AEP SPAN TECHNICAL BULLETIN #16

REFLECTANCE

The coatings world uses a lot of terminology that can become a bit confusing. "Reflectance" is a perfect example of a word that is used to describe two very different properties.

LIGHT REFLECTANCE VALUE

Light Reflectance Value, or LRV, measures the amount of visible or usable light that reflects from a surface. LRV is expressed as a percentage from 0 to 100; the higher the number the more visible light that is reflected. Typically, lighter colors will have a higher value than dark colors, but texture can impact LRV as well. Rough textures tend to reflect less visible light. Gloss and sheen are two other terms used to describe visible reflection of a surface. Gloss is the measurement of visible light at a 60° angle from the surface, while sheen is measured at 85°. High gloss/sheen results in high glare or shine from a surface, while low gloss/sheen surfaces have a flat or matte appearance. Glare, often a concern with pre-painted roofs, is controlled by lowering the sheen value.

SOLAR REFLECTANCE VALUE

Solar Reflectance Value, or SRV, measures the amount of total solar radiation, visible, infrared and ultraviolet, that is reflected from a surface (Total Solar Reflectance, TSR, is used as well). SRV is expressed as a percentage from 1 to 100; the higher the number the more solar radiation that is reflected. As with LRV, light colored objects often have a high SRV while dark colors are low. However, with the advent of "cool" pigments, it is possible for a medium to dark color to have a high SRV. The higher the SRV value the cooler the surface stays in direct sunlight. Gloss and sheen values have no impact on SRV. Note: Solar Reflectance Index, or SRI, is calculated from the SRV and emittance value of a material, therefore it is also different and independent from LRV.

Light Reflectance Value ≠ Solar Reflectance Value ≠ Solar Reflectance Index

LRV and SRV and SRI are NOT the same property and cannot be used interchangeably!

While there is some overlap between LRV and SRV, and many coated surfaces may have similar LRV and SRV values, they are not the same measurement. The examples below demonstrate the differences; while LRV may be similar for colors that are visually the same, the SRV can be vastly different.

COLOR	SRV	LRV	SRI	60° Gloss	85° Sheen
FOREST GREEN 1	30	9	29	10	13
FOREST GREEN 2	17	15	12	13	28
DARK BRONZE 1	32	8	32	11	13
DARK BRONZE 2	6	7	3	7	11
PARCHMENT 1	51	40	58	11	12
PARCHMENT 2	50	51	56	11	20
BLACK 1	30	5	29	21	25
BLACK 2	6	6	3	19	26

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