

GEW82-14

605.3 (New)

Proponent: Amy Dickie, Global Cool Cities Alliance, representing Global Cool Cities Alliance (amy@globalcoolcities.org)

Add new text as follows:

605.3 Roof surfaces. Roof surfaces of buildings in climates zones 1, 2 and 3 shall comply with Section C402.2.1.1 of the *International Energy Conservation Code* and roofing materials shall comply with the following requirements:

1. A minimum three-year aged solar reflectance of 0.65;
2. A minimum three-year aged thermal emittance of 0.75;
3. A minimum three-year aged solar reflectance index of 78.

Reason: This proposal adds a new sub-section to Section 605 Building Envelope Systems in Chapter 6 to address roof reflectivity and to enhance the reflectivity requirements by the reference code, International Energy Conservation Code (IECC). The International Green Construction Code (IgCC) is a code which provides building construction and operations requirements which should be more sustainable than those provided by the IECC, IBC, IMC, or IPC alone. The roof reflectivity requirements included in Chapter 6 should match leading "green codes", and should go above and beyond the reflectivity levels required in the IECC. This proposal requires that roofs materials comply with Section 402.3 of the IECC and with enhanced reflectivity requirements.

- We believe that IGCC should achieve parity with the reflectivity requirements in leading "green codes". The minimum solar reflectance and SRI values are consistent with the requirements in CalGreen Tier 2.
- The increase in solar reflectance requirement proposed here would generate almost 30 percent additional energy savings benefit above the current requirements, compared with a base case. The following equation, provided by the Heat Island Group at Lawrence Berkeley National Laboratory, describes the increase in annual energy savings of boosting the solar reflectance requirement from 0.55 to 0.65: $(0.65 - 0.20) / (0.55 - 0.20) - 1 = 29\%$. That is, if the albedo 0.55 roof saved 100 units of energy or money, the albedo 0.65 roof would save 129 units of energy or money. This equation assumes that thermal emittance levels remain constant.

Cost Impact: Will not increase the cost of construction

Analysis: The International Energy Conservation Code section C402.2.1.1 referenced in the text of this proposal are section numbers for the 2012 Edition. Due to significant changes approved for the 2015 IECC, the section number for the 2015 Editions will be C402.3.

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