

# **INSTALLATION INSTRUCTIONS FOR THE CONTRACTOR**

# INSTALLATION INSTRUCTIONS

## Standards Compliance

This water heater must be installed in accordance with these instructions, local codes, and utility company requirements.

In the United States where local codes are not available, use the latest edition of the American National Standard/National Fuel Gas Code. A copy of the Fuel Gas Code can be purchased from either the American Gas Association, 400 North Capitol Street Northwest, Washington, DC 20001, as ANSI standard Z223.1, or National Fire Protection Association, 1 Batterymarch

Park, MA 02269 as NFPA 54.

In Canada, use the latest edition of the CAN/CSA B149.1 Natural Gas and Propane Installation Code and the Canadian Electrical Code, CAN/CSA C22.1, Part 1.

A copy can be purchased from; Canadian Standards Association, 5060 Spectrum Way, Mississauga, ON L4W 5N6

## Choosing a Location

### ⚠️ WARNING:

**Fire Hazard – Combustible construction refers to adjacent walls and ceilings and should not be confused with combustible or flammable products and materials. Combustible materials, such as clothing, cleaning materials, or flammable liquids, must not be placed against or next to the water heater. Fire or explosion could occur causing death, personal injury, and/or product damage.**

**A gas-fired water heater should never be installed in a space or room where liquids with flammable vapors are used or stored. Such liquids include gasoline, LP gas (butane or propane), paint, adhesives and their thinners, solvents, or removers. Flammable vapors carry long distances from where they are used or stored. The open flame of the water heater's main burner can ignite these vapors causing an explosion or fire.**

### NOTICE:

**Elevating a gas-fired water heater will reduce but NOT eliminate the possibility of lighting the vapor of flammable liquids which may be improperly stored or accidentally spilled.**

### NOTICE:

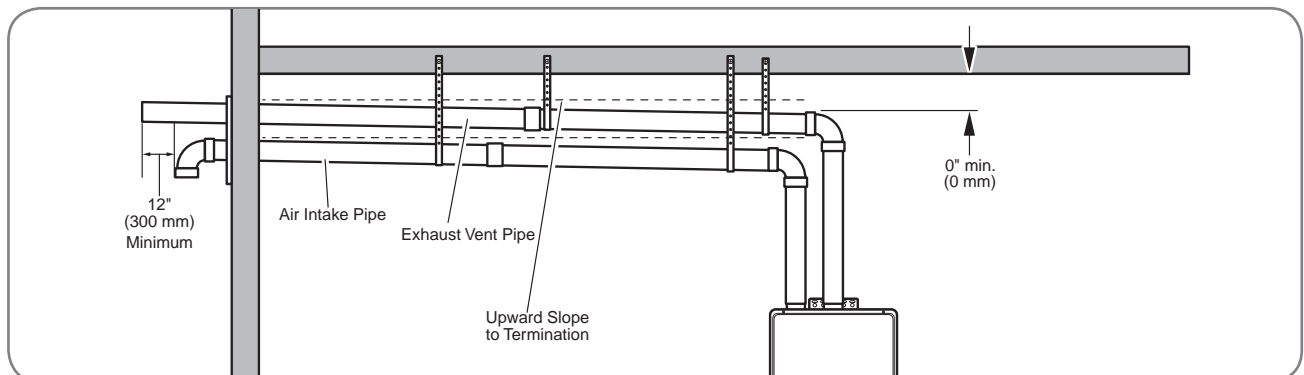
**DO NOT connect power until venting installation is complete (see Venting installation).**

### NOTICE:

**This water heater should not be located in an area where water leakage of the heat exchanger or connections will result in damage to the area adjacent to it or to lower floors of the structures. When such areas cannot be avoided, install a suitable catch pan with an adequate drain under the water heater.**

The following requirements will ensure a safe installation:

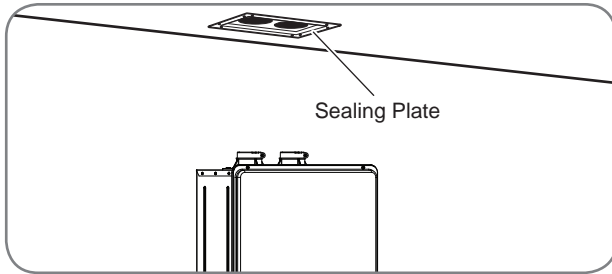
- The water heater must be located in an area where it won't sustain damage from moving vehicles, flooding, etc. If the water heater is installed in a storage garage, the direct ignition system and main burner should be no less than 18 in. (45 cm) above the garage floor.
- If the water heater is installed in a repair garage or in a private garage, the direct ignition system and main burner should be no less than 4.5 ft (1400 mm) above the garage floor.
- The water heater should be installed as close as possible to the vent exhaust and air intake. This minimizes the vent length and the number of elbows and joints required for venting.
- The water heater should be installed with the correct venting and exhaust materials. See "Venting" on this Use and Care Manual.



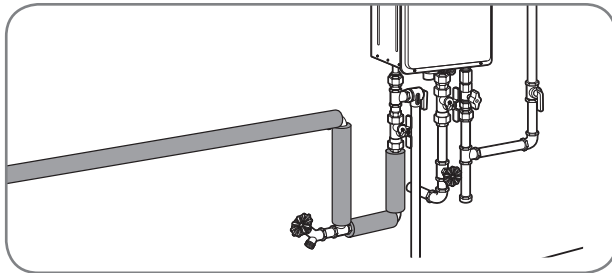
# INSTALLATION INSTRUCTIONS



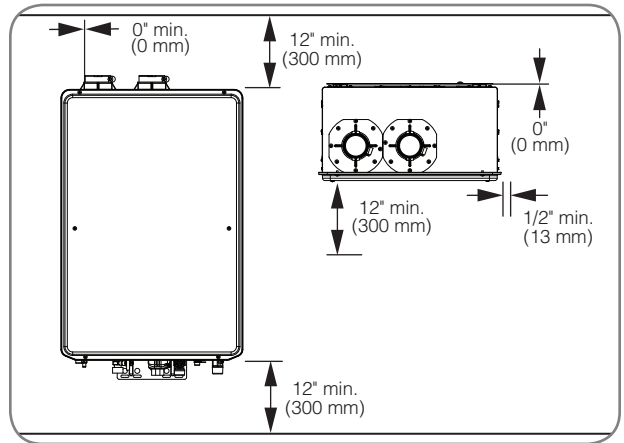
## Choosing a Location (cont.)



- Every vent or air intake pipe penetration of a floor or ceiling should be sealed.
- Failure to install and properly vent the water heater to the outdoors as outlined on "Venting" can result in unsafe operation.



- Long hot water lines should be insulated to conserve water and energy.
- The water heater and water lines should be protected from exposure to freezing temperatures.



- Minimum water heater clearances from combustible and noncombustible construction are as follows:
  - 1/2 in. (1.3 cm) for sides
  - 0 in. (0 cm) for rear with support bracket(s)
  - 12 in. (30 cm) from the bottom, top, and front
  - 0 in. (0 cm) for vent or air intake pipe

### NOTICE:

Preferred maintenance clearance is 24 in. (61 cm) from top, bottom, and front of unit.



- **DO NOT** install the water heater in areas prohibited by National Fuel Gas Code in U.S. installation or CAN/CSA B149.1 in Canadian installation.



- **DO NOT** install the water heater where it is subject to vibrations.



- **DO NOT** install the water heater in a recreational vehicle, mobile home, boat, or other watercraft.



- **DO NOT** install the water heater near vents for heating and cooling unless a minimum clearance of 4 ft (1.2 m) is maintained.

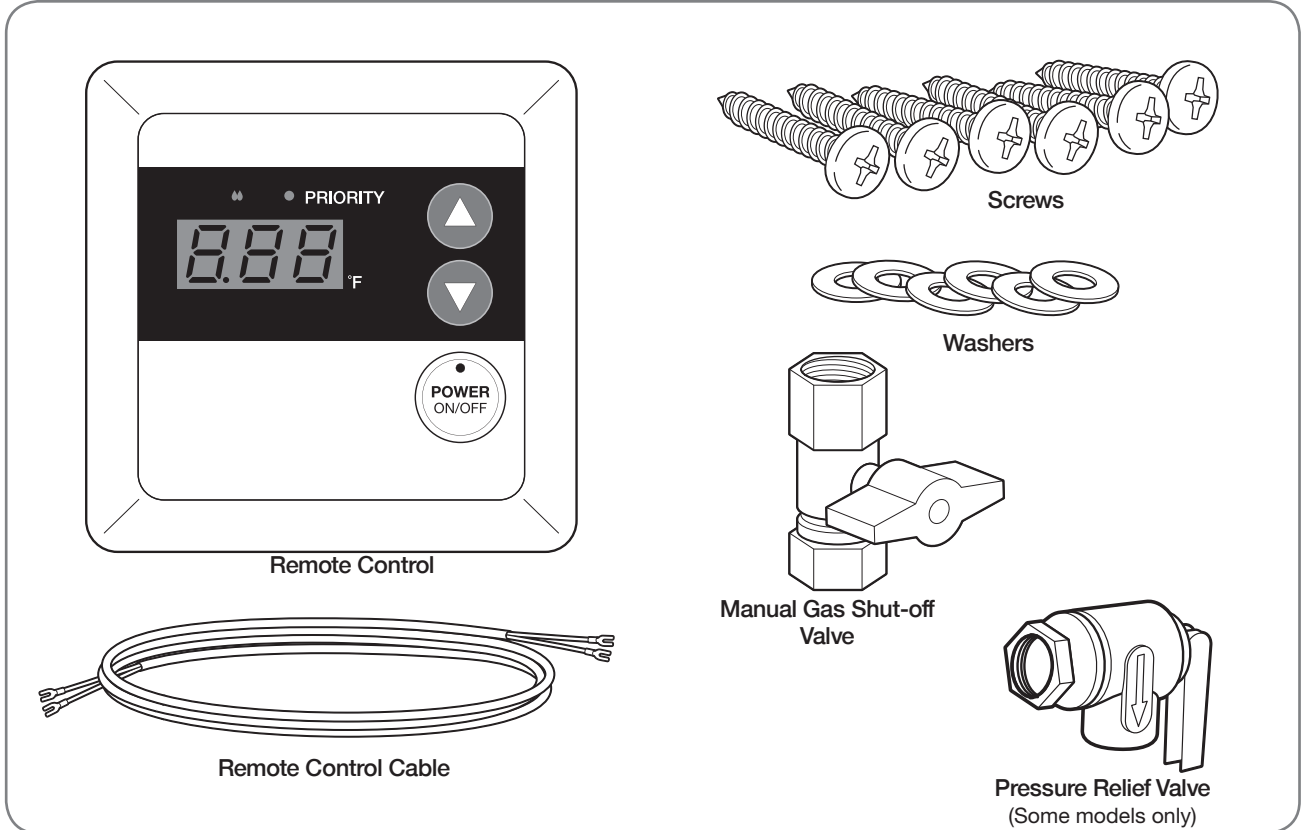
# INSTALLATION INSTRUCTIONS

## Product Inspection

Visually inspect the water heater for any possible damage.

