

**The New York Landmarks Conservancy
Lucy G. Moses Preservation Awards
Nomination**



**George Westinghouse Career and Technical Education High School
105 Tech Place
Brooklyn, New York**

Exterior Restoration

SUPERSTRUCTURES
+ **ENGINEERS
ARCHITECTS**

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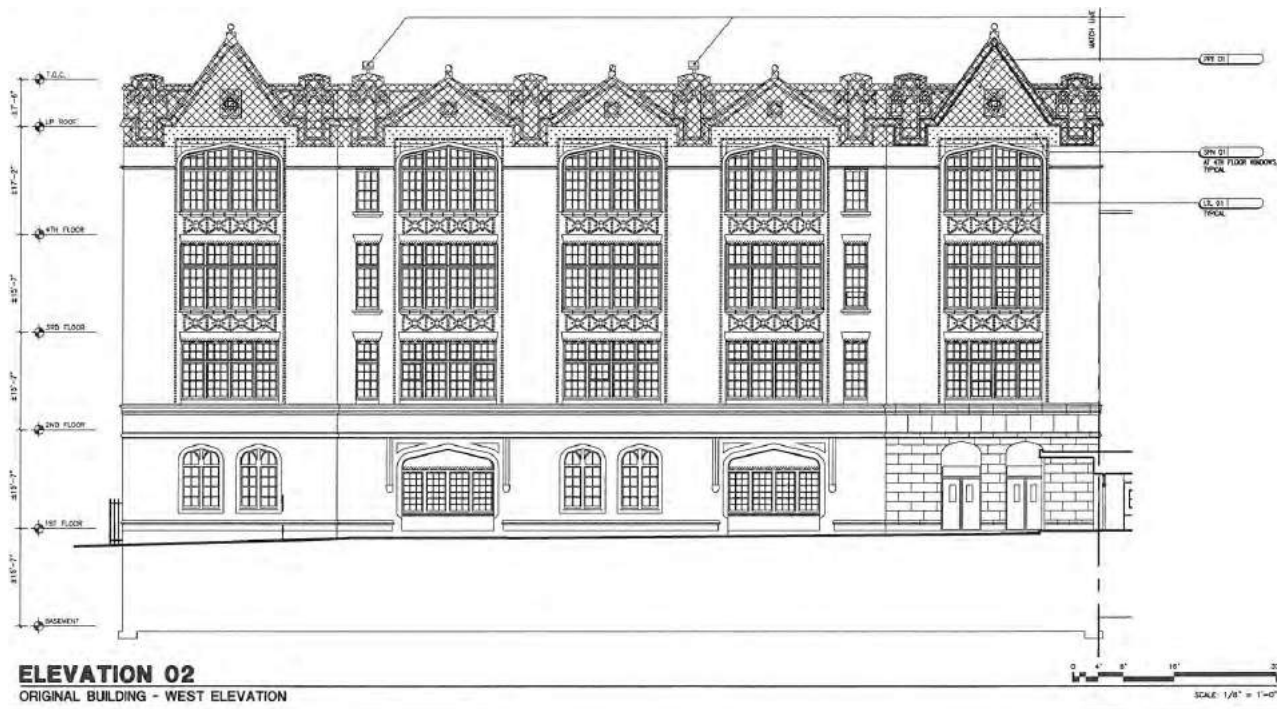
George Westinghouse Career and Technical Education High School, Tillary Street facade -- All photos by SUPERSTRUCTURES

Downtown Brooklyn's Architectural Gem Restored

The George Westinghouse High School building was completed in 1908, and is attributed to architect C.B.J. Snyder. As noted in the *Brownstoner*, "So many of the "givens" of what a school building should be were innovations introduced by Snyder during his tenure as Superintendent of Buildings for the New York City Board of Education, between 1891 and 1923... It [Westinghouse High] is not one of Snyder's famous H-shaped schools, but still incorporates his signature large and plentiful windowscape and other engineering innovations. It is in the English Collegiate Style, with architectural flourishes reminding one of the great colleges of Oxford and Cambridge, a style purposefully chosen to inspire students and parents alike." The building is not landmarked, but it is SHPO eligible, and as with other Snyder schools, its architectural, educational, and civic importance in New York City history is undeniable.

