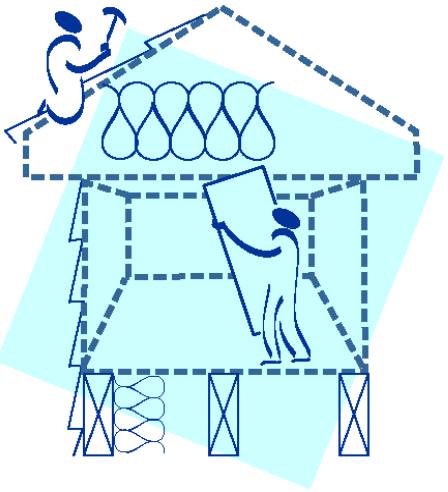

July 2009

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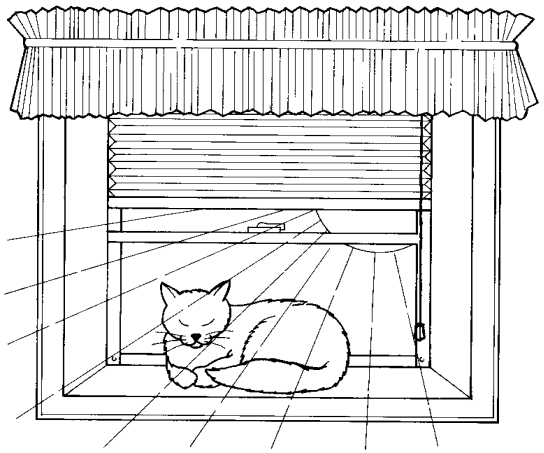
A Resident's Guide to **Year Round** Energy Savings:

Lowering Utility Bills without Losing Comfort



James D. Cavallo, Ph.D.
and
Virginia Judd
Kouba-Cavallo Associates, Inc

Dedicated to those for whom
the low operating cost of housing is not a luxury.

Acknowledgments:
Many of the energy tips on pages 20 and 21 were drawn from ***Your Energy Savings: A Resident's Handbook*** by Paul Knight, who generously gave permission for its use. Many of the illustrations in this booklet were produced by a wonderfully creative team at Argonne National Laboratory with public funding from the U.S. Department of Energy and the State of Illinois. We sincerely appreciate and recognize the work and talents of Marita Moniger, Daniel Sarro, and Carol Renaud.

Internet-based Information Sources

Home Energy Magazine
www.HomeEnergy.org

Energy Star Information
www.EnergyStar.gov

U.S. Department of Energy
Energy Efficiency & Renewable Energy:
www.eere.energy.gov
Save Energy and Money at Home:
www.EnergySavers.gov
Energy Savers Booklet
www.eere.energy.gov/consumer/tips/

American Council for an Energy-Efficient Economy
www.ACEEE.org

Advanced Energy
www.AdvancedEnergy.org

Rocky Mountain Institute
www.RMI.org

Alliance to Save Energy
www.ASE.org

Kouba-Cavallo Associates
www.Kouba-Cavallo.com

Books on Energy Efficiency

These may also be found at your public library

Residential Energy: Cost Savings and Comfort for Existing buildings
John Krigger, Chris Dorsi

The Complete Book of Home Inspection
Norman Becker

Consumer Guide to Home Energy Savings
American Council for an Energy-Efficient Economy
available from www.ACEEE.org
or call 202-429-0193

The Healthy House
John Bower

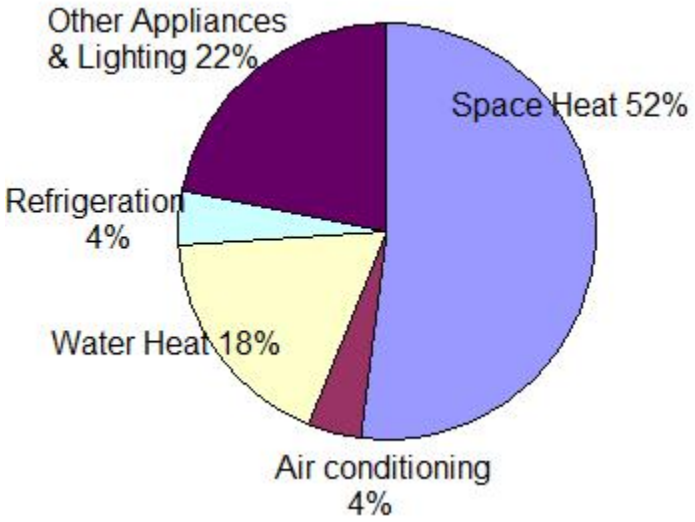
Insulating, Sealing & Ventilating Your House
William P. Spence

