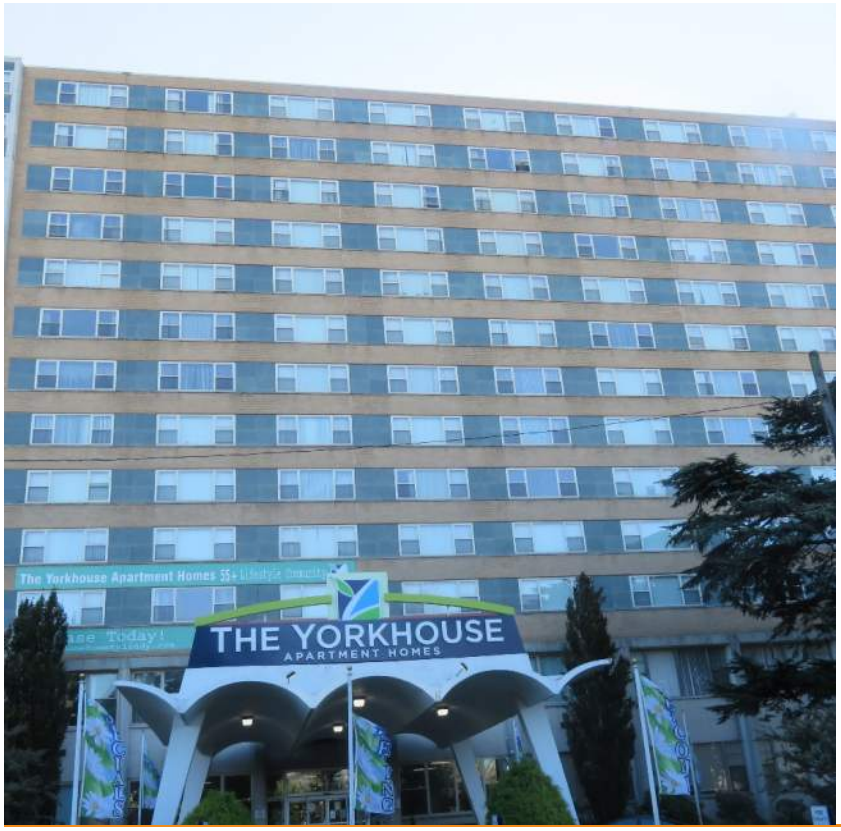
The York House Apartments 2021 Facade Inspection

Periodic Inspection of Exterior Walls and Appurtenances of Buildings per Philadelphia Code Section PM-315

5325 Old York Road, Philadelphia, Pennsylvania 19141



November 1, 2021
WJE No. 2021.5484.0

PREPARED FOR:
Mr. Brian M. Kroker
Lindy Property Management Company
309 York Road, Suite 211
Jenkintown, Pennsylvania 19046

PREPARED BY:
Wiss, Janney, Elstner Associates, Inc.
601 Walnut Street, Suite 875W
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WJE

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INTRODUCTION

Wiss, Janney, Elstner Associates Inc. (WJE) performed a facade inspection of the York House Apartments located at 5325 Old York Road in Philadelphia, Pennsylvania. The inspection was performed to assist Lindy Property Management Company (Lindy) with satisfying the requirements of the Philadelphia Property Maintenance Code, Section PM-315, "Periodic Inspection of Exterior Walls and Appurtenances of Buildings" (Code). This report summarizes WJE's observations during our visit to the site on September 24, 2021, provides our opinions on the probable causes of the noted deficiencies, and includes recommendations for repairs and maintenance.

Based on our observations, WJE has classified the building's exterior walls and appurtenances as **Safe with a Repair and Maintenance Program (SWARMP)** as defined in the Code. Repairs and maintenance should start as soon as possible and be completed prior to the next facade inspection in 2026. We noted one specific repair that is required to be completed prior to December of 2021. Reference the Recommendations section of this report for detailed descriptions.

This report is intended to satisfy the Code and is not intended to be a bidding document to implement repairs and maintenance. This report should not be used for bidding or construction purposes.

