

GEW64-14

605.1.1

Proponent: Jay Johnson, Thomas Associates, Inc., representing Metal Building Manufacturers Association (jjohnson@thomasamc.com)

Delete without substitution:

~~**605.1.1 Insulation and fenestration criteria.** The *building thermal envelope* shall exceed the requirements of Tables C402.1.2 and C402.3 of the *International Energy Conservation Code* by not less than 10 percent. Specifically, for purposes of compliance with this code, each U-factor, C-factor, F-factor and SHGC in the specified tables shall be reduced by 10 percent to determine the prescriptive criteria for this code. In Sky Type "C" locations specified in Section 808.4, the skylights shall not exceed 5 percent of the building roof area.~~

Reason: The across-the-board reduction of U-factors by 10% described in this section is an over-simplified approach that has no guarantee of achieving a significant reduction in energy use as intended. Reducing U-factors obviously does mitigate external heat gains and losses; however, in certain mild climates or in occupancies that require high ventilation rates, such as retail or institutional occupancies, it would have only a minor effect.

Furthermore, an arbitrary reduction of U-factors can greatly affect the type of insulation system chosen as it may not always be possible to find a system with the required U-factor and therefore the designer must choose the next lowest U-factor and may be pushed into a different type of system altogether. This compounds the problem stated above.

A designer would typically refer to the IECC Table C402.1.2 for the Opaque Thermal Envelope Assembly Requirements for U-factors, C-factors, and F-factors, then determine the equivalent R-value assembly via the IECC Table 402.2. This simplifies the building official's review process by having both tables on hand within the IECC. By decreasing the factors by 10% now removes the use of the prescriptive R-value based IECC Table 402.2. An alternative, per footnote "a" would be to refer to ASHRAE 90.1 Appendix A for applicable assemblies to meet the reduction in factors. As a result, the building official would likely want to have on hand the ASHRAE 90.1 standard during the plan review process. As stated above, often times there is not a tested assembly that is close to the 10% reduced factor, as a result a more costly system may be required.

Cost Impact: Will not increase the cost of construction.

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