DEFINITIONS

The following definitions apply to the tables in this Chapter.

**Appliance categorized vent diameter/area.** The minimum vent area/diameter permissible for category I appliances to maintain a nonpositive vent static pressure when tested in accordance with nationally recognized standards.

**Exterior masonry chimneys.** Masonry chimneys exposed to the outdoors on one or more sides below the roof line.

**Fan-assisted combustion system.** An appliance equipped with an integral mechanical means to either draw or force products of combustion through the combustion chamber or heat exchanger.

**FAN min.** The minimum input rating of a category I fan-assisted appliance attached to a vent or connector.

**FAN max.** The maximum input rating of a category I fan-assisted appliance attached to a vent or connector.

**NAT max.** The maximum input rating of a category I, draft hood-equipped appliance attached to a vent or connector.

**FAN + FAN.** The maximum combined appliance input rating of two or more category I fan-assisted appliances attached to the common vent.

**FAN + NAT.** The maximum combined appliance input rating of one or more category I fan-assisted appliances and one or more category I draft hood-equipped appliances attached to the common vent.

**NAT + NAT.** The maximum combined appliance input rating of two or more category I draft hood equipped appliances attached to the common vent.

**NA.** Vent configuration is not permitted due to potential for condensate formation or pressurization of the venting system, or not applicable due to physical or geometric restraints.

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### ADDITIONAL REQUIREMENTS TO SINGLE APPLIANCE VENT TABLES 1 TO 5

These venting tables shall not be used where obstructions, as described in "Obstructions" at the end of this section (from section 7.15, National Fuel Gas Code, 1996), 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.

If the vent size determined from the table is smaller than the appliance draft hood outlet or flue collar, the smaller size shall be permitted to be used provided:

- The total vent height (H) is at least 10 ft (3 m).
- Vents for appliance draft hood outlets or flue collars 12 in. (30 cm) in diameter or smaller are not reduced more than one table size.
- Vents for appliance draft hood outlets or flue collars larger than 12 in. (30 cm) in diameter are not reduced more than two table sizes.
- The maximum capacity listed in the tables for a fan-assisted appliance is reduced by 10% (0.90 x maximum table capacity).
- The draft hood outlet is greater than 4 in. (10 cm) in diameter. Do not connect a 3-in. (8-cm) in diameter vent to a 4-in. (10-cm) diameter draft hood outlet. This provision shall not apply to fan-assisted appliances.

Single-appliance venting configurations with zero (0) lateral lengths in Tables 1, 2, and 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% (0.9 x maximum table capacity). Two or more turns, the combined angles of which equal 90 degrees, shall be considered equivalent to one 90-degree turn.

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

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.

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.

Listed corrugated metallic chimney liner systems in masonry chimneys shall be sized by using Table 1 or 2 for type B vents with the maximum capacity reduced by 20% (0.80 x maximum capacity) and the minimum capacity as shown in Tables 1 and 2. Corrugated metallic liner

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systems installed with bends or offsets shall have their maximum capacity further reduced in accordance with "single-appliance venting configurations with zero lateral lengths" described above.

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.

Tables 1 to 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 3 in combination with Table 11 shall be used for clay-tile-lined exterior masonry chimneys, provided:

- a. vent connector is type B double-wall, and
- b. vent connector length is limited to 1-1/2 ft for each in. (18 cm/cm) of vent connector diameter, and
- c. the appliance is draft hood-equipped, and
- d. the input rating is less than the maximum capacity given by Table 3, and
- e. for space-heating appliance, the input rating is greater than the minimum capacity given by Table 11.

If these conditions cannot be met, an alternative venting design shall be used, such as a listed chimney lining system.

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.

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.

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

Interpolation shall be permitted in calculating capacities for vent dimensions that fall between table entries. Extrapolation beyond the table entries shall not be permitted.

For SI unites: 1 in. = 2.54 cm; 1 ft=0.305 m; 1,000 Btuh=0.293 kW; 1 in<sup>2</sup>=6.45 cm<sup>2</sup>.

Obstructions. A device that retards the flow of vent gases shall not be installed in a vent connector, chimney, or vent.

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- Exception No. 1. Draft regulators and safety controls (1) specifically listed for installation in venting systems and installed in accordance with the terms of their listing, and (2) designed and installed in accordance with approved engineering methods and approved by the authority having jurisdiction.
- Exception No. 2. Listed heat reclaimers and automatically operated vent dampers installed in accordance with the terms of their listing.
- Exception No. 3. Approved economizers, heat reclaimers, and recuperators installed in venting systems of equipment not required to be equipped with draft hoods, provided the gas utilization equipment manufacturer's instructions cover the installation of such a device in the venting system and performance in accordance with design and construction of venting equipment. Minimum safe performance for a venting system shall be designed and constructed so as to develop a positive flow adequate to remove flue or vent gases to the outside atmosphere (section 7.3.1 National Fuel Gas Code, 1996) Also, Equipment draft requirements for a venting system shall satisfy the draft requirements of the equipment in accordance with the manufacturer's instructions (section 7.3.2 National Fuel Gas Code, 1996).

### ADDITIONAL REQUIREMENTS TO MULTIPLE APPLIANCE VENT TABLES 6 TO 15

These venting tables shall not be used where obstructions, as described in the exceptions in the previous section, 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.

The maximum vent connector horizontal length shall be 1 1/2 ft (18 cm/cm) of connector diameter as follows:

Connector dia. max., in	Connector horiz. length, ft
3	4-1/2
4	6
5	7-1/2
6	9
7	10-1/2
8	12
9	13-1/2
10	15
12	18
14	21
16	24
18	27
20	30
22	33
24	36

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For SI units: 1 in.=2.54 cm; 1 ft=0.305 m.

The vent connector shall be routed to the vent utilizing the shortest possible route. Connectors with longer horizontal lengths than those listed above are permitted under the following conditions:

- a. The maximum capacity (FAN Max or NAT Max) of the vent connector shall be reduced 10% for each additional multiple of the length listed above. For example, the maximum length listed above for a 4-in. (10-cm) connector is 6 ft (1.8 m). With a connector length greater than 6 ft (1.8 m) but not exceeding 12 ft (3.7 m), the maximum capacity must be reduced by 10% (0.9 x maximum vent connector capacity). With a connector length greater than 12 ft (3.7 m) but not exceeding 18 ft (5.5 m), the maximum capacity must be reduced by 20% (0.8 x maximum vent capacity).
- b. For a connector serving a fan-assisted appliance, the minimum capacity (FAN Min) of the connector shall be determined by referring to the corresponding single appliance table. For type B double-wall connectors, Table 1 shall be used. The height (H) and lateral (L) shall be measured according to the procedures for a single appliance vent, as if the other appliances were not present.

If the vent connectors are combined prior to entering the common vent, the maximum common vent capacity listed in the common venting tables shall be reduced by 10% (0.9 x maximum common vent capacity). The length of the common vent connector manifold ( $L_M$ ) shall not exceed 1-1/2 ft (18 in.) for each in. (18 cm/cm) of common vent connector manifold diameter (D).

If the common vertical vent is offset, the maximum common vent capacity listed in the common venting tables shall be reduced by 20% (0.8 x maximum common vent capacity), the equivalent of two 90-degree turns. The horizontal length of the common vent offset ( $L_M$ ) shall not exceed 1-1/2 ft for each in. (18 cm/cm) of common vent diameter (D).

Excluding elbows counted in the previous paragraph, for each additional 90-degree turn in excess of two, the maximum capacity of that portion of the venting system shall be reduced by 10% (0.9 x maximum common vent capacity). Two or more turns, the combined angles of which equal 90 degrees, shall be considered equivalent to one 90-degree turn.

The cross-sectional area of the common vent shall be equal to or greater than the cross-sectional area of the largest connector.

Interconnection fittings shall be the same size as the common vent.

Sea level input ratings shall be used to determine maximum capacity for high altitude installation. Actual input (derated for altitude) shall be used for determining minimum capacity for high altitude installation.

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Connector rise (R) for each appliance connector shall be measured from the draft hood outlet or flue collar to the centerline where the vent gas streams come together.

For multiple units of gas utilization equipment all located on one floor, available total height (H) shall be measured from the highest draft hood outlet or flue collar up to the level of the outlet of the common vent.

For multistory installations, available total height (H) for each segment of the system shall be the vertical distance between the highest draft hood outlet or flue collar entering that segment and the centerline of the next higher interconnection tee.

The size of the lowest connector and of the vertical vent leading to the lowest interconnection of a multi-story system shall be in accordance with Table 1 or 2 for available total height (H) up to the lowest interconnection.

Where used in multistory systems, vertical common vents shall be type B double-wall and shall be installed with a listed vent cap. A multistory common vertical vent shall be permitted to have a single offset, provided:

- a. the offset angles does not exceed 45 degrees, and
- b. the horizontal length of the offset does not exceed 1 1/2 ft for each in. (18 cm/cm) of common vent diameter of the segment in which the offset is located, and
- c. for the segment of the common vertical vent containing the offset, the common vent capacity listed in the common venting tables is reduced by 20% (0.8 x maximum common vent capacity), and
- d. a multistory common vent shall not be reduced in size above the offset.

Where two or more appliances are connected to a vertical vent or chimney, the flow area of the largest section of vertical vent or chimney shall not exceed seven times the smallest listed appliance categorized vent areas, flue collar area, or draft hood outlet area unless designed in accordance with approved engineering methods.

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

Listed, corrugated metallic chimney liner systems in masonry chimneys shall be sized by using Table 6 or 7. Corrugated metallic liner systems installed with bends or offsets shall have their maximum capacity further reduced in accordance with the paragraph on "excluding elbows counted."

Tables 6 to 10 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

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flue shall not be considered to be exposed to the outdoors. Tables 12 and 13 shall be used for clay-tile-lined exterior masonry chimneys, provided:

- a. vent connector is type B double-wall, and
- b. at least one appliance is draft hood equipped, and
- c. the combined appliance input rating is less than the maximum capacity given by Table 12 (for NAT+NAT) or Table 14 (for FAN+NAT).
- d. the input rating of each space-heating appliance is greater than the minimum input rating given by Table 13 (for NAT+NAT) or Table 15 (for FAN+NAT).

If these conditions cannot be met, an alternative venting design shall be used, such as a listed chimney lining system.

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.

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. Vent connectors for draft hood-equipped appliances shall not be smaller than the draft hood outlet diameter. If a vent connector size(s) determined from the tables for a fan-assisted appliance(s) is smaller than the flue collar diameter, the smaller size(s) shall be permitted to be used provided:

- a. Vent connectors for fan-assisted appliance flue collars 12 in. (300 mm) in diameter or smaller are not reduced by more than one table size [e.g., 12 in. to 10 in. (300 mm to 250 mm) is a one-size reduction] and those larger than 12 in. (300 mm) in diameter are not reduced more than two table sizes (e.g., 24 in. to 20 in. [610 mm to 510 mm] is a two size reduction).
- b. The fan-assisted appliance(s) is common vented with a draft hood-equipped appliance(s).

