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Home Winterization: Weatherstripping

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FS 835

Home Winterization:

Weatherstripping



Cooperative Extension Service
South Dakota State University
U.S. Department of Agriculture

Home Winterization: Weatherstripping

Grace Backman

Extension housing specialist

Fill the cracks around windows and doors in your house. It's one of the simplest, cheapest, and easiest things you can do to reduce winter heat loss or summer heat gain. It's also one of the easiest jobs to overlook.

Good weatherstripping of all doors and windows can reduce the heating energy needed in your home, old or new, by as much as 40%. There's another advantage—less dust and dirt sifting into the house.

What is weatherstripping?

Weatherstripping provides a weathertight seal between the rigid frame and movable part of a door or window. It can be metal, fabric, or plastic. There is a wide variety of weatherstripping in the stores; type depends on purpose, and price usually depends upon how many seasons the product will last.

The presence and quality of weatherstripping are good indicators of a new house's overall construction quality and an older house's maintenance. But don't expect weatherstripping to be eternal. Even the most permanent installation should be checked once a year. Weatherstripping does wear out and houses do shift and settle.

Do I need weatherstripping?

Sure you do. Probably at all outside doors and windows. There's a need for weatherstripping inside the house, too, at doors between heated and unheated rooms and doors to attics and to basements. Of course you won't forget your basement windows. The mail chute. The garage door.

Can I weatherstrip?

Sure you can. Only a very few weatherstripping jobs (for example, an interlocking system on a door threshold) need an expert. For most jobs you will probably need no more than a hammer, tin snips or scissors, nails, screwdriver and screws, tape measure or yardstick, and the weatherstripping.

What do I do first?

Survey the house. Can you feel little gusts of wind around doors and windows? Does the door or window hum a bit when the wind blows?

If the wind isn't cooperating, take a fan or hair dryer outside and have someone check for drafts on the inside. Or at night, use a flashlight outside and your helper can watch for light along the door and window edges.

Now list all the different places that need weatherstripping. The kind of space dictates the kind of weatherstripping needed. Where there's compression but no side-to-side movement between two surfaces, a less durable material can be used, such as felt or self-adhesive strips. Where there is much movement or rubbing, a more durable weatherstripping installed with nails or screws is needed. For warped or uneven gaps, a foam strip works well.

If doors and windows don't fit properly, if they are warped or uneven, the weatherstripping may not be able to fill all the cracks. You may have to adjust door hinges, other hardware, and sand or plane to leave narrow, somewhat uniform cracks. If windows are badly rotted, don't weatherstrip before you replace the entire window unit first.

Weatherstripping comes either in kits for individual windows or by the running foot. It is most economical to make a list of all openings, measure them, and total the length of weatherstripping needed. Allow for some waste.

If you buy a kit, make sure it is intended for the particular door or window type and size.

What do I have to choose from?

Different situations call for different types of materials. Most of us prefer to use spring metal, tubular gasket, or pressure sensitive adhesive backed foam (Fig 1). There are also many other kinds.

While generic directions are included in this fact sheet, follow the manufacturer's specific directions carefully to avoid spoiling your investment. Deformed or mistreated weatherstripping is as bad as none at all.

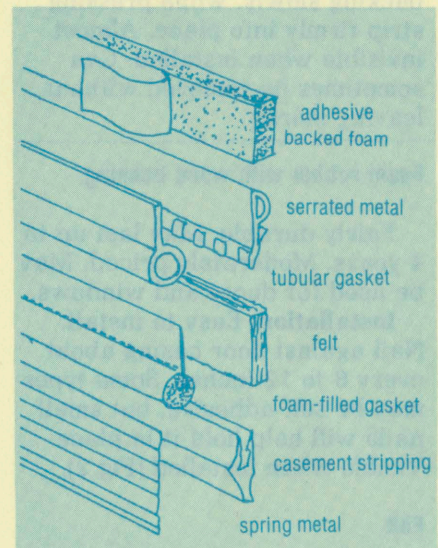


Fig 1. You have a wide choice of weatherstripping materials; these are some of the more common ones. Which one you choose depends on where you will put it.

