

SEPARATED-COMBUSTION CONVERSION OF GAS-FIRED UNIT HEATERS

OPTION SC1 FOR MODELS UBXC AND UDXC

NOTE: Conversion should be done by a qualified agency in accordance with these instructions and in compliance with all codes and requirements of authorities having jurisdiction.

- These instructions are for converting a standard UBXC or UDXC model to a separated-combustion unit.
- Refer to the installation manual provided with the heater for important safety information.

CONVERSION KIT COMPONENTS

NOTE: Separated-combustion conversion requires either the vertical (option CC2) or horizontal (option CC6) vent/combustion air inlet terminal kit.

Ensure that all components listed in [Table 1](#) are available before beginning installation.

Table 1. Conversion Kit Components				
Component	Description	Model and Unit Size (MBTUh)		
		UBXC 30, 60, 75, 100, 125	UBXC 150, 175, 200, 225, 250, 300, 350, 400	UBXC 45
		UDXC 30, 45, 60, 75, 100, 125	UDXC 150, 175, 200, 225, 250, 300, 350, 400	
		Kit PN		
		1043105	1043106	1043107
Component PN (Quantity)*				
Capscrew	Hex head, 3/8-16 × 1/2	203311(3)		
Washer	Sealing	061658(3)		
Switch	Pressure	—		196388
Access door panel gasket	D-shaped seal, 92 inches	1042930	—	1042930
	D-shaped seal, 140 inches	—	1042931	—
Switch	Door safe	217262		
Wire assembly	Door safe switch, red	160760		
Combustion air inlet collar	4-inch	1043026	—	1043026
	6-inch	—	1043027	—
Combustion air inlet collar gasket	4-inch	1043052	—	1043052
	6-inch	—	155652	—
Gas supply line grommet	1/2-inch	102607		
	3/4-inch	—	015021	—
Screw	Hex head, #8 × 3/8	195638 (4)		

*Quantity is one (1) inless otherwise indicated.

⚠ DANGER ⚠

Ensure that the gas and electric supply to the heater are OFF before beginning conversion kit installation.

DO NOT DESTROY. PLEASE READ CAREFULLY. KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

CONVERSION KIT INSTALLATION

1. Ensure that gas and electric supply to heater are OFF.
2. Seal any unused suspension point holes in top of heater using capscrews and sealing washers from kit. If heater has already been installed and adequate clearance does not exist to plug these holes, heater will need to be removed from its suspension location.
3. Remove access door panel and install gasket (see [Figure 1](#)):
 - a. Remove four rubber door bumpers.
 - b. Cut to size four pieces of D-shaped seal gasket. Discard excess gasket material.
 - c. Peel backing and adhere gasket to inside flange of access door panel.

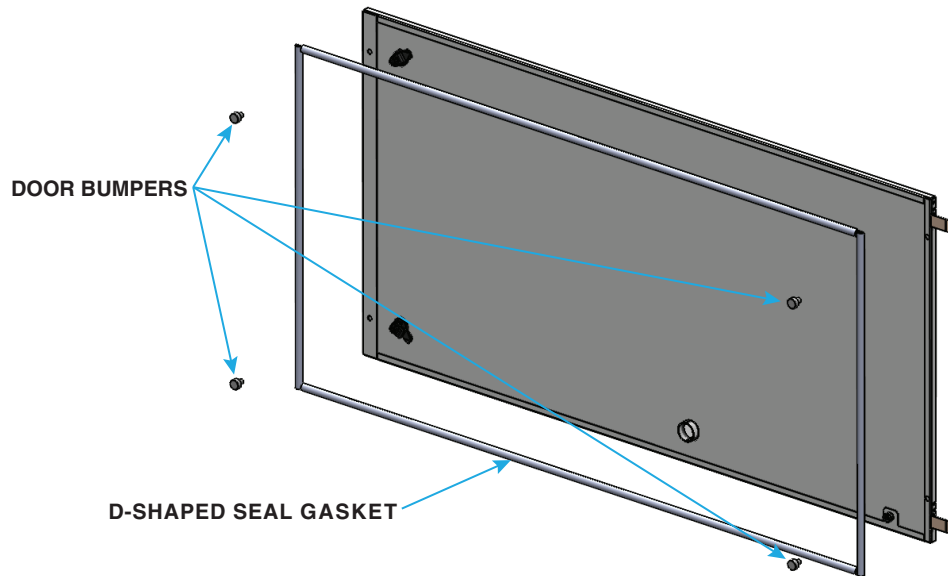


Figure 1. Access Door Panel Gasket Installation

4. Install door safe switch:
 - a. Snap in switch in cutout on right side of access door panel opening.
 - b. Remove connector from terminal R on terminal strip on back of heater.
 - c. Connect one end of red door safe switch wire from kit to terminal R on terminal strip (see [Figure 2](#)).
 - d. Connect other end of red wire to open terminal on switch.

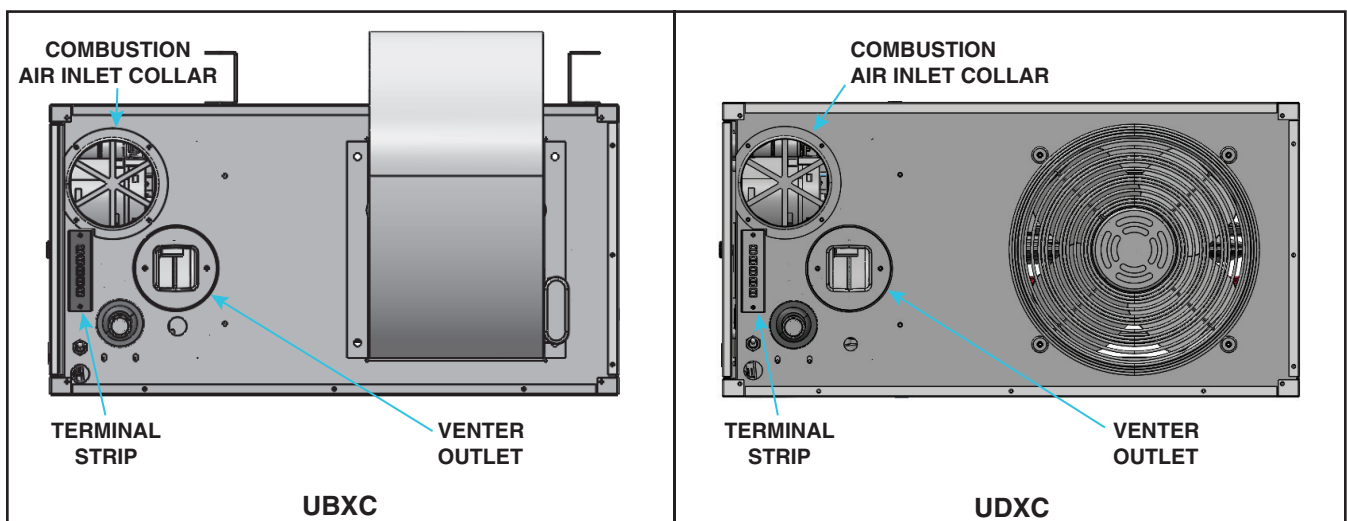


Figure 2. Conversion Kit Connections (Typical)

5. Install combustion air inlet collar and gasket (see [Figure 2](#)) on combustion air opening and secure using screws.
6. Install gas supply line grommet on gas connection on back of heater. If heater has already been installed, **TURN OFF GAS SUPPLY**, disconnect gas supply connection, install grommet, and reconnect gas supply.
7. If heater has not been installed, complete heater installation in accordance with installation manual provided with heater.
8. Install venting system in accordance with **VENT CONNECTIONS FOR SEPARATED-COMBUSTION UNITS** section.
9. Turn ON gas and electric supply.
10. Light heater in accordance with lighting instructions and check for proper operation.