All combination of pipe sizes, single-wall, and double wall metal pipe shall be allowed within any connector run(s) or within the common vent, provided ALL of the appropriate tables permit ALL of the desired sizes and types of pipe, as if they were used for the entire length of the subject connector or vent. If single-wall and type B double-wall metal pipes are used or vent connectors, the common vent must be sized using Table 7 or 9 as appropriate.

Where a table permits more than one diameter of pipe to be used for a connector or vent, all the permitted sizes shall be permitted to be used.

Interpolation shall be permitted in calculating capacities for vent dimensions that fall between table entries. Extrapolation beyond the table entries shall not be permitted.

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### TABLES

**TABLE 1**

Table 1. Capacity of type B double-wall gas vents when connected directly to a single category I appliance

H, ft		L, ft		Vent Diameter — D												
				3 in.		4 in.		5 in.		6 in.		7 in.				
				Appliance Input Rating in Thousands of Btuh												
				Fan		Nat		Fan		Nat		Fan		Nat		
		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
	2	13	51	36	18	97	67	27	157	105	32	232	157	44	321	217
	4	21	49	34	30	94	64	39	153	103	50	227	153	66	316	211
	6	25	46	32	36	91	61	47	149	100	59	223	149	78	310	205
8	0	0	84	50	0	165	94	0	276	155	0	415	235	0	583	320
	2	12	57	40	16	109	75	25	178	120	28	263	180	42	365	247
	5	23	53	38	32	103	71	42	171	115	53	255	173	70	356	237
	8	28	49	35	39	98	66	51	164	109	64	247	165	84	347	227
10	0	0	88	53	0	175	100	0	295	166	0	447	255	0	631	345
	2	12	61	42	17	118	81	23	194	129	26	289	195	40	402	273
	5	23	57	40	32	113	77	41	187	124	52	280	188	68	392	263
	10	30	51	36	41	104	70	54	176	115	67	267	175	88	376	245
	0	0	94	58	0	191	112	0	327	187	0	502	285	0	716	390
	2	11	69	48	15	136	93	20	226	150	22	239	225	38	475	316



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15	5	22	65	45	30	130	87	39	219	142	49	330	217	64	463	300
	10	29	59	41	40	121	82	51	206	135	64	315	208	84	445	288
	15	35	53	37	48	112	76	61	195	128	76	301	198	98	428	275
20	0	0	97	61	0	202	119	0	349	202	0	540	307	0	776	430
	2	10	75	51	14	149	100	18	250	166	20	377	249	33	531	346
	5	21	71	48	29	143	96	38	242	160	47	367	241	62	519	337
	10	28	64	44	38	133	89	50	229	150	62	351	228	81	499	321
	15	34	58	40	46	124	84	59	217	142	73	337	217	94	481	308
20	48	52	35	55	116	78	69	206	134	84	322	206	107	464	295	
30	0	0	100	64	0	213	128	0	374	220	0	587	336	0	853	475
	2	9	81	56	13	166	112	14	283	185	18	432	280	27	613	394
	5	21	77	54	28	160	108	36	275	176	45	421	273	58	600	385
	10	27	70	50	37	150	102	48	262	171	59	405	261	77	580	371
	15	33	64	NA	44	141	96	57	249	163	70	389	249	90	560	357
	20	56	58	NA	53	132	90	66	237	154	80	374	237	102	542	343
30	NA	NA	NA	73	113	NA	88	214	NA	104	346	219	131	507	321	
50	0	0	101	67	0	216	134	0	397	232	0	633	363	0	932	518
	2	8	86	61	11	183	122	14	320	206	15	497	314	22	715	445
	5	20	82	NA	27	177	119	35	312	200	43	487	308	55	702	438
	10	26	76	NA	35	168	114	45	299	190	56	471	298	73	681	426
	15	59	70	NA	42	158	NA	54	287	180	66	455	288	85	662	413
	20	NA	NA	NA	50	149	NA	63	275	169	76	440	278	97	642	401
30	NA	NA	NA	69	131	NA	84	250	NA	99	419	259	123	605	376	
50	0	NA	NA	NA	0	218	NA	0	407	NA	0	665	400	0	997	560

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	2	NA	NA	NA	10	194	NA	12	354	NA	13	566	375	18	831	510
	5	NA	NA	NA	26	189	NA	33	347	NA	40	557	369	52	820	504
	10	NA	NA	NA	33	182	NA	43	335	NA	53	542	361	68	801	493
	15	NA	NA	NA	40	174	NA	50	321	NA	62	528	353	80	782	482
	20	NA	NA	NA	47	166	NA	59	311	NA	71	513	344	90	763	471
	30	NA	NA	NA	NA	NA	NA	78	290	NA	92	483	NA	115	726	449
100	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	147	428	NA	180	651	405

Table 1. Capacity of type B double-wall gas vents

H, ft		Vent diameter — D																
		8 in.		9 in.		10 in.		12 in.		14 in.								
		Appliance input rating in thousands of Btuh																
		L, ft		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
6	0	0	698	370	0	897	470	0	1121	570	0	1645	850	0	2267	1170		
	2	53	425	285	63	543	370	75	675	455	103	982	650	138	1346	890		
	4	79	419	279	93	536	362	110	668	445	147	975	640	191	1338	880		
	6	93	413	273	110	530	354	128	661	435	171	967	630	219	1330	870		
8	0	0	780	415	0	1006	537	0	1261	660	0	1858	970	0	2571	1320		
	2	50	483	322	60	619	418	71	770	515	98	1124	745	130	1543	1020		
	5	83	473	313	99	607	407	115	758	503	154	1110	733	199	1528	1010		
	8	99	463	303	117	596	396	137	746	490	180	1097	720	231	1514	1000		
10	0	0	847	450	0	1096	585	0	1377	720	0	2036	1060	0	2825	1450		
	2	48	533	355	57	684	457	68	852	560	93	1244	850	124	1713	1130		

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10	5	83	473	313	99	607	407	112	839	547	149	1229	829	192	1696	1105
	10	104	504	330	122	651	427	142	817	525	187	1204	795	238	1669	1080
15	0	0	970	525	0	1263	682	0	1596	840	0	2380	1240	0	3323	1720
	2	45	633	414	53	815	544	63	1019	675	86	1495	985	114	2062	1350
	5	76	620	403	90	800	529	105	1003	660	140	1476	967	182	2041	1327
	10	99	600	386	116	777	507	135	977	635	177	1446	936	227	2009	1289
	15	115	580	373	134	755	491	155	953	610	202	1418	905	257	1976	1250
20	0	0	1057	575	0	1384	752	0	1756	930	0	2637	1350	0	3701	1900
	2	41	711	470	50	917	612	63	1019	675	86	1495	985	114	2063	1350
	5	73	697	460	86	902	599	101	1133	738	135	1674	1079	174	2320	1498
	10	95	675	443	112	877	576	130	1105	710	172	1641	1045	220	2282	1460
	15	111	654	427	129	853	557	150	1078	688	195	1609	1018	248	2245	1425
	20	125	634	410	145	830	537	167	1052	665	217	1578	990	273	2210	1390
30	0	0	1173	650	0	1548	855	0	1977	1060	0	3004	1550	0	4252	2170
	2	33	826	535	42	1072	700	54	1351	865	74	2004	1310	98	2786	1800
	5	69	811	524	82	1055	688	96	1332	851	127	1981	1289	164	2759	1775
	10	91	788	507	107	1028	668	125	1301	829	164	1944	1254	209	2716	1733
	15	105	765	490	124	1002	648	143	1273	807	187	1908	1220	237	2674	1692
	20	119	743	473	139	977	628	160	1243	784	207	1873	1185	260	2633	1650
30	30	149	702	444	171	929	594	195	1189	745	246	1807	1130	305	2555	1585
	0	0	1297	708	0	1730	952	0	2231	1195	0	3441	1825	0	4934	2550
	2	26	975	615	33	1276	813	41	1620	1010	66	2431	1513	86	3409	2125
	5	65	960	605	77	1259	798	90	1600	996	118	2406	1495	151	3380	2102
10	86	935	589	101	1230	773	118	1567	972	154	2366	1466	196	3332	2064	

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50	15	100	911	572	117	1203	747	136	1536	948	177	2397	1437	222	3285	2026
	20	113	888	556	131	1176	722	151	1505	924	195	2288	1408	244	3239	1987
	30	141	844	522	161	1125	670	183	1446	876	232	2214	1349	287	3150	1910
100	0	0	1411	770	0	1908	1040	0	2491	1310	0	3925	2050	0	5729	2950
	2	21	1155	700	25	1536	935	30	1975	1170	44	3027	1820	72	4313	2550
	5	60	1141	692	71	1519	926	82	1955	1159	107	3002	1803	136	4282	2531
	10	80	1118	679	94	1492	910	108	1923	1142	142	2961	1775	180	4231	2500
	15	93	1095	666	109	1465	895	126	1892	1124	163	2920	1747	206	4182	2469
	20	105	1073	653	122	1438	880	141	1861	1107	181	2880	1719	265	4133	2438
	30	131	1029	627	149	1387	849	170	1802	1071	215	2803	1663	265	4037	2375
	50	197	944	575	217	1288	787	241	1688	1000	292	2657	1550	350	3856	2250

Table 1. Capacity of type B double-wall gas vents

H, ft		L, ft		Vent diameter — D												
				16 in.		18 in.		20 in.		22 in.		24 in.				
				Appliance input rating in thousands of Btuh												
				Fan	Nat	Fan	Nat	Fan	Nat	Fan	Nat	Fan	Nat	Fan	Nat	
				Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	
6	0	0	2983	1530	0	3802	1960	0	4721	2430	0	5737	2950	0	6853	3520
	2	178	1769	1170	225	2250	1480	296	2782	1850	360	3377	2220	426	4030	2670
	4	242	1761	1160	300	2242	1475	390	2774	1835	469	3370	2215	555	4023	2660
	6	276	1753	1150	341	2235	1470	437	2767	1820	523	3363	2210	618	4018	2650
	0	0	3399	1740	0	4333	2220	0	5387	2750	0	6555	3360	0	7838	4010
	2	161	2256	1480	202	2868	1890	264	3556	2340	319	4322	2840	378	5153	3390

