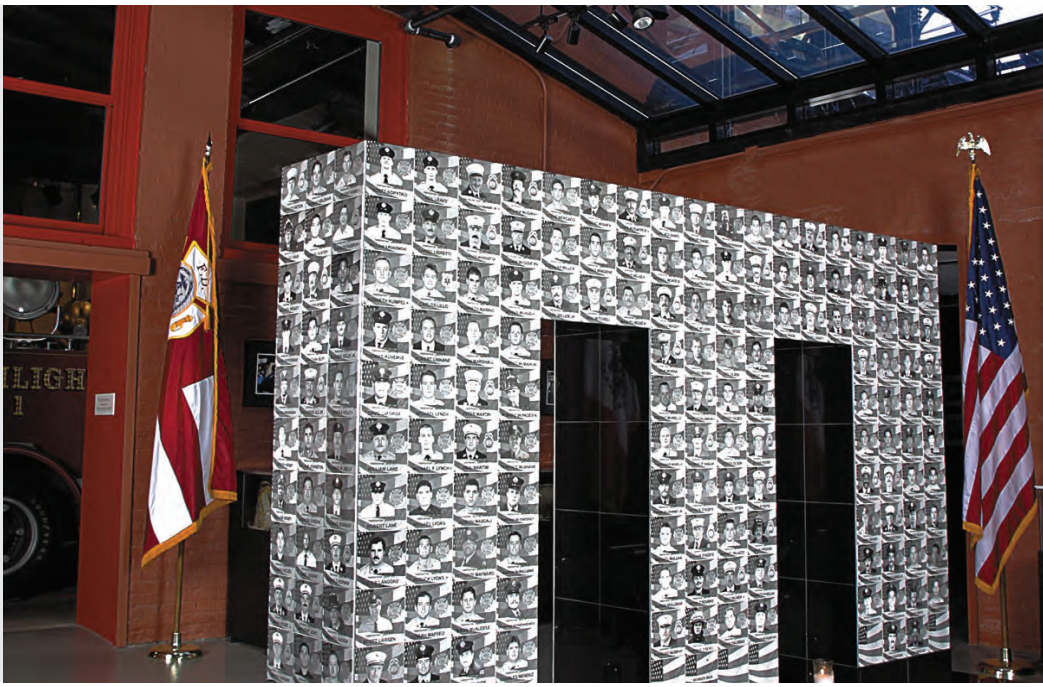
CASE STUDY: A rescue operation in New York City

Building
New York Fire Museum

Location
New York, New York, USA

Window Film
R-20 SR CDF (Silver)

Type
Solar Control Film



SITUATION

The New York City Fire Museum houses one of the nation's most important collections of fire-related art and artifacts. The museum recently opened a September 11 Exhibit Hall to honor the firefighters who lost their lives in the 2001 terrorist attacks. Set within an attractive glass atrium, the exhibit's photos and other pieces had begun to fade due to the heat, glare, and harmful ultraviolet light to which they were exposed.

SOLUTION

Museum Director Joann Kay contacted the local LLumar dealer to help find a solution. The dealer fitted the atrium's skylights with 600 square feet (55 square meters) of LLumar window film R-20 SR CDF. It was further determined that the museum's glass doors could be reinforced with safety-security window film, and 300 square feet (28 square meters) of LLumar protective film NUV-65 SR PS4 was used to form a sheath across the glass to help hold most of the fragments in place in the event of breakage.

RESULT

Once installed, the window film reduced the amount of summer solar heat gain passing through the skylights by 75% and reduced glare within the atrium by 82%. In addition, 99% of the ultraviolet light—the principal cause of fading—was eliminated. The glass doors to the exhibit were significantly secured due to the film's thick polyester laminate, metallized coatings, and unique adhesive system. "Installation was quick, without mess, and without interruption," Kay said.

Performance Data

	% Total Solar Transmittance	% Total Solar Reflectance	% Total Solar Absorptance	% Visible Light Transmittance	% Visible Reflectance (exterior)	% Visible Reflectance (interior)	Winter U-value	Shading Coefficient	% Ultraviolet Ray Protection (wavelengths 280-380nm)	Emissivity	Solar Heat Gain Coefficient	% Total Solar Energy Rejected	Light-to-Solar Heat Gain Ratio (LSG)	% Summer Solar Heat Gain Reduction	% Winter Heat Loss Reduction	% Glare Reduction
Clear Glass	83	8	9	90	8	8	1.03	1.00	29	0.84	0.86	14	1.05	0	0	0
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 ultraviolet rays, and provide excellent heat rejection.															
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
Solar Series	Solar safety films are durable products 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, wind-borne debris, and basic safety glazing.															
NUV-65 SR PS4	63	9	28	70	11	10	1.02	0.71	99.9	0.84	0.71	29	0.99	18	1	22

Physical Properties

	Film Thickness (inches)	Appearance	Film Structure	Tensile Strength (constructed)	Tensile Strength (average as reported)	Break Strength (peak load)	Break Strength (average load)	Elongation at Break	Peel Strength	Puncture Strength
NUV-65 SR PS4	0.004	Very Light Neutral	Multi	33,884	32,000	120	119	>100%	>2720(>6)	78

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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.