# 6 Vent and air piped through a side wall (concentric termination)

## Read before proceeding

**WARNING** **The vent piping operates with positive pressure**. The vent piping must be completely sealed and securely supported.

**Use only the vent components listed in this manual**. Use of any other materials could result in vent system failure.

Exposed vent pipe poses a potential burn hazard to people and pets. Insulate or shield the pipe where necessary to prevent risk.

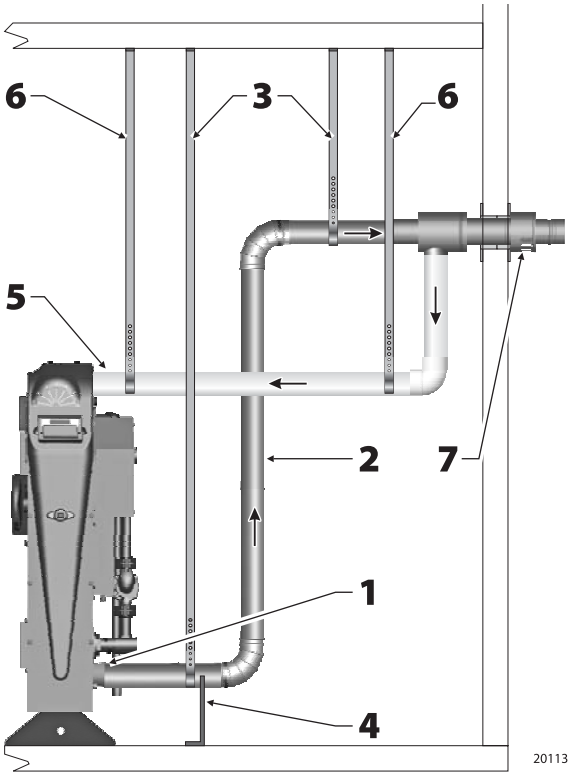
**Never drill through, or install screws into**, the vent pipe or vent components.

Failure to properly install the vent piping could result in flue gas leakage, causing possible severe personal injury, death or substantial property damage.

**NOTICE** **Code compliance** — Follow all applicable local codes when installing the vent system. Where codes differ from this manual, follow code requirements. Contact Mestek if you have any questions regarding the installation.

**WARNING** Terminate the vent and air piping following the guidelines in this manual. Avoid vent termination locations likely to be affected by winds, snowdrifts, people and pets. Protect building materials and vegetation from degradation caused by the flue gases and condensation.

**Figure 19** Vertical venting/sidewall air




**Maximum total vent and air pipe lengths**:

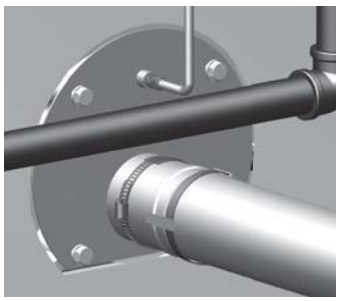
| | |
|---|---|
| 1–90° Ell | 50 feet (15 m) |
| 2–90° Ells | 40 feet (12 m) |
| 3–90° Ells | 30 feet (9 m) |
| 4–90° Ells | 20 feet (6 m) |

(2–45° Elbows = 1–90° Elbow)

## Vent piping (see Figure 19)

### 1 — Boiler vent connection

❑ The vent connection at the boiler is for 3-inch Heat-Fab EZ-Seal vent piping only. To use Z-Flex Z-Vent venting you must install the Z-Vent adapter, part number 2SVSHTA03.



EZ-Seal vent attachment

Insert EZ-Seal pipe male end into the boiler connection. Make sure the locking tabs slide under the EZ-Seal locking ring. Bend back locking tabs to complete the joint. Follow EZ-Seal instructions to complete the vent piping installation.

The concentric vent/air termination must be done only with Saf-T Vent type SC vent components. This requires that all of the vent piping be Saf-T Vent EZ-Seal for compatibility. DO NOT apply this vent/air termination option using any other vent materials.

