



REZ-NOR *Thomas & Betts*

Venting Instructions for V3 Power Vented Unit Heaters

Vent Installation Form RZ-NA I-V-PV

APPLIES TO: Indoor Power Vent Model UDAP



General

This manual applies only to venting instructions and must be used with the installation manual. Both manuals are shipped with the heater. If either manual is missing, contact your distributor before beginning installation. The instructions in this manual apply to Model UDAP.

Apply red power vent label P/N 201214 here.

Verify that the label on the heater matches this label.

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Venting Requirements

Model UDAP heaters are certified as Category III heaters and under some conditions may be installed as a Category I heater.

WARNING: Each heater requires its own individual vent pipe run and vent cap. Manifolding of vent runs can cause recirculation of combustion products into the building. Failure to comply could result in severe personal injury or death and/or property damage.

Venting must be in accordance with local codes and the National Fuel Gas Code Z223.1 or CAN/CGA B149.1 and B149.2, Installation Code for Gas Burning Appliances and Equipment. Local requirements supersede national requirements.

These power-vented unit heaters are designed to operate safely and efficiently with either a horizontal or vertical vent. Comply with the specific requirements and instructions.

If this heater is replacing an existing heater, be sure that the vent is sized properly for the heater being installed and that the existing vent is in good condition. A properly sized vent system is required for safe operation of the heater. An improperly sized vent system can cause unsafe conditions and/or create condensation. Do not vent into an existing gravity vent or chimney.

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

Requirements and instructions vary depending on whether the installation is residential or commercial/industrial. Select and follow the venting instructions that apply to the installation. Model sizes UDAP 30, 45, 60, 75, 100, and 125 are certified for residential installation.

Is the Installation Residential or Commercial/Industrial?

Select and follow the venting instructions that apply. Do not mix any instructions or requirements.

•Residential - Go to page 2. •Commercial/Industrial - Go to page 7.

Residential Installation

1. Type of Vent Pipe is Determined by whether Vent is Special Horizontal, Standard Horizontal, or Vertical

A residential unit may be installed with either a horizontal or vertical vent using one of the types of vent pipe listed:

Special Horizontal Vent (Category I) (Five feet or less of horizontal pipe - See Figure 1.)

- 26 gauge or heavier galvanized steel
- Double wall (Type B) vent pipe

Standard Horizontal Vent

- Vent pipe approved for Category III heaters

Vertical Vent

- Vent pipe approved for Category III heaters
- 26 gauge or heavier galvanized steel

Or, if at least 75% of the equivalent length of the vent run is vertical

- Double wall (Type B) vent pipe

Reference NOTE: See Addendum, page 11, for illustration of a specific type of vent pipe approved for Category III heaters.

2. Vent Pipe Diameter and Maximum Vent Length

TABLE 1 - Vent Pipe Diameter and Maximum Vent Length for a Heater with either a Standard Horizontal or a Vertical Vent

- Use only one diameter of vent pipe on an installation.
- Minimum vent length is 3 feet (1M).

Vent pipe diameters and maximum vent lengths in **Table 1** apply to both **Standard Horizontal** and **Vertical** vents. Add **all** straight sections and equivalent lengths for elbows. The total combined length must not exceed the **Maximum Vent Length**.

Size	Vent Pipe Diameter		Maximum Vent Length		Equivalent Straight Length for 90° Elbow		Equivalent Straight Length for 45° Elbow		Field-supplied taper type connection required at the venter outlet
	inches	mm	feet	M	feet	M	feet	M	
30	3	76	20	6.1	3	0.9	1.5	0.5	4" to 3" (102mm to 76mm) reducer
	4	102	10	3.0	2	0.6	1	0.3	None
45	3	76	20	6.1	3	0.9	1.5	0.5	4" to 3" (102mm to 76mm) reducer
	4	102	10	3.0	2	0.6	1	0.3	None
60	3	76	30	9.1	4	1.2	2	0.6	4" to 3" (102mm to 76mm) reducer
	4	102	15	4.6	2	0.6	1	0.3	None
75	4	102	30	9.1	4	1.2	2	0.6	None
100	4	102	40	12.2	5	1.5	2.5	0.8	None
125	4	102	40	12.2	5	1.5	2.5	0.8	None

Residential Installation

FIGURE 1 - Vent Pipe Length and Configuration for a Heater with a Special Horizontal Vent *only*

Applies only to Sizes 30, 45, 60, and 75 with five feet (1.5M) or less of horizontal pipe

