

Tips for a Successful Installation

Selkirk's Saf-T Vent systems are Special Gas Vent systems designed to meet the unique venting challenges presented by positive-pressure, condensing gas-fired appliances.

Saf-T Vent systems have been successfully installed in thousands of residential, commercial and industrial settings with a track record of superior performance dating back nearly 20 years.

As part of our effort to continuously improve the products we manufacture, Selkirk has performed extensive testing, visited job site installations and listened to countless installers. The information we have gathered has prompted us to write this bulletin which highlights important installation practices that lead to gas-tight, leak-proof, properly installed systems.

Key Points

- 1. Read & follow the appliance manufacturer's instructions.
- 2. Read & follow Selkirk's instructions.
- 3. When RTV Sealant is required, apply it correctly.
- 4. Secure the joint!
- 5. Get going in the right direction Follow the flow arrows.
- 6. Maintain proper slope Install with a continuous ¼" per foot (minimum) slope back to the appliance.
- 7. Drain the condensate.
- 8. Provide adequate support Support after every offset or elbow, after every 6 feet of horizontal run, after every 30 feet of vertical run, and at each adjustable fitting.
- 9. Inspect annually.

1. Read & Follow the Appliance Manufacturer's Instructions.

- Manufacturers develop and test their appliances to operate efficiently and safely when vented properly. Many appliance installation manuals will give instructions on the maximum number of offsets or elbows as well as the total equivalent length of vent allowed. Always refer to the manufacturer's manuals for guidance.
- Common venting of appliances is permitted only when allowed by the appliance manufacturer(s).
- Some appliances must be vented with double-wall Saf-T Vent CI Plus. If the manual does not distinguish between single-wall and double-wall, call us for a recommendation.
- Manufacturer's instructions supercede Heatfab manuals.
- Clearance requirements outlined in the appliance manufacturer's manuals must be followed. Their clearances and/or national and local code requirements take priority over Heatfab instructions.



2. Read & Follow Selkirk's Instructions.

- Installation and Maintenance Instructions for Saf-T Vent systems are packaged with critical components (elbows, tees, and terminations), as are other supplemental instruction sheets for the critical component itself.
- Accessories (roof jacks, vertical supports, and wall penetrations) come with detailed instructions specific to their proper installation.
- If you have questions on correct installation methods, call us. Our engineering technicians would love to hear from you.
- Installation information is also available at our web site <u>www.heatfab.com</u>.
- BEFORE YOU TRY IT YOUR WAY, PLEASE TRY OUR WAY FIRST!

3. When RTV Sealant is Required, Apply It Correctly.

- Sealant MUST be used on diameters larger than 16 inches! Diameters 5" 16" have an integral gasket built right in. RTV Sealant is NOT required for these diameters.
- Use only GE RTV 106 or Dow Corning 732.
- GE RTV 106 will cover all Heat-fab installations with flue gas temperatures up to 550°F.
- Dow Corning 732 may be used on low temperature applications with flue gas temperatures up to 300°F.
- Clean the joint area before applying sealant. Alcohol pads are included with each part and should be used to remove dirt and trace oils.
- A 1/8" bead of sealant is enough.
- Apply the sealant on the outside of the male end (end without tabs), about 1/4" 3/8" up from the end
 of the part, in a straight and continuous bead. A straight and continuous bead works just fine a
 zigzag or wavy line usually applies too much sealant and could leave gaps. Gaps in the bead will
 cause leaks.
- Inspect the joint after it has been put in place. Apply extra sealant to any voids or crevices. Smooth it
 out with your finger if you want but wipe the excess on a paper towel or work rag, not on your
 clothes. RTV will stain and is difficult to remove.
- Be sure to apply extra sealant when called for. Some joints, such as adjustable sections and flue collar connections, require additional sealant.
- GIVE IT A REST! Dow Corning and GE both recommend sealant be allowed to cure for 24 hours before operating the appliance.

4. Secure the Joint

- Insert the tapered male end into the flared female end using enough pressure to completely seat the connection.
- DO NOT attempt to make up inches by joining the sections partially.
- For parts with the Ring-and-Tab connection, slide the Ring over all Tabs, bringing it down as far as possible. Now bend the Tabs over completely. A flat head screwdriver can be helpful to start bending the Tabs.
- For CI Plus parts:
 - Insert the male end into the female end, lining up the Locking Tabs at the same time. If needed, use pliers to squeeze the Tabs so they will accept the slots in the Mechanical Locking Strap. Spraying the gasket with water or a mixture of water and liquid soap will lubricate it for and easier assembly.



