

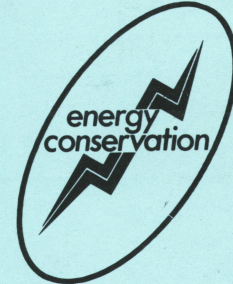


University of Idaho  
College of Agriculture

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# Weather Stripping and Caulking



The time and money you invest in weather stripping and caulking windows and doors can pay off faster than almost any other home improvement you can make, even when your house is already well insulated. From 15 to 60 percent of the heating or cooling your house needs is caused by air exchange. Warming the air that leaks into the house in winter, or cooling the air that leaks into it in summer, takes energy and costs you money. Besides keeping out moisture, wind and hot or cold air, weather stripping will block entry to dust and noise, resulting in a cleaner, quieter home. Both weather stripping and caulking are easy, economical, do-it-yourself jobs.

## Weather Stripping Doors and Windows

Weather stripping may be purchased by the foot or in handy kits complete with the seal and fasteners for a single door or window. Installation instructions and diagrams are provided on most weather stripping packages. Some weather seals are surface mounted and visible, while others are concealed when the door or window is closed. They may be made of a variety of materials.

**Self-Adhesive Foam Tapes** — These come in high-grade resilient sponge rubber or vinyl with paper or vinyl backing in thicknesses up to  $\frac{3}{8}$ -inch and widths up to  $\frac{3}{4}$ -inch. The backing is peeled off as the tape is pressed in place on the door and window jambs, stops or sash. Surfaces must be clean and dry, and the tape should be applied at room temperature for best adhesion. These are low cost and easy to install. Foams tend to deteriorate, however, when exposed to weather and may last only one season.

**Felt Weather Strip** — This low cost material is available in various widths and thicknesses. Fasten the strip to wood by tacking or stapling and to metal with a good adhesive. The strip must be applied to

door stop, sill or sash so it fits snugly against the other member. It is easy to apply but tears easily during use and is not as effective when wet.

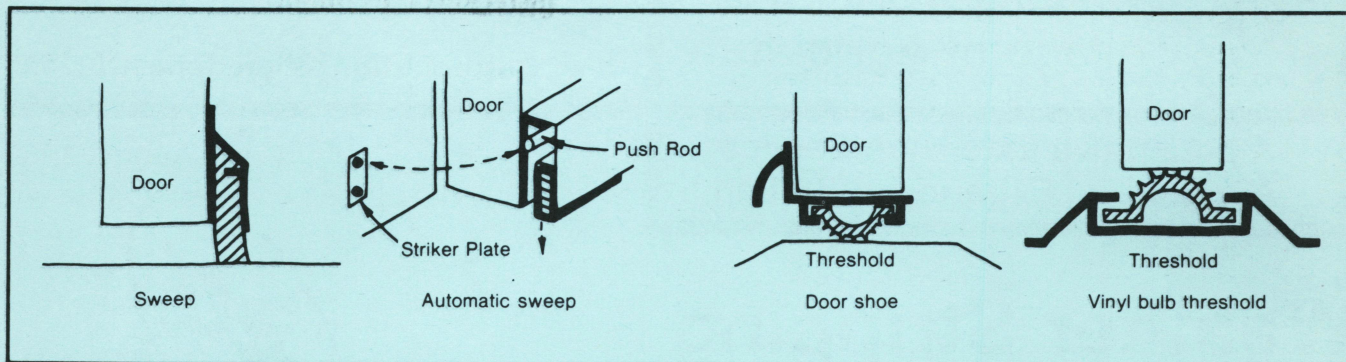
**Aluminum and Felt Strip** — An aluminum strip crimped to a thin, felt strip provides added strength for tacking and holding to door jambs and window stops. It can be used for round-top doors. The felt may tear during normal use, especially on doors and the felt is not as effective when wet.

**Vinyl Weather Strip** — This general-purpose moisture and temperature resistant strip is easily applied to wood or metal with tacks, staples, screws or a good commercial adhesive. It is tube-shaped for a tight fit, with an extended strip for stapling or bonding to door and window jambs, stops or sash. It is easy to apply and is durable.

**Sponge Rubber Neoprene-Coated Strip** — This round, high-quality, durable, sponge rubber strip has a spring steel reinforced strip for attachment. It provides exceptional holding strength when tacked or stapled. For bottom of a door, fasten it to the door; for sides, fasten it to the door jamb. It also can be used on windows by fastening to appropriate frame, stop and sash. It's easy to install.