Category I

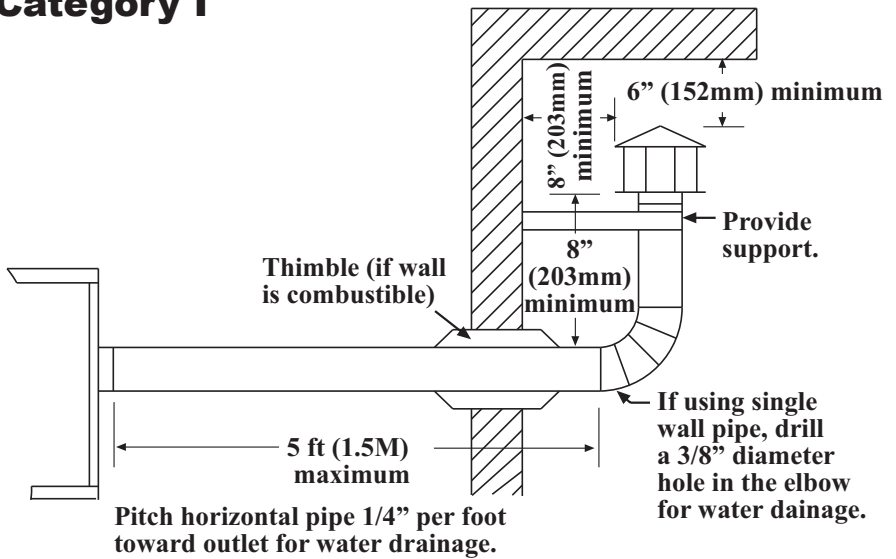


TABLE 2 - Vent Pipe Diameter for Heater with Special Horizontal Vent *only*

Model Size	Vent Pipe Diameter		Venter Outlet Diameter		Field-supplied taper-type "enlarger" required to connect pipe to venter outlet	
	inches	mm	inches	mm	inches	mm
30	4	102	4	102	None	
45	5	127	4	102	4 to 5	102 to 127
60	5	127	4	102	4 to 5	102 to 127
75	5	127	4	102	4 to 5	102 to 127

List of Venting Requirements for Heater Installation with a Special Horizontal Vent as illustrated in FIGURE 1

- **MAXIMUM horizontal vent length is 5 feet (1.5M) (not including the elbow that connects to the vertical portion)**
NOTE: The only elbow permitted is the one that connects to the vertical.
 - **MINIMUM vertical vent height is 8 inches (203mm).**
 - **Pipe** - Use either type of pipe listed on page 2 for Special Horizontal Vent (Category I). Use only diameter listed in TABLE 2 above.
 - **Sealing** - Seal all joints and seams of single-wall vent pipe inside the building with aluminum tape or silicone sealant. If using double-wall pipe, follow the pipe manufacturer's instructions. When connecting double-wall to heater and vent cap, follow instructions on page 4.
 - **Terminal** - Use a Reznor or equivalent vent cap and comply with horizontal vent terminal clearances (See TABLE 4, page 6.).
 - **Elbow** - If using single-wall pipe, drill a 3/8" diameter hole in the elbow for water drainage.
- Installation Tip:** If using single-wall pipe, making the elbow rigid by adding silicone sealant to the full circumference of all elbow section joints will help to stabilize the vent.

Residential Installation

3. Venter (Flue) Outlet Diameter

Depending on the size of vent pipe as determined in Step No. 2, attach either the vent pipe directly to the collar or use a taper-type reducer.

TABLE 3 - Venter Outlet Diameter

Model Size	30		45		60		75		100		125	
	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
Outlet Diameter	4	102	4	102	4	102	4	102	4	102	4	102

4. Vent System Sealing

Vent system joints depend on the type of pipe being used:

- If using single wall, 26-gauge or heavier galvanized pipe, secure slip-fit connections using sheetmetal screws or rivets. Seal all joints and seams of single-wall vent pipe inside the building with aluminum tape or silicone sealant.
- If using Category III vent pipe, follow the pipe manufacturer's instructions for joining pipe sections. When attaching Category III pipe to the venter outlet or the vent cap, make secure, sealed joints following a procedure that best suits the style of Category III pipe being used.
- If using double-wall (Type B) vent pipe, follow the pipe manufacturer's instructions for joining pipe sections.

For joining double-wall pipe to outlet, single-wall pipe, and vent cap, follow the "boxed" instructions below:

Instructions for attaching double-wall (Type B) vent pipe to the venter outlet, the vent cap, or to a single-wall pipe run:

Hardware and Sealant Required: 3/4" long sheetmetal screws; and a tube of silicone sealant

- 1) Look for the "flow" arrow on the vent pipe; attach according to the arrow. Slide the pipe so that the venter outlet, the single-wall pipe, or the vent cap is inside the double-wall pipe.
- 2) Drill a hole through the pipe into the outlet collar, the single-wall pipe, or the vent cap. (Hole should be slightly smaller than the sheetmetal screw being used.) Using a 3/4" long sheetmetal screw, attach the pipe. Do not overtighten. Repeat, drilling and inserting two additional screws evenly spaced (120° apart) around the pipe.
- 3) Use sealant to seal any gaps. If there is an annular opening, run a large bead of sealant in the opening. The bead of sealant must be large enough to seal the opening, but it is not necessary to fill the full volume of the annular area.

5. Vent System Support

Support a horizontal vent run every six feet (1.8M) using a non-combustible material, such as strap steel or chain. Do not rely on the heater for support of either horizontal or vertical vent pipe.

Residential Installation

6. Condensation

Single-wall vent pipe run through an unheated area or an area with an ambient temperature of 45°F or less must be insulated along its entire length with a minimum of 1/2" foil-faced fiberglass, 1-1/2# density insulation. Insulation rated for 250°F is required.

