



Maintaining the Home

Weatherize Your Home —Caulk and Weather Strip

Maintaining the Home: Weatherize Your Home—Caulk and Weather Strip

Caulking and weather stripping can be used to help lower your cooling and heating costs.

Warmed or air-conditioned air mixes with outside air through gaps in your home's thermal envelope—exterior walls, windows, doors, floors and the roof. These gaps or leaks waste large amounts of energy.

Most experts agree that caulking and weather stripping any gaps will pay for itself within one year in energy savings. Caulking and weather stripping also will alleviate drafts and help your home feel warmer when it's cold outside. However, these two weatherization techniques can't replace the need for proper insulation throughout your home.

Assessing air quality

Because caulking and weather stripping limit indoor-outdoor air circulation, you should assess your indoor air quality before you apply them. Some homes contain dust, mold, carbon dioxide and other indoor air contaminants. Sealing air leaks in these homes without proper ventilation also can seal in their indoor air pollutants. Any plan to tighten the thermal envelope of a home should include a look at your home's ventilation needs.

Detecting air leaks

You may already know where some air leaks occur in your home, such as an under-the-door draft that makes you want to put on socks. But you'll

probably need to search to find the less obvious leaks.

Look at areas where different materials meet, such as between brick and wood siding, between foundation and walls, and between the chimney and siding. Also inspect around the following for any cracks and gaps that could cause air leaks:

- Door and window frames
- Mail chutes
- Electrical and gas service entrances
- Cable TV and phone lines
- Outdoor water faucets
- Where dryer vents pass through walls
- Bricks, siding, stucco and foundation
- Air conditioners
- Vents and fans.

Depressurize your home to help detect leaks. On a cool, very windy day, turn off the furnace. Shut all windows and doors. Turn on all fans that blow air outside, such as bathroom fans or stove vents. Then light an incense stick and pass it around the edges of common leak sites. Wherever the smoke is sucked out of or blown into the room, there's a draft.

If you would like to leave your furnace on, you can turn on your exhaust fans and try one of these methods:

- At night, shine a flashlight over all potential gaps while a partner observes the house from outside. Large cracks will show up as rays of light. However, this is not a good way to detect small cracks.
- Shut a door or window on a piece of paper. If you can pull it out without tearing it, energy is being lost.

For a more thorough and accurate measurement of air leakage, you can hire a technician to conduct a blower door test in your home. Blower doors are variable-speed fans with a frame and shroud that allows them to fit inside a variety of doorframes. Pressure gauges determine airflow through the fan, as well as fan-induced pressure. The more leaks in a house, the more airflow required to create a pressure difference. When used as a diagnostic tool, a blower door also can reveal the location of many leaks.

Caulking

Selection

You can use caulking to seal leaks in a variety of places throughout your home, including around windows and doors. In addition to plugging air leaks, caulking also can prevent water damage inside and outside your home when applied around faucets, ceiling fixtures, water pipes, drains, bathtubs and other plumbing fixtures.

Caulk forms a flexible seal for cracks, gaps or joints less than 1 quarter-inch wide. Most caulking compounds come in disposable cartridges that fit in half-barrel caulking guns (if possible, purchase one with an automatic release). Some pressurized cartridges do not require caulking guns. When deciding how much caulking to purchase, consider that you'll probably need a half-cartridge per window or door and four cartridges for the foundation sill. Caulking compounds can also be found in aerosol cans, squeeze tubes and ropes for small jobs or special applications.

Water-based caulk can be cleaned with water, while solvent-based compounds require a solvent for cleanup. Caulking compounds also vary in strength, properties and prices.

