Old Capitol Building
Olympia, Washington
Exterior Building Assessment

March, 2015

Prepared for:
Washington Department of
Enterprise Services

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EXECUTIVE SUMMARY

General Scope:

At the request of the Washington Department of Enterprise Services (DES), Peter Meijer Architect, PC (PMA) was retained to provide an update to the Old State Capitol Roof & Exterior Repair Investigation Phase Report - 2006-039 A v2 by Cardwell Architects. In consultation with DES, PMA provided a 3D laser scan of the exterior; focused on the recommendation line items from the 2006 Cardwell report that had not been completed; limited our general exterior condition assessment to the roof systems and exterior stone; identified the potential sources of water intrusion resulting in plaster damage identified in the 2013 ARG Report; and conducted a window by window condition survey. The purpose of the assessment was to provide DES with an understanding of general deficiencies of the exterior building materials, potential mitigation solutions, and preliminary scope of work for cost estimating and construction repair purposes.

It is important to note that our assignment and goal for this update, while thorough in its scope, is not a comprehensive or exhaustive investigation of all conditions and systems in this building. Previous assessments were referenced, and when appropriate, findings from the previous assessments were carried forward as-is into the PMA report. Our team reviewed drawings and documents provided by DES, interviewed maintenance and operations personnel, and conducted field surveys to develop a general understanding and assessment of the condition and serviceability of the buildings and its systems. Except where specifically identified, destructive investigation, detailed testing, and performance confirmation were not included in our assessment scope.

This report represents the opinion, assessment, and recommendations of the members of our team based upon their observations and professional experience and judgment. PMA conducted the on-site exterior assessment of the Old Capitol building the week of January 21-24, 2014. A brief overview of the most significant findings follows and the remaining report describes in detail the observed conditions.

Repair Priorities

Given the high level of investment and stewardship provided by the Department of Enterprise Services for the Old Capitol Building, PMA repair priorities concentrate on specific identified water intrusion and preventive maintenance to eliminate similar deficiencies in the future. There is a continuous need of yearly maintenance, 3-5 year maintenance, and 5-10 year maintenance cycles. The recommendations do not concur with the 2006 report to replace the entire roof system but rather recommend targeted repairs to the flashing system and rain management system. The report recommends investing in the rehabilitation of all the existing wood windows.

Repairs have been prioritized into three main categories based on level of importantance. 'Priority A' includes repairs that are most critical in preventing water intrusion and continued deterioration. Total cost for 'Priority A' items is approximately $670,015. 'Priority B' includes repairs associated with less urgent conditions for preventing water intrusion. 'Priority B' items total approximately $101,974. 'Priority C' items include long-term cleaning, maintenance, and restoration of the building. 'Priority C' items total approximately $1,172,985. A complete breakdown of priorities and estimated costs may be found in the 'Recommendations and Priorities' section.

Civil Assessment

A full survey and mapping of the extensive internal and external drainage system was led by LPD Engineering PLLC. On-site cleaning and CCTV survey of the sanitary drain line was performed by Everson's EconoVac, Sumner, Washington. General areas of concern included a lack of proper drainage away from the building in key locations, and an insufficient number of cleanouts along the footing and storm drains. Additionally, specific instances of collapsed drain lines and disconnected downspouts were noted. Several instances were observed where the drain system is an active contributing factor to stone, window, and plaster deterioration. Detailed descriptions of the deficiencies have been noted in the report.

Walls

Between 1996 and 2006 several exterior sandstone assessment and repair projects were performed including repair of damaged stone to laboratory petrographic examination of the existing mortar. As a result, it was not necessary for PMA to repeat previous historic research or duplicate laboratory analysis thereby permitting a focused assessment on known damaged areas and general confirmation with the 2006 findings. The full deficiencies are noted in the report but overall, the stone is in good condition exhibiting characteristics of the northwest climate in accumulation of biological growth on horizontal surfaces exfoliation related to weather exposure and water runoff.

Roof

In evaluating the roof repair options contained in the 2006 report, PMA chose to strategically evaluate high priority repairs to the roof system by focusing on known water intrusion problems. As an example, in 2009 DES retained a consultant to water test a section of gutter resulting in repair strategies that prevented water leakage circumventing the flashing system. Given the consistent construction methods of the gutter system, the recommended repairs should be implemented along the entire perimeter. Whereas the 2006 report highlighted deficiencies in the original roof construction means and methods, PMA concluded that many of the deficiencies do not contribute to water intrusion. The single biggest source of water intrusion is inadequate wall to roof flashing and inadequate drain body flashing. There are considerably more items identified during the assessment.

Windows

Subsequent to the 2006 Report, DES implemented the highest priority repairs to the existing windows ranging from sealant and glazing replacement to a limited number of sash replacement. At the request of DES, PMA conducted a window by window exterior assessment focused on condition of the wood, sash joints, glazing putty, and water intrusion. Overall, the windows have deficiencies reflective of their age. Whereas the vertical grain Doug Fir is in good condition with minor surface defects, perimeter sealants have failed, the sash joints are not tight, the glazing putty is in poor condition, and roof water overflow is damaging the units. PMA has summarized our findings in Appendix C both graphically and photographically. Our overall recommendation is to invest in the rehabilitation of all the windows.

Interior Plaster Damage

Significant plaster damage was noted in several confined areas. Depending on location, the plaster damage results from water intrusion related to other building systems as noted above. These systems include inadequate roof to wall flashing, interior drain or drain body flashing window frame to wall flashing, failed glazing putty and perimeter sealant, damaged downspout connections, and in some locations, original construction methodology. (e.g. the lower level wall damage outside mechanical room due to masonry structural wall). PMA is still evaluating the cause and solution of the wall damage below the south entry stairs, east building.

Acknowledgements

The process of understanding the development history of the site and building has been a challenging yet rewarding one for all the members of our team. We are pleased and fortunate to have this opportunity to work on this unique and iconic building with the Department of Enterprise Services. If we can provide any detailed follow-up of the findings or any further assistance to the State related to this project, Please do not hesitate to contact Peter Meijer Architect, PC.

Civil Findings

Review of Previous Report

LPD Engineering reviewed the previous civil engineering report from 2006 to gain a better understanding of the site and drainage issues. At the time of the previous report, the areas of concern included dampness in various locations along the building perimeter. In particular, the southeast corner of the building where office personnel observed blistered paint, and northeast portions of the building where office personnel reported that the office smelled damp after heavy rain events.

The previous report was inconclusive as to the exact stormwater routing for roof drainage and footing drainage stating "no indication is given as to the location or termination of the footing drains and the roof drains appear to be connected to the subsurface drainage system and in certain cases they appear to be connected to the foundation drain". The previous report provided recommended improvements to mitigate the drainage issues. Of the improvements recommended, we observed that only a portion of these were completed. These completed improvements are as follows:

- The report recommended providing a watertight connection between the downspout line and subsurface drainage system by using a Fernco coupling. All on-site downspouts, except one, appear to have this watertight connection.
- The report recommended cleanouts on the roof drain system. Cleanouts have been installed along the roof drain line to provide easier access for maintenance.

Recommended improvements which were not completed include the following:

- Re-grading localized areas away from the building
- Installing area drains
- Providing atrium style fixtures on the ventilation wells to prevent clogging

Review of Record Drawings

Relevant record drawings were obtained from the archives center at the General Administration Building in Olympia. The relevant drawings found were from the 1980 Old Capitol Building Renovation (GA project #79-018). The $9 million dollar project was completed in multiple phases, and included work such as seismic reinforcement, mechanical work, heating and cooling systems, cleaning, new towers, new elevators, skylight, copper roof and exterior grading and infrastructure updates around the perimeter of the building.

Unfortunately, the archives center could not provide record drawings for the two existing sump pumps located at the northeast and northwest corners of the building. Due to the assumptions made in the previous 2006 report, it is our opinion that the report authors were also not able to locate the pump drawings. Site observations noted that updates to the drainage system have been made since the 1980 Old Capitol Building Renovation as the subsurface drainage system did not follow the design illustrated in the archived drawings.

During our review of record drawings and the building's history we became aware of the multiple repairs and reconstruction of the building and site infrastructure. The Historic Structures Report was used as a reference to review the major events and exterior and interior projects since the original construction. The Historic Structures Report includes a detailed Chronology of Changes; however based on our field visit there appears other undocumented changes have occurred. The current tenant at the building is the State of Washington Office of Superintendent of Public Instruction (OSPI).

Review of Improvements since Previous Report

Maintenance staff members that work on the building were interviewed to help determine what has been done since the 2006 report, however, the staff members had no direct knowledge of any known projects having been completed. Based upon our site visits and, as stated above, improvements appear to have been made. There are Fernco couplings on all but one downspout and there appears to be newer cleanouts on the roof drainage system as recommended in the previous report.

Field Visit

A field visit was performed on January 15, 2014 in order to review existing site conditions and assess previous recommendations. The weather was approximately 40 degrees with light rain. At the northeast corner of the property the soil was moist and soft. The maintenance staff described this area as always damp and the source for the water is unknown. The two on-site area drain structures were observed to be filled with debris and unmaintained. Two trench drains located at the bottom of the loading dock were also filled with debris.

One downspout connection on the south side of the west building (downspout #14) was observed to be disconnected. Stormwater from this downspout was ponding adjacent to the building. Several cleanouts were observed at the surface around the building perimeter, but maintenance staff was unsure as to what utility system the cleanouts are connected to. The majority of the grade around the building was observed to be sloping away from the building. However, at the southeast, east side, and north alcove of the building, the grades slope toward the building. There is a two foot wide drain rock trench adjacent to the building along the southeast and east side. It appears that the intent of this trench drain is to collect stormwater along this perimeter of the building in the footing drain system. Runoff from the lawn and landscaped areas on the southeast and east side of the building appears to sheet flow toward the building to the drain rock where water appears to flow down and be collected in the perforated footing drain system.

The previous recommendations were assessed to determine how relevant they would be for this update. Many of the items from the previous report that have not been completed are still recommended to be implemented to mitigate the continuing drainage issues. These recommendations include:

- Re-grading localized areas away from the building along the east side and within the north alcove and installing area drains
- Cleaning the trench drains
- Not introducing runoff around the building perimeter by connecting downspouts and regrading as listed above
- Confirming functionality of ventilation well drains (window wells)

Areas of Concern

Existing Conditions

The major characteristics of the existing site drainage system serving the Old Capitol Building are indicated on the attached Figure 1 (Appendix D). This figure indicates those facilities shown on the as-built drawings provided by DES, as modified by our site investigation and TV investigation. Unknown drainage routes that were inaccessible by scoping have been noted as “assumed”.

Site Drainage Collection

The site’s drainage system connects to a City of Olympia storm drainage manhole located within Legion Way. A 12-inch drain line conveys flows from the project site to this manhole. The 12- inch drain line enters the site as a

concrete lined pipe and transitions to a 12-inch PVC on the property. The pipe reduces from the 12-inch PVC to an 8-inch ductile iron before continuing south into the alcove, then extending south through the building to the south side of the site.

