Gas Venting Calculation Program

GASVENT FEATURES

- Calculates Vent Sizes for Category 1 Gas Fired Appliances
- Follows Latest National Fuel Gas Code Procedures
- Sizes Single/Double Wall Metal Vents and Flexible Liner
- Sizes Type B and Single Wall Metal Vent Connectors
- *Computes Combustion Air Requirements*
- Calculates for Single and Multiple Appliances
- Calculates Acceptable Tile Lined Masonry Chimney Sizes
- Accommodates 45 Degree and 90 Degree Vent Elbows
- Accommodates Corrugated Vent Connectors
- Comprehensive Provision for Multiple Manifolds
- Works for Both Single and Multi Story Buildings
- *Allows for Drafthood and Fan Equipped Appliances*
- Accommodates any Height and Lateral Dimensions
- Graphical, Context Sensitive Help
- *No Copy Protection Hassles!*

GASVENT OVERVIEW

The Elite Software GASVENT program quickly calculates the correct vent and connector sizes for Category 1 Gas Fired Appliances. GASVENT is a true Windows program that is designed to be simple and easy to use by both contractors and hvac designers. Numerous graphical diagrams make GASVENT especially easy to use. Recent advances in technology have improved the average furnace efficiency to over 80%. These new mid and high efficiency furnaces can cause significant condensation in the vent. If a flue gas vent is oversized, undersized, or of the wrong material, there is a high probability that corrosive condensate will cause pitting which will ultimately result in the failure of the vent pipe. The failure of a vent pipe can be deadly because the building occupants could be subjected to carbon monoxide poisoning. Besides gas poisoning, there are many other hazards from improperly designed vents. Fires can result from masonry chimneys collapsing where acid in the condensate has dissolved the mortar between bricks. Condensate can accumulate back at the furnace and cause severe rusting. There are so many potential problems with incorrect venting, that all hvac contractors should make every effort to do the job right. GASVENT is the ultimate aid in vent design.

DEMONSTRATION VERSION

If you would like to evaluate GASVENT in further detail, you can **download free of charge** a functional demo of GASVENT from Elite's web site, **www.elitesoft.com** Alternately, a CD can be ordered directly from Elite Software. This evaluation version is a full version of the program but with limitations on the size of the projects allowed. Demonstration versions can be "unlocked" into full versions by typing in a password upon purchase.

CALCULATION METHOD

The calculation method used by GASVENT complies with the National Fuel Gas Code published by NFPA and the International Fuel Gas Code published by ICC. All output results produced by GASVENT can be easily verified by hand to conform with results from the NFGC and IFGC vent tables.

PROGRAM INPUT

The GASVENT program uses standard Windows data entry techniques that provide a full screen, simple "fill in the blank" input procedure. All input data is checked at the time of entry so that no improper data can be entered. If you have a question about what the program is requesting, you can press the F1 key for context sensitive help. Additionally, there is a Hypertext feature that links all help information together. Three major types of data are requested: Customer Information, Single Appliance, and Multiple Appliances. The customer information includes the customer name, address, city, state, and phone number. A single appliance requires the appliance description (furnace, water heater, etc.), input MBH rating, vent lateral and height dimensions, outlet diameter, vent connector type, specification of natural or fan assisted draft, vent type (masonry, flexible liner, or Type B), and the number of elbows. The same data is requested for each appliance in multiple appliance situations with the provision for any manifold data. Multiple appliance scenarios also allow the entry of a "floor" number for multi story buildings in addition to a height entry between floors. Detailed diagrams with dimensions are shown on all data entry screens so that it is very easy to know what to enter.

SYSTEM REQUIREMENTS

GASVENT works on computers with Windows 95 or higher, including Windows XP.

Elite Software

GASVENT

www.elitesoft.com   College Station, Texas 77845   (800) 648-9523

PROGRAM OUTPUT

GASVENT automatically shows calculated vent and connector sizes on each input data screen. Reports can be previewed on screen or printed in full color. Shown below are some sample reports and screens from GASVENT.

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Bryan, TX 77802   April 23, 1995

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General Project Data

Client and Company Data

Client:	Mr. and Mrs. Jeffrey Jones	Company:	Jake's Heating and Air	
Address:	1234 First Street NW	Representative:	Jake Massetti	
City:	Harrisburg, PA 17177	Address:	8724 West Halver St.	
Phone:	(717) 555-5294	City:	Allentown, PA 18105	
Fax:	None	Phone:	(717) 555-HEAT	
		Fax:	(717) 555-COOL	
		Comment:	Bid prepared by Rodney	

Project Data

Project Name:	Jones Residence
Comment:	Don't forget the water heater which will be installed later.
Designed By:	Benito Flores-Meath
Altitude:	308 Feet above sea-level

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Ventilation and Combustion Air Requirements

Appliance Input Rating:	120.0	MBH
Required Room Volume, Unconfined Space:	6000	cu. ft.
Required Indoor Air Opening Area, Confined Space:	120	sq. in.
Required Outdoor Air Opening Area, Confined Space:	30	sq. in.
Required Outdoor Air Opening Area, Horizontal Ducts:	60	sq. in.

