

LEARN ABOUT COOL ROOFS AND WALLS: INFORMATION FOR END USERS

WHAT ARE COOL ROOFS AND WALLS?

These are roofs and walls that are constructed of materials that efficiently reflect solar energy and radiate heat. Cool roofs and walls can be made in a variety of colors and styles – they aren't necessarily white. For example, some "cool" products use darker-colored pigments that are highly reflective in the near infrared (non-visible) portion of the solar spectrum.

The two basic characteristics that determine the "coolness" of a roof or wall surface material are solar reflectance and thermal emittance. Both properties are measured on a scale from 0 to 1, where 1 means 100% reflective or emissive.

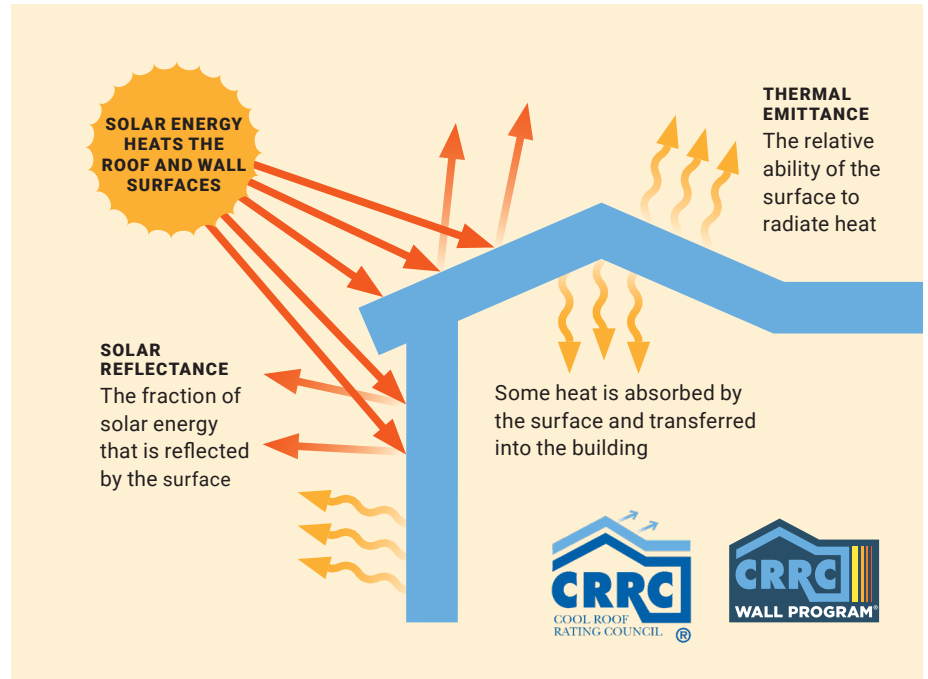


IMAGE CREDIT: COOL ROOF RATING COUNCIL

This illustration describes the flow of radiant energy as heat between the sun, roof and wall surfaces, building interior, and surroundings. The higher the solar reflectance, the more solar energy is reflected away from the surface. Some of the solar energy is absorbed by the surface as heat. The higher the thermal emittance, the more absorbed heat is radiated away from the surface.

WHY DO END USERS SELECT COOL ROOFS AND WALLS?

End users such as home and building owners, architects, contractors, and developers may select cool roofs and walls for a variety of reasons.

COOL ROOFS AND WALLS CAN:



Decrease roof and wall temperature



Increase occupant comfort by keeping the building cooler during warmer weather



Reduce the need for air-conditioning, cutting energy costs and extending the life of cooling equipment accordingly



Improve grid stability and decrease energy demand by reducing air-conditioning needs during peak periods



Improve air quality by lowering outdoor temperatures, which reduces smog production and fossil-fuel generated emissions from air conditioning use.



Reduce the urban heat island effect by decreasing the heat retained by roofs and walls in urban areas, resulting in lower air temperatures



Help comply with energy codes and green building practices

Please note that individual results of cool roofs and walls vary based on a variety of factors related to climate, installation, material, construction, and energy use patterns.

ACCURATE, CREDIBLE & RELIABLE RATINGS

- Standards developed and maintained by a body of experts
- Accredited Independent Test Labs and CRRC-approved manufacturer test labs
- Three-year natural weathering by accredited test farms in three designated U.S. climates
- Verification testing to ensure products reflect their CRRC ratings
- Ratings help consumers select products to meet requirements of programs and policies that seek to reduce energy consumption or mitigate urban heat islands

WHAT IS THE SOLAR REFLECTANCE INDEX ?

Solar Reflectance Index (SRI) is calculated from a roof surface's solar reflectance and thermal emittance. SRI values can help end users compare the relative potential of different roofing material options to stay cool. SRI can also be used to demonstrate compliance with certain policies and programs, such as California's Building Energy Efficiency Standards (CA Title 24, Part 6) and LEED. SRI is not used for exterior wall products because the calculation assumes a non-vertical surface.

TO LEARN MORE, SEE CRRC SRI BROCHURE HERE.

VARIOUS CODES, STANDARDS, AND PROGRAMS RELY ON THE CRRC FOR CREDIBLE DATA.