According to the as-built drawings, drainage collection is provided by several drainage collection structures distributed around the building perimeter. However, our site observations only found two area drains both located at the southwest corner of the building. The area drains connect to the subsurface drainage system following the perimeter of the building to the north, then east where it connects to the 8-inch drain line. Both area drains were filled with debris and appeared unmaintained before being cleaned.

The other surface drainage collection structures on the site are two trench drains, both located at the bottom of the loading dock area. Both trench drains were filled with debris at the time of the initial visit and appear to be unmaintained. After cleaning, it was determined the east trench drain (trench drain 1) drains to the larger loading ramp trench drain (trench drain 2). The outfall from trench drain 2 was observed to be partially filled with concrete and impassable, thus downstream routing was not confirmed. Per as-built drawings, trench drain 2 is assumed to discharge to the 8- inch drain line extending north through the building.

In several locations around the perimeter of the building, stormwater sheet flows toward the building. The lawn area on the southeast and east side of the building is sloped toward the building. There also appears to be no drainage infrastructure draining stormwater out of the alcove on the north side of the building. Due to the debris and blockage in the trench drains in the loading dock area, stormwater in this area is impacting the building.

Foundation Drainage and Ventilation Wells (Window Wells)

Foundation drainage appears to be provided by a continuous footing drain around the entire building perimeter, as indicated on the as-built drawings. Based on our field review, it appears the foundation drains discharge to two pump vaults, located at the northeast and northwest corners of the building. Footing drain access is provided at the pump vaults and one cleanout in the southern alcove. At the time of our field review, water within the footing drains was observed to be flowing to the pump vaults. The discharge point for both pump vaults is believed to be the 12-inch drain line entering the site from Legion Way. The footing lines are 4-inch diameter perforated PVC drain lines. The footing lines were scoped upstream from the pump vaults and were observed to have several sags filled with water. In some instances footing lines were filled with water higher than the perforations and lines were also scoped that showed water streaming through the perforations into the drain line. The submerged footing drains indicates high groundwater, specifically along portions of the north and east side of the east building and portions of the west side of the west building. The cleanout in the loading dock areas was scoped indicating the footing drain continues

Figure 1-1: Grade sloping towards the building on the east side.

Figure 1-2: Driveway sloping toward the building at the loading dock on the south side.

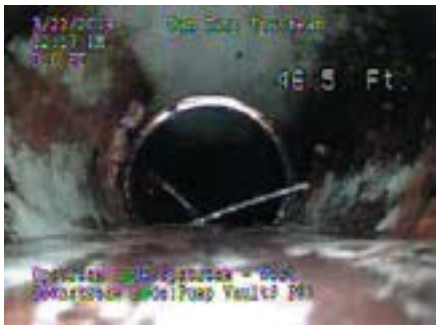

Figure 1-3: Footing drain with groundwater streaming through perforations.

Figure 1-6: Collapsed footing drain on south side of building by loading dock.

Figure 1-4: Downspout disconnected above grade.

Figure 1-5: Downspout broken prior to connecting to subsurface drainage system.

Figure 1-7: Roof drain running into tower wall

south and has a wye to the west before ending with a collapsed pipe.

There are several ventilation wells surrounding the perimeter of the building that contain drains flush with the bottom of the well. Through our TV investigations we determined that a portion of these drains are 4-inch diameter and contain two 90-degree bends before directly connecting to the footing drain system surrounding the building with a tee connection. The remaining ventilation wells contain a 2-inch diameter pipe that drains vertically down to compacted gravel.

Roof and Subsurface Drainage

Roof drainage is conveyed via several downspouts. The roof downspout connections to the subsurface drainage system were located through the use of the TV investigation. The TV investigation determined the downspouts are connected to a subsurface drainage system that is separate from the footing drains. The subsurface drainage system contains numerous sags filled with standing water. In two instances downspouts are broken and terminate prior to connecting to the subsurface drainage system. In addition, there are instances of deformed drain lines, which can cause a blockage and buildup of water. One downspout, located in the loading dock area, was observed to be partially filled with concrete. On the south side of the building, one downspout connection was observed to be disconnected prior to entering the ground, therefore, discharging runoff directly adjacent to the building perimeter.

Prior to the TV investigation the subsurface drainage system was cleaned with a vactor truck. Several segments of the drainage system were either filled with water preventing a thorough inspection or were 100% filled with sediment and debris prior to cleaning. Therefore, portions of the subsurface drainage system were inaccessible through the TV investigation and have been noted as an "assumed" drainage line on the attached Figure 1 (Appendix D).

West Tower Drain Bodies

Significant plaster damage due to water intrusion was also noted in the upper floor, west entry tower offices. Moisture readings using a Delmhorst Instrument Co. MoistureCheck pin meter were taken in several locations to confirm the saturation percentage of the interior plaster. While the walls registered low percentage of moisture at the window sill/jamb interface, the typical location for water intrusion due to lack of sill pan flashing, there were higher percentage moisture readings found above and away from the windows corresponding to internal drain locations. Based on the location of water damage and the moisture readings, the windows are not the significant source of water intrusion. Two internal roof drains are located on either side of the gabled roof above the west entry.

Recommended Repairs

The following are improvements recommended to alleviate the site drainage issues around the Old Capitol Building. See Figure 2 (Appendix D) for a proposed drainage infrastructure plan.

Surface Water

- North Alcove:
  The north alcove currently has undulating terrain. This area should be re-graded to route stormwater into area drains. Two (2) area drains are recommended to be installed in this area and connected into the downspout drain lines. Although the 8-inch on site main extends through this area, the pipe is ductile iron and difficult to connect into.

- Southeast and East side of Building:
  As discussed previously, the stormwater at the southeast and east side of the building are routed toward the building due to grading. This stormwater is collected within a French/footing drain system adjacent to the building. Although the footing drain is in good condition along this area, it is not desirable to introduce surface water adjacent to building walls or into the footing drain system. Although record drawings show catch basins along the east side of the building, these were not found during our investigation. We recommend re-grading this area and installing four (4) area drains along the east side. These area drains would be connected into the downspout drain lines extending along the eastside of the building thus routing the surface stormwater into a hardline pipe and taking water away from the building foundation.

- South Loading Dock:
  The pipe sections, downstream of the trench drains are partially blocked with what appears to be concrete should be replaced if possible. Once replaced, the system through the building should be video investigated and tested for air tightness. The removal and replacement of this section of pipe will impact the concrete loading area.

- On-site Mainline Conveyance System:
  The TV inspection was unable to access portions of the subsurface drainage system due to multiple bends in the system. Therefore cleanouts are recommended in order to provide access for maintenance and confirm the condition and routing of the remaining system. The main outfall from the site to Legion Way has multiple laterals. The TV inspection noted laterals that may be collapsed or damaged. In order to provide better maintenance and confirm the condition of the pipes, cleanouts are recommended at the lateral locations with sweeps to the upstream flow.

  In addition, a cleanout is recommended along the on-site north/south mainline pipe just prior to the 12-inch transition to an 8-inch diameter pipe, again sweeping upstream. TV inspection access was limited at this location due to the offset in pipe diameters.

Roof Drainage System

- Downspout #8 has a broken joint that is detached prior to entering the ground. This joint is recommended to be replaced and provided with a new pipe connection to the conveyance system.

- Downspout #14 has a collapsed pipe section downstream of the downspout connection. This collapsed section is recommended to be replaced and provided with a new pipe connection to the conveyance system. A Fernco coupling should also be provided on downspout #14 such that it will prevent runoff from ponding adjacent to the building.

- The pipe section downstream of Downspout #15 appears to be partially blocked with concrete. The downstream

section of pipe impacted by the concrete should be replaced. The removal and replacement of this section of pipe will impact the concrete loading area.

- Throughout the entire downspout subsurface drainage system there are multiple sags and deformed sections in the pipe. These areas are still draining and the number of areas are too numerous to recommend replacement as it would likely entail a replacement of the entire system. This system will function with these existing sag and deformed sections, however, it is critical that the drainage system is maintained on a minimum an annual basis to clean these areas of debris or the system will eventually clog and fail.

Foundation Drainage

- The TV inspection found a collapsed footing drain on the south side of the building near the loading dock. This footing drain should be fixed and reconnected to the existing system. The footing drain is assumed to be wrapped around the entire perimeter, but access is limited to three points (both pump vaults and one cleanout). To provide better access for maintenance and determine the routing and condition of the remaining footing drain system, cleanouts are recommended along the perimeter of the building.

- In our opinion, it is crucial the footing drain system is in working order because at the time of our investigation groundwater was observed above the perforations in portions of the footing drain system and in some instances water was streaming in through the perforations. Since the TV inspection was completed during the rainy season groundwater was most likely near its highest elevation. We recommend another thorough inspection and cleaning of the footing drains during the late summer months once cleanouts have been installed for access.

Ventilation Wells

- It is recommended that the drains in each of the ventilation wells be connected to the foundation drainage system. Typically it is desirable that these wells be connected to a solid wall system but the downspout drainage system is too high. The size of the wells are minimal and the flow from these systems should not impact the footing drain system if in good working condition.

West Tower Roof Drains

- Repair flashing at roof drain body and provide new sleeve of internal drain line on west elevation.

Other Considerations

- In addition to specific drainage concerns, the following are other considerations that may be contributing to the consistent problems at the building:

- Maintenance: The area drains and trench drains were visibly filled with debris at our site visit. The repair of the existing system and the installation of access cleanouts will help in allowing the system to be better maintained. It may be beneficial to DES to include in their operating budget a yearly scheduled maintenance and TV inspection of the system.

- Unknown infrastructure: Drainage routing on site appears to have been reconstructed multiple times and not well documented. Although as part of this investigation a much greater amount of the in place infrastructure is known, there are still areas/ routing that are unknown. During our investigation, cleanouts were discovered that were completely buried and were not located on any record drawings. There may be additional infrastructure that was not discovered during our investigation. Once the damaged section of the system is repaired, further investigation of the remaining system is recommended.

Sandstone

General

The predominant building material of the Old Capitol Building, imparting its distinctive Italianate Style, is Washington sandstone. Previous consultant reports provide the types, location on the facade, mortar composition, and other specifics about the sandstone. (see Appendix A for further information) Specific to this assessment, infrared imaging using a Flir B series camera provided thermal signatures that the large head and sill stones at the window openings are single blocks the depth of the wall. As noted by previous reports, the Old Capitol Building stone has been repaired and rebuilt in specific locations on each of the facades since its original completion. A variety of repair techniques and construction methods were observed. Typically the building walls are unreinforced masonry construction. Exceptions are the rebuilt walls after the 1949 earthquake[2.1] when the sandstone was attached to a steel back-up wall using masonry anchors. Despite the age and variety of construction techniques the sandstone masonry and mortar throughout the building are in good overall condition. A few minor deficiencies were noted during the assessment and are described in the following sections. A few isolated cracks are noted on the drawings and it is recommended that these cracks be repaired to prevent further deterioration. Approximately 2% of all mortar joints are missing mortar and require re-pointing. Given the additional exposure on horizontal surfaces such as the projecting cornices, approximately 20% of joints on horizontal surfaces require re-pointing.

