REZNOR® Thomas&Betts

# Venting Instructions for V3® Separated Combustion Equipment

**Vent Installation Form RZ-NA I-UD-V-SC (Version B)**
**Obsoletes Form RZ-NA I-V-SC (Version A)**

**APPLIES TO: Separated Combustion Model UDAS and Model UDBS**

## Table of Contents



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**Use this Venting Manual with the Heater Installation Manual**

| Heater | Installation Form |
|---|---|
| Model UDAS ..... | RZ-NA I-UDA |
| Model UDBS ..... | RZ-NA I-UDB |

## 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 near the vent outlet on the heater matches this label.**

## Venting and Combustion Air Requirements for Separated Combustion Models UDAS and UDBS

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.

**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.**

**The horizontal and vertical vent/combustion air systems illustrated in this manual are the only venting/combustion air systems approved for Model UDAS and Model UDBS separated-combustion unit heaters.** Models UDAS 30, 45, 60, 75, 100 and 125 are certified for both residential and commercial/industrial installations. Models UDAS 150, 175, 200, 225, 250, 300, 350, and 400 and Models UDBS 30, 45, 60, 75, 100, 125, 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 system or Option CC2 for a vertical system. 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.

## 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

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

**Vent Pipe**

- Vent pipe approved for a Category III appliance is **required between the heater and the concentric adapter box.**
- Double-wall (Type B) vent pipe is **required for vent terminal section. Vent terminal section must be one-piece with no joints.**

**Combustion Air Inlet Pipe**

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

### 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 is **required between the heater and the concentric adapter box.**

  **OR, if at least 75% of the equivalent length of the vent run is vertical,** double-wall (Type B) vent pipe may be used between the heater and the concentric adapter box.
- Double-wall (Type B) vent pipe is **required for vent terminal section. Vent terminal section must be one-piece with no joints.**

**Combustion Air Inlet Pipe**

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

# Residential or Commercial/Industrial Installation

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

## 2. Venter Outlet and Combustion Air Inlet

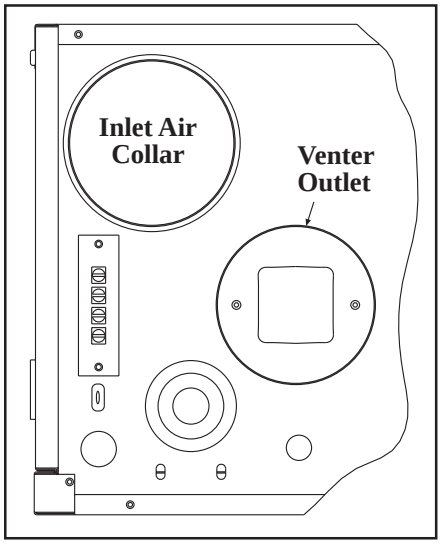



**FIGURE 1 - Rear of Heater showing Location of Inlet and Outlet Connections**

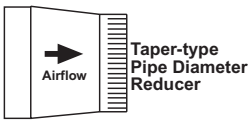
**Note:** Small unit is illustrated. Larger units have slightly different orientation.

**TABLE 1 - Diameter of the Venter Outlet and Inlet Air Collar**

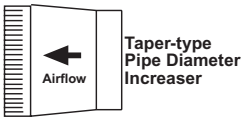
| Size | Heater Connections (diameter) | | | |
|---|---|---|---|---|
| | Venter Outlet | | Inlet Air Collar | |
| | inches | mm | inches | mm |
| **30** | 4 | 102 | 4 | 102 |
| **45** | 4 | 102 | 4 | 102 |
| **60** | 4 | 102 | 4 | 102 |
| **75** | 4 | 102 | 4 | 102 |
| **100** | 4 | 102 | 4 | 102 |
| **125** | 4 | 102 | 4 | 102 |
| **150** | 5 | 127 | 6 | 152 |
| **175** | 5 | 127 | 6 | 152 |
| **200** | 5 | 127 | 6 | 152 |
| **225** | 5 | 127 | 6 | 152 |
| **250** | 5 | 127 | 6 | 152 |
| **300** | 6 | 152 | 6 | 152 |
| **350** | 6 | 152 | 6 | 152 |
| **400** | 6 | 152 | 6 | 152 |

**Special Requirements at the Heater Connections**

- Sizes 200, 225, 250, 300, 350, and 400 require a minimum of 12" (305 mm) of straight pipe at the heater connections.
- When using 3" diameter pipe, Sizes 30, 45 and 60 require a 4" to 3" (102 to 76mm) taper-type reducer at the venter outlet.




- When using 3" diameter pipe, Sizes 30, 45 and 60 require a 3" to 4" (76 to 102mm) taper-type increaser at the inlet air collar.




## 3. Pipe Diameter and Length

Pipe diameter and length requirements listed in **TABLE 2** are for the indoor sections of pipe between the heater and the concentric adapter box.

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

- **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.

| Pipe Diameter and Maximum Pipe Length from Heater to Concentric Adapter Box | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| UDAS and UDBS | Pipe Diameter | | | | Maximum Length | | Equivalent Straight Length for a | | | |
| | Vent Pipe | | Inlet Air Pipe | | | | 90° Elbow | | 45° Elbow | |
| | inches | mm | inches | mm | feet | M | feet | M | feet | M |
| **30** | 3 | 76 | 3 | 76 | 15 | 4.6 | 2 | 0.6 | 1 | 0.3 |
| | 4 | 102 | 4 | 102 | 10 | 3.0 | 2 | 0.6 | 1 | 0.3 |
| **45** | 3 | 76 | 3 | 76 | 15 | 4.6 | 2 | 0.6 | 1 | 0.3 |
| | 4 | 102 | 4 | 102 | 10 | 3.0 | 2 | 0.6 | 1 | 0.3 |
| **60** | 3 | 76 | 3 | 76 | 25 | 7.6 | 3 | 0.9 | 1.5 | 0.5 |
| | 4 | 102 | 4 | 102 | 15 | 4.6 | 1.5 | 0.5 | 1 | 0.3 |
| **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 |

# Residential or Commercial/Industrial Installation

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

## Venting Requirements (cont'd)

### 3. Pipe Diameter and Length (cont'd)

Pipe diameters and maximum indoor vent lengths in **TABLE 2** 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.**

The diameters of the outside (terminal) concentric pipes are listed in **TABLE 3**.

