Use & Care Manual

With Installation Instructions for the Installer

136,000 BTU Max Input

Residential Indoor Gas

Tankless Water Heater

⚠ Warning: This water heater is not suitable for use in manufactured (mobile) homes!

The purpose of this manual is twofold: one, to provide the installer with the basic directions and recommendations for the proper installation and adjustment of the water heater; and two, to the owneroperator, to explain the features, operation, safety precautions,maintenance and troubleshooting of the water heater. This manual also includes a parts list.

It is imperative that all persons who are expected to install, operate or adjust this water heater read the instructions carefully so they may understand how to perform these operations. If you don't understand these instructions or any terms within it, seek professional advice.

Any questions regarding the operation, maintenance, service or warranty of this water heater should be directed to the seller from whom it was purchased. If additional information is required, refer to the section on If You Need Service.

Do not destroy this manual. Please read carefully and keep in a safe place for future reference.

⚠ Recognize this symbol as an indication of Important SafetyInformation!

⚠ California Proposition 65 Warning: This product contains chemicals known to the State of California to cause cancer, birthdefects or other reproductive harm.

⚠ WARNING: If the in formation in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or death.

⚠ FOR YOUR SAFETY!

- Do not store or use gasoline or other flammable vapors or liquids or other combustible materials in the vicinity of this or any other appliance. To do so may result in an explosion or fire.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.
- Do not return to your home until authorized by the gas supplier or fire department.

- Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury, or death. Refer to this manual. Installation and service must be performed by a qualified installer, service agency or the gas supplier.

FOR YOUR RECORDS

Write the model and serial numbers here:

#

#

You can find them on a label on the appliance.
Staple sales slip or cancelled check here.

Proof of the original purchase date is needed to obtain service under the warranty

READ THIS MANUAL

Inside you will find many helpful hints on how to use and maintain your water heater properly. A little preventive care on your part can save you time and money over the life of your water heater.

You'll find many answers to common problems in the Troubleshooting Guide. If you review the chart of Troubleshooting Tips first, you may not need to call for service.

READ THE SAFETY INFORMATION

Your safety and the safety of others are very important. There are many important safety messages in this manual and on your appliance. Always read and obey all safety messages.

This is the safety alert symbol. Recognize this symbol as an indication of Important Safety Information!
This symbol alerts you to potential hazards that can kill or hurt you and others.

All safety messages will follow the safety alert symbol and either the word ‘DANGER”, “WARNING”, “CAUTION” or “NOTICE”.

These words mean:

DANGER **An imminently hazardous situation that will result in death or serious injury.**

WARNING **A potentially hazardous situation that could result in death or serious injury and/or damage to property.**

CAUTION **A potentially hazardous situation that may result in minor or moderate injury.**

Notice: **Attention is called to observe a specified procedure or maintain a specific condition.**

IMPORTANT SAFETY INFORMATION. READ ALL INSTRUCTIONS BEFORE USING.

Be sure to read and understand the entire Use and Care Manual before attempting to install or operate this water heater. It may save you time and money. Pay particular attention to the Safety Instructions. Failure to follow these warnings could result in serious bodily injury or death. Should you have problems understanding the instructions in this manual, or have any questions, STOP, and get help from a qualified service technician, or the local gas utility.

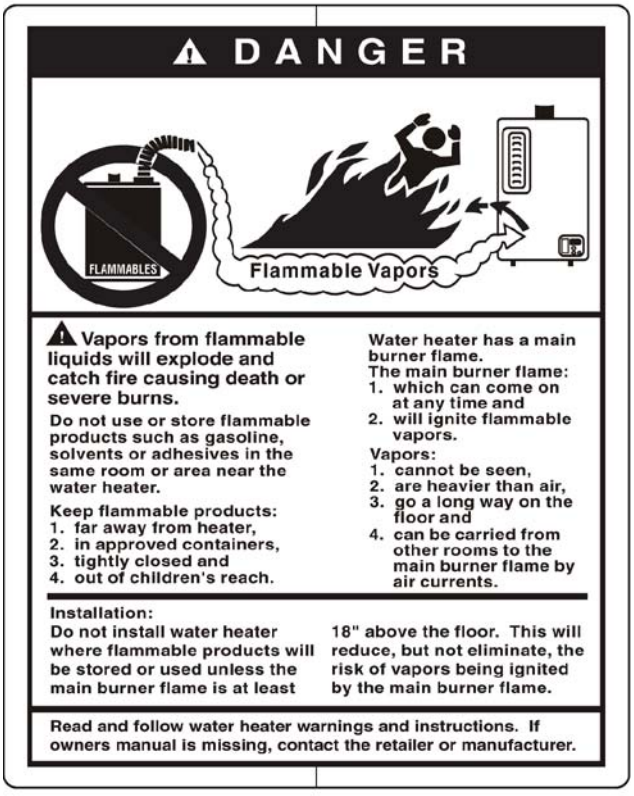
⚠ DANGER!

