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SN62 CRYSTAL GREY - CLEAR - SN68 CLEAR

Make-up Name	Make-up	Outboard Substrate & Coating	Transmission			Reflectance			U-Value		RHG (Btu/hr-ft²)	SC	SHGC	LSG
			Visible Light %	UV %	Solar Energy %	Visible Out %	Visible In %	Solar Energy Out %	Winter Night (Btu/hr-ft²-F)	Summer Day (Btu/hr-ft²-F)				
SN62CG - CL - SN68CL		Guardian SunGuard® SuperNeutral 62 on CrystalGray®	34	5	13	9	13	17	0.12	0.12	48	0.23	0.20	1.69

Calculation Standard: NFRC 2004

SN62CG - CL - SN68CL

Outdoors

			Thermal Stress Guideline (°F)
LITE	CrystalGray® Thickness = 1/4" = 6mm	#1 ----- #2 Guardian SunGuard® SuperNeutral 62	Stop 172.5
GAP	100% Argon, 1/2" = 12mm		
LITE	Clear Thickness = 1/4" = 6mm	#3 ----- #4 -----	Go 141.2
GAP	100% Argon, 1/2" = 12mm		
LITE	Clear Thickness = 1/4" = 6mm	#5 Guardian SunGuard® SuperNeutral 68 #6 -----	Go 95.3

Total Unit = 1.663 in / 42.24 mm Slope = 90°

Indoors

Important Notes

Calculations and terms in this report are based on NFRC 2004. The performance values shown above represent **NOMINAL VALUES** for the center of glass with no spacer system or framing. Slight variations may occur due to manufacturing tolerances, point of manufacture, and type of instrumentation used to measure the optical properties.

For configurations which include ceramic frit coating, the actual values may vary significantly based upon the thickness and composition of the frit. For configurations with diffuse optical properties the solar transmission is per ASTM 1084-86. For configurations with coatings laminated facing the PVB, there may be a noticeable color change. Guardian recommends that a full size mock-up be approved.

Please note that the **THERMAL STRESS GUIDELINE** is only a rough reference to the thermal safety of a glazing. Other factors such as the size of glass areas, shapes and patterns, glass thickness, glass damaged during shipping, handling or installation, orientation of the building, exterior shading, overhangs/fins that reduce wind speed, and areas with high daily temperature fluctuations can all increase the probability of thermal breakage. The results shown are not for any specific glazing installation and do not constitute a warranty against glass breakage.

Explanation of Terms

% Transmittance Visible is the percentage of visible light at normal incidence (90° to surface) directly transmitted through the glass. Visible Light is defined as radiant energy in the wavelength range of 380 nm to 780 nm with Ill. D65 and CIE 2° observer

% Ultraviolet (UV) Transmittance is the percentage of ultraviolet light at normal incidence (90° to surface) directly transmitted through the glass. Ultraviolet Light is defined as radiant energy from the sun having a wavelength range of 300 nm to 380 nm at ASTM air mass of 1.5

% Solar Energy Direct Transmittance is the percentage of solar energy at normal incidence (90° to surface) directly transmitted through the glass. Solar Energy is the radiant energy from the sun having a wavelength range of 300 nm to 2500 nm at ASTM air mass of 1.5.

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

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

% Solar Energy Reflected Outdoors is the percentage of solar energy at normal incidence directly reflected from the glass back outdoors

U-Factor (also called U-Value) is the air-to-air thermal conductance of 39" high glazing and associated air films. Units are Btu/hr.ft².F. Winter-night = 12.3 mph wind at -0.4°F outdoors and 69.8°F still (no forced convection) indoor air. Summer = 0 sun, 6.15 mph wind at 89.6°F outdoors and 75.2°F still (no forced convection) indoor air.

Relative Heat Gain (RHG) is the 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 Coefficient)(200 Btu/hr-ft²)]

Shading Coefficient (SC) is the fraction of solar heat, direct (300 to 2500 nm) plus indirect (5 to 40 µm), transferred indoors through the glass. For reference, 1/8" (3.1 mm) clear glass has a value of 1.00 (SC is an older term being replaced by the SHGC).

Solar Heat Gain Coefficient (SHGC) is the 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 and convected indoors. No heat gain from warmer outdoor air is included. SHGC = (Direct Solar Trans) + {[(Indirect Solar Heat Gain) - (Summer U-Value)(89.6°F - 75.2°F)] / (248.209 Btu/hr-ft²)}

Light-to-Solar Gain (LSG) is the ratio of visible light gain to solar gain. LSG = (Visible Transmittance) / (SHGC)

This performance analysis is provided under license by Guardian Industries Corp. It is designed to assist the user in evaluating the performance of the glass products identified on this report. Many factors may affect glass performance including glass size, building orientation, shading, wind speed, type of installation, and other factors. With respect to non-Guardian products, this performance analysis may be based on published information from the manufacturer that has not been independently verified by Guardian for accuracy. The applicability and results of the analysis are directly related to user inputs and any changes in actual conditions can have a significant affect on the results.

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