

CALIFORNIA'S TITLE 24

CHANGES AFFECTING ROOFING IN 2005 & FAQ'S



Effective approximately October 1, 2005 Cool Roofs will be required in California when installing a new roof, reroofing or recoating if the following conditions exist:

- The roof covers non-residential construction,
- Slope is less than 2:12
- It is over conditioned space (air conditioned or heated)

Title 24 is written by the California Energy Commission ("CEC") and is made part of California's building code. It addresses all types of energy requirements for HVAC, lighting, windows and walls as well as roofs. These changes now make a "cool" roof the base line for all non-residential buildings.

To qualify as a Cool Roof the material must meet

Minimum 0.70 Reflectance

Accelerated weathering 1000 hours

- Minimum Thermal Emittance of 0.75
- And be CRRC labeled with these values

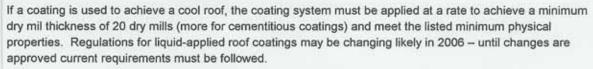
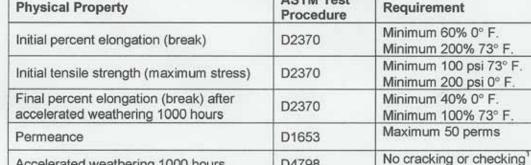




Table 118-C

Minimum Performance Requirements for Liquid Roof Coatings ASTM Test



Any cracking or checking visible to the eye fails the test procedure



Henry

If I'm doing a reroof is a cool roof required? Yes as long as the following conditions exist: it's over conditioned space, is non-residential. (Some coastal and mountain areas are exempt.)

D4798

Does a roof on a new building have to be a cool roof? If the designer follows the simple prescriptive method it will require a cool roof. If the designer follows a calculated performance method there are some upgrades that could be made to the HVAC, windows, doors and walls to off-set the cool roof requirement.

If I'm recoating the roof does it have to be a cool roof? Same criteria applies when coating the roof.

Are there any non-residential buildings that are exempt? Cool Roofs are OPTIONAL for hospitals, prisons, mental institutions, hotels/motels, high-rise residential buildings (4 stores or more), high-sloped (more than 2:12) non-residential roofs, unconditioned buildings and process spaces. However, a cool roof will contribute to an energy credit toward meeting the energy budget.

How will it be enforced? When you pull a permit, the Building Departments will require certification that a cool roof is being installed. New forms are being developed by the CEC to facilitate this requirement.

What if you don't have to pull a permit? The roofing contractor is still bound to follow code and install a

Does an Energy Star product qualify as a cool roof? NO! Title 24 requires a CRRC label and meets the minimum 0.70 reflectance and 0.75 Thermal Emittance.





If I add Insulation do I still need to have a cool roof? Title 24 outlines minimum insulation values. Under some computation methods a cool roof could be waived BUT it's unlikely to be cheaper.

If building has a large unconditioned space but a small airconditioned office does the entire roof require a Cool Roof?

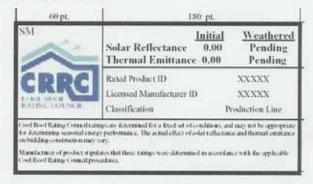
Not usually. If unconditioned space is much larger than the conditioned space inside the building it will probably be considered unconditioned and a cool roof will be just an option. When the space heating and/or cooling system for the smaller space starts getting large – that is large enough to have the capacity to condition the entire building, the whole building approaches being a conditioned building.

Will I get a rebate if I install a cool roof? Check with your utility, but it is unlikely that the rebates will continue after the October 2005 effective date.

Who is the CRRC? The Cool Roof Rating Council (CRRC) is an independent and non-biased organization that has established a system for providing Building Code Bodies, Energy Service Providers, Architects & Specifiers, Property Owners and Community Planners with accurate radiative property data on roof surfaces that may improve the energy efficiency of buildings while positively impacting our environment

So as long as the product carries a CRRC it meets the California Cool Roof requirement? Not unless it has 0.70 reflectance and minimum 0.75 emissivity and if a coating it meets the physical properties.

What's on the CRRC label? This data includes initial Solar Reflectance and Initial Thermal Emittance. Weathered Values will be included after the product has been exposed for three years. Because the testing criteria were only established and adopted late 2002 Weathered values are currently listed as "Pending". The manufacturer and the product also have an I.D. number on the labels. Without this label the product would not be in compliance with Title 24. If the manufacturer makes a significant change to the product, albeit an improvement, the product must be retested.



Why would there be a CRRC label on non-compliant products? CRRC merely rates the optical properties of a product; they do not set compliance numbers (which can vary by region and by application), nor do they test for the physical properties that the CEC requires for coatings. For new construction, where there can be some off-setting upgrades to other building components for purposes of complying with Title 24, the actual CRRC values will be used to determine if the building meets the overall required energy efficiency. If a product does not have a CRRC label the reflectance will default to .10, which is a very dark roof.

What is the purpose of the Cool Roof? To reduce air conditioning loads, the single largest drive of peak power demand. This reduces the demands on power plants at peak periods of the day—usually between Noon to 6 p.m. with heaviest demand between 4 p.m. to 6 p.m. There are additional benefits outside the scope of complying with Title 24 that include extending the service life of the roof, improved interior comfort, reduction is air pollution.

Are gravel roofs permitted? The short answer is No; but the long answer is gravel roofs are only permitted under a very narrow criteria and only when <u>all</u> of the following occur: 1. The existing roof has a rock or gravel surface, and; 2. The new roof has a rock or gravel surface, and; 3. There is no removal of existing layers of roof coverings of more than fifty percent of the roof or more than 2,000 square feet of roof, whichever is less; and; 4. There is no recoating with a liquid applied coating.; and; 5. There is no installation of a recover board, rigid insulation or other rigid, smooth substrate to separate and protect the new roof recovering from the existing roof.

Does aluminum qualify as a Cool Roof? While technically possible, the criteria to allow an aluminum coating aren't practical.

What about residential roofs?. Low-rise residential buildings using concrete or clay tile still require a thermal emittance of 0.75 but only a solar reflectance of 0.40.

Important links: Complete text of Title 24 http://www.energy.ca.gov/title24/2005standards/2004-11-04 400-03-001F.PDF
Collaborative for High Performance Schools: www.energy.ca.gov/title24/2005standards/2004-11-04 400-03-001F.PDF
LEED™ www.energy.ca.gov/title24/2005standards/2004-11-04 400-03-001F.PDF
Collaborative for High Performance Schools: http://www.energy.ca.gov/title24/2005standards/2004-11-04 400-03-001F.PDF
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