

ST. GEORGE FERRY TERMINAL

Steel Brings a New Light-Filled Waiting Room
to Staten Island Ferry Commuters

While the Staten Island Ferry has for years been a favorite with tourists in New York City—a scenic boat ride from which sightseers may marvel at the Statue of Liberty and the throng of towers vying for supremacy on Manhattan’s skyline—the St. George Ferry Terminal, where passengers disembark on Staten Island, has until recently provided a rather anticlimactic destination for the celebrated trip. As visitors’ first impression of Staten Island, and as a commuter port for the borough’s 400,000 inhabitants, the building comprises not only the ferry terminal, but also the northernmost station of the Staten Island Railway and the island’s bus depot. Yet this multi-function gateway was for 55 years housed in a dreary, brick-walled building with little natural light. Thus, when architecture firm Hellmuth, Obata + Kassabaum (HOK) was asked to renovate the complex—a project overseen by the New York City Economic Development Corporation (EDC) on behalf of the City and the City’s Department of Transportation (DOT)—they knew that they had a worthy task ahead of them.

The architects were faced with several challenges. For example, they had to keep the building’s existing columns and foundation system, which not only constrained the plan but limited the amount of weight they could

add to the structure, making steel an obvious choice as opposed to heavier concrete. An even greater hurdle, attests Kent Turner, senior principal at HOK, was “keeping the terminal operational during construction.” Sam Alacha, of the project’s contracting firm, Skanska USA Building, explains, “It’s an occupied facility with 60 to 70 thousand passengers per day, so we had to confine construction to small areas.” “This was especially hard in the waiting room,” he reports, where his crew demolished a 20-foot-high ceiling and replaced it with a new, sloped ceiling that reaches heights of 30 to 40 feet. To protect commuters from falling debris, a temporary platform made of steel supports and a steel deck topped with plywood was installed below the overhead construction.

Once the ceiling was lifted to its new height, the resulting clerestories transformed the waiting room, bathing the space in generous amounts of natural light. The use of steel enabled efficient construction, explains Alacha, because unlike concrete, which requires shoring time, the metal elements, such as the Y-shaped columns supporting the roof, were simply erected in place. The legs of the Y-frames, which rest on top of existing columns, are built-up I-sections that taper at the top. The top of the Y is an



LEFT, OPPOSITE The 350-foot painted steel arch echos Staten Island’s bridges.



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ASTM A572 Grade 50 custom fabricated plate girder assembly, with flange plates that are 12 inches wide by 5/8 inch thick, and a 3/8-inch-thick web plate. “Most plate is A36,” said Kevin Philips of Owen Steel, the structural steel fabricator of the project. “However, this special design required mill ordered ASTM A572 grade 50.”

Steel was also vital in bridging the long spans demanded by the decked roof, which is made up of a 3-inch 20 gauge galvanized roof deck, type N1, as well as 30-inch girder beams—which are fabricated from 50 ksi 30W132 rolled sections—and 16-inch-deep purlins spanning 35 feet from girder to girder. Engineering principal-in-charge Akbar Tamboli of Thornton-Tomasetti Engineers reports, “Once we were able to get the metal deck in place, the roof was installed in large pieces and at a fast speed.” The pieces were brought in pre-assembled and were bolted and welded onsite. The architects also replaced the existing brick walls with glass, installing a forty-foot-high curtain wall along the waterside to reveal an expansive view of Manhattan across New York harbor. Additional light pours into the building through new skylights above the retail corridor, where 7,000 square feet of space was added. Two new observation decks provide more views.

To create a strong aesthetic identity on a limited budget the architects eschewed extraneous ornament in favor of streamlined, exposed steel structural details, such as the custom-fabricated components connecting the roof to the steel columns above the waiting room. The connections are shop-welded onto the Y-frames, as are machined assemblies connecting to the 30-inch-deep rafters, with 3-inch pins through 1 1/2-inch-thick plates holding everything together. Steel supports on the perimeter of the waiting room were set on an angle to imbue the space with a dramatic, soaring presence. But, for expediency, construction was kept as straight-forward as possible.



To this end, the building’s carbon steel louvered sunscreen was fabricated offsite and then bolted onto the structure.

The project’s crowning visual statement is a 350-foot arch of painted steel that is illuminated at night and echoes the shapes of the bridges serving Staten Island. The arch is made of 7/8-inch-thick, 10 3/4-inch-diameter steel pipes welded together with complete penetration welds, and is supported by four plate box columns made from ASTM A572 Grade 50 plate. The plate ranges in thickness from 1-inch to 1 3/4-inch, and columns taper from a 14-inch-by-28-inch base. Says Turner, “The arch creates a visual anchor for the facility, because the complex is so spread out. And it celebrates the public space, which connects to the nearby ballpark.” Tamboli adds that steel was vital for the arch, because, “the foundation and structure had a limited capacity, so weight was an issue—and aluminum would have been too costly.”

Not solely concerned with the project’s surface appearance, the architects, engineers, and contractors worked together to make St. George the first LEED accredited intermodal transportation terminal. Still awaiting certification, the team is aiming for a Platinum rating. In this vein, the project has a quarter acre green roof with its own irrigation and water recycling system. Tamboli asserts that the steel elements were also an environmental choice, because they are recycled scrap metal.

While the project team worked to realize all the new elements of the improved ferry terminal, passengers had to endure scaffolding and equipment that made the facility “dark and gloomy,” says Alacha. But he proudly reports that, after the \$130 million renovated complex was dedicated on May 20, happy commuters told him that it was worth the wait. And due to the speed made possible by steel construction, the wait lasted only a year and a half of building, from start to finish. ■

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OPPOSITE Custom-fabricated Y-frames support the raised roof.

TOP The roof was constructed above temporary metal decking.

BOTTOM During construction the waiting room remained in use.



ST GEORGE FERRY TERMINAL

Owner **NYC Economic Development Corp.** New York, NY
 Architect **Helmut, Obata + Kassabaum** New York, NY
 Engineer **Thornton-Tomasetti Engineers** New York, NY
 General Contractor **Skanska USA Building, Inc** New York, NY
 Structural Steel Fabricator **Owen Steel Company SC**
 Structural Steel Erector **AJ McNulty & Co, Inc** Maspeth, NY
 Ornamental Steel Fabricator and Erector **Post Road Iron Works** Greenwich, CT
 Miscellaneous Steel Fabricator and Erector **Transcontinental Steel** Newark, NJ
 Metal Deck Erector **A.C. Associates** Lyndhurst, NJ