- When assembling elbows and tees, the male end tabs will rotate around the vent to accommodate offsets and direction changes.
- Position the Mechanical Locking Strap over the Tabs, making sure each slot encompasses both Tabs, and then tighten.
- Center the Coupler Band around the completed joint and tighten.
- DO NOT use screws or pop rivets when joining Saf-T Vent systems! EXCEPTION: Saf-T Vent SC is
 designed to be assembled with the use of tap screws, which are included with each part.

5. Get Going in the Right Direction – Follow the Flow Arrows.

- Every length of Heatfab vent has a product sticker with an arrow showing the direction of flue gas flow.
- The tapered ends of the Saf-T Vent parts are designed to help drain condensate back to the appliance. Although the direction of the tapered ends will seem backward for smooth airflow, don't worry. It's more important to remove the condensate from the system.
- Line-up the seams makes a good-looking job!
- Turn the seams up towards the ceiling when installing horizontally.

6. Maintain Proper Slope.

- Install with a continuous ½" per foot (minimum) slope, as is required by the National Fuel Gas Code for all gas-fired appliances.
- Vent systems for condensing appliances must have a continuous ¼" per foot (minimum) slope toward the appliance or a condensate drain. Always check the appliance manufacturer's instructions for proper drain requirements.
- Some appliances require the venting system to be sloped toward the horizontal termination.
- Remember, if you raise the appliance or lower the ceiling you must adjust the slope of the vent to maintain the ½" per foot minimum.
- Use the chart below to help plan your system.

Horizontal	Flue Pitch
Length	
1 foot	1/4 inch
2 feet	½ inch
3 feet	3/4 inch
4 feet	1 inch
5 feet	1 1/4 inches
6 feet*	1 ½ inches
7 feet	1 ¾ inches
8 feet	2 inches
9 feet	2 1/4 inches
10 feet	2 ½ inches

Horizontal	Flue Pitch
Length	
11 feet	2 ¾ inches
12 feet*	3 inches
13 feet	3 1/4 inches
14 feet	3 ½ inches
15 feet	3 ¾ inches
16 feet	4 inches
17 feet	4 1/4 inches
18 feet*	4 ½ inches
19 feet	4 ¾ inches
20 feet	5 inches

Horizontal	Flue Pitch
Length	
21 feet	5 1/4 inches
22 feet	5 1/2 inches
23 feet	5 ¾ inches
24 feet*	6 inches
25 feet	6 1/4 inches
26 feet	6 1/2 inches
27 feet	6 ¾ inches
28 feet	7 inches
29 feet	7 1/4 inches
30 feet*†	7 ½ inches

^{*} A Horizontal Support is required every six feet and after every elbow or offset.

[†] A Condensate Drain is required every 30 feet.



7. Drain the Condensate.

- Follow the appliance manufacturer's installation instructions. Some require condensate drains only for vent systems over a certain length.
- If a drain is required, Selkirk recommends:
 - Drains at all transitions from horizontal to vertical vent runs.
 - Immediately before a horizontal termination.
 - After every 30 feet of continuous vent.
 - The first drain should be as close to the appliance flue collar as possible. Some appliances have internal drains or drains built into their vent adapter.
 - Avoid installing drains outdoors in cold climates. When transitioning from horizontal to vertical up
 the outside of a building, use an elbow instead of a boot tee. Locate a drain fitting inside the
 building as close to the elbow as possible. This will prevent freeze ups.
- Always connect the drain to a sanitary sewer or other approved disposal.
- Install a trap in the drain.
- Use the Drain Hose Kit It connects easily and can also be used as a drain trap when looped. It is available in 5- and 10-foot lengths.