Choosing the proper weatherstripping requires a comparison between types, noting the durability, ease of application, specific use, appearance, and cost. Some materials are surface mounted and are clearly visible, while others are covered when the window or door is closed. Some types come packaged in kits complete with the seal and fasteners, while others are purchased as individual items.

Adhesive backed foam

Relatively inexpensive. Available in rubber and plastic. Lasts 1 to 3 years. Available in rolls of various lengths, widths, and thicknesses.

Paint causes foam to lose its flexibility. Best use is for door jambs and tops. A closed cell foam or vinyl is a better insulator (the holes will be next to one another, rather than connected). When worn, foam becomes unsightly.

Installation. Easiest to apply. Use in places with no sliding motion. For double hung windows, use only at top and bottom. Sticks better on warmer days (above 60°F). Apply only to clean, dry surface. Cut to desired length. Remove paper backing slowly, while pressing strip firmly into place. Almost invisible when installed. Can sometimes be removed without leaving marks.

Foam rubber with wood backing

Fairly durable. May last up to 4 years. Moderately priced. May be used for doors and windows.

Installation. Easy to install. Nail against door casing about every 8 to 12 inches. Some types may be self adhesive, but small nails will help hold it in place. Visible when installed (Fig 2).

Felt

The old favorite. Inexpensive. Available in a variety of widths, thicknesses, qualities, and colors. Rubbing and friction

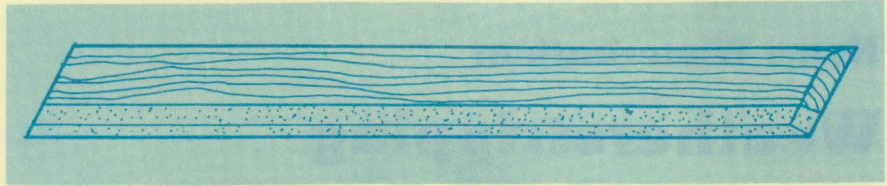


Fig 2. For doors and windows you can buy wood strips with foam attached. Cut to size, if necessary, and nail to frame so

that when shut, the door or window exerts pressure against the foam. Nail, even if strips have adhesive.

shorten its life. May attract dirt or tear easily. Generally lasts 1 to 2 years. Available with reinforced metal strips for longer life. Will compact and condense, then not fit as tightly. Protect from weather for longer life.

Installation. Easy to install. Sometimes available with self-adhesive backing. Most often tacked, glued, stapled, or nailed in place. For double-hung windows, use only on top and bottom, as sliding will wear it thin. Use on the inside of window sashes (Fig 3). Measure and cut. Push the material snugly in place. Loosely tack each end. Beginning at one end, attach firmly. Felt may stretch by the time you reach the other end. If so, trim off excess, anchor tightly. For door installation, attach to the frame so that when

the door closes, there is a snug fit.

Spring metal

Usually found as strips for windows and V-shaped metal for doors. Available in bronzes, copper, stainless steel, and aluminum finishes. Often found packaged in rolls with installation brads. Versatile. Very durable. Will last 8 years or longer. Moderately priced. Useful for doors and windows (Fig 4).

Installation. It may seem simple, but patience helps. Some forms are adhesive backed for peel-and-stick installation, but most are nailed. Strips fit into tracks around windows. The flange edge on either the V-shaped strip or single strip should face the outside. Measure

