

ENERGY STAR ??? GREEN ROOFS ??? CALIFORNIA'S TITLE 24 ??? ASHRAE ??? LEED ??? GREEN GLOBES ??? COOL ROOF ??? U.S GREEN BUILDING COUNCIL (USGBC) ??? COOL ROOF RATING COUNCIL (CRR) ??? ICC-ES SAVE ??? INTERNATIONAL GREEN CONSTRUCTION CODE (IGCC) ??? CANADA GREEN BUILDING COUNCIL (CaGBC) ???

## Can Duradek Ultra Membranes be considered for LEED points? **YES!**

Surprised? We were. Architects have been asking us & our dealers if the use of Duradek Ultra offers LEED points. Our stock answer was Duradek membranes are purposely manufactured in a mid-range color selection to reduce glare. Blinding lighter colored, highly reflective membrane are not a quality a home owners wants in a deck or balcony membrane.

If you are the impatient type and need an answer now, flip to Techtalk #146b. If you are like most of us that are confused about heat islands, high – albedo, vegetated roof surfaces and the various somewhat similar standards, read on.

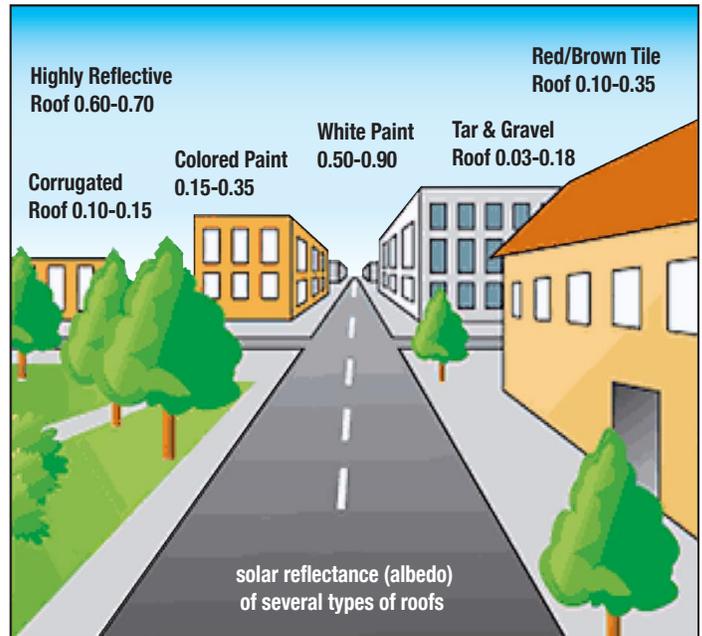
In simplistic terms there are two type of roofs, as defined by the U.S. Green Building Council, that help reduce the atmospheric heat build up caused by man’s urban development or “heat islands”; highly reflective “cool” roofs or “green” vegetative roofs. Duradek Ultra is a walkable roof deck membrane so lets discuss reflective “cool” roofs.

### **Cool roof** *(From Wikipedia, the free encyclopedia)*

*In the world of industrial and commercial buildings, a roofing system that can deliver high solar reflectance (the ability to reflect the visible, infrared and ultraviolet wavelengths of the sun, reducing heat transfer to the building) and high thermal emittance (the ability to radiate absorbed, or non-reflected solar energy) is a cool roof. Most cool roofs are white or other light colors. Cool roofs enhance roof durability and reduce both building cooling loads and the urban heat island effect.*

*Also known as albedo, solar reflectance is expressed either as a decimal fraction or a percentage. A value of 0 indicates that the surface absorbs all solar radiation, and a value of 1 represents total reflectivity. Thermal emittance is also expressed either as a decimal fraction between 0 and 1, or a percentage. Another method of evaluating coolness is the solar*

*reflectance index (SRI), which incorporates both solar reflectance and emittance in a single value. SRI quantifies how hot a surface would get relative to standard black and standard white surfaces. It is defined such that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100.*



## Programs promoting the use of cool roofs

### Energy Star

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy designed to reduce greenhouse gas emissions and help businesses and consumers save money by making energy-efficient product choices. For low slope roof applications, a roof product qualifying for the ENERGY STAR label under its Roof Products Program must have an initial solar reflectivity of at least 0.65, and weathered reflectance of at least 0.50, in accordance with EPA testing procedures. Warranties for reflective roof products must be equal in all material respects to warranties offered for comparable non-reflective roof products, either by a given company or relative to industry standards.

### Cool Roof Rating Council (CRRC)

CRRC has created a rating system for measuring and reporting the solar reflectance and thermal emittance of roofing products. This system has been put into an online directory of more than 850 roofing products and is available for energy service providers, building code bodies, architects and specifiers, property owners and community planners. CRRC conducts random testing each year to ensure the credibility of its rating directory.

CRRC's rating program allows manufacturers and sellers to appropriately label their roofing products according to specific CRRC measured properties. The program does not, however, specify minimum requirements for solar reflectance or thermal emittance.

How Various Cool Roofing Programs Measure Up			
	Solar Reflectance	Emittance	Solar Reflectance Index
<b>ENERGY STAR</b>			
Low Slope Initial	0.65		
Low Slope Aged	0.5		
Steep Slope Initial	0.25		
Steep Slope Aged	0.15		
<b>Green Globes</b>			
	0.65	0.90	
<b>USGBC LEED</b>			
Low Slope			78
Steep Slope			29

### Green Globes

The Green Globes system is used in Canada and the United States. In the U.S., Green Globes is owned and operated by the Green Building Initiative (GBI). In Canada, the version for existing buildings is owned and operated by BOMA Canada under the brand name 'Go Green' (Visez vert).

Green Globes uses performance benchmark criteria to evaluate a building's likely energy consumption, comparing the building design against data generated by the EPA's Target Finder, which reflects real building performance. Buildings may earn a rating of between one and four globes. This is an online system; a building's information is verified by a Green Globes-approved and trained licensed engineer or architect. To qualify for a rating, roofing materials must have a solar reflectance of at least .65 and thermal emittance of at least .90. As many as 10 points may be awarded for 1-100 percent roof coverage with either vegetation or highly reflective materials or both.

### LEED

The U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system is a voluntary, continuously evolving national standard for developing high performance sustainable buildings. LEED provides standards for choosing products in designing buildings, but does not certify products.

In the area of roofing, to receive LEED Sustainable Sites Credit 7.2, at least 75% of the surface of a roof must use materials having a Solar Reflective Index (SRI) of at least 78. This criterion may also be met by installing a vegetated roof for at least 50% of the roof area, or installing a high albedo and vegetated roof that, in combination, meets this formula:  $(\text{Area of SRI Roof}/0.75) + (\text{Area of vegetated roof}/0.5) = \text{Total Roof Area}$ .

The Canada Green Building Council (CaGBC) LEED rating systems are an adaptation of the US Green Building Council's (USGBC) LEED Green Building Rating System.

