



**CAUTION: WEAR GLOVES WHILE HANDLING SHEET METAL PARTS TO AVOID PERSONAL INJURY. SHARP EDGES OR PROJECTIONS CAN CUT YOU.**

Selkirk MetalBest DIRECT-TEMP Direct Vent system is designed for use only with direct vent gas fired appliances certified for use with DIRECT-TEMP, in accordance with applicable ANSI and/or CSA gas appliance standards. DIRECT-TEMP is listed by UL and Warnock Hersey/ITS for use in Direct Vent Gas Appliance Systems.

**CAUTION** - Do not begin installing this product until you have thoroughly read the appliance and vent system installation instructions. Failure to comply with these instructions may lead to hazardous conditions. Never substitute any part of the DIRECT-TEMP Direct Vent system with components of other systems or with any field fabricated parts. Do not modify any part of this system unless specifically directed to do so in these instructions. Follow the appliance manufacturers recommendations for flue gas or intake restrictions. Contact Local Building or Fire Officials about restrictions and installation inspection in your area.

**GENERAL USE:**

**Use DIRECT-TEMP only on Direct Vent gas appliances certified for use with DIRECT-TEMP Direct Vent system.**

**Installing DIRECT-TEMP:**

There are two basic types of termination options for Direct Vent Systems. Vertical Terminations (Fig 1a), and Horizontal Terminations (Figs 1b and 1c). Reference the Appliance Manufacturer's installation instructions to determine the type and limitations applicable to the appliance being installed.

**Clearance to Combustibles:**

Maintain proper minimum airspace clearances to combustibles as specified by the Appliance Manufacturer's instructions. Do not place anything including any type of insulation in this required air space.

**Appliance Adapter:**

The Appliance Adapter (AA) adapts DIRECT-TEMP to most direct vent appliances incorporating outlet collars configured to receive most common 4" (ID) by 6-5/8" (OD) or 5" (ID) by 8" (OD) "Twist Lock" style, direct-vent systems.

The adapter incorporates two indentations on the outer wall of the inlet end, which are designed to "Twist Lock" into place upon attachment to the appliance outlet. Align the adapter indentations with the entry slots of the appliance outlet and slide together. Turn the adapter clockwise approximately one-quarter turn to lock in place. The outlet end of the adapter is standard DIRECT-TEMP construction.

For connection of Direct-Temp to units with 4"x7" flue outlets, the following methods have been approved:

- Install the Universal/Napoleon Appliance Adapter 4DT-AAN.
- Connect a standard Direct-Temp pipe length (do not use an adjustable length in this application) a minimum of 1-1/2" over the flue outlet. The outside of the Direct-Temp Length will fit inside the flue outlet. Secure with a minimum of two #8x1/4" sheet metal screws and seal with hi-temp silicone.

For units factory equipped with appliance adapters from other brands of Direct Vent systems, it is permissible to simply slide a length of DT pipe over the appliance adapter. Secure with a minimum of two #8x1/4" sheet metal screws and seal with hi-temp silicone.

## DIRECT-TEMP® METALBEST DIRECT VENT SYSTEM

**⚠ WARNING**

**Failure to follow the installation instructions could cause FIRE, CARBON MONOXIDE POISONING, OR DEATH. If you are unsure of installation requirements, call the Phone Number listed on the instructions or sizing handbook.**

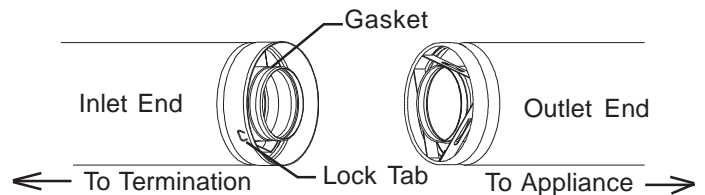
To install:

- 1) Determine whether the length of pipe fits the appliance outlet by attempting to engage the parts. If the parts engage smoothly, proceed to step 2. If obstructions, interference or loose fit is noted, contact the appliance manufacturer or Selkirk MetalBest with the dimensions of the appliance outlet.
- 2) Slide the length of pipe over the appliance outlet a minimum of 1 1/2" and screw to the appliance outlet collar using a minimum of two #8 X 1/4" sheet metal screws.

Model DT Diameter	Ceiling Support (CS) Firestop (FS)	Cathedral Ceiling Support (CCS)	Wall Thimble (WT)
4"	8-3/4" x 8-3/4"	10-5/8" x 10-5/8"	8-3/4" x 8-3/4"
5"	10-1/8" x 10-1/8"	14-1/2" x 14-1/2"	10-1/8" x 10-1/8"

**Use of Sealant:**

It is not required to apply or use sealant on the inner liner of DIRECT-TEMP. For outer wall joint sealing considerations follow appliance manufacturer recommendations.