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

**Diameters of Concentric (outdoor) Pipes**

| UDAS and UDBS | | 30, 45, 60, 75, 100, 125 | 150, 175, 200, 225, 250, 300, 350, 400 |
|---|---|---|---|
| Inlet Air Pipe Diameter | inches | 6 | 8 |
| | mm | 152 | 203 |
| Vent Pipe Diameter (1-piece section of double-wall pipe) | inches | 4 | 5 |
| | mm | 102 | 127 |

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

### 4. Joints and Sealing

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

- **If using Category III vent pipe run,** follow the pipe manufacturer's instructions for joining and sealing Category III vent pipe sections.
- **If using single-wall vent pipe run,** secure slip-fit pipe connections using sheetmetal screws or rivets. Seal all joints with aluminum tape or silicone sealant.
- **If using double-wall (Type B) vent pipe run (allowed only if 75% of equivalent vent length is vertical),** follow the pipe manufacturer's instructions for joining and sealing vent pipe sections.
- **To seal joints in the single-wall 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 to the vent cap,** follow the illustrated step-by-step instructions in **FIGURE 2. When joining the terminal section of double-wall vent pipe to the single-wall or Category III vent pipe run,** follow the illustrated step-by-step instructions in **FIGURE 3**.

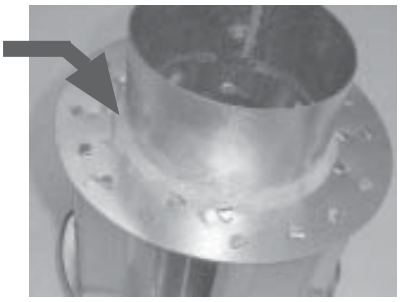
## Instructions for Attaching the Double-Wall (Type -B) Section of Terminal Vent Pipe

**FIGURE 2 - Follow STEPS to join Double-Wall (Type B) Pipe and the Vent Terminal Cap (horizontal or vertical)**

**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.**



# Residential or Commercial/Industrial Installation

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

(NOTE: Pipes and vent caps may not look exactly as shown in the illustrations. Instructions apply to both horizontal and vertical vent kits.)

**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.

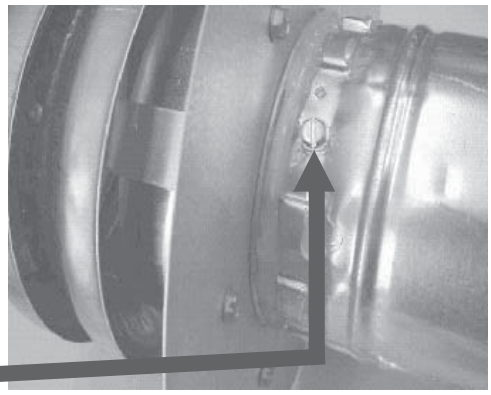


**Figure 2 - STEP 3**

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 to Single Wall Pipe, to Category III Pipe, or to a Taper-type Connector**

**Figure 3 - STEP 1**

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 immediately following STEP 1.**

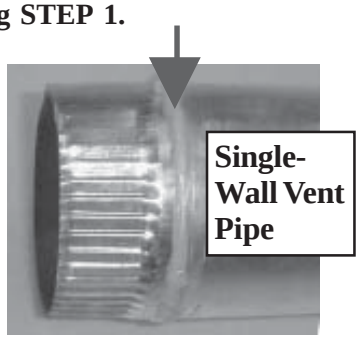



**Figure 3 - STEP 2**

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.

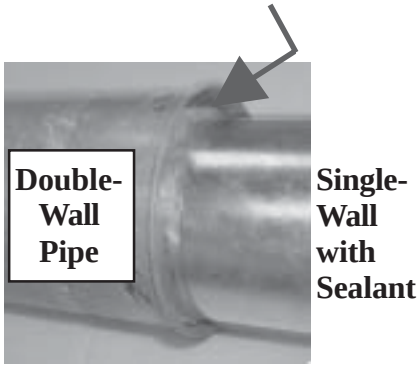
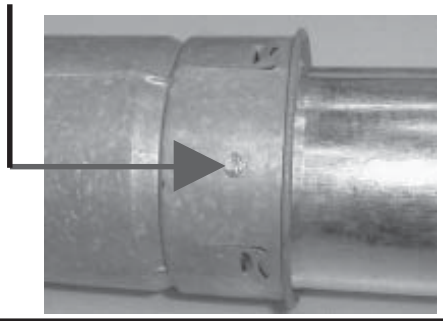



**Figure 3 - STEP 3**

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



## 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.

**NOTE:** The 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. 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 kit. Installation instructions depend on whether the vent system is horizontal (Option CC6) or vertical (Option CC2).

# Residential or Commercial/Industrial Installation

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

# Venting Requirements (cont'd)

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

**FIGURE 4 - A Concentric Adapter Box is a Required Part of all Model UDAS and UDBS 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.

