

Case Study



Pittsburgh International Airport Terminal

PITTSBURGH, PENNSYLVANIA

Owner

Allegheny County Airport Authority

Architect

Gensler, HDR and
luis vidal + architects

Vitro Products

Solarban® 72 Starphire® 10mm
Glass (Exterior)

Starphire® Glass (Interior)

Vitro Certified® Fabricators

Press Glass (Exterior)
United Plate Glass Co. (Interior)

Glazing Contractor

D-M Products, Inc.

General Contractor

PJ Dick

Photographer

Ema Peter



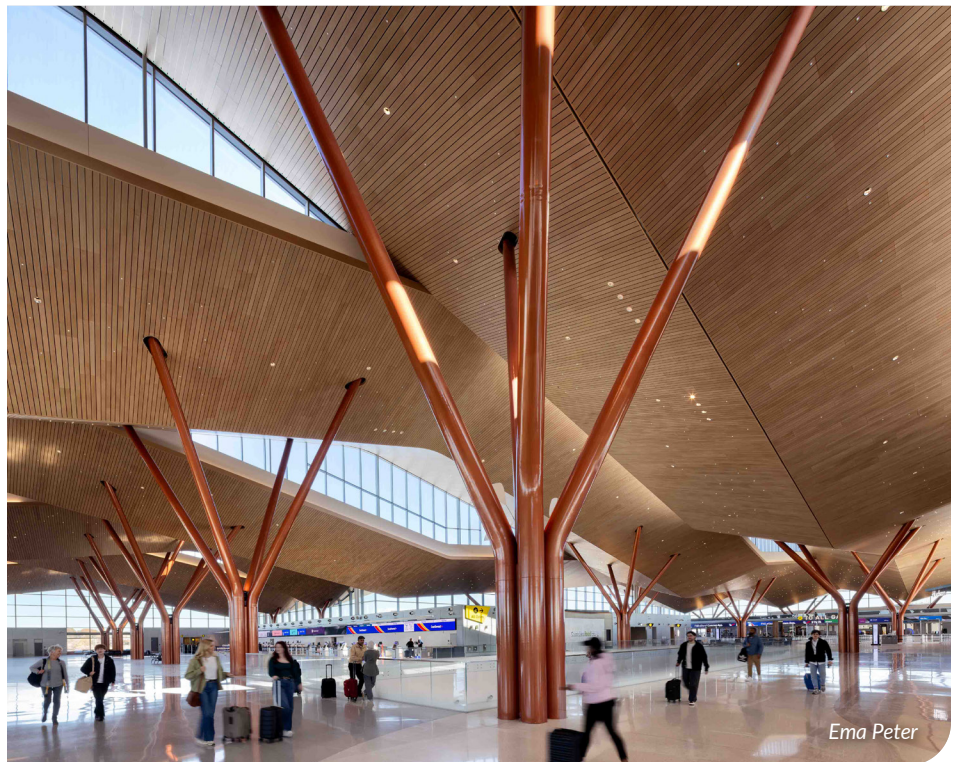
Ema Peter

PROJECT BACKGROUND

After operating from a largely windowless terminal since 1992, Pittsburgh International Airport was ready for a transformative upgrade. In addition to eliminating the landside-to-airside tram journey and consolidating airport operations, facilities and services inside a more efficient layout, the airport was looking to create an authentic “Welcome to Pittsburgh” experience.

The city also wanted the new terminal to present Pittsburgh’s evolving identity in transitioning from the Steel City to a major hub of higher education, integrated technology and medicine.

As part of the plan conceived by Gensler, HDR in association with luis vidal + architects – which reinvents the terminal as a large tree canopy—large clerestories were designed to flood the terminal with daylight while creating the effect of filtered sunlight passing through a tree canopy.



Ema Peter

With steel beams replicating tree trunks and an extended, curvy timber ceiling resembling a tree canopy, the new Pittsburgh International Airport Terminal, daylit with Solarban® 72 Starphire® clearstory windows, is the new gateway to the city.

