



# Low Cost & No Cost Energy & Money Saving Ideas

Minnesota Department of Commerce Energy Information Center

Saving energy in your home doesn't require a major investment of money—or even your time. This HouseWarming guide offers ideas that will cost you little or nothing. Some will save you a lot of money, others perhaps only a few dollars a year. But add them up and you could reduce your annual energy bill by 25 percent or more.

More details on these front page tips

More low cost & no cost energy saving ideas.



## Got a minute? Save hundreds of \$\$\$

Some of the ideas on this page won't even take that long, but can save a typical home owner at least \$100 to \$200 a year.

### Home Heating

- You've heard it before, but the savings make it bear repeating: Turn down the thermostat. Reduce the temperature from 70° to 65° while you're home, and turn it down to 60° or 55° while you're away or asleep, and cut your heating bill by about 25 percent.
- Close a bedroom door and heat register during the day, or close off an unused room entirely, and save about \$50 a year.
- Open shades to let in the sun's warmth—close them at night to keep heat inside.
- Lock windows. It tightens the seal to stop heat leaks.

### Water Heating

- Turn down the temperature setting. You may be surprised how low you can turn your water heater and still get water hot enough to serve your needs—all you need is 120° to 125°.
- A dripping hot water faucet can cost over \$35 a year. Fix it. Usually all it takes is a new washer.
- A water-saving showerhead can save \$40 a year.

### Appliances

- Turn up the temperature a little in your refrigerator and save quite a few dollars.
- If you need a new refrigerator, take a minute to ask the dealer about energy efficient models. The savings are astounding. Look for a refrigerator with the ENERGY STAR logo.
- Save half the energy your dishwasher uses by not using the dry cycle.
- Turn off/unplug appliances you're not using, especially while you're away for a few days (don't forget the water bed heater, it's a real energy hog).

#### Related Guides:

- Home Heating
- Home Cooling
- Appliances
- Home Insulation
- Lighting
- Water Heaters

## Energy Myth:

Turning down the thermostat doesn't save energy because it takes as much energy as was saved to reheat the house.

## Fact:

The bigger the difference between indoor and outdoor temperatures, the faster heat escapes your house. So when you turn down the thermostat, the indoor temperature is closer to the outdoor temperature—you lose less heat—the furnace runs less—you save a lot of energy.

## Tips to Lower Your Heat Bill

Heating is the biggest part of a Minnesotan's home energy bill. There are several free (or very inexpensive) things you can do to lower your heating costs.

### The thermostat

Turn it down. To explain the potential savings by way of example: If you currently keep your thermostat at 70° and spend \$800 a year to heat your home—you could save around \$150 to \$250 by reducing your normal setting to 65° and setting it back an additional 10° at night and while you're away.

### Furnace maintenance

With a warm air system, clean or replace the furnace filter every month during the heating season. An even slightly dirty filter will block air flow and send heat up the chimney instead of into your home.

Keep easily accessible mechanical parts clean if you know how to first turn off the electricity to the furnace for safety purposes.

Turning the pilot light off during the summer can save over \$30 a year. Only do this if you are confident you can do it safely by following directions on the furnace or instructions from a service person.

Have your gas or oil furnace professionally cleaned and tuned every year.

### Radiators and warm air registers

Air in radiators keeps them from filling with hot water and operating at peak efficiency. To fix this, use a radiator key (about 50 cents at a hardware store) to open the valve near the top of the radiator. As soon as water starts to come out, close the valve. Add water according to your service manual or ask a service person.

Don't block radiators with furniture, drapes or other objects.

Keep the radiator clean with a thick, soft bristled radiator brush (available at most hardware stores).

A radiator enclosure can improve efficiency if it leaves room for air circulation. There should be a one or two inch space between the radiator and the enclosure and between the back of the enclosure and the wall.

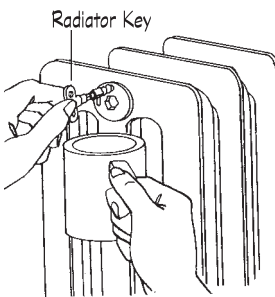
An alternative to an enclosure is a simple piece of cardboard covered with aluminum foil, mounted on the wall behind the radiator. This reflector will send heat back into the room that otherwise would be lost through the back wall.

Warm air registers should also be kept clear of obstructions and vacuumed occasionally.

### Insulate pipes and ducts

Water pipes to radiators and warm air ducts to registers should be insulated. Use foam wrap on pipes and fiberglass batts on ducts.