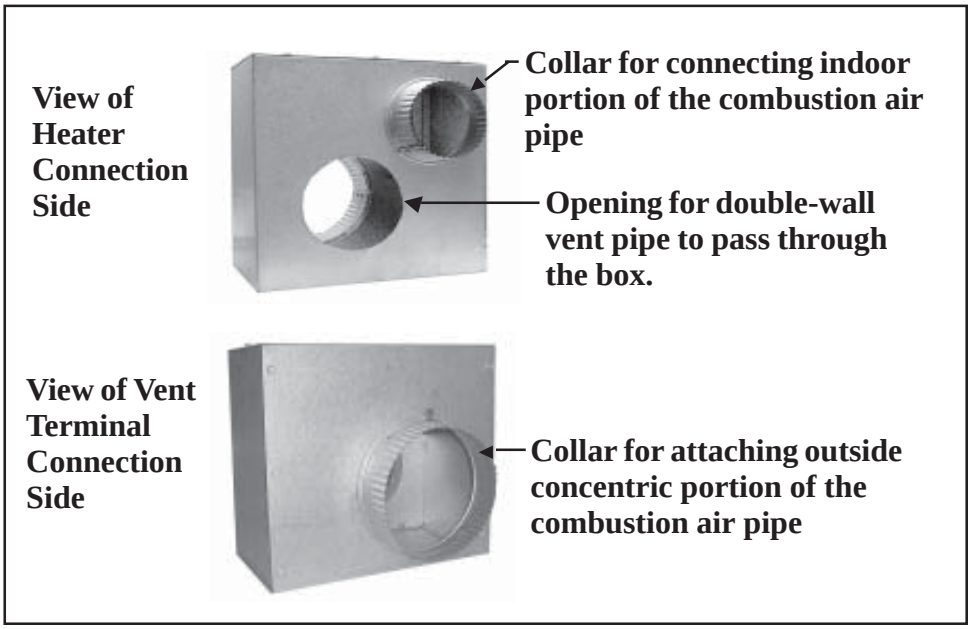
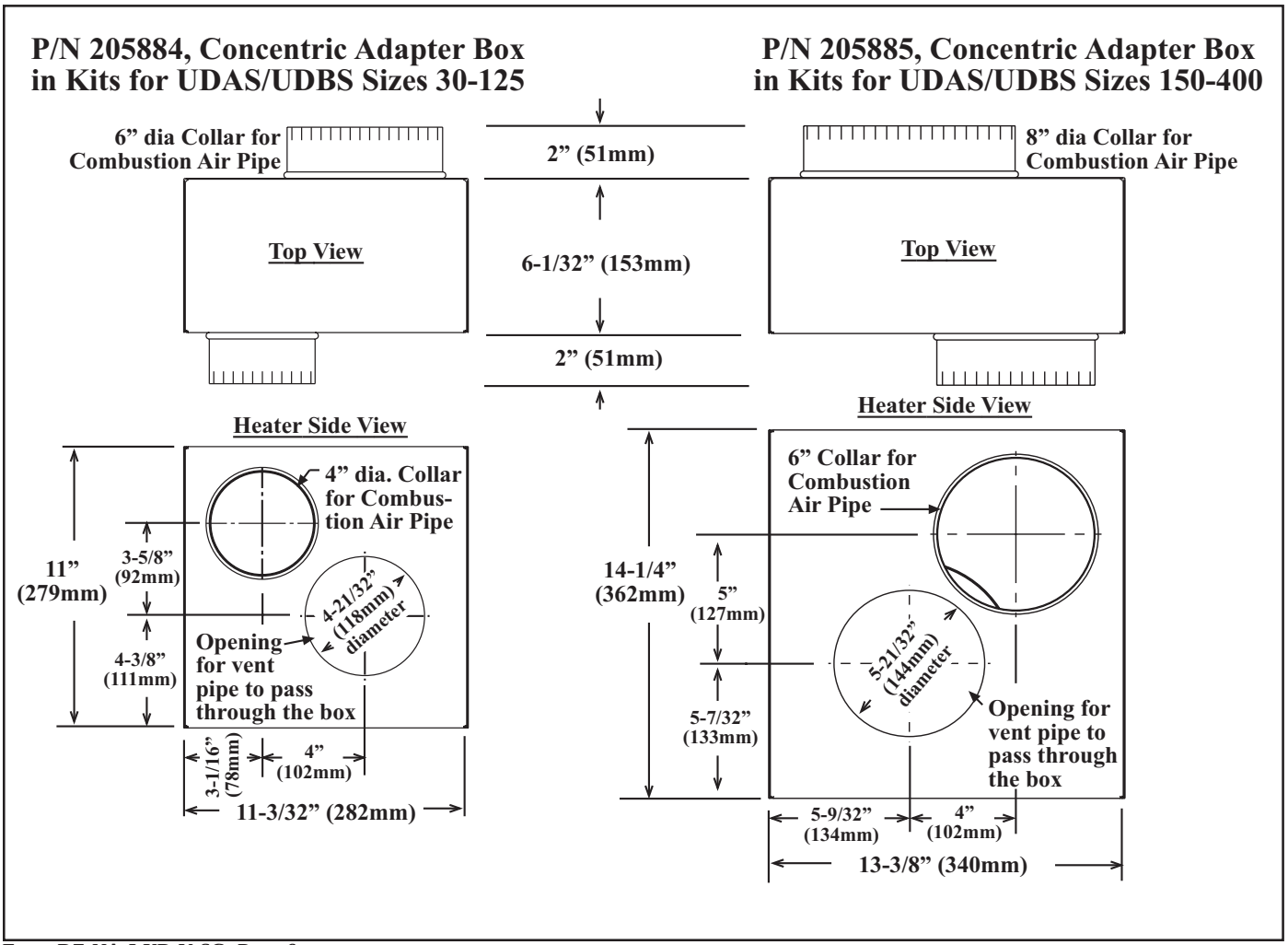


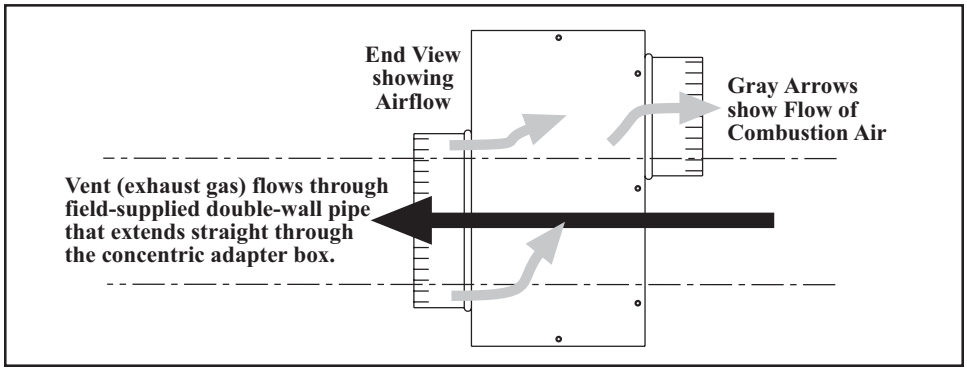

**FIGURE 5 - Concentric Adapter Box Dimensions**



# Residential or Commercial/Industrial Installation

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

**FIGURE 6 - Concentric Adapter Box Airflow**

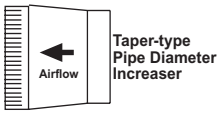



## Pipe Connections at the Concentric Adapter Box

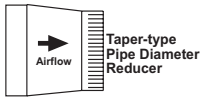
When pipe diameters differ, depending on direction of airflow, join the pipes with either a taper-type reducer or increaser. Requirements vary depending on the size of the heater; refer to **FIGURE 7, 8, 9, or 10** to determine whether or not pipe diameters differ. Do **NOT** make actual connections 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 the length of pipe required varies by installation.**

