



Saf-T Vent[®] EZ Seal 3" and 4" (75mm and 100mm) Diameter Special Gas Vent (Type BH Class I/II) & Gas Vent Connector

All flue gas-carrying components are made from AL 29-4C[®] stainless steel.

Warning: Before installing the product read this complete manual. Failure to follow proper procedures in joint assembly, vent pitch, and appliance connections may cause unsafe conditions.

Never install this vent in an arrangement or equivalent vent length not approved by the appliance manufacturer.

This system is UL[®] Tested and Listed for use on Category I, II, III, or IV gas appliances with a maximum continuous flue gas temperature of 480 degrees Fahrenheit (245 degrees Celsius) and a maximum positive pressure of 8.0" W.C.

It is the responsibility of the installer to contact local fire and building officials concerning any installation restrictions in your area and/or inspection requirements that may apply.

WARNING

Risk of Fire or Carbon Monoxide (CO) Poisoning If Not Installed Properly.

WHENEVER GAS BURNING EQUIPMENT IS INSTALLED IN THE SAME SPACE WHERE HALOGENATED SUBSTANCES MAY EXIST (refrigerants, solvents, bleaches, salts and etc.), **CLEAN OUTSIDE AIR MUST BE UTILIZED FOR COMBUSTION.**

Saf-T Vent[®] SC is available for direct vent sealed combustion installations.

APPLICATION INFORMATION

The Saf-T Vent® EZ Seal Special Gas Vent System may be used to vent appliances with a UL® Temperature Rating of not more than 480° F (245° C) including Category II, III and IV appliances and certain direct vent gas appliances marked or labeled by Underwriters Laboratories, Canadian Standards Association International, or other recognized agency. The connected appliance must be Listed for use with a Type B Vent, or a stainless steel special gas vent system. The Saf-T Vent EZ Seal system is for use only with Listed appliances, including those with positive vent pressures of 8 inches of water column or less. Because these types of appliances may produce vent gases under positive pressure and/or at or near their dew point, special installation considerations may be required.

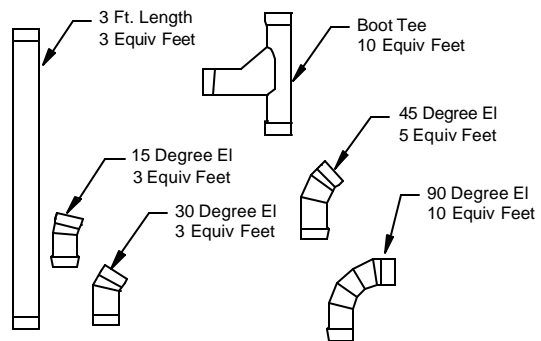
PRE-INSTALLATION CONSIDERATION

Be aware that appliances may be Listed for limited horizontal and/or vertical vent lengths, or a maximum number of elbows and other fittings. Refer to the appliance manufacturer's instructions for these and other possible restrictions. Consult the appliance manufacturer's instructions for the minimum and maximum horizontal length of the vent connector, air space clearance recommendations for the vent, as well as any restrictions on total vent height, proper sizing of the vent, and procedure for connecting the vent to the appliance. If questions arise concerning clearance, vent equivalent and total lengths, direction of vent pitch, vent sizing, drain location, and termination recommendations, the appliance manufacturer's instructions and any local codes take precedence over this manual. Consult with the local authority having jurisdiction when unsure.

FITTING MAXIMUM EQUIVALENT LENGTHS

Equivalent lengths are dependent on flue velocity, temperature and pressure, all of which are appliance related. Use this chart if the appliance manufacturer's instructions do not list equivalent lengths for standard fittings.

