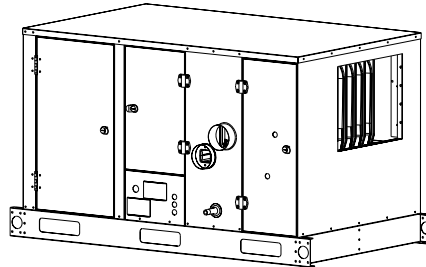


## Vent Installation

Applies to: **Venting Requirements for PREEVA® Separated-Combustion Model SDH and Instructions for Options CC6 and CC2**



Separated-Combustion Model SDH

### General

This manual applies only to venting and combustion air inlet instructions and **must be used with the Model SDH installation manual, Form I-PDH/SDH/PEH/SHH/PXH. Both manuals are shipped with the heater.** If either manual is missing, contact your distributor before beginning installation. The venting instructions in this manual apply only to PREEVA® Model SDH.



Verify that the label near the vent outlet on the heater matches this label.

### Venting and Combustion Air Requirements for Separated-Combustion Model SDH

Venting must be in accordance with local codes and the National Fuel Gas Code NFPA 54 / ANSI Z223.1 or CAN/CSA B149.1 Natural Gas and Propane Installation Code. Local requirements supersede national requirements.

All separated-combustion units **MUST BE** equipped with both combustion air and exhaust piping to the outdoors. The unique concentric adapter assembly required with this heater allows for both combustion air and exhaust piping with only one horizontal or vertical penetration hole in the building. **Concentric horizontal and vertical vent/combustion air systems are the only venting/combustion air systems approved for Model SDH.**

#### WARNING

Installation should be done by a qualified agency in accordance with these instructions. The qualified service agency installing this separated-combustion system is responsible for the installation.

#### WARNING

Do not use an existing venting system. This heater requires installation of the combustion air/vent system ordered with the unit, either Option CC6 for a horizontal terminal or Option CC2 for a vertical terminal. Failure to comply could result in severe personal injury or death and/or property damage.

### Hazards of Chlorine

The presence of chlorine vapors in the combustion air of gas-fired heating equipment presents a potential corrosion hazard. Chlorine found usually in the form of freon or degreaser vapors, when exposed to flame will precipitate from the compound, and go into solution with any condensation that is present in the heat exchanger or associated parts. The result is hydrochloric acid which readily attacks all metals including 300 grade stainless steel. Care should be taken to separate these vapors from the combustion process. This may be done by wise location of the combustion air terminal with regard to exhausters or prevailing wind directions. Chlorine is heavier than air. Keep these facts in mind when determining installation location of the heater in relation to building exhaust systems.

## 1. Type of Pipe

### Venting Requirements

All pipe is field supplied. Requirements are listed for both the vent pipe and the combustion air inlet pipe. Terminal vent pipe requirements vary depending on whether the vent terminal is horizontal or vertical.

<b>Do not intermix different manufacturer vent system parts from different manufacturers in the same venting system.</b>	
<b>Horizontal or Vertical Vent Pipe Run</b>	Vent pipe approved to <b>UL Std. 1738</b> for a Category III appliance <b>OR</b> single-wall, 26-gauge or heavier galvanized (or a material of equivalent durability and corrosion resistance) vent pipe is <b>required between the heater and the concentric adapter box.</b>
<b>Horizontal Vent Terminal (using Option CC6 Kit)</b>	Vent pipe approved to <b>UL Std. 1738</b> for a Category III appliance <b>OR</b> single-wall, 26-gauge or heavier galvanized (or a material of equivalent durability and corrosion resistance) vent pipe is <b>required for the horizontal vent terminal</b> section. The length of vent pipe that extends through the box and runs concentric through the combustion air pipe must be one-piece with no joints.
<b>Vertical Vent Terminal (using Option CC2 Kit)</b>	Double-wall (Type B) vent pipe is <b>required for the vertical vent terminal</b> section. The length of vent pipe that extends through the box and runs concentric through the combustion air pipe must be one-piece with no joints.
<b>Combustion Air Inlet Pipe</b>	Sealed, single-wall galvanized pipe is recommended for vent run and terminal combustion air pipe.

## 2. Pipe Diameter and Length

Pipe diameter and length requirements listed in **TABLE 1** are for the indoor sections of pipe between the heater and the concentric adapter box.

**TABLE 1 - Pipe Diameter and Length from Heater to Concentric Adapter Box**

- **Minimum length** between the heater and the concentric adapter box is 3 ft (914mm).

<b>Pipe Diameter &amp; Maximum Pipe Length from the Heater to the Concentric Adapter Box</b>											
Cabinet Size	SDH	Pipe Diameter				Maximum Length		Equivalent Straight Length for a			
		Vent Pipe		Inlet Air Pipe		feet	M	90° Elbow		45° Elbow	
		inches	mm	inches	mm			feet	M	feet	M
A	<b>75</b>	4	102	4	102	25	7.6	3	0.9	1.5	0.5
	<b>100</b>	4	102	4	102	35	10.7	4	1.2	2	0.6
B	<b>125</b>	4	102	4	102	35	10.7	4	1.2	2	0.6
	<b>150</b>	5	127	5	152	30	9.1	3	0.9	1.5	0.5
C	<b>175</b>	5	127	6	152	30	9.1	3	0.9	2	0.5
	<b>200</b>	5	127	6	152	40	12.2	4	1.2	2	0.6
	<b>225</b>	5	127	6	152	40	12.2	4	1.2	2	0.6
D	<b>250</b>	5	127	6	152	40	12.2	4	1.2	2	0.6
	<b>300</b>	6	152	6	152	45	13.7	4	1.2	2	0.6
E	<b>350</b>	6	152	6	152	45	13.7	5	1.5	2.5	0.8
	<b>400A</b>	6	152	6	152	45	13.7	5	1.5	2.5	0.8

Pipe diameters and maximum indoor vent lengths in **TABLE 1** apply to both horizontal and vertical vent/combustion air systems. Add all straight sections and equivalent lengths for elbows. **The total length of the straight sections and elbows must not exceed the Maximum Length.**

Diameters of the outside (terminal) concentric pipes are listed in **TABLE 2**.

**TABLE 2 - Diameters of Outdoor Concentric Terminal Pipes**

Model SDH	Diameters of Concentric (outdoor) Terminal Pipes	
	Inlet Air Pipe	Vent Pipe
<b>75, 100, 125</b>	6" (152mm)	4" (102mm)
<b>150, 175, 200, 225, 250, 300, 350, 400A</b>	8" (203mm)	5" (127mm)

The outdoor lengths depend on the installation; requirements are listed in the installation instructions for the horizontal terminal (Option CC6) and vertical terminal (Option CC2) vent/combustion air kits.

