CAULKING AND WEATHERSTRIPPING

Extension Bulletin E-1573

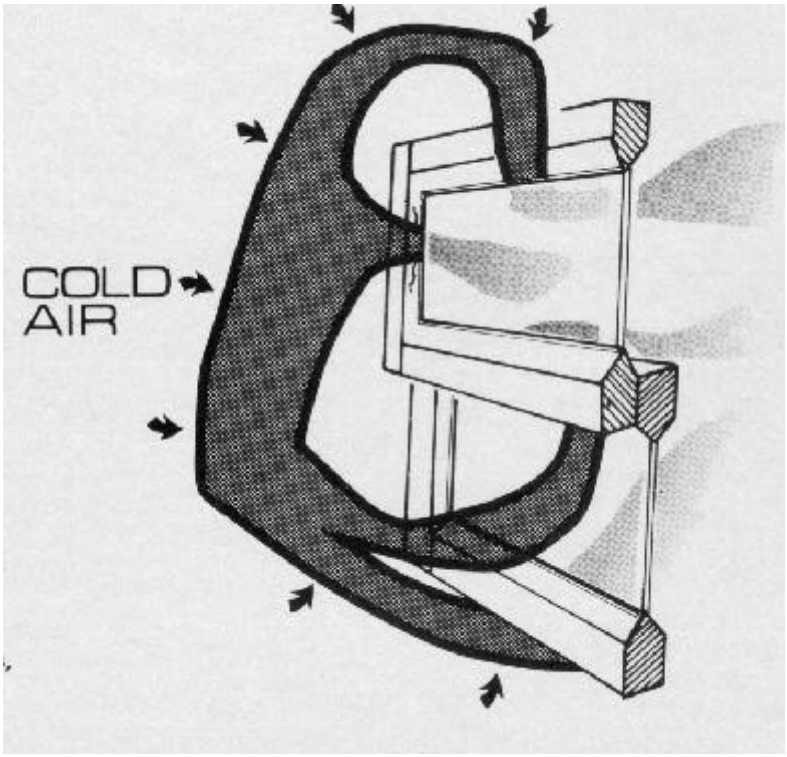
February 1982

By Les Mack and David DuPage Agricultural Engineering, Michigan State University for the Cooperative Extension Service Residential Energy Committee.

Do you leave the windows in your home open all winter long? Of course not, but unfilled gaps and cracks in the foundation, around windows and doors, vents, and so on, may let cold air in the same as leaving a window open.

In fact, a 1/8 inch opening around just two door frames can let in as much cold air as a 12 inch window opened 6 inches all winter long.

Cold air enters your home through cracks and openings by infiltration (drafts) from outside.



In poorly sealed homes this infiltration may result in 3 to 5 air changes in an hour. This means that cold outside air is exchanged with warm air in your home 3 to 5 times every hour. All this cold air then needs to be heated to room temperature. In an average house the air changes may be 11/2 to 3 times per hour. A well sealed home will have from ½ to 1 air change per hour.

It's easy to see that we can save fuel dollars by reducing infiltration. Two methods of reducing infiltration are discussed in this publication; caulking and weatherstripping.

Caulk is used around outside window and door frames, and to fill outside wall and foundation cracks.

Weatherstripping is used around doors and windows.

The money you spend on caulking or weatherstripping is usually recovered in one heating season or less. This one season "pay-back" period means that money for heating fuel is saved equal to or greater than what you spend for caulking and weatherstripping materials.

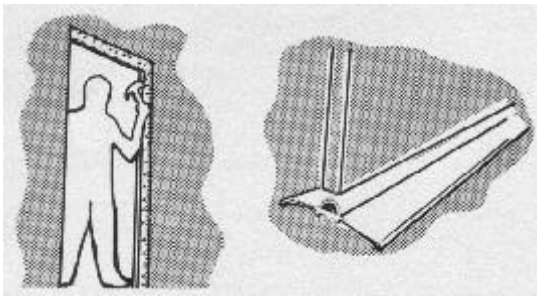
I P- 15M-2 82-DG-UP Price 10 cents Single copy free to Michigan residents

