Today's Windows And Doors Are Better Than They Used To Be

Most people don't just wake up one morning thinking it's time to replace the windows and doors in their home. Usually there has been plenty of time to *feel* or *see* the problem. Sitting near a window and feeling the discomfort of a cold draft or the sun's heat are common symptoms. Another widely reported moment of decision is when your old sliding glass door comes off the track. Again. Or you notice that the frames on your old anodized aluminum windows are looking more than ever as if they were made from worn-out garbage cans.

Don't be surprised that windows and doors don't last forever. Even if your house is less than 20 years old, your original windows and doors may have been of poor quality, and are now showing the effects of time. Also, because of advances in technology, materials and design, new windows and doors can provide energy efficiency and maintenance benefits that older products could never be expected to provide.

Immediate And Long-Term Benefits

Replacing your old windows and doors requires less time and money than you might expect and can improve the re-sale value of your home, to say nothing of the benefits you'll begin to enjoy immediately, such as lower energy bills, increased comfort, improved appearance and reduced maintenance.

However, there are some things you should know before calling a window replacement contractor.

Types of Windows & Doors

There are three basic types of windows and doors, as defined by the material from which the frames are made.

Vinyl

More and more windows and doors are being made of vinyl or similar materials such as fiberglass. Windows with vinyl frames have excellent insulating properties. Vinyl does not conduct heat or cold easily, and the multi-chambered design of vinyl frames adds insulating value. Although vinyl frames usually can't be painted, they also do not peel or deteriorate in the same way as wood. The quality and cost of vinyl windows and doors varies considerably. When evaluating quality, you should pay particular attention to the finish of the frames and whether or not the joints are welded.

Aluminum

In warmer climates, aluminum windows and doors remain a popular choice. Although aluminum conducts heat and cold more easily than wood or vinyl, more energy-efficient aluminum frames incorporate thermal breaks that prevent heat or cold from being conducted through the frame. Aluminum frames also offer the greatest benefits of strength, low maintenance and relatively low cost. While old aluminum products were usually unpainted, today's aluminum windows and doors are finished with a durable electrostatic paint process in a variety of colors for low maintenance and a traditional appearance.

Wood

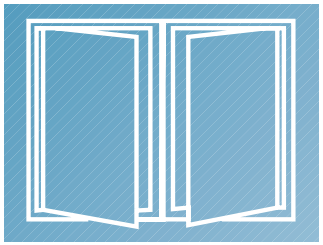
Originally, most windows and doors in all parts of the country were made of wood. However, fewer than half of the windows being installed today are wood. Wood has good insulating properties and can be painted or stained in a virtually unlimited number of ways. Of course, wood that's exposed to the elements may rot or warp, and eventually has to be re-painted. Many wood windows are now sheathed or clad with aluminum or vinyl on the exterior to reduce maintenance. Good quality wood windows and doors tend to be more expensive than other types of framing material.

Custom vs. Stock Sizes

Whatever type of windows or doors you're selecting, you can choose products that are made specifically to fit the openings when you replace the old windows in your home. This can provide a significant advantage over the stock frame sizes offered by some window companies or available for purchase "off the shelf" at lumberyards and home centers. With custom-made windows, you can be sure of getting the exact size window you need, which is important for proper installation.

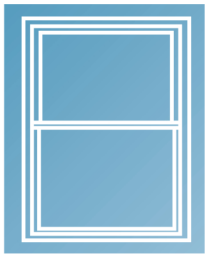
Window and Door Styles

Windows and doors come in a number of styles. Just because you have one style in your home now doesn't mean you can't replace it with a different style.



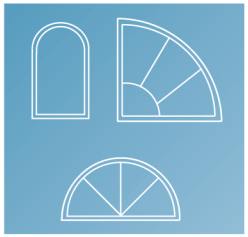
Casement windows open and close using a crank or lever. The casement style opens up the entire window area to the breeze, and seals very tightly against drafts and moisture. Casement windows also provide easy egress in case of emergency.

Single hung windows open and close by moving the lower panel or sash of the window. Thus, only half of the window area can be opened for ventilation. This is the most traditional-looking style of window.



Double hung windows are virtually the same as single hung windows except that both the upper and lower sashes can be moved. The advantage is that you can adjust the sashes so that warmer air escapes at the top of the window opening while cooler air enters from the bottom.

Horizontal roller windows are like a single or double hung window turned on its side. One or both of the sashes move sideways on rollers to open the window. Horizontal roller windows can be an economical choice for larger openings.



Fixed lite windows do not open at all, but are designed to provide light and architectural interest where ventilation is not needed. They range from the familiar picture window style to squares, circles, octagons and a variety of other shapes, in virtually any size.

