Questions about Skylights/TDDs and Energy? NFRC Has the Answers

In today's market, architects, builders, and consumers are challenged with many choices of windows, doors, and skylights (fenestration products). Skylights and tubular daylighting devices (TDDs) are becoming increasingly popular. What is the best way to choose these products for use in homes and offices? If you have questions about skylights/TDDs and energy, NFRC has the answers.

Benefits of Skylights and TDDs

Skylights and TDDs are an exceptional source of daylight, illuminating interior spaces in both residential and commercial buildings with direct and indirect sunlight. Daylight is known to have a positive effect on people, improving both psychological and physiological health and increasing productivity. When used appropriately, daylighting can increase the quality of room light and reduce energy used for electric lighting.

How to Choose Energy-Efficient Skylights/TDDs

1. Look for the NFRC Label

The National Fenestration Rating Council (NFRC) is a nonprofit organization whose goal is to provide uniform, accurate information about the energy rating and related performance of windows, curtainwalls, doors, skylights, and other fenestration products. 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 skylights and TDDs to compare products on a fair and equal basis.

2. Compare Product Rating Performance

The NFRC label provides rating information that enables thermal energy comparison of various skylights and TDDs. The energy ratings considered to be of greatest importance are U-factor and Solar Heat Gain Coefficient. NFRC also requires a rating for Visible Transmittance, but Air Leakage and Condensation Resistance are optional. (An explanation of these terms follows). By reviewing the temporary label information, consumers can make an informed decision about which product would best fit their needs for their individual situation. Please be aware that some skylights (e.g., domed, glass block, and translucent panels) and all TDDs cannot be rated for Visible Transmittance at this time.

3. Look for the ENERGY STAR® Label

The U.S. Department of Energy and U.S. Environmental Protection Agency have developed the ENERGY STAR® program for window, door, and skylight products meeting certain energy performance criteria. Since the thermal energy impact of windows, doors, skylights, and TDDs can vary by climate, different criteria are given for four U.S. climate zones: Northern (mostly heating); Central North Zone (heating and cooling); Central South Zone (heating and cooling); and Southern Zone (mostly cooling).

Both the United States and Canada recognize ENERGY STAR.

For more information about ENERGY STAR, visit its Web site at http://www.energystar.gov.

Questions?

NFRC is here to support you. Please contact us for additional information.

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Building Codes for Skylights and TDDs

The International Energy Conservation Code (IECC) references NFRC-approved procedures – NFRC 100, NFRC 200 – for rating the energy performance of fenestration products. Typical energy code requirements are based upon the climate zone and the amount of fenestration area in a building. In southern climate zones, where air-conditioning loads are most important, skylights must typically meet lower Solar Heat Gain Coefficient (SHGC) ratings than in other zones. In northern states, where heating loads are more important, skylights must meet lower U-factors.

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 fenestration products with a lower U-factor will reduce the amount of heat that escapes through them from inside your house. However, U-factor is still a factor to consider in warmer climates to reduce heat flow from the outside.

What is Solar Heat Gain?

The Solar Heat Gain Coefficient, or SHGC, measures how well a product blocks heat from the sun. It is the fraction of solar radiation admitted through a window or skylight, both directly transmitted, and absorbed and subsequently released inward. 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 fenestration products with a lower SHGC will reduce the amount of heat that comes in through them from the outside. This is very desirable in the warmest climates, but not so much in cooler ones where the solar heat gain can be useful.

The NFRC label provides energy performance ratings for a fenestration product.

What is Visible Transmittance?

Visible Transmittance (VT) measures the ability of a product to allow daylight into a room. The higher the VT rating, the more light is allowed through a fenestration product. Not all skylight products can be rated for VT, nor can any TDDs, according to currently available NFRC procedures.

What is Air Leakage?

Air Leakage measures how much outside air enters a home or building through a product.

What is Condensation Resistance?

Condensation Resistance measures how well a product resists the formation of condensation.

National Fenestration Rating Council

FOR MORE INFORMATION

NFRC has additional information for selecting energy-efficient windows, curtainwalls, doors, skylights/TDDs, and other fenestration products on its Web site at www.nfrc.org. See the NFRC Certified Products Directory that lists hundreds of NFRC-certified manufacturers and their fenestration products. If you need further information contact NFRC at 301-589-1776.