



**City of Walnut Creek**  
**Development Review Services**  
1666 N. Main Street, Walnut Creek, CA 94596  
(925) 943-5834 phone (925) 256-3500 fax

Issued 4/20/2023

Policy Bulletin No. PB-039

## Cool Roofs and Reroof Projects of Single Family Building

Where more than 50% of the existing roof surface is being replaced in single family building, including adding a new surface layer on top of the existing exterior surface, it shall meet the requirements of section 150.2(b)(1)(I)(i) if the roof pitch is no less than 2:12 (Steep-sloped roofs), or section 150.2(b)(1)(I)(ii) if the roof pitch is less than 2:12 (low-sloped roofs) when prescriptive approach is used.

Note:

1. Cool roof is not required if 50% or less of the existing roof surface of single family building is being altered, including adding a new surface on top of the existing exterior surface.
2. Single family building is any of the following:
  - a. A residential building of Occupancy Group R-3 with two or fewer dwelling units; or
  - b. A building of Occupancy Group R-3, other than a multifamily building or hotel/motel building; or
  - c. A townhouse; or
  - d. A building of Occupancy Group R-3.1; or
  - e. A building of Occupancy Group U when located on a residential site.

**Section 150.2(b)(1)(I)(i): Steep-sloped roofs (roof pitch is no less than 2:12) shall meet the following:**

New roofing products shall have a minimum aged solar reflectance of 0.20 and a minimum thermal emittance of 0.75, or a minimum SRI of 16.

ALTERNATIVE TO SECTION 150.2(b)(1)(I)(i):

- a. Buildings with ceiling assemblies with a U-factor lower than or equal to 0.025 or that are insulated with at least R-38 ceiling insulation; or
- b. Buildings with a radiant barrier in the attic, where the radiant barrier is not installed directly above spaced sheathing, meeting the requirements of Section 150.1(c)2; or
- c. Buildings that have no ducts in the attic; or
- d. Buildings with R-2 or greater continuous insulation above or below the roof deck; or
- e. Roof area covered by building integrated photovoltaic panels or building integrated solar thermal panels is not required to meet minimum requirements for aged solar reflectance, thermal emittance or SRI; or
- f. Roof constructions with a weight of at least 25 lb/ft<sup>2</sup> are exempt from minimum requirements for aged solar reflectance and thermal emittance, or SRI.

**Section 150.2(b)(1)(I)(ii): Low-sloped roofs (roof pitch is less than 2:12) shall meet the following:**

- a. New roofing products shall have an aged solar reflectance equal to or greater than 0.63 and a thermal emittance equal or greater than 0.75, or a minimum SRI of 75.

ALTERNATIVE TO SECTION 150.2(b)(1)(I)(ii)(a):

- a. The aged solar reflectance can be met by using insulation at the roof deck specified in Table 150.2-B; or
  - b. Roof area covered by building integrated photovoltaic panels or building integrated solar thermal panels is not required to meet the minimum requirements for aged solar reflectance, thermal emittance or SRI; or
  - c. Roof constructions with a weight of at least 25 lb/ft<sup>2</sup> are exempt from the minimum requirements for aged solar reflectance and thermal emittance, or SRI.
- b. Roofs shall be insulated to the levels specified in Table 150.2-C.

ALTERNATIVE TO SECTION 150.2(b)(1)(I)(ii)(b):

- a. Existing roofs with R-10 or greater continuous insulation above or below the roof deck; or
- b. The continuous insulation requirements per Table 150.2-C may be reduced where increasing the thickness of above deck; or 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 registered design professional's approved flashing design, as per California Residential Code Section R703.4, or by California Residential Code Section R905.2.8.3; or
- c. 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 exceeds the required value; or



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- d. The continuous insulation requirements of Table 150.2-C 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 required by Table 150.2-C would reduce the height from the roof surface to the top of the base flashing to less than that set forth in the manufacturer's installation instructions as per California Residential Code Section R900; or
  - Replaced roofing abuts sidewall or parapet walls and the addition of insulation required by Table 150.2-C would reduce the height from the roof surface to the top of the base flashing to less than that set forth in the manufacturer's installation instructions as per California Residential Code Section R900, provided that the following conditions apply:
    - The sidewall or parapet walls are finished with an exterior cladding material other than the roof covering membrane material; and
    - 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
    - The ratio of the replaced roof area to the linear dimension of affected sidewall or parapet walls is less than 25 square feet per linear foot.