FITTING	EQUIV. LENGTH
Section	1' per foot
Boot Tee	10'
90 Degree Elbow	10'
70 Degree Elbow	8'
45 Degree Elbow	5'
30 Degree Elbow	3'
15 Degree Elbow	3'
Standard Tee (90 degree flow)	Not Recommended



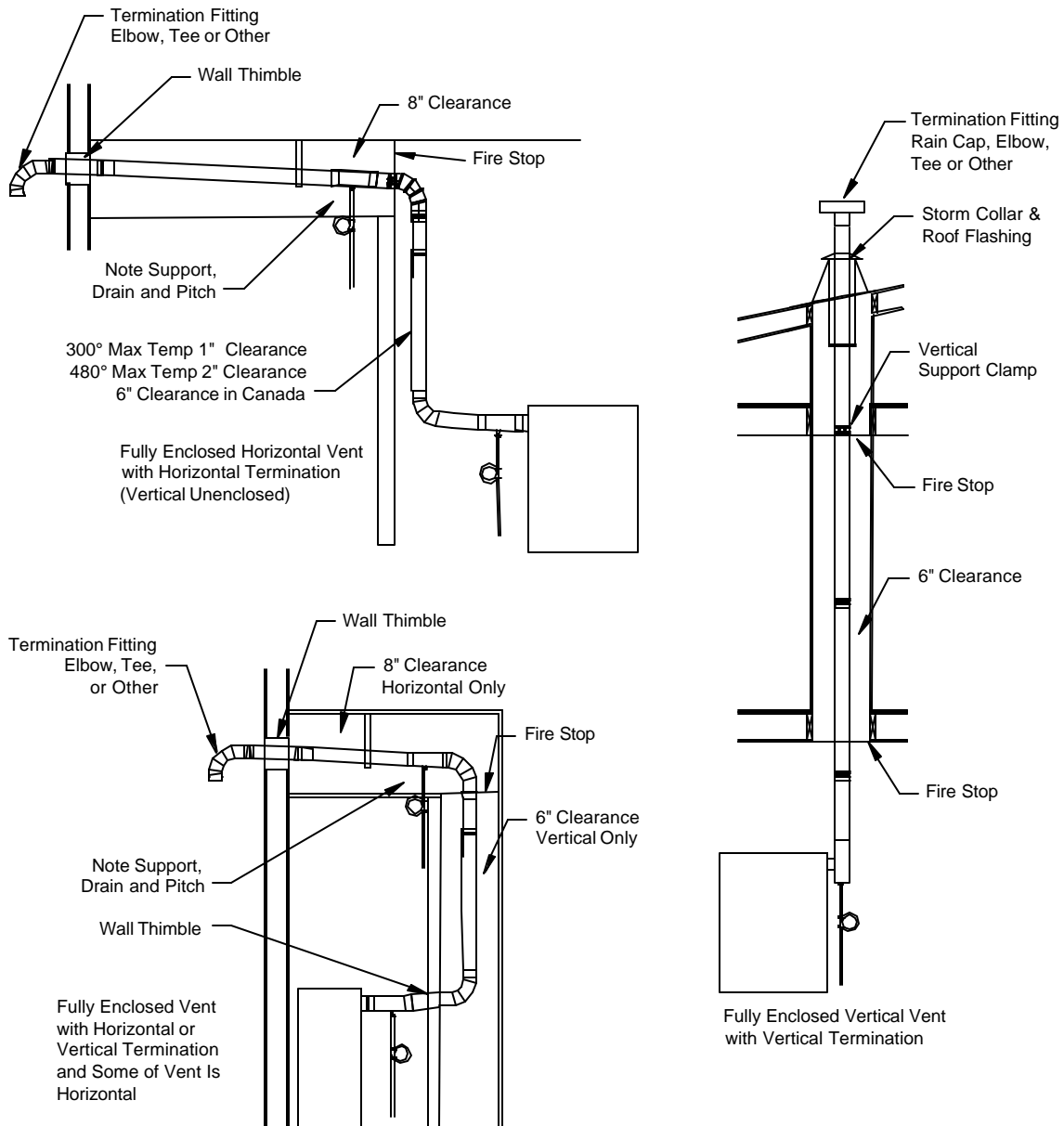
CLEARANCE FROM COMBUSTIBLES

Clearances are dependent on flue velocity, temperature and pressure. Use this chart if the appliance manufacturer's instructions do not list recommended air space clearances for single wall vent systems in the orientation desired. All insulating materials must be removed from enclosures to maintain required air spaces surrounding the venting system.

