Hunter's Point Campus anchors Hunter's Point South, the Long Island City neighborhood master-planned by FXFOWLE; it marks the eastern edge of the Hunter's Point South Waterfront Park designed by Weiss/Manfredi and Thomas Balsley Associates.

Hunter's Point Campus

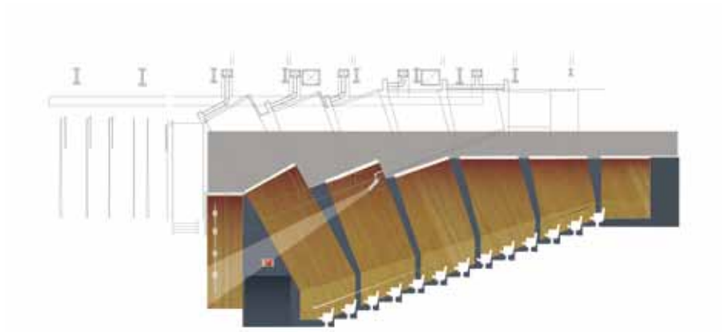
Structural steel allows a school to maximize its efficiency with a centrally located auditorium amid long-span spaces for varied student activities.

A FACETED FORM WHOSE IRON-SPOT brick exterior is slashed in orange Alucobond panels, the recently opened Hunter's Point Campus appears like an outcropping that fierily erupted on the East River shoreline—or at least a cool incubator of up-and-coming Queens creatives. The five-story, 145,000-square-foot building by FXFOWLE is actually home to 1,071 combined students of the Academy for Careers in Television & Film high school, Hunter's Point Community Middle School, and the Riverview School for special education.

An unexpected appearance was exactly the point of the design, according to FXFOWLE principal Nicholas Garrison, who also is design director of the firm's cultural/education practice. "So many schools are very playful, like an adult's idea of what a kid would like," says Garrison. Instead, the architects "thought of it as this eroded form that could have been sculpted by the river or wind, and as a backdrop to the new Hunter's Point South Waterfront Park."

Before it could arrive at its geological metaphor, the design team first had to decipher a site it likened

This page, clockwise from left The library serving the entire Hunter's Point Campus is co-located with the Riverview School on the second floor. Sunlight pours through the gymnasium's Kalwall skin to illuminate W14x190 steel columns and W14x132 steel beams. The building's wedge-shaped glazing permits daylighting of circulation spaces.
Facing, top The auditorium fills the third and fourth floors of the campus, so that students from the Academy for Careers in Television & Film and Hunter's Point Community Middle School may access the space separately.
Right This sectional drawing of the auditorium shows the W30- and W27-section transfer beams that span the room, as well as the relationship between structure, systems, and acoustical finishes.



Previous page left: © David Sundberg/Esto; previous page right: FXFOWLE

Facing page and top: © David Sundberg/Esto; bottom: FXFOWLE

to a pork chop. It wraps the north and west sides of a multifamily plot in Long Island City's 30-acre Hunter's Point South neighborhood, whose mixed-use master plan FXFOWLE completed for the City of New York in 2008. An easement for the Queens Midtown Tunnel takes a nibble from the southwest part of the L shape.

"After deciding to make a school that doesn't pander to kids, our next decision was how to fit the building on this odd footprint," Garrison says. Of half a dozen schemes, one that inserted an auditorium into the building core proved so efficient that it saved constructing an extra floor. Placing this double-height space within the third and fourth floors also entailed single-loading classrooms along the perimeter, mostly along elevations facing away from the future apartment tower—maximizing daylight and easing traffic in stairs and corridors, as well. The school's other long-span interiors were positioned to similar multitasking effect. A ground-floor gymnasium allows students to move seamlessly between indoor sports and activities held in the adjacent park, and the cafeteria's top-floor perch makes certain that the best Manhattan views belong to the whole school community.

What is unusual is that the three major column-free spaces are not aligned vertically. With the largest of them located on the ground floor, transfers on the fifth and third floors accommodate the column-free planning requirements. FXFOWLE not only took these and other engineering solutions into consideration, but also celebrated them in the building's form.

The first facet in the outcropping-like design motif was generated as a response to the easement, for example: The gymnasium volume, which meets the zoning setback requirements, pulls back at its southwest corner to circumvent the easement, while the third floor of the building cantilevers over it. "Because we couldn't have any load bearing on the Midtown tunnel zone, the building's steel structure was designed to transfer loads accordingly away from the easement," points out Damian Monteiro, associate principal of structural engineer Ysrael A. Seinuk. "It's easier to bring the load inboard at the third floor to a column than to have a heavy strap beam picking up the corner of the building at the foundation level." In the resulting structure W14x190 steel columns load directly onto 50 isolated, reinforced-concrete caissons, which were specified for the foundation in the influence area (adjacent to the easement) to prevent vibration; W14x132 steel beams laterally brace the vertical members, and all steel in this configuration is ASTM A992.