## 3. Venter Outlet and Combustion Air Inlet

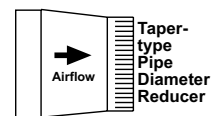
**TABLE 3 - Diameter of the Venter Outlet and Combustion Air Inlet**

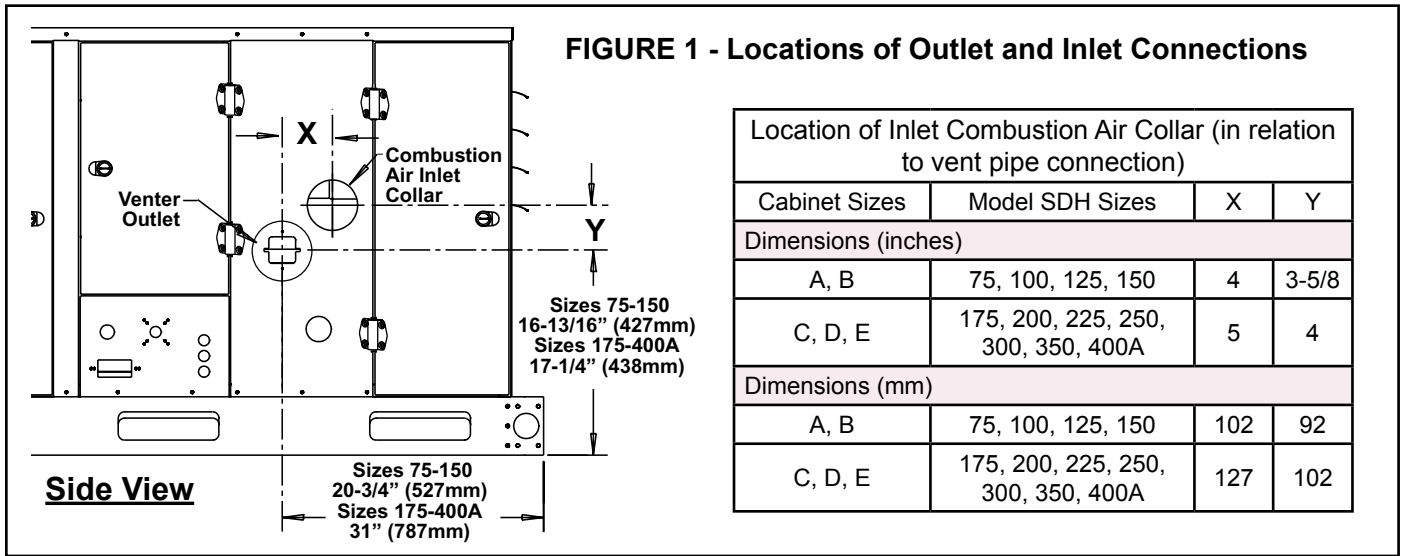
**NOTE: Clearance from vent connection must be 18" (457mm).**

Heater Connections (diameter)					
Cabinet Size	SDH Size	Venter Outlet		Inlet Air Collar	
		inches	mm	inches	mm
A	75, 100	4	102	4	102
B	125	4	102	4	102
	150	5	127	5	127
C	175, 200, 225	5	127	6	152
D	250, 300	6	152	6	152
E	350, 400A	6	152	6	152

### Special Requirements at the Heater Connections

- **Size 250 - A 6" to 5" (152 to 127mm) taper-type reducer** is required at the **venter outlet**.
- **Sizes 200, 225, 250, 300, 350, and 400A** require a minimum of 12" (305 mm) of straight pipe at the heater connections.





**DO NOT INTERMIX DIFFERENT MANUFACTURER VENT SYSTEM PARTS FROM DIFFERENT MANUFACTURERS IN THE SAME VENTING SYSTEM.**

#### 4. Joints and Sealing

**NOTE:** Joints connecting double-wall pipe apply only to a vertical vent terminal (Option CC2 Vertical Vent/Combustion Air Kit). Horizontal vent does not require double wall pipe; see Type of Pipe requirement on page 2.

Provide pipes as specified in **Requirement No. 1**, page 2, and seal joints as follows:


- **To join sections of Category III pipe**, follow the pipe manufacturer's instructions for joining and sealing.
- **To join sections of single-wall pipe (vent pipe or combustion air pipe)**, secure slip-fit pipe connections using sheetmetal screws or rivets. Seal all joints with aluminum tape or silicone sealant.
- **When joining the terminal section of double-wall vent pipe (vertical vent terminal Option CC2 only) to the vent cap**, follow the illustrated step-by-step instructions in **FIGURE 2**.

**When joining the terminal section of double-wall vent pipe (vertical vent terminal Option CC2 only) to the single-wall or Category III vent pipe run**, follow the illustrated step-by-step instructions in **FIGURE 3**.

**When joining two sections of double-wall vent pipe (vertical vent terminal only; restrictions apply)**, follow the pipe manufacturer's instructions for joining and sealing vent pipe sections.

**FIGURE 2 - Follow STEPS to join Double-Wall (Type B) Pipe and the Vent Terminal Cap (applies only to vertical vent/combustion air kit Option CC2)**

**FIGURE 2 - STEP 1**



Place a continual 3/8" bead of silicone sealant around the circumference of the vent cap collar. This will prevent any water inside the vent cap from running down the double-wall pipe.

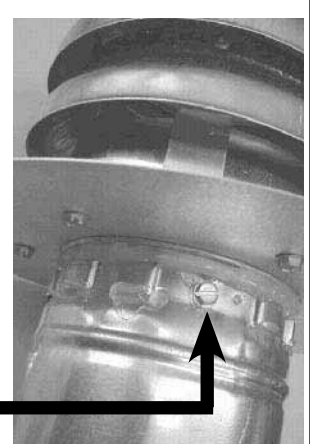
**Do STEP 2 immediately following STEP 1.**

**FIGURE 2 - STEP 2**

Insert the collar on the vent cap inside the inner wall of the double-wall pipe. Insert as far as possible. Add additional silicone sealant to fully close any gaps between the vent cap and the double wall pipe. This is necessary to prevent water from entering the double-wall pipe.

**FIGURE 2 - STEP 3**

Secure the vent cap to the double-wall pipe by drilling and inserting a 3/4" long sheetmetal screw into the vent cap collar. Do not overtighten screw.



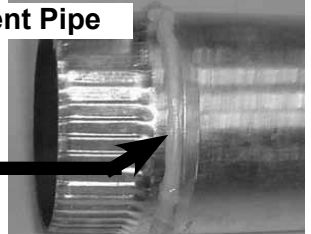
**FIGURE 3 - Follow STEPS to join Double-Wall (Type B) Pipe (VERTICAL VENT Option CC2 ONLY) to Single-Wall Pipe, to Category III Pipe, or to a Taper-type Connector**

**FIGURE 3 - STEP 1**

**Single-Wall Vent Pipe**

On the single-wall pipe, Category III pipe, or taper-type connector, place a continual 1/4" bead of silicone sealant around the circumference.

**Do STEP 2 (next page) immediately following STEP 1.**



## Venting Requirements (cont'd)

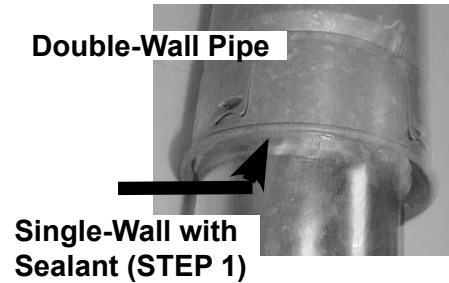
**FIGURE 3 (cont'd) - Follow STEPS to join Double-Wall (Type B) Pipe (VERTICAL VENT Option CC2 ONLY) to Single-Wall Pipe, to a Category III Pipe, or to a Taper-type Connector**

## 4. Joints and Sealing (cont'd)

**Instructions for Attaching the Terminal-End Double-Wall (Type -B) Section of the VERTICAL Vent Pipe (Applies only to Option CC2 installation) (cont'd)**

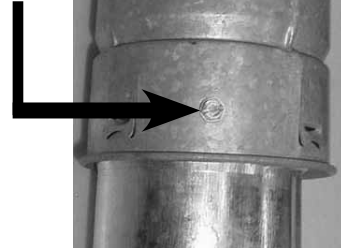
### FIGURE 3 - STEP 2

Insert the pipe prepared with sealant into the inner pipe of the double-wall pipe until the bead of sealant contacts the inner pipe creating a sealed joint.



### FIGURE 3 - STEP 3

Spaced equally around the double-wall pipe, drill three small holes below the sealant ring. Insert 3/4 inch long sheet-metal screws to secure the joint. Do not overtighten screws.