**FIGURE 7A - Concentric Adapter Box Connections for Sizes 30, 45, and 60 using 3" diameter pipes**

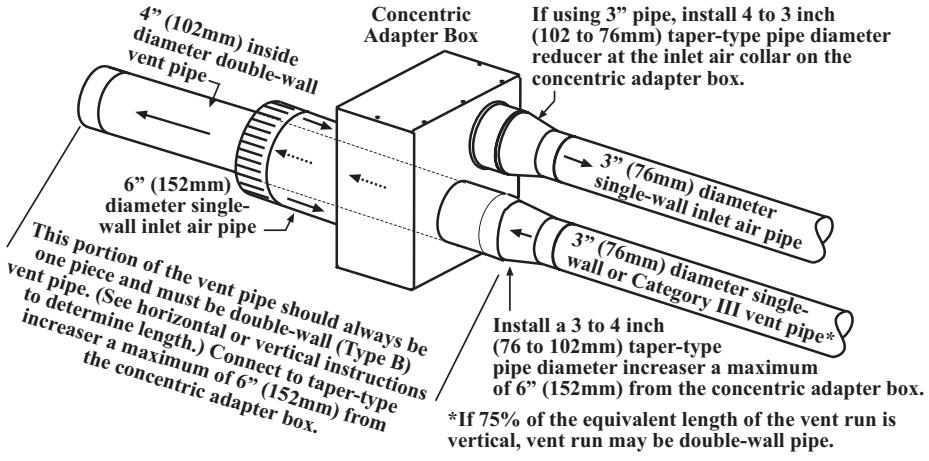
- **If using 3" diameter pipes**, Sizes 30, 45, and 60 require a 3" to 4" (76 to 102mm) increaser in the vent pipe.




- **If using 3" diameter pipes**, Sizes 30, 45, and 60 require a 4" to 3" (102 to 76mm) reducer on the combustion air pipe collar.




**Models UDAS and UDBS 30, 45, and 60 - Pipe diameters and connections required at the concentric adapter box when using 3" diameter pipes**




**Models UDAS and UDBS 30, 45, and 60 - Pipe diameters and connections required at the concentric adapter box when using 4" pipes**

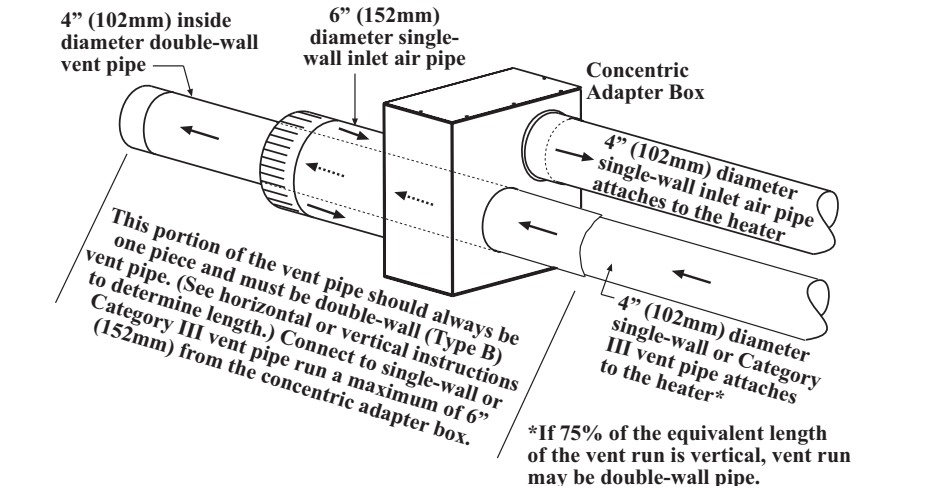



**FIGURE 7B - Concentric Adapter Box Connections for Sizes 30, 45, and 60 using 4" diameter pipes**

- **If using 4" diameter pipes**, pipe diameters do not differ; no taper-type connectors are required.

# Residential or Commercial/Industrial Installation

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

## Pipe Connections at the Concentric Adapter Box (cont'd)

**FIGURE 8- Concentric Adapter Box Connections for Sizes 75, 100, and 125**

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

**Models UDAS and UDBS 75, 100, and 125 - Pipe diameters and connections required at the concentric adapter box**

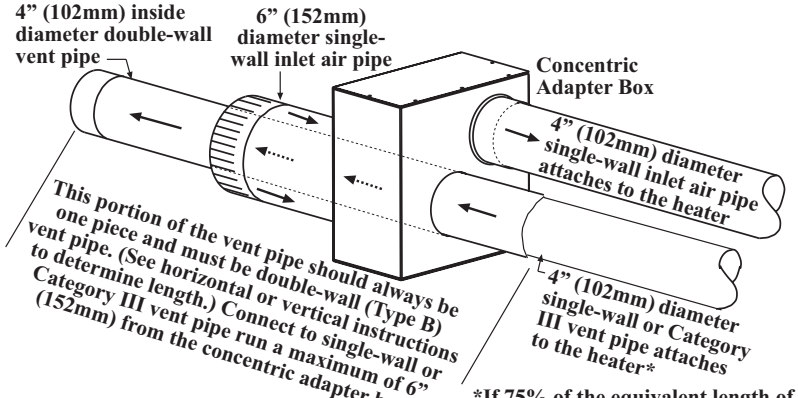



**FIGURE 9 - Concentric Adapter Box Connections for Sizes 150, 175, 200, 225, and 250**

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

**Models UDAS and UDBS 150, 175, 200, 225, and 250 - Pipe diameters and connections required at the concentric adapter box**

