

**2nd SURFACE SOLARSHIELD LOW-E SOLUTIONS** – All data based on 1/4"(6mm) Clear or Tinted Low-E Exterior / 1/4"(6mm) Clear Interior Lites

PRODUCT	TRANSMITTANCE %			REFLECTANCE %			WINTER U-VALUE		SUMMER U-VALUE		SHADING COEFFICIENT	SHGC	REL. HEAT GAIN	LIGHT TO SHGC RATIO	DAMAGE WEIGHTED INDEX ISO
	VIS.	SOLAR	UV	VIS. EXT.	VIS. IN.	SOLAR	AIR	ARGON	AIR	ARGON					
Clear Comfort Ti-AC 40	68	34	39	9	11	30	0.29	0.24	0.28	0.22	0.45	0.39	94	1.74	0.59
Clear Comfort Ti-AC 36	65	31	32	10	11	32	0.29	0.24	0.28	0.21	0.41	0.36	86	1.81	0.54
Clear Comfort Ti-AC 23	38	18	16	13	11	27	0.29	0.24	0.28	0.22	0.27	0.23	58	1.65	0.33
Clear Comfort Ti-AC	58	33	25	29	23	36	0.29	0.24	0.28	0.22	0.44	0.38	91	1.53	0.48
Clear Comfort Ti-R	66	38	17	21	19	30	0.29	0.24	0.28	0.21	0.50	0.44	104	1.50	0.47
Clear Comfort Ti-PS	74	46	36	11	11	21	0.30	0.25	0.29	0.23	0.61	0.53	126	1.40	0.63
Clear Comfort E2	73	54	39	14	15	13	0.34	0.30	0.35	0.30	0.72	0.63	149	1.16	0.61
Clear Sunergy	60	42	36	12	16	12	0.37	0.33	0.38	0.34	0.59	0.51	124	1.18	0.54
Green Comfort Ti-AC 40	57	24	13	9	10	9	0.29	0.24	0.28	0.22	0.36	0.31	75	1.84	0.42
Green Comfort Ti-AC 23	33	13	8	11	11	10	0.29	0.24	0.28	0.22	0.24	0.21	52	1.57	0.27
Green Comfort Ti-AC	51	23	13	23	23	15	0.29	0.24	0.28	0.22	0.34	0.29	71	1.76	0.38
Green Sunergy	50	24	13	10	15	7	0.37	0.33	0.38	0.34	0.39	0.33	82	1.52	0.39
Gray Comfort Ti-AC 40	32	17	10	6	9	12	0.29	0.24	0.28	0.22	0.28	0.24	60	1.33	0.25
Gray Comfort Ti-AC 23	19	9	7	6	10	11	0.29	0.24	0.28	0.22	0.19	0.17	43	1.12	0.17
Gray Comfort Ti-AC	30	17	11	10	22	14	0.29	0.24	0.28	0.22	0.28	0.25	61	1.20	0.24
Bronze Comfort Ti-AC 40	38	19	10	7	9	13	0.29	0.24	0.28	0.22	0.30	0.26	65	1.46	0.27
Bronze Comfort Ti-AC 23	23	11	6	7	11	13	0.29	0.24	0.28	0.22	0.21	0.18	45	1.28	0.18
Bronze Comfort Ti-AC	35	20	10	13	22	16	0.29	0.24	0.28	0.22	0.31	0.27	65	1.30	0.26
DkGrn Comfort Ti-AC 40	41	19	7	8	10	7	0.29	0.24	0.28	0.22	0.30	0.26	64	1.88	0.34
DkGrn Comfort Ti-AC 23	29	11	4	9	11	7	0.29	0.24	0.28	0.22	0.21	0.18	46	1.61	0.21
DkGrn Comfort Ti-AC	44	17	7	18	23	10	0.29	0.24	0.28	0.22	0.28	0.24	60	1.83	0.31
Azur Sunergy	50	26	21	10	15	7	0.37	0.33	0.38	0.34	0.41	0.36	88	1.39	0.43
Dark Blue Sunergy	36	20	17	7	15	6	0.37	0.33	0.38	0.34	0.34	0.30	74	1.20	0.36

**3rd SURFACE LOW-E SOLUTIONS** – All data based on 1/4"(6mm) Clear or Tinted Exterior / 1/4"(6mm) Clear Low-E Interior Lites