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

7. Vent Terminal (Pipe and Vent Cap)

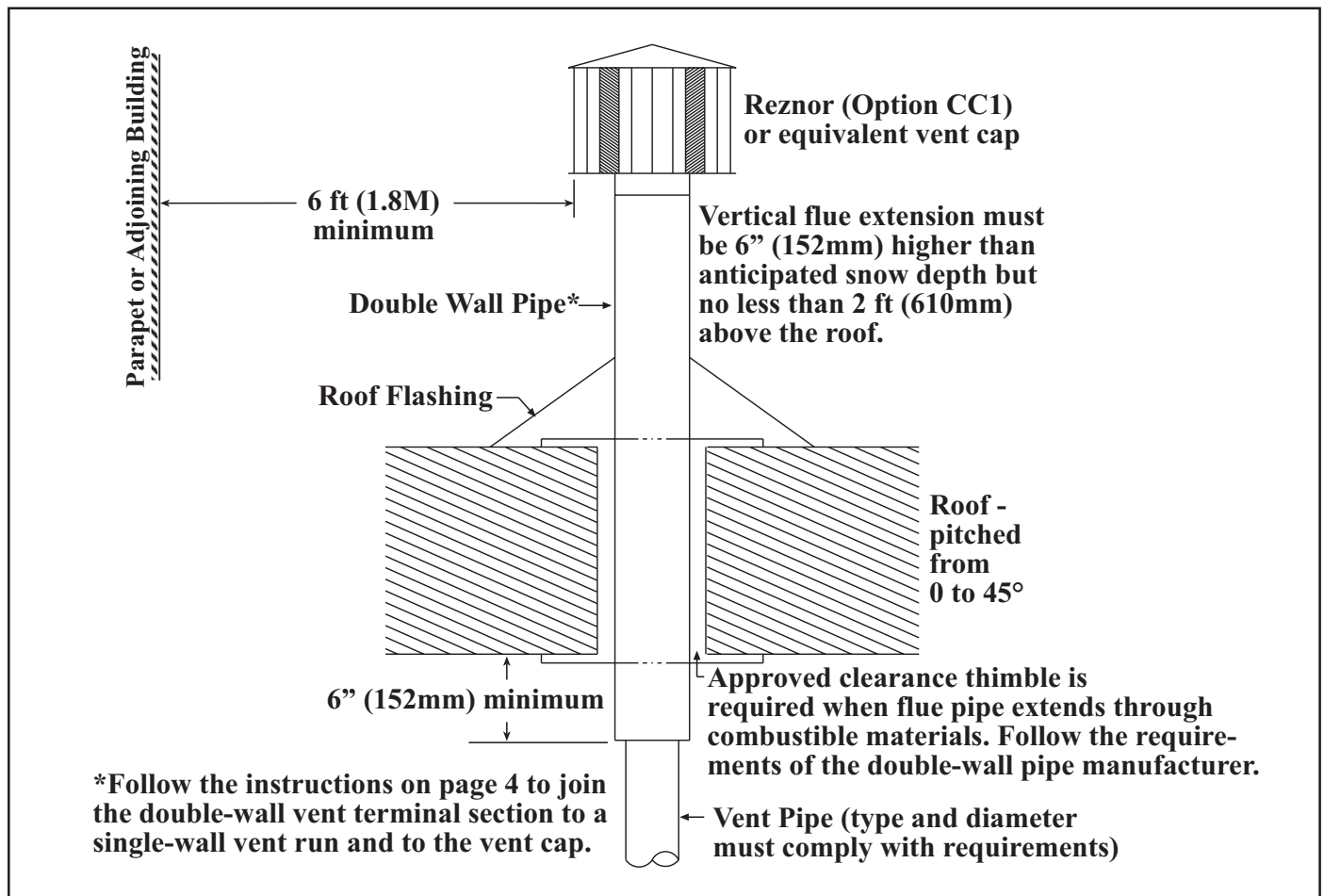
Heaters must be equipped with a Reznor vent cap, a Type L Breidert *Air-x-hauster*® vent cap, or equivalent. Use of a vent cap supplied by the pipe manufacturer is not permitted; the vent cap must be the type approved for use with this heater. A different style vent cap could cause nuisance problems or unsafe conditions.

The vent cap must be the same size as the vent pipe.

See FIGURE 2 for requirements of vertical vent termination. See FIGURE 3 and TABLE 4 for requirements of a horizontal vent terminal. The vent terminal pipe must be double-wall (Type B). Follow the instructions in "Vent System Sealing", page 4, to attach the vent cap and to connect the double-wall pipe to a single-wall vent pipe run.

FIGURE 2 - Vertical Vent Terminal - Residential Installation

NOTE: Read all measurements; drawing is not proportional.



Residential Installation

7. Vent Terminal (Pipe and Vent Cap) - cont'd

FIGURE 3 - Standard Horizontal Vent Terminal - Residential

NOTE: Read all measurements; drawing is not proportional.