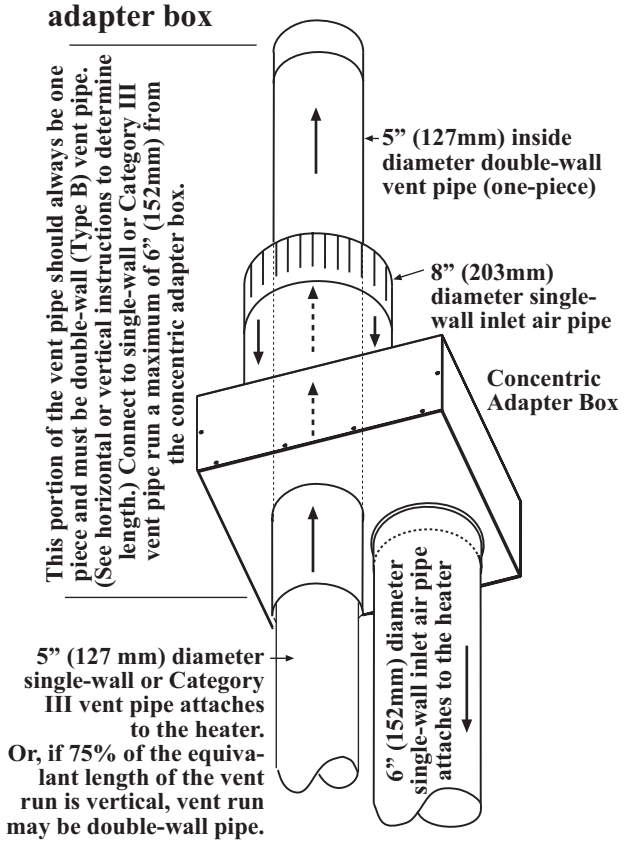
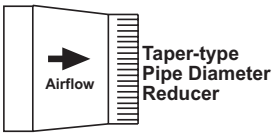
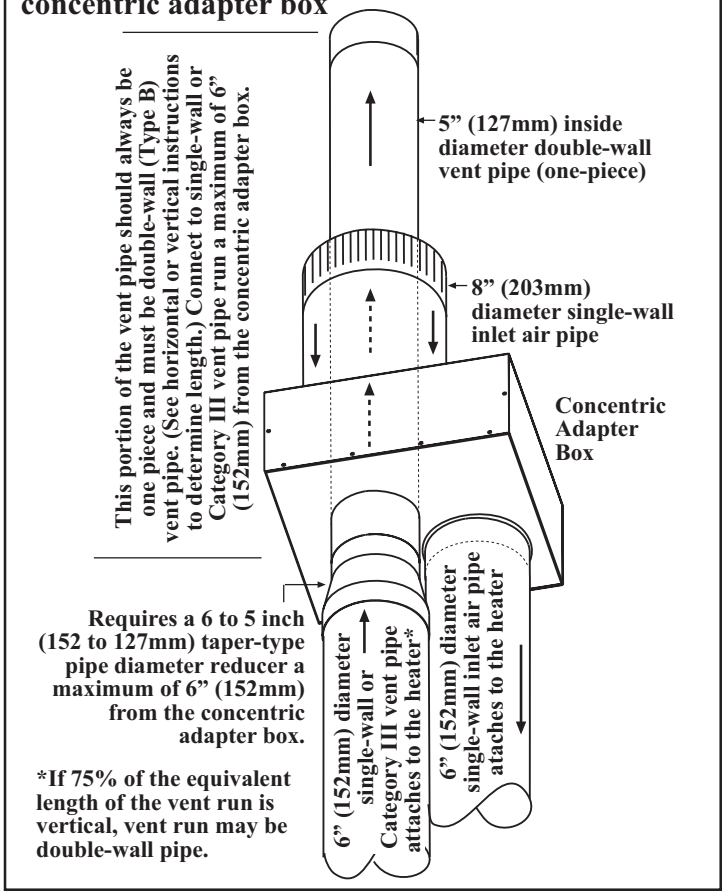



**FIGURE 10 - Concentric Adapter Box Connections for Sizes 300, 350, and 400**

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




**Models UDAS and UDBS 300, 350, and 400 - Pipe diameters and connections required at the concentric adapter box**

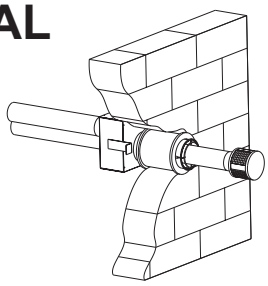


# Residential or Commercial/Industrial Installation

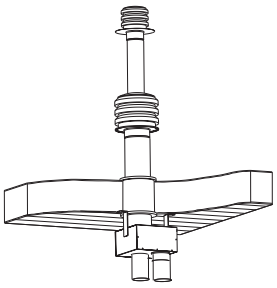
**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

## HORIZONTAL OR VERTICAL

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



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



**Vertical, Option CC2, instructions begin on page 13.**

## HORIZONTAL VENT INSTRUCTIONS

### Components Required - Factory and Field

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

| Qty | Size | P/N | Description |
|---|---|---|---|
| 1 | 30-125 | 205882 | Complete Horizontal Vent Kit (Same as Option CC6) |
| | 150-400 | 205883 | |
| 1 | 30-125 | 205884 | Concentric Adapter Box Assembly (See **FIGURE 4**, page 6) |
| | 150-400 | 205885 | |
| 1 | 30-125 | 155096 | Screened Exhaust Assembly  |
| | 150-400 | 53316 | |
| 1 | 30-125 | 205893 | Inlet Guard  |
| | 150-400 | 205894 | |
| 4 | 30-400 | 37661 | #10-16 x 1/2" long Screws to attach the inlet guard |
| 2 | 30-400 | 207232 | Brackets for attaching Concentric Adapter Box (See **FIGURE 11**, page 10.) |
| 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 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

### Installation Instructions for Horizontal Vent Kit Option CC6

(in compliance with requirements on pages 2-8)

**1. Determine the location on the outside wall for the vent terminal.** Location must comply with vent length requirements, Requirement No. 3 on page 3. 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.

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 5**. Also, select a location that complies with adjoining building clearances as shown in **FIGURE 12**.

Products of combustion can cause discoloring of some building finishes and deterioration of masonry materials. Applying a clear silicone sealant that is

# Residential or Commercial/Industrial HORIZONTAL Installation

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

## HORIZONTAL VENT INSTRUCTIONS (cont'd)

**TABLE 5 - 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.**

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.

| 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 ** | U.S. - 3 ft (0.9M); Canada - 6 ft (1.8M) horizontally) |
| 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. Install the Vent Pipe and Combustion Air Pipe Runs -** Use the type of pipe specified in Requirement No. 1, page 2. Comply with requirements in Requirement No. 2, page 3, when attaching pipes to the heater.

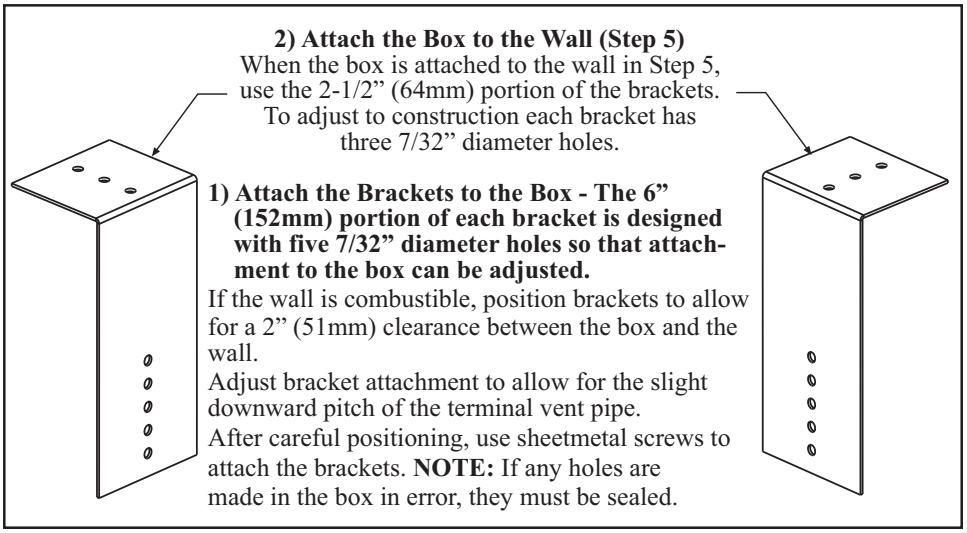
Seal all joints. Due to the high temperature, **do not** enclose the exhaust pipe or place pipe closer than 6" (152 mm) to combustible material. Extend the runs close to the wall location selected in Step 1. Support pipes as required in Requirement No. 5, page 5.

