

CASE STUDY: Safeguard glass at a fraction of the cost of reglazing

Building

Empire Tower

Location

Bangkok, Thailand

Window Film

SCL SR PS4 (Clear)

Type

Safety and Security Film



SITUATION

Empire Tower is one of the world's largest office complexes, featuring 20,000 panes of glass in its 62-story structure. With all of that glass, shattered windows and falling glass shards were a real concern. T.C.C., the property management company, wanted to ensure that the building's tenants and neighbors were working and living in a safe environment. They sought a retrofit solution that was less cost-prohibitive than reglazing.

SOLUTION

A LLumar distributor recommended a 4-millimeter clear safety and security window film to solve the problem. Eastman's technical team trained 26 installers to tackle the massive project. Over 55,000 square meters of LLumar protective window film was installed. This included 220,000 square feet of a custom 4-millimeter safety and security window film with a weatherable hard coat that was installed on the exterior surface of the spandrel glass.

RESULT

Management reports that LLumar window film is performing its function of holding the glass in place. Tenants and neighbors are impressed with the results. In addition, the film blocks up to 94% of damaging ultraviolet rays that will help to protect the building's interior furnishings and fabrics from fading.

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	-	-	-
Clear Series	Clear safety films can be applied over tinted glass to improve aesthetics, solar performance and glare. These thicker films meet the most stringent standards for burglary resistance, blast mitigation, wind-borne debris, and basic safety glazing.															
SCL SR PS4 (Clear)	82	10	8	88	10	10	1.05	0.97	94	0.86	0.84	16	1.05	2	-1	2

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
SCL SR PS4 (Clear)	0.004	Clear	Single	34,555	32,000	135	133	>100%	>2720(>6)	79