Exterior Treatment Recommendations Summary

Exterior Recommendations

The Design Team recommends the following repairs to the exterior facade of action is needed to address the deteriorated mechanisms observed on this structure:

- 100% repointing around the entire building is recommended. Including exposed brick and stone on back sides of parapets.
    - Water infiltration through open mortar joints can cause extensive damage to the interior portions of the structure and structural elements of the building. Season after season environmental contamination and age take their toll on the mortar joints of the exterior façade. Cracks develop; water penetrates stone surfaces and structural damages begin to occur. This leads to further deterioration as more water migrates into the wall and freezes and thaws deep into the structure itself.

- 100% Clean and apply penetrating water repellant to all stone facades.
    - Select application of stone consolidant: The rubble stone coursing found on all faces of the structure has multiple locations where the face of the stone is de-bonding. This will continue and escalate overtime. By applying specified consolidators and water repellents to the rubble stone faces this type of deterioration can be reduced. Stone consolidation is a multiple step process of applying a fluid based material over the face of the stones. This product forms a hardened shell that bonds the surface of the stone together.

- Replace cracked and missing cast stone units on south façade.
    - The cast stone is performing exceptionally well throughout most of the exterior of the building. However, on the south face a section of the stone has severe damage from possible manufacturing issues. A number of stones have severe cracking and delaminations that could be from freeze thaw damage. These stone pieces should be removed and replaced.
    - Replace 4 cast stone units (minimum).

- Repair structural reinforcing in the cast in place concrete structure on the east wing of the building where the stucco coating is de-bonded and cracked and apply a breathable elastomeric coating to the entire east wing.
    - It is recommended areas with deteriorated stucco coating be removed, the reinforcing steel cleaned coated, and then a specified corrosion resistant patching material applied over the face.

- Apply breathable elastomeric coating system to entire east wing of the building over existing stucco.

- Repair or replace steel lintels throughout the building. (approximately 40% repair and 60% replace).
    - At multiple locations where openings occur in the building the steel lintel system is experiencing various stages of corrosion. With most of the steel hidden behind the stone and block or brick additional destructive investigation is warranted to determine the extent of repairs needed.

- A corrosion mitigation type repair to the metal plate that is exposed at most of these locations is relatively easy. However, in some cases were the stone has shifted upward and out away from the face of the building additional corrosion could be occurring to the wide flange steel member which creates the support for the stone and backup above (Figure 186).

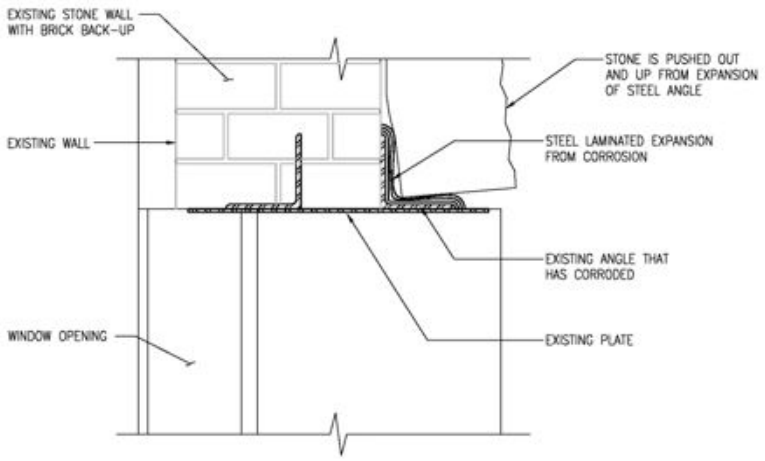

Fig. 186 Typical corroded lintel detail. (SEA 2012)

- Repair concrete structure and reinforcing steel repair/replacement at east loading dock.
  - The concrete deterioration that is occurring at the loading dock area on the east end of the structure has a higher degree of deterioration and will require additional investigation to determine the extent of this condition.
  - From our observations, it appears that high concentrations of corrosion are occurring to the reinforcing steel at these locations. However without further testing to determine the scope and cause of this deterioration a permanent repair solution is not obtainable.