## 5. Support

Support horizontal run every six feet (1.8M). Support vertical run of Category III vent pipe in accordance with the requirements of the pipe manufacturer. Support vertical single-wall pipe in accordance with accepted industry practices. Do not rely on the heater or the adapter box for support of either horizontal or vertical pipes. Use non-combustible supports on vent pipe.

**NOTE:** The vertical vent double-wall vent terminal pipe does not attach to the concentric adapter box and must be supported during installation.

## 6. Clearance

Do not enclose the vent pipe or place pipe closer than 6" (152mm) to combustible material.

## 7. Condensation

On all Model Sizes, any length of single-wall vent pipe exposed to cold air or run through an unheated area or an area with an ambient temperature of 45°F or less must be insulated along its entire length with a minimum of 1/2" foil-faced fiberglass, 1-1/2# density insulation.

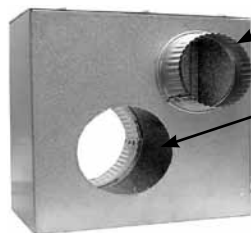
Where extreme conditions are anticipated, install a means of condensate disposal.

## 8. Concentric Adapter Box

All separated combustion installations **require** a concentric adapter box as illustrated in **FIGURE 4**. The concentric adapter box is included in the vent/combustion air terminal kit. Installation instructions depend on whether the vent terminal is horizontal (Option CC6) or vertical (Option CC2).

**FIGURE 4 - A Concentric Adapter Box is a Required Part of all Model SDH Installations**

**View of Heater Connection Side**



**Collar for connecting indoor portion of the combustion air pipe**

**Opening for exhaust vent pipe to pass through the box. (See NOTE in FIGURE 5.)**

**View of Vent Terminal Connection Side**



**Collar for attaching outside concentric portion of the combustion air pipe**

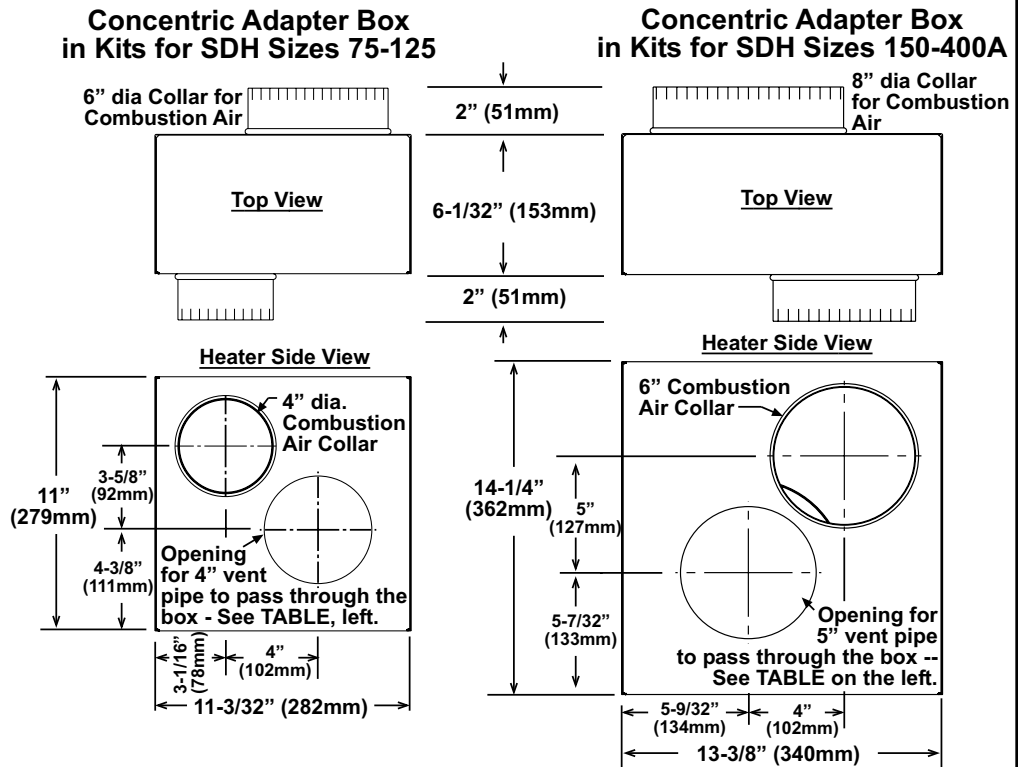
A vent/combustion air kit which includes the concentric adapter box is ordered with the heater. A horizontal terminal vent/combustion air kit is Option CC6; a vertical terminal vent/combustion air kit is Option CC2.

The illustrations in **FIGURE 5** and **FIGURE 6** apply to the concentric adapter box in both the horizontal terminal vent/combustion air kit (Option CC6) and the vertical terminal vent/combustion air kit (Option CC2). All dimensions are the same except for the opening for the vent pipe (See **NOTE** in **FIGURE 5**).

**FIGURE 5 - Concentric Adapter Box Dimensions**

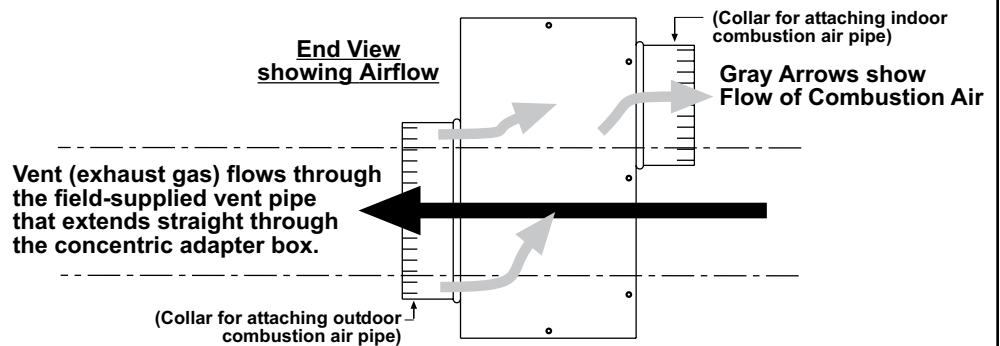
**NOTE:** Horizontal and vertical kits do not use the same adapter box. The only difference is the diameter of the opening in the box for the vent pipe. A vertical vent requires double-wall pipe and a slightly larger opening through the box. See table below and P/N list on page 7 or page 9.

Diameter (inches) of Opening for Vent Pipe		
Size	75-125	150-400A
Horizontal	4-1/16"	5-1/16"
Vertical	4-21/32"	5-21/32"
Diameter (mm) of Opening for Vent Pipe		
Size	75-125	150-400A
Horizontal	103mm	129mm
Vertical	118mm	144mm



**FIGURE 6 - Concentric Adapter Box Airflow**

**NOTE:** Applies to both horizontal and vertical installations.



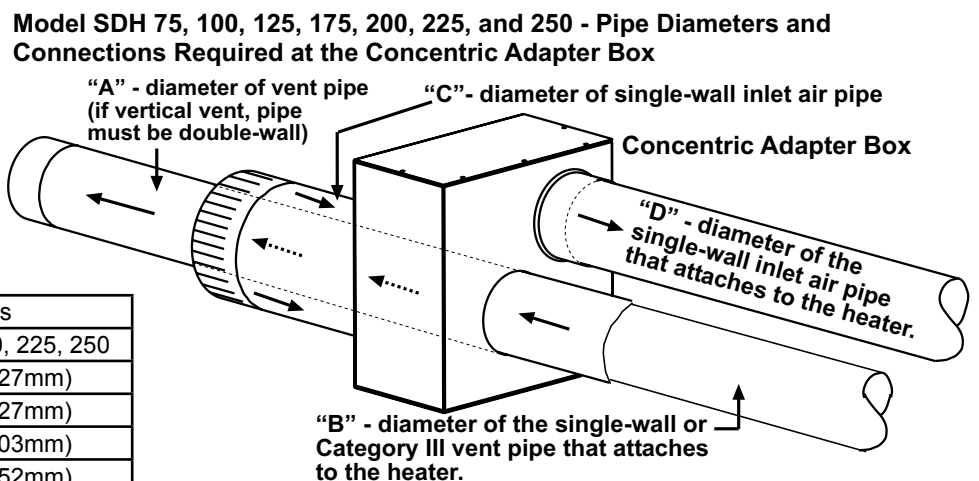
**Pipe Connections at the Concentric Adapter Box**