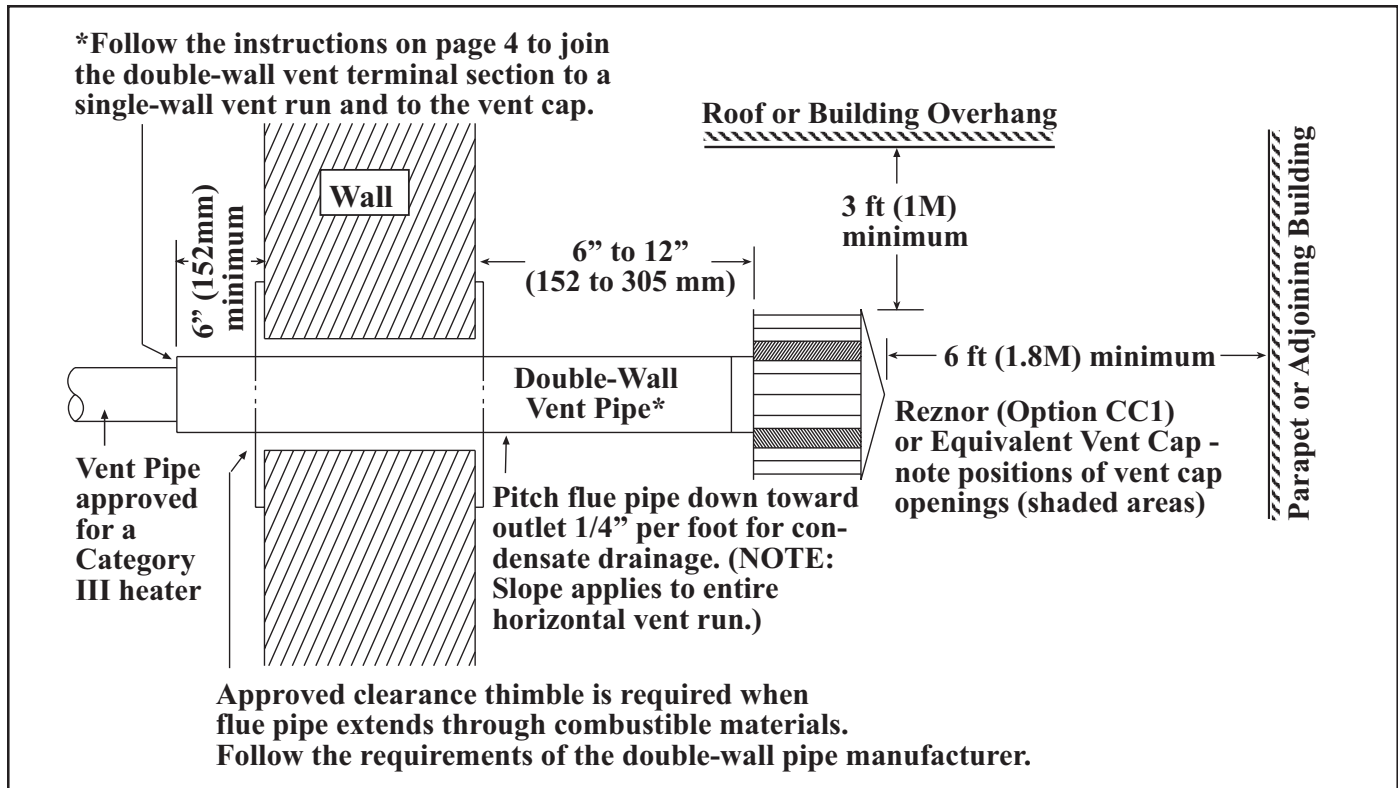


TABLE 4 - Horizontal Vent Terminal Clearances

A vent cap is required. Maintain a clearance of 6 to 12 inches (152-305mm) from the wall to the vent terminal cap for stability under wind conditions.

Products of combustion can cause discoloration 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, relocate the vent or install a vertical vent.

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)	4 ft (1.2M) horizontally 4 ft (1.2M) below 1 ft (305mm) above
Electric meter, gas meter*, gas regulator*, 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)	1 ft (305mm) above**

*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.

Commercial/Industrial Installation

1. Type of Vent Pipe is Determined by whether Vent is Horizontal or Vertical

A commercial/industrial installation may have either a horizontal or a vertical vent using one of the types of vent pipe listed.

Horizontal

- Vent pipe approved for a Category III appliance
- Appropriately sealed 26-gauge or heavier galvanized steel or equivalent single-wall pipe

Vertical

- Vent pipe approved for a Category III appliance
- Appropriately sealed 26-gauge or heavier galvanized steel or equivalent single-wall pipe

Or, if at least 75% of the equivalent length of the vent run is vertical

- Double-wall (Type B) vent pipe

2. Vent Pipe Diameter and Maximum Vent Length

Vent pipe diameters and maximum vent lengths in TABLE 5 apply to both **Horizontal** and **Vertical** vents. Add **all** straight sections and equivalent lengths for elbows. The total combined length must not exceed the **Maximum Vent Length**.

TABLE 5 - Vent Pipe Diameter and Length for Horizontal and Vertical Vents

Size	Vent Pipe Diameter		Maximum Vent Length		Equivalent Straight Length for 90° Elbow		Equivalent Straight Length for 45° Elbow		Field-supplied taper type connection required at the venter outlet
	inches	mm	feet	M	feet	M	feet	M	
30	3	76	20	6.1	3	0.9	1.5	0.5	4" to 3" (102mm to 76mm) reducer
	4	102	10	3	2	0.6	1	0.3	None
45	3	76	20	6.1	3	0.9	1.5	0.5	4" to 3" (102mm to 76mm) reducer
	4	102	10	3	2	0.6	1	0.3	None
60	3	76	30	9.1	4	1.2	2	0.6	4" to 3" (102mm to 76mm) reducer
	4	102	15	4.6	2	0.6	1	0.3	None
75	4	102	30	9.1	4	1.2	2	0.6	None
100	4	102	40	12.2	5	1.5	2.5	0.8	None
125	4	102	40	12.2	5	1.5	2.5	0.8	None
150	5	127	35	10.7	5	1.5	2.5	0.8	None
175	5	127	35	10.7	5	1.5	2.5	0.8	None
200	5	127	50	15.2	5	1.5	2.5	0.8	None
225	5	127	50	15.2	5	1.5	2.5	0.8	None
250	5	127	50	15.2	5	1.5	2.5	0.8	None
300	6	152	50	15.2	5	1.5	2.5	0.8	None
350	6	152	50	15.2	7	2.1	3.5	1.1	None
	7	178	50	15.2	4.5	1.4	2.25	0.7	6" to 7" (152 to 178mm) enlarger
400	6	152	50	15.2	8	2.4	4	1.2	None
	7	178	50	15.2	5	1.5	2.5	0.8	6" to 7" (152 to 178mm) enlarger

