

Categorized Appliances:

ANSI Z21 Categories (Z21.10 & Z21.13)

<p>CAT. I Appliance Draft Hood < 84% AFUE Negative Non-Condensing</p>	<p>CAT. III Appliance < 84% AFUE Positive Non-Condensing</p>
<p>CAT. II Appliance 84-88% AFUE Negative Condensing</p>	<p>CAT. IV Appliance > 86% AFUE Positive Condensing</p>



UL441—B-Vent

UL1738—AL29-4C



UL1738—PPS



ANSI Z21 CAT. IV Appliances



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Vent Material Requirements:

Appliance Type	Vent Type	UL Listing	Type	Inner Material	Insulation
CAT. I Appliances	Type B-Vent	UL441	Double Wall	Aluminum	Air
CAT. II Appliances	Special Gas Vent	UL1738	Double Wall	AL29-4C/316L	Air
CAT.III Appliances	Special Gas Vent	UL1738	Double Wall	304SS/AL29-4C/316L	Air
CAT. IV WH's	Special Gas Vent	UL1738	Single/Double Wall	CPVC/PPS/AL29-4C/316L	Air
CAT.IV Boilers	Special Gas Vent	UL1738	Double Wall	AL29-4C/316L	Air

Uncategorized Appliances:

An Uncategorized appliance is a heating appliance where the burner and boiler have not been listed together. For example, a 600HP Steam boiler may have a Power Flame, Webster or Weishaupt burner.

Uncategorized appliances are also referred to as **“Building Heating Appliances”** in NFPA211.

Building Heating Appliances require a UL103 pressure tested chimney or UL1777 listed chimney liner. 304SS inner wall for gas only appliances and 316SS for oil or gas/oil appliances. Insulation options: 1” air, 1” to 4” fiber.

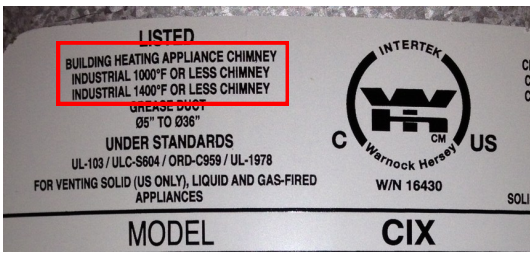


Building Heating Appliances

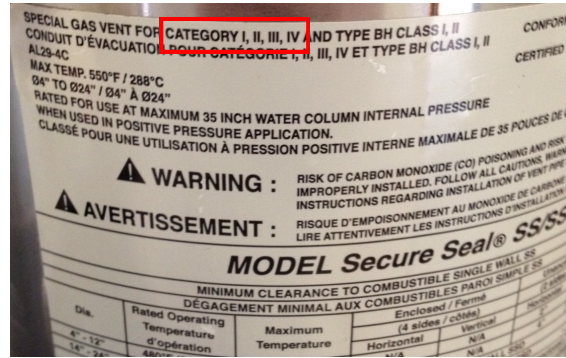


UL 103 Pressure Tested Chimney

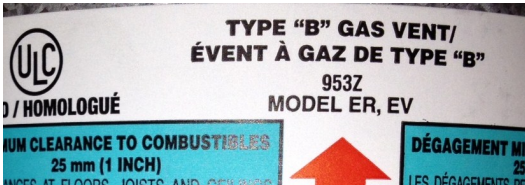
Vent Label Examples:



UL103 Pressure Tested Chimney



UL1738 Special Gas Vent



UL441 Type B Vent

Area/Diameter of Chimney (NFPA 54):

Connector Size:	4"	5"	6"	7"	8"	9"	10"	12"	14"
Max. Manifold Size:	10"	14"	16"	18"	22"	24"	26"	32"	38"

Maximum Connector Length (NFPA 54):

Connector Size:	4"	5"	6"	7"	8"	9"	10"	12"	14"
Max. Length:	6'	7.5'	9'	10.5'	12'	13.5'	15'	18'	21'

Maximum Manifold Length (NFPA 54):

Manifold Size:	10"	12"	14"	16"	18"	20"	22"	24"	26"
Max. Length:	15'	18'	21'	24'	27'	30'	33'	36'	39'

Common Code Issues (NFPA 54 2012):

12.4.3.3 Forced draft systems and all portions of induced draft systems under positive pressure during operation shall be designed and installed so as to prevent leakage of flue or vent gases into a building.

12.4.3.4 Vent connectors serving appliances vented by natural draft shall not be connected into any portion of mechanical draft systems operating under positive pressure.

12.7.2 Gas Vent Termination. The termination of gas vents shall comply with the following requirements: (1) A gas vent shall terminate in accordance with one of the following: (a) Gas vents that are 12 in. (300 mm) or less in size and located not less than 8 ft (2.4 m) from a vertical wall or similar obstruction shall terminate above the roof in accordance with Figure 12.7.2 and Table 12.7.2. (b) Gas vents that are over 12 in. (300 mm) in size or are located less than 8 ft (2.4 m) from a vertical wall or similar obstruction shall terminate not less than 2 ft (0.6 m) above the highest point where they pass through the roof and *not less than 2 ft (0.6 m) above any portion of a building within 10 ft (3.0 m) horizontally.*

13.1.9 Vertical Vent Upsizing/7 × Rule. Where 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 designed in accordance with approved engineering methods.*

13.2.4 Vent Connector Manifolds. Where the vent connectors are combined prior to entering the vertical portion of the common vent to form a common vent manifold, the size of the common vent manifold and the common vent shall be determined by applying a 10 percent reduction (0.90 × maximum common vent capacity) to the common vent capacity part of the common vent tables. *The length of the common vent manifold (LM) shall not exceed 18 in./in. (18 mm/mm) of common vent diameter (D).*