Saving Energy Saves Money

No one likes paying their utility bill. So why do millions of Americans pay more than they need to? The typical family spends about $1,900 each year on heating and cooking fuels, electricity, and water. But that same typical family could save energy and water totaling almost $600 annually and put that money to other good uses. This booklet contains ideas on how you can save energy around your home. Whether you live in a single family house or an apartment building, there are things that you can do to keep money in your pocket rather than letting it go to utility bills. You'll also learn that saving energy doesn't require you to lose comfort.

How Do You Use Energy?

Typical Midwest Energy Use in the Home



It's probably no surprise that the largest share of energy consumed around the home is used to heat and cool the air around you. If you had to pick one place to start saving energy, lowering your heating and cooling bills would make sense. But there are other areas where savings can be found, including conserving hot water and using efficient lights and appliances.

In All Seasons

6. Hot water shouldn't be too hot. Have your water heater set no higher than 120°. Water hotter than that can be a scalding hazard.

7. Use your exhaust fans whenever you are in the bathroom. Showers can create excess moisture that will lead to mold or mildew. Also be sure to use the exhaust fan in the kitchen when cooking.

8. Don't store things in your furnace room. They can be a fire hazard.

9. Whenever a light bulb burns out, replace it with a compact fluorescent light bulb.

10. Set your refrigerator to keep your food at 38°. Don't let the food compartment get too cold; it will freeze your fruits and vegetables and waste energy.

Tips for Saving Money and Maintaining Comfort

Winter

1. Don't use your stove to heat your home.

2. Don't open your windows to cool your house or apartment in winter. Turn down the thermostat or turn off a radiator.

3. Set your thermostat lower when you sleep or are leaving home for extended periods of time. Dialing down your thermostat can save up to 10 percent on your heating bill.

4. Keep your duct registers or radiators clean and clear. Don't block the heat from getting to you.

5. Open your shades to let in the sun during the daytime. Close your shades at night to keep in the heat.

Summer

1. Ceiling fans will help your air conditioner move cool air around the house.

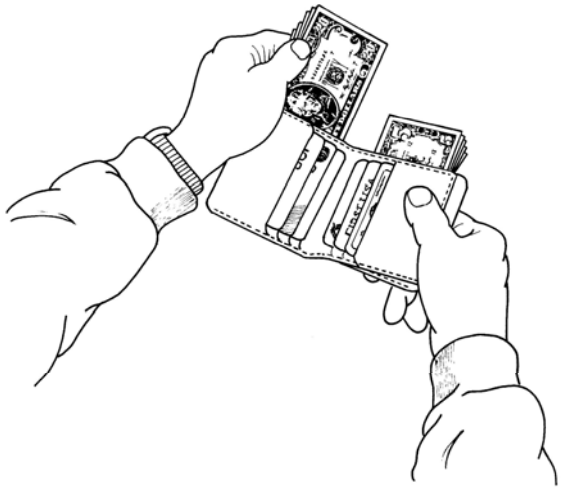
2. Turn off the air conditioning and open your windows on cooler evenings or in mild weather. Window fans work well when the sun goes down.

3. Set your thermostat up by 5 degrees when leaving home for more than 3 hours. Dialing up your thermostat can save up to 10 percent on your air conditioning bill.

