

**This Old
House**

read this
before you

replace your windows

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Window shopping

It's easy to be overwhelmed by all the choices you have to make. Here's a guide to help you through the buying process

WINDOWS DO SO MUCH FOR A HOUSE. They let in the light that brightens our rooms; they shut out the bad weather, and, when open, they give us a welcome flood of fresh air. Without windows, our homes would be as dark and depressing as caves.

But maybe your windows aren't doing their job very well anymore—chilling you with cold drafts in the winter and saddling you with high AC bills in the summer. Or maybe they've allowed water to dribble in, and now structural repairs are required. Perhaps the insulated glass is foggy or the sashes are stuck. If any of these things are happening, it may be time to invest in new, energy-efficient windows, ones that look as good as or better than what you have.

This is not a step to be taken lightly. Windows are prominent features of a facade, and new units should be true to a house's style and history. And there are a daunting number of decisions to be made, from what a window is made of to how it's installed, how it operates, and even what pattern of bars you want to divide the glass. Using this booklet, you'll be able to make sense of the options and learn how to compare products so that you can talk knowledgeably with dealers and installers. Being informed is the best way to reach your goal: to get the best-looking, best-performing windows—ones that meet your needs and fit your budget.

Choose your windows with care. They play an important role in the overall appearance of a house by helping to unify the facade and give it a welcoming balance.

Shown: Ultimate Double Hungs

Vitals

LONGEVITY While a well-made window can easily last 50 years or more, manufacturers usually offer warranties of 10 years on hardware and workmanship and 20 years on the seals that keep insulating glass from fogging. Some makers will even cover exterior-finish failures within a specified time span.

WHERE TO BUY You'll find the greatest range of choices and the best advice at window retailers and full-service lumberyards.

INSTALLATION Leave this to a pro who has experience assessing and measuring a window opening and knows the proper techniques for installing replacement windows.

SAVINGS Energy Star–certified windows can cut heating and cooling costs by 11 to 37 percent* depending on the type of windows being replaced and your climate zone.

*Source: Efficient Windows Collaborative; efficientwindows.org

These insert windows, which marry warm wood interiors to durable fiberglass exteriors, are installed from the inside; the existing trim can remain in place.



Shown: Wood-Ultrex Insert Double Hungs

WINDOW ANATOMY

Learn to talk like a pro

Shown: Marvin Ultimate Next Generation Double-Hung; marvin.com

CHECK RAILS

Where the two sashes lock together. Also called meeting rails.

SASH

Movable or fixed frame that supports the glass.

JAMBS

Sides and top of the frame, which supports the sashes.

BARS

Slender strips that divide the glass. Also called muntins or grilles.

SASH LOCK

Hardware that secures the top and bottom sashes.

GLASS

Can be tailored to a wide range of performance requirements.

SILL

Bottom part of the frame; angled to shed water.



Replacement options

1> Full frame This unit offers the most styles and highest energy efficiency. Because it's installed from the outside, the same as in new construction, all the existing window's exterior trim must be removed and some siding may need to be replaced. Doing so allows the framing, flashing, and insulation around each opening to be inspected and upgraded, but it also pushes up the installation cost.

2> Insert This unit is installed from the inside, where it fits within the existing window frame, without disturbing the existing trim. Because an insert goes in so quickly, its total cost usually ends up being less than that of a full-frame replacement. Keep in mind that an insert's frame reduces the size of the window opening—and the amount of light it lets in—by about 1 inch on all sides. Also, an insert may not be an option if the existing window frame is out-of-square or structurally unsound.

Choose your style

The way a window operates should be in keeping with the style of house you have

1 > DOUBLE-HUNG

The most popular window in the U.S., and the most appropriate type for traditional house styles, it has two sashes that slide up and down. (On single-hungs, only the lower sash moves.) The screen mounts on the outside. When open, the sashes cover at least half the window opening.

