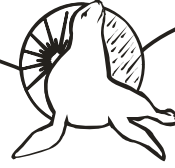


Energy Seal Coatings

Acrylic Coatings for Roof and Wall Applications



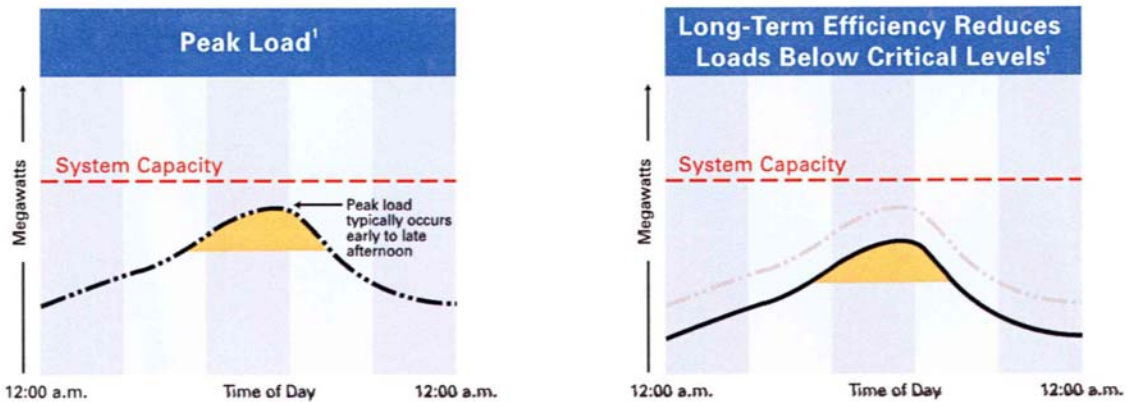
A Close Look at ENERGY STAR®

What It Is and Why It's Important to Roofing

The Environmental Protection Agency's (EPA) ENERGY STAR program, created in 1992, is helping to conserve energy in countless ways. ENERGY STAR is a voluntary labeling program designed to identify and promote energy-efficient products – including roofing products.

Energy savings is generally acknowledged as a critical element in the effort to preserve the environment. The less energy we consume, the less fossil fuel we must burn to create the energy. The less fossil fuel we burn, the less smog we produce and the less acid rain falls, and the less global warming we induce. Additionally, as businesses and government agencies everywhere have discovered, energy savings can result in significant cost savings.

To earn the ENERGY STAR label, products must meet strict energy efficiency criteria set by the EPA or the U.S. Department of Energy. ENERGY STAR labeled roofing products must be very efficient at reflecting the sun's rays. In so doing, they contribute to lower rooftop surface temperatures. Lower temperatures will decrease the amount of heat transferred into a building resulting in a reduction of peak cooling demand by as much as 15 percent.



¹ Produced for the U.S. Department of Energy by the National Renewable Energy Laboratory, a DOE national laboratory, DOE/GO-102002-1613, September, 2001.

To bear the ENERGY STAR label, roofing products for low-slope roofs must have an initial reflectivity greater than or equal to 0.65. After three years of exposure, the reflectivity must still be greater than or equal to 0.50. Later in 2006, ENERGY STAR will also adopt an emissivity requirement of greater than or equal to 0.75.

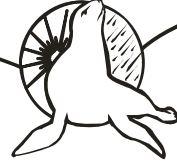
How ENERGY STAR Can Benefit the Roofing Industry

By specifying and installing roofing products with the ENERGY STAR label, owners and design teams can reap many benefits. Most obvious are the cost savings that can be achieved by reducing the amount of energy needed for cooling.

Roofing products that meet the ENERGY STAR requirement and carry the ENERGY STAR label are helping owners and design teams comply with mandatory standards and/or rating systems that are now becoming commonplace in states and cities across the nation.