Check the rating plate on the water heater to make sure the water heater was designed to be used with the supplied type of gas (natural or LP).

Verify that all included supplied parts are present as shown.



## Water Heater Installation

### Corrosive Atmosphere

#### **NOTICE:**

The water heater should not be installed near an air supply containing halogenated hydrocarbons where contaminants can enter the combustion air supply.

Avoid installing a water heater in any of the following locations: beauty shops, dry-cleaning establishments, photo processing labs, and storage areas for liquid and powdered bleaches or swimming pool chemicals. These locations often contain such halogenated hydrocarbons.

The air supply containing halogenated hydrocarbons is safe to breathe, but when passed through a gas flame, corrosive elements are released that will shorten the life of any gas-burning appliance.

Propellants from common spray cans or gas leaks from A/C and refrigeration equipment are highly corrosive after passing through a flame.

#### **NOTICE:**

The water heater warranty is void when the failure is due to operation in corrosive conditions.

# INSTALLATION INSTRUCTIONS

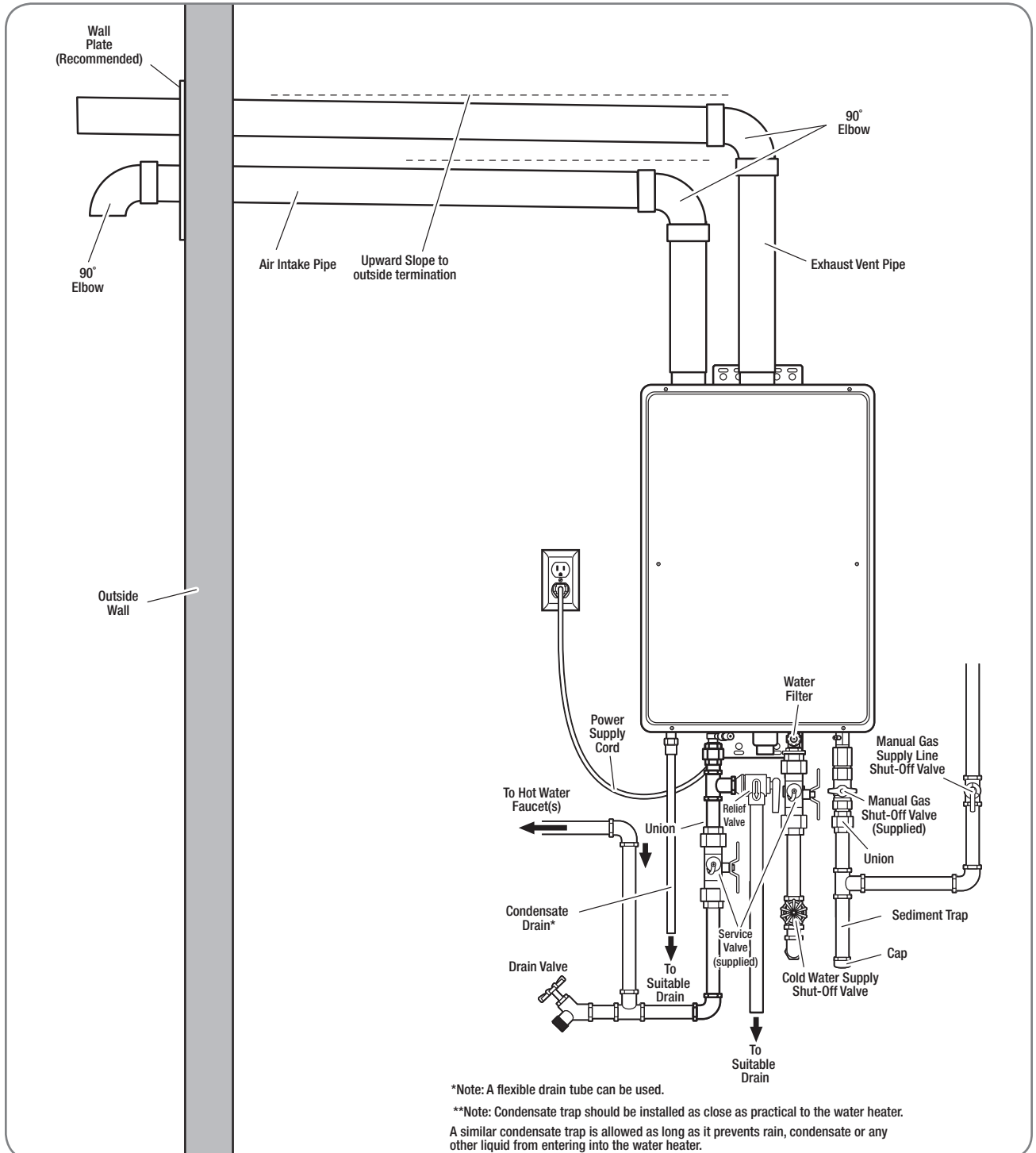


## Water Heater Installation (cont.)

### NOTICE:

The National Fuel Gas Code (NFCC) and CAN/CSA B149.1 mandate a manual gas shut-off valve. See NFCC/B149.1 for complete instructions. Local codes or plumbing authority requirements may vary from the instructions or diagrams provided and take precedence over these instructions.

### Typical Installation of Direct-Vent Water Heater



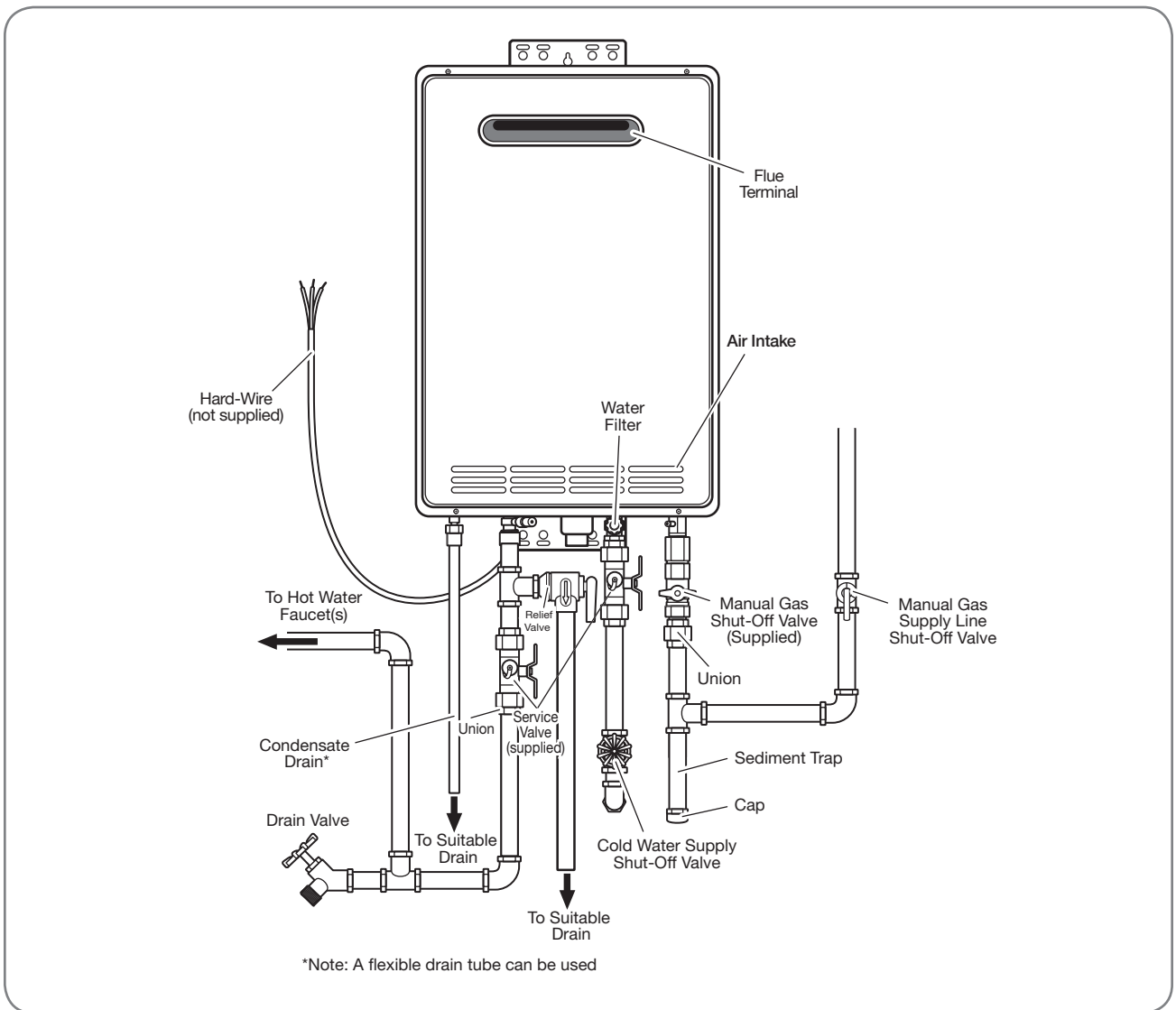
# INSTALLATION INSTRUCTIONS

## Water Heater Installation (cont.)

### Typical Installation of Outdoor Water Heater (No Venting Required)

This water heater is for **OUTDOOR** installation only.