INSTALL AND PROPERLY VENT THE WATER HEATER…

Failure to properly install the water heater outdoors as outlined in the Installation Instructions in this manual can result in unsafe operation of the water heater. To avoid the risk of fire, explosion, or asphyxiation from carbon monoxide, never operate this water heater unless it is installed properly and has an adequate air supply for proper operation. Be sure to inspect the flue terminal for proper installation at initial start-up; and at least annually thereafter. Refer to the Care and Cleaning section of this manual for more information regarding flue terminal inspection.

⚠ WARNING!

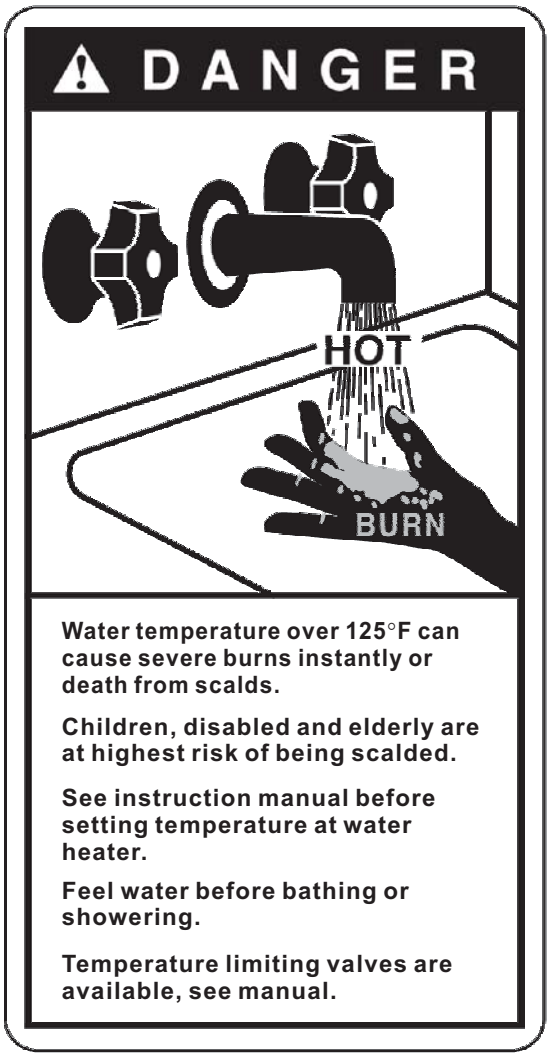
Gasoline, as well as other flammable materials and liquids (adhesives, solvents, paint thinners etc.), and the vapors they produce are extremely dangerous. DO NOT handle, use or store gasoline or other flammable or combustible materials any where near or in the vicinity of a water heater or any other appliance. Be sure to read and follow the labels on the water heater, as well as the warnings printed in this manual. Failure to do so can result in property damage, bodily injury or death.



IMPORTANT SAFETY INFORMATION.
READ ALL INSTRUCTIONS BEFORE USING.

⚠ DANGER!
WATER TEMPERATURE SETTING

Safety and energy conservation are factors to be considered when selecting the water temperature setting . Water temperatures above 125°F can cause severe burns or death from scalding. Be sure to read and follow the warnings outlined on the label pictured below.



Time/Temperature Relationship in Scalds

Water Temperature	Time To Produce a Serious Burn
120°F	More than 5 minutes
125°F	1 1/2 to 2 minutes
130°F	About 30 seconds
135°F	About 10 seconds
140°F	Less than 5 seconds
145°F	Less than 3 seconds
150°F	About 1 1/2 seconds
155°F	About 1 second

Table courtesy of Shriners Burn Institute

The chart shown above may be used as a guide in determining the proper water temperature for your home.

⚠ DANGER: Households with small children, disabled, or elderly persons may require a 120°F. Or lower temperature setting to prevent contact with "HOT" water.

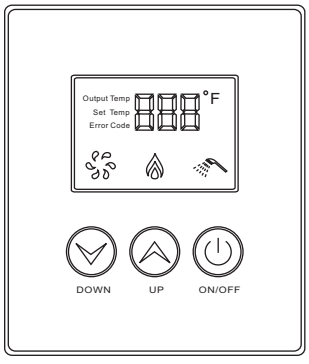
Maximum water temperature occurs while burner is on. To find water temperature being delivered, turn on a hot water faucet and place a thermometer in the water stream and read the thermometer.

The temperature of the water at the outlet of the water heater can be regulated by setting the temperature on control panel . The control panel was set at 110°F before it was shipped from the factory.

The illustration to the bottom left illustrates the control panel and how to adjust the water temperature.

Notice: When this water heater is supplying general purpose hot water requirements for use by individuals, a thermostatically controlled mixing valve for reducing point of use water temperature is recommended to reduce the risk of scald injury. Contact a licensed plumber or the local plumbing authority for further information.

Notice: The factory setting allows operating temperatures between 90°F and 140°F.



⚠ DANGER!

NATURAL GAS AND LIQUEFIED PETROLEUM MODELS

Both LP and natural gas have an odorant added to aid in detecting a gas leak. Some people may not physically be able to smell or recognize this odorant. If you are unsure or unfamiliar with the smell of LP or natural gas, ask the gas supplier. Other conditions, such as "odorant fade", which causes the odorant to diminish in intensity, can also hide or camouflage a gas leak.

