

Solar Optical Properties Glossary

Total Solar Energy: all the energy in the solar spectrum that reaches us on the earth's surface. This includes UVA and UVB, Visible light, and Infrared energy up to roughly 2500nm.

Transmitted: the amount of total solar energy that passes through the glass, into the building.

Reflected: the amount of total solar energy that is reflected off of the glass and directed back outside. This energy does not come into the building.

Absorbed: the amount of total solar energy that is absorbed into the glass. This heats up the glass, making it hotter to the touch, and reradiates a small amount of heat back into the room. The majority of absorbed energy is kept out of the room though.

Visible Light: the portion of the solar spectrum containing visible light we can see, from roughly 380nm up to 780nm, contains all the colors of the spectrum.

Transmitted: the amount of visible light that passes through the glass, into the building. This is how light or dark the film is.

Reflected Interior: the amount of visible light that is reflected off the interior surface of the window. This is seen when standing inside the building looking out. A higher reflectance value means the window looks more like a mirror from the inside.

Reflected Exterior: the amount of visible light that is reflected off the exterior surface of the window. This is seen when standing outside the building. A higher reflectance value means the window looks more like a mirror from the outside.

Glare Reduction: the reduction in visible light transmitted compared to clear unfilmed glass.

Solar Heat Gain Coefficient: similar to the shading coefficient, except this value also takes into account energy that is reradiated back into the room from the glass heating up due to increased absorption. Again, a lower number means better heat rejection.

Shading Coefficient: the ratio of heat passing through a filmed window to heat passing through clear unfilmed glass. A lower number means better heat rejection.

Luminous Efficacy: the ratio of visible light transmission to solar heat transmission for a window. A higher luminous efficacy means the film has high heat rejection given its VLT.

Total Solar Energy Rejected: the total amount of solar energy that is kept out of the building. Although not accurate, this is commonly referred to as heat rejection.

Infrared Rejection: the amount of infrared (IR) energy that is blocked by the film, either by reflecting or absorbing. This value is for the whole IR region of the solar spectrum, roughly 780nm up to 2500nm.

U Factor: heat transfer due to temperature differences outside and inside. Represents the amount of heat passing through 1 sq ft of glass in 1 hour for every 1 degree temperature difference between the outside and inside. A lower value means less heat passes through, and this is generally of interest for keeping heat inside the building in cold climates.

Emissivity: the ability of the surface to reflect infrared energy. For window film, this means how much heat it will reradiate back into a room. Low E glass and films have low emissivities, which means they reflect a lot of heat back into the room, which is the desired effect in cold climates.

Ultraviolet Light Rejected: the amount of UV energy blocked by the film, either by reflecting or absorbing it. This energy does not enter the building.

Solar Energy: Solar radiant energy that contacts the exterior surface of a window and is reflected, absorbed and transmitted. The total of these three parameters equals 100%.

Solar Heat Reduction: The ratio of the difference in total solar energy entering before and after installing film on the glass to that entering through the glass with no film.



B Y M A D I C O

888-887-2022 • www.sunscapefilms.com • sunscapemadico.com