**⚠ WARNING:**  
DO NOT install this water heater indoors or in a confined space. It is designed for outdoor installation only. Any other type of installation can result in death, personal injury, and/or damage to the product or property.



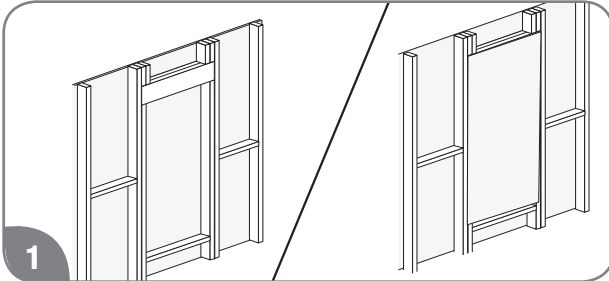
# INSTALLATION INSTRUCTIONS

## Mounting the Water Heater

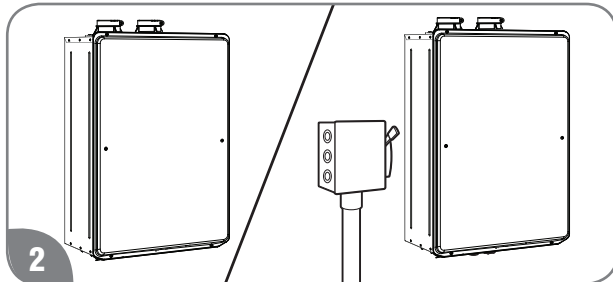
### ⚠ CAUTION:

Reinforcement of the wall is required where the wall is not strong enough to hold the water heater. Failure to do so could result in personal injury and/or property damage.

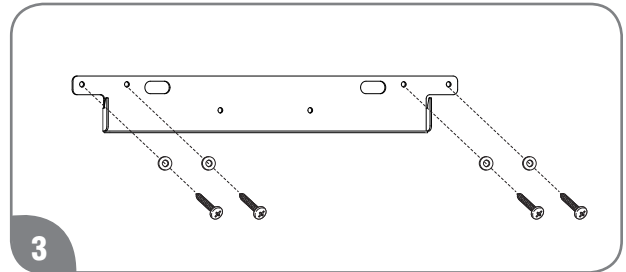
The mounting location for the water heater should allow for easy access and operation.



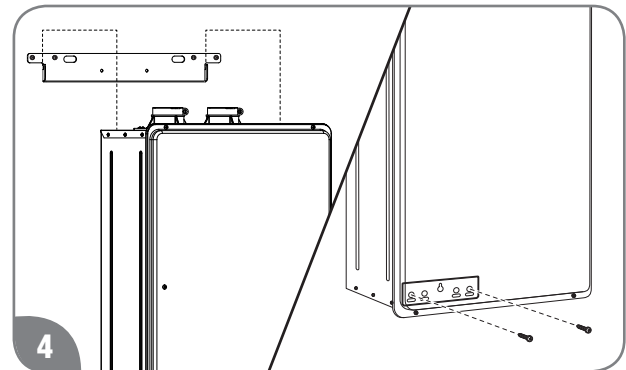
The water heater is designed to be installed either inside the wall cavity between the wall studs or outside the wall cavity. Either installation requires the water heater to be supported with a wooden support brace between the wall studs, or a piece of wood that is equal in size to the water heater and securely attached to the wall studs before the water heater is attached to it. This piece of wood can be installed inside or outside of the wall. Use wood screws to secure brackets to wall. If mounting to a concrete wall, use lag bolts designed for concrete.



Make sure the proper electrical outlet or supply (120 VAC/60 Hz) is available and located near the unit. Direct-vent models come with a 6-ft. (1.8-m) power cord, while the outdoor models require hard-wiring or the addition of a plug.



Attach the mounting bracket to the wall and secure it by 4 screws and washers. Make sure it is level and that it can support the weight of the water heater.



### NOTICE:

The image above may differ in appearance from your water heater.

Align the grooves on the back of the water heater with the tongues on the mounting bracket and hang the water heater on the bracket. When mounted with the mounting bracket, the water heater will have a 5/8" (16 mm) clearance from the back of the wall. Using two screws and washers, secure the lower mounting bracket to the wall.

### NOTICE:

**DO NOT** connect power until venting installation is complete (see Venting installation).

# 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. This water heater must have air supply connected and terminated to the outdoors.

### **⚠ 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 terminate 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 approved vent pipe material.

Use only 2 or 3 inch diameter pipe. Refer to local codes for restrictions on the use of InnoFlue® PP, PVC, CPVC, or ABS pipe and fittings. All exhaust venting materials for product installed in Canada must meet ULC-S636.

The use of cellular core PVC (ASTM F891), cellular core CPVC, or Radel® (polyphenolsulfone) in non-metallic venting systems is prohibited and that covering non-metallic vent pipe and fittings with thermal insulation is prohibited.

This water heater requires a special venting system. Refer to venting supplier's instruction for complete parts list and method of installation. The manufacturers and product lines listed on the following tables have been tested and authorized to safely operate with Rheem tankless water heater.

### Approved Vent Materials, Fittings and Terminations:

	PVC	CPVC	ABS
Acceptable Materials for Exhaust	Schedule 40, ASTM D-1785	Schedule 40, ASTM F-441	Schedule 40, ASTM D-2661
Acceptable Materials for Air Intake	Schedule 40, ASTM D-1785, and DWV, ASTM-D2665	Schedule 40, ASTM F-441, and CPVC 4120, ASTM-D2846	Schedule 40, ASTM D-2661
Fittings	Schedule 40, ASTM D-2665	Schedule 40, ASTM F-438	Schedule 40, ASTM D-2661
Terminations (Manufactured by Polytech)	RXGY-G01		
	RXGY-G02		
	PTX-129		
	RXGY-E03A		
	RXGY-G01C		

ABS is not permitted for exhaust vent in Canada

### Approved Polypropylene Vent Manufacturer/Trade Name:

Manufacturer	Centrotherm
Trade Name	InnoFlue®
Single Wall Pipe	ISVL**** or ISVL****UV
Elbow	ISELL**** or ISELL****UV
Adapter	ISAAL0202
Non-Return Valve (NRV)	ISNRV****
Siphon	IASJBVS
Termination	ISLPT**** or ISTT****

\*Refers to variations in nominal size.

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



# INSTALLATION INSTRUCTIONS

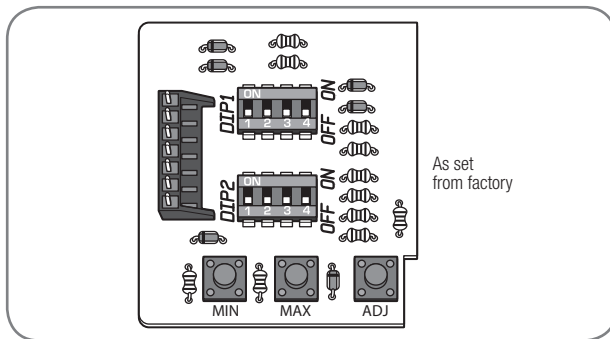


## Venting for Direct-Vent Water Heater

### Vent Lengths and DIPswitch Adjustments

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 39–40 and 46 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.

Appropriate dip switch adjustment shall be required to allow certain vent length. There are 2 vent configuration settings, A-1 and A-2 settings at 0 - 2,000 ft (0 - 610 m) elevation.



A-1 setting is default and factory setting. All dip switches are off.

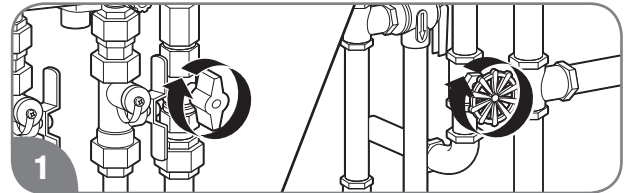
### Minimum Vent Length (intake/outlet):

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

### Maximum Vent Length (intake/outlet)

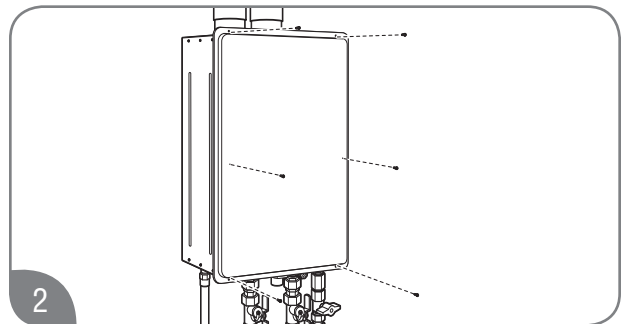
Number of 90° Elbows	Maximum Length of 2" Straight Pipe	Maximum Length of 3" Straight Pipe
1	22.0 ft (6.7 m)	148.5 ft (45.3 m)
2	19.0 ft (5.8 m)	147.0 ft (44.8 m)
3	16.0 ft (4.9 m)	145.5 ft (44.3 m)
4	13.0 ft (4.0 m)	144.0 ft (43.9 m)
5	10.0 ft (3.0 m)	142.5 ft (43.4 m)
6	7.0 ft (2.1 m)	141.0 ft (43.0 m)

To have a longer vent length with 2" vent, A-2 setting is required:

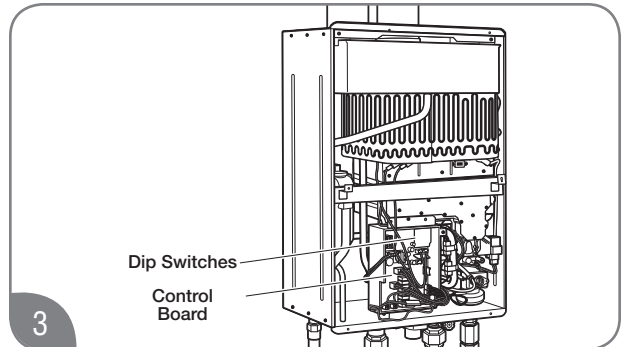


Turn off the gas and water to the water heater by closing the shut-off valves.