ADDRESS AND LOCATION

5325 Old York Road
Philadelphia Pennsylvania 19141

Nearest Intersection: The building is located near the intersection of Old York Road and West Fisher Avenue

BUILDING OWNER AND AGENT CONTACT INFORMATION

Owner's Agent:	Mr. Brian M. Kroker
Owner:	Lindy Property Management Company
Owner's Mailing Address:	309 York Road, Suite 211 Jenkintown, Pennsylvania 19046
Owner's Telephone:	267.300.6773

BUILDING DESCRIPTION

Building Height:	approx. 145 feet	**Tower Plan Dimensions:**	189'-6" by 58'-2"
Stories:	12	**Building Age:**	approx. 60 years
Exterior Wall Material:	Brick and concrete masonry unit composite masonry with ornamental stone	**Facade Water Management System:**	Masonry composite wall
Building Occupancy:	Residential, Group R-2		

The York House Apartment is a twelve-story, approximately 145-foot-tall multi-family apartment building, located at 5325 Old York Road, Philadelphia, Pennsylvania. The footprint of the building is approximately 16,992 square feet and is an asymmetrical T-shape building in plan. The overall approximate dimensions are 190 feet in the north-south direction and 179 feet in the east-west direction (see Photograph 1). The

building consists of a thirteen-story tower oriented in the north-south direction and an attached four-story structure on the east end of the site that is oriented in the east-west direction. Our inspection was focused on reviewing the conditions of the exterior wall assembly on the tower portion of the structure only. The building's primary public entrance is located on the west facade and is featured by a precast concrete barrel vault canopy. The canopy is not attached to the tower and was not included in the inspection. Emergency and service entrances are located on the east facade. Vehicular parking is available in the parking lot on the east side of the building and on the side of the surrounding streets. The overall building facades are shown in Photographs 2 – 5.

The building was constructed in 1964 with a reinforced concrete structural frame and is enclosed with composite masonry exterior walls with windows set within punched openings in the masonry facade. The composite masonry walls consist of a four-inch-thick clay brick veneer laid in a flemish bond pattern and anchored to a six-inch thick concrete masonry unit (cmu) backup wall. The header or tie bricks are located approximately every seven courses vertically and one brick horizontally. In addition to the brick masonry walls, between the regularly spaced windows are Virginia Greenstone (metamorphosed basalt) panels (See Photographs 2 and Photograph 5) secured to the 6" cmu. Through-wall flashing is specified on the architectural drawings above the window openings to facilitate drainage of water from the masonry wall. Cast stone panels define the base of the building and accentuate the verticality of the building on both ends of the west facade (See Photograph 4).

Fenestration generally consists of aluminum-framed double-hung windows and are arranged in a regular pattern on all facades. The size of the fenestration openings vary in width to accommodate a single double-hung window (located on the north and south facades), a pair of double hung windows, or a pair of double-hung windows straddling a large picture window (located on the east and west facades). All windows are finished with a three-inch thick precast stone sill along the base of the window.

BUILDING FACADE HISTORY

It is our understanding that a previous facade inspection and report had not been performed.

WJE was provided a limited set of the original architectural and structural drawings for the building that were prepared by Supowitz & Demchick Architects, dated March 12, 1963. The drawing set was approximately 90% complete. In addition, we were provided limited shop drawings of the original masonry and cast stone.

INSPECTIONS AND OBSERVATIONS

WJE performed an assessment of the facades on September 24, 2021 that included a physical hands-on inspection utilizing rope access techniques to access the facade at regularly spaced intervals. Between and adjacent to the rope-access drop locations, we also performed visual observations of the facade. WJE accessed the full height of the building at the following locations.

- 1 central location on the north facade
- 4 regular spaced intervals along the east facade
- 3 regular spaced intervals along the west facade
- 1 central location on the south facade.

Industrial rope access locations are indicated on Photograph 1.

The physical hands-on inspection included sounding of masonry surfaces, specifically spalls or potentially loose elements, probing and/or prying of mortar joints at isolated locations, and probing and/or prying of sealant joints.

Generally, the facade appeared to be in good condition. During our investigation, we identified the following facade conditions as **Safe with a Repair and Maintenance Program (SWARMP)**:

A summary of the deficiencies noted during our investigation is as follows:

- **Bulging greenstone panels** at the east facade, ground floor level, between the first and second windows just north of the south stair tower (see Photograph 6). We immediately notified you of this condition and a follow-up inspection was performed on September 30, 2021 after temporary bracing was installed by others. The follow-up inspection included removal of the two upper greenstone panels, and it was evident that the backup CMU wall was bulging approximately one-inch outwards between floor slabs (see Photograph 7). The wall and panels have been temporarily braced until a repair is implemented.
- **Incipient spall of greenstone panel** that was approximately one square foot in size located at the lower left-hand corner of the panel at the ninth story on the south facade (see Photograph 8). WJE removed the spalled material during the inspection.
- **Corroded steel relief angles** at all the visible locations on the facade. The severity of the corrosion varied from severe to mild. We observed lintels with a mild level of corrosion where pitting was present at the toe of the angle (see Photograph 9). The angles above the twelfth-story windows on all facades and isolated angles on the east facade at lower floors were severely corroded where layers of corrosion build-up were visible (see Photograph 10). We recorded approximately half an inch of corrosion build-up at the most severe locations. At the north elevation, and portions of the east elevation, the expansion of the steel angle is believed to be the source for the leaning parapet walls (see Photograph 11). At nearly all the steel angles, sealant was installed along their length at the brick bed joint above the steel angle (see Photograph 12). This practice will trap moisture and advance the rate of corrosion of the steel. The sealant was typically failing at these locations.
- **Displaced brick veneer** at three locations, specifically the parapet on the north facade, the parapet on the south facade, and a portion of the parapet on the east facade (see Photograph 13). The displaced brick ranged in size from approximately 30 square feet on the east facade to an excess of 50 square feet on the north facade. Additionally, bricks at the top of the chimney that extends above the roof were bulging and the coping stone was cracked and appeared displaced (see Photograph 14).
- **Cracked and scaled brick** on the east facade, north end, below open joints at windowsills (See Photograph 15). This was observed at each floor level above the eighth floor. The cracks were hairline in width and appeared to be limited to the kiln dried surface of the brick face. The bricks were sound when tapped with a hammer.
- **Vertical cracks in the brick** at isolated locations on the south and east facades (see Photograph 16 and Photograph 17). The cracks were typically a hairline to 1/4 inch in width and ranged in length from approximately two feet to over 20 feet in length.

- **Cracks in the cast stone sills** at isolated locations on the west and south facades (see Photograph 18).
- **Spalled and cracked cast stone** at two locations on the west facade (See Photograph 19 and Photograph 20). They were recorded at the sixth and tenth story levels and ranged in size from one-to-three square feet.
- **Deteriorated and open mortar joints** at multiple locations on all facades. Typical conditions included the vertical and horizontal joints between greenstone panels (see Photograph 21), precast stone sill units (see Photograph 22), and at multiple areas in the brick veneer on all facades (see Photograph 23). All the greenstone mortar joints appeared to be in poor condition with unbonded and partially open mortar joints. The mortar was frequently eroded and missing in the brick mortar joints directly above the steel lintels on all the facades, and more frequently near the upper floors of the building. These deficient mortar joint areas in the brick ranged in size from approximately 20 to 950 square feet.
- **Open termination and failing mortar at the flashing** over the cast stone collar banding on the west facade (see Photograph 24). The mortar is failing, unbonded, and the termination of the metal flashing is loose and separating in the cast stone joint. This condition will permit water infiltration that could damage cast stone masonry units and support structure below.
- **Adhesive and cohesive sealant failures** at control joints and at the perimeter of window and wall openings on all facades (see Photograph 25 and Photograph 26). Sealant failures were also observed at locations where sealant was installed at incorrect locations. These locations include at the toe of the relief angles (see Photograph 27), at the base of the greenstone panels (see Photograph 28), and along the bottom of sill units at the bed joints (see Photograph 29).

CLASSIFICATION OF BUILDING FACADE

Based on the definitions noted in PM-315, and our investigation of the facade, the building facade is classified as **Safe with Repair and Maintenance Program.** The definitions of the three classifications in the Code are as follows:

- Safe. A condition of a building wall or any appurtenance thereto that is neither an Unsafe condition nor Safe with a Repair and Maintenance Program.
- Safe with a Repair and Maintenance Program. A condition of a building wall or any appurtenance thereto or any part thereof that the Professional does not consider Unsafe at the time of inspections but requires repair or maintenance within a time designated by the Professional in order to prevent its deterioration into an Unsafe condition.
- Unsafe. A condition of a building's exterior wall or any appurtenance thereto or part thereof that is dangerous to persons or property and requires prompt remedial action.

ANALYSIS AND OPINIONS OF PROBABLE CAUSES OF REPORTED CONDITIONS

The deficiencies and damages noted in the Inspections and Observations section of this report are the result of material decline from long term exposure in the service environment, inadequate repair attempts that are detrimental to the long-term durability of materials, and a possible high wind event that caused localized damage at the east facade. The long-term exposure to moisture of the steel and masonry

materials has resulted in corrosion of the steel, cracking of the brick, and deterioration of the joint mortar. The durability of the masonry materials and steel relief angles are dependent on the wall assembly's ability to shed moisture. The inadequate repairs that included applying sealant in drainage planes will reduce the wall's ability to shed moisture and accelerate the rate of facade distress. Corrosion of embedded steel components has been accelerated by the lack of protective coatings applied to the steel and the deterioration of flashing that may be present.