Figure 2-1: Stone Masonry

Figure 2-2: Example of crack through window sill

Biological Growth

As is typical for buildings in the Northwest, biological growth was noted throughout the building. Areas with significant biological growth include horizontal surfaces on the projecting cornices and portions of the building that are exposed to water overflow from the roof drainage system. The biological growth is concentrated in the sandstone joints creating a potential for mortar deterioration. It should be expected that some additional re-pointing will be necessary in areas with significant biological growth.

Figure 2-3: Biological growth on stone masonry

Surface Deterioration (Exfoliation)

Two locations are exposed to significant quantities of rain water run-off from the roofing system. On the West elevation a swath of the stone directly to the north of the entry has been eroded and continues to lose thin outer layers of stone, exfoliation. Water is cascading off the north gable above the entry and down the face of the building. Additionally, on the East elevation, the south side of the south tower is exposed to significant water overflow. The roof runoff from behind the tower is not being adequately directed into the gutter system. As water rushes down the roof it bypasses the gutter and overflows onto the face of the building. The sandstone below the overflow has considerable biological

Figure 2-4: Water damage resulting from roof overflow

Figure 2-5: Stairs leading up to East entrance on South elevation

growth, erosion, and exfoliation.

Entry stairs

The interior plaster walls behind the South elevation, east entry stairs have significant damage due to water intrusion. The moisture content of the interior plaster was measured in several locations and values typically ranged between 25% and 62%. The sandstone balustrade has many open joints and several large cracks running through the stone. The granite stairs are in good condition, however, the joint sealant is deteriorated or missing in several areas.

Figure 2-6: Crack/Open joints in Balustraude

2.1 *Old State Capitol Roof & Exterior Repair Investigation Phase Report. Cardwell Architects. 8 Feburary 2006. GA Project No. 2006-39A.*

Repair Recommendations

General

- Provide repairs to cracks in the stone
- Provide re-pointing of all open/deteriorated joints.
- Provide low-pressure hot water cleaning for entire building.
- Install diverters/flashing to direct all water run-off into the gutter and drainage system. Additionally install an overflow within the gutter system. Overflow shall comprise of an outlet in the gutter system upstream from the downspout. Outlet shall project out from gutter to direct overflowing water away from the building exterior.
- Repair source of water intrusion at south elevation, east entry stairs.

Roofing Systems

General

The majority of the Old Capitol roof was installed during the 1980-1981 Renovation Project[3.1] with pre-formed standing seam copper roofing and pre-formed V-shape seam caps patina to a dark brown. The steep roof system was installed with open, uncovered standing seam and cap assembly ends. Previous roof reports noted these conditions, the application of sealant over the open ends, the lack of ridge flashing covering the caps, and the lack of traditional copper roof details at the ridge and gutter leading to a proposed recommendation for a full roof replacement. PMA observed the as-built conditions noted in the previous roof reports and found no correlation between the metal roof field installation and water intrusion locations. Whereas the as-built conditions are not ideal industry standard terminations at either ridge or gutter, the steep pitch and corresponding fast water runoff mitigates the existing conditions. Water intrusion is primary associated with wall to roof flashing conditions (dormers, edge conditions, etc.) and roof drain systems. It was noted that some roof leaks occur at the ridge to gable rafter connections below the decorative copper caps. Original renovation documents did not call for ice and water shield protection along the ridge and PMA observed a lack of traditional full soldier flat locked seams at these locations that may also be contributing to water intrusion. There are a variety of flashing conditions throughout the building. In general flashings are in difficult to access areas, often minimal in appearance, and rely on sealant to correctly shed water.

Low-Slope Roofing

A single ply PVC roof membrane (Stevens EV 60 mil)[3.2] covers the low-slope portions of both the east and the west wings. The roofing system was installed in late 2006 after the Cardwell Architects report was issued in which the re-roofing project was recommended. Overall the low-slope roofs are in good condition, and require only routine maintenance (Figure 3-1). The roof over the garage located on the south side between the two wings is not in good condition. (Figure 3-2). As reported in the 2006 Report by Cardwell Architects, the garage and mechanical room roof is an elastomeric coating that has reached the end of its life expectancy. The 2006 report recommended that the roof be replaced during the planned generator replacement project. No re-roofing work was observed. The roof is actively leaking, primarily as a result of inadequate flashing systems between the horizontal slab and masonry wall. The deteriorated roof deck coating may also be contributing to increased roof leaks.

Copper Roofing

As noted above, the copper pre-formed standing seam copper roofing and pre-formed V-shape seam caps are in good condition and few deficiencies were noted. A single small hole was noted on the gable above

Figure 3-1: PVC Roof membrane on low-slope roofs

Figure 3-2: Membrane roof above garage

Figure 3-3: Small hole in standing seam copper roofing

Figure 3-4: Standing seam roof terminations

Figure 3-5: Typical ridge ornament soldered in place

Figure 3-6: Deteriorated sealant at roof to wall flashing

Figure 3-7: Rivets covered in sealant

Figure 3-8: Copper siding running behind turned up copper roofing

the West entry (Figure 3-3). PMA reviewed the previous roof reports and noted a lack of self adhering ice and water shield membrane installed under the existing copper roof assembly at the eave and ridge locations to protect against water migrating into the building when gutters and downspouts are plugged from debris or ice damming.[3.4]

Flashing System

Wall to Roof Flashing

The dormers on the West elevation of the west wing are noted as the source of interior leaks in previous reports.[3.3] PMA assessed the windows, interior walls, and flashing conditions to determine possible sources of water intrusion. The existing wall to roof flashing system varies by location. There is no consistency in the configuration, age, and condition of the dormer flashing systems. Several unique configurations were observed and some common deficiencies were noted. The walls to roof flashings rely heavily on sealant and the sealant is deteriorated with visible cracks/openings. Figure 3-6 shows a typical condition where the stainless steel sheet metal step flashing is sealed in place with failed sealant. Other unique conditions observed include:

- A surface attached diverter at the intersection of a dormer wall, roof valley, and dormer gutter functions to divert water away from the dormer wall.
- Pre-formed copper roofing panels are used as siding over some sandstone dormer walls. The copper panels do not cover the entire sandstone wall and panels terminate in a joint filled with sealant and without industry standard termination conditions.
- Portions of the copper roof have been removed to facilitate installation of dormer flashing/gutter systems. Panels have been reinstalled with rivets. Rivets are covered in sealant. Sealant degradation will allow water intrusion (Figure 3-7).
- Incorrect lapped roof flashing systems creating a potential source of water intrusion (Figure 3-8).

Mechanical Room Exterior Wall to Roof Intersection

An unusual confluence of various construction methods and different materials all intersecting at the north end of the mechanical room roof slab are simultaneously contributing to water intrusion. There is a direct correlation between the interior damaged basement plaster and the exterior exfoliated sandstone course directly above the mechanical room roof deck. A load bearing basement wall separates the mechanical room from the corridor. The bearing wall transitions from an interior single sided plaster wall to an exterior sandstone veneer wall. At the transition between interior and exterior, the masonry wall supports the mechanical room roof deck and interior wood floor framing. The exterior face of

the wall consists of exposed brick soldier courses extending from above the mechanical room roof deck to the underside of the sandstone veneer. Also contributing to water intrusion, and another potential source of damaged to the interior basement plaster, is an original skylight over the mechanical room erected from standard steel shapes. The steel is corroded and the glazing putty at the skylight glass is missing or failed and the weep holes at the skylight perimeter are plugged. The unfinished basement mechanical room also exhibits a large surface area of efflorescence providing another indication of high volumes of water migration drying towards the mechanical room side of the wall depositing salt crystals on the brick surface. The damaged plaster results from water drying towards the interior finish. As noted in the roof section, the elastomeric deck coating is failing in specific locations and is beyond its life expectancy. When installed, the elastomeric coating extends up the face of the wall face directly on top of the brick masonry and terminates at the base of the first course of sandstone. The impervious property of the elastomeric coating drives trapped moisture higher into the sandstone resulting in moisture migration through the sandstone towards the exterior causing exfoliation of the stone. In several areas the coating has de-bonded from the brick masonry surface, allowing further water intrusion behind the coating and into the masonry wall. There is no counter flashing to protect the sandstone.

It is a combination of all the sources of water intrusion that lead to continued plaster damage of the finish walls and exfoliation of the sandstone.

Figure 3-9: Roof to wall flashing above garage

Figure 3-10: Deteriorated roof to wall flashing above garage

Balcony Flashing

The existing balcony conditions on the northeast, southeast, and north elevations consist of PVC deck membrane extending vertically as wall flashing at the parapet and building faces. The vertical PVC terminates below galvanized sheet metal counter flashing installed during the circa 1980 alterations. Through fasteners, subsequently coated in sealant, were installed in the face of the galvanized counter flashing to create a pressure termination bar for the PVC membrane. Additional new pre-painted metal coping was installed over the existing coping stone and existing galvanized flashing. At the northwest balcony, the PVC deck terminates on the face of the base stones where an open baluster condition exists. It is assumed that the installation of new pre-painted sheet metal coping over the baluster coping stones was intended to keep water out of the horizontal stone joints.

With exposure to weather, the existing circa 1980 galvanized sheet metal counter flashing is significantly corroded. The weakening of the system as an effective pressure termination will be effected by the degree of corrosion. Additionally the sealant component of the existing system is significantly deteriorated. The location of new pre-painted sheet metal coping is ineffective in preventing water intrusion at the balconies because typically the more vulnerable locations are the intersection between the balcony slab and baluster base stones or parapet wall bases.

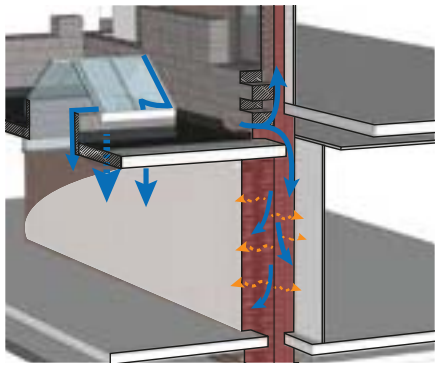

Figure 3-11: Diagram of Garage wall to roof flashing

Figure 3-12: Corroded flashing above Southeast balcony.