Check all seams for leaks while the blower is on. Seal leaks in cold air return and supply ducts with metalized duct tape.



## Check-List for Professional Furnace Servicing

Before hiring someone to clean and tune your furnace, run through this checklist to make sure these items are included in the service.

- Clean, lubricate and check belts and pulleys in the blower system of a forced-air furnace.
- Perform a test for carbon monoxide.
- Check the combustion air inlet for proper sizing and make sure the supply of combustion air is sufficient.
- Inspect and clean the flue, chimney and connections from the furnace to the chimney.
- Check burner performance and adjust if needed.
- Clean the heat exchanger and inspect it for cracks or warpage.

- Check the blower fan on-off settings to make sure they are set for maximum efficiency.
- Check the fuel supply and fuel line filter in oil burning furnaces.
- For boilers, all the above measures should be taken, plus lubricating and cleaning the pump system and expansion tank.
- Include a safety and efficiency check on your water heater.

Remember to ask the service person to recommend and demonstrate some routine maintenance measures you can take to keep your furnace running efficiently between service calls.

## Water Heating Tips

Water heating is usually the second largest part of your energy bill. A typical Minnesota family of four, heating with natural gas, will spend about \$200 a year for hot water. With electricity, it's about \$450 a year. The following suggestions can easily reduce your water heating bill by one-fourth or more.

### Insulate the water heater tank and hot water pipes

Insulating your water heater and pipes keeps heat from escaping and the project will easily pay for itself in less than a year, even with a new water heater.

Use foam wrap to insulate hot water pipes throughout the house. Also insulate the cold water pipe for the few feet nearest the heater. For safety, keep foam insulation three inches away from the heater drafthood and exhaust vent.

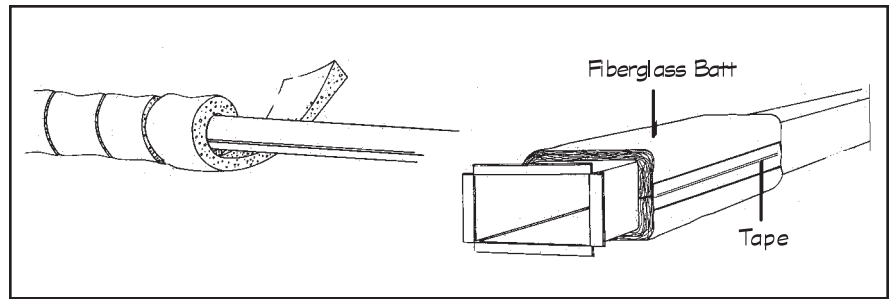
Wrap your water heater tank with a blanket of fiberglass insulation. Water heater insulation kits are widely available at minimal cost. When wrapping a natural gas water heater, leave the top and the area near the bottom open so the pilot and burner can have air and the heater will draft properly. Leave the control panel on both electric and gas water heaters uninsulated.

### Turn down the temperature

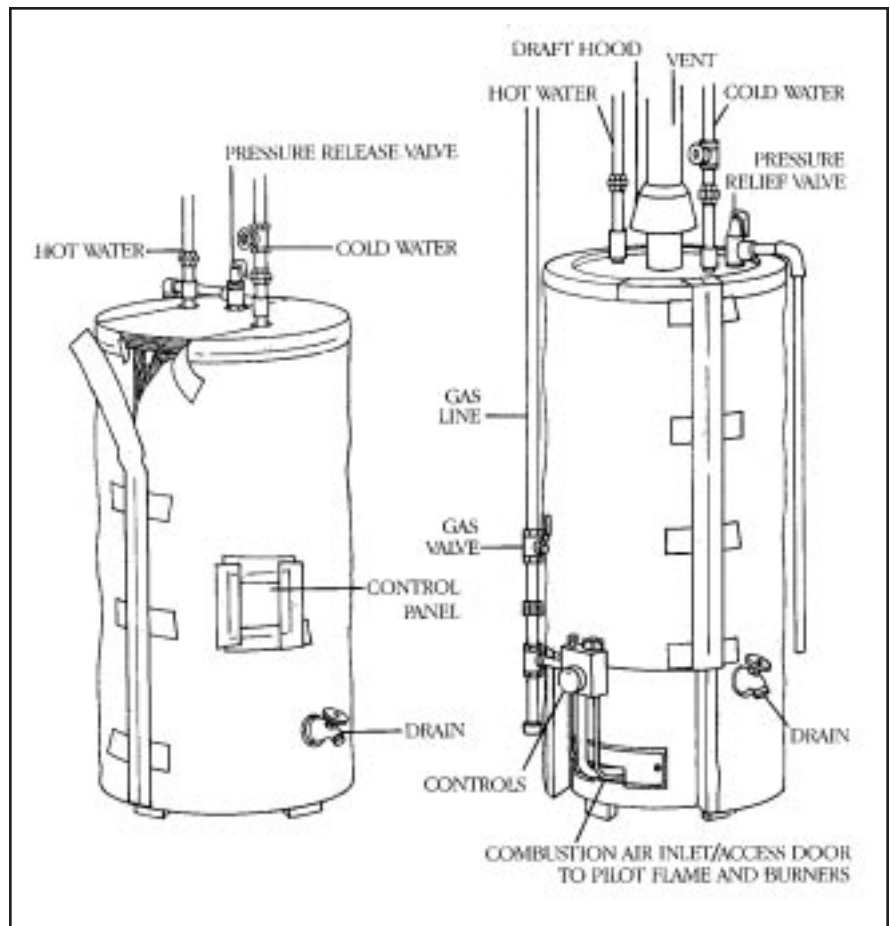
You don't need the water to be any hotter than 120 or 125 degrees. Any higher setting not only wastes energy but also creates a risk of scalding, especially for children. If your water heater doesn't have specific temperature settings, use a cooking thermometer to measure water temperature at your sink or bath to determine how far toward the low setting you can turn it and still get water above 120°.

