VENTING FAQ'S

NOTICE: PVI does not design, provide specifications, sell or install vent systems for the heaters and boilers it manufactures. In order to provide a safe and code-compliant vent system, each system must be individually designed by a qualified vent designer and installed by a qualified installing contractor. The following FAQ’s are provided as a convenience and a resource to PVI’s customers, and are not intended as advice regarding specific sites, specifications or installations.

Is a barometric damper required on all Category I common vent units?

Draft conditions in vent systems vary due to the negative forces caused by changes in temperature and barometric pressure, as well as the effects of wind. For proper operation and efficient consumption in fuel fired heating appliances, draft must remain constant. PVI recommends the installation of barometric dampers in the flue of each unit when they are commonly vented.

Must I use Category I vent material for the run of vent in a warm mechanical room?

Look at the main information decal attached near the front of the unit to determine whether the appliance is for installation utilizing Category I venting only, Category III venting only or if the appliance is for installation utilizing Category I, III or IV venting. PVI recommends using negative pressure, non-condensing vent materials, like type B venting in all Category I vent systems. When properly installed with UL, ULC, ETL or CSA listed Category I venting, the appliance operates with a non-positive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent.

How do I set a barometric damper?

The burner must be running when the adjustment of the control is made. A draft gauge is required to read the draft below the damper and above the unit’s flue outlet. Adjust the weights on the damper to provide a negative draft of 0.02 to a 0.08 when the unit is firing at full rate on a typical cool day.

What units does PVI make that can be vented with PVC Vent Material?

The Conquest and Turbopower99 Commercial Water Heaters can be vented with PVC, CPVC, or Polypropylene pipe depending on the application. PVC venting may be used on other full condensing PVI products depending upon the application. Please contact your representative for additional information.

What units does PVI make that can be sidewall vented without using a separate mechanical sidewall vent system?

All PVI units listed for use with Category IV positive pressure vent systems may be sidewall vented without the use of a mechanical draft device up to a certain vent length. The Maximum Category IV Vent Length and vent diameter is listed in the Installation & Maintenance manual of each product.

What are the limits in vertical rise and horizontal run of a conventional “negative draft” Category I vent system?

Proper vent system design is critical to the efficient operation of a gas appliance. The limits in vertical and horizontal run can best be evaluated by using the venting tables in the National Fuel Gas Code. The tables rate each vent diameter for a capacity in Btu’s based on both the vertical and horizontal run of the vent. There are separate columns for atmospheric combustion units (NAT) and fan assisted combustion units (FAN). As a general rule, the tables in the National Fuel Gas Code are based on a maximum horizontal run of flue not to be more than 1 ½ feet for each inch of vent diameter. Operation of a flue with this maximum horizontal run must include a vertical height noted in the venting tables to generate adequate draft in the vent system. Any time the 1 ½ feet per inch of diameter length in horizontal run is exceeded, there is a very good chance that you will experience problems with the venting system.
What is the importance of barometric dampers and when should they be installed?

Draft conditions in vent systems vary due to the negative forces caused by changes in temperature and barometric pressure, as well as the effects of wind. For proper operation and efficient consumption in fuel fired heating appliances, draft must remain constant. For this reason, PVI recommends draft regulators be installed in all Category I installations, and ships a draft control with each product for convenience. The draft control is not required for proper operation. A minimum of -.02" to -.06" W.C. draft is required for appliances vented by natural draft.

What is the difference between vent categorization and when can different categories be combined together?

Vented gas appliances are classified for venting purposes into four categories as follows:

**Category I** - An appliance that operates with a negative vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent.

**Category II** - An appliance that operates with a negative vent static pressure and with a vent gas temperature that may cause excessive condensate production in the vent.

**Category III** - An appliance that operates with a positive vent static pressure and with a vent gas temperature that usually avoids excessive condensate production in the vent.

**Category IV** - An appliance that operates with a positive vent static pressure and with a vent gas temperature that causes excessive condensate production in the vent. Only Category I vents from multiple units can be combined without an engineered vent system. An engineered vent system requires a special vent system with an induced draft fan to mechanically control the movement of flue products.

Where can I get Category II vent material? Is it the same as Category IV?

The manufacturers of vent material only produce Category I and Category IV vent material. A vent requiring a Category II vent system must use a Category IV vent material.

If I retrofit a unit and the unit’s vent is smaller than that of the existing unit, why can’t I just tie into the existing vent? Isn’t bigger better?

Generally, as long as the vent is not more than two vent sizes larger it should work however, you should always consult the vent tables in the National Fuel Gas Code (NFGC) to ensure proper operation. This is especially true for fan assisted combustion units. The FAN column in the NFGC vent tables lists a minimum and maximum Btuh rating for each flue diameter. Also, the new fan assisted product may modulate the input below the minimum required for a larger existing stack. In this case the flue products would not have enough heat to ensure a proper draft which can result in flue gas condensate and flue gas spillage. Both are potentially dangerous so a careful review of the vent capacity must always be considered to ensure safe operation.

How do I measure draft in my PVI product?

A draft gauge must be used. A small ¼" hole should be placed in the stack approximately 3 to 4 feet above the unit’s flue outlet and below any installed barometric dampers. Insert the tube from the draft gauge just into the flue and measure the draft on the scale as the unit is firing.