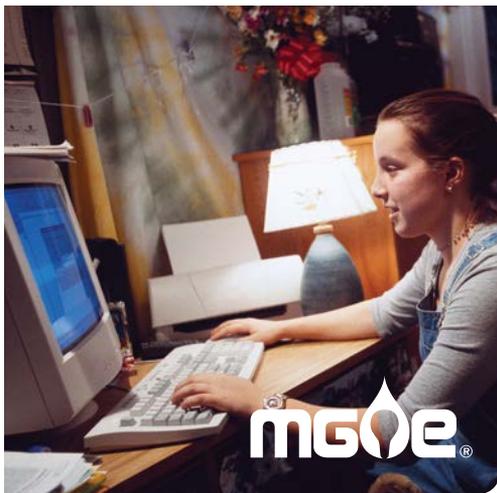


# how to make your home more comfortable



## taking responsibility

As an individual, your efficient use of energy brings benefits such as lower bills, improved comfort levels in your home and a reduced personal impact on the environment.

Acting together, our individual choices add up—for the benefit of our community, our environment and our energy future. That's the power of working together.

As your community energy company, we are committed to sharing our experience and energy expertise. You can always contact us for:

- Answers to your energy questions.
- Energy efficiency information and advice.
- Help in evaluating energy-saving options.
- Assistance in finding energy-efficient products.

# Enhance your comfort, reduce your costs

Your comfort depends on how you, your home and the weather conditions outside interact. This booklet shows how the interaction works and helps you choose the best home improvement projects to increase your winter comfort and control your energy bills.

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## Where the heat goes

Some heat is lost through the exterior of the house. Wall and ceiling insulation reduces the loss.

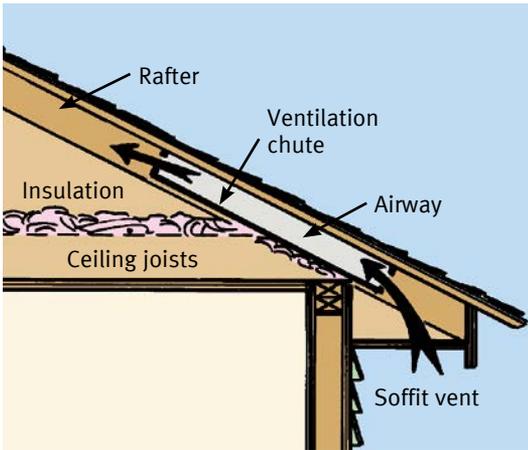
Heat also escapes through air leaks. During cold weather, your house acts like a chimney. Heated air leaks out at the top and cold outside air leaks in at the bottom to replace it. Insulation won't stop these leaks. They must be sealed with materials such as spray foam or thin sheet metal.



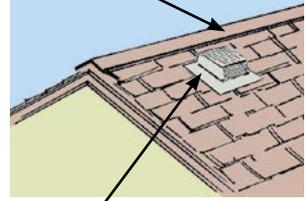
Typical airflow in heated house

## Don't confuse attic venting with home ventilation

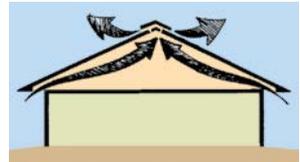
Proper attic ventilation can help prevent ice dams when combined with stopping warm air leaking from the home into the attic.



Ridge vent for new construction or reroofing



Roof vent for most existing homes



Types of attic ventilation

In contrast, **home** ventilation supplies fresh outside air to maintain indoor air quality. Fresh air for most homes is provided by air leaks and exhaust fans. Unfortunately, the rate of air leakage varies widely from season to season. Many homes have too much ventilation from air leaks in the winter and not enough ventilation in the spring and fall. The greatest air leakage occurs during the coldest temperatures and the highest winds.

To prevent cold drafts and reduce energy costs, homes must be tightly sealed but with controlled ventilation. The motto is “ventilate right, then build tight.” Many homes are difficult to seal. A device called a blower door locates hidden air leaks and measures whether air leakage has been reduced.

## Make your home comfortable

To increase comfort, reduce energy use and enhance safety at home:

- Seal air leaks (using a blower door is recommended).
- Insulate to recommended levels.
- Maintain heating, cooling and water-heating systems.

### Seal air leaks first

The largest leaks often happen in hard-to-find places:

- In attics around chimneys and plumbing vent stacks.
- In basements where the house sits on the foundation.

Blower-door testing helps locate hidden leaks and bypasses. Leaks are sealed with caulking, sheet metal or densely packed insulation.

Leaky ducts in a forced-air heating system can also reduce comfort. These leaks can result in cold spots and rooms that are hard to heat. A contractor using a blower door and duct tester can locate and seal duct leaks. Ducts should be sealed with water-based duct sealants or butyl-backed foil tape.

### Blower-door testing

To test for air leaks, a blower door is mounted in an exterior doorway (see photo at right). The blower door simulates the effects of a strong wind. This makes air leaks easier to find and seal. Contractors measure the amount of air leakage and then locate and seal the hidden air and ductwork leaks.



