COLORADO
OFFICE OF ENERGY CONSERVATION
1410 GRANT STREET SUITE B-104
(303) 839-2507

How to weatherstrip and caulk

Insulation prevents the leakage of *heat* (by conduction, radiation, or convection) through your walls, ceilings, and floors.

Weatherstripping and caulking, on the other hand, specifically prevent the free flow of warm *air* from the inside to the outside of the house, or cold air from the outside in. They work in areas where insulation can't, plugging up cracks and small openings which may not be visible to us but still allow drafts.

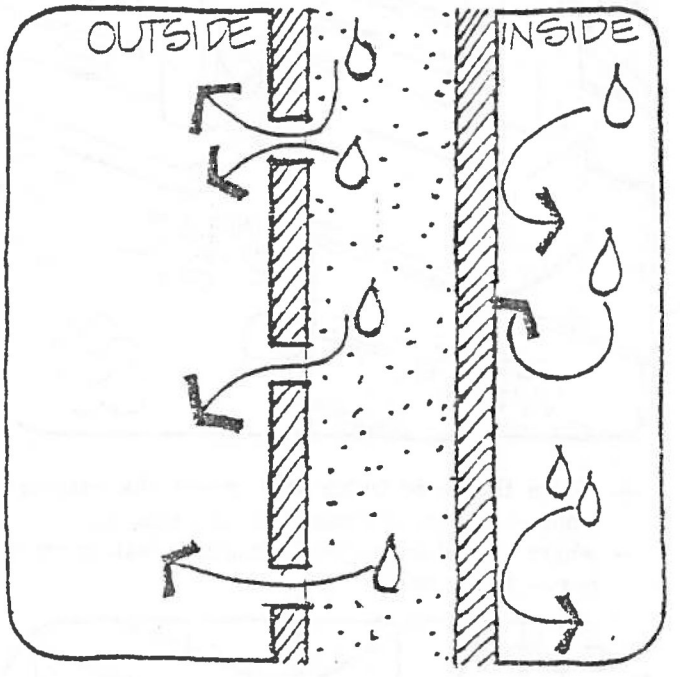
Weatherstripping is applied at any joint where two surfaces meet and move relative to each other (doors and windows in particular). Caulking is applied where two surfaces meet but do not move.

Weatherstripping And Caulking Are Easy And Inexpensive To Apply.

They will result in noticeable energy savings, particularly in leaky houses. By cutting out drafts, your home will become much more comfortable. Though the benefits won't be as high as with a complete re-insulating program, weatherstripping and caulking are well worthwhile.

PRIME AREAS OF CONCERN

In general, ANY CRACKS ON THE *INSIDE* SURFACE OF OUTER WALLS, CEILINGS, OR FLOORS WHICH WILL ALLOW FOR THE PASSAGE OF AIR SHOULD BE TREATED. These might include corners where 2 walls meet with an imperfect seal, electrical outlets, exhaust fans, recessed light fixtures in the ceiling, and so on.



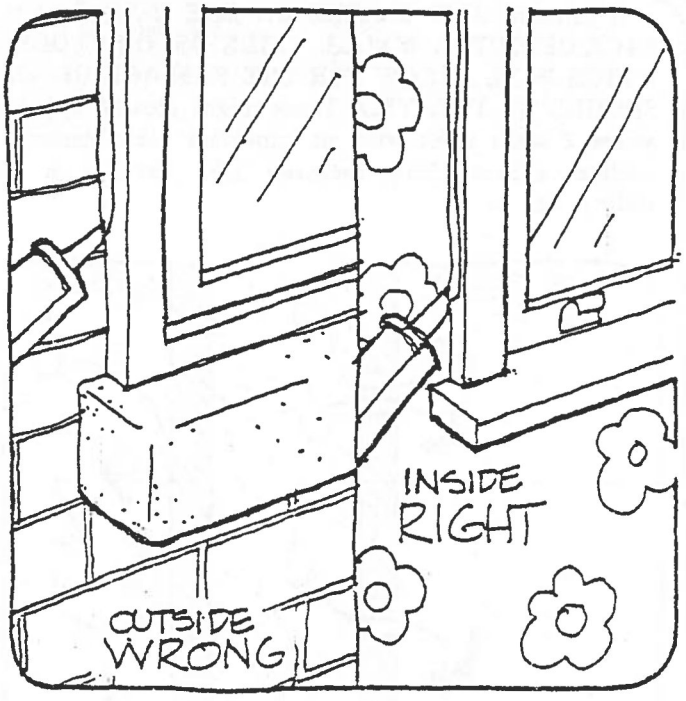
All this is necessary because it *is* important to prevent air from escaping from the inside of the house into the wall space. However, any air and moisture that does reach that wall space should be allowed to escape to the outside. Otherwise, moisture problems might result.

