

Caulking and Weatherstripping

Even if your home is well insulated, it's important to stop heat loss and eliminate drafts caused by air leaks. If you added together all the small cracks, crevices and holes in your home, you might find they let in as much cold air in winter as an open window. They also provide a route for warm air to escape. Cracks or crevices that allow heated air to leak through and past your home's insulation are known as bypasses. Bypasses are found in interior and exterior walls, vents, recessed light fixtures, plumbing and electric wire passages, stairways and the space around your chimney.

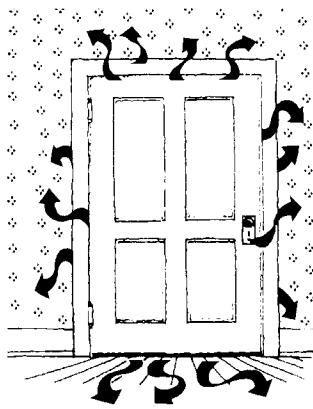
You can weatherize your home and substantially reduce air infiltration by caulking and weatherstripping. Weatherizing takes a few relatively inexpensive materials and some time; the pay-back period is usually within one season.

The first step is to find the air leaks on the inside and outside of your home. To detect air leakage, hold a smoking object, such as an incense stick, or thin thread near doors, windows and vents. Thread or smoke movements made by air currents indicate drafts.

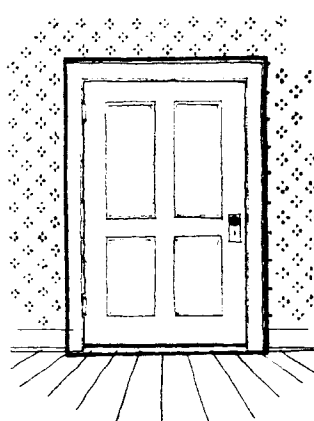
You'll have most decisive results if you do this check on a cool, windy fall day, or a very cold winter day. Have all exhaust fans, the furnace and clothes dryer running while you perform this check.

Move the thread or smoke around window and door edges, electrical outlets and other possible sources of air leaks. Mark drafty spots with chalk.

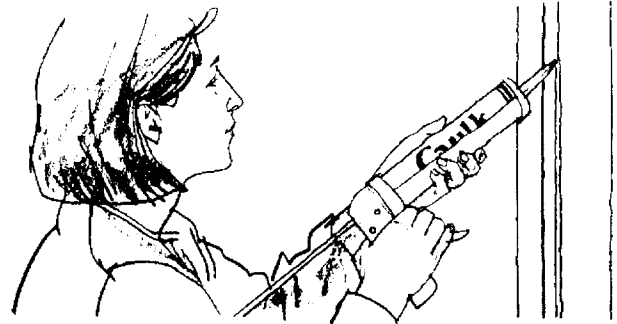
Then, decide whether caulking or weatherstripping will correctly seal them, and install it properly. (*See inside for details.*) Finally, evaluate your work to make sure you have stopped the air leaks.



No caulking—No weatherstripping



A door that has been caulked and weatherstripped



CAULKING

Building materials—wood, plaster and so on—expand and contract with changes in temperature and moisture. As this happens, cracks and openings may occur in both interior and exterior walls. These areas need to be caulked or caulking that is already there may have hardened and need to be replaced. Your main concern when selecting caulk is how well it will bond to the surfaces.

- Interior cracks: It's important to caulk on the inside of your home; humidity in warm air which leaks into the wall cavity may condense and cause damage. You can caulk indoors any time of year.
- Exterior cracks: These cracks allow cold outside air to penetrate insulation and chill inside walls. Resulting moisture can penetrate structural components and cause deterioration. Read the manufacturer's instructions on recommended temperature for caulking application. Generally, the outside temperature should be at least 40°F for caulking to adhere correctly. For best results, plan to caulk during cool, dry weather.

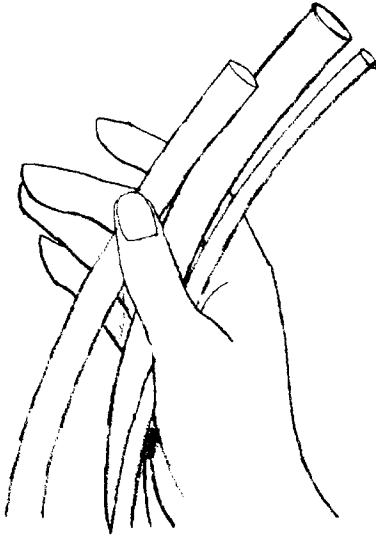
Below is a checklist of areas inside and outside that should be caulked:

- Around door and window frames
- At the point between the foundation and floor
- Cracks in brick or foundation
- Where chimney flashing meets the wood framing
- Around exterior openings including utility outlets, phone lines, outside plumbing faucet, vents and fans
- Openings around the chimney stack in the attic
- Where heating and/or air conditioning ducts pass through unfinished attics or basements
- Cracks where woodwork meets walls and floor
- Around a room air conditioner
- Between a porch and the main body of the house
- At corners formed by siding
- Openings around drain pipes in bathroom and kitchen
- Openings around the plumbing vent in the attic
- Between dissimilar materials

How to Caulk

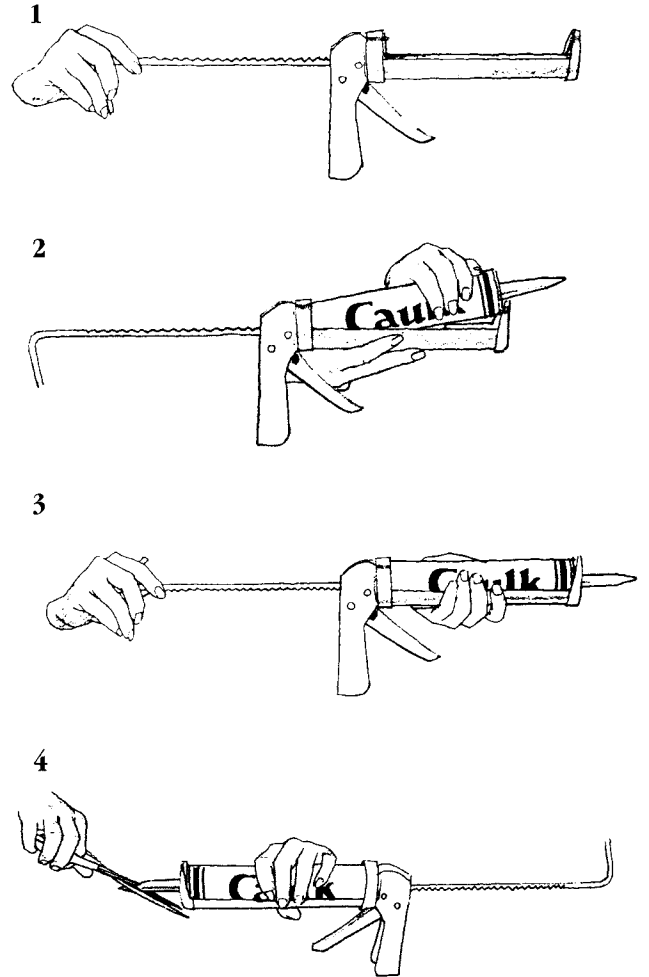
1. Prepare the surface to be caulked.

- Clean the surface, removing dirt, loose paint and old caulk to insure good adhesion.



Void-filler is used for large cracks. Comes in $\frac{3}{8}$ ", $\frac{1}{2}$ ", and $\frac{5}{8}$ " diameters. Do not use near surfaces that will get warm or hot.

- Be sure the surface is dry.
 - Use void filler if necessary. Void filler is a spongy material that comes in various sizes. It can be stuffed into cracks that are too big or deep for regular caulking. Insert void filler into the crack, then seal with caulk.
 - Determine which materials to use for various size cracks.
 - * $\frac{1}{8}$ -inch crack or smaller—caulk or rope caulk
 - * $\frac{1}{4}$ -inch to $\frac{7}{8}$ -inch crack—void filler, fiberglass insulation stuffed into the crack or crevice very tightly or polymeric foam
 - * larger than 1-inch crack—fiberglass insulation stuffed into the crack or crevice very tightly
2. Read the instructions on the tube of caulk and load it into the caulking gun. (See illustrations.)
- A. Turn the plunger rod teeth face up and pull back.
 - B. Insert the cartridge in the opening and press the nozzle into the slot.
 - C. Turn the rod teeth face down and push the plunger until the teeth engage.
 - D. Cut off the tip of the tube at a 45° angle. The nozzle is tapered so the amount you cut off will determine whether you have a thin, medium or heavy bead. Cut near the narrow end for a narrow bead, cut further up for a wide bead. Use a long nail to break the inner seal and to plug the nozzle when finished.



3. Applying the caulk.

- Practice first on an area that is less visible. You will soon be able to lay a uniform bead of caulk that overlaps both sides of a crack for a good seal.
- To apply the caulking compound, hold the gun at a 45° angle to the surface. (See illustration p.1.) Squeeze the trigger and push the gun away from you with a steady pressure. Try to finish a seam in one stroke without stopping. The caulking materials should completely fill the crack. For a good seal, run your finger along the caulking bead to smooth it in, if recommended on package label.
- Knife-grade caulks are also available and are applied with a putty knife.

