



Venting Instructions for V3 Separated Combustion Equipment

Vent Installation Form RZ-NA I-V-SC

APPLIES TO: Separated Combustion Model UDAS



General

This manual applies only to venting and combustion air inlet instructions and **must be used with the installation manual that was shipped with the heater.** If either manual is missing, contact your distributor before beginning installation.

 Apply green separated combustion label P/N 201216 here.

Verify that the label on the heater matches this label.

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Venting and Combustion Air Requirements for Separated Combustion Model UDAS

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.

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.

The horizontal and vertical vent combustion/air systems illustrated in this manual are the only venting/combustion air systems approved for a Model UDAS separated-combustion unit heater. Models UDAS 30, 45, 60, 75, 100 and 125 are certified for residential and commercial/industrial installations. Models UDAS 150, 175, 200, 225, 250, 300, 350, and 400 are certified only for commercial/industrial installations.

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 vent or Option CC2 for a vertical vent. 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

Hazards of Chlorine (cont'd)

the unit vent and combustion air terminals 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.

Is the Installation Residential or Commercial/Industrial?

Pipe requirements are not the same for Residential and Commercial/Industrial installations. Read the headings and comply with the requirements that apply to the type of installation.

Venting Requirements

1. Type of Pipe

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

Residential Installation - Pipe Requirements

Vent Pipe

- Vent pipe approved for a Category III appliance is **required**.

Combustion Air Inlet Pipe

- Sealed, single-wall galvanized combustion air pipe is recommended.

Commercial/Industrial Installation - Pipe Requirements

Vent Pipe

- Vent pipe approved for a Category III appliance, **OR**
- Single-wall, 26-gauge or heavier galvanized (or a material of equivalent durability and corrosion resistance) vent pipe.

Combustion Air Inlet Pipe

- Sealed, single-wall galvanized combustion air pipe is recommended.

Residential or Commercial/Industrial Installation

Note: Only Sizes 30-125 are certified for residential.

2. Venter Outlet and Combustion Air Inlet

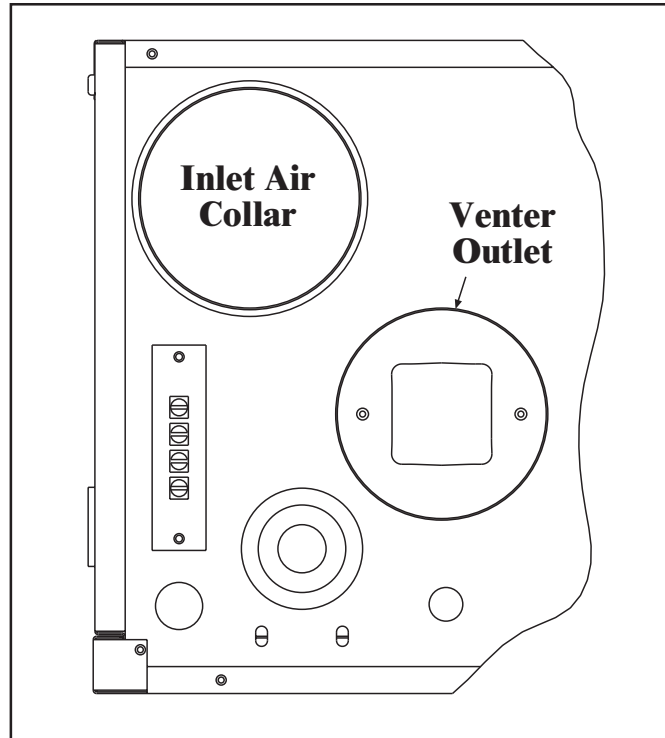


FIGURE 1 - Rear of Heater showing Location of Inlet and Outlet Connections

Note: Small unit is illustrated; inlet and outlet are in the same orientation for all sizes.

TABLE 1A - Diameter of the Venter Outlet

Venter Outlet Connection (diameter)

Size	30	45	60	75	100	125	150	175	200	225	250	300	350	400
inches	4	4	4	4	4	4	5	5	5	5	5	6	6	6
mm	102	102	102	102	102	102	127	127	127	127	127	152	152	152

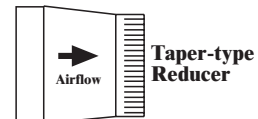
TABLE 1B - Diameter of the Inlet Air Collar

Combustion Air Inlet Connection (diameter)

Size	30	45	60	75	100	125	150	175	200	225	250	300	350	400
inches	4	4	4	4	4	4	6	6	6	6	6	6	6	6
mm	102	102	102	102	102	102	152	152	152	152	152	152	152	152

Special Requirements

- Sizes 30, 45 and 60 require a 4" to 3" (102 to 76mm) taper-type reducer at the venter outlet.



- Sizes 30, 45 and 60 require a 3" to 4" (76 to 102mm) taper-type enlarger at the inlet collar.



- Sizes 200, 225, 250, 300, 350, and 400 require a minimum of 12" (305 mm) of straight pipe at the heater connections.

Residential or Commercial/Industrial Installation

Note: Only Sizes 30-125 are certified for residential.

3. Pipe Diameter and Length

Vent and Combustion Air Pipes Between the Heater and the Concentric Adapter

TABLE 2 - Pipe Diameter and Length from Heater to Concentric Adapter Box

Special Requirements

- Minimum length between the heater and the concentric adapter box is 1 ft (305mm) for Sizes 30-125 and 3 ft (914mm) for Sizes 150-400.
- A 4" to 3" (102 to 76mm) taper-type reducer is required at the venter outlet on Sizes 30, 45 and 60.
- A 3" to 4" (76 to 102mm) taper-type enlarger is required at the inlet collar on Sizes 30, 45 and 60.

Pipe diameter and length requirements listed in TABLE 2 are for the indoor sections of pipe between the heater and the concentric adapter box. The diameter of the outside (terminal) concentric pipes are listed in TABLE 3. The outdoor lengths depend on the installation; requirements are listed in the installation instructions for the horizontal and vertical vent/combustion air kits.

Vent pipe diameters and maximum vent lengths in TABLE 2 apply to both **horizontal** and **vertical** vents. Add **all** straight sections and equivalent lengths for elbows. The total length of the straight sections and elbows must not exceed the **Maximum Length**.