The gym's diagonal braces are wide-flange, because FXFOWLE decided to expose them behind a Kalwall curtain-wall system. Lateral framing elsewhere in the building perimeter is typically constructed of HSS 6x6 ASTM A500 grade B diagonal members, W18 or W24 ASTM A992 beams and W12 ASTM A992 columns, which were strategically placed according to their architectural effect. Where interior spaces are not long-span, typical column bays measure 30 feet with infill beams spaced between 10 and 12 feet apart, again using ASTM A992. Beyond the influence area, the foundation comprises 80 steel H-piles driven to a maximum of 40 feet below grade. The ground floor is a 12-inch concrete framed slab.

Because the third floor must cross 80-foot spans in the gymnasium and support the double-height auditorium above, the structural design took deflection into account. "The School Construction Authority wants 24 feet of clearance in the gymnasium below," Monteiro explains, "By the time you subtract the auditorium floor thickness, you're left with a member 40 inches deep. Regular W40 rolled shapes did not meet our serviceability criteria, and W44s would not have met minimum clearance requirements." Consequently, ASTM A572 grade 50 plates were welded into plate girders that support the loads on the third floor, as well as plate girders that also support columns and loads from above. The two types of girders are 40 inches deep and vary in width, from 16 to 36 inches, to handle the anticipated deflection. The floor beneath the fifth-floor cafeteria represents a similar approach: W30s and W27 sections were employed for the transfer beams, since the overall load is less and the auditorium spans reach no more than 56 feet.

Chiseling out the southwest corner of the gymnasium "started the whole indentation on the south elevation of the building," Garrison says. Treating the condition as an opportunity for expression, FXFOWLE continued making non-orthogonal gestures, especially with slices into the iron-spot brick that allowed insertion of curtain wall to illuminate corridors.

The building's most dramatic departure from schools' typical box-like form is an open-air indentation on the top floor. Conceived as a penthouse terrace, the recessed area invites students to spend their cafeteria time out of doors, and a wedge-like canopy whose underside also is clad in Alucobond reflects the shapes outlined in orange that punctuate the envelope. The canopy also invokes FXFOWLE's neighborhood master plan from 2008, which made a special point of minimizing the visibility of air handlers and other rooftop mechanicals from the street. "That led us to looking at alternatives for raising the parapet," Garrison says. "It's angled up in such a way not only because it was interesting, but also to eliminate views of the equipment from ground level."

The canopy's asymmetric silhouette meant creating a parapet that reaches as much as 27 feet beyond the cafeteria for shading and rain shielding; the bottom of canopy is 17 feet above the cafeteria terrace. "Your standard School Construction Authority detail would be 3 ½ feet high, which we could easily achieve by cantilevering a parapet wall above the roof. But because the parapet walls around the perimeter of the building are so high along the north, south, and a portion of the east elevations, we decided to extend the building's steel columns as much as 8 feet, 10 inches above roof level and cantilever the parapet wall from that," Monteiro says.

This spread *Afterview* is a Percent for Art commission by Natasha Johns-Messenger that enlivens the cafeteria terrace's safety partition and echoes the orange Alucobond cladding the underside of the canopy 17 feet above.

Instead of creating a moment connection at the top of the roof-level steel column to restrain that cantilever, "we decided to create a frame with the column and canopy beam, and brace the frame on the roof level and the floor below, to resist the loads," Monteiro adds. The engineering team executed this shear connection with an eye to construction ease—fabricating the 27-foot-long projection, for example, on its sister column and shipping the hybrid to the site as a single member. The column splice is located approximately 10 feet below roof level, which corresponds to the typical splice location for the balance of the columns between the fifth floor and roof. The canopy's frames vary from W33x291 to W18x76 at its shorter end. The overall result not only shelters students as they watch the famous skyline across the water, but also crowns a local landmark for Long Island City residents to call their own. □

HUNTER'S POINT CAMPUS

Location: **1-50 51st Avenue, Long Island City, Queens, NY**
Owner: **New York Department of Education**, *New York, NY*
Architect: **FXFOWLE**, *New York, NY*
Structural Engineer: **Ysrael A. Seinuk, PC**, *New York, NY*
Mechanical Engineer: **Kallen & Lemelson, LLP**, *New York, NY*
Construction Manager: **Skanska USA**, *New York, NY*
Structural Steel Erector: **Weir Welding**, *Carlstadt, NJ*
Miscellaneous Iron Fabricator and Erector: **Transcontinental Steel, Inc.**, *Newark, NJ*
Ornamental Metal Fabricator and Erector: **Transcontinental Steel, Inc.**, *Newark, NJ*
Curtain Wall Erector: **Utopia Construction LLC**, *Farmingdale, NY*
Metal Deck Erector: **Canam Steel**, *South Plainfield, NJ*; **Weir Welding**, *Carlstadt, NJ*