APPLIANCE TYPE	ENCLOSURE TYPE	CLEARANCE TO COMBUSTIBLES
Gas Appliance 480° F.	Horizontal	8"
Gas Appliance 480° F.	Vertical	6"
Gas Appliance 480° F.	Combination	8" Horizontal 6" Vertical
Gas Appliance 300° F.	Unenclosed	1" except in Canada (6")
Gas Appliance 550° F.	Unenclosed	2" except in Canada (6")
Other fuels / Other types of appliances		Not Recommended

TYPICAL INSTALLATION CONFIGURATIONS

In addition to those configurations shown below, this system may be installed unenclosed along a wall or ceiling or within a joist space. This system may also be installed within an existing masonry chimney structure (see Pub # PI-VINS).



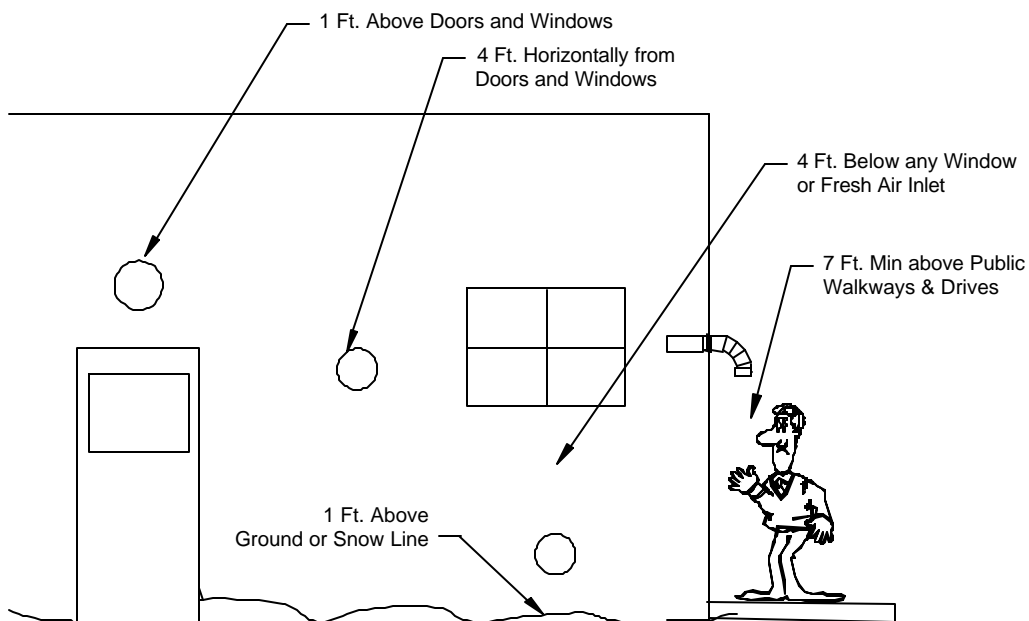
GENERAL INSTALLATION REQUIREMENTS

1. Failure to conform to any of these requirements may violate local, state or national codes as well as create conditions which may cause catastrophic property damage or personal injury.
2. When connected to Direct Vent or Category II, III or IV appliances, Saf-T Vent conduit and fittings **must** be used for the entire length of the system
3. The horizontal vent connector must slope **continuously** toward an appliance drain, a drain fitting or tee, or the termination. The vent must be pitched at least 1/4 inch per foot so that any condensate is not retained in any part of the venting system.
4. If called for by the appliance manufacturer's instructions, a drain fitting must be located as close as possible to the appliance flue outlet. Additional drains are required for each 30' of vent. If a drain fitting is not supplied with the appliance, install a Saf-T Vent in-line drain or a tee with a drain tee cover. Properly dispose of collected condensate.