The following deficiency descriptions explain our opinions for the probable causes or sources of noted deficiencies and their relationship to industry standard practices and building code requirements where applicable.

- The greenstone panels are bulging outward due to the CMU back-up wall also bulging. Observations of the wall from the interior revealed that the metal stud and plaster wall is not moving consistently with the masonry wall. Our limited investigation did not identify a single source for the bulging, but we did notice the CMU back-up wall was originally constructed with poor craftsmanship where the CMU wall had multiple voids (see Photograph 30). It is our opinion that the wall recently experienced a localized high wind event where the poorly constructed wall had inadequate strength and started to buckle and permanently deformed outward. This location was originally identified as an UNSAFE condition that was immediately addressed with bracing. The portion of wall that is bulging requires replacement per the building code. We do not believe a repair is feasible.
- Spalling of the greenstone panel is believed to be the result of water infiltrating the stone panel likely through open joints along the perimeter, trapping moisture as a result. As the stone absorbs the trapped moisture, the moisture freezes and expands resulting in the face of the panel to spall off.
- Corroded steel relief angles are the result of long-term exposure to moisture as noted above. The lack of properly performing flashings, and the lack of protective coatings reduce the lintels durability. Corroded steel lintels will expand, displacing the adjacent mortar joint or brick unit(s) as noted with the leaning parapets. Sealant installed along the toe of the angle exacerbates this condition, as the sealant traps the moisture and does not permit drainage of the exterior masonry wall assembly. Mortar with sufficient weeps holes and proper flashing assembly should be installed at these locations to facilitate drainage of the exterior wall. The installation of flashing at these locations is recommended by the Brick Industry Association and is detailed for construction of similar age.
- The displaced sections of the brick veneer are caused by the expansion or rust jacking of the steel relief angle along their base. As noted, when corrosion occurs, the steel swells or expand, displacing adjacent surfaces.
- The observed cracks within the brick veneer were recorded at building corners or originating from the corners of wall openings and extending outward. These patterns can be from restrained movement (inadequate spacing or location of control joints), the expansion of steel lintels, or from accumulations of moisture in the wall assembly at the corners of the opening.
- The two cast stone spalls were noted near the base and top of the cast stone units, directly adjacent to open mortar joints. It is our opinion moisture accumulated in the joint and was absorbed into the stone that resulted in cracking during freeze/thaw cycles. The stones will continue to deteriorate until the unsound material is removed and the joint repaired.

- There was a pattern to the locations of the deteriorated mortar joints in that they were commonly located at the parapet walls, directly above steel lintel locations, and the tops of the chimney. These are locations where the moisture content is expected to be the highest and where the walls experience more severe temperatures in the winter season. The decline of the material will start at these locations due to deterioration from freeze/thaw cycles. Repointing of the mortar joints is necessary to maintain the durability and longevity of brick veneer. The Brick Industry Association guidelines for wall maintenance include repointing every 25 years. Although this is only a guide, it helps maintain the wall in great condition. The location of the mortar deterioration is consistent with a decline in mortar at the most susceptible areas.
- The termination and original detailing of the flashing above the precast band was likely intended to provide the benefit of flashing the horizontal ledge while hiding its appearance. However, the lack of maintenance has resulted in the joint deteriorating and a susceptible joint for water infiltration. The flashing terminates in a reglet along the top edge of the precast with mortar sealing off the joint. The mortar at this location has failed because of the skyward-facing nature of the joint and the lack of expansion capability of the mortar material. Aside from the joint being directly exposed to rain and snow, the flashing directs water underneath the mortar joint. As moisture freezes and expands, the adjacent mortar spalls off creating an open joint along the back face of the precast. The flashing should ideally extend across the full width of the precast and terminate in a drip edge to allow water to drain off the ledge.
- The sealant failures are believed to be from age and the improper application at locations where sealant is determinantal to the facade performance. Sealant typically has a seven-to-ten-year service life before it become brittle and lose its elasticity due to long term UV exposure. The sealants appeared hard or stiff when probed. The application of sealant at locations where it was applied at the toe of steel lintels or where it was "buttered" over joints are not consistent with industry standards and will fail prematurely as noted. Sealant should be installed in accordance with the sealant manufacturer's requirements for proper installation, typically a 2:1 width-to-depth ratio. The sealant should also not be installed where it will trap moisture in the wall assembly.