Figure 3-13: Corroded apron flashing

East Tower

At the intersection between the copper shingle clad East entry towers and the low slope roofing is a painted galvanized sheet metal apron flashing. PMA noted that the rivets holding the curved apron sections together are corroding. The sealant between sheet metal panels is deteriorated. In select areas, PMA investigated the condition of the sheet metal underneath the paint and found significant corrosion. The corrosion is likely a direct result of galvanic reaction between copper, galvanized apron, and metal rivets. It can be expected that similar corrosion may be found elsewhere underneath the painted surface and that is will continue to worsen with time.

Gutter System

The gutter system extends down from the roof edge to the top of the sandstone wall and is made from several built-up courses of unpainted stainless steel sheet metal. In 2009 Yi & Associates investigated a leak in the West wing. A temporary dam was installed and the gutter was filled to capacity in an attempt to locate potential leaks in the gutter system. The Report concluded:

- The interior leak conditions that appear to have originated from the pop rivet placement and the gutter to main roof and valley can only occur when: 1) the gutter is plugged and fills with water, allowing the water to migrate through the pop rivet holes and up under the original transition flashing between the valley flashing, main roof, and gutter; or 2) when a winter condition creates extensive ice damming and snow loads plug the gutters and downspout forcing melting water from the snow up under the transition flashing and through the pop rivet holes.

Following the initial testing, Olympia Sheet Metal removed the pop rivets, the surfaces between the back flange of the gutter and the secondary flashing were cleaned, new urethane sealant was installed between the surfaces, new pop rivets were installed, and the rivet heads were sealed. Further testing concluded that these repairs successfully stopped the leaks.

During the assessment PMA noted several different gutter conditions around the building. Two major conditions are pictured below. Condition A (Figure 3-14)appears similar to the condition tested in 2009 by Yi & Associates. Condition B (Figure 3-15) has many similarities, however, the secondary flashing varies somewhat in its configuration. Both Conditions A and B have fasteners below the waterline when the gutter is at full capacity. As noted by Yi & Associates these fasteners have the potential to cause leaks in the gutter system. PMA noted some deficiencies in the gutter construction. Specifically the gutter segments are welded together and some pin-holes in the welds were noted. These small holes could account for significant leakage if there is enough head pressure in the gutter. PMA noted one section of the gutter, above the West entrance, on the South elevation, where the secondary flashing

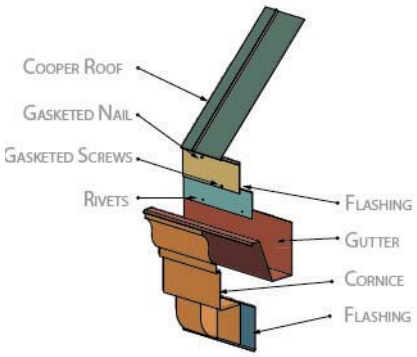

Figure 3-14: Gutter Type A

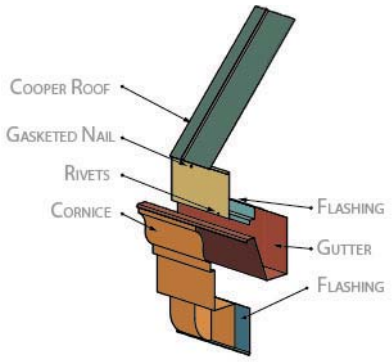

Figure 3-15: Gutter Type B

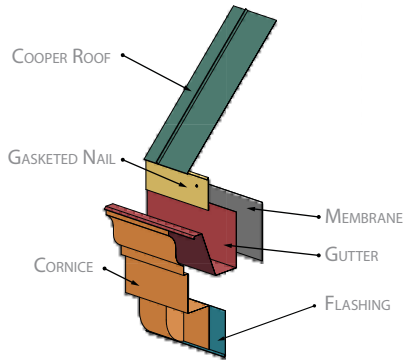

Figure 3-16: Incomplete gutter section on West wing South elevation.

was incomplete. As can be seen in Figure 3-16, the secondary flashing was cut-off, potentially allowing substantial amounts of water to leak through/behind the gutter.

Skylights

There are several types of skylights located throughout the Old Capitol ranging from manufacturer standard square dome skylights, custom curved skylight over the main stair, two circular skylights on the east wing, and a small skylight over the mechanical room noted above.

On the low slope roof of the East wing are two large (approximately eighteen foot diameter) custom fabricated circular skylights. These circa 1980 circular skylights are composed of a series of triangular shaped glass panels and an aluminum frame. The skylights are sloped to shed water and adorned at the top with a historic copper ball matching the decorative ball caps at the ends of the gable rafters. The circular skylights have a history of leaking, and while PMA was onsite the southern skylight was wrapped in plastic to prevent further water intrusion. Several deficiencies were noted on the uncovered skylight including, corroded metal flashing, deteriorated glazing putty, and de-bonded film coating over the glazing.

The skylight over the Mechanical Room is described under the Flashing System section about the Mechanical Room.

Figure 3-17: Conventional Skylight

Figure 3-18: North circular skylight above East Wing

Figure 3-19: Rectangular skylight above garage

Figure 3-20: Deteriorated skylight frame

3.1 Old State Capitol Roof & Exterior Repair Investigation Phase Report. Cardwell Architects. 8 Feburary 2006. GA Project No. 2006-39A.

3.2 Job No. 9906-01B5 Wetherholt and Associates, Inc. Field Report 9, November 29th, 2006.

3.3 Architectural Resource Group Report Assessment Report.

3.4 Old State Capitol Leak Investigation, Yi & Associates. June 23, 2009. GA Project No. 9906-01B6

Repair Recommendations

Low-Slope Roofing

- Replace low-slope roofing over garage and mechanical room.

Copper Roofing

- Repair holes or openings in the roofing system.
- Provide proper flashing and attachment for ridge ornaments.

Flashing System

Wall to Roof Flashing:

- Remove existing flashing at dormers.
- Install new stepped flashing at walls integrated into stepped flashing at roof.
- Install new flashing at drain bodies above west entry.
- Remove degraded sealant and replace with new backer-rod and sealant.

Mechanical Room Exterior Wall to Roof Flashing:

- Install new liquid membrane roof system on mechanical room deck.
- Install new fire treated plywood substrate over exposed brick soldier courses before applying liquid membrane roof flashing system compatible with the new roof system
- Install copper counter flashing below first course of sandstone on top of soldier course for full depth of sandstone.
- Install new skylight.

Balcony Flashing:

- Remove the existing pre-painted coping flashing.
- Install lead shields in the horizontal coping stone joints.
- Remove the existing corroded galvanized counter flashing and replace with new stainless steel or copper flashing.
- Install industry standard termination bars below the new counter flashing.
- Replace sealant at specific locations.
- Repair deck to base stone flashing system at the north elevation
- Remove biological growth from the stone.

East Tower Apron:

- Remove existing paint, remove corrosion, prime and paint sheet metal.
- Replace significantly corroded sheet metal

Gutter

- Repeat repairs performed by Yi & Associates throughout the entire gutter system.
- Repair all holes in welds.
- Where gutter system is incomplete repair/replace gutter system.

Skylights

- Provide two (2) new 18 foot diameter skylights on East wing.
- Provide one (1) new skylight over garage/mechanical room

Windows

General

The existing windows are large by industry standards, averaging approximately 48 inches wide and 108 inches tall. Windows on the Basement, 1st, 2nd, and 3rd floors are typically one over one, wood double hung varying in shape from rectangular to arched. On the 4th floor of the East building the majority of the windows are significantly smaller and single lite awning windows. Anomalies to the typical window configuration include a series of two over two and three over three fixed windows on both the North and South elevations directly above both balconies on the East wing. Above the North balcony on the West wing there are three sets of three double hung windows that were installed during the circa 1980's remodel. All of the window sashes, regardless of original operability, have been fixed and painted shut. Overall PMA assessed 324 out of a total of 415 windows, or 78%. The remaining windows were out of reach of the snorkel lift.

Previous reports reference that the original windows have been replaced.[4.1] Several of the frames on the South elevation of the West wing appear to have been previously replaced, as was specified in the 2006 Report. Additionally, several of the arched sash windows throughout the building have been replaced with rectangular windows. The arched sashes have been replaced with wood panels painted to match the surrounding frame and adjacent sash. Other alterations/repairs include installation of fire safety glass in place of the typical untempered single glazing.

In general, the most common deficiencies include deteriorated perimeter sealant, deteriorated glazing putty, deteriorated paint, and loose sash joinery. Due to increased weather exposure, windows on the east and west have the most damage. As a result of the overflow roof runoff, significant damage occurs to the windows directly below the water flow on the east elevation. Previous damage to the windows within the fire stairs on the west elevation of the east wing resulted from an overflowing gutter. As noted previously in the report, portions of both the East and the West elevations have been exposed to significant quantities of roof run-off for an extended period of time resulting in a variety of window deficiencies. The quantity of deficiencies on the South elevation is a result of local weather patterns. The prevailing wind is typically from the South[4.3], and the elevation is exposed to significantly more wind and rain. The North elevation was typically in better condition given its protected orientation and lack of run-off associated exposure.

* See Appendix B, Window Survey for a complete breakdown of window condition by deficiency and elevation.

Figure 4-1: Typical rectangular and arched windows

Figure 4-2: Fourth floor awning window

Figure 4-3: Deteriorated Sealant

Figure 4-4: Deteriorated glazing putty

Figure 4-5: Water damage resulting from deteriorated glazing putty

Observations

The most common deficiency noted was deteriorated perimeter sealant at the window frames. Both adhesive and cohesive failures were noted on all elevations of the building. Of the 324 windows assessed, deteriorated sealant was noted on a total of 212 (65%). Throughout the building a variety of sealant conditions were noted. Typically, where windows have been exposed to significant quantities of water, the sealant appears to have been recently replaced. In other areas, failed sealant has been partially replaced. Sealant wasn't consistently tooled leading to more rapid failure.

Figure 4-6: Loose sash joints

More than half of the windows assessed (192) show visible signs of deteriorated glazing putty. Glazing putty is brittle, cracked, broken, and missing facilitating further deterioration of the glazing putty and sash. The age and type of glazing putty appeared consistent though out the building. Department of Enterprise Services staff removed samples of failed putty from the basement elevation on the East elevation for hazardous materials testing. A result of deteriorated glazing putty is an increase in water intrusion resulting in damage to the interior wood sash noted on a significant portion of the windows (139 out of 324, or 43%). Water damage was typically observed on the interior horizontal surface of the meeting rail. The severity of the damage varied from slight discoloration of the paint to significant deterioration of the meeting rail.

Figure 4-7: Loose sash joints

Several sashes have loose mortise and tenon joints. 154 windows (48%) had visible separation of the sash mortise and tenon joints. A high percentage of sash joints on the weather exposed elevations (65%), were reinforced from the exterior with mechanical fasteners, While the separation remains small, maintenance of the windows and glazing putty is critical to prevent further degradation of the joints.