- **Water heaters utilizing LP gas are different from natural gas models. A natural gas water heater will not function safely on LP gas and vice versa.**
- **No attempt should ever be made to convert the water heater from natural gas to LP gas. To avoid possible equipment damage, personal injury or f ire, do not connect the water heater to a fuel type not in accordance with the unit data plate; propane for propane units and natural gas for natural gas units. These units are not certified for any other fuel type.**
- **LP appliances should not be installed below grade (for example, in a basement) if such installation is prohibited by federal, state and/or local laws, rules, regulations or customs.**
- **Propane or LP gas must be used with great caution. It is heavier than air and will collect first in lower areas making it hard to detect at nose level.**
- **Before attempting to light the water heater, make sure to look and smell for gas leaks. Use a soapy solution to check all gas fittings and connections. Bubbling at a connection indicates a leak that must be corrected. When smelling to detect a gas leak, be sure to sniff near the floor also.**
- **Gas detectors are recommended in LP and natural gas applications and their installation should be in accordance with the detector manufacturer's recommendations and/or local laws, rules, regulations or customs.**
- **It is recommended that more than one method, such as soapy solution, gas detectors, etc., be used to detect leaks in gas applications.**

Notice: If a gas leak is present or suspected:

- ***Do not* attempt to find the cause yourself.**
- ***Do not* try to light any appliance.**
- ***Do not* touch any electrical switch.**
- ***Do not* use any phone in your building.**
- **Leave the house immediately and make sure your family and pets leave also.**
- **Leave the doors open for ventilation and contact the gas supplier, a qualified service agency or the fire department.**
- **Stay away from the house (or building) until the service call has been made, the leak is corrected and a qualified agency has determined the area to be safe.**

IMPORTANT SAFETY INFORMATION. READ ALL INSTRUCTIONS BEFORE USING

⚠ WARNING!

For your safety, the information in this manual must be followed to minimize the risk of fire or explosion, electric shock, or to prevent property damage, personal injury, or loss of life.

FOR INSTALLATIONS IN THE STATE OF CALIFORNIA

California Law requires that residential water heaters must be braced, anchored or strapped to resist falling or horizontal displacement due to earthquake motions. For residential water heaters up to 52 gallon capacity, a brochure with generic earthquake bracing instructions can be obtained from: Office of the State Architect, 400 P Street, Sacramento, CA 95814 or you may call 916-445-8100 or ask a water heater dealer.

However, applicable local codes shall govern installation. For residential water heaters of a capacity greater than 52 gallons or tankless-style, consult the local building jurisdiction code for acceptable bracing procedures.

SAFETY PRECAUTIONS

Have the installer show you the location of the gas shut-off valve and how to shut it off if necessary. Turn off the manual shut-off valve if the water heater has been subjected to overheating, fire, flood, physical damage or if the gas supply fails to shut off.

- **Read this manual entirely before installing or operating the water heater.**
- **Use this appliance only for its intended purpose as described in this Use and Care Manual.**
- **Be sure your appliance is properly installed in accordance with local codes and the provided installation instructions.**
- **Part of your water heater unless it is specifically recommended in this manual. All other servicing should be referred to a qualified technician.**

READ AND FOLLOW THIS SAFETY INFORMATION CAREFULLY.

SAVE THESE INSTRUCTIONS

Installing the water heater.

This water heater must be installed in accordance with these instructions, local codes, utility company requirements, and/or in the absence of local codes, use the latest edition of the American National Standard/National Fuel Gas Code. A copy 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, Quincy, MA 02269 as NFPA 54. In Canada, the latest edition of the CSA B149.1 Natural Gas and Propane Installation, and the Canadian Electrical Code, CSA C22.1 Part 1, in the absence of local codes.

Location

The water heater should not be located in an area where leakage of the heat exchanger or connections will result in damage to the area adjacent to it or to lower floors of the structure.

When such areas cannot be avoided it is recommended that a suitable catch pan, adequately drained, must be installed under the water heater.

The pan must not restrict combustion air flow.

A gas fired water heater or any other appliance should not be installed in a space where liquids which give off flammable vapors are to be used or stored. Such liquids include gasoline, LP gas (butane or propane), paint or adhesives and their thinners, solvents or removers.

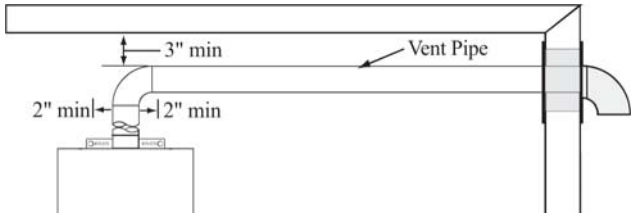
⚠ WARNING: Combustible construction refers to adjacent walls and ceilings and should not be confused with combustible or flammable products and materials. Combustible and/or flammable products and materials should never be stored in the vicinity of this or any gas appliance.

Because of natural air movement in a room or other enclosed space, flammable vapors can be carried some distance from where their liquids are being used or stored. The open flame of the water heater's main burner can ignite these vapors causing an explosion or fire which may result in severe burns, death or property damage.

The water heater must be located so it is not subject to physical damage, for example, by moving vehicles, area flooding, etc.