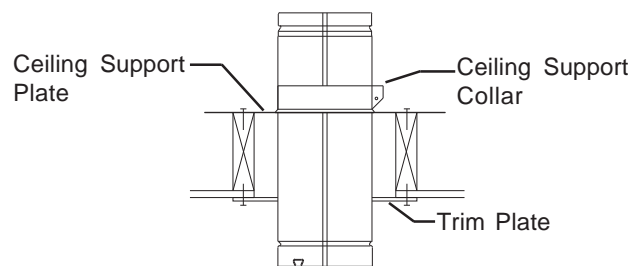
**FIG. 2 JOINT CONNECTION**

**Joint Connection:**

The pipe and elbows are assembled by inserting the outlet (male) end of a length of pipe or elbow into the inlet (female) end of an adjacent length of pipe or elbow. Make sure the outlet end is fully seated within the inlet end of the adjoining section and the gasket, located on the inner liner of the inlet section is fully enclosed by the inner liner of the outlet of the adjoining section. Push in the Lock Tab such that it becomes seated within the inward groove of the adjoining section. This locks the joint in place (see Figure 2).

**Supporting DIRECT-TEMP: Vertical Support**

Vertical Installations can be supported by two methods.



**FIG. 3 CEILING SUPPORT**

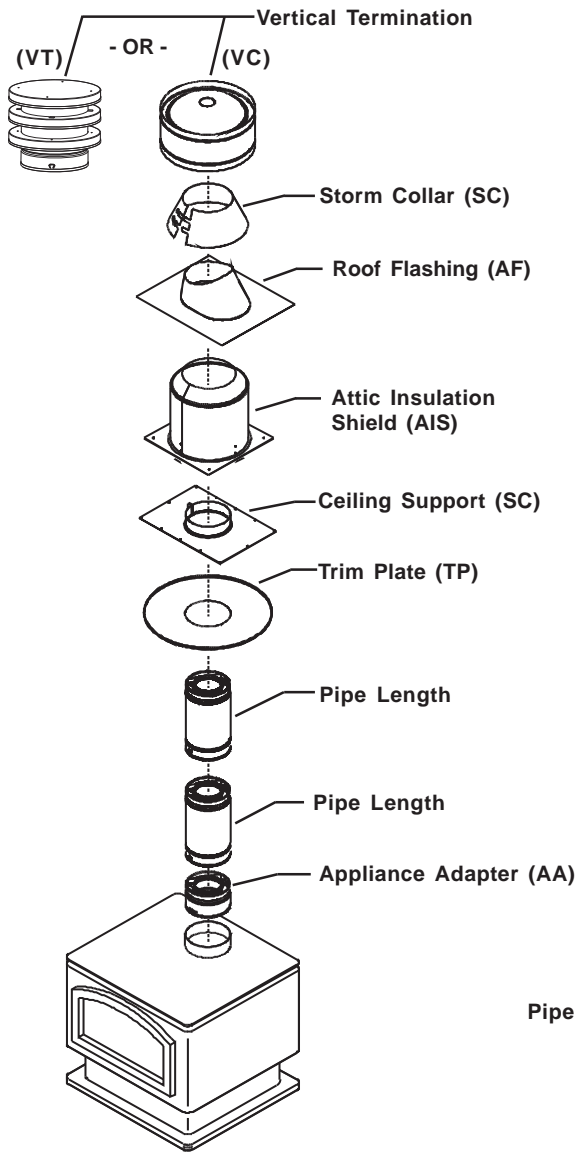


FIG 1a

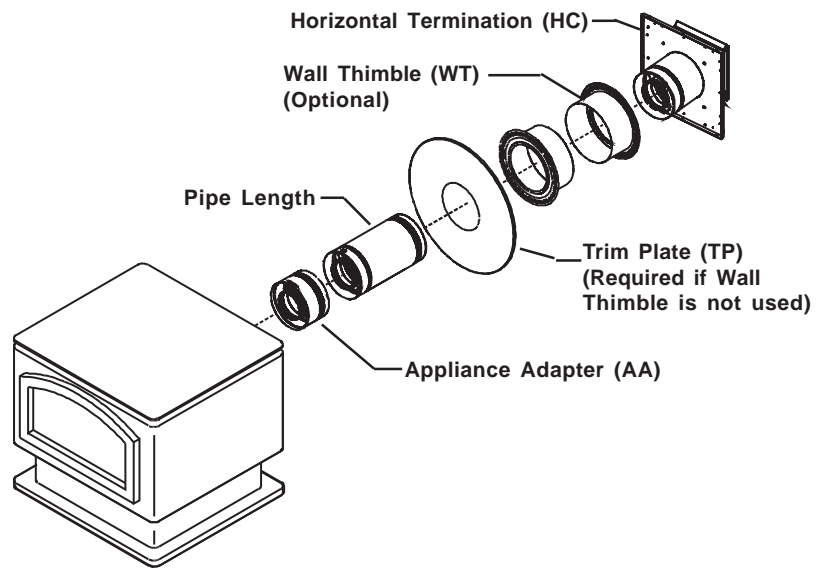


FIG 1b

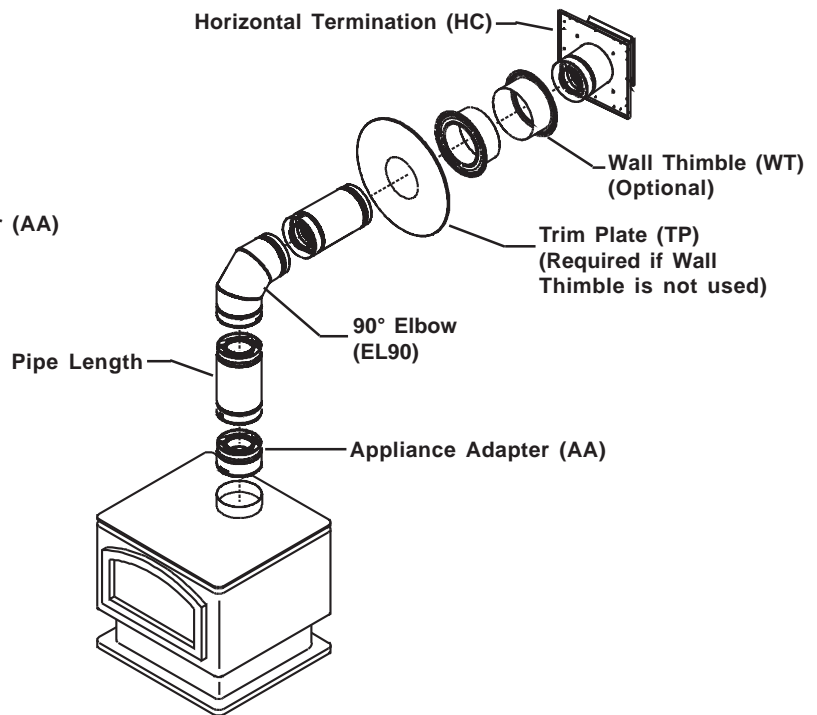


FIG 1c

Ceiling Support (CS) (used in flat ceiling installations) comes with a Support Plate and a Support Collar. Install it by screwing the Support Plate to the top of the properly framed ceiling joist opening, using screws provided. A round Trim Plate (TP) is attached to the ceiling, using screws, to provide a finished appearance once installed (see Fig. 3).

The Cathedral Ceiling Support (CCS) may be used in pitched or flat ceiling installations and comes with a Support Collar and a decorative two part square Trim Plate. Install by inserting the support box down through the framed joist opening (end with round hole first) in the ceiling. Using tin snips, cut the corners of the open end of the box such that the sides can be folded down over the top of the joist framing members. Nail the folded sides to the top of the framing (see Fig 4).

A two-part square Trim Plate is provided to give a finished look once installed. Simply fit the two halves of the Trim Plate around the Cathedral Ceiling Support Box hanging below the ceiling (overlapping if necessary) and screw them to the ceiling. Both the Ceiling Support and Cathedral Ceiling Support can support a maximum of 40 feet of pipe.

**Offsets:**

If any offsets are necessary in the vertical system, an Offset Support (OS) should be installed directly above the upper elbow of the offset. Install by attaching the Offset Support Band to the pipe with two #8 x 1/4" sheet metal screws (minimum) and secure the Offset Support Straps to surrounding structure (see Fig. 5).

### Supporting DIRECT-TEMP: Horizontal Support

Horizontal runs of Direct-Temp should be supported every 4 ft. This can be done with the use of plumbers strapping or the Offset Support.

