

# INSTALLATION INSTRUCTIONS



## Venting for Direct-Vent Water Heater

**⚠ DANGER:** Failure to properly vent the water heater to the outdoors as outlined in this Venting section will result in death or serious personal injury. To avoid the risk of fire, explosion, or asphyxiation from carbon monoxide, NEVER operate the water heater unless it is properly vented and has adequate air supply for proper operation as outlined in this Venting section.

**⚠ WARNING:** Refer to page 29 for required clearances to combustible materials. Improper clearances can cause explosion or fire resulting in death, personal injury, and/or product damage.

- ⚠ CAUTIONS:**
- Check to make sure flue gases do not recirculate into the air intake terminal when using direct venting. If the water heater is having service issues, flue recirculation may be a contributing factor.
  - Even when the minimum vent terminal separation distances are followed, recirculation may still occur depending upon the location outside the building, the distance from other buildings, proximity to corners, weather conditions, wind patterns, and snow depth.
  - Periodically check to make sure that flue recirculation is not occurring. Signs of flue gas recirculation include frosted or frozen intake terminals and condensate in the intake terminal and venting system.
  - Correction to flue recirculation may involve angling the intake away from the exhaust terminal and increasing the distance between them. Check to be sure the intake and exhaust terminals are not obstructed, especially during periods of below-freezing weather.

### Venting Requirements

The installation of venting must comply with national codes, local codes, and the vent manufacturer's instructions.

**The vent exhaust and air intake must be vented outside** as described in these instructions. DO NOT vent this water heater through a chimney. It must be vented separately from all other appliances.

**NOTICE:** The unit can be vented using only the following recommended pipe material. Use only 2- or 3-inch diameter pipe. Refer to local codes for restrictions on the use of PVC, CPVC, or ABS pipe and fittings. All exhaust venting materials for product installed in Canada must meet ULC-S636.

Acceptable materials or equivalent:  
PVC (Schedule 40, ASTM D-1785)  
CPVC (Schedule 40, ASTM F-441)

ABS (Schedule 40, ASTM D-2661) (Not permitted in Canada)

The fittings, other than the VENT TERMINAL, should be equivalent to the following:

- PVC (Schedule 40 DWV, ASTM D-2665)
- CPVC (Schedule 40 DWV, ASTM F-438)
- ABS (Schedule 40 DWV, ASTM D-2661) (Not permitted in Canada)
- Polypropylene
- Category III Stainless Steel

DO NOT USE Schedule 20, Cell Core, Drain Pipe, Galvanized, Aluminum, or B-Vent.

### Recommended Vent Lengths

Before starting the vent installation, careful planning should be given to the routing and termination of the vent pipes. The length of the vent pipes (inlet and outlet) should be kept to a minimum. Also, see pages 37–38 and 44 for vent terminal placement. Refer to the maximum and minimum vent length charts for the pipe sizes that can be used and the total equivalent length of pipe that can be used. Do not exceed equivalent length of pipe in maximum vent length chart.

#### Maximum Vent Length (intake/outlet):

Number of 90° Elbows	Maximum Length of 2" Straight Pipe	Maximum Length of 3" Straight Pipe
0 or 1	5.0 ft. (1.5 m)	38.0 ft. (11.6 m)
2	3.5 ft. (1.0 m)	36.5 ft. (11.1 m)
3	2.0 ft. (0.6 m)	35.0 ft. (10.6 m)
4	Not available	33.5 ft. (10.2 m)
5	Not available	32.0 ft. (9.8 m)
6	Not available	30.5 ft. (9.3 m)

The system will not operate if there is excessive restriction (pressure drop) in the venting system. Use the chart above to calculate the maximum pipe run length with the required number of elbows (e.g., a maximum 38 ft. [12 m] of 3" vent pipe may be used provided there is only one 90° elbow in the system).

**A 90° elbow is equivalent to 1 ft. 6 in. (0.5 m) of straight pipe.**

The vent termination does not count as part of the straight pipe equivalent when determining the total vent length.

