

## Chapter 3: Keeping Out the Cold

All your hard work insulating your home will pay big dividends. But to maximize those dividends, you need to weatherproof your doors and windows, too. Having doors and windows that let cold air in during the winter is a little like wearing the warmest down-filled jacket you can find and then leaving it unzipped. Because they can't be insulated, doors and windows are going to be cold spots in the winter and hot spots in the summer. Let's see how you can minimize those chinks in your house's weather armor. Also in this chapter, you'll see how your choices in roofing material, siding and even landscaping can save you heating and cooling dollars.

### Taking Care of Windows and Doors

Do you know where the word "window" comes from? It's a combination of "wind" and "door," and originally meant a door through which the wind blew—literally, the wind's door. In this day of expensive home heating fuels, the last thing you want is for your windows to be open doors for the cold wind. You can take steps to significantly cut heat loss through your windows. Additionally, your windows are a solar heating system.

A window can actually serve your heating needs. It can act as a conduit for the sun's energy and let in radiant warmth faster than it lets out your furnace-created heat. This is the simplest form of solar energy—a form we can all take advantage of, without expensive solar collectors or heat distribution systems. It's called "passive" solar heating.

In general, south-facing windows admit the most heat, followed by east and west exposures. Because north-facing windows admit little heat and tend to conduct room heat *out* of the house, keep blinds, curtains, or shutters drawn on those windows during the colder months. (And remember to do the same for your heat-collecting windows during the night, too.)

To be economically significant, that solar collector window of yours has got to bring in more heat than it loses. Unfortunately, a lot of windows let out more heat than they take in. In fact, in the average house, each improperly insulated window will waste about 1 percent of your home heating dollars. Properly insulating 10 windows can save you 10 percent of your fuel costs.

You can save a lot of money using storm windows, but, if your primary windows are in poor condition, the storm windows won't be as effective. So, the first step to saving money is ... clean that glass. Your passive solar collector (your window) works better clean than dirty. Dirt on the windowpanes absorbs the sun's rays and doesn't let the heat in. Keep those south-, east-, and west-facing windows clean, (and while you're at it, you might as well clean the north windows, too). A fringe benefit: More sunlight means a brighter room, which means you don't have to turn on your lights as much, saving you money on your electric bill.

### Check Your Windows

Check to see if your windows are open doors for the wind. Look for the following:

- Broken or cracked glass
- Broken, loose, or missing latches

- Loose or broken sashes and frames
- Cracked or missing putty around panes, or damaged weatherstripping
- Lack of weatherstripping
- Lack of caulking

**Figure 3.1**

Inspect windows for broken glass, broken latches, missing caulking, and missing putty.

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**Caution**

Many pamphlets and books—including some from government agencies—advise testing for air leaks around windows by moving a lighted candle around the frame to see if it flickers. That test can be dangerous. The candle can ignite curtains or draperies. We always use a single sheet of dangling tissue paper around the frame. If the tissue is blown away from the window or sucked toward it, you've got an air leak that's costing you money.

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The following sections discuss how to fix each window problem.

**Fixing Broken Windowpanes**

To fix a broken windowpane, you'll need the following tools:

- Gloves
- A large piece of cardboard
- Scissors
- A putty knife
- A paintbrush
- An electric iron or propane torch

You'll also need these materials:

- A box of glazier's points
- A can of putty or glazing compound
- Some boiled linseed oil
- Cornstarch

- A piece of glass from the hardware store or home improvement center

To fix a broken windowpane, follow these steps:

1. Remove all the old broken glass from the frame. (Be sure to wear gloves to protect your hands from the jagged edges.)
2. Using the propane torch, heat up the old putty and remove it with the putty knife and pliers. (You can use an electric iron to heat the putty if you don't have a propane torch and don't want to buy one.)
3. Using the pliers, carefully pull out the old glazier's points (those are the little metal triangles or staples that hold the glass in place).
4. Cut your cardboard to fit the window frame, and then trim 1/8-inch from the top and from one side of the cardboard (this creates a 1/16-inch margin on each of the cardboard's four sides).
5. Now have a glazier or hardware store cut a piece of window glass to the exact size of the cardboard.
6. Returning to your window, sprinkle cornstarch on your hands and on any surface where you'll be rolling putty. This keeps the putty from sticking where you don't want it.
7. Roll all the putty in the can into a 3/8- to 1/2-inch diameter rope.
8. Brush a light coat of linseed oil onto the frame and press the putty rope into the oiled frame (cut the putty rope into six-inch lengths for easier handling).
9. Press the glass into the frame and remove all but 1/16 inch of putty squeezed out by the pressure of the glass.
10. Wedge the glazier's points into the frame with the blade of the putty knife, spacing them about eight inches apart.
11. Cut the remainder of your putty rope into six-inch lengths and squeeze into the corner of the window frame.
12. Smooth and remove the excess putty with the putty knife, and you've sealed a window and saved some heating dollars.

### **Figure 3.2**

#### **Fixing Broken, Loose, or Missing Window Latches**

That window latch is there for more than security—it presses the top and bottom sashes together to eliminate outside air infiltration or inside heat loss. If the latch is broken, loose, or missing, you're losing heating dollars. To install a new latch, you'll need the following tools:

- Ruler

- Hammer
- Center-punch or awl
- Cake of soft soap
- Medium flat-blade screwdriver

You'll also need these materials:

- Center-latch, also called a sash lock
- Petroleum jelly

To fix broken, loose, or missing window latches, follow these steps:

1. Remove the old, broken, or loose latch, and then close the window tightly.
2. Measure and mark the center of the joined sash frames.
3. Place the turning-latch section of the lock on the center mark at the top of the lower sash frame.
4. With a hammer and awl, punch guide holes through the screw ports on the turning-latch section.
5. Lubricate wood screws by rubbing them over the bar of soap, and then screw the turning latch section firmly into position.
6. Line up the hook section on the bottom of the frame of the upper sash, making sure it is even with the turning-latch section.
7. Punch holes as you did for the first part of the latch.
8. Soap and drive screws into place.
9. Lubricate your new latch with petroleum jelly.

### **Figure 3.3**

Window latches keep sashes firmly closed against the cold.

### **Fixing Loose Sashes**

You usually know if your sashes are loose because they tell you. No, they don't speak; they just rattle noisily when the wind blows. That rattle means cold air's coming in and warm air's going out. To fix a loose sash, you'll need the following tools:

- Pencil
- Shears

- Ruler
- Small hammer

You'll also need these materials:

- Pad of paper
- A piece of linoleum
- Carpet tacks
- Paraffin wax or silicon spray

To fix a loose sash, follow these steps:

1. If your lower sash is loose, raise it to the top and measure the opening, then add six inches. Write down that measurement.
2. Measure the thickness of the sash and subtract 1/8 inch. Write down that measurement.
3. Cut strips of linoleum to those measurements and close the window.
4. Slip one strip of linoleum into the sash groove (if your window has metal weatherstripping, you must slip the linoleum under the weatherstripping).
5. Tack the linoleum in place with the carpet tacks and open the window.
6. Tack the six-inch section of linoleum below the top sash frame. Close the window.
7. If the sash still rattles, add more linoleum strips. Lubricate the linoleum strips with the paraffin wax or silicone spray.

If it is the top sash that's loose, lower it and repeat the measuring and linoleum-strip installation process in the opposite order.

#### **Figure 3.4**

A strip of linoleum in the window channel can tighten loose sashes.

### **Fixing Loose Frames**

As a house ages, entire window frames work themselves loose because nails corrode and wood rots. To fix loose frames, you'll need the following tools:

- Hammer
- Caulking gun
- Screwdriver

- Framing square

You'll also need the following materials:

- Caulking compound
- Three-inch-long wooden shingles
- Oakum (hemp saturated with linseed oil—available in larger hardware stores or plumbing supply stores) or back-a-rod (a joint-filling plastic rope)

To fix loose frames, follow these steps:

1. Check the frame to see if it is square. If not, the window won't operate properly. To square up a frame, wedge wooden shingles in around the sides of the frame between it and the house frame (you may have to remove some molding to do this).
2. When the window is square, drive nails or screws through the window frame and the shingle wedges into the house frame.
3. Using the saw, cut off the excess shingle material as close to the frame as possible.
4. After the frame is solid, stuff oakum or back-a-rod into all spaces around the entire window. This will insulate the spaces and provide a support for the caulking material.
5. Caulk around the entire window frame.
6. Replace any molding you may have removed.