RECOMMENDATIONS

The facade at the York House requires immediate repair at the localized condition at the ground floor on the east facade. Repairs and maintenance are recommended at other locations on the facades. We recommend implementing a facade rehabilitation program across the four facades to combine repairs and improvements while minimizing mobilization costs and disruptions to the occupants of the building. Commonly, the repairs are performed per elevation across a multiple year program that meets budget financial planning. The repair recommendations can start as early as possible and should be completed prior to the next facade inspection cycle. If all the recommended repairs and improvements are completed, a waiver for a facade inspection can be filed with the City of Philadelphia in 2026 and an inspection may not be required.

Immediate Repair (required to be completed prior to December 2021)

The following condition should be repaired immediately.

- Displaced greenstone panels at the east facade, ground floor level, between the first and second windows. The repair is anticipated to include removing and salvaging the existing greenstone panels, demolishing the building CMU wall for the full height between the ground and first floors, and rebuilding the CMU wall, the brick veneer, and reinstalling the greenstone panels.

Recommended Repairs (to be completed prior to the next inspection period-June 2026)

The following conditions classified as Safe with Repair and Maintenance Program are recommended for repairs or maintenance prior to the next facade inspection, and should be monitored for increases in distress until repairs or maintenance are performed:

- The removed spall at the greenstone panel should be repaired with a compatible repair material, a dutchman repair installed, or the panel replaced.
- Above all the windows on all the elevations, the relief angles should be exposed so they can be cleaned and painted with a corrosion-inhibiting coating. This will require removal of a few rows of brick above the lintels (approximately three courses high). This will be costly, and as such can be spread out over multiple years. If the cost of removing brick, painting existing angles, and installing flashing improvements is unfeasible, the repairs can be spread out over a longer period where only the most severely corroded angles are repaired. Should the steel corrosion be severe where section loss of the steel angle exceeds 10 percent, the angle should be replaced with a hot dipped galvanized member of equivalent size and shape. New through-wall flashing should be installed, and the bricks replaced.
- Displaced sections of the brick veneer should be removed and reconstructed. It should be anticipated that flashing and steel lintel repairs and replacement will be required at these locations as noted above.
- The locations where brick masonry is cracked should be replaced with new. An alternative to replacing the brick is to rout and seal the cracks and fill them with sealant. The sealant will be a maintenance item and will require routine replacement every five-to-seven years.
- The spalled cast stone should be cut out and repaired with a compatible repair material or a dutchman repair installed.
- Remove and replace deteriorated mortar joints between all the greenstone panels, mortar joints within 12-to-16 inches above steel lintels (only if the lintel repairs are not performed), and mortar joints at all the parapet walls. Eroded mortar joints within the field of the brick veneers should be repointed. Existing mortar should be removed to a minimum depth of 3/4 inch or twice the joint width and filled with new mortar to maintain the longevity of the masonry wall assembly.
- Installation of new metal flashing above the cast stone collar course on the east facade. The flashing should include expansion joints due to its long length and it should extend across the full width of the projecting course with a drip edge over the top edge of the cast stone.
- Remove failed sealant and backer rod at all control joints and at all joints located at the perimeter of wall openings. The sealant should be replaced with new backer rod and sealant.

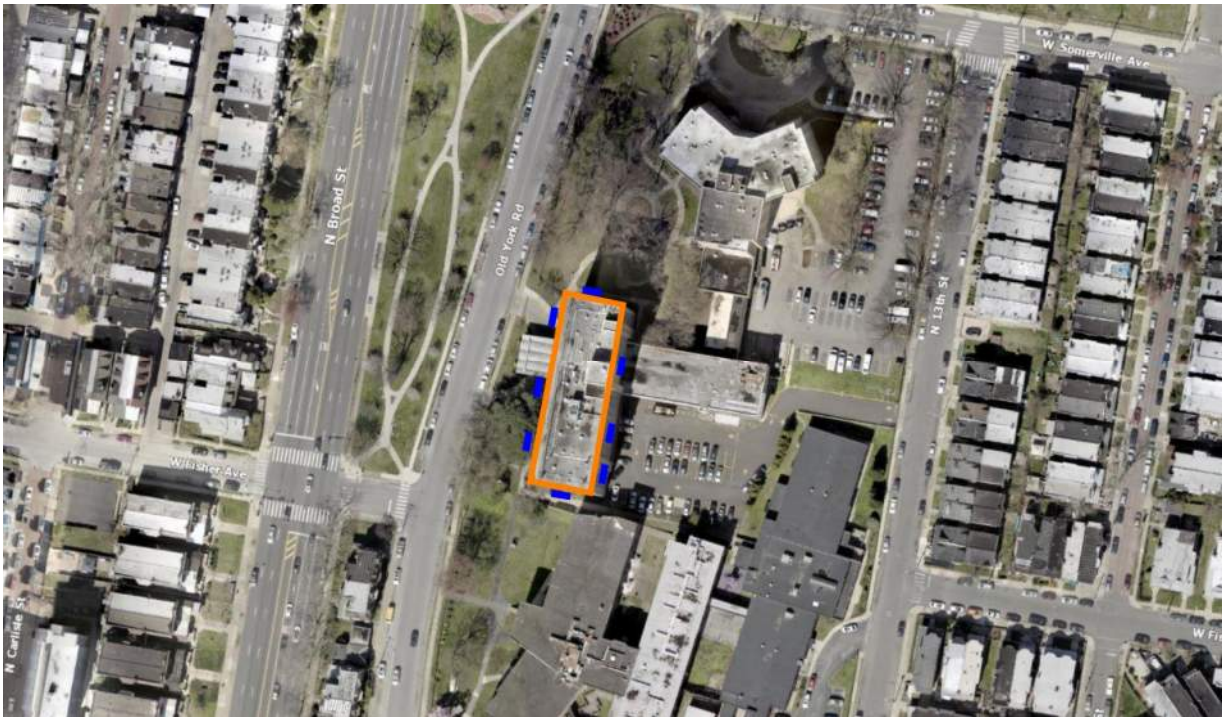
PROFESSIONAL'S STATEMENT REGARDING WORK PERMITS

