Doors in the energy codes

TECH CORNER

DAVE MONSOUR

Editor's note:
In this installment of the Tech Corner, DASMA Technical Director Dave Monsour provides a summary of energy code requirements for DASMA member products.

Energy codes in the United States are usually based on the International Energy Conservation Code (IECC), which was recently updated to a 2024 edition. The IECC addresses doors in a variety of ways and does not always present a straightforward, easy-to-follow picture for manufacturers. The following information provides answers to the most common questions.

Q — Where can I find the IECC?
A — The full text of the IECC and the entire family of I-codes can be found online: https://codes.iccsafe.org/codes/i-codes/2021-icodes.

Q — What does the IECC require of doors?
A — One set of requirements concerns U-factor or thermal transmittance, which is defined as the rate of heat flow through a door per unit area and unit temperature difference. The other main set of requirements focuses on air leakage (otherwise known as air infiltration), which is defined as the amount of uncontrolled air movement through a door caused by wind pressure or air-density gradients.

Q — Does Table C402.1.4 show the required U-factors for doors?
A — Yes, and the required value is 0.31 BTU/(h·ft^2·°F).

Q — Does that value apply to all doors?
A — No, it only applies to commercial garage doors with less than 14% glazed area. For commercial garage doors with 14% to 25% glazed area, the required U-factors are found in a footnote of that table and range from .36 to .44 depending on the Climate Zone.

Q — What if the door has more than 25% glazed area?
A — In that case, the door is considered "operable fenestration," and you should refer to Table C402.4, which establishes U-factors for operable fenestration ranging from .62 to .36 depending on the Climate Zone.

Q — What about other rolling doors and high-performance doors?
A — Those door types are not specifically mentioned in the U-factor chart. By default, they fall under the "non-swinging door" category, for which the required U-factor is 0.31.

Q — Does the energy code permit manufacturers to perform their own testing or calculations to determine U-factor?
A — No. The code states that "U-factors shall be determined in accordance with either NFRC 100 or ANSI/DASMA 105. U-factors shall be determined by an accredited, independent laboratory and labeled and certified by the manufacturer."

Q — What about residential doors?
A — Residential garage doors are not required to meet any particular U-factor, but in some cases, they are subject to U-factor testing and labeling requirements. See Section R303.1.3: "Where required, garage door U-factors shall be determined in accordance with either NFRC 100 or ANSI/DASMA 105. U-factors shall be determined by an accredited, independent laboratory, and labeled and certified by the manufacturer." In this context, "where required" refers to cases in which the garage is heated or air conditioned.

Q — If the other main set of requirements concerns air leakage, what level of air leakage are doors required to meet?
A — When tested to ANSI/DASMA 105, commercial garage doors must meet 0.40 CFM/ft2, rolling doors must meet 1.00 CFM/ft2, and high-performance doors must meet 1.30 CFM/ft2.

Contact us
If you have questions about this topic or suggestions for future content, please email Dave Monsour at dasma@dasma.com. ■