

ROOF OVERLAYS FOR LOW RISE RESIDENTIAL BUILDINGS

Question:

When does a re-roof have to comply with the California State Energy Title 24 “Cool Roof” requirements?

Answer:

Roof surface replacements, or overlays, shall meet the applicable requirements of Section 152(b) 1H of the 2008 Building Energy Efficiency Standards when more than 50% of the roof or more than 1,000 square feet of roof area, whichever is less, is being replaced.

The 2008 Building Energy Efficiency Standards Section 152(b) 1H states the following criteria for roof surface replacements and alternatives:

- i. For roofs greater than 2:12 slope with roofing product density of less than 5 pounds per sq. ft. in climate zones 10 thru 15, shall have a minimum aged solar reflectance of 0.20 and a minimum thermal emittance of 0.75 or a minimum SRI of 16
- ii. For roofs greater than 2:12 slope with roofing product density of 5 pounds per sq. ft. or more in climate zones 1 thru 16, shall have a minimum aged solar reflectance of 0.15 and a minimum thermal emittance of 0.75 or a minimum SRI of 10

Alternatives to Section 152(b) 1H i and ii:

- a. Insulation with a thermal resistance of at least 0.85 hr per sq. ft. / Btu or at least a ¾ inch air space is added to the roof deck over an attic; or
- b. Existing ducts in the attic are insulated (R-6) and sealed according to Section 151(f)10; or
- c. In climate zones 10, 12 and 13 with 1 sq. ft. of free ventilation area to attic ventilation for every 150 sq. ft. of attic area, and where at least 30 percent of the free ventilation area is within 2 feet vertical distance of the roof ridge; or
- d. Buildings with at least R-30 ceiling insulation; or
- e. Buildings with a radiant barrier in the attic, complying with Section 151(f) 2; or
- f. Buildings that have no ducts in the attic; or
- g. In climate zones 10, 11, 13 and 14, R-3 or greater roof deck insulation above the vented attic.

Section 101 of the 2008 Building Energy Efficiency Standards defines Roof and Roofing Product as follows:

Roof is the outside of a building or structure including the structural supports, decking and top layer that is exposed to the outside with a slope less than 60 degrees in the horizontal.

Roofing Product is the top layer(s) of the roof that is exposed to the outside, which has properties including but not limited to reflectance, emittance and mass.

Prescriptive Certificate of Compliance: Residential Reroof **CF-1R-ALT Re-Roof**

Project Address:	Climate Zone 10	Project #
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ROOFING PRODUCTS (COOL ROOFS) §151(f) 12

When the area of exterior roof surface to be replaced exceeds 50% of the existing roof area, or 1,000 ft², whichever is less, the new roofing area must meet the roofing product "Cool Roof" requirements of § 152(b)1Hii, or 1Hii, or 152(b)1Hiii.

Check applicable **alternative** or **exception** below if the roof alteration is exempt from the roofing product "Cool Roof" requirements:

- Cool roofs not required in Climates Zones 1-12, 14 and 16 with a low sloped roof pitch (less or 2:12 pitch).
- Cool roofs not required in Climates Zones 1-9 and 16 with a steep-sloped roof (greater pitch than 2:12) and product weight less than 5/11lb/ft².

Alternatives to §152 (b) 1Hi and §152(b) Hii, Steep-slope roof (pitch> 2:12)

- Insulation with a thermal resistance of at least 0.85 hr-ft²-°F/Btu or at least a ¾ inch air space is added to the roof deck over an attic; or
- Existing ducts in the attic are insulated and sealed according to §151(f)10; or
- In climate zones 10, 12 and 13, with 1 ft¹ of free ventilation area of attic ventilation for every 150ft² of attic floor area, and where at least 30 percent of the free ventilation area is within 2 feet vertical distance of the roof ridge; or
- Building has at least R-30 ceiling insulation; or
- Building has radiant barrier in the attic meeting the requirements of §1519f)2: or
- Building has no ducts in the attic; or
- In climate zones 10, 11, 13 and 14, R-3 or greater roof deck insulation above vented attic.

Exception to §152(b)1Hii, Low -slope roof (pitch ≥ 2:12)

- Building has no ducts in the attic.

Other Exceptions

- Roofing area is covered by building integrated; photovoltaic panels and thermal panels are exempt from Cool Roof criteria.
- Roof constructions that have thermal mass over the roof membrane with at least 25lb/ft² are exempt from the Cool Roof criteria.

