Understanding Window and Door Energy Performance Ratings

National Fenestration Rating Council®

Windows and doors may carry a variety of labels indicating their performance. The most commonly seen labels are for physical performance and energy performance.
Labels serve different purposes – they may be for marketing, code compliance, or both. In the energy efficiency arena, the National Fenestration Rating Council (NFRC) label, ENERGY STAR® label, and Passive House (PHIUS or PHI) labels may appear on products.
Understanding these labels and their purpose can be confusing. This bulletin provides some background on the different programs and their labels.

National Fenestration Rating Council (NFRC)

The NFRC label provides energy performance ratings for U-Factor, Solar Heat Gain Coefficient (SHGC), and Visible Transmittance (VT). It may also include additional ratings, such as Condensation Resistance and Air Leakage.

These ratings serve three primary purposes. First, they provide a method for consumers to compare products and make informed buying decisions. Second, they provide information required to determine compliance with building energy codes. Third, they provide information required for ENERGY STAR certification.

National Fenestration Rating Council®
CERTIFIED

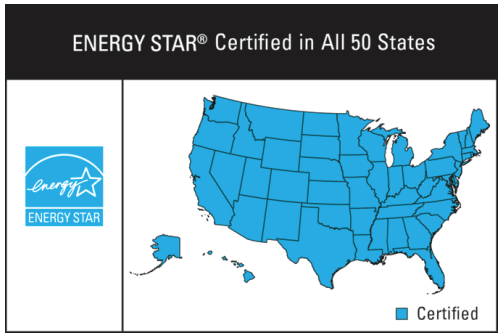
World's Best Window Co.
Series "2000"
Casement
Vinyl Clad Wood Frame
Double Glazing•Argon Fill•Low E
XYZ-X-1-00001-00001

ENERGY PERFORMANCE RATINGS	
U-Factor (U.S. / I-P)	Solar Heat Gain Coefficient
0.35	**0.32**
ADDITIONAL PERFORMANCE RATINGS	
Visible Transmittance	Air Leakage (U.S. / I-P)
0.51	**≤0.3**
Condensation Resistance	
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

ENERGY STAR®

The ENERGY STAR Program is operated by the US Environmental Protection Agency (US EPA). The ENERGY STAR label indicates the areas of the country where the product meets the ENERGY STAR criteria. Due to the climate differences throughout the United States, different criteria apply to different areas. The ENERGY STAR Program provides consumers with a simple, credible, and unbiased assessment of product suitability for a given area. The ENERGY STAR label is used as a consumer marketing tool and in some cases by utilities for incentive programs.



Natural Resources Canada (NRCan) operates the ENERGY STAR Program in Canada. The Canadian program recognizes only one set of criteria for the entire country, so Canadian ENERGY STAR certification will apply anywhere in Canada.

Passive House

Passive House encompasses design principles that result in energy efficient and comfortable buildings. Some of the key features of passive houses are high levels of insulation, airtight building envelopes, strategic use and control of solar gain, and controlled fresh air ventilation. Passive building principles are a path to net zero energy buildings. They are also a design combining all interacting elements within the building to achieve the desired performance.

Passive houses / buildings evaluate the building as a complete system. Identification of passive components, like windows and doors, serve as guidance to selecting appropriate elements to incorporate in the complete building system. Regardless of individual component performance, the ultimate building performance is highly reliant on the interaction of all the selected elements. Poor combinations of great components without detailed analysis and design can result in poor building performance.

There are currently two main passive standards used in North America. The International Passive House standard was developed by The Passive House Institute (PHI), which was founded in Germany in 1996, and was the original standard. Passive House Canada (2013), North American Passive House Network (NAPHN), New York Passive House (NYPH) and Passive House California (PHCa) operate in affiliation with PHI. The Passive House Institute US (PHIUS) was formed in 2006 and originally operated in affiliation with PHI. PHIUS decided that adaptations to suit the North American climate and market were required which led to a split between the two organizations and the PHIUS+ standard being introduced. It is important to understand that the design principles being driven by both standards are desirable. Both standards bring significant benefits to homeowners. The two standards are like a yard stick and a meter stick – they both provide accurate and correct measurements, but they do it a little differently.

It's important to note that at present, none of the Passive House programs are referenced by either the US or Canadian ENERGY STAR programs, nor are they reference in typical building energy codes.

More information regarding PHI (passivehouse.com) and PHIUS (www.phius.org) may be found at their websites.