

Optimal Air Space Analysis

Guardian Industries Test Data

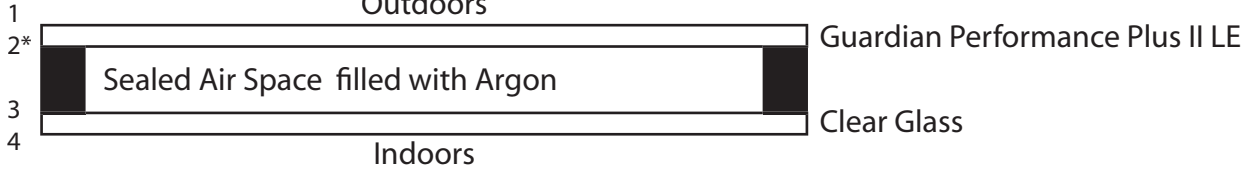
Sun Windows, Inc.

Insulated Glass Description:

Low-E

Glass

Surface



Air Space	Visible Light			Solar Energy (Direct)		Winter	Summer			
	% Transmit.	% Reflectance		% Transmit.	% Reflectance	U-Factor	U-Factor	Shading Coef.	SHGC	Reflective Heat Gain
		Indoors	Outdoors			Night	Day			
3/8"	70	18	19	39	41	.26	.26	.49	.42	102
1/2"	70	18	19	39	41	.24	.22	.49	.42	101
3/4"	70	18	19	39	41	.26	.17	.49	.42	100

NFRC 100-2001

The performance values shown above represent NOMINAL VALUES for the center of glass. Slight variations may occur due to manufacturing tolerances, point of manufacture, and type of instrumentation used to measure the optical properties.

Explanation of NFRC 2001 Standard Terms

Visible Light = radiant energy in the wavelength range of 380 nm to 780 nm with ILL. D65 and CIE 2° observer

% Transmittance = percentage of visible light at normal incidence (90° to surface) directly transmitted through the glass

% Reflectance Indoors = percentage of visible light at normal incidence directly reflected from the glass back indoors

% Reflectance Outdoors = percentage of visible light at normal incidence directly reflected from the glass back outdoors

Solar Energy (Direct) = radiant energy from the sun having a wavelength range of 300 nm to 2500 nm at ASTM air mass of 1.5

% Transmittance = percentage of solar energy at normal incidence (90° to surface) directly transmitted through the glass

% Reflectance = percentage of solar energy at normal incidence directly reflected from the glass back outdoors

U-Factor = (also called U-value) air-to-air thermal conductance of 39" high glazing and associated air film. Units are Btu/hr.ft².F.

Winter Night = 12.3 mph wind at -0.4°F outdoors & 69.8°F indoors

Summer Day = 0 Sun, 6.15 mph wind at 89.6°F outdoors & 75.2°F still indoor air

Shading Coef = (SC) fraction of solar heat gain, direct (300 to 2500 nm) plus indirect (5 to 40 nm), transferred indoors both directly and indirectly through glass. For reference, 1/8" clear glass has a value of 1.00 (SC is an older term being replaced by SHGC).

SHGC = (Solar Heat Gain Coefficient) fraction of solar energy incident on the glazing that is transferred indoors both directly and indirectly through the glazing. The direct gain portion equals the direct solar transmittance, while the indirect is the fraction of the solar energy absorbed to the energy reradiated & convected indoors. No heat gain from warmer outdoor air is included. $SHGC = (Direct\ Solar\ Transmittance) + \{[(Indirect\ Solar\ Heat\ Gain) - (Summer\ U-Value)(89.6°F - 75.2°F)] / (248.209\ Btu/hr.ft²)\}$

Relative Heat Gain = (RHG) total net heat gain to the indoors due to both the air-to-air thermal conductance and the solar heat gain. The units are Btu/hr.ft². $RHG = [(Summer\ U-value)(89.6°F - 75.2°F) + (Shading\ Coef.)(200\ Btu/hr.ft²)]$