Pittsburgh International Airport Terminal | Pittsburgh, PA

With this design objective, the team was seeking a clear, transparent glass with solar control to help mitigate the large cooling loads of the expansive 811,000-square-foot terminal.

"Our overall strategy was to find a glass that could be as close to clear as possible but would provide balance with our mechanical system so as not to add load, thereby increasing unit size and operational costs," explains Carolyn Sponza, project director, Gensler, Pittsburgh.

In searching for the right solution to glaze the clerestories, which weave above and below the terminal's dropped timber ceiling, the team considered a product with a visible light transmittance (VLT) of 70%. While this solved the issue of clarity, the trade-off would have been a solar heat gain coefficient (SHGC) of 0.38, which would have allowed too much solar heat to enter.

Eventually, the team discovered that a still-high VLT of 68% could be delivered with a significantly lower SHGC of 0.28 via *Solarban® 72 Starphire®* glass by Vitro Architectural Glass, a solution supported through Vitro's Signature™ program

To verify these values and compliance with the ASHRAE Energy Sim Standard, the engineer Buro Happold used Integrated Environmental Solutions' modeling software.

"This helped us validate the performance of the glass within the overall strategy," explains Sponza.

With the right aesthetics and thermal performance levels in place, the daylight design could blend with the 38 unique, architecturally exposed structural steel (AESS) copper-coated hollow beams resembling tree trunks attached to a wavy wood ceiling referencing the rolling hills of the Allegheny Mountains.

"The undulating roof design is intended to evoke impressions of being under a tree canopy. The shifting light from the clerestories is like dappled sunlight that filters down through the leaves," relates Sponza.



Solarban® 72 Starphire® glass delivers the desired balance of clear optics, daylighting and solar control for the terminal.

The curvature of the roof also acts as a wayfinding strategy, directing travelers from the curb to the security checkpoint, which is enhanced by the ample sunlight brightening the terminal. Outdoor terraces featuring native plants, walkways and benches further strengthen the connection between the terminal and the surrounding landscape.

The glazing plays a central role in translating the architects' vision into a functional passenger experience. This balance of daylighting, clarity and solar performance was particularly important given the scale of the clerestories and the airport's continuous, around-the-clock operation. Rather than forcing a compromise between aesthetics and performance, the glazing solution enabled both, preserving crystal-clear views, enhancing visual comfort and supporting the energy-efficiency goals of the project.

Throughout the terminal, interior glazing helps maintain visual connections across ticketing, security, concessions and circulation areas, reinforcing the project's emphasis on openness, daylight and intuitive wayfinding. By allowing natural light from the clerestories to penetrate deeper into the building while preserving clear sightlines, interior glass supports the terminal's welcoming atmosphere and contributes to the seamless passenger experience.

The high-performance glazing is also contributing to the project's noteworthy achievement of LEED® Gold certification. Given the extreme energy demand, 24/7

operation, heavy equipment loads and complex ventilation needs inherent in airport operations, this is a fairly unique and significant undertaking. *Solarban® 72 Starphire®* glass contributes to LEED's operational and material sustainability requirements thanks to its low embodied carbon profile, energy-efficient performance, third-party verified Environmental Product Declarations (EPDs) and *Cradle to Cradle Certified®* status.

Additional sustainable design features include rainwater harvesting, locally sourced materials and an on-site microgrid that enables the airport to generate its own electricity, a feat that helped this project secure the Vanguard award from the Green Building Alliance. Commissioned in 2021, the 23-megawatt microgrid integrates natural gas generation with nearly 10,000 solar panels, improving energy resilience while helping reduce carbon emissions.

Together, these strategies position the new terminal as a model for sustainable airport design, delivering a brighter passenger experience while supporting long-term operational efficiency and environmental performance.

We are proud to share that this project has been named Air Transport World's 2027 Airport of the Year, making it the first U.S. airport to win the prestigious global honor twice.

To learn more about *Solarban® 72 Starphire Ultra-Clear®* glass or to find a member of the *Vitro Certified®* Network, visit vitroglazings.com or call 1-855-VTRO-GLS (887-6457).

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