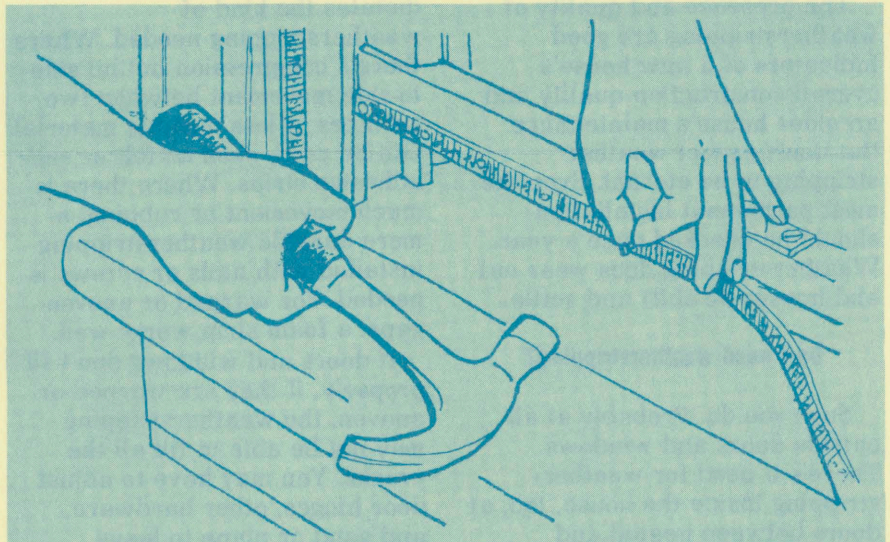


Fig 3. Felt is an old standby, but not as durable as other types. Check and replace, if necessary, every year. It is subject to rubbing and friction, and it will tear easily,

so its use is limited. Some will be self adhesive, but it is better to nail or tack in place.

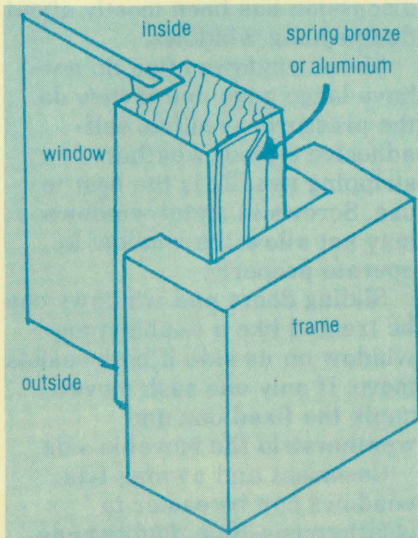


Fig 4. Spring metal strips are popular and come in a variety of colors. They are metal, so be careful when you cut to fit. The point of the V is to the inside.

and cut, using tin snips. Trim around hinges, locks, or other hardware. Fasten loosely on each end and in the center. Install nails as needed, being careful not to drive the nails too deep. Flare out the edge of the strip with a screwdriver to make a tighter fit. Almost invisible when installed. Pre-drilled holes make installation somewhat easier. CAUTION: Sharp edges can cause painful cuts. Wear gloves.

Spring plastic

Usually comes as strips or rolls in a V-shape for doors or windows. Usually self-adhesive, but will last longer if installed with brads. Will last 5 to 8 years or longer. The plastic or vinyl V-strip adheres along one edge, the other edge is folded over to make the V. The pressure of the V trying to open forms a tight seal. Best used on even gaps.

Installation. Easily installed. Nearly invisible when cut to length. Some forms are adhesive backed, but most are nailed for longer life. Fit into side channels of window at top and bottom of sash. Attach one side of the V-strip, fold over the other side to make the V. Many are pre-folded when purchased.

Tubular gasket

tubing with a ¼ to ½ inch lip flange to one side for nailing or stapling into place. Made of flexible vinyl or rubber. Cannot be painted, as it loses flexibility, but comes in colors. Usually applied outside because it conforms to uneven spaces. It is also available as a foam filled tubular gasket for extra strength. May have metal backing on the flange. Generally lasts up to 5 years. Compresses easily for tight seal. Useful for doors and windows.

Installation. Moderately easy to install. Measure and cut strips to fit. Position and drive nail at each end. Space nails every 2 to 3 inches, pulling weatherstripping tight before driving each nail. Install into casing so door closes on tube or into window so that tube edge is down. Visible when installed (Fig 5).

Serrated metal

Usually a felt or vinyl insert running the length of a serrated metal groove (Fig 1). Most often available in rolls with installation brads included. Durable, lasting 3 to 5 years. Vinyl on outside of house may pull away from the window or door in cold weather, or, in very warm weather, stick to moving surfaces. Best used to seal air

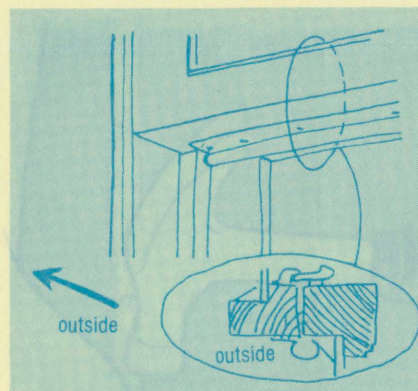


Fig 5. Tubular gasket is easy to snip from a roll and install. Nail on the flange, which may be metal reinforced. Put on casing of door or into window so tube edge is down. It will be visible but will give a tight seal for up to 5 years.

gaps on doors or windows opened often.