If the water heater is installed in a garage, it should be installed so that the direct ignition system and main burner are no less than 18 inches above the garage floor.

Raising the gas fired water heater will reduce BUT NOT eliminate the possibility of lighting the vapor of any flammable liquids which may be improperly stored or accidentally spilled.

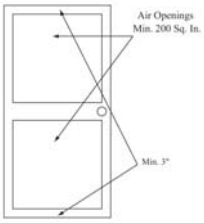


- The water heater should be installed as close as practical to the vent termination to minimize vent length and the number of elbows required for venting.
- The water heater should be installed with the proper venting materials and termination suitable for Category III venting.
- Failure to install and properly venting the water heater to the outdoors as outlined in the Venting Section of this manual 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.
- **Do not** install the water heater in bathrooms, bedrooms, any occupied rooms normally kept closed, or in outdoor areas.
- **Do not** install the water heater in small, poorly ventilated rooms, or in air tight rooms with air-conditioning.
- **Do not** install water heater where subject to vibrations.
- **Do not** install the water heater in Recreational Vehicles, Mobile Homes, Boats and other Watercrafts.
- **Do not** install the water heater near vents for heating or cooling. A minimum of 4 feet should be maintained.
- Minimum clearance from combustible construction is 1/2” sides, 0” rear (with support bracket); 12” from the bottom; 12” from the front of the water heater; and 12” from the top (24” from front and top is recommended for servicing purposes). If the clearances stated on the Instruction/Warning Label, located on the front panel of the heater differ, install the water heater according to the clearances stated on the label.

Installing the water heater.

Proper operation of the water heater requires air for combustion and ventilation. Provisions for combustion and ventilation air must comply with referenced codes and standards.

Combustion and Ventilation Air



NOTICE: If the water heater is installed in an unconfined space within a building of conventional frame, masonry or metal construction, infiltration air is normally adequate for proper combustion and ventilation. If the water heater is installed in a confined space, provisions for combustion and ventilation air must be made.

A confined space is one having a volume of less than 50 cubic feet per 1000 Btuh of the aggregate input of all appliances within that space.

The air must be supplied through two permanent openings of equal area. One is to be located within 12" above the floor and the other is to be located within 12" below the ceiling.

The minimum net free area of each opening must not be less than one square inch per 1000 Btuh of the total input rating of all the appliances in the enclosure (but not less than 100 square inches), if each opening communicates with other unconfined areas inside the building.

Buildings of unusually tight construction shall have the combustion and ventilation air supplied from outdoors, or a freely ventilated attic or crawl space.

If air is supplied from outdoors, directly or through vertical ducts, there must be two openings located as specified above and each must have a minimum net free area of not less than one square inch per 4000 Btuh of the total input rating of all the appliances in the enclosure.

If horizontal ducts are used to communicate with the outdoors, each opening must have a minimum net free area of not less than one square inch per 2000 Btuh of the total input rating of all the appliances in the enclosure. If ducts are used, the minimum dimensions of rectangular air ducts shall not be less than 3".

NOTICE: If the duct openings which supply combustion and ventilation air are to be covered with a protective screen or grill, the net free area (openings in the material) of the covering material must be used in determining the size of the openings. Protective screening for the openings MUST NOT be smaller than 1/4" esh to prevent clogging by lint or other debris.

Corrosive Atmospheres

NOTICE: The water heater should not be installed near an air supply containing halogenated hydrocarbons.

The air in beauty shops, dry cleaning establishments, photo processing labs, and storage areas for liquid and powdered bleaches or swimming pool chemicals often contain such halogenated hydrocarbons.

An air supply containing halogenated hydrocarbons may be safe to breathe, but when it passes 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.

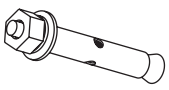
The water heater warranty is voided when failure of the heater is due to operation in a corrosive atmosphere.

Inspect Shipment

Inspect the water heater for possible damage. Check the markings on the rating plate of the water heater to be certain the type of gas supplied corresponds to the water heater requirements. Verify all included parts are present (see below).

Wood Serew x 4pcs

Washer x 4pcs

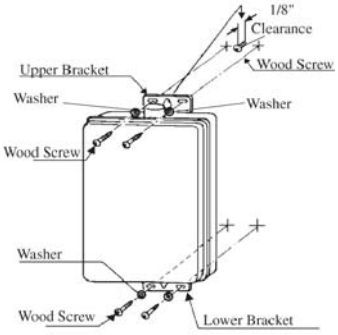


Exposive screw 2pcs

Use & Care Manual

Mounting the Water Heater

⚠ CAUTION:
Reinforcement of the wall is required in case the wall is not strong enough to hold the appliance.



Make sure the location of the appliance allows for easy access and operation.

Wall studs should be utilized when mounting the water heater to the wall. In case of dry wall or concrete wall use dry wall anchors or lag bolts.

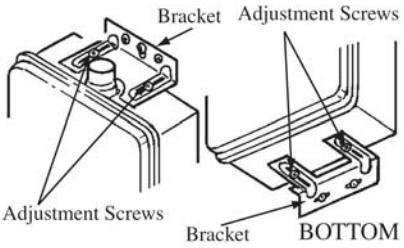
The water heater requires 120VAC/60Hz. Have a receptacle with ground terminal near the water heater. The length of the power supply cord is 10 feet.