### Fix leaky faucets

A hot water faucet leaking only one drop per second will waste 60 gallons of hot water a week and cost you about \$35 dollars a year. Leaks can usually be fixed by replacing the tap washer. Turn off the water below the sink or tub (or at the main supply), take the faucet apart and replace the bad washers. (Note: Many newer style "washerless" faucets cannot be taken apart as shown in



Foam wrap pipe insulation and insulate ducts with fiberglass batts.



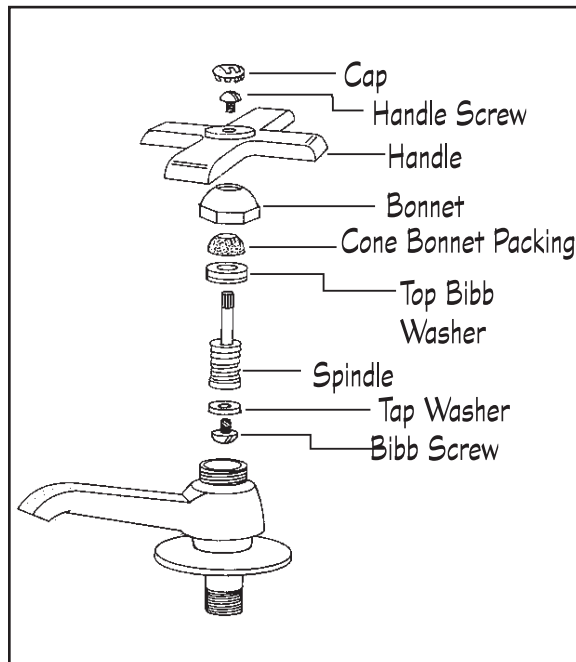
Insulate waterheaters. Electric water heater is shown on left and gas water heater on right.

## Energy Myth:

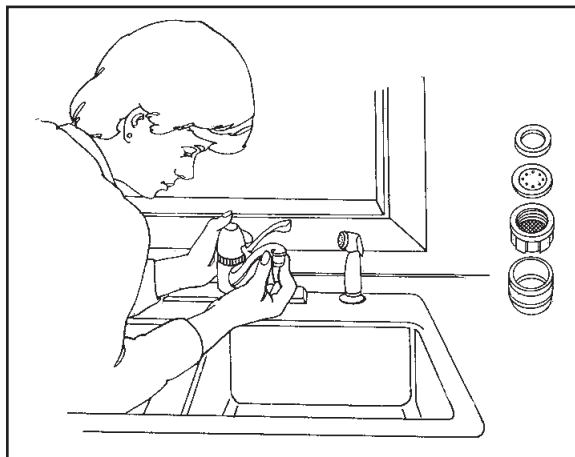
You need really hot water to sterilize dishes and clothes.

## Fact:

Even at the hottest setting on your water heater, your dishes and clothes are not sterilized.



Disassembled faucet.