2 > CASEMENT

Its hinged sash swings out like a door, so air can flow freely through the entire opening. Seals tightly to its jamb, making it one of the best types for keeping out the weather. Operates by hand or by turning a crank. When open, the sash is vulnerable to wind and rain. Best for contemporary and Prairie-style homes. The screen mounts on the inside.

3 > SLIDER

Like a double-hung window on its side, the sashes slide on horizontal tracks—so there's no lifting—and the sashes always cover at least half the window opening. Best for contemporary house designs. Screens mount to the outside. The lower tracks require regular cleaning.

4 > AWNING OR HOPPER

It's like a casement mounted on its side. An awning window (shown) is hinged at the top and swings out, so you can leave it open when it rains. The screen is on the inside. A hopper window has bottom hinges and swings in. The screen is on the outside. Both types seal well, and with the right muntin configuration they can look good on either traditional or modern houses.

5 > TILT-TURN

Common in Europe, this window has special hardware that allows it to tilt in like a hopper or pivot in like a door, depending on which way you turn the handle. The screen mounts outside. It does a superb job of sealing out the weather, but it's the most expensive window type.

FIXED (not shown)

Without a sash to open, it only lets in light, so it's less expensive and more energy efficient than comparable windows with sashes. Best for inaccessible areas, such as gable peaks, or as architectural accents; it can be crafted into almost any size or shape.



1



2



3



4



5

ILLUSTRATIONS: RODICA PRATO

BARS AND GRILLES

With insulating glass, you have four ways to dress up your panes



GRILLE IN GLASS

Metal spacers between the panes lack authenticity, but the glass is easy to clean. Most efficient if the grille doesn't touch the glass.



REMOVABLE GRILLE

A wood grille resting against the pane's inside surface pops off the edge of the sash when the glass needs cleaning, then pops back in.



SIMULATED DIVIDED LIGHT (SDL)

Wood bars affixed to the sash cover the pane inside and out. Looks more authentic than a grille, but slows down glass cleaning.



SDL WITH GRILLE IN GLASS

Combines metal spacers matched with fixed bars inside and out to re-create the look of a true divided-light window with actual muntins.

Fun shapes and patterns

You have many ways to add character and pizzazz to otherwise plain panes

CLASSIC CURVES ▾

A crown on the casing and ogee lugs on the upper sash elevate the aesthetics of this six-over-one double-hung. (*Six-over-one* is shorthand for the number of panes in the upper and lower sashes, respectively.)



ARCHED >
The bars in this casement window echo the shape of the sash.



QUEEN ANNE ^
This arrangement of tiny panes around a big central pane originated in the Victorian era. Often, the panes were colored to create a stained-glass look at a low price.



ROUND TOP ▾

The curved frame on this double-hung would fit nicely in the confines of a dormer or gable peak.



BULL'S-EYE ^

This playful take on a four-over-two double-hung features a circular fifth pane in the center of the upper sash—just one example of the custom options available in wood.

COTTAGE ▾

Unlike the up-and-down symmetry of a double-hung, the upper sash is one-third the size of the lower one and usually fixed. Fits nicely on Craftsman-style houses.



GLASS CHOICES

> Double-pane

Compared with single-pane windows, this type is up to 37 percent* better at preventing heat transfer, so interiors stay warmer in winter and cooler in summer. Double-pane windows are also less susceptible to condensation than single pane.

> Triple-pane

Adding a third layer of glass cuts heat transfer by another 30 percent, making this the best barrier against cold and condensation. It's a good choice for north-facing walls, but on a south-facing wall, three panes would cut down on the amount of solar heat that a window lets in.

> Laminated

An invisible layer of plastic sandwiched between two sheets of tempered glass creates a pane that's virtually unbreakable. Use it to foil intruders, muffle sound, and protect your house from earthquakes and hurricanes.

*Source: Efficient Windows Collaborative; efficientwindows.org

Shown: Ultimate Replacement Casement



Materials

Your choice determines a window's longevity, performance, and looks

1 > WOOD

Long a traditional favorite, it's attractive, a decent insulator, and easy to repair. There's virtually no limit to how it can be customized. Too bad it's vulnerable to water. Attentive maintenance is the key to how long this window lasts. May be the only option in historic neighborhoods.