Install a wood screw for the upper bracket with a clearance of 1/8" between the wall and the screw head. Hang the center of the upper bracket on the screw.

Using a wood screw and a washer, affix the lower bracket to the wall (Left and Right). Repeat to affix the top bracket.

The brackets can be adjusted to change the distance between the back of the appliance and the wall within the range of 3/8" to 1（1/2）

Loosen the adjustment screws of both the top and the bottom brackets to adjust the distance. (See diagram below)



Water Supply Connections

IMPORTANT: Do not apply heat to the HOT or COLD water connections. If sweat connections are used, sweat tubing to adapter before fitting adapter to the water connections on heater. Any heat applied to the water supply fittings will permanently damage the internal components of the water heater.

⚠ CAUTION: This water heater must only be used with the following water supply system conditions:

- With clean, potable water free of corrosive chemicals, sand, dirt, or other contaminates.
- With inlet water temperatures above 32°F, but not exceeding 120°F.
- Free of lime and scale deposits.
- DO NOT reverse the hot and cold water connections. The water heater will not operate.

Plumbing should be carried out by a qualified plumber in accordance with local codes.

Use approved plumbing materials only.

All material between the water supply and the water heater must be metal.

The diameter of the pipe lines should be a minimum of 3/4".

To conserve energy and to prevent freezing, insulate both cold and hot water supply lines. DO NOT cover the drain valves.

To ensure proper operation of the water heater, the following water pressure guidelines should be followed:

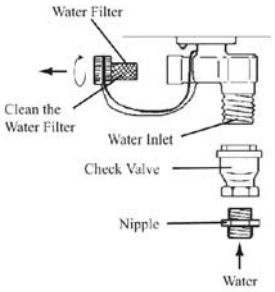
- Operation of the water heater requires the minimum water pressure of 14 psi and a minimum water flow rate of 0.66 gpm.
- Additional water pressure is required for long pipe runs and outlet fitting(s) water pressure drops.
- To maintain proper performance, ensure sufficient water supply pressure. The Required Water Pressure = Min. Operating Water Pressure (14 psi) + Pipe Pressure Loss + Faucet and Shower Pressure Loss + Safety Margin (more than 5 psi).
- To supply hot water to upper floors, additional water pressure (0.44 psi/ft) must be ensured. The measurement should be calculated by the distance between the water inlet of the water heater (ground level) to the hot water faucet (upper floor level).
- Well water systems should be set at a range of 50-60 psi.
- When the water is supplied from a water supply tank, the height of the tank and the diameter of the pipes and their relation to water pressure, should be taken into consideration. **Gravity water pressure is not recommended**.

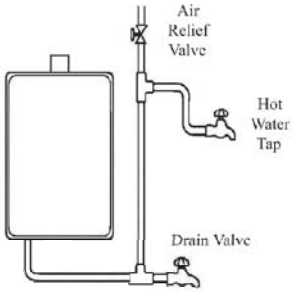
Notice: If the water flow resistance of a shower head is too high, the burner in the water heater will fail to ignite. Keep the shower head clean from debris that could cause additional pressure drop.

Notice: If using mixing valves on the outlet, choose one which prevents cold water pressure from overcoming hot water line pressure.

Installing the water heater.

Water Supply Connections Continued.





Install a shutoff valve near the inlet of the water heater for service and draining purposes.

DO NOT use pipes with smaller diameters than the water supply connection of the water heater.

Before connecting the water supply pipe to the water heater, open the shutoff valve and clean out sand, debris, air, caulking material, etc. inside the pipe. Connect to the water inlet, then check water flow.

Close the shutoff valve and clean the water filter.

Be sure to connect the water inlet and the hot water outlet as shown on the water heater. If reversed, the water heater will not function.

Installation of unions or flexible copper connections are recommended on the HOT and COLD water lines, so that the water heater may disconnect easily for servicing if necessary.

Install a Check Valve between the water heater and the water shutoff valve. (See illustration the top left).

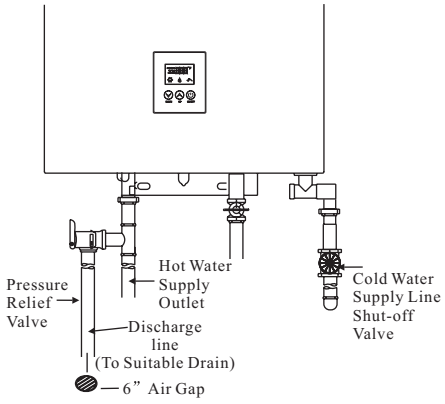
The following should be addressed in regards to the HOT WATER OUTLET:

- Connections between the water heater and point(s) of use should be as short and direct as possible.
- DO NOT use lead or plastic pipe.
- To conserve energy and minimize heat loss, insulation of hot water piping is recommended.

Notice: The flow rate of hot water may vary when more than two faucets (appliances, fixtures, etc.) are being used simultaneously.

Notice: The pipes MUST be completely drainable. If the hot water faucets are located at a point higher than the water heater, place a drain valve at the lowest point (see diagram to the left).