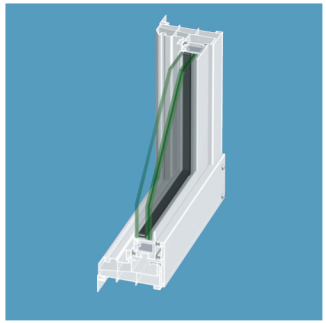
Sliding glass doors come in two-, three- or four-panel versions. They provide a contemporary look and are popular for providing access to pools, patios and decks. Pay particular attention to the rollers and how easily the doors slide.

French doors offer a more traditional, elegant look. Fixed panels can be used in combination with operable doors.

Types of Glass

The type of glass you choose for your replacement windows and doors can be one of the most important choices you make. Many of the glass options discussed below can be combined to provide multiple benefits.

Insulating glass can help save on both heating and air conditioning bills. It consists of two panes of glass separated by an insulating air space. The insulating value is increased if the air space is filled with an inert gas such as argon. Insulating glass also helps to reduce outside noise, and reduces condensation on the interior pane.

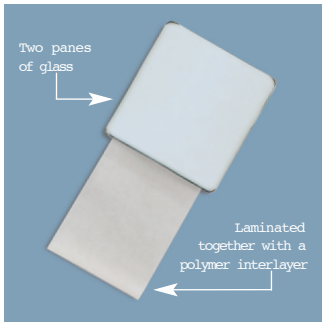


Low-e coatings can enhance the energy efficiency of windows and doors, reduce condensation, and help screen out the harmful ultra-violet (UV) rays that fade your furniture, carpeting and paintings. These nearly invisible coatings can be applied to windows in different ways to reduce wintertime heat loss in cold climates or to reduce summertime heat gain in warm climates. *Softcoat (or sputtercoat) low-e* must face the interior side of the insulating glass, because it is subject to damage from weather or window washing. *Hardcoat low-e* is durable enough to be used with single-pane glass, but is typically considered somewhat less effective than soft coating. To get the maximum benefit from a low-e coating, it's critical to choose the coating that's most appropriate for your specific climate and for the orientation of the windows and doors to which it's being applied.

Tinted glass can be effective in reducing solar heat gain and glare inside a home and in filtering out damaging UV rays. In warmer climates where solar heat is the major cause of high energy bills, tinted glass has proven to be an economical way of lowering these costs, as well as improving interior comfort. Care must be taken in choosing the tint that's right for you. Some tints will lower solar heat gain while still letting through bright light. Other, darker tints can provide privacy without the use of draperies or blinds.

Safety or tempered glass shatters into small pieces without sharp edges when broken. Building codes require tempered glass for all glazed doors and typically for any glazed area that's less than 18 inches from the finished floor. Tempered glass is also a suitable option for any window where additional strength is required.

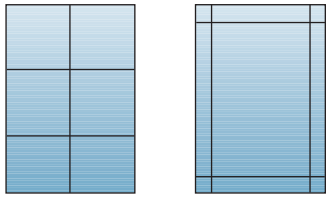
Impact-resistant glass is an excellent option for meeting building codes that require windows and doors to be protected against penetration by windborne debris. Impact-resistant glass consists of two panes of glass laminated together with a polymer interlayer. In addition to providing hurricane protection, windows and doors with impact-resistant glass also offer protection against intruders, outside noise and fading UV light. Impact-resistant glass meets the same requirements for safety glazing as tempered glass.



Obscure glass admits light but can't be seen through. It may be an ideal choice for a bathroom window.

Accents & Options

Grilles or Muntins simulate a divided lite appearance that can add architectural interest and a traditional look to your windows and doors. You may choose them for windows on the street side, where they'll add the most to your home's appearance. Muntins may be applied to the interior or exterior of your windows or both. With insulating glass, muntins may be installed between the panes of glass, making for easier washing. Two popular muntin patterns are shown here. Some manufacturers also offer custom designs.



Colonial Brittany

***Hardware** may be available in different styles and finishes.*

Evaluating the Energy Efficiency of Windows and Doors

Lowering your heating and air conditioning bills (while improving your comfort) is probably the most immediate and quantifiable benefit that comes from replacing your old windows and doors. You should take the following factors into account in choosing the windows and doors that will provide you with the most return on your investment.

Factors to Evaluate

Climate If you live in an area with cold winters and hot summers, you'll save on both heating and air conditioning bills if you choose windows with energy-efficient frames, insulating glass and low-e coatings. If you live in an area with mild winters, lower-cost aluminum frames may be your most economical choice, but you still may want to consider insulating glass, low-e glass or tinted glass to reduce fading, glare and air conditioning bills during the summer.

Window Location You may choose to add options such as insulating glass, low-e coatings or tints to windows and doors only in certain locations where you'll receive maximum value for your investment. For instance, if you live in a warmer climate, you might choose glass with a low Solar Heat Gain Coefficient (SHGC) to minimize glare and solar heat gain on south- or west-facing windows. If you live in a colder climate, you may want to invest in glass with a low U-factor to reduce heat loss from windows and doors that are particularly exposed to winter winds or greater temperature drops.