When pipe diameters differ, depending on direction of airflow, join the pipes with either a taper-type reducer or increaser. Requirements vary depending on the size of the heater; refer to **FIGURE 7, 8, or 9** to determine whether or not pipe diameters differ. Do **NOT** make actual connections until after reading the instructions and length requirements for installing the vent/combustion air terminal kit. **The requirement for a reducer or increaser is the same for both vertical and horizontal terminals, but the length of pipe required varies by installation.**

**FIGURE 7 - Concentric Adapter Box Connections for Model SDH Sizes 75, 100, 125, 175, 200, 225, and 250**

- Pipe diameters do not differ. Taper-type connectors are not required for these sizes.

Pipe	Model SDH Sizes	
	75, 100, 125	175, 200, 225, 250
<b>A</b>	4" (102mm)	5" (127mm)
<b>B</b>	4" (102mm)	5" (127mm)
<b>C</b>	6" (152mm)	8" (203mm)
<b>D</b>	4" (102mm)	6" (152mm)

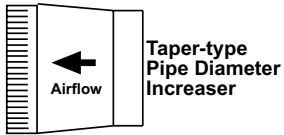


# Venting Requirements (cont'd)

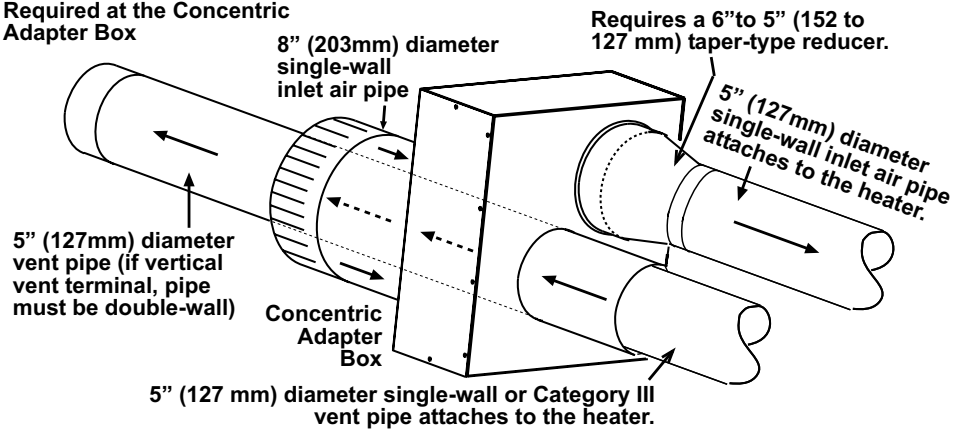
## 7. Concentric Adapter Box (cont'd)

**FIGURE 8 - Concentric Adapter Box Connections for Model SDH Size 150**

- Size 150 requires a 5" to 6" (127mm to 152mm) taper-type increaser in the combustion air pipe.

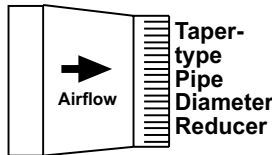


**Model SDH 150 - Pipe Diameters and Connections Required at the Concentric Adapter Box**

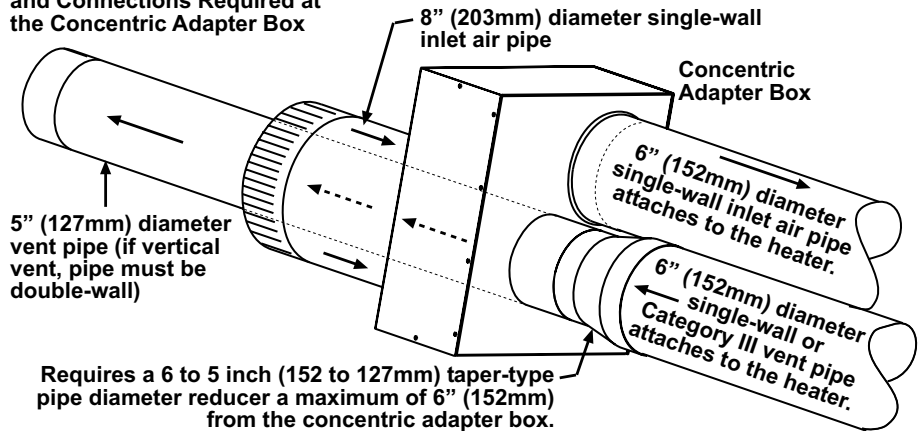


**FIGURE 9 - Concentric Adapter Box Connections for Sizes 300, 350, and 400A**

- Sizes 300, 350, and 400A **always** require a 6" to 5" (152 to 127 mm) reducer in the vent pipe.

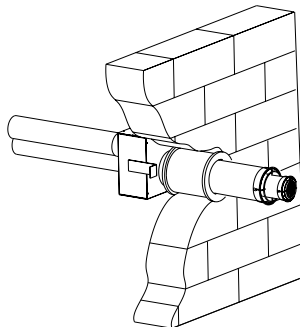


**Model SDH 300, 350, and 400A - Pipe Diameters and Connections Required at the Concentric Adapter Box**

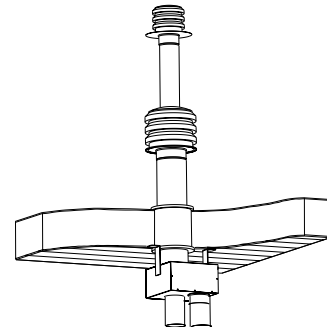


**FIGURE 10 - Follow the Instructions that apply to the Vent/Combustion Air Terminal being installed.**

**Is the Vent Terminal HORIZONTAL OR VERTICAL?**



**Horizontal Terminal, Option CC6, instructions begin below.**



**Vertical Terminal, Option CC2, instructions begin on page 9.**

### HORIZONTAL TERMINAL INSTRUCTIONS - Option CC6



#### Components Required - Factory and Field

#### Field-supplied installation requirements:

- Vent pipes - see requirements, page 2
- Combustion air pipes - see requirements, page 2
- Taper-type vent pipe diameter reducers and/or increasers as required
- Thimble (a thimble is not required if wall is of non-combustible construction)
- Flashing
- Sheetmetal screws, tape, and sealant as required

Before beginning, verify that the kit is at the site and that all components are correct for the installation. Be sure all required field-supplied parts are available.

**TABLE 4 - Parts in the Horizontal Vent/Combustion Air Terminal Package (Option CC6)**

Qty	Sizes	P/N	Description
1	75-125	211762	Complete Horizontal Vent/Combustion Air Terminal Kit (Same as Option CC6)
	150-400A	211763	
1	75-125	211789	Concentric Adapter Box (NOTE: Refer to <b>FIGURE 5</b> , page 5, and verify diameter of vent pipe opening.)
	150-400A	211790	
1	75-125	211791	Exhaust Grill 
	150-400A	211792	
1	75-125	151755	Inlet Guard 
	150-400A	124940	
8	75-400A	37661	#10-16 x 1/2" long Screws to attach the exhaust grill and the inlet guard
2	75-400A	207232	Brackets for attaching Concentric Adapter Box (See <b>FIGURE 11</b> , page 8.)
1	75-400A	53335	Tube of High Temperature (450°F) Silicone Sealant

**Installation Instructions for Horizontal Kit Option CC6**  
(in compliance with requirements on pages 2-6)

**1. Determine the location on the outside wall for the vent terminal.** Location must comply with vent length requirements, Requirement No. 2 on page 2. In most applications, the terminal would be on a level with the heater mounting height. Allow 1/4" per foot (6mm per 305mm) downward pitch for condensate drain.