**Bronze Weather Strip** — This thin bronze strip comes in various widths with one side flared out. After tacking it to a door jamb and closing the door, the strip presses against the flared side making a tight fit. It is also used for casement windows. It is not suitable for double-hung windows except at top and bottom. It is low cost, easy to install, durable and not affected by moisture or temperature.

**Door Bottom Strip** — A brass-plated steel strip is crimped to a felt or vinyl strip. Fasten it to the lower edge of a door with screws or small nails. It is easy to apply. The vinyl is more durable. The felt tears easily and is not as effective when wet.



**Thresholds** — A more attractive method of wind-proofing the bottom of a door is with a threshold. While most thresholds are effective at cutting down wind infiltration, the average homeowner may find them difficult to install.

A popular threshold is an **aluminum model with a flexible vinyl "bulb."** When new, this threshold is effective. Under constant use, however, the bulb soon collapses, leaving a sizable crack beneath the door. In most cases, the vinyl is replaceable.

Though not the easiest type to install, the **combination vinyl door bottom and aluminum threshold** is long-wearing and provides effective weather-proofing. Since the vinyl is mounted in an aluminum extrusion fastened to the door, the aluminum threshold bears the brunt of wear.

**Weather Strip and Caulking Cord** — Five or six caulking cords come in a strip for sealing cracks in windows, doors and around room air conditioners. Apply it by pressing in place. The cord stays pliable and adheres to any surface. It is low cost, easy to apply, durable and is not affected by moisture.

**Fiber Glass Insulation Strip** — This insulation strip comes in various sizes and is used with waterproof tape for closing large cracks around basement and garage doors, windows and other cold air leaks. Also, you can wrap it around hot water pipes for insulation.

**Sponge Rubber Door Bottom Seal** — Mainly for garage doors, this seal is a blend of high-quality sponge rubber that stays flexible at extremely low temperatures. Apply it to the bottom of the door with the wide lip outside; if the garage floor is lower than the driveway, the wide lip is applied inside.

**Door Bottoms** — Door bottom weather stripping is available in several materials. While easy to apply, these products can interfere with door swing and require a reasonably level threshold beneath the door. Only simple handtools are required to install any of these door bottoms. After cutting to size with a hacksaw or tin snips, the door bottom is surface mounted to the inside of the door using wood screws normally provided by the manufacturer.

A fairly new innovation in weather stripping is the mechanically operated "automatic" door bottom. In this model, a vinyl seal is automatically lowered against the floor when the door is shut. The seal retracts when the door is opened.

**Waterproof Weather Strip Tape** — This self-sealing, transparent, durable polytape will seal cracks in any location. Apply it by pressing to a clean, dry surface. For windows, apply the tape half on the stop and half on the sash.

**Air Conditioner Weather Strip** — This rectangular polyfoam press-fits between the top frame or lower sash and upper pane to seal off the air spaces between a window and an air conditioner. It is low in cost and easy to install.

## Caulking

Do-it-yourselfers will find many caulking compounds in a wide range of prices. Most materials are packed in cartridges and can be applied easily with a caulking gun. For large jobs, 5-gallon containers of caulking for guns are used. Manufacturers usually print on each cartridge a description of the material, its performance quality and directions for application.

Caulking materials that adhere to wood, glass, metal, plastic and masonry should be selected since these materials expand and contract. Resistance to weathering, cracking, shrinkage, water and mildew are also important. Some manufacturers will state the life expectancy of their product when properly installed inside or outside the home.

High quality caulking compounds with a long life expectancy are generally the most expensive. Assuming that the caulking material is used outside as directed by the manufacturer, you can expect the following years of useful life: silicone — 30; polysulfides, polyurethanes, neoprene, acrylic (solvent release), vulcanized butyl rubber — 20; acrylic-latex, butyl rubber and synthetic caulking compounds — 8 to 10; cheaper caulking compounds — 3 to 5. This is only a partial list and is not meant to exclude any product.

Caulking should not be applied at temperatures below 40°F. It should be installed when temperatures range between 45°F and 55°F. At these temperatures, expansion and contraction at joints are at a midway point.

Surfaces to be caulked should be clean, dry and grease-free. Remove dust, loose particles and old caulking. A steel brush is a good tool for cleaning joints. Refer to the manufacturer's recommendations for caulking large cracks.

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\*Adapted from U.S.D.A. Fact Sheet 2-3-2. Recommended to Idaho residents by Shirley Nilsson, Extension housing and equipment specialist, and Roy Taylor, Extension agricultural engineer, both at the University of Idaho, Moscow.