0-13467

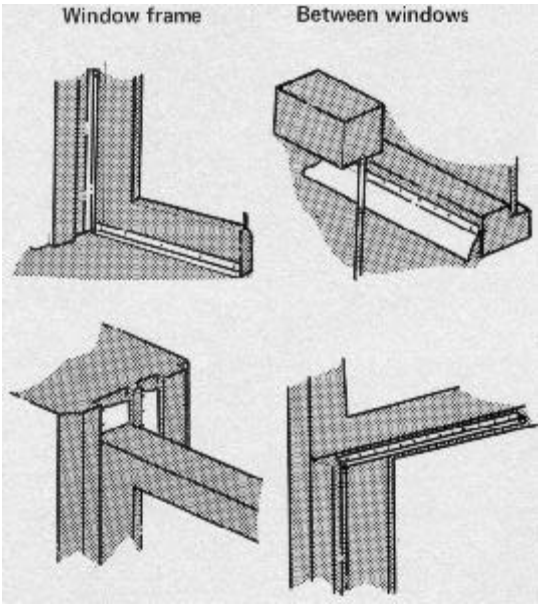
WEATHERSTRIPPING

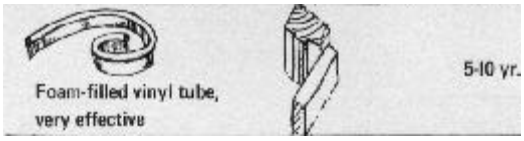
Many different types of weatherstripping materials can be purchased. The table at the right lists some of the more common varieties. You may also find other types where building materials are sold.

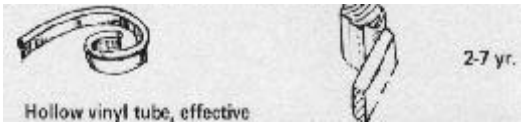
Door weatherstripping is installed on the door frame except for door sweeps and some thresholds.

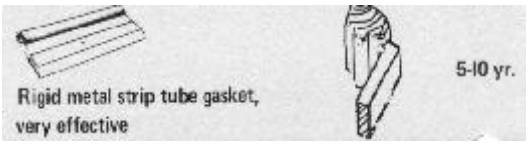


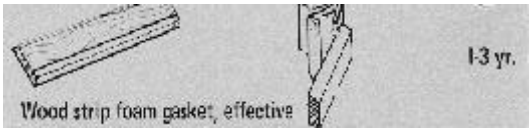
Window weatherstripping is attached to the window frame. On glidding or double hung windows weatherstripping needs to also be installed where the movable and fixed portions meet.