Historically, the school was called P.S. 5K, until the construction of an additional building in 1963. At that time, the school was renamed George Westinghouse High School, after the great American engineer George Westinghouse (1846-1914), a prolific inventor with over 300 patents to his name, among them the air brake system which revolutionized the railroad industry. Today, the school is known for its recent alumni, among them some of the most notable names in hip hop, including Jay-Z, Busta Rhymes, DMZ, and Notorious B.I.G. It has recently been divided into three smaller schools, all focusing on some aspect of a future career in technology.

The limestone base of the original 1908 building is visually prominent due to its light color, strong lines, and sparse ornamentation. Graphically tying the base to the upper floors, the original entry loggia on Tillary Street is set slightly back and breaks the strong upper boundary with delicately ornamented crenulations. This loggia contains a vaulted Guastavino tile ceiling. Above, bisque-colored brick facades vertically emphasize each bay of large dark windows with a crowning gable shape, a simple rectangular brickwork outline of single rotated bricks, and a lacy brickwork band of X's at each spandrel. A similarly bisque-colored terra cotta horizontal relief band strings together the window bays and runs along the springpoint of the pointed arch windows at the 4th floor level. It features miniature gargoyles at window jambs and building corners. Terra cotta also crowns the building with a detailed ornamental outline containing small pointed arches, large gable outlines, and ornate tracery, mimicking the X motif at the spandrels. The gables cause the parapets to vary in height from approximately 6 to 10 feet above the roof line. The interior courtyard facades consist of a stucco finish with terra cotta camelback copings and rectangular windows with recessed steel lintels and protruding stone sills.





George Westinghouse High School, 1960s addition at left along Bridge Street facade

The additional building, completed in 1963, was designed by Keally and Patterson Architects and is in stark contrast with the original building due to its red brick facades and horizontal relief consisting of buff bricks above and between the street facing windows. The additional building's parapets are brick masonry with cast stone copings and railings to achieve the required height of 42”.

The exterior restoration project completed in 2018 addressed the building components outlined on the following pages.

Sources: “Preliminary Submission to the New York State Historic Preservation Office from the New York City School Construction Authority” as prepared by SUPERSTRUCTURES Engineers + Architects; *Brownstoner*, January 10, 2102.

Parapets

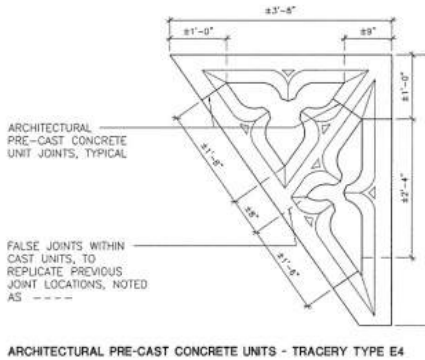
The entire street facing parapet was replaced in kind, to address extensive masonry deterioration - cracked, spalled and displaced terra cotta and bulging brick masonry as a result of corroding steel within the masonry walls. The off-street parapet was also replaced to address the deteriorated brick masonry, which was the cause of water infiltration into the interior of the building. Existing elements were carefully documented. All replacement masonry was selected to match existing materials in shape, color and texture. Architectural pre-cast concrete and glass-fiber-reinforced concrete were used in reconstructing the ornate parapet. SUPERSTRUCTURES wrote its specifications so that those two products would perform harmoniously and

Top left, bottom left, center and right: Parapet components before restoration. Top right: portion of restored parapet.



Parapets (continued)

were made by the same manufacturer to ensure their visual compatibility. This work included removal of brick masonry and terra cotta at parapet level, down to the 4th-floor window lintel level arch. Careful parapet design and detailing was required to accommodate support for masonry, flashing and moisture control, and allow for expansion and contraction, while exactly replicating masonry in scale, color, shape and detail. Exposed structural steel elements were cleaned and coated and reinforced where deterioration had occurred. New vertical expansion joints and through-wall flashings were installed. Interior finishes damaged by water infiltration were repaired. SUPERSTRUCTURES worked closely with manufacturers, MIA and the contractor to ensure project success.



Above: Detail drawing of pre-cast concrete unit for parapet. Top left, and bottom left, center and right: during demolition and construction of parapet. Top right: Portion of restored parapet and coping.