Gas Vent Termination

Roof Pitch:	Over 7/12 to 8/12 in./in.
Minimum Termination Height:	1.5 ft.

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Single Story / Multiple Appliance

Appliance and Connector Vent Data

Appliance Description	App Number	Input (MBH)	App Type	Outlet (in)	Rise (ft)	Lateral (ft)	Number Elbows	Conn Type
Gas Furnace	1	60.0	Fan	3	2	4.0	2	TB
Hot Water Heater	2	20.0	Natural	3	3	3.0	2	TB

Common Vent Data

Common Vent Height (ft)	Common Vent Type	Common Vent Offset (ft)	Common Vent has Manifold Attached
14.0	Type B Double-Wall	2.0	Yes

Manifold Data

Appliance Description	Appliance Number	Manifold Number	Manifold Length (ft)	Manifold Diameter (in)
Gas Furnace	1	1	3.0	5
Hot Water Heater	2	1	3.0	5

Connector Vent Sizes

Appliance Description	Appliance Number	Minimum Diameter (in)	Maximum Diameter (in)
Gas Furnace	1	4	5
Hot Water Heater	2	3	5

Common Vent Size

Minimum Vent Diameter (in)	Maximum Vent Diameter (in)
5	7

Notes

Calculations based on the 1996 National Fuel Gas Code gas venting tables developed by GRI.

The vent diameters/chimney sizes and manifolds shown are based on the minimum connector diameter and minimum vent diameter. GAMA and NFGC both recommend using the smallest diameter permissible to minimize heat loss.

GASVENT - SAMPLE1.GSV - [Appliance Data]

File   Edit   Project   Tools   Window   Help

System Type — Type B Vent

Single Appliance | Single Story / Multiple Appliance | Multiple Story / Multiple Appliance

Calculation Mode & Common Vent Data

Height H: 14 Ft.

☒ Offset Lo: 2 Ft.

Define Manifold(s)

Vent: ● Type B ○ Masonry ○ Flex. Liner

Mode: ● NFGC ○ GAMA

Calculate

Appliance & Connector Vent Data

Appliance No: ◄ 1 ►   ☒ Active   ☒ Manifold #: 1   Man. Length Lm: 3 Ft.

Input Rating: 60 MBH

Rise R: 2 Ft.

Lateral L: 4 Ft.

90° Elbows: 2

Outlet Dia.: 3 In.

Vent Connector: ● Type B ○ Single Wall

Type: ○ Natural ● Fan-Assist

Description: Gas Furnace

Connector Diameters

App	Min	Max
1	4 in.	5 in.
2	3 in.	5 in.

Vent Diameters*

Min	Max
5 in.	7 in.

*Sizes based on minimum connector diameter.

GASVENT - SAMPLE1.GSV - [Appliance Data]

File   Edit   Project   Tools   Window   Help

System Type — Corrugated Metal Chimney Liner / Vent Connector

Single Appliance | Single Story / Multiple Appliance | Multiple Story / Multiple Appliance

Calculation Mode & Vent Data

Height H: 12 Ft.

Vent: ○ Type B ○ Masonry ● Flex. Liner

Mode: ● NFGC ○ GAMA

Calculate

Appliance & Connector Data

Input Rating: 60 MBH

Lateral L: 4 Ft.

90° Elbows: 2

Outlet Dia.: 4 In.

Vent Connector: ● Type B ○ Single Wall

Type: ○ Natural ● Fan-Assist

Description: Gas Furnace

Connector Diameters

Min	Max
4 in.	6 in.

Vent Diameters*

Min	Max
4 in.	7 in.

*Sizes based on minimum connector diameter.

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Single Story / Single Appliance

Appliance and Connector Vent Data

Appliance Description	Input (MBH)	App Type	Outlet (in)	Height (ft)	Lateral (ft)	Number Elbows	Conn Type
Gas Furnace	60.0	Fan	4	12.0	4.0	2	TB

Vent Data

Vent Height (ft)	Vent Type
12.0	Flexible Corrugated Metal Chimney Liner

Connector Vent Size

Minimum Diameter (in)	Maximum Diameter (in)
4	6

Vent Size

Minimum Vent Diameter (in)	Maximum Vent Diameter (in)
4	7

Notes

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