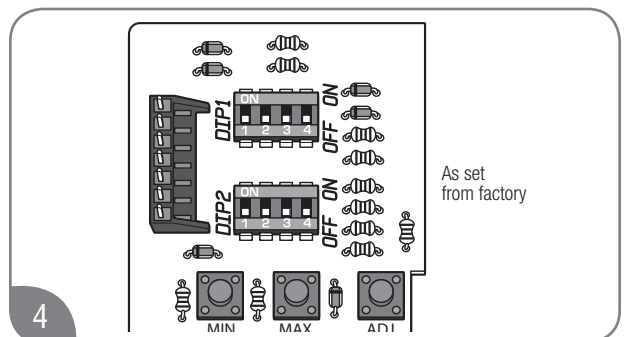
Venting



Remove the front cover panel on the water heater.



Find DIP Switch 2 located in the top-right portion of the control board. The switch labeled "DIP 2" is the bottom switch.

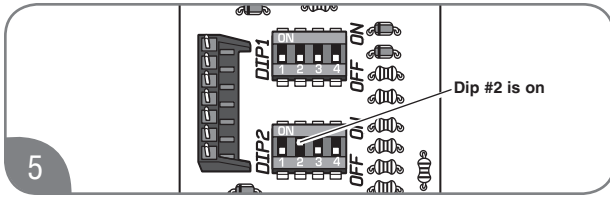


The factory settings for this switch should all be in the OFF position (DOWN).

# INSTALLATION INSTRUCTIONS



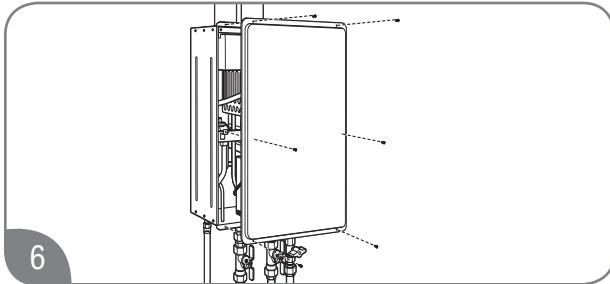
## Venting for Direct-Vent Water Heater



To set A-2 setting, change the second switch on "DIP 2" to the ON position (UP).

### NOTICE:

**DO NOT** alter any other DIP switch settings. Please contact technical service listed on page 26 of this use and care manual if you have any questions of DIP switch adjustments.



Replace the front cover panel.



Turn on the gas and water to the water heater by opening the shut-off valves.

### Minimum / Maximum Vent Length (intake/outlet) each at A-2 Setting

Number of 90° Elbows	Minimum Length of 2" Straight Pipe	Maximum Length of 2" Straight Pipe	3" Pipe
1	22.0 ft (6.7 m)	57.0 ft (17.4 m)	Not allowed
2	19.0 ft (5.8 m)	54.0 ft (16.5 m)	Not allowed
3	16.0 ft (4.9 m)	51.0 ft (15.5 m)	Not allowed
4	13.0 ft (4.0 m)	48.0 ft (14.6 m)	Not allowed
5	10.0 ft (3.0 m)	45.0 ft (13.7 m)	Not allowed
6	7.0 ft (2.1 m)	42.0 ft (12.8 m)	Not allowed

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 57 ft. [17.4 m] of 2" vent pipe may be used provided there is only one 90° elbow in the system).

A 90° elbow is equivalent to 3 ft (0.9 m) of 2", and to 1ft. 6 in (0.5m) of 3" straight pipe. A 45° elbow is equivalent to 1ft. 6 in (0.5 m) of 2" straight pipe, and 9ft. (0.25 m) of 3" straight pipe.

The vent termination and/or one 90 degree elbow at air intake does not count as part of the straight pipe equivalent when determining the total vent length.

### NOTICE:

To use 3" vent pipe, an increasing adapter will be required.

### WARNING:

To use Category III Stainless Steel, a proper transition part will be required to prevent flue gas from leaking. This water heater requires the correct DIP switch adjustments per vent length for proper operation. Incorrect DIP switch adjustments may cause improper water heater operation resulting in serious injury or death.

Depending on the size of pipe that is chosen for venting the water heater, it might be necessary to use a fitting for stepping down in pipe size, to connect to the water heater.

All intake and exhaust venting components must have the same diameter size. **DO NOT** use a different size on the intake and exhaust venting.

It is recommend to have a vent length as short as possible. Input rate of the water heater decreases if there is restriction (pressure drop) in the venting system.

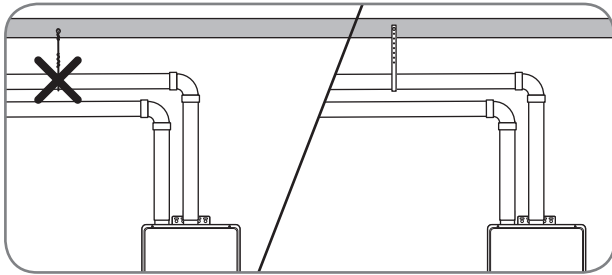
The following table shows approximate input rate reduction. Actual input rate reduction may be different at each installation.

Setting	Vent Size	Min Vent Length	Max Vent Length
A-1	3"	0%	15 - 20%
	2"	5%	15 - 20%
A-2	2"	10%	20 - 25%

# INSTALLATION INSTRUCTIONS



## Venting for Direct-Vent Water Heater



The unit may be vented horizontally through a wall or vertically through the roof. Pipe runs must be adequately supported along both vertical and horizontal runs. Maximum unsupported span is recommended to be no more than 4 feet (1.2 m). It is imperative that the first hanger be located on the horizontal runs immediately adjacent to the first 90-degree elbow from the vertical rise. Only use support isolation hanging bands. **DO NOT** use wire to support pipe runs.

Stress levels in the pipe and fittings can be significantly increased by improper installation. If rigid pipe clamps are used to hold the pipe in place, or if the pipe cannot move freely through a wall penetration, the pipe may be directly stressed, or high thermal stresses may be formed when the pipe heats up and expands. Install accordingly to minimize such stresses.

### NOTICES:

- It is recommended that the air intake pipe and exhaust pipe have a 1/4" per foot upward slope toward the outdoors.
- Maintain the proper clearance between the vent pipe and combustible or noncombustible materials as described on page 29.
- A clearance of 0 in. (0 cm) is allowed between the vent or air intake pipe and combustible material.
- Use proper support for the vent and air intake pipes.
- It is recommended the support method used isolates the vent pipe from floor joists or other structural members. This helps prevent transmission of noise and vibration.
- **DO NOT** support, pin, or otherwise secure the venting system in a way that restricts the normal thermal expansion and contraction of the chosen venting material.

See page 38 for additional requirements for the Commonwealth of Massachusetts.

### Preexisting Venting Notes:

If the water heater is being installed as a replacement for an existing water heater, a thorough inspection of the existing venting and air intake system must be performed prior to any installation work. Verify that the correct materials, vent lengths, and terminal locations as described in this manual have been met. Carefully inspect the entire venting and air intake system for any signs of cracks or fractures, particularly at the joints between elbows or other fittings and the straight runs of vent pipe. Check the system for signs of sagging or other stresses in the joints as a result of misalignment of any components in the system. If any of these conditions are found, they must be corrected in accordance with the venting instructions in this manual before completing the installation and putting the water heater into service.



## Venting for Direct-Vent Water Heater

### In the Commonwealth of Massachusetts

The Commonwealth of Massachusetts requires compliance with regulation 248 CMR 4.00 and 5.00 for installation of through-the-wall vented gas appliances as follows:

5.08: Modifications to NFPA-54, Chapter 10

(1) Revise NFPA-54 section 10.5.4.2 by adding a second exception as follows:

Existing chimneys shall be permitted to have their use continued when a gas conversion burner is installed, and shall be equipped with a manual reset device that will automatically shut off the gas to the burner in the event of a sustained back-draft.

(2) Revise 10.8.3 by adding the following additional requirements:

(a) For all side-wall, horizontally vented, gas-fueled equipment installed in every dwelling, building, or structure used in whole or part for residential purposes, including those owned or operated by the Commonwealth and where the side-wall exhaust vent termination is less than seven (7) feet above finished grade in the area of the venting, including but not limited to decks and porches, the following requirements shall be satisfied.

**1. INSTALLATION OF CARBON MONOXIDE DETECTORS.** At the time of installation of the side-wall, horizontally vented, gas-fueled equipment, the installing plumber or gas fitter shall observe that a hard-wired carbon monoxide detector with an alarm and battery backup is installed on the floor level where the gas equipment is to be installed. In addition, the installing plumber or gas fitter shall observe that a battery-operated or hard-wired carbon monoxide detector with an alarm is installed on each additional level of the dwelling, building, or structure served by the side-wall, horizontally vented, gas-fueled equipment. It shall be the responsibility of the property owner to secure the services of qualified licensed professionals for the installation of hard-wired carbon monoxide detectors.

a. In the event that the side-wall, horizontally vented, gas-fueled equipment is installed in a crawl space or an attic, the hard-wired carbon monoxide detector with alarm and battery backup may be installed on the next adjacent floor level.

b. In the event that the requirements of this subdivision cannot be met at the time of completion of installation, the owner shall have a period of thirty (30) days to comply with the above requirements, provided, however, that during said thirty (30) day period, a battery-operated carbon monoxide detector with an alarm shall be installed.

**2. APPROVED CARBON MONOXIDE DETECTORS.** Each carbon monoxide detector as required in accordance with the above provisions shall comply with NFPA 720 and be ANSI/UL 2034-listed and IAS-certified.

**3. SIGNAGE.** A metal or plastic identification plate shall be permanently mounted to the exterior of the building at a minimum height of eight (8) feet above grade directly in line with the exhaust vent terminal for the horizontally vented, gas-fueled heating appliance or equipment. The sign shall read, in print size no less than one-half (1/2) inch in size, "GAS VENT DIRECTLY BELOW. KEEP CLEAR OF ALL OBSTRUCTIONS."

**4. INSPECTION.** The state or local gas inspector of the side-wall, horizontally vented, gas-fueled equipment shall not approve the installation unless, upon inspection, the inspector observes carbon monoxide detectors and signage installed in accordance with the provisions of 248 CMR 5.08 (2)(a)(1 through 4).

(b) **EXEMPTIONS:** The following equipment is exempt from 248 CMR 5.08 (2)(a)(1 through 4):

1. The equipment listed in Chapter 10 entitled "Equipment Not Required To Be Vented" in the most current edition of NFPA 54 as adopted by the Board, and

2. Product-approved side-wall, horizontally vented, gas-fueled equipment installed in a room or structure separate from the dwelling, building, or structure used in whole or in part for residential purposes.