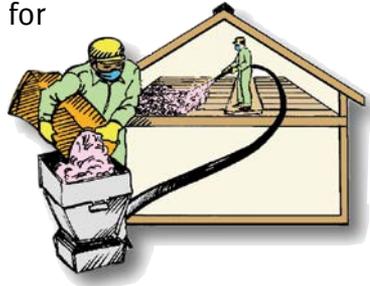
Photo courtesy of The Energy Conservatory

## Insulate

Insulate **after** sealing large air leaks. Insulating **without** air sealing is like wearing a sweater without a windbreaker on a windy day. Increase insulation levels to at least R-38 in the attic, R-11 in the wall cavities and R-19 in basement sillboxes. Walls and attics are important because they represent the largest surfaces for heat loss. Crawlspace and basements can also be insulated to improve comfort and save money.

See *Finishing Basements* fact sheet for more information.

<http://www.mge.com/images/PDF/Brochures/residential/FinishingBasements.pdf>



## Contractor or do-it-yourself?

MGE recommends hiring contractors through Focus on Energy's Home Performance Program (see page 8). Home Performance contractors can:

- Locate and seal hidden air leaks.
- Test bath and kitchen exhaust fans for proper air flow.
- Select the best materials and installation methods.
- Help you get cash-back rewards for making improvements.

## Maintain heating and cooling equipment

Some conditions may cause furnaces or water heaters that vent through metal pipes to backdraft exhaust gases into the house. Prolonged exposure to these gases can cause severe health problems. To prevent backdrafting problems:

- Have the furnace and water heater inspected regularly.
- Have the furnace and water heater tested for backdrafting by a Home Performance with ENERGY STAR trade ally.

Have air conditioners checked to maintain efficiency.

## What are the benefits?

The benefits of sealing air leaks, insulating to recommended levels and maintaining heating and cooling equipment are:

- Improved comfort.
- Improved indoor air quality.
- Better control of indoor humidity.
- Reduced energy use.
- Reduced ice dams.
- Safety.

## Questions and answers

### **Q: Should I get blower-door testing?**

**A:** Blower-door testing will not benefit all homes but can help solve problems such as:

- High heating costs (compare your home heating rating on *mge.com* or call the Home Energy Line at 252-7117).
- Cold drafts.
- Difficult to heat areas.
- Ice dams on roofs.

### **Q: How do I get weatherization work done through a contractor?**

**A:** MGE suggests working with Focus on Energy's Home Performance Program (page 8). If you get work done outside of this program, you won't be eligible for cash-back rewards.

Here are some tips for working with contractors.

- Tell them about cold areas, drafts and other comfort problems.
- Ask them to do a blower-door test before and after major insulation or air-sealing work.

- Ask them to test your furnace and water heater for backdrafting after the work is completed. (Combustion safety testing.)
- If you need wall insulation, ask the contractor to use dense-pack insulation. You'll get more insulation and reduce air leakage through the wall.

**Q: Are there tax credits?**

**A:** Tax credits come and go. For current information, see [energystar.gov/taxcredits](http://energystar.gov/taxcredits).

**Q: Is it worthwhile to replace windows to save money?**

**A:** New windows are expensive and seldom save more than 10% to 15% on heating bills. If you buy windows, look for ENERGY STAR-labeled windows. They can improve comfort and reduce condensation. See MGE's *Windows* brochure for more information.

<http://www.mge.com/images/PDF/Brochures/residential/Windows.pdf>

## Home repair and low-income weatherization assistance

The Wisconsin Division of Energy provides free weatherization services to eligible households to reduce energy costs and save energy. Eligibility for weatherization services is not limited to homeowners. If you rent or live in a mobile home, duplex or apartment building, you may be eligible. Assistance is also available for some home repairs.

For more information, call 1-866-HEATWIS (432-8947).

If your income is too high to qualify for free help, call Focus on Energy at 1-800-762-7077 and ask about Enhanced Rewards.

## Look for this symbol when you shop



ENERGY STAR® labeled products use less energy than other products. They reduce your energy costs and help to protect the environment. We're an ENERGY STAR partner. Learn more about qualifying products at [energystar.gov](http://energystar.gov) or call the MGE Home Energy Line at 252-7117.

## Home Performance with ENERGY STAR

***focusonenergy.com***

Home Performance with ENERGY STAR can help increase comfort and decrease energy bills. Plus, get cash back for making energy improvements. It's offered by Focus on Energy, a statewide initiative to improve energy efficiency. MGE is a partner in Focus on Energy. A trained Home Performance consultant evaluates your home for a fee. The consultant discusses the evaluation and makes recommendations for energy-saving improvements.

Have questions? Call Focus on Energy at 1-800-762-7077 or go to [focusonenergy.com](http://focusonenergy.com).

## Home Energy Saver

***homeenergysaver.lbl.gov***

Use an online home energy audit to calculate your energy use and identify the best ways to save money. The Home Energy Saver was developed by Lawrence Berkeley National Laboratory. It is part of the national ENERGY STAR program to help improve energy efficiency in homes.

## **listening. learning.**

MGE takes responsibility to provide information and education to serve our customers and stakeholders. We educate customers today to help inform their decision making. We educate tomorrow's stakeholders so they can help plan our energy future.

Properly applied, shrink-film plastic window insulator kits not only stop drafts but provide another layer between you and the outdoors.

Working together we can make a difference.

Contact us for information about:

- Heating/Air-conditioning.
- Insulating/Weatherizing.
- Lighting.
- Windows/Doors.
- Appliances.
- Water heating.

Get more home energy information at:

- [mge.com/home](http://mge.com/home).
- Home Energy Line 608-252-7117.
- 800-245-1125.

Questions about billing? Call:

- 608-252-7222.
- 800-245-1125.

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**your community energy company**