### **Adding Weatherstripping**

Weatherstripping is insulating material in thin strips, designed to block heat loss through narrow window-sash cracks and through the spaces around the edges of doors. You can get weatherstripping in several forms—spring-metal weatherstripping is the longest-lasting, but the most difficult to install. Adhesive-backed foam-rubber weatherstripping and adhesive-backed felt strips are easy to install, but they wear quickly. Rolled-vinyl weatherstripping is longer lasting than foam rubber or felt and is as easy to install.

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#### **Hint**

Check your weatherstripping every year. Weatherstripping wears out faster than most other insulation, and you'll need to replace it periodically to maintain your fuel savings.

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Measure your windows and buy the appropriate amount of weatherstripping. Remember to install weatherstripping along the sashes and the sash-frame tops and bottoms. Carefully follow the manufacturer's instructions with whatever type of weatherstripping you buy to get the most effective

insulation bang for your buck.

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## Cost and Savings

### What Will It Cost?

Weatherstripping costs about \$15 a window if you do it yourself and about \$100 a window if you have it done professionally.

### How Much Will I Save?

A good, tight-fitting job of weatherstripping on all doors and windows will probably save you 10 percent of your home heating bill every year from now on!

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#### **Figure 3.5**

Spring-metal weatherstripping on window rails.

#### **Figure 3.6**

Spring-metal weatherstripping on window-frame bottom.

#### **Figure 3.7**

Pressure-sensitive weatherstripping on window-frame bottom.

## Applying Caulking

Half the fuel used in the average American residence for heating is wasted! That's right, 50 percent of the warm air the average furnace is making slips outside through cracks, leaks, and inadequately insulated roofs and walls. Plugging those leaks makes \$ense!

Caulking seals your house's seams against heat loss. In addition to caulking around window frames, you should caulk wherever two different materials or parts of the house join. So, as long as you're going to buy caulking cartridges, you ought to check the area where the chimney and roof shingles meet, between roof dormers and shingles, all roof flashing, the undersides of eaves and gable moldings, between masonry steps and the main structure of the house, at corners formed by siding, and between siding panels and any protrusions from main structure of the house, such as hose connections, outside electrical panel boxes, and ventilators.

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## Hint

Caulking eventually wears out. Check caulked areas every year before the heating season begins and recaulk where needed. To extend the life of your caulking compound, consider a coat of paint. Painting your caulking compound will seal it against the wind. (Besides, it'll look better.)

How much caulking compound do you need? That depends on the job. You'll need about ...

- Half a cartridge per window.
- Half a cartridge per door.
- Two cartridges per chimney.
- Four cartridges for the foundation sill.

**Figure 3.8**

Where you'll need to caulk your house.

To do any caulking, you'll need the following tools:

- Chisel
- Medium flat screwdriver or putty knife
- Wire Brush
- Heating pad
- Pocketknife
- Caulking gun
- Old rags

You'll also need these materials:

- Cartridges of caulking compound
- Oakum or fiberglass
- Naphtha

To apply caulking, follow these steps:

1. Warm the caulking cartridges in a heating pad to make the compound easier to apply.
2. Using naphtha and a putty knife or screwdriver, clean the area you're going to caulk, removing old paint, dirt, and deteriorated caulk.

**Note: Naphtha is flammable—don't smoke!**

3. Place the caulking cartridge in the gun and with the pocketknife, cut the tip off the cartridge at a

45-degree angle and insert the screwdriver to break the seal inside the cartridge.

4. Pull the trigger and squeeze out the compound, *pushing*, not pulling, the gun into the frame of the window. Drawing a good bead of caulk may take a little practice, but you'll get the hang of it. A good bead, incidentally, overlaps both sides of the crack for a tight seal.
5. For cracks that are too wide to be covered by the bead of caulking compound, fill in with oakum or fiberglass, and finish the job with caulk.