VENT CONNECTIONS FOR SEPARATED-COMBUSTION UNITS

⚠ DANGER ⚠

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

⚠ WARNING ⚠

All separated-combustion units MUST BE equipped with both combustion air and exhaust piping to the outdoors.

⚠ CAUTION ⚠

- **Concentric horizontal and vertical vent/combustion air systems are the only venting/combustion air systems approved for these units.**
- **The vertical vent terminal pipe does not connect to the concentric adapter box and must be supported during installation.**

NOTE: Refer to the *General Requirements for Vent Connections* section in the installation manual provided with the heater.

Pipe Requirements

All pipe is field-supplied. Select the installation type that applies. Requirements are listed for both the vent pipe and the combustion air inlet pipe:

Pipe Requirements for Residential Installations

- Single-wall vent pipe approved to UL standard 1738 for a category III appliance is required.
- The horizontal section of pipe in the vent terminal that extends through the box and runs concentric through the combustion air pipe must be one-piece with no joints.
- The vertical section of pipe in the vent terminal that extends through the box and runs concentric through the combustion air pipe must be one-piece with no joints.
- Sealed, single-wall galvanized pipe is recommended for the inlet air run and the terminal combustion air pipe.

Pipe Requirements for Commercial/Industrial Installations

- Single-wall vent pipe approved for a category III appliance or single-wall, 26-gauge or heavier galvanized or equivalent vent pipe is required between the heater and the concentric adapter box.
- The horizontal section of pipe in the vent terminal that extends through the box and runs concentric through the combustion air pipe must be one-piece with no joints.
- The vertical section of pipe in the vent terminal that extends through the box and runs concentric through the combustion air pipe must be one-piece with no joints. Double-wall (type B) vent pipe is required for the vertical vent terminal.
- Sealed, single-wall galvanized pipe is recommended for the inlet air run and terminal combustion air pipe.

VENT CONNECTIONS FOR SEPARATED-COMBUSTION UNITS—CONTINUED

Pipe Requirements—Continued

Pipe Size

Pipe diameters of the outside (terminal) concentric pipes are listed in [Table 2](#). Pipe diameter and length requirements listed in [Table 3](#) are for the indoor sections of pipe between the heater and the concentric adapter box.

Pipe	Unit Size (MBTUh)	
	30–125	150–400
	Pipe Diameter (Inches (mm))	
Inlet air	6 (152)	8 (203)
Vent	4 (102)	5 (127)

Unit Size (MBTUh)	Diameter (Inches (mm))		Length (Feet (Meters))			
	Vent Pipe	Inlet Air Pipe	Maximum	Equivalent Straight Length*		Minimum
				90-Degree Elbow	45-Degree Elbow	
30, 45	3 (76)		15 (4.6)	2 (0.6)	1 (0.3)	1 (0.3)
	4 (102)		10 (3)			
60	3 (76)		25 (7.6)	3 (0.9)	1.5 (0.5)	
	4 (102)		15 (4.6)	1.5 (0.5)	1 (0.3)	
75	4 (102)		25 (7.6)	3 (0.9)	1.5 (0.5)	
100, 125	4 (102)		35 (10.7)	4 (1.2)	2 (0.6)	
150	5 (127)	6 (152)	30 (9.1)	3 (0.9)	1.5 (0.5)	3 (0.9)
175	5 (127)	6 (152)	30 (9.1)	3 (0.9)	2 (0.6)	
200, 225, 250	5 (127)	6 (152)	40 (12.2)	4 (1.2)	2 (0.6)	
300	6 (152)		45 (13.7)	4 (1.2)	2 (0.6)	
350, 400	6 (152)		45 (13.7)	5 (1.5)	2.5 (0.8)	

*Add all straight sections and equivalent lengths for elbows—the total combined length must not exceed the maximum vent length.

Combustion Air Inlet and Venter Outlet Connection Requirements

- **Combustion air inlet connection on unit sizes 30, 45, and 60:** when using 3-inch diameter pipe, a 3- to 4-inch (76- to 102-mm) taper-type increaser is required at the inlet air collar.
- **Venter outlet connection on unit sizes 30, 45, and 60:** when using 3-inch diameter pipe, a 4- to 3-inch (102- to 76-mm) taper-type reducer is required at the venter outlet—for category III, attach a 4-inch appliance adapter from a category III pipe manufacturer directly to the collar and then use a reducer if using 3-inch pipe.
- **Both heater connections on unit sizes 200, 225, 250, 300, 350, and 400:** require a minimum of 12 inches (305 mm) of straight pipe at both heater connections.

Connection	Unit Size (MBTUh)		
	30–125	150–250	300–400
	Connection Diameter (Inches (mm))		
Venter outlet	4 (102)	5 (127)	6 (152)
Combustion air inlet collar		6 (152)	

Concentric Adapter Box Connections

NOTES:

- All separated-combustion units require a concentric adapter box designed to allow both combustion air and venting. 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.
 - The concentric adapter box is included in the vent/combustion air terminal kit. Components and instructions depend on whether the vent terminal is horizontal (option CC6) or vertical (option CC2).
 - 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. On commercial/industrial installations, a vertical vent requires double-wall pipe and a slightly larger opening through the box.
- **Figure 3** shows a typical concentric adapter box and its airflow.

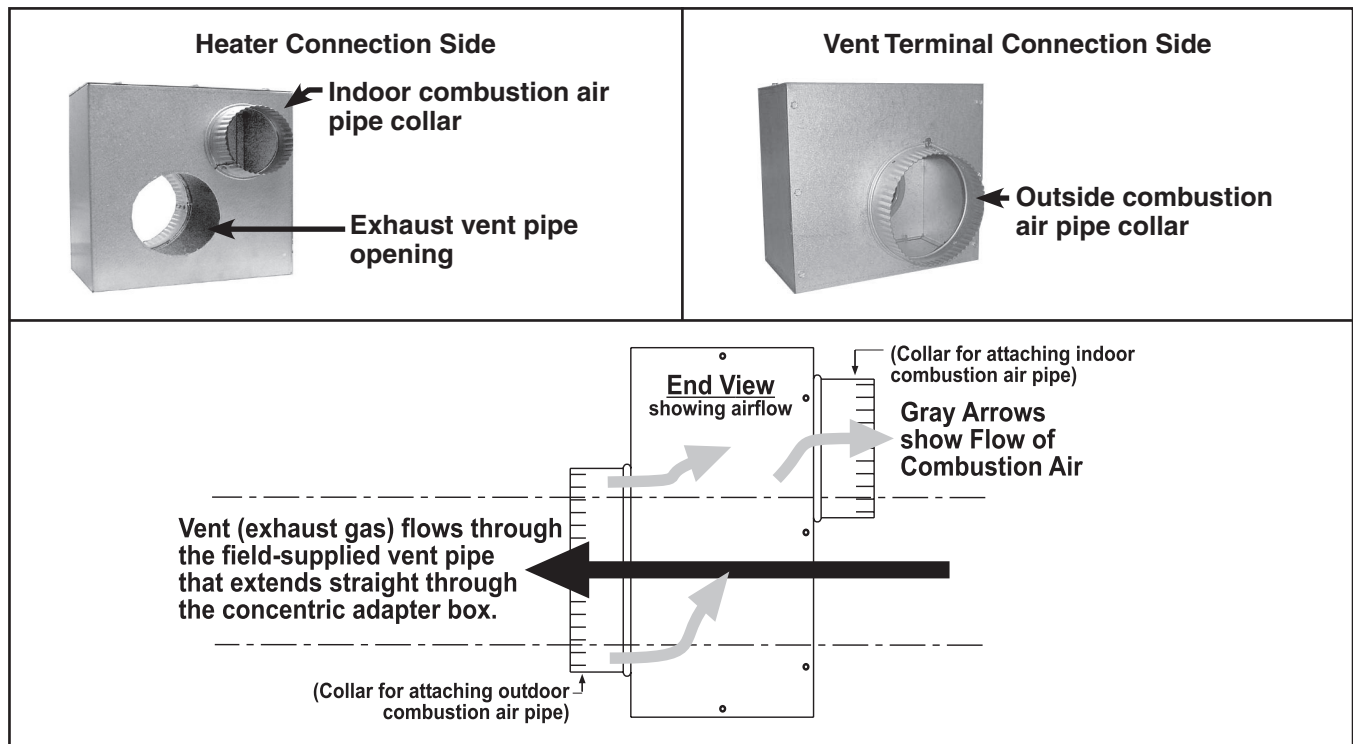


Figure 3. Concentric Adapter Box

- When pipe diameters differ, depending on the direction of airflow, join the pipes with either a taper-type reducer or increaser. Requirements vary depending on the unit size. The connection requirements are the same for both vertical and horizontal systems, but the length of pipe required varies by installation. See **Figure 4** for concentric adapter box dimensions. **Table 5** lists vent pipe opening diameters shown in **Figure 4**.
- **Figure 5** shows concentric adapter box connections.

