

Tips for a Successful Installation

Heat-fab's Saf-T Vent systems (single-wall Saf-T Vent and double-wall Saf-T CI Vent) 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 10 years.

As part of our effort to continuously improve the products we manufacture, Heat-fab 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 Heat-fab's Instructions.
3. Use RTV Sealant – Proper RTV is a must.
4. Ring-and-Tabs Make the Joint – UL-tested closure system that is time-proven.
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 – Don't forget the trap if you need one.
8. Provide Adequate Support – Support after every offset or elbow, after every 6 feet of horizontal 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 CI Vent. If the manual does not distinguish between single- and double-wall, call Heat-fab for a recommendation.
- Manufacturer's instructions supercede Heat-fab's 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 Heat-fab instructions.

2. Read & Follow Heat-fab's Instructions.

- Every part in a Saf-T CI Vent double-wall system is packaged with a copy of Heat-fab's "Installation and Maintenance Instructions".
- Critical components (elbows, tees, and terminations) in a Saf-T Vent system are packaged with "Installation and Maintenance Instructions" and other supplemental instruction sheets.
- 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 www.heat-fab.com.
- **BEFORE YOU TRY IT YOUR WAY, PLEASE TRY OUR WAY FIRST!**

3. Use RTV Sealant.

- Sealant **MUST** be used!
- 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 where it belongs – on the outside of the male end (without tabs), about 1/4" – 3/8" up from the end of the part.
- A straight-line bead works just fine – a zigzag or wavy line usually applies too much sealant and could leave gaps.
- 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. Ring-and-Tabs Make the Joint.

- After applying the RTV sealant insert the tapered male end into the flared female fitting, using enough pressure to completely seat the connection.

DO NOT attempt to make up inches by joining the sections partially.

- 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. Some installers use a wooden mallet, small hammer, or the handle of a screwdriver to tap down the bent Tabs. This helps to firmly seat the joint and makes a tight connection.

Be careful – you do not want to dent or damage the Venting System.

- 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.
- DO NOT use screws or pop rivets when joining these systems!

5. Get Going in the Right Direction.

- Every length of Heat-fab vent has a product sticker with an arrow showing the direction of flue gas flow.
- The tapered ends of the Saf-T Vent systems 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.
- All you really need to remember is "Point the Tabs toward the Termination".
- 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 ¼" 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 will have to adjust the slope of the vent to maintain the ¼" per foot minimum.
- Use the chart below to help plan your system.

| Horizontal Length | Flue Pitch |
|-------------------|------------|
| 1 foot | ¼ inch |
| 2 feet | ½ inch |
| 3 feet | ¾ inch |
| 4 feet | 1 inch |
| 5 feet | 1 ¼ inches |
| 6 feet* | 1 ½ inches |
| 7 feet | 1 ¾ inches |
| 8 feet | 2 inches |
| 9 feet | 2 ¼ inches |
| 10 feet | 2 ½ inches |

| Horizontal Length | Flue Pitch |
|-------------------|------------|
| 11 feet | 2 ¾ inches |
| 12 feet* | 3 inches |
| 13 feet | 3 ¼ inches |
| 14 feet | 3 ½ inches |
| 15 feet | 3 ¾ inches |
| 16 feet | 4 inches |
| 17 feet | 4 ¼ inches |
| 18 feet* | 4 ½ inches |
| 19 feet | 4 ¾ inches |
| 20 feet | 5 inches |

| Horizontal Length | Flue Pitch |
|-------------------|------------|
| 21 feet | 5 ¼ inches |
| 22 feet | 5 ½ inches |
| 23 feet | 5 ¾ inches |
| 24 feet* | 6 inches |
| 25 feet | 6 ¼ inches |
| 26 feet | 6 ½ inches |
| 27 feet | 6 ¾ inches |
| 28 feet | 7 inches |
| 29 feet | 7 ¼ 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.

- Never install a drain in a vent system for an appliance that has not been investigated for use with a condensate drain.
- Follow the Appliance Manufacturer's installation instructions. Some require condensate drains only for vent systems over a certain length.
- If a drain is required Heat-fab 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 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.
- Always connect the drain to a sanitary sewer or other approved disposal.
- Trap the drain if needed.
- 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 any drain traps are properly primed.
- Inspect the termination and remove any accumulated debris.
- Properly installed and maintained, Heat-fab Vent Systems will be trouble free for years.

Your Check List

- You have read the Appliance Manufacturer's installation instructions.
- You have read Heat-fab's installation manual.
- You properly applied the correct RTV sealant.
- 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 Heat-fab's Saf-T Vent and Saf-T CI 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.heat-fab.com.