Master Wall Inc.®
Building a Culture of Excellence

Technical Bulletin

Corporate: P.O. Box 397 • Fortson • Georgia • 31808 • 800-755-0825 • FAX 706-569-6704

MW# 160

Topic: Light Reflectance and EIFS

Dark colors absorb more of the sun's energy than lighter colors. You may have experienced this in a dark colored vehicle; but for EIFS, color choice can spell the difference between a successful project and failure.

Why is this Important?

The EIFS lamina is directly bonded to the insulation board. As finish colors become darker and absorb more solar energy, temperatures within the lamina and insulation can increase dramatically. The insulation board has a service temperature up to 160°F (71°C) and can begin melting at 180°F (82 °C).

On a sunny day a white surface can rise to 115°F (46°C), but a black surface can rise to 195°F (91°C). While colors are rarely absolutely white or black, keeping the insulation board at or below its service temperature becomes very important if the building is to perform as intended.



This black building melted the insulation board shortly after installation. White and gray panels on either side were fine. Avoid large, dark surfaces with EIFS.

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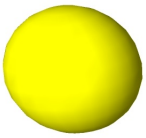
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Light Reflectance Value

The reflectance value of an individual color indicates the amount of light that individual color will reflect. Black has a reflectance value of zero and absorbs all light. Surfaces low in reflectance value are generally very dark and can get very hot (such as the black seats in a car). On the other hand, white has a reflectance value of nearly 100 and keeps buildings light and cool. All colors fit between these two extremes. A color with a reflectance value of 60 (which means it reflects 60% of the light that falls on it) will reflect more light than a color with a reflectance value of 20 (which means it reflects 20% of the light that falls on it).





Consider the angle of the wall as it absorbs more sunlight. Reflective adjacent surfaces can reflect intense light onto the system.

Understanding Light Reflectance in Design

When evaluating dark colors, designers should consider factors beyond LRV alone. Large wall expanses, southern and western exposures, reflected sunlight from adjacent glazing, and hot climates can significantly increase surface temperatures. Smaller accent features typically present less risk because absorbed heat can dissipate more readily.

Deep or intense colors may also experience greater pigment weathering and color change over time due to increased solar loading. Where long-term color stability is critical, enhanced pigment technologies should be considered.

The “angle of incidence” with the sun will also affect the reflectivity of a surface. The closer a shape is to perpendicular to the sun, the more sunlight it will absorb. Designers should consider limiting the use of great expanses of angled walls to limit solar heat gain and maximize reflectivity.



Small areas of dark color will absorb less sunlight than larger ones. Plan for this in the design.

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Master Wall recommends that EIFS finish colors have a Light Reflectance Value **(LRV) of 20** or greater. Colors with LRVs below 20 should be limited to decorative accents, protected areas, or applications that have been evaluated for climate, orientation, wall area, and reflected solar exposure.

Can the designer still be creative within these limitations? Historically the answer has been yes. Most “Manufacturer’s Standard” colors are designed around a softer palette of colors that compliment the occasional bold feature. Attached are our LRV's for the standard colors. If considering custom colors, please reach out to us and we can help.

Determining LRV values

Light Reflectance Value (LRV) is measured as a percentage of visible and usable light a finish reflects on a scale from 0% (absolute black) to 100% (pure white). The test produces a numerical value that quantifies how much visible light a color reflects using a spectrophotometer or tristimulus colorimeter. Because LRV is derived from standardized instrumentation and testing procedures, it provides a consistent basis for comparing colors and evaluating their potential impact on solar heat gain, surface temperature, and EIFS performance.

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Light Reflectance Values of Standard Colors

Master Wall Color Number	Color Name	Light Reflective Value
MW #101	Polar White	59
MW #102	Seamist	58
MW #104	Clay	42
MW #105	Gillam	48
MW #106	Sky	61
MW #107	Beach Sand	54
MW #108	Burns White	76
MW #120	Salmon	42
MW #143	White Waters	74
MW #150	Iris	36
MW #155	Tripoli Tan	47
MW #180	Beige	39
MW #206	Natural White	51
MW #208	Sandle Beige	57
MW #210	London White	39
MW #22	Kool	70
MW #227	Brown	24
MW #301	China White	75
MW #310	Ash	36
MW #330	Dove Gray	35
MW #340	Mockingbird	47
MW #341	Silky White	70
MW #360	English Fog	42
MW #368	Driftwood	44
MW #372	Soft Plum	39
MW #380	Mountain Haze	46
MW #400	Creme	58
MW #402	Par	57
MW #403	Weathered	31
MW #406	Silver Fox	62
MW #408	Sandlewood	43
MW #410	Beech	59
MW #413	Amarillo White	55

Master Wall Color Number	Color Name	Light Reflective Value
MW #420	White	75
MW #460	Amarillo	53
MW #461	Pampas White	73
MW #463	Calvary	53
MW #464	Lunar	38
MW #473	Truffle	52
MW #475	Chalk	47
MW #482	Magnolia White	57
MW #500	Egg	51
MW #504	Oyster Gray	47
MW #505	Pearl Gray	57
MW #517	Wooden Oar	24
MW #522	Antique Ivory	54
MW #559	Mellow	61
MW #606	Fuzzy Peach	58
MW #609	Linen	76
MW #610	Dutch Cream	62
MW #611	Flax	60
MW #613	Boca Raton	42
MW #616	Tan	30
MW #618	Light Beige	40
MW #646	Sage	26
MW #660	Taupe	45
MW #840	White	77
MW #900	Adobe	33
MW #909	Victorian	39
MW #920	Pine Cone	15
MW #927	Scarlet Red	15
MW #930	Pink Champagne	24
MW #933	Stow	66
MW #934	Pebble Sand	41

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