

LLumar Architectural Window Film Performance Data

Global Regions



	% Total Solar Transmittance	% Total Solar Reflectance	% Total Solar Absorptance	% Visible Light Transmittance	% Visible Reflectance (exterior)	% Visible Reflectance (interior)	Winter Median U-value	Shading Coefficient	% UV Rejected	Emissivity	Solar Heat Gain Coefficient (SHGC)	% Total Solar Energy Rejected (TSEER)	Light-to-Solar Heat Gain Ratio (LSG)	% Summer Solar Heat Gain Reduction	% Winter Heat Loss Reduction	% Glare Reduction
Window without film applied (1/8" clear single pane)	83	8	9	90	8	8	1.03	1.00	29	0.84	0.86	14	1.05	0	0	0

Solar Control Films

Reflective Series	Reflective films feature reflectance on both interiors and exteriors for superior reduction in summer cooling costs and heat retention in winter. Providing a high level of glare and heat control, they are scratch-resistant, shield 99% of UV rays, and are available in earthtones, skytones, silver, and gold to meet your aesthetic goals.															
RN-07G SR PS (One-Way Mirror)	6	53	41	5	60	14	0.91	0.20	99	0.59	0.16	84	0.31	80	12	94
R-15B SR CDF (Bronze)	10	35	55	10	19	60	0.94	0.28	99	0.70	0.24	76	0.42	72	9	89
R-15G SR CDF (Gray)	9	33	58	7	13	61	0.94	0.29	99	0.70	0.25	75	0.28	71	9	92
R-15BL SR HPR (Blue)	10	38	52	11	25	62	0.94	0.29	99	0.70	0.25	75	0.44	71	9	88
R-15GO SR HPR (Gold)	11	50	39	14	52	64	0.94	0.25	99	0.70	0.21	79	0.67	75	9	84
R-15GN SR HPR (Green)	12	36	52	15	32	57	0.93	0.30	99	0.63	0.25	75	0.60	70	10	83
PCR-15BL SR CDF (Blue)	15	25	60	13	22	33	1.00	0.37	99	0.76	0.32	68	0.41	63	3	86
PCR-35GN SR CDF (Green)	28	25	47	33	22	30	0.92	0.46	99	0.63	0.40	60	0.83	54	11	63
LR-20SI SR HPR (Silver)	14	52	34	18	60	60	0.95	0.26	99	0.67	0.23	77	0.78	74	8	80
R-20 SR CDF (Silver)	12	54	34	16	62	62	0.94	0.25	99	0.71	0.21	79	0.76	75	9	82
R-35 SR CDF (Silver)	21	43	36	28	46	49	0.96	0.40	99	0.73	0.31	69	0.90	60	7	69
R-50 SR HPR (Silver)	36	29	35	48	28	26	0.97	0.54	99	0.75	0.46	54	1.04	46	6	47
Dual-Reflective Series	Dual-Reflective films are highly reflective on the exterior; lower on the interior, which helps provide clear day and night views. Traditionally specified on commercial buildings, Dual-Reflective films are also popular for sunbelt residential applications. They are scratch-resistant, shield 99% of UV rays, and provide excellent heat rejection.															
DR-25 SR CDF (Warm Gray)	25	26	49	22	27	13	0.92	0.41	99	0.61	0.35	65	0.63	59	11	76
DR-35 SR CDF (Warm Gray)	35	19	46	36	19	13	0.93	0.52	99	0.61	0.44	56	0.82	48	10	60
Low-E Series	Low-E films provide superior energy conservation by reducing winter heat loss through windows. They are scratch-resistant, shield 99% of UV rays, and reduce glare. They are suitable for commercial and residential applications where summer and winter energy control are major concerns.															
LE-35 SR CDF (Silver/Gold)	20	46	34	31	42	39	0.76	0.32	99	0.33	0.27	73	1.15	68	26	66
LE-50 SR CDF (Silver/Gold)	35	32	33	49	25	23	0.80	0.49	99	0.36	0.42	58	1.17	51	23	46
Deluxe Series	Deluxe films are specified for commercial buildings where high levels of heat rejection and glare reduction are needed. Deluxe films are ideal for exterior aesthetics. They are scratch-resistant and reduce 99% of UV rays.															
DL-30GN SR HPR (Green)	29	20	51	30	17	17	0.98	0.53	99	0.76	0.46	54	0.65	47	5	67
Neutral Series	Neutral films reduce glare, provide good heat rejection and are specified where a soft, neutral appearance is desired. These films are made with sputtered technology. Neutral films are scratch-resistant and shield 99% of UV rays.															
N-1020 SR CDF (Neutral)	21	26	53	24	29	28	1.03	0.44	99	0.84	0.37	63	0.65	56	0	73
N-1040 SR CDF (Neutral)	36	16	48	40	18	15	1.00	0.59	99	0.81	0.50	50	0.80	41	3	56
N-1050 SR CDF (Neutral)	44	13	43	49	14	12	1.03	0.67	99	0.84	0.58	42	0.84	33	0	46
N-1065 SR CDF (Neutral)	65	9	26	67	10	9	1.03	0.82	99	0.84	0.71	29	0.94	18	0	26
N-1020B SR CDF (Bronze)	12	49	39	20	37	35	0.93	0.27	99	0.69	0.23	77	0.87	73	10	78
N-1035B SR CDF (Bronze)	25	37	38	37	25	23	0.94	0.41	99	0.71	0.36	64	1.03	59	9	59
Exterior Series	Exterior Series products are applied to the exterior facing glazing and are highly reflective to provide excellent heat rejection performance.															
REX-20SI ER HPR (Silver)	10	67	23	15	67	62	1.04	0.20	99	0.71	0.17	83	0.88	80	-1	83
UV Clear Series	UV Clear film is the ideal solution for protecting valuables from sun damage. It provides the highest protection against harmful UV rays without altering glass aesthetics.															
UV-CL SR PS (Clear)	81	9	10	89	9	9	1.03	0.97	99.9	0.83	0.84	16	1.06	3	0	1
Spectrally Selective Series	Spectrally Selective films provide a virtually invisible appearance, energy savings, aesthetics, and up to 62% visible light transmission. These films are the top choices for exclusive retail and prime commercial real estate as well as residential applications.															
LS-60 SR CDF (Green)	33	25	42	62	9	9	0.92	0.52	99	0.67	0.45	55	1.38	48	11	31