- Stabilize and repair west entrance stone site wall at the south end of the building.
  - The partial failure of the west entrance site wall on the south end will require further investigation to properly determine the correct repair procedures.
  - It is recommended that this work proceed as soon as possible in order to stabilize the existing conditions.

- Remove stone wall and stair on south elevation, west wing at grade. Replace wall with a new cast-in-place concrete wall and a metal stair.

Tower Recommendations

- Remove deteriorated metal cladding and fascias in their entirety and install new pre-finished metal fascias on exterior.
  - It is the Design Team's recommendation to install a pre-finished metal to simulate the look of copper cladding in leiu of installing cost prohibitive copper.
- Remove and replace all glass block units with new glass block units matching historic in-kind replicating block size, texture, pattern and profiles. Existing glass block is in poor condition. The existing glass block has a subtle grid pattern. It is recommended that the

new glass blocks replicate this pattern as close as possible. Install new treated wood framing for glass block installation and install pre-finished metal cladding and fascias.

- Two companies to consider contacting for custom glass block to match existing are:
  - Cincinnati Glass Block (Quadra pattern, 4x8x4 size
  - Pittsburgh Corning Block (Arque Block 6x8x4 size, Argus Premiere Series Pattern or similar).

- 100% repoint grout/mortar between glass blocks.
- 100% repoint limestone.
- 100% Cleaning and application of a penetrating water repellant. Spot cleaning to remove metallic staining around windows, sills and tower capstones/roof.
  - Includes limestone areas below tower on East, South and West elevations extending down to second floor.
- Spot application of stone consolidant.
- Replace tower flue, copper flashing and standing seam copper roofing (2 levels) with new pre-finished metal standing seam roofing and new capped flue as required for new HVAC system requirements.
- Install new color changing LED lighting behind glass block (all sides) to illuminate tower at night.

Roof Recommendations

Many building owners only think about roofs when there is a problem. No roof or flashing installation should be considered to be maintenance free. Regular maintenance and inspection will ensure the protection of the roof, protect the historic building and interior features and prevent costly repairs. A yearly budget should be established in order to provide for preventative maintenance and repairs of the building's entire roofing system.

- Implement a yearly roof condition assessment and maintenance program prepared by a qualified roofing contractor. If required, this may be the original installing contractor, as required for maintenance of the roof warranty. The maintenance program should include both emergency repairs, typical cyclical maintenance and proactive repairs. The roof should be inspected seasonally and especially after severe storms or high wind events.

  Typical items addressed should include the following:
  - Inspection of built up roofing material for cracks and wear.
  - Recoating of roofing material with silver aluminum paint to protect the roofing from deterioration by UV light.
  - Inspection of disbursement of rock ballast for even roof coverage.
  - Regular removal and cleaning of debris from the roof. This will ensure proper roof drainage and may include leaves, twigs, limbs, building debris and plant growth.
  - Cleaning of roof drains and scuppers.
  - Inspection of all cap flashing seams for sealant failure.
  - Inspection of all wall flashing for sealant failure.
  - Labeled photographs of deterioration issues for record purposes.
  - Inspection of condensate lines to ensure they are draining directly to roof drains.
  - Inspection of all roof penetrations, including plumbing vent pipes and exhaust fans.
  - Inspection of back side of all parapet walls (concrete and brick).

  - Inspection of ceilings below roofs for signs of leaks.
  - Inspection of skylight glazing, flashings and metal components for signs of leaks.

  - Further study may be needed into the quantity of roof drains for total amount of roof square footage should leaks persist after repairs.

  - All roofing maintenance and warranty data should be kept in one place, preferably in a well-labeled 3-ring binder. This binder should include a section for recording inspections, findings and associated repairs.