8. Provide Adequate Support.

- On horizontal runs support the vent system every 6 feet and after each elbow or offset. Adjustable sections should be supported as well.
- On vertical installations support is required at minimum after every 30 feet of vertical rise, at each floor penetration, and at the roof penetration. For large diameter systems (12 inch and larger), most installers find it easier to use more support brackets to support the system during installation.
- Support should be provided at the first section above a boot tee that is installed at the base of a vertical stack.
- To support long vertical runs inside a chase or chimney, use either guy wire supports or vertical supports. Guy wire supports work best for tight or inaccessible stacks, but require a set of guy wires for each support. Vertical supports are mounted directly to the inside wall of the chase or chimney.
- Heat-fab guy wire supports are necessary when the vent system extends above the roofline six feet or more.
- Use Heat-fab support brackets or strapping. Our support clamps can be used with threaded rod either singly (as a saddle) or in pairs.
- When using clamping-style supports, do not over-tighten to the point that the vent is damaged or deformed.
- Some installers prefer to hang perforated channel iron to form a trapeze and rest the vent on top of it.
- Consider the behavior of the appliance when planning your supports. Some appliances create pulsing
 vibrations in their vent systems. Avoid attaching the supports to structural components that may
 transmit vibrations to occupied spaces. Be sure the support fasteners (nuts, bolts, etc.) cannot vibrate
 loose.



9. Inspect Annually.

- During your annual HVAC equipment and system check, inspect the vent system. Make sure the system has not been damaged, the vent has not been punctured and the supports are solid.
- Look for the proper slope toward a drain. Make sure drains are not clogged or pinched off, and are in the proper place. Verify that all drain traps are properly primed.
- Inspect the termination and remove any accumulated debris.
- Properly installed and maintained, Selkirk Vent Systems will be trouble free for years.

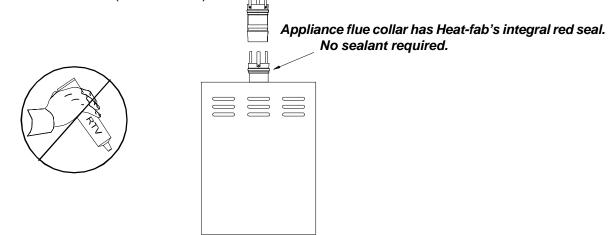
Tropony motalised and maintained, Solitant Vent Systems will be trouble free for years.
You have read the Appliance Manufacturer's installation instructions. You have read Selkirk's installation manual. You properly applied the correct RTV sealant, if required. All vent system joints are tight and secure. The vent system is installed with flow arrows pointing away from the appliance. Proper slope has been maintained. You have made provisions for the system to drain – when necessary. The vent system is supported adequately. You have explained the vent system to the building maintenance personnel.
This document is designed as a summary of issues to be aware of when using Selkirk's Saf-T Vent systems. It is not intended to take the place of the complete installation manuals that should be reviewed and followed closely.
Further information, including complete installation manuals, is available by calling 800.772.0739. Or log onto our Internet site at: www.heatfab.com .



Connecting Saf-T Vent® EZ Seal to Appliances and Other Saf-T Vent Products

EZ Seal IS Compatible with Existing Heat-fab Products. Here's how:

- 1. Connecting to an Appliance Flue Collar
 - If the flue collar that comes with the appliance has Heat-fab's integral red seal, you may attach EZ Seal pipe and fittings directly to it. Make the joint as described in the EZ Seal installation instructions (Pub # PI-EZ).



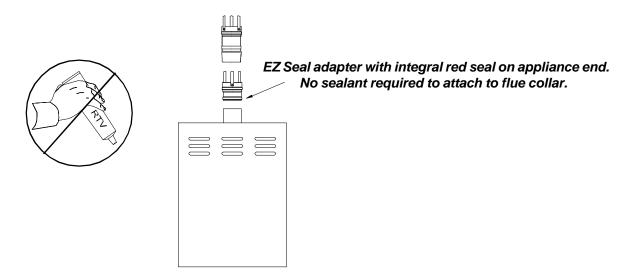
• If the flue collar has Heat-fab's female end (with the 3 tabs) but does not have the integral red seal, you will need to use an approved high-temperature RTV silicone sealant to make the joint between the flue collar and the first piece of EZ Seal. The rest of the system can be sealant-free if it is all EZ Seal.