**3. 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.

**4. Prepare the Concentric Adapter Box**

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

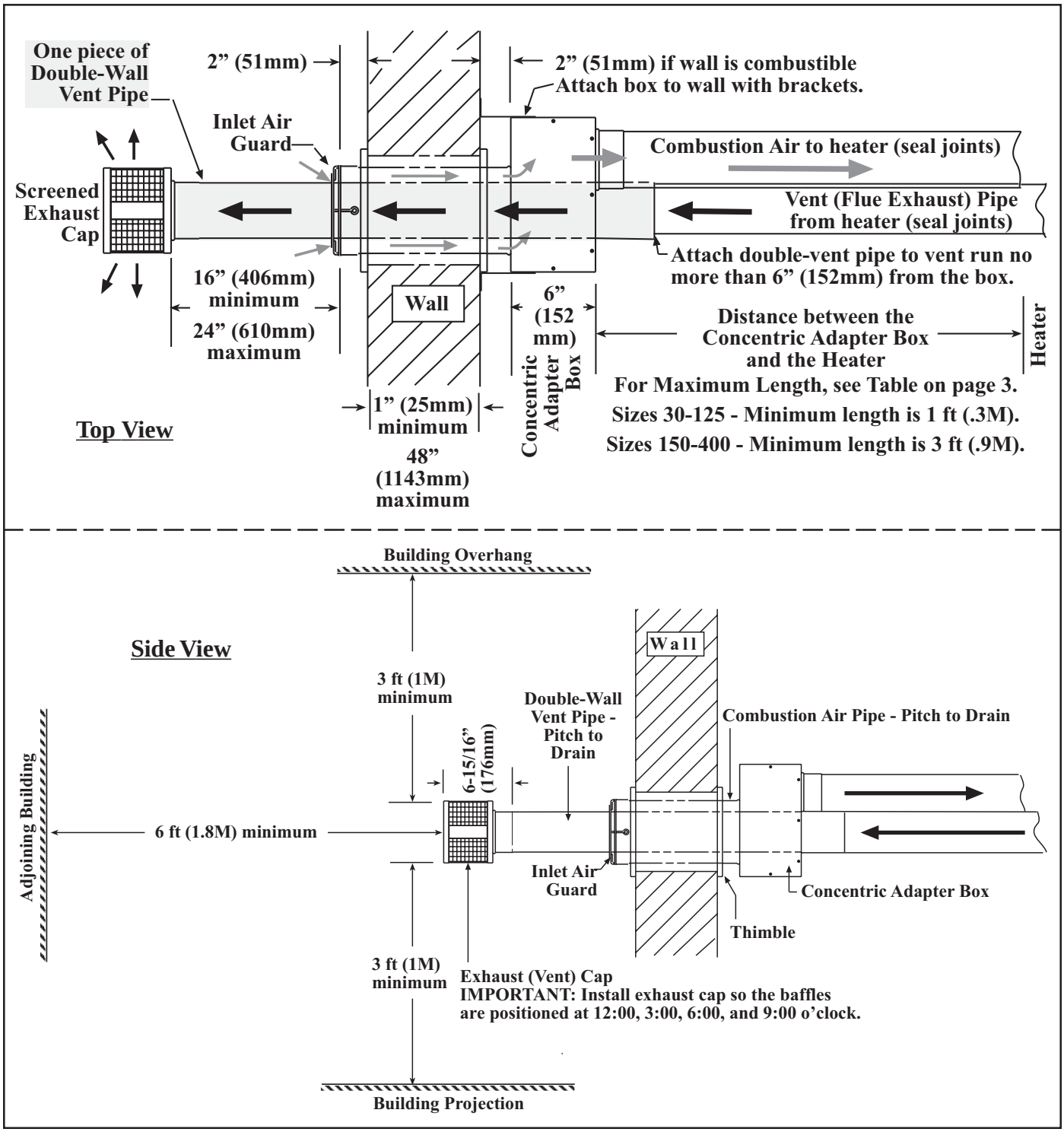
**FIGURE 11 - Brackets for Attaching the Concentric Adapter Box to the Wall**



# Residential or Commercial/Industrial
# HORIZONTAL Installation

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

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



# Residential or Commercial/Industrial HORIZONTAL Installation

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

## HORIZONTAL VENT INSTRUCTIONS (cont'd)

**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 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 and seal.

**5. Attach the concentric adapter box to the wall.** Insert the combustion air pipe 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. Position the inlet guard** over the end of the combustion air pipe. See **FIGURE 12**, page 11. Attach the guard to the inlet air pipe with the four 1/2" long screws provided.

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

**a) Determine length of pipe.** The length of the vent pipe is determined by the installation within the maximum and minimum requirements. See **FIGURE 12**, page 11, to determine lengths of each segment and calculate the total length required. The vent pipe extending through the box and the inlet air pipe **must be one piece of double-wall vent pipe without joints**. The transition to the single-wall or Category III vent pipe run, must be a maximum of 6" (152mm) from the heater side of the box. (NOTE: If 75% of the vent run is vertical, the vent run may be double-wall pipe.)

**b) Install double-wall terminal 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 16" (406mm) and 24" (610mm) past the end of the combustion air pipe and no more than 6" (152mm) out of the box toward the heater.

Attach the double-wall vent pipe to the vent run. Follow the instructions in **FIGURE 3**, page 5, for connecting the double-wall pipe to single-wall pipe, Category III pipe, or a taper-type connector.

**8. Attach the exhaust (vent) cap to the end of the vent pipe.** Align the cap so that its baffle strips are positioned on the horizontal and vertical centerlines. Follow the instructions in **FIGURE 2**, pages 4-5, to attach the exhaust cap. (NOTE: If vent pipe is inserted from outside, cap may be attached before the vent pipe is installed. If cap is attached first, be sure the baffle strips are positioned correctly when attaching the vent terminal pipe to the vent run.)

