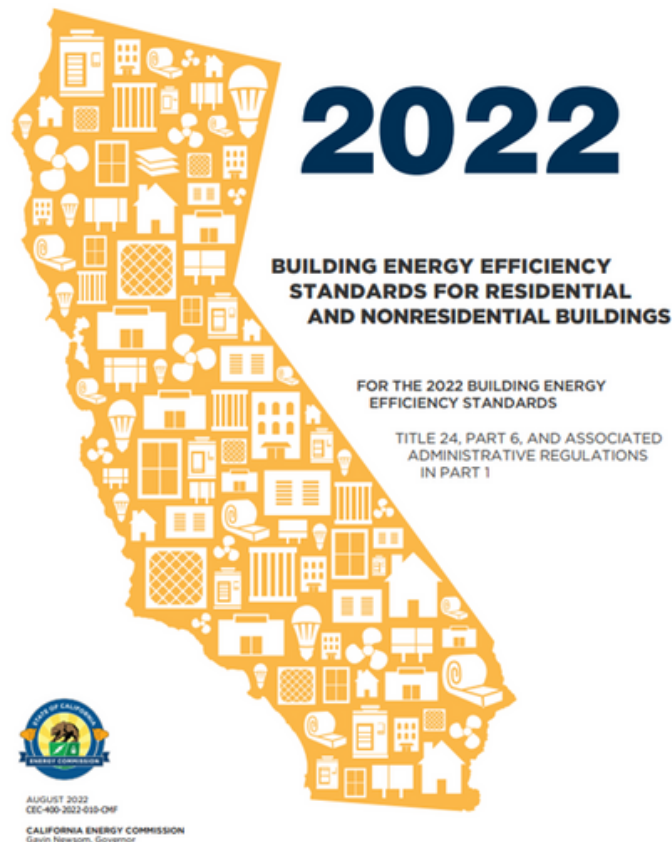




Title 24 Guide

Shake, Slate & Spanish Barrel Tile

Revised April 9, 2024





Title 24 Guide

Shake, Slate & Spanish Barrel Tile



Summary

Brava's cool roof products are products that have enhanced solar reflectance and thermal emittance properties. These solar reflective roofs help to keep your building cooler and increase efficiency from your HVAC system by reflecting sunlight away from a structure and preventing heat from penetrating the building below. Brava manufactures solar reflective products that meet the requirements of Title 24, which is critical for California residents.

CEC & Title 24 Standards

The [California Energy Commission \(CEC\)](#), the state's primary energy policy and planning agency, periodically modifies energy efficiency standards for residential and non-residential buildings. [California's Title 24, Part 6 Building Energy Efficiency Standards](#) includes cool roof requirements for new and existing buildings. These requirements are for the thermal emittance, three-year aged reflectance, and Solar Reflectance Index (SRI) of roofing materials used in new construction and re-roofing projects.

CRRC Reporting

Brava is required to submit samples to certified labs to be measured. The emissivity and reflectivity values are measured using ASTM standards. The results are reported to CRRC (Cool Roof Rating Council). Samples are sent to the CRRC-approved test farm for three years to evaluate aged results, which will eventually be on the [CRRC website](#) together with the initial results.


	Rated Product ID #: 0000-0000		
		Initial	Aged
	Solar Reflectance	0.00	0.00
	Thermal Emittance	0.00	0.00
<small>The ratings above are subject to CRRC rating program conditions, requirements, and limitations. Visit coolroofs.org for important information and disclaimers about CRRC rating conditions, requirements, and limitations.</small>			

Figure A: CRRC Standard Label


	Rated Product ID #: 0000-0000		
		Initial	Aged
	Solar Reflectance	0.00	0.00*
	Thermal Emittance	0.00	0.00*
<small>The ratings above are subject to CRRC rating program conditions, requirements, and limitations. Visit coolroofs.org for important information and disclaimers about CRRC rating conditions, requirements, and limitations.</small>			
RAPID RATINGS <small>*CRRC Rapid Ratings: Interim laboratory-aged values that simulate naturally-aged values and will be replaced by the measured three-year naturally-aged values upon completion of the weathering process.</small>			

