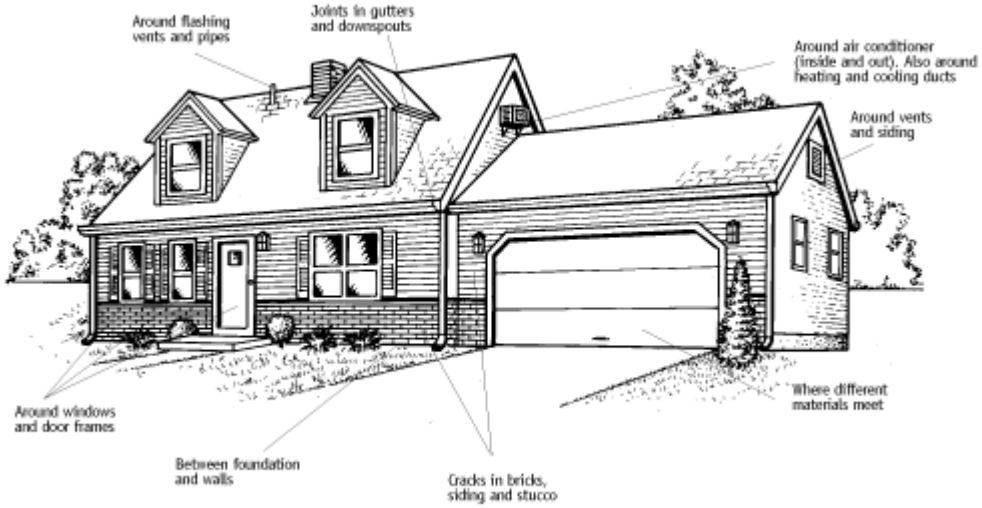
Weatherproofing

Weatherproofing Your Home

The average house-even when well-insulated-contains cracks and gaps between building materials that add up to a hole about 14 inches square (see image below). In the winter, those gaps may make the house drafty and chilly. All year long, a leaky house not only wastes energy but can lead to water damage and provide a path for insects.
Inside this document you will find information about:

- Weatherproofing Basics
- Types of Caulking
- Using Caulking
- Types of Weatherstripping
- Installing Weatherstripping



TOOL AND MATERIAL CHECKLIST	
Weatherstripping	Tin Snips
Hacksaw	Measuring Tape
Pencil	Hammer
Screwdriver	Scissors
Caulking	Caulking Gun
Utility Knife	Utility Blades
Paint/Lacquer Thinner	Rags
Wire Brush	

Step 1

WEATHERPROOFING BASICS

- In all the discussion of insulation and R-values, don't forget that poor weatherproofing is often a more important source of discomfort, as well as high heating and cooling bills.
- Some air leakage can be prevented during construction by using housewrap or getting a tight fit between framing members, for example. Once the house is built, however, the remaining gaps must be sealed. Gaps around doors and window sashes should be weatherstripped, and gaps between permanent building materials sealed with caulking.