### GAS HEATING VENTING TABLES

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8	5	243	2238	1461	300	2849	1871	382	3536	2318	458	4301	2818	540	1532	3371
	8	298	2209	1430	364	2818	1840	459	3504	2280	546	4268	2780	641	5099	3340
10	0	0	3742	1925	0	4782	2450	0	5955	3050	0	7254	3710	0	8682	4450
	2	161	2256	1480	202	2868	1890	264	3556	2340	319	4322	2840	378	5153	3390
	5	243	2238	1461	300	2849	1871	382	3536	2318	458	4301	2818	540	5132	3371
	10	298	2209	1430	364	2818	1840	459	3504	2280	546	4268	2780	641	5099	3340
15	0	0	4423	2270	0	5678	2900	0	7099	3620	0	8665	4410	0	10393	5300
	2	147	2719	1770	186	3467	2260	239	4303	2800	290	5232	3410	346	6251	4080
	5	229	2696	1748	283	3442	2235	355	4278	2777	426	5204	3385	501	6222	4057
	10	283	2659	1712	346	3402	2193	432	4234	2739	510	5159	3343	599	6175	4019
	15	318	2623	1675	385	3363	2150	479	4192	2700	564	5115	3300	665	6129	3980
20	0	0	4948	2520	0	6376	3250	0	7988	4060	0	9785	4980	0	11753	6000
	2	139	3097	2000	175	3955	2570	220	4916	3200	269	5983	3910	321	7154	4700
	5	219	3071	1978	270	3926	2544	337	4885	3174	403	5950	3880	475	7119	4662
	10	273	3029	1940	334	3880	2500	413	4835	3130	489	5896	3830	573	7063	4600
	15	306	2988	1910	372	3835	2465	459	4786	3090	541	5844	3795	631	7007	4575
	20	335	2948	1880	404	3791	2430	495	4737	3050	585	5792	3760	689	6953	4550
30	0	0	5725	2920	0	7420	3770	0	9341	4750	0	11483	5850	0	13848	7060
	2	127	3696	2380	159	4734	3050	199	5900	3810	241	7194	4650	285	8617	5600
	5	206	3666	2350	252	4701	3020	312	5863	3783	373	7155	4622	439	8574	5552
	10	259	3617	2300	316	4647	2970	386	5803	3739	456	7090	4574	535	8505	5471
	15	292	3570	2250	354	4594	2920	431	5744	3695	507	7026	4527	590	8437	5391
	20	319	3523	2200	384	4542	2870	467	5686	3650	548	6964	4480	639	8370	5310
	30	369	3433	2130	440	4442	2785	540	5574	3565	635	6842	4375	739	8239	5225

### GAS HEATING VENTING TABLES

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	0	0	6711	3440	0	8774	4460	0	11129	5635	0	13767	6940	0	16694	8430
	2	113	4554	2840	141	5864	3670	171	7339	4630	209	8980	5695	251	10788	6860
	5	191	4520	2831	234	5826	3639	283	7295	4597	336	8933	5654	394	10737	6818
	10	243	4464	2767	295	5763	3585	355	7224	4542	419	8855	5585	491	10652	6749
	15	274	4409	2721	330	5701	3534	396	7155	4511	465	8779	5546	542	10570	6710
	20	300	4356	2675	361	5641	3481	433	7086	4479	506	8704	5506	586	10488	6670
50	30	347	4253	2631	412	5523	3431	494	6953	4421	577	8557	5444	672	10328	6603
<hr/>																
	0	0	7914	4050	0	10485	5300	0	13454	6700	0	16817	8600	0	20578	10300
	2	95	5834	3500	120	7591	4600	138	9577	5800	169	11803	7200	204	14264	8800
	5	172	5797	3475	208	7548	4566	245	9528	5769	293	11748	7162	341	14204	8756
	10	223	5737	3434	268	7478	4509	318	9447	5717	374	11658	7100	436	14105	8683
	15	252	5687	3392	304	7409	4451	358	9367	5665	418	11569	7037	487	14007	8610
	20	277	5619	3351	330	7341	4394	387	9289	5613	452	11482	6975	523	13910	8537
	30	319	5505	3267	378	7209	4279	446	9136	5509	514	11310	6850	592	13720	8391
100	50	415	5289	3100	486	6956	4050	572	8841	5300	659	10979	6600	752	13354	8100

### GAS HEATING VENTING TABLES

#### TABLES TABLE 2

### GAS HEATING VENTING TABLES

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Table 2. Capacity B double-wall vents, single-wall metal connectors, single cat. I appliance

H, ft		L, ft		Vent diameter — D														
				3 in.			4 in.			5 in.			6 in.			7 in.		
				Appliance input rating in thousands of Btuh														
				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				
6	0	38	77	45	59	151	85	85	249	140	126	373	204	165	522	284		
	2	39	51	36	60	96	66	85	156	104	123	231	156	159	320	213		
	4	NA	NA	33	74	92	63	102	152	102	146	225	152	187	313	208		
	6	NA	NA	31	83	89	60	114	147	99	163	220	148	207	307	203		
8	0	37	83	50	58	164	93	83	273	154	123	412	234	161	580	319		
	2	39	56	39	59	108	75	83	176	119	121	261	179	155	363	246		
	5	NA	NA	37	77	102	69	107	168	114	151	252	171	193	352	235		
	8	NA	NA	33	90	95	64	122	161	107	175	243	163	223	342	225		
10	0	37	87	53	57	174	99	82	293	165	120	444	254	158	628	344		
	2	39	61	41	59	117	80	82	193	128	119	287	194	153	400	272		
	5	52	56	39	76	111	76	105	185	122	148	277	186	190	388	261		
	10	NA	NA	34	97	100	68	132	171	112	188	261	171	237	369	241		
15	0	36	93	57	56	190	111	80	325	186	116	499	283	153	713	388		
	2	38	69	47	57	136	93	80	225	149	115	337	224	148	473	314		
	5	51	63	44	75	128	86	102	216	140	144	326	217	182	459	298		
	10	NA	NA	39	95	116	79	128	201	131	182	308	203	228	438	284		
	15	NA	NA	NA	NA	NA	72	158	186	124	220	290	192	272	418	269		
	0	35	96	60	54	200	118	78	346	201	114	537	306	149	772	428		



### GAS HEATING VENTING TABLES

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20	2	37	74	50	56	148	99	78	248	165	113	375	248	144	528	344	
	5	50	68	47	73	140	94	100	239	158	141	363	239	178	514	334	
	10	NA	NA	41	93	129	86	125	223	146	177	344	224	222	491	316	
	15	NA	NA	NA	NA	NA	80	155	208	136	216	325	210	264	469	301	
	20	NA	NA	NA	NA	NA	NA	186	192	126	254	306	196	309	448	285	
	<hr/>																
30	0	34	99	63	53	211	127	76	372	219	110	584	334	144	849	472	
	2	37	80	56	55	164	111	76	281	183	109	429	279	139	610	392	
	5	49	74	52	72	157	106	98	271	173	136	417	271	171	595	382	
	10	NA	NA	NA	91	144	98	122	255	168	171	397	257	213	570	367	
	15	NA	NA	NA	115	131	NA	151	239	157	208	377	242	255	547	349	
	20	NA	NA	NA	NA	NA	NA	181	223	NA	246	357	228	298	524	333	
<hr/>																	
50	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	389	477	305	
	<hr/>																
	0	33	99	66	51	213	133	73	394	230	105	629	361	138	928	515	
	2	36	84	61	53	181	121	73	318	205	104	495	312	133	712	443	
	5	48	80	NA	70	174	117	94	308	198	131	482	305	164	696	435	
	10	NA	NA	NA	89	160	NA	118	292	186	162	461	292	203	671	420	
15	NA	NA	NA	112	148	NA	145	275	174	199	441	280	244	646	405		
20	NA	NA	NA	NA	NA	NA	176	257	NA	236	420	267	285	622	389		
<hr/>																	
50	30	NA	NA	NA	NA	NA	NA	NA	NA	315	376	NA	373	573	NA		
	<hr/>																
	0	NA	NA	NA	49	214	NA	69	403	NA	100	659	395	131	991	555	
	2	NA	NA	NA	51	192	NA	70	351	NA	98	563	373	125	828	508	
	5	NA	NA	NA	67	186	NA	90	342	NA	125	551	366	156	813	501	
10	NA	NA	NA	85	175	NA	113	324	NA	153	532	354	191	789	486		
15	NA	NA	NA	132	162	NA	138	310	NA	188	511	343	230	764	473		

### GAS HEATING VENTING TABLES

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	20	NA	NA	NA	NA	NA	NA	168	295	NA	224	487	NA	270	739	458
	30	NA	NA	NA	NA	NA	NA	231	264	NA	301	448	NA	355	685	NA
100	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	540	584	NA

Table 2. Capacity type B double-wall vents, single-wall metal connectors

Height	Lateral	Vent diameter — D											
		8 in.			9 in.			10 in.			12 in.		
		Appliance input rating in thousands of Btuh											
		Fan		Nat		Fan		Nat		Fan		Nat	
H,	L,												
ft	ft	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max
6	0	211	695	369	267	894	469	371	1118	569	537	1639	849
	2	201	423	284	251	541	368	347	673	453	498	979	648
	4	237	416	277	295	533	360	409	664	443	584	971	638
	6	263	409	271	327	526	352	449	656	433	638	962	627
8	0	206	777	414	258	1002	536	360	1257	658	521	1852	967
	2	197	482	321	246	617	417	339	768	513	486	1120	743
	5	245	470	311	305	604	404	418	754	500	598	1104	730
	8	280	458	300	344	591	392	470	740	486	665	1089	715
10	0	202	844	449	253	1093	584	351	1373	718	507	2031	1057
	2	193	531	354	242	681	456	332	849	559	475	1242	848
	5	241	518	344	299	667	443	409	834	544	584	1224	825
	10	296	497	325	363	643	423	492	808	520	688	1194	788
	0	195	966	523	244	1259	681	336	1591	838	488	2374	1237

### GAS HEATING VENTING TABLES

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15	2	187	631	413	232	812	543	319	1015	673	457	1491	983
	5	231	616	400	287	795	526	392	997	657	562	1469	963
	10	284	592	381	349	768	501	470	966	628	664	1433	928
	15	334	568	367	404	742	484	540	937	601	750	1399	894
20	0	190	1053	573	238	1379	750	326	1751	927	473	2631	1346
	2	182	708	468	227	914	611	309	1146	754	443	1689	1098
	5	224	692	457	279	896	596	381	1126	734	547	1665	1074
	10	277	666	437	339	866	570	457	1092	702	646	1626	1037
	15	325	640	419	393	838	549	526	1060	677	730	1587	1005
	20	374	616	400	448	810	526	592	1028	651	808	1550	973
30	0	184	1168	647	229	1542	852	312	1971	1056	454	2996	1545
	2	175	823	533	219	1069	698	296	1346	863	424	1999	1308
	5	215	806	521	269	1049	684	366	1324	846	524	1971	1283
	10	265	777	501	327	1017	662	440	1287	821	620	1927	1243
	15	312	750	481	379	985	638	507	1251	794	702	1884	1205
	20	360	723	461	433	955	615	570	1216	768	780	1841	1166
50	30	461	670	426	541	895	574	704	1147	720	937	1759	1101
	0	176	1292	704	220	1724	948	295	2223	1189	428	3432	1818
	2	168	971	613	209	1273	811	280	1615	1007	401	2426	1509
	5	204	953	602	257	1252	795	347	1591	991	496	2396	1490
	10	253	923	583	313	1217	765	418	1551	963	589	2347	1455
	15	299	894	562	363	1183	736	481	1512	934	668	2299	1421
	20	345	866	543	415	1150	708	544	1473	906	741	2251	1387
30	442	809	502	521	1086	649	674	1399	848	892	2159	1318	