Pipe Diameter and Maximum Pipe Length from Heater to Concentric Adapter										
Size	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
30	3	76	3	76	15	4.6	2	0.6	1	0.3
45	3	76	3	76	15	4.6	2	0.6	1	0.3
60	3	76	3	76	25	7.6	3	0.9	1.5	0.5
75	4	102	4	102	25	7.6	3	0.9	1.5	0.5
100	4	102	4	102	35	10.7	4	1.2	2	0.6
125	4	102	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
175	5	127	6	152	30	9.1	3	0.9	2	0.5
200	5	127	6	152	40	12.2	4	1.2	2	0.6
225	5	127	6	152	40	12.2	4	1.2	2	0.6
250	5	127	6	152	40	12.2	4	1.2	2	0.6
300	6	152	6	152	45	13.7	4	1.2	2	0.6
350	6	152	6	152	45	13.7	5	1.5	2.5	0.8
400	6	152	6	152	45	13.7	5	1.5	2.5	0.8

Concentric Pipes

TABLE 3 - Diameters of Outdoor Concentric Pipes (Outlet Side of the Concentric Adapter Box)

Diameters of Concentric Pipes

Size		30	45	60	75	100	125	150	175	200	225	250	300	350	400
Inlet Air Pipe	inches	6	6	6	6	6	6	8	8	8	8	8	8	8	8
	mm	152	152	152	152	152	152	203	203	203	203	203	203	203	203
Vent Pipe	inches	4	4	4	4	4	4	6	6	6	6	6	6	6	6
	mm	102	102	102	102	102	102	152	152	152	152	152	152	152	152

4. Sealing

Provide pipe as specified in Requirement No. 1 and seal joints as follows:

- **If using Category III vent pipe**, follow the pipe manufacturer's instructions for joining and sealing vent pipe sections.
- **If using single wall, 26-gauge or heavier galvanized pipe**, secure slip-fit pipe connections using sheetmetal screws or rivets. Seal all joints in the vent pipe and the combustion air pipe with aluminum tape or silicone sealant.

Residential or Commercial/Industrial Installation

Note: Only Sizes 30-125 are certified for residential.

5. Support

Support horizontal runs every six feet (1.8M); 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.

6. Clearance

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

7. Concentric Adapter Box

All separated combustion installations **require** a concentric adapter box as illustrated in FIGURE 2A. The concentric adapter box is included in the vent/combustion air kit. Installation instructions depend on whether the vent system is horizontal (Option CC6) or vertical (Option CC2).

FIGURE 2A - A Concentric Adapter Box is a Required Part of all Model UDAS Installations

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

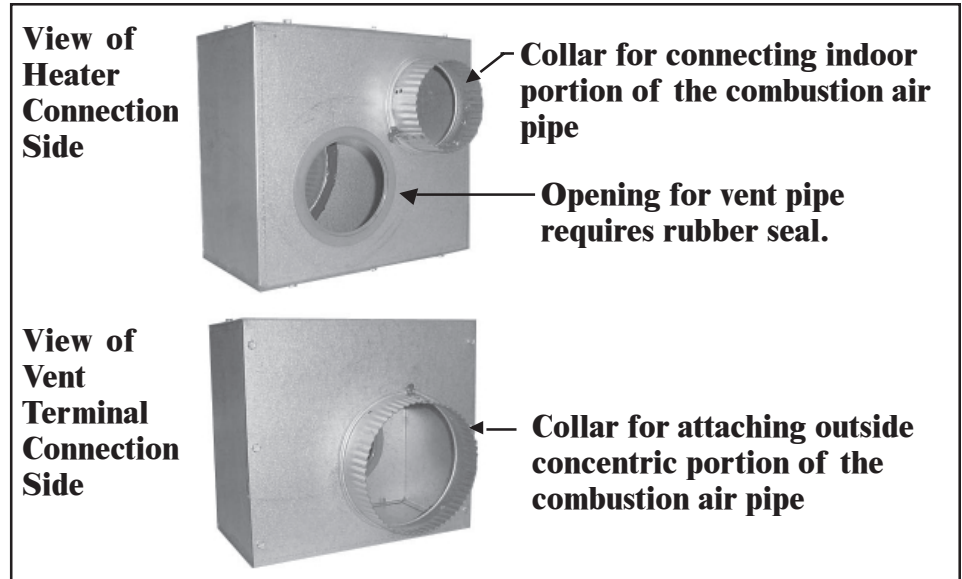
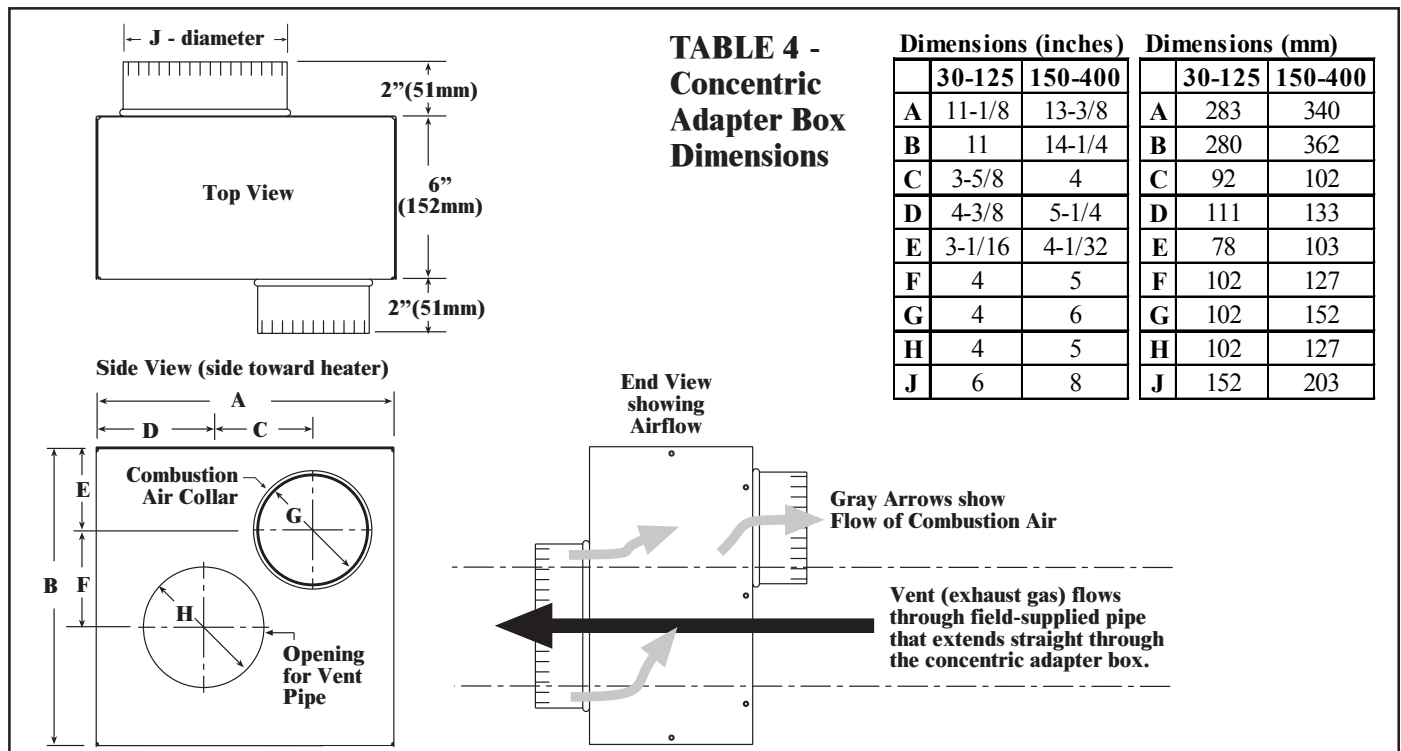


FIGURE 2B - Concentric Adapter Box Dimensions and Airflow



Residential or Commercial/Industrial Installation

Note: Only Sizes 30-125 are certified for residential.

