

BUYING WATER HEATERS

Water heating is generally the third largest energy user in the home following heating and cooling. Water heaters, like other home appliances, have become much more energy efficient in the past 15 years. The proper selection of a water heater can prevent high energy bills and running out of hot water before everyone has had their turn in the bathroom.

Types

◆ **Storage water heaters** are the most common type. Water is heated in an insulated tank. When the hot water tap is turned on, hot water is pulled out of the top of the water heater and cold water flows into the bottom to replace it.

◆ **Demand or instantaneous water heaters** do not contain a storage tank. A gas burner or electric element heats water only when there is a demand. Hot water is always available, but the amount per minute is limited. This type is mostly appropriate for vacation homes or in households with small hot water requirements.

◆ **Heat pump water heaters** use electricity for moving heat from one place to another rather than generating the heat directly. The heat source is the outside air or the air where the unit is located. Refrigerants and compressors transfer heat into an insulated storage tank. The cost to purchase and maintain these units can be very high.

◆ **Tankless coil water heaters** use the home's main heating system to heat the water. They are common in older oil-fired boilers, although gas-fired boilers are available. They operate off the house boiler with no separate storage tank. A tankless coil works most efficiently in colder climates because the boiler is usually hot. Generally, tankless coil types are not recommended.

◆ **Indirect water heaters** use the home's boiler as the heat source, but the water from the boiler is circulated through a heat exchanger in a separate, insulated tank. Since hot water is stored in a storage tank, the boiler does not have to turn on and off as frequently.

Fuel Options

Oil and gas-fired water heaters are usually less expensive to operate than electric models. But before you decide against electricity, check with your utility company for special off-peak rates.

Size

To determine what size hot water heater your family needs, calculate the maximum expected hot water demand. Do this by estimating what time of day your family is likely to require the greatest amount of hot water. This isn't the total amount needed each day, but an indication of how much hot water is needed at peak hours.

The ability of a water heater to meet peak demands for hot water is indicated by its first-hour rating. This rating accounts for tank size and how quickly cold water is heated. Appliance dealers can provide information on a unit's first hour rating.

CALCULATING PEAK HOURLY HOT WATER DEMAND			
Hot Water Use	Avg. gallons hot water per usage	Times used in an hour	Gallons used in an hour
Showering	20	x	=
Bathing	20	x	=
Washing hands/face	4	x	=
Shaving	2	x	=
Shampooing hair	4	x	=
Hand dishwashing	4	x	=
Automatic dishwashing	14	x	=
Preparing food	5	x	=
Automatic clothes washer	32	x	=

For example, your family's greatest hot water use is at 6:45 a.m. with the following activities:

3 showers @ 20 gallons = 60 gallons per hour
 1 shave @ 2 gallons = 2 gallons per hour
 1 shampoo @ 4 gallons = 4 gallons per hour
 Handwash dishes @ 4 gallons = 4 gallons per hour

Peak hour demand: 70 gallons per hour

These figures do not take into account energy-saving features such as low-flow showerheads.
Source: Gas Appliance Manufacturer's Association

Comparing Costs

There are two types of costs to look at: **purchase cost** and **operating cost**. It may be tempting to save money by buying the most inexpensive model. But often, the inexpensive models cost more to operate. Look at **life-cycle costs**, which take into account initial cost and operating costs for a much more accurate representation of the true costs of the water heater. ENERGY GUIDES will be most useful in determining this. Let's compare two differently priced models:

	Water heater #1	#2
Purchase Price	\$ 425	\$ 500
Yearly Energy Cost	<u>165</u>	<u>140</u>
Cost over 13 years*	\$ 2570	\$ 2320

*Avg. lifespan of a water heater

Source

American Council for an Energy-Efficient Economy. (1993). Consumer guide to home energy savings. (3rd ed.). Berkeley, CA: ACEEE.

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