

# ROOF MATE

## THE ROOF PRESERVATION SYSTEM

### Cool Construction Materials

As demand increases for energy efficient buildings and lower energy consumption, the need for “cool” roofing has become more significant. Cool roofing requirements are becoming more common throughout our industry both nationally and internationally.

Cool roofs are known to lessen the effect of “heat islands,” which occur primarily in urban cities where many buildings and paved surfaces in close proximity utilize dark colored construction materials that absorb heat from the sun. These dark surfaces, mostly roofs and asphalt pavements, absorb most of the incoming solar radiation. As a result, they tend to become much hotter than lighter colored, more reflective surfaces would. The absorbed heat transfers through to the building interior, substantially increasing cooling demands and peak energy loads.

The terms “reflectivity” and “emissivity” are critical in understanding “cool” roofs. Solar reflectivity is the fraction of the solar energy that is reflected by the surface back to the sky. White roofs have the highest solar reflectivity, while black has the lowest. Emissivity is a measure of the ability of a surface or substrate to release absorbed heat, helping to keep the surface cool. Highly reflective and highly emissive products, such as white roof coatings, significantly lower the heat gain into the building, resulting in lower energy consumption and reduced demand during peak energy periods.

The Solar Reflectance Index (SRI) combines reflectivity and emittance to measure a roof’s overall ability to reject solar heat. SRI is defined by ASTM E1980. Standard black has a SRI of 0; Standard white has a SRI of 100.

Several organizations have been formed to educate and promote “cool roofing” requirements and demands:

**COOL ROOF RATING COUNCIL (CRRC)** is an independent and non-biased organization established to provide reflectivity and emissivity data on roof surfaces that may improve overall energy efficiency of buildings. UNITED COATINGS is a charter member of the CRRC Product Rating Program, which requires independent testing from CRRC accredited laboratories along with a process of random testing. CRRC is now used in ENERGY STAR®, LEED, and California’s Title 24’s cool roofing requirements. [www.coolroofs.org](http://www.coolroofs.org)

**ENERGY STAR®**, created in 1992 by the Environmental Protection Agency (EPA), is a voluntary labeling program designed to identify and promote energy-efficient products, including roofing products. To earn the ENERGY STAR® label, products must meet strict energy efficient criteria set by the EPA. ENERGY STAR® rated roofing products must meet a minimum reflectivity standard of 0.65 or greater. UNITED COATINGS is a charter partner of ENERGY STAR®. [www.energystar.gov](http://www.energystar.gov)

**CALIFORNIA'S TITLE 24** regulations were developed by the California Energy Commission to reduce energy consumption in California. To comply with Title 24 standards, buildings must meet an energy budget based on a variety of energy saving features, including the roofing system. Under the new requirements, effective October 1, 2005, roofing products must have a 0.70 or greater rating for reflectivity and 0.75 or greater emissivity, according to the rating system developed by the COOL ROOF RATING COUNCIL. [www.energy.ca.gov/title24](http://www.energy.ca.gov/title24)

**LEED** (Leadership in Energy and Environmental Design) is a voluntary green building point rating system established by the U.S. Green Building Council (USGBC). The USGBC is a non-profit coalition of leaders within the building industry working to promote buildings that are environmentally responsible inside and out. LEED programs are specifically designed for new construction and existing buildings, based on a point system with four levels of certification: LEED Certified, Silver, Gold, and Platinum. Selecting the right roofing product is one of the easiest ways to generate LEED points. LEED "cool roofs" have a minimum reflectivity of 0.65 and emissivity of 0.90 for Existing Buildings and a minimum Solar Reflectance Index (SRI) of 78 for New Construction. [www.usgbc.org](http://www.usgbc.org)

### **TABLE OF COOL ROOFING REQUIREMENTS**

<b>PROGRAM</b>	<b>SRI</b>	<b>REFLECTIVITY</b>	<b>EMISSIVITY</b>
<b>ENERGY STAR</b>	<b>N/A</b>	<b>0.65</b>	<b>N/A</b>
<b>TITLE 24</b>	<b>N/A</b>	<b>0.70</b>	<b>0.75</b>
<b>LEED</b>	<b>&gt;78</b>	<b>0.65</b>	<b>0.90</b>

UNITED COATINGS' reflective roof coatings systems exceed ENERGY STAR® and CRRC guidelines, meet the requirements of California's Title 24, and qualify for LEED points.