4. Keep your duct registers clean and clear. Don't block the cool air from getting to you.

5. Close your shades to block out the sun's heat during the daytime.

The Problem of Energy Waste



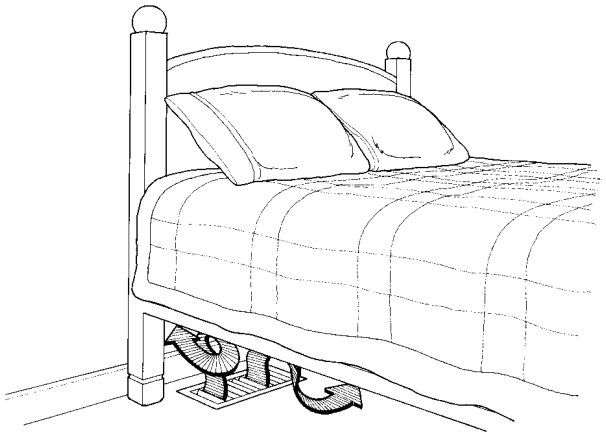
The main object of this booklet is to help you save money, but reducing energy waste without reducing your comfort is also good for the environment. Every time you save electricity, natural gas, or some other fuel, you reduce pollution. So with energy conservation, you save money and the environment.

Develop a Plan

Capturing your energy savings can take some planning. You should start by reading through this booklet and looking around your home. Ask yourself: Are there some simple, low-cost things that can be done? Almost certainly the answer will be “yes.” But you probably can also find energy conservation actions that have some cost connected with them. You may want to have an energy audit done on your home. If you do, ask the technician to give you a list of the energy measures that make sense for your home, the order in which the measures should be implemented, and the things you can do yourself. Get one of the books listed on page 22 of this booklet and plan your actions intelligently.

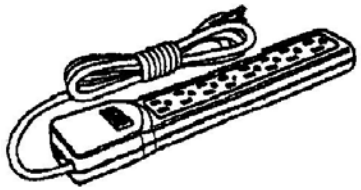
Bring the Heated or Cooled Air to You

Your heating or cooling systems work best when you let the warmed or cooled air get to you. Be sure your furniture is not blocking the way for air to circulate. Move your bed, sofa, chair, or bookcase away from the heat vents or radiators, the air vents or room air conditioner. You’ll be more comfortable!



Don’t block the air you have paid to heat or cool!

Use Power Strips to Fight Phantom Load



Many electric devices around your home are never really turned off. TVs, VCRs, and DVD players usually have "instant on" features that use electricity both day and night whether you are watching them or not. One way to fight this phantom electric usage is to connect all of your entertainment devices to a power strip. When you are not using them, flip the switch off. Then you can be sure they aren't sucking up your electricity while you are sleeping.

You should also make sure your computer and its monitor, speakers, and printer are turned off when not in use. It's a costly myth that turning them on and off will burn more electricity than leaving them on.

Control Home Temperatures <u>Year Round</u> with Insulation

On a cold night, you can feel warm in bed if you are under a thick blanket. The same is true for your whole building if you have a thick layer of insulation in the walls and attic. All the heat your furnace or boiler generates with the heating fuel you pay for won't help you one bit if it quickly moves through uninsulated walls and ceilings.

We usually think of insulation as keeping heat in, but it also will keep summer's heat out. This is especially true in your attic, which can get very hot as the sun beats down on your roof. A thick layer of insulation will keep that heat in your attic and out of your living space, and your air conditioner will not have to work as hard. It is very important to have insulation around air conditioning ducts if they go through your attic or some other unconditioned space.

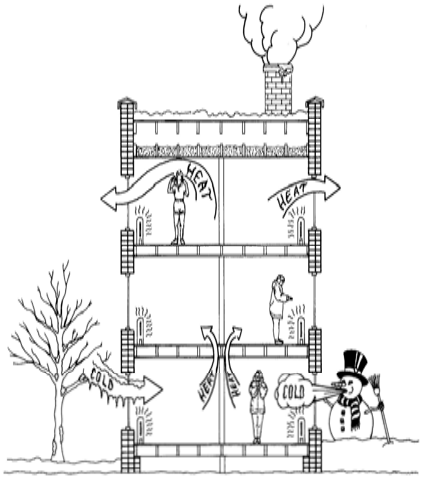
Insulation is rated by its resistance to heat movement with an R-value. In most parts of the U.S., the insulation in the walls should be at least R-13. At a minimum, attics should have R-38 (12 inches of fiberglass) in the Midwest states. Though it may be difficult and costly to add insulation to your walls, adding insulation to attics can be easy and will pay for itself in large energy savings in winter <u>and</u> in summer.