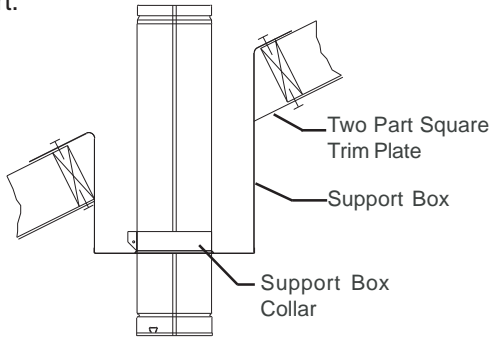


FIG. 4 SUPPORT BOX

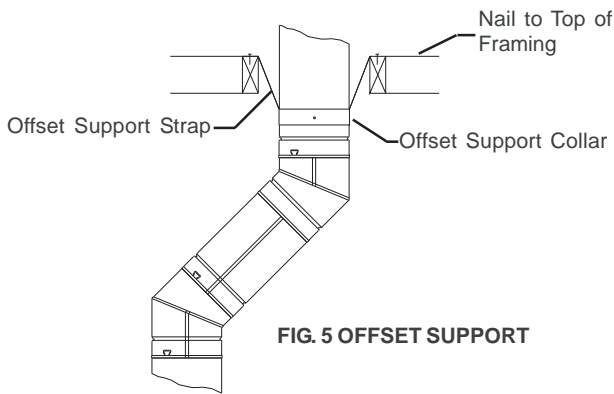


FIG. 5 OFFSET SUPPORT

### Adjustable Length (AJ)

An Adjustable Length is available to accommodate installations where non-standard lengths are necessary. The Adjustable Length telescopes down over a standard length of pipe and provides an extension range of 3-1/2" to 10-1/2". Install by sliding the inlet end of the Adjustable Length over the outlet end of a standard length of pipe. After positioning the Adjustable Length appropriately, secure it to the standard length with (2) #8 x 1/4" sheet metal screws (provided). Seal the area between both the top and bottom of the Adjustable Length outer wall and the outer wall of the standard length with an approved silicone sealant.

### Fire Stopping

DIRECT-TEMP must be firestopped wherever it passes through floors, ceilings, or walls. The only location where a firestop is not required is at the roof level. Both vertical support components with Trim Plates provide for firestopping.

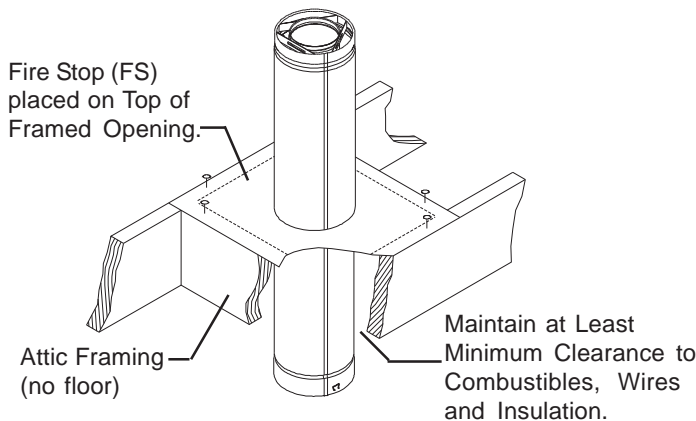
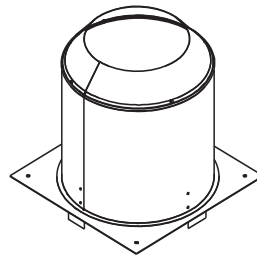


FIG. 6 FIRESTOP SPACER

The Wall Thimble also acts as a firestop. At other locations, a Firestop Spacer (FS) should be installed. In the attic the firestop should be placed on top of the joist framing to prevent debris from falling into the joist framing (see Fig. 6).

### Attic Insulation Shield (AIS)

Where Model DT enters and attic space, the vent should be protected from the known fire hazards of insulation or combustible materials. An enclosure can be built around the vent or an Attic Insulation Shield can be installed to ensure the minimum air space is maintained. For proper installation, the attic opening should be fully framed to the specified framing dimensions found in Table 2. The square base of the AIS is placed on the framed opening around the vent, and the AIS spacer tabs seated within the framed opening. Nail the AIS base to the framing with at least 2 nails per side. The AIS allows for a depth of insulation up to 10 inches.



Attic Insulation Shield

Table 2

Diameter	Framing Dimensions
4" x 6-5/8"	8.75" x 8.75"
5" x 8"	10.125" x 10.125"

### Reducer (5DT-R4)

When permitted by the appliance manufacturer, the Reducer (5DT-R4) can be used to downsize from 5" DT to 4" DT pipe. The Reducer should only be installed in the vertical orientation and is connected to the DT pipe sections using the standard push tab locking method. Refer to the appliance manufacturer's instructions for limitations. (See Figs 7a and 7b)