  - Roofing and flashing repairs should only be made by the manufacturer-certified roofing contractor, as required by the roofing warranty.

- There is no visible lightning protection system installed on the building. It is recommended that a system be explored for future installation.

- The parapet cap flashing and roof flashing/termination bars need to be properly secured to the parapet walls in several locations.
  - When the cap flashing was installed, it was installed snug against the side of the capstones; and therefore, the drip edges do not always extend past the face of the concrete in order to properly shed water. These cap flashings should be removed and solid rot-resistant blocking shall be installed so that when the new cap flashing is installed, the drip edge will effectively drip away from the concrete wall below. A complete survey of these varied conditions should be done before the work is designed or specified, in order to design a solution specific to each occurrence.

- Re-caulk parapet cap flashing and roof flashing/termination bars on all levels of roofs where sealants are deteriorated.

- A/C units need to have new longer condensate hoses installed so they drain into the main roof drains and water is not allowed to pool and pond.

- Clean debris (screws, wood scraps, bird carcasses, plants and other biological growth) from roof areas and drains.

- Install cover over exposed GFCI outlet at Chambers Roof (R4) through the west Penthouse wall and install new roof flashing sealant at roof termination and outlet penetration.
  - If the outlet is not required, it should be removed and the hole through the concrete Penthouse wall should be repaired and the existing flashing patched or replaced.

- Monitor West Fan Room Roof (R5) during and after a rainstorm to determine how water is draining from this roof as there are no visible drains.
  - Repair parapet cap flashing installation at West Ran Room Roof (R5).

- Replace cracked skylight glazing with new textured wire safety glass to match clear replacement glazing (4 glass panels).

- Install rock ballast where roof membrane is exposed, especially around roof drains and on Penthouse Roof (R6).

Windows, Doors and Decorative Metals Recommendations

It is recommended to have a comprehensive steel window rehabilitation plan which would address not only the immediate needs for the windows, but also outline a future maintenance plan for the preservation of the historically significant windows.

  - Each steel window should be carefully inspected and an individual scope of work should be developed for its maintenance and rehabilitation. The scope of window restoration work should include the window sash, the steel frame, glazing, possible weatherstripping and testing and repairs to the associated hardware.

  - It is important to note that even frames and sash that indicate beginning stages or even advanced stages of corrosion through rust can be successfully repaired.

  - The historic steel windows contain a variety of glass glazing, including several varieties of textures privacy glazing, decorative textured glazing and wire safety glazing. If glazing is broken, replacement glazing should match the historic glazing opacity, texture, coloring, thickness and overall design intent. Replacement glazing may be found through architectural salvage and historic restoration specialists.

- It is unknown if hazardous materials exist with regards to the historic steel windows and doors. Paint, glazing compound and sealants may be tested as part of the Phase I Environmental Assessment Grant work which was completed in 2012. The Hazardous Materials Assessment is included within this report in Appendix C.
  - If hazardous materials are found, they should be abated by a certified abatement contractor familiar with the restoration and rehabilitation of historic steel windows. Most steel window restoration contractors are also licensed in hazardous materials abatement associated with this type of window work.

- Hall of Springs windows and doors: Replace missing cast steel elements and install new sealant at windows and doors where missing, especially at door thresholds.
  - Touch up paint on windows and door surrounds.

- North and West Main Entrances: Remove rust and fill cracked metal frames and screen. Prep, prime and touch up paint on exterior metal frames and screen.
  - Install new door thresholds and/or door sweeps to bottom of exterior doors to keep water out of the building during rainstorms.
  - Replace 2 broken mirrors and 2 broken reed textured glass panels in the north exterior and interior entrance transom windows above the pairs of doors.
  - The steel windows on the second floor behind the decorative metal screen are significant historic fabric and should be preserved. Restore the metal window frames and replace broken glazing in-kind. A thorough restoration plan should be compiled for these two locations, taking into account that the windows will likely need to be restored in situ.

