

# ENERGY- EFFICIENT WATER HEATING

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Are you tired of running out of hot water when you need it most? Do you want to spend less money on your water heating bills? You can help your water heater to provide more hot water by following a few simple, affordable guidelines. Since water heating can comprise 15 to 20 percent of your home energy use, these tips can do more than improve your comfort—they can lower your energy bills.



#### Cover pipes with pipe insulation.

Cover the first three to six feet of the pipes entering the water heater and all pipes exiting the unit to keep your water hotter and save energy. Without pipe insulation, water can lose heat as it travels through pipes, resulting in cooler water and higher energy bills.

The most common pipe insulation is a foam sleeve that fits around the pipe. You can also use pipe insulation wrap or you can tape strips of fiberglass insulation around the pipes.

#### **Instructions for foam sleeve installation:**

1. Measure the diameter of the pipe.
2. Purchase insulation that fits your pipes.
3. Fit the sleeve around the pipe.
4. Fasten the sleeve to the pipe using duct tape, acrylic tape, cable ties, or wire along every foot or two of pipe.

#### Replace old showerheads and faucet tips with low-flow showerheads and aerators.

Low-flow showerheads and aerators cost \$10-\$20 and use up to 60% less water.

#### **Instructions:**

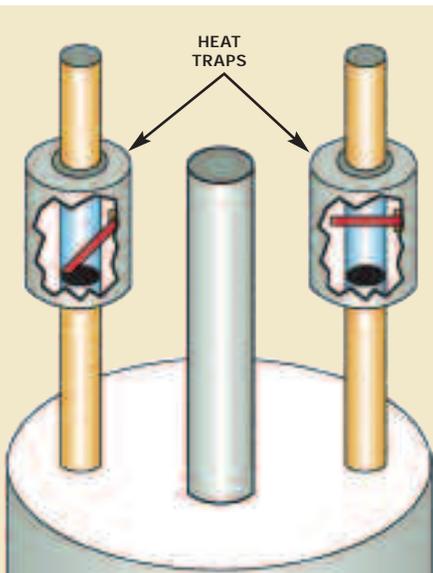
1. Remove the existing showerhead using an adjustable wrench.
2. Take the old showerhead to a hardware store to match the correct showerhead to it.
3. Wrap Teflon® tape around the shower pipe threads in a clockwise direction.
4. Screw the new showerhead onto the shower pipe.

#### Insulate your storage water heater with an insulation blanket.

Insulation blankets (*see illustration on the following page*) prevent heat from escaping the tank and reduce the amount of energy the unit uses to keep water hot. Your water heater can probably benefit from added insulation, especially if the storage tank feels warm to the touch, is more than ten years old, or is in an unheated space (such as the basement, crawl space, or garage). You can usually find insulation blankets for under \$20.

#### **Instructions for installing an insulation blanket:**

1. Measure the dimensions of your heater.
2. Purchase a blanket that fits your water heater.



Heat traps can come in the form of a valve (above) or as a loop in the pipe (see drawing on the right). Heat traps require professional installation by a qualified plumbing and heating contractor.

**Note:** Some manufacturers do not recommend installing insulation blankets on gas, propane, and oil water heaters. If you do, however, be sure to do the following: Read the instructions carefully and follow all safety guidelines. Cut insulation away from the burner and place the blanket so that it cannot drop in front of the burner. Do not place insulation on top of the heater.

3. Wrap the blanket around the heater
4. Cut it so that the two ends meet.
5. Tape the blanket around the heater using vinyl tape.
6. Cut an opening for the thermostat(s).
7. Put the piece you removed back in place.
8. Cut out pieces of insulation to cover the top of the heater, leaving holes for the pipes and valves. Tape the pieces of insulation to the heater.

#### Install heat traps.

Just as warm air rises, warm water can rise and mix with cold water in the pipes, even when no one is using hot water. This causes the heater to work harder to keep water warm.

Heat traps can prevent this “thermosiphoning” action. If your water heater does not have built-in heat traps, have a plumber install one on each cold-water inlet and hot-water outlet. If you are not sure whether your water has built-in heat traps, consult the manual or ask a plumber to examine the water heater.

