



CASE STUDY: Return on investment in as little as 1.3 years

Building

Temple College

Location

Temple, Texas, USA

Window Film

E-1220 SR CDF (Silver)

Type

Solar Control Film



SITUATION

The Temple College campus, which is made up of residential, recreational and educational buildings spreading over 114 acres, faced a serious energy challenge. With rising fuel costs and related global strains on fossil fuel resources, energy expenses were sharply increasing. Temple College retained the services of Johnson Controls Inc., a global Energy Services Company (ESCO), who determined that numerous large glass windows were contributing substantially to the campus' overall energy inefficiency.

SOLUTION

Following a LLumar® Energy Audit, using U.S. Department of Energy DOE-2 analytics, Johnson Controls determined that LLumar energy-saving window film, which would significantly reduce summer solar heat gain and winter heat loss through these windows, should be an important part of an effective energy-saving strategy for the college. To maximize performance, they selected LLumar E-1220. When installed on glass, this low emissivity (low-E) window film reduces solar energy passing through the glass by 83% and improves window insulating properties up to 25%.

RESULT

The Temple College window film project, 30,000 square feet (2787 square meters) in all, was estimated to return annual energy savings of \$33,917 with a return on investment in approximately 3.6 years. The individual building return on investment varied from as low as 1.3 years to 8.6 years (for buildings with lower energy consumption) with 3.6 years being the cumulative net return. Actual results were impressive: a 193 KW summer peak demand savings and an annual savings of 410,000 kilowatt hours.

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	-	-	-
Low-E Series	Low-E films provide superior energy savings by helping to block summer solar heat gain and by reducing winter heat loss through windows. They are scratch-resistant, shield >99% of UV rays, and reduce glare. They are suitable for commercial and residential applications where summer and winter energy control are major concerns.															
E-1220 SR CDF (Silver)	9	57	34	12	62	65	0.78	0.19	>99	0.38	0.17	83	0.71	80	25	87

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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) L1663