### GAS HEATING VENTING TABLES

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	0	166	1404	765	207	1900	1033	273	2479	1300	395	3912	2042
	2	158	1152	698	196	1532	933	259	1970	1168	371	3021	1817
	5	194	1134	688	240	1511	921	322	1945	1153	460	2990	1796
	10	238	1104	672	293	1477	902	389	1905	1133	547	2938	1763
	15	281	1075	656	342	1443	884	447	1865	1110	618	2888	1730
	20	325	1046	639	391	1410	864	507	1825	1087	690	2838	1696
	30	418	988	NA	491	1343	824	631	1747	1941	834	2739	1627
100	50	617	866	NA	711	1205	NA	865	1591	NA	1138	2547	1489

### GAS HEATING VENTING TABLES

#### TABLES TABLE 3

Table 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 for chimney areas within the size limits at bottom														
		3 in.			4 in.			5 in.			6 in.			7 in.		
		Appliance input rating in thousands of Btuh														
		Fan		Nat	Fan		Nat	Fan		Nat	Fan		Nat	Fan		Nat
H, ft	L, ft	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
	5	NA	NA	25	NA	NA	49	NA	NA	82	NA	NA	117	NA	NA	165
8	2	NA	NA	29	NA	NA	55	NA	NA	93	NA	NA	145	NA	NA	198
	5	NA	NA	26	NA	NA	52	NA	NA	88	NA	NA	134	NA	NA	183
	8	NA	NA	24	NA	NA	48	NA	NA	83	NA	NA	127	NA	NA	175
	2	NA	NA	31	NA	NA	61	NA	NA	103	NA	NA	162	NA	NA	221

### GAS HEATING VENTING TABLES

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10	5	NA	NA	28	NA	NA	57	NA	NA	96	NA	NA	148	NA	NA	204
	10	NA	NA	25	NA	NA	50	NA	NA	87	NA	NA	139	NA	NA	191
15	2	NA	NA	35	NA	NA	67	NA	NA	114	NA	NA	179	53	475	250
	5	NA	NA	35	NA	NA	62	NA	NA	107	NA	NA	164	NA	NA	231
	10	NA	NA	28	NA	NA	55	NA	NA	97	NA	NA	153	NA	NA	216
	15	NA	NA	NA	NA	NA	48	NA	NA	89	NA	NA	141	NA	NA	201
20	2	NA	NA	38	NA	NA	74	NA	NA	124	NA	NA	201	51	522	274
	5	NA	NA	36	NA	NA	68	NA	NA	116	NA	NA	184	80	503	254
	10	NA	NA	NA	NA	NA	60	NA	NA	107	NA	NA	172	NA	NA	237
	15	NA	NA	NA	NA	NA	NA	NA	NA	97	NA	NA	159	NA	NA	220
	20	NA	NA	NA	NA	NA	NA	NA	NA	83	NA	NA	148	NA	NA	206
30	2	NA	NA	41	NA	NA	82	NA	NA	137	NA	NA	216	47	581	303
	5	NA	NA	NA	NA	NA	76	NA	NA	128	NA	NA	198	75	561	281
	10	NA	NA	NA	NA	NA	67	NA	NA	115	NA	NA	184	NA	NA	263
	15	NA	NA	NA	NA	NA	NA	NA	NA	107	NA	NA	171	NA	NA	243
	20	NA	NA	NA	NA	NA	NA	NA	NA	91	NA	NA	159	NA	NA	227
	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	188
50	2	NA	NA	NA	NA	NA	92	NA	NA	161	NA	NA	251	NA	NA	351
	5	NA	NA	NA	NA	NA	NA	NA	NA	151	NA	NA	230	NA	NA	323
	10	NA	NA	NA	NA	NA	NA	NA	NA	138	NA	NA	215	NA	NA	304
	15	NA	NA	NA	NA	NA	NA	NA	NA	127	NA	NA	199	NA	NA	282
	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	185	NA	NA	264
	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Minimum internal area of chimney, in <sup>2</sup>		12			19			28			38			50		

### GAS HEATING VENTING TABLES

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Maximum internal area of chimney, in <sup>2</sup>	49	88	137	198	269
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Table 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 for chimney areas within the size limits at bottom											
		8 in.			9 in.			10 in.			12 in.		
Height H, ft	Lateral L, ft	Appliance input rating in thousands of Btuh											
		Fan		Nat		Fan		Nat		Fan		Nat	
		Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max
		6	2	NA	NA	247	NA	NA	320	NA	NA	401	NA
5	NA		NA	231	NA	NA	298	NA	NA	376	NA	NA	561
8	2	NA	NA	266	84	590	350	100	728	446	139	1024	651
	5	NA	NA	247	NA	NA	328	149	711	423	201	1007	640
	8	NA	NA	239	NA	NA	318	173	695	410	231	990	623
10	2	68	519	298	82	655	388	98	810	491	136	1144	724
	5	NA	NA	277	124	638	365	146	791	466	196	1124	712
	10	NA	NA	263	155	610	347	182	762	444	240	1093	668
15	2	64	613	336	77	779	441	92	968	562	127	1376	841
	5	99	594	313	118	759	416	139	946	533	186	1352	828
	10	126	565	296	148	727	394	173	912	567	229	1315	777
	15	NA	NA	281	171	698	375	198	880	485	259	1280	742
	2	61	678	375	73	867	491	87	1083	627	121	1548	953
	5	95	658	350	113	845	463	133	1059	597	179	1523	933

### GAS HEATING VENTING TABLES

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20	10	122	627	332	143	811	440	167	1022	566	221	1482	879
	15	NA	NA	314	165	780	418	191	987	541	251	1443	840
	20	NA	NA	296	186	750	397	214	955	513	277	1406	807
30	2	57	762	421	68	985	558	81	1240	717	111	1793	1112
	5	90	741	393	106	962	526	125	1216	683	169	1766	1094
	10	115	709	373	135	927	500	158	1176	648	210	1721	1025
	15	NA	NA	353	156	893	476	181	1139	621	239	1679	981
	20	NA	NA	332	176	860	450	203	1103	592	264	1638	940
	30	NA	NA	288	A	NA	416	249	1035	555	318	1560	877
50	2	51	840	477	61	1106	633	72	1413	812	99	2080	1243
	5	83	819	445	98	1083	596	116	1387	774	155	2052	1225
	10	NA	NA	424	126	1047	567	147	1347	733	195	2006	1147
	15	NA	NA	400	146	1010	539	170	1307	702	222	1961	1099
	20	NA	NA	376	165	977	511	190	1269	669	246	1916	1050
	30	NA	NA	327	NA	NA	468	233	1196	623	295	1832	984
Minimum internal area of chimney, in <sup>2</sup>		63			78			95			132		
Maximum internal area of chimney, in <sup>2</sup>		352			445			550			792		



### GAS HEATING VENTING TABLES

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## GAS HEATING VENTING TABLES

### TABLES TABLE 4

Table 4. Capacity of masonry chimney flue with single-wall vent connectors serving a single category I appliance

H, ft	L, ft	Single-wall metal connector diameter — D for chimney areas within the size limits at bottom															
		3 in.		4 in.		5 in.		6 in.		7 in.							
		Appliance input rating in thousands of Btuh															
		Fan		Nat		Fan		Nat		Fan		Nat		Fan		Nat	
		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	
	5	NA	NA	25	NA	NA	48	NA	NA	81	NA	NA	116	NA	NA	164	
8	2	NA	NA	29	NA	NA	55	NA	NA	93	NA	NA	145	NA	NA	197	
	5	NA	NA	26	NA	NA	51	NA	NA	87	NA	NA	133	NA	NA	182	
	8	NA	NA	23	NA	NA	47	NA	NA	82	NA	NA	126	NA	NA	17	
10	2	NA	NA	31	NA	NA	61	NA	NA	102	NA	NA	161	NA	NA	220	
	5	NA	NA	28	NA	NA	56	NA	NA	95	NA	NA	147	NA	NA	203	
	10	NA	NA	24	NA	NA	49	NA	NA	86	NA	NA	137	NA	NA	189	

### GAS HEATING VENTING TABLES

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15	2	NA	NA	35	NA	NA	67	NA	NA	113	NA	NA	178	166	473	249
	5	NA	NA	32	NA	NA	61	NA	NA	106	NA	NA	163	NA	NA	230
	10	NA	NA	27	NA	NA	54	NA	NA	96	NA	NA	151	NA	NA	214
	15	NA	NA	NA	NA	NA	46	NA	NA	87	NA	NA	138	NA	NA	198
20	2	NA	NA	38	NA	NA	73	NA	NA	123	NA	NA	200	163	520	273
	5	NA	NA	35	NA	NA	67	NA	NA	115	NA	NA	183	NA	NA	252
	10	NA	NA	NA	NA	NA	59	NA	NA	105	NA	NA	170	NA	NA	235
	15	NA	NA	NA	NA	NA	NA	NA	NA	95	NA	NA	156	NA	NA	217
	20	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	NA	144	NA	NA	202
30	2	NA	NA	41	NA	NA	81	NA	NA	136	NA	NA	215	158	578	302
	5	NA	NA	NA	NA	NA	75	NA	NA	127	NA	NA	196	NA	NA	279
	10	NA	NA	NA	NA	NA	66	NA	NA	113	NA	NA	182	NA	NA	240
	15	NA	NA	NA	NA	NA	NA	NA	NA	105	NA	NA	168	NA	NA	243
	20	NA	NA	NA	NA	NA	NA	NA	NA	88	NA	NA	155	NA	NA	223
	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	182
50	2	NA	NA	NA	NA	NA	91	NA	NA	160	NA	NA	250	NA	NA	350
	5	NA	NA	NA	NA	NA	NA	NA	NA	149	NA	NA	228	NA	NA	321
	10	NA	NA	NA	NA	NA	NA	NA	NA	136	NA	NA	212	NA	NA	301
	15	NA	NA	NA	NA	NA	NA	NA	NA	124	NA	NA	195	NA	NA	278
	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	180	NA	NA	258
	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Minimum internal area of chimney, in <sup>2</sup>		12			19			28			38			50		
Maximum internal area of chimney, in <sup>2</sup>		49			88			137			198			269		