Application

Although not a high-tech operation, caulking can be tricky. Read and follow the instructions on the compound cartridge. Save yourself some trouble by remembering a few important tips:

- Clean all areas to be caulked for good adhesion. Remove any old caulk and paint, using a putty knife or a large screwdriver. Make sure the area is dry so you won't seal in moisture.
- Hold the gun at a consistent angle. Forty-five degrees is best for getting deep into the crack. You know you've got the right angle when the caulk is immediately forced into the crack as it comes out of the tube.
- Caulk in one straight continuous stream, if possible. Avoid stops and starts.
- Send caulk to the bottom of an opening to avoid bubbles.
- Make sure the caulk sticks to both sides of a crack or seam.
- Release the trigger before pulling the gun away to avoid applying too much caulking compound. A caulking gun with an automatic release makes this much easier.
- If caulk oozes out of a crack, use a putty knife to push it back in.
- Don't skimp. If the caulk shrinks, reapply it to form a smooth bead that will seal the crack completely.

Weather Stripping

Selection

Weather stripping can seal leaks around movable joints, such as windows or doors. You need to

choose a type of weather stripping that will withstand the friction, weather, temperature changes and wear associated with its location. For example, when applied to a door bottom or threshold, weather stripping could drag on carpet or erode as a result of foot traffic. Weather stripping in a window sash must accommodate the sliding of panes—up and down, sideways or out. The weather stripping you choose should seal well when the door or window is closed while allowing it to open freely.

Choose a product for each specific location. Felt and open-cell foams tend to be inexpensive, susceptible to weather, visible and inefficient at blocking airflow. However, the ease of applying these materials may make them valuable in low-traffic areas. Vinyl, which is slightly more expensive, holds up well and resists moisture. Metals (bronze, copper, stainless steel and aluminum) last for years and are affordable. They also can provide a nice touch to older homes where vinyl might seem out of place. You can use more than one type of weather stripping to seal an irregularly shaped space. Take durability into account when comparing costs.

To determine how much weather stripping you will need, add the perimeters of all windows and doors. Then add 5 to 10 percent to accommodate any waste. Also take into consideration that weather stripping comes in varying depths and widths.

Application

Weather stripping supplies and techniques range from simple to the technical. Consult the instructions on the weather stripping package. Here are a few basic guidelines:

- Weather stripping should be applied to clean, dry surfaces in temperatures above 20° F (-7° C).
- Measure the area to be weather-stripped twice before you cut anything.

- Apply weather stripping snugly against both surfaces. The material should compress when the window or door is shut.

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/>.

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

Interior Maintenance

Preventive Home Maintenance Checkup
Make a Basic Toolkit for Simple Home Repairs
Selection and Use of Home Cleaning Products
Discovering the Secrets of Successful Storage

Heating

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

Electrical

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

Appliances

How to Buy an Energy Efficient Home Appliance
Choosing a Water Heater

Maintenance:

Dishwasher Care and Dishwasher Cleaning
Dryer Care and Dryer Cleaning
Freezer Care and Freezer Cleaning
Garbage Disposal Care and Cleaning
Range and Oven Care and Range Cleaning
Refrigerator Care and Refrigerator Cleaning
Small Electrical Appliance Care and Cleaning
Washer Care and Cleaning

Flooring

Buying new carpet
Carpet Care and Cleaning
Wood Floors Care and Cleaning
Ceramic Tile Floors Care and Cleaning
Vinyl Floor Coverings Care and Cleaning

Walls

Selecting and Applying Paint
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

Home Safety

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

Conservation

Weatherize Your Home
Easy Tips to Save Money and the Planet
How to Stop Air Leaks Around Windows
Energy-Efficient Heating and Cooling
Indoor Water Conservation Tips
Outdoor Water Conservation Tips

Environment Issues

Green Building
Reduce-Reuse-Recycle: Alternatives for Waste Management
Create a home recycling center
Healthy Indoor Air for New Mexico Homes
Dealing with Mold
Household Hazardous Waste
Hazardous Household Substances: Alternatives That Are Relatively Free of Toxic Effects
Radon

Pest Control

Cockroaches and Their Control
Southwest Insects

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Update your home for a lifetime of living
Vision Loss & Hearing Loss
Hand Dexterity, Strength and Range of Motion
Cognitive Difficulties
Mobility Impairments, Balance and Coordination

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