NOTE: *If any of the alternatives or exception is checked the Aged Solar Reflectance and Thermal Emittance requirements for roofing products in § 118(i) are not applicable. Do not fill table below.*

CRRC Product ID Number ¹	Roof Slope		Product Weight		Product Type ²	Aged Solar Reflectance ^{3,4}		Thermal Emittance	SRI ⁵
	≤ 2:12	>2:12	< 5lb/ft ²	≥ 5lb/ft ²					
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			

Note: If no CRRC-1 label is available, this compliance method cannot be used, use the Performance Approach to show compliance.

1. The CRRC Product ID Number can be obtained from the Cool Roof Rating Council's Rated Product Directory at www.coolroofs.org/products/search.php
2. Indicate the type of product is being used for the roof, asphalt roof, metal proof, etc.
3. If the Aged Reflectance is not available in the Cool Roof Rating Council's Rated Product Directory then use the Initial Reflectance value from the same directory and use the equation $(0.2+0.7(p_{initial}-0.2))$ to obtain a calculated aged value. Where p is the Initial Solar Reflectance.
4. Check box if the Aged Reflectance is a calculated value using the equation above.
5. Calculate the SRI value by using the SRI-Worksheet at <http://www.energy.ca.gov/title24/> and enter the resulting value in the SRI Column above and attach a copy of the SRI-Worksheet to the CF-1R.

To apply **Liquid Field Applied Coatings**, the coatings must be applied across the entire roof surface and meet the dry mil thickness or coverage recommended by the coatings manufacturer and meet minimum performance requirements listed in §118(i). Select the applicable coating:

<input type="checkbox"/> Aluminum-Pigmented Asphalt Roof Coating	<input type="checkbox"/> Cement-Based Roof Coating	<input type="checkbox"/> Other
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NOTE: *When a Cool Roof is required, the installing contractor shall complete and submit the CF-6R-ENV-01 for final inspection.*

Declaration Statement

- I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is accurate and complete.
- I certify that the energy features and performance specifications identified on this Certificate conform to the requirements of Title 24, parts 1 and 6 of the California Code of Regulations.

Name:	Signature:
Company:	Date:
Address:	License:
City/State/Zip:	Phone:

For assistance or questions regarding the Energy Standards, contact the Energy Hotline at: 1-800-772-3300.



Building and Safety Department
1 Town Square-Murrieta, CA 92562
951-461-6055 www.murrieta.org

RE-ROOF WORK SHEET/CERTIFICATION

SITE ADDRESS: _____

PART-1 EXISTING ROOF (check one)

ROOF SLOPE	FLAT	2-2 ^{1/2} : 12	3-3 ^{1/2} : 12	4-4 ^{1/2} : 12	5-5 ^{1/2} : 12	6-6 ^{1/2} : 12	7-7 ^{1/2} : 12

EXISTING ROOF (check one covering type & deck type each)

EXISTING ROOF COVERING							ROOF DECK TYPE	
ASPHALT COMPOSITION SHINGLES	HOT MOP	WOOD SHAKE SHINGLE	CLAY TILE	CEMENT TILE	MEMBRANE	METAL	SOLID	SPACED SHEATHING

PART-2 NEW ROOF (check one)

ADDITIONAL; LAYER TO EXISTING COVER	TEAR-OFF, REPLACE SAME AS EXISTING	TEAR-OFF, RE-SHEET, INSTALL NEW COMPOSITION ASPHALT SHINGLES	NEW CLAY/CEMENT TILE
GO TO PART-3	GO TO PART-6	GO TO PART-6	GO TO PART-4

PART-3 Where the existing roof has two or more layers of roof coverings; all existing layers shall be removed, prior to the installation of a new roof covering.

PART-4 **Tile Manufacturer:** _____ **ICC Report** _____

If the tile weight exceeds 6.5 lbs psf or, the combined weight of the new tile + solid plywood decking (1.5psf @1/2") exceeds 6.5lbs. psf, **GO TO PART-5**, Otherwise **GO TO PART-6**

PART-5 THIS PART MUST BE PREPARED BY A CALIFORNIA STATE REGISTERED ENGINEER

1. Structural Calculations required for the existing roof framing.
2. Framing plan and connection details for strengthening if required.

PART-6 Owner/Application Certification

I certify the information provided on this form is accurate and complete

Name: _____ **Signature:** _____ **Date:** _____