### Caulking Chart

	Latex	Vegetable Oil	Silicone	Butyl Rubber	Nitride	Acrylic Polymeric	Polysulfide
<b>Tack-Free Time</b>	15–35 Min	2–26 Hrs	60 Min	30–90 Min	10–25 Min	10–30 Min	24–72 Hrs
<b>Ease of Use</b>	Good	Fairly Good	Fairly Good	Fairly Good	Fairly Good	Poor	Fairly Good
<b>Longevity</b>	10 Years	5 Years	20 Years	20 Years	20 Years	20 Years	20 Years
<b>Minimum Application Temperature</b>	40°F	60°F	5°F	40°F	35°F	Warm to 120°F	5°F
<b>Adhesion to:</b>							
<b>Wood</b>	Excellent	Fairly Good	Excellent	Excellent	Excellent If Unpainted	Very Good, If Unpainted	Excellent If Primed
<b>Metal</b>	Poor	Fairly Good	Excellent	Excellent, If Unpainted	Excellent, If Unpainted	Very Good	Excellent
<b>Painted Surfaces</b>	Excellent	Fairly Good	Excellent	Fair	Fair	Very Good	Do Not Use
<b>Masonry</b>	Good	Fairly Good	Very Good	Excellent	Excellent	Good	Excellent, If Primed

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### Caution

Lead-base caulk is toxic. It has been banned, but some stores still have stocks of it. Check cartridge labels and don't buy lead-base caulk.

Also, if you have to use a ladder to caulk your windows and roof areas, be sure the ladder is level, and block it in place. Have someone hold it steady, if possible. When you finish one window, get down and move the ladder—don't stretch out for hard-to-reach spots. Make a sling for your caulking gun, so you can use both hands while climbing the ladder.

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## Cost and Savings

### What Will It Cost?

A caulking gun costs under \$10. The cartridges can cost up to \$6 each. Using the most expensive caulking material, it shouldn't cost you more than \$120 to caulk all open cracks around your windows and other spots.

### How Much Will I Save?

A well-caulked house will cost about 10 percent less to heat.

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## Using Shades, Bands, and Drapes

Shades, blinds, drapes, and shutters can save you heating dollars, if you use the right types at the right times.

Earlier, we talked about keeping shades or drapes drawn on northern exposures during the winter, since you don't get much sunlight through them and they tend to conduct heat out of the house.

At night, when there's no sunlight to gather, you're best off shutting all your drapes, shutters, or blinds to create that extra layer of material over the windows and minimize heat loss. (In summertime, you can maximize cooling and save on air conditioning by reversing the procedure—open the shades, windows, shutters, and so on at night to let in the cooler night air, and button them up in the daytime, to keep out the sun's radiant energy.)

### [Figure 3.9](#)

Make sure drapes cover the entire window.

Made in the shade .... But what kinds of shade?

Naturally, the tighter the weave of your drapes, the better they'll work as insulation. Lined drapes are more effective than unlined drapes. Roll shades, if pulled all the way down, are more effective than venetian blinds.

And a good, tight fit is important, too. Make sure those shades and drapes leave virtually no space for warm air to escape at the sides, top, or bottom.

### [Figure 3.10](#)

Multiple-layer insulating window shade (left) and dead air space insulation window shade (right).

There are two basic types of *insulated shades* on the market. Both are mounted in tracks along the sides of the window to eliminate air leaks at the edges. One type has a high R-value and is formed of multiple layers of plastic film. When drawn, the layers of film in the shades create multiple dead air spaces. A second type resembles venetian blinds when drawn, but the slats are actually rounded on the window side to create dead air spaces. Unlike blinds, however, the slats are connected by flexible joints. The

dead air space in each slat, plus the dead air space between the slats and the window, give the shade its insulating properties. To let in light, the slats roll up into a valance above the window.

## Upgrade to Storm Windows and Doors

Now that your windows and doors are straight, tight, clean, caulked, and weatherstripped, it's time to consider a final step in equipping them to save you fuel dollars—storm windows and doors.