Minimum clearances for the horizontal vent terminal are shown in **TABLE 5**. Also, select a location that complies with adjoining building clearances as shown in **FIGURE 12**, pages 8-9.

Products of combustion can cause discoloring of some building finishes and deterioration of masonry materials. Applying a clear silicone sealant that is normally used to protect concrete driveways can protect masonry materials. If discoloration is an esthetic problem, re-locate the vent or install a vertical vent.

**WARNING**

All vent terminals must be positioned or located away from fresh air intakes, doors and windows to preclude combustion products from entering occupied space. Failure to comply could result in severe personal injury or death and/or property damage.

**TABLE 5 - Clearances to Horizontal Vent Terminal**

Structure	Minimum Clearances for Vent Terminal Location (all directions unless specified)
Forced air inlet within 10 ft (3.1M)*	3 ft (0.9M) above
Combustion air inlet of another appliance	6 ft (1.8M)
Door, window, or gravity air inlet (any building opening)	4 ft (1.2M) horizontally
	4 ft (1.2M) below
	1 ft (305mm) above
Electric meter, gas meter ** and relief equipment	U.S. - 4 ft (1.2M) horizontally
	Canada - 6 ft (1.8M)
Gas regulator **	3 ft (0.9M) horizontally
Adjoining building or parapet	6 ft (1.8M)
Adjacent public walkways	7 ft (2.1M) above
Grade (ground level)	3 ft (0.9M) above***

\*Does not apply to the inlet of a direct vent appliance. \*\*Do not terminate the vent directly above a gas meter or service regulator. \*\*\* Consider local snow depth conditions. The vent must be at least 6" (152mm) higher than anticipated snow depth.

**2. Install the Vent Pipe and Combustion Air Pipe Runs** - Use the type of pipe specified in Requirement No. 1, page 2. Comply with Requirement No. 3, pages 2-3, when attaching pipes to the heater. Length must comply with Requirement 2, page 2. Seal all joints. Due to the high temperature, **do not** enclose the exhaust pipe or place pipe closer than 6" (152 mm) to combustible material. Extend the runs close to the wall location selected in Step 1 and comply with Requirement No. 6, page 4.

**HORIZONTAL  
TERMINAL  
INSTRUCTIONS -  
Option CC6 (cont'd)**

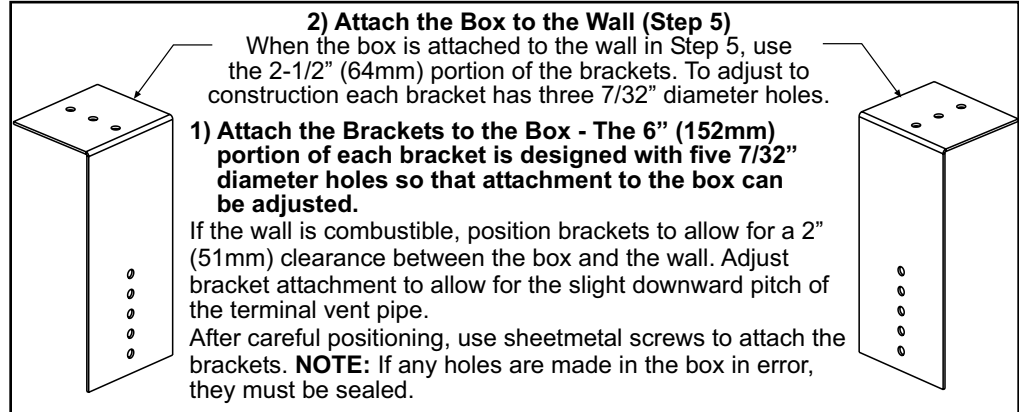
**Installation Instructions  
for Horizontal Kit  
Option CC6 (cont'd)**  
(in compliance with  
requirements on  
pages 2-6)

**FIGURE 11 - Brackets  
for Attaching the  
Concentric Adapter Box  
to the Wall**

**3. Prepare a clearance hole through the outside wall** for the combustion air pipe -- a 6" (152mm) diameter pipe for Sizes 75-125 or an 8" (203mm) diameter pipe for Sizes 150-400A. Outside wall construction thickness should be 1" (25mm) minimum and 48" (1219 maximum). The larger diameter combustion air pipe serves as clearance for the vent pipe on non-combustible construction. A thimble may be required depending on wall construction and/or local codes.

**4. Prepare the Concentric Adapter Box**

**a) Attach the brackets to the box.** Follow the instructions in **FIGURE 11**.



**b) Attach the outside portion of the combustion air pipe to the box.** Determine the length by measuring the bracket length from box to wall, plus the wall thickness, plus 4-16" (102-406 mm) beyond the wall. (The inlet air pipe should extend beyond the outside wall a minimum of 4" (102mm) to a maximum of 16" (406mm).

Attach the inlet air pipe to the collar of the concentric adapter with sheetmetal screws and seal.

**5. Attach the concentric adapter box to the wall.** Insert the combustion air pipe out through the wall. Attach the brackets to the wall (**FIGURE 11**). On the outside, caulk or flash the inlet air pipe. Flashing is field-supplied.

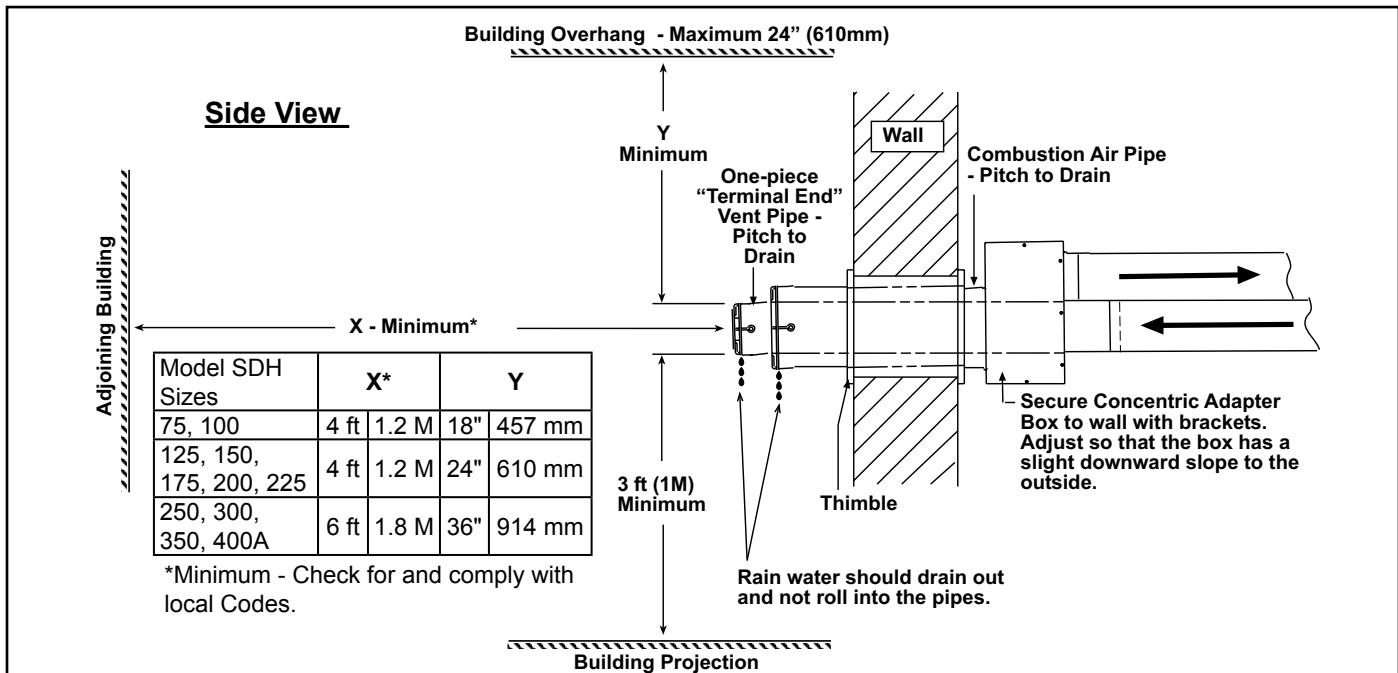
**6. On the outside, position the inlet guard** over the end of the combustion air pipe. See **FIGURE 12**. Attach

the guard to the inlet air pipe with the four 1/2" long screws provided.