#### Minimum Vent Length:

Number of 90° Elbows	Minimum Length of 2" Straight Pipe	Minimum Length of 3" Straight Pipe
1	1.0 ft. (0.3 m)	1.0 ft. (0.3 m)

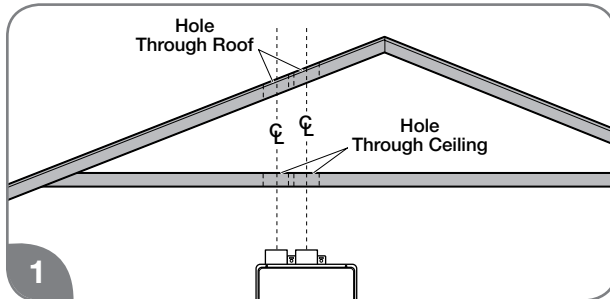
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## Vertical Vent Installation

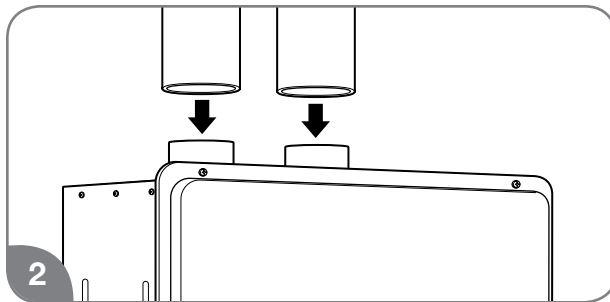
**⚠ WARNING:** Improper vent installation can result in death, personal injury, product damage, and/or poor performance.

### NOTICES:

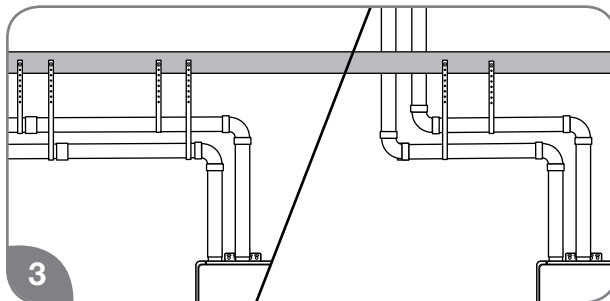
- Only Rheem-approved termination and parts should be used during installation.
- Maintain the recommended air space clearance to combustible materials and building insulation.



Cut a hole through the roof and interior ceiling to accommodate the vent pipes.

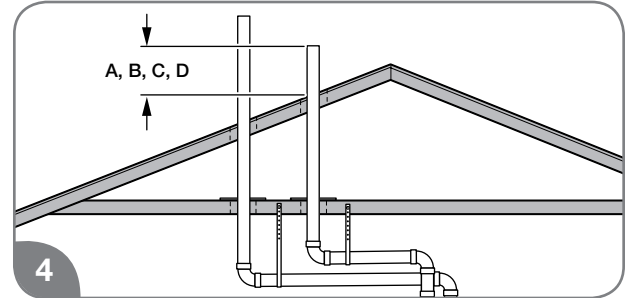


Complete the vent pipe installation to the water heater's vent connector fittings. Use cleaner-primer and PVC cement where the vent pipes join the water heater.

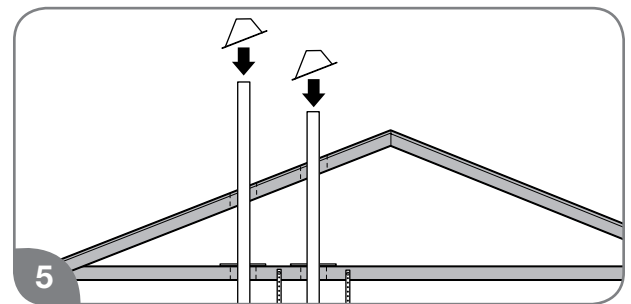


Support vertical and horizontal runs as described on page 35. Vertical supports are required every 4 ft. (1.2 m) along a vertical pipe route, after every transition to vertical, and after every offset elbow.

**NOTICE:** Free-standing vent pipe that penetrates a roof/ceiling requires another means of support from a second location.



Determine the vent terminal height and install the vent pipe accordingly. Refer to "Vertical Vent Terminal Location" on page 44 for clearance requirements.