(c) **MANUFACTURER REQUIREMENTS – GAS EQUIPMENT VENTING SYSTEM PROVIDED.** When the manufacturer of product-approved side-wall, horizontally vented, gas-fueled equipment provides a venting system design or venting system components with the equipment, the instructions provided by the manufacturer for installation of the equipment and the venting system shall include:

1. Detailed instructions for the installation of the venting system design or the venting system components; and

2. A complete parts list for the venting system design or venting system.

(d) **MANUFACTURER REQUIREMENTS – GAS EQUIPMENT VENTING SYSTEM NOT PROVIDED.** When the manufacturer of product-approved side-wall, horizontally vented, gas-fueled equipment does not provide the parts for venting the flue gases, but identifies "special venting systems," the following requirements shall be satisfied by the manufacturer:

1. The referenced "special venting systems" instructions shall be included with the appliance or equipment installation instructions, and

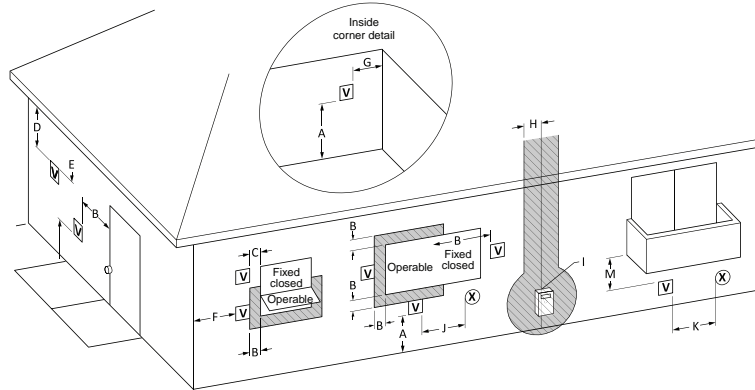
2. The "special venting systems" shall be product-approved by the Board, and the instructions for that system shall include a parts list and detailed installation instructions.

(e) A copy of all installation instructions for all product-approved side-wall, horizontally vented, gas-fueled equipment, all venting instructions, all parts lists for venting instructions, and/or all venting design instructions shall remain with the appliance or equipment at the completion of the installation.

# INSTALLATION INSTRUCTIONS



## Venting for Direct-Vent Water Heater



V VENT TERMINAL   
 X AIR SUPPLY INLET   
  AREA WHERE TERMINAL IS NOT PERMITTED

### Horizontal Vent Terminal Location for Other than Direct Vent

The following information should be used for determining the proper location of the vent terminal for direct vent water heaters.

#### Canadian Installations <sup>1</sup>

#### US Installations <sup>2</sup>

	Canadian Installations <sup>1</sup>	US Installations <sup>2</sup>
A= Clearance above grade, veranda, porch, deck or balcony.	12 inches (30 cm)	12 inches (30 cm)
B= Clearance to window or door that may be opened.	6 inches (15 cm) for appliances < 10,000 Btuh (3 kW), 12 inches (30 cm) for appliances > 10,000 Btuh (3kW) and < 100,000 Btuh (30kW), 36 inches (91 cm) for appliances > 100,000 Btuh (30kW).	4 feet (1.2 m) below or to side of opening; 1 foot (300 mm) above opening.
C= Clearance to permanently closed window.	*	*
D= Vertical Clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal.	*	*
E= Clearance to unventilated soffit.	*	*
F= Clearance to outside corner.	*	*
G= Clearance to inside corner.	*	*
H = Clearance to each side of center line extended meter/regulator assembly.	*	*
I = Clearance to service regulator vent outlet.	Above a regulator within 3 feet (91 cm) horizontally of the vertical center line of the regulator vent outlet to a maximum vertical distance of 15 feet (4.5 m).	*
J = Clearance to nonmechanical air supply inlet to building or the combustion air inlet to any other appliance..	6 inches (15 cm) for appliances < 10,000 Btuh (3 kW), 12 inches (30 cm) for appliances > 10,000 Btuh (3kW) and < 100,000 Btuh (30kW), 36 inches (91 cm) for appliances > 100,000 Btuh (30kW).	4 feet (1.2 m) below or to side of opening; 1 foot (300 mm) above opening.
K = Clearance to mechanical air supply inlet.	6 feet (1.83 m)	3 feet (91 cm) above if within 10 feet (3 m) horizontally.
L = Clearance above paved sidewalk or paved driveway located on public property.	7 feet (2.13 m)+	7 feet (2.13 m)+
M = Clearance under veranda, porch, deck or balcony.	12 inches (30 cm)	*

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

<sup>2</sup> In accordance with current ANSI Z223.1/ NFPA 54 National Fuel Gas Code.

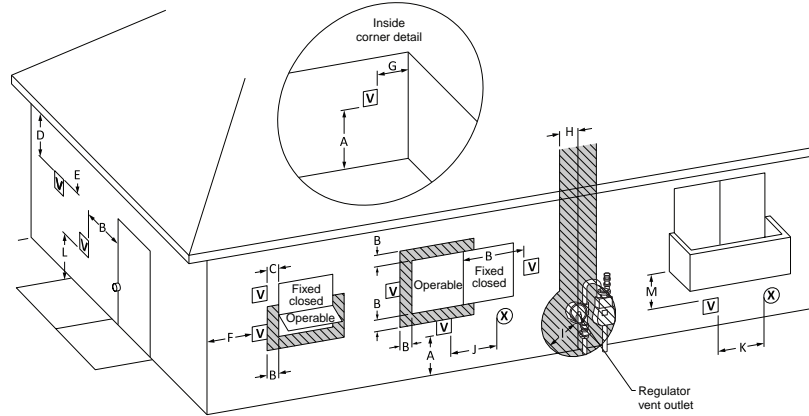
+ A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

\* "Clearance in accordance with local installation codes and the requirements of the gas supplier."

# INSTALLATION INSTRUCTIONS



## Venting for Direct-Vent Water Heater



V VENT TERMINAL   
 X AIR SUPPLY INLET   
  AREA WHERE TERMINAL IS NOT PERMITTED

### Horizontal Vent Terminal Location for Direct Vent

The following information should be used for determining the proper location of the vent terminal for direct vent water heaters.

Canadian Installations <sup>1</sup>

US Installations <sup>2</sup>

	Canadian Installations <sup>1</sup>	US Installations <sup>2</sup>
A = Clearance above grade, veranda, porch, deck or balcony.	12 inches (30 cm)	12 inches (30 cm)
B = Clearance to window or door that may be opened.	6 inches (15 cm) for appliances ≤ 10,000 Btuh (3 kW), 12 inches (30 cm) for appliances > 10,000 Btuh (3kW) and ≤ 100,000 Btuh (30kW), 36 inches (91 cm) for appliances > 100,000 Btuh (30kW).	6 inches (15 cm) for appliances < 10,000 Btuh (3 kW), 9 inches (23 cm) for appliances > 10,000 Btuh (3 kW) and < 50,000 Btuh (15 kW), 12 inches (30 cm) for appliances > 50,000 Btuh (15 kW)
C = Clearance to permanently closed window.	*	*
D = Vertical Clearance to ventilated soffit located above the terminal within a horizontal distance of 2 feet (61 cm) from the center line of the terminal.	*	*
E = Clearance to unventilated soffit.	*	*
F = Clearance to outside corner.	*	*
G = Clearance to inside corner.	*	*
H = Clearance to each side of center line extended meter/regulator assembly.	*	*
I = Clearance to service regulator vent outlet.	Above a regulator within 3 feet (91 cm) horizontally of the vertical center line of the regulator vent outlet to a maximum vertical distance of 15 feet (4.5 m).	*
J = Clearance to nonmechanical air supply inlet to the building or the combustion air inlet of any other appliance.	6 inches (15 cm) for appliances < 10,000 Btuh (3 kW), 12 inches (30 cm) for appliances > 10,000 Btuh (3kW) and < 100,000 Btuh (30kW), 36 inches (91 cm) for appliances > 100,000 Btuh (30kW).	6 inches (15 cm) for appliances < 10,000 Btuh (3 kW), 9 inches (23 cm) for appliances > 10,000 Btuh (3 kW) and < 50,000 Btuh (15 kW), 12 inches (30 cm) for appliances > 50,000 Btuh (15 kW)
K = Clearance to mechanical air supply inlet.	6 feet (1.83 m)	3 feet (91 cm) above if within 10 feet(3 m) horizontally.
L = Clearance above paved sidewalk or paved driveway located on public property.	7 feet (2.13 m) +	*
M = Clearance under veranda, porch, deck or balcony.	12 inches (30 cm)	*

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

<sup>2</sup> In accordance with current ANSI Z223.1/ NFPA 54 National Fuel Gas Code.

+ A vent shall not terminate directly above a sidewalk or paved driveway that is located between two single family dwellings and serves both dwellings.

\*"Clearance in accordance with local installation codes and the requirements of the gas supplier."



# INSTALLATION INSTRUCTIONS

## Horizontal Vent Considerations

### **⚠️WARNING:**

Moisture in the flue gas will condense as it leaves the vent terminal. In cold weather this condensate can freeze on the exterior wall, under the eaves, and on surrounding objects. Some discoloration to the exterior of the building is to be expected. However, improper location or installation can result in severe damage to the structure or exterior finish of the building.

- DO NOT locate vent terminal on the side of a building with prevailing winter winds. This will help prevent water lines from freezing and moisture from freezing on walls and under eaves.
- DO NOT locate vent terminal too close to shrubbery, as flue gasses may damage them. A minimum distance of 4 ft. (1.22 m) is recommended.
- All painted surfaces should be primed to lessen the chance of physical damage. Painted surfaces will require maintenance.
- Guard against accidental contact with people and pets.