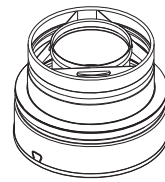


FIG. 7a  
Reducer

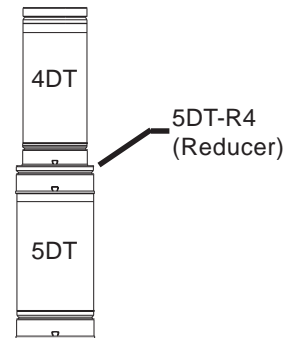


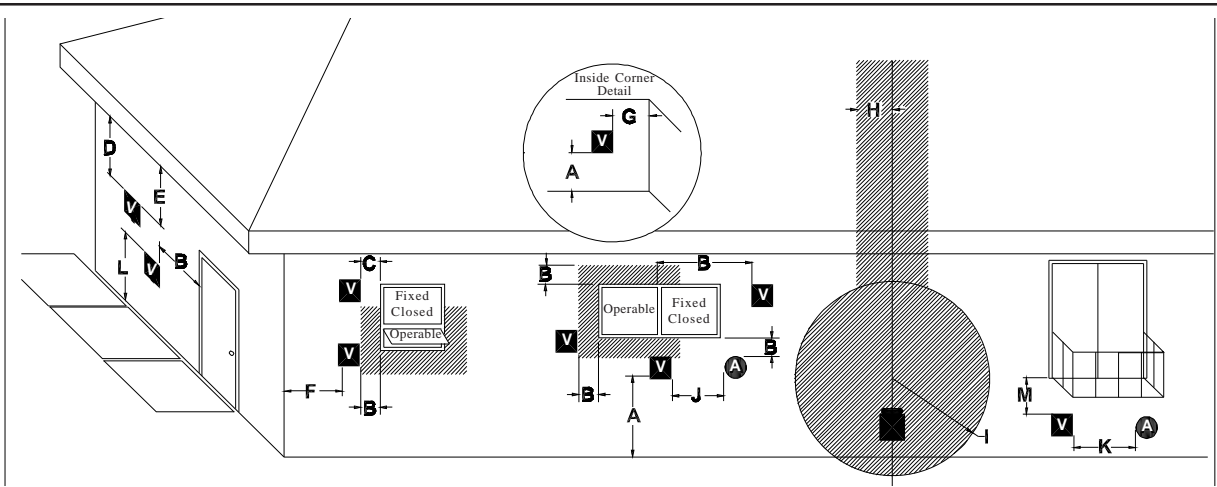
FIG. 7b

### Universal Rubber Boot Flashing Kit (URBFK)

The Rubber Boot Flashing Kit is available as an option for passing the Model DT through corrugated or metal roofs. Reference the Rubber Boot Flashing Kit Installation Instructions for further details.

### JUSI Insulation

JUSI Insulation is available to provide a barrier against cold air infiltration and also provides additional protection against radiant heat from the vent. The JUSI is installed in a wall or roof cavity in conjunction with a Wall Thimble, Attic Insulation Shield or Cathedral Ceiling Support. See the Installation Instructions packaged with the JUSI for further details.



**V** = VENT TERMINAL      **A** = AIR SUPPLY INLET      [Hatched Area] = AREA WHERE TERMINAL IS NOT PERMITTED

**Canadian Installations<sup>1</sup>**

**US Installations<sup>2</sup>**

A = Clearance above grade, veranda, porch, deck, or balcony	12 inches (30 cm)	12 inches (30 cm)
B = Clearance to window or door that may be opened	6 inches (15cm) for appliances ≤ and including 10,000 Btuh (3kW), 12 inches (30 cm) for appliances ≤ 100,000 Btuh (30kW), 36 inches (91cm) for appliances ≥ 100,000 Btuh (30kW)	6 inches (15 cm) for appliances ≤ 10,000 Btuh (3 kW), 9 inches (23cm) for appliances ≥ 10,000 Btuh (3 kW) and ≤ 50,000 Btuh (15 kW), 12 inches (30 cm) for appliances ≥ 50,000 Btuh (15 kW)
C = Clearance to permanently closed window	12 inches (30 cm) recommended	12 inches (30 cm) recommended
D = Vertical clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal	18 inches (45 cm)	18 inches (45 cm)
E = Clearance to unventilated soffit	12 inches (30cm)	12 inches (30 cm)
F = Clearance to outside corner	6 inches (15cm)	6 inches (15cm)
G = Clearance to inside corner	Non-combustible and combustible - As determined by Manufacturer's Installation Instructions	Non-combustible and combustible - As determined by Manufacturer's Installation Instructions
H = Clearance to each side of center line extended above meter/regulator assembly	3 feet (91 cm)	3 feet (91 cm)
I = Clearance to service regulator vent outlet	3 feet (91 cm)	3 feet (91 cm)
J = Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance	6 inches (15cm) for appliances ≤ and including 10,000 Btuh (3 kW), 12 inches (30 cm) for appliances ≥ 10,000 Btuh (30kW), 36 inches (91 cm) for appliances ≥ 100,000 Btuh (30kW)	6 inches (30 cm) for appliances ≤ 10,000 Btuh (3 kW), 9 inches (23 cm) for appliances ≥ 10,000 Btuh (3 kW) and ≤ 50,000 Btuh (15 kW), 12 inches (30 cm) for appliances ≥ 50,000 Btuh (15 kW)
K = Clearance to a mechanical air supply inlet	6 feet (1.83 m) <sup>*</sup>	3 feet (91 cm) above if within 10 feet (3 m) horizontally
L = Clearance above paved sidewalk or paved driveway located on public property	7 feet (2.13 m) <sup>*</sup>	7 feet (2.13 m) <sup>*</sup>
M = Clearance under veranda, porch deck, or balcony	12 inches (30 cm) <sup>**</sup>	12 inches (30 cm) <sup>**</sup>

<sup>1</sup> In accordance with the current CAN/CSA-B149.1-00 Installation Codes

<sup>2</sup> In accordance with the current ANSI Z223.1/NFPA 54 National Fuel Gas Code

\* A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

\*\* Permitted only if veranda, porch, deck, or balcony is fully open on a minimum of two sides beneath the floor.

