



## Energy Star Roofs

Source/Author: Clara M.W. Vangen

### **A good name goes a long way.**

Look for the Star: Most roofing contractors want to save money, time, and resources for commercial building owners. It's how they show pride in their work and develop future referrals. A new federal program aimed at energy conservation just may be the answer for roofing professionals.

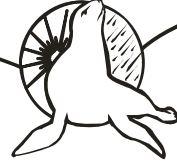
The U.S. Environmental Protection Agency (EPA), in partnership with the U.S. Department of Energy (DOE), has developed a program to promote the use of products that help save energy. A new aspect to this program, which began in January 1999, awards the Energy Star label, the symbol of energy efficiency, to roof products that meet or exceed solar reflectance without compromising product quality and performance.

"The core [purpose] of the Energy Star roof program is to have a label that gives consumers confidence. That label has to be based on a set of criteria that essentially set a product in the upper 25 percent or so of efficiency in that particular market", says Mark Ginsberg, deputy assistant secretary for Building Technology, State and Community Programs at Washington D.C.-based DOE.

In general, products - which also include appliances, HVAC equipment, office equipment, and lighting - reduce energy costs by at least 30 percent. Within the roofing arena, it's a reflective roof product that lowers roof surface temperature by up to 100 degrees F., thereby decreasing the amount of heat transferred into a building's interior.

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Energy Star labeled roof products save money and energy by reducing the amount of air-conditioning needed to keep building occupants comfortable.



Benefits of Energy Star-labeled roof products include:

- Cost and energy savings.
- Downsized air-conditioning equipment.
- Extended roof life.
- Decreased pollution.
- Reduced heat island effect.

## **What Goes Around, Comes Around**

To appreciate the benefits of the Energy Star label program, it is important to understand the causes and effects of global warming. In the United States, 90 percent of the energy generated comes from burning fossil fuels, which in turn creates the air pollution associated with smog, acid rain, and global climate change. Reducing the amount of energy needed to cool buildings also reduces the production of these air pollutants.

Additionally, reflective roof products help reduce the heat island effect - a phenomenon in which cities can be two to eight degrees F. warmer than the surrounding countryside. Such heat islands occur, in large part, because large numbers of buildings and paved surfaces are designed using dark materials that absorb heat from the sun.

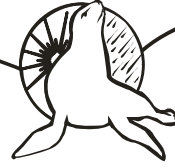
This storage of heat is released at night, disallowing a decrease in air temperature. The result of these prolonged elevated temperatures leads to:

- Increased demand for air-conditioning in buildings.
- Increased fuel use for vehicle air-conditioning.
- Increased levels of smog.
- Increased numbers of heat- and smog-related health problems.

EPA/DOE's Energy Star roof specifications are not restricted to any particular type of roof product. However, at least initially, EPA/DOE expects metal, single-ply membrane, and roof coating products will be most widely represented.

## **A Penny Saved Is a Penny Earned**

Energy savings from installing Energy Star-labeled roof products will depend on the geographic location and climate where a system is to be installed, the existing insulation levels in a building, the existing type of roof, the type of roof to be installed, and how well a system is kept clean and maintained. In general, savings achieved through a reduction in energy used for cooling can be as high as 50%. Additionally, a reflective roof can reduce peak cooling demand by 10 to 15 percent. As a result, building owners



may be able to purchase smaller, less expensive HVAC systems. Obviously, buildings located in hot, sunny climates will realize the greatest energy and cost savings as air-conditioning use is greater.

In general, building owners will save the most money on energy bills by having their contractors install an Energy Star-labeled roof product if their building has the following characteristics:

- High air-conditioning bills.
- A large surface as compared to a building's overall size.
- Lower levels of insulation.
- A location in a hot, sunny climate.

The most cost-effective time to install an Energy-Star-labeled roof product is during re-roofing, construction of new buildings, or application of a coating. However, when installing a reflective roof, building professionals should also ensure an optimal level of insulation is also installed.

Due to normal wear and tear, some degradation of roof reflectivity can be expected, particularly within the first few years after installation. Flat roofs may accumulate more dirt and debris because their slope is not great enough to allow washing by rain. Following maintenance procedures minimizes degradation and maximizes energy savings.

To learn more about recommended maintenance procedures and schedules, consult roofing product manufacturers and/or other roofing professionals.

As part of this voluntary program, manufacturers sign an agreement with EPA called a Memorandum of Understanding (MOU), allowing them to place the Energy Star label on the packaging of compliant roof products. These manufacturers can also use the label in product promotions and advertising for qualified products. "If a product doesn't carry the label, I would want to know why", says Ginsberg. "It doesn't add any extra costs; it is the kind of thing that conscientious companies are putting on their products. Then, the only thing you're comparing is the cost between the two Energy Star-rated products."

In conjunction with the energy saving these products provide, Ginsberg points out that utilities across the country are offering extra incentives for specifying Energy Star-labeled products. "In addition to the coasts, Commonwealth Edison in Chicago has signed on in support of Energy Star products.", he says.

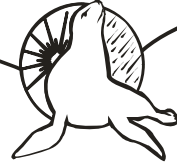
# Energy Seal Coatings

Acrylic Coatings for Roof and Wall Applications



<b>Specifications</b>	
<b>Characteristic</b>	<b>Performance Specification</b>
<b>Energy Efficiency</b>	
Initial Solar Reflectance	Greater than or equal to 0.65.
Maintenance of Solar Reflectance	Greater than or equal to 0.50 three years after installation under normal conditions.
<b>Reliability</b>	
Manufacturer warranty for defects in materials and manufacturing.	Each company's warranty for reflective roof products must be equal in all materials respects to the warranty offered by the same company for comparable non-reflective roof products. A company that sells only reflective roof products must offer a warranty for comparable non-reflective roof products.

NOTE: For roof products that may be applied to either low-slope or steep-slope roofs, such as roof coatings and single-ply membranes, table contains the Energy Star Specifications.



## How do Energy Seal Coatings compare with the Energy Star performance specifications?

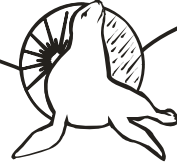
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Roof Slope	Acu-Shield		Acu-Shield: Ceramic	
	Initial	3 Years after Installation	Initial	3 Years after Installation
Low-slope (<2:12)	89%	85%	88%	84%
High-slope <sup>e</sup> (>=2:12)	88%	84%	89%	82%

*Energy Seal Coatings*

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with...

**Energy Seal Coatings**