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### Hint Check Those Old Storm Windows

You already have storm windows? Good! You've had 'em for years? Good! Or is it? Check them. Old storm windows spring air leaks. Check to see that the screws holding them are still tight. And check to see if the aluminum has been buckled by the wind, creating gaps between glass and frame. Caulk gaps from the inside with a clear- silicone caulking cartridge. Also, check to see that the weep holes are clean and open. If you've got older storm windows without weep holes, you can make your own with your electric drill

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Storm windows and doors work by creating a pocket of dead air between the primary window or door and the outside. The dead air acts as insulation, preventing heat loss or cold air infiltration.

Dozens of manufacturers turn out a bewildering number of storm window models. It's easy to become confused and just buy by price. But the cheapest isn't necessarily the best bargain, and the most expensive doesn't necessarily assure you top quality. Storm windows and doors must be carefully chosen and carefully installed. An improperly designed or poorly fit storm window won't give you anywhere near the heat savings you're paying for.

When buying storm windows, check them for strength and appearance. The corners should be airtight and strong. They should have "weep holes"—tiny vents or drains that allow water condensation to escape from the dead air space. Without weep holes, the water will collect on your windowsills and rot them. Check the hardware—it must be as well-made and as sturdy as the rest of the window.

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### Hint

Look for the Energy Star label on any storm window you buy. The label means the windows (and storm doors as well) exceed performance standards set by the Department of Energy and the Environmental Protection Agency.

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Be certain that the storm windows you select have permanent weatherstripping or a vinyl gasket to seal the crack between them and the primary windows.

And remember, anodized- or baked-enamel-finish windows will look better longer. Bare aluminum windows will deteriorate faster and become quite unpleasant to handle as oxidation pits and mars them.

Shop around and shop carefully. Take your time. You're making a big investment and you don't want it to turn into a big mistake. Storm windows and doors can pay bigger dividends if you're a careful consumer. If you don't want to buy both storm windows and storm doors, bear this in mind: The windows will save you more than the doors. They fit tighter and can be left closed all winter long. Also, if you don't want to lay out the cash to do all your windows this year, you can do your windows over several seasons. If you want the most effect for the least expense, do your north-facing windows first. Next season cover the east- or west-facing windows. Leave the southerly exposures for last.

There are two basic kinds of storm windows available—and a third, temporary type you can make for yourself at very, very low cost. The basic types of "store-bought" storm windows are single-pane or single-sash windows and combination windows.

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### **Hint**

Storm windows reduce the passive solar-heat-collecting ability of your windows because the rays have an extra layer of glass to penetrate. So, keep those storm windows clean to maximize that free heat from the sun.

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### **Using Single-Pane Storm Windows**

These windows are a single pane of glass, usually in an aluminum frame, made to measure for your windows. They are fairly easy to install yourself, although you will have to work on a ladder if your house has more than one story, or if you've got high primary windows. Some models can be installed from the inside.

Some hardware and building supply stores sell kits for making your own single-pane windows if you've got the time and ability. Or, you can have them made for you. Either way, accurate measurements are critical. If you're doing the measuring yourself, remember this: Just because you've measured one window, don't assume that you've measured every other similar-looking window in your house. Windows vary in size. And, in fact, many vary in measurements from top to bottom, so measure all of every window.

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### **Hint**

Save yourself a lot of confusion at installation time. Number each window on your house and list each window's measurements according to its number. Then number the storm windows when you get them. Installing them will be a matter of matching numbers, rather than a hit-or-miss proposition, trying to match various storm windows to various primary window frames until you get the right ones lined up.

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Take your measurements to your building supply or hardware store, and be sure the salesperson copies them accurately when ordering your storm windows. Keep a copy of the measurements and compare

your copy with the delivered storm windows to be sure they're right.

Mounting hardware varies from company to company, so follow the manufacturer's directions carefully if you're mounting your single-pane storm windows yourself.

Single-pane storm windows are less expensive than combination windows, but they have one major disadvantage: They must be removed every year at the end of the heating season. You get greater convenience—but at greater price—from combination windows.

