

Table 118-C
Minimum Performance Requirements for Liquid Roof Coatings

Physical Property	ASTM Procedure	Requirement
Initial percent elongation (break)	D2370	Minimum 60% 0° F. Minimum 200% 73° F.
Initial tensile strength (maximum stress)	D2370	Minimum 100 psi 73° F. Minimum 200 psi 0° F.
Final elongation (break) after accelerated weathering 1,000 hours	D2370	Minimum 40% 0° F. Minimum 100% 73° F.
Permeance	D1653	Maximum 50 perms
Accelerated weathering 1,000 hours	D4798	No cracking or checking*

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

Energy Requirements

California's Title 24 Changes Affecting Roofing in 2005

by Judy Holleran, RRC, CDT, southwest regional manager, Henry Company

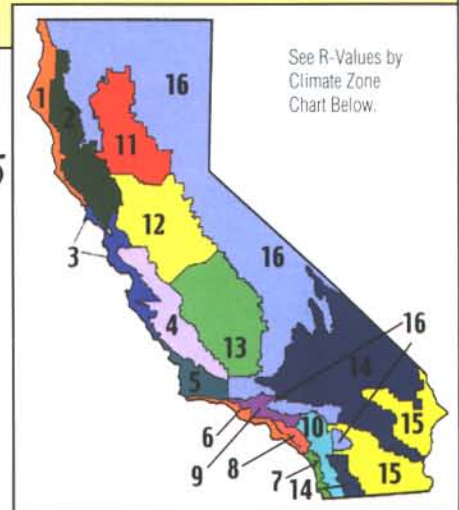


In November 5, 2003, the California Energy Commission (CEC) approved changes to Title 24 that will dramatically change roofing in California, effective October 2005.

Title 24 is written by the California Energy Commission, and addresses various energy requirements for HVAC, lighting, windows, and walls as well as roofs. The last

revisions went into effect in 2001. The recent changes going into effect in 2005 were the natural progression of AB970 that allocated money to provide rebates for cool roofs. These changes now make a cool roof the base line for all non-residential buildings.

With few exceptions, cool roofs will be mandatory for non-residential construction that is: 1) <2:12 slope, 2) over air conditioned space, 3) and for which a permit is



required. New construction, reroofing, and recoating are all covered.

These requirements are covered under Title 24, Section 118, *Mandatory Requirements for Insulation and Cool Roofs*, and are part of the California Building Code.

Section 149 of the code reinforces the cool roof mandate when more than 50% of the roof or more than 2,000 sq. ft. of roof, whichever is less, is being replaced, recovered or recoated.

The CEC definition for a cool roof for non-residential construction is that the roofing product has an initial thermal emittance greater than, or equal to, 0.75 and a minimum initial solar reflectance of 0.70. 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.

The contractor will be required to furnish a Certificate of Compliance when pulling a permit. It must include the features and performance specification needed to comply

R-Values by Climate Zone

TABLE 143-A — Non-Residential Buildings

including Relocatable Classrooms where Manufacturer Certifies use only in Specific Climate Zone
Not including High-Rise Residential or Hotel/Motels

	Climate Zones				
Roof/Ceiling	1, 16	3-5	6-9	2, 10-13	14, 15
U-factor	0.051	0.051	0.076	0.051	0.051
R-value	19	19	11	19	19

TABLE 143-B — High-Rise Residential Buildings and Guest Rooms of Hotel/Motel Buildings

Roof/Ceiling	1, 16	3-5	6-9	2, 10-13	14, 15
U-factor	0.036	0.051	0.051	0.036	0.036
R-value	30	19	19	30	30

TABLE 143-C — Relocatable Classrooms

	ALL CLIMATE ZONES
Roof/Ceiling	
U-factor	0.051
R-value	19

with these requirements and be approved by the local enforcement agency.

The state established the Cool Roof Rating Council (CRRC) as the sole supervisory entity responsible for administering the state's certification program for roofing products. Independent laboratories approved by CRRC conduct the testing and provide the data that the manufacture can publish on the label.

This data includes initial solar reflectance and initial thermal emittance. Weathered values will include the data after the product has been exposed for three years. Because the testing criteria were only established and adopted in 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.

This labeling requirement has been in effect since January 1, 2003, for certain

rebate programs. CRRC is recommending that manufacturers get labeled regardless of whether the products meet the CEC criteria. Title 24 permits the use of non-compliant products under special circumstances, and other programs may require different values.

An Energy Star® labeled product is not an acceptable substitute because of the lack of thermal emittance values and testing criteria that were not acceptable to the CEC.

Liquid coatings have additional criteria beyond thermal emittance and solar reflectance. The product must be applied at a minimum dry thickness of 20 mils and have minimum physical properties outlined.