In general, therefore, it is *not* advisable to caulk the outside surface of an *exterior* wall (i.e. the cold side) unless major cracks which will allow water entry are present. * SEE NOTE BELOW

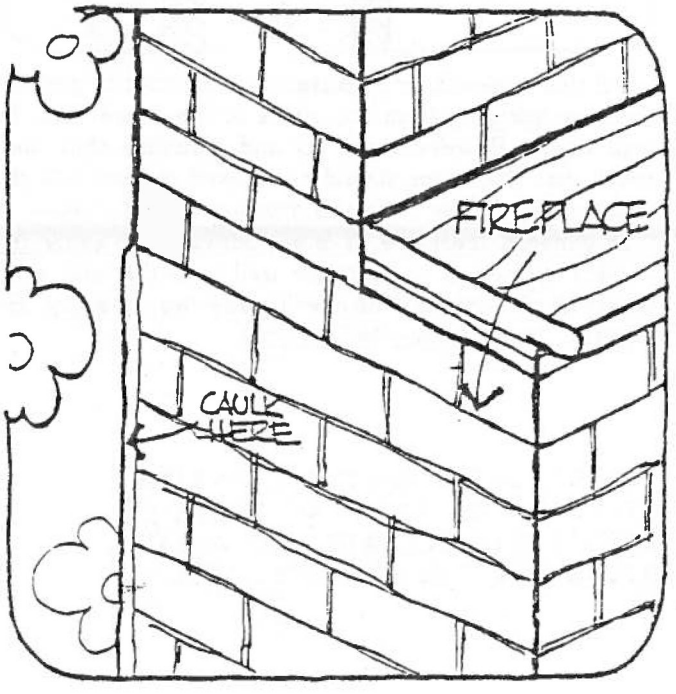
*PLEASE NOTE -- WHILE THE PRACTICE OF CAULKING ONLY THE INSIDE SURFACE IS ADVISABLE IN COLD, MOIST CLIMATES (SUCH AS THOSE IN MUCH OF CANADA), IT ISN'T IN COLORADO'S DRY CLIMATE. GO AHEAD AND FIND THE CRACKS BOTH ON THE INSIDE AND THE OUTSIDE, AND CAULK THEM.

A few parts of the house deserve particular attention, although you should by no means confine your concern to these areas:

— *around doors and windows*. (without weatherstripping, windows can allow up to five times as much air to pass through them as a weatherstripped window): In this case, weatherstripping and caulking may be applied both inside *and* outside the window itself. Caulking should *not*, however, be applied where the window or door *frame* meets the outside siding, as illustrated.