Tighten Up Your Home

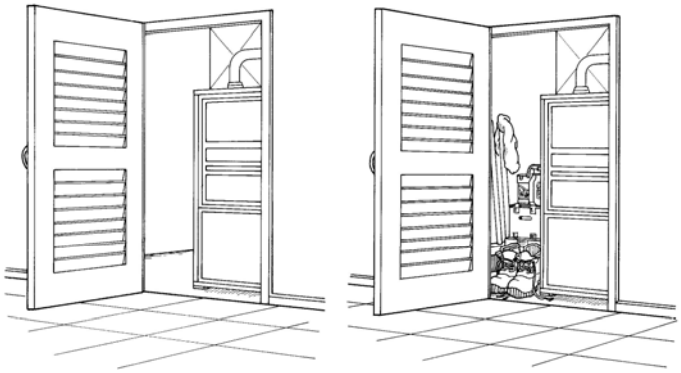
One of the biggest sources of wintertime energy waste and reduced comfort in a home is cold air sweeping in through holes and cracks. Cold air can enter down low at the same time warm air escapes up high.

In summer, one of the biggest sources of warm weather discomfort is hot, humid air seeping in through holes and cracks around your home. Sealing those holes and cracks can be easy and inexpensive while adding to the comfort that you feel in your home. Caulk and weatherstripping is all you need! That will keep out cold air in winter, and in summer, hold in the air cooled with your air conditioner.

Winter or summer, tightening up your home by sealing holes and cracks will improve your comfort.



Furnace Room Safety is Important

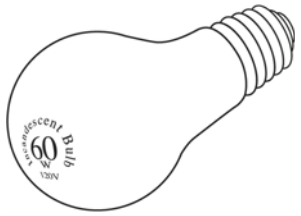


Good Idea **Bad Idea**

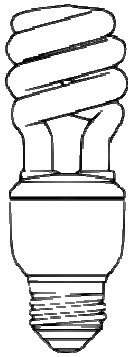
You should think before loading up your furnace room with lots of boxes, shoes, mops, cleaning supplies, and other clutter. Items stuffed close to a furnace or water heater are fire hazards. It is a **bad idea** to use your furnace room as an extra closet. A **good idea** is to keep the area around your furnace and water heater clear. That also makes it easy to change the filter frequently!

Save Electricity with Efficient Lights

One of the best ways to save money on your electricity bills is to switch from incandescent lights to compact fluorescent lighting. Compact fluorescent bulbs (CFLs) use from 60% to 75% less energy and last about 10 times longer!



Replace any incandescent bulbs (like the one above) in a high use area with a compact fluorescent (like the one to the right). High use areas are usually kitchens, TV rooms, family rooms, and porches - or any light left on for more than 2 hours a day.



Here's what to do:

1. Find the problems: On a windy day, feel around windows, doors, and exterior walls - especially near the floor and around electrical outlets.

2. Weatherize your home: Use caulk and weatherstripping to seal up the holes and cracks that you find. Caulk is cheap, and so is weatherstripping! You can save 10 % of the energy you use to heat or air condition your home by tightening up around windows, doors, and other places where in winter, cold air comes in and warm air escapes, and in summer, hot, humid air comes in and conditioned air escapes.

3. Ask for help: If you find that there are major drafts in your home, get help. Ask for an energy audit or home energy rating by a professional who can test your home.

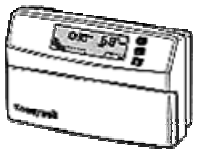
Adjust Your Thermostat

It's a myth that you can save energy dollars by leaving the temperature constant all the time.

In cold weather, lower the temperature on your thermostat at least 5 degrees when you go to bed. You can also save money by dialing your thermostat down 5 degrees when you leave for work, school, or other daytime activities.