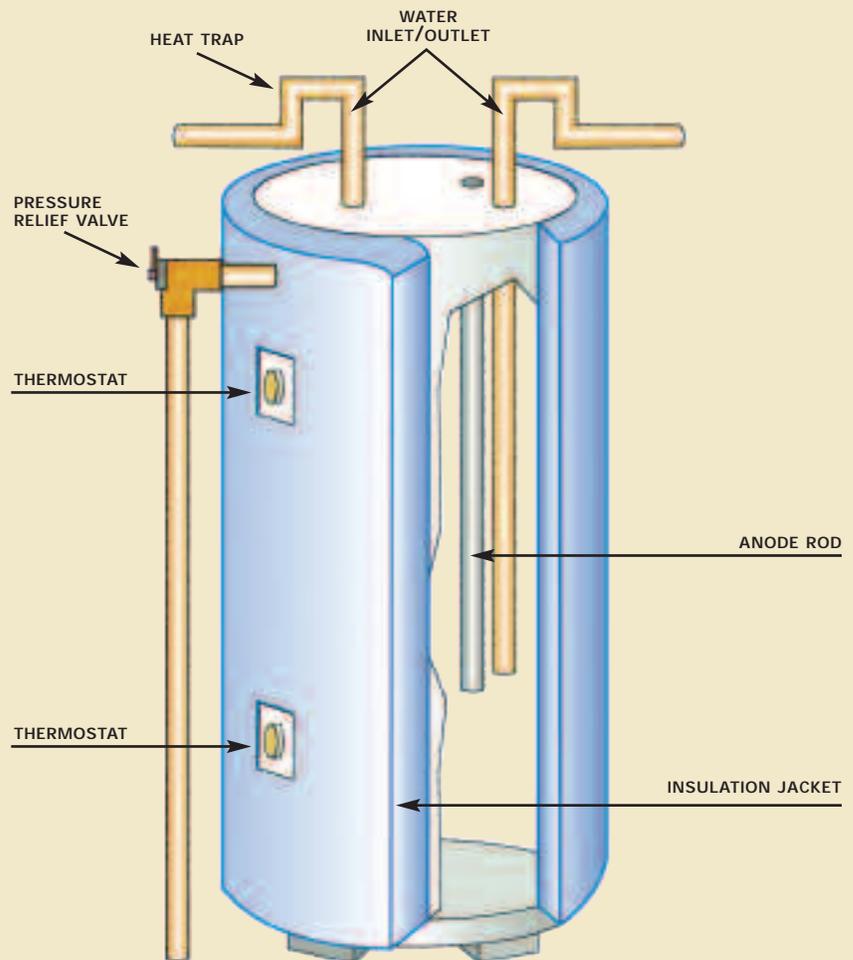
#### Lower the temperature to 120°F.

This is the Normal or Low setting, and will provide adequate hot water for most household purposes. However, if your dishwasher does not have a booster heater (or preheater), then set your water heater to 140°F.

#### Instructions for lowering the temperature:

- Gas water heaters: Find the dial near the burner and reduce the temperature setting.

#### ELECTRIC STORAGE WATER HEATER



- **Electric water heaters:** Turn off the electricity to the water heater before adjusting the temperature. Remove the two thermostat covers. Use a screwdriver to adjust the two thermostats. You will find one thermostat at the top of the tank, and another at the middle or bottom.

#### Drain a gallon of water from your water heater every few months to remove sediment.

This practice should only be started with new or fairly new water heaters, because opening the valve on older units may cause sediment to become lodged in the shut-off valve, producing a leak. Continue this practice throughout the life of the water heater. This is especially important in hard water regions to prolong the life of a new water heater.

1. Connect a hose to the drain valve.
2. Place the end of the hose outside of your house or into a large bucket to collect water and sediment.
3. Turn the drain valve until water drains into the hose.
4. Turn off the drain valve and remove the hose.

#### Inspect the anti-corrosion anode rod every three to four years, and replace it as necessary.

The anode rod is an aluminum- or magnesium-coated rod that screws into the top of the water heater (see “electric storage water heater” diagram) to prevent the tank from corroding. In a process known as “electrolysis,” the anode rod protects the tank by corroding away first. Eventually however, the rod will become over-corroded and can no longer protect the tank.

