

Horizontal (Side Wall) Vent Termination:

To prevent blockage of the combustion air and exhaust vent by snow, vent termination must be made 12" (in.) above the anticipated maximum snow accumulation level (See Figure 10).

A minimum of 4' (ft.) clearance must be provided from electric meters, gas meters, regulators and relief equipment. In Canada refer to the current Canadian Fuel Gas Code.

Terminations must terminate not less than one-foot above, below or horizontal from any inlet to building.

Do not terminate over public walkways or over an area where condensate or vapor could create a nuisance or hazard. Inlet and outlet pipes may not be vented directly above each other.

Figure 10

HORIZONTAL VENT TERMINATION

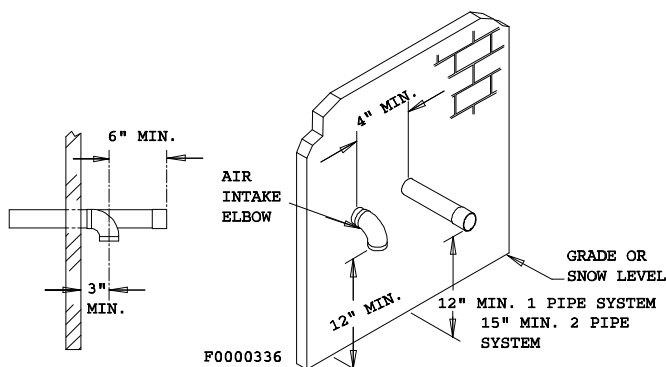
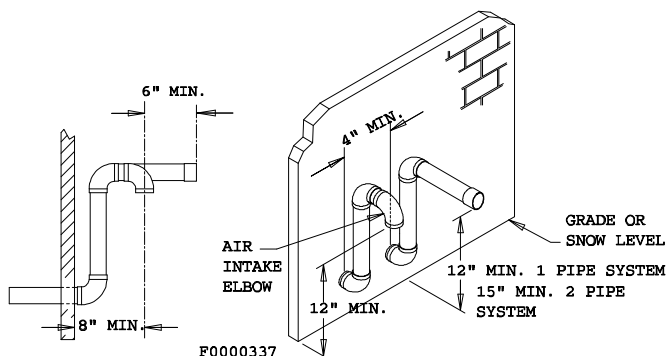


Figure 11

ALTERNATE HORIZONTAL VENT TERMINATION



NOTE: If exhaust vent pipe is extended more than 24", insulate the vent pipe between the two outside 90° elbows with closed cell insulation.

The optional concentric vent termination kit (2" diameter Part No. 20280901 / Cat. No. 87L83 or 3" diameter Part No. 20280902 / Cat. No. 87L84) may also be used for horizontal (side wall) vent termination. **2" diameter concentric vent approved for use with 50 and 75 models only.** Special consideration for this termination system should be given to: 1) possible damage from the vapors to plants/shrubs, other equipment and building materials, 2) possible damage to the terminal from foreign objects, 3) wind effects that may cause recirculation of flue products, debris or light snow, and 4) visible vent vapor.

The concentric vent kit has complete installation instructions.

Figure 12

CONCENTRIC VENT HORIZONTAL TERMINATION

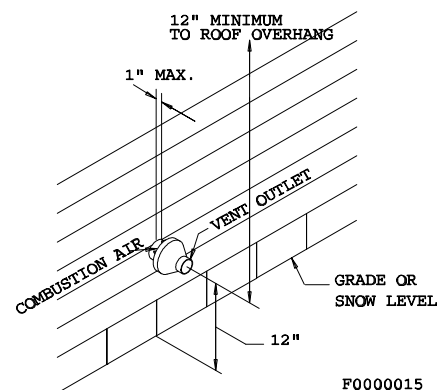
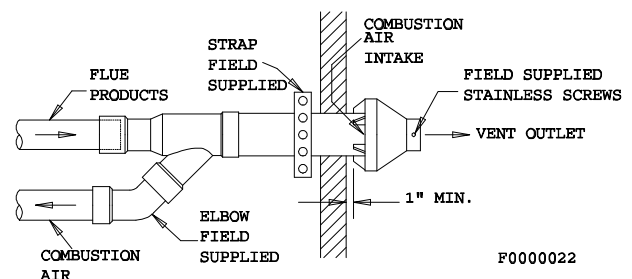


Figure 13

CONCENTRIC VENT HORIZONTAL MOUNTING



Vertical Vent Termination:

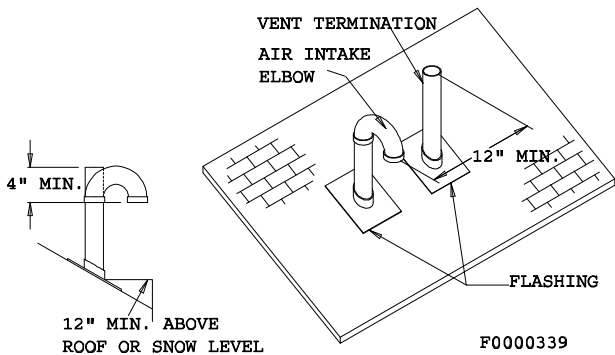
The vertical vent terminations should be sealed with a plumbing roof boot or equivalent flashing.

The inlet of the intake pipe and the end of the exhaust vent must terminate no less than 12" (in.) above the roof or snow accumulation level, and 12" (in.) away from a vertical wall or other protrusion (See Figure 14). In all venting configurations it is required to use terminations specified. The intake elbow is field supplied.

The vertical vent system can be installed through an existing chimney provided that:

- No other appliance is vented into the chimney.**
- The vent system does not terminate within the chimney and the termination clearances shown in Figure 14 are maintained.
- Both the air intake and exhaust vent run the length of the chimney.
- The top of the chimney is sealed and weather proofed.

Figure 14
VERTICAL VENT TERMINATION



The optional concentric vent termination kit (2" diameter Part No. 20280901/Cat. No. 87L83 or 3" diameter Part No. 2028902/Cat. No. 87L84) may also be used for vertical vent termination. Special consideration for this termination system should be given to: 1) possible damage from vapors to roof over hangs, other equipment and building materials, 2) possible damage to the termination from foreign objects, 3) wind effects that cause recirculation of flue products, debris or light snow and 4) visible vent vapor effects on surrounding windows and other openings. The concentric vent kit has complete installation instructions.

Figure 15
CONCENTRIC VENT VERTICAL TERMINATION

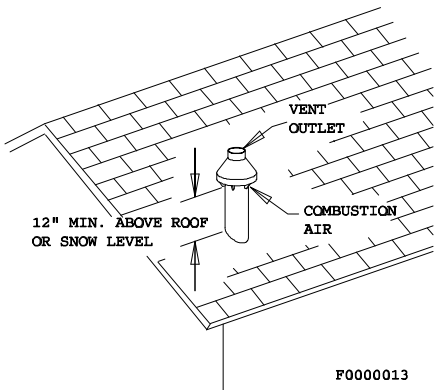
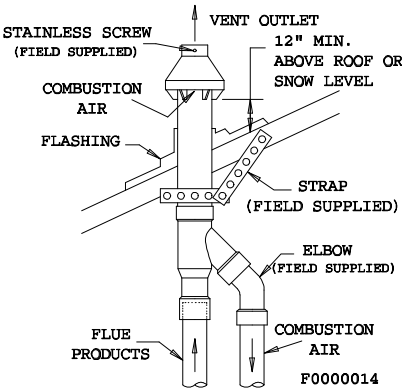


Figure 16
CONCENTRIC VENT VERTICAL MOUNTING



Allowable Vent Lengths:
The minimum allowable vent system for either 2" diameter or 3" diameter venting is 5 ft. and one (1) elbow. Concentric vent kit terminated systems must use Direct Vent (2 pipe) System allowable max vent lengths for the appropriate diameter pipe. Refer to Tables 3 and 4 for the proper pipe diameters and maximum allowable vent lengths.

TABLE 3

Allowable Max Vent Lengths for 2" Diameter Venting

APPLICATION	* Allowable Max Vent Lengths of 2" dia. PVC, ABS or CPVC SCH 40 Pipe				
	1	2	3	4	5
Elbows Allowed					
Models 50 / 75 with Direct Exhaust (1 Pipe) System	60	58	55	53	50
Models 50 / 75 with Direct Vent (2 Pipe) System	60	58	55	53	50
Models 100 with Direct Exhaust (1 Pipe) System	35	30	24	18	12
Models 100 with Direct Vent (2 Pipe) System	35	30	24	18	12
Models 125 with Direct Exhaust (1 Pipe) System	20	15	9	4	--
Models 125 with Direct Vent (2 Pipe) System	20	15	9	4	--

- * Notes:
- Vent system begins at outside of furnace casing.
 - Two 45° elbows are equivalent to one 90° elbow.
 - Do not include termination tee and elbow in calculation of vent length.
 - This table is applicable for elevations up to 2,000 ft. For higher elevations decrease vent pipe lengths by 8% per 1,000 ft. of altitude.
 - Concentric Vent Kit terminated systems must use Direct Vent Lengths.
 - 2" concentric Vent Kit approved for use with 50/75 models only.