PRODUCT	TRANSMITTANCE %			REFLECTANCE %			WINTER U-VALUE		SUMMER U-VALUE		SHADING COEFFICIENT	SHGC	REL. HEAT GAIN	LIGHT TO SHGC RATIO	DAMAGE WEIGHTED INDEX ISO
	VIS.	SOLAR	UV	VIS. EXT.	VIS. IN.	SOLAR	AIR	ARGON	AIR	ARGON					
Clear/Comfort Ti-AC 40	68	34	39	11	9	32	0.29	0.24	0.28	0.22	0.55	0.47	113	1.45	0.59
Clear/Comfort Ti-AC 36	65	31	32	11	10	34	0.29	0.24	0.28	0.21	0.52	0.45	107	1.44	0.54
Clear/Comfort Ti-R	66	38	17	19	21	32	0.29	0.24	0.28	0.21	0.56	0.49	116	1.35	0.47
Clear/Comfort Ti-PS	74	46	36	11	11	23	0.30	0.25	0.29	0.23	0.69	0.59	139	1.25	0.63
Clear/Comfort E2	73	54	39	15	14	14	0.34	0.30	0.35	0.30	0.79	0.69	163	1.06	0.61
Clear/Sunergy	60	42	36	16	12	14	0.37	0.33	0.38	0.34	0.75	0.65	156	0.92	0.54
Green/Comfort Ti-AC 40	59	25	20	9	9	10	0.29	0.24	0.28	0.22	0.43	0.37	89	1.59	0.47
Green/Comfort Ti-AC 36	57	23	16	9	10	11	0.29	0.24	0.28	0.21	0.41	0.36	86	1.58	0.43
Green/Comfort Ti-R	58	26	9	16	20	13	0.29	0.24	0.28	0.21	0.41	0.35	85	1.66	0.38
Green/Comfort Ti-PS	65	31	19	9	11	9	0.30	0.25	0.29	0.23	0.48	0.41	99	1.59	0.50
Green/Comfort E2	64	33	20	12	13	9	0.34	0.30	0.35	0.30	0.52	0.45	108	1.42	0.49
Green/Sunergy	53	27	18	13	12	9	0.37	0.33	0.38	0.34	0.50	0.43	106	1.23	0.43
Gray/Comfort Ti-AC 40	35	18	16	6	8	13	0.29	0.24	0.28	0.22	0.34	0.30	73	1.17	0.30
Gray/Comfort Ti-AC 36	33	16	13	6	9	13	0.29	0.24	0.28	0.21	0.33	0.28	69	1.18	0.28
Gray/Comfort Ti-R	34	20	7	8	20	13	0.29	0.24	0.28	0.21	0.35	0.30	74	1.13	0.24
Gray/Comfort Ti-PS	38	25	15	6	10	10	0.30	0.25	0.29	0.23	0.41	0.36	89	1.06	0.32
Gray/Comfort E2	37	29	16	7	12	7	0.34	0.30	0.35	0.30	0.48	0.42	102	0.88	0.31
Gray/Sunergy	31	23	15	7	11	7	0.37	0.33	0.38	0.34	0.47	0.41	99	0.76	0.28
Bronze/Comfort Ti-AC 40	41	20	15	7	8	15	0.29	0.24	0.28	0.22	0.37	0.32	78	1.28	0.32
Bronze/Comfort Ti-AC 36	40	19	13	7	9	15	0.29	0.24	0.28	0.21	0.36	0.31	75	1.29	0.29
Bronze/Comfort Ti-R	40	23	7	10	20	15	0.29	0.24	0.28	0.21	0.38	0.33	80	1.21	0.26
Bronze/Comfort Ti-PS	45	28	14	7	10	11	0.30	0.25	0.29	0.23	0.45	0.39	84	1.15	0.34
Bronze/Comfort E2	44	32	15	8	12	8	0.34	0.30	0.35	0.30	0.52	0.45	109	0.98	0.33
Bronze/Sunergy	37	25	14	8	11	8	0.37	0.33	0.38	0.34	0.51	0.44	107	0.84	0.29
BlueGrn/Comfort Ti-AC 40	58	25	21	9	9	11	0.29	0.24	0.28	0.22	0.43	0.37	89	1.57	0.48
BlueGrn/Comfort Ti-AC 36	56	23	17	10	10	12	0.29	0.24	0.27	0.21	0.41	0.36	86	1.56	0.44
BlueGrn/Comfort Ti-R	56	26	10	16	21	14	0.29	0.24	0.27	0.21	0.41	0.36	86	1.56	0.39
BlueGrn/Comfort Ti-PS	64	31	20	10	11	10	0.30	0.25	0.29	0.23	0.48	0.42	100	1.50	0.51
BlueGrn/Comfort E2	62	34	21	13	13	9	0.34	0.30	0.35	0.30	0.53	0.46	110	1.35	0.49
BlueGrn/Sunergy	51	27	20	13	12	9	0.37	0.33	0.38	0.34	0.51	0.44	108	1.16	0.43
DrkGrn/Comfort Ti-AC 40	50	19	9	8	9	6	0.29	0.24	0.28	0.22	0.35	0.30	74	1.67	0.37
DrkGrn/Comfort Ti-AC 36	48	18	8	8	9	7	0.29	0.24	0.28	0.21	0.34	0.29	72	1.66	0.34
DrkGrn/Comfort Ti-R	49	19	4	13	20	8	0.29	0.24	0.28	0.21	0.33	0.28	69	1.75	0.31
DrkGrn/Comfort Ti-PS	55	23	9	8	11	6	0.30	0.25	0.29	0.23	0.37	0.32	79	1.72	0.40
DrkGrn/Comfort E2	54	24	10	10	13	6	0.34	0.30	0.35	0.30	0.40	0.35	85	1.54	0.38
DrkGrn/Sunergy	44	19	9	11	12	6	0.37	0.33	0.38	0.34	0.39	0.34	86	1.29	0.33