VENT CONNECTIONS FOR SEPARATED-COMBUSTION UNITS—CONTINUED

Concentric Adapter Box Connections—Continued

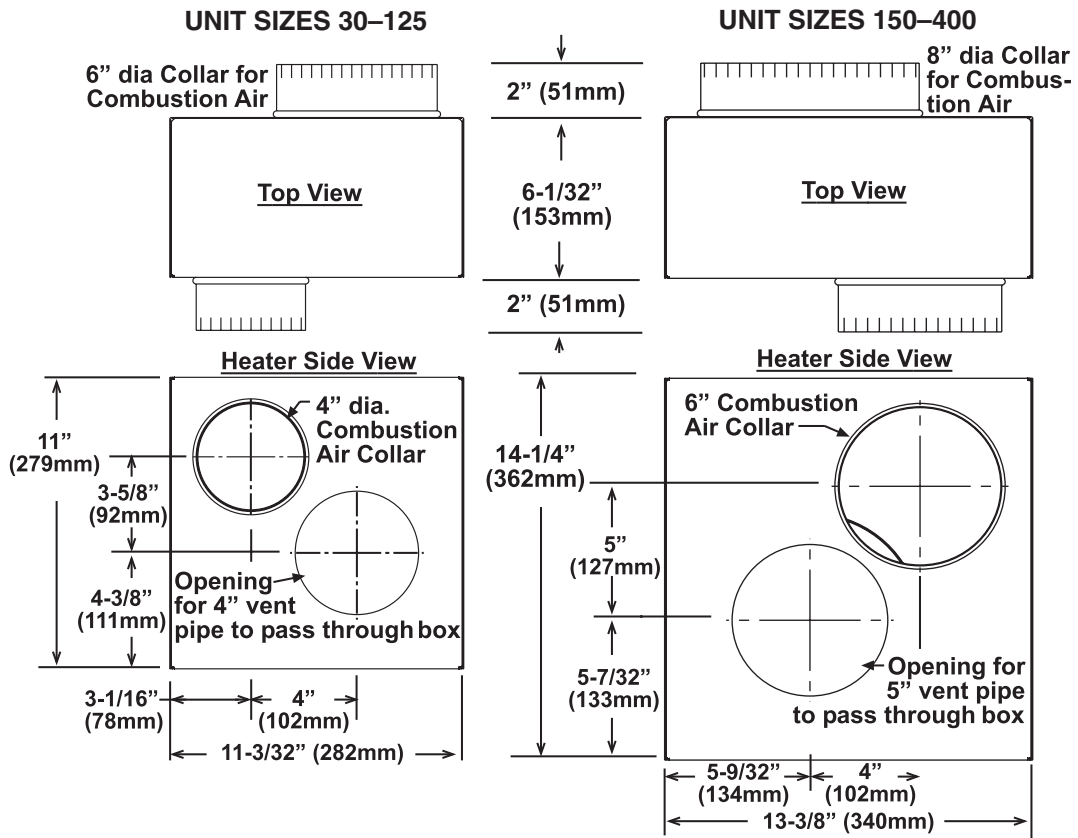


Figure 4. Concentric Adapter Box Dimensions (Refer to [Table 5](#))

Table 5. Vent Pipe Opening Diameter			
Vent Terminal Configuration	Option	Unit Size (MBTUh)	
		30-125 (4-Inch Vent Pipe)*	150-400 (5-Inch Vent Pipe)*
		Diameter (Feet (Meters))	
Vertical	CC2	4-21/32 (118)	5-21/32 (144)
Horizontal	CC6	4-1/16 (103)	5-1/16 (129)

*See [Figure 4](#).

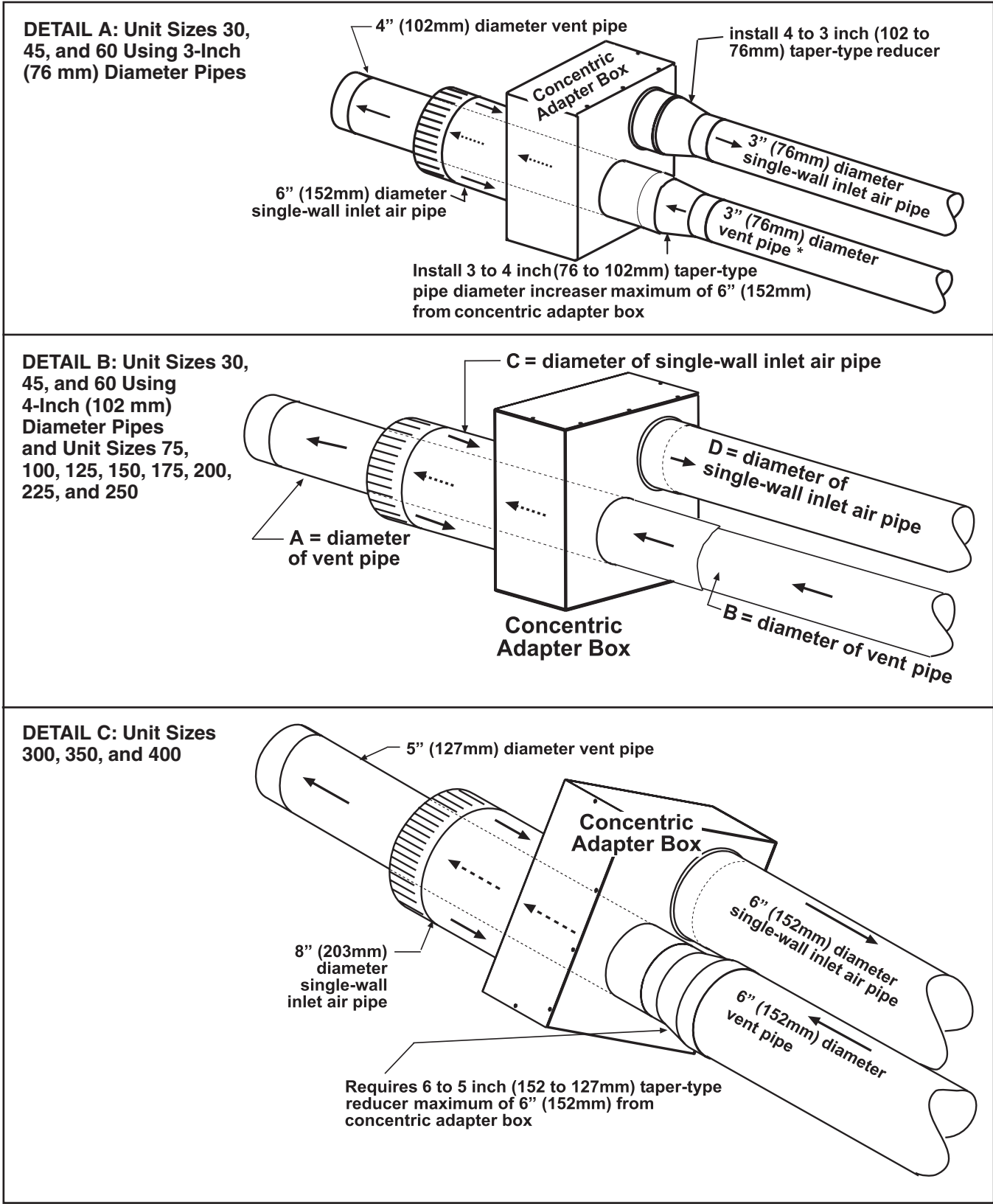


Figure 5. Concentric Adapter Box Connections (Refer to [Table 5](#))

VENT CONNECTIONS FOR SEPARATED-COMBUSTION UNITS—CONTINUED

Concentric Adapter Box Connections—Continued

- **Table 6** lists connection dimensions shown in **Figure 5**, DETAIL B.
- Unit sizes 300, 350, and 400 shown in **Figure 5**, DETAIL C always require a 6–5 inch (152–127 mm) taper-type reducer in the vent pipe.

