



Decoded

By Steven Saffell

Key Fenestration-Related Code Changes and Provisions in 2018

To keep up with evolving technology and industry concerns, new editions of the 15 different I-codes covered by the International Code Council are published every three years. The 2018 versions, which took effect Jan. 1, are the latest. Of these, the codes of greatest typical interest to fenestration manufacturers are the 2018 International Building Code, International Residential Code and International Energy Conservation Code.

2018 INTERNATIONAL BUILDING CODE

DESIGN WIND PRESSURE (SECTION 1609):

Perhaps the most significant change in the 2018 IBC for fenestration is the updated reference to certain provisions of the 2016 version of ASCE 7, which prescribes design loads for buildings. For most of the U.S., the design wind speed was significantly reduced, in some cases by as much as 30 percent. This will result in lower design wind pressures for vertical glazing. There is also an additional 8 to 10 percent reduction in design pressure for suburban residences under 30 feet high.

However, design pressure was increased for skylights, especially those located within four feet of the roof ridge or eave. In some cases, the design wind pressure for skylights under the 2016 edition of ASCE 7 is now more than twice what it was under the 2010 edition.

2018 INTERNATIONAL RESIDENTIAL CODE

EMERGENCY ESCAPE AND RESCUE OPENINGS:

One of the biggest disappointments for the fenestration industry is a reduction in the number of emergency escape and rescue openings required for sleeping rooms in the basements of multifamily buildings and single-family homes. An EERO is no longer required in basement sleeping rooms where the dwelling has an NFPA 13R or 13D compliant automatic fire sprinkler system and the basement has a second means of egress or an emergency escape opening. Section R310 spells out specifics.

IMPACT RESISTANCE: The IRC (section R301.2.1.2) outlines locations where impact-resistant products are required. Note that an AAMA 506 (Voluntary Specifications for Impact and Cycle Testing of Fenestration Products) certification label tab is recognized as evidence that a product has been tested appropriately for conformance with the 2018 IRC. This demonstrates that the product has been successfully tested to ASTM E1886 and E1996.

MULLIONS: Chapter 6 of the 2018 IRC requires window mullions to undergo testing or structural calculations per AAMA 450 (Voluntary Performance Rating Method for Mullioned Fenestration Assemblies) to demonstrate the ability to meet air infiltration, water resistance and structural performance requirements. Deflection is limited to $\frac{1}{175}$ of the mullion length.

DESIGN WIND PRESSURE: Overall, prescriptive provisions continue to reference ASCE-7-2010, while those outside these provisions must be based on the 2016 edition. See Tables R301.2(2) and R.301.2(3) in the I-codes.

2018 INTERNATIONAL ENERGY CONSERVATION CODE

Prescriptive values change

The maximum allowable residential fenestration U-factors for the prescriptive compliance path (per Table R402.1.2 in the IECC) for Climate Zones 3 through 8 have been reduced from the values in the 2015 edition. The maximum permitted U-factor for vertical glazing was reduced in Climate Zones 3 and 4 (except Marine) from 0.35 to

0.32 and Climate Zones 4 Marine to 8 from 0.32 to 0.30. There is no limit on the percentage of glazing in the exterior wall, or the percentage of roof area with skylights.

The maximum prescriptive solar heat gain coefficient for fenestration in commercial construction was modified slightly in Climate Zones 4 and 5 to provide a smoother transition between the cooling-dominated and the heating-dominated zones.

SUNROOMS: In 2013, the ICC voted to adopt the AAMA/NPEA/NSA 2100-12, Specification for Sunrooms, jointly developed by AAMA, the National Patio Enclosure Association and the National Sunroom Association, into the 2015 IRC. Thermal performance of fully enclosed sunrooms must be in accordance with the IECC and IRC. The IECC permits thermally isolated sunrooms to have glazing with a maximum U-factor of 0.45 in climate zones 2 through 8. (See section R402.)

REPLACEMENT WINDOWS: In both the 2018 IECC and IRC, replacement windows must comply with the energy conservation requirements for fenestration in new construction, regardless of what the replacement is.

NEW ERI PATH: In the 2018 IECC (section 406), the new Energy Rating Index alternative compliance path compares anticipated energy usage of a proposed residence to that of one built under 2009 IECC. Residences built using this compliance path are required to consume no more than a specified percentage of the energy used for a similar size home built under the 2009 IECC, depending on residence location. The method for determining the ERI is now required to be in accordance with standard ICC/RESNET 301.

There is little rest for the code-wary, however, as the 2019 development cycle began with Group B proposals which were due by January 7. ☐

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