5. More than one Category III or IV appliance may not be interconnected to any part of the venting system unless the appliance manufacturer has specifically approved the engineering of the vent system and the appliances are designed for multi-venting. A Category III or IV appliance may not be interconnected to any part of a vent system used with a natural draft or draft hood appliance, except when a Listed mechanical draft system is installed.
6. The venting system must be planned so as to avoid possible contact with concealed plumbing or electrical wiring.
7. The venting system must maintain the proper air space clearance from combustibles. Refer to the appliance manufacturer's instructions and pages 2 and 3 of this manual.
8. The vent system in a multifamily structure must be enclosed when passing through floors above the connected appliance. This enclosure is to be of materials not less fire resistant than the building structure. Heat-fab recommends that the system be enclosed whenever passing through occupied spaces. The enclosure should be fabricated to allow periodic inspection of the vent.
9. The total length and elbow count must be within the limits set by the appliance manufacturer. Refer to the appliance manufacturer's instructions for further information.

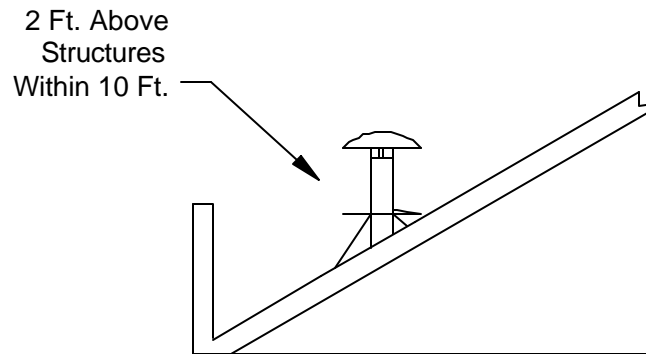
HORIZONTAL INSTALLATION REQUIREMENTS

1. If the termination is through a combustible wall, the system must terminate with a Saf-T Vent Wall Thimble and a Saf-T Vent Termination or a Saf-T Vent CI Wall Termination, as required by the appliance manufacturer.
2. The horizontal termination shall be located not less than 12 inches above grade or anticipated snow line (remember to consider snow and ice falling from overhead objects), and not less than 7 feet above grade when located adjacent to a public walkway. It shall also terminate 4 feet below, 4 feet horizontally from, or 1 foot above any door, window, fresh air intake, utility meter or regulator unless the appliance is Listed differently. The termination must be 6 feet from the combustion air intake of any other appliance. Proper judgement may require greater distances depending on the size of the equipment installed or site conditions. Consult with the local authority having jurisdiction.
3. The termination should be away from trees, shrubs, or decorative items as flue gases could cause damage.
4. The total equivalent horizontal distance of the vent system from the appliance flue collar to the outside of the termination shall not be less than 14 inches.
5. A minimum of one (1) horizontal support is required for every 6 feet of run.



VERTICAL INSTALLATION REQUIREMENTS

1. The vent system must terminate at least 2 feet above the roof line or any wall or vertical structure within 10 feet . If the vent extends more than 6 feet above the roofline it must be cabled with guy wires. See Heat-fab publication PI-CIGUY.
2. Proper supports are required for every 30 feet of vertical conduit.
3. A Saf-T Vent Rain Cap or other termination as required by the appliance manufacturer should be used at the termination to prevent accumulation of rainwater or debris in the vent.



INSTALLATION PREPARATION

Personal Safety

Wear eye protection and heavy gloves throughout the installation. In addition, wear an approved dust and mist respirator whenever in contact with building insulation. Proper and safe scaffolding and/or ladders should be used. Check overhead for antennas, power lines or other obstacles before erecting ladders or scaffolding and while working with conduit on any roof structure.