Table 6. Concentric Adapter Box Vent Pipe Sizes				
Unit Size (MBTUh)	Dimension*			
	A	B	C	D
	Diameter (Inches (mm))			
30, 45, 60**	4 (102)		6 (152)	4 (102)
75, 100, 125	4 (102)		6 (152)	4 (102)
150, 175, 200, 225, 250	5 (127)		8 (203)	6 (152)

*See **Figure 5**.

**Uses 4-inch vent pipe for combustion air runs from heater to concentric adapter box.

Vent Terminal Connections

Vent terminal options CC2 (vertical vent configuration) and CC6 (horizontal vent configuration) are shown in **Figure 6**. Both options are applicable to residential and commercial/industrial installations

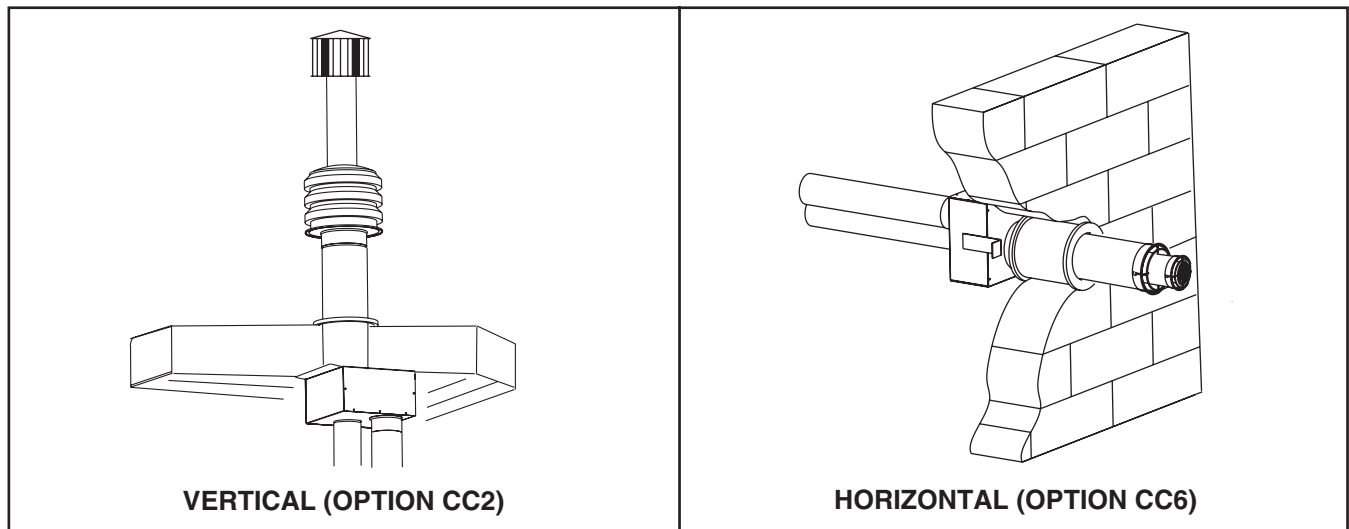


Figure 6. Vent Terminal Options

Vertical Vent Terminal (Option CC2) Installation

- Field-supplied components required for installation of the vertical vent kit are as follows:
 - a. Vent and combustion air piping in accordance with **Table 3**.
 - b. Tapered vent pipe diameter reducers and/or increasers, as required.
 - c. Thimble (not required if wall is of non-combustible construction).
 - d. Flashing.
 - e. Sheet metal screws, tape, and sealant, as required.
- Factory-supplied components for installation of the vertical vent kit are listed in **Table 7**.

Table 7. Vertical Vent Terminal/Combustion Air Package (Option CC2) Components			
Unit Size (MBTUh)		Description	Qty
30–125	150–400		
PN			
205895	205896	Kit package	1
205884	205885	Concentric adapter box (see Figure 3 , Figure 4 , and Figure 5)	1
110051	110052	Exhaust vent terminal assembly (see Figure 7)	1
155635	53330	Combustion air inlet assembly (see Figure 7)	1
207232		Concentric adapter box bracket	2
53335		High-temperature silicone sealant, tube	1

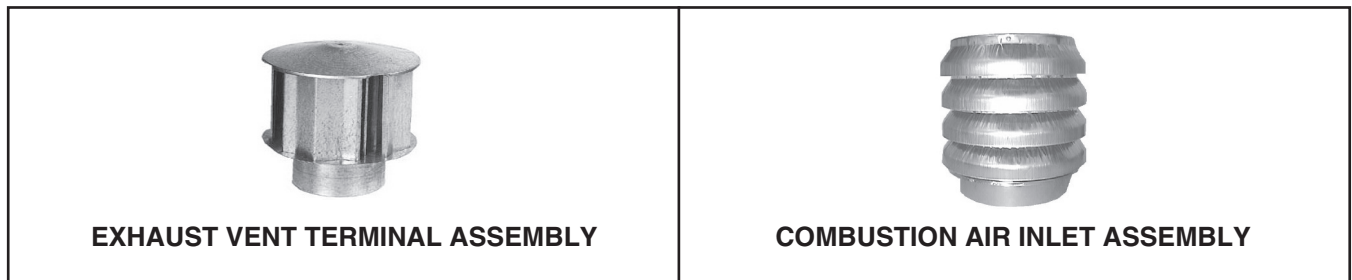


Figure 7. Option CC2 Components

⚠ DANGER ⚠

- To prevent combustion products from entering the occupied space, all vent terminals must be positioned or located away from fresh air intakes, doors, and windows. Failure to comply could result in severe personal injury or death and/or property damage.
- Consider local snow depth conditions. The vent must be at least 6 inches (152 mm) above the anticipated snow depth.

1. Determine vent terminal location on roof:
 - a. If more than one vertical vent terminal is being installed, minimum spacing between vent center lines is determined by minimum outdoor design temperature (coldest outdoor condition at installation site). Refer to [Table 8](#) to ensure that location complies with minimum outdoor design temperature requirements.
 - b. Select location away from fresh air intakes, allowing space for concentric adapter box inside. Vent terminal must be located away from adjacent buildings as shown in [Figure 8](#).