### Using Combination Storm Windows

These windows combine two features—insulation for the winter and screens for the warmer months, so once they're installed, you won't have the hassle of taking them down every year. They remain permanently installed over your primary windows. When spring—or any other—cleaning time rolls around, you can easily open combination windows. You can also open them for ventilation at any time.

If you're really handy, you can install the combination windows yourself, but they are more difficult to put up than single-pane windows.

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#### Hint

Be sure any combination storm windows you buy have permanent weatherstripping in the window channels as well as on the edges that will touch your primary windows.

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#### [Figure 3.11](#)

Combination storm windows combine glass for winter and screens for summer

### Building Plastic Sheeting Storm Windows

If you don't want to spend \$100 or so per window for storm windows, there is a temporary storm window you can make for yourself—with plastic sheeting.

You can easily install plastic sheeting storm windows and they're very inexpensive. They are not very attractive—some would call them downright ugly—but they are effective insulation and can be taken down anytime. (In fact, you'll have to take them down when the heating season ends.)

#### [Figure 3.12](#)

Make-it-yourself plastic storm windows are easy and inexpensive, but effective.

You can tape up the plastic sheeting inside your house over existing windows (so you don't have to work outdoors and can install them even on the coldest day). Or you can tack them up outside your primary windows.

To do the job you'll need the following tools:

- Scissors

- Ruler or yardstick
- Hammer (if you're tacking them to the outside) or double-faced adhesive tape (if you're taping them to the inside)

You'll also need the following materials:

- Six mil-thick polyethylene plastic (that's the thick stuff sold in rolls, not the food wrap or the board-like sheets)
- Tacks
- Thin wooden strips

If you are installing the plastic inside the house, do the following:

1. Measure each window.
2. Cut the plastic to size.
3. Cover the four sides of each window frame with the double-faced tape.
4. Remove the tape backing from the top only.
5. Line up the plastic and press in place at the top.
6. Remove the rest of the tape backing and smooth the plastic into place.

To install the plastic sheeting to the exterior of the house, do the following:

1. Measure each window.
2. Cut the plastic to size.
3. Tack plastic to the top of the window frame, using the wooden strips to hold the plastic in place.
4. Repeat the procedure on the sides and bottom.

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## **Cost and Savings**

### **What Will It Cost?**

Prices of storm windows vary widely, but we found combination storm windows for as little as \$70 a window to just under \$100 a window. For less than \$75 you ought to be able to make your own temporary plastic storm windows for your entire house.

### **How Much Will I Save?**

You should be able to cut your heating bill by 20 percent with well-fitting storm windows.

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You can put temporary plastic storm windows over openings already protected by regular aluminum-and-glass storm windows. They'll fight heat loss even more. A good tip for northern exposures subject to strong winds.

### **Using Storm Doors**

When you're shopping for storm doors, inspect them the same way you checked out storm windows. Make sure they are of strong construction, have adequate weatherstripping, and that the frames are a treated aluminum. Storm doors, by the way, are also available with steel and wooden frames—and because doors get a lot more use than windows, you may want to consider these sturdier materials. Regardless of the material you select, look for the Energy Star symbol.

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#### **Hint**

Be sure that any storm door you buy has safety glass or clear plastic. That door will see a lot of opening and closing as well as rough treatment from the wind. You don't want the glass shattering in the middle of winter.

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Unless you're extremely experienced and handy, you'll want a contractor to hang your storm doors. It's a much tougher job than installing storm windows. Before you let your contractor slip away, check the fit and the ease of opening and closing. It's much easier to get him to adjust it while he's still there than it is to get him to return to fix things.

### **Buying Double-Glazed Windows**

You can replace your old primary windows with newer double-glazed windows (many new homes in extreme-weather areas of the country are built with double-glazed windows). This is an expensive option, but will pay dividends for years to come, saving you heating and cooling dollars, and increasing the resale value of your home. As a bonus, you'll have a dramatic reduction in outside sound intruding into your home through double-glazed windows.

What is double-glazing? Simply put, it's two sheets of glass in the window casing with an airspace between, sort of a pre-made storm window effect on your primary window. Double-glazed windows are more effective than storm windows and they last longer because you never have to take them down or put them up, so they don't get the handling abuse suffered by storm windows.