Work permits are required for the brick repairs recommended in this report. Replacing joint sealants and window perimeter sealants may be classified as "ordinary maintenance and repair" and may not require a permit.

STANDARD OF CARE

Our inspection will not find distressed conditions that are not readily visible. WJE shall not be responsible for concealed distress that may exist; nor shall it be inferred that all distress has been either observed or documented. However, WJE has performed this inspection and prepared this report in accordance with the applicable standard of care for engineers and architects performing such services.

APPENDIX A. PHOTOGRAPHS



Photograph 1. Site plan with York House Apartment building outlined in orange; rope access drops indicated with blue rectangle; image dated 2020 from Philadelphia Atlas with annotations by WJE.

Photograph 2. East facade and portion of four-story wing

Photograph 3. South facade.

Photograph 4. West facade

Photograph 5. North Facade

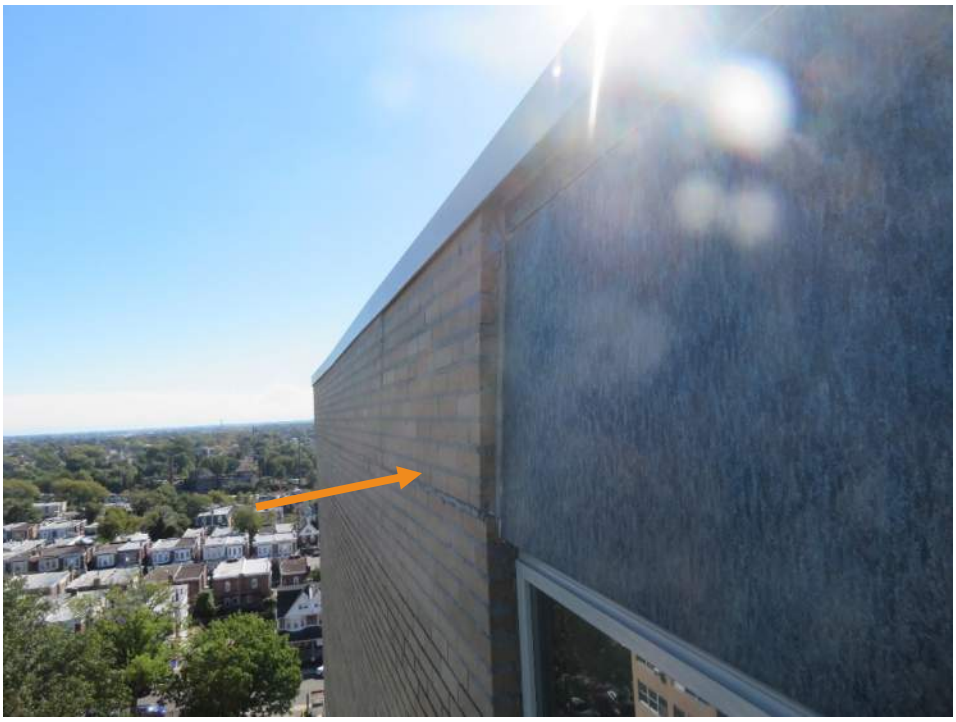
Photograph 6. Greenstone panels bulging along the horizontal joint