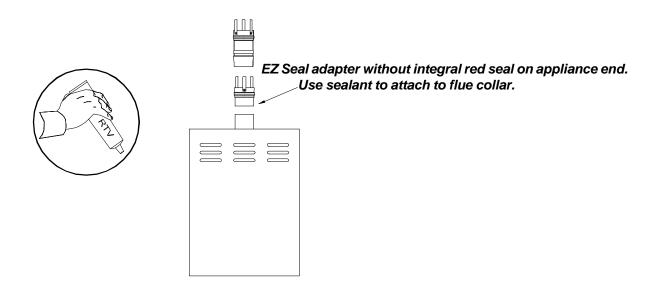
Appliance flue collar has Heat-fab's female expand but no integral red seal.
Sealant is required to attach to flue collar.

2. Connecting an EZ Seal Appliance Adapter to the Appliance

• If the EZ Seal appliance adapter has been designed for a sealant-free connection to the appliance, it will have an integral red seal in the female end and in the end that attaches to the appliance.

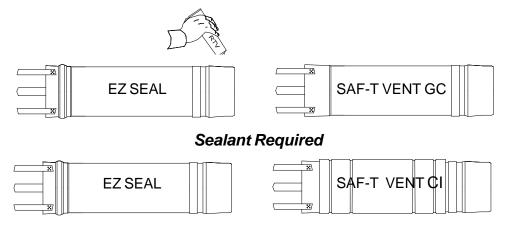


• If the integral red seal is only in the female end, you will need to use an approved hightemperature RTV silicone sealant to make the connection to the appliance. Follow the procedure recommended by the appliance manufacturer.



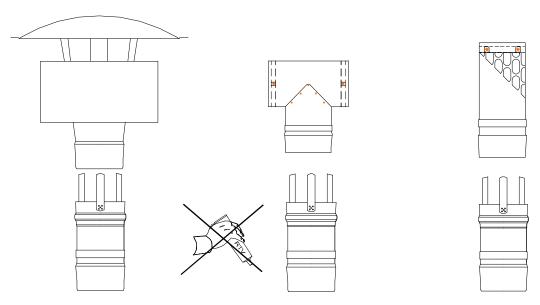
3. Connecting EZ Seal to Saf-T Vent GC (single-wall) or Saf-T Vent CI (double-wall)

• Saf-T Vent GC and Saf-T Vent CI lack the integral red seal. When you connect EZ Seal to them you will need to use an approved high-temperature RTV silicone sealant. Follow the procedure outlined in the GC or CI installation instructions (Pub # PI-VBH or PI-CIINS).



4. Attaching Saf-T Vent Terminations to EZ Seal

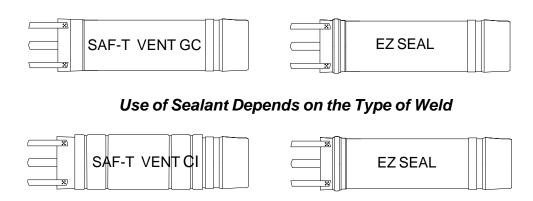
• Existing Saf-T Vent Terminations (rain cap, screen termination, elbow termination, tee termination, mitered termination, and others) can be used with the EZ Seal system. Simply insert the termination into the female end of the last section of EZ Seal, and then make the ring-and-tab connection as you normally would.



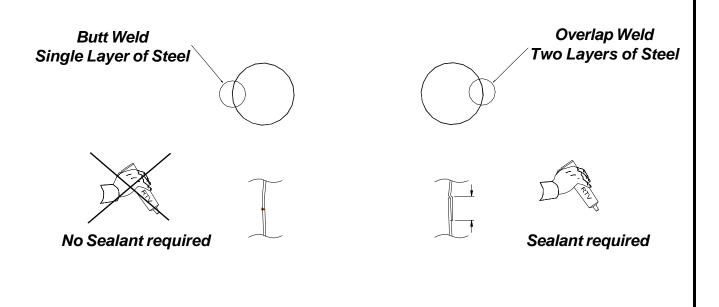
Termination attaching to EZ Seal, NO sealant required.

5. Connecting Saf-T Vent GC or Saf-T Vent CI to EZ Seal

- Saf-T Vent GC and Saf-T Vent CI sections and fittings may be attached to an EZ Seal system:
- If the male end (without tabs) of the GC or CI part was made with a butt-weld (a single layer of steel at the weld area), the part can be attached to an EZ Seal female end without using sealant.
- If the male end was made with an overlapped weld (two layers of steel at the weld area), the joint must be made using an approved high-temperature RTV silicone sealant. Follow the procedure outlined in the GC or CI installation instructions (Pub # PI-VBH or PI-CIINS).