A Certificate of Compliance Energy Form “modified CF1R-ALT-05-E” must be completed and submitted with the permit application. The “modified CF-1R-ALT-05-E” form must be signed by the documentation Author and the Building Designer (i.e. Contractor or Home Owner).

Roofing products that are used for compliance with the energy standards are required to be tested and labeled by the Cool Roof Rating Council (CRRC).

The roofing products manufacturer must have its roofing product tested for solar reflectance and thermal emittance, and be listed in the CRRC’s Rated Product Directory (see <http://www.coolroofs.org>) and be labeled according to CRRC procedures. Below is an example of an approved CRRC product label.

	<b>Initial</b>	<b>Weathered</b>	
	<b>Solar Reflectance</b>	<b>0.00</b>	<b>Pending</b>
	<b>Thermal Emittance</b>	<b>0.00</b>	<b>Pending</b>
	Rated Product ID Number	-----	
Licensed Seller ID Number	-----		
Classification	Production Line		
<small>Cool Roof Rating Council ratings are determined for a fixed set of conditions, and may not be appropriate for determining seasonal energy performance. The actual effect of solar reflectance and thermal emittance on building performance may vary.</small>			
<small>Manufacturer of product stipulates that these ratings were determined in accordance with the applicable Cool Roof Rating Council procedures.</small>			

Attached are the modified CF1R-ALT-05-E form for your use. Or you can visit the California Energy Commissions webpage at: [www.energy.ca.gov](http://www.energy.ca.gov) for more information.

<b>PRESCRIPTIVE CERTIFICATE OF COMPLIANCE: SINGLE FAMILY RESIDENTIAL STEEP-SLOPED RE-ROOF (2022)</b>			<i>modified CF1R-ALT-05-E</i>
<b>Project Address:</b>	<b>Jurisdiction:</b> CITY OF WALNUT CREEK	<b>Climate Zone:</b> 12	<b>Permit #:</b>

**STEEP SLOPED (pitch is 2:12 or greater) SINGLE FAMILY ROOFING PRODUCTS (COOL ROOFS)**

*When 50% or more of the roof is being replaced, the roofing requirements are triggered. Any areas of roof covered by building integrated photovoltaic panels and solar thermal panels (the area of roof not covered by panels would still need to meet any applicable cool roof requirements). Additionally, there are many alternatives/exceptions when a cool roof is required.*

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

Cool Roof Exceptions:  
 Area to be re-roofed is less than 50% of total roof area  
 Area to be re-roofed =           sq ft   Total roof area =                   sq ft

Cool Roof Alternatives:  
 Building has ceiling assemblies with a maximum U-factor of 0.025 or R-38 insulation; or  
 Building has a radiant barrier not installed directly above spaced sheathing meeting 150.1(c)2; or  
 Building has no ducts in the attic; or  
 Building has R-2 or greater insulation above the roof deck; or  
 Building roof area covered by building integrated photovoltaic (PV) panels and solar thermal panels are exempt from the above Cool Roof requirements; or  
 Building roof constructions with a weight of at least 25 psf are exempt from the above Cool Roof Requirements.

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

**COOL ROOF IS REQUIRED if none of the boxes above are checked. Roofing material to be installed must meet the applicable requirements listed below.** Aged solar reflectance and thermal emittance are tested performance values for roofing products that are available from the manufacturer. The product must have a CRRC label to be shown to the building inspector.

- 3 year Aged Solar Reflectance, minimum 0.20
- AND Thermal Emittance, minimum 0.75
- OR- Solar Reflective Index (SRI), minimum 16

CRRC Product ID Number <sup>1</sup>	Product Type <sup>2</sup>	R-Value Deck Insulation <sup>3</sup>	PROPOSED			SRI <sup>7</sup> (optional)
			Initial Solar Reflectance <sup>4</sup>	Aged Solar Reflectance <sup>5</sup>	Thermal Emittance <sup>6</sup>	

1. The CRRC Product ID Number is obtained from the Cool Roof Rating Council's Rated Product Directory at [www.coolroofs.org/products/results](http://www.coolroofs.org/products/results). Products are listed by manufacturer, brand, type of installation, roofing material, and color, as well as product performance.
2. Product Type: See Cool Roof Rating Council's directory. Generally product types include single-ply roof, wood shingles, asphalt roof, metal roof, tile roof.
3. R-value Deck Insulation: If one of the exceptions selected includes adding roof deck insulation, indicate the R-value of insulation.
4. Proposed Initial Solar reflectance: Based on the product chosen from the Cool Roof Rating Council's Rated Product Directory. If using default assumption, indicate N/A since the Aged Solar Reflectance is available.
5. Proposed Aged Solar Reflectance: Value is from the Cool Roof Rating Council's Rated Product Directory. If the aged value is not available, calculate the calculated Aged Solar Reflectance using the Solar Reflectance index (SRI) Calculation worksheet located on the California Energy Commission website or the aging equation  $\rho_{aged} = [0.2 + \beta(\rho_{initial} - 0.2)]$ , where  $\rho_{initial}$  = the initial solar reflectance and soiling resistance,  $\beta$ , is listed by product type below.

