



Maintaining the Home

Choosing a Water Heater

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The first step in choosing a water heater is to determine the appropriate fuel type. Natural gas, oil and propane water heaters are generally less expensive to operate than electric models. If you are considering electricity, check with your local utility company or electricity supplier to see if they offer off-peak electricity rates. If available, heating your water during off-peak hours will save you money.

If you are in a moderate climate, consider a heat-pump water heater, which is more efficient than a conventional electric water heater. Though a heat-pump water heater may have a high initial cost, it can save up to 50 percent of your water-heating bill in moderate climates. Heat pumps can be added onto your water heater or purchased as an integral part of a new water heater.

The efficiency of water heaters is indicated by their energy factor (EF), which is based on recovery efficiency, standby losses and cycling losses. The higher the EF, the more efficient the water heater. Electric resistance water heaters have EFs ranging from 0.7 and 0.95; gas water heaters from 0.5 and 0.6, with some high-efficiency models ranging around 0.8; oil water heaters from 0.7 and 0.85; and heat-pump water heaters from 1.5 to 2.0. Everything else being equal, select a water heater with the highest EF. Also look for a water heater with at least 1 1/2 inches of tank insulation and a heat trap.

In the United States, all water heaters are sold with EnergyGuide labels to indicate their energy

efficiency. These labels provide estimated annual operating costs, and also indicate the cost of operating the models with the highest annual operating cost and the lowest annual operating cost. By comparing a model's annual operating cost with the operating cost of the most efficient model, you can compare their efficiencies.

Although some consumers buy water heaters based on the size of the storage tank, the first-hour rating (FHR), provided on the EnergyGuide label, is actually more important. The FHR is a measure of how much hot water the heater will deliver during a busy hour. Before you buy a water heater, estimate your household's peak-hour hot water use (your water use during morning showers, for instance) and look for a unit with an FHR in that range.

Demand water heaters are an option that should be considered when replacing a water heater or when building a new home. Demand water heaters only produce hot water when you need it, thereby avoiding the energy losses due to storing hot water. However, they have a low flow rate and may not be ideal for large families. For more information, see the Energy Efficiency and Renewable Energy Clearinghouse (EREC) consumer energy brief, Demand (Tankless) Water Heaters on the Web site listed at the end of the document.

Tankless coil water heaters use a heating coil installed in the main furnace for water heating. Common in oil-fired boilers and some gas-

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fired boilers, tankless coil water heaters are an inefficient means of heating water. A better solution is offered by indirect water heaters, which use the main furnace to heat a fluid that is then circulated through a tank of water. The energy stored by the water tank allows the furnace to turn on and off less often, thereby saving energy. If used with a high-efficiency boiler and a well-insulated tank, this can be the least expensive means of providing hot water.

For safety as well as energy-efficiency reasons, when buying gas- and oil-fired water heaters, look for units with sealed combustion or power venting to avoid back-drafting of combustion gases into the home.

Finally, it can save you energy and money to put some thought into the best location for your water heater. Whenever possible, do not install the water heater in an unheated basement. Also try to minimize the piping runs to your bathroom and kitchen.

This material was adapted from publications produced by the U.S. Department of Energy. DOE publications can be found on the Web at <http://www.eere.energy.gov/>.

*This resource is one in a series on **Maintaining the Home** which include:*

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Selection and Use of Home Cleaning Products
Discovering the Secrets of Successful Storage

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Furnace Care
Fireplace and Chimney Care

Cooling

Evaporative Cooler
Air Conditioner
Ceiling Fans

Plumbing

Fixing Plugged Sink Drains
How to Unclog a Toilet
Repairing Dripping Faucets

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How to Set or Reset a Circuit Breaker
How to Replace a Fuse

Appliances

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Garbage Disposal Care and Cleaning
Range and Oven Care and Range Cleaning
Refrigerator Care and Refrigerator Cleaning
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Washer Care and Cleaning

Flooring

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Ceramic Tile Floors Care and Cleaning
Vinyl Floor Coverings Care and Cleaning

Walls

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Wallpaper Selection and Cleaning
Repairing Walls

Furniture

Furnishing Your New Home: Color and Design
Selecting Fabric For Home Furnishings

Exterior Maintenance

Home Exterior

Foundations, Basements and Yards
Exterior Walls, Windows, and Doors

Roof

A Guide To Roofs
Roof Maintenance

Landscaping and Lawn Care

Principles of Xeriscape
Watering Your Lawn

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Child-Proofing Your Home
Is Your Home Safe From Fire Hazards?
Smoke Alarms Save Lives
Carbon Monoxide Alarms
Are Your Children Safe From Poisons?
Protecting Yourself Against Burglary

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How to Stop Air Leaks Around Windows
Energy-Efficient Heating and Cooling
Indoor Water Conservation Tips
Outdoor Water Conservation Tips

Environment Issues

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Create a home recycling center
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Dealing with Mold
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Hazardous Household Substances: Alternatives That Are Relatively Free of Toxic Effects
Radon

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Cockroaches and Their Control
Southwest Insects

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Update your home for a lifetime of living
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Hand Dexterity, Strength and Range of Motion
Cognitive Difficulties
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