Installation. Moderately difficult to install. Measure the length of strips required and cut with tin snips or heavy scissors. Nail each strip at both ends and center. Drive remaining nails every 2 to 3 inches. Visible when installed.

Interlocking metal

Two separate pieces. When closed, they fit inside each other to form the seal. Bent or deformed pieces will not seal and may damage surrounding surfaces. The most expensive kind of weatherstripping. Durable but subject to damage. Excellent seal if working properly. Not suitable for uneven gaps or holes. Best suited for use on doors (Fig 6).

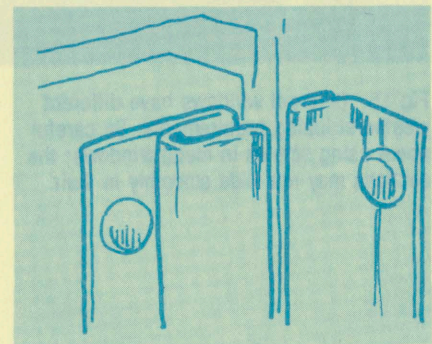


Fig 6. Interlocking metal may be more expensive than other weatherstripping, but it will give an excellent seal if it is installed correctly. It comes in two separate pieces which fit inside each other when the door is closed.

Installation. Requires care, as alignment is critical. Cut and fit strips to head of door first, male strip on door and female strip on head. Then do the hinge side of door, male strip on jamb and female strip on door. On the lock side, attach the male strip on the door and female strip on the jamb (Fig 7). Visible when installed.

Spring tension

Relatively new and popular for windows. Available in bronze, aluminum, brass, rigid vinyl, stainless or galvanized steel, or

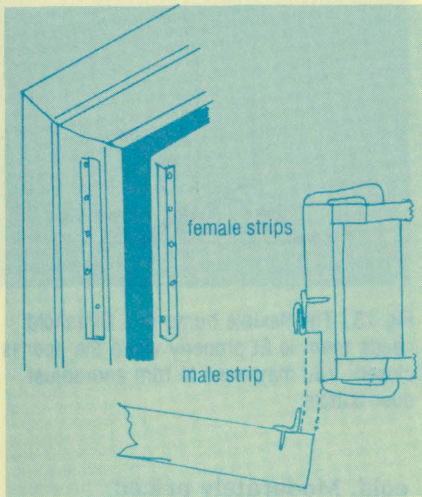


Fig 7. Installing interlocking metal begins with knowing the difference between the two pieces. Read the instructions carefully and follow the sequence of installation.

rigid plastic. Very durable. May be more expensive than other types of weatherstripping. May be packaged in kit for doors. Not suitable for uneven gaps (Fig 8).

Installation. May be difficult. If windows or doors fit closely, then wood planing may be necessary. Put into channels of double-hung windows, unless factory installed. Almost invisible when installed.

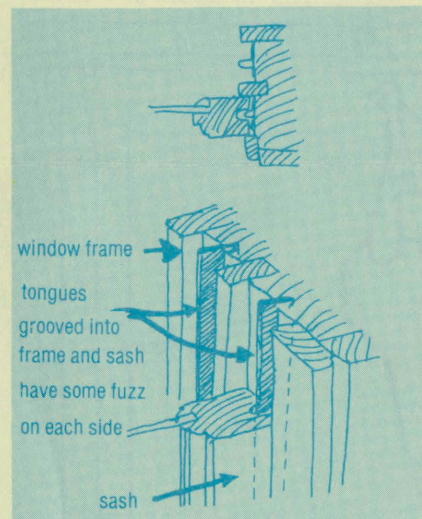


Fig 8. Spring tension weatherstripping also comes in colors, again somewhat unnecessary since it is nearly invisible when installed. Factory-made windows may already have some strips installed.

Especially for door bottoms . . .