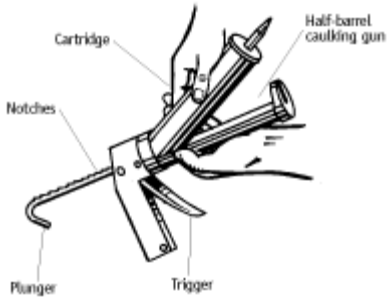
Step 2

TYPES OF CAULKING

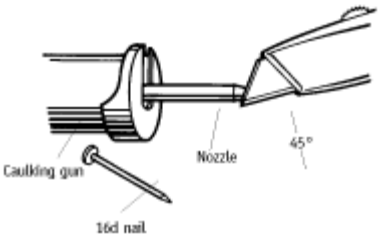
- A number of factors must be considered when choosing caulking. They include durability, flexibility, whether the caulk can be painted and, of course, price.
- The most expensive caulk is not always the best product for every job, so you should carefully consider which product is appropriate to your situation. Read product labels and manufacturers' literature, and ask your salesperson for his or her recommendation.
- Here is a list of common caulks and their characteristics. Different types of caulking are designed for different applications, and quality can vary among different brands of the same type because of different formulations used. Always read and follow the manufacturer's directions.
    - Oil-Base Painter's Caulk (1-2 yr. life) - Not very elastic. Dries out easily. Paintable after curing. Lowest cost.
    - Latex (3-10 yr. life) - Use mostly indoors. Goes on easily. Low elasticity. Sticks to porous surfaces only. Easy water cleanup. Low in cost. Paintable.
    - Butyl Rubber (3-10 yr. life) - High elasticity. Sticks to most surfaces. High moisture resistance. Flexible when cured. Most difficult to work with as it is very sticky.
    - Acrylic Latex (10 yr. life) - Good elasticity. Sticks to most surfaces. Reasonable moisture resistance. Paintable. Good for around doors and windows. May not be used below freezing.
    - Silicon-Latex Blend (20+ yr. life) - Good elasticity. Excellent weathering ability. Medium shrinkage. Adheres to most surfaces. Some cannot be painted. May not be used below freezing.
    - Silicone (20-50 yr. life) - Excellent elasticity. Sticks very well. Excellent moisture resistance. Needs solvent to clean. Strong odor possible while curing. Low shrinkage. Generally not paintable, but available in many colors. May not be used below freezing. May be applied to wood, asphalt or metal, but not vinyl or masonry.
    - Urethane (20-50 yr. life) - Excellent elasticity and adhesion. Excellent moisture resistance. Easy cleanup. Strong odor possible while curing. Low shrinkage. May not be used below freezing. May be applied to wood, brick, asphalt, metal, vinyl or concrete.
    - Elastomeric Copolymers (50+ yr. life) - Excellent elasticity and adhesion. Will stick to damp surfaces. Can be applied below freezing. Cleanup with lacquer thinner. May be applied to wood, brick, asphalt, metal, vinyl or concrete.
    - Polyurethane Foam Sealant (in aerosol can) - A specialized expanding foam product useful for filling large gaps. Expanding foam may be tricky to apply because of the amount of expansion but has excellent sealing and insulation qualities.
- How Caulks Are Packaged - 10-oz. (approx.) tubes for standard caulking guns are the most common size, but 1-qt. builder's tubes, 5-oz. squeeze tubes and rope caulk are also available. Approximate coverage, 10-oz. tube: 400' at 1/4" bead, 200' at 3/8", 100' at 1/2".
- Caulk Backer Rod - Most caulks should not be used on cracks larger than 3/8" or more than 1/2" deep (check the instructions). Fill large cracks with flexible foam backer rod.

Step 3

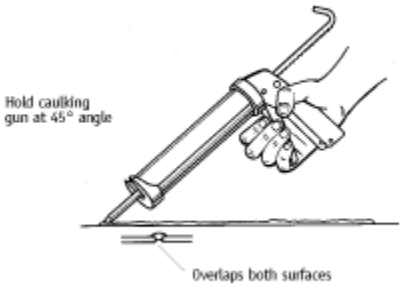
USING CAULK



- Caulking should be applied to any gap where air, moisture or insects may penetrate the structure, including the following common locations:
  - Joints between foundation and siding
  - Joints between roof overhang and house
  - Joints between window/door and siding
  - At any penetrations into the house (i.e., telephone wires, TV cable, electrical conduit and gas and water pipes)
  - Dryer, bathroom and kitchen vents
  - Joints between the siding and chimney
- As a rule, surfaces must be clean and dry in order for caulking to stick. Loose material should be brushed away, and dirt, grease or oil should be removed with a detergent solution. Do not apply in cold weather, except as recommended by the manufacturer.
- To use a caulking gun, first pull the plunger all the way back and insert the caulking tube (see image). Turn the plunger so the notches engage the trigger of the gun, then push the plunger snugly against the heel of the tube. Cut the nozzle tip with the utility knife and make a hole the size of the bead you want. Puncture the seal at the top of the tube with a 16d nail.



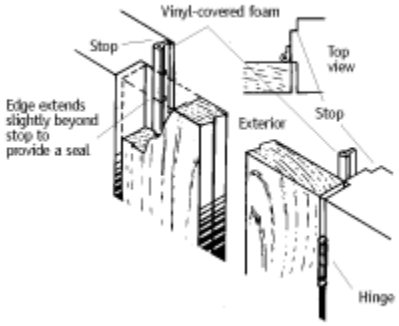
- To apply caulking, squeeze the trigger and push-don't pull-the gun along the gap (see image). Pushing the gun drives caulking down into the gap and gives you better adhesion.
- To tool the joint, first wet your finger with soapy water (if the caulking is formulated for soap-and-water cleanup) or a dab of automotive hand cleaner (if the caulking is formulated for solvent cleanup). Run your finger along the joint, smoothing it and pressing the caulking into the joint. Wipe away excess with a rag.

