



SMART Brief

T E C H N I C A L B U L L E T I N

DATE: 29 May 2015 **No:** SB-28-052915-Rev-61915
TO: Contractors & Distributors **Page** 1 of 3
FROM: Metro Technical Services Division
SUBJECT: **Los Angeles Dept., of water & Power (LADWP) TSR-EMIT-SRI & Above Sheathing Ventilation (ASV) Equivalence to 25% Solar Reflectance & Emittance**

Jan-1st, 2015, Los Angeles California was the first large city to require new residential construction and re-roof applications to use 'Cool Roofs' (LA Municipal Building Code). This is a direct result of Climate Resolve's "Hot City, Cool Roofs" campaign that pushed for solutions to reduce the urban heat island effect. To encourage the adoption of this provision, the Los Angeles Department of Water and Power (LADWP) is offering a rebate for installation of Cool Roofs. For more information visit their website – www.ladwp.com/crp.

Metro stone-coated steel roof panels (MetroTILE®, MetroSHAKE®, MetroCOTTAGE™ Shingle or MetroROMAN®), installed direct to deck create an (ASV) air space above the roof deck and provide the same seasonal cooling load equivalent to a roof with cool colors (25% solar reflectance), irrelevant of the Metro roof color. This claim is supported by the study referenced below.

The Oak Ridge National Laboratory (ORNL) study, "**The Tradeoff Between Solar Reflectance and Above Sheathing Ventilation for Metal Roofs on Residential and Commercial Buildings**", by W. A. Miller Ph D., E. Herman & R. Graves, Dated January 2012, which states in part, Section 4., 1st bullet, Pg-35 the following;

"• Task 1A: Solar Reflectance needed for a steep-slope roof fitted with ASV to match the load of a SR 0.25 cool roof attached directly to the deck.

....a stone coated metal fitted with 0.75 in. (0.019 m) air space can both be black and still have a seasonal cooling load within 0.05% of the conventionally constructed cool-color (solar reflectance of 0.25) metal roof. Computations for retrofit application based on ASHRAE 90 (1980) shows ASV air spaces of 0.75 and 1.5 in. (0.019 and 0.038 m) would permit black roofs to have cooling loads equivalent to the direct to deck cool roof."

Additional benefits of the ASV detail are fully explored and summarized in the report under Section 5., Recommendations, Pg-37, Para; 2., that can be downloaded using the following link. http://www.metroroofs.com/images/ASV_SolarReflectance.pdf

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Metro Roof Products SMARTBrief Technical Bulletins are for use by all Metro Roof Products customers. Each SMARTBrief is coded with a reference number and can be used to support various trade practices that are acceptable to, and have met Metro Roof Products quality standards in effect at the time. Metro Roof Products reserves the right to amend or update these SMARTBrief Technical Bulletins at any time.

6/19/2015 028-060415-Los-Angeles-CA-LADWP-Cool-Metro-Colors-ASV-And-TSR-EMIT-SRI



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Page 2 of 3

Metro Stone-Coated Steel Panel Colors – meeting the revised **Los Angeles Department of Water and Power** Energy Code

SOLAR REFLECTANCE, EMITTANCE & SRI Performance (ASTM C 1371)

METRO COLOR	CRRC	REFLECTANCE		EMITTANCE		SRI
	Product ID-#	Initial	3-Yrs	Initial	3-Yrs	3-Yrs
Aspen-71	1044-0002	0.30	0.31	0.94	0.88	32
Driftwood-37	1044-0003	0.23	0.25	0.94	0.89	25
Mission Gold-43	1044-0001	0.22	0.23	0.94	0.89	22
Oak-47	1044-0004	0.28	0.29	0.93	0.89	30
Pearl White-70	1044-0005	0.40	0.39	0.91	0.90	44

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Cool Roofs

What You Need to Know About LADWP Rebates and Building Code Requirements

What Is a Cool Roof?

A cool roof is a roofing product that reflects sunlight and absorbs less heat than traditional roofs. Cool roofs lower roof temperatures on hot sunny days and therefore keep homes cooler inside, saving energy by reducing the need for running air conditioning systems.

Although often light in color, cool roofs come in a wide variety of colors ranging from white to black and including blues, grays, greens, oranges, browns, and tans.

Cool roofs also are available in a variety of styles: shingle, shake, tile, membrane, and spray-on liquid coatings.