Window sashes and frames are protected with several coats of paint. However, the paint coating is deteriorated on (135 out of 324, or 41%) of the sashes. Windows with significant portions of missing paint were carefully examined for signs of deteriorated wood frames and wood sashes. Typically the wood sash is in sound condition and the deterioration is limited to surface checking at the wood sills, and in a few units, wood sills have full rot.

Figure 4-8: Deteriorated Paint

Prior to PMA's site assessment, several windows were identified as having active leaks.[4.2] PMA investigated each window from both the interior and exterior. PMA identified approximately 10 windows that were leaking as a result of inadequate or no window flashing. The remaining leak areas can be attributed to faulty drain pipes, insufficient wall/roof flashing, and other mechanisms of water intrusion. Typical for the period and era of building construction, windows throughout the Old Capitol Building are installed without sill or head flashings. However, in general, the existing windows are well protected from the elements as a

result of the deep set back from the stone face. The frames are set back approximately one foot four inches (1'-4") from the exterior face of the stone and the wood windows sills are installed on continuous stone sills that are sloped towards the exterior of the building. Given these conditions, most of the windows function well without sill or head flashings. The ten windows identified as leaking don't appear to vary in their construction from the typical Old Capitol window, but water has collected along the frame and sash perimeter and leaked to the interior at the most common location, the lower corner sash and sill intersection. With contemporary construction techniques, this intersection is protected by sill flashing containing end dams.

Figure 4-9: Checked window sill

The majority of window frames are in fair condition with a minor number of frames having deterioration at the window sills. On these windows the surface area of the deterioration is typically small (4 to 8 square inches) and localized to one or both sides of the window frame. Several of the windows with deteriorated frames are located in one of two areas identified as having significant exposure to water. These areas are the south side of the south tower on the East elevation and on the North portion of the East Wing, West elevation. Some damage from previous repairs was noted by PMA. Most notably small (1/2 inch) horizontal cuts were observed on the window frames. These cuts appear to be the result of over cutting while removing mortar from the surrounding masonry to facilitate re-pointing.

Figure 4-10: Deteriorated Sash

Figure 4-11: Deteriorated Sill

Figure 4-12: Frame damaged by overutting during previous re-pointing repair work

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4.1 Old State Capitol Roof & Exterior Repair Investigation Phase Report. Cardwell Architects. 8 Feburary 2006. GA Project No. 2006-39A.

4.2 Architectural Resource Group Report Assessment Report.

4.3 "Prevailing Wind Direction" Western Regional Climate Center. n.d. Web. 25 Feb. 2014

Repair Recommendations

- Remove deteriorated sealant. Provide new backer rod and sealant. (275 windows.)
- Remove existing glazing putty and provide new glazing putty. (422)
- Repair window sashes.
- Remove window sashes, shop repair, install new weather stripping, reinstall sash.
- Remove deteriorated paint, provide one coat primer and two top coats to match existing windows.
- Repair checked and deteriorated wood fames
- Fill minor checks with filler, re-paint.
- Replace full sills and sashes with significant deterioration.
- Provide Dutchman repair of deteriorated wood components.
- Provide new liquid flashing at rough openings. Windows frames and sashes should be removed and shop repaired as needed, new flashing at the window head and sill installed, frames and sashes re-installed.

Interior Plaster Water Damage

Several interior leaks were identified in the ARG report. Each of these areas was investigated to identify the source of potential water intrusion as well as determine potential repair solutions. A variety of causes were identified and discussed in the previous sections. Primary sources of water intrusion include; insufficient wall to roof flashing (West dormer windows), leaking of interior drains or drain body flashing (West elevation tower walls), window frame to wall flashing (various above grade window locations), failed glazing putty and perimeter sealant (various above grade windows), broken downspout drain lines (South elevation, basement level window), original construction methodology (lower level wall damage outside the mechanical wall/Southeast entry stairs).

Figure 5-1: Plaster removed to determine extent and cause of water damage

Significant plaster damage was also noted in the East building within the fire stairs. The gutter above this section of building was carefully investigated, but no obvious leak sources were readily identifiable. The gutter appeared to be in good condition and construction was consistent with the rest of the building. An inside corner of plaster was removed to identify the window construction methods and to investigate additional sources of water intrusion. Observations revealed two separate layers of plaster over metal lath and brick masonry. The sandstone sill sat behind the single wythe of brick masonry. Several moisture readings were taken and indicated that significant moisture remained in the wood window frame, wood blocking, masonry, and sandstone. With the exception of no sill flashing during either the original construction or major remodel (not a contributing source of water), no apparent leak source was identified. PMA was informed that a substantial, sustained gutter overflow occurred above this section of the elevation. This singular event is the most likely source of water intrusion and plaster damage. The gutter has since been repaired.

Figure 5-2: Plaster showing signs of significant water damage

Repair Recommendations

- Remove sources of water intrusion. (See previous sections)
- Once the source has been repaired, remove damaged plaster and provide new finish plaster to match existing conditions.

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Repair Recommendations

Following is a prioritized list of repairs for the Old Capitol Building. Priorities A, B, and C categorize the recommended repairs from each section according to highest priority. Priority A repairs are of the highest importance, followed by B and C. Repair importance was determined by the impact each repair would have on the building envelope. Repairs that prevent water intrusion and the continued deterioration of the building are listed under Priorities A and B, while less critical repairs are included within Priority C.

Limitations on Cost Estimates:

The cost estimates provided in this report are intended to generally identify expected future costs for planning and budgetary purposes. The estimates represent the evaluator's best judgment of the "direct" costs for that element or issue with allowances for indirect costs such as design/taxes, contract conditions. Additionally, if elements are packaged together, individual deficiency costs may be less, or more depending of scalability of the specific scope of any given project. Identification of possible costs prepared by the investigation team represents our best judgment as professionals familiar with the construction industry. They have not been generated from a specific design or proposal. The team cannot and does not warrant or represent that actual cost for the recommended improvement will not vary from our estimate.

Priority A

Civil	***Repair collapsed storm drain:*** • one (1) section of storm drain line to be replaced.	1 location, total 8 linear feet.	$ 2,114
	New 4" drain lines. Where drain pipes are disconnected provide new 4" storm drain lines and connect to downspouts/storm drain line system.	3 locations, total 45 linear feet.	$ 7,701
	Repair and reconnect collapsed footing drain.	1 location	$ 2,492
Walls	***Install diverters/flashing to direct all water run-off into the gutter and drainage system.*** • two (2) diverters adjacent to west towers. • two (2) diverters adjacent to east towers.	4 locations total	$2,114
	Install gutter overflow adjacent to east towers.	2 locations	TBD
	Repair south-east entry stairs. Install foundation wall exterior water proofing. Remove (e) granite riser and treads. Remove existing concrete stair support. Repair. Reinstall stairs at south elevation, east entry stairs.	1 location; 200 sf	TBD
Wall to Roof Flashing	***Repair existing wall to roof flashing at west wing dormers.*** Remove existing glashing at dormers. Install new stepped flashing at walls integrated into stepped at flashing at roof.	8 dormers/ 60 lin ft	$ 4,530
	Install new flashing at drain bodies above west entry.	2 locations	$ 1,057
	Repair sealant surrounding west wing towers and dormers. Remove degraded sealant and replace with new backer-rod and sealant at roof to wall intersections.	30 lin ft	$ 1,586
Gutter	***Repair gutter system.*** • Drill out and remove pop rivets. • Clean the faying surface between the back flange of the gutter and the secondary flashing, seal with urethane sealant. • Install new stainless steel pop rivets and seal the heads. • Repair all holes in welds.	1000 lin ft	$ 57,383
	Provide new 18 foot diameter skylights on East WIng	2 skylights	$ 248,552
	Provide new skylight over garage/mechanical rooms.	1 skylight	$ 19,178
Windows	Remove existing glazing putty and provide new glazing putty	422 windows	$ 191,176
	Remove existing sealant and provide new backer rod and sealant	7,000 lin ft	$ 132,132

Total 'Priority A' cost not including TBD items: $ 670,015

Priority B

Civil	***New storm drain cleanouts to maintain drainage system:*** • five (5) new 4" storm drain cleanouts • seven (7) new 6" storm drain cleanouts • two (2) new 8" storm drain cleanouts.	13 locations	$ 14,723
	New field drain cleanouts.	6 locations	$ 6,795
	Connect window wells to field drainage system • six (6) new connections • three (3) replacement connections	9 locations	$ 13,590
	Clean and video inspect. Where access was limited due to standing water/collapsed drain lines clean and video inspect the system.	1 lump sum	$ 3,775
	Repair flashing at roof drain body - west turrets.	1 location	$ 1,510
	Provide new liner of internal drain line on west elevation.	1 location	$ 3,775
Roofing	***Replace low-slope roofing over garage/mechanical room.*** Remove (e) elastomeric roofing @ garage and mechanical room. Provide polymethyl methacrylate resin (PMMA) Liquid-Applied roofing and flashing system over garage and mechanical room.	780 sq ft	$ 26,056
	Repair miscellaneous holes and/or openings in the roofing system.	10 locations. approx 10 sq in	$ 4,530
Wall to Roof Flashing	***Install new flashing system over garage/mechanical room.*** • Install new plywood substrate over exposed brick soldier courses before applying liquid membrane and roof flashing system compatible with new roof system over garage and mechanical room. • Install copper counter flashing below first course of sandstone on top of soldier course for full depth of sandstone.	115 lin ft	$ 10,420
Balcony Flashing	***Repair deck to base stone flashing system at the northwest elevation.***	25 lin ft	$ 1,699
Windows	***Flash leaking window openings.*** Provide new liquid flashing at rough openings. Window frames and sashes should be removed and shop repaired as needed, new flashing at the window head and sill installed, frames and sashes re-installed.	10 window units	$ 15,101

Total 'Priority B' cost not including TBD items: $ 101,974

Priority C

Civil	***New yard drains connected to storm drain line.***	6 units	$ 15,855
	Grade earth to direct runoff into yard drains.	North: 1,525 sq ft East: 2,500 sq ft	$ 9,789 TBD
	Miscellaneous (Video Investigate Downstream Line and Cap Ex Lateral if Abandoned)		TBD
	Annual Maintenance	1 lump sum	$ 30,200
Walls	***Provide repairs to cracks in the stone***	10 lin ft	$ 1,888
	Provide re-pointing of all open/deteriorated joints.	4,500 sq ft	$ 101,930
	Provide low-pressure hot water cleaning of entire building.	45,000 sq ft	$ 152,896
Flashing	***Repair existing balcony flashing.*** • Remove the existing flashing and corroded galvanized counter flashing and replace with new stainless steel of copper flashing. • Install industry standard termination bars below the new counter flashing, and lead shields in coping stone joints. • Replace sealant at specific locations.	320 lin ft	$ 36,756
	Repair east tower flashing. Remove (e) paint, remove corossion, prime and paint sheet metal. Replace corroded sheet metal (approx. 20 sq ft)	250 sq ft	$ 4,530
	Provide proper flashing/attachment for ridge ornaments.	12 locations	$ 5,889
Gutter	***Where the gutter system is incomplete repair/replace the gutter sysem.***	25 lin ft	$ 1,321
Windows	***Repair and weather proof window sashes.*** Remove window sashes, shop repair, install new weather stripping, field repair wood frame, reinstall sash, repair operability.	422 window units	$ 665,453
	Replace window sashes.	approx. 10 units	TBD
	Repair checked and deteriorated wood frames. • Fill minor checks with filler, re-paint (approx. 80 units) • Replace full sills and sashes with significant deterioration (approx. 30 units). • Provide Dutchman repair of deteriorated wood components (approx. 50 units).	160 units total	$ 135,152
Plaster	***Repair interior plaster.*** Once the sources of water intrusions have been repaired, remove the damaged plaster and provide new finish plaster to match existing conditions.	250 sq ft	$ 11,326