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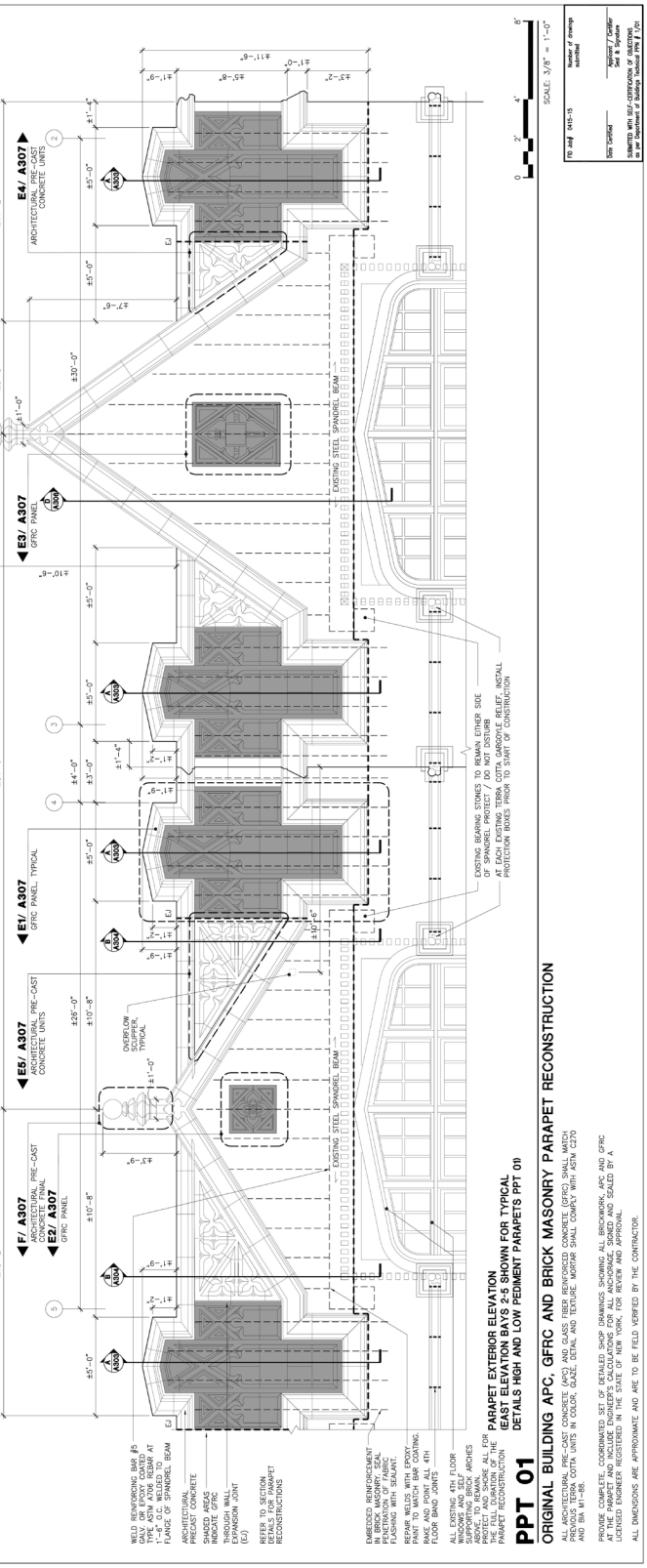
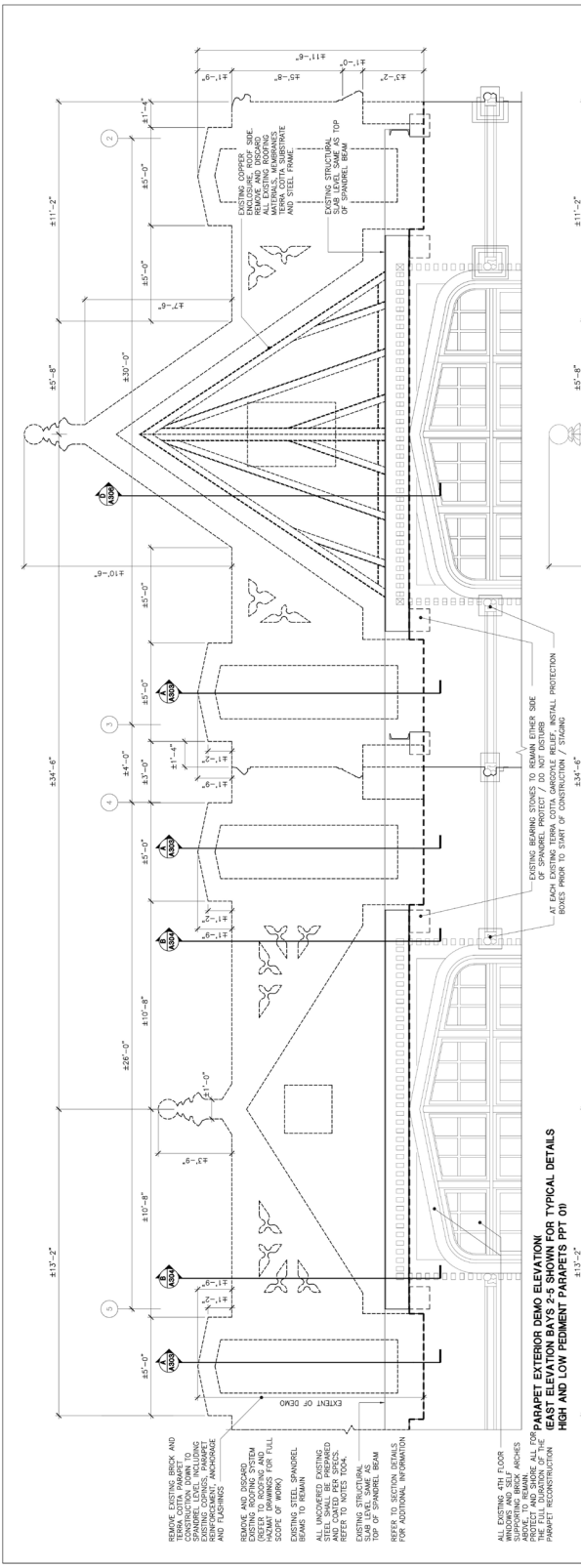
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NOTE: Drawing may be printed at reduced scale
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|--|-----------------------|----------------|
| No.: | Date: | Revision: |
| Key Plan: | | |
| Block # 131 | Lot # 1 | |
| SCA Design Manager: | CLEVELAND BRIBSON, PE | |
| Project Architect/Engineer: | JOHN SLETTER, IA | |
| Design Lead: | LUKE WEDGE, IA | |
| Designer: | BRIAN SCHUMDORF | |
| Drawn by: | LUKE WEDGE, IA | |
| Check by: | DOBILHIS | |
| Design No.: | K360 | Date: 07/31/15 |
| Project: | | |
| GEORGE WESTINGHOUSE H.S. BROOKLYN PARAPETS, ROOFS, EXTERIOR MASONRY AND FLOOD ELIMINATION ARCHITECT FACH ASS 105 JOHNSON STREET BROOKLYN, NEW YORK 11201 | | |
| Drawing Title: | | |
| PARAPET PART ELEVATIONS | | |
| Drawing No.: | A301.00 | |
| Sheets in Contract Set: | | |
| 2 of 34 | | |
| Sheets in PDF Set: | | |
| 2 of 48 | | |