## Applying Sealing Materials

Follow these pointers for successful application of sealing materials:

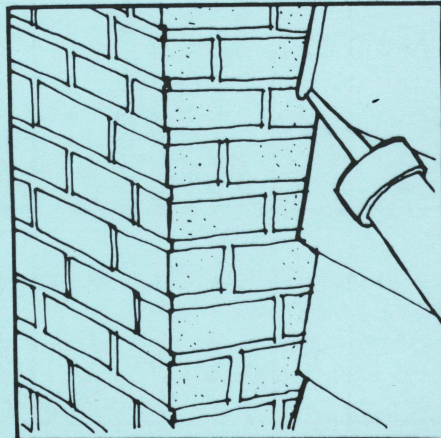
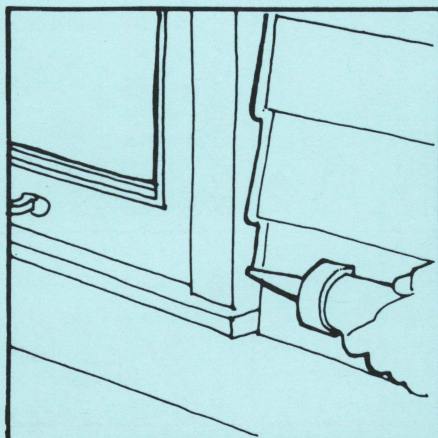
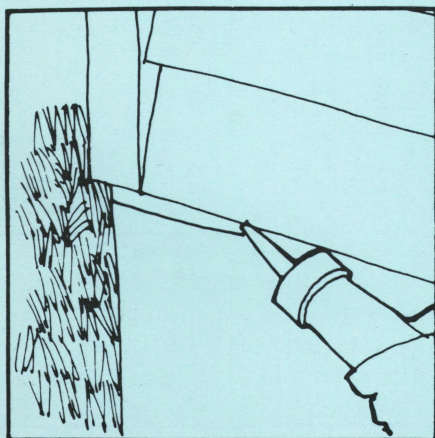
- Remove old, dried sealing materials. Clean area with a solvent to remove grease or other substances that would prevent a tight bond.
- Deposit sealing material at the bottom of the seam so it fills without bubbling.
- Never apply sealing material to a porous surface.
- Prime before application.
- Never skimp. Use enough sealing material to fill the crack or seam.
- If sealing material shrinks during drying, reapply.

## Sealing Cracks and Seams

Sealing exterior cracks and seams is an important part of home maintenance. It reduces entry of air, dirt and moisture into the house and contributes to lower heating and cooling costs.

Among the most important exterior areas of a house requiring attention are:

- Chimney flashing.
- Joints between chimney and siding.
- Joints between eaves and gable molding.
- Joints between windowsill and siding.
- Joints between window sash and siding.
- Joints between window drip cap and siding.
- Joints between windows and masonry.
- Door frames.
- Joints between masonry or concrete parts (steps, porches, etc.) and main part of house.
- Inside corners formed by siding.



## Uses and Properties of Common Sealing Materials

Material	Recommended uses	Cleanup solvent	Shrinkage	Adhesion	Remarks
Silicone household	Seals joints between bath and kitchen fixtures and tile; adhesive for tiles and metal fixtures; seals metal joints as in plumbing and gutters	Dry cloth will remove if area is cleaned up immediately. Use mineral spirits or naphtha	Little or none	Good to excellent	Readily available. Flexibility of cured silicone allows stretch of joints up to three times normal width or compression to one-half the width. Cost: High
Silicone construction	Seals most dissimilar building materials (i.e.; wood and stone; metal flashing and brick)	Same as above	Same as above	Same as above	Remains flexible for life after curing. Permits joints to stretch or compress. Silicones will stick to painted surfaces, but paint will not adhere to cured silicone. Cost: High
Butyl rubber	Seals most dissimilar materials (glass, metal, plastic, wood, concrete), seals around windows and flashing, or bonds loose shingles	Use mineral spirits or naphtha	From 5 to 30 percent	Good	Less resilient than silicones. Allows for joint movement but does not become brittle with age. Can be painted after skin forms. Apply when temperature is above 40°F. Cost: High
Latex	Seals joints around tub and shower; fills cracks in tile, plaster, glass and plastic; fills nail holes	Use water	From 5 to 10 percent	Good to excellent	Easy to use and clean. Seams can be trimmed with moist finger or tool. Good water resistance when dry. Can be sanded and painted. Less elastic than butyl rubber. Cost: Moderate
Oil-base caulk	Seals exterior seams and joints on building materials	Use mineral spirits or naphtha	From 10 to 20 percent	Good	Readily available. Least expensive of the four types. Rope and tube form. Oils dry out and cause material to harden and fall out. Cost: Low

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