



DO-IT-YOURSELF GUIDE

Saving money on home heating

With this handful of affordable projects, any homeowner can save significant money on home heating expenses. In developing this brochure, the Governor's energy office consulted with expert energy auditors who have worked for years on Maine homes. Their experience tells us the vast majority of homes in Maine will benefit from the projects in this brochure.

Inside

Easy-to-follow instructions for weatherizing

- Windows and doors
- Walls
- Attics
- Basements

Important weatherizing considerations:

- As much as **60% of heat loss in the typical Maine home comes from cold air *leaking* into the house.**
The first step in winterizing your house is to seal those cracks and plug those holes; then we'll look at a couple of places where you can *insulate*.
- When adding insulation to your house, **look for the areas that have the *least* insulation**, like basement walls and windows.
- Always follow the safety instructions.

Produced by the Governor's Office of Energy Independence and Security
22 State House Station
Augusta, ME 04330
207-287-8927
www.maine.gov/oeis

Text by Ian Burnes. Illustrations by Dale McCormick. Design by Technical Support, Inc.

Sealing Leaks

You can seal most leaks in a few hours with just a few tools and common materials you can find at most hardware stores, lumberyards, or large department stores. Use high-quality materials to ensure durable and effective leak seals.

Caulk and Spray Foam

Caulk fills small cracks and holes. A caulk gun dispenses the caulk. You'll need pure silicone caulk around areas subject to high heat (like lights, vents, and chimneys). Siliconized latex or acrylic caulk can be used in other areas. Foam sealant can fill larger holes and gaps. It is normally sold in pressurized cans. Be careful: it sticks well to most surfaces—including your hands. Around windows and door frames, be sure to use non-expanding foam.

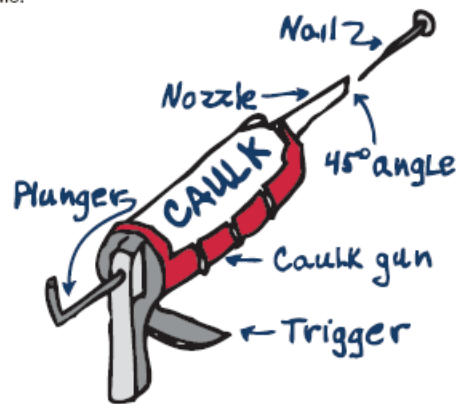


figure 1

Rope Caulk

Rope caulk provides a temporary seal around windows and doors that won't be opened. It can be removed easily in the spring and stored in a plastic bag for next year. To fill larger gaps, use several strands twisted together.

Door Sweep

Made of either vinyl or aluminum, sweeps are a form of weatherstripping that seals the bottoms of doors to unheated areas.

Weatherstripping

There are many types of weatherstripping. V-strip weatherstripping works well around the movable parts of doors and most of the older windows you might have to open. For double-hung windows, raise the lower sash as high as it will go; cut the v-strip so that when it is stuck to the jamb as shown in figure 2, its top is higher than the top of the sash.

Clear Plastic

Clear plastic can safely seal and insulate windows when installed on the outside.

Sealing Windows and Doors

Windows

For indoor caulking, a clear acrylic or siliconized latex caulk is good for sealing the gap between the wall and the window trim. These caulks are durable and easily painted. Rope caulk can be a temporary alternative to weatherstripping for sealing gaps around storm windows or sliding windows and in other areas where weatherstripping is not easily applied.

“You can seal most leaks in a few hours with just a few tools...”

Six-millimeter clear plastic is easily added to the outside to reduce leakage, and it also adds an insulating layer to your window. Once the plastic is stretched tightly over the window, it's held in place by lath nailed with five- or six-penny nails—double-headed nails allow easy removal in spring and reuse next winter. If you're covering a leaky storm window, pad the corners with rags so the plastic won't rip.

Low-cost tip: Windows:

Something as simple as painter's masking tape will also seal a window up. The painters tape is designed with a lighter adhesive to reduce the chance of pulling up paint when the tape is removed.

