

CASE STUDY: Toll gate booths across Indonesia are safer with LLumar

Building

Toll Gate Booths

Location

Jakarta, Indonesia

Window Film

SCL SR PS4 (Clear)

Type

Safety and Security Film



SITUATION

Indonesia opened its first toll road in 1978. Today, vehicles stop at various locations on the major highways to pay tolls. Dealing with traffic congestion and frustrated drivers can make working in the toll booth a dangerous job. There is always the possibility of an accident or a robbery. To create a safer work environment, the mass transit authority sought a cost effective, retrofit solution to upgrade the glazing without replacing the glass.

SOLUTION

Our LLumar distributor specified LLumar SCLSRPS4 clear safety and security film for the toll booths. The film not only holds glass shards together in the event of breakage, it also helps shield employees from harmful ultraviolet rays. The film's scratch-resistant coating will keep it looking new for years to come. Phase I of the project stretches from Jakarta's International Airport to the suburbs. It includes 14 gates (8 toll booths per gate). According to the distributor they plan to install the film on every toll gate in Indonesia.

RESULT

"The film is an invisible barrier that does not obstruct our view. Our employees can see each driver's face from inside the booth and feel secure," said Mr. Saud, Supervisor, Gerbang Tol CTC.

Performance Data

	% Total Solar Transmittance	% Total Solar Reflectance	% Total Solar Absorbance	% Visible Light Transmittance	% Visible Reflectance (exterior)	% Visible Reflectance (interior)	Wigner U-value	Shading Coefficient	% Ultraviolet Ray Protection (wavelengths 280-380nm)	Emissivity	Solar Heat Gain Coefficient	% Total Solar Energy Reflected	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	82	10	8	88	10	10	1.05	0.97	94	0.86	0.84	16	1.05	2	-1	2
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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	0.004	Clear	Single	34,555	32,000	135	133	>100%	>2720(>6)	70

EASTMAN

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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 (3 mm), clear glass. Reported values are taken from representative product samples and are subject to normal manufacturing variances. Actual performance will vary based on a number of factors, including glass type and properties. Films do not eliminate fading - they reduce it. UV rays and heat are contributing factors to fading, but other factors exist. For further information, see LLumar.com/download-library. © 2016 Eastman Chemical Company. LLumar® and the LLumar® logo are trademarks of Eastman Chemical Company or one of its wholly owned subsidiaries. As used herein, ® denotes registered trademark status in the U.S. only. (06/16) L2156