

PROJECT

PS 14X

Bronx, New York

CLIENT

NYC School Construction Authority

Long Island City, New York

PROJECT DESCRIPTION

PS 14X was constructed in 1934 and has been plagued with moisture penetration problems for years, with associated steel corrosion, deterioration, and mold growth. The structural steel frame, encapsulated within the exterior masonry walls, was beginning to show signs of corrosion, and previous attempts to repair the building and eliminate moisture penetration were not successful. A repair scheme was developed to inject a mortar-like cementitious material into cracks and interior void spaces to fill moisture pathways and stabilize the remaining masonry. Large-scale water penetration tests showed the repair successfully eliminated over 98% of moisture penetration. The work was done with the building remaining fully operational and without altering the appearance of the historic façade. A cathodic protection system, designed and installed by our technical partners Masonry Solutions International and Electro-Tech Ltd., eliminates future steel corrosion and ensures a 75-year life for the existing repairs.



SERVICES PROVIDED BY ATKINSON-NOLAND

- Condition survey to identify damage throughout the exterior
- Generation of as-built wall section details using borescope investigations
- Water penetration testing using a field adaptation of ASTM E514
- Development of a injection protocol, including laboratory testing and development of the injection mix
- Nondestructive pulse velocity testing to determine wall solidity
- Quality control testing of pre-blended injection materials
- Quality assurance during repairs, using microwave radar to ensure proper filling of cracks and voids



Masonry Solutions International technician preparing the wall for injection. A cementitious injection material was specially formulated to be compatible with the historic brickwork. Water penetration was eliminated by injection of the material through small-diameter holes drilled into mortar joints to fill interior voids and cracks. Following injection, an impressed current cathodic protection system was installed to protect structural steel against future corrosion.



Atkinson-Noland & Associates
Consulting Engineers
www.ana-usa.com

2619 Spruce Street
Boulder, CO 80302
303.444.3620

32 Old Slip, 10th Floor
New York, NY 10005
917.647.9530