End View of a Saf-T Vent GC or CI Section or Fitting

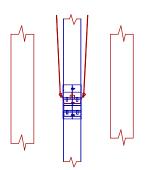


Detailed Installation Instructions for Saf-T CI Vent and Saf-T Vent Guy Sections

The Saf-T Vent and Saf-T CI Vent Guy Sections may be utilized for additional support as system support hangers (when the systems are installed in long inaccessible chases) or for guy attachment sections for additional wind load resistance at extended heights above a roof.

Installation Inside A Chase

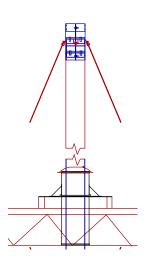
When the Saf-T Vent or Saf-T CI Vent must extend inside an inaccessible chase (or pre-existing chimney) for distances beyond the recommended maximum between supports (80 feet for Saf-T Vent 3 - 8" dia, 50 feet for Saf-T Vent 10" or larger, and 60 feet for Saf-T CI Vent) the Guy Sections may be used to anchor the system to the top of the chase or chimney.



- 1. Install the (first) Guy section at approximately the mid point of any continuous vertical run but in no case further than 50 feet above or below a bottom support, roof jack or additional Guy Section. On single wall Saf-T Vent systems the Guy Section attaches exactly as described in the Saf-T Vent Installation and Maintenance Instructions. On double wall Saf-T CI Vent systems the Guy Section requires the special notched Coupler specially fitted around the anchor tabs.
- 2. Attach stainless steel or galvanized cable with a minimum rated capacity of 500 lbs to each of the 4 anchor holes.
- 3. Continue installing sections and feeding cable, attaching additional Guy Sections as required, until the Vent is properly positioned. Attach the top end of the Cables to solid masonry or other rigid building member.

Installation Above the Roof Line

When the Saf-T Vent or Saf-T CI Vent must extend above the roof line more than 6 feet the Guy section must be used to stabalize the system.



1. Install the Guy section 1 Vent section (2' length or less) below the Rain Cap Vertical Termination.

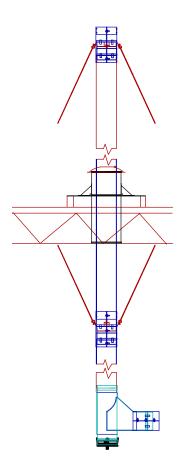
On single wall Saf-T Vent systems the Guy Section attaches exactly as described in the Saf-T Vent Installation and Maintenance Instructions. On Double Wall Saf-T CI Vent systems the Guy Section requires the special notched Coupler specially fitted around the anchor tabs.

- 2. Attach stainless steel or galvanized cable with a minimum rated capacity of 500 lbs to each of the 4 anchor holes.
- 3. Securely anchor the cables to a rigid building member using appropriate anchors.
- 4. If there is no solid anchor point in the system below the Saf-T Vent Roof Support Jack an additional Guy Section must be used 'Below the Ceiling/Roof Structure' as described in the following section.

Installation Below a Ceiling/Roof Structure

When the Saf-T Vent or Saf-T CI Vent must extend down below a Saf-T Vent Roof Support Jack more than 30 Feet or if the system extends above the roof jack more than 6 feet. and is supported by a Guy Section above the roof line.

- 1. Attach the guy section at any point before an elbow or tee in the vertical drop within 30 feet of the roof support system
- 2. Attach stainless steel or galvanized cable with a minimum rated capacity of 500 lbs to each of the 4 anchor holes.
- 3. Securely anchor the cables to a rigid building member using appropriate anchors.







SAF-T VENT EZ SEAL QUICK KIT INSTALLATION INSTRUCTIONS

These instructions apply to the installation of the 93QK1H (3" diameter) and 94QK2H (4" diameter) EZ Seal Quick Kits.

CERTIFICATIONS/CODE COMPLIANCE

These Heatfab Vent Kits are designed for side wall venting of instantaneous (tankless) water heaters and wall hung boilers. These systems are UL Listed for use with gas burning appliances that require vents listed for Category III, IV (or Type BH in Canada) applications with a maximum continuous flue gas temperature of 480°F (245°C) and maximum positive pressure of 8" W.C. These kits contains five easy to install parts that provide the ability to vent through combustible walls. The Vent Kits are compatible with standard Heatfab Saf-T Vent products.