Tools Needed

Measuring Tape	Pliers	Screw & Nut Drivers
Saws and/or Snips	Drills	Carpentry Tools
Drop Cloth(s)	Ladder/Scaffold	Safety and Personal Protective Clothing

Other tools may be required for specific installations depending on building materials encountered.

GENERAL INSTALLATION PROCEDURE

Prior to beginning the installation of a Saf-T Vent EZ Seal System, it may be helpful to lay out all parts required for the installation to assure that all required parts are on site. Refer to page 7 of this manual for specific fittings and accessories that may be needed for each installation.

System Termination Installation

For a system that terminates horizontally through a wall, refer to the instructions packed with the Saf-T Vent Horizontal Wall Thimble (PI-GCWAL) or the Saf-T Vent CI Wall Termination (PI-CIWAL).

For a system that terminates vertically through a roof, install a Saf-T Vent Roof Jack Assembly or other approved roof thimble assembly at the roof penetration. Refer to the installation instructions packed with the Roof Jack Assembly (PI-CIRJK).

EZ Seal Assembly

Beginning with the appliance flue connector or collar, join Saf-T Vent sections or fittings as appropriate up to the termination.

NOTE: Adapters to Saf-T Vent are available for most popular appliance models. Some flue collars may require the use of high-temperature silicone sealant in order to make a gas-tight, positive-pressure seal.

Wipe the joint area of each male fitting using an alcohol pad to remove any foreign matter which may affect the integrity of the seal.

Maintain a pitch of at least 1/4-inch per foot for all horizontal runs. Keep the welded seam positioned at the top if possible. Install drain fittings to allow for proper drainage of condensate (see page 7).

Install the system with the female ends (with integral red seal) pointing away from the appliance.

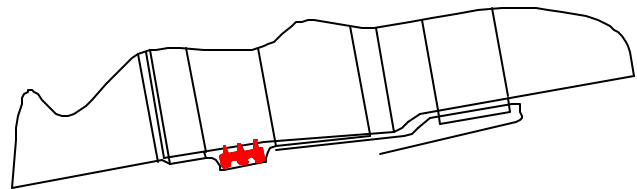
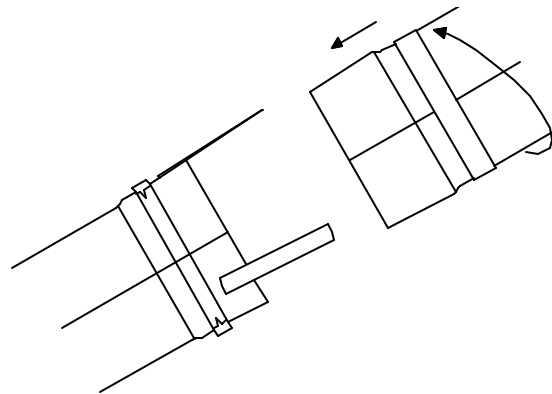
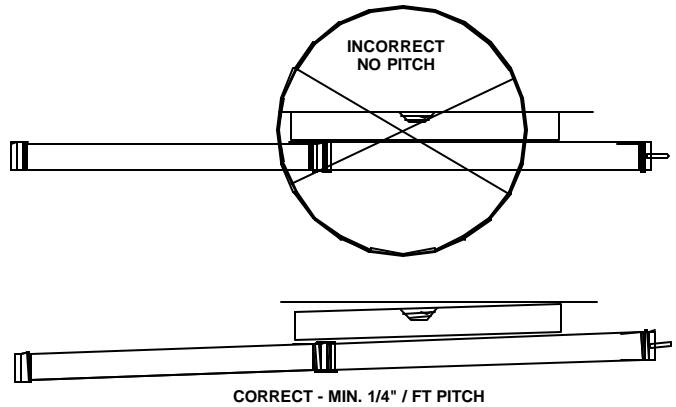
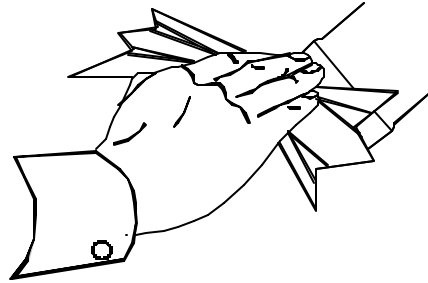
Using a slight twisting motion, fully insert the male end of a fitting into the female end of the fitting below taking care to not dislodge or cut the factory-adhered seal. In extremely arid conditions it may be helpful to moisten the seal with water prior to assembly.

