Case Study

Sustainable

Education

PROJECT CREDITS

Owner
Harvard University

Architect/Designers
Skidmore, Owings and Merrill
San Francisco, CA

Vitro Products
Solarban® 70XL glass

Glazing Fabricators
Solar Seal
South Easton, MA

Glazing Contractor
Ipswich Bay Glass Company
Rowley, MA

Solarban® 70XL glass provides maximum daylight and excellent solar control, mitigating the need for artificial lighting and cooling.

Northwest Science Building Harvard University

CAMBRIDGE, MA

PROJECT BACKGROUND

The Northwest Science Building at Harvard University is a new, multi-disciplinary facility for the study of neuroscience, bio-engineering, systems biology and computational analysis. Opened for the fall 2008 semester, it was designed by Craig Hartman and the San Francisco office of Skidmore, Owings and Merrill (SOM) to foster collaborative learning through open, flexible laboratory space.

Because the building was situated near a residential area, there was a strong desire to connect it, both visually and practically, with the surrounding neighborhood.

Hartman used a number of strategies to achieve this objective. For one, he located more than 55 percent of the building's 470,000 square feet of operating space underground. Only the top four stories, about 210,000 square feet, are visible above street level.

The mass of the building is further mitigated by the choice of building materials. One façade is characterized by the use of *pucte*, a long-lasting tropical hardwood, while others are distinguished by traditional Harvard brick. These natural building materials, combined with landscaped green space and glass-enclosed circulation walkways, encourage foot traffic and help weave the building into the local streetscape.

The extensive use of glass, typically in combination with brick and wood, is another defining feature. The preponderance of glass is partially the result of SOM's affinity for sleek modernist design, but it also was integral to making the building brighter, more comfortable and more energy-efficient.

Keith Boswell, technical director for SOM's San Francisco office, specified the glass for the project. "When we looked at the building locale — and to provide maximum daylight for the interior spaces — we knew we needed a high-performing glass that was also highly transparent," he said. After looking at products from a number of manufacturers, Boswell and Hartman settled on *Solarban*® 70XL glass, a solar control, low-e glass by Vitro Architectural Glass (formerly PPG glass) that couples a clear glass appearance with high visible light transmittance and excellent solar control.

Vitro®

Northwest Science Building

Because of its ability to transmit light and block heat, *Solarban*® 70XL glass is nearly as pervasive inside the building as it is outside. In the laboratory and office areas, floor-to-ceiling glass walls allow natural light to reach the height of work desks. There's also a large, skylit concourse which functions as an informal meeting space between lecture halls and classrooms. The collaborative nature of the building is further emphasized by glass-enclosed, multi-story circulation spaces, which bring users together to elicit a casual sense of communications.

The airy brightness of the facility has generated universally positive feedback from the faculty and students, according to Boswell. "They are very satisfied with the amount of light that comes into the building and the views they have looking out," he explains.

Along with helping to promote happier students and teachers, the exceptional transparency of *Solarban*® 70XL glass diminishes the need for artificial lighting, which Hartman contends is the largest source of energy consumption in most commercial buildings. These cost savings are further enhanced by the glass's excellent solar control characteristics, which improve the thermal performance of the building's window and curtain wall systems, producing less strain on its heating and cooling systems.

The potential energy savings associated with *Solarban*® 70XL glass for academic buildings has been quantified in a study using the country's most sophisticated energy modeling software. The study shows that, when architects and building owners use *Solarban*® 70XL glass in place of dual-pane tinted glass, they can lower HVAC equipment costs for a standard, 200,000-square-foot middle school by up to $125,000. Annual energy costs also are reduced by as much as $17,000, or more than 5 percent.

Floor-to-ceiling walls made with *Solarban*® 70XL glass illuminate circulation spaces, which the architects designed to elicit collaboration and a sense of casual community.

The extensive use of *Solarban*® 70XL glass in combination with glass, brick and wood helps weave the building into the campus landscape.

For more information about *Solarban*® 70XL glass and other architectural glasses by Vitro Glass, visit **vitroglazings.com**, or call **1-855-VTRO-GLS (887-6457).**

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