Many double-glazed windows are on the market, so shop carefully and look for the Energy Star label to ensure that you'll get maximum performance from your new windows.

Most quality double-glazed windows are engineered so that they can be flipped inward into the room for safe and easy cleaning.

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## Cost and Savings

### What Will It Cost?

Double-glazed windows typically cost about \$375 to \$500 per window for wood, and \$200 to \$300 for aluminum or vinyl. If you're buying aluminum windows, make sure they have a "thermal break." That's a piece of insulating material between the outer and inner frame that prevents ice from forming around the interior window frame.

### How Much Will I Save?

Retrofitting your whole house with double-glazed windows can save you as much as 25 percent of your heating costs and, in the summer months, you'll save as much as 15 percent on air conditioning as well.><><

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## Weatherstrip Your Doors

Windows can be kept closed all winter, but doors can't—unless you're planning to hibernate.

Doors present the same heat-loss problems as windows, but, unless they're the rare, all-glass type, they don't offer the passive solar-heat collection opportunities of windows.

The best type of door for energy saving is a revolving door. But homes don't have revolving doors, so you've got to make do with what you do have.

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### Hint

It may sound silly, but the first "door" rule of heat conservation is, "Shut the door." A door swung closed and not latched is going to let a king's ransom in heat out into the cold winter air. So, shut the door—and teach your children to shut the door, too.

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If you've got a vestibule, use it as a cold-air lock. Close the vestibule door behind you before you open the front door. Also, turn off or remove the radiator or heat register in the vestibule. Use the area as a dead air space. Weatherstrip both the vestibule door and the front door, and insulate the interior walls of the vestibule.

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### Hint

Protect yourself. If you're having windows or doors installed by a contractor, you should draw up a written contract, listing exactly what is to be done and how much it will cost. A

reputable contractor will readily agree to such a document.

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Almost anyone can weatherstrip a door—they're even easier to do than windows. But there are differences. The top and two sides of a door are frame stripped, while the door bottom requires special treatment, and you'll apply different types of weatherstripping using different techniques.

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### **Hint**

Keep your weatherstripping clean. It'll last longer and be more effective.

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### **Installing Pressure-Sensitive Foam Weatherstripping**

This weatherstripping comes in rolls with adhesive on one side and an insulating foam on the other. It can be cut with a knife or scissors and installed simply by removing the protective backing from the pressure-sensitive adhesive and pressing it against the inside face of the door jamb. (Be sure to wash the jamb first with a good, strong detergent to remove all dirt and grease.)

Although this type of weatherstripping is extremely easy to install, it doesn't last very long—you'll probably have to replace it every two to three years.

#### **Figure 3.13**

Pressure-sensitive weatherstripping is easy to install, but needs replacing every couple of years

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### **Hint**

You can reinforce the adhesive's sticking power by putting in a carpet tack or thumbtack every 10 inches or so along the length of the weatherstripping.

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### **Installing Spring-Metal Weatherstripping**

This material is easy to install, but, unlike the pressure-sensitive weatherstripping, it lasts a long time. You'll need tin snips, hammer, nails, and a tape measure to do this job. Measure the door top and sides, cut strips to those lengths, and then tack the strips in place along door jamb. For a better seal, lift the outer edge of the strip with a screwdriver after tacking it in place.

#### **Figure 3.14**

Spring-metal weatherstripping.

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### **Installing Foam-Rubber Weatherstripping with Wooden Backing**

This type of weatherstripping acts in the same way your refrigerator door gasket does. It comes in rigid strips and must be cut with a handsaw and installed with a hammer and nails. It is easy to install, and lasts almost as long as the spring-metal weatherstripping. As with the spring-metal weatherstripping, you cut it to length and nail it against the door jamb. You should hammer in the nails a foot apart or less. Here's a tip: If you put a bead of silicon glue on the door jamb before you nail the strips to it, the weatherstripping will last longer.

### **[Figure 3.15](#)**

Foam-rubber weatherstripping with wooden backing.

