NFRC’s Component Modeling Approach: Simplifying Energy Code Compliance for Commercial Fenestration

By Jim Benney

For two decades, building code officials have relied on NFRC’s independent and accurate energy ratings to verify fenestration code compliance. That’s because all of NFRC’s programs are based on its third-party ratings for Solar Heat Gain Coefficient (SHGC), U-Factor and Visible Transmittance (VT). Code officials understand these ratings and know to check for compliance by looking for the NFRC Label in residential fenestration projects.

Labeling commercial fenestration the same way isn’t practical, though, as these products typically aren’t standardized like one- and two-family home windows. Instead, they usually are designed for each project and built or assembled on-site. A new procedure known as the Component Modeling Approach (CMA) can help make it easier to verify fenestration energy code compliance for commercial fenestration. Like NFRC’s residential ratings program, CMA provides accurate and credible fenestration energy ratings that code officials can trust.

How CMA Works

CMA combines performance data for pre-approved fenestration components – glazing, frames and spacers – to generate whole-product ratings for U-Factor, SHGC and VT. Just as in NFRC’s residential program, CMA calculates these values according to NFRC 100 (Procedure for Determining Fenestration Product U-Factors) and NFRC 200 (Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence). NFRC 100 and 200 are required by ASHRAE 90.1 (Energy Standard for Buildings except Low-Rise Residential Buildings) and the International Energy Conservation Code (IECC) to determine energy code compliance for fenestration.

After CMA ratings are certified, the values are clearly listed on the CMA Label Certificate. This document, to be filed on the jobsite, serves as code compliance documentation. It lists the ratings for each CMA-certified fenestration product or system on a given project, eliminating the need to attach temporary labels to individual fenestration products.

The Label Certificate makes it easier for code officials to check fenestration energy performance ratings. Please note that Colorado is a “home rule” state, so code officials should refer to local codes for specific fenestration energy requirements. The Label Certificate may also list other information, such as the individual components used and the actual size of fenestration units on the project.

CMA is best applied to any commercial windows, as well as projects that use punched openings, storefront, curtain walls and other fenestration systems built or assembled on site. These types of fenestration can be found in non-residential buildings, as well as high-rise residential buildings, multifamily housing and university dormitory projects.

To learn more about NFRC’s CMA and other ratings programs, visit www.nfrc.org.

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