- Use only one diameter of vent pipe on an installation.
- Minimum vent length is 3 feet (1M).

Commercial/Industrial Installation

3. Venter (Flue) Outlet

TABLE 6 - Venter Outlet Size

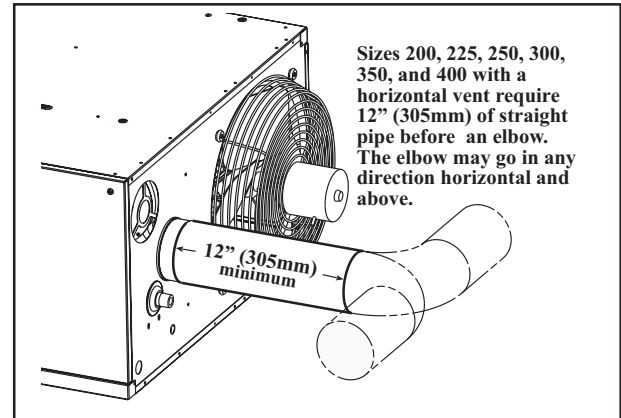
Venter Outlet Attachment Requirements:

Depending on the size of vent pipe as determined in Step No. 2, attach either the vent pipe directly to the collar or a taper-type connector.

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

FIGURE 4 - Venter Outlet Attachment Sizes 200, 225, 250, 300, 350, and 400

- **Sizes 200, 225, 250, 300, 350, 400** - When installing a horizontal vent, a minimum of 12" of straight pipe is required at the venter outlet before installing an elbow in the vent system. See FIGURE 4.



4. Vent System Sealing

Vent system joints depend on the type of pipe being used (See Requirement No. 1 "Vent Pipe", page 7).

- If using single wall, 26-gauge or heavier galvanized pipe, secure slip-fit connections using sheetmetal screws or rivets. Seal all joints and seams of single-wall vent pipe inside the building with aluminum tape or silicone sealant.
- If using Category III vent pipe, follow the pipe manufacturer's instructions for joining pipe sections. When attaching Category III pipe to the venter outlet or the vent cap, make secure, sealed joints following a procedure that best suits the style of Category III pipe being used.
- If using double-wall (Type B) vent pipe, follow the pipe manufacturer's instructions for joining pipe sections.

For joining double-wall pipe to the venter outlet collar, reducer, single-wall pipe, and/or the vent cap, follow the "boxed" instructions below:

Instructions for attaching double-wall (Type B) vent pipe to the venter outlet, the vent cap, or to a single-wall pipe run (use these instructions for either full length double-wall or terminal only):

Hardware and Sealant Required: 3/4" long sheetmetal screws; and a tube of silicone sealant

- 1) Look for the "flow" arrow on the vent pipe; attach according to the arrow. Slide the pipe so that the venter outlet, the single-wall pipe, or the vent cap is inside the double-wall pipe.
- 2) Drill a hole through the pipe into the outlet collar, the single-wall pipe, or the vent cap. (Hole should be slightly smaller than the sheetmetal screw being used.) Using a 3/4" long sheetmetal screw, attach the pipe. Do not overtighten. Repeat, drilling and inserting two additional screws evenly spaced (120° apart) around the pipe.
- 3) Use sealant to seal any gaps. If there is an annular opening, run a large bead of sealant in the opening. The bead of sealant must be large enough to seal the opening, but it is not necessary to fill the full volume of the annular area.

Commercial/Industrial Installation

5. Vent System Support

Horizontal runs should be supported every six feet (1.8M) using a non-combustible material, such as strap steel or chain. Do not rely on the heater for support of either horizontal or vertical vent pipe.