Door bottoms have special weatherstripping problems, such as foot traffic and friction from opening and closing many times a day. They require special products (Fig 9).

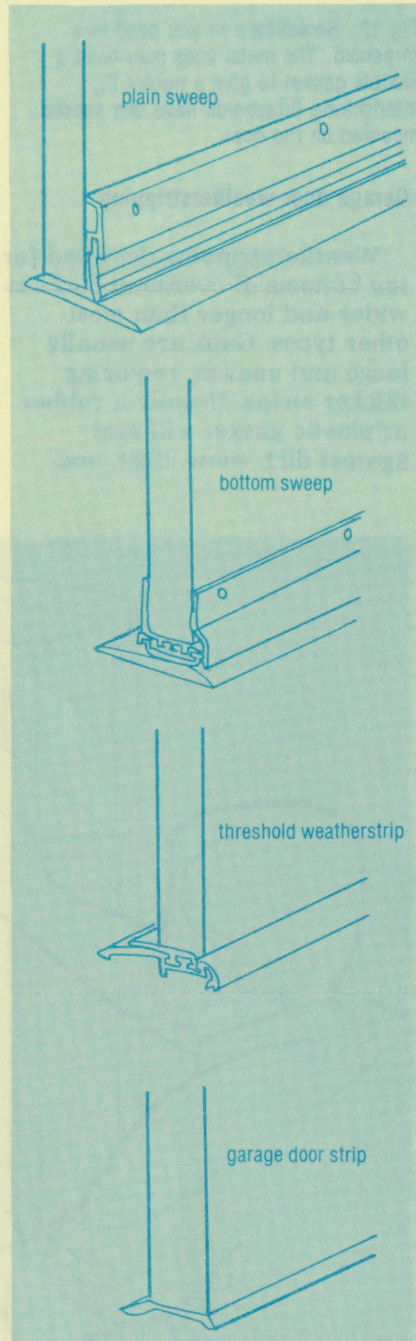


Fig 9. Door bottoms are not to be forgotten, because short doors can let in lots of snow and wind. Pressure from walking and friction from opening and closing create a need for special weatherstripping such as those pictured.

Door sweeps

Felt, metal, vinyl, wood, or rubber sweeps inserted in a metal holder and attached to the bottom edge of the door will form a seal. Some automatic types mechanically drop to seal when the door closes (Fig 10).

Moderately priced. Some with screw holes need readjusting with wear. Suitable for uneven gaps. May drag on carpet or rug. Durable, may last 1 to 2 years. Most useful for flat thresholds.

Installation. Easiest to install. Screw to the face of the door at bottom. Put on outside of doors that swing out, inside of doors that swing in. May be necessary to cut to door size. Some sweeps slide under the bottom of the door and fasten into place. Visible when installed.

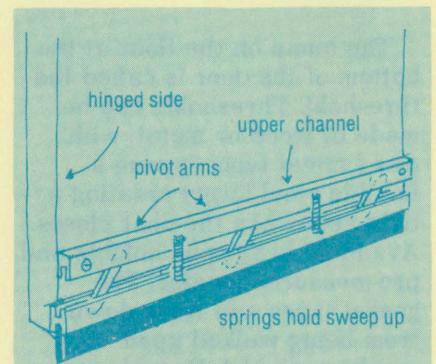


Fig 10. A variation of the door sweep is the automatic one that drops to seal when the door is shut, preventing drag on the carpet or floor. Put on outside of doors that swing out, inside of doors that swing in.

Door shoes

Use with any threshold not worn down in the middle. Usually has foam or vinyl gasket applied with nails or screws, that slips over the bottom of the door and has a drip cap for shedding rain. Very durable. Compresses and seals when door closes. Five-year life expectancy. Moderately priced.

Installation. Door removal necessary to install. Cut to door width. Slide foam or vinyl out

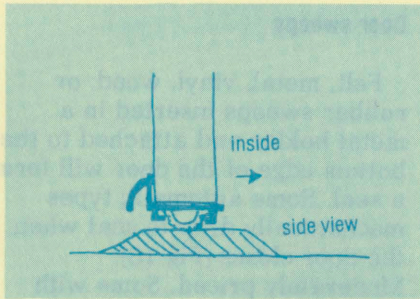


Fig 11. A door shoe requires a gap large enough for it to fit into, so you may have to plane the door first. The gasket is durable and effective if the threshold is not worn down in the middle from traffic.

and fasten metal strip onto door with screws. Slide foam or vinyl back in. Gap under door before installation must be large enough to allow room for shoe (Fig 11). It may be necessary to trim or plane bottom of door.