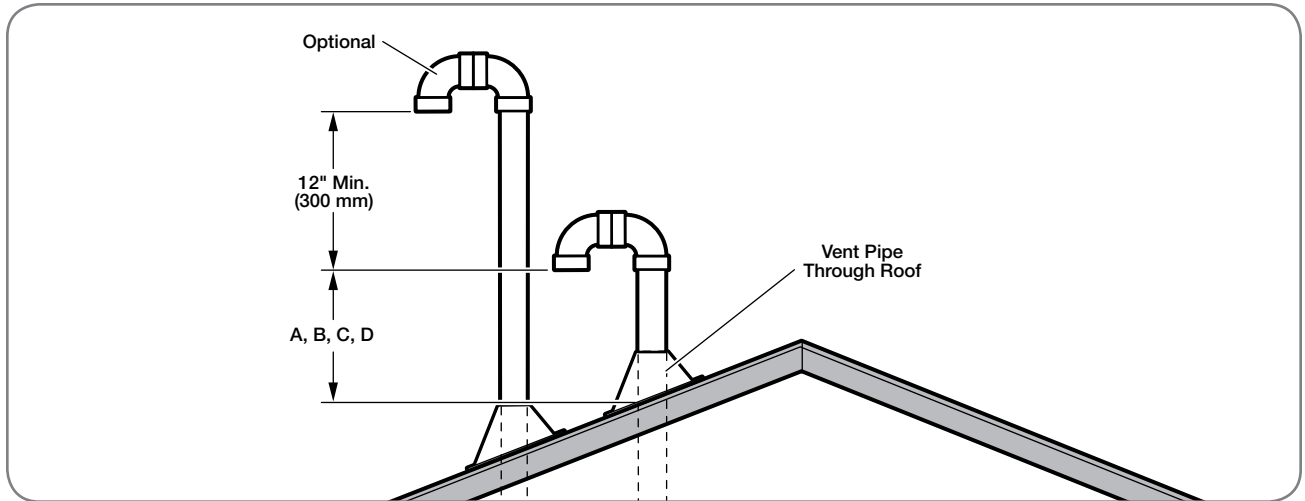
Install adequate flashing where the vent pipe passes through the roof.

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## Venting for Direct-Vent Water Heater (cont.)

### Vertical Vent Terminal Location



The following chart with diagrams details the minimum dimensional information needed to determine the proper location of the vertical vent terminal for direct-vent indoor tankless water heaters:

Location	U.S. Installation Requirements <sup>1</sup>	Canadian Installation Requirements <sup>2</sup>
A = Minimum clearance above the roof level.	12 in. (30.5 cm) above roof level.	18 in. (45.7 cm) above roof level.
B = Minimum clearance above anticipated snow level.	12 in. (30.5 cm) above anticipated snow level.	12 in. (30.5 cm) above anticipated snow level.
C = Maximum clearance above roof level (without additional support for vent pipe).	24 in. (61 cm) above roof level.	24 in. (61 cm) above roof level.
D = Maximum clearance above anticipated snow level (requires additional vent support).	24 in. (61 cm) above anticipated snow level.	24 in. (61 cm) above anticipated snow level.
E = Required vent clearance from any gable, dormer, or other roof structure with building interior access (i.e., vent, window).	4 ft. (1.2 m)	4 ft. (1.2 m)
F = Required vent clearance from any forced air inlet, including dryer and furnace air inlets.	10 ft. (3 m)	6 ft. (1.8 m)
G = Minimum/maximum horizontal distance between vent terminals	5.5 in. (14 cm)/24 in. (61 cm)	5.5 in. (14 cm)/24 in. (61 cm)