7. Concentric Adapter Box (cont'd)

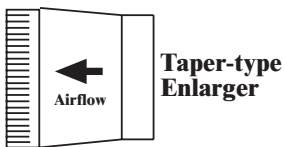
Pipe Connections at the Concentric Adapter Box

When pipe diameters differ, depending on direction of airflow, join the pipes with either a taper-type reducer or enlarger. Requirements vary depending on the size of the heater; refer to FIGURE 3, 4, 5, or 6 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 kit. **The connection requirements are the same for both vertical and horizontal systems, but pipe length requirements vary.**

FIGURE 3 - Concentric Adapter Box Connections for Sizes 30, 45, and 60

Sizes 30, 45, and 60 always require

- 3 to 4" (76 to 102mm) enlarger in the vent pipe



- 4 to 3" (102 to 76mm) reducer on the combustion air pipe collar

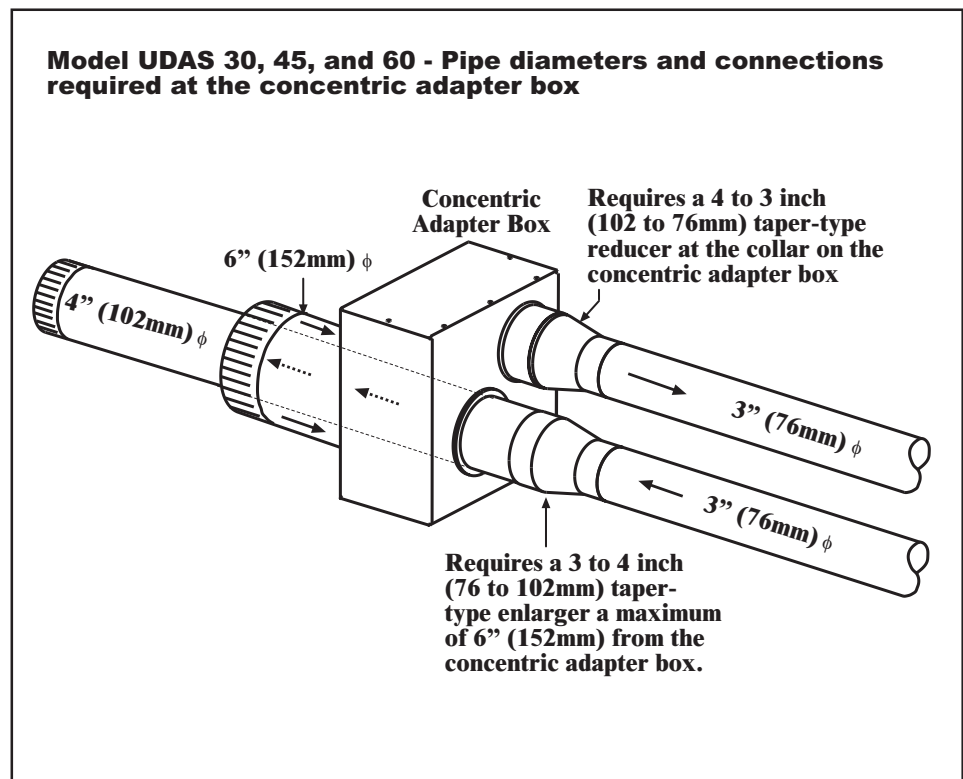
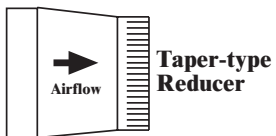
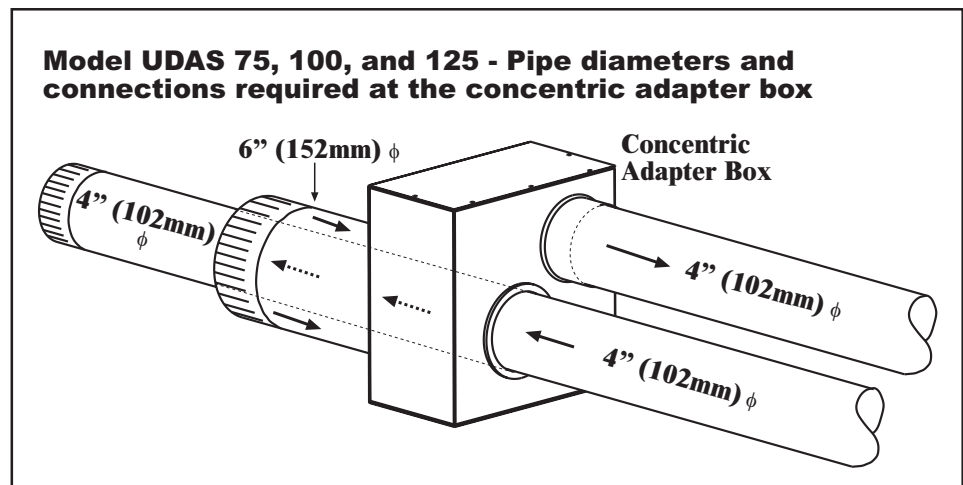


FIGURE 4 - Concentric Adapter Box Connections for Sizes 75, 100, and 125

- Pipe diameters do not differ; no taper-type connectors required



Residential or Commercial/Industrial Installation

Note: Only Sizes 30-125 are certified for residential.

FIGURE 5 - Concentric Adapter Box Connections for Sizes 150, 175, 200, 225, and 250