Thresholds

The hump on the floor at the bottom of the door is called the threshold. Thresholds can be made of wood or metal, with many metal types having a flexible vinyl insert creating a tight seal when the door closes. Available in various heights and pre-measured lengths. The gasket types will wear down from being walked upon; they can be replaced. Durable. Available as bulb or interlocking type. Bulb or gasket form is a flexible hump beneath the door, compressing when the door closes. Interlocking is two-part metal system (Fig 12). One part is a threshold; one part is attached to the door. Interlocking systems may be difficult to find in hardware stores.

Installation. Difficult to install. Interlocking system should be installed by expert. Cut threshold to fit tightly against both sides of door jamb. The flap side should be towards the outside. Screw into place. (Screw holes may be located under the gasket.) Can be used with a sweep for tighter fit. It may be necessary to trim and level door bottom to seal against gasket (Fig 13).

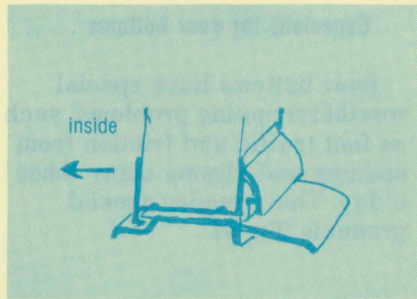


Fig 12. Sometimes all you need is a threshold. The metal ones may have a flexible gasket to give a tighter fit; interlocking thresholds have one section mounted on the door.

Garage door weatherstripping

Weatherstripping designed for the bottoms of overhead doors is wider and longer than most other types. Gaps are usually large and uneven, requiring thicker strips. Usually a rubber or plastic gasket will seal against dirt, snow, dust, and

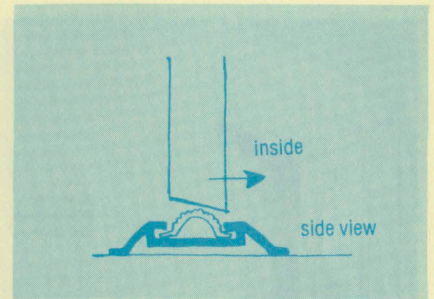


Fig 13. The flexible hump in a threshold needs room to fit properly when the door is closed. You may need to trim and adjust door bottom.

cold. Moderately priced. Durable.

Installation. Easily installed. Paint garage door bottom to seal against moisture. Cut strip to appropriate length. Open door partly and brace it so it doesn't roll away. Fasten with heavy nails so thickened edge of channel is on outside of door (Fig



Fig 14. Garage door weatherstripping is easy to install. Put the thicker edge to the outside. Metal and fiberglass doors come with weatherstripping factory installed, but

it will wear in time. Take a sample with you when you purchase a replacement; there are different types.

14). Should fit tight against floor. Somewhat visible when installed.

Metal and fiberglass garage doors have replaceable gaskets at their bottom edges.

Special cases

Different types of windows (Fig 15) are weatherstripped differently. The previous

discussion has been mostly about double-hung windows.

Metal windows often do not have large gaps, but if they do, the pressure sensitive, self-adhesive type of weatherstripping usually is the best to use. Screws in metal windows may not allow the window to operate properly.

Sliding doors and windows can be treated like a double-hung window on its side if both sashes move. If only one sash moves, caulk the fixed one and weatherstrip the movable side.

Casement and awning type windows can be easier to weatherstrip than double-hung, because their hinges make them more like doors with less friction. Adhesive backed foam applied to the outer surfaces or the stops can do a good job and can be installed quickly.

Jalousie type windows have a special weatherstripping that slips over the edge of each slat of glass. These special gaskets are usually clear vinyl that form a friction fit seal.