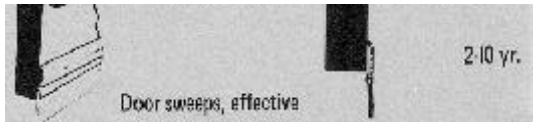


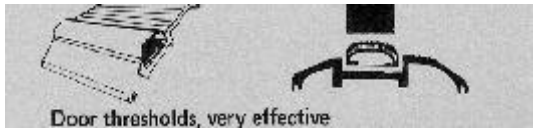












Cost*	Installation Ease	Where Used	Tools	Comments
3.50-7.00	Moderate Measure, cut and nail	Most wood window channels, door frame top and sides	Tin snips, hammer, nails, tape measure	Seals by spring tension. Nearly invisible with proper installation. Good value.
2.50-5.00	Easy installation Measure, cut and nail or staple	Wood window frames, door frame top and sides	Knife or shears, hammer and nails or staple gun, tape measure	Unsightly in some places. Reinforced flange is very durable. Do not paint the tube gasket.
1.25-2.50	Easy installation Measure, cut and nail or staple	Wood window frames, door frame top and sides	Knife or shears hammer and nails or staple gun tape measure	Unsightly in some places. Rein forced flange is very durable. Do not paint the tube gasket.
.69-1.50	Easy installation Measure, cut, peel and stick	Window top and bottom, door frame top and sides (not where surfaces slide against each other)	Knife or shears, tape measure	Many widths and thicknesses avail able. Will not stick to dirty surface. Clean and dry.
7.00-15.00	Moderate Measure, cut, screw or nail in place	Wood window frames, door frame top and sides.	Hack saw hammer and nails or screws, tape measure	Metal strips with slots rather than holes for fasteners can later be adjusted. Do not paint tube gasket.
5.00-7.00	Moderate Measure, cut and nail in place	Door frame top and sides	Hand saw, hammer, nails, tape measure	Wood strip can be finished to match door frame. Not good for warped doors. Do not paint the foam.
.59-3.00	Easy installation Measure, cut, nail or staple	Wood window top and bottom, door frame top and sides.	Knife or shears hammer and nails or staple gun tape measure	Only good for narrow and even gaps. Comes apart where rubbing occurs. Do not paint. Not effective when wet.
1.00-3.00	Easy installation Measure, cut, peel and stick	Window channels, sides, top and bottom, door frame top and sides	Knife or shears, tape measure	This works like the spring metal. It's installed flat and then bent to a 'V' shape, the open end of the 'V' to the outside of doors which open inward.
1.80-5.00 per door	Moderate Measure, cut, install with screws	Inside of doors at the bottom	Screwdriver, hack saw, tape measure	May drag on carpeting. Sweeps are available which raise to clear carpeting when the door is open.
4.00-12.00 per door	Difficult Remove door and trim required amount from bottom. Measure, cut install with. screws.	Seals between bottom of door and threshold	Screwdriver, hack saw, plane, tape measure	The gasket gets a lot of wear. Can be replaced without purchasing a new threshold

* 17 feet of material supplied in a one-door kit, most materials can be used on windows or doors

TYPE	LIFE	COST	INSTALLATION	WHERE USED	COMMENTS
Silicone	12-30 yrs.	3.00-6.00 cartridge	Best adhesion	Seams, cracks, gaps up to ¼ inch	Good for all surfaces May not take paint
Butyl	8-10 yrs.	1.70-2.70 cartridge	Some shrinkage	Seams, cracks, gaps up to ¼ inch	Available in many colors
Acrylic Latex Silicone	12-20 yrs.	2.39-2.79 cartridge	Easiest application	Seams, cracks, gaps up to ¼ inch	May not take paint
Acrylic	8-10 yrs.	1.79-2.60 cartridge	Water clean-up	Seams, cracks, gaps up to ¼ inch	No odor
Latex	2-10 yrs.	1.19-1.49 cartridge	Water clean-up	Seams, cracks, gaps up to ¼ inch	Most paintable Available in many colors
Oil base asphalt	1-4 yrs.	.69-1.19 cartridge	Soft and tar-like	Seams and gaps on roof around chimneys, stacks and pipes to ¼ inch	Hardens rapidly, cracks
Caulking cord	1-2 yrs.	Inexpensive	Peel from roll, push in place	Temporary filler around storms, air conditioner	Comes in rolls unused portion can be stored for years
Oakum	Indefinite	Inexpensive	cut needed length push in place	Stuff large gaps caulk over oakum	Twisted hemp treated with tar
Glazing compound	Indefinite	Inexpensive	Some practice with putty knife	As a seal between window glass and frame	Often overlooked as an area needing repair

Caulking

When it comes to keeping out the cold with caulking, remember that a clean joint is the first and most important step. Clean away all old caulk and loose paint or dirt and apply new caulk to dry surfaces. The most common and easiest to use caulking comes in cartridges for which you will need a caulking gun. A good rough estimate is that you will need ½ cartridge per window or door, 4 for the foundation sill, and at least 1 more for around faucets, vents, pipes, electrical outlets, and so on.

Cut off about ½ inch of the cartridge tip on a 45° angle and puncture the tip seal with a nail. You can use the nail later to act as a stopper for any unused caulk. With a little practice on a joint that's not visible you'll soon be able to lay a uniform wide bead that overlaps both sides for a good seal. Finish the surface with a moistened finger if you like but that's not necessary. Remember to use a filler, like oakum, for wide joints before you caulk.

Some, but not all the places you should look when surveying your home before caulking are around doors and windows, dryer vents, faucet pipes and wires, where porches attach to the house, seams between masonry and siding, chimneys and inside corners.