Secure the joint with the locking ring and tabs. Slide the locking ring down over all the tabs and then bend the tabs back over the locking ring.

Inspect the joint to ensure that flue gases and/or liquid condensate will not escape. Any voids formed due to field modification of the system or shipping damage should be filled with a UL-recognized high temperature silicone sealant such as Dow Corning 736 or GE RTV 106.

Customized Lengths - Slip Connectors

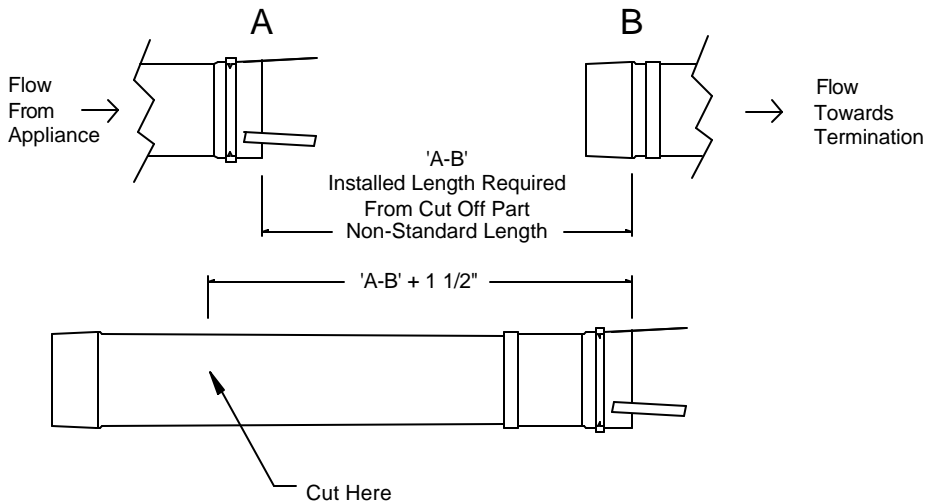
The Saf-T Vent EZ Seal Slip Connector is the most common method to complete irregular distances that cannot be achieved using standard lengths of Saf-T Vent. Refer to the Slip Connector instructions (PI-EZADJ) packed with the part.



Customized Lengths— Cutting Standard Lengths

The Saf-T Vent EZ Seal system is designed so that in most cases standard lengths will not need to be cut. There will arise, however, an occasional situation where standard lengths and adjustable length slip connectors are not adequate. In such cases, a standard length of Saf-T Vent may be field cut.

To custom cut a standard length part to make up the distance from 'A' to 'B', measure from 'A' to 'B' and add 1-1/2 inches to the result. MEASURE TWICE — CUT ONCE. Only cut off the male end. Slide the ring away from the cut area and toward the female end of the pipe.



Starting at the female end of the section to be cut, measure out the distance 'A-B' + 1-1/2" and mark it on the pipe. To help get a square cut, create a straightedge by wrapping masking tape around the waste side of the cut point. Cut the pipe with an abrasive cutoff, plasma, or compound snips.

If using snips, start the cut at the male end and follow a spiral path around the pipe until the cutoff mark is reached. File off any burrs that develop in the cutting process prior to assembling. If the cutting process distorts the roundness of the pipe carefully use your thumbs to re-round the end. The installer may choose to apply high-temperature silicone sealant to the field-cut joint.