Figure D: CRRC Rapid Ratings Label

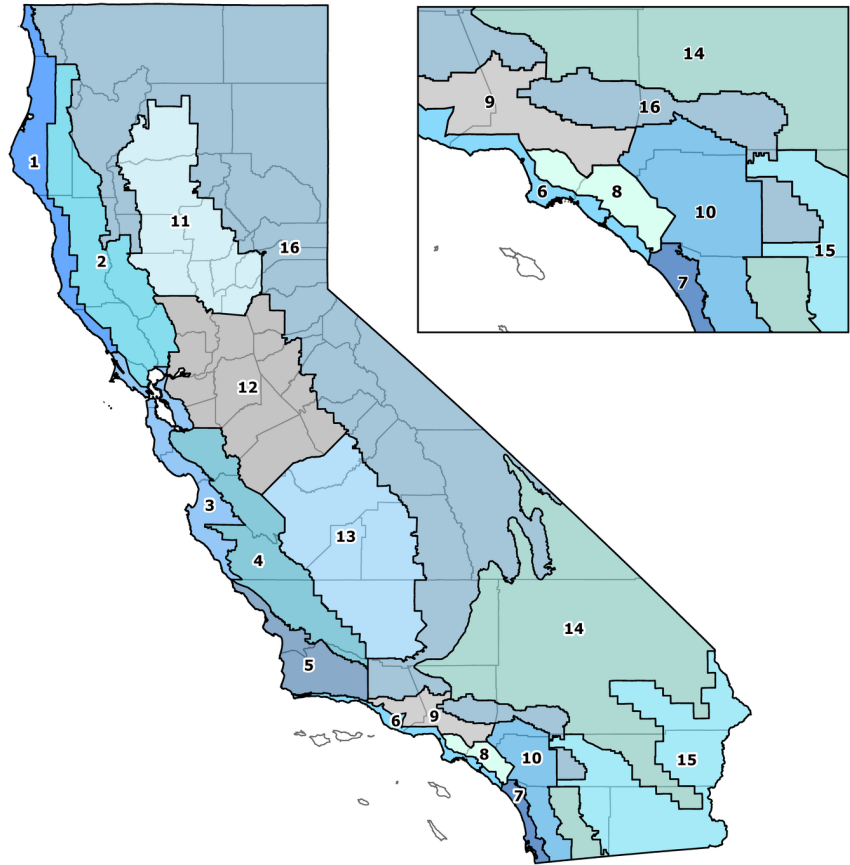


Title 24 Guide

Shake, Slate & Spanish Barrel Tile

Building Climate Zones

Title 24 is intended to maximize energy efficiency by regulating many aspects of building construction. It varies by climate zone (there are **16** in California) and is set for residential and non-residential buildings.



Title 24 Compliance Paths

Section 140.3-B – Prescriptive Envelope Criteria for Nonresidential Buildings

Building Type			Climate Zones								Min. Requirements						
Nonresidential Buildings			1 & 3								Aged Reflectance: > 0.20 Thermal Emittance: > 0.75 Or Aged SRI >16						
			2, 4-16								Aged Reflectance: > 0.25 Thermal Emittance: > 0.80 Or Aged SRI >23						
Climate Zones																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Aged Solar Reflectance	.20	.25	.20	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	
Thermal Emittance	.75	.80	.75	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	



Title 24 Guide Shake, Slate & Spanish Barrel Tile

Title 24 Compliance Paths (Continued)

Section 140.3-C – Prescriptive Envelope Criteria for Guest Rooms of Hotel/Motel Buildings

Building Type			Climate Zones								Min. Requirements						
Guest Rooms of Hotel & Motel Buildings			2 -15								Aged Reflectance: > 0.20 Thermal Emittance: > 0.75 Or Aged SRI >16						
Climate Zones																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Aged Solar Reflectance	NR	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	NR	
Thermal Emittance	NR	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	.75	NR	