Table 8. Minimum Spacing Between Center Lines of Vertical Vent Pipes	
Minimum Outdoor Design Temperature	Minimum Spacing Between Center Lines of Vertical Vent Pipes (Inches (mm))
≥31°F (≥0°C)	36 (914)
-10 to 30°F (-23 to -1°C)	60 (1524)
< -10°F (< -23°C)	84 (2134)

VENT CONNECTIONS FOR SEPARATED-COMBUSTION UNITS—CONTINUED

Vertical Vent Terminal (Option CC2) Installation—Continued

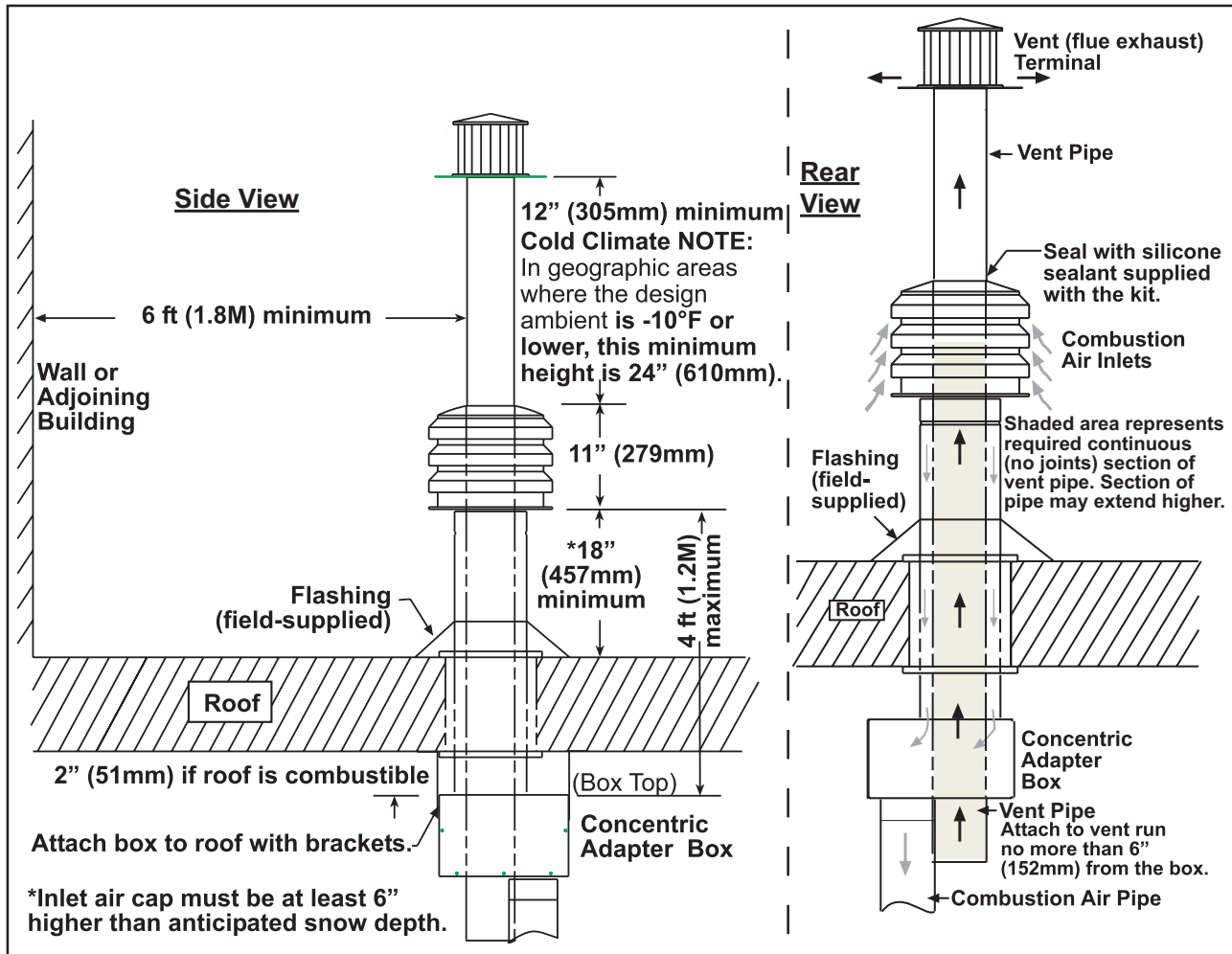


Figure 8. Option CC2 Installation

2. Install vent pipe and combustion air pipe runs:
 - a. Connect piping to heater in accordance with specifications listed in [Pipe Requirements](#) section.
 - b. Seal all joints in accordance with specifications listed in [Vent System Sealing](#) section of installation manual provided with heater. Due to high temperature considerations, do not enclose exhaust pipe or place pipe closer than 6 inches (152 mm) to combustible material.
 - c. Extend piping runs close to roof at location selected in step 1 and support piping in accordance with specifications listed in [Vent System Support Requirements](#) section of installation manual provided with heater.

NOTE: The vent pipe will extend through the roof after the concentric adapter box is installed. The indoor combustion air pipe will end at the box.

3. Cut hole through roof for combustion air pipe.
 - a. Ensure that location and orientation of concentric adapter box are correct and mark and cut hole.
 - b. Ensure that hole accommodates 6-inch (152 mm) combustion air pipe for unit sizes 30–125 or 8-inch (203-mm) combustion air pipe for unit sizes 150–400. Thimble may or may not be required depending on building construction and/or local codes. Larger diameter combustion air pipe serves as clearance for vent pipe on non-combustible construction.

4. Secure longer angles on concentric adapter box brackets (see **Figure 9**) to concentric adapter box.

NOTE: The longer angle of the concentric adapter box bracket has five 7/32-inch holes that allow the position of the bracket on the box to be adjusted. The shorter angle has three 7/32-inch holes that allow adjustment to construction.

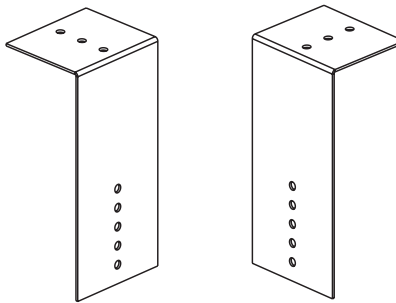


Figure 9. Concentric Adapter Box Brackets

5. Connect outside section of combustion air pipe to concentric adapter box (see **Figure 10**):
- Determine length of combustion air pipe so that dimension X in **Figure 10** is equal to bracket length, plus roof thickness, plus anticipated snow depth. Ensure that length of combustion air pipe does not **exceed** 48 inches (1,219 mm) or does not extend **less than** 18 inches (457 mm) above roof.
 - Secure inlet air pipe to collar of concentric adapter box using sheet metal screws. Seal joint and seam using tape or sealant.

