E-Conservation
Home Energy Management Series

SAVING ENERGY WITH HEATING WATER

You can significantly reduce your energy costs and extend the life of your water heater by giving it a little attention. Water heating can account for up to 18 percent of your home's energy, so it is worth investigating ways to make water heating more efficient.

How Water Heaters Work

When you turn on the hot water tap, heated water is drawn into your home's pipes from the top of your water heater. To replace the water being used, fresh cold water flows into the bottom of the tank, activating the heating element. Gas and electric storage water heaters basically operate the same way. One difference, however, is that gas heaters have a pilot light at the bottom that ignites a single burner. They also have a flue running through the center of the tank to exhaust combustion gases. Also, while gas models have only a single burner, electric heaters may have a lower and an upper heating element inside the tank that heats the water.

Both heaters must have a temperature/pressure release valve near the top of the tank. This valve allows steam or hot water to escape safely, should a thermostat malfunction occur. It should be checked annually to ensure that it's working properly.

Energy-Saving Options

There are several strategies you can use to help save water, energy, and money with water heating. By following these five steps, you can ensure that your water heater will operate efficiently.

1. ADJUST THE THERMOSTAT

Many people set their tank at a higher temperature than is necessary. Most electric heaters are set at 140°F, but this high setting is only needed if you have a dishwasher without a booster heater. Turn the temperature down to 120°F (midway between low and medium on a gas heater dial), and you can reduce your water-heating costs by six to 10 percent. The thermostat on gas water heaters doesn't have a number setting, so you will have to check the

temperature manually. To do this, turn the hot water on at the tap and use a cooking thermometer to test the temperature. If it is higher than 120 degrees, turn it down a bit. Check it again the next day and adjust—repeat until you get it set at the temperature that you desire. Mark the current setting with a permanent marker so that if you need to adjust the temperature later, you can easily see where you started.

Electric heaters may have both an upper and a lower thermostat you'll need to adjust. For safety, before removing the thermostat access panels turn off the electricity at the circuit breaker or fuse box.

When you're going to be away from home for several weeks, turn the temperature of your hot water heater to the lowest setting, the vacation setting, or completely turn the heater off. Electric heaters can be shut off at the electrical circuit breaker box. If you turn off a gas heater, be sure to learn how to re-light the pilot light. Once turned back on, it only takes about an hour to reheat the water.

In addition to saving you money on your electric or gas bill, reducing the hot water temperature will also slow pipe mineral build-up and corrosion in the tank.

2. INSULATE THE TANK

Whenever possible, locate the water heater in a heated space. If that isn't possible and unless the owner's manual specifically states not to, wrap water heaters that are located in cold spaces (garages, crawlspaces, attics) with an insulating blanket. Wrapping the tank in a blanket of fiberglass insulation can reduce standby heat loss by 25 to 45 percent. Standby heat loss results from keeping water heated at all times so that it is warm and ready whenever needed.

Some of the heat is lost and transferred through the tank and pipes out into the surrounding air. Insulating the tank can result in a savings of four to nine percent on your water-heating bill. Water heater insulation kits are available for about $20 at your local hardware store. They are relatively easy to install and will pay for themselves in less than a year.

Be certain to carefully follow the installation directions. With gas water heaters, it is especially important to not cover exhaust vents and air intakes with insulation. With electric models, make certain you cut the insulation so you can access the thermostat panels. Never cover the pressure temperature relief valve. Also, its a good idea to put a strap near the top and near the bottom to further secure the insulation.

3. INSULATE HOT WATER PIPES

To save even more and reduce additional heat loss through pipes, insulate the first five feet of your hot and cold water pipes extending from the water heater. You can insulate your hot lines beyond five feet if they are accessible using pre-formed foam insulation. This insulation is available in a variety of different diameters and lengths at your local hardware store. For safety, make certain you keep tank and pipe insulation at least three inches away from the gas burner and the hot exhaust vent/pipe and draft hood on gas water heaters.

4. FLUSH THE TANK

Over time, sediment and scale (dirt and mineral deposits from the water) build up inside your water tank. They reduce both heating element efficiency and the overall capacity of the water heater. You can reduce this build-up by periodically flushing water from the tank.

To flush, first locate the drain valve near the bottom of the tank. Open the valve and let the murky water drain into a bucket until it runs clear (usually after one to two gallons). If the valve hasn't been opened in years, you may want to have a garden hose cap handy the first time you drain, in case it's difficult to shut off and avoid drips. In some areas, depending on the hardness of the water, monthly flushing is recommended, while in others the tank need only be flushed once a year.

5. INSTALL HEAT TRAPS

Heat traps are one-way valves placed inside both the hot and cold water lines running into your water heater. They keep the hot water from rising out and the cold water from dropping in to your water heater when you're not drawing water from a tap or for an appliance. If your existing water heater does not have heat traps, or you are not sure, contact a plumber to check your system and install them. New water heaters should have them as an option or already installed.

SOURCE: Adapted from Water Heater Energy Saving, E^{3}A: Energy Management for the Home, Montana State University Extension, 2013

October, 2013

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