

# LLUMAR® ENERGY SAVING WINDOW FILM PERFORMANCE DATA



	% Total Solar Transmittance	% Total Solar Reflectance	% Total Solar Absorbance	% Visible Light Transmittance	% Visible Reflectance (exterior)	% Visible Reflectance (interior)	Winter U-value	Shading Coefficient	% Ultraviolet Ray Rejection	Emissivity	Solar Heat Gain Coefficient	% Total Solar Energy Rejected	Light-to-Solar Heat Gain Ratio	% 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	-	-	-
<b>REFLECTIVE</b>																
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 ultraviolet rays, and provide excellent heat rejection.																
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-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-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
<b>DUAL-REFLECTIVE</b>																
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 ultraviolet 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
<b>LOW-E</b>																
Low-E film provides superior energy conservation by reducing winter heat loss through windows. It is scratch-resistant, shields 99% of ultraviolet rays, reduces glare, and has the highest heat rejection performance of all LLumar films. It is suitable for commercial and residential 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
<b>DELUXE</b>																
Deluxe films are specified for commercial buildings where high levels of heat rejection and glare reduction are needed. Deluxe films are ideal for privacy applications and exterior aesthetics. They are scratch-resistant, reduce 99% of ultraviolet rays, and come in gray 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
<b>NEUTRAL</b>																
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, creating a film that allows for very uniform visible light transmission. Neutral films are scratch-resistant and shield 99% of ultraviolet 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
<b>EXTERIOR</b>																
Exterior Series products are applied to the exterior face of the glazing and provide excellent heat rejection performance.																
NHE-35 ER HPR	33	18	49	38	15	19	1.04	0.56	99.9	0.83	0.48	52	0.79	44	-1	58
RHE-20 ER HPR	10	65	25	14	61	65	1.04	0.20	99.9	0.70	0.17	83	0.82	80	-1	84
<b>UV CLEAR</b>																
UV Clear film is the ideal solution for protecting valuables from sun damage. It provides the highest protection against harmful ultraviolet 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

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. All values averaged from routinely accumulated quality control data.

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