REMOVE EXISTING BRICK AND TERRAZZO TERRAZZO COTTA FROM SPANDREL BEAMS INCLUDING EXISTING COPPER FLASHING AND FLASHINGS.

REMOVE AND DISCARD EXISTING ROOFING SYSTEM HAVING HUMAN DANGERS FOR FALL TO BE REMOVED. REFER TO NOTES TOOL.

ALL UNCOVERED EXISTING AND DANGERS FOR FALL TO BE REMOVED. REFER TO NOTES TOOL.

REPLACE WITH GFCRC FLASHING AND TERRAZZO COTTA UNDERLAYS AS SHOWN AT EACH END OF SPANDREL BEAM.

REFER TO SECTION DETAILS FOR ANCHORAGE INFORMATION.

ALL EXISTING 4TH FLOOR SUPPORTING BRICK ARCHES INCLUDING 4TH FLOOR ARCHES TO BE REMOVED AND DISCARDED. PROTECT AND SHORER ALL THE REMAINING BRICK ARCHES FROM COLLAPSE DURING PARAPET RECONSTRUCTION.

WELD REINFORCING BAR #5 GALL ON IN EMPTY CENTER OF EACH SPANDREL BEAM TO 1'-6" O.C. WELDED TO PRE-CAST CONCRETE.

SHADED AREAS TO BE DEMOLISHED THROUGH JOINT EXPANSION JOINT (E) DETAILS FOR PARAPET RECONSTRUCTION.

EMBEDDED REINFORCEMENT IN BRICK MASONRY SEAL FLASHING WITH SEAMANT. REPAIR WEILS WITH EPOXY RAKE AND POINT ALL 4TH FLOOR BOND JOINTS.

ALL EXISTING 4TH FLOOR SUPPORTING BRICK ARCHES TO BE REMOVED AND DISCARDED. PROTECT AND SHORER ALL THE REMAINING BRICK ARCHES FROM COLLAPSE DURING PARAPET RECONSTRUCTION.

ORIGINAL BUILDING AFC, GFCRC AND BRICK MASONRY PARAPET RECONSTRUCTION

ALL ARCHITECTURAL PRE-CAST CONCRETE (ACC) AND GLASS FIBER REINFORCED CONCRETE (GFCRC) SHALL MATCH EXISTING IN COLOR, GRAIN, DETAIL AND TEXTURE. MORTAR SHALL COMPLY WITH ASTM C270 AND BEA M1-98.

PROVIDE COMPLETE COORDINATED SET OF RETAINED SHIP DRAWINGS SHOWING ALL BROOKLYN, APC AND GFCRC AT THE PARAPET AND INCLUDE ENGINEER'S CALCULATIONS FOR ALL ANCHORAGE, SHARED AND SAVED BY A LICENSED ENGINEER REVISIONS IN THE STATE OF NEW YORK FOR REVIEW AND APPROVAL.

ALL DIMENSIONS ARE APPROXIMATE AND ARE TO BE FIELD VERIFIED BY THE CONTRACTOR.

PPT 01

PARAPET EXTERIOR ELEVATION
(EAST ELEVATION BAYS 2-5 SHOWN FOR TYPICAL
DETAILS HIGH AND LOW FEMMENT PARAPETS PPT 01)

SCALE: 3/8" = 1'-0"

TOTAL SHEETS: 34
SHEET NO.: 2 OF 34

DATE: 07/31/15

DESIGNER: L. WEDGE

CHECKED: D. BRIBSON

APPROVED: C. CARVER

PRINTED AT: SCA

PROJECT: GEORGE WESTINGHOUSE H.S. BROOKLYN

Guastavino-Tiled Ceiling

The arched Guastavino-tiled ceiling in the Tillary Street loggia, which had been damaged by water infiltration from above was fully restored. The entire first layer of tile was replaced. SUPERSTRUCTURES prepared custom specification for the work. The contractor hired a speciality subcontractor to carry out this portion of the restoration. The roof above the tiled ceiling was also replaced to prevent further water infiltration.

Top left: tiled ceiling before restoration. Bottom left and center: ceiling during construction. Top right and bottom right: restored Guastavino tile ceiling.



Exterior Masonry

The repair of exterior masonry included the following:

- Miscellaneous cracked/deteriorated face brick replacement. New brick and mortar matched existing in shape, color and texture,
- Machine tool cleaning, priming and painting of various lintels at various facade locations,
- Corner reconstruction of cracked brick masonry at addition building,
- Miscellaneous sealant replacement, where deteriorated, and
- Concrete patching at areaway curbs.

Top and bottom left: masonry prior to restoration. Bottom center and right: masonry restoration in progress. Top right: section of restored masonry.



Roofs

Existing flat, IRMA roofs and pitched standing seam copper roofs throughout the original building were replaced. The work included:

- Removal of existing deteriorated/leaking roofing systems,
- Installation of new steel bracing and new built-up roof systems,
- Replacement of roof drains,
- New copper standing-seam cladding and flat-seam roof at bulkhead.

Top left, bottom left: Roof prior to replacement. Top right and bottom center: roof after replacement. Bottom right: restored bulkhead.



SUPERSTRUCTURES



George Westinghouse High School 2018



2018/05/