

Reflectance, Emittance and Cool Roofs

The CalCERTS Field Support Department has received a lot of calls on this issue lately, even though it is not a HERS verified measure. Apparently, there is a lot of confusion on this topic amongst Energy Consultants. Hopefully, the following will help alleviate some of that. Let us know if you have more questions.

The default values for reflectance and emittance that result in no penalty and no credit in a compliance model are 0.10 and 0.85.

A modeled reflectance value higher than 0.10 will trigger a *CF2R-ENV-04 Roofing-Radiant Barrier Certificate of Installation*, specifically section F where the installer must document the reflectance and emittance.

The confusion arises because “Cool Roof” is defined as a product having a reflectance of 0.20 or higher, so there is a range of reflectance between 0.10 and 0.20 that is **not** considered “cool roof”, but gets a compliance credit and triggers the CF2R-ENV-04. When a reflectance between 0.10 and 0.20 is modeled:

- a note will show up in the Special Features section of the CF1R-PRF-01 that says “Non-standard roof reflectance”,
- a “No” will show up under the Cool Roof column of the Attic section the CF1R-PRF-01, and
- a CF2R-ENV-04 will be required to document that the installed roofing product meets the minimum (modeled) reflectance and emittance (section F)

The following table summarizes the three possible scenarios:

<u>Reflectance</u>	<u>Emittance</u>	<u>Cool Roof</u>	<u>CF2R-ENV-04</u>
0.10	0.85	No (default)	Not triggered
> 0.10 and < 0.20	≥ 0.85	No (non-standard)	Triggered
≥ 0.20	≥ 0.85	YES	Triggered

We highly recommend that Energy Consultants make sure that if they model a reflectance between 0.10 and 0.20 (second scenario in table) that the installer is made aware that they will have to document compliance on the CF2R-ENV-04. Note that in EnergyPro, there is a “*CRRC-1 Certified Roofing*” check box that toggles on the fields where reflectance and emittance can be entered. If this box is not checked, it will only model default values no matter what values have been entered. Screen shot below.

General JA4 Res T24 Performance Layers

Component Description

Name: R-38+13 HP Attic

Type: Roof

Roof

Radiant Barrier in Attic

CRRC-1 Certified Roofing

Roofing Type: Lightweight (< 5 #/ft²)

Aged Solar Reflectance: 0.17 Thermal Emittance: 0.91

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