Case Study

Sustainable | Renewal | Recreation/Civic | Education | Office Bldg

Solarban® R100/*Solargray*® glass, shown here on Mustang Stadium on the campus of Stevenson University, has a light to solar gain (LSG) ratio of 1.23, visible light transmittance (VLT) of 21 percent and a solar heat gain coefficient (SHGC) of 0.17. Using this glass combination from Vitro Architectural Glass (formerly PPG Glass), architects realized about $35,000 in HVAC equipment savings, which nearly paid for the glass itself.

Stevenson University Mustang Stadium

OWINGS MILLS, MD

PROJECT CREDITS

Owner
Stevenson University

Architect/Designers
Curry Architects
Towson, MD

General Contractor
David S. Brown Enterprises
Baltimore, MD

Vitro Products
Solarban® R100/*Solargray*® glass
Solargray® glass

Glazing Fabricators
Rochester Insulated Glass, Inc.
Manchester, NY

Glazing Contractor
DJ's Glass and Mirror, Inc.
Thurmont, MD

PROJECT BACKGROUND

When building a college football stadium, it is hard to find a better value than high-performance glass that pays for itself; yet that is precisely what architect Andrew Kulp, AIA, was able to discover when he specified *Solarban*® R100/*Solargray*® glass by Vitro Architectural Glass (formerly PPG glass) for Mustang Stadium at Stevenson University in Owings Mills, Md.

Designed by Curry Architects and constructed by David S. Brown Enterprises, Ltd., the $7 million, multi-purpose stadium features a turf field for football, lacrosse and soccer, as well as locker rooms, offices, executive suites, press boxes and a 4,500 square-foot indoor fitness center.

The signature exterior design element is a contemporary brick, metal and glass façade, fabricated with about 2,700 square feet of *Solarban*® R100/*Solargray*® glass, that provides dazzling hilltop views of the local community while significantly reducing the stadium's energy use.

Vitro®

Stevenson University Mustang Stadium

Kulp, the lead architect for the project, selected *Solarban*® R100/*Solargray*® and standard *Solargray*® glasses for two reasons. First, because the glass helped solve a number of design challenges and, second, because energy modeling demonstrated that it would immediately pay for itself.

According to Kulp, one major hurdle with the stadium design was the desire to bathe the interior of the building in light while mitigating the solar heat gain associated with a long, glass-walled façade on the west side of the stadium. “We knew from the beginning that having a large glass wall facing to the west was going to create an energy nightmare,” he said.

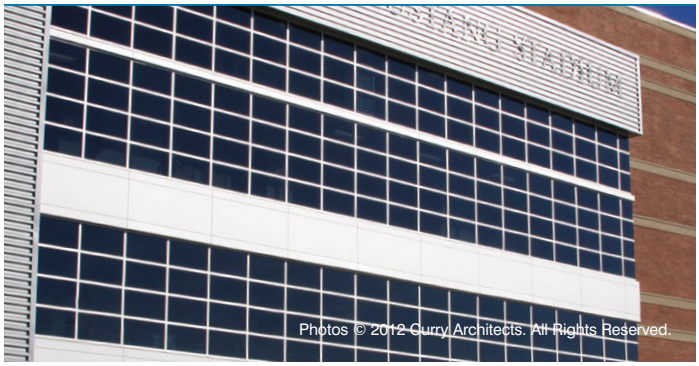
In addition, because the east façade would overlook the playing fields, the reflectivity of the glass had to be minimized so glare would not disrupt play, particularly on sunny afternoons.

After meeting with numerous glass manufacturers and taking calls from nearly “every glass contractor in the state,” Kulp eventually found a solution with *Solarban*® R100/*Solargray*® glass, a neutral-reflective, solar control, low-e glass with a very light, cool-gray exterior appearance, which he specified for the west façade. Conventional *Solargray*® glass was chosen for the east-, north- and south-facing façades.

Combined with clear glass in a 1-inch insulating glass unit (IGU), *Solarban*® R100/*Solargray*® glass has a light to solar gain (LSG) ratio of 1.23 – based on visible light transmittance (VLT) of 21 percent and a solar heat gain coefficient (SHGC) of 0.17 – and exterior reflectance of 12 percent. When joined with clear glass in a 1-inch IGU, the exterior reflectance of *Solargray*® glass is lowered to just 7 percent.

Working with a glazing contractor and mechanical engineer, Kulp determined that specifying *Solarban*® R100/*Solargray*® glass for the project was an investment that would pay for itself almost immediately through lower HVAC capacity requirements.

“When we plugged [*Solarban*® R100/*Solargray*® glass] into the building model, we found that it cut our cooling requirements from 109 tons of HVAC to about 99 tons. By getting below 100 tons, we were able to realize about $35,000 in equipment savings that was nearly enough to cover the $36,000 premium we paid for the glass. That enabled us to stay on budget while delivering significant energy efficiencies from Day One.”



Mustang Stadium includes a turf field for football, field hockey, lacrosse and soccer. The signature element of the building is the exterior brick, metal and glass façade that was fabricated with approximately 2,700 square feet of *Solarban*® R100/*Solargray*® glass by Vitro.

Kulp said that, in addition to energy savings and attractive aesthetics, the *Solarban*® R100 and *Solargray*® glasses contribute to the comfort and livability of the stadium’s interior offices, walkways and fitness facility, which are lighted during the day by a large bank of west-facing windows. “Even when it is hot and sunny, I can put my hand on the glass and it doesn’t feel warm,” he explained.

With campuses in Stevenson and Owings Mills, Md., Stevenson University is a rapidly-growing institution that is expanding its athletics program as part of an aggressive effort to attract new students and build a vibrant campus culture. University president Kevin J. Manning, Ph.D., said the new 3,500-seat stadium, built on the former site of the Baltimore Ravens’ Owings Mill practice facility, is integral to that strategy.

“One of our goals is to be a national leader in Division III athletics,” he said of the school, which already has a history of excellence in its men’s and women’s programs for soccer and lacrosse. “In order to do that kind of thing, you have to have a really first-rate athletic complex. We wanted a facility, a venue that was going to be equal to the quality of those teams.”

With the help of *Solarban*® R100 glass, Mustang Stadium at Stevenson University not only accomplishes that objective, but does so in a way that makes the university’s future both brighter and more sustainable.

For more information about *Solarban*® R100*, Solargray*® and other *Cradle to Cradle Certified*™ architectural glasses by Vitro Glass, visit **vitroglazings.com**, or call **1-855-VTRO-GLS (887-6457).**