6. Condensation

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

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

7. Vent Terminal (Pipe and Vent Cap)

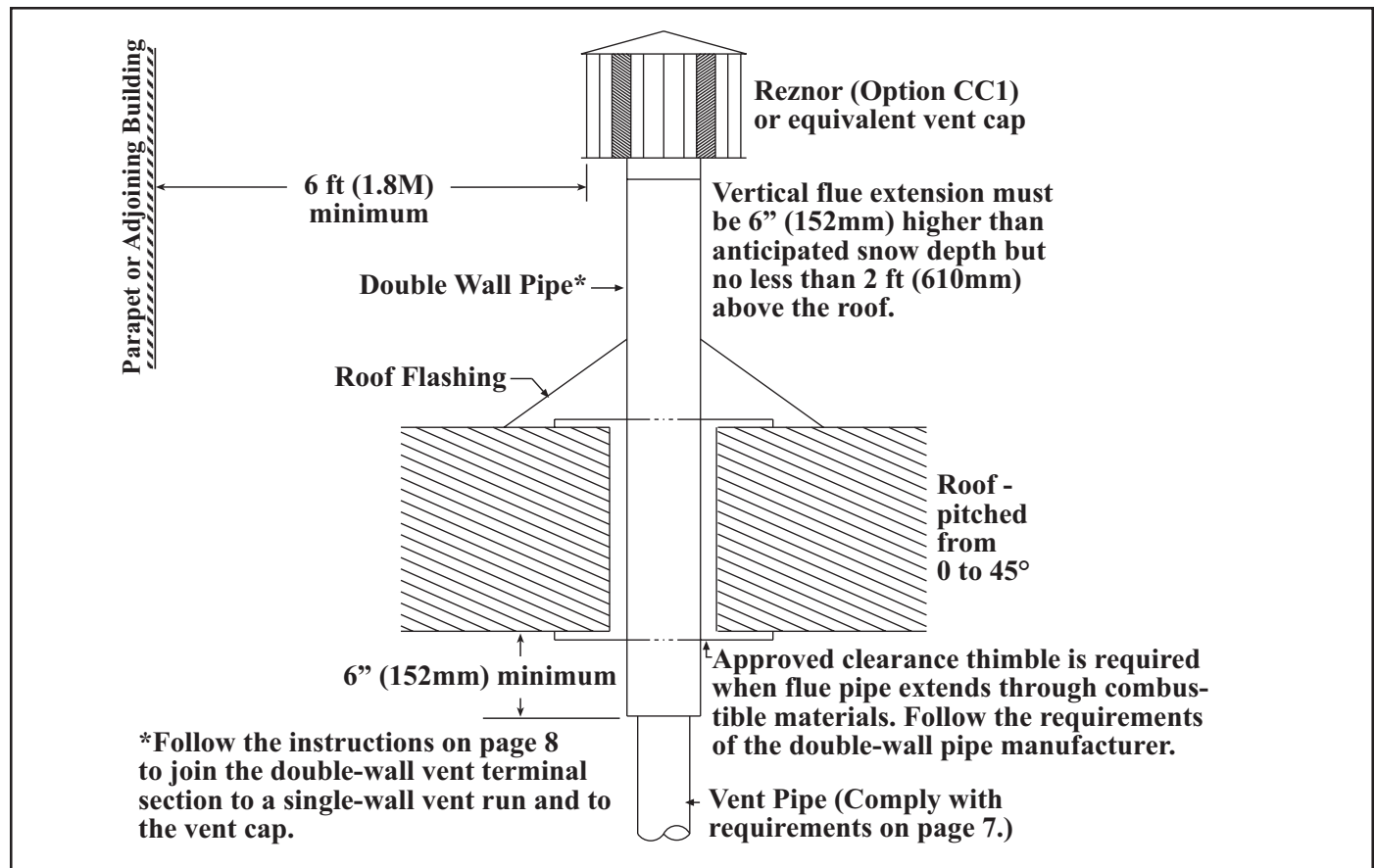
Heaters must be equipped with a Reznor vent cap, a Type L Breidert *Air-x-hauster*® vent cap, or equivalent. Use of a vent cap supplied by the pipe manufacturer is not permitted; the vent cap must be the type approved for use with this heater. A different style vent cap could cause nuisance problems or unsafe conditions.

The vent cap must be the same size as the vent pipe.

See FIGURE 5 for requirements of vertical vent termination. See FIGURE 6 and TABLE 7 for requirements of a horizontal vent terminal. The vent terminal pipe must be double-wall (Type B). Follow the instructions in "Vent System Joints", page 8, to attach the vent cap and to connect the double-wall pipe to a single-wall vent pipe run.

FIGURE 5 - Vertical Vent Terminal - Commercial/Industrial

NOTE: Read all measurements; drawing is not proportional.



Commercial/Industrial Installation

7. Vent Terminal (Pipe and Vent Cap) - cont'd

FIGURE 6 - Horizontal Vent Terminal - Commercial/Industrial

NOTE: Read all measurements; drawing is not proportional.