Photograph 7. Photograph of the CMU backup wall measurement where it was bowed at the center of its height


Photograph 8. Incipient spall at lower corner of greenstone spandrel panel

Photograph 9. Severely corroded steel relief angle

Photograph 10. Corroded steel lintel above twelfth-story windows

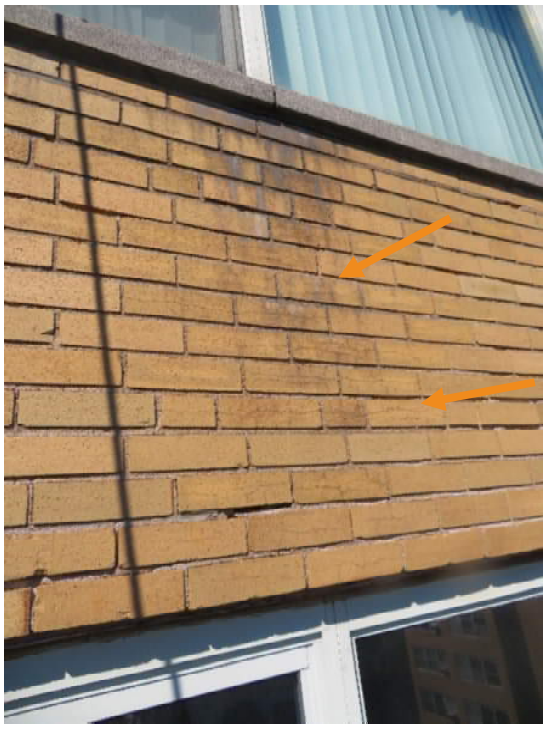


Photograph 11. Parapet wall leaning back on the north facade

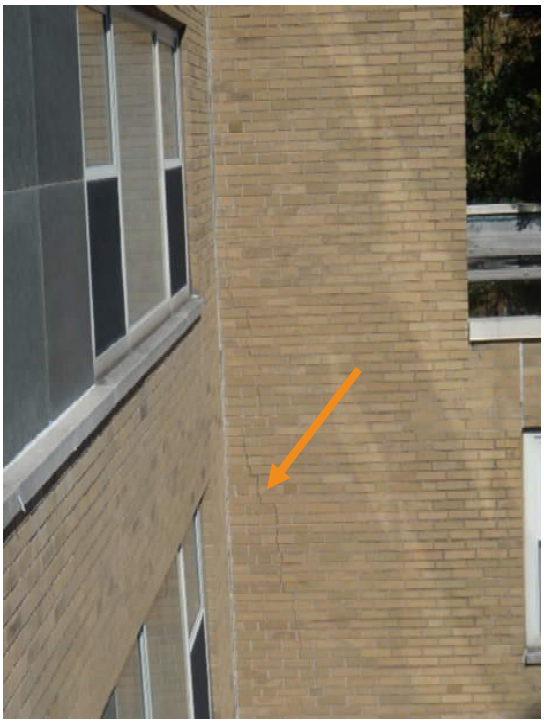
Photograph 12. Deteriorated sealant along the length of the steel relief angle

Photograph 13. Displaced/bulging brick parapet wall above relief angle on the south facade and sealant installed along toe of angle

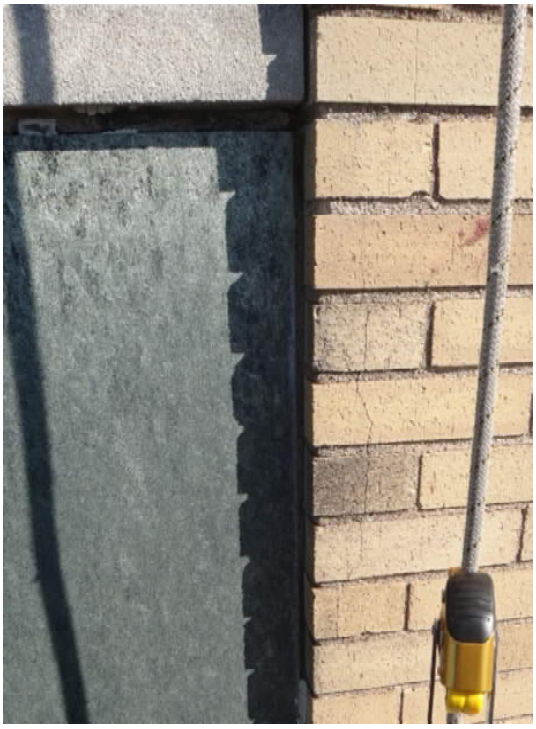
Photograph 14. Cracked coping stone units and brick bulging at the top of the chimney