Total 'Priority C' cost not including TBD items: $ 1,172,985

Old Capitol

The 1892 Old Capitol Building and its 1905 East Annex addition take up the 600 Block on Washington Street in Olympia, WA. Originally commissioned as the Thurston County Courthouse, the original building resides on the west half of the block overlooking Sylvester Park with a footprint of 78 by 146 feet and was two and a half stories with a full daylit basement. The West Wing was constructed in October of 1892 by the Washington architect Willis A. Ritchie who was well known designing other capitol buildings across the northwest.[A.2] The exterior was designed in the Queen Anne style popular of the time with light gray sandstone exterior structure; Chuckanut stone quarried from Whatcom County.[A.1] (Wilkeson, WA[A.2])

The West Wing was originally designed with a high hip roof of steel shingles and eight conical turrets in pairs symmetrically arranged around the perimeter of the roof. Eight dormers with attached hip roofs topped the small returns that project as reliefs along the façade. An octagonal clock tower stood at 150 foot above street level and was topped with an octagonal spire and eight gargoyles.[A.4] The tower projected above a balcony recessed behind a segmental arch on the west facade. Below this, a 20 foot semicircular arch that rises from panels carved with bas-relief lions with 16 stone steps leading up to the West Wing main entrance. [A.4]

The fire prevention methods of construction included steel floor joists with hollow tile arches between joists. Floors were glazed tile with ornamental patterns. No wood framing was used below the roof.[A.4]

In 1901 the building was purchased to house the State Capitol and Ritchie was commissioned to design an addition to house the Senate and House of Representatives. The East Wing Annex was completed in January of 1905.[A.1] The Richardsonian Romanesque influenced addition included three 20-foot-wide domed skylights, 12 conical towers , and an ornate, wrought-iron Otis elevator large enough to have snack bar.[A.1] The historic elevator was hydraulic with a 80 foot steel shaft. [A.4]

The East Wing is the same height as the original building only 80 feet by 200 feet, symmetrically extending 27 feet to the north and south beyond the original building. The East Wing annex is constructed of sandstone of a slightly different texture than the original. First floor entrances are located centrally on the east and south facades with a basement entrance to the north.[A.4] The addition featured new building technologies, including heavy timber rafters and steel trusses, differing from the heavy, rough sawn timbers of the original West Wing. Both buildings are built with a load-bearing masonry structure.[A.2] The three domes of the East Wing were supported with steel trusses.

The sandstone coursework of both buildings has alternating in thicknesses and is trimmed and ornamented by molded and cut masonry components along the first and second floor levels. The cornice overhangs a row of

Figure A-1: Old Capitol in 1900

Figure A-2: Old Capitol in 1910

Figure A-3: Old Capitol 1928 Fire

dentils at the eaves.[A.2]

Windows at the basement and first level are double hung sashes spanned by thick stone lintels and spaced closely together, usually alternating 3'6"- 4'0" apart. The second floor windows are mostly arched with round headed sashes and sandstone voussoirs.[A.4] A coarse of sandstone runs below the windows providing a stone sill.

In 1910 the state purchased the property of the Old Capitol block and housed most state agencies until 1919 and the Legislature until 1928.

In 1928 a fire destroyed the clock tower and the fourth floor of the West and Central Wings. The octagonal clock tower had clocks on each face with illuminating dials and was a prominent landmark.[A.1] The Olympian public petitioned the state to rebuild the tower; however it was replaced with a large dormer with an eight foot hole between the two conical towers at the front entrance. This also replaced what had previously been the recessed balcony.[A.3] Heath, Gove & Bell designed the repairs.[A.2]

In 1939, new concrete floors were constructed by the Works Progress Administration on the third and fourth floors of the East Wing, taking the space where the Senate chambers and galleries were located. New boilers and steam piping were installed, a new elevator replaced the hydraulic elevator, and mechanical and electrical were upgraded. [A.2]

An earthquake in 1949 resulted in the destruction of 10 of the 12 towers, the rotunda at the East Wing center, and the House chamber and galleries.[A.2] The two towers at the West Wing entrance were the only to remain. Stonework above the main east and west entrances was damaged. The masonry replaced from the towers falling altered the appearance of the old courthouse and the turrets were not replaced. The east entrance steps were repaired with cement. The repairs and retrofits reinforced the building with 190 tons of steel. Repairs were done by

Figure A-4: Old Capitol 1949 Earthquake

Figure A-5: 1949 Repairs post Earthquake

Wohleb & Wohleb and Naramore, Bain, Brady & Johanson.2 Another earthquake in 1965 caused minor damage, which were repaired.

The Old Capitol become a historic place on May 1975 on the National Registrar.

In 1972 GA project 72-358, focused on exterior work and repairing the roof and gutters, done by Washington State Dept of Enterprise Services. In 1973 GA project 73-119 included exterior work installing an exhaust fan. In 1977 GA project 77-207 addition exterior work to repair the roof.

1981 begins the Old Capitol Renovation Project including seismic reinforcement, rough-in and mechanical work, cleaning and exterior stone work. Work by Tonkin/Greissinger/Cuykendall/Iles architects, Engineers Northwest structural engineers, Benjamin S. Notkin & Associates Inc. mechanical, Sparling & Associates, Inc. electrical. Two replica towers of those on the West Wing were constructed on the east side of the building for air intake and exhaust. The sandstone slabs for the stonework were quarried for Wilkeson. In 1982, walls were replasted, ceilings hung, two elevators installed, new skylight and copper roof installed. The original roof construction was a copper shingle roof, which had been previously replaced with slate tiles. The new roof is crimped on the outside and clipped on from the inside so water could be prevented from seeping in through exterior holes from nails. The main stairs and corridors were opened to restore the original design of the building. This 9 million project was completed February of 1983. An eight-foot diameter glass window was installed in the central dormer and was fabricated by stained-glass artist, Michael Kennedy. The Seal of the State of Washington is etched on sheet glass with lead and zinc strips, with a perimeter of beveled glass held in an oak frame.

In 1985 GA project 85-122, an exterior assessment was undertaken with annotated photographs prepared by Objects Conservation, Inc. The 1985 GA project 85-126 included exterior repairs and replaced the skylights, drawing done by Architect Walter Greissinger. In 1986, GA project 86-000 Exterior work installing two polygon skylights. Architect Walter Greissinger prepared the drawings and Seattle Bronze was used for fabricatation.

In 1989, GA project 89-088, exterior work was performed including site drainage improvements, sewer replacement and building repairs. Drawings prepared by Duarte Bryant architects, Abacus mechanical, and Dames & Moore geotechnical/civil.

In 1992 GA project 92-301 exterior work provided ADA access improvements. In 1996 GA project 96-087 exterior stone and window repair was prepared by Boyle Wagoner, architects, Objects Conservation Inc. conservator, and AKB Consulting Engineers, structural engineers.

2002. Flashing was redone on the south dormer and the west entrance. Damaged wood truss was repaired with epoxy and steel reinforcement.

2002 GA project 2002-130. Earthquake damaged mortar joints were repaired. Damaged wood trusses were also repaired.

2003. Work was performed on the West dormer. Backer rod and mortar were installed and it appears that new sealant was installed around the circular window. New flashing may have been installed around dormer roof edge conditions.

2005 GA project 05-3721. Exterior work providing a new generator addition. Drawings prepared by Richmond/Archos.

2006 GA project 06-039. Exterior condition assessment completed and work undertaken repairing existing windows. Assessment and drawings prepared by Cardwell Architects. Work included repairing a leak at a scupper by removing a seagull nest. Window infills were reconnected, missing copper shingles were replaced, loose tiles were

secured, and new caulking was installed. Additionally the gutters were cleaned.

2008 GA Project 2008-042. Some roofing work was performed – repair of turrets and copper roof. Shingles were replace on the turrets. Infill panels on the turrets were repaired.

2008. Emergency stone repair work was performed. Loose stone was removed above the West, Northwest, Northeast, Southwest, and Southeast entrances.

The Old Capitol Building is significant statewide for its role in both county and state government, as the work of notable architects, as an important anchor building to downtown Olympia for the building's notable building material usage and assembly.[A.2] The Old Capitol is the only existing former state government structure.[A.4] The Superintendent of Public Instruction has been a tenet of the Old Capitol Building since 1906.

Description

The Old Capitol building was completed in two parts, the original Queen Anne style West Wing in 1892 and the Richardsonian Romanesque influenced East Annex in 1905. The building forms an H in plan and overlooks Sylvester Park to the west. The West Wings has a footprint of 78 by 146 feet and the East Annex 80 by 200 feet, connected by a central axis 27 feet wide, separating the wings by 24 feet. The overall building is two and a half stories with a full daylit basement and crawl space.

Both wings are built from stone from Chackanut Quarry of Washington, which produced sandstone for the Washington and Portland areas in the mid to late 1800s. The sandstone coursework of both buildings has alternating thicknesses and is trimmed and ornamented by molded and cut masonry components along the first and second floor levels. It is rock or pitch faced with small mortar joints.

The stone along the basement level projects 6 inches from the rest of the wall and the stone coursing here is wider than the other levels. Windows at the basement are 80" double hung sashes spanned by thick stone lintels and spaced closely together, usually alternating 3'6"- 4'0" apart. A low profile stone coursing under the window acts a sill and wraps around the perimeter of the building. The basement level is partially sunken below grade, and some windows are set within stone wells. The top of the basement wall cuts 6 inches in to meet the first floor stone and serves as a definitive base for the building.

Figure A-6: Old Capitol 1949 Earthquake

Figure A-7: 1949 Repairs post Earthquake

Figure A-8: Old Capitol 1949 Earthquake

Figure A-9: 1949 Repairs post Earthquake

The first floor has similar windows that are 104" in height with the same accented coursing as a sill and a large two foot high lintel. The windows are spaced to match those below. Above the first floor lintels is a decorative horizontal stringcourse at the second floor framing level. This is continuous around both buildings.

