

Case Study



RETROFIT



SUSTAINABLE



EDUCATION

RIDC Mill 19

PITTSBURGH, PENNSYLVANIA

Owner

Regional Industrial Development Corporation (RIDC)

Architect/Designers

MSR Design
Minneapolis, MN

R3A Architecture
Pittsburgh, PA

Vitro Products

Solarban® 60 Glass, Solarban® 70 Glass

Vitro Certified® Fabricator

Trulite Glass and Aluminium Solutions
Cheswick, PA

Glazing Contractor

Gurtner & Sons
Pittsburgh, PA

PROJECT BACKGROUND

Formerly a thriving steel mill, the Jones & Laughlin (J&L) Steel Company significantly supported the War effort and helped make Pittsburgh the world's largest steel-producing city in the 1950s.

With the decline of the city's steel industry over time, eventually all that remained of J&L Steel was the Mill 19 site on the Monongahela River.

When Pittsburgh's Regional Industrial Development Corporation (RIDC) purchased the property, the developer was in a quandary over whether to demolish or somehow restore the abandoned mill.

"There was the 1,500-foot-long rusting metal structure that was an eyesore, but also an icon. So, we were confronted with the challenge of how we preserve the icon and turn it into something positive," relates RIDC President Dr. Don Smith.

Fortunately, MSR Design came up with a great idea—preserving the steel's exoskeleton, building a large solar array



Photos courtesy of Corey Gaffer Photography

Preserving the superstructure of an historic Pittsburgh steel mill, MSR Design inserted three interconnected buildings, and one of the country's largest solar roof arrays, now home to robotic, life sciences and AI companies inside the Regional Industrial Development Corporation's campus.

RIDC Mill 19 | Pittsburgh, PA

across the length of the roof and constructing new infrastructure for robotics, life science and AI companies.

“We briefly considered fully occupying the interstitial space between building and structure, but felt we needed to preserve the longitudinal views down the entire length,” relates Jeryl Aman, AIA, director of operations, MSR Design, Minneapolis.

So in lieu of recladding and building out the full volume of the old mill, three new connected buildings were erected inside the existing superstructure and the sloped roof was converted into a massive 110,000 square-foot solar array producing more than two million kilowatt hours (kWh) per year.

The team optimized the depth of the floor plate to be within 75 feet for enhanced daylight autonomy, to capture better air conditioning efficiencies and create a separation between the heritage shell structure and new buildings.

In order to create a comfortable, daylight space, much thought went into the selection of the glass. Based upon energy modeling performance data and a requirement to meet *Cradle to Cradle*® sustainability criteria, the architects went with *Solarban*® glass from Vitro Architectural Glass.

The 2023 AIA Committee on the Environment (COTE®) Top Ten Award Winner and LEED®-NC Gold-certified project is enclosed with *Solarban*® 60 glass windows and *Solarban*® 70 glass skylights.

MSR Design curated the varying sizes and shapes of the windows to create a rhythm of different scales that references the existing 25-foot structural bay. The daylighting design also achieves the project’s goal of 65% spatial daylight autonomy.



Photos courtesy of Corey Gaffer Photography

Solarban® 60 glass windows and *Solarban*® 70 glass skylights provide transparency and daylighting within the interstitial space between the historical steel cladding and new tech buildings.

The architects designed monumental interior vertical stairs to cantilever toward the superstructure to link occupants within the common spaces to the historic steel exterior.

“We wanted the experience of the superstructure to be connected to the workplace environment of the interior, and the rhythm of the windows provides those regular opportunities throughout,” explains Aman. In addition, “We provided more glass in certain areas where we felt a more activated ground floor might someday take hold.”

The resulting enclosure design delivers mottled light filtering down from the bifacial solar array overhead, daylighting to 88% of the regular occupied areas and exterior views of the Monongahela River, downtown Pittsburgh and growing redeveloped Hazelwood Green district.

The *Solarban*® 60 glass windows block 61% of the sun’s solar energy while ushering in 70% of the visible light. And with the *Solarban*® 70 glass skylights, 73% of the solar heat gain is kept out and 64% of the light shines through.

Balancing performance and cost, the design limited the height of the glass panes to no taller than 143 inches. This way the 144 ¼-in. lites are supported without paying an oversized glass premium and losing an inch of glass transparency through the insulating glass unit (IGU) fabrication process.

Reflecting on the project, Aman notes, “The project provides a public promenade to help bridge the community’s connection to the new development and the artifact that is the mill structure. The amount of public circulation, gathering, recreation and reflective space for a privately developed and leased office development is remarkable.”

Commenting on the unique statement this creative adaptive reuse project makes, RIDC Senior Vice President of Development Tim White comments, “The marriage between the new and the old, the industrial past and the new high-tech, super energy efficient buildings made a great statement for where the site was and where the site is going.”

To learn more about *Solarban*® 60 glass and *Solarban*® 70 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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