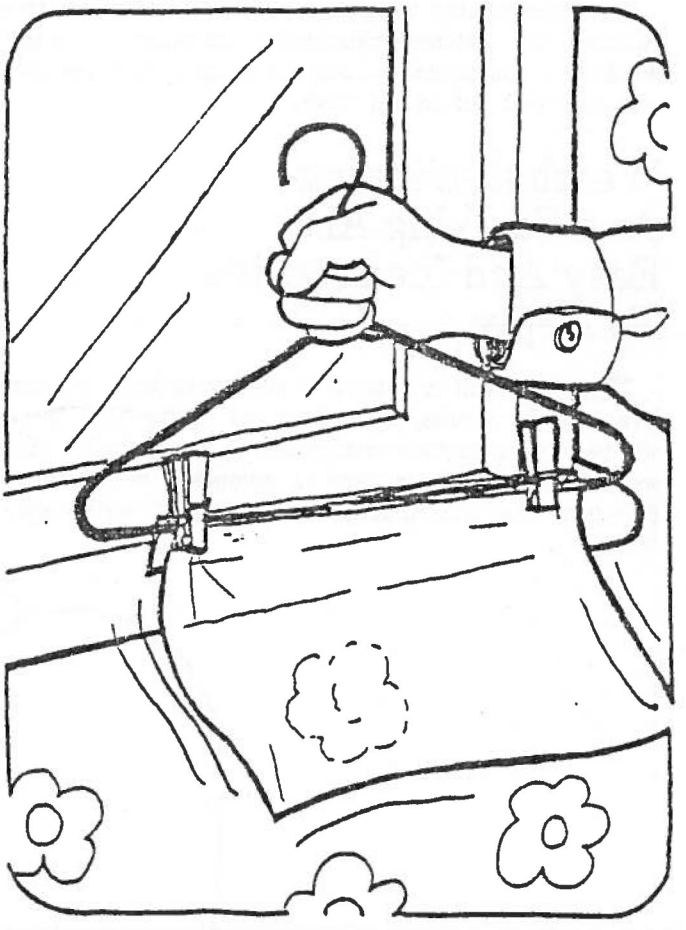
— where the wood-frame wall meets the masonry (concrete or stone) foundation — inside only.
— where a wood-frame joins a masonry wall or chimney — inside only.



— around doors into unheated attics, or where pipes and wire penetrate the ceiling into the attic.

There is an easy way to tell whether or not any of the above areas need work. If you haven't done so already, make yourself a draft gauge. All you need is a metal clothes hanger, a plastic sandwich bag (or a piece of light tissue paper), a pair of scissors and two clothes pins.

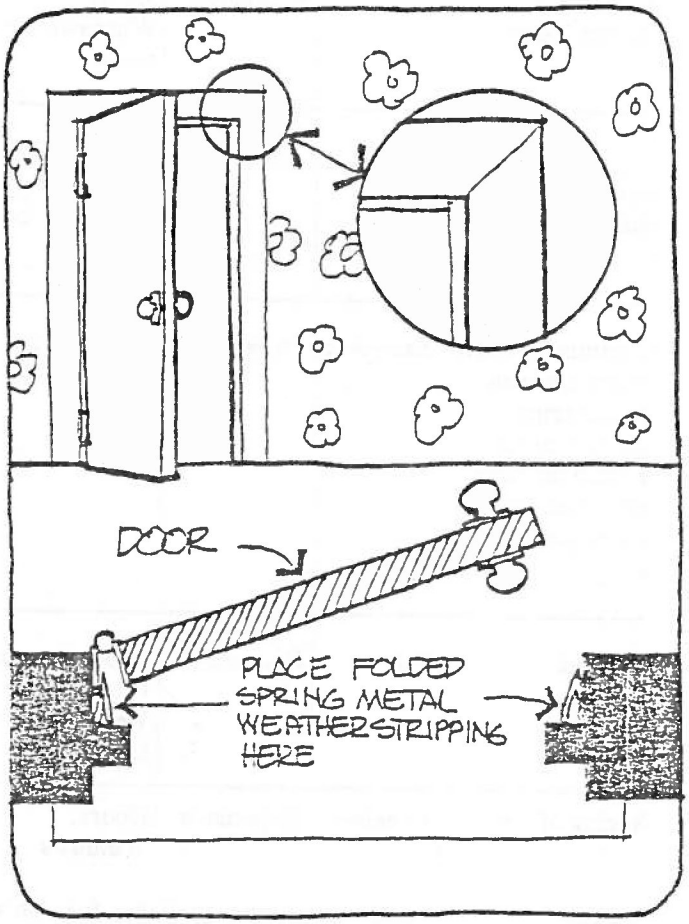
Cut the sandwich bag down each side and wrap one end over the cross-bar of the clothes hanger. Use the clothes pins to fasten the bag to the bar. Check for drafts, on a cold day, in all suspected areas. Hold the gauge steady by the handle of the hanger with the plastic bag close to the suspected area. If any breeze is coming in, the movement of the plastic will show you where. Alternatively, you may prefer to use the smoke from a burning cirgarette as your indicator.



