

Your Efficient Gas Water Heater

A water heater is a thermostat-controlled storage tank that heats water and keeps it warm. It operates continuously and automatically, beginning when cold water is delivered to the bottom of the tank through the dip tube. The thermostat senses the cold water and calls for the burner to ignite. The burner brings the water to the desired temperature; the thermostat then shuts off the main burner until the stored water temperature again calls for heat.

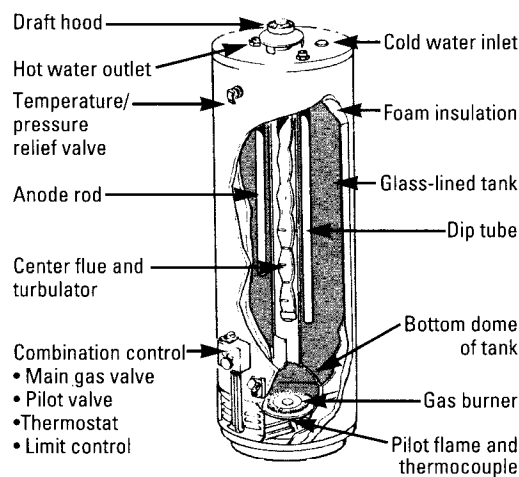
Today's natural gas water heater represents an extraordinary value in performance, reliability and low price. Gas water heaters are so reliable and easy to maintain that most people never think about their water heater, even though they use hot water several times a day.

Selecting a water heater

Water heating accounts for about 15 percent of your home's energy use so, when replacing your water heater, it's important to choose an efficient model. Natural gas water heaters typically cost more to purchase and install than electric; however, the operating costs with gas are typically about 50 percent lower than electric.

Savings will vary depending on fuel costs and unit efficiency. Where energy conservation and environmental issues are a primary concern, clean-burning natural gas water heaters provide one of the best ways to heat water.

Natural gas water heater



Check the EnergyGuide label for an estimate of the water heater's annual operating cost; it will help you compare the annual cost of operation of various models. Features of the new energy efficient gas water heater include improved insulation, a more efficient burner system, refined flue baffles and more efficient heat transfer.

Choosing the right size water heater. A properly-sized water heater will deliver the hot water you want when you need it.

There are two ways to determine the appropriate size water heater for your home. One way depends on the number and ages of family members, how you wash dishes and clothes, and the number of bathrooms in your home. For example, the needs of a family of two with one bathroom and a clothes washer should be adequately met with a 30-gallon water heater. For every additional bathroom in your home, add another 3-1/2 gallons to the tank capacity. If you use an automatic dishwasher, add another five gallons to this total. These are general guidelines since no two families' hot water use are exactly alike; keep in mind your family's lifestyle and habits when estimating your family's hot water needs.

The second method to consider is the first-hour rating; it tells you the amount of hot water the water heater can deliver in one hour. Follow this procedure to use the first-hour rating:

1. Determine the hour of the day when you use the most water.
2. Use the following chart to find the quantity of hot water you use for each activity during that hour.

Activity	Hot Water Used
Automatic washer	25 to 40 gallons per load
Non-automatic washer	10 to 20 gallons per load
Dishwasher	5 to 10 gallons per load
Hand dishwashing	3 to 4 gallons
Tub bath	15 to 25 gallons
Shower bath	3 gallons per minute
Bathing an infant	2 gallons
Shaving	2 to 3 1/2 gallons
Shampooing	5 gallons
Hand washing	1 to 2 gallons
House cleaning	5 to 12 gallons
Food preparation	3 to 6 gallons

3. Add all the quantities for that hour.
4. Choose a water heater with a first-hour rating close to the total amount of hot water you use during the hour you selected. The first-hour rating also includes the "recovery rate." This is a combination of how much water is stored in the water heater and how quickly the water heater can heat cold water to the desired temperature. A small unit with a high recovery rate could out-perform a large unit with a slow recovery rate.

