



Picking A Cool Roof: SRI Index Is Key

Compiled by FacilitiesNet Staff

Most roofing industry experts agree that a cool roof is one that exhibits a combination of high reflectivity and high emissivity. But the questions have always been how high is high and what combination of the two yields the most benefit?

One way to make a decision is to use the Solar Roof Index (SRI) to evaluate a cool roof. The U.S. Green Building Council's LEED 2.2 uses SRI as a way to evaluate a cool roof. LEED version 2.2 is the first national specification to use a relatively new measure of reporting a cool roof's properties. LEED 2.2 sustainable sites credit 7.2 states that to receive one point, building owners should use a roof with a Solar Reflective Index (SRI) of 78 over at least 75 percent of the roof's surface for roofs with slopes less than 2:12.

SRI is a unit developed by scientists at Lawrence Berkeley National Laboratory. SRI incorporates reflectivity and emissivity properties into one, easy-to-read, standardized measure so that roof buyers won't have to scratch their heads and try to figure out if a high reflectivity and low emissivity is better or worse than a medium reflectivity and high emissivity.

SRI is calculated with a complex formula spelled out in ASTM E 1980 and is a scale of 1 to 100 that is a measure of a roof's combined thermal properties. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. But some hot roofs can have negative values, and some white thermoplastics and white roof coatings have scored as high as 104 to 110.

SRI as a method for reporting cool roof data will probably take a little while to catch on. Most manufacturers still report separate emissivity and reflectivity data in their literature, but the Cool Roof Rating Council, an organization that verifies and labels cool roofing products has begun using the measure, while retaining reflectivity and emissivity measurements.

Different roofing technologies have different SRI values. Asphalt coatings for example have

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aluminum pigments added to asphalt cutbacks and emulsions to give coatings solar reflectance index (SRI) values of 21-30 on a scale of 0-100.

Acrylic elastomers on the other hand, a new-generation coatings, have a highly reflective surface, often with an SRI greater than 100. Most highly reflective acrylic elastomers are white, and workers can install them over existing bituminous or non-bituminous roofing. Acrylic elastomers typically are specified at 12 mils for five-year warranties and at 20 mils for 10-year warranties. Some manufacturers specify up to 40 mil applications.

The SRI (solar roof index) of the Energy Seal Coatings Acu-Shield is 112