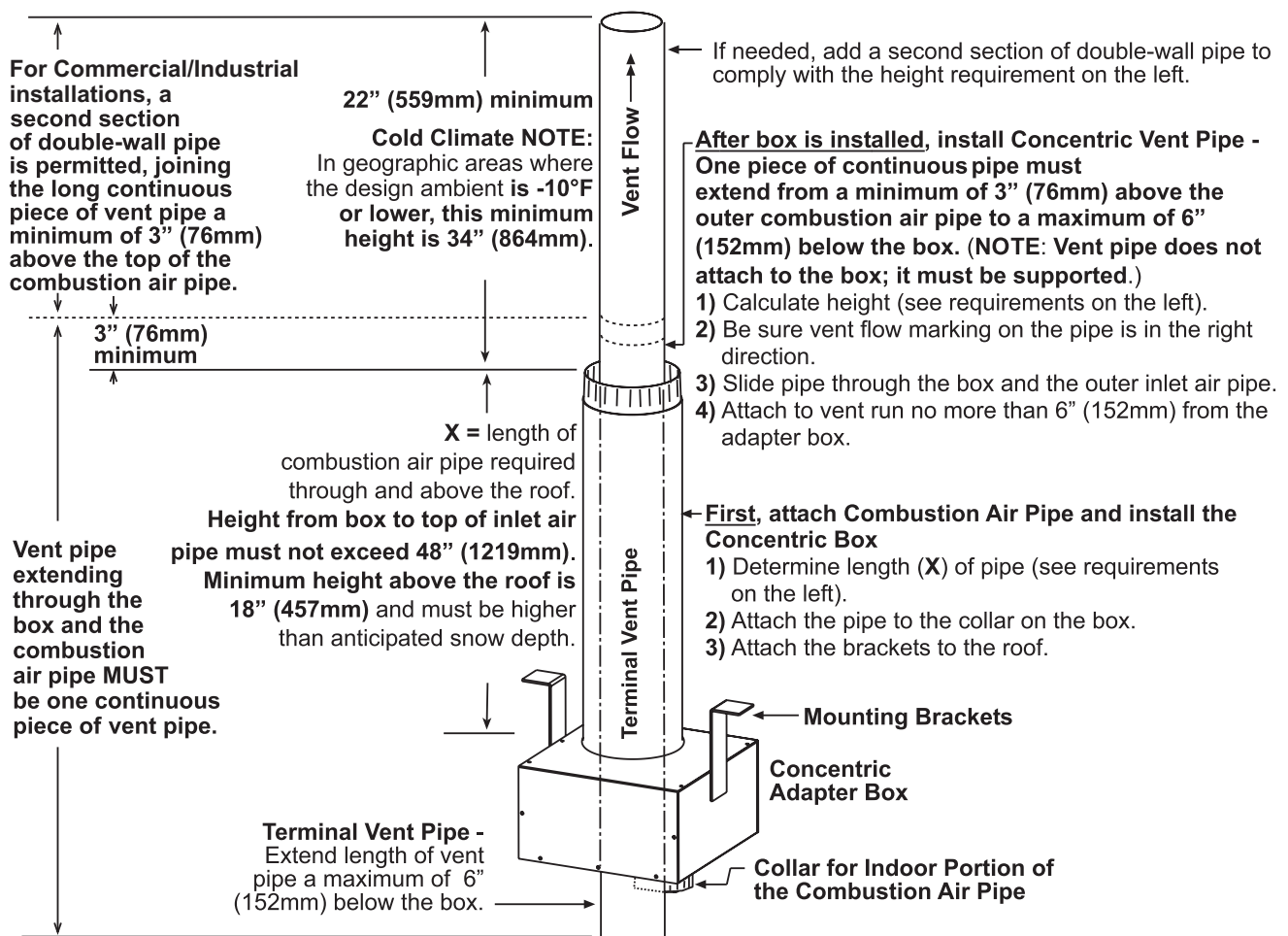


Figure 10. Combustion Air Pipe Installation

VENT CONNECTIONS FOR SEPARATED-COMBUSTION UNITS—CONTINUED

Vertical Vent Terminal (Option CC2) Installation—Continued

6. Secure concentric adapter box to underside of roof (see [Figure 10](#)):

⚠ CAUTION ⚠

- If the roof is combustible, ensure that brackets are positioned to allow a 2-inch (51 mm) clearance between the concentric adapter box and the roof.
 - If any holes are made in the concentric adapter box in error, ensure that they are sealed.
- a. Insert combustion air pipe through roof as shown in [Figure 11](#).
 - b. Position concentric adapter box to match pipe runs and secure short angles of concentric adapter brackets (see [Figure 9](#)) to underside of roof using field-supplied hardware.
 - c. Install field-supplied flashing around combustion air pipe on roof outside.

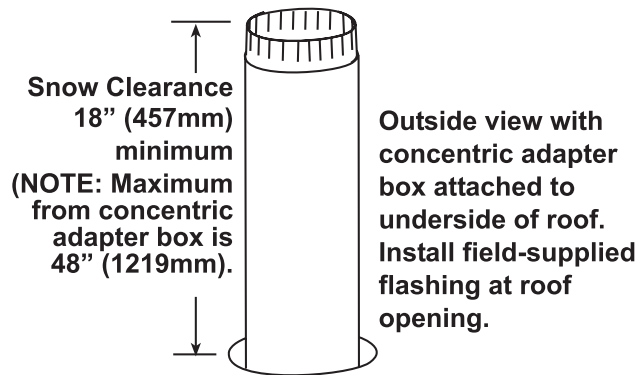


Figure 11. Combustion Air Pipe Through Roof

7. Install double-wall terminal vent pipe

NOTE: The length of the vent pipe is determined by the installation within maximum and minimum requirements. The vent pipe extending through the concentric adapter box, through the combustion air inlet pipe, and above the combustion air inlet air pipe must be one piece without joints.

- a. Refer to [Figure 10](#) to determine required length of continuous section of vent pipe. Determine length as follows:
 - (1) Start with no more than 6 inches (152 mm) below concentric adapter box
 - (2) Plus 6 inches (152 mm) through box
 - (3) Plus length of bracket extending above box
 - (4) Plus width of roof
 - (5) Plus height of combustion air pipe above roof
 - (6) Plus minimum of 3 inches (76 mm) beyond top of combustion air pipe
 - (7) Total is minimum length of vent pipe section—if actual piece of vent pipe is longer, extend it further above combustion air pipe—do not extend it more than 6 inches (152 mm) below box
- b. Ensure that vent pipe is in proper flow direction and slide end of pipe into box and out through combustion air pipe. Position vent pipe to lengths determined above.

NOTE: The double-wall vent pipe does not attach to the box. The installer must provide support.

- c. Connect double-wall pipe to single-wall pipe or taper-type connector in accordance with *Vent System Sealing* section of installation manual provided with heater.
- d. Seal completely around circumference of pipe and opening of box using silicone sealant.

8. Install combustion air inlet (see **Figure 12**):
 - a. Install additional section of vent pipe if needed on outside and make joint in accordance with pipe manufacturer's requirements.
 - b. When vent pipe is required height, slide combustion air inlet over vent pipe and fasten collar to combustion air pipe using sheet metal screws.
 - c. Seal opening at top between vent pipe and combustion air inlet to prevent water leakage using silicone sealant.

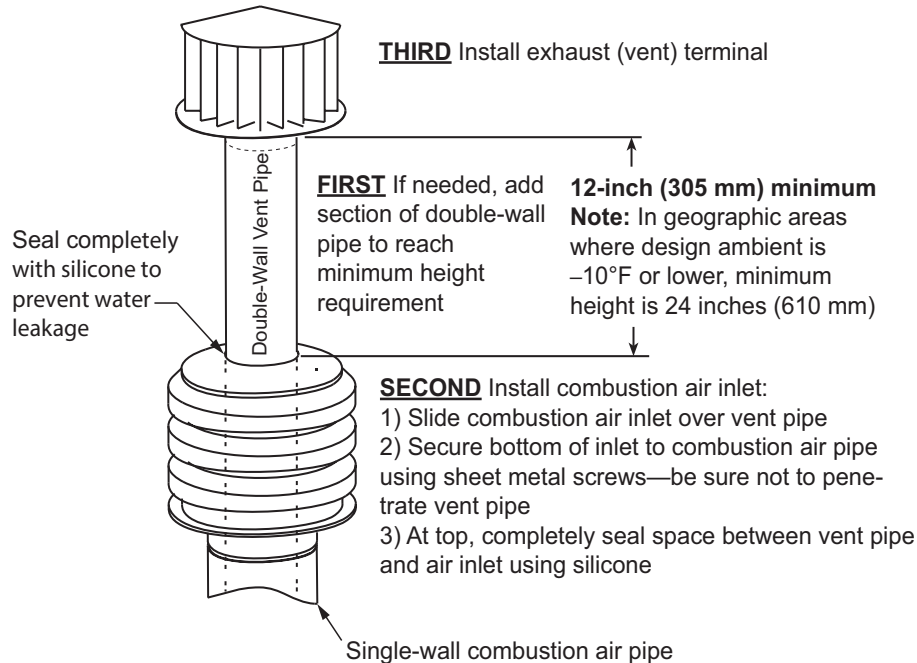


Figure 12. Combustion Air Inlet and Vent Terminal Installation

9. Install exhaust (vent) terminal cap (see **Figure 12**) in accordance with **Vent System Sealing** section of installation manual provided with heater.
10. Install indoor combustion air pipe:
 - a. Secure single-wall combustion air pipe run to collar on concentric adapter box using field-supplied sheet metal screws.
 - b. Seal pipe joint using tape or sealant.
11. Verify compliance with **Figure 8** and with all specifications and requirements listed in this manual.

