Energy Star® Roof Products Program

by **Mark S. Graham**

The U.S. Environmental Protection Agency (EPA) has developed an Energy Star® label program for specific roofing products. The program is based on the industry/government partnership approach EPA and the U.S. Department of Energy (DOE) use in other Energy Star programs that apply to products such as heating and air-conditioning equipment, insulation, windows, new homes, residential appliances and office equipment.



Energy Star

EPA and DOE created Energy Star label programs to help consumers quickly and easily identify products that can save them money and protect the environment by saving energy. The Energy Star label already is seen and recognized by consumers on computer monitors, televisions, copiers, and 27 other residential and commercial products.

Energy Star label programs are based on voluntary agreements between EPA and product manufacturers. By entering into the program, a product manufacturer commits to developing specific products that meet agreed-upon, energy-efficient criteria. In return, EPA permits product manufacturers to place the Energy Star label on those products that meet or exceed the criteria. EPA also assists these product manufacturers in promoting their companies as environmental leaders.

Roofing program

EPA is basing its Energy Star Roof Products Program on the concepts of energy cost savings and reduced environmental impact. For example, by installing a reflective roof system, the solar reflectance of a building's exterior is increased, thereby lowering roof temperature; decreasing the amount of heat transfer into the building's interior; and, ultimately, reducing the amount of energy needed and m maintaining c for the buildir occupants.

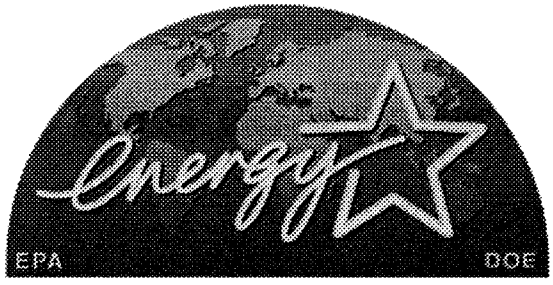
In addition, most energy used to cool buildings in the United States is generated from fossil fuels, which release particles that produce air pollution when burned. Reducing energy consumption decreases the need to burn fossil fuels, which should help improve the environment.

The program's criteria are based on the solar reflectance properties of roofing products used on roof assemblies' exposed surfaces. The program does not address energy efficiency of any insulation used as a roof assembly component.

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Solar reflectance is the fraction of solar flux reflected by a surface and is expressed as a percentage or within a decimal range of 0 to 1. For example, a relatively reflective roof surface that reflects 60 percent of the fraction of solar flux (and absorbs 40 percent) has a solar reflectance of 0.6. Solar reflectance for roofing products is tested in accordance with ASTM E 903, "Standard Test Method for Solar Absorptance, Reflectance, and Transmission of Materials Using Integrating Spheres."

The Energy Star Roof Products Program has different criteria for low- and steep-slope roofs. The program defines low-slope roofs as those with slopes of 2-in-12 (17 percent) or less; steep-slope roofs are



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they must have initial solar reflectances greater than or equal to 0.65. Also, to address weathering, these products must be capable of maintaining solar reflectances greater than or equal to 0.5 three years after installation under normal conditions.

For steep-slope roofing products to comply with the program, they must have initial solar reflectances greater than or equal to 0.25. In addition, the products must be capable of maintaining solar reflectances greater than or equal to 0.15 three years after installation under normal conditions.

The program also requires that a manufacturer's warranties for reflective roofing products be equal in all significant aspects to product warranties offered by the same company for comparable nonreflective roofing products.

Summing it up

Specifying and using products with the Energy Star label is one way roofing professionals can identify roofing products that can save building owners money by reduced energy consumption costs. PR

Editor's note: *For more information about the Energy Star Roof Products Program, those interested should contact EPA at (888) 782-7937; fax-on-demand (202) 564-9659; or www.energystar.gov.*

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