Section 150.1 – Performance and Prescriptive Compliance Approaches

Building Type			Climate Zones								Min. Requirements						
Single-Family Residential Buildings			10-15								Aged Reflectance: > 0.20 Thermal Emittance: > 0.75 Or Aged SRI >16						
Climate Zones																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Aged Solar Reflectance	NR	NR	NR	NR	NR	NR	NR	NR	NR	.20	.20	.20	.20	.20	.20	NR	
Thermal Emittance	NR	NR	NR	NR	NR	NR	NR	NR	NR	.75	.75	.75	.75	.75	.75	NR	

Exception 1 to Section 150.1(c)II: Building integrated photovoltaic panels and building integrated solar thermal panels are exempt from the minimum requirements for aged solar reflectance and thermal emittance or SRI.

Exception 2 to Section 150.2(b)III: Roof constructions with a weight of at least 25 lb./ft² are exempt from minimum requirements for aged solar reflectance and thermal emittance, or SRI.

Title 24 Compliance Paths (Continued)

Section 150.2 – Performance and Prescriptive Compliance Approaches

Building Type			Climate Zones								Min. Requirements						
Additions And Alterations to Existing Single-Family Residential Buildings			4, 8-15								Aged Reflectance: > 0.20 Thermal Emittance: > 0.75 Or Aged SRI >16						
Climate Zones																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Aged Solar Reflectance	NR	NR	NR	.20	NR	NR	NR	.20	.20	.20	.20	.20	.20	.20	.20	NR	
Thermal Emittance	NR	NR	NR	.75	NR	NR	NR	.75	.75	.75	.75	.75	.75	.75	.75	NR	

Exception 1 to Section 150.2(b)11i: The following shall be considered equivalent to Subsection 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. In Climate Zones 2, 4, 9, 10, 12 and 14, buildings that have no ducts in the attic; or
- d. Buildings with R-2 or greater continuous insulation above or below the roof deck.

Exception 2 to Section 150.2(b)11i: 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.


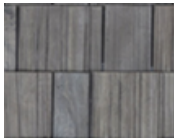
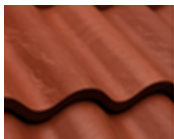
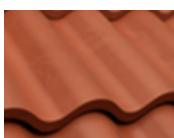
Exception 3 to Section 150.2(b)11i: Roof constructions with a weight of at least 25 lb./ft² are exempt from minimum requirements for aged solar reflectance and thermal emittance, or SRI.





Title 24 Guide Shake, Slate & Spanish Barrel Tile

Brava's Eligible Cool Roof Products

Color	CRRC Prod ID.	Product Name	Solar Reflectance		Thermal Emittance		SRI	
			Initial	3 Year	Initial	3 Year	Initial	3 Year
	1374-0001	Brava Cedar Shake – Cool Weathered	.30	.28*	.92	.90*	33	29*
	1374-0002	Brava Cedar Shake – Cool Lake Forest	.25	.24*	.92	.90*	26	24*
	1374-0003	Brava Spanish Barrel Tile – Terra Cotta	.37	.39	.89	.91	41	44
	1374-0004	Brava Spanish Barrel Tile – French Clay	.33	.34	.88	.89	35	37

* Indicates the product obtained a Rapid Rating, which will be replaced by three-year aged values once the weathering period is complete.

Resources

For more information on Title 24, please visit <http://www.energy.ca.gov/title24> and the [2022 Building Energy Efficiency Standards](#) for code requirements.

Brava provides installation guidance, resources, and product certification documents for all products at <https://www.bravarooftile.com/resources/>.

Brava's CRRC listings: <https://coolroofs.org/directory/roof?keywords=brava>

Questions?

If you have any questions regarding Brava Roof Tile products and accessories, call 844-290-4196 and ask for Technical Support.

Or contact us through our website at <https://www.bravarooftile.com/contact-brava/>.