

Case Study



Nearly 2,000 windows on Washington, D.C.'s historic Eastern High School were restored or replaced with units featuring Solarban® 60 glass by Vitro and DURANAR® coatings by Vitro Alliance Partner, PPG Industrial Coatings.

PROJECT CREDITS

Owner

District of Columbia Public Schools

Architect/Designers

Fanning Howey
Washington, D.C.

Vitro Products

Solarban® 60 glass

Glazing Fabricator/ Coatings Applicator

TRACO
Cranberry Township, PA

Glazing Contractor

Clyde McHenry, Inc.
Hyattsville, MD

Eastern High School

WASHINGTON, D.C.

PROJECT BACKGROUND

When architect Ed Schmidt, AIA, a principal with Fanning Howey, was selected to renovate Washington, D.C.'s Eastern High School, he was presented with two potentially competing objectives. The first was to retain the historic feel of the building's 80-year-old brick and window façade while completely gutting and redesigning the interior. The second was to incorporate new green building technologies with the goal of earning LEED® certification from the U.S. Green Building Council (USGBC).

Fortunately, with the help of high-performance architectural glass from Vitro Architectural Glass (formerly PPG Glass) and DURANAR® coatings by Vitro Alliance Partner, PPG Industrial Coatings, Schmidt and his team were able to accomplish both.

Built in 1923, updated in the 1980s and fully refurbished in 2010, Eastern High School is a landmark structure serving 9th through 12th graders in the city's Capitol Hill neighborhood. With the renovation complete, students and visitors can savor the grand architectural details of a bygone era, from golden wood floors and steel columns with handmade rivets to hallways lined with terra cotta tiles. A restored bronze bell, originally made by Tiffany & Co., graces the school's entry, as does a majestic marble staircase.



Eastern High School

Another interior highlight is abundant natural light. The school has restored or replaced nearly 2,000 windows, including many that were at least partially barricaded. Schmidt says that job was one of the most critical parts of the renovation.

“The windows give this building character. Unfortunately, at some point, plywood was placed near the top of the windows and painted white to keep the natural light out,” he said. “We took [the windows] back to the original historic intent, so we’d have all the natural light coming in. Now natural light floods the classrooms.”

The windows, which were fabricated by TRACO of Cranberry Township, Pa., are double-hung, side-load windows with triple historical colonial muntins. Schmidt said each unit was engineered to provide energy and environmental performance that belies their historical origins. “It was critical that the windows were made of high-energy performance material to attract warmth in the winter and deflect heat in the summer,” he explained.

As a consequence, rather than using traditional clear glass, each window was constructed with *Solarban*[®] 60 glass by Vitro, a state-of-the-art solar control, low-e glass that transmits high levels of natural light, yet helps buildings stay cool by blocking the warming rays of the sun.

In a standard 1-inch insulating glass unit, *Solarban*[®] 60 glass delivers a solar heat gain coefficient (SHGC) of 0.38, which means it blocks 62 percent of the total solar energy, while enabling 70 percent of the available visible light to pass through. The result is an exceptional light to solar gain (LSG) ratio of 1.63, along with a winter nighttime U-value of 0.29 that denotes excellent insulating performance.

The new windows at Eastern High School combine *Solarban*[®] 60 glass with laminated glass for enhanced energy performance and sound control. Frames are coated with DURANAR[®] fluoropolymer coatings by PPG in a Colonial tint to match their historic color and to provide added durability and colorfastness. Made by PPG with a proprietary blend of pigments, solvents and fluoropolymer resins, DURANAR[®] coatings are regarded as the industry’s best choice for the long-term protection and beauty of metal panels, frames and architectural components.

Other glazing projects included the restoration of a skylight over the gymnasium, which also had been covered for years, and the installation of skylights over two courtyards that were converted from open-air spaces for year-round use.

Along with high-performance windows and glazings, Schmidt and his team incorporated a wide range of green design elements to enhance the sustainability of the building. A low-energy HVAC system complements energy-efficient, water-source heat pumps and an energy-saving lighting system that is triggered by occupancy sensors. To improve the learning environment, all ceilings and walls have acoustic panels that absorb reverberation and decrease transmission of sound through walls. Low-VOC paints and coatings were used where possible.

Schmidt was pleased with the performance of both the window glass and its suppliers. “*Solarban*[®] 60 [glass] met our strict performance criteria, plus [Vitre] and its partners coordinated our demand for supply seamlessly,” he reported, adding that his biggest challenge was timing. “We had to finish the project in less than 16 months.”

Despite the tight deadline and the difficulties of incorporating new green technologies into a large, historic building, Schmidt believes the renovation project will eventually earn LEED Silver at a minimum, with the possibility of LEED Gold. “Ultimately, we were able to honor a historic building by respecting its exterior legacy and modernizing its interior,” he added.

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