VALUES OF SOILING RESISTANCE B BY PRODUCT TYPE		
Product Type	CRRC Product Category	$\beta$
Field-Applied Coating	Field-Applied Coating	0.65
Other	Not A Field-Applied Coating	0.70

6. Proposed Thermal Emittance: From the product specification default value. If using a calculated SRI, place the thermal emittance used to calculate SRI.
7. Proposed SRI: It is optional to meet either the SRI but if chosen to do so, use the Solar Reflectance Index (SRI) Calculation Worksheet found on the California Energy Commission website <http://www.energy.ca.gov/title24/>.

If the cool roofing requirements will be met by a **liquid field applied coating**, Section 110.8(i)4 requires the coating to be applied across the entire roof surface and meet the dry mil thickness or coverage recommended by the manufacturer.

*See reverse for Declaration Statement that must be signed*

**Declaration Statement**

I certify under penalty of perjury, under the laws of the State of California,

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I understand that a registered copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections.
6. I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

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

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

*This document has been modified by the City of Walnut Creek.*

<b>Project Address:</b>	<b>Jurisdiction:</b> CITY OF WALNUT CREEK	<b>Climate Zone:</b> 12	<b>Permit #:</b>
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**LOW-SLOPED (PITCH LESS THAN 2:12) SINGLE FAMILY ROOFING PRODUCTS (COOL ROOFS)**

When 50% or more of the roof is being replaced, the roofing requirements are triggered. Any areas of roof covered by building integrated photovoltaic panels and solar thermal panels (the area of roof not covered by panels would still need to meet any applicable cool roof requirements). Additionally, there are many alternatives/exceptions when a cool roof is required.

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

Cool Roof Exceptions:

- Area to be re-roofed is less than 50% of total roof area
- Area to be re-roofed =           sq ft   Total roof area =           sq ft

Cool Roof Alternatives:

- The aged solar reflectance can be met by using insulation at the roof deck specified in Table 150.2-B with proposed deck continuous insulation R \_\_\_\_; or
- Building roof area covered by building integrated photovoltaic (PV) panels and solar thermal panels are exempt from the above Cool Roof requirements; or
- Building roof constructions with a weight of at least 25 psf are exempt from the above Cool Roof Requirements.

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

**COOL ROOF IS REQUIRED** if none of the boxes above are checked. Roofing material to be installed must meet the applicable requirements listed below. Aged solar reflectance and thermal emittance are tested performance values for roofing products that are available from the manufacturer. The product must have a CRRC label to be shown to the building inspector.

- 3 year Aged Solar Reflectance, minimum 0.63,
- AND Thermal Emittance, minimum 0.75
- OR- Solar Reflective Index (SRI), minimum 75

CRRC Product ID Number <sup>1</sup>	Product Type <sup>2</sup>	R-Value Deck Insulation <sup>3</sup>	PROPOSED			SRI <sup>7</sup> (optional)
			Initial Solar Reflectance <sup>4</sup>	Aged Solar Reflectance <sup>5</sup>	Thermal Emittance <sup>6</sup>	

- The CRRC Product ID Number is obtained from the Cool Roof Rating Council's Rated Product Directory at [www.coolroofs.org/products/results](http://www.coolroofs.org/products/results). Products are listed by manufacturer, brand, type of installation, roofing material, and color, as well as product performance.
- Product Type: See Cool Roof Rating Council's directory. Generally product types include single-ply roof, wood shingles, asphalt roof, metal roof, tile roof.
- R-value Deck Insulation: If one of the exceptions selected includes adding roof deck insulation, indicate the R-value of insulation.
- Proposed Initial Solar reflectance: Based on the product chosen from the Cool Roof Rating Council's Rated Product Directory. If using default assumption, indicate N/A since the Aged Solar Reflectance is available.
- Proposed Aged Solar Reflectance: Value is from the Cool Roof Rating Council's Rated Product Directory. If the aged value is not available, calculate the calculated Aged Solar Reflectance using the Solar Reflectance Index (SRI) Calculation worksheet located on the California Energy Commission website or the aging equation  $\rho_{aged} = [0.2 + \beta(\rho_{initial} - 0.2)]$ , where  $\rho_{initial}$  = the initial solar reflectance and soiling resistance,  $\beta$ , is listed by product type below.

