



# Questions About Buying New Energy Efficient Windows?

In today's market, architects, builders, and consumers are challenged by the many choices of window products. What is the best way to choose windows, doors, and skylights for homes and offices? If you have questions about how to choose energy efficient windows, the National Fenestration Rating Council (NFRC) has the answers.

## 1. Look For The NFRC Label

NFRC is a nonprofit organization whose goal is to provide uniform, accurate information about the energy performance of windows, doors and skylights. In addition to publishing consensus standards (for consistent ratings), NFRC administers a third-party certification and labeling program to provide the window buyer with verified product information. So look for an NFRC label on windows to compare products on a fair and equal basis (see back).

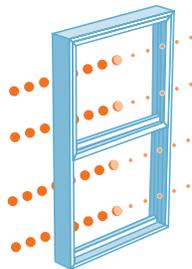
		World's Best Window Co. Millennium 2000 <sup>®</sup> Vinyl-Cast Insulated Frame Double Glazing - Argon Fill - Low E Product Type: Vertical Slider	
<b>ENERGY PERFORMANCE RATINGS</b>			
U-Factor (U.S./IP)	Solar Heat Gain Coefficient		
<b>0.30</b>	<b>0.30</b>		
<b>ADDITIONAL PERFORMANCE RATINGS</b>			
Visible Transmittance	Air Leakage (U.S./IP)		
<b>0.51</b>	<b>0.2</b>		
<small>Manufacturer requires that these ratings conform to applicable NFRC standards for determining window energy performance. NFRC ratings are determined by tests at environmental conditions and a specific product. See NFRC site for information on product and data on energy performance of any product for any specific use. Consult manufacturer's literature for other product performance information.</small>			

## 2. Compare Product Performance

The NFRC label provides information on how a window performs. The two most important energy ratings are *U-factor* and *Solar Heat Gain*. By reviewing the label information, consumers can make an informed choice about the product that is best for their individual situation.

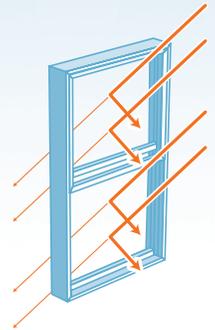
### What is U-factor?

U-factor is also known as thermal transmission. It is a measure of the rate of heat loss through a product. Therefore, **the lower the U-factor, the lower the amount of heat loss.** In cold climates, where heating bills are a major concern, choosing windows with lower U-factors will reduce the amount of heat that escapes through a window from inside your house to the outside.



### What is Solar Heat Gain?

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.** In hot climates, where air-conditioning bills are a major concern, choosing windows with lower SHGC will reduce the amount of heat that comes in through your windows from the outside.



## 3. Look For The ENERGY STAR<sup>®</sup> Label

The U.S. Department of Energy and the U.S. Environmental Protection Agency have developed an ENERGY STAR designation for products meeting certain energy performance criteria. Since the energy efficiency performance of windows, doors and skylights can vary by climate, product recommendations are given for four climate zones: a *mostly heating zone* (Northern); two *heating and cooling zones* (North/Central and South/Central); and a *mostly cooling zone* (Southern). For more information about ENERGY STAR windows, see [www.energystar.gov](http://www.energystar.gov).



NFRC provides fair, accurate, and credible ratings that can be used to compare the energy performance of windows, curtain walls, doors, skylights, and fenestration attachments. For more information on NFRC, please visit our Web site at [www.nfrc.org](http://www.nfrc.org) or contact NFRC directly at 301-589-1776.

*What are the other concerns I should have about windows?*

In addition to NFRC ratings of Solar Heat Gain and U-factor, ENERGY STAR buyers should consider a number of other factors when choosing windows. These include: air infiltration, water infiltration, structural performance, acoustical performance, security performance, product cost, and warranty. Product cost and warranties are issues when making any major purchase, and this information is available from the window distributor or manufacturer.

*Air infiltration* measures the amount of air that leaks into your house from outside. The lower the air leakage rate, the less air is exchanged between outside and inside the window.

*Water infiltration* measures the amount of water and pressure that a window can resist to keep the water from leaking through it. The higher the water infiltration rating, the better the window is at resisting water leakage.

*Structural performance ratings* measure the amount of air pressure (wind load) a window can resist before failing. The amount of structural pressure ratings required for windows in your area is often determined by local code requirements. The higher the structural performance ratings, the more wind load a window can resist.

*Acoustical performance ratings* measure the amount of sound transmission through a window. The higher the sound transmission rating, the better the product is at blocking noise from coming through the window.

*Security performance ratings* measure the ability of a window to resist different types of forces. For example, there are burglar-resistant windows, fire-resistant windows, bullet-resistant windows, wind-borne debris-resistant windows, and many others. Many of these products have special uses for different building types and may be covered by local building code requirements.

NFRC has additional information for selecting energy efficient windows on its Web site [www.nfrc.org](http://www.nfrc.org). Of special interest, see the *NFRC Certified Products Directory*, which lists hundreds of window manufacturers and thousands of windows, doors, and skylights that have been authorized for certification by NFRC. If you need further information, please contact us at 301-589-1776.

	<b>World's Best Window Co.</b> Millennium 2000+ Vinyl-Clad Wood Frame Double Glazing • Argon Fill • Low E Product Type: <b>Vertical Slider</b>
<b>ENERGY PERFORMANCE RATINGS</b>	
U-Factor (U.S./I-P) <b>A 0.30</b>	Solar Heat Gain Coefficient <b>B 0.30</b>
<b>ADDITIONAL PERFORMANCE RATINGS</b>	
Visible Transmittance <b>C 0.51</b>	Air Leakage (U.S./I-P) <b>D 0.2</b>
<small>Manufacturer stipulates that these ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not recommend any product and does not warrant the suitability of any product for any specific use. Consult manufacturer's literature for other product performance information. <a href="http://www.nfrc.org">www.nfrc.org</a></small>	

- A** **U-Factor** measures how well a product prevents heat from escaping a home or building. U-Factor ratings generally fall between 0.20 and 1.20. The lower the U-Factor, the better a product is at keeping heat in. U-Factor is particularly important during the winter heating season. This label displays U-Factor in U.S. units. Labels on products sold in markets outside the United States may display U-Factor in metric units.
- B** **Solar Heat Gain Coefficient (SHGC)** measures how well a product blocks heat from the sun. SHGC is expressed as a number between 0 and 1. The lower the SHGC, the better a product is at blocking unwanted heat gain. Blocking solar heat gain is particularly important during the summer cooling season.
- C** **Visible Transmittance (VT)** measures how much light comes through a product. VT is expressed as a number between 0 and 1. The higher the VT, the higher the potential for daylighting.
- D** **Air Leakage (AL)** measures how much outside air comes into a home or building through a product. AL rates typically fall in a range between 0.1 and 0.3. The lower the AL, the better a product is at keeping air out. AL is an optional rating, and manufacturers can choose not to include it on their labels. This label displays AL in U.S. units. Labels on products sold in markets outside the United States may display AL in metric units.