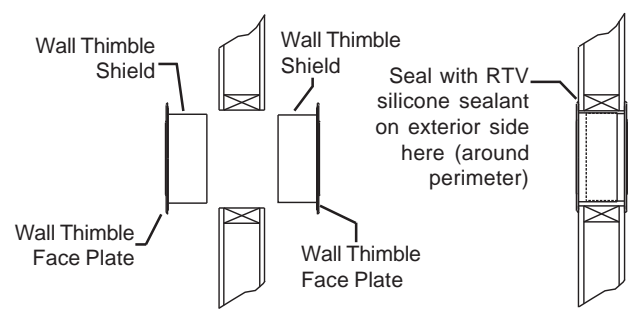
**Figure 8. Side Wall Vent Termination Requirements**

**HORIZONTAL INSTALLATION:**

**1) Determine the appliance location.** Refer to the Appliance Manufacturer's installation instructions for clearance to combustible requirements, termination options, number of elbows, maximum length, etc. then position the appliance and plan vent routing accordingly. Consider locating the appliance in a place where there will be no interference with wall studs, electrical wiring, conduit, plumbing pipe, or other obstructions. The termination should be located at least 12" above grade, remain above the snow line in geographical areas that accumulate snow and be away from traffic areas such as walkways if it is less than 7' high (See Figure 8 for more detail).

**2) Assemble the pipe (and elbow if using) and attach it to the appliance.** Plan for a level to 1/4" per foot rise (from inlet to outlet) in the horizontal system if not specified by the Appliance Manufacturer. Horizontal runs should be supported every 4 feet.

**3) Push the appliance near the desired location.** Determine the center point of the penetration by locating the centerline of the outlet of the pipe with respect to the wall.



**FIG. 9 WALL THIMBLE**

4) Frame an opening to the dimension specified in the Framing Dimension Table 1. Ensure that the centerline of the pipe lines up with the center of the prepared opening unless otherwise specified by the appliance manufacturer.

**NOTE:** As a general rule the Wall Thimble is optional in the U.S. However, there may be some manufacturers that require it. Contact appliance manufacturer for information if uncertain. **When installed in Canada, a Wall Thimble is required on installations in which the vent passes through a combustible wall.**

5) If required, install the outside half of the Wall Thimble (WT) through the opening and screw or nail in place. (See FIG. 9) Seal around the perimeter of the thimble face plate on the exterior wall using an RTV Silicone Sealant to provide protection from possible rain infiltration (see FIG. 9).

**NOTE: The Wall Thimble accommodates wall thicknesses of 4 1/2" to 7 1/2". If a larger range is needed due to a thicker wall, it is permissible to field fabricate a metal sleeve extension and attach it to the shields.**

6) Install the Horizontal Termination to the exterior wall using 4 all purpose screws through the holes located at each corner of the termination. Make sure the arrow (embossed on the front of the termination) is pointing up (see Fig. 10 ). If the house has vinyl siding, a Vinyl Siding Standoff (VS) must be installed prior to installing the Horizontal Termination. Refer to the Appliance Manufacturer to determine if one is recommended. Attach the Vinyl Siding Standoff to the exterior side of the wall (making sure it is level and centered with respect to the opening) with screws (provided) at each corner of the Standoff. Attach the Horizontal Termination to the standoff (see FIG. 11).

If the wall is brick or concrete, and contains no combustible material, a 7" round penetration hole is adequate. The Wall Thimble is not required. The perforated straps of the Horizontal Termination provide a method of attachment. These can either be threaded through the opening or Wall Thimble (if used) and screwed to the pipe or removed with a pair of tin snips if not used. Use proper masonry fasteners to attach the Horizontal Termination to the wall.