Photograph 15. Cracked and scaled brick on east facade below open windowsill joint

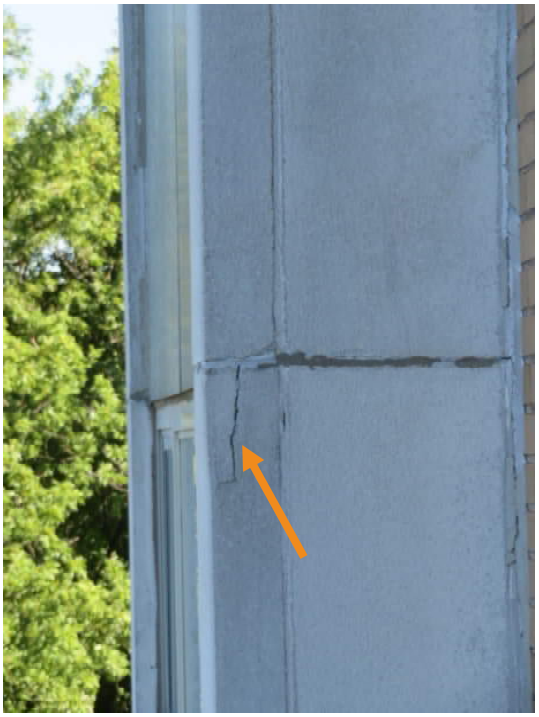


Photograph 16. Crack in brick veneer on the south facing side of the center stair tower on the east facade



Photograph 17. Hairline brick crack on south facade

Photograph 18. Crack in precast stone sill on the west facade



Photograph 19. Incipient spall at cast stone at west facade

Photograph 20. Crack in cast stone on west facade

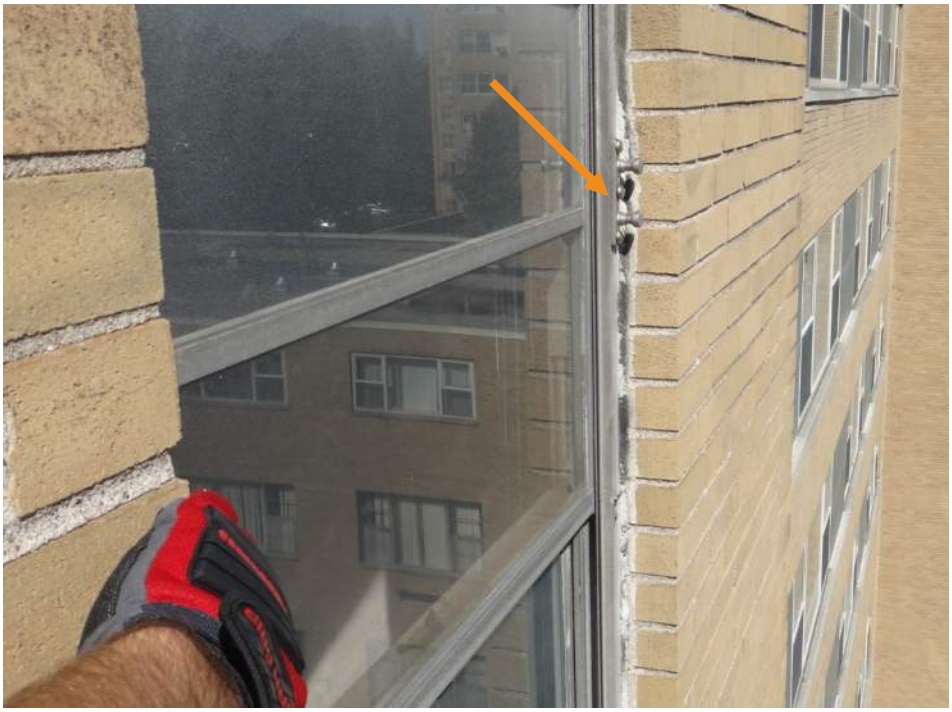
Photograph 21. Deteriorated/open mortar joints between greenstone panels

Photograph 22. Voids within joints between precast stone sill units

Photograph 23. Eroded mortar joint between brick units

Photograph 24. Deteriorated mortar joint along top edge of precast surround on the west facade

Photograph 25. Deteriorated sealant at control joint



Photograph 26. Deteriorated sealant around the perimeter of the window

Photograph 27. Adhesive sealant failure along relief angle

Photograph 28. Adhesive sealant failure between greenstone panel and precast stone sill

Photograph 29. Sealant present below precast stone sill

Photograph 30. Voids in CMU back-up wall