Put aerators and flow restrictors on faucets.

the accompanying illustration. If a leak can't be fixed by tightening or replacing the aerator or washer at the end of the faucet, the internal mechanism in the "washerless" faucet is probably worn out and the entire unit may have to be replaced.)

## Install low flow aerators on faucets

Low flow aerators on faucets will save you money on both your water bill and water heating costs. They reduce the amount of water you use without a noticeable change in the flow. Aerators cost from one to five dollars. To install, simply unscrew the standard aerator at the end of the faucet and install the low flow device. If you don't have aerators, consider installing them—they are well worth the effort.

## Install a water-saving showerhead

A water-saving showerhead uses about two gallons of water a minute which is about six gallons less than a conventional showerhead. This will save a typical household using gas to heat water over \$25 a year and over \$45 a year with an electric water heater. Water-saving showerheads cost anywhere from \$8 to \$40 depending on the style and provide very comfortable showers. To install, remove the old showerhead with a wrench, put a little pipe joint compound on the threads of the spigot and screw on the new showerhead.

## Other easy hot water saving tips

- Take showers instead of baths. They use much less water—close the drain next time you shower—you'll see that this is true.
- Don't let the hot water run while shaving. You, in fact, get a closer shave with cold water.
- If you have an electric water heater, check into "time of day rates." This involves having your water heater come on only during "off-peak" times. Contact your utility's customer service office for details and see if this would work for you.
- Turn your water heater down to the lowest possible setting if you are going to be away for a few days.

## Lighting Energy Saving Tips

Electric lights account for about 10 to 15 percent of your electric bill. You can save money on lighting with little or no effort or cost. The best way is to turn off lights when they're not needed and to not overlight areas. Take a walk through your house and see where you can make these energy savings changes:

- Use "task lighting" wherever possible. In other words, use a small lamp for reading or working—light the subject instead of the entire room.
- Don't use "long-life" incandescent bulbs. They're less energy efficient than ordinary bulbs, giving off less light per watt.
- For areas that need a great deal of light, use one large wattage bulb instead of several small ones (one 100-watt bulb actually provides more light than two 60-watt bulbs).
- Use fluorescent lights where possible, they're much more efficient. Compact fluorescent lamps will fit into normal light sockets and will save you about \$40 over the life of the bulb.
- When buying bulbs, check the package for information. Light is measured in lumens—you want the most lumens per watt.
- Dimmer controls and three-way switches on lamps can reduce energy use by allowing you to select the lighting levels sufficient for your needs.

## Saving Energy in the Kitchen

### The refrigerator

The refrigerator is only a single appliance, yet by itself it is typically the third largest part of your energy bill. If you are facing a major repair bill on an older model, it's probably wise to invest that money in a new refrigerator. Today's new energy efficient models will easily cut at least \$100 a year from your electric bill. All new models come with information on energy use. Use this information in your buying decision. Meanwhile, here are several things you can do to help reduce your refrigerator's energy consumption.

- Make sure the gasket between the door and compartment seals tightly by closing the door on a dollar bill and tugging on it. There should

be resistance when you pull on the bill. Do this in several spots around the door. If you find a loose area, you might only have to clean the gasket. If it is loose or torn, you may be able to fix it with glue. If it can't be fixed, contact a dealer that handles your model and get a new gasket.

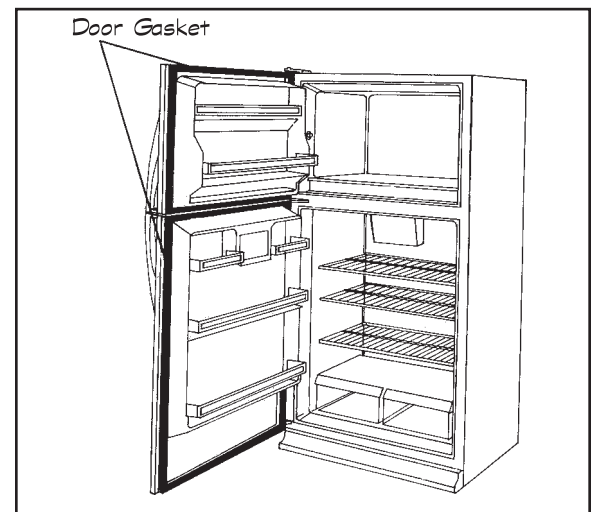
- Keep the coils on the back or at the bottom of the refrigerator clean and cool to keep it working at peak efficiency. Periodically remove dirt and vacuum the coils. Place the refrigerator as far away as possible from heat sources such as stoves and radiators in order to keep the coils cool. Also leave a few inches of space between the coils and the wall to allow cooling air to circulate.
- Let hot food cool before storing it and the refrigerator will use less energy.
- Both the freezer and the refrigerator work more efficiently when relatively full. Items in the refrigerator should be spaced a little to allow air to circulate around them.
- Cover liquids. Uncovered liquids add humidity, making the refrigerator work longer.
- Invest in a refrigerator thermometer and keep the refrigerator at the proper temperature. The refrigerator compartment should be at 38° to 40° and the freezer at about 5°. For long-term storage in a separate freezer unit, the temperature should be 0°.