**Table 6** Vent and air system components

| Vent components | Heat-Fab |
|---|---|
| Vent piping/components (incl. supports, thimbles, etc.) | EZ-Seal, 3-inch piping<br>Saf-T Vent SC fittings for termination assembly |
| Termination assembly:<br>• Single-wall adapter<br>• Air intake tee<br>• 6-inch straight section or 12-inch straight section<br>• Wall plate (2 required)<br>• Termination adapter<br>• Mitered termination | <br>SC03ADEZ<br>SC03TAD3<br>SC03L6<br>SC03L12<br>SC03FS<br>SC03HT<br>9390 |
| Joint sealant, as needed | GE RTV106 or equivalent |
| **Air components** | **Heat-Fab** |
| Air piping/components (also supports, thimbles, etc.) | 3-inch PVC, CPVC, ABS, galvanized or aluminum |



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# 6 Vent and air piped through a side wall (concentric termination) (cont.)

❑ **Slope horizontal runs toward the boiler**. All horizontal runs of vent pipe must slope continuously at least ¼ inch per foot (21 mm per meter) to ensure condensate drains completely back to the boiler. DO NOT install the vent piping with any sections that could trap condensate.

## 2 — Vent piping components

❑ See Table 6 for acceptable vent components. **NO OTHER** vent materials are acceptable.

❑ Carefully follow the instructions supplied by the vent piping manufacturer.

❑ Install the sidewall termination/concentric vent-air assembly (item **7**, Figure 19) before installing the vent or air piping.

❑ The vent joints seal with elastomer rings in the pipe and fittings. Avoid damaging these seals.

❑ **Adjustable lengths of EZ-Seal pipe** — Length adjustments with EZ-Seal piping are done with slip-fit adjustable length sections, not by cutting the pipe. Make sure the adjustable length does not jut into elbows or terminations. This could block flue gas and condensate flow.

❑ **Maximum vent piping length** — See the table in Figure 19 for the maximum allowable length. Each elbow causes the same pressure drop as 10 feet of vent pipe, so the allowable length reduces 10 feet for each elbow used in the piping. When 45° elbows are used, two 45° elbows are equivalent to one 90° elbow.

❑ **Insulate the vent piping where it passes through unheated areas** to prevent condensate freeze-up.

❑ If the pipe passes through an occupied space, install a chase around the pipe, following the vent pipe instructions and applicable codes.

❑ **Clearance from combustible materials** — Provide minimum clearance to all combustible materials of at least 2 inches (51 mm).

## 3 & 4 — Support the vent piping completely

❑ **DO NOT use the boiler vent connection to support the vent piping**. Provide support straps from the ceiling or noncombustible saddle or pedestal supports from the floor. This is required on ALL installations, regardless of the length of the horizontal piping connected to the boiler.

❑ **Install at least one support on every horizontal run**. For horizontal runs longer than 5 feet (1.5 m), install a support every 3 feet (0.9 m).

❑ Vent piping cannot be supported from above (such as relying on roof jack sections). You must install supports on the horizontal piping before the vent turns upward. Provide a support on the horizontal piping **within 6 inches of every upturned elbow** to support the vertical run.

❑ Follow the vent pipe manufacturer's instructions for placement and installation of supports.

❑ Follow applicable codes and the vent pipe instructions to install fire stops, thimbles or other devices at all floor and wall penetrations.

❑ Provide minimum 2 inches (51 mm) clearance to all combustible construction.

## 5 — Air pipe connection

❑ Before installing the air piping, install the air pipe sidewall termination assembly (item **7**, Figure 19). See instructions on next page.

❑ Construct the air piping from 3-inch PVC, CPVC or ABS plastic, or 3-inch galvanized or aluminum metallic pipe (including flexible aluminum duct if desired).