### GAS HEATING VENTING TABLES

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Table 4. Capacity of masonry chimney flue with single-wall vent connectors serving a single category I appliance

		Single-wall metal connector diameter D for chimney areas within the size limits at bottom											
		8 in.			9 in.			10 in.			12 in.		
Height H, ft	Lateral L, ft	Appliance input rating in thousands of Btuh											
		Fan		Nat		Fan		Nat		Fan		Nat	
		Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max
		6	2	NA	NA	247	NA	NA	319	NA	NA	400	NA
5	NA		NA	230	NA	NA	297	NA	NA	375	NA	NA	560
8	2	NA	NA	265	NA	NA	349	382	725	445	549	1021	650
	5	NA	NA	246	NA	NA	327	NA	NA	422	673	1003	638
	8	NA	NA	237	NA	NA	317	NA	NA	408	747	985	621
10	2	216	518	297	271	654	387	373	808	490	536	1142	722
	5	NA	NA	276	334	635	364	459	789	465	657	1121	710
	10	NA	NA	261	NA	NA	345	547	758	441	771	1088	665
15	2	211	611	335	264	776	440	362	965	560	520	1373	840
	5	261	591	312	325	755	414	444	942	531	637	1348	825
	10	NA	NA	294	392	722	392	531	907	504	749	1309	774
	15	NA	NA	278	452	692	372	606	873	481	841	1272	738
	2	206	675	374	258	864	490	252	1079	625	508	1544	950
	5	255	655	348	317	842	461	433	1055	594	623	1518	930
	10	312	622	330	382	806	437	517	1016	562	733	1475	875
	15	NA	NA	311	442	773	414	591	979	539	823	1434	835

### GAS HEATING VENTING TABLES

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20	20	NA	NA	292	NA	NA	392	663	944	510	911	1394	800
	2	200	762	420	249	982	556	340	1237	715	489	1789	1110
	5	245	737	391	306	958	524	417	1210	680	600	1760	1090
	10	300	703	370	370	920	496	500	1168	644	708	1713	1020
	15	NA	NA	349	428	884	471	572	1128	615	798	1668	975
	20	NA	NA	327	NA	NA	445	643	1089	585	883	1624	932
30	30	NA	NA	281	NA	NA	408	NA	NA	544	1055	1539	865
	2	191	837	475	238	1103	631	323	1408	810	463	2076	1240
	5	NA	NA	442	293	1078	593	398	1381	770	571	2044	1220
	10	NA	NA	420	355	1038	562	447	1337	728	674	1994	1140
	15	NA	NA	395	NA	NA	533	546	1294	695	761	1945	1090
	20	NA	NA	370	NA	NA	504	616	1251	660	844	1898	1040
50	30	NA	NA	318	NA	NA	458	NA	NA	610	1009	1805	970
Minimum internal area of chimney, in <sup>2</sup>		63			78			95			132		
Maximum internal area of chimney, in <sup>2</sup>		352			445			550			792		

### GAS HEATING VENTING TABLES

#### TABLES TABLE 5

Table 5. Capacity of single-wall metal pipe or type B asbestos cement vents serving a single draft hood-equipped appliance

Height	Lateral	Vent diameter — D							
		3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	10 in.	12 in.
H,	L,	Maximum appliance input rating in thousands of Btuh							
ft	ft								

### GAS HEATING VENTING TABLES

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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	647
	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	A	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
	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

### GAS HEATING VENTING TABLES

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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

### GAS HEATING VENTING TABLES

#### TABLES TABLE 6

		Vent connector capacity				
		Type B double-wall vent and connector diameter — D				
		3 in.	4 in.	5 in.	6 in.	7 in.
		Appliance input rating in thousands of Btuh				
Vent height	Connector rise					

### GAS HEATING VENTING TABLES

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H, ft	R, ft	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
6	1	22	37	26	35	66	46	46	106	72	58	164	104	77	225	142
	2	23	41	31	37	75	55	48	121	86	60	183	124	79	253	168
	3	24	44	35	38	81	62	49	132	96	62	199	139	82	275	189
8	1	22	40	27	35	72	48	49	114	76	64	176	109	84	243	148
	2	23	44	32	36	80	57	51	128	90	66	195	129	86	269	175
	3	24	47	36	37	87	64	53	139	101	67	210	145	88	290	198
10	1	22	43	28	34	78	50	49	123	78	65	189	113	89	257	154
	2	23	47	33	36	86	59	51	136	93	67	206	134	91	282	182
	3	24	50	37	37	92	67	52	146	104	69	220	150	94	303	205
15	1	21	50	30	33	89	53	47	142	83	64	220	120	88	298	163
	2	22	53	35	35	96	63	49	153	99	66	235	142	91	320	193
	3	24	55	40	36	102	71	51	163	111	68	248	160	93	339	218
20	1	21	54	31	33	99	56	46	157	87	62	246	125	86	334	171
	2	22	57	37	34	105	66	48	167	104	64	259	149	89	354	202
	3	23	60	42	35	110	74	50	176	116	66	271	168	91	371	228
30	1	20	62	33	31	113	59	45	181	93	60	288	134	83	391	182
	2	21	64	39	33	118	70	47	190	110	62	299	158	85	408	215
	3	22	66	44	34	123	79	48	198	124	64	309	178	88	423	242
50	1	19	71	36	30	133	64	43	216	101	57	349	145	78	477	197
	2	21	73	43	32	137	76	45	223	119	59	358	172	81	490	234
	3	22	75	48	33	141	86	46	229	134	61	366	194	83	502	263
1	18	82	37	28	158	66	40	262	104	53	442	150	73	611	204	



### GAS HEATING VENTING TABLES

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100	2	19	83	44	30	161	79	42	267	123	55	447	178	75	619	242
	3	20	84	50	31	163	89	44	272	138	57	452	200	78	627	272

Common vent capacity															
Type B double-wall common vent diameter – D															
Vent	4 in.			5 in.			6 in.			7 in.			8 in.		
height	Combined appliance input rating in thousands of Btuh														
H,	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat
ft	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan
6	92	81	65	140	116	103	204	161	147	309	248	200	404	314	260
8	101	90	73	155	129	114	224	178	163	339	275	223	444	348	290
10	110	97	79	169	141	124	243	194	178	367	299	242	477	377	315
15	125	112	91	195	164	144	283	228	206	427	352	280	556	444	365
20	136	123	102	215	183	160	314	255	229	475	394	310	621	499	405
30	152	138	118	244	210	185	361	297	266	547	459	360	720	585	470
50	167	153	134	279	244	214	421	353	310	641	547	423	854	706	550
100	175	163	NA	311	277	NA	489	421	NA	751	658	479	1025	873	625

Table 6. Capacity B double-wall vents, B double-wall connectors with 2 or more cat. I appl.

Vent connector capacity						
Type B double-wall vent and connector diameter — D						
		8 in.	9 in.	10 in.	12 in.	14 in.
Appliance input rating in thousands of Btuh						
Vent	Connector					

## GAS HEATING VENTING TABLES

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height H, ft	rise R, ft															
		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
6	1	92	296	185	109	376	237	128	466	289	174	764	496	223	1046	653
	2	95	333	220	112	424	282	131	526	345	180	897	616	230	1231	827
	3	97	363	248	114	463	317	134	575	386	NA	NA	NA	NA	NA	NA
8	1	100	320	194	118	408	248	138	507	303	186	822	516	238	1126	696
	2	103	356	230	121	454	294	141	564	358	192	952	644	244	1307	884
	3	105	384	258	123	492	330	143	612	402	198	1050	772	252	1445	1072
10	1	106	341	200	125	436	257	146	542	314	196	870	536	249	1195	730
	2	109	374	238	128	479	305	149	596	372	201	997	664	256	1371	924
	3	111	402	268	131	515	342	152	642	417	207	1095	792	263	1509	1118
15	1	110	389	214	134	493	273	162	609	333	214	967	568	272	1334	790
	2	112	419	253	137	532	323	165	658	394	221	1085	712	279	1499	1006
	3	115	445	286	140	565	365	167	700	444	228	1181	856	286	1632	1222
20	1	107	436	224	131	552	285	158	681	347	223	1051	596	291	1443	840
	2	110	463	265	134	587	339	161	725	414	230	1162	748	298	1597	1064
	3	113	486	300	137	618	383	164	764	466	237	1253	900	307	1726	1288
30	1	103	512	238	125	649	305	151	802	372	216	1217	632	286	1664	910
	2	105	535	282	129	679	360	155	840	439	223	1316	792	294	1802	1160
	3	108	555	317	132	706	405	158	874	494	231	1400	952	303	1920	1410
50	1	97	627	257	120	797	330	144	984	403	206	1479	689	273	2023	1007
	2	100	645	306	123	820	392	148	1014	478	213	1561	860	281	2139	1291
	3	103	661	343	126	842	441	151	1043	538	221	1631	1031	290	2242	1575

### GAS HEATING VENTING TABLES

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100	1	91	810	266	112	1038	341	135	1285	417	192	1923	712	254	2644	1050
	2	94	822	316	115	1054	405	139	1306	494	200	1984	888	263	2731	1346
	3	97	834	355	118	1069	455	142	1327	555	208	2035	1064	272	2811	1642

Common vent capacity																
		Type B double-wall common vent diameter D														
		9 in.			10 in.			12 in.			14 in.			16 in.		
		Combined appliance input rating in thousands of Btuh														
		Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat
Vent height H, ft		+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan
6		547	434	335	672	520	410	900	696	588	1284	990	815	1735	1336	1065
8		602	480	378	740	577	465	994	773	652	1423	1103	912	1927	1491	1190
10		649	522	405	800	627	495	1076	841	712	1542	1200	995	2093	1625	1300
15		753	612	465	924	733	565	1247	986	825	1794	1410	1158	2440	1910	1510
20		842	688	523	1035	826	640	1405	1116	916	2006	1588	1290	2722	2147	1690
30		979	808	605	1209	975	740	1658	1327	1025	2373	1892	1525	3220	2558	1990
50		1164	977	705	1451	1188	860	2024	1640	1280	2911	2347	1863	3964	3183	2430
100		1408	1215	800	1784	1502	975	2569	2131	1670	3732	3076	2450	5125	4202	3200

Table 6. Capacity of type B double-wall vents with type B double-wall connectors serving two or more category I appliances

Vent connector capacity						
		Type B double-wall vent and connector diameter — D				
		16 in.	18 in.	20 in.	22 in.	24 in.
		Appliance input rating in thousands of Btuh				
Vent height H, ft	6					
	8					
	10					