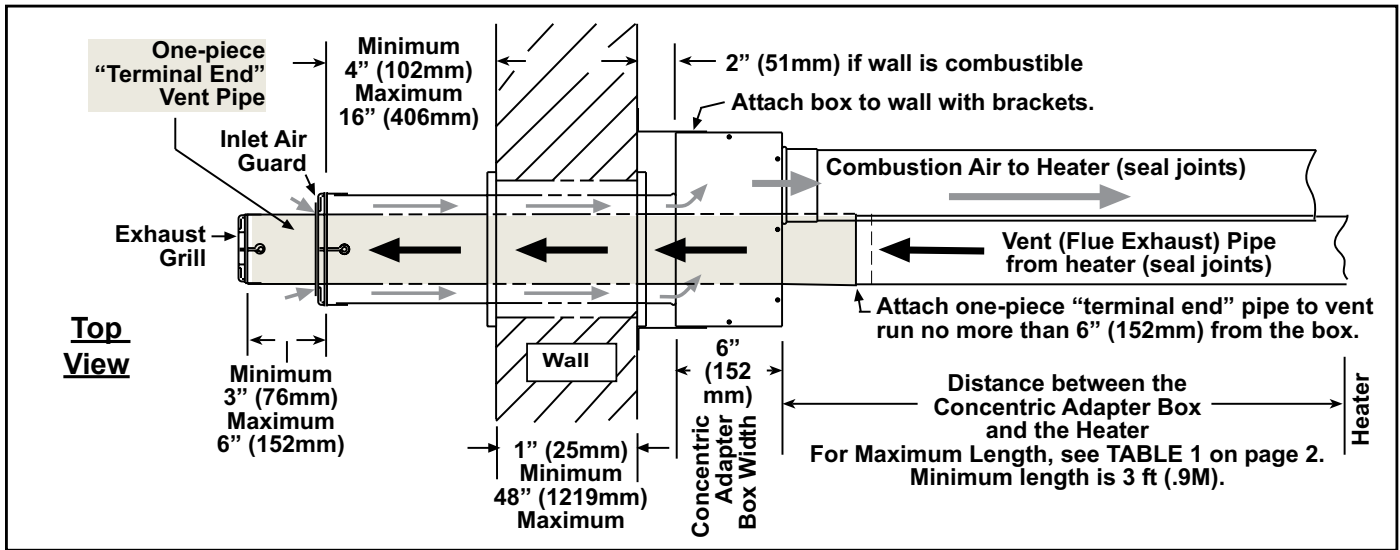
**7. Determine length and install the "terminal-end" vent pipe.**

**a) Determine length of pipe.** The length of the continuous piece of terminal-end vent pipe is determined by the installation within the maximum and minimum requirements. See **FIGURE 12** to determine lengths of each segment and calculate the total length required. The "terminal-end" vent pipe extending through the box and concentric through the inlet air pipe **must be one piece of vent pipe without joints**. The connection to the vent pipe run, must be a maximum of 6" (152mm) from the heater side of the box.

**FIGURE 12 - Installation of a Typical Separated-Combustion Unit with Horizontal Vent Terminal and Combustion Air Pipe (Option CC6)**







b) **Install terminal-end vent pipe.** Being sure the vent pipe is in the proper flow direction, slide the end through the box.

Position the vent pipe so that it will extend between 3" (76mm) and 6" (152mm) past the end of the combustion air pipe and no more than 6" (152mm) out of the box toward the heater. No more than 6" (152mm) from the box, connect the terminal-end vent pipe to the vent run.

**8. Position the exhaust grill over the end of the vent pipe.** See FIGURE 12. Attach the grill to the end of the vent pipe with the four 1/2" long screws in the kit.

**9. Seal the vent pipe to the concentric adapter box.** Verify that the terminal-end section of vent pipe has a slight downward drop (1/4" per foot/6mm per 305mm)

toward the outside. Use silicone sealant and seal the circumference of the pipe and the opening of the box. Seal the area around the pipe completely.

**10. Attach the indoor combustion air pipe.** Use sheetmetal screws to attach the single-wall combustion air pipe run to the collar on the concentric adapter box. Seal with tape or sealant. If installing a Model SDH Size 150, field-supplied taper-type 5" to 6" (127mm to 152mm) reducer is required to connect the combustion air pipe to the collar on the box. See FIGURE 8, page 6.

Installation of the horizontal vent and combustion air system on your separated-combustion unit is complete. **Verify compliance with all venting installation requirements, pages 2-6, and FIGURE 12.**

## VERTICAL TERMINAL INSTRUCTIONS - Option CC2

### Components Required - Factory and Field

**TABLE 6 - Parts in the Vertical Vent Terminal/Combustion Air Package (Option CC2)**

Qty	Sizes	P/N	Description
1	75-125	205895	Complete Vertical Vent/Combustion Air Terminal Kit (Same as Option CC2)
	150-400A	205896	
1	75-125	205884	Concentric Adapter Box Assy (NOTE: Refer to FIGURE 5, page 5, and verify diameter of vent pipe opening.)
	150-400A	205885	
1	75-125	110051	Exhaust (Vent) Terminal Assembly
	150-400A	110052	
1	75-125	155635	Combustion Air Inlet Assembly
	150-400A	53330	
2	75-400A	207232	Brackets for attaching Concentric Adapter Box (See FIGURE 13, page 10.)
1	75-400A	53335	Tube of High Temperature Silicone Sealant

### Field-supplied installation requirements:

- Vent pipes - see requirements, page 2
- Combustion air pipes - see requirements, page 2
- Taper-type pipe diameter reducers and/or increasers as required
- Thimble (a thimble is not required if wall is of non-combustible construction)
- Flashing
- Sheetmetal screws, tape, and sealant as required

Before beginning, verify that the kit is at the site and that all components are correct for the installation. Be sure all required field-supplied parts are available.

**VERTICAL TERMINAL INSTRUCTIONS - Option CC2 (cont'd)**

Installation Instructions for Vertical Vent/ Combustion Air Terminal Kit Option CC2 (in compliance with requirements, pages 2-6)

**TABLE 7 - Minimum Spacing Required for More Than One Vertical Vent/Combustion Air Terminal (Option CC2)**

**1. Determine the location of the vent terminal.**

Select a location away from fresh air intakes, allowing space for the concentric adapter box inside. Vent terminal must be located from adjacent buildings as shown in **FIGURE 17**, page 12.

**WARNING**

**All vent terminals must be positioned or located away from fresh air intakes, doors and windows to preclude combustion products from entering occupied space. Failure to comply could result in severe personal injury or death and/or property damage.**

If more than one vertical concentric vent/combustion air terminal (Option CC2) is being installed, the minimum spacing between vent centerlines is determined by the minimum outdoor design temperature.