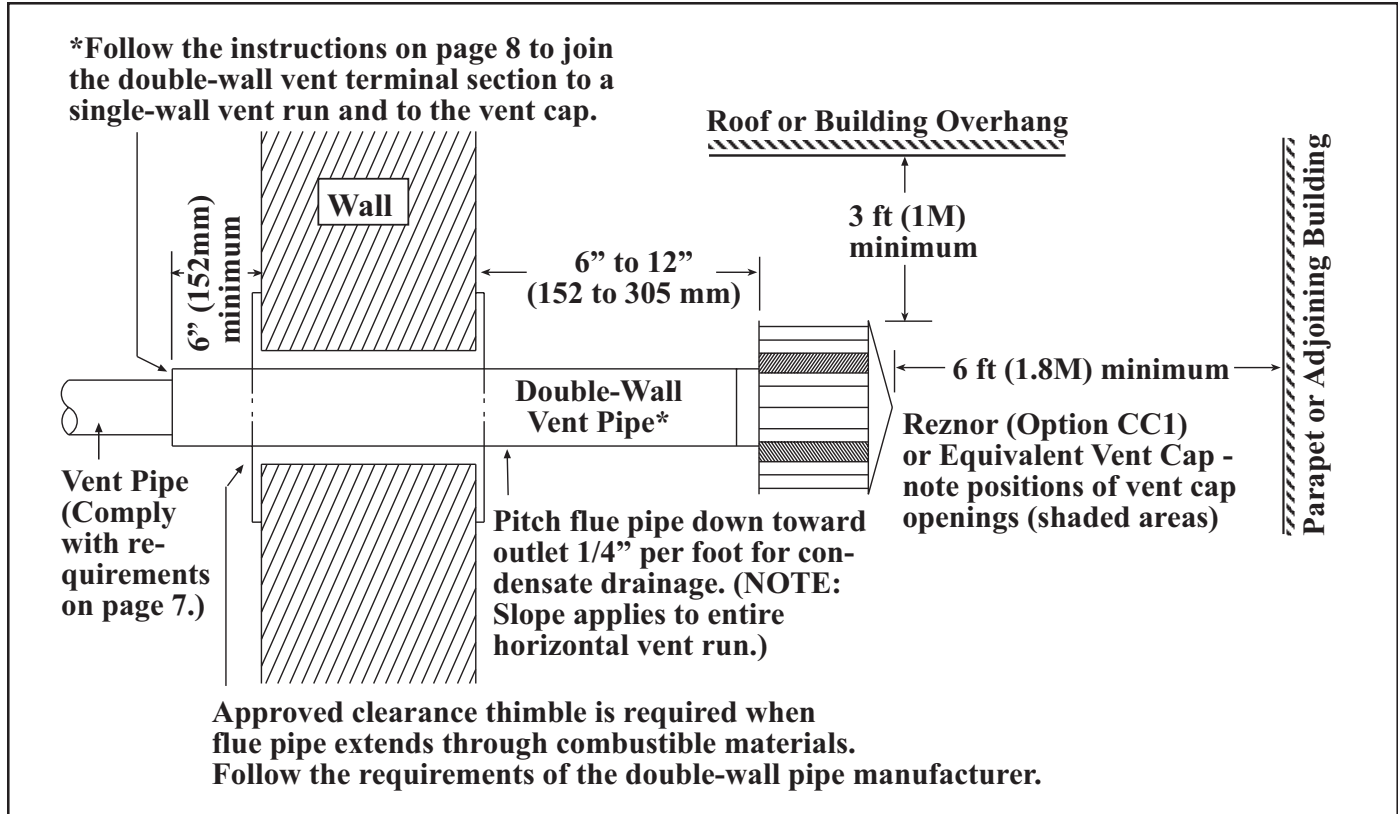


TABLE 7 - Horizontal Vent Terminal Clearances

A vent cap is required. Maintain a clearance of 6 to 12 inches (152-305mm) from the wall to the vent terminal cap for stability under wind conditions.

Products of combustion can cause discoloration 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 aesthetic problem, relocate the vent or install a vertical vent.

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)	4 ft (1.2M) horizontally 4 ft (1.2M) below 1 ft (305mm) above
Electric meter, gas meter*, gas regulator*, 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)	1 ft (305mm) above**

*Do not terminate the vent directly above a gas meter or service regulator.

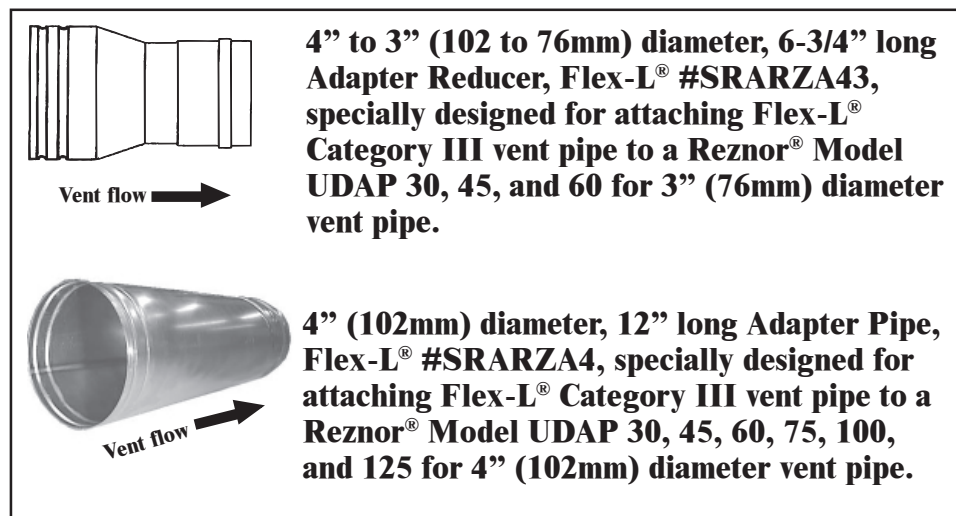
** Consider local snow depth conditions. The vent must be at least 6" (152mm) higher than anticipated snow depth.