One exception allows a permeable cement-based roof coating applied at a minimum dry thickness of 30 mils, when installed over a cap sheet surface, 40 mils when installed over a metal surface, and 200 mils when installed over a rock or gravel surface and at a minimum dry thickness of 30 mils over other surfaces. Cement-based roof coating must contain a minimum of

20% cement and meet the requirements of ASTM D822.

Gravel roofs are only permitted under very narrow criteria and only when *all* of the following occur:

- The existing roof has a rock or gravel surface.
- The new roof has a rock or gravel surface.
- There is no removal of existing layers of roof coverings of more than 50% of the roof or more than 2,000 square feet of roof, whichever is less.
- There is no recoating with a liquid-applied coating.
- 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.

Insulation. Surprisingly for the most part, this revision to Title 24 did not require an increase in the minimum insulation R-values. There is language about the insulation to be a continuous layer, but in

(Continued on Page 34)

New Revere Copper Alpolic Composite Panels™



The beauty of copper with unparalleled flexibility and strength.

Extraordinary wall cladding that goes around a corner, over a curve or under an arch, this revolutionary new copper product fits beautifully with any design. The unique multi-layer composition combines pure copper sheeting with a flexible thermoplastic core, taking any shape imaginable. To learn more about this latest addition to Revere's family of architectural coppers, contact Alpolic at 800-422-7270. Or, call us for details about the rest of the Revere line.



Revere Copper Products, Inc.
One Revere Park,
Rome, NY 13440-5561
e-mail:
archcopper@reverecopper.com
800-448-1776
Fax: 315-338-2105
www.reverecopper.com

Alpolic Composite Panel
is a trademark of
Mansfield Chemical America



Circle #70 on Reader Service Card

YOU DESIGN IT

level it Adjustable Pedestals support and elevate decking materials over waterproofed or sloped areas. Each pedestal utilizes a threaded design, making the leveling process during installation a simple turn of the pedestal base.

- ★ ENDLESS DESIGN POSSIBILITIES
- ★ ENGINEER APPROVED
- ★ FAST & EASY TO INSTALL
- ★ USE ON ROOF TOPS & ON-GRADE
- ★ IMPERVIOUS TO WATER & FREEZE-THAW DAMAGE



Visit us at
www.Levelit.us



level it
Adjustable Pedestal System

Toll Free: 800-333-4234

WE SUPPORT IT

Circle #69 on Reader Service Card



Initial Reflectance	> or = 0.65	0.70 Minimum
3-Year Reflectance	> or = 0.50	Pending
Thermal Emittance	Not covered	> 0.75
Testing Agency	Self-testing	Independent Lab
Jurisdiction	national	State of California

* Recommended values. The Cool Roof Rating Council is not a regulatory agency.

Energy Requirements

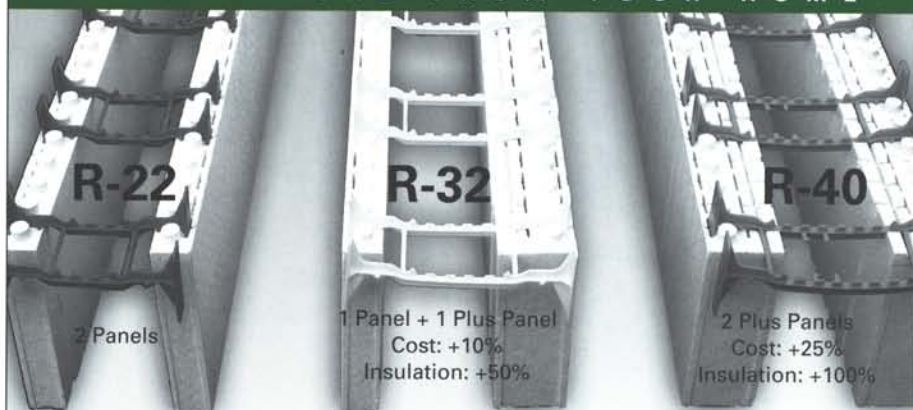
(Continued from Page 33)

this writer's opinion, the verbiage needs some clean-up.

Designers have the option of establishing the energy usage of the building following either the prescriptive method or performance method. The prescriptive method is the easiest methodology. For example, the designer can specify R-19 in the roof and R-

11 in the walls, etc. The performance method requires detailed computations of the building components. More energy-efficient windows could be used to offset a less efficient building component. The performance method appears to be the only available option to use for a roof that does not meet the cool-roof requirements.

EXPECT MORE FROM YOUR HOME



another solid PLUS about building with QUAD-LOCK

Only with the Quad-Lock system and our unique Quad-Lock Plus panel can you achieve the highest TRUE R-Value ICF in the industry.

Up to 90% energy savings compared to conventional building methods

The only ICF that provides a proper wall width transition

Ideal for zero-energy buildings

QUAD-LOCK®

Call today to find out more.
1-888-711-5625

CONCRETE BUILDING SOLUTIONS WWW.QUADLOCK.COM

Circle #68 on Reader Service Card