Minimum Outdoor Design Temperature		Minimum Spacing between Centerlines of Vent Pipes in Vertical Combustion Air/Vent Terminals (Option CC2)	
°F	°C	inches	mm
31 or warmer	0 or warmer	36	914
-10 to 30	-23 to -1	60	1524
less than -10	less than -23	84	2134

**2. Install the Vent Pipe and Combustion Air Pipe Run** - Use the type of pipe specified in Requirement No. 1, page 2, and comply with the attachment requirements in Requirement No. 3, pages 2-3. Length must comply with Requirement No. 2, page 2.

Seal all joints. Due to the high temperature, **do not** enclose the exhaust pipe or place pipe closer than 6" (152 mm) to combustible material. Provide supports for the pipes. Extend the runs to close to the roof at the location selected in Step 1.

**3. Prepare a clearance hole through the roof** for the combustion air pipe -- a 6" (152mm) diameter pipe for Sizes 75-125 or an 8" (203mm) diameter pipe for Sizes 150-400A. A thimble may or may not be required depending on building construction and/or local codes. The larger diameter combustion air pipe serves as clearance for the vent pipe on non-combustible construction.

**4. Prepare the Concentric Adapter Box**

**a) Attach the brackets to the box.** Follow the instructions in **FIGURE 13**.

**FIGURE 13 - Brackets for Attaching the Concentric Adapter Box to the Roof**

**2) Attach the Box to the Roof (Step 5)**  
When the box is attached to the roof in Step 5, use the 2-1/2" (64mm) portion of the brackets. To adjust to construction each bracket has three 7/32" diameter holes.

**1) Attach the Brackets to the Box - The 6" (152mm) portion of each bracket is designed with five 7/32" diameter holes so that attachment to the box can be adjusted.**  
If the roof is combustible, position brackets to allow for a 2" (51mm) clearance between the box and the roof. After careful positioning, use sheetmetal screws to attach the brackets. **NOTE:** If any holes are made in the box in error, they must be sealed.

**b). Attach the outside portion of the combustion air pipe to the box.** Determine the length of the combustion air pipe so that dimension "X" in **FIGURE 14** is equal to the bracket length, plus the roof thickness, plus anticipated snow depth, but does not exceed 48" (1219mm) or have less than 18" (457mm) of pipe above the roof. Attach the inlet air pipe to the collar of the concentric adapter box with sheetmetal screws.

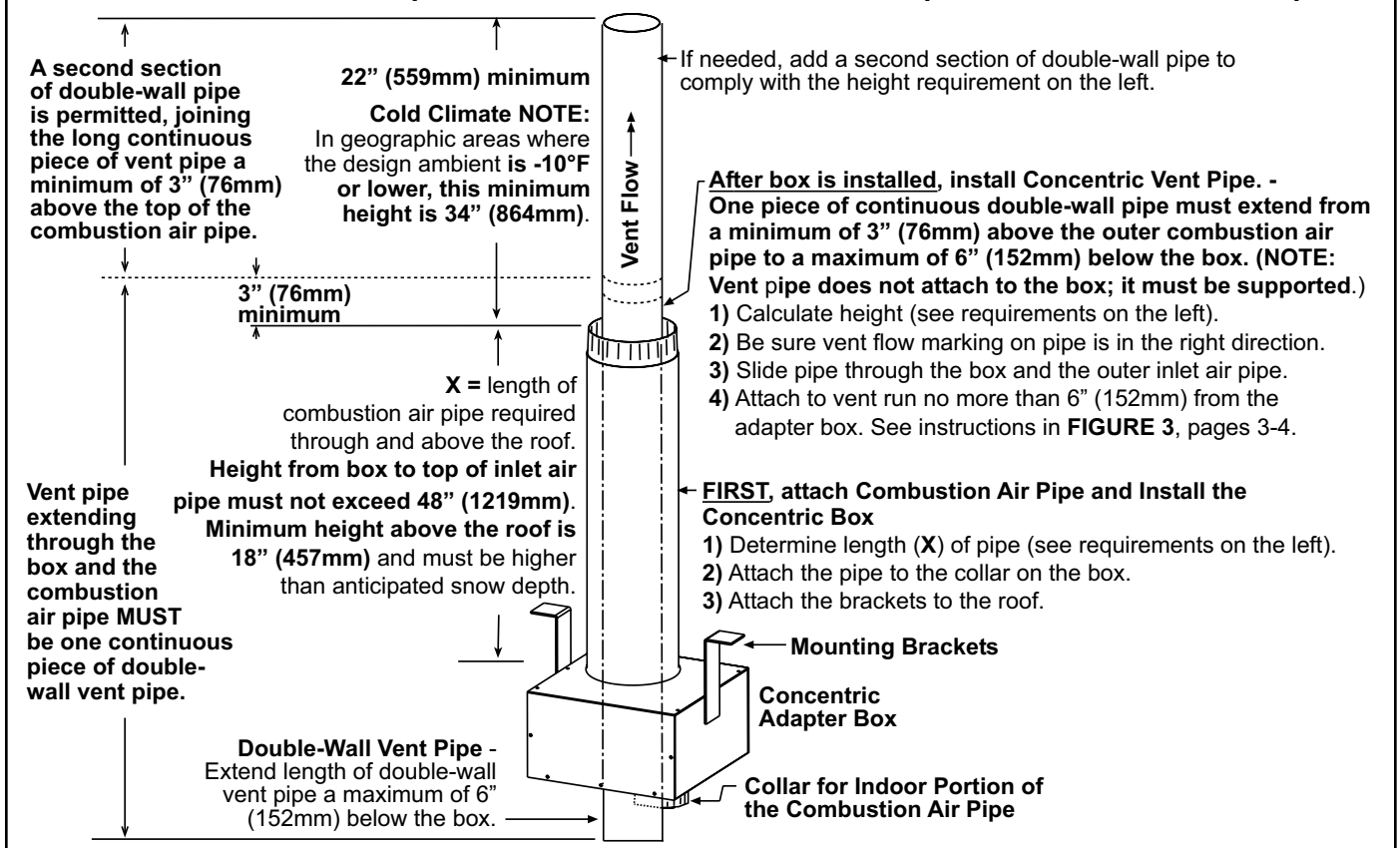
**5. Attach the concentric adapter box to the roof.** On the inside, insert the combustion air pipe up through the opening and attach brackets to the roof. (See **FIGURES**

**13, 14, and 15.**) On the outside, flash the combustion air pipe to the roof. Flashing is field supplied.

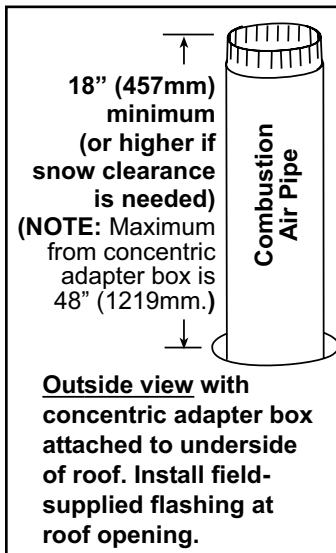
**6. Determine the length and install the double-wall vent pipe.**

**a) Determine minimum length of the continuous section of double -wall vent pipe (no joints).** See **FIGURE 14**. The vent pipe extending through the box and concentric through the inlet air pipe and at least 3" (76mm) higher **must be one piece of double-wall vent pipe with no joints.**

**FIGURE 14 - Concentric Adapter Box, Outdoor Combustion Air Pipe, and Concentric Vent Pipe**



**FIGURE 15 - Slide attached Combustion Air Pipe up through the Roof**



Determine the minimum length by adding the requirements. Starting at the bottom, the maximum the vent pipe can extend below the box is 6" (152mm); **plus** 6" (152mm) through the box; **plus** length of bracket extending above the box; **plus** the width of the roof; **plus** the height of the outside combustion air pipe above the roof; **plus** a minimum of 3" (76mm) beyond the top of the inlet air pipe. Total is the minimum length of the one-piece double-wall vent pipe section. If the actual piece of vent pipe is longer, extend it higher above the combustion air pipe. Do not extend it more than 6" (152mm) below the box.