Like anything else, there's more to windows than meets the eye. In choosing replacement windows and doors, you'll have the following choices, all of which can have a bearing on energy efficiency . . .

Frames The frames of a window or door comprise 30% of the unit. Appearance, maintenance, cost and energy efficiency are each important factors in choosing the right type of frame. For more information, see "Types of Windows & Doors."

Style Some styles of windows and doors may be more energy-efficient than others. For instance, casement windows usually offer the tightest seal against drafts and moisture but typically cost more than other window styles. For more information, see "Window & Door Styles."

Glass Since glass comprises 70% or more of the window or door unit, your choice of glass can play a significant role in the energy savings you can expect. For more information on different glass options, see "Types of Glass."

Terms You Should Be Familiar With

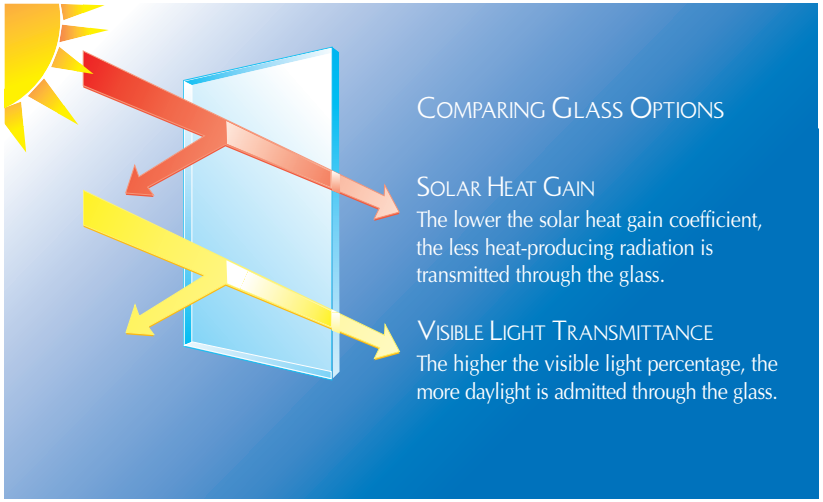
In evaluating replacement products, it's helpful to have some understanding of several technical terms used to compare the energy efficiency of windows and doors.

R-Value refers to the ability of a building material to resist heat transfer. The greater the R-Value, the more effective the insulation.

U-Value refers to a measurement of heat transfer through a building material. The lower the U-value, the more effective the insulation.

U-Factor (similar to U-Value) is a more common term used in defining heat transfer through window, glass and other fenestration assemblies. The test procedure for U-factor is used exclusively for fenestration products and was developed by the National Fenestration Rating Council (NFRC). When a home is primarily heated, this rating is typically more important. However, a low U-factor is preferable in any location where there is a dramatic difference between inside and outside, e.g. desert and northern climates. The use of low-e coatings can significantly reduce these values. These numbers typically fall between .20 and 1.20. The smaller the number, the better.

Solar Heat Gain Coefficient (SHGC) is an index from 0 to 1 of the amount of heat from direct sunlight passing through a window. Heat from direct sunlight can have the greatest influence over air conditioning costs. Thus, it is preferable to keep this number as low as possible in warmer climates where air conditioning is the primary energy use. Typically, a softcoat low-e, tinted glass, or a combination of these will lower this number, and the lower the number, the better. As a bonus, the comfort level is increased by reducing hotspots in the home.



Visible Light Transmittance (VT) is the percentage of visible light passing through the window. The higher this number, the brighter the interior of the home. While it is preferable to keep the SHGC low in many regions, a high VT is preferable in all regions to keep the need for interior lighting to a minimum. Low-e coatings or green and blue/green tints will keep the VT number high while reducing SHGC significantly.

UV Light Transmittance is the percentage of invisible, damaging ultraviolet light that passes through a window, leading to fading of carpets and upholstery. The lower the number, the better. Both low-e coatings and tinted glass help to reduce UV Light Transmittance. Impact-resistant glass virtually eliminates UV rays.

Sources for More Information

The National Fenestration Rating Council

A non-profit industry organization that rates windows based on energy performance. For more information on this voluntary rating and labeling system, visit their web site at *www.nfrc.org*

Energy Star®

A government-backed program that certifies energy-efficient products for homes and businesses. Energy Star certifies windows and doors based on meeting minimum requirements for different climatic regions. For more information, visit their web site at *www.energystar.gov*

The Efficient Windows Collaborative

A coalition of manufacturers, research agencies and government agencies interested in expanding the market for high-efficiency window products. Their web site includes a calculator for estimating the cost savings from replacing windows in various geographic areas. This site is at *www.efficientwindows.org*

Your local utility company

May offer incentives for use of energy-efficient products, including replacement windows and doors. Check with them to see what programs or information they may offer.