- Pipe diameters do not differ; no taper-type connectors required

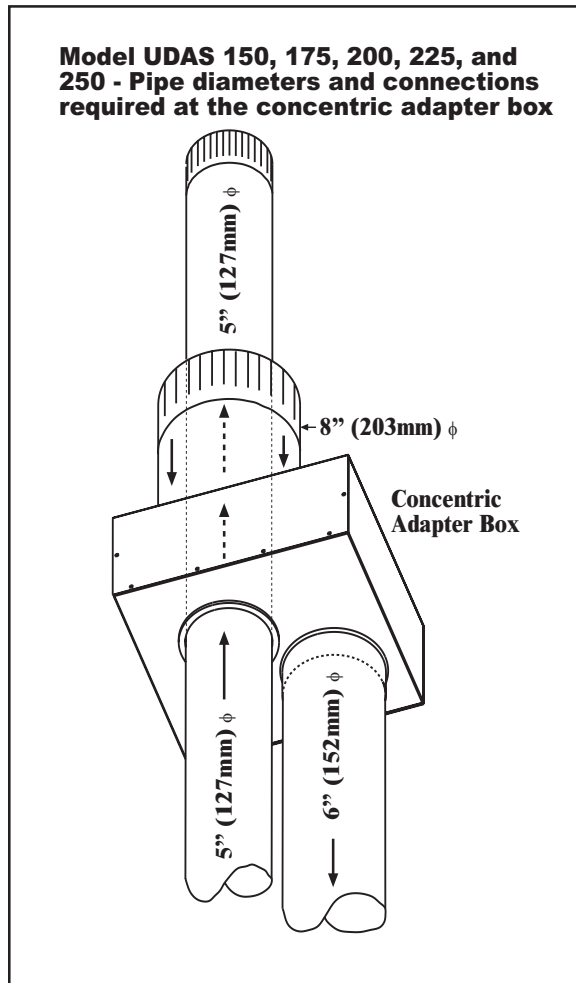
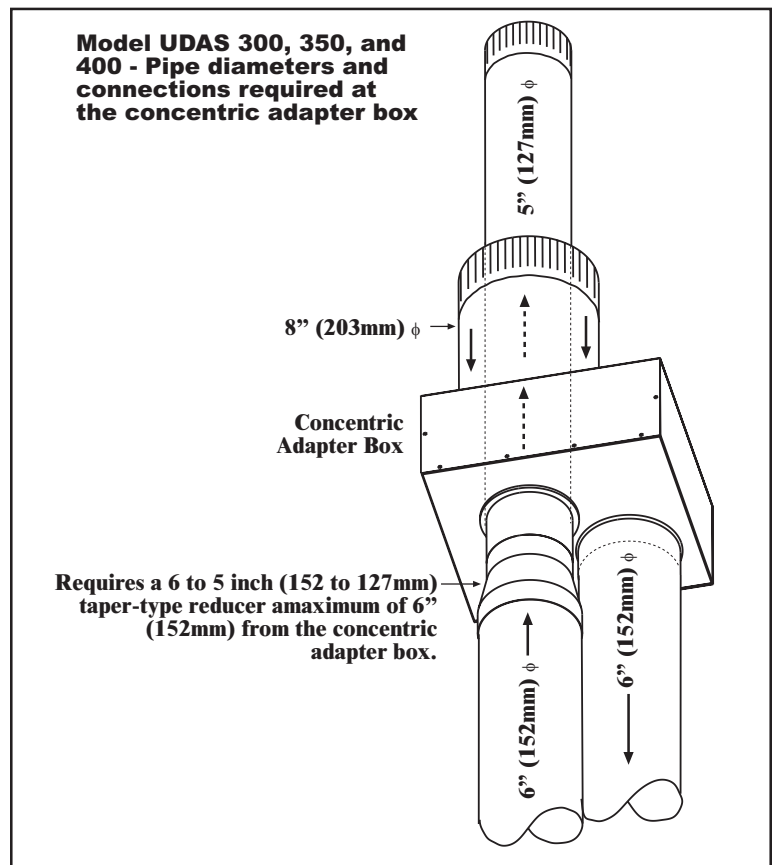
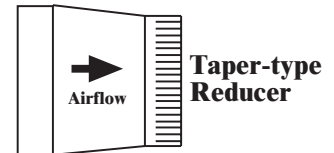


FIGURE 6 - Concentric Adapter Box Connections for Sizes 300, 350, and 400

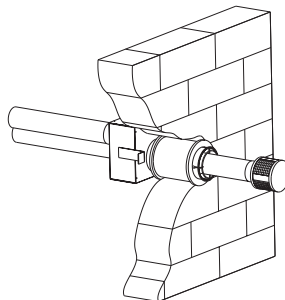
Sizes 300, 350, and 400 always require

- 6" to 5" (152 to 127mm) reducer in the vent pipe

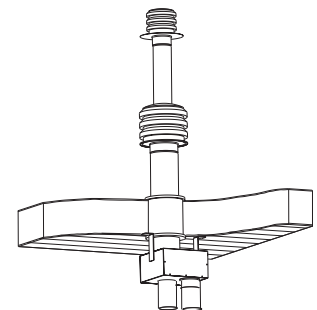


HORIZONTAL OR VERTICAL

Is the Separated Combustion Vent/ Combustion Air System Horizontal or Vertical?



Horizontal, Option CC6, instructions begin on page 8.



Vertical, Option CC2, instructions begin on page 12.

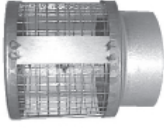

Residential or Commercial/Industrial HORIZONTAL Installation

Note: Only Sizes 30-125 are certified for residential.

HORIZONTAL VENT INSTRUCTIONS

Components Required - Factory and Field

**TABLE 5 - Parts in the
Horizontal Vent Terminal/
Combustion Air Package
(Option CC6)**

Qty	Size	P/N	Description
1	30-125	197090	Complete Horizontal Vent Kit (Same as Option CC6)
	150-400	197091	
1	30-125	195038	Concentric Adapter Box Assembly (See FIGURE 2A, page 5)
	150-400	196638	
1	30-125	155096	Screened Exhaust Assembly 
	150-400	53316	
1	30-125	151755	Inlet Guard 
	150-400	124940	
4	30-400	37661	#10-16 x 1/2" lg Screws to attach the inlet guard
1	30-125	164492	4" I.D. Rubber Seal
	150-400	164493	5" I.D. Rubber Seal
1	30-400	53335	Tube of High Temperature (450°F) Silicone Sealant

Field-supplied installation requirements:

- Vent pipes - see requirements, page 2
- Combustion air pipes - see requirements, page 2
- Taper-type reducers and/or enlargers as required
- Mounting brackets for concentric adapter box (or box may be mounted flush, depending on building construction)
- Thimble (a thimble is not required if wall is of non-combustible construction)
- Flashing

Installation Instructions for Horizontal Vent Kit Option CC6

1. Determine the location on the outside wall for the vent terminal. In most applications, the terminal would be on a level with the heater mounting height. Allow 1/4" per foot downward pitch for condensate drain.

The distance of the termination of the horizontal vent from adjacent public walkways, adjacent buildings, openable windows, and building openings must be in accordance with local codes or, in the absence of local codes, must conform with National Fuel Gas Code Z223.2. Local codes supersede all provisions in these instructions and in the National Fuel Gas Code. Minimum clearances for the horizontal vent terminal are shown in TABLE 6.

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.

Residential or Commercial/Industrial HORIZONTAL Installation

Note: Only Sizes 30-125 are certified for residential.

TABLE 6 - Clearances to Horizontal Vent Terminal

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.

Structure	Minimum Clearances for Vent Termination 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)	1 ft (305mm)
Electric meter, gas meter ** and relief equipment	U.S. - 4 ft (1.2M) horizontally Canada - 6 ft (1.8M) horizontally)
Gas regulator **	U.S. - 3 ft (0.9M) Canada - 6 ft (1.8M)
Adjoining building or parapet	6 ft (1.8M)
Adjacent public walkways	7 ft (2.1M) above
Grade (ground level)	3 ft (.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. Prepare a clearance hole through the outside wall for the combustion air pipe -- a 6" (152mm) diameter pipe for Sizes 30-125 or an 8" (203mm) diameter pipe for Sizes 150-400. Outside wall construction thickness should be between 1" (25mm) minimum and 48" (1143mm) 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.

3. Prepare the concentric adapter box (See FIGURE 3, 4, 5, or 6, pages 6-7, and FIGURE 8, pages 10-11)

3a) Determine whether field-supplied brackets are required. If the wall is combustible, a 6" (152mm) clearance between the concentric adapter box and the wall is required. Design brackets so that the box will be angled slightly to allow for downward pitch of pipes. Attach brackets securely; do not leave any unsealed holes in the adapter box. If brackets are not used, when the box is installed, it should be against the non-combustible wall.

3b) Install the rubber seal and the concentric vent pipe. Locate the vent pipe opening and place the rubber seal around and over the edge of the metal.

See FIGURE 9, page 10, to determine required length of concentric vent pipes. Lubricate the seal and pipe with liquid soap or a rubber lubricant. (Installation Tip: Spray cooking oil works well as a lubricant for this task.)