The solar performance data reported for LLumar architectural window films was captured using the National Fenestration Rating Council's (NFRC) standard guidelines for window film solar performance measurement as measured on single pane, 1/8 inch (3mm), clear glass.

LLumar Architectural Window Film Performance Data

Global Regions



% Total Solar Transmittance
 % Total Solar Reflectance
 % Total Solar Absorptance
 % Visible Light Transmittance
 % Visible Reflectance (exterior)
 % Visible Reflectance (interior)
 Winter Median U-value
 Shading Coefficient
 % UV Rejected
 Emissivity
 Solar Heat Gain Coefficient (SHGC)
 % Total Solar Energy Rejected (TSEER)
 Light-to-Solar Heat Gain Ratio (LSG)
 % Summer Solar Heat Gain Reduction
 % Winter Heat Loss Reduction
 % Glare Reduction

Window without film applied (1/8" clear single pane)	83	8	9	90	8	8	1.03	1.00	29	0.84	0.86	14	1.05	0	0	0
--	----	---	---	----	---	---	------	------	----	------	------	----	------	---	---	---

Decorative Films

Privacy Series Privacy Series films come in a wide range of colors and are ideal for commercial interior glazing applications to achieve privacy or interior design goals.

NRM-PS2 (Frost)	69	20	11	75	25	22	1.02	0.84	98	0.84	0.73	27	1.03	16	1	17
NRMV 60 F-PS3 (Etched Frost)	55	22	23	55	34	36	1.04	0.70	90	0.84	0.61	39	0.90	30	1	39
FROSTED SPARKLE	70	16	14	73	19	18	1.03	0.85	83	0.84	0.74	26	0.99	15	0	19
NRMB-PS2 (Bronze)	50	13	37	36	11	15	1.03	0.69	98	0.84	0.61	39	0.59	31	0	60
NRMM-PS3 (Black)	0	11	89	0	13	8	1.03	0.34	100	0.84	0.29	71	0.00	66	0	100
NRMW-PS3 (White)	18	66	16	14	87	84	1.03	0.25	99	0.84	0.23	77	0.61	75	0	84
RMS-PS2 (Silver)	13	57	30	16	60	64	1.03	0.24	99	0.72	0.21	79	0.76	76	0	82
NRMGN-PS2 (Green Frost)	67	17	16	70	21	22	1.02	0.82	98	0.80	0.71	29	0.99	18	1	22

Pattern Series Pattern Series products are scratch-resistant and offer a wide range of aesthetic solutions through varying levels of translucent and opaque whites with a simulated acid-etch appearance. This series also includes a broad range of classic patterns.