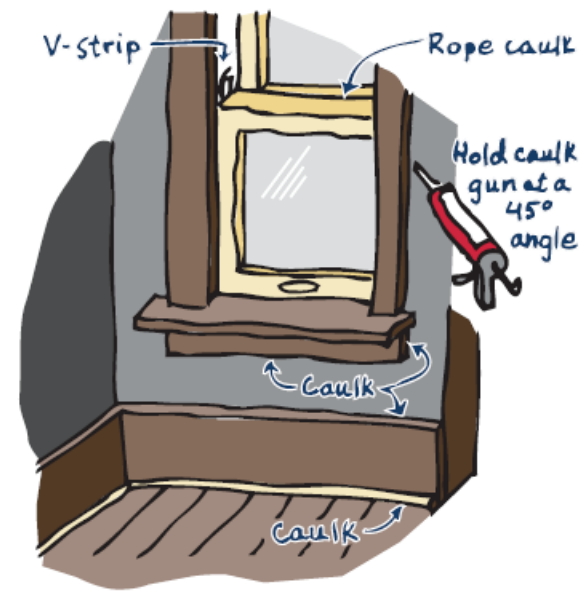


figure 2

Sealing Attics

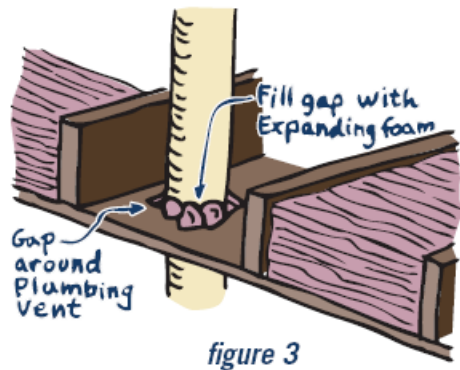


figure 3

Attics are among the worst culprits for air leakage. Time spent here can be more profitable than time spent in any other area in your home. If your attic is accessible, eliminate leaks inside the attic as well as from the ceiling below. Seal and insulate all ductwork in the attic and crawlspaces. Check the tops of partitions and end walls, and look closely around chimney and vent penetrations. From

below, in the living area, look for cracks

in the ceiling, recessed lights, and gaps around molding and drywall. Look for dirty insulation, which could mean air flowing into the attic.

- Choose a day that is not too cold and not too hot for your work in the attic. A hard hat, boards to walk on, a face mask, a flashlight, protective clothing, gloves, and safety glasses are essential.
- The gap where the furnace or water-heater flue or chimney enters the attic can be a major source of air leakage. A collar of sheet metal, sealed with caulk, can seal large gaps around the chimney. Use high-temperature silicone caulk around chimneys. (Because the pipe gets hot, building codes usually require 1 inch of clearance between metal flues—2 inches from masonry chimneys—and any combustible material like fiberglass or cellulose insulation.)
- Put expanding foam around plumbing stacks.
- Pay special attention to the holes where ducts go through the attic floor. Seal these with expanding foam.
- If necessary, use a broom to temporarily brush aside insulation, exposing any other cracks or penetrations through end walls and partition walls. Use caulk and plastic to seal these.

“Attics are among the worst culprits for air leakage.”

Attic Hatch

Take special care with the attic door or hatch, **the most important door in your house to weatherstrip!** Follow the same procedure used in weatherizing your exterior doors. Seal all four sides. You can use v-strip or rope caulk, but we recommend self-adhesive foam weatherstripping. To ensure a tight seal, add a hook-and-eye latch: position the screw eyes so the weatherstrip is slightly compressed when the hooks are latched. Finish the job by cutting a piece of fiberglass or rigid foam board insulation the same size as the attic hatch and nail or glue it to the back. Do not compress fiberglass insulation or it will lose some of its insulating value.

If you have pull-down attic stairs or an attic door, seal it in a similar manner: weatherstrip the edges and put a piece of rigid foam board insulation on the back of the door. Treat the attic door like a door to the outside. Pre-made insulated attic stair covers are also available from local home-improvement centers or on the Web.