### Energy Myth:

Turning on a light causes a "surge" of power, meaning it's better to leave a light on instead of turning it off when you know you will be using it again a short time later.

### Fact:

A bulb that is on for one second uses one second's worth of electricity - no more, no less. This is true even for fluorescent bulbs - so turn lights off whenever they're serving no purpose.



Replace worn out refrigerator door gaskets.



### Energy Myth:

Using hot water to flush grease down drains prevent clogging.

### Fact:

Cold water helps solidify grease, preventing it from sticking to pipes. So save some hot water by using cold water to flush grease down drains and also through garbage disposals.

- Defrosting items slowly in the refrigerator will allow the frozen food to do some of the work electricity would normally perform.
- When you are gone for a long period of time, clean out the refrigerator, turn it off, and leave the door open to prevent mold.
- If you have a second refrigerator, keep it plugged-in only when necessary. Remember, it may cost about \$150 a year to keep it operating. You may not want to pay that much just to keep the extra pop cold.

### Cooking energy saving tips

Cooking fuel costs you about \$50 to \$100 a year. Here are a few common sense, free things you can do to shave a few dollars off this bill.

- Clean the shiny reflectors under the burners to better reflect the heat.
- Clean the gas burners occasionally. Food and grease can clog the gas ports. The flame should be even and blue.
- Adjust the flame so that the tip just reaches the bottom of the pan. The tip is the hottest part of the flame.
- Ceramic or glass baking dishes will cook foods at lower temperatures than metal pans.
- Sometimes you can't resist peaking in the over-just remember every time you do you lose 25° of heat.
- Turn off electric burners a few minutes before the food is done. The heat left in the burner will finish the cooking.
- When possible use the range top or smaller cooking appliances which use less energy than the over.

### Automatic dishwasher tips

- Use the energy savings cycle if you have one.
- Allow dishes to air dry. You can save half the energy your dishwasher uses by not using the dry cycle.
- Use a cold rinse. (A high-quality dishwasher detergent will do more to prevent spots than either hot water or a hot dry cycle.)

## Laundry Room Energy Savings Tips

- Dry consecutive loads to use the heat left from the first load and make sure not to let the dryer run longer than needed to dry the clothes.
- Keep dryer filters and vents clean. Clean filters after every load—dirty vents and filters slow air flow and make the dryer use more energy.
- Use the lowest drying temperature possible.
- Don't vent the dryer indoors. You may gain a little heat (unwanted heat in the summer) but you are also dumping into your home a lot of lint and other pollutants as well as adding an undesirable amount of moisture to the air. Venting the dryer inside hurts much more than it helps.
- Wash in cold water using a cold water detergent. Use hot water only when absolutely necessary. Always rinse in cold water.
- Wash full loads, but don't overload. If you have an adjustable water setting, use it when washing small loads.

## Summer Cooling Tips

- Close shades during the day to reduce solar heat gains. Outdoor shading devices such as awnings reduce heat gain through a window by as much as 90 percent while letting light in.
- If you're thinking of planting trees, consider putting them by a window on the sunny side of the house for natural heat-reducing shade. See our Home Energy Guide: Save Energy with Trees.
- Leave storm windows on windows that don't need to be opened, or on windows in air conditioned rooms. They help keep the heat outside.
- Use cross ventilation. Put a fan blowing in a window on the cool side of the house which will push out hot air while pulling cool air into the rest of the house.

## Air conditioning

Air conditioning puts a tremendous strain on electrical generating facilities, not to mention your own checkbook so the best advice is to use other methods of keeping yourself and your house cool whenever possible. Here are a few tips to keep your air conditioner's energy consumption down when you do use it.

