

Homeowner's Guide to Maintenance and Inspection

Volume 2, Number 5
Copyright Safe and Sound Home Inspection



Replacement Windows

With autumn approaching many people are thinking about replacing their home's windows. New windows make the living space more comfortable, they save energy, and they can improve the appearance of the home. The following information will be helpful in your quest to get a good product at a reasonable price.

Our Personal Experience

Two years ago my wife and I decided to upgrade our windows because our house felt drafty during the heating season. We thought we were being smart shoppers by getting a number of bids from companies we had heard of in local advertising and by getting recommendations from friends. Instead of being informed by the companies' salespeople, we were confused. They offered such an array of features, materials, and styles that we quickly reached analysis paralysis. Did we really need triple-locking, triple-pane, heat mirror, low-e, gas-filled windows?

NFRC to the Rescue

Our friend Pat, who is a heating and cooling engineer, really helped us out by telling us about the National Fenestration Rating Council's (NFRC) system of rating windows. (Fenestration is a fancy word for windows!) Rather than reviewing windows for their features, the NFRC rates them for their performance. A window rated by NFRC comes with a decal affixed to the glass that tells the properties of the window. We found that some of the local salespeople didn't even know about NFRC, or at least they feigned ignorance because they were afraid we'd find out about this objective measure of their windows. All the sales hype is quickly diluted by the NFRC measures.

The 2 main energy efficiency measures used by NFRC are U-factor and Solar Heat Gain Coefficient. These numbers are clearly displayed on the window's NFRC decal in the top two boxes. U-factor measures the rate of heat loss through a product. Therefore, the lower the U-factor, the lower the amount of heat loss.

The Solar Heat Gain Coefficient, also known as SHGC, measures the rate of heat gain through a product. Therefore, the lower the SHGC, the lower the amount of solar heat gain. According to NFRC, for Denver's climate you should shop for windows with a U-factor less than .35. NFRC gives no strict recommendation for SHGC since Denver is more of a heating climate than a cooling climate. The Efficient Windows Collaborative website recommends an SHGC of .55 or less, assuming your air conditioning needs are moderate and not high.

Denver, Colorado	
~ 6000 heating degree days	
U-factor	SHGC
.35 or less	0.55 or less

Once you understand the NFRC ratings, you can start comparing the different companies' windows more objectively. The salespeople's claims don't matter when you have hard data. Be wary of companies who will not show you the NFRC decal for the windows they're selling.

Window Replacement Costs

Recently I did an informal price survey for replacement windows and patio doors. The prices in the table on page two include installation. This data is based on verbal telephone quotes from Gravina's Andersen store, Alasco-Cardinal, Champion, Colorado Window and Siding, and data from Marshall & Swift's *Home Repair and Remodel Cost Guide*.

The more windows you buy at once, the better price you will be able to negotiate because the installers can do more work in a single trip to your home. Get written quotes that itemize the window that will be installed in each opening and the cost per opening. Use caution with vendors who use high-pressure tactics and offer special "today-only" deals. Also, for better pricing consider waiting for warm weather (the vendors' slow season) to buy your windows.

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Window Replacement Costs - continued

Size	Type	Material	Low	High
4' x 3'	sliding	vinyl	\$ 290	\$ 525
4' x 3'	single hung	wood	\$ 275	\$ 1,000
4' x 3'	casement	vinyl	\$ 375	\$ 725
4' x 3'	casement	wood	\$ 450	\$ 1,150
6' width	door	vinyl	\$ 850	\$ 1,750
6' width	door	wood	\$ 1,650	\$ 2,600

Cost estimates for replacement windows, including installation

Savings

According to the Efficient Windows Collaborative you will save a considerable amount of money each year in fuel bills by replacing inefficient windows. For example, if you own an average 2,000 square foot home in Denver you would save just over \$200 per year by upgrading from single-pane aluminum windows (U-factor 1.25 and SHGC .76) to double-pane vinyl or wood windows (U-factor .32 and SHGC .30). Over a long period the windows may just pay for themselves. By saving the energy you will be reducing emissions of greenhouse gases, plus you will enjoy a much more comfortable living space!

Happy Shopping

Once you're armed with the NFRC ratings and the rough cost estimates provided above, you'll be a much more efficient shopper. I wish I would have had this information the day we started shopping for windows; our shopping time would have been cut in half!

Further Information

National Fenestration Rating Council (NFRC) – www.nfrc.org

Efficient Windows Collaborative – www.efficientwindows.org/factsheets/Colorado.pdf

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