In either case, you'll be surprised to discover how many spots need to be sealed with caulking or weatherstripping.

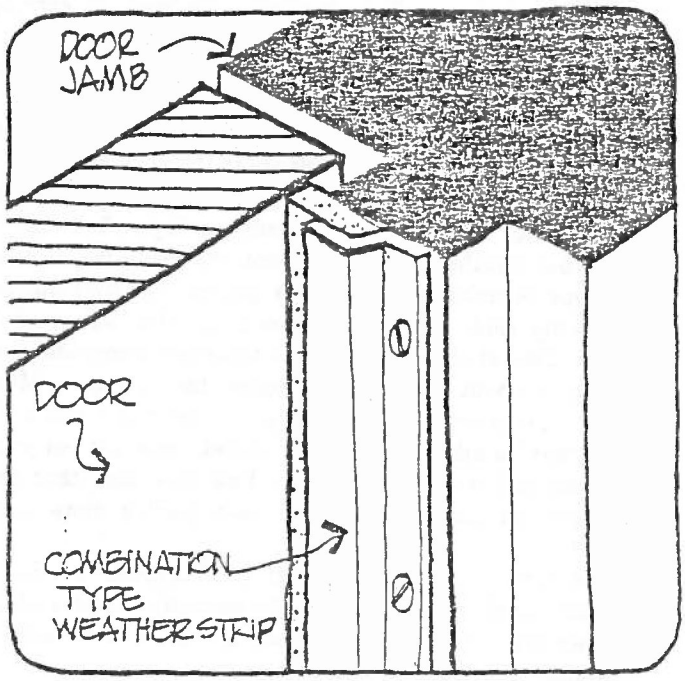
Around The Frame:

The tops and sides of any door should be weatherstripped *on* the frame, as illustrated.



The most durable and most effective types of weatherstripping for this use are the combination or the V-shaped metal types, both of which are installed as illustrated for the metal type. They make contact with the *edge* of the door, and as such provide a good seal even when the door warps with constant use.

An alternative method of installation for the combination type weatherstripping is to attach it such that the *face* of the door closes against the weatherstripping as shown. Similarly, hair felt or vinyl foam strips may be applied such that the door closes against them. Each of these techniques, however, supply a much less effective seal than weatherstripping in contact with the edge of the door. The felt and foam types are, in addition, much less durable.

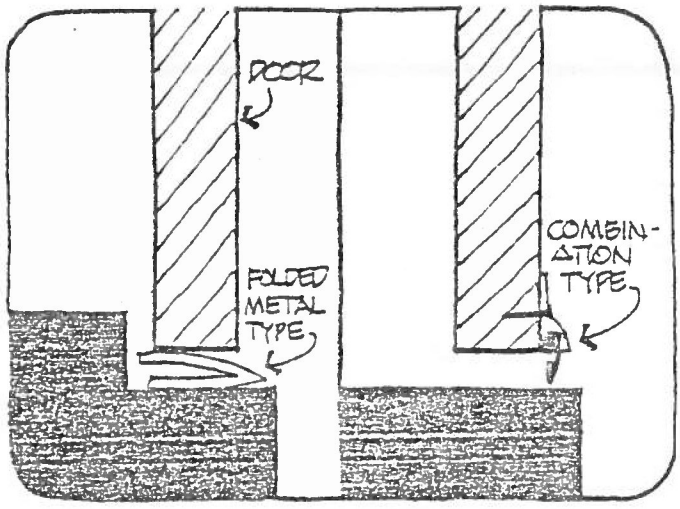


Bottom Of The Door:

Weatherstripping may be applied to either the door sill or to the door itself.

When applied to the sill, two options exist:

— If the frame is suitable, the stripping may be applied so that it sits underneath the closed door, as shown. V-shaped metal or combination types should be used. This is the best approach.



HOW MUCH WEATHER-STRIPPING AND CAULKING?

Both you and your furnace need some fresh air coming into the house. However, most Canadian homes have too much. In fact, up to 25 per cent or more of your heat loss can be due to excess infiltration around windows, doors and other cracks. These drafts not only cost you money, but can make your home unpleasant through winter.