The second floor windows are mostly arched with round headed sashes and sandstone voussoirs.[A.4] There are nine voussoirs around each window trimmed with a molded detail projection. The molding detail is joined at the end of each arch by an ornamental circular stone. A course of sandstone also runs below these windows providing a stone sill. The West Wing, being of an earlier construction and slightly more ornate style, has some added details that do not match the East Annex. The arched windows on the West wing have a pattern of square stones below the sandstone voussoirs.

Above the arches another row of small, half height fixed windows are located one stone course below the dentil cornice. A course of sandstone also runs below these windows providing a stone sill. The cornice above overhangs a row of dentils at the eaves. The gutter system is integrated in with the cornice and external drain sprouts project through the dentil. The cornice and detail remain the same around both buildings. On each elevation, the façade is interrupted by returns that project out an average of 8 feet. Each return is defined on either end by a tower that nests within the façade. The two towers are connected at the center to form the return and an entry point is recessed at the center. On the east and west elevations, the towers are surmounted by a cornice with dentil and a conical roof. Louvered vents provide exhaust for the building at the top of these towers.

The majority of the roof is copper with standing seams, with the exception of the conical turrets with copper shingles. The West Wing has a hip and valley roof several intersections including seven dormers, two towers, and connecting the central wing. The central wing has a gable roof that interests the west and east roofs. The East Annex has a mansard roof with a smaller roof intersecting to the east between the two towers. The top of the east roof is flat and has two conical skylights, areas for vents, and another skylight over the stairwell. The roof is crimped on the outside and clipped on from the inside so water could be prevented from seeping in through exterior holes from nails. The roof has a plumb cut that lines up with the integrated gutter system and is set in from the exterior walls. The West Wing's west entrance is framed by a large round arch composed of sandstone voussoirs trimmed with a molding detail, mimicking the detailing over the arched windows. The arch rises on either side of the entrance from embossed stone carved lions and a projecting pillar of stone that connects the arch to the ground. The entry door is recess below the arch, in-between the two towers that make up the entry return. The entry stairs lead from the grade to the first level and wrap squarely around the two towers as they lead up to the entrance. Above the west entrance, a dormer spans between the two turrets and a large circular stain glass window of Washington is framed in the center. This window accented by sandstone voussoirs above and four large stones with a horizontal string course modeling below. Four smaller dormers are mirrored on either side, each with a pairs of windows that share

a small column at the center. These dormers have stone ornamented with a round or rectangular keystone above the windows. The two dormers on the outer north and south have ornamental protruding sills that have rounded bottoms with a central support that lines up between two lower windows.

The West Wing's northwest entrance is also flanked by two short towers. These towers are cut short by a balcony on the second floor. The balcony with balustrade bridges between the two towers and creates an overhang above the entrance. Three windows of a distinctly different style face onto the balcony. The stone at the center second floor is replacement stone after the 1949 earthquake and is a lighter color from the original stone.

The West Wing's southwest entrance is flanked by two towers and recessed behind a segmented arch. The arch is composed of fifteen voussouris and the second floor stringcourse molding borders along the top edge. The arch corbels into the side of the towers. The entry stairs round out from the sides of the towers and lead up to the first floor. Above the entrance, four double hung windows are connected by a large triple arched element, similar to the other second floor windows.

A garage spans between the two wings to the south. The garage door is framed at the top with a segmented arch and has the same stone coursing as the rest of the building. Towards the back of the garage is a gabled skylight. The garage roof holds several utility elements.

The East Annex's southeast entrance is flanked by two short towers and three arches create a portico. The arches terminate into two clustered columns with Corinthian capitols that terminate at the top of the stairs. The springer stones of the arches mimic the Corinthian capitols and protrude from the wall where they appear to support the arch. The sandstone voussoirs are trimmed along the top with a molding detail. A covered porch is located above the arch and spans the distance between the two towers. Four small Corinthian columns support a large lintel which shares a consistent height with the lintel height of the adjacent windows. The towers end two courses above the lintel.

The East Annex's northeast entrance is almost identical to the southeast, but there are no stairs leading up to the first level. The entrance is at the basement level through a segmented arch. The triple arch above creates a space for a covered porch.

On the east elevation, the east return, once designed as an entrance now serves as a recessed porch similar to the northeast. The space between the columns has been in-filled with stone to form a balustrade, which is distinctly different from the original stone. The east return has a full three levels above the basement. The second story win-

Figure A-10: Old Capitol 1949 Earthquake

Figure A-11: 1949 Repairs post Earthquake

dows on the return are double-hung windows and the third level windows are arched windows. The stone along the third level is veneer stone.

Building Materials

The roof is a standing seam copper roof installed during the 1980 renovation and has weathered to a dark brown with limited green copper patina. The west turrets have a rich green patina, the copper shingles are historic but not original and have had repairs to missing shingles over the years. Single-ply membrane roofing is located where the historic turrets once stood, installed in the 1980s.[A.5]

The cornice around parts of the building is painted metal and gutter assembly integrated above is stainless steel.[A.5]

The locations repaired after the earthquake damage (where the turrets once stood), veneer stone was installed backed with steel framing and steel masonry anchors. The grayish coloration of the mortar on the original portion of the structure and non-traditional finishing has been "determined to be at least partially due to the use of early cement as the mortar binder" with a "unique way in which the mortar joints were finished", according to Krazan & Associates In 2006. This was confirmed in lab testing and the mortar is not similar contemporary mortar. The 1905 addition has a different white/grey mortar with a similar early cement binder. Later additional repointing of different mortar can be found in this area. The historic mortar is denser than the relatively soft Chuckanut stone which usually results in spalling of the stone.

According to lab results by Kranzan, the mortar formulations contain some Portland cement, but Mark Liebman notes that modern cement is much harder, denser and less porous than that found in the samples. The 1892 mortar has an aggregate medium sand mix compromised of quartz, various igneous particles, and cream colored clays. Calculated mixture was approximated to be 1 part early cement, 1 part non-hydraulic lime, 5-6 parts aggregate.

The 1905 mortar has an aggregate of medium sand mix compromised of quartz, various igneous particles, and light grey colored clays. Calculated mixture was approximated to be 1 part early cement, 2 part non-hydraulic lime, 8-9 parts aggregate.

Figure A-12: Old Capitol 1949 Earthquake

Figure A-13: 1949 Repairs post Earthquake

According to Good Faith Inspection for asbestos performed by Pat Guffey, AHERA Building Inspector, on May 23rd 2006, some samples from the window glazing were positive for asbestos. Five percent in torch down material and trace amount in window putty. Additional samples from the window paint were positive for lead. Additional questions should be referred to the Environmental Services Group of the General Administration. (2006-039)[A.5]

Existing windows are large wood windows by industry standards and these single-pane windows are not tempered. The existing windows are not original but appear to be authentic and historic.

The entry doors were replaced in the 1980s renovation project. The doors and frames are clear finish oak with insulated glass lites.

A.1 n.p. "History of the Old Capitol." Office of Superintendent of Public Instruction. State of Washington, n.d. Fri. 13 Dec. 2013. < http://www.k12.wa.us/aboutus/oldcapitolbldg.aspx>

A.2 Old Capitol HSR Report

A.3 McClary, Daryl C. "Fire damages the Old State Capitol Building in Olympia on September 8, 1928." HistoryLink. The Free Online Encyclopedia of Washington State History, 24 May, 2007. Fri. 13 Dec. 2013 <http://www.historylink.org/index.cfm?DisplayPage=output.cfm&file_id=8153>

A.4 NRHP 75001877

A.5 Old State Capitol Roof & Exterior Repair Investigation Phase Report. Cardwell Architects. 8 Feburary 2006. GA Project No. 2006-39A.

Old State Capitol Exterior Building Assessment Olympia, Washington Peter Meijer Architect, PC Probable Budget Cost Estimate - 1.3	***Architectural Cost Consultants, LLC*** Stanley J. Pszczolkowski, AIA 8060 SW Pfaffle Street, Suite 110 Tigard, Oregon 97223-8489 Phone (503) 718-0075 Fax (503) 718-0077 www.archcost.com	Estimate Date: 16-Apr-14 Document Date: March 2014 Print Date: 16-Apr-14 Print Time: 4:10 PM Constr. Start: June 2015

DIRECT CONSTRUCTION COST SUMMARY

Component	Total	
Civil		
1 | Surface Water	42,481	
2 | Roof Drainage System	37,903	
3 | Foundation Drainage	13,062	
4 | Ventilation Wells	13,591	
5 | Other Considerations	0	
Walls		
6 | Repair crack in the stone	1,888	
7 | Repoint open / deteriorated joints	101,930	
8 | Provide low-pressure hot water cleaning for entire building	152,896	
9 | Install diverters / flashing to direct water run-off into gutters	2,114	
10 | Repair source of water intrusion @ south elevation entry stairs	0	
Roofing		
11 | Remove elastomeric roofing @ garage & mechanical room	2,650	
12 | Install PMMA liquid-applied roofing @ garage & mechanical room	23,406	
Copper Roofing		
13 | Repair holes / openings in roofing system	4,530	
14 | Provide proper flashing @ attachment for ridge ornaments	5,889	
Wall to Roof Flashing		
15 | Remove existing flashing @ dormers	1,359	
16 | Install new stepped flashings @ wall integrated into stepped flashings @ roof	3,171	
17 | Install new flashing @ drain bodies @ west entry	1,057	
18 | Remove degraded sealant & replace w/ new backer rod & sealant	1,586	
19 | Install new liquid membrane roof system @ garage & mechanical room	0	see item 10 above
20 | Install plywood substrate over exposed brick soldier course	2,605	
21 | Install copper counter flashing below first course of sandstone over top of brick soldier	7,815	
22 | Provide new skylight @ garage / mechanical room	0	see item 34 below
Balcony Flashing		
23 | Remove existing pre-painted coping flashing	2,175	
24 | Install lead shields in horizontal coping stone joints	6,795	
25 | Remove existing corroded galvanized counter flashing, replace w/ stainless	18,363	
26 | Install industry standard termination bars below new counter flashing	3,624	
27 | Replace sealant at specific locations	5,799	
28 | Repair deck to base stone flashing @ nw elevation	1,133	
29 | Remove biological growth from the stone	566	
East Tower Apron		
30 | Remove existing paint, remove corrosion, prime & paint sheet metal	3,775	
31 | Replace significantly corroded sheet metal	755	

Old State Capitol	*Architectural Cost Consultants, LLC*	Estimate Date: 16-Apr-14
Exterior Building Assessment	Stanley J. Pszczolkowski, AIA	Document Date: March 2014
Olympia, Washington	8060 SW Pfaffle Street, Suite 110	Print Date: 16-Apr-14
Peter Meijer Architect, PC	Tigard, Oregon 97223-8489	Print Time: 4:10 PM
Probable Budget Cost Estimate - 1.3	Phone (503) 718-0075 Fax (503) 718-0077 www.archcost.com	Constr. Start: June 2015

DIRECT CONSTRUCTION COST SUMMARY

Component	Total	
Gutter		
32 | Repair entire gutter system	57,383	
33 | Repair all holes in welds	0	with item 30 above
34 | Remove / replace gutter	1,321	
Skylights		
35 | East Wing - New (2) 18' Radius Skylights	248,552	
36 | Provide new skylight @ garage / mechanical room	19,178	
Windows		
37 | Remove deteriorated sealant, new backer rod & sealant	132,132	
38 | Remove existing glazing putty & install new putty	191,176	
39 | Repair window sashes	36,242	
40 | Remove window sashes, shop repair, install new weather-strip, reinstall sash	665,453	
41 | Repair checked & decorated wood frames	135,152	
42 | Provide new liquid flashing @ rough openings	15,101	
Plaster		
43 | Remove sources of water intrusion	0	
44 | Remove & repair plaster to match existing	11,326	

The above estimates are for direct construction cost only. They do not include furnishings & equipment, architect and engineer design fees, consultant fees, inspection and testing fees, plan check fees, state sales tax, hazardous material testing and removal, financing costs, owners contingency nor any other normally associated project and development costs.

