

Site

Frank Lloyd Wright's
Louis Penfield House

Location

Willoughby Hills, Ohio

Window Film

SpectraSelect VS70 SR CDF

Product Series

Spectrally-Selective Series



SITUATION

Frank Lloyd Wright is one of America's greatest architects. Between 1886 and 1959, nearly 500 of his buildings were constructed, of which 359 remain: 11 are in Ohio. The Louis Penfield House is one. Set on 30 acres along the Chagrin River, the Penfield House was designed with a concept intended to bring affordable elegant housing to the average American. All of Wright's houses are unique to each landscape and each client; the Penfield House is no exception. Wright was short in stature and believed "anyone over six feet tall was a weed!" Accordingly, most of his designs incorporated low entryways and ground-hugging rooflines. Louis Penfield was 6 feet 8 inches tall and challenged Wright to design a home to accommodate his height. The resulting house clearly reflects Louis Penfield's stature. Built in 1955 of wood, glass and concrete block; it has a twelve foot ceiling in the living room, eight foot passageway doors and narrow vertical glass panes two stories high.

SOLUTION

In the course of a recent renovation, the project architect recognized that since there was no air conditioning (and could never be because of the building construction), the sun's heat in the summer time would be intolerable. This was especially the case in the living room where floor-to-ceiling plate glass windows are a dominate feature. To solve the problem, the architect called in the services of a local solar control window film expert, a Vista™ by LLumar® dealer.

Following a detailed study of the environment, Vista™ by LLumar® VS70, a spectrally select film was determined to be the best solution. This film is designed to allow sunlight to shine brightly through glass, illuminating interiors while taking the heat out of the sun's rays and not impeding outside views. When installed, the film cut solar heat by 45 percent and blocked more than 99 percent ultraviolet rays from penetrating the glass, helping protect against premature fading.

RESULT

The renovated Penfield House is cooler and safer, thanks to Vista by LLumar Window Film, and what is more, no one will be able to detect the presence of the film on the windows. The Louis Penfield House is available to the public for vacation rentals and special events. For more information on the house visit its website at: www.penfieldhouse.com. For more information on the film that will protect this house for years to come, contact a Vista dealer.

Performance Data

	% Total Solar Transmittance	% Total Solar Reflectance	% Total Solar Absorption	% 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	-	-	-
Spectrally-Selective Series																
SpectraSelect VS70 SR CDF	38	27	35	70	8	8	0.88	0.54	>99	0.55	0.47	53	1.49	45	15	22

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. © 2008, revised 2016 Eastman Chemical Company. VISTA™, the VISTA® logo, LLumar®, the LLumar® logo and Enerlogic® 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) SP1083