### **Installing Aluminum-Backed Vinyl Roll Weatherstripping**

This material consists of a vinyl roll held rigid by an aluminum strip, which is nailed to the door jamb. It is easy to install and is long lasting. It's installed the same way as the spring-metal and foam-rubber wood-backed weatherstripping.

### **[Figure 3.16](#)**

Aluminum-backed vinyl weatherstripping.

### **Installing Sweeps**

Sweeps are brush-like strips that are attached to the bottoms of doors to keep heat inside. They may be vinyl or nylon with either aluminum or plastic backing for rigidity and installation. They work only on flat thresholds and can become snagged on carpets or rugs. They are extremely easy to install, since the door can be left on during installation. Simply cut to proper length and screw on the bottom of the door. Check instructions of the sweep you buy to determine whether to mount it inside or outside.

### **[Figure 3.17](#)**

A door bottom sweep.

### **[Figure 3.18](#)**

A door bottom bulb threshold.

### **Using Shoes, Bulb Thresholds, and Interlocking Thresholds**

Installing these devices requires you to remove the door and to trim the bottom to make room for the weatherstripping. While a do-it-yourselfer with good skills can install the first two, only a professional carpenter should attempt the interlocking threshold.

Finally, while you're weatherstripping all those doors and windows, remember the attic door. A lot of heat can slip through attic door cracks because hot air rises.

## **Shopping for Roofing and Siding Materials**

If you're about to re-roof or re-side your house, you're about to spend some really big bucks. Let's see how you can add a little energy-saving for your investment and make those bucks pay dividends by lowering your heating and/or cooling costs.

In the colder climates, choose dark roofing shingles. The dark shingles will absorb the sun's heat and act as solar collectors. In hotter, torrid zones—where cooling costs you big-time—go for lighter colors, which will reflect the sun's heat away from your roof.

In any area, if you're putting on new siding, it will pay you to look for metal or synthetic siding materials with insulation backing. And, when the old siding's off the house, it's a perfect time to insulate those exterior walls or add to the insulation already on them.

## Using Smart Landscaping

If you were starting from scratch, here's the ideal way to landscape your property for maximum fuel savings: First, determine where your winter winds normally originate. Most homeowners will find the winds come out of the north or west.

If that's the case for your home, on the north and west sides of your house, plant conifer (evergreen) trees. They will act as windscreens and aid your exterior wall insulation. With that cold north or west wind blunted, you'll feel warmer inside. (You know the feeling personally. When a cold wind is blowing and you step behind a shelter of some sort that blocks the wind, you immediately feel warmer.)

On all other sides, plant deciduous (leaf-bearing) trees. In winter, when the leaves are off, the sun's warming rays will strike your roof and generate heat. And in summer, the leaves will shade your roof, keeping you cooler and saving you money on air conditioning. Around the house, close to the foundation, plant hedges or other dense bushes.

In winter, if you're in a rural area, you may want to buy some hay bales and make a small mound of hay around the house at the foundation. The hay will keep the wind from the house.

If a portion of your home's foundation is exposed to the elements, you may want to consider regrading around your house to cover that portion.

You can also supplement your furnace with the sun's energy by attaching a greenhouse to your home. On sunny days, the greenhouse will collect the sun's heat, and a simple fan arrangement can pump that warmth into your home. On cloudy days and at night, close off the greenhouse with storm doors to cut heat loss. Depending on the size, greenhouses cost between \$1,500 and \$6,000. But they can reduce your home heating bill by as much as 25 percent!

### **Figure 3.19**

Ideal landscaping protects the house from the wind but allows in sunlight in winter, and shades the roof in the summer.

### **Figure 3.20**

A greenhouse can be a passive solar-heating unit.

## For More Information

For further information check the following Internet resources:

Energy Star <http://www.energystar.gov>

American Architectural Manufacturers Association <http://www.aamanet.org>

National Fenestration Rating Council <http://www.nfrc.org>

National Wood Window and Door Association <http://www.nwwda.org>

Andersen Windows <http://www.andersencorp.com>

Pella Doors and Windows <http://www.pella.com>

American Society of Landscape Architects <http://www.asla.org>

U.S. Department of Energy, Energy Efficiency Clearinghouse  
<http://www.eren.doe.gov/erec/factsheets>

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