Relief Valve



Notice: The above illustrates a pressure only relief valve. If local codes require a combination temperature and pressure relief valve be installed, an extension piece may be needed.

A new pressure relief valve, complying with the Standard for Relief Valves and Automatic Gas Shut-Off Devices for Hot Water Supply Systems, ANSI Z21.22, must be installed at the hot water outlet connection of the water heater at the time of installation. Local codes shall govern the installation of relief valves.

For safe operation of the water heater, be sure that:

- The pressure rating of the relief valve must not exceed 150 psi, the maximum working pressure of the water heater as marked on the rating plate.
- The BTUH rating of the relief valve must equal or exceed the BTUH input of the water heater as marked on its rating plate.
- No valve of any type should be installed between the relief valve and the water heater
- Discharge from the relief valve should be piped to a suitable drain to eliminate potential water damage. Piping used should be of a type approved for the distribution of hot water.
- Hot and cold water lines should be insulated up to the water heater. Refer
- The discharge line must be NO SMALLER than the outlet of the valve and must pitch downward to allow complete drainage (by gravity) of the relief valve and discharge line.
- The end of the discharge line should not be threaded or concealed and should be protected from freezing. No valve of any type, restriction or reducer coupling should be installed in the discharge line.

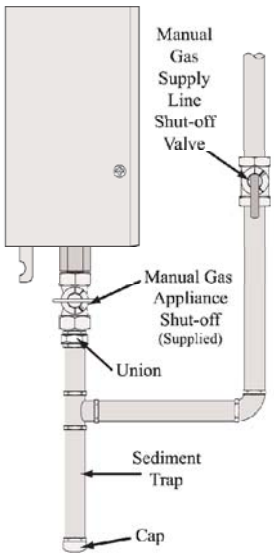
Notice: Local codes govern the installation of relief valves. If local codes require that a temperature and pressure relief valve should be installed the manufacturer recommends a type 40XL Watts T&P relief valve or an equivalent model be used.

Notice: Manual operation of relief valves should be performed at least once a year. Turn off the electrical power and gas shutoff valve. Lift and release lever on the relief valve and check the manual operation of the relief valve. You should take precaution to avoid contact with the hot water coming out of the relief valve and to prevent water damage.

Notice: If the relief valve on the system discharges periodically, a problem exists and service to the water system is required.

⚠ WARNING: Do not attempt to convert this water heater for use with a different type of gas other than the type shown on the rating plate. Such conversion could result in hazardous operating conditions.

Gas Supply



The supplied Manual Gas Appliance Shutoff Valve must be installed at the gas connection of the water heater at the time of installation (see diagram to the left).

The branch gas supply line to the water heater should be clean 3/4" black steel pipe or other approved gas piping material.

A ground joint union or ANSI design certified semi-rigid or flexible gas appliance connector should be installed in the gas line close to the water heater. The National Fuel Gas Code (NFGC) mandates a manual gas shut-off valve: See (NFGC) for complete instructions.

If flexible connectors are used, the maximum length shall not exceed 36".

If lever type gas shut offs are used, they shall be T-Handle type.

Compound used on the threaded joints of the gas piping must be of the type resistant to the action of LP gas. Use compound sparingly on male threads only.

A sediment trap should be installed at the bottom of the gas line.
Do not use excessive force (over 31.5 ft lbs.) in tightening the pipe, particularly if teflon pipe compound is used, as the unit may be damaged.

The inlet gas pressure to the water heater must not exceed 10.5" w.c. for natural or 14" wc for LP gas. For purposes of input adjustment, the minimum inlet gas pressure (with main burner on) is shown on the water heater rating plate. If high or low gas pressures are present, contact your gas supplier for correction.

Leak Testing

⚠WARNING: Never use an open flame to test for gas leaks, as property damage, personal injury, or death could result.

The water heater and its gas connections must be leak tested at normal operating pressures before it is placed in operation.

- Turn on the gas shut-off valve(s) to the water heater.
- Use a soapy water solution to test for leaks at all connections and fittings. Bubbles indicate a gas leak that must be corrected.

  The factory connections should also be leak tested after the water heater is placed in operation.

Pressure Testing the Gas Supply System

⚠ WARNING: Install a gas pressure regulator, in the gas supply line, which does not exceed the maximum supply pressure.

DO NOT use an industrial type gas regulator.

The water heater and its manual gas shutoff valve must be disconnected from the gas supply piping system during any pressure testing of the system at pressures in excess of 1/2 psi (14'w.c.).

The water heater must be isolated from the gas piping system by closing the manual gas shut-off valve during any pressure testing of the gas supply piping at pressures equal to or less than 1/2 psi (14'w.c.) .

High Altitude

Ratings of gas appliances are based on sea level operation and need not be changed for installations at elevations up to 3,000 feet.

NOTICE: For installations above 3,280 feet, the connector on the PC board must be replaced for High Altitude installations. Please contact your local distributor, dealer, or Rheem for replacement connector.

Installing the water heater.

The water heater must be installed with a RTG20002B vent adapter or a UL approved Category III Stainless Steel equivalent.