**9. Seal the vent pipe.** Verify that the double-wall section of vent pipe has a slight downward drop (1/4" per foot/6mm per 305mm) toward the vent terminal end. 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 using 3" vent pipe on Sizes 30, 45, and 60, install a taper type reducer as illustrated in **FIGURE 7A**, page 7.

Installation of the horizontal vent and combustion air system on your separated-combustion unit is complete. **Verify compliance with all venting installation requirements, pages 2-8, and FIGURE 12, page 11.**

# Residential or Commercial/Industrial VERTICAL Installation

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

## VERTICAL VENT INSTRUCTIONS

### Components Required - Factory and Field

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

| Qty | Size | P/N | Description |
|---|---|---|---|
| 1 | 30-125 | 205895 | Complete Vertical Vent Kit (Same as Option CC2) |
| | 150-400 | 205896 | |
| 1 | 30-125 | 205884 | Concentric Adapter Box Assembly (See **FIGURE 4**, page 6) |
| | 150-400 | 205885 | |
| 1 | 30-125 | 155631 | Exhaust (Vent) Terminal Assembly  |
| | 150-400 | 53326 | |
| 1 | 30-125 | 155635 | Combustion Air Inlet Assembly  |
| | 150-400 | 53330 | |
| 2 | 30-400 | 207232 | Brackets for attaching Concentric Adapter Box (See **FIGURE 13**, page 14.) |
| 1 | 30-400 | 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

### Installation Instructions for Vertical Vent/ Combustion Air Kit Option CC2

(in compliance with requirements on pages 2-8)

**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 16.

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

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 30-125 or an 8" (203mm) diameter pipe for Sizes 150-400. 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.

# Residential or Commercial/Industrial
# VERTICAL Installation

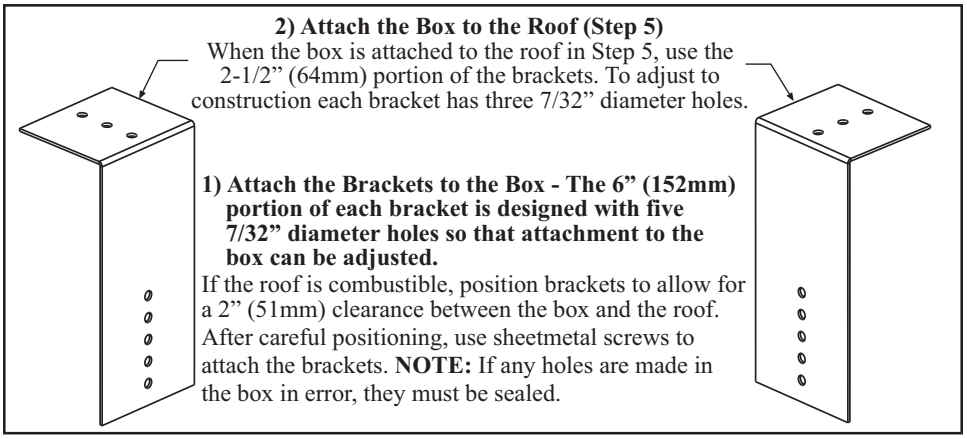
**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

## VERTICAL VENT INSTRUCTIONS (cont'd)

**4. Prepare the Concentric Adapter Box**

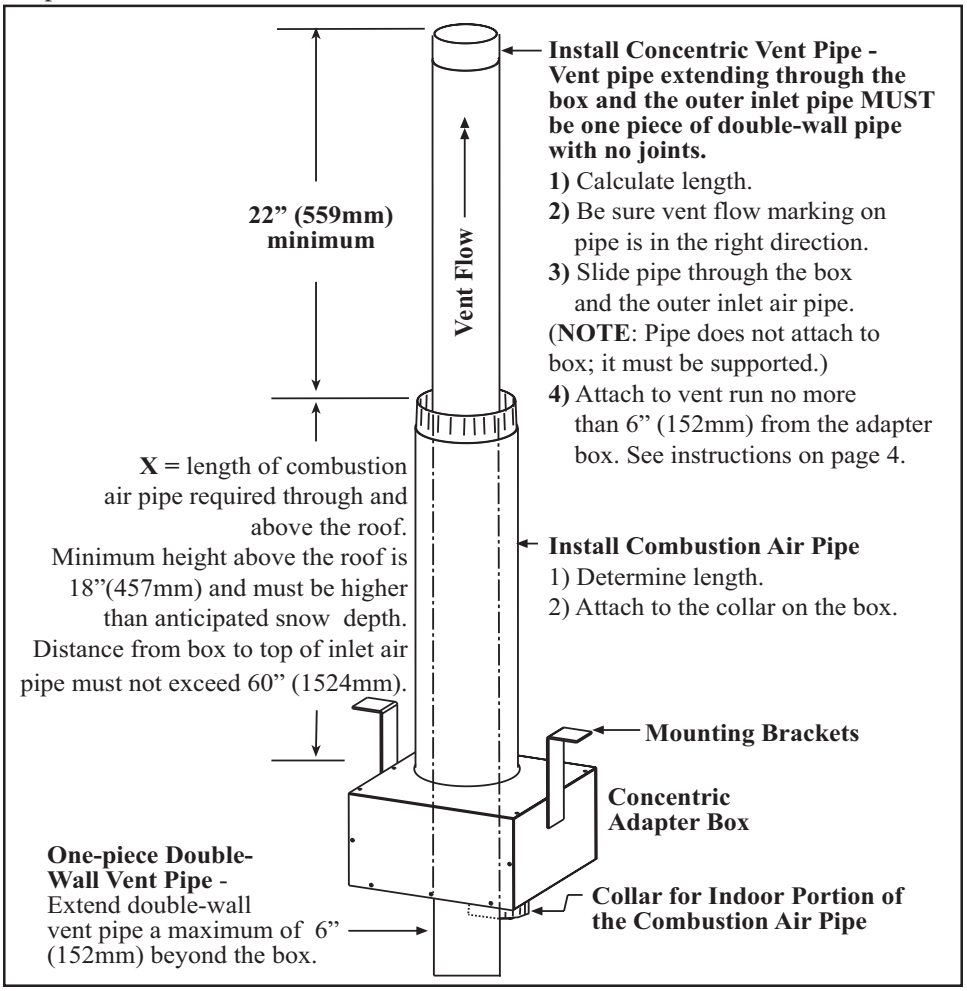
**a) Attach the brackets to the box.** Follow the instructions in **FIGURE 13**.

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




**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 60" (1524mm) 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.