- DO NOT terminate vent directly on brick or masonry surfaces. Use rust-resistant, sheet-metal backing plate behind the vent.
- The vent for this appliance shall not terminate
  - Over public walkways; or
  - Near soffit vents or crawl space vents or other area where condensate or vapor could create a nuisance or hazard or cause property damage; or
  - Where condensate or vapor could cause damage or could be detrimental to the operation of regulators, relief valves, or other equipment.
- Caulk all cracks, seams, and joints within 6 ft. (1.8 m) of the vent terminal.
- Caulk around wall faceplate for weather-tight seal.
- DO NOT extend exposed vent pipe of indoor water heaters outside of the building.
- This water heater requires its own separate venting system. DO NOT connect the exhaust vent to an existing vent pipe or chimney.
- Observe minimum clearances. Vent terminals must be a minimum of 5.5 inches (14 cm) and a maximum of 24 inches (61 cm) apart horizontally.

## Indoor Tankless Water Heaters

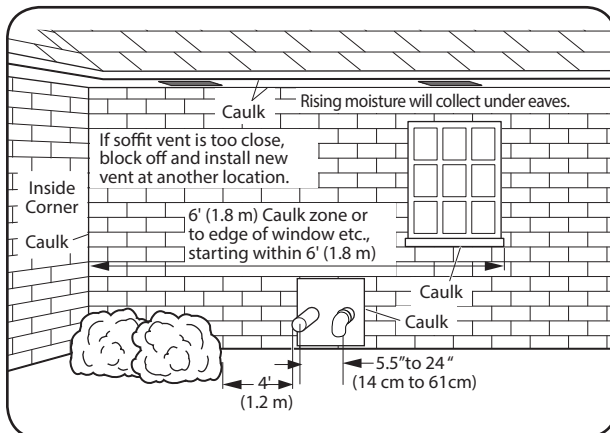
### **⚠️WARNING:**

For multiple-unit installations, a minimum distance between vent terminations must be maintained to prevent recirculation of vent gases. Maintain a center-to-center distance between each pair of vent terminations as listed below:

24 in. (61 cm) for a two-unit installation;

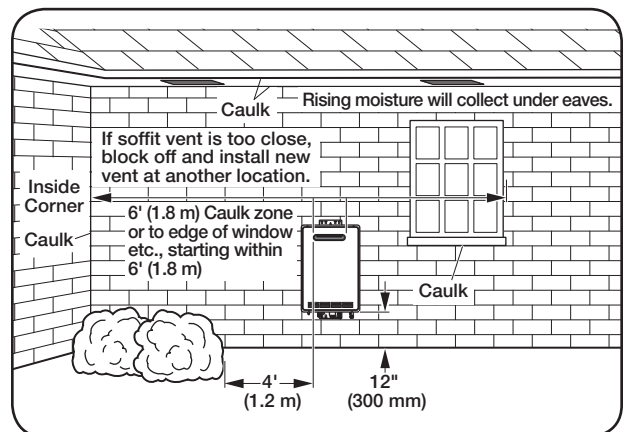
24 in. (61 cm) and 36 in. (91.4 cm) for a three-unit installation;

24 in. (61 cm), 36 in. (91.4 cm), and 24 in. (61 cm) for a four-unit installation.



## OUTDOOR TANKLESS WATER HEATERS

- Install outdoor water heater such that air inlet and flue outlet are above anticipated snow level.

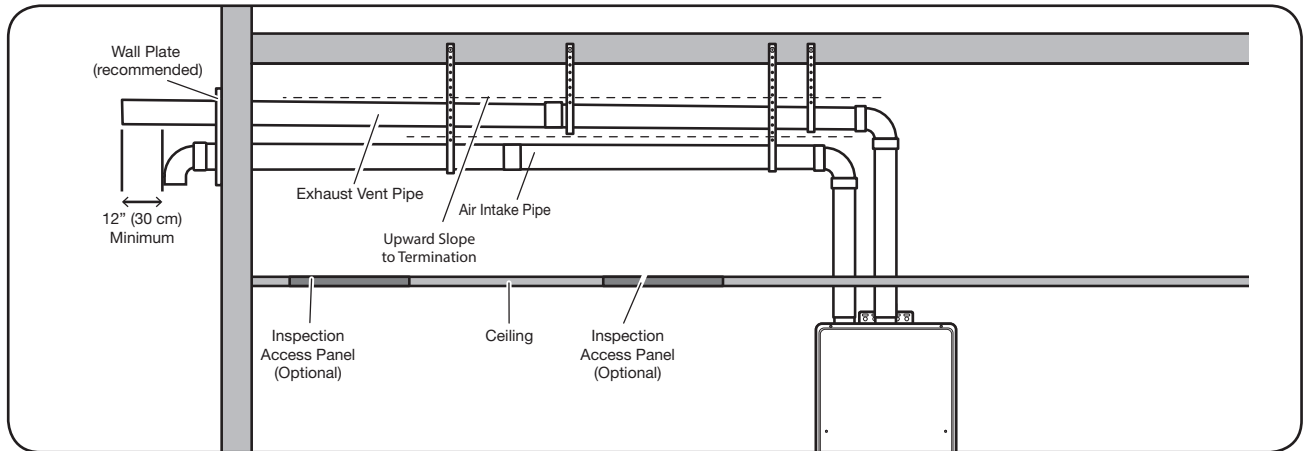


# INSTALLATION INSTRUCTIONS



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

Venting



### Horizontal Vent Installation

#### **⚠WARNING:**

**Danger of fire or bodily injury – Solvent cements and primers are highly flammable. Provide adequate ventilation and DO NOT assemble near heat source or open flame. DO NOT smoke. Avoid skin or eye contact. Observe all cautions and warnings on material containers.**

#### **⚠CAUTION:**

**Use tankless water heater manufacturer-approved Schedule 40 PVC (foam core is not permitted at any time), Schedule 80 PVC, CPVC, ABS or UL 1738-listed Category III Stainless Steel or InnoFlue® PP. No other vent material is permitted. For Canada, installations must follow ULC S636 for exhaust venting.**

### Joining Pipes and Fittings

All pipe, fittings, solvent cement, primers, and procedures, for the U.S., must conform to American National Standards Institute and American Society for Testing and Materials (ANSI/ASTM) standards. For Canada, all pipe, fittings, solvent cement, primers, and procedures must conform to ULC-S636 and vent manufacturer specifications.

#### **⚠CAUTIONS:**

- **DO NOT** use solvent cement that has become curdled, lumpy, or thickened.
- **DO NOT** thin solvent cement. Observe shelf precautions printed on the containers.
- For applications below 32°F, use only lower temperature-type solvent cement.
- Appropriate solvent and cleaner must be used for the type of vent pipe used (PVC, CPVC, or ABS).

### Cleaner-Primer and Medium-Body Solvent Cement

All joints in vent piping must be properly sealed, and we recommend using the following material:

PVC materials should use ASTM D-2564-grade cement.

CPVC materials should use ASTM F-493-grade cement.

ABS materials should use ASTM D-2235-grade cement (ABS is not allowed for exhaust vent in Canada).

### Cementing Joints

1. Cut pipe end square; remove jagged edges and burrs. Chamfer end of pipe and clean fitting socket and pipe joint area of all dirt, grease, or moisture.
2. After checking pipe and socket for proper fit, wipe socket and pipe with cleaner-primer. Apply a liberal coat of primer to inside surface of socket and outside of pipe.
3. Apply a thin coat of cement evenly in the socket. Quickly apply a heavy coat of cement to the pipe and insert pipe into fitting with a slight twisting motion until it bottoms out.
4. Hold the pipe fitting for 30 seconds to prevent the tapered socket from pushing the pipe out of the fitting.
5. Wipe all excess cement from the joint with a rag. Allow 15 minutes before handling. Cure time will vary according to fit, temperature, and humidity.

### NOTICE:

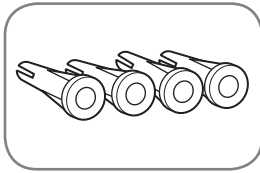
- **Cement must be fluid; if not, recoat with fresh cement.**
- **Stir the solvent frequently while using. Use a natural bristle brush or the dauber supplied with the can. The proper brush size is one inch.**
- **DO NOT** use cement for InnoFlue® PP.



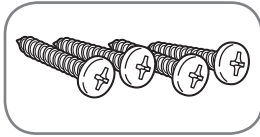
# INSTALLATION INSTRUCTIONS

## Horizontal Vent Installation (cont.)

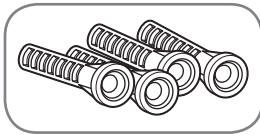
Fasteners will vary depending on the wall type.



For particle board or composite sheathing, use 4 hollow wall anchors. The anchors should be at least 1/8 in. (0.3 cm) in diameter and the appropriate length for the sheathing thickness.



For plywood or solid wood sheathing or members, use 4 #10 x 1 1/4-in. wood screws.



For masonry walls, use suitable masonry anchors long enough to pass through the wall.

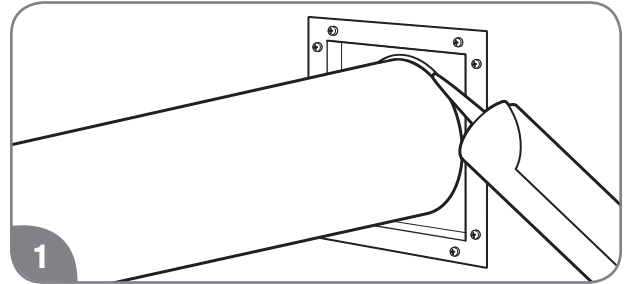
### NOTICE:

- The exhaust vent terminal must extend a minimum of 12 inches (30.5 cm) more than the air intake terminal from the exterior wall. Also, an edge to edge distance between an air intake termination and an exhaust termination shall be at least 12 inches (30.5 cm) for any directions to prevent recirculation of vent gases.
- To prevent possibility of condensate freeze-up, DO NOT install vent kits one above the other.

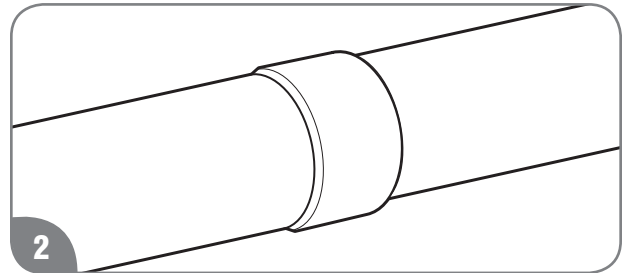
Once the vent terminal location has been determined, make holes through the exterior wall to accommodate the vent pipes. Vent pipes must exit exterior wall horizontally only.