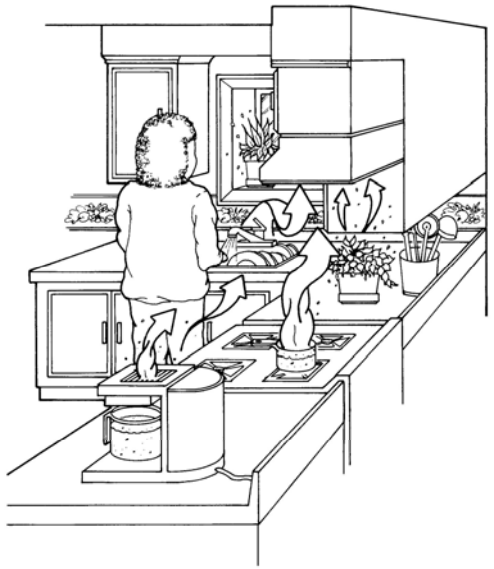
In warm weather, you should turn up the thermostat whenever you go out for more than 3 hours. Dialing up the temperature on your thermostat by 5 degrees will save money. When you get home, return the thermostat to 78°. You'll be cool in a few minutes.

A programmable thermostat allows you to preset high and low temperatures for nights as well as work/school days to consistently capture energy savings.

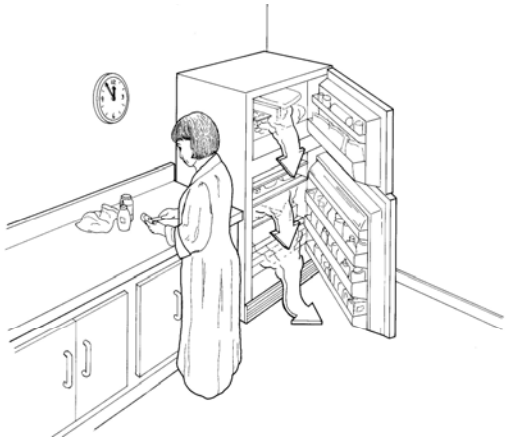


Kitchens Offer Energy Saving Opportunities

You can save money by buying appliances that have the Energy Star label. And when you are cooking, don't forget to use lids on the pots. Food will cook faster and with less energy waste. And in warm weather, the kitchen won't be as hot, and less moisture will fill the air.



Refrigerators Use Lots of Energy



In many homes, the refrigerator is the largest electricity-using appliance. That's not a surprise when you think that it is operating 24 hours a day, 7 days a week. Help your refrigerator use less energy by doing the following:

1. Close the refrigerator door after use.
2. Do not leave the door open while deciding what to eat.
3. Keep the food compartment no colder than 38°.

Window Tips to Conserve Energy

Winter guidelines

Windows provide free light, but they can waste energy too. If you feel drafts next to your windows, here are things you can do to reduce cold air flow:

1. Close your curtains and shades after the sun goes down; open them during the day to let in the sun's warmth.

2. Tape clear plastic sheets on the window frames. Many hardware stores sell special kits that are easy to put up and fit tightly on the windows.

3. Put up tight-fitting insulated window shades or thick drapes.

Summer guidelines

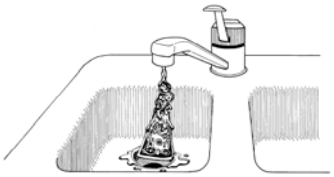
Natural light is a wonderful thing, but the sun streaming in through windows can make your home into an oven. Here are things you can do:

1. Close your curtains and shades by 9 o'clock each morning - especially for windows facing south or west.

2. When not using air conditioning, open windows on the shady side of the house.

3. Install awnings or plant trees and shrubs to block the direct rays of the sun.

Save Water and Energy



You can save energy and lower your utility bills by reducing your hot water usage. It takes energy to heat water! Water heating is often the 2nd largest energy expense in your home after space heating. Also:

- Fix leaky faucets.

- Don’t let hot water run unnecessarily: for instance, turn off the faucet after washing hands or while hand washing dishes.

- Take short showers: it will save hot water and will also reduce the moisture in the air that can lead to mold and mildew.

- Set your water heater no higher than 120°: this also will reduce the risk of scalding and will slow mineral buildup and corrosion in your water heater and pipes. And turn it down to vacation setting if you will be gone for at least 3 days.

Use Your Exhaust Fans

The exhaust fans in your bathroom and kitchen play an important part in keeping your home clean and comfortable. Run the fans when taking showers or cooking. The fans vent moisture and odors out of your home to keep it free of mold and mildew.