

▲ WARNING

This water heater must be installed upright in the vertical position as described in this manual. DO NOT attempt to install this water heater in any other orientation. Doing so will result in improper water heater operation and property damage, and could result in serious personal injury or death.

Part 3 - Installing the Water Heater

A. Thermal Expansion

Determine if a check valve exists in the inlet water line. It may have been installed in the cold water line as a separate backflow preventer, or may be part of a pressure-reducing valve, water meter, or water softener. A check valve located in the cold water inlet line can cause what is referred to as a "closed water system". A cold water inlet line with no check valve or backflow prevention device is referred to as an "open water system".

As water is heated, it expands in volume and creates an increase in the pressure within the water system. This action is referred to as "thermal expansion". In an open water system, expanding water which exceeds the capacity of the water heater flows back into the city main, where pressure is easily dissipated.

A closed water system prevents the expanding water from flowing back into the main supply line, and the resulting thermal expansion can create a rapid and dangerous pressure increase in the water heater and system piping. This pressure increase can quickly reach the safety limit of the relief valve, causing it to operate during each heating cycle. Thermal expansion, and the resulting rapid and repeated expansion and contraction of components in the water heater and piping system, can cause premature failure of the relief valve and possibly the water heater itself. Replacing the relief valve will not correct this problem.

The suggested method of controlling thermal expansion is to install an expansion tank in the cold water line between the water heater and the check valve (refer to the illustration in Figure 4). The expansion tank is designed with an air cushion built in that compresses as the system pressure increases, thereby relieving the thermal expansion and eliminating the repeated operation of the relief valve.

Other methods of controlling thermal expansion are available. Contact your installing contractor, water supplier, or plumbing inspector for additional information regarding this subject.

B. Water Supply Connections

Refer to Figures 4 and 5 for suggested typical installations. The installation of unions or flexible copper connectors is recommended on the hot and cold water connections so that the water heater may be easily disconnected for servicing if necessary. The HOT and COLD water connections are clearly marked and are $\frac{3}{4}$ " NPT on all models.

NOTE: Install a shut-off valve in the cold water line near the water heater. This will enable easier service and maintenance of the water heater.

IMPORTANT: Do not apply heat to the HOT or COLD water connections. If sweat connections are used, sweat tubing to adapter before fitting the adapter to the cold water connections on the water heater. Any heat applied to the hot or cold water connections will permanently damage the dip tubes.

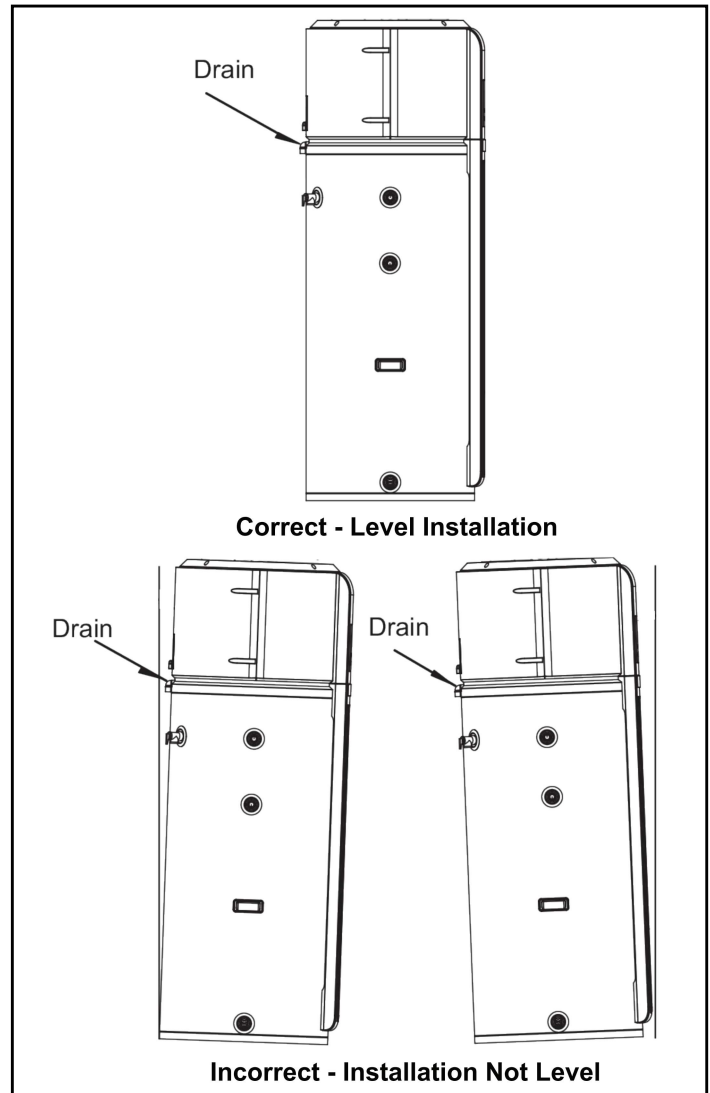


Figure 3 - Ensure the Water Heater is Installed Level to Allow Condensate to Drain from the Evaporator

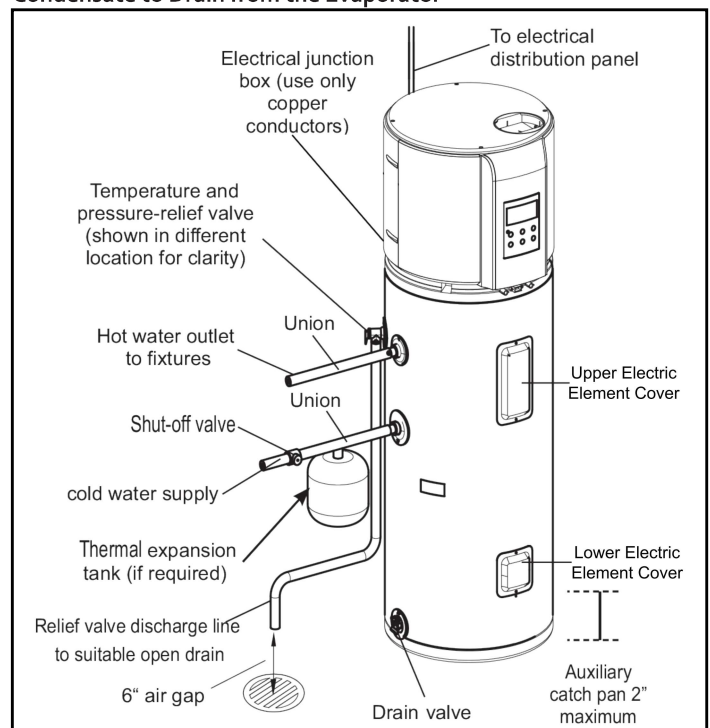


Figure 4 - Typical Installation