

Insulated Metal Panels, Continuous Insulation and the Energy Code

Overview

Insulated metal panels (IMPs) are not considered continuous insulation. Continuous Insulation is defined by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1-2016 as “insulation that is uncompressed and continuous across all structural members without thermal bridges other than fasteners and service openings.” There are not any IMPs on the market today that will meet this definition due to the product’s formed side-joint that encroaches into the foam thickness. IMPs, by code, are not even considered insulation. According to ASHRAE 90.1-2016, IMPs are considered a building material.

Building Material: any element of the building envelope, other than air films and insulation, through which heat flows and that is included in the component U-factor calculations.

CENTRIA IMPs provide a complete barrier wall while functioning structurally, as well as thermally.

The Path to Code Compliance

The ASHRAE definition for “Building Material” is useful to understanding the path to code compliance using IMPs because there are common misconceptions that continuous insulation is required to meet code or that IMPs are considered continuous insulation. Continuous insulation is not a code requirement. Referencing ASHRAE 90.1-2016, Section 5.5.3, code compliance can be demonstrated using two methods:

- a. “Minimum rated R-value of insulation for the thermal resistance of the added insulation in framing cavities and continuous insulation only...”
- b. “Maximum U-factor, C-factor, or F-factor for the entire assembly...”

Using the Prescriptive Building Envelope Option, specifically Maximum U-factor, we can show that IMPs alone can be used to show energy-code compliance. CENTRIA publishes U-factors for each IMP based on ASTM C1363 testing in accordance with ASHRAE 90.1-2016 Section A9.3.2.

Table 5.5-5, herein Figure 1, from ASHRAE 90.1-2016 provides an example of building envelope requirements for climate zone 5. This table provides assembly maximum U-factors and minimum R-values for cavity insulation used in combination with continuous insulation. The required maximum U-factor for IMPs is listed under “Steel Framed,” when installed over cold-formed metal studs, and “Mass,” when installed over cold-formed subgirts over masonry. Either option can be used to show energy-code compliance.