**NOTICE** When using metallic piping — seal all of the longitudinal seam joints in addition to the component joints.

❑ Attach the air piping to the boiler air connection, preferably using silicone RTV to seal the connection. If the boiler room air is free of contaminants you can use metallic duct tape to seal the joints. With age, however, duct tape adhesives can loosen, so duct tape is not as reliable as silicone RTV.

❑ If the installation is required to meet direct vent (sealed combustion) requirements, seal all joints withe silicone RTV. The air pipe installation must be air-tight and water-tight.

❑ **Maximum air piping length** — See the table in Figure 19 for the maximum allowable length. Each elbow causes the same pressure drop as 10 feet of vent pipe, so the allowable length reduces 10 feet for each elbow used in the piping. When 45° elbows are used, two 45° elbows are equivalent to one 90° elbow.

## 6 — Supporting air piping

❑ **DO NOT use the boiler air connection to support the air piping**. Provide support straps from the ceiling or install wall brackets.

❑ Provide at least one support on all air pipe installations.

❑ Provide a support every 3 feet for air pipe lengths greater than 5 feet horizontally.

❑ Provide a support on the horizontal piping within 6 inches of every upturned elbow to support the vertical run.

## 7 — Sidewall termination/concentric vent-air assembly

❑ See next page.

*continued on next page*

# 6 Vent and air piped through a side wall (concentric termination)

## 7 — Sidewall concentric vent-air termination

- ❑ See Table 6 for part numbers of the sidewall termination components required for EZ-Seal vent pipe installations. The vent termination must be constructed using the stainless steel vent materials listed in Table 5 to ensure the configuration is correct. DO NOT terminate the air piping with any other method.
  - **A. Wall plates (2 required)** — Use only the plates listed in Table 6. Follow the vent manufacturer's instruction to prepare the wall and mount the plates.

    The air space provided by the design of the SC type vent allows the concentric vent/air pipe to be run directly through combustible or noncombustible walls. No thimble is needed unless specified by applicable codes.

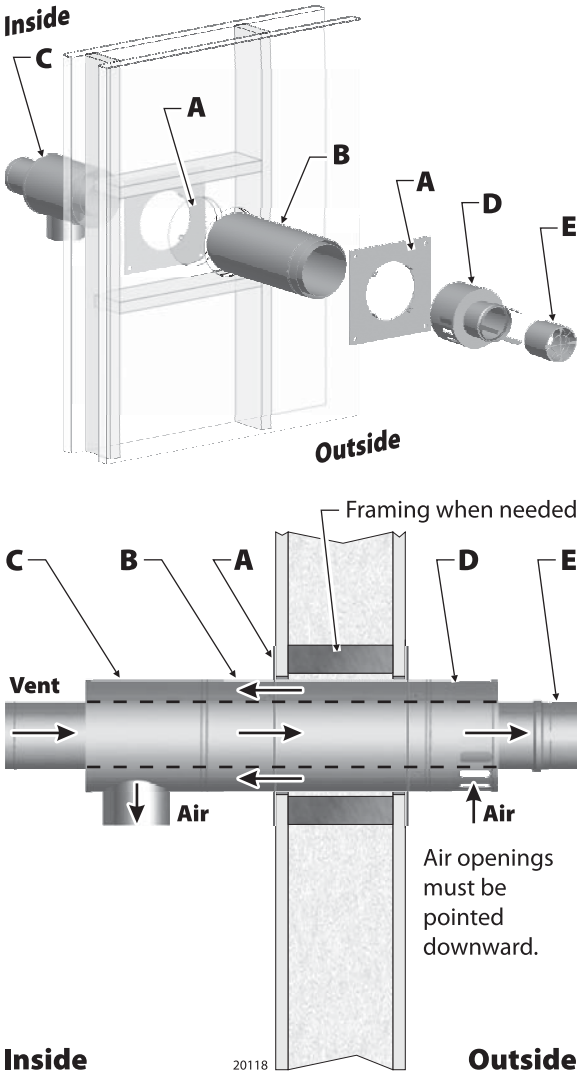
    After the pipe (item **B**) is inserted and placed, follow the vent manufacturer's instructions to insert self-tapping screws through the four tabs in each of the wall plates into the holes in the pipe. This secures the pipe in place.

