Case Study

SUSTAINABLE

OFFICE

Bullitt Center

SEATTLE, WA

Owner
Bullitt Foundation

Architect/Designers
The Miller Hull Partnership LLP

Vitro Products
Solarban® 60 glass
Starphire Ultra-Clear® glass

Curtain Wall Designer
Schuco USA
Newington, CT

Glazing Contractor/
Curtain Wall Fabricator
Goldfinch Brothers
Everett, WA

Glass Fabricator
Northwestern Industries, Inc.
Seattle, WA

The signature design element of the six-story Bullitt Center in Seattle is the "irresistible stairway," featuring *Starphire*® glass by Vitro Glass, providing panoramic views of Seattle and Puget Sound.

PROJECT BACKGROUND

Bullitt Center, regarded by many as the world's greenest commercial office building, was designed by The Miller Hull Partnership to demonstrate how buildings can function as completely integrated, self-sustaining, living organisms.

In developing the six-story glass and metal mid-rise, lead design architect Brian Court and building performance specialist Jim Hanford specified hundreds of sustainable building products and implemented dozens of design strategies. Together, they enable Bullitt Center to execute its core performance functions while generating or renewing, on-site, 100 percent of its energy, water and waste management functions.

Hanford said the fenestration system was critical to enabling the Center to attain its ambitious energy and environmental performance goals.

Vitro®
Architectural Glass

Bullitt Center | Seattle, WA

The Bullitt Center, regarded by many as the world's greenest commercial office building, was constructed with *Solarban*® 60 solar control, low-e glass and *Starphire Ultra-Clear*® glass by Vitro Architectural Glass (formerly PPG glass).

As part of a sophisticated curtain wall assembly designed by Schuco USA and fabricated by Goldfinch Brothers, the system incorporates triple-glazed insulating glass units (IGUs) framed in aluminum and glazed with two lites of *Solarban*® 60 solar control, low-e glass to provide window system U-values as low as 0.17.

"We specified *Solarban*® 60 [glass] because it provided the best balance of thermal performance, solar control and daylighting performance to meet the needs of the project," Hanford explained. "To allow daylighting deep into the floor plate, we knew we would need large glass areas with high visible light transmittance. To offset the heating load penalty of the large glass areas, we wanted to get the lowest possible heat loss rate, and that meant using a product such as *Solarban*® 60 glass with argon fill in the insulating glass units.

"Because we have a long history of using *Solarban*® 60 [glass] on other projects, we knew we would be comfortable with how it looked on the building," he added.

In addition to the large windows, *Solarban*® 60 glass was used to fabricate the entrance and interior doors and operable skylights, which were reinforced with a translucent laminated interior lite. The fenestration system, together with the high ceilings, enables Bullitt Center to draw more than 80 percent of its lighting needs from the sun. The curtain wall also is equipped with manual and motor-controlled openings to facilitate passive cooling and natural ventilation, along with retractable external blinds to help block solar heat.

Another Vitro product, *Starphire Ultra-Clear*® glass, is integral to the building's signature design element, an irresistible stairway that entices occupants to climb steps instead of riding the elevator by furnishing panoramic views of downtown Seattle and Puget Sound. With visible light transmittance (VLT) of at least 90 percent, in thicknesses ranging from 3 to 19 millimeters, *Starphire*® glass is the industry's most transparent architectural glass.

To help achieve net zero-energy performance, Bullitt Center is fortified with a photovoltaic array that generates 230,000 kilowatt-hours of electricity per year, a ground-source geothermal heat exchange system, and radiant floor heating and cooling systems, which combined to reduce energy use by 83 percent compared to a typical Seattle office building.

Water efficiency is 80 percent greater than comparable buildings due to a 56,000-gallon rainwater collection cistern, greywater reclamation, composting foam flush toilets, a rainwater filtration system for potable water use, a green roof and a constructed wetland.

Bullitt Center is seeking to become the first office building to earn certification through the Living Building Challenge™, the world's most difficult and advanced sustainability standard for buildings.

To learn more about *Solarban*® 60 glass and *Starphire Ultra-Clear*® glass and other high-performance glass products by Vitro Glass, visit vitroglazings.com or call 1-855-VTRO-GLS (887-6457).

Vitro® Architectural Glass