2 > CLAD-WOOD

This is a wood window covered by an outside layer of vinyl or metal, usually aluminum, that virtually eliminates maintenance. Metal cladding is more durable by far. This window shows off wood's aesthetic qualities on the inside while making use of its insulating properties.

3 > FIBERGLASS

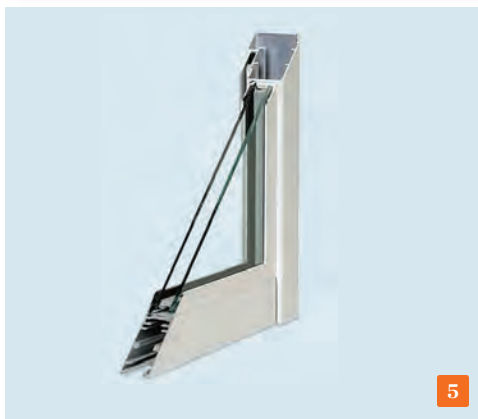
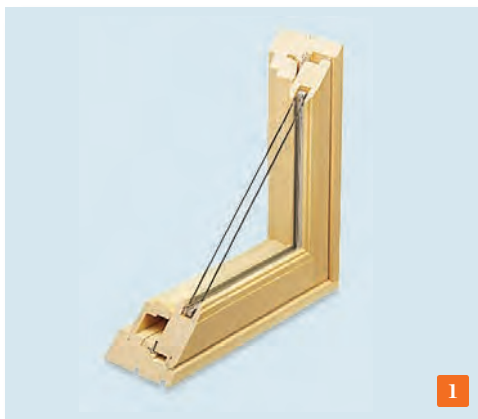
This mix of spun-glass fiber and polyester resin is rigid, strong, impervious to water, and as good an insulator as solid wood. Some manufacturers offer a wood lining on the interior. About as maintenance-free a window as you can get, for less than a comparable wood unit. The downside? A limited number of design choices.

4 > VINYL

It's inexpensive, to be sure, but slowly becomes brittle with age. The frame isn't stiff, doesn't insulate well, can't be repaired, and looks nothing like traditional wood.

5 > ALUMINUM OR STEEL

It's low-maintenance but suitable only for mild climates because of how easily it carries heat outside in the winter and inside in the summer.



PHOTOS: (3, 4, 5) DARRIN HADDAD

TIP When painting wood windows, seal the gap between glass and wood by lapping the final coat onto the glass by $\frac{1}{16}$ inch. Don't get paint on plastics or weatherstripping; it makes them brittle.

HOW TO BUY AND WHERE

To get exactly what you want, pay a visit to a window retailer

OFF-THE-SHELF These models, sold at home centers and lumberyard chains, offer low prices and fast delivery—two to three days—but the selection of brands, styles, and sizes is very limited.

MADE-TO-ORDER You can get the exact sizes, designs, and options you want from window-and-door retailers, high-end lumberyards, or home centers. They can help you select the finishes, glass, and operating type that suits your situation. Lead times are two to four weeks.

SPECIALTY Need a window with a unique shape or design configuration—say, one made of exotic hardwood with copper cladding? Then reach out directly to a window retailer connected to a manufacturer, one with the skill and experience to handle nonstandard, out-of-the-ordinary requests. Lead times vary, but delivery can take up to eight weeks.

Look for the window label

To know how effectively a window halts heat loss or reflects the sun's heat, among other things, consult a label like the one at right. It contains test results from the National Fenestration Rating Council (NFRC), an independent organization, that you can use to quickly compare the performance of different windows. Not all windows are subject to NFRC scrutiny, so this label is your assurance that a unit meets the local energy code. Here's the key information, deciphered.