The anode rod has a steel core wire beneath the aluminum or magnesium coating. If corrosion of the coating has exposed more than six inches of the rod’s core wire, you should replace the rod to prevent damage to the tank. If the rod is already a few years old but has not corroded at all, then it has probably “passivated” and is no longer protecting the tank—the rod probably needs to be replaced. Timely replacement can prevent the water heater from failing early.

#### Instructions for replacing the anode rod:

1. Turn off the cold-water supply line.
2. Turn off the gas or electric circuit breaker.
3. Drain several gallons of water from the tank valve located at the bottom of the tank. (Caution: water will be hot).
4. To remove the old rod, use a long-handled ratchet wrench to loosen the hexagonal fitting. Remove the rod.
5. Wrap the threads of the new rod in Teflon tape.
6. Insert the new rod into the tank.
7. Using the wrench, tighten the rod into place.

*If little headroom exists above the tank, you can purchase a flexible anode rod.*

#### Periodically clean the burner on fuel-fired water heaters.

Do not turn off the gas shutoff valve or clean the burner unless you know how to safely turn the burner on.

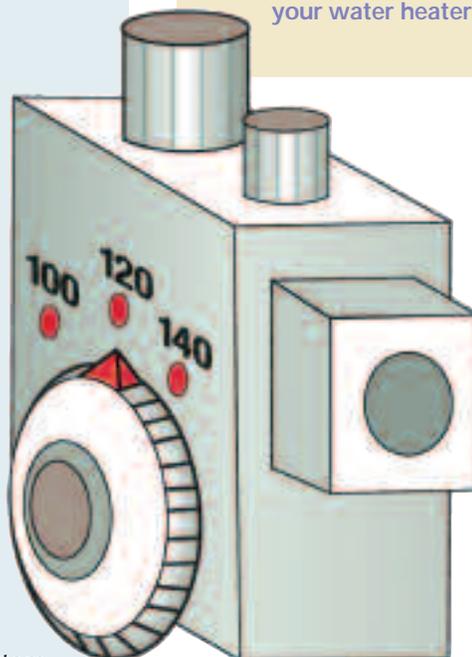
1. Turn off the gas shut-off valve.
2. Remove the panel covering the pilot and burner.
3. Thoroughly vacuum the burner to remove dust and unclog burner ports.

#### To relight the pilot light:

1. Turn the gas-control knob to OFF and turn the thermostat to LOW. Wait five minutes for all gas to clear. \*If you still smell gas, after five minutes, do not proceed—call the utility company immediately.
2. Use a wrench or pliers to open or remove the burning chamber’s access covers (outer and inner).
3. Find the end of the pilot-light gas tube. The gas tube enters the burning chamber from the gas control valve.

#### LOWER THE TEMPERATURE!

120° is the Normal or Low setting, and will provide adequate hot water for most household purposes. However, if your dishwasher does not have a booster heater (or preheater), then set your water heater to 140°F.



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4. After turning the gas-control knob to the PILOT position, quickly hold a burning match at the end of the pilot-light tube. Press and hold the gas-control valve's RESET button. When the pilot light ignites, remove the match immediately but continue to hold the reset button for one minute.
5. Turn the gas-control knob to the ON position. Set the thermostat to an appropriate setting. Close the access panels or put them back in place.

**Fix any household water leaks, dripping faucets, and running toilets, or have a plumber fix them.**

**Operate the dishwasher efficiently.**

- Operate the dishwasher with full, but not overloaded, loads.
- Select a dishwashing setting that will use the least number of wash cycles for the amount of soil on the dishes.
- Follow the manufacturer's recommendations for the type and amount of detergent. Do not use old detergent.
- Allow the dishes to air-dry rather than using the dry cycle to save energy. Keep the door closed after the last rinse cycle until the dishes have cooled and dried.
- When you purchase a new dishwasher, purchase one that is Energy Star® qualified.

**Wash clothes efficiently.**

- Wash full loads and select the proper water level for the load you are washing.
- Use a cooler setting whenever possible. Warm or cold water for washing is usually adequate; cold water is always adequate for the rinse cycle.

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