- Remove and replace windows on the Ground, Ground Mezzanine, First, Second and Penthouse floors which have either been replaced in the past or are deteriorated beyond repair. The majority of the current windows consist of aluminum replacement windows (with and without storms/screens) of various configurations. Replacement is recommended as it is unlikely that these windows can be repaired cost effectively.

There are a few original steel windows on the penthouse level and on the second floor which require the installation of storm windows.

- Replacements/Repairs are as follows:
  - **Ground Floor:** Replace a total of 18 windows. 15 windows in pool area; replace 1 large window unit in maintenance garage; replace 1 historic window and remove CMU from opening in maintenance area with 1 new window unit; paint and repair 2 rolling/coiling doors in maintenance area; repair and paint 2 doors into maintenance area; infill openings on south elevation west side where existing plywood and louvers are located; paint 5 louvers and all areas infilled with CMU to match surrounding wall materials.

  - **Ground Mezzanine:** Replace a total of 52 windows. Replace 24 windows in pool area; replace 16 windows throughout the floor (majority are large windows located in east wing of building); remove CMU from 2 openings and replace with 2 new windows; infill existing openings along north elevation west side with painted CMU; paint CMU/concrete infilled exterior openings under the north terrace and repair/paint existing exterior doors (2). (Optional: replace CMU/concrete infilled exterior openings with new storefront windows.)

  - **First Floor:** Replace a total of 24 windows. Replace 24 windows located throughout the floor (several large windows located in the east wing of the building); remove and replace existing door south elevation off of the Hall of Springs terrace with new storefront window. Hall of Springs windows are to remain and have limited sealant and paint touch up work only.

  - **Second Floor:** Replace a total of 16 windows. Replace 16 windows located throughout the floor; restore 4 existing windows and install interior storm windows.

  - **Penthouse:** Restore 4 existing windows and install interior screens; paint 1 existing louver; repair and paint 1 exterior steel door.

  - Phased window replacement could occur by floor or by elevation with the primary facades given first priority. This work would also need to be coordinated with the installation of new HVAC equipment as window A/C units are no longer required.

  - It is recommended to utilize the appropriate historic preservation guidelines during the product selection to closely replicate the original steel windows as possible.
    - This includes matching the visible glass (sightlines) of the original windows to the replacement windows as closely as possible and to provide custom extrusions to mimic a steel window (muntins, simulated glazing putty, rails and stiles).
    - First, review historic photographs to determine the as-built condition of the original steel window that is now being replaced, in many cases, for the second time. The historic drawings are also good to review, but they are not 100% accurate as far as reflecting the final as-built conditions of the building.

  - Also, it is unknown at the time of this study what the original window frame color was. It is recommended to determine the original window frame color(s) through paint sample analysis of the historic windows and to match the earliest top coat color if at all possible.
  - Refer to the National Park Service Technical Preservation Services Preservation Tech Notes, *Windows, Number 20 – Aluminum Replacement Windows for Steel Projecting Units with True Divided Lights and Matching Profiles.*

- Replace Council Chamber exterior door with a commercial grade steel door and frame and painted to be consistent with other exterior doors found throughout the building.

- Repair steel doors throughout the building, including the installation of new perimeter sealants and prepping, priming and painting of the doors and frames.

- Install interior screens over existing louvers (7+ louvers). There are several mechanical louvers installed throughout the building. They should be individually inspected and maintained. All louvers should have the perimeter sealants maintained.
  - One louver on the south elevation currently is installed in a plywood board that needs to be painted.
  - Remove plywood cover over opening at grade on the south elevation in the west wing of the building with an appropriate in-fill material.

- Overhead doors are installed on the south, east and north elevations. These doors are all in varying ages and require varied maintenance.
  - Each door needs to be individually inspected and maintained to prevent deterioration, water and weather infiltration.
  - Prep, prime and paint north and east doors.