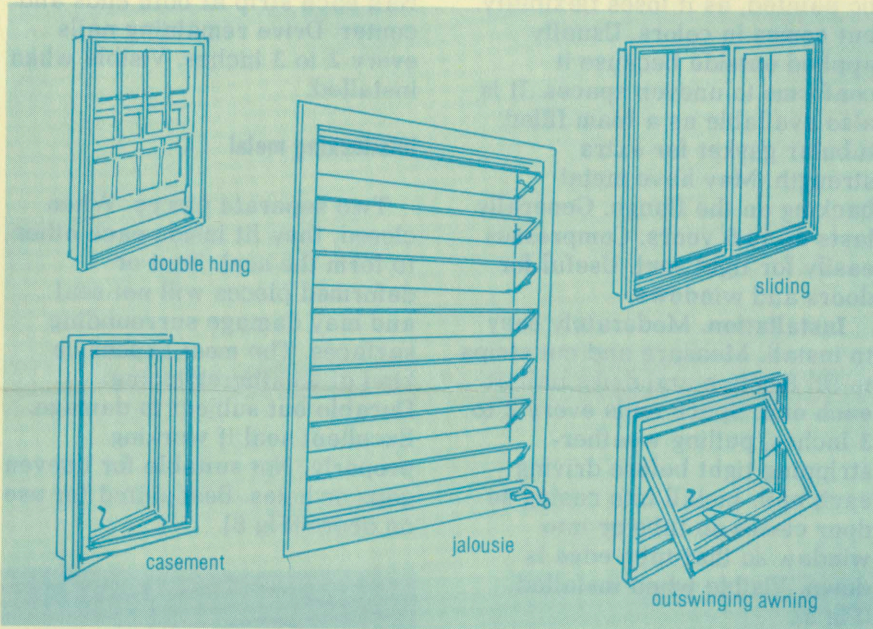


Fig 15. Different windows have different weatherstripping requirements. Be careful about using screws in metal windows; the sections may not slide smoothly in their

channels over screw heads. Most other windows are easier to weatherstrip than the traditional double-hung window, since they function more like doors.

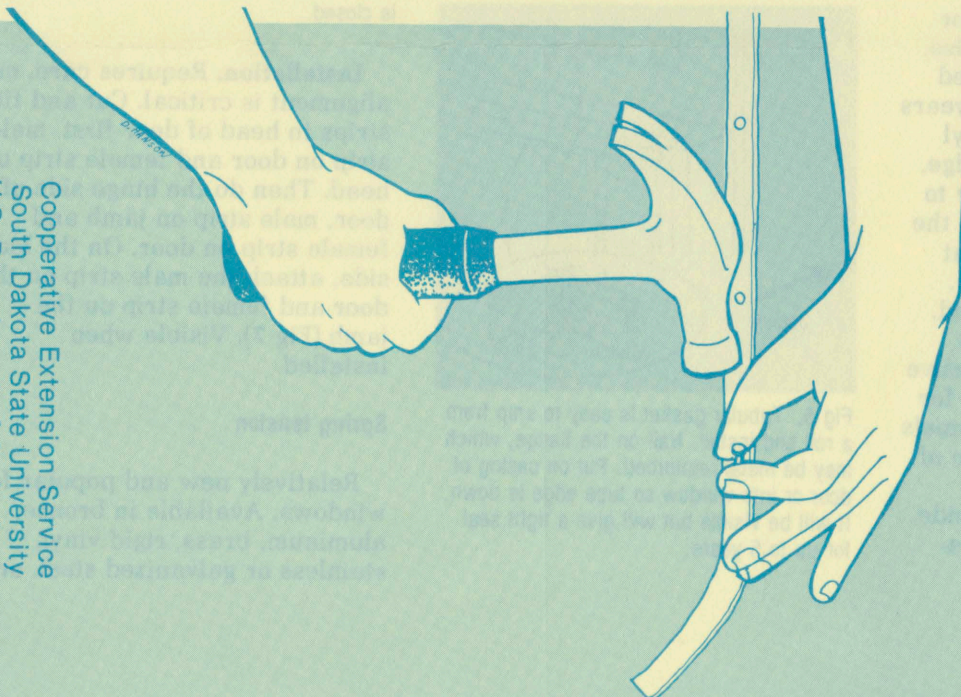
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