A Field Expander is available for 3" diameter Saf-T Vent installations. The Field Expander is a tool the installer can use to recreate the male taper on a cutoff piece of pipe. The Field Expander is available through your Heat-fab supplier. Ask for part number 73EXPKIT and follow the instructions in the kit.

Assemble the joint using the procedures above. A hose clamp must be used to retain the three tabs if the Field Expander is not used.

Customized Lengths— Special Orders

Heat-fab will custom fabricate special lengths as required. Call for availability and pricing.

FITTINGS AND ACCESSORIES

Appliance Connectors

Connect the Saf-T Vent system to the appliance flue collar as directed in the appliance manufacturer's instructions. If the appliance flue collar is not designed for direct connection to the Saf-T Vent system, a special appliance adapter may be required. See the appliance manufacturer's instructions or contact Heat-fab for recommended adapters.

Condensate Drains

Often the appliance manufacturer's instructions or local codes require a condensate drain to be installed in the vent conduit. If one is not provided by the appliance manufacturer, install a Saf-T Vent drain fitting (in-line drain or tee with drain tee cover) as close as possible to the appliance flue collar. Also, install a drain fitting at any tee transition from vertical to horizontal, immediately before a horizontal termination, and after every 30 feet of continuous vent.

On appliances which operate with positive vent pressures (Category III or IV), a trap loop must be made in the drain line. The loop diameter should exceed the maximum anticipated vent pressure by at least 2 inches. Periodically inspect the loop to verify it is not blocked and there is a sufficient level of liquid to prevent escape of flue gases.

Attach a drain hose to each drain fitting and plumb the hose to a sanitary sewer drain. Follow all local and national codes and regulations for the draining of acidic effluent. The drain hose must be suitable for use with acidic effluent and appropriate for the temperature range anticipated by the appliance manufacturer. High-temperature silicone tubing (3/8" diameter) is available from Heat-fab. Order part number 7000TUBE for a 5-foot length and part number 7000TUBE-10 for a 10-foot length.

Conduit Supports

When any horizontal run of Saf-T Vent extends for more than 6 feet a horizontal support must be installed. Subsequent supports are required for every additional 6 feet and at every elbow and tee. Use supports that maintain proper clearances to combustible materials.

The supports must be secured to solid material using at least #10 fasteners. Do not fasten supports to drywall sheathing without using hollow wall anchors. The conduit supports must maintain the 1/4" per foot pitch to avoid collection of condensate in the vent.

Supports are available from Heat-fab. An acceptable alternative is a threaded rod and trapeze support made in accordance with SMACNA HVAC Construction Standards - Metal and Flexible, First Edition - 1985 Section IV or the latest update. This type of support shall also be installed at every 6 feet of continuous horizontal vent and after any offset elbows.

A vertical support (Saf-T Vent Roof Jack, Vertical Wall Support, Guy Section, or Support Clamp in conjunction with a fire-stop plate) must be installed at least twice in any continuous vertical run and after every continuous 30 feet of vertical run. Refer to the instructions packed with the vertical support.

Fire Stops

Whenever the vent penetrates a floor or ceiling and is not running in a fire-rated shaft, a fire-stop is required. Nail the fire stop to structural members and pass the Saf-T Vent conduit through the hole. Maintain the recommended air space clearance to combustible materials and building insulation.

Other quality venting products available from Heat-fab:

Saf-T Vent GC	The Original AL 29-4C Sectional Special Gas Vent.
Saf-T Vent SC	The Solution for Direct Vent Appliances.
Saf-T Vent CI	Double-Wall safety in an AL 29-4C Special Gas Vent.
Saf-T Vent CI Plus	More than a Double-Wall Vent. Available late 2001.
Saf-T Liner	Relining for Hearth Appliances.
Saf-T Pipe	Connector Pipe for Hearth Appliances.



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