The standard horizontal air intake termination is a 2-inch or 3-inch 90 degree elbow. This prevents rain or any other liquid for getting into air intake and the pipe from being pushed back into the structure. The standard horizontal exhaust outlet termination is a 2-inch or 3-inch pipe which terminates 12 inches from the air intake termination. Insert a small length of vent pipe through the wall and connect the coupling. Connect vent cap or terminal to the vent pipe on the exterior of the building.

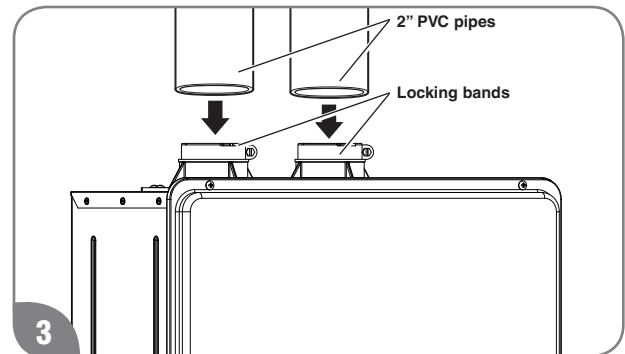
1. Observe minimum clearances. Vent terminals must be a minimum of 5.5 inches (14 cm) and a maximum of 24 inches (61 cm) apart horizontally.
2. Cut two 2 1/2" (6.4 cm) diameter holes [for a 2" (5.1 cm) diameter pipe] or 3 1/2" (8.9 cm) diameter holes [for a 3" (7.6 cm) diameter pipe] for the exhaust vent and air intake openings.



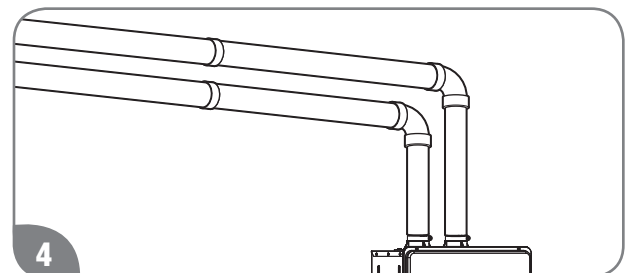
Apply silicone sealant or silicone/latex caulk to seal the vent pipe to the vent coupling to permit field disassembly for annual inspection and cleaning. Completely seal where it passes through the wall plate and where it is attached to the structure.



Attach the female end of the next vent pipe section to the male end of the 2-in./3-in. (5.1-cm/7.6-cm) vent pipe. See "Cementing Joints" on this Use and Care Manual.



Insert a 2" PVC pipes slowly into an air intake connector and a flue connector located on top of the water heater until they stop. **DO NOT** use cement. Tighten 2 locking bands to secure 2" PVC pipes.



Complete the rest of the vent pipe installation to the water heater's flue outlet and air intake.

# INSTALLATION INSTRUCTIONS

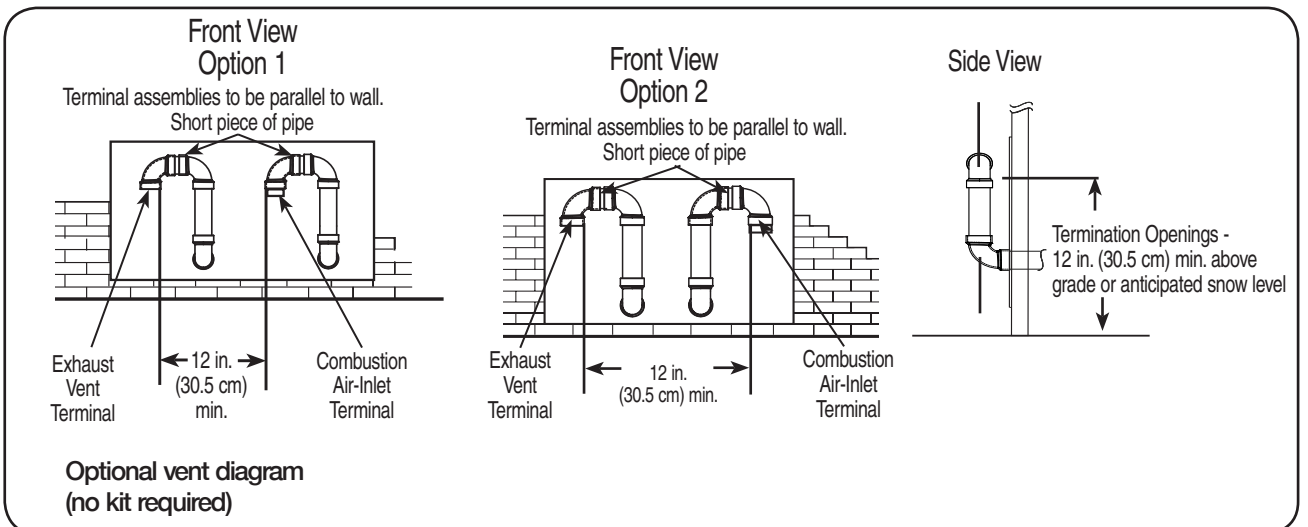
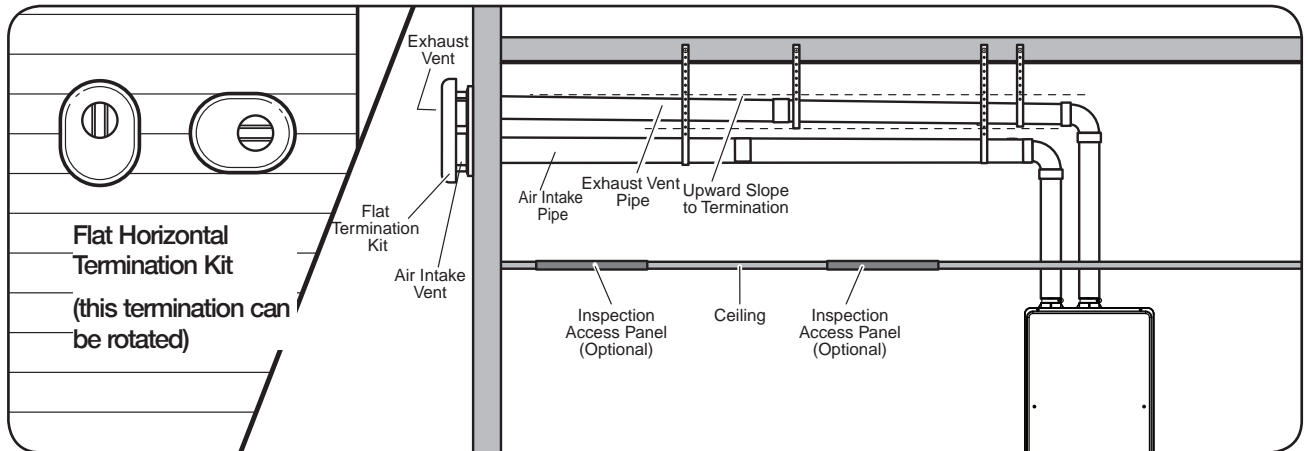
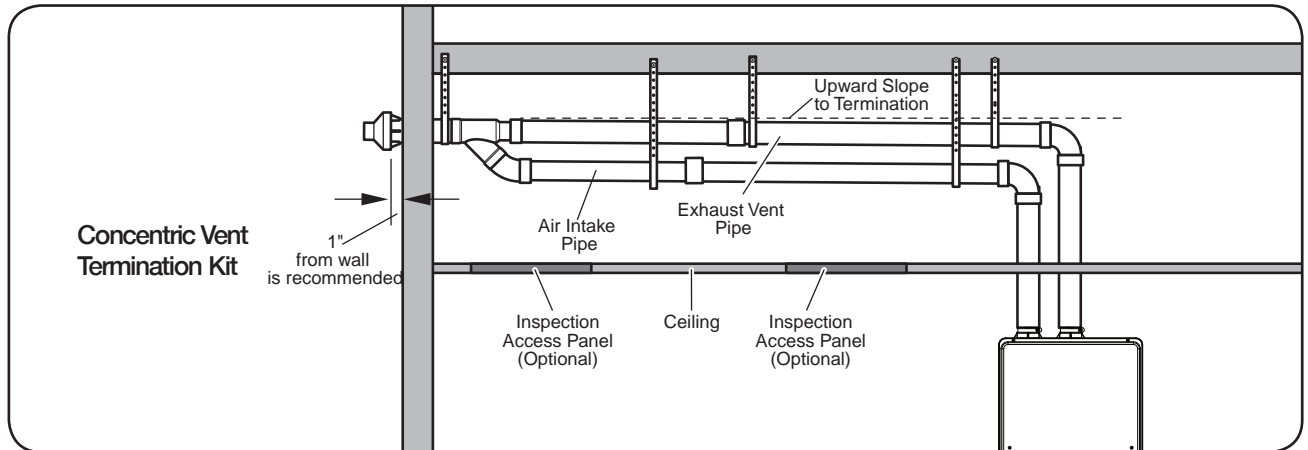
For information about termination kits, refer to "If You Need Service" on page 26, "Call for Assistance" for the telephone number to speak to a Customer Service Representative.



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

### Alternative Horizontal Vent Installations

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



# INSTALLATION INSTRUCTIONS

## Vertical Vent Installation

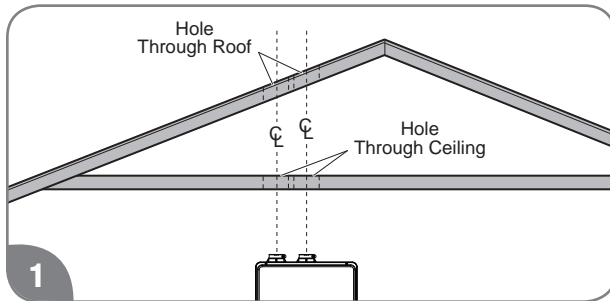
### **⚠ WARNING:**

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

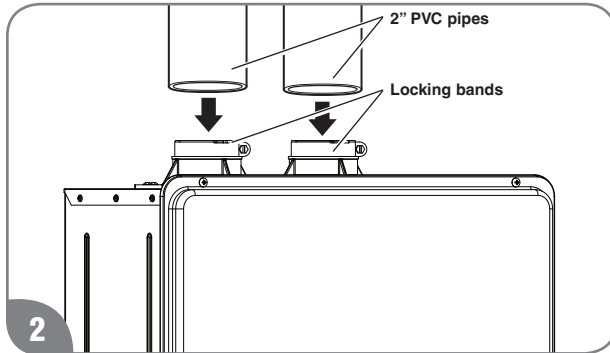
### **NOTICE:**

Only Rheem-approved AND ULC S636 approved termination and parts must be used during installation.