ADDENDUM

Instructions for Installing Flex-L® Category III Vent Pipe on a Reznor® Model UDAP Power-Vented Heater

FIGURE 7 - Flex-L® Vent Pipe Adapters

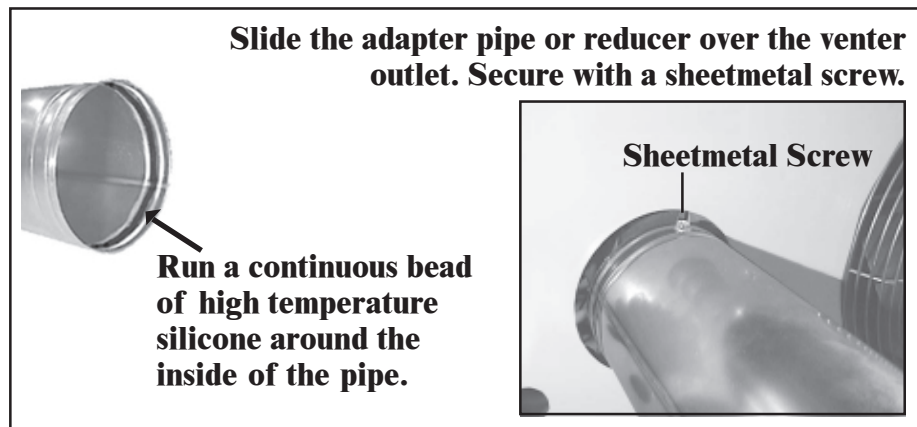
SUPPLIER NOTE: The adapters for Flex-L® vent pipe illustrated in Figure 7 are not available from Reznor or Thomas & Betts; the adapters are available from a Flex-L® vent pipe distributor. These instructions are designed to assist the contractor who has selected to use Flex-L® brand Category III vent pipe to install a Reznor power vented heater with a 4" (102mm) venter outlet.



1. Attach the Adapter Pipe or Reducer to the Venter Collar

- a) On the end of the adapter or reducer that attaches to the venter collar (the end of the adapter with the double emboss without the locking ring hole), run a continuous bead of high temperature silicone around the inside of the pipe. See FIGURE 8.
- b) Push the adapter pipe or reducer over the flue collar.
- c) On the top of the overlap, drill a 1/8" hole and insert a sheetmetal screw to secure the connection.

FIGURE 8 - Attach to Venter Outlet



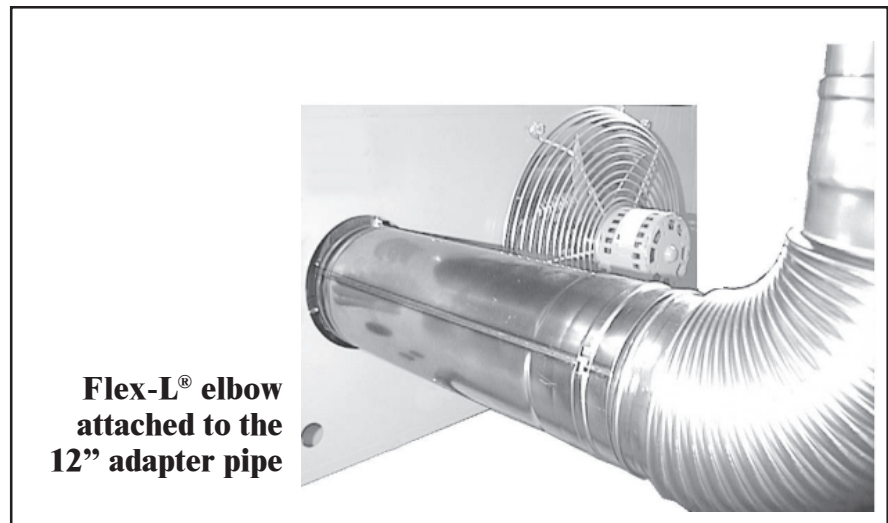
2. Run the Vent Pipe

- a) Refer to either the residential or commercial/industrial venting instructions in this manual for vent length requirements.
- b) **If using a 4" to 3" (102 to 76mm) reducer** - Following the vent pipe manufacturer's instructions, attach a straight piece of 3" diameter horizontal pipe or an elbow in any direction above horizontal.
If using a 4" (102mm) diameter, 12" (305mm) long adapter pipe - Following the vent pipe manufacturer's instructions, attach one of the following:
 - an elbow in any direction above horizontal
 - a straight horizontal pipe

ADDENDUM (cont'd)

Instructions for Installing Flex-L® Category III Vent Pipe (cont'd)

FIGURE 9 - Extend vent in any direction above horizontal

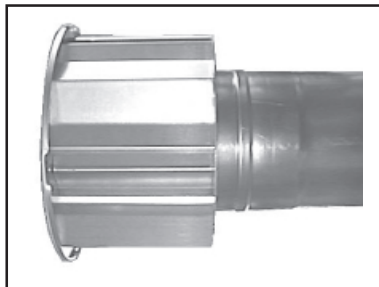


- c) Follow the pipe manufacturer's instructions to connect the vent pipe sections and install the vent pipe run. The length of vent must not exceed the maximum allowed for the heater being installed.
- d) Extend the vent pipe through the wall or roof to the outdoors. Be sure to comply with local and national codes when selecting the vent terminal location. The vent pipe installer is responsible for following the manufacturer's instructions and complying with all applicable codes.

3. Attach the Vent Cap

- a) Use a Type L Breidert *Air-x-hauster*® or equivalent vent cap (either supplied as a heater option or field-supplied).
- b) Slide the vent cap collar into the vent pipe.
- c) Around the end of the vent pipe, drill three evenly spaced 1/8" holes through the vent pipe and vent cap. Insert sheetmetal screws to secure the vent cap to the vent pipe.

FIGURE 10 - Attach Vent Cap



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MANUFACTURER OF HEATING, COOLING, AND VENTILATING SYSTEMS

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