Being sure the pipe is in the proper flow direction, slide the end through the box and push it *out through the rubber seal*. Push evenly using caution not to displace the seal from its position on the edge of the hole. If the rubber seal moves, slide the pipe back slightly, re-position the seal, and slide the pipe through again.

Position the vent pipe so that it will extend a minimum of 16" past the end of the combustion air pipe. If the vent pipe diameter changes at the concentric adapter box (Sizes 30, 45, 60, 300, 350, and 400), a maximum of 6" (152mm) of vent pipe should extend out the heater side. Any time the pipe is re-positioned, re-check the seal to be sure that it has not rolled. Adjust the pipe and

Residential or Commercial/Industrial HORIZONTAL Installation

Note: Only Sizes 30-125 are certified for residential.

HORIZONTAL VENT INSTRUCTIONS (cont'd)

seal until the pipe is the correct length on each side of the box and the seal is over the edge of the hole and tight to the entire circumference of the pipe.

3c) Attach the outside portion of the combustion air pipe to the box. Determine the length by measuring the bracket length (if brackets are used), plus the wall thickness, plus 2" (51 mm). (The inlet air pipe should extend beyond the outside wall approximately 2" (51mm).)

Attach the inlet air pipe to the collar of the concentric adapter with sheetmetal screws, being careful not to penetrate the vent pipe.

4. Attach the concentric adapter box to the wall. Insert the vent pipe and combustion air pipe through the wall. Push the concentric adapter box or field-supplied brackets against the inside wall. If using brackets, attach brackets to the wall. On the outside, caulk or flash the inlet air pipe on the outside wall. Flashing is field-supplied.

5. Slide the inlet guard over the end of the vent pipe and position it on the end of the combustion air pipe. See FIGURE 7. Attach the guard to the inlet air pipe with the four 1/2" lg screws provided.

6. Position the exhaust (vent) cap on the end of the vent pipe. Align the cap so that its baffle strips are positioned on the horizontal and vertical centerlines. Attach the exhaust cap to the vent pipe with sheetmetal screws.

FIGURE 7 - First, attach the inlet air guard; Second, attach the exhaust cap.

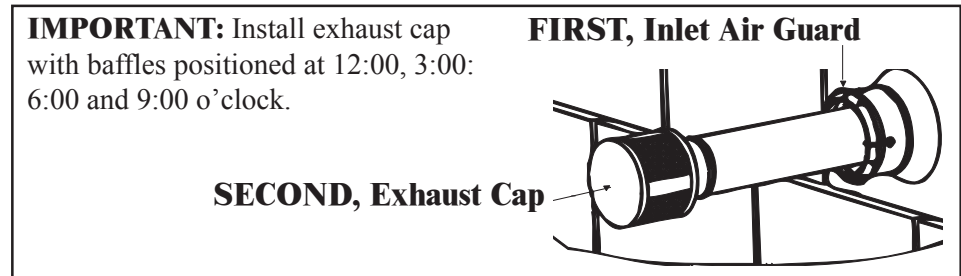
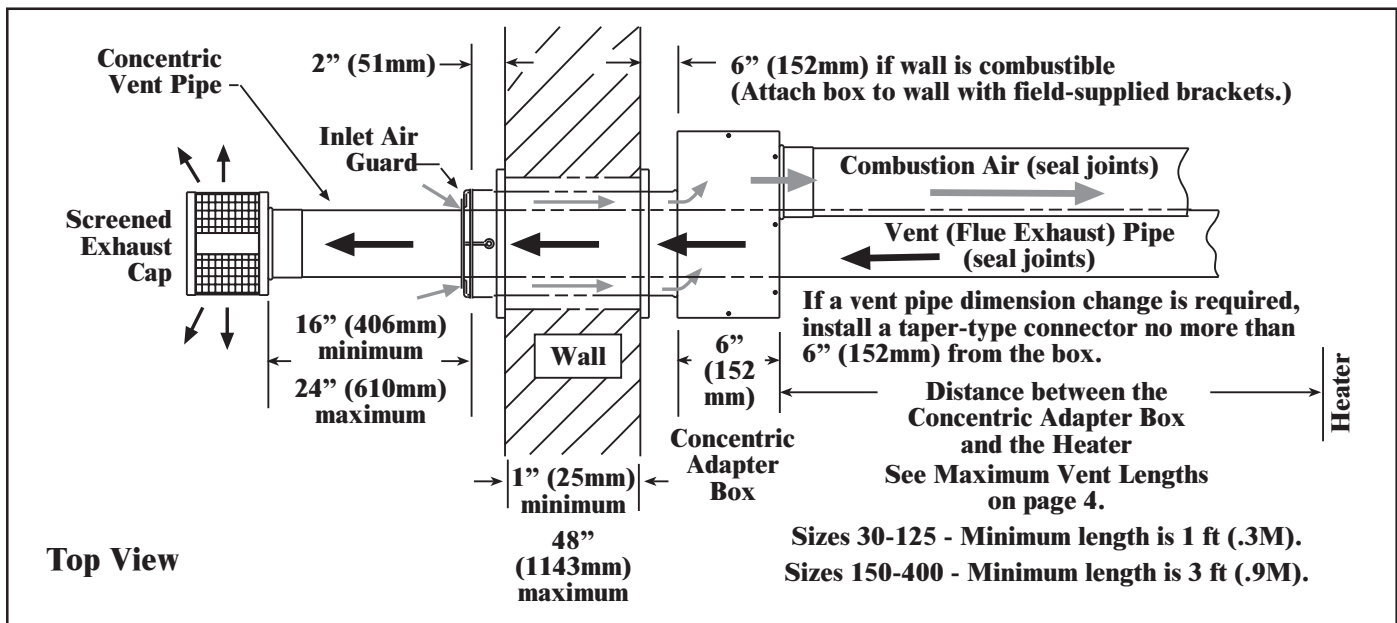


