

# LLumar Architectural Window Film Performance Data

United States and Canada



	% 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
RN-07G SR CDF (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 PS (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 PS (Gold)	11	50	39	14	52	64	0.94	0.25	99	0.70	0.21	79	0.67	75	9	84
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 CDF (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-15 SR CDF	16	37	47	15	37	13	0.92	0.30	99	0.63	0.26	74	0.58	70	11	83
DR-25 SR CDF	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	35	19	46	36	19	13	0.93	0.52	99	0.61	0.44	56	0.82	48	10	60
DR-45 SR CDF	47	10	43	47	9	8	1.00	0.69	99	0.78	0.59	41	0.80	31	3	48

**Low-E Series** Low-E film provides superior energy conservation by reducing winter heat loss through windows. It is scratch-resistant, shields 99% of UV rays, reduces glare, and has the highest heat rejection performance of all LLumar films. It is suitable for commercial applications where summer and winter energy control are major concerns.

E-1220 SR CDF (Silver)	8	58	34	12	66	70	0.77	0.18	99	0.36	0.15	85	0.80	82	25	87
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**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, reduce 99% of UV rays, and come in gray, green and bronze.

DL-05G SR CDF (Gray)	14	25	61	6	13	13	0.92	0.35	99	0.62	0.30	70	0.20	65	11	93
DL-15B SR CDF (Bronze)	27	13	60	14	8	8	0.98	0.45	99	0.77	0.39	61	0.36	55	5	84
DL-15G SR CDF (Gray)	26	15	59	16	9	10	0.99	0.45	99	0.78	0.42	58	0.38	55	4	82
DL-30GN SR PS (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 moderate 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
N-1050B SR CDF (Bronze)	44	21	35	55	15	14	0.96	0.63	99	0.73	0.54	46	1.02	37	7	39

**Exterior Series** Exterior Series products are applied to the exterior facing glazing and are highly reflective to provide excellent heat rejection performance.

RK-20 PS (Silver)	10	67	23	15	67	62	1.04	0.20	99	0.71	0.17	83	0.88	80	-1	83
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**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
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**Spectrally Selective Series** Spectrally Selective films provide a virtually invisible appearance, energy savings, aesthetics, and up to 74% visible light transmission. These films are the top choices for exclusive retail and prime commercial real estate as well as residential applications.

LS-65GN SR CDF (Green)	41	6	53	62	7	7	1.02	0.65	99	0.83	0.56	44	1.11	35	1	31
LS-75GN SR CDF (Green)	48	8	44	74	8	8	0.99	0.70	99	0.79	0.60	40	1.23	30	4	18

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.

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 % Total Solar Absorptance  
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 % Visible Reflectance (exterior)  
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 Solar Heat Gain Coefficient (SHGC)  
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## Designer 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
NRMV 80 DC-PS3 (Dusted Crystal)	80	9	11	87	11	10	1.04	0.96	75	0.84	0.83	17	1.05	4	-1	3
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.

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
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
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
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 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 PS6 (Clear)	79	9	12	88	10	10	1.03	0.94	99	0.84	0.82	18	1.07	6	0	2
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 MPS15 (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 & 8 (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 & 8 (Neutral)	44	13	43	49	14	12	1.03	0.67	99	0.84	0.58	42	0.84	33	0	46
NUV65 SR PS4	63	9	28	70	11	10	1.02	0.71	99.9	0.84	0.71	29	0.99	18	1	22

**Anti-Graffiti Series** Anti-Graffiti Series films are optically clear, enhanced with ultraviolet inhibiting agents that reject up to 99% 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
GCL SR PS6 (Clear)	79	8	13	89	10	10	1.02	0.95	99	0.84	0.83	17	1.07	5	1	1