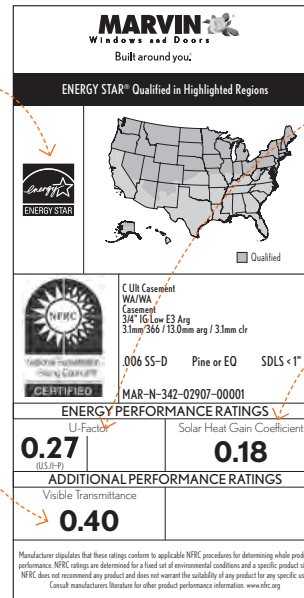
NOTE Some labels also report the air leakage through a unit in cubic feet per minute per square foot. Look for 0.3 or less.

ENERGY STAR

The shaded portions of the map show where a window meets Energy Star criteria. This unit passes muster nationwide.

VISIBLE TRANSMITTANCE (VT)

Specifies how much light passes through: 0 is opaque, 1 is transparent. Glass with a VT of 0.60 or more looks clear. A VT below 0.40 gives things a grayish cast.



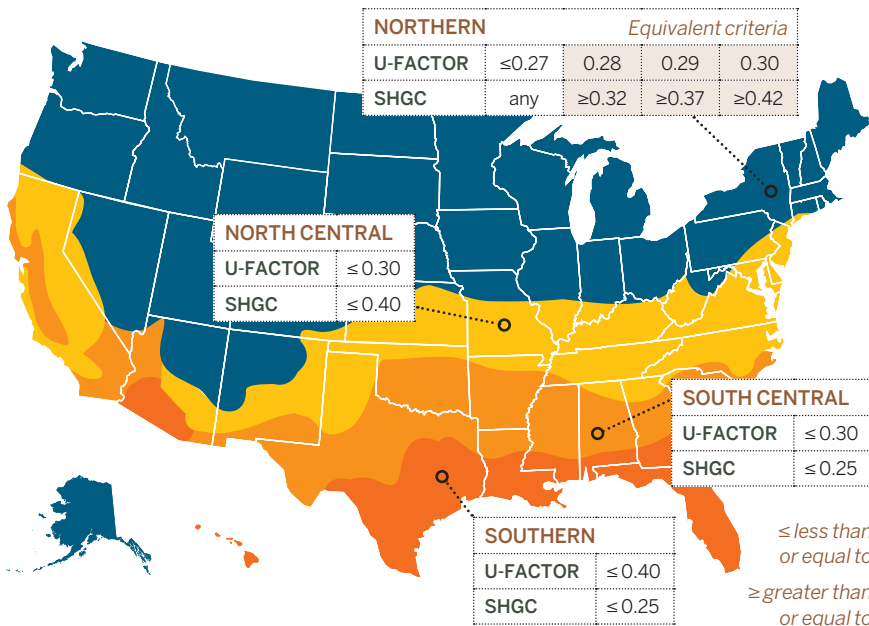
U-FACTOR

Measures how effectively a window stops heat flow. The smaller the number, the better the performance.

SOLAR HEAT GAIN COEFFICIENT (SHGC)

Indicates the ability of the glass to block the sun's heat. The lower the number, the less heat gets in. In the northern zone (see map below), an SHGC of 0.32 or more can offset less-than-ideal U-factors up to 0.30.

ENERGY STAR 2016 CRITERIA*



KNOW YOUR ZONE

A window suited to Miami isn't the best for Minneapolis

THE MINIMUM ENERGY EFFICIENCY STANDARDS set by the federal government for new windows are not uniform across the country; the standards change based on climate zone. Using the information on this map and on the printed label, you can quickly determine which windows are best for your region. Keep in mind that these are minimum requirements—don't overlook windows that offer even better performance numbers.

*Source: Marvin Windows and Doors

Energy savers

How to enhance the way glass performs

1 > Low-e coatings These transparent, micron-thin layers of metal reflect heat either toward the interior (in cold climates) or toward the exterior (in warm ones), depending on the glass surface they're fused to. They can reduce heat loss (or gain) by as much as 35 percent.*

2 > Inert gases Air trapped between panes insulates fairly well, but if a gas such as argon is used instead, performance improves by 16 percent.** Xenon and krypton insulate even better than argon.

