**COOL ROOF REQUIREMENTS**

 **FOR REROOFING SINGLE-FAMILY RESIDENTIAL BUILDINGS IN CLIMATE ZONE 10**

The new 2022 California Energy Code effective Jan 1, 2023 requires cool roof when using the prescriptive requirement for reroofing single-family residential buildings. Roofing products with high solar reflectance and thermal emittance are referred to as “cool roof”. **Solar Reflectance** refers to a material’s ability to reflect the sun’s solar energy back into the atmosphere. **Thermal emittance** provides a means of quantifying how much of the absorbed heat is rejected for a given material. Both properties are measured from 0 to 1 and the higher the value, the “cooler” the roof. There are numerous materials in a wide range of colors to meet cool roof requirements such as tile, metal, asphalt, and coating material that may meet cool roof requirements. To be considered a cool roof the roofing products must be tested and labeled by the Cool Roof Rating Council (CRRC). If one wishes not to install a cool roof then they must meet the 2022 California Energy Code using the performance method where tradeoffs can be done.

**Replacements of the exterior surface of existing roofs, including adding a new surface layer on top of the existing exterior surface**, shall comply with cool roof requirements where **more than 50%** of the roof is being replaced [Per § 150.2(b)1.I]:

* **FOR STEEP-SLOPED ROOFS (≥ 2:12)** [per § 150.2(b)1.I.i]**:**

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| Roof Slope | Aged Solar Reflectance AND Thermal Emittance | OR Solar Reflectance Index (SRI) |
| Steep-sloped (≥ 2 :12) | ≥ 0.20 ≥ 0.75 | ≥ 16 |

*Exceptions:*

1. Buildings with ceiling assembly U-factor ≤ 0.025 or at least R-38 ceiling insulation; or
2. Buildings with a radiant barrier in the attic, where the radiant barrier is not installed directly above space sheathing, meeting the requirements of Energy Standards Section 150.1(c)2; or
3. Buildings that have no ducts in the attic; or
4. Building with R-2 or greater continuous insulation above or below the roof deck; or
5. Roof area covered by building integrated photovoltaic panels or solar thermal panels; or
6. Roof constructions with a weight of at least 25 lbs/ft2.
* **FOR LOW-SLOPED ROOFS (< 2:12)** [per § 150.2(b)1.I.ii(a)]**:**

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| Roof Slope | Aged Solar Reflectance AND Thermal Emittance | OR Solar Reflectance Index (SRI) |
| Low-sloped (< 2 :12) | ≥ 0.63 ≥ 0.75 | ≥ 75 |

*Exceptions:*

1. The aged solar reflectance can be met using R-16 roof deck continuous insulation for climate zone 10 per 2022 California Energy Code Table 150.2-B *(“Aged Solar Reflectance Insulation Tradeoff Table”);* or
2. Roof area covered by building integrated photovoltaic panels or solar thermal panels; or
3. Roof constructions with a weight of at least 25 lbs/ft2.
4. Roofs shall be insulated with R-14 continuous insulation above the roof deck and roof assembly U-Factor = 0.039 (R-11 cavity insulation below the roof deck, wood framing at 24” o.c.). [Per § 150.2(b)I.ii.b & Table 150.2-C *“Insulation Requirements For Roof Alterations”].*

*Exceptions:*

* 1. Existing roofs with R-10 or greater continuous insulation above or below the roof deck; or
	2. Existing roofs with an assembly U-Factor ≤ 0.056 or insulated with R-19 min. insulation between the roof rafters and in contact with the roof deck.
	3. The R-14 continuous insulation may be reduced to R-4 where the following conditions are met:

Mechanical equipment is located on the roof and will not be temporarily disconnected and lifted as part of the roof replacement and the addition of insulation would not reduce the height from the roof surface to top of the base flashing to less than the manufacturer’s installation instruction.

Replace roofing abuts sidewall or parapet walls and the addition of insulation would not reduce the height from the roof surface to top of the base flashing to less than the manufacturer’s installation instruction, provided that the following conditions apply:

* + - 1. The sidewall or parapet walls are finished with an exterior cladding material other than the roof covering membrane material; and
			2. The sidewall or parapet walls have exterior cladding material that must be removed to install the new roof covering membrane to maintain the minimum base flashing height; and
			3. The ratio of the replaced roof area to the linear dimension of affected sidewall or parapet walls is less than 25 sqft/ft; or
	1. The R-14 continuous insulation may be reduced where increasing the thickness above deck insulation would reduce the flashing around an existing exterior wall opening below what is permitted by the fenestration or door manufacturer’s installation instructions or register design professional’s approved flashing design.
	2. Tapered insulation with thermal resistance less than prescribed at the drains and other low points may be used provided that the thickness of insulation is increased at the high points of the roof so that the average thermal resistance equals or exceed the required value.