How far should you go in sealing up the house? Continue to seal, weatherstrip and caulk until you find that in quite cold weather, a light, but not excessive fog or mist develops occasionally on double glazed windows on the downwind side. If these windows are themselves well sealed, then at this point you've achieved a considerable saving, without making the house too airtight. Most homes have a very long way to go to reach this point. **(If your "test" windows aren't well sealed, then get out your caulking and weatherstripping. You may find that the moisture no longer condenses once you've done your work!)**

One further point — oil and gas furnaces in *closed furnace rooms* need a free and unobstructed supply of air to keep the flame burning efficiently. Do your weatherstripping and caulking accordingly!

WEATHER-STRIPPING — HOW TO APPLY IT

Many different types of weatherstripping are available. The table below lists a few of the more common varieties, but it is certainly not complete. Your building materials supplier may have other types — check them out as well!

Type	Effectiveness	Relative Cost	Where Applied
Closed-cell vinyl foam (sticky back)	Good	Moderately expensive	Doors (top and sides) Windows (bottom)
Vinyl-covered polyurethane foam	Good	Moderate	Doors (mainly top and sides) Windows (bottom)
Combination kits (vinyl foam on wood strips, rolled vinyl in aluminum strips, vinyl flap on aluminum strips, etc.)	Excellent	Expensive	Doors (especially when warped) Windows
Hair felt	Fair	Inexpensive	Doors (top and sides) Windows (bottom)
Spring Metal	Excellent	Expensive	Doors, Windows

NOTE: The best weatherstripping available for use on doors is interlocking metal. Because of the difficulty of installation, it has not been listed in this table. The accomplished home carpenter may wish to use this material, however.

DOORS

The outside doors of a house should fit snugly so the air can't sneak in around the edges. However, poor installation, years of hard use, and shifting foundations can often force doors out of line with their frames. If they don't fit snugly, weatherstripping should be applied. NOTE: The instructions below refer to ordinary doors which open to the inside. Since storm doors open to the outside, appropriate allowances should be made in the positioning of the weatherstripping.

— if this is not possible, the weatherstripping can be tacked directly to the top of the door sill, fitting tightly against the face of the door (not illustrated). The material used must be resistant to wear from foot traffic. As such, the combination type with metal nailing strip and rolled vinyl tubing is generally used.

When the weatherstripping is applied to the door itself, a very durable material is necessary. The most readily applied and effective choice is again one of the combination types, which is simply tacked along the bottom inside surface of the door, as shown above (or the bottom **outside** surface of a wooden storm door). This is, however, less effective than the first option outlined above.

WINDOWS

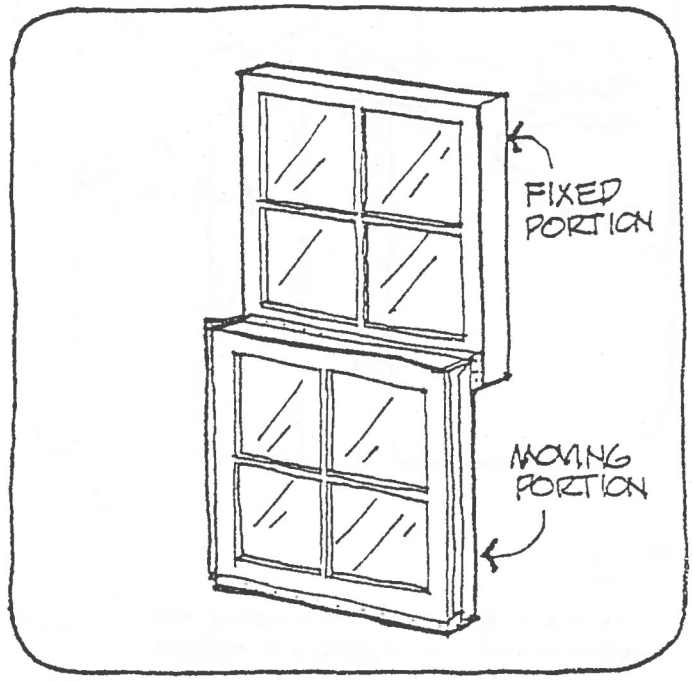
Leaky wooden windows should be weatherstripped around the frames using appropriate stripping from the above chart (although if the windows don't have to be opened, they can be locked and caulked). Aluminum or steel windows may need caulking, but they often will already have "built-in" weatherstripping.