EXAMPLES INCLUDE:

- American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Standards 90.1 and 189.1
- International Code Council's (ICC) International Energy Conservation Code (IECC)
- U.S. Green Building Council's (USGBC) LEED rating system

SEE MORE AT: COOLROOFS.ORG

WHY USE CRRC RATED PRODUCTS DIRECTORIES ?

- Free online at <https://coolroofs.org/directory>
- Supports desktop and mobile use
- Quick and convenient to use
- Wide array of rated roof and wall products
- New products added regularly
- Helpful job aid for contractors, architects, building managers, and more!

The screenshot shows the CRRC Rated Roof Products directory interface. It includes a search bar, filter options for Product Type, Colors, Solar Reflectance, Thermal Emittance, SRI, Manufacturer, Slope, and Product Market. A table of 3192 results is displayed with columns for CRRC Product ID, Manufacturer, Brand and Model, Product Type, Color, Solar Reflectance (Initial and 3 Year), Thermal Emittance (Initial and 3 Year), and SRI (Initial and 3 Year). Annotations 1 through 5 highlight specific features: 1. Sort by button; 2. CRRC Product ID; 3. Product Market filter; 4. Product Market dropdown; 5. Asterisk in SRI value.

CRRC PROD ID.	MANUFACTURER	BRAND AND MODEL	PRODUCT TYPE	COLOR	SOLAR REFLECTANCE		THERMAL EMITTANCE		SRI	
					INITIAL	3 YEAR	INITIAL	3 YEAR	INITIAL	3 YEAR
0287-0001	IRC Topper	IRC Topper Asphalt Shingle	Asphalt Shingle	Multicolor	0.30	0.29	0.88	0.87	31	29
0287-0010a	IRC Topper	IRC Topper Metal Shingle	Metal	Red	0.35	0.35	0.83	0.83	36	36
0103-4154	Iron Roofing	Iron Roofing Polymer 1 Tile Iron Roofing Polymer 2 Iron Roofing Polymer 3	Tile	Tan	0.30	0.30*	0.92	0.92*	33	33
0452-9025 (smooth)	Magic Coating Company Inc.	Bright White	Coating							
0224-0546 (smooth)	Trident Roofing	Trident Weather Shell TOP	Coating	Bright White	0.80	0.74	0.92	0.91*	100	92
0224-0002 (smooth)	Trident Roofing	Trident Topper Supreme	Coating	Bright White	0.80	0.68	0.88	0.89	100	83

RESULTS ARE DISPLAYED IN A SORTABLE TABLE:


- 1 Use the **Sort by** button to sort and reorder products
- 2 A letter after the CRRC Product ID means the product is a reformulation of a previously rated product
- 3 Indicates if the product is sold to other roofing manufacturers, end-use customers, or both
- 4 Indicates if the coating was tested over a smooth or rough substrate, as defined in the CRRC-1 Product Rating Program Manual
- 5 An asterisk indicates the product obtained a Rapid Rating, which will be replaced by three-year aged values once the weathering period is complete

FIND AND SHARE THE INFORMATION YOU NEED

✓ USE THE **SEARCH** BAR TO SEARCH KEYWORDS

✓ USE THE **FILTERS** TO NARROW PRODUCTS BY PRODUCT TYPE, COLOR, SOLAR REFLECTANCE, THERMAL EMITTANCE, SOLAR REFLECTANCE INDEX (SRI), MANUFACTURER, ROOF SLOPE, AND PRODUCT MARKET

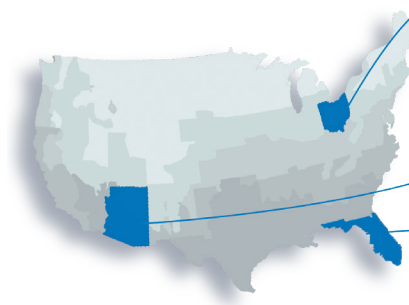
✓ USE THE **SORT** FEATURE TO ORGANIZE RESULTS BY CRRc PRODUCT ID, MANUFACTURER, BRAND/MODEL, INITIAL AND AGED SOLAR REFLECTANCE AND THERMAL EMITTANCE, AND INITIAL AND AGED SRI

✓ USE  TO OBTAIN A LINK TO YOUR DYNAMIC SEARCH RESULTS!

WHAT ARE INITIAL AND 3-YEAR AGED VALUES?

INITIAL: The measured solar reflectance and thermal emittance of a new product sample.

AGED: The measured solar reflectance and thermal emittance of a product that has undergone three-year weathering in three designated U.S. climates. A "pending" aged value means a product is still undergoing the weathering process.



Ohio
cool/temperate



Arizona
hot/dry



Florida
hot/humid

CRRc RESOURCES

- Rated Product Directories
 - List of codes and programs
 - List of financial incentives
 - Cool roof and wall FAQs
 - Factsheets and brochures
- VISIT COOLROOFS.ORG

CONTACT THE CRRc

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The CRRc was established in 1998 as a 501(c)(3) nonprofit organization that develops fair, accurate, and credible methods for evaluating and labeling the surface radiative properties (solar reflectance and thermal emittance) of roofing and exterior wall products.

The CRRc is an accredited ISO/IEC 17065 product certification body and an ANSI Accredited Standards Developer Organization.

LEARN MORE AT COOLROOFS.ORG