Heatfab Special Gas Vent parts listed and produced under the factory inspection and Follow-Up program of Underwriters Laboratories Inc. carry the LISTING MARK illustrated here.

Be sure to read these instructions and the appliance manufacturer's instructions completely before proceeding with the installation of the kit. Additional information regarding the use and installation of Heatfab products can be found on our Web site

WWW.HEATFAB.COM. Local codes and regulations should be followed.

KIT COMPONENTS:

The following items are included in the box for this kit. See Fig 1. Item 1- Wall Thimble Termination 93QK1H-_ or 94QK2H-_ (2 part) (Inner & Outer)

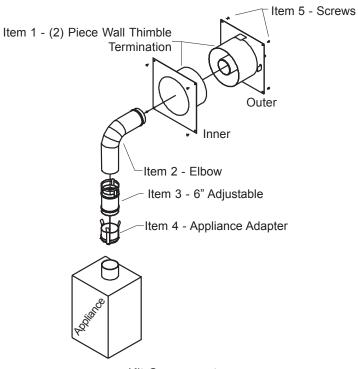
Item 2- 90 degree elbow 93QK1H-E or 94QK1H-E

Item 3- 6-inch adjustable 93QK1H-S or 94QK1H-S

Item 4- 4-inch length adapter 9301BSH or 94QK1H-A

Item 5- Hardware kit (8 screws)

3 packets of di-electric grease (for gaskets)



Kit Components

Figure 1

KEY POINTS TO CONSIDER BEFORE BEGINNING THE INSTALLATION:

- 1. Proper operation of the vent system and appliance depends on the use and correct assembly of all parts specified by Heatfab for this kit installation.
- 2. Do not substitute parts. Different Manufacturers have different joint systems and adhesives. DO NOT MIX PIPE, FITTINGS, OR JOINING METHODS FROM DIFFERENT MANUFACTURERS.
- 3. The UL listing for this product is void if components other than those supplied as Listed components by Heatfab are used. All warranties, stated or implied, are void if this product and the appliance to which it is connected are not installed in accordance with their respective instructions and applicable code requirements.
- 4. Examine all components for possible shipping damage prior to installation.
- 5. **CAUTION: RISK OF FIRE OR CO POISONING**. Proper joint assembly is essential for safe installation. Follow all instructions. Failure to follow these instructions and good sound installation practices can lead to risk of improper venting, fire and carbon monoxide poisoning.
- 6. All joints must be sealed with the factory installed gasket included in the vent sections.
- 7. Proper minimum airspace clearance to combustibles must be maintained over the entire length of the system.
- 8. Do not enclose. No parts of the system may be completely enclosed at minimum clearances in combustible construction.
- 9. The termination should be located to direct flue gases away from trees, shrubs, or decorative items since flue gases could cause damage and/or risk of fire.
- 10. If using only the components provided in this kit, the following distances can be achieved. The vertical distance from center of wall thimble to top of water heater outlet must be between 13 $\frac{1}{2}$ " and 16 $\frac{1}{2}$ ". Wall thickness must be 5" to 9". Horizontal distance from exterior wall to centerline of heater outlet must be between 9" and 13 $\frac{1}{2}$ ".

GENERAL REQUIREMENTS

WARNING: Failure to conform to any of these requirements may violate local, state, or national codes and create conditions that may cause property damage or personal injury.

- Do not penetrate or puncture any part of the system with fasteners unless instructed to do so.
- Additional Saf-T Vent "EZ Seal" lengths may be installed for extended runs. The overall equivalent length of the system shall not exceed the specifications of the appliance manufacturer's instructions.
- On systems incorporating more than 3' of horizontal length, the vent must slope upward toward the termination at least ¼ inch per foot and be installed so that all condensate runs back toward the appliance and is not retained in any part of the venting system. EXCEPTION: If the system is connected to a positive pressure (Category III or IV) appliance, terminates with a horizontal termination, and has no provision for draining condensation and/ or rainwater; then the vent must pitch downward toward the termination.
- More than one appliance may not be connected into the same vent kit termination.
- Proper clearance to combustibles must be maintained over the entire length of the system.