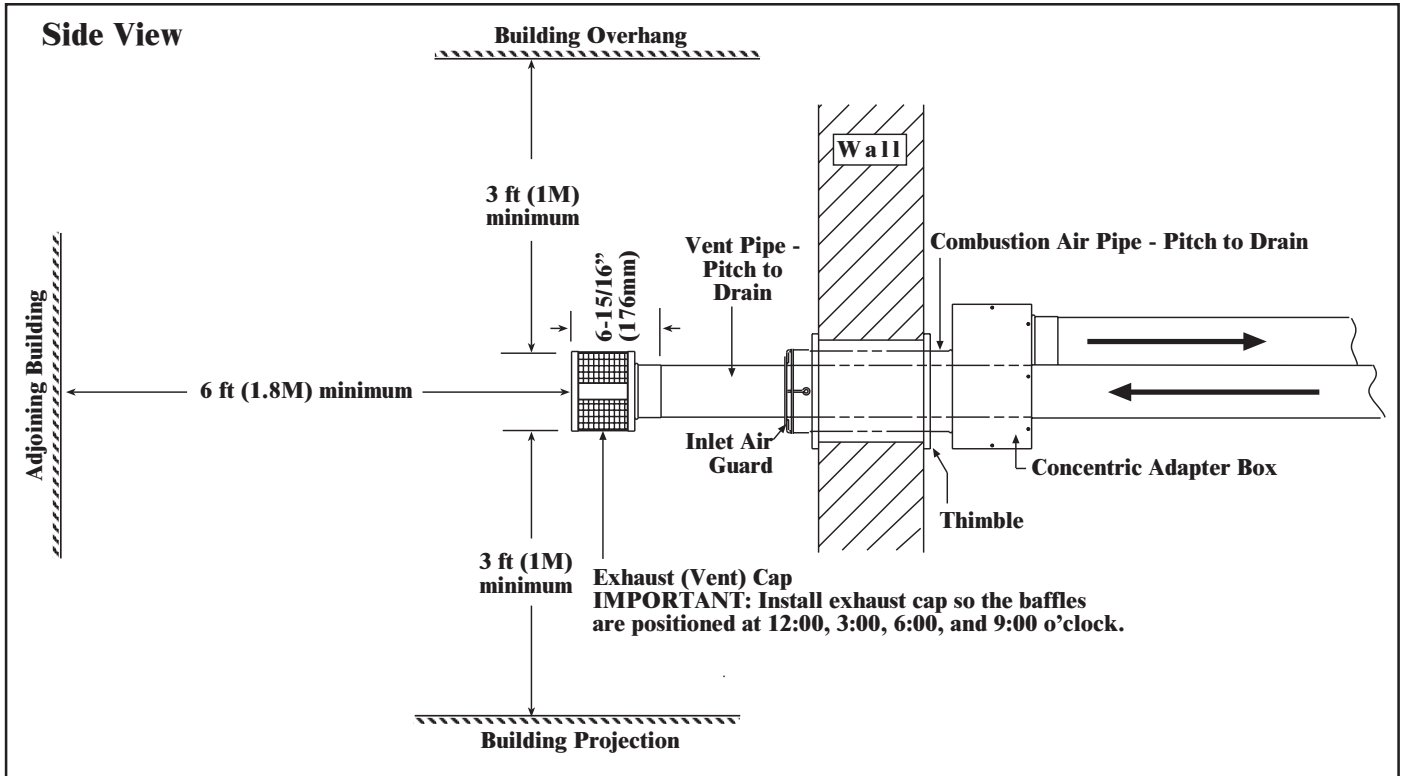
FIGURE 8 - Installation of a Typical Separated-Combustion Unit with Horizontal Vent and Combustion Air Pipes (Option CC6)



Residential or Commercial/Industrial HORIZONTAL Installation

Note: Only Sizes 30-125 are certified for residential.

FIGURE 8 - (cont'd)



7. Horizontal vent terminal/combustion air inlet Option CC6 is installed and ready for connection to the heater. Refer to both parts of FIGURE 8 and verify compliance with all requirements illustrated.

8. Connect the Concentric Adapter Box to the Heater (See FIGURE 9) - Use the pipe specified and joints required for type of pipe.

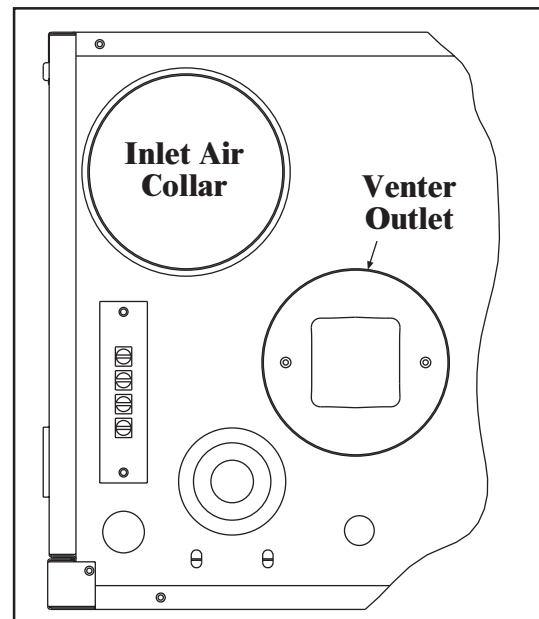
Sizes 30, 45, and 60 require a 4 to 3" (102 to 76mm) reducer at the venter outlet and a 3 to 4" (76 to 102mm) enlarger at the air inlet collar.

A minimum of 12" (305 mm) of straight pipe is **required** at the venter outlet on Sizes 200, 225, 250, 300, 350, and 400.

Due to the high temperature, **do not** enclose the exhaust pipe or place pipe closer than 6" (152 mm) to combustible material.

Installation of the horizontal vent and combustion air system on your separated-combustion unit is complete. Verify compliance with all installation requirements.

FIGURE 9 - Rear of Heater Showing Inlet Air and Venter Outlet Collar Locations





Residential or Commercial/Industrial VERTICAL Installation

Note: Only Sizes 30-125 are certified for residential.

VERTICAL VENT INSTRUCTIONS

Components Required - Factory and Field

**TABLE 7 - Parts in the
Vertical Vent Terminal/
Combustion Air Package
(Option CC2)**

Qty	Size	P/N	Description
1	30-125	197086	Complete Vertical Vent Kit (Same as Option CC2)
	150-400	197087	
1	30-125	195038	Concentric Adapter Box Assembly (See FIGURE 2A, page 5)
	150-400	196638	
1	30-125	155631	Exhaust (Vent) Terminal 
	150-400	55326	
1	30-125	155635	Combustion Air Inlet 
	150-400	53330	
1	30-125	164492	4" I.D. Rubber Seal
	150-400	164493	5" I.D. Rubber Seal
1	30-400	53335	Tube of High Temperature (450°F) Silicone Sealant

Field-supplied installation requirements:

- Vent pipes - see requirements, page 2
- Combustion air pipes - see requirements, page 2
- Taper-type reducers and/or enlargers as required
- Mounting brackets for concentric adapter box (or box may be mounted flush, depending on building construction)
- Thimble (a thimble is not required if wall is of non-combustible construction)
- Flashing

Installation Instructions for Vertical Vent/ Combustion Air Kit Option CC2

1. Determine the location for the vent terminal on the roof, allowing room for the concentric adapter box inside. A thimble may or may not be required depending on building construction and/or local codes. Prepare a hole through the roof for the combustion air pipe -- a 6" (152mm) diameter pipe for Sizes 30-125 or an 8" (203mm) diameter pipe for Sizes 150-400. The air inlet pipe must be flashed or sealed to the roof. Flashing is to be supplied by the installer as required by roof construction and/or codes.

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.

2. Prepare the concentric adapter box.

2a) Determine whether field-supplied brackets are required. If the roof is combustible, a 6" (152mm) clearance between the concentric adapter box and the roof is required. Attach securely with field-supplied brackets; do not leave any unsealed holes in the adapter box. If brackets are not used, when the box is installed, it should be against the wall.

Residential or Commercial/Industrial VERTICAL Installation

Note: Only Sizes 30-125 are certified for residential.