Units utilized for U-Value are Btu/°F x sq. ft.

Transmittance of UV rays are calculated as Tuv.

Additional methods of calculation including Krochmann (Tdw-K) and also an assessment of Damage-Weighted Transmittance using Tdw-ISO are available.

For more information, contact AGC's Technical Services Department.

All units are 1/2" airspace (air-filled).

Performance values based on representative production samples and product modeling data using LBNL optics 5.1 and Windows 5.2.

Actual values may differ, due to variations in the manufacturing process. Values for center of glass only.

## Glossary

**ARGON:** An inert, nontoxic gas used to improve the insulating value of sealed-glass insulating windows.

**BTU:** An abbreviation for British thermal unit. The heat required to increase the temperature of one pound of water one degree Fahrenheit.

**CONDENSATION:** The accumulation of water vapor on any surface with a temperature below the dew point, such as a cold window glass or frame exposed to humid air.

**EMISSIVITY:** The relative ability of a surface to reflect or emit heat by radiation. Emissivity factors range from 0.00 to 1.00. The lower the emissivity, the less heat that is emitted through a window system. Emissivity is typically measured by U-factor (or its inverse, R-factor).

**LOW-EMISSIVITY (LOW-E) COATING:**

Microscopically thin, transparent, metal or metallic oxide layers deposited on glass and sealed in an insulating glass unit, thereby suppressing radiant heat flow and improving U-Factor.

**NFRC:** National Fenestration Rating Council.

**PASSIVE SOLAR HEAT GAIN:** Solar heat that passes through a material and is captured by a nonmechanical, natural means.

**R-VALUE:** The measure of a glazing material's resistance to heat flow. It is the inverse of the U-Factor ( $R = 1/U$ ) and is expressed in units of  $^{\circ}\text{F} \times \text{sq. ft.} \times \text{hr./Btu}$ . A high R-Value window has greater resistance to heat flow and a higher insulating value than one with a low R-Value.

**SHADING COEFFICIENT (SC):** A glass measurement comparing solar heat transmission, related to 1/8-inch clear glass. It is being phased out in favor of the solar heat gain coefficient and is approximately equal to the SHGC multiplied by 1.13.

**SOLAR HEAT GAIN COEFFICIENT (SHGC):**

The fraction of solar radiation transmitted through a window or skylight. The SHGC has replaced the SC as the standard indicator of a window's shading ability. It is expressed as a percentage. The lower a window's SHGC, the less solar heat it transmits and the greater its shading ability. SHGC can be expressed in terms of the glass alone or can refer to the entire window assembly. SHGC should vary based on climate and geography, with a lower SHGC in the south and a higher SHGC in the north.

**U-FACTOR (U-VALUE):** A measure of the rate of non-solar heat loss or gain through a material or assembly. It is expressed in units of  $\text{Btu}/^{\circ}\text{F} \times \text{sq. ft.} \times \text{hr.}$  Values are normally given for NFRC/ASHRAE winter conditions of  $0^{\circ}\text{F}$  ( $-18^{\circ}\text{C}$ ) outdoor temperature,  $70^{\circ}\text{F}$  ( $21^{\circ}\text{C}$ ) indoor temperature, 15 mph wind and no solar load. The U-Factor may be expressed for the glass alone or the entire window, which includes the effect of the frame and the spacer materials. The lower the U-Factor, the greater a window's resistance to heat flow and the better its insulating value.

**VISIBLE LIGHT TRANSMITTANCE (VLT):**

The percentage or fraction of the visible spectrum (380 to 720 nanometers), weighted by the sensitivity of the eye, that is transmitted through the glazing.



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