“Coolness” Factors

The “coolness” of a roof is determined by several properties of roofing materials and their combined effects on temperature. The primary factor is the material’s ability to reflect the sun’s energy back into the atmosphere (“solar reflectance”). A higher “solar reflectance” factor means the roof will stay cooler. Also the “solar reflectance” is measured by how long it retains its effectiveness (“aged solar reflectance”). If the product is new and the “aged solar reflectance” value is unavailable, it can be calculated using the following formula:

Formula:

$$3\text{-year Aged Solar Reflectance} = (0.2 + 0.7 \times [\rho_{\text{initial}} - 0.2])$$

(where ρ_{initial} = Initial Solar Reflectance)

In addition to “solar reflectance” a secondary factor used is known as “thermal emittance,” which measures the material’s ability to release heat. The Solar Reflectance Index (SRI) combines these two factors into a simple to use index value.

Building Code Requirements

Starting Oct.1, 2014*, the 2014 Los Angeles Green Building Code requires that roofing material used in residential buildings meet certain values for the “aged solar reflectance” and “thermal emittance”, or for “SRI”.

	Min. 3-yr Aged Solar Reflectance	Min. Thermal Emittance	SRI
Low-slope \leq 2:12	0.63	0.75	75
Steep-slope $>$ 2:12	0.20	0.75	16

Exceptions... Cool roof is NOT required for:

- 🏠 Roof repair; or
- 🏠 Roof replacement when the roof area being replaced is equal to or less than 50% of the total roof area; or
- 🏠 Where building-integrated photovoltaics (BIPV) are installed

LADWP Rebates

LADWP’s cool roof rebates are available to single-family and multi-family residential customers, and are part of the Consumer Rebate Program.

Rebate Levels

- 🏠 The base rebate for qualifying roofs is \$0.20 per square foot
- 🏠 The enhanced rebate is \$0.30 per square foot

Roofing products must be tested and labeled by the Cool Roof Rating Council. A listing of rated products using the CRRC Rated Products Directory can be found at www.coolroofs.org/products/search.php

Qualifying Cool Roofs

To qualify as a cool roof under the LADWP Consumer Rebate Program, the roofing material must:

- 🏠 Have CRRC 3-year SRI value \geq 75 for low-slope (\leq 2:12) or \geq 16 for steep-slope ($>$ 2:12) roofs
- 🏠 For the enhanced rebate, have CRRC 3-year SRI value \geq 85 for low-slope (\leq 2:12) or \geq 35 for steep-slope ($>$ 2:12) roofs

How to Apply

LADWP advises customers to confirm rebate eligibility before making your purchase. Complete the Consumer Rebate Program application (available online at www.ladwp.com/rebatesandprograms) after purchasing and installing the product. All applications must be postmarked within 12 months of the purchase date. For your convenience, you may submit your application online or by mail.

Funds are available on a first-come, first-served basis. LADWP reserves the right to inspect and verify the installation of your products prior to releasing your rebate check. Rebates will be processed within six months of application submittal.

Documentation

Please include the following documentation with your application:

- 🏠 Original Proof of Purchase or Original Home Improvement Contract Invoice (with manufacturer, product make and model number)
- 🏠 A copy of your LADWP bill (Page 1)
- 🏠 A copy of the roofing permit

For More Information about LADWP Rebates:

Visit: www.ladwp.com/rebatesandprograms (click on “Building Products”) or **Call:** 1 800 DIAL DWP

For More Information about the 2014 Green Building Requirements:

Visit: www.ladbs.org or **Call:** LADBS at 3-1-1

Please note: Funding is limited and rebates are not guaranteed. This program shall at all times be subject to change or termination without notice.

* Effective Jan.1, 2015 if replacing an existing roof with asphalt roof shingles or asphalt composition roll roofing.



- 1. West Toluca Lake
- 2. Toluca Woods
- 3. Toluca Terrace
- 4. Carthay
- 5. South Carthay
- 6. Wilshire Vista
- 7. Picfair Village
- 8. Wilshire Vista Heights
- 9. Pico Park
- 10. Redondo Sycamore
- 11. Sycamore Square
- 12. La Brea Hancock
- 13. Brookside
- 14. Fremont Place
- 15. Windsor Village
- 16. Wilshire Park
- 17. Country Club Heights
- 18. Larchmont Village
- 19. Maplewood-St. Andrews

- 20. St. Andrew's Square
- 21. Western Witton
- 22. Harvard Heights
- 23. Western Heights
- 24. West Adams Terrace-Kinney Hts-Berkeley Square
- 25. Rampart Village
- 26. Crenshaw Manor
- 27. Arlington Park
- 28. Sycamore Grove
- 29. Monterey Hills

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The City of Los Angeles Neighborhoods