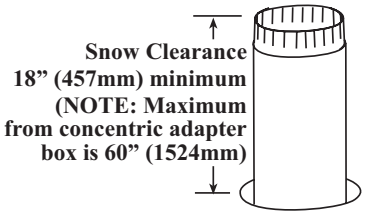
**FIGURE 14 - Assemble Concentric Adapter Box, Concentric Vent Pipe, and Outdoor Combustion Air Pipe**



# Residential or Commercial/Industrial VERTICAL Installation

**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

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




**Outside view with concentric adapter box attached to underside of roof. Install field-supplied flashing at roof opening.**

**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 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 the length.** See **FIGURE 14 to** determine the required length of the vent pipe. The vent pipe extending through the box and the inlet air pipe **must be one piece of double-wall vent pipe without joints**.

Determine the length by adding the requirements. Starting at the top, the vent pipe must extend a minimum of 22" (559mm) beyond the top of the inlet air pipe; plus the width of the roof; plus length of brackets; plus 6" (152mm) through the box; plus 6" (152mm) extending out of the box on the heater side.

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

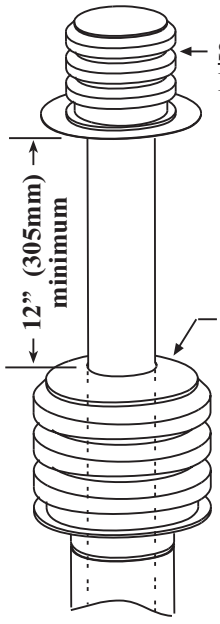
Follow the instructions in **FIGURE 3**, page 5, for connecting the double-wall pipe to the single-wall pipe, Category III pipe, or taper-type connector.

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, slide the combustion air inlet** over the vent pipe and fasten the collar to the combustion air pipe with sheetmetal screws. See **FIGURE 16**. 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**, pages 4-5.

**FIGURE 16 - Install Combustion Air Inlet and Vent Terminal**




**SECOND, Install the Exhaust (Vent) Terminal.**
**Follow the instructions in FIGURE 2, pages 4 and 5.**

**FIRST, Install Combustion Air Inlet.**
**1) Slide the combustion air inlet over the vent pipe.**
**2) Fasten bottom of inlet to the combustion air pipe with sheetmetal screws. Be sure not to penetrate the vent pipe.**
**3) At the top, completely seal the space between the vent pipe and the air inlet with silicone.**

# Residential or Commercial/Industrial VERTICAL Installation

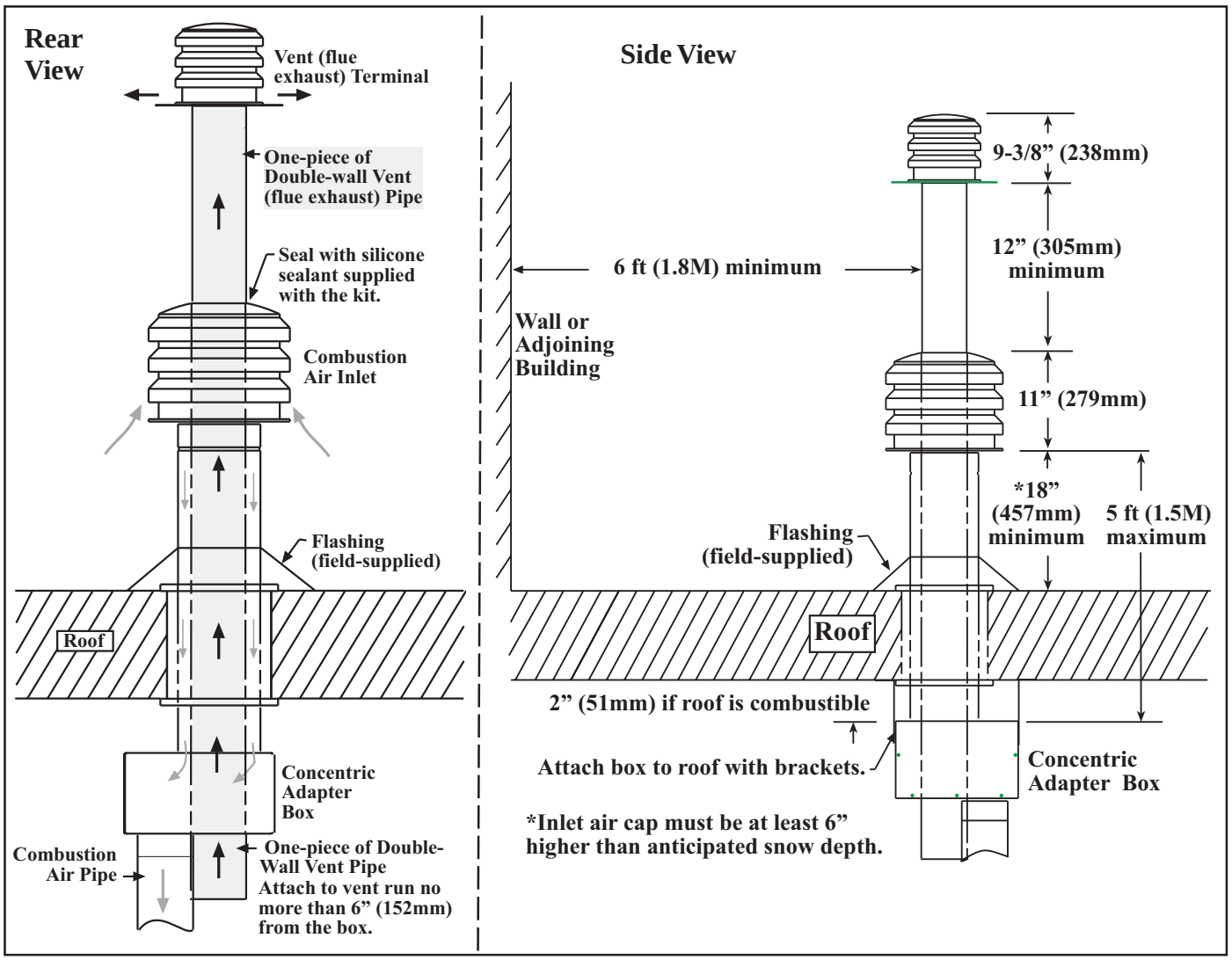
**Note: Only UDAS 30, 45, 60, 75, 100, and 125 are certified for residential use.**

## VERTICAL VENT INSTRUCTIONS (cont'd)

**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 using 3" vent pipe on Sizes 30, 45, and 60, install a taper type reducer as illustrated in **FIGURE 7A**, page 7.

Installation of the vertical vent and combustion air system on your separated-combustion unit is complete. **Verify compliance with all venting installation requirements, pages 2-8, and FIGURE 17 below.**

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

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