3 > Warm-edge spacers Standard aluminum spacers conduct lots of heat through the edges of double-pane glass. Nonmetallic, warm-edge spacers bring those losses down by 10 percent** and make it more difficult for condensation to form on inside panes.

*Source: U.S. Dept. of Energy; energy.gov

**Source: Cardinal Glass; cardinalcorp.com

Bring the outside in

Enhance your connection to the outdoors with these grand floor-to-ceiling “windows”

PATIO DOORS are just like windows in the way that they invite light and fresh air into a room as they offer a broad view of the surrounding landscape. But these doors go one giant step further, by providing an easy, natural transition to the outside while also improving a home's flow and functionality. Once you envision how much of a difference a patio door can make in the way you live—or how much better a new door will look compared to the tired one you already have—it's just a matter of finding a design that complements the style of your house and your lifestyle.



Shown: Ultimate Inswing French Doors with arch-top transom window

CHOOSE YOUR TYPE

There are three basic ways to open a patio door



1. SCENIC

This style of patio door can be engineered to cover openings up to 50 feet wide and 12 feet high. The panels either slide past each other or fold up against one another like an accordion. Multipoint locks and ample weatherstripping ensure that these doors are as secure and weathertight as their smaller cousins.



2. SLIDING

It's like a jumbo slider window, except that one panel moves and one remains fixed. Available either as a modern-looking patio door (shown) with large glass panels and a narrow frame, or as a French door with wider, more traditional rails and stiles. Fits openings up to 8 feet high and 16 feet wide.



3. SWINGING

For this classic hinged model, you specify the swing direction: in or out. Outswinging doors don't intrude on indoor space and actually get tighter as the wind blows against them. But to use them in winter, be prepared to clear away snow. Can be made for openings up to 8 feet high and 14 feet wide.

Lasting details

When you're ready to buy a patio door, here are some key options to consider

FINE FINISHES On wood doors, a flawless coat of paint highlights design details, while a factory-applied stain brings out the richness of the grain.

COLORFUL CLADDING For the exterior aluminum armor, choose a hue that suits the surroundings. And look for a warranty of at least 20 years on the finish.

ROBUST HARDWARE Handlesets made of cast bronze or vacuum-plated brass shrug off the worst wear and weather. Stainless-steel rollers on sliding doors and adjustable hinges on swinging doors assure years of effortless operation.

EXTRA GLASS Pairing patio doors with fixed sidelights or a transom window will let in even more light and open up a wider field of view.



1. SCENIC BIFOLD DOOR

2. SLIDING FRENCH DOORS



3. INSWING FRENCH DOORS



TRANSFORM AN ORDINARY SPACE INTO AN EXTRAORDINARY ONE



Whether your project includes a new addition, historic renovation or window replacement, you can transform your living spaces to reflect your style with Marvin and Integrity windows and doors. With a wide range of styles, shapes, sizes and design options, our product lines have the flexibility to provide the solution that's right for you.

Built on a foundation of values passed on through four generations, our windows and doors are an investment you will value for many years to come.



MARVIN®

Every Marvin window and door is made to order, one at a time. An unparalleled value in the market, Marvin offers craftsman-quality construction, energy-efficient technology and the industry's most extensive selection of shapes, styles, sizes and options.

INTEGRITY®

Integrity's windows and doors are made with Ultrex® fiberglass, an innovative material created 20 years ago. For two decades now, Ultrex has outlasted and outperformed the competition on virtually every measurable scale.

Across the nation, Marvin and Integrity independent dealers offer an unmatched level of dedication and commitment to excellence. They are truly window and door experts who provide a level of service and personal attention that's unmatched by other dealers. Whether your project is new construction, remodel or replacement, when you work with a Marvin or Integrity dealer you'll feel confident about your experience, every step of the way.

Your local Marvin and Integrity dealer is uniquely qualified to help you select the perfect window and door solution to fit your individual style and needs. They understand the local landscape, building requirements, climate issues and more. For beautiful results, get started today!



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