Storm Windows

The window frame supporting the storm should be weatherstripped as shown. When the storm is eventually put in place (not until after the inside windows are also done!), a tight seal should be achieved. Since most storm windows are not designed to move, the stripping need not be especially strong. Hair felt or adhesive foam strips are both inexpensive and effective.

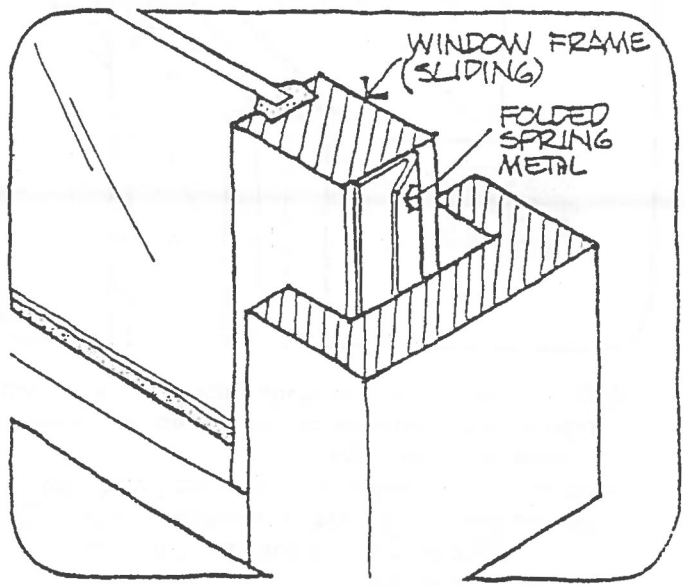
Inside Windows

The common "double-hung" window (the upper window is fixed, while the lower one slides up and down) should be weatherstripped on the sides, top, and bottom of the moving portion, as shown in the diagram. If there are drafts around the immobile portion, they should be caulked.

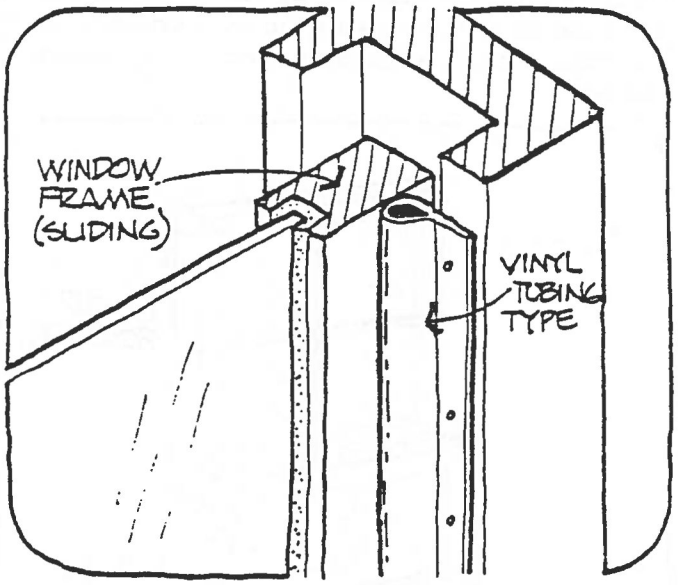


Sides

1) The thin, spring metal type of weatherstripping may be used, if the window is loose in its frame. The window is opened and the metal is slipped up the crack between the window and the frame. It need only extend to a height one inch above the top of the closed window. The strip should be tacked in place.

