WATER HEATERS

Heat is continuously flowing from the tank of the water heater and the pipes to the room because the water heater is always at a higher temperature than the surroundings (basement or garage). Thermal energy flows from high temperature to low temperature. Heat is lost whether you use water or not.

Like most appliances, water heaters have improved greatly in recent years. Today's models are much more energy efficient, and you will be able to purchase a more efficient water heater that will save you money on energy each month. The average life expectancy of a water heater is 13 years. Therefore, the initial purchase price should not be an important factor in selecting a water heater.

Costs of Water Heaters

Just like other appliances, there are two costs associated with water heaters - initial purchase price and operating costs. Water heaters typically last for about 13 years, after which they need to be replaced. Also, each month, you pay for the fuel you use. An energy-efficient model could save hundreds of dollars in the long run in the energy costs and may offset the higher initial purchase price.

It can be compared to automobile mileage—some cars get 15 miles to a gallon, while other, more efficient, vehicles can go 30 miles or more on a gallon of gas. In the same way, some water heaters use energy more efficiently.

One should buy an energy-efficient water heater and spend less money each month to get the same amount of hot water.

Typical Water Use at Home

The table below shows typical water use for various purposes at home.

Typical Water Use	
Use	**Gallons per use**
Shower	7-10
Bath (standard tub)	20
Bath (whirlpool tub)	35-50
Clothes washer (hot water wash, warm rinse)	32
Clothes washer (warm wash, cold rinse)	7
Automatic dishwasher	8-10
Food preparation and cleanup	5
Personal (hand-washing, etc.)	2

Energy costs increase with water temperature. Dishwashers require the hottest water of all household uses, typically 135ºF to 140ºF. However, these devices are usually equipped with booster heaters to increase the incoming water temperature by 15ºF to 20ºF. Setting the water heater between 120ºF and 125ºF and turning the dishwasher's booster on should provide sufficiently hot water while reducing the chances for scalding.

"Power" in the Environmental Protection

- Do as much cleaning as possible with cold water to save the energy used to heat water.
- Check your faucets for leaks. They waste both water and energy!
- Conserve hot water by installing water-saving showerheads. A new showerhead can save as much as $10 a year in water and energy.
- Once your water is hot, insulate to help keep it that way. Wrapping exposed hot water pipes with insulation will minimize heat loss. So will installing an R-12 insulation blanket around your water heater, unless the manufacturer does not recommend it.
- Reduce your water heater's temperature to 120 degrees Fahrenheit. That will produce plenty of hot water and still save energy.

For homes with a dishwasher, a setting of 140 degrees is required to clean properly, but most of the new dishwashers have a built-in water temperature booster.

- Many new water heaters have a "vacation" setting you can use to save energy if you're away for more than a few days. Turn the thermostat "down" or "off" when you're gone for more than three days.

Source: https://www.e-education.psu.edu/egee102/node/1991