

# JUSTICE for All

Staten Island's new courthouse consolidates multiple courts into an attractive facility highlighted by an AESS curtain wall.

BY JOSEPH YAMIN, P.E.



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**STATEN ISLAND** is a new center of justice for New York.

The recently completed 183,000-sq.-ft Staten Island Courthouse is a new governmental services building located in the St. George neighborhood. This six-story steel-framed building houses the New York Supreme Court, the Richmond County Criminal Court and related agencies. With its opening this past year, it was the first new freestanding courthouse constructed on Staten Island in over 80 years and will fulfill the modern programmatic requirements of the courts. The facility, which is managed by the Dormitory Authority of the State of New York (DASNY), includes a new courthouse, memorial green outdoor public space and a 660-space parking garage, and was built at an approximate cost of \$230 million.

Located a short walk from the Staten Island Ferry Terminal, the courthouse occupies a highly visible hilltop providing impressive views for court staff and visitors. The program space is organized in such a way that the structure forms four “towers of justice” containing the courtrooms, which can be seen when approaching the island from the ferry. Structural engineer LERA worked closely with Ennead Architects to devise structural

framing schemes that respected these courtrooms as well as the circulation corridors between them. This included locating the majority of the braced frames outside of the building core and placing them between the courtrooms and corridors. Also, the gravity columns were located at a 38-ft, 10-in. spacing to create a column-free courtroom space.

The north, south and west façades of the building are clad with architectural precast concrete and glass-fiber reinforced concrete (GFRC) panels. In addition, copper sheet cladding was incorporated into the façade and public waiting and circulation areas. The east wall of the courthouse contains an architecturally exposed structural steel (AESS) frame—the majority of which is exposed to view within 20 ft—that supports a three-story glass wall.

A ship's bulkhead served as inspiration for the detailing of the exposed frame, invoking a likeness to the familiar Staten Island ferry. This structure consists of tapered built-up columns with radial transitions to parallel outriggers. These outriggers support an HSS12×8 spandrel beam via an exposed pin detail. This spandrel beam was designed to be as shallow as possible to provide a mini-



### Unearthing Local History

During early site excavations for the project, several human skeletal remains were discovered unexpectedly. Subsequent archaeological investigations concluded that the site was formerly the home of the New York Maritime Hospital and Quarantine Station, which served as a quarantine for immigrants coming to the United States, from 1799 to 1858. In order to preserve this historic site and serve as a remembrance of those who were buried there, a "Memorial Green" public space was incorporated. The Memorial Green is surrounded on all sides with architectural concrete retaining walls designed to match the precast panels on the courthouse. The walls are located to respect the boundaries of the unexamined cemetery.

- ▲ The six-story building was built at an approximate cost of \$230 million.
- ▼ Renderings of the east curtain wall.



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- ◀ ▼ The recently completed 183,000-sq.-ft Staten Island Courthouse houses the New York Supreme Court, the Richmond County Criminal Court and related agencies.



**Joseph Yamin**  
([joseph.yamin@lera.com](mailto:joseph.yamin@lera.com)) is an associate with Leslie E. Robertson Associates (LERA) in New York.





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mal sight line through the curtain wall and it spans the building's typical bay spacing of 38 ft, 10 in. while supporting the edge of the corridor between courtrooms. For stiffness and vibration serviceability requirements, intermittent supports were introduced to reduce the overall span of the spandrel beam; these supports are in the form of 1½-in.-diameter exposed steel rods in a "trapeze" pattern (a nickname the designers gave the pattern since it reminded them of two acrobats on a trapeze in mid-swing) connected to the outriggers with custom AESS brackets.

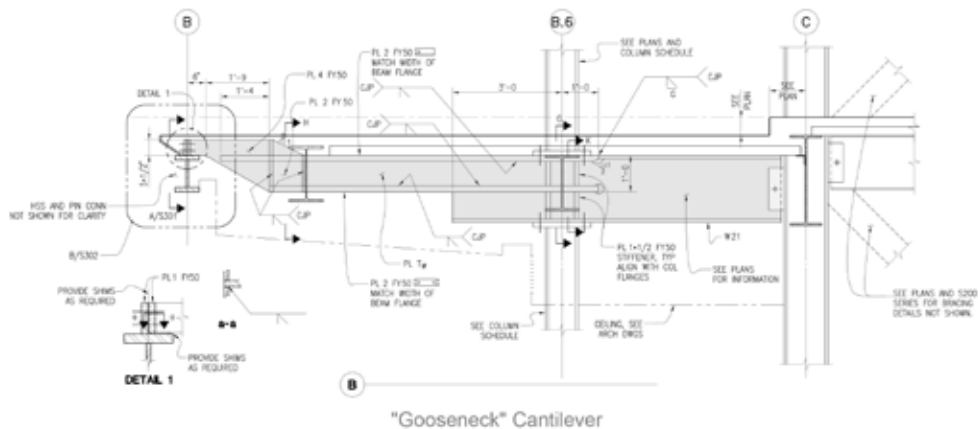
Owing to the AESS nature of the east curtain wall frame and the fact that it supports an egress corridor, the frame was required to be analyzed for and capable of withstanding fire conditions. The result of these studies led to the design of a redundant supporting system whereby the entire frame can be supported by secondary fireproofed cantilevers from the main building columns in the event of a fire. In order to maintain the minimal sight line requirement, these cantilevers, known as "goosenecks," were designed as built-up sections cantilevering 10 ft and tapering down to a depth of just 5½ in. The goosenecks connect to the top flange of the exposed steel outrigger, which has two benefits: It hides the supporting connection in the concrete slab and provides the necessary fireproofing for that connection. In all, the east curtain wall is an iconic feature of the courthouse, serving as a symbol of transparency and connectivity to the surrounding community. ■



LERA

▲ Close-up of an AESS pin.

▼ A detail of the gooseneck cantilever assembly.



"Gooseneck" Cantilever

**Owner**

Dormitory Authority of the State of New York (DASNY)

**Architect**

Ennead Architects, New York

**Structural Engineer**

Leslie E. Robertson Associates (LERA), New York


**Construction Manager**

Jacobs Engineering, New York

**General Contractor**

Delric Construction, North Haledon, N.J.

**Steel Fabricator and Detailer**

Owen Steel Company, Inc.,  Columbia, S.C.