- Set the thermostat at 78° or higher—a reasonably comfortable and energy efficient indoor temperature. A 78° setting will save you about 15 percent or more on cooling costs over a 72° setting.
- Don't set the thermostat at a colder than normal setting. It will not cool the house any faster, but, as with the furnace, will simply overshoot the desired temperature and waste energy.
- Clean or replace filters at least once a month.
- Turn off the air conditioner when you are going to be gone for several hours and draw the shades to keep heat out. It takes less energy to re-cool the house when you return than it does to keep it cool while you are gone.
- Don't place lamps or other heat-generating devices near the thermostat since it could sense this heat and make the air conditioner run longer than needed.
- Room air conditioners should fit snugly to window frames. Close heat ducts in the room and remove or seal up the unit with plastic after the cooling season.
- Have your central air conditioning unit checked and tuned when you have your furnace serviced.
- Periodically clean and vacuum the grills, coils and cooling fins and keep them clear of obstructions.

## Energy Savings Tips for Your Car

Cars are a dominant source of energy use in America and perhaps the largest source of pollution. Maintaining your car so it lasts longer is of course a good idea, but many low/no cost steps also will reduce the money you spend on gasoline and will keep your car running cleaner and reduce harmful emissions into our environment. Here are a few examples.

- Regular tune-ups according to manufacturers' recommendations will increase gas mileage and reduce harmful emissions.
- Keep tires inflated to proper levels to increase gas mileage.
- Minimizing use of the air conditioner will increase gas mileage.
- Avoid opening windows at high speeds. It creates a drag and reduces gas mileage.
- Idling equals zero miles per gallon—avoid it when possible. If you can go inside a bank or restaurant instead of waiting to use the drive-through, do so.

### Energy Myth:

When air conditioning, setting the thermostat at a very low temperature will cool the house faster.

### Fact:

It only causes the air conditioner to run longer, not cooler or "faster". A low setting causes the air conditioner to overshoot the desired temperature and wastes energy.

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This information will be made available, upon request, in alternative formats such as large print, Braille, cassette tape, CD-ROM.

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## Minnesota Home Energy Guides

This guide is one in a series of publications designed to help Minnesotans save energy in their homes. Copies of the titles listed below are available by calling or contacting the Minnesota Department of Commerce.

**CD-ROM** contains all of the Home Energy Guides as well as several other publications of interest to homeowners, builders and contractors.

**Appliances** advises consumers on what to look for in energy efficient appliances and includes information on efficient operation and maintenance of refrigerators, freezers, washers, dryers, dishwashers, cooktops, ovens, and home office equipment.

**Attic Bypasses** explains how to find those "hidden air passageways" and fix them to prevent costly heat loss and damage to roofs, ceilings, walls, and insulation.

**Basement Insulation** discusses the pros and cons of interior vs. exterior insulation and provides detailed how-to instructions.

**Caulking and Weatherstripping** describes how to identify sources of air leaks, lists various types of caulk and weatherstripping, and provides illustrated how-to-apply instructions.

**Combustion & Makeup Air** describes the causes of dangerous combustion air problems and tells how to install an outside combustion makeup air supply. It also tells how to test your home for combustion air problems.

**Energy Saving Landscapes** describes how to use trees and shrubs for long-term energy savings, and lists trees appropriate for energy-savings.

**Home Cooling** tells you how to cool without air conditioning, and provides information on buying and operating energy efficient air conditioners.

**Home Heating** describes proper maintenance techniques and helps you become an educated shopper if you are buying a new heating system.

**Home Insulation** helps the homeowner evaluate the benefit of added insulation, providing information on buying and installing insulation.

**Home Lighting** looks at new technologies for residential lighting, identifying four basic strategies and providing examples for putting them into practice.

**Home Moisture** describes symptoms of moisture problems, lists common indoor and outdoor causes, and discusses preventive and corrective measures.

**Indoor Ventilation** describes the types of home mechanical ventilation systems that are available, the amount of ventilation air needed, and how best to operate and maintain the system.

**Low Cost/No Cost** addresses the often overlooked energy saving tips for all areas of your home.

**New Homes** discusses a wide range of options for increasing energy efficiency beyond the normal building code requirements. Subjects covered include insulation, ventilation, air-vapor controls, heating and cooling, windows, doors, and appliances.

**Water Heaters** helps you determine whether to buy a new water heater or improve the old one. It explains the efficiency of different types of water heaters and provides installation tips.

**Windows and Doors** helps you decide whether to replace or repair windows or doors and gives a good summary of energy efficient replacement options.

**Wood Heat** offers advice on purchasing and installing a wood stove, with special emphasis on safety.