    Follow the vent pipe manufacturer's instructions for sealing around the plates and the pipe.
  - **B. Length of concentric vent pipe** — Use a 1-foot length of vent pipe as listed in Table 6 unless the wall penetration quires a longer length. If a longer length is required, use a length of Heat-Fab type SC vent long enough for the application.
  - **C. Air intake tee** — The air intake tee provides a connection for the air piping to feed air through the outer plenum of the type SC vent and fittings. Secure the vent pipe to the end following the vent pipe manufacturer's instructions for assembling joints. Attach the air pipe to the air connection using silicone RTV to seal the joint.
  - **D. Termination adapter** — Assembly the termination adapter to the type SC pipe, following the vent pipe manufacturer's instructions for making the joint.
  - **E. Termination screen** — Apply a bead of silicone RTV to the male end of the screen fitting before inserting into the adpatper. Bend the adpater tabs over the end of the screen fitting.
- ❑ **Termination locations** — Place all terminations so they meet the clearances shown in Figure 21.

## Multiple boiler installations

- ❑ Each boiler must be individually vented and air pipes must be separate. **DO NOT** use combined venting or air piping.
- ❑ Install multiple vent/air terminations through the side wall following all guidelines for single-vent/air installations.
- ❑ Install the terminations so they are no closer than 2 feet (0.9 m) on horizontal centers and 4 feet on vertical centers (Figure 22).
- ❑ All terminations must comply with minimum clearances shown in Figure 21.

**Figure 20** Sidewall concentric vent-air termination



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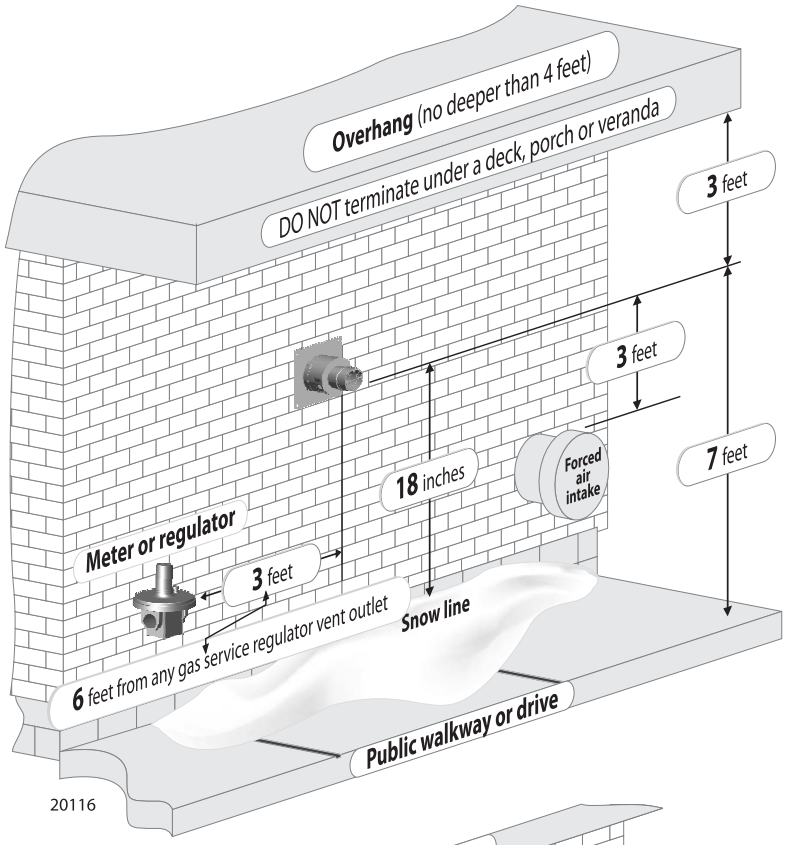
# 6 Vent and air piped through a side wall (concentric termination) (cont.)