**NOTE:** The Vinyl Siding Standoff is not required for a Snorkel Termination (See FIG. 12) application.

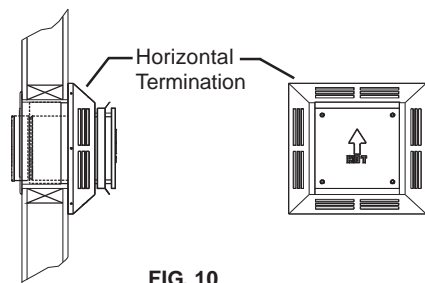


FIG. 10

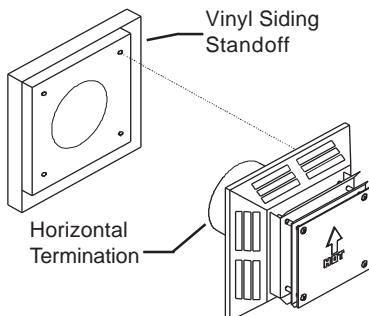
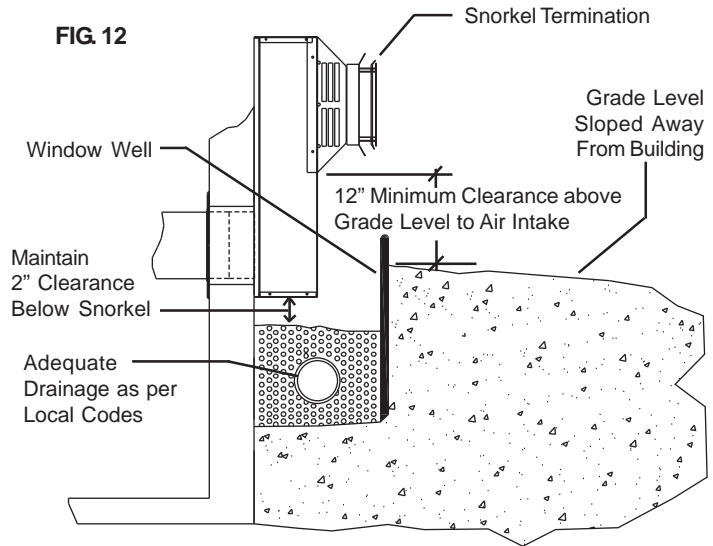


FIG. 11

**NOTE:** If a vertical rise is necessary on the exterior side of the building, a 14" and 36" Snorkel Termination (ST) is available. Follow the installation procedures for Horizontal Terminations. If the Snorkel Termination is to be located below grade, a window well is recommended with adequate and proper drainage as per local codes. Leave 2" clearance below snorkel to prevent water from entering the Snorkel Termination. Do not enclose the Snorkel within a wall or other type of enclosure and **do not back fill**. Ensure that grade level slopes away from the building. See FIG. 12 for details.



7) If a Wall Thimble is used, push the pipe (which is connected to the appliance) carefully through the Wall Thimble until the DIRECT-TEMP pipe becomes fully engaged with the Horizontal Termination. If no thimble is used, place the Trim Plate (TP) on the DIRECT-TEMP pipe. Carefully push the DIRECT-TEMP pipe through the wall until fully engaged with the Horizontal Termination. Secure the Trim Plate to the wall.

**VERTICAL INSTALLATION:** (See FIG. 13)

1) Determine the location of the appliance. Choose a location which provides adequate clearance from obstacles such as electrical wiring, conduit, framing members, plumbing pipe, etc.

2) After positioning the appliance, determine where the vent pipe will pass through the ceiling. This can be done by using a plum bob or a small weight attached to a string. Hold the plum bob from the ceiling moving it until it lines up with the centerline of the outlet of the appliance. Mark the position on the ceiling.

**NOTE:** Frame openings to the dimensions specified in the Framing Table for the Cathedral Ceiling Support Box (CCS), the Ceiling Support (CS) and wherever the Firestop Spacer (FS) is being used.

3) Cut and frame the appropriate sized square hole through the ceiling. Repeat the process for other ceiling penetrations as necessary.

4) Determine and mark the roof penetration in the same manner.

5) Cut a hole in the roof at this point large enough to satisfy all clearance-to-combustible requirements as specified by the appliance manufacturer's installation instructions.

6) Install the Ceiling Support or Cathedral Ceiling Support Box Assembly, as appropriate.

7) Determine the distance from the appliance outlet to a point just above (approximately 1 to 2 feet) either the Cathedral Ceiling Support Box or the Ceiling Support Plate and assemble lengths of pipe to satisfy this distance. Do not attach assembly to appliance.

8) Loosely position the Support Collar around the assembled lengths (flared end down).

9) From above, lower the assembled pipe sections down through the Cathedral Ceiling Support Box or Ceiling Support Plate and attach it to the appliance adapter. The Support Collar should then be adjusted so that when the assembled lengths of pipe are attached to the appliance, it rests on the bottom of the Cathedral Ceiling Support Box or on top of the Ceiling Support Plate.

10) Tighten the tabs of the collar. Secure the Support Collar by inserting three #8 x 1/4" sheet metal screw through the Support Collar and the outer wall of the pipe.

**NOTE:** If the Cathedral Ceiling Support Box Assembly is being used, it may be necessary to temporarily connect the assembled pipe to the appliance. Determine and mark the location of where the Support Collar will be attached to the pipe. Disconnect and remove assembled pipe. Attach the Support Collar per step 10 (where marked) and reinstall assembly. This is due to limited space within the Cathedral Ceiling Support Box. Install any required Offset Supports.

11) Add lengths of pipe and firestop as necessary until assembly extends to a point above the roof which complies with local code requirements for minimum termination height and with the appliance manufacturer's installation instructions. See FIG. 14.

**NOTE:** Whenever DIRECT-TEMP penetrates through a ceiling, a floor or a wall, it must be firestopped.

12) Using a level, make sure the system is perfectly vertical.