Venting

DANGER: Failure to install the vent adapter and properly vent the water heater to the outdoors as outlined in the Venting section of this manual will result in unsafe operation of the water heater causing death, serious injury, explosion, or fire. 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 the Venting section of this manual.

⚠WARNING: Use UL approved Category III Stainless Steel vent material only. No other vent material is permitted.

⚠WARNING: Refer to page 7 for clearances to combustible material.

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

The water heater must be vented to the outdoors as described in these instructions. **DO NOT** connect this water heater to an existing Vent or Chimney, it must be vented separately from all other appliances.

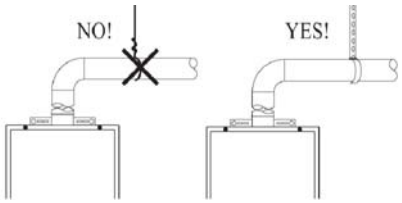
All vent components (adapters, pipe, elbows, terminals, etc.) should be UL1738 Certified Stainless Steel Venting Material (e.g. AL29-4C).

The specified vent termination must be used. The termination should be a 90□ elbow type with screen. (Refer to page 15)

Use a vent pipe with an anti-disconnection structure.

The use of a High Temperature Silicone (500°F) may be required to seal vent connections. To prevent accidental gas exhaust leakage, apply a 1/4” wide bead approximately 1/4” from the end and another bead against the joint side of the stop bead.

Follow vent manufacturer's installation instructions.
The unit can be vented either horizontally or vertically.
Vent pipe runs must be adequately supported along both horizontal and vertical runs.
The maximum recommended unsupported span should be no more than five (5) feet. Support isolation hanging bands should be used. **DO NOT** use wire. (See diagram below).



Venting Lengths

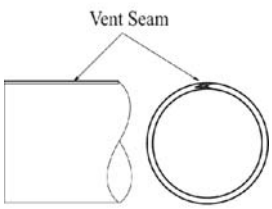
Number of 90° elbows (bends)	Maximum Length of Straight Pipe
1	47' 6"
2	42' 6"
3	37' 6"

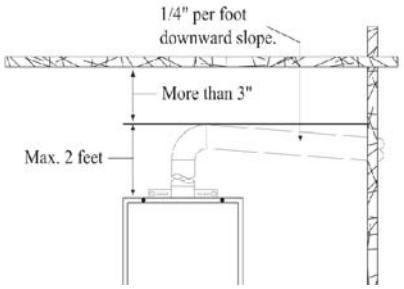
One (1)
90° Elbow is Equivalent to 5 Feet of Straight Pipe

MAXIMUM VENT LENGTH - The system will not operate if there is excessive restriction (pressure drop) in the venting system. A maximum of 47 feet 6 inches of vent pipe may be used provided there is only one 90° elbow in the system. If additional elbows are required: two elbows can be used with 42 feet 6 inches, and three elbows can be used with 37 feet 6 inches of vent pipe.

A 90° elbow is equivalent to 5 feet to straight pipe. A 45° elbow is equivalent to 2 feet 6 inches of straight pipe.

The termination elbow does not count as an elbow when determining total vent lengths.





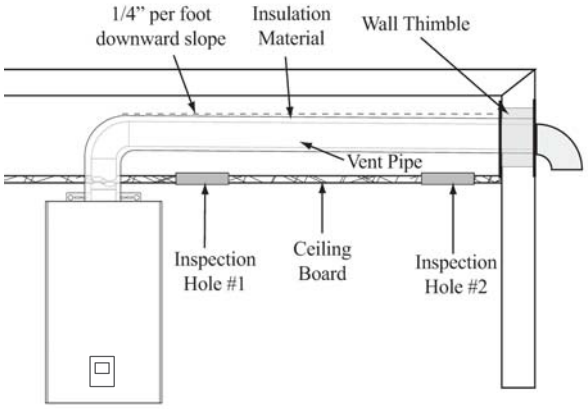
The vent can be installed with a slight downward slope of 1/4” per foot of horizontal run toward the vent terminal (see diagram below). This ensures that any condensate formed during operation of the unit is evacuated from the appliance.

A 1/4” per foot upward slope is acceptable when it is not possible to vent with a downward slope, however, a UL approved Category III Stainless Steel condensate trap MUST be installed at the beginning of the horizontal run (See page 15 “Typical Horizontal Termination w/ 1/4” per foot UPWARD Slope” or page 16, “Standard Vertical Vent Termination” for examples).

MINIMUM VENT LENGTH - The venting may be as short as 12”, provided one vent termination is installed to the outdoors through a sidewall, one 90° elbow is included in the installation, and the wall thimble is installed.

Notice: Make sure that the seam of the vent pipe in horizontal runs is toward the top of the installation (see illustration to the far left).

Venting Through Closed Spaces



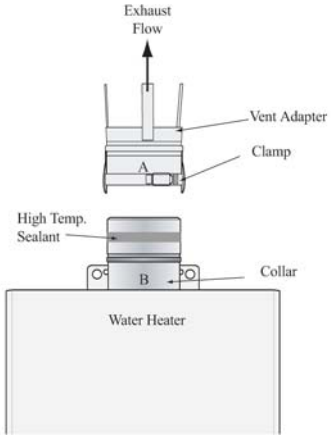
If the vent piping passes through a closed space, wrap the vent pipe with inflammable insulation material that is at least 3/4" thick. DO NOT let the insulation material make contact with flammable materials. A minimum clearance of 3" between the vent pipe and ceiling should be maintained. Be sure to follow local codes.