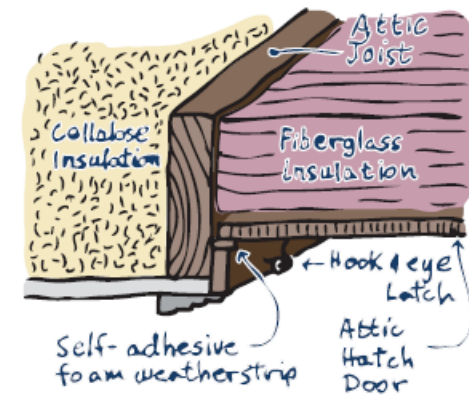


figure 4

Ducts

Ducts are the tubes that carry hot air from the furnace. Be sure the ducts are clean and dry. Seal the seams of the ducts where air might leak. Use a high-quality silicone caulk or aluminum tape.

Leaky and poorly insulated ducts (especially in attics) will hurt the performance of your furnace. Check the duct connections for leaks by turning on your heating and cooling system fan and feeling for leaks—then seal the joints with foil tape.

Ducts should also be insulated after you seal the holes. Use duct insulation material rated at least R-6. (R-ratings are on the packaging.)

Sealing Basements

Many of the air leaks in a basement can be found near the rim joists. You might also spot cracks when it's light outside and darker in the basement. Check around basement windows, plumbing penetrations, gas lines, and dryer vents. Make sure the outside flapper on your dryer vent closes and is not held open by lint. If you have basement moisture problems, be sure to take care of them before sealing leaks.

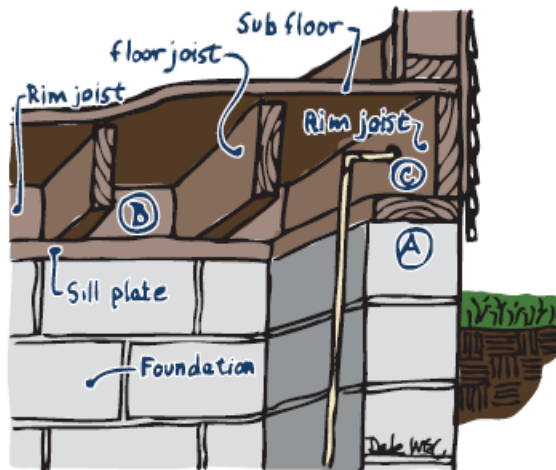


figure 5

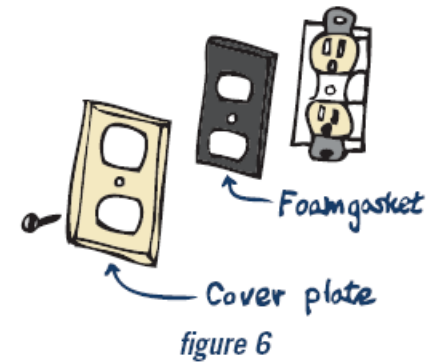
Clean and caulk wherever air leaks in. Near the rim joist, caulk the joint where the wood sill plate meets the foundation wall (A), along the top and bottom edges of the rim joist (B), and where pipes and wires enter (C). Butyl rubber or pure silicone caulk will provide good elasticity, adhesion, and durability in these spots. Expanding foam can fill larger cracks.

Basement Insulation

A lot of heat is lost through the basement walls and rim joist (B). In fact, a **concrete block wall has about the same R-value as a single pane of glass**. If you plan on heating your basement, insulate the walls, from either the inside or the outside. Use either fiberglass or extruded polystyrene foam to insulate your inside basement wall. The rim joist or band joist (B) area should be insulated with 6-inch (R-11 to R-19) fiberglass batts. Cut the insulation slightly larger than the width of the joist space for a tight fit. Try not to compress the insulation.

Walls

Places to caulk include electrical, phone, TV antenna, and plumbing penetrations, as well as along the baseboard where trim, drywall, and flooring come together (see figure 6). Use a clear or paintable caulk if you're sealing within the living area.



Foam gaskets seal switches and outlets if they're not paint-sealed to the wall.

Brought to you by:



Providing research-based information on saving money through energy conservation and alternative energy sources

www.extension.umaine.edu/energy



Offering low fixed rate mortgages and energy improvement loans, home weatherization, and fuel assistance

www.mainehousing.org

No-cost tips... Leaky Foundations:

One simple way of insulating the foundation is to use all those bagged leaves in the fall. Instead of bringing them to the landfill, stack the bags against the foundation.

Basement Windows:

Take a cardboard box and cut it into squares that will fit snugly into the window opening. Wrap three or four of the cardboard squares in fabric or duct tape and tap them into place.