Horizontal Vent Terminal (Option CC6) Installation

- Field-supplied components required for installation of the horizontal vent kit are as follows:
 - a. Vent and combustion air piping in accordance with **Table 3**.
 - b. Tapered vent pipe diameter reducers and/or increasers, as required.
 - c. Thimble (not required if wall is of non-combustible construction).
 - d. Flashing.
 - e. Sheet metal screws, tape, and sealant, as required.
- Factory-supplied components for installation of the horizontal vent kit are listed in **Table 9**.

VENT CONNECTIONS FOR SEPARATED-COMBUSTION UNITS—CONTINUED

Horizontal Vent Terminal (Option CC6) Installation—Continued

Unit Size (MBTUh)		Description	Qty
30–125	150–400		
PN			
211762	211763	Kit package	1
211789	211790	Concentric adapter box (see Figure 3 , Figure 4 , and Figure 5)	1
211791	211792	Exhaust grill (see Figure 13)	1
151755	124940	Inlet guard (see Figure 13)	1
207232		Concentric adapter box bracket	2
37661		Screw, sheet metal, #10-16 × 1/2	8
53335		High-temperature silicone sealant, tube	1

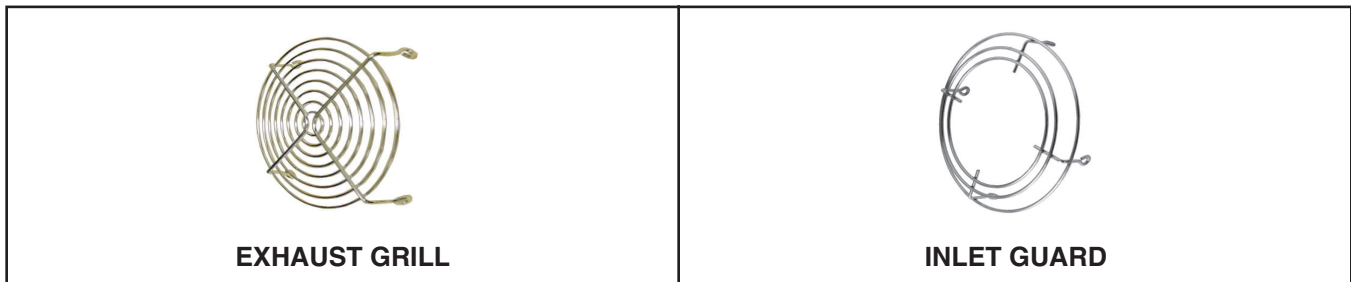


Figure 13. Option CC6 Components

⚠ DANGER ⚠

- To prevent combustion products from entering the occupied space, all vent terminals must be positioned or located away from fresh air intakes, doors, and windows. Failure to comply could result in severe personal injury or death and/or property damage.
- In climates with below freezing temperatures, condensate may form icicles on the vent terminal. Locate the terminal where falling icicles do not present a hazard.
- Consider local snow depth conditions. The vent must be at least 6 inches (152 mm) above the anticipated snow depth.

1. Determine vent/combustion air terminal location on outside wall:
 - a. Refer to [Table 3](#) to ensure that location complies with vent length requirements.
 - b. For most applications, ensure that vent terminal is level with heater mounting height.
 - c. Allow downward pitch of 1/4-inch per foot (6 mm per 305 mm) for condensate drain.
 - d. Ensure that distance of vent terminal from adjacent public walkways and buildings and window and building openings complies with local codes. Absent any local codes, distance must comply with *National Fuel Gas Code* (ANSI Z223.1).

⚠ WARNING ⚠

Avoid positioning the vent terminal above a walkway as there may be a small amount of condensate that drips from the end of the vent/combustion air terminal. In cold climates, the condensate may form ice.

⚠ CAUTION ⚠

Products of combustion can cause discoloration of some building finishes and deterioration of masonry materials. A clear silicone sealant normally used to protect concrete driveways may be used to protect masonry materials from discoloration and deterioration. If discoloration is an esthetic problem relocate the vent or install a vertical vent.

- e. Refer to **Vent Terminal Requirement** section of installation manual provided with heater to ensure that location complies with minimum clearance requirements.
2. Install vent pipe and combustion air pipe runs:
 - a. Connect piping to heater in accordance with specifications listed in **Pipe Requirements** section.
 - b. Seal all joints in accordance with specifications listed in **Vent System Sealing** section of installation manual provided with heater. Due to high temperature considerations, do not enclose exhaust pipe or place pipe closer than 6 inches (152 mm) to combustible material.
 - c. Extend piping runs close to roof at location selected in step 1 and support piping in accordance with specifications listed in **Vent System Support Requirements** section of installation manual provided with heater.
3. Cut hole through outside wall for combustion air pipe.
 - a. Ensure that outside wall construction thickness is between 1 inch (25 mm) minimum and 48 inches (1,219 mm) maximum.
 - b. Ensure that hole accommodates 6-inch (152 mm) combustion air pipe for unit sizes 30–125 or 8-inch (203-mm) combustion air pipe for unit sizes 150–400. Thimble may or may not be required depending on building construction and/or local codes. Larger diameter combustion air pipe serves as clearance for vent pipe on non-combustible construction.
4. Secure longer angles on concentric adapter box brackets (see **Figure 9**) to concentric adapter box.

NOTE: The longer angle of the concentric adapter box bracket has five 7/32-inch holes that allow the position of the bracket on the box to be adjusted. The shorter angle has three 7/32-inch holes that allow adjustment to construction.

5. Connect outside section of combustion air pipe to concentric adapter box (see **Figure 14**):
 - a. Determine length of combustion air pipe as follows:
 - (1) Bracket length from box to wall
 - (2) Plus wall thickness
 - (3) Plus 4–16 inches (102–406 mm) beyond wall
 - b. Secure inlet air pipe to collar of concentric adapter box using sheet metal screws. Seal joint and seam using tape or sealant.
6. Secure concentric adapter box to wall (see **Figure 14**):

⚠ CAUTION ⚠

- **If the wall is combustible, ensure that brackets are positioned to allow a 2-inch (51 mm) clearance between the concentric adapter box and the wall.**
 - **If any holes are made in the concentric adapter box in error, ensure that they are sealed.**
-

- a. Insert combustion air pipe out through wall.
 - b. Secure short angles of concentric adapter box brackets (see **Figure 9**) to wall.
 - c. Seal or flash inlet air pipe on outside using sealant and/or field-supplied flashing.
7. Install inlet guard:
 - a. Position inlet guard over end of combustion air pipe in accordance with **Figure 14**.
 - b. Secure inlet guard to inlet air pipe using four 1/2-inch-long screws provided.

