

Reflecting on Reflectivity

Beauty is more than Skin Deep BY RICHARD CATLEY AND JOSEPH W. MELLOTT



The fact that a reflective roof can become part of the building's energy management plan has masked that there are many other reasons to use a coating, of which its reflectivity is just one factor. Coatings can play a role in reducing energy loads, especially peak energy loads in many buildings, but they also offer benefits in terms of service life extension, fire retardancy, reducing the heat-history of the underlying membrane and insulation, improve traffic resistance, increase friction for safety, preserve impact resistance, help shed water or even be part of a waterproofing system.

Reflectivity has become a mainstay of roofing lingo over the last decade. Roofs have been asked to not only be the primary building waterproofing element but also have been called to meet reflectivity requirements that work to reduce cooling demands of facilities. This is accomplished by the principle and property by which a "cool" roof reflects sunlight and as a result does not build as much rooftop heat as "non-cool" roof systems. Roofing products in many cases include data and labels that describe the products' reflectivity and emissivity which helps identify the potential "cooling contribution" of the product.

Reflective roof surfaces can be achieved with a number of products, including membranes, metal and coatings. The unique nature and function of coating products allows a building owner to "retrofit" or resurface an existing roof to achieve additional reflectance. While this practice may be one of the main drivers for coating use in warmer climates; there are still many reasons to employ roof coatings in cooler climates. Many of these functions are the original and primary intentions of the coating.

"To Protect and To Preserve," a possible motto for roof coatings; truly identifies their function.

Roofs consist, from the roof deck to the surface, of a number of components, which typically include the deck, insulation, and a waterproofing system. The performance and longevity of the waterproofing is the defining element of the roofing system. It is simply understood that protecting this waterproofing layer is critical to keeping the building dry. Roof surfaces are under constant attack from heat, sunlight, rain, hail, snow, foot traffic, and pollutants. The surface of the waterproofing can be easily protected through the use of a wide variety of fluid applied roof coatings. There are acceptable solutions for all existing substrates including both solvent and water based solutions, asphaltic and pitch based products, highly reflective white and aluminum solutions, as well as a variety of polymer options. Working with a quality manufacturer can help assure that the right coating is used with the right system.

Coatings can be used as part of the original installation or after the roof has been in place for many years. Both methods help to extend the life of the roof system, by protecting the waterproofing which in most cases is the most expensive component of the roof system. The coating adds an additional layer of protection against climatic conditions. Specific coatings can be employed to protect against roof top conditions such as chemical exposure. Coatings based on coal tar pitch can be used to resist a wide variety of hydrocarbons, acids and bases. If conditions are recognized and understood, coatings can be preemptively employed as a sturdy but sacrificial layer.

In cooler climates reflectivity still can benefit the building owner. Higher and higher R-values are being required by code. Insulation solutions have a tremendous benefit by reducing energy consumption. However, by keeping heat out of

the building, insulation in essence traps the heat in the roof system. By using a reflective product, heat can be reflected away from the roofing system reducing the temperature of the waterproofing layer and slowing the effect of temperature and light on the environmental aging of the system.

Coatings provide other inherent benefits. Many coating products can contribute recycled content, which contributes to LEED points. Coatings can boost fire resistance of the roofing system. Grit modified coatings can add slip resistance and in some cases can be used to create a liquid applied walkway system for the roof. Coating benefits are many and varied and go way beyond the benefit of reflectivity.

Most importantly coatings extend the life of roof systems. Through protecting and preserving the roof, roof coating products can be considered one of the most sustainable solutions available by extending function and avoiding expensive roof tear-off and reroofing. Consider coatings to extend life of a good roof or as a preemptive step to protecting your investment. Roof coatings are well beyond a fad, they are well established technology that provides multiple benefits in one product. The industry may have a current focus on one important function, reflectivity, but roof coatings continue to provide a broad spectrum of solutions. **CB**

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