NOTE: This version of the code change proposal has been updated to include all reported errata.

GG166-14
408.3.1, Table 408.3.1

Proponent: Amy Dickie, 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 408.3.1.1 or 408.3.1.2. 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

ROOF SLOPE	MINIMUM AGED SOLAR REFLECTANCE	MINIMUM AGED THERMAL EMITTANCE	MINIMUM AGED SRI
2:12 or less	~~0.55~~ 0.65	0.75	~~60~~ 78
Greater than 2:12	0.30	0.75	25

Reason: IgCC is a code which provides building construction and operations which should be more sustainable than buildings constructed under the IECC, IBC, IMC, or IPC alone.

Therefore, the roof reflectivity requirements included in Chapter 4 should match leading green codes. This proposal modifies the reflectivity requirements in Table 408.3.1 to increase the roof 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 net annual energy savings from 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, the albedo 0.65 roof would save 129 units of energy.

This equation assumes that thermal emittance levels remain constant.

Cost Impact: Will not increase the cost of construction.