**Proposed modifications for REPI-68**

Original proposed changes shown in black. Modifications relative to REPI-68 shown in blue.

**Add new definition as follows:**

LOW-SLOPED ROOF. A roof giving a slope less than 2 units vertical in 12 units horizontal.

STEEP-SLOPED ROOF. A roof giving a slope greater than or equal to 2 units vertical in 12 units horizontal.

 **Add new text as follows:**

**R402.6 Roof Reflectance**.

Roofs in Climate Zones 0 through 3 shall comply with one or more of the options in Table R402.6.

Table R402.6 Minimum roof reflectance.a

|  |  |
| --- | --- |
| Roof slope  | Three-year aged solar reflectance index b  |
| Low-slope  | 75b, c  |
| Steep-slope  | 16  |

1. The use of area-weighted averages to comply with these requirements shall be permitted. Materials lacking 3-year-aged tested values for solar reflectance shall be assigned a 3-year-aged solar reflectance in accordance with Section R402.6.1
2. Aged solar reflectance tested in accordance with ASTM C1549, ASTM E903 or ASTM E1918 or CRRC-S100.
3. Solar reflectance index (SRI) shall be determined in accordance with ASTM E1980 using a convection coefficient of 2.1 Btu/h × ft 2 × °F (12 W/m 2 × K). Calculation of aged SRI shall be based on aged tested values of solar reflectance and thermal emittance.

**Exceptions:** ~~The following roofs and portion of roofs are exempt from the requirements of Table R402.6:~~

1. ~~Roofs in climate zones 6-8~~ Roofs with a radiant barrier with an emittance of 0.05 or less.
2. Roofs where ~~more~~ not less than 75 percent of roof area ~~complies with one or more of the exceptions below  are~~  is covered by one or more of the following:
3. ~~Portions of the roof that are covered by one or more of the following~~:
	1. Photovoltaic systems or components
	2. Solar air or water heating systems or components
	3. Vegetative roofs or landscaped roofs
	4. Above roof decks or walkways
	5. Skylights
	6. HVAC systems and components, and other opaque objects mounted above the roof
	7. Portions of roof shaded during the peak sun angle on the summer solstice by permanent features of the building or by permanent features of adjacent buildings.
	8. Portions of roofs that are ballasted with a minimum stone ballast of 17 pounds per square foot (74kg/m2) or 23 psf (117kg/m2) pavers.

**R402.6.1 Aged roof solar reflectance**.

Where an aged solar reflectance required by Section R402.6 is not available, it shall be determined in accordance with Equation 4-3.

Equation 4-3

Raged=[0.2+0.7(Rinitial-0.2)]

where:

Raged = The aged solar reflectance.

Rinitial = The initial solar reflectance determined in accordance with CRRC-S100.

**Revise as follows:**

TABLE R405.4.2(1) (TABLE N1105.4.2(1)) SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS

|  |  |  |
| --- | --- | --- |
| **BUILDING COMPONENT**  | **STANDARD REFERENCE DESIGN**  | **PROPOSED DESIGN**  |
| Roofs  | Type: ~~composition shingle on wood sheathing~~ Low-sloped: Modified bitumen  Steep-sloped: asphalt shingles   | As proposed  |
| Gross Area: same as proposed  | As proposed  |
| Low-sloped: (Aged) Solar ~~absorptance~~ reflectance = ~~0.75~~ 0.63 Steep-sloped: (Aged) Solar reflectance = 0.2  | As proposed  |
| Thermal Emittance = ~~0.9~~ 0.75  | As proposed  |

**R407.2 Tropical Climate Region**

Compliance with this section requires the following:

* + - 1. Not more than one-half of the occupied space is air conditioned.
			2. The *occupied* space is not heated.
			3. Solar, wind or other renewable energy source supplies not less than 80 percent of the energy for service water heating.
			4. Glazing in *conditioned spaces* has a *solar heat gain coefficient* (SHGC) of less than or equal to 0.40, or has an overhang with a projection factor equal to or greater than 0.30.
			5. Permanently installed lighting is in accordance with Section R404.
			6. The exterior roof surface complies with one of the options in Table ~~C402.3~~R402.6 ~~of the International Energy Conservation Code- Commercial Provisioner the roof~~ or ceiling has insulation with an *R-value* of R-15 or greater. Where attics are present, attics above the insulation are vented and attics below the insulation are invented.
			7. Roof surfaces have a slope of not less than ¼ unit vertical in 12 units horizontal (21-percent slope). The finished roof does not have water accumulation areas.
			8. Operable fenestration provides a ventilation area of not less than 14 percent of the floor area in each room. Alternatively, equivalent ventilation is provided by a ventilation fan.
			9. Bedrooms with *exterior walls* facing two different directions have operable fenestration on exterior walls facing two directions.
			10. Interior doors to bedrooms are capable of being secured in the open position.
			11. A ceiling fan or ceiling fan rough-in in provided for bedrooms and the largest space that is not used as a bedroom.

**R503.1.1. Building Envelope**

Building envelope assemblies that are part of the *alteration* shall comply with Section 402.1.2 or R402.1.4, Sections R402.2.1 through R402.2.12, R402.3.1, R402.3.2, R402.4.3, R402.6 and R402.4.5.

**Exception:** The following alterations shall not be required to comply with the requirements for new construction provided that the energy use of the building is not increased:

1. Storm windows installed over existing fenestration.
2. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation.
3. Construction where the existing roof, wall or floor cavity is not exposed.
4. Roof recover where the new roofing meets the reflectance requirements under R402.6.
5. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.
6. Surface-applied window film installed on existing single pane fenestration assemblies to reduce solar heat gain provided that the code does not require the glazing or fenestration assembly to be replaced.