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How JM Can Help You with Your ENERGY STAR Project

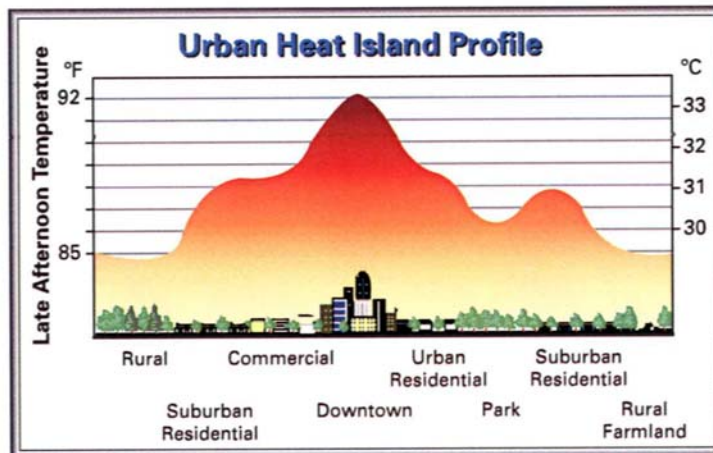
JM roofing systems can help give your company a competitive edge when working with corporations, universities and government agencies that are working to provide green buildings for better work environments and buildings that cost less to operate.

With their high reflective properties that help improve the energy efficiency of buildings, the following JM roofing products have earned the ENERGY STAR label:

- *TopGard® 4000 and TopGard® 5000* acrylic coatings: to secure heat island and energy performance credits with systems that have ENERGY STAR ratings and high emissivity ratings.
- *JM PVC with Elvaloy® and JM TPO* white single ply roofing systems that also help secure heat island and energy performance credits with systems that have ENERGY STAR ratings and high emissivity ratings.
- *GlasKap® CR* white mineral surfaced, white acrylic coated fiber glass cap sheet also meets ENERGY STAR ratings with its reflective surface.

Cool roofs also help mitigate the “urban heat island effect”. Heat islands occur where many buildings and paved surfaces in close proximity are designed with dark materials that absorb heat from the sun. Research indicates that this can cause cities to become 2° to 8°F warmer than the surrounding countryside.

Source: Illustration is a composite drawing of data obtained from Southern



California Edison Company, Greg Sharp, AIA, IES.



The Role of Roof Insulation

ENERGY STAR energy-efficiency criteria do not include a specification for roof insulation. However, roof insulation plays an important role in any building's energy consumption – both for heating and cooling. By using polyisocyanurate foam roofing insulation, such as JM ENRGY 3™ and ISO 3™, in combination with highly reflective/emissive-surface products, significant energy savings can be achieved.

How the Various Energy and Environmental Standards Fit Together

As shown in the table below, ENERGY STAR rated roofing products require similar reflectivity and emissivity to other standards while having no emissivity requirement to date. For the roofing industry in particular, all of these rating systems have one thing in common: they all set standards for cool roof reflectivity and/or emissivity. Below, you will find a chart comparing these standards with the ENERGY STAR reflectivity and emissivity values highlighted in yellow. Some of these standards are voluntary, while others are mandatory.

- Title 24 is mandatory in California.
- LEED (Leadership in Energy and Environmental Design) is highly encouraged among a growing list of city, state and federal agencies.
- ENERGY STAR® is generally voluntary. However, meeting the ENERGY STAR standards for roofing reflectivity and emissivity can help earn points in the LEED rating system.

Program	Requirement	Reflectivity	Emissivity	SRI***
Title 24 (CRRRC)	Mandatory	0.70	0.75	N/A
ENERGY STAR	Voluntary*	0.65	0.75**	N/A
LEED	Voluntary*	See SRI	See SRI	78

CRRRC lists product emissivity information according to ASTM C 1371.

LEED accepts products tested for emissivity according to ASTM E 1980.

Results may vary between test methods.

** Although voluntary, some local and state authorities are requiring designers to adhere to these guidelines for specific building types (i.e., government or state funded projects).*

*** ENERGY STAR emissivity standard not in effect until later 2006.*

**** SRI is determined by using the reflectivity values, emissivity values, and the steady state temperature equations defined in ASTM E 1980-01.*

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