CAUTION: The appliance must be mounted far enough from the wall to maintain a minimum clearance of 1 inch airspace between the vertical vent and combustibles. It must also be located so that when the kit is installed, proper minimum clearances to walls, ceilings and / or joists are maintained for all kit components. (See Figs. 2, 4 and 5).

GENERAL TERMINATION GUIDELINES:

NOTICE: The following is to be used as a guideline only. Check with your Code Enforcement Office in your area for specific termination requirements.

- A mechanical draft vent system, excluding direct-vent appliances, shall terminate at least 4 feet below, 4 feet horizontally from, or 1 foot above any door, window, or gravity air inlet into any building.
- The bottom of the vent terminal shall be located at least 12 inches above grade. In geographical areas where the snow accumulates, terminate the system at least 12 inches above the anticipated snow line. The termination must be kept clear of snow and ice at all times.
- Do not terminate over public walkways or over an area where condensate or vapor could create a nuisance or hazard or could be detrimental to the operation of regulators, relief valves, or other equipment.

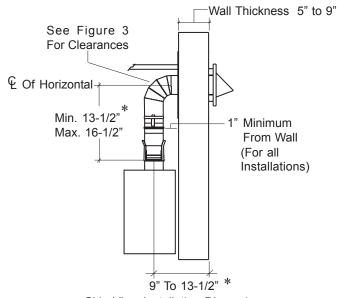
INSTALLATION INSTRUCTIONS

1. Determine location for installing the Wall Thimble Termination (Item #1). Consider notes 7, 8, 9 and 10 from page 1 when selecting a location for the installation of the appliance and the pipe kit. 2. Prepare wall for Wall Thimble Termination (Item #1). An 8" diameter round opening or an 8" x 8" square opening is required for the 3" diameter pipe kit (model 93QK1H), and a 9" diameter round opening or a 9" x 9" square opening is required for the 4" diameter pipe kit (model 94QK2H).

Note: When cutting square opening, it is recommended to radius or chamfer the corners leaving adequate material for the fasteners to secure into. (See Figure 3).

- 3. From the outside, slide the Outer half of the Wall Thimble Termination into the wall opening so that the angled hood is on the outside and is facing down. Apply a bead of silicone between the structure and the mounting plate then secure Outer Assembly to the building using the 4 Screws (Item #5) provided with the kit (see fig 5).
- 4. From the inside, slide the Inner Half for the Wall Thimble Termination assembly into the wall opening so that it engages with the Outer Half of the thimble and seats flush against the inside wall. Fasten Inner Half to inner wall using 4 screws (item 5) provided (See Fig. 5).
- 5. Prepare pipe segments by lubricating the red gaskets with the Di-Electric Grease provided.
- 6. Slide the gasket end of the 90 Degree Elbow (Item 2) over the inner pipe within the Wall Thimble Termination until segments are completely engaged (See Fig. 5).
- 7. Loosen the hose clamp on the 6" Adjustable (Item 3) then slide hose clamp and Adjustable over the elbow, until the segments are completely engaged. Note: Do not tighten hose clamp at this time. 8. Slide the 3 finger tabs of the Appliance Adapter (Item 4) under the slide ring of the 6" Adjustable Length and engage pipe segments.
- 9. Slide the inlet of the Appliance Adapter down over the outlet of the appliance. Note: For the 4" system, the hose clamp will have to be loosened before installing over the appliance outlet.
- 10. Adjust the 3 part assembly (Items 2, 4, & 5) vertically and horizontally to achieve the proper clearances. Once everything is properly engaged and aligned, secure the system parts by tightening all hose clamps, and bending the finger tabs of the Appliance Adapter over the slide ring of the Adjustable length.

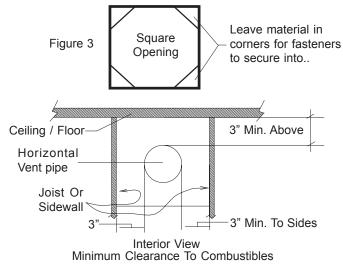
- 11. Prior to initial start-up, physically check each part by applying pressure to them to ensure they are secure.
- 12. The installation must also conform to the requirements of the appliance manufacturer's instructions and applicable local, state or national codes.



Side View Installation Dimensions

Figure 2

* - With Installation of Quick Kit Components Only



Minimum Clearance To Combustibles
Do Not Enclose
Figure 4