VERTICAL VENT INSTRUCTIONS (cont'd)

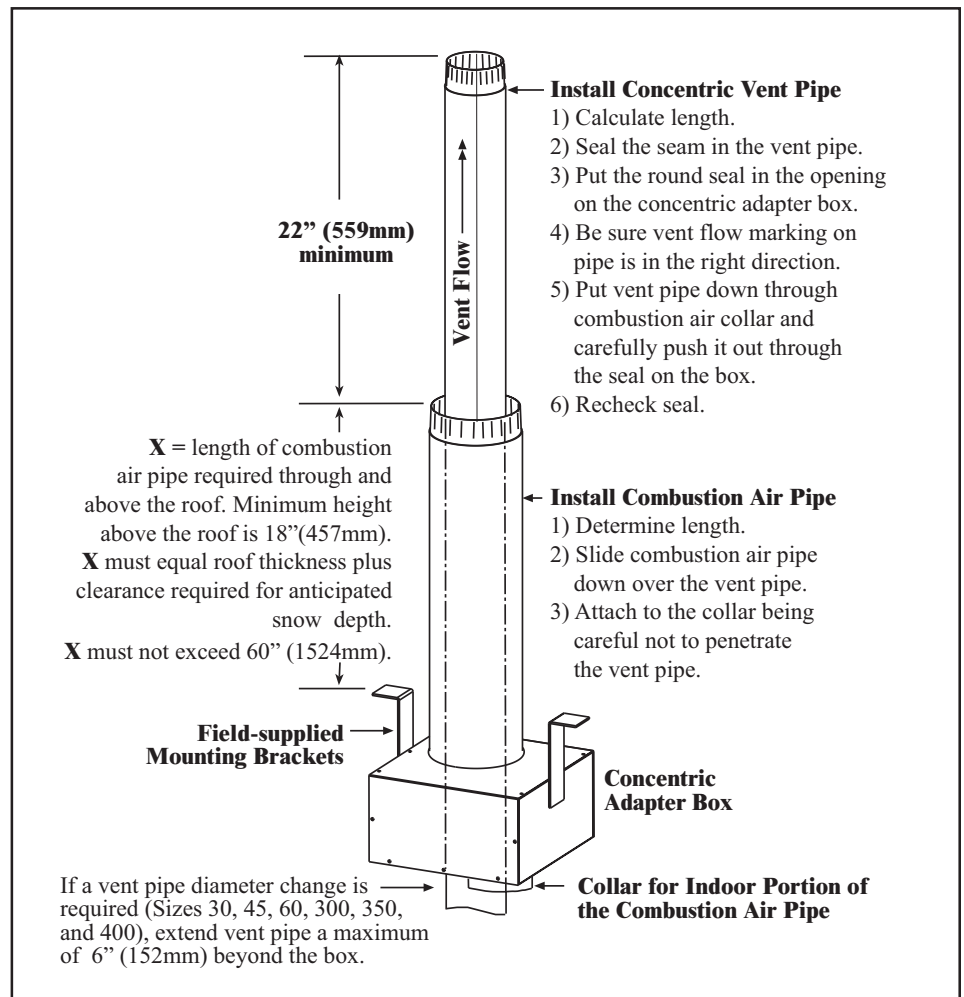
2b) Install the rubber seal and the vent pipe (See FIGURE 10). Locate the vent pipe opening and place the rubber seal around and over the edge of the metal.

Determine the length of the section of vent pipe by adding the requirements. The vent pipe must extend a maximum of 6" (152mm) on the heater side (if a reducer is required); plus 6" (152mm) through the box; plus bracket length; plus the width of the roof; plus the height of the outer inlet air pipe; plus a minimum of 22" (559mm) beyond the height of the inlet air pipe.

Lubricate the seal and pipe with liquid soap or a rubber lubricant. (**Installation Tip:** Spray cooking oil works well as a lubricant for this task.) Being sure the pipe is in the proper flow direction, slide the end through the box and push it out through the rubber seal. Push evenly using caution not to displace the seal from its position on the edge of the hole. If the rubber seal moves, slide the pipe back slightly, re-position the seal, and slide the pipe through again. When the vent pipe is in its final position, re-check the seal to be sure that it has not rolled in. Adjust the pipe and seal until the seal is in the correct position on the edge of the hole and tight to the entire circumference of the pipe.

Position the vent pipe so that it will protrude a minimum of 22" (559mm) past the end of the combustion air pipe. See FIGURE 10.

FIGURE 10 - Assemble Concentric Adapter Box, Concentric Vent Pipe, and Outdoor Combustion Air Pipe



Residential or Commercial/Industrial VERTICAL Installation

Note: Only Sizes 30-125 are certified for residential.

VERTICAL VENT INSTRUCTIONS (cont'd)

If a taper type connection is required in the vent run (Sizes 30, 45, 60, 300, 350, and 400; see FIGURES 3 and 6), no more than 6" (152mm) of vent pipe should extend out the heater side of the concentric adapter box.

2c) Attach the outside portion of the combustion air pipe to the box. Determine the length of the combustion air pipe so that dimension "X" (FIGURE 10) is equal to the roof thickness, plus anticipated snow depth, but does not exceed 60" (1524 mm) or have less than 18" (457mm) of pipe above the roof. Attach the combustion air pipe to the collar with sheetmetal screws being careful not to penetrate the vent pipe.

3. Attach the concentric adapter box. Insert the vent pipe and combustion air pipe up through the roof and secure the adapter box (FIGURE 11). Flash the combustion air pipe to the outside of the roof as required.

4. Slide the combustion air inlet over the vent pipe and fasten collar to the end of the combustion air pipe with sheetmetal screws (See FIGURE 12). Seal joint at top between vent pipe and combustion air inlet with silicone sealant to prevent water leakage.

5. Attach the exhaust terminal with sheetmetal screws (See FIGURE 12).

6. Vertical vent terminal/combustion air inlet is installed and ready for connection to the heater.

Refer to FIGURE 13 and verify that all installation requirements are met.

FIGURE 11 - Install Assembled Concentric Adapter Box

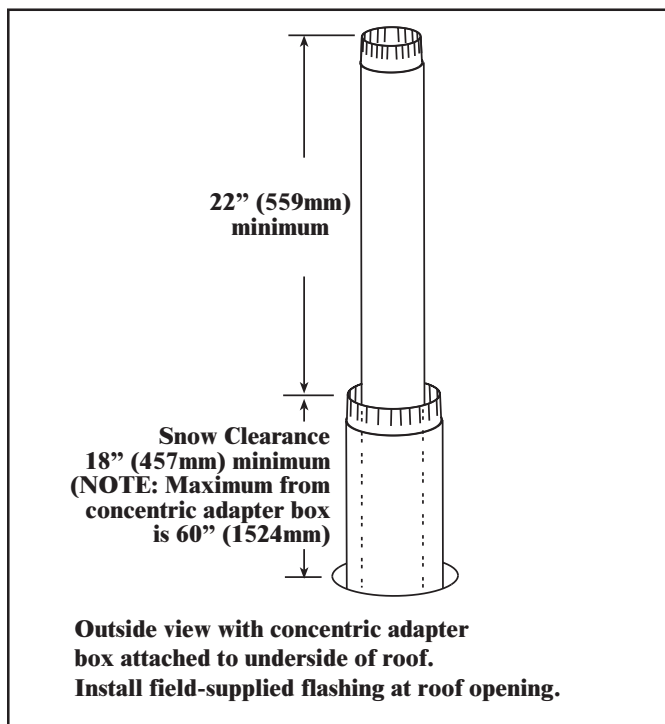
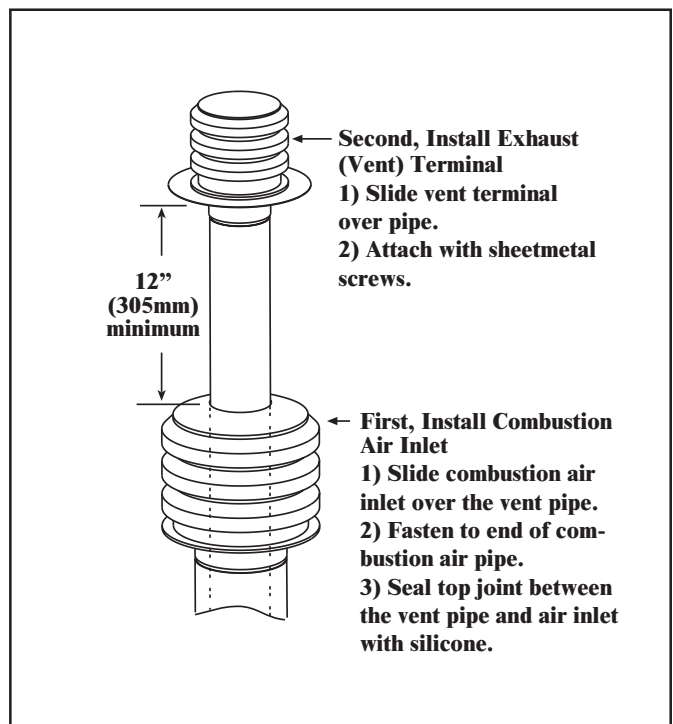