13) Slide the Flashing, suitable for the roof pitch, down over the pipe protruding through the roof. Recheck orientation and use a silicone sealant around and under the perimeter of the flashing where it is in contact with the roof. Secure the flashing with roofing nails. Finish roofing around the pipe, covering the sides and upper areas of the Flashing base with roofing material. However, be sure the lower unnailed portion of the base covers the roofing material.

14) Position the Storm Collar around the pipe and slide down until it is in contact with the Flashing. Secure the Storm Collar by inserting the two tabs into the raised slots and fold tabs back. Seal the area between the Storm Collar and the vent pipe with a silicone sealant to prevent rain infiltration.

15) Install the Vertical Termination (VC or VT) by inserting it down into the top most section of pipe until it is fully seated. Depress lock tab to secure the cap to the pipe. NOTE: In high wind areas, it is recommended to screw Termination to the pipe with two #8x1/4" sheet metal screws. The screws should be approximately 3/4" from the bottom of the Vertical Termination's galvanized collar.

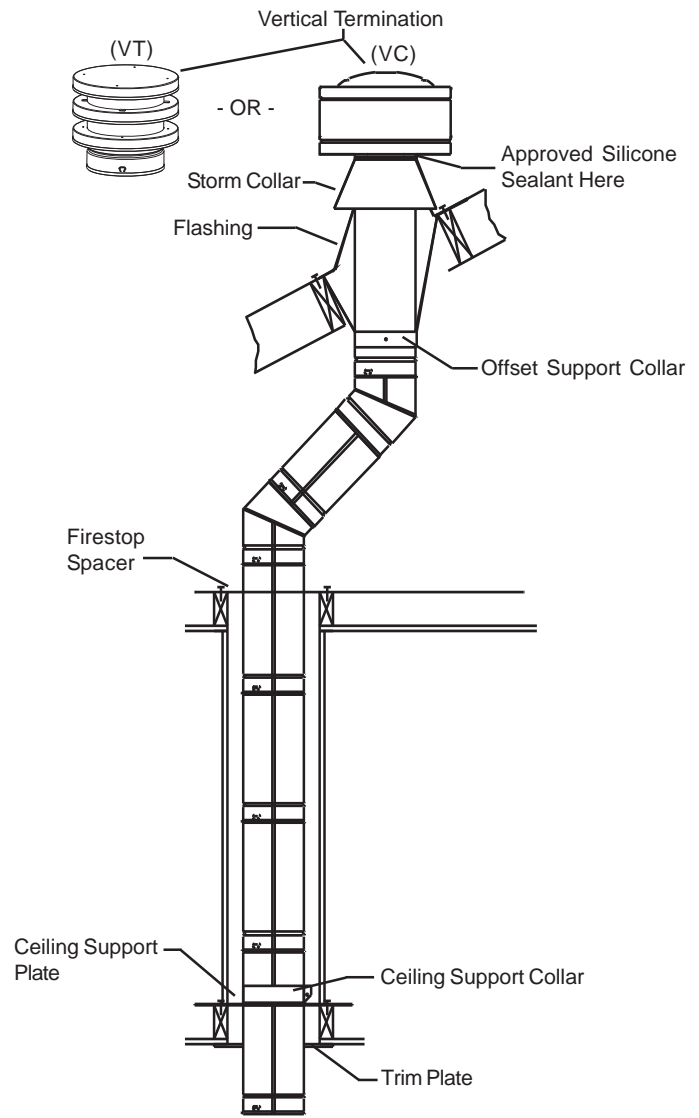


FIG. 13

MINIMUM HEIGHT ABOVE ROOF REQUIREMENTS

Roof Pitch	Minimum Height
Flat to 7/12	1'-0"
Over to 7/12 to 8/12	1'-6"
Over to 8/12 to 9/12	2'-0"
Over to 9/12 to 10/12	2'-6"
Over to 10/12 to 11/12	3'-3"
Over to 11/12 to 12/12	4'-0"
Over to 12/12 to 14/12	5'-0"
Over to 14/12 to 16/12	6'-0"
Over to 16/12 to 18/12	7'-0"
Over to 18/12 to 20/12	7'-6"
Over to 20/12 to 21/12	8'-0"

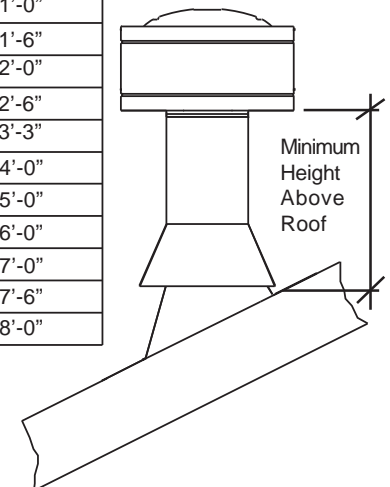


FIG. 14

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