

# GG168-14

## 408.3.1, Table 408.3.1, 408.3.1.1, 408.3.1.2, 408.3.1.3 (New)

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

**Revise as follows:**

**408.3.1 Roof coverings—solar reflectance and thermal emittance.** Where roof coverings are used for compliance with Section 408.3, roof coverings shall comply with ~~Section~~ Sections 408.3.1.1, ~~or~~ 408.3.1.2, and 408.3.1.3. ~~The values for solar reflectance and thermal emittance shall be determined by an independent laboratory accredited by a nationally recognized accreditation program. Roof products shall be listed and labeled and certified by the manufacturer demonstrating compliance.~~

**TABLE 408.3.1  
REFLECTANCE AND EMITTANCE**

<b>ROOF SLOPE</b>	<b>MINIMUM AGED SOLAR REFLECTANCE</b>	<b>MINIMUM AGED THERMAL EMITTANCE</b>	<b>MINIMUM AGED SRI</b>
2:12 or less	0.55	0.75	60
Greater than 2:12	0.30	0.75	25

**408.3.1.1 Roof products testing.** Roof products shall be tested for a ~~minimum~~ three-year aged solar reflectance in accordance with ASTM E 1918, ASTM C 1549 or the CRRC-1 Standard and tested for thermal emittance in accordance with ASTM C 1371, ASTM E 408 or the CRRC-1 Standard, and shall comply with the minimum values in Table 408.3.1. Solar reflectance and thermal emittance values shall be determined by an independent laboratory accredited by a nationally recognized accreditation program. Roof products shall be listed and labeled certified by the manufacturer demonstrating compliance.

**408.3.1.2 Solar reflectance index.** ~~Roof products shall be permitted to use a solar reflectance index (SRI) where the calculated value is in compliance with Table 408.3.1 values for minimum aged SRI. The roof product's solar reflectance index SRI value shall be determined using ASTM E 1980 with a convection convective coefficient of 2.1 Btu/h-ft<sup>2</sup> (12 W/m<sup>2</sup>·K), based on corresponding to a medium wind speed condition. The aged solar reflectance index shall be computed from three-year aged roof samples tested values of solar reflectance and thermal emittance determined in accordance with the test methods in Section 408.3.1.1.~~

**408.3.1.3 Solar reflectance and thermal emittance requirements.** Roof products shall have minimum aged solar reflectance and minimum aged thermal emittance in accordance with Table 408.3.1, or minimum aged solar reflectance index in accordance with Table 408.3.1.

**Reason:** Section 408.3.1 has three purposes: (a) to specify the testing requirements for the solar reflectance and thermal emittance properties of roof products; (b) to specify how solar reflectance index (SRI) is to be determined; and (c) to specify the requirements for the solar reflectance and the thermal emittance, or for the SRI, of roof products. This proposal clarifies each of these specifications by addressing the issues listed below. **Problem:** Currently, Section 408.3.1 includes language that is specific to the testing requirements of roof products. That language should be in the Roof products testing section (Section 408.3.1.1). **Solution:** Move the language addressing testing requirements that is currently in Section 408.3.1 to Section 408.3.1.1 (Roof products testing).

**Problem:** The current definition of the convective coefficient for calculating SRI is incorrect (wrong units, ambiguous arithmetic) and does not specify a wind speed.

**Solution:** This proposal corrects the definition of the convective coefficient.

**Problem:** The current code language does not clearly specify how the values in Table 408.3.1 are to be used.

**Solution:** This proposal adds Section 408.3.1.3 to clarify that compliance can be achieved by meeting minimum values of solar reflectance and thermal emittance, or by meeting a minimum value of SRI. This change is in line with the structure of section C402.2.1.1 in the *International Energy Conservation Code*.

**Cost Impact:** Will not increase the cost of construction.

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