### GAS HEATING VENTING TABLES

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Vent height H, ft	Connector rise R, ft															
		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
6	1	281	1371	853	346	1772	1080	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2	287	1617	1081	352	2069	1370	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8	1	298	1478	910	365	1920	1150	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2	305	1719	1150	372	2211	1460	471	2737	1800	560	3319	2180	662	3957	2590
	3	313	1902	1390	380	2434	1770	478	3018	2180	568	3665	2640	669	4373	3130
10	1	311	1570	955	379	2094	1205	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2	318	1804	1205	387	2332	1535	486	2887	1890	581	3502	2280	686	4175	2710
	3	325	1989	1455	395	2556	1865	494	3169	2290	589	3849	2760	694	4593	3270
15	1	336	1760	1030	408	2317	1305	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2	344	1978	1320	416	2579	1665	523	3197	2060	624	3881	2490	734	4631	2960
	3	351	2157	1610	424	2796	2925	533	3470	2510	634	4216	3030	743	5035	3600
20	1	357	1911	1095	430	2533	1385	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2	365	2116	1395	438	2778	1765	544	3447	2180	661	4190	2630	772	5005	3130
	3	373	2287	1695	450	2984	2145	567	3708	2650	671	4511	3190	785	5392	3790
30	1	367	2183	1190	461	2891	1540	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2	376	2366	1510	474	3110	1920	619	3940	2365	728	4861	2860	847	5606	3410
	3	384	2524	1830	485	3299	2340	632	4080	2875	741	4976	3480	860	5961	4150
	1	350	2659	1315	435	3548	1665	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2	359	2814	1685	447	3730	2135	580	4601	2633	709	5569	3185	851	6633	3790

### GAS HEATING VENTING TABLES

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50	3	369	2951	2055	461	3893	2605	594	4808	3208	724	5826	3885	867	6943	4620
	1	326	3490	1370	402	4707	1740	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2	336	3606	1760	414	4842	2220	523	5982	2750	639	7254	3330	769	8650	3950
100	3	346	3714	2150	426	4968	2700	539	6143	3350	654	7453	4070	786	8892	4810

Common vent capacity												
Vent height H, ft	Type B double-wall common vent diameter — D											
	18 in.			20 in.			22 in.			24 in.		
H, ft	Combined appliance input rating in thousands of Btuh											
	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat
	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan
6	2253	1732	1345	2838	2180	1660	3488	2677	1970	4206	3226	2390
8	2507	1936	1510	3162	2439	1860	3890	2998	2200	4695	3616	2680
10	2727	2113	1645	3444	2665	2030	4241	3278	2400	5123	3957	2920
15	3184	2484	1910	4026	3133	2360	4971	3862	2790	6016	4670	3400
20	3561	2798	2140	4548	3552	2640	5573	4352	3120	6749	5261	3800
30	4197	3326	2520	5303	4193	3110	6539	5157	3680	7940	6247	4480
50	5184	4149	3075	6567	5240	3800	8116	6458	4500	9837	7813	5475
100	6749	5509	4050	8597	6986	5000	10681	8648	5920	13004	10499	7200

### GAS HEATING VENTING TABLES

### GAS HEATING VENTING TABLES

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#### TABLES TABLE 7

Table 7. Cap. B double-wall vents with single-wall connectors, serving 2 or more cat. I appl.																
Vent connector capacity																
		Type B double-wall vent and connector diameter — D														
		3 in.			4 in.			5 in.			6 in.			7 in.		
		Appliance input rating in thousands of Btuh														
Vent height H, ft	Connector rise R, ft	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
6	1	NA	NA	26	NA	NA	46	NA	NA	71	NA	NA	102	207	223	140
	2	NA	NA	31	NA	NA	55	NA	NA	85	168	182	123	215	251	167
	3	NA	NA	34	NA	NA	62	121	131	95	175	198	138	222	273	188
8	1	NA	NA	27	NA	NA	48	NA	NA	75	NA	NA	106	226	240	145
	2	NA	NA	32	NA	NA	57	125	126	89	184	193	127	234	266	173
	3	NA	NA	35	NA	NA	64	130	138	100	191	208	144	241	287	197
10	1	NA	NA	28	NA	NA	50	119	121	77	182	186	110	240	253	150
	2	NA	NA	33	84	85	59	124	134	91	189	203	132	248	278	183
	3	NA	NA	36	89	91	67	129	144	102	197	217	148	257	299	203
15	1	NA	NA	29	79	87	52	116	138	81	177	214	116	238	291	158
	2	NA	NA	34	83	94	62	121	150	97	185	230	138	246	314	189
	3	NA	NA	39	87	100	70	127	160	109	6193	243	157	255	333	215
	1	49	56	30	78	97	54	115	152	84	175	238	120	233	325	165

### GAS HEATING VENTING TABLES

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20	2	52	59	36	82	103	64	120	163	101	182	252	144	243	346	197
	3	55	62	40	87	107	72	125	172	113	190	264	164	252	363	223
30	1	47	60	31	77	110	57	112	175	89	169	278	129	226	380	175
	2	51	62	37	81	115	67	117	185	106	177	290	152	236	397	208
	3	54	64	42	85	119	76	122	193	120	185	300	172	244	412	235
50	1	46	69	34	75	128	60	109	207	96	162	336	137	217	460	188
	2	49	71	40	79	132	72	114	215	113	170	345	164	226	473	223
	3	52	72	45	83	136	82	119	221	123	178	353	186	235	486	252
100	1	45	79	34	71	150	61	104	249	98	153	424	140	205	585	192
	2	48	80	41	75	153	73	110	255	115	160	428	167	212	593	228
	3	51	81	46	79	157	85	114	260	129	168	433	190	222	603	256

Common vent capacity															
Vent	Type B double-wall common vent diameter — D														
	4 in.			5 in.			6 in.			7 in.			8 in.		
height	Combined appliance input rating in thousands of Btuh														
H, ft	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat
	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan
6	NA	78	64	NA	113	99	200	158	144	304	244	196	398	310	257
8	NA	87	71	NA	126	111	218	173	159	331	269	218	436	342	285
10	NA	94	76	163	137	120	237	189	174	357	292	236	467	369	309
15	121	108	88	189	159	140	275	221	200	416	343	274	544	434	357
20	131	118	98	208	177	156	305	247	223	463	383	302	606	487	395
30	145	132	113	236	202	180	350	286	257	533	446	349	703	570	459



## GAS HEATING VENTING TABLES

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50	159	145	128	268	233	208	406	337	296	622	529	410	833	686	535
100	166	153	NA	297	263	NA	469	398	NA	726	633	464	999	846	606

Table 7. Cap B double-wall vents, single-wall connectors

**Vent connector capacity**

		Type B double-wall vent and connector diameter — D										
		8 in.			9 in.			10 in.				
Vent height H, ft		Connector rise R, ft		Appliance input rating in thousands of Btuh								
				Fan		Nat	Fan		Nat	Fan		Nat
		Min	Max	Max	Min	Max	Max	Min	Max	Max		
6	1	262	293	183	325	373	234	447	463	286		
	2	271	331	219	334	422	281	458	524	344		
	3	279	361	247	344	462	316	468	574	385		
8	1	285	316	191	352	403	244	481	502	299		
	2	293	353	228	360	450	292	492	560	355		
	3	302	381	256	370	489	328	501	609	400		
10	1	302	335	196	372	429	252	506	534	308		
	2	311	369	235	381	473	302	517	589	368		
	3	320	398	265	391	511	339	528	537	413		
15	1	312	380	208	297	482	266	556	596	324		
	2	321	411	248	407	522	317	568	646	387		
	3	331	438	281	418	557	360	579	690	437		

### GAS HEATING VENTING TABLES

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20	1	306	425	217	390	538	276	546	664	336
	2	317	453	259	400	574	331	558	709	403
	3	326	476	294	412	607	375	570	750	457
30	1	296	497	230	378	630	294	528	779	358
	2	307	521	274	389	662	349	541	819	425
	3	316	542	309	400	690	394	555	855	482
50	1	284	604	245	364	768	314	507	951	384
	2	294	623	293	376	793	375	520	983	458
	3	304	640	331	387	816	423	535	1013	518
100	1	269	774	249	345	993	321	476	1236	3930
	2	279	788	299	358	1011	383	490	1259	469
	3	289	801	339	368	1027	431	506	1280	527

Common vent capacity						
Vent height H, ft	Type B double-wall common vent diameter — D					
	9 in.			10 in.		
	Combined appliance input rating in thousands of Btuh					
	Fan	Fan	Nat	Fan	Fan	Nat
	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan
6	541	429	332	665	515	407
8	592	473	373	730	569	460
10	638	512	398	787	617	487
15	738	599	456	905	718	553
20	824	673	512	1013	808	626

## GAS HEATING VENTING TABLES

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30	958	790	593	1183	952	723
50	1139	954	689	1418	1157	838
100	1378	1185	780	1741	1459	948

## GAS HEATING VENTING TABLES

### TABLES TABLE 8

Table 8. Cap. mas. chim. with B double-wall connectors serving 2 or more cat. I appl

**Vent connector capacity**

		Type B double-wall vent and connector diameter — D															
		3 in.		4 in.		5 in.		6 in.		7 in.							
		Appliance input rating in thousands of Btuh															
Vent height H, ft	Connector rise R, ft																
		Fan		Nat		Fan		Nat		Fan		Nat		Fan		Nat	
		Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	Min	Max	Max	
6	1	24	33	21	39	62	40	52	106	67	65	194	101	87	274	141	
	2	26	43	28	41	79	52	53	133	85	67	230	124	89	324	173	
	3	27	49	34	42	92	61	55	155	97	69	262	143	91	369	203	
8	1	24	39	22	39	72	41	55	117	69	71	213	105	94	304	148	
	2	26	47	29	40	87	53	57	140	86	73	246	127	97	350	179	
	3	27	52	34	42	97	62	59	159	98	75	269	145	99	383	206	
	1	24	42	22	38	80	42	55	130	71	74	232	108	101	324	153	
	2	26	50	29	40	93	54	57	153	87	76	261	129	103	366	184	

### GAS HEATING VENTING TABLES

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10	3	27	55	35	41	105	63	58	170	100	78	284	148	106	397	209
	1	24	48	23	38	93	44	54	154	74	72	277	114	100	384	164
	2	25	55	31	39	105	55	56	174	89	74	299	134	103	419	192
15	3	26	59	35	41	115	64	57	189	102	76	319	153	105	448	215
	1	24	52	24	37	102	46	53	172	77	71	313	119	98	437	173
	2	25	58	31	39	114	56	55	190	91	73	335	138	101	467	199
20	3	26	63	35	40	123	65	57	204	104	75	353	157	104	493	222
	1	24	54	25	37	111	48	52	192	82	69	357	127	96	504	187
	2	25	60	32	38	122	58	54	208	95	72	376	145	99	531	209
30	3	26	64	36	40	131	66	56	221	107	74	392	163	101	554	233
	1	23	51	25	36	116	51	51	209	89	67	405	143	92	582	213
	2	24	59	32	37	127	61	53	225	102	70	421	161	95	604	235
50	3	26	64	36	39	135	69	55	237	115	72	435	180	98	624	260
	1	23	46	24	35	108	50	49	208	92	65	428	155	88	640	237
	2	24	53	31	37	120	60	51	224	104	67	444	174	92	660	260
100	3	25	59	35	38	130	68	53	237	118	69	458	193	94	679	285

Common vent capacity															
Vent height H, ft	Minimum internal area of masonry chimney flue, in <sup>2</sup>														
	12			19			28			38			50		
	Combined appliance input rating in thousands of Btuh														
	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat
+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	
6	NA	74	25	NA	119	46	NA	178	71	NA	257	103	NA	351	143

### GAS HEATING VENTING TABLES

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8	NA	80	28	NA	130	53	NA	193	82	NA	279	119	NA	384	163
10	NA	84	31	NA	138	56	NA	207	90	NA	299	131	NA	409	177
15	NA	NA	36	NA	152	67	NA	233	106	NA	334	152	523	467	212
20	NA	NA	41	NA	NA	75	NA	250	122	NA	368	172	565	508	243
30	NA	NA	NA	NA	NA	NA	NA	270	137	NA	404	198	615	564	278
50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	620	328
100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	348

Table 8. Cap. mas. chim., B double-wall con., 2 or more cat. I appl.