For maintenance and inspection purposes, the following holes are required to be made.

- Two (2) inspection openings that allow access to venting. One (1) of these openings should be close to where the vent pipe enters the ceiling. The other opening should be near the vent termination.
- A ventilation hole with a 16 sq. in. opening should be made at least every 10 feet.

NOTICE: Vent pipes must be completely insulated with inflammable material when installed in alcoves, closets, and garages and must not touch any flammable material.

Vent Adapter



A UL approved vent adapter is required for vent connection.
Read the following instructions before installation.

- Test fit the adapter over the water heater collar before proceeding. Adjust clamp as needed.
- With an alcohol wipe, clean inside surface "A" of adapter and outside surface of "B" of heater collar.
- Apply 1/4" wide bead of high temperature silicone (500°F) around outside of heater collar "B".
- Slide adapter end "A" down over heater collar "B" as far as it will go.
- Tighten the clamp around the collar.
- Inspect the inside of the adapter to verify that the collar and adapter are sealed. If more sealant is required, apply sealant to a flat tool, then spread around the collar edge on inside of adapter.
- Ensure that the clamp does not interfere with the damper shaft.

NOTICE: Follow the vent adapter manufacturer's instructions

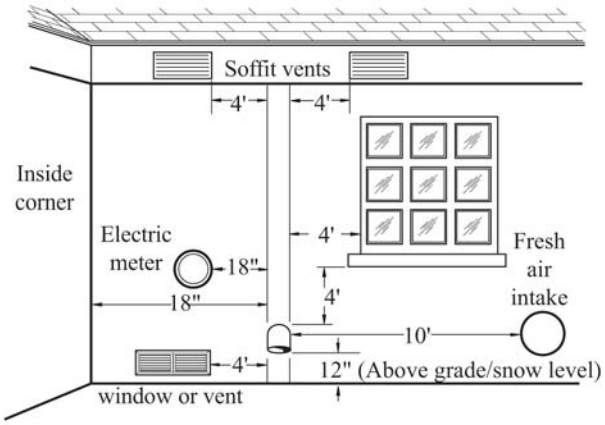
Draining the Condensate

In certain conditions, installations in unconditioned space or having long horizontal or vertical runs may accumulate condensate.

In order to prevent condensate from draining back into the water heater, we recommend a condensate trap and drain to be installed in a horizontal vent section as close as practical to the water heater vent connection.

Condensate is known to be acidic; refer to local, state (provincial) or federal codes for proper handling methods.

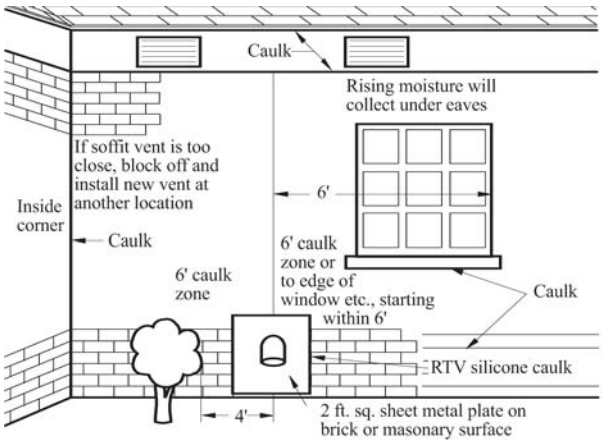
Installing the water heater.



Horizontal Vent Terminal Location

The location of the vent terminal depends on the following minimum clearances and considerations (see illustration):

- Twelve (12) inches above grade level and above normal snow levels.
- Four (4) feet below, or four (4) feet horizontally from any door, window, soffit, under eave vent or gravity air inlet to the building or other appliances, or from gas or electric meters. Do not locate vent above walkways, doors, windows, air inlets, gas or electric meters or other equipment.
- Ten (10) feet from any forced air inlet to the building. Any fresh or make-up air inlet such as for a dryer or furnace area is considered to be a forced air inlet.
- Eighteen (18) inches from an inside corner formed by two exterior walls.



⚠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

Additional Considerations

- Do Not install vent terminal under any patio or deck.
- To help prevent moisture from freezing on walls and under eaves, do not locate vent terminal on the side of a building with prevailing winter winds.
- Do Not terminate vent pipe directly on brick or masonry surfaces. Use a rust-resistant sheet metal backing plate (2 x 2 feet) behind vent. (See illustration.)
- Do Not locate vent terminal too close to shrubbery, as flue gasses may damage them.
- Caulk all cracks, seams and joints within six (6) feet of vent terminal.
- All painted surfaces should be primed to lessen the chance of physical damage. Painted surfaces will require maintenance.
- Insulate vent pipe exposed to cold conditions (attics, crawl spaces, etc.) with inflammable material to help prevent moisture from accumulating in vent pipe.
- Do Not extend exposed vent pipe outside of building.