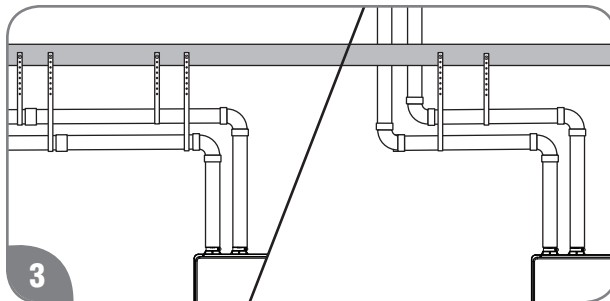
Maintain the recommended air space clearance to combustible materials and building insulation.



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



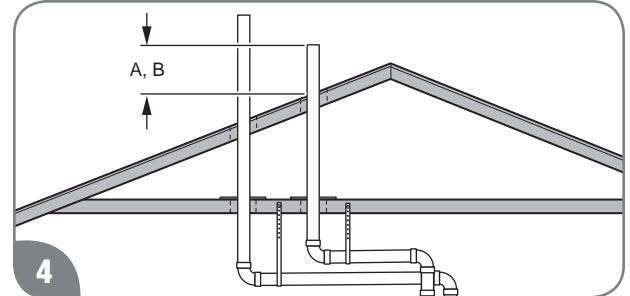
Insert a 2" PVC pipes slowly into an air intake connector and a flue connector located on top of the water heater until they stop. Tighten 2 locking bands to secure 2" PVC pipes.



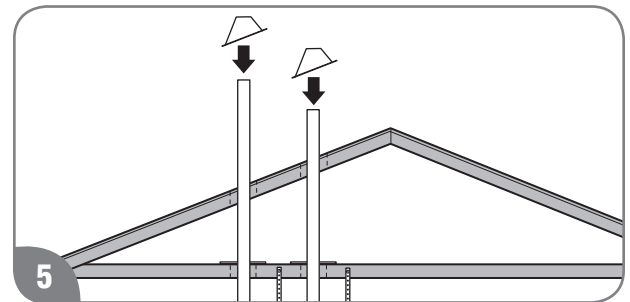
Support vertical and horizontal runs as described on page 35. Vertical supports are required every 4 ft. (1.2 m) along a vertical pipe route, after every transition to vertical, and after every offset elbow.

### **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.



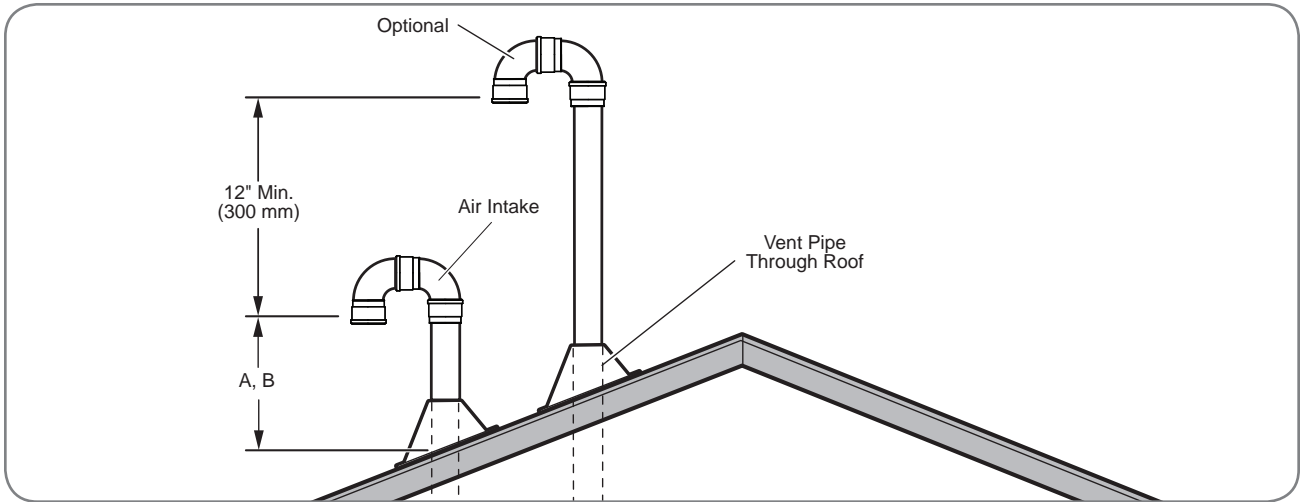
Install adequate flashing where the vent pipe passes through the roof.

# INSTALLATION INSTRUCTIONS



## 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>
<b>A = Minimum clearance above the roof level.</b>	12 in. (30 cm) above roof level.	18 in. (45.7 cm) above roof level.
<b>B = Maximum clearance above roof level (without additional support for vent pipe).</b>	24 in. (61 cm) above roof level.	24 in. (61 cm) above roof level.
<b>C = Required vent clearance from any gable, dormer, or other roof structure with building interior access (i.e., vent, window).</b>	4 ft. (1.2 m)	4 ft. (1.2 m)
<b>D = Required vent clearance from any forced air inlet, including dryer and furnace air inlets.</b>	10 ft. (3 m)	6 ft. (1.8 m)
<b>E = Minimum/maximum horizontal distance between vent terminals</b>	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.

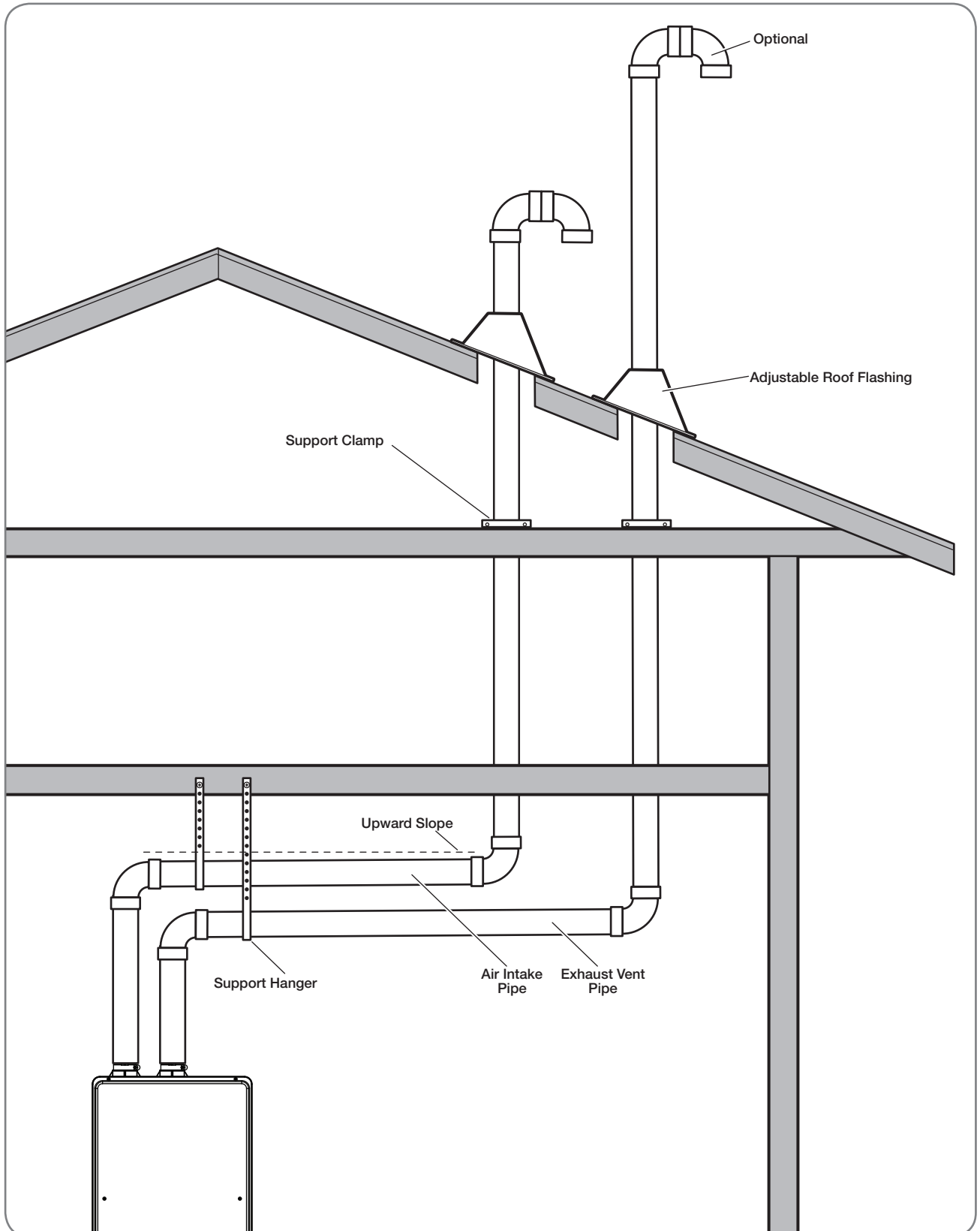
<sup>2</sup> In accordance with current CAN/CSA B149.1 Installation Codes.

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 (30 cm) above the air intake termination. The exhaust outlet terminations must be at least 12 inches (30 cm) in US [at least 18 inches (46 cm) in Canada] above the roof line or anticipated snow levels.

# INSTALLATION INSTRUCTIONS

## Standard Vertical Vent Termination



Venting

# INSTALLATION INSTRUCTIONS



## 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.

### **⚠️WARNING:**

**Under no circumstances should the exhaust pipe and the air intake pipe be connected together.**