**Figure 21** Termination minimum clearances (see Figure 22 for required spacing between terminations)



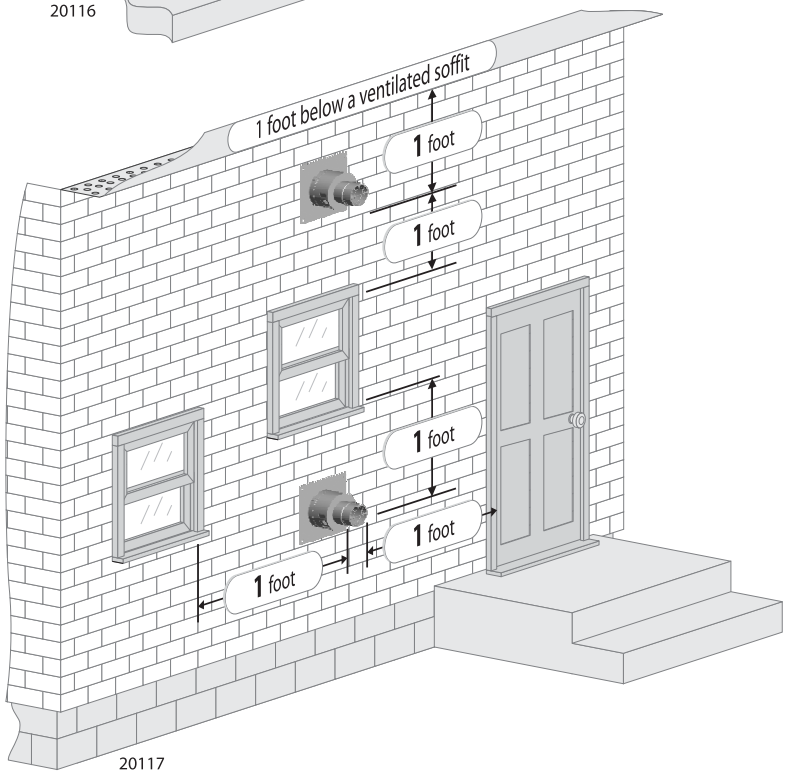
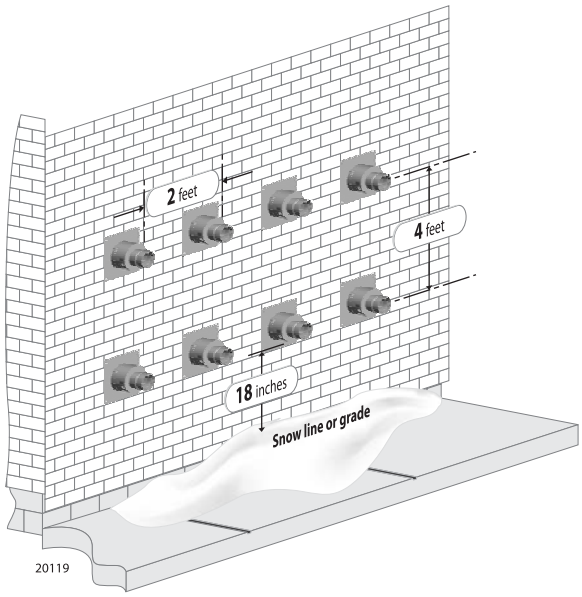




**Figure 22** Minimum spacing between terminations (terminations must also be placed to meet the minimum spacings shown in Figure 21)




To convert to metric dimensions:
*meters = feet x 0.3*
*millimeters = inches x 25.4*

# 7 Notes



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# 7 Notes

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