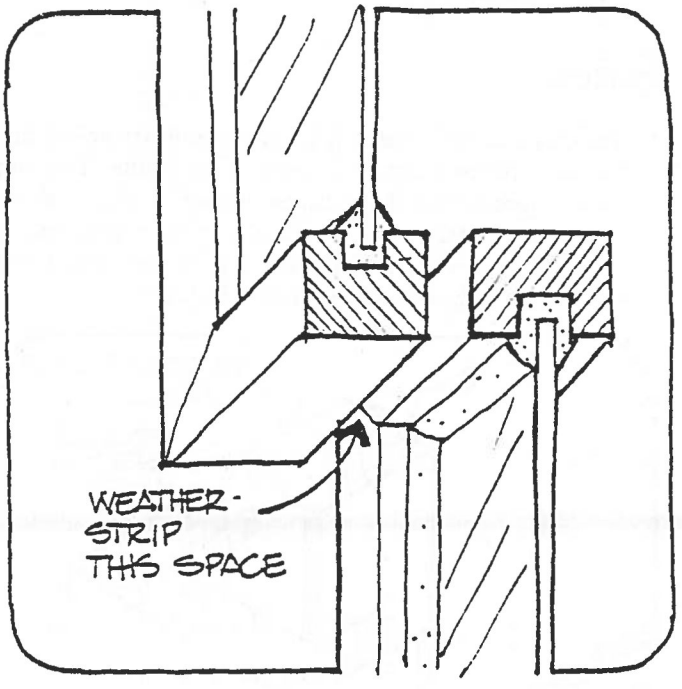


2) Alternatively, combination type weatherstripping may be nailed to the frame, so as to fit snugly against the window. For appearance's sake, this is best done on the *outside* surface.



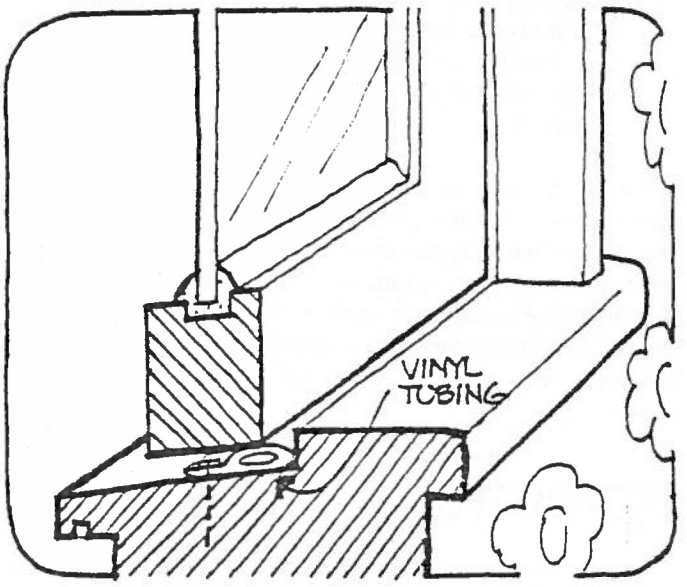
Top

The space where the two windows meet should be weatherstripped. Two options are available:



1) If the lower window is easily removed, metal strip type weatherstripping can be applied to the upper window from the inside.
2) Alternatively, combination type stripping may be applied from the outside to the upper window. This will be difficult, but it is possible to do it while the window is open slightly.

Bottom



Vinyl tubing, felt, or foam may all be applied to the window sill where the closed window will sit, or to the bottom of the moving window frame itself.

NOTE:

Other types of windows are treated similarly. The procedures are basically adaptations of the above steps. If, after weatherstripping, you consistently get condensation *between* an inside window and its storm, then try to tighten up the inside window even further. If the problem persists (unlikely), you may have to remove some of the weatherstripping from around the storm, in order to allow the moisture from between the windows to escape.

CAULKING — HOW TO APPLY IT

Several types of caulking compounds are available, of which the following are most important:

OIL OR RESIN BASE — will bond to most surfaces, lowest cost, but not very durable.
LATEX, BUTYL, OR POLYVINYL BASE — will bond to most surfaces, more durable, but also more costly.
ELASTOMERIC CAULKS — most durable and most expensive. Includes the silicones, polysulfides, and polyurethanes. Follow the instructions provided on the labels.
LEAD BASE — not recommended because of toxic properties.

You can buy a reasonably priced caulking gun and tubes of caulking compound at your local hardware or building supply store. If you are doing a very complete job, you will likely need several tubes. Caulking compound also comes in rope form, which can be unwound and forced into cracks with your fingers.