TABLE 4

Allowable Max Vent Lengths for 3" Diameter Venting

APPLICATION	* Allowable Max Vent Lengths of 3" dia. PVC, ABS or CPVC SCH 40 Pipe				
	1	2	3	4	5
Elbows Allowed	1	2	3	4	5
Models 50 / 75 with Direct Exhaust (1 Pipe) System	80	76	73	70	65
Models 50 / 75 with Direct Vent (2 Pipe) System	80	76	73	70	65
Models 100 with Direct Exhaust (1 Pipe) System	65	61	58	55	50
Models 100 with Direct Vent (2 Pipe) System	65	61	58	55	50
Models 125 with Direct Exhaust (1 Pipe) System	65	61	58	55	50
Models 125 with Direct Vent (2 Pipe) System	65	61	58	55	50

Notes:

1. Vent System begins at outside of furnace casing.
2. Two 45° elbows are equivalent to a 90° elbow.
3. Do not include termination tee and elbow in calculation of vent length.
4. This table is applicable for elevations up to 2,000 ft. For higher elevations decrease vent pipe lengths by 8% per 1,000 ft. of altitude.
5. Concentric Vent Kit terminated systems must use Direct Vent lengths.
6. All models are factory shipped equipped for 2" diameter venting. Conversion to 3" diameter venting require field supplied fittings.

Flue Pipe Installation:

NOTE: Make sure of alignment and fit, before gluing pieces in place!!

The flue may exit the cabinet either through the right or the left side panel, depending on the requirements of the installation. If the unit is installed in a horizontal-left discharge position, it is required to exit through the right side panel, so the flue is pointing straight up when the unit is installed. See Figures 17 and 18 for configurations.

1. Install factory supplied 2" diameter street sweep (long radius) elbow onto inducer outlet (See Figure 17 and 18). Face elbow at appropriate casing side and secure using attached pipe clamp.
2. Using 2" diameter SCH 40 PVC (ABS or CPVC) pipe, install a short piece of pipe into the elbow. The pipe should be long enough to leave approximately one inch (1") protruding out of the casing side minimum for connection to another fitting. Transitions must be mounted to allow condensate to flow to inducer outlet coupling (See Figures 17 and 18).
3. 2" diameter connections are made directly to the supplied 2" diameter street sweep elbow. 3" diameter connections require 2" to 3" transition. **Transition to be located within 12 linear inches of cabinet.** The 2" to 3" transitions must be mounted to allow condensate to flow to inducer outlet coupling (See Figures 17 and 18).

4. All pipe should be supported using clamps and/or straps. These supports should be at least every four (4) feet, or as required by local codes.
5. All horizontal vent runs must be sloping upwards to obtain 1/4" (in.) rise per foot of pipe from the furnace to the vent terminal. This insures proper drainage of the condensate back to the condensate drain. Failure to maintain this rise will cause condensate to accumulate in the pipe.
6. Direct Vent (two pipe) units may have either a 90° elbow or a straight coupling attached to the air inlet plate. **Do not seal the top joint of the fitting.** This joint must be left unglued to facilitate unit access during any required maintenance.
7. Joints in PVC should be sealed with PVC cement and checked for leaks. ABS or CPVC venting should use sealant as specified by the pipe manufacturer.
8. Check all local codes for any variance.

Figure 17

UPFLOW VENT OPTIONS

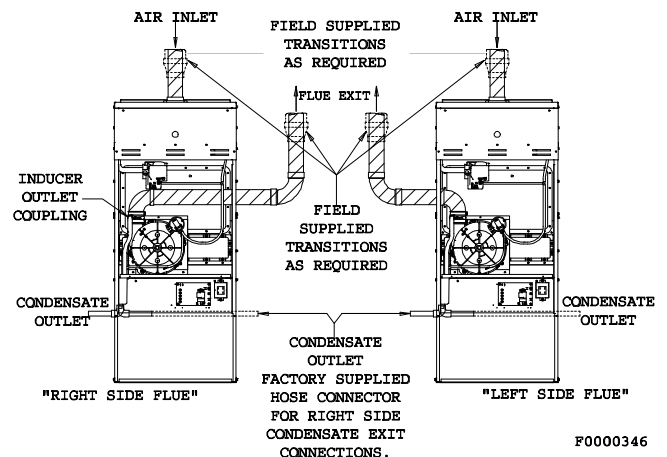


Figure 18

LEFT HORIZONTAL VENTING

