

... Facts, cont.

Spacer Systems

When manufacturing a multi-pane IGU, either double- or triple-pane, some sort of spacer is required to keep the panes of glass separated from one another. This same spacer system also provides the seal around the perimeter of the IGU, sealing in the insulating gasses. The most common problem with multi-pane windows is “fogging”. This occurs when the seal fails and moisture seeps into the IGU cavity forming a layer of permanent condensation on the inside of the window. Metallic type spacers are notorious for this. During temperature changes, the glass and the metallic spacer expand and contract at different rates, lead to a sheer stress. Quality windows now contain a “warm edge” spacer system, which although it reduces the amount of heat transference through a window, often times still contain a metallic strip. The latest design is a 100% non-metallic spacer, so it not only reduces heat transference, but it also virtually eliminates seal failures leading to fogged windows.

Efficiency Ratings

The National Fenestration Rating Council (NFRC) is an independent testing agency that provides consumers unbiased performance ratings for residential windows. This is the ONLY source for information allowing homeowners to compare the efficiency rating between different window manufacturers. There are several ratings on windows, but the single most important for energy saving purposes is U-factor. The U-factor lets you know how well a window resists the transference of temperatures (how well your home stays cool in the summer and warm in the winter). It is based on a scale of 0 to 1, with the lower the number the better. Theoretically 0.15 is the lowest possible value. Don't be misled by some manufacturer's published U-factor! The NFRC rating takes into account the entire window installed in an opening, NOT measured at the center of the glass.

Additional Information

Additional information may be gathered from the following websites.

www.nfrc.org, home of the National Fenestration Rating Council. This is the single best website for homeowners to gather information concerning windows and the ONLY source for comparing the efficiency rating of one window to another (also the best tool for keeping salespeople honest. Get more information on the specific tests, what the ratings mean, and pull up the ratings for 350+ window manufacturers.

www.efficientwindows.org, the Efficient Window Collaborative...an unbiased website sponsored in part by the US Dept. of Energy to assist consumers in their selection of energy efficient windows.

www.replacement-windows.com, otherwise known as the Tim Johnson website. This is a great site to see what other homeowners have to say about their window shopping and purchasing experiences, in addition to simply being a great resource for general window information.

About the authors

Bill Putnam and Richard Bryant are co-owners of Progressive Window Company in Virginia Beach, VA. Bill and Richard have over 35 years combined experience with different aspects of the home improvement business.

Bill and Richard hope this Consumer's Guide has been helpful to you. The authors may be reached for questions and comments on the web at www.progressivewindowco.com, or at (757) 216-6850.

Consumer's Guide To Replacement Windows...

Learn how *NOT* to
throw your hard earned money
out the window!



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Introduction

So, you're thinking about replacing the existing windows in your home? For most homeowners this is a wise decision. Windows have come a long ways in just the past 10 years. Considering the improvements in materials and manufacturing processes in today's windows, I often wonder why more homeowners don't replace the drafty, inefficient windows they currently have in their homes. Modern windows can be as much as 725% more efficient, reduce interior noise by up to two-thirds, eliminate drafts, are easy to clean and are virtually maintenance free as compared to the original windows found in most homes. Not to mention, that upon selling your home, you can recoup an average of 75% of your investment¹...not bad compared to most other home improvements.

Often times, making the decision to replace your windows is the easy part. Initially you may think the challenging part will be *paying* for the windows, but actually most homeowners' find that the *real* challenge begins with which windows to buy, and who to purchase them from. The questions begin mounting from there. What do you look for in a replacement window? What do all of those ratings mean? Not to mention, what does all of that window lingo mean...low-e, argon, krypton, spacer systems. etc.? But probably most importantly, who can I trust?

The window industry has often times been compared to automotive industry...salespeople taking advantage of uneducated consumers. In order to help you avoid the pitfalls many homeowners have fallen into in the past, we have written this simple Consumer's Guide just for you. Spend a few minutes reviewing this guide; visit a couple of websites we've included and you'll well prepared for making a wise investment decision!

Replacement Window Facts

When choosing replacement windows there are numerous factors to consider, from the basic type of material the window is constructed out of, to the type of insulated glass unit (*IGU*), to the options you just can't live without. We'll review some of the choice you'll be confronted with in the marketplace.

Frame Materials

Wood...most common in new construction, but also available in replacement style. Wood is strong, good insulating properties and has a warm feel. The interior and exterior can and will need to be finished to match your décor. The exterior will need to be maintain over time, otherwise rotting will occur. Not the best choice for homes located near the water, or in humid climates.

Vinyl...more common in replacement windows. High quality vinyl is nearly indestructible, and requires little if any maintenance. Available in a limited number of colors and traditionally couldn't be painted, but there are now specialty paints available for just this purpose. All vinyl windows may look alike, but there can be tremendous quality differences between brands. Vinyl by itself, without internal reinforcements, makes up the lowest end of the quality spectrum. *Clad*...wood frame windows with either a vinyl or aluminum "cladding" on the exterior, to reduce maintenance issues. The exterior does not require painting, is available in several different colors, but in moist environments the wood core still tends to rot.

Glass or Insulated Glass Units (*IGU*)

The biggest advancements in window construction, and the area where windows have gained the most in efficiency, is in the insulated glass units. Modern technology allows window manufacturers to construct glass units comprised of multiple layers of glass, in addition to (*cont.*)

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including reflective coatings and insulating gasses. Most new windows are constructed as "double-pane", that is two layers of glass. The latest design is that of "triple-pane", or three layers of glass. Some manufacturers construct their triple-pane windows with only two layers of glass with a "mylar" type film in the center (some of these types have been known to have the film portion wrinkle near the corners of the sash over time). Double-pane windows offer a distinct advantage in energy savings as compared to single pane windows (even with storm windows), and triple-pane windows tend to be an additional 35-40% more efficient than even the best double-panes.

Insulating Gasses

Multiple layers of glass, by themselves, offer very little in the terms of increasing energy savings or reducing interior noise levels. By having an IGU with multiple layers of glass, the internal cavities can be filled with an inert gas to increase the insulating capabilities. The most common of which is Argon. The most efficient windows on the market are filled with Krypton, which is five times more dense than Argon.

Low-E or Low-Emissivity

A microscopically thin layer of metal, or metallic oxide, applied to the interior of the IGU cavity. This coating reduces heat transference through the glass by as much as 40 – 70%. Double-pane IGU's can have one layer of Low-E, whereas triple-pane IGU's can have *two* layers (partially the reason why triple-pane windows are much more efficient). Low-E coatings also reflect UV rays which help prevent the fading of furniture, carpets and draperies.