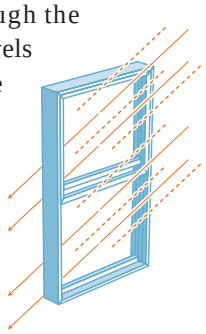
The Facts About Daylighting and Visible Transmittance

Daylighting the interior space of buildings is an important consideration for building design. Studies have shown that increased daylighting improves worker productivity, patient health, and students' grades. In addition, daylighting has the potential for significant energy savings, when integrated with lighting controls, by reducing the dependence on artificial lighting. Lighting systems not only add to the electrical demand, they also create heat that must be removed with additional air-conditioning.

The potential daylighting for buildings is directly related to the number of windows, curtain walls, skylights, and other fenestration products that are installed on the building envelope. *NFRC 200 – Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidents* is the industry standard for rating, comparing, and ranking both the Solar Heat Gain and Visible Transmittance of all fenestration products.

New Technology: Less Heat Gain, More Light

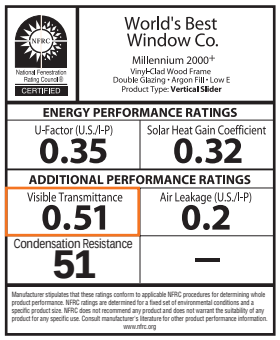
The solar spectrum is made up of ultraviolet (UV) light, visible light, and infrared (IR) light. In the past, many commercial buildings used reflective or tinted glass products to reduce solar heat gain through the windows. Unfortunately, these products also reduce the amount of visible light. This reduction in Visible Transmittance (VT) can lead to an increase in the amount of artificial lighting needed in buildings. To take advantage of potential savings from daylighting, the industry has seen growth in the use of *spectrally selective glass*. This type of glass has special properties that actually block or re-radiate the infrared energy from the sun, reducing solar gain through the windows, while maintaining higher levels of visible light transmittance. This type of product is also available for use in residential windows, typically with a spectrally selective low-e coating on the interior surface of insulating glass units.



Daylighting can save anywhere from 30% to 60% in building energy usage when integrated with appropriate lighting controls such as photocell activated lighting or automated shading systems.

NFRC Offers Certified VT Ratings

Any fenestration supplier or contractor that wishes to obtain certified VT ratings may participate in NFRC's Certification Program. When the program guidelines are followed, participants are authorized to place an *NFRC Label* or *Label Certificate* on their product showing the certified VT rating (along with ratings for U-factor and solar heat gain coefficient). Builders, architects, and code officials should use these certified ratings to compare products and to assure that the products meet specifications and code requirements.



Visible Transmittance *(VT) measures how much light comes through a product. VT is expressed as a number between 0 and 1. Heavily tinted products have a relatively low VT.*

Manufacturers who participate in the NFRC Certification Program can have their products and product energy ratings listed in the NFRC *Certified Products Directory*. The *Directory* lists thousand of certified products and is available on line at www.nfrc.org.

NFRC administers an independent, uniform rating and labeling system for the energy performance of fenestration products, including windows, curtain walls, doors, and skylights. For more information on NFRC, please visit our Web site at www.nfrc.org or contact NFRC directly at 301-589-1776.

National Fenestration Rating Council®
CERTIFIED

World's Best Window Co.

Millennium 2000+
Vinyl-Clad Wood Frame
Double Glazing • Argon Fill • Low E
Product Type: **Vertical Slider**

ENERGY PERFORMANCE RATINGS

U-Factor (U.S./I-P)	Solar Heat Gain Coefficient
A **0.35**	B **0.32**

ADDITIONAL PERFORMANCE RATINGS

Visible Transmittance	Air Leakage (U.S./I-P)
C **0.51**	D **0.2**
Condensation Resistance	
E **51**	—

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.
www.nfrc.org

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.*

E ***Condensation Resistance*** *(CR) measures how well a product resists the formation of condensation. CR is expressed as a number between 1 and 100. The higher the number, the better a product is able to resist condensation. CR is an optional rating, and manufacturers can choose not to include it on their NFRC labels.*