Gas water heater options

Side-wall vented water heaters give you a choice of placement. They can be installed next to the wall and vented directly through the wall to the outside, instead of having to be placed near the furnace so they can share the same chimney. Or they can be placed up to 40 feet from the outside wall and power vented through the wall with a blower. A good choice in homes with

high efficiency gas furnaces that don't have chimneys. The tankless (instantaneous) water heater heats water as it passes briefly through the heater; no water is stored, so standby heat losses are lower. Tankless water heaters can be installed either centrally or at the point of use. A possible disadvantage of this type of water heater is its low output—a maximum of three to four gallons per minute of 100°F water (based on 50°F inlet temperature) or two to three gallons of 120°F water, which is inadequate if several faucets are in use at once. A separate tankless water heater may be needed for each appliance and hot water faucet. A centrally located tankless water heater must have a large capacity with a high flow rate, high Btu/hour gas input and temperature rise, which may even require increasing your chimney size.

Installation. Make sure your water heater is installed by a licensed plumber or serviceperson, according to local codes and manufacturer's instructions.

Caring for your gas water heater

- Keep the burner area free of dust and dirt.
- A gurgling noise when the burner is on, is a sign of sediment buildup which can damage your water heater. To keep lime deposits and sediment from building up in your water heater, starting when it's new, every month drain several pails of water from the drain valve near the bottom of the water heater.

CAUTION: An older water heater which has not been regularly drained may already have lime deposits that make it impossible to completely close the drain valve after draining water from the tank as suggested, and cause a constant drip.

- Store combustibles or flammables such as gasoline or paint away from the water heater.

Relighting the pilot light

If the pilot light on the water heater goes out, shut off gas to the appliance. **Do not use tools to turn the gas valve; use hand pressure only.** Relight according to manufacturer's instructions, usually near the control on the lower part of the tank. If you have difficulty relighting, call a qualified appliance service technician or qualified heating contractor.

Safe water temperatures

The Consumer Product Safety Commission has identified hot tap water as a major cause of scald injuries. Children and the elderly are particularly vulnerable. The commission recommends water temperatures of 120°F to 125°F ("Low" or "L" on some thermostat dials) to eliminate most scald injuries.

To check your tap water temperature

1. Let the hot water run from the bathroom faucet for one to three minutes.
2. Using a reliable thermometer, check the temperature of the water coming from the faucet.
3. Repeat the test in the kitchen sink and other bathrooms in your home.

Turn your water heater thermostat to the lowest setting comfortable for you and your family. For most people, 120°F is sufficient and safe. However, these lower water temperatures may affect automatic dishwashing and laundering. Although manufacturers of this equipment usually recommend 140°F for best results, a lower temperature may also give satisfactory results.

When buying a new dishwasher, look for models that heat water themselves, to 140°F. This allows you to lower the temperature setting on your home's central water heater to 120°F.

The simplest way to reduce energy use for water heating is to use less hot water:

- **Laundry:** Use the shortest wash cycle, the lowest water temperature possible and a cold rinse.
- **Washing dishes:** Scrape dishes before placing in the dishwasher. If rinsing is necessary, use cold water. If washing dishes by hand, turn rinse water on and off as needed.
- **Showers:** Take short showers rather than baths. Install a flow-restricting shower head which can reduce flow by about 50 percent.
- **Leaky faucets:** Promptly repair leaky faucets. A leak that fills a coffee cup in 10 minutes, wastes 3,280 gallons of water a year.
- **Never let water run continuously while brushing your teeth or shaving.**
- **When you need only a little water from the tap, use cold water.** Hot water drawn into the pipes may never reach the tap and the heat is wasted.
- **Wrap insulation on long stretches of pipe between your water heater and the point of use, and on pipes running through unheated areas.**

Call your local natural gas utility company or the Minnesota Blue Flame Gas Association at 612-550-1969.

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