VENT CONNECTIONS FOR SEPARATED-COMBUSTION UNITS—CONTINUED

Horizontal Vent Terminal (Option CC6) Installation—Continued

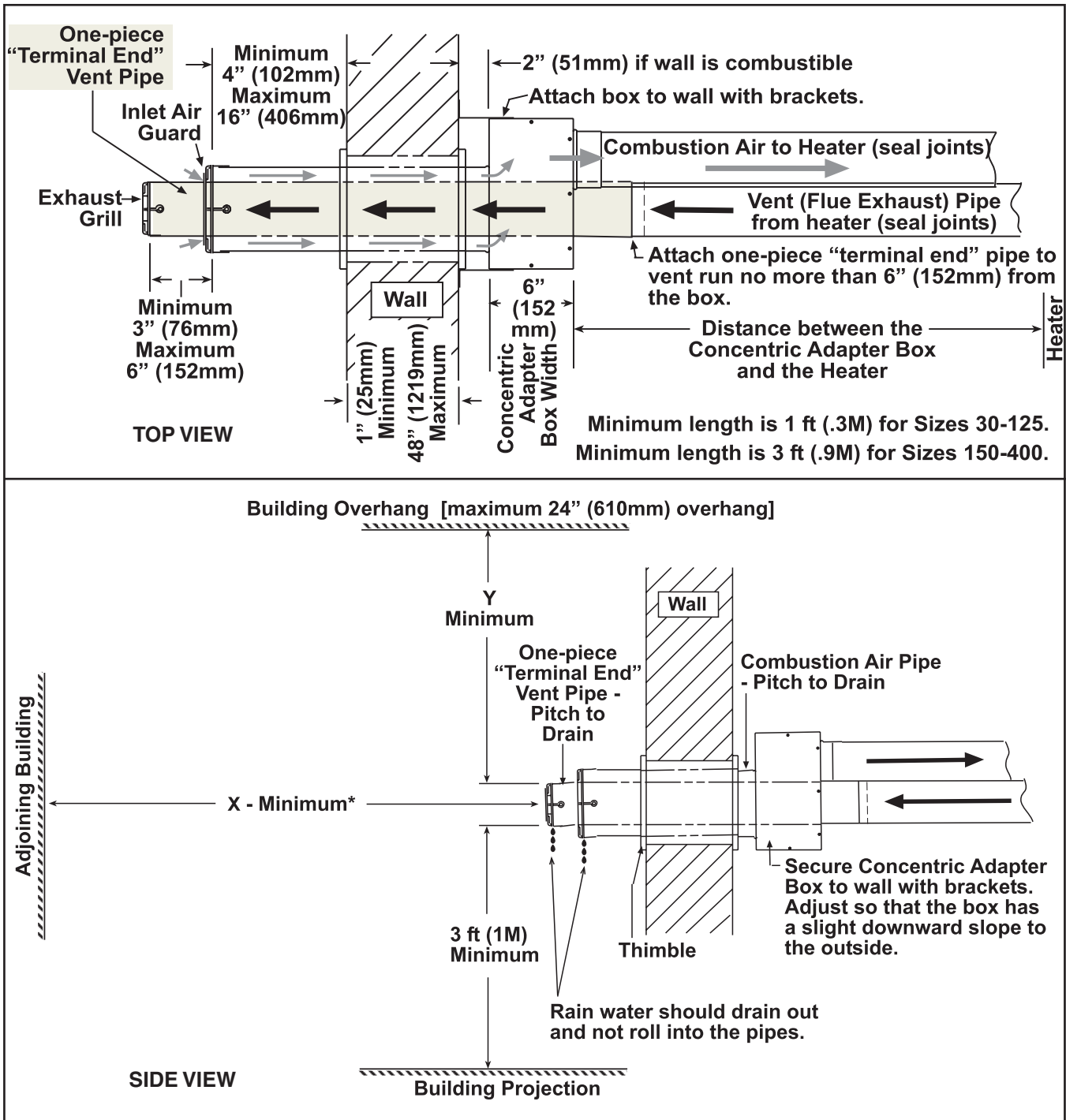


Figure 14. Option CC6 Installation (Refer to [Table 10](#))

8. Install terminal-end vent pipe:

NOTE: The length of the terminal-end vent pipe is determined by the installation within maximum and minimum requirements. The vent pipe extending through the concentric adapter box, through the combustion air inlet pipe, and above the combustion air inlet air pipe must be one piece without joints. The connection to the vent pipe run must be a maximum of 6 inches (152 mm) from the heater side of the box.

- a. Refer to **Table 10** to determine lengths of each pipe segment and to calculate total length required.
- b. Ensure that terminal-end vent pipe is in proper flow direction and slide end of pipe through box.
- c. Position vent pipe so that it extends 3–6 inches (76–152 mm) past end of combustion air pipe and no more than 6 inches (152 mm) out of box toward heater.
- d. Connect terminal-end vent pipe to vent pipe run no more than 6 inches (152 mm) from heater.

Table 10. Horizontal Vent Dimensions		
Unit Size (MBTUh)	Dimension (See Figure 14)	
	X (Feet (Meters))*	Y (Inches (mm))
30, 45	4 (1)	9 (229)
60, 75, 100		12 (305)
125–225		24 (610)
250–400	6 (2)	36 (914)

*Minimum—check and comply with local codes.

9. Install exhaust grill:

- a. Position exhaust grill over end of vent pipe in accordance with **Figure 14**.
- b. Secure exhaust grill to end of vent pipe using four 1/2-inch-long screws provided.
- c. Seal vent pipe to concentric adapter box.
- d. Ensure that terminal-end section of vent pipe has slight downward pitch of 1/4-inch (6-mm) per foot (305 mm) toward outside.
- e. Seal completely around circumference of pipe and opening of box using silicone sealant.

10. Install indoor section of combustion air pipe:

- a. Secure single-wall combustion air pipe run to collar on concentric adapter box using sheet metal screws.
- b. Seal pipe joint using tape or sealant.

11. Verify compliance with **Figure 14** and with all specifications and requirements listed in this manual.

ADJUSTMENTS

After startup, the combination gas valve outlet pressure must be measured and adjusted if necessary in accordance with the **Measure and Adjust Manifold (Outlet) Gas Pressure** section in the installation manual provided with the heater. If the heater is being installed at an elevation of >6,000 feet (>1,830 meters), the pressure switch must be replaced in accordance with the **Pressure Switch Replacement** section in the installation manual provided with the heater before the gas pressure is adjusted. Ensure that the pressure switch is adjusted in accordance with **Table 11**.

ADJUSTMENTS—CONTINUED

NOTE: When converting a unit size 45 of model UBXC, replace the pressure switch (refer to [Table 1](#)) in accordance with the *Pressure Switch Replacement* section in the installation, operation, and maintenance manual provided with unit.

Table 11. Pressure Switch Settings for Separated-Combustion Units

Unit Size (MBTUh)	Model							
	UBXC				UDXC			
	Startup Cold	Equilibrium Hot	Setpoint OFF	Setpoint ON	Startup Cold	Equilibrium Hot	Setpoint OFF	Setpoint ON
	Differential Pressure (IN WC)							
30	1.20	0.90	0.50	0.70	1.20	0.90	0.65	0.80
45	1.00	0.80	0.50	0.70	1.00	0.80	0.50	0.65
60	0.90	0.80	0.60	0.80	0.90	0.80	0.40	0.55
75	0.80	0.70	0.50	0.70	0.80	0.70	0.45	0.60
100	0.90	0.70	0.45	0.65	0.90	0.70	0.50	0.65
125	1.40	1.00	0.60	0.80	1.40	1.00	0.80	0.95
150	0.70	0.60	0.40	0.60	0.70	0.60	0.35	0.50
175	2.30	1.40	1.10	1.30	0.80	0.70	0.40	0.55
200, 225	2.30	1.60	1.10	1.30	2.30	1.60	1.10	1.30
250	2.70	1.80	1.30	1.50	2.70	1.80	1.10	1.30
300	2.50	1.90	1.30	1.50	2.50	1.90	1.10	1.30
350, 400	2.10	1.60	1.30	1.50	2.10	1.60	1.30	1.50

DOOR SAFE SWITCH MAINTENANCE

The door safe switch prevents the heater from operating when the access door panel is open. If it is determined that the interlock door switch needs replacing, use only a factory-authorized replacement part that is designed for the heater.

⚠ CAUTION ⚠

Verify that the door safe switch operates when opening the access door panel. While a temporary bypass of the switch may be required for troubleshooting, always return the switch to normal operation once troubleshooting is complete. Do not permanently bypass the switch.

NOTES



Specifications and illustrations subject to change without notice or incurring obligations.
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