4. Finishing the job.

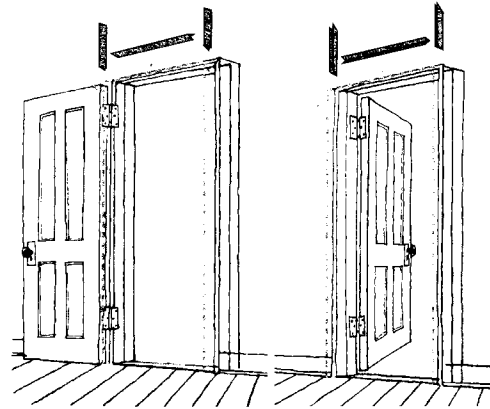
- If you have caulk left when the job is done, disengage the plunger on the caulking gun by twisting and pulling it back. Remove the cartridge and plug the nozzle with a nail. Wipe off any excess caulk.
- Clean tools with water or appropriate solvent.

CAULK TYPE	DURABILITY	APPLICATION
Rope or Cord Caulk	temporary filler, 1-2 years	<ul style="list-style-type: none"> – Specialized product for filling in small gaps – Easy to apply and remove – Excellent seal
Oil/Resin Base	high quality, 5-10 years low quality, 3-5 years	<ul style="list-style-type: none"> – Will bond to most surfaces – Very low elasticity – Forms a hard surface when dry – Solvent clean-up
Latex Base	up to 10 years	<ul style="list-style-type: none"> – May be applied to brick and wood – Will not bond to metal – Forms a hard surface when dry – Clean up with water
Butyl Rubber	up to 10 years	<ul style="list-style-type: none"> – Good adhesion to unpainted metal and masonry – High moisture resistance – Can be painted – Solvent clean-up – Flexible when dry
Neoprene	15-20 years	<ul style="list-style-type: none"> – Good with asphalt or concrete (foundations) – Difficult to apply
Silicone	20 years or more	<ul style="list-style-type: none"> – Excellent adhesion to most surfaces – High moisture resistance – Solvent clean-up – Flexible when dry but can't be painted
Polyurethane	20 years	<ul style="list-style-type: none"> – Specialized product for large gaps – Difficult to apply – Excellent elasticity – Solvent clean-up – Flammable—must be covered by a fire-retardant wall on interior
Acoustical Sealants	20 years or more	<ul style="list-style-type: none"> – Excellent adhesion to air/vapor barriers – Interior use only – Solvent clean-up
Polymeric Foam	20-30 years or more	<ul style="list-style-type: none"> – Excellent adhesion to a wide variety of materials – Available in pressurized cylinder – Excellent for sealing sill plates, rough openings for doors and windows, and other large openings.

WEATHERSTRIPPING

Weatherstripping is applied at joints where two surfaces meet and move relative to each other, such as windows and doors. Properly installed weatherstripping provides an air-tight seal around doors and windows. Like caulking, weatherstripping is a low-cost way to cut energy costs.

Tests show that tubular weatherstripping provides the best seal. However, if doors and windows will be used by children, handicapped or elderly, use silicone, neoprene, urethane or rubber strips—they require less pressure when closing doors and windows.



The creased side of the V-strip should face in for doors that open in and face out for doors that open out. If possible, apply V-strip on entire length of door in one piece.

WEATHERSTRIPPING

MATERIAL	DURABILITY	APPLICATION
Tape (various widths)	up to 1 year	<ul style="list-style-type: none"> – Use on windows or doors that will not be opened – Tape can dry out and loosen within one heating season
Felt (various sizes)	1-2 years	<ul style="list-style-type: none"> – Use on top or side of door or window frame – Use for sealing gaps of uniformly narrow width
Foam (adhesive-backed)	1-2 years	<ul style="list-style-type: none"> – Use on friction-free areas: <ul style="list-style-type: none"> • bottom of window sash • frame of trap door • frame of warped or loose-fitting door (wood-backed foam)
Tubular Gasket and Vinyl Tubing (with or without metal backing)	5 years	<ul style="list-style-type: none"> – Can be used on windows or doors – Provides a moderate seal – Visible when installed
Adhesive Vinyl V-strip	3-5 years	<ul style="list-style-type: none"> – Adheres to sides and top of door jamb and casement windows with the closed point of the V facing the door or window (<i>above illustrations</i>) – Easy to install
Thin Metal V-strip	5 years & up	<ul style="list-style-type: none"> – Nail to top and sides of door jamb in the same manner as the vinyl V-strip – Somewhat difficult to install
Fin Seal	5 years & up	<ul style="list-style-type: none"> – Use as replacement seal on aluminum horizontal sliding windows and glass doors

Call your local natural gas utility company or the Minnesota Blue Flame Gas Association at 612-550-1969.

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