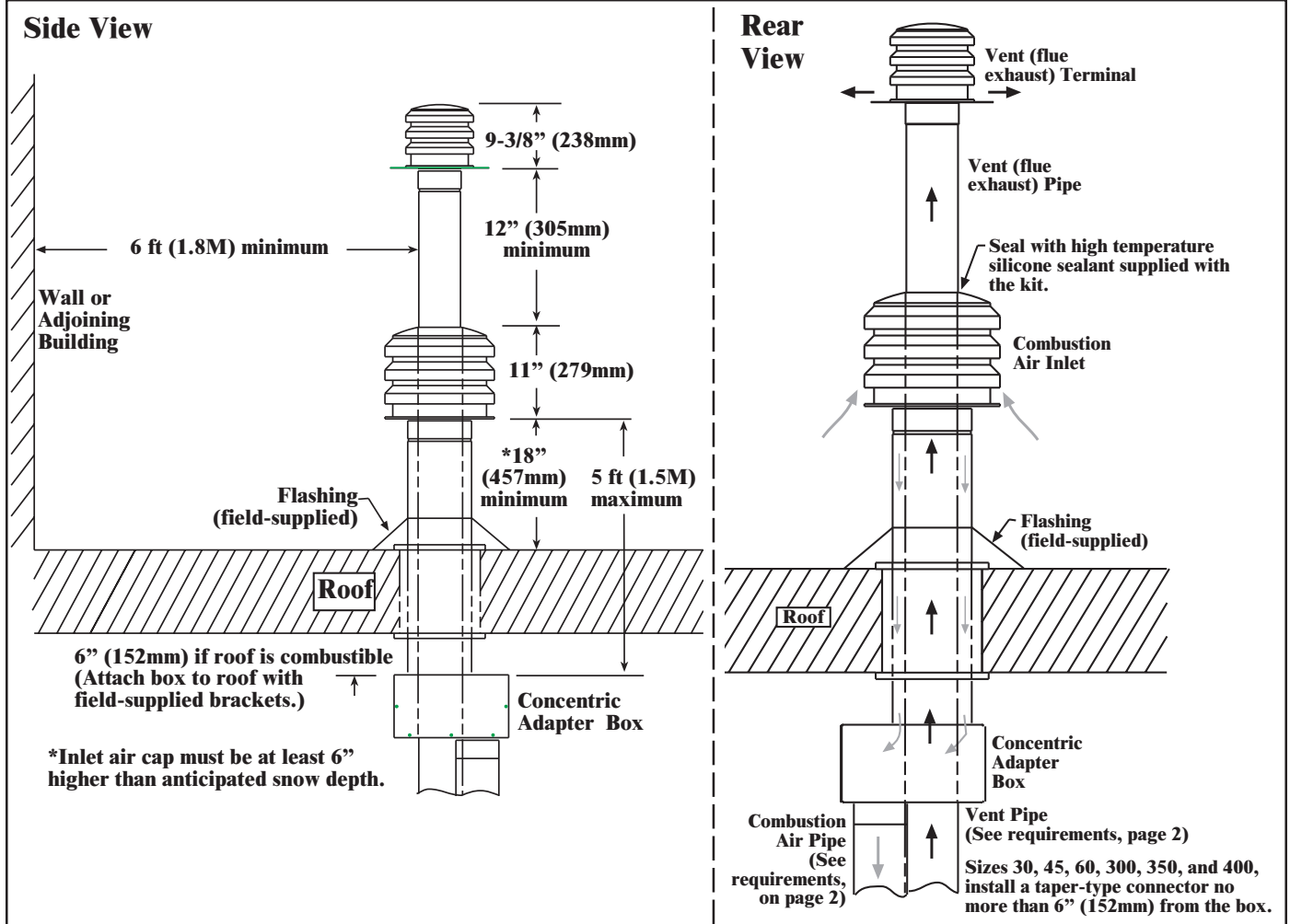
FIGURE 12 - Install Combustion Air Inlet and Vent Terminal



Residential or Commercial/Industrial VERTICAL Installation

Note: Only Sizes 30-125 are certified for residential.

FIGURE 13 - Installation of Unit with Vertical Vent Terminal/Combustion Air Inlet (Option CC2)



7) Connect Concentric Adapter to the Heater (See FIGURE 14) - Use the pipe specified and joints required for type of pipe.

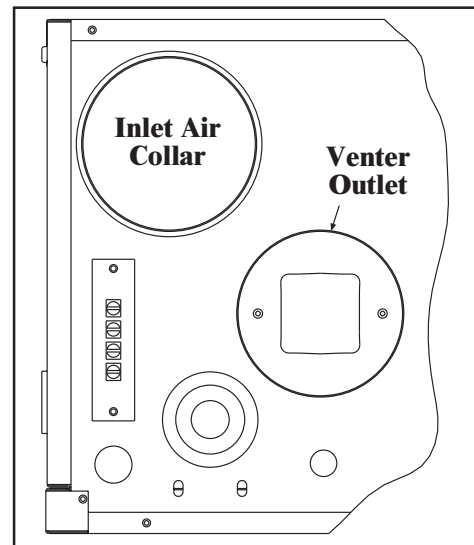
Sizes 30, 45, and 60 require a 4 to 3" (102 to 76mm) reducer at the venter outlet and a 3 to 4" (76 to 102mm) enlarger at the air inlet collar.

A minimum of 12" (305 mm) of straight pipe is **required** at the venter outlet on Sizes 200, 225, 250, 300, 350, and 400.

Due to the high temperature, do not enclose the exhaust pipe or place pipe closer than 6" (152 mm) to combustible material.

Installation of the vertical vent and combustion air system on your separated-combustion unit is complete.

FIGURE 14 - Rear of Heater Showing Inlet Air and Venter Outlet Collar Locations



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