NRM FS SR HPR (Stripes)	72	17	11	73	20	20	1.03	0.90	99	0.84	0.79	21	0.92	10	0	19
NRM FB SR HPR (Bands)	63	19	18	63	23	23	1.03	0.80	99	0.84	0.70	30	0.90	20	0	30
NRM FTL SR HPR (Thin Lines)	70	19	11	73	20	20	1.03	0.84	99	0.84	0.73	27	1.00	16	0	19
NRM FSD SR HPR (Small Dots)	78	12	10	82	13	13	1.03	0.94	99	0.84	0.81	19	1.01	6	0	9
NRM FMD SR HPR (Mini Dots)	76	12	12	81	15	15	1.03	0.91	99	0.84	0.79	21	1.03	9	0	10
NRM MSQ SR HPR (Matte Squares)	61	20	19	61	25	25	1.03	0.75	99	0.84	0.66	34	0.92	25	0	32
NRM FSQ SR HPR (Squares)	68	16	16	69	20	20	1.03	0.87	99	0.84	0.77	23	0.90	13	0	23
NRM FRP SR HPR (Rice Paper)	63	23	14	67	25	25	1.01	0.77	99	0.84	0.67	33	1.00	23	2	26

Graphics Arts Series Graphic Arts Series products are recommended for interior applications and are scratch-resistant films in a basic color palette inspiring a wide range of custom design solutions.

DECO BLUE SR HPR (Blue)	61	8	31	28	8	8	1.03	0.80	98	0.84	0.70	30	0.40	15	0	68
DECO GREEN SR HPR (Green)	46	7	47	32	8	8	1.03	0.68	98	0.84	0.59	41	0.54	28	0	64
DECO RED SR HPR (Red)	59	8	33	26	8	8	1.03	0.79	98	0.84	0.69	31	0.38	16	0	70
DECO YELLOW SR HPR (Yellow)	73	9	18	85	8	8	1.03	0.90	98	0.84	0.78	22	1.09	4	0	3

Safety and Security Films

Safety and Security Series Safety and Security products are durable films available in a variety of clear, neutral, and reflective offerings with a range of solar control options. These thicker films meet the most stringent standards for burglary resistance, blast mitigation, windborne debris, and basic safety glazing.

SCL SR PS2 (Clear)	81	9	10	89	10	10	1.03	0.97	95	0.84	0.84	16	1.06	3	0	1
SCL SR PS4 (Clear)	81	9	10	89	10	10	1.03	0.97	95	0.84	0.84	16	1.06	3	0	1
SCL SR PS7 (Clear)	81	9	10	88	10	10	1.03	0.96	95	0.84	0.84	16	1.05	4	0	2
SCL SR PS8 (Clear)	78	9	13	88	11	11	1.03	0.94	99	0.84	0.82	18	1.07	6	0	2
SCL SR PS11 (Clear)	78	9	13	85	11	11	1.03	0.93	99	0.84	0.81	19	1.05	7	0	6
SCL SR PS15 (Clear)	76	10	14	83	11	11	1.03	0.92	99	0.84	0.80	20	1.04	8	0	8
R-20 SR PS4 & 8 (Silver)	12	54	34	16	62	62	0.94	0.25	99	0.71	0.21	79	0.76	75	9	82
N-1020 SR PS4 (Neutral)	21	26	53	24	29	28	1.03	0.44	99	0.84	0.37	63	0.65	56	0	73
N-1040 SR PS4 & 8 (Neutral)	36	16	48	40	18	15	1.00	0.59	99	0.84	0.50	50	0.80	41	3	56
N-1050 SR PS4 (Neutral)	44	13	43	49	14	12	1.03	0.67	99	0.84	0.58	42	0.84	33	0	46
SCL ER PS4 (Exterior Clear)	73	14	13	81	16	15	1.03	0.88	95	0.84	0.77	23	1.05	12	0	10

Anti-Graffiti Series Anti-Graffiti Series films are optically clear, enhanced with ultraviolet inhibiting agents that reject up to 95% of UV rays, and are made to resist common graffiti, chemicals, paints, and tools, and are made with special adhesives for ease of removal and replacement.

GCL SR PS4 (Clear)	81	9	10	89	10	10	1.02	0.97	95	0.84	0.84	16	1.06	3	1	1
--------------------	----	---	----	----	----	----	------	------	----	------	------	----	------	---	---	---