If you have any particularly large cracks to caulk, you may wish to use a special filler such as oakum for this purpose. Your building supply dealer will tell you what is available.

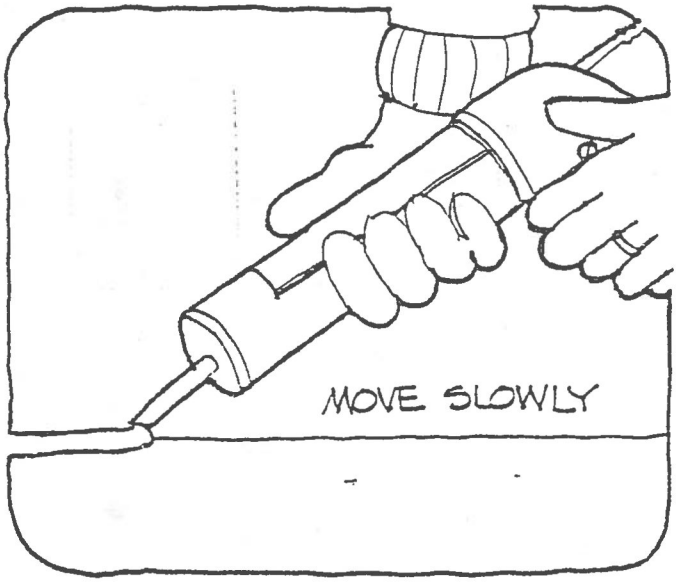
Step By Step

1) Identify the areas to be caulked (as outlined earlier in this chapter).

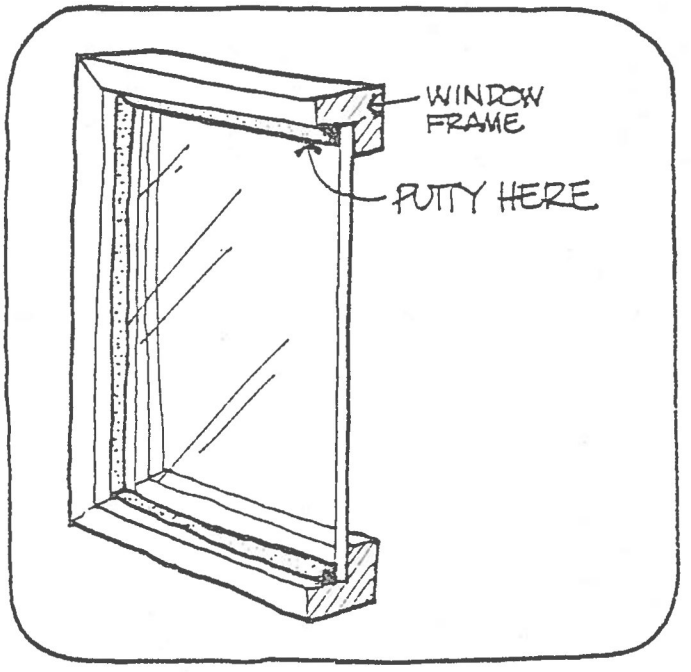
2) Don't try to caulk during cold weather (anything below about 5°C) as the compound will become stiff and difficult to work with.

3) Make sure the area to be caulked is free of dirt, loose paint, and deteriorated caulk.

4) Effective caulking takes practice, so go slowly at first, following instructions on the tube. Make sure the caulk adheres to both sides of the crack. Have a rag handy to wipe off any excess.



5) The seal between glass and its wood frame should be tight. Check out your glazing carefully and be certain that all the seals are intact without cracks or missing sections. If not, they need repair. For this you should use putty or glazing compound, *not* caulk. Both are available at hardware dealers, ready to use. Putty usually costs less, but tends to dry out and crack faster. Glazing compound, on the other hand, lasts longer and stays semi-soft and usable for a longer period of time. Both can be applied with a putty knife, after removing the old putty! Be sure to firmly press the compound into the crack for a good seal.



6) When you're finished caulking, run another check with the draft gauge to be sure all cracks have been sealed!

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