

ASK JOE HETZEL

DASMA Technical Director

The Energy Benefits of Insulated Garage Doors

How can I explain to customers the energy benefits of an insulated garage door in an attached garage? This particular garage is not heated or cooled.



Joe: The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Handbook of Fundamentals states that an attached garage acts as a “thermal buffer” between a home’s living space and the outside environment. According to the ASHRAE resource, the temperature of the garage can be estimated as halfway between the home’s indoor temperature and the outdoor environment temperature.

For example, when the outside temperature is 10 degrees Fahrenheit and the indoor heating temperature is 70 degrees, the garage temperature can be assumed to be about 40 degrees.

This thermal buffer benefit is maximized when the garage surfaces exposed to the outdoors are insulated. This means insulating to local code requirements, typically at least R-30 in the ceiling and R-13 in the walls. An insulated garage door becomes an important factor in preserving the integrity of the insulation throughout the garage.

In colder climates, a garage door with significant exposure to the sun during winter can also offer some daytime solar benefits through its windows. However, in order to preserve some thermal buffer integrity during evening hours and on cloudy days, the windows should be insulated.

DASMA members report that an increasing number of builders are insulating the walls and ceilings between the garage space and the outdoor environment. For indoor air quality reasons, the garage should be atmospherically separated from the home.

I’m getting customer questions about garage door U-factors. How is the U-factor determined?

Joe: There are two main ways to determine U-factor. One is a test that uses a long-standing DASMA standard known as ANSI/DASMA 105. The other way uses a computer simulation procedure, NFRC 100, which must be validated by a test to NFRC 102. The NFRC documents were recently updated to include garage door and rolling door procedures.

The DASMA procedure gives a measured value for 9’x7’ residential doors and 10’x10’ commercial doors. The NFRC computer simulation and validation test use “standardized surface coefficients” for 7’x7’ sizes. DASMA research has shown that both methods should result in similar values.

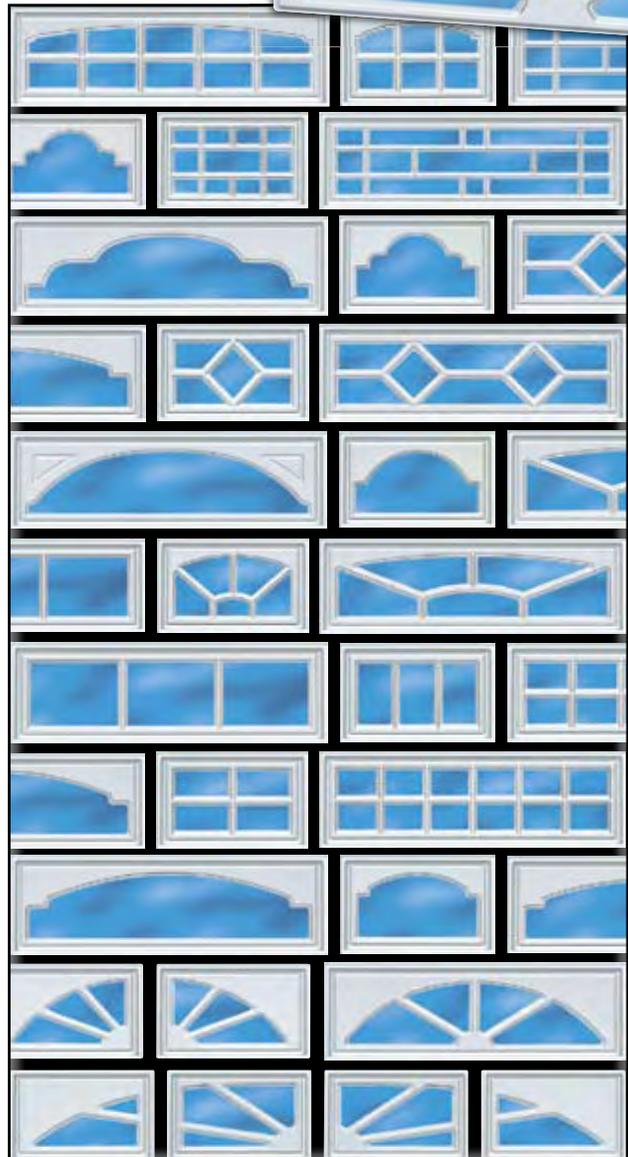
Codes require manufacturers to certify their doors’ U-factors. Manufacturers can choose the DASMA method or the NFRC method. ■

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