**b) Install the pipe.** Being sure the pipe is in the proper flow direction, slide the end into the box and out through the combustion air pipe. Position the vent pipe so that the end is no more than 6" (152mm) below the box. The upper end should extend at least 3" (76mm) above the combustion air pipe. **NOTE: The double-wall vent pipe does not attach to the box. The installer must provide support.**

Follow the instructions in FIGURE 3, pages 3-4, for connecting the double-wall pipe to the vent run (single-wall pipe, Category III pipe, or taper-type connector).

Seal the circumference of the pipe and the opening of the box with silicone sealant. Seal the area around the pipe completely.

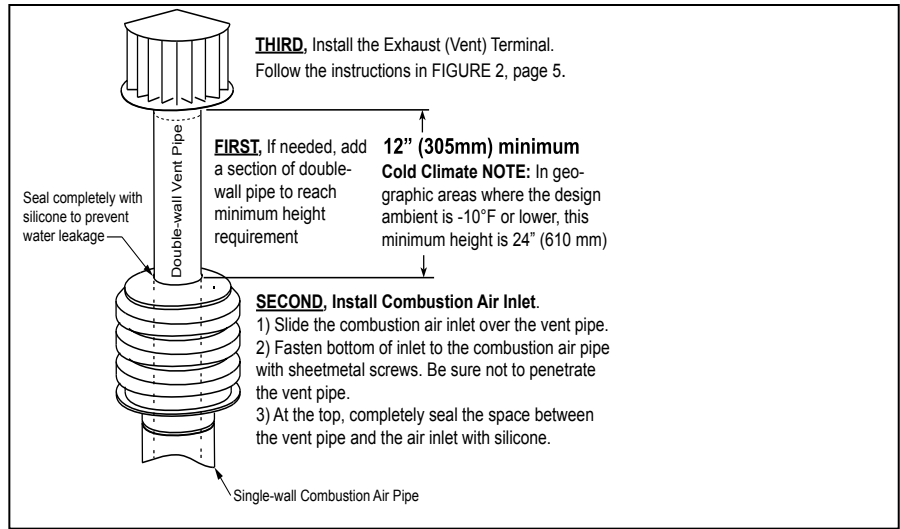
**7. On the outside,** if an additional section of double-wall pipe is needed (See FIGURE 16), add it. Make joint according to the pipe manufacturer's requirements. When vent pipe is the required height, **slide the combustion air inlet** over the vent pipe and fasten the collar to the combustion air pipe with sheetmetal screws. Seal the opening at the top between the vent pipe and the combustion air inlet with silicone sealant to prevent water leakage.

**8. Attach the exhaust (vent) cap.** Follow the illustrated instructions in FIGURE 2, page 3.

**9. Attach the indoor combustion air pipe.** Use sheetmetal screws to attach the single-wall combustion air pipe run to the collar on the concentric adapter box. Seal with tape or sealant. If installing a Model SDH Size 150, field-supplied taper-type 5" to 6" (127mm to 152mm) reducer is required to connect the combustion air pipe to the collar on the box. See FIGURE 8, page 6.

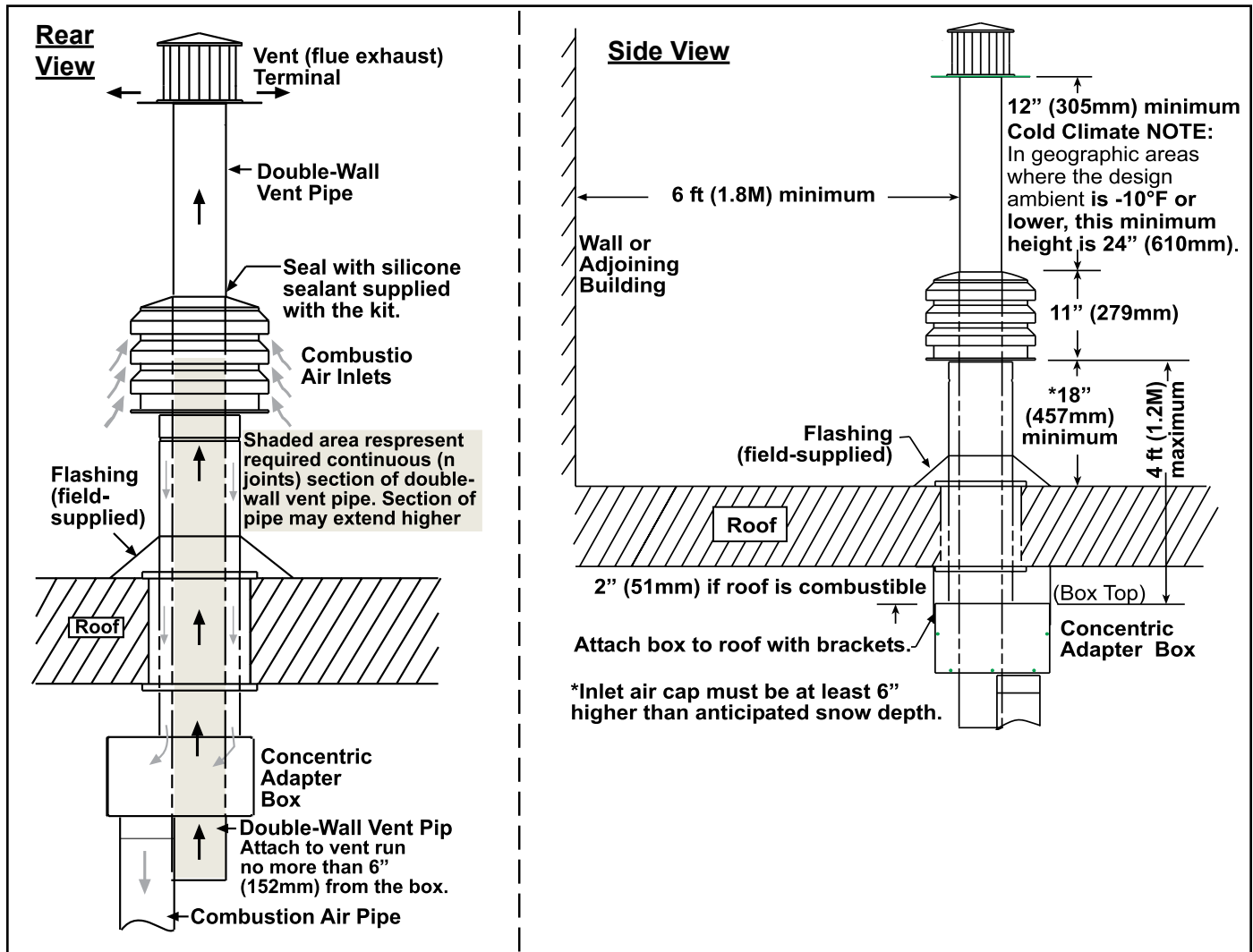
**VERTICAL TERMINAL  
INSTRUCTIONS -  
Option CC2 (cont'd)**

**FIGURE 16 - Add  
Section of Double-  
Wall Pipe if needed;  
Install Combustion Air  
Inlet; and Attach Vent  
Terminal**



**FIGURE 17 - Installation  
of Unit with Vertical  
Vent Terminal/  
Combustion Air Inlet  
(Option CC2)**

Installation of the vertical vent and combustion air system on your separated-combustion unit is complete. **Verify compliance with all venting installation requirements, pages 2-6, and FIGURE 17 below.**



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