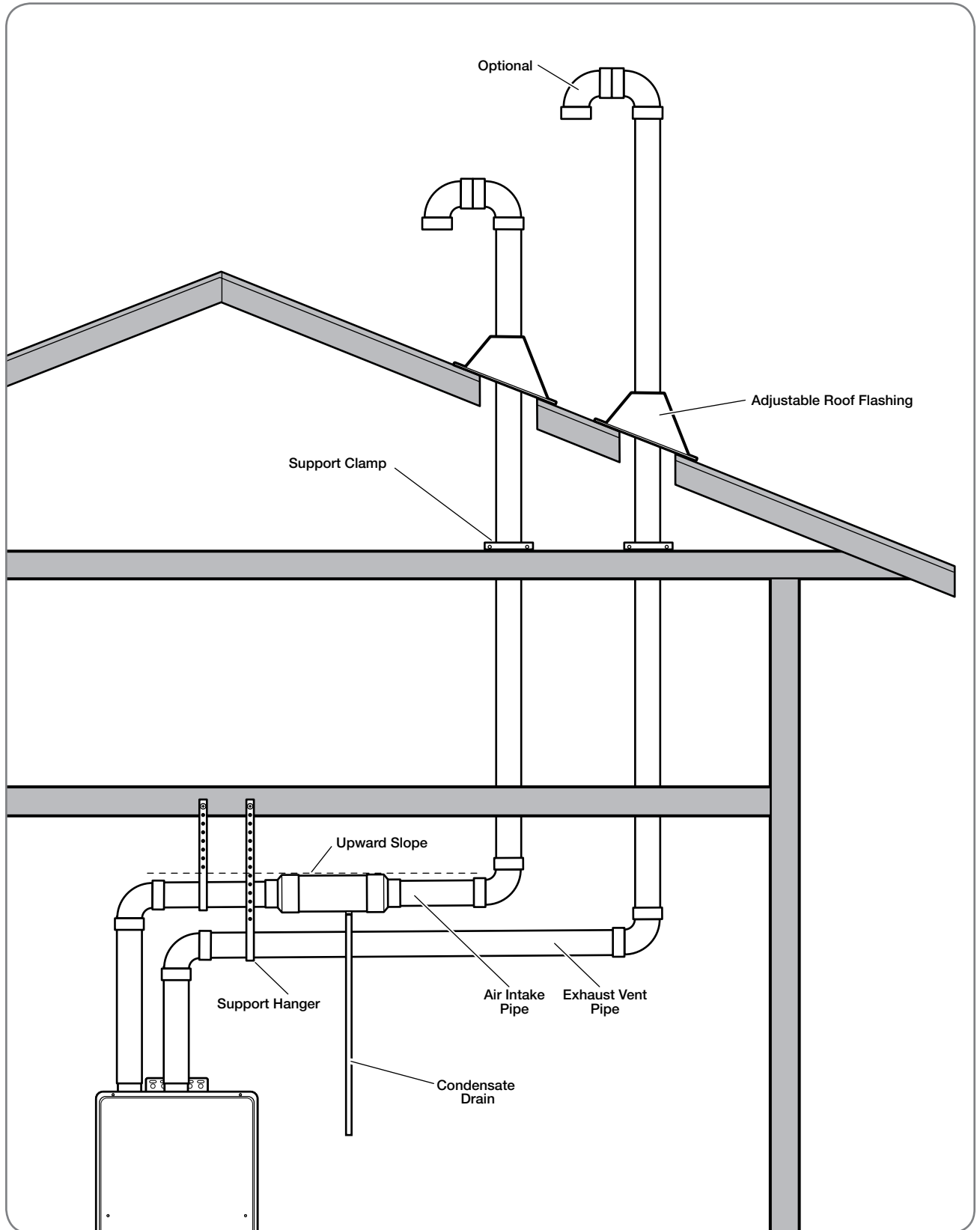
<sup>1</sup> In accordance with current ANSI Z223.1/NFPA 54 National Fuel Gas Code.

<sup>2</sup> In accordance with current CSA B149.1 Installation Codes.

The vertical intake air termination requires a return bend or two short or long sweep radius 90° elbows to keep the inlet downward and prevent entry of rain. Refer to figure above for the proper location of the air intake with respect to the exhaust outlet termination. The vertical exhaust outlet termination is a 2-inch or 3-inch pipe which terminates at least 12 inches above the air intake termination. The air intake and exhaust outlet terminations must be at least 12 inches above the roof line or anticipated snow levels.

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## Standard Vertical Vent Termination



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## Venting for Direct-Vent Water Heater (cont.)

### Alternative Vertical Vent Termination

Alternative vertical vent termination kits are commercially available. Please refer to the instruction sheet packaged with the kit for complete installation instructions.

Venting