VALUES OF SOILING RESISTANCE B BY PRODUCT TYPE		
Product Type	CRRC Product Category	B
Field-Applied Coating	Field-Applied Coating	0.65
Other	Not A Field-Applied Coating	0.70

- Proposed Thermal Emittance: From the product specification default value. If using a calculated SRI, place the thermal emittance used to calculate SRI.
- Proposed SRI: It is optional to meet either the SRI but if chosen to do so, use the Solar Reflectance Index (SRI) Calculation Worksheet found on the California Energy Commission website <http://www.energy.ca.gov/title24/>.

If the cool roofing requirements will be met by a **liquid field applied coating**, Section 110.8(i)4 requires the coating to be applied across the entire roof surface and meet the dry mil thickness or coverage recommended by the manufacturer.

**NOTE:** When a Cool Roof is required, the installing contractor shall complete and submit the modified CF2R-ALT-05-E for final inspection.

**TABLE 150.2-B AGED SOLAR REFLECTANCE INSULATION TRADE-OFF TABLE**

MINIMUM AGED SOLAR REFLECTANCE	ROOF DECK CONTINUOUS INSULATION R-VALUE (Climate Zones 6-7)	ROOF DECK CONTINUOUS INSULATION R-VALUE (Climate Zones 2, 4 and 8-15)
0.60	2	16
0.55	4	18
0.50	6	20
0.45	8	22
No requirement	10	24

**LOW-SLOPED (PITCH LESS THAN 2:12) SINGLE FAMILY ROOFING INSULATION**

When 50% or more of the roof is being replaced, the roofing requirements are triggered. Any areas of roof covered by building integrated photovoltaic panels and solar thermal panels (the area of roof not covered by panels would still need to meet any applicable roof insulation requirements). Additionally, there are many alternatives/exceptions when a roof insulation is required.

**Check applicable alternative or exception below if the roof alteration is exempt from the roof insulation requirements:**

## Roof Insulation Exceptions:

Area to be re-roofed is less than 50% of total roof area  
 Area to be re-roofed =           sq ft   Total roof area =           sq ft

## Roof Insulation Alternatives:

- Existing roofs with R-10 or greater continuous insulation above or below the roof deck; or  
 The continuous insulation requirements per Table 150.2-C may be reduced where increasing the thickness of 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 registered design professional's approved flashing design, as per California Residential Code Section R703.4, or by California Residential Code Section R905.2.8.3; or  
 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 exceeds the required value; or  
 The continuous insulation requirements of Table 150.2-C 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 required by Table 150.2-C would reduce the height from the roof surface to the top of the base flashing to less than that set forth in the manufacturer's installation instructions as per California Residential Code Section R900; or
  - Replaced roofing abuts sidewall or parapet walls and the addition of insulation required by Table 150.2-C would reduce the height from the roof surface to the top of the base flashing to less than that set forth in the manufacturer's installation instructions as per California Residential Code Section R900, provided that the following conditions apply:
    - The sidewall or parapet walls are finished with an exterior cladding material other than the roof covering membrane material; and
    - 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
    - The ratio of the replaced roof area to the linear dimension of affected sidewall or parapet walls is less than 25 square feet per linear foot.

**ROOF INSULATION IS REQUIRED if none of the boxes above are checked. Roofs shall be insulated to the levels specified in table 150.2-C:**

**Proposed continuous roof insulation R14 minimum                                   or                                   Proposed roof assembly U factor of 0.039 maximum**

**TABLE 150.2-C INSULATION REQUIREMENTS FOR ROOF ALTERATIONS**

<i>CLIMATE ZONE</i>	<i>CONTINUOUS INSULATION R-VALUE</i>	<i>ROOF ASSEMBLY U-FACTOR</i>
3, 5—7	N.A.	N.A.
1, 2, 4, 8—16	R-14	0.039

**Declaration Statement**

- I certify under penalty of perjury, under the laws of the State of California,
- The information provided on this Certificate of Compliance is true and correct.
  - I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
  - The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
  - The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
  - I understand that a registered copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections.
  - I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

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

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