

CASE STUDY: Energy savings – with added benefits

Building

Kona Community Hospital

Location

Kealakakua, Hawaii, USA

Window Film

R-20 SR PS4 (Silver)

Type

Solar Control Film



SITUATION

Faced with rapidly rising energy costs, Kona Community Hospital turned to NORESKO, a leading Energy Services Company (ESCO), to help them identify a solution. Because of its limited budget, the hospital needed something affordable to implement, while also delivering fast payback through resulting energy savings.

SOLUTION

Following an energy analysis and review of the hospital's glass requirements, NORESKO recommended LLumar reflective solar control window film R-20 SR PS4 for all exterior windows. The project required more than 31,000 square feet of window film. Professional installation was completed quickly without disrupting hospital operations and had impressive results.

RESULT

In reducing summer solar heat gain by 76%, LLumar solar control window film provided the energy savings required, while also improving occupant comfort and reducing distracting glare. As an added benefit, the reflective silver film enhanced the exterior appearance of the building by hiding previously visible clutter and offering a clean, contemporary look. Due to improved energy efficiency, the project paid for itself in energy savings in less than three years.

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 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	-	-	-
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.															
R-20 SR PS4 (Silver)	11	55	34	15	60	64	1.02	0.24	>99	0.80	0.21	79	0.71	76	2	83

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
R-20 SR PS4 (Silver)	0.004	Silver Reflective	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 (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) L1509