Vent connector capacity										
		Type B double-wall vent and connector diameter — D								
		8 in.			9 in.			10 in.		
		Appliance input rating in thousands of Btuh								
Vent height H, ft	Connector rise R, ft									
		Fan		Nat	Fan		Nat	Fan		Nat
		Min	Max	Max	Min	Max	Max	Min	Max	Max
6	1	104	370	201	124	479	253	145	599	319
	2	107	436	232	127	562	300	148	694	378
	3	109	491	270	129	633	349	151	795	439
8	1	113	414	210	134	539	267	156	682	235
	2	116	473	240	137	615	311	160	776	394
	3	119	517	276	139	672	358	163	848	452
	1	120	444	216	142	582	277	165	739	348

### GAS HEATING VENTING TABLES

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10	2	123	498	247	145	652	321	168	825	407
	3	126	540	281	147	705	366	171	893	463
15	1	125	511	229	153	658	297	184	824	375
	2	128	558	260	156	718	339	187	900	432
	3	125	746	317	152	968	418	182	1220	535
20	1	115	798	294	140	1049	392	168	1334	506
	2	118	827	326	143	1085	433	172	1379	558
	3	121	854	357	147	1118	474	176	1421	611
30	1	119	680	255	145	883	337	175	1115	432
	2	122	715	287	149	928	378	179	1171	484
	3	125	746	317	152	968	418	182	1220	535
50	1	115	798	294	140	1049	392	168	1334	506
	2	118	827	326	143	1085	433	172	1379	558
	3	121	854	357	147	1118	474	176	1421	611
100	1	109	907	334	134	1222	454	161	1589	596
	2	113	933	368	138	1253	497	165	1626	651
	3	116	956	399	141	1282	540	169	1661	705

Common vent capacity									
Vent height	Minimum internal area of masonry chimney flue, in <sup>2</sup>								
	63			78			113		
H, ft	Combined appliance input rating in thousands of Btuh								
	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat
	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan

## GAS HEATING VENTING TABLES

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6	NA	458	188	NA	582	246	1041	853	NA
8	NA	501	218	724	636	278	1144	937	408
10	606	538	236	776	686	302	1226	1010	454
15	682	611	283	874	781	365	1374	1156	546
20	742	668	325	955	858	419	1513	1286	648
30	816	747	381	1062	969	496	1702	1473	749
50	879	831	461	1165	1089	606	1905	1692	922
100	NA	NA	499	NA	NA	669	2053	1921	1058

## GAS HEATING VENTING TABLES

### TABLES TABLE 9

Table 9. Capacity of masonry chimney with single-wall connectors serving two or more category I appliances

Vent connector capacity																
		Single-wall metal vent connector diameter — D														
		3 in.			4 in.			5 in.			6 in.			7 in.		
		Appliance input rating in thousands of Btuh														
Vent height H, ft	Connector rise R, ft															
		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
6	1	NA	NA	21	NA	NA	39	NA	NA	66	179	191	100	231	271	140
	2	NA	NA	28	NA	NA	52	NA	NA	84	186	227	123	239	321	172
	3	NA	NA	34	NA	NA	61	134	153	97	193	258	142	247	365	202
	1	NA	NA	21	NA	NA	40	NA	NA	68	195	208	103	250	298	146
	2	NA	NA	28	NA	NA	52	137	139	85	202	240	125	258	343	177

### GAS HEATING VENTING TABLES

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8	3	NA	NA	34	NA	NA	62	143	156	98	210	264	145	266	376	205
	1	NA	NA	22	NA	NA	41	130	151	70	202	225	106	267	316	151
	2	NA	NA	29	NA	NA	53	136	150	86	210	255	128	276	358	181
10	3	NA	NA	34	97	102	62	143	166	99	217	277	147	284	389	207
	1	NA	NA	23	NA	NA	43	129	151	73	199	271	112	268	376	161
	2	NA	NA	30	92	103	54	135	170	88	207	295	132	277	411	189
15	3	NA	NA	34	96	112	63	141	185	101	215	315	151	286	439	213
	1	NA	NA	23	87	99	45	128	167	76	197	303	117	265	425	169
	2	NA	NA	30	91	111	55	134	185	90	205	325	136	274	455	195
20	3	NA	NA	35	96	119	64	140	199	103	213	343	154	282	481	219
	1	NA	NA	24	86	108	47	126	187	80	193	347	124	259	492	183
	2	NA	NA	31	91	119	57	132	203	93	201	366	142	269	518	205
30	3	NA	NA	35	95	127	65	138	216	105	209	381	160	277	540	229
	1	NA	NA	24	85	113	50	124	204	87	188	392	139	252	567	208
	2	NA	NA	31	89	123	60	130	218	100	196	408	158	262	588	230
50	3	NA	NA	35	94	131	68	136	231	112	205	422	176	271	607	255
	1	NA	NA	23	84	104	49	122	200	89	182	410	151	243	617	232
	2	NA	NA	30	88	115	59	127	215	102	190	425	169	253	636	254
100	3	NA	NA	34	93	124	67	133	228	115	199	438	188	262	654	279

Common vent capacity					
Vent height	Minimum internal area of masonry chimney flue, in <sup>2</sup>				
	12	19	28	38	50
Combined appliance input rating in thousands of Btuh					



### GAS HEATING VENTING TABLES

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H, ft	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat
	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan
6	NA	NA	25	NA	118	45	NA	176	71	NA	255	102	NA	348	142
8	NA	NA	28	NA	128	52	NA	190	81	NA	276	118	NA	380	162
10	NA	NA	31	NA	136	56	NA	205	89	NA	295	129	NA	405	175
15	NA	NA	36	NA	NA	66	NA	230	105	NA	335	150	NA	400	210
20	NA	NA	NA	NA	NA	74	NA	247	120	NA	362	170	NA	503	240
30	NA	NA	NA	NA	NA	NA	NA	NA	135	NA	398	195	NA	558	275
50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	612	325
100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 9. Cap. mas. chim., single-wall con., 2 or more cat. I appl.

Vent connector capacity												
Vent height H, ft		Connector rise R, ft		Single-wall metal vent and connector diameter — D								
				8 in.		9 in.		10 in.				
				Appliance input rating in thousands of Btuh								
				Fan	Nat	Fan	Nat	Fan	Nat			
				Min	Max	Max	Min	Max	Max	Min	Max	
6	1			292	366	200	362	474	252	499	594	316
	2			301	432	231	373	557	299	509	696	376
	3			332	509	274	407	663	356	551	838	450
	1			313	407	207	387	530	263	529	672	331

### GAS HEATING VENTING TABLES

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8	2	323	465	238	397	607	309	540	766	391
	3	332	509	274	407	663	356	551	838	450
10	1	333	434	213	410	571	273	558	727	343
	2	343	489	244	420	640	317	569	813	403
	3	352	530	279	430	694	363	580	880	459
15	1	349	502	225	445	646	291	623	808	366
	2	359	548	256	456	706	334	634	884	424
	3	368	586	289	466	755	378	646	945	479
20	1	345	569	235	439	734	306	614	921	387
	2	355	610	266	450	787	348	627	986	443
	3	365	644	298	461	831	391	639	1042	496
30	1	338	665	250	430	864	330	600	1089	421
	2	348	699	282	442	908	372	613	1145	473
	3	358	729	312	452	946	412	626	1193	524
50	1	328	778	287	417	1022	383	582	1302	492
	2	339	806	320	429	1058	425	596	1346	545
	3	349	831	351	440	1090	466	610	1386	597
100	1	315	875	328	402	1181	444	560	1537	580
	2	326	899	361	415	1210	488	575	1570	634
	3	337	921	392	427	1238	529	589	1604	687

Common vent capacity			
	Minimum internal area of masonry chimney flue, in <sup>2</sup>		
Vent	63	78	113

## GAS HEATING VENTING TABLES

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height H, ft	Combined appliance input rating in thousands of Btuh								
	Fan	Fan	Nat	Fan	Fan	Nat	Fan	Fan	Nat
	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan	+Fan	+Nat	+Fan
6	NA	455	187	NA	579	245	1041	846	NA
8	NA	497	217	NA	633	277	1136	928	405
10	NA	532	234	771	680	300	1216	1000	450
15	677	602	280	866	772	360	1359	1139	540
20	765	661	321	947	849	415	1495	1264	640
30	808	739	377	1052	957	490	1682	1447	740
50	NA	821	456	1152	1076	600	1879	1672	910
100	NA	NA	494	NA	NA	663	2006	1885	1046

## GAS HEATING VENTING TABLES

### TABLES TABLE 10

Table 10. Cap, single-wall metal pipe or B asbestos cement vent, 2 or more draft hood-equipped appl.