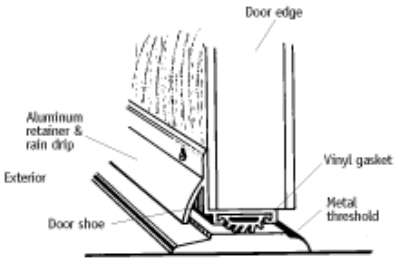


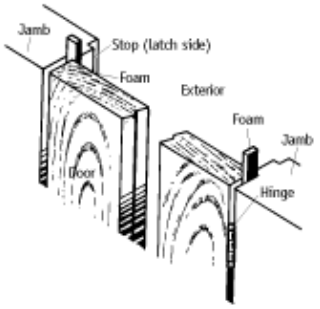
Step 4

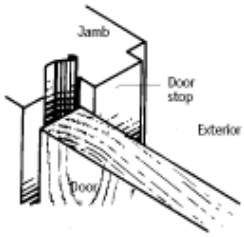
TYPES OF WEATHERSTRIPPING (Visuals 4-9)

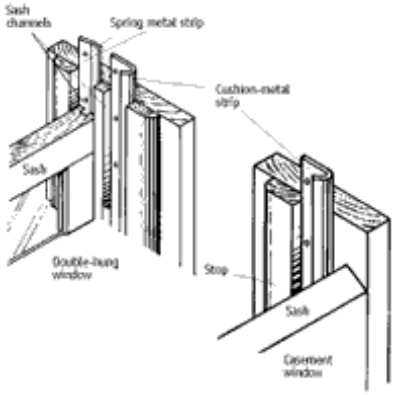
- The greatest source of air leakage in most homes occurs around doors, windows and access hatches such as the ceiling opening from the living area into an unheated attic (see image). Weatherstripping can be a delicate job because those openings need to be fitted loosely enough that the door or window operates freely, yet tightly enough that air leakage is stopped.
- The type of weatherstripping you'll use depends on the location and the type of opening. Three types of weatherstripping are common:
  - Compression - Compression weatherstripping (see image below) is used to seal swinging doors and window sashes. It consists of a molded strip (it may be wood, aluminum or rigid vinyl) with a flexible vinyl bulb along one side. As a rule, compression weatherstripping is the most durable type available.
  - V-Type Strips - V-shaped weatherstripping (see first two images below) is fitted against the side of the door or window jamb so it presses against the edge of the door or sash and forms a seal. V-stripping may be vinyl or bronze.
  - Foam - Foam weatherstripping (see third image below) is used to seal either swinging or sliding doors or windows. It comes in various sizes, with an adhesive backing on one side. It is fastened to the edge of a door or window stop or to the bottom of a sliding window sash.
- Thresholds and Door Bottoms - A threshold fills the gap between the floor and the bottom of a door. It may have a built-in vinyl bulb. If not, it must be used in combination with a door bottom (see fourth image below), mounted on the lower edge of the door.











Step 5

INSTALLING WEATHERSTRIPPING

- To weatherstrip a door, first install the threshold. Measure the distance from the floor to the bottom edge of the door; thresholds come in a number of heights-typically 5/8", 1" and 1-1/2". Choose a threshold that allows about a 1/2" gap to leave room for the vinyl bulb.
- The threshold should be placed so its highest point (or the center of the vinyl bulb, if the threshold has a built-in bulb) is directly under the door. Measure the width of the opening and cut the threshold to length with a hacksaw (aluminum thresholds) or a fine-toothed handsaw (wood thresholds). The threshold will probably have to be notched on each end so it fits around the door stops.
- Set the threshold in place and close the door to check the fit and position. Once the threshold is in place, mark the location on the floor, then open the door. Run a thin bead of caulking along the underside of the threshold on each side. Aluminum thresholds have a C-shaped channel along the edges to accept caulking. Set the threshold in place and screw it firmly to the floor.
- To apply compression weatherstripping to a door or swinging (casement) window, first close the door or window. If the door has a deadbolt, lock it. Cut each strip to length with a hacksaw or tin snips and stand it in place. Push the strip in toward the door or window sash so the bulb is partially compressed. Don't fit it too tightly or the door/window won't close properly. Nail the strip in place, starting from the center and working your way toward both ends. Check the door/window frequently to make sure it operates easily.
- To apply foam weatherstripping, cut the foam strips to length with scissors. Peel back about 1" of the adhesive cover strip and press the foam into place at the top of the door/window stop. Work your way down, peeling the cover strip away as you press the foam into place.
- To apply V-type weatherstripping to a door or swinging (casement) window, cut the strips to length with scissors (vinyl) or hacksaw (bronze). Place each strip on the jamb with the raised "V" facing

away from the door or window sash, positioned so the door/window sash will be centered on the strip when closed. Fasten the strips in place.

- To apply V-type weatherstripping to a double-hung window, first lower the sash. Cut the strip to length and slip it down along the side of the sash with the raised "V" facing outside. Position the strip in the center of the sash and fasten it in place as far as possible. Raise the sash and repeat the process along the lower half of the strip.