Energy Star® update

by **Mark S. Graham**

In 1999, the U.S. Environmental Protection Agency (EPA) and Department of Energy (DOE) introduced the Energy Star Roof Products Program. Since its inception, the Energy Star Roof Products Program has become increasingly accepted in the U.S. roofing industry.

The Energy Star Roof Products Program was developed to help consumers recognize the importance of energy-efficient roof systems. 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 thermal insulation used as a roof assembly component. (For more information, see "Energy Star Roof Products Program," January 1999 issue, page 53.)

When the program first began, 64 roofing product manufacturers participated. These manufacturers are designated as "Charter Partners." Currently, EPA reports 155 roofing product manufacturers are "Partners" of the program, which allows these manufacturers to use the Energy Star label in their marketing and promotional efforts. However, only 49 of these manufacturers have products that are on the Energy Star Roof Products Program Qualifying Product List, which includes 134 specific manufacturers' brand-name products. To be included on the product list, manufacturers need to demonstrate their products comply with Energy Star criteria.

Review of the solar-reflectance properties for the roofing products included in the qualifying products list reveals a notable disparity in the relative energy savings potentials for the products listed. The solar-reflectance values at the time of application for the products listed range from 0.90 to 0.65 for low-slope products and 0.90 to 0.36 overall, including steep-slope products.

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 70 percent of the fraction of solar flux (and absorbs 30 percent) has a solar reflectance of 0.70. Surfaces with high solar-reflectance values have greater energy savings potentials than surfaces with lower values.

Energy Star's program administrator and several manufacturers that use the Energy Star label make representations that use of Energy Star-labeled roofing products lower roof surface temperatures by up to 100 degrees Fahrenheit (38 degrees Celsius), reduce peak cooling loads 10 percent to 15 percent and lower building owners' energy bills associated with air-conditioning up to 50 percent.

Although values of these magnitudes are theoretically possible, the values do not represent all Energy Star-labeled products or roof assemblies, building types and building locations. Actual savings using Energy Star-labeled products and reflective roofing products in general likely will be lower in most instances.

I encourage the Energy Star Roof Products Program administrator to more aggressively police the program and realistically represent the program's potential benefits. Specifically, Energy Star Partners who do not have qualifying products should not be allowed to continue to use the Energy Star label. Differences in the relative energy savings potentials for different Energy Star-labeled products should be clearly explained and delineated to users and consumers. Also, claims regarding energy savings when using Energy Star-labeled roofing products should be based on truly representative scenarios and not extreme conditions.

Until the Energy Star Roof Products Program is revised appropriately, users of the Energy Star label should not rely solely on the label to determine products' energy savings potentials. For reflective roofing products, solar-reflectance property data should be evaluated. This type of data should be available from a product's manufacturer and, if the product is Energy Star-labeled, available from the Energy Star program administrator using the Energy Star Web site, www.energystar.gov.

Users of Energy Star-labeled roofing products should be careful not to overstate the potential value or energy cost savings associated with reflective roofing products. Users of Energy Star-labeled roofing products also are encouraged to review "Energy Star Label for Roofing Products/A Contractor's View of the Energy Star label for Roofing Products," in the *Proceedings of the North American Conference on Roofing Technology*, which is available from NRCA's Marketing Services Department by calling (847) 299-9070 or (800) 323-9545, faxing (847) 299-1183 or accessing NRCA's Web site at www.nrca.net.

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