Vent connector capacity							
Total vent height, ft	Connector rise, ft	Vent connector diameter — D					
		3 in.	4 in.	5 in.	6 in.	7 in.	8 in.
		Maximum appliance input rating in thousands of Btuh					
6-8	1	21	40	68	102	146	205
	2	28	653	86	124	178	235
	3	34	61	98	147	204	275
	1	23	44	77	117	179	240
	2	30	56	92	134	194	265

### GAS HEATING VENTING TABLES

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15	3	35	64	102	155	216	298
	1	25	49	84	129	190	270
	2	31	58	97	145	211	295
30 and up	3	36	68	107	164	232	321

Common vent capacity							
Total vent height, ft	4 in.	5 in.	6 in.	7 in.	8 in.	10 in.	12 in.
Combined appliance input rating in thousands of Btuh							
6	48	78	111	155	205	320	NA
8	55	89	128	175	234	365	505
10	59	95	136	190	250	395	560
15	71	115	168	228	305	480	690
20	80	129	186	260	340	550	790
30	NA	147	215	300	400	650	940
50	NA	NA	NA	360	490	810	1190

### GAS HEATING VENTING TABLES

#### TABLES TABLE 11

Table 11. Exterior masonry chimney, single NAT installations with type B double-wall vent connectors								
Minimum allowable input rating of space-heating appliance in thousands of Btuh								
Vent height, ft	Internal area of chimney, in <sup>2</sup>							
	12	19	28	38	50	63	78	113
<b>Local 99% winter design temperature: 37°F or greater</b>								
6	0	0	0	0	0	0	0	0

### GAS HEATING VENTING TABLES

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37°F or greater	8	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0
	15	NA	0	0	0	0	0	0	0
	20	NA	NA	123	190	249	184	0	0
	30	NA	NA	NA	NA	NA	393	334	0
	50	NA	NA	NA	NA	NA	NA	NA	579
<b>Local 99% winter design temperature: 27°F to 36°F</b>									
27°F to 36°F	6	0	0	68	116	156	180	212	266
	8	0	0	82	127	167	187	214	263
	10	0	51	97	141	183	201	225	265
	15	NA	NA	NA	NA	233	253	274	305
	20	NA	NA	NA	NA	NA	307	330	362
	30	NA	NA	NA	NA	NA	419	445	485
	50	NA	NA	NA	NA	NA	NA	NA	763
<b>Local 99% winter design temperature: 17°F to 26°F</b>									
17°F to 26°F	6	NA	NA	NA	NA	NA	215	259	349
	8	NA	NA	NA	NA	197	226	264	352
	10	NA	NA	NA	NA	214	245	278	358
	15	NA	NA	NA	NA	NA	296	331	398
	20	NA	NA	NA	NA	NA	352	387	457
	30	NA	NA	NA	NA	NA	NA	507	581
	50	NA	NA	NA	NA	NA	NA	NA	NA
<b>Local 99% winter design temperature: 5°F to 16°F</b>									
	6	NA	NA	NA	NA	NA	NA	NA	416

### GAS HEATING VENTING TABLES

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5°F to 16°F	8	NA	NA	NA	NA	NA	NA	312	423
	10	NA	NA	NA	NA	NA	289	331	430
	15	NA	NA	NA	NA	NA	NA	393	485
	20	NA	NA	NA	NA	NA	NA	450	547
	30	NA	NA	NA	NA	NA	NA	NA	682
	50	NA	NA	NA	NA	NA	NA	NA	972
<b>Local 99% winter design temperature: -10°F to 4°F</b>									
-10°F to 4°F	6	NA	NA	NA	NA	NA	NA	NA	484
	8	NA	NA	NA	NA	NA	NA	NA	494
	10	NA	NA	NA	NA	NA	NA	NA	513
	15	NA	NA	NA	NA	NA	NA	NA	586
	20	NA	NA	NA	NA	NA	NA	NA	650
	30	NA	NA	NA	NA	NA	NA	NA	805
	50	NA	NA	NA	NA	NA	NA	NA	1003
<b>Local 99% winter design temperature: -11°F or lower</b>									
-11°F or lower	Not recommended for any vent configurations								

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### GAS HEATING VENTING TABLES

## GAS HEATING VENTING TABLES

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### TABLES TABLE 12

Table 12. Exterior masonry chimney, NAT+NAT installations with type B double-wall vent connectors

Combined appliance maximum input rating in thousands of Btuh								
Vent height, ft	Internal area of chimney, in <sup>2</sup>							
	12	19	28	38	50	63	78	113
6	25	46	71	103	143	188	246	NA
8	28	53	82	119	163	218	278	408
10	31	56	90	131	177	236	302	454
15	NA	67	106	152	212	283	365	546
20	NA	NA	NA	NA	NA	325	419	648
30	NA	NA	NA	NA	NA	NA	496	749
50	NA	NA	NA	NA	NA	NA	NA	922
100	NA	NA	NA	NA	NA	NA	NA	NA

## GAS HEATING VENTING TABLES

### TABLES TABLE 13

### GAS HEATING VENTING TABLES

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Table 13. Minimum allowable input rating of space-heating appliance in thousands of Btuh									
Minimum allowable input rating of space-heating appliance in thousands of Btuh									
Vent height, ft	Internal area of chimney, in <sup>2</sup>								
	12	19	28	38	50	63	78	113	
<b>Local 99% winter design temperature: 37°F or greater</b>									
37°F or greater	6	0	0	0	0	0	0	0	NA
	8	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0
	15	NA	0	0	0	0	0	0	0
	20	NA	NA	NA	NA	NA	184	0	0
	30	NA	NA	NA	NA	NA	393	334	0
	50	NA	NA	NA	NA	NA	NA	NA	579
	100	NA	NA	NA	NA	NA	NA	NA	NA
<b>Local 99% winter design temperature: 27°F to 36°F</b>									
27°F to 36°F	6	0	0	68	NA	NA	180	212	NA
	8	0	0	82	NA	NA	187	214	263
	10	0	51	NA	NA	NA	201	225	265
	15	NA	NA	NA	NA	NA	253	274	305
	20	NA	NA	NA	NA	NA	307	330	362
	30	NA	NA	NA	NA	NA	NA	445	485
	50	NA	NA	NA	NA	NA	NA	NA	763
	100	NA	NA	NA	NA	NA	NA	NA	NA
<b>Local 99% winter design temperature: 17°F to 26°F</b>									



### GAS HEATING VENTING TABLES

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17°F to 26°F	6	100	NA	NA	NA	NA	NA	NA	NA
	8	NA	NA	NA	NA	NA	NA	264	352
	10	NA	NA	NA	NA	NA	NA	278	358
	15	NA	NA	NA	NA	NA	NA	331	398
	20	NA	NA	NA	NA	NA	NA	387	457
	30	NA	NA	NA	NA	NA	NA	NA	581
	50	NA	NA	NA	NA	NA	NA	NA	862
	100	NA	NA	NA	NA	NA	NA	NA	NA
<b>Local 99% winter design temperature: 5°F to 16°F</b>									
5°F to 16°F	6	NA	NA	NA	NA	NA	NA	NA	NA
	8	NA	NA	NA	NA	NA	NA	NA	NA
	10	NA	NA	NA	NA	NA	NA	NA	430
	15	NA	NA	NA	NA	NA	NA	NA	485
	20	NA	NA	NA	NA	NA	NA	NA	547
	30	NA	NA	NA	NA	NA	NA	NA	682
	50	NA	NA	NA	NA	NA	NA	NA	NA
	100	NA	NA	NA	NA	NA	NA	NA	NA
<b>Local 99% winter design temperature: 4°F or lower</b>									
4°F or lower	Not recommended for any vent configurations								

### GAS HEATING VENTING TABLES

#### TABLES TABLE 14

Table 14. Exterior masonry chimney, FAN+NAT installations with type B double-wall vent connectors

Combined appliance maximum input rating in thousands of Btuh

## GAS HEATING VENTING TABLES

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Internal area of chimney, in <sup>2</sup>								
Vent height, ft	12	19	28	38	50	63	78	113
6	74	119	178	257	351	458	582	853
8	80	130	193	279	384	501	636	937
10	84	138	207	299	409	538	686	1010
15	NA	152	233	234	467	611	781	1156
20	NA	NA	250	368	508	668	858	1286
30	NA	NA	NA	404	564	747	969	1437
50	NA	NA	NA	NA	NA	831	1089	1692
100	NA	NA	NA	NA	NA	NA	NA	1921

## GAS HEATING VENTING TABLES

### TABLES TABLE 15

Table 15. Exterior masonry chimney, FAN+NAT installations, type B double-wall vent connectors									
Minimum allowable input rating of space-heating appliance in thousands of Btuh									
Vent height, ft	Internal area of chimney, in <sup>2</sup>								
	12	19	28	38	50	63	78	113	
<b>Local 99% winter design temperature: 37°F or greater</b>									
37°F or greater	6	0	0	0	0	0	0	0	NA
	8	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0
	15	NA	0	0	0	0	0	0	0
	20	NA	NA	123	190	249	184	0	0

### GAS HEATING VENTING TABLES

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	30	NA	NA	NA	334	398	393	334	0
	50	NA	NA	NA	NA	NA	714	707	579
	100	NA	NA	NA	NA	NA	NA	NA	1600
<b>Local 99% winter design temperature: 27°F to 36°F</b>									
27°F to 36°F	6	0	0	68	116	156	180	212	NA
	8	0	0	82	127	167	187	214	263
	10	0	51	97	141	183	201	225	265
	15	NA	111	142	183	233	253	274	305
	20	NA	NA	187	230	284	307	330	362
	30	NA	NA	NA	330	319	419	445	485
	50	NA	NA	NA	NA	NA	672	705	763
	100	NA	NA	NA	NA	NA	NA	NA	1554
<b>Local 99% winter design temperature: 17°F to 26°F</b>									
17°F to 26°F	6	0	55	99	141	182	215	259	349
	8	52	74	111	154	197	226	264	352
	10	NA	90	125	169	214	245	278	358
	15	NA	NA	167	212	263	296	331	398
	20	NA	NA	212	258	316	352	387	457
	30	NA	NA	NA	362	429	470	507	581
	50	NA	NA	NA	NA	NA	723	766	862
	100	NA	NA	NA	NA	NA	NA	NA	1669
<b>Local 99% winter design temperature: 5°F to 16°F</b>									
	6	NA	78	121	166	214	252	301	416
	8	NA	94	135	182	230	269	312	423

### GAS HEATING VENTING TABLES

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5°F to 16°F	10	NA	111	149	198	250	289	331	430
	15	NA	NA	193	247	305	346	393	485
	20	NA	NA	NA	293	360	408	450	547
	30	NA	NA	NA	377	450	531	580	682
	50	NA	NA	NA	NA	NA	797	853	972
	100	NA	NA	NA	NA	NA	NA	NA	1833
<b>Local 99% winter design temperature: -10°F to 4°F</b>									
-10°F to 4°F	6	NA	NA	145	196	249	296	349	484
	8	NA	NA	159	213	269	320	371	494
	10	NA	NA	175	231	292	339	397	513
	15	NA	NA	NA	283	351	404	457	586
	20	NA	NA	NA	333	408	468	528	650
	30	NA	NA	NA	NA	NA	603	667	805
	50	NA	NA	NA	NA	NA	NA	955	1003
	100	NA	NA	NA	NA	NA	NA	NA	NA
<b>Local 99% winter design temperature: -11°F or lower</b>									
-11°F or lower	Not recommended for any vent configurations								