The above estimates assume a competitively bid project, with at least three qualified bidders in each of the major sub-trades as well as the general contractors.

The above estimates assume a construction start date of: **June 2015** If the start of construction is delayed beyond the date above, the estimates must be indexed at a rate of 3 to 4% per year compounded.

This is a probable cost estimate based on in-progress documentation provided by the architect. The actual bid documents will vary from this estimate due to document completion, detailing, specification, addendum, etc.. The estimator has no control over the cost or availability of labor, equipment, materials, over market conditions or contractor's method of pricing, contractor's construction logistics and scheduling. This estimate is formulated on the estimators professional judgment and experience. The estimate makes no warranty, expressed or implied, that the quantities, bids or the negotiated cost of the work will not vary from the estimators opinion of probable construction cost.

Old State Capitol Exterior Building Assessment Olympia, Washington Peter Meijer Architect, PC Probable Budget Cost Estimate - 1.3	*Architectural Cost Consultants, LLC* Stanley J. Pszczolkowski, AIA 8060 SW Pfaffle Street, Suite 110 Tigard, Oregon 97223-8489 Phone (503) 718-0075 Fax (503) 718-0077 www.archcost.com	Estimate Date: 16-Apr-14 Document Date: March 2014 Print Date: 16-Apr-14 Print Time: 4:10 PM Constr. Start: June 2015

Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
1 | Surface Water						
North Alcove						
remove landscape / regrade area	1,525	sf	$2.75	$4,194		
install area drains	2	ea	1,250.00	2,500		
connect to existing	2	ea	500.00	1,000		
repair landscape	1,525	sf	1.50	2,288		
Sub-total					$9,982	
SE & East						
install area drains	4	ea	1,250.00	5,000		
connect to existing	4	ea	500.00	2,000		
Sub-total					$7,000	
South Loading Dock						
remove & replace sctn. of conc. filled pipe	4	lf	40.00	160		
connect to existing	2	ea	500.00	1,000		
remove / repair conc. pavement	4	lf	60.00	240		
Sub-total					$1,400	
On-Site Mainline						
install additional cleanout @ storm drain	13	ea	750.00	9,750		
Sub-total					$9,750	
SUB-TOTAL 1 | Surface Water				28,132	**$28,132**	
Estimating Contingency			10.00%	2,813		
Index To Construction Start	June 2015		4.00%	1,238		@ +/- 4.0% / year
General Conditions			20.00%	6,436		
General Contractor OH & Profit			10.00%	3,862	14,349	
TOTAL DIRECT CONSTRUCTION COST 1 | Surface Water					**$42,481**	
2 | Roof Drainage System						
Downspout # 8						
remove / replace downspout boot / connctn	1	sum	$500.00	$500		
4" sd pipe	15	lf	40.00	600		
connect to existing	1	ea	500.00	500		
Sub-total					$1,600	
Downspout # 14						
4" sd pipe	25	lf	$40.00	$1,000		
connect to existing	2	ea	500.00	1,000		
Sub-total					$2,000	
Downspout # 15						
4" sd pipe	5	lf	$40.00	$200		
connect to existing	2	ea	500.00	1,000		
remove / repair conc. pavement	5	lf	60.00	300		
Sub-total					$1,500	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
2 | Roof Drainage System - Continued						
Maintain downspout drainage system yearly basis						
maintenance allowance	1	sum	$20,000.00	$20,000		
Sub-total					$20,000	
SUB-TOTAL 2 | Roof Drainage System				25,100	**$25,100**	
Estimating Contingency			10.00%	2,510		
Index To Construction Start	June 2015		4.00%	1,104		@ +/- 4.0% / year
General Conditions			20.00%	5,743		
General Contractor OH & Profit			10.00%	3,446	12,803	
TOTAL DIRECT CONSTRUCTION COST **2 | Roof Drainage System**					**$37,903**	
3 | Foundation Drainage						
Loading Dock						
remove & replace sctn. of collapsed pipe	10	lf	40.00	400		
install cleanout	1	ea	650.00	650		
connect to existing	2	ea	0.00	0		
remove / repair conc. pavement	10	lf	60.00	600		
Sub-total					$1,650	
Cleanouts						
install additional cleanouts @ fndtn. drain	6	ea	$750.00	$4,500		
Sub-total					$4,500	
Inspection						
provide additional inspections after CO insta	1	sum	$2,500.00	$2,500		allowance
Sub-total					$2,500	
SUB-TOTAL 3 | Foundation Drainage				8,650	**$8,650**	
Estimating Contingency			10.00%	865		
Index To Construction Start	June 2015		4.00%	381		@ +/- 4.0% / year
General Conditions			20.00%	1,979		
General Contractor OH & Profit			10.00%	1,187	4,412	
TOTAL DIRECT CONSTRUCTION COST **3 | Foundation Drainage**					**$13,062**	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
4 | Ventilation Wells						
Connect ventilation wells to FD						
connect 2" well drains	6	ea	$1,000.00	$6,000		
Sub-total					$6,000	
Replace exist. 4" vent. well drain w/ new						
remove / replace	3	ea	$1,000.00	$3,000		
Sub-total					$3,000	
SUB-TOTAL 4 | Ventilation Wells				9,000	**$9,000**	
Estimating Contingency			10.00%	900		
Index To Construction Start	June 2015		4.00%	396		@ +/- 4.0% / year
General Conditions			20.00%	2,059		
General Contractor OH & Profit			10.00%	1,236	4,591	
TOTAL DIRECT CONSTRUCTION COST 4 | Ventilation Wells					**$13,591**	
5 | Other Considerations						
Improve routine maintenance						
item	1	sum	$0.00	$0		
Sub-total					$0	
Provide additional investigation						
item	1	sum	$0.00	$0		
Sub-total					$0	
SUB-TOTAL 5 | Other Considerations				0	**$0**	
Estimating Contingency			10.00%	0		
Index To Construction Start	June 2015		4.00%	0		@ +/- 4.0% / year
General Conditions			20.00%	0		
General Contractor OH & Profit			10.00%	0	0	
TOTAL DIRECT CONSTRUCTION COST 5 | Other Considerations					**$0**	

Old State Capitol Exterior Building Assessment Olympia, Washington Peter Meijer Architect, PC Probable Budget Cost Estimate - 1.3	*Architectural Cost Consultants, LLC* Stanley J. Pszczolkowski, AIA 8060 SW Pfaffle Street, Suite 110 Tigard, Oregon 97223-8489 Phone (503) 718-0075 Fax (503) 718-0077 www.archcost.com	Estimate Date: 16-Apr-14 Document Date: March 2014 Print Date: 16-Apr-14 Print Time: 4:10 PM Constr. Start: June 2015

Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
6 | Repair crack in the stone						
repair crack	10	lf	$125.00	$1,250		
item		ea	0.00	0		
Sub-total					$1,250	
SUB-TOTAL 6 | Repair crack in the stone				1,250	**$1,250**	
Estimating Contingency			10.00%	125		
Index To Construction Start	June 2015		4.00%	55		@ +/- 4.0% / year
General Conditions			20.00%	286		
General Contractor OH & Profit			10.00%	172	638	
TOTAL DIRECT CONSTRUCTION COST 6 | Repair crack in the stone					**$1,888**	
7 | Repoint open / deteriorated joints						
repoint damaged mortar	4,500	sf	$15.00	$67,500		
item		lf	0.00	0		
Sub-total					$67,500	
SUB-TOTAL 7 | Repoint open / deteriorated joints				67,500	**$67,500**	
Estimating Contingency			10.00%	6,750		
Index To Construction Start	June 2015		4.00%	2,970		@ +/- 4.0% / year
General Conditions			20.00%	15,444		
General Contractor OH & Profit			10.00%	9,266	34,430	
TOTAL DIRECT CONSTRUCTION COST 7 | Repoint open / deteriorated joints					**$101,930**	
8 | Provide low-pressure hot water cleaning for entire building						
low-pressure cleaning	45,000	sf	$2.25	$101,250		
item		lf	0.00	0		
Sub-total					$101,250	
SUB-TOTAL 8 | Provide low-pressure hot water cleaning for entire building				101,250	**$101,250**	
Estimating Contingency			10.00%	10,125		
Index To Construction Start	June 2015		4.00%	4,455		@ +/- 4.0% / year
General Conditions			20.00%	23,166		
General Contractor OH & Profit			10.00%	13,900	51,646	
TOTAL DIRECT CONSTRUCTION COST 8 | Provide low-pressure hot water cleaning for entire building					**$152,896**	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
9 | Install diverters / flashing to direct water run-off into gutters						
install diverters	4	ea	350.00	1,400		
item		sf	0.00	0		
Sub-total					$1,400	
SUB-TOTAL 9 | Install diverters / flashing to direct water run-off into gutters				1,400	**$1,400**	
Estimating Contingency			10.00%	140		
Index To Construction Start	June 2015		4.00%	62		@ +/- 4.0% / year
General Conditions / Insurance / Bond			20.00%	320		
General Contractor OH & Profit			10.00%	192	714	
TOTAL DIRECT CONSTRUCTION COST **9 | Install diverters / flashing to direct water run-off into gutters**					**$2,114**	
10 | Repair source of water intrusion @ south elevation entry stairs						
item		sf	$0.00	$0		
item		sf	0.00	0		
Sub-total					$0	
SUB-TOTAL 10 | Repair source of water intrusion @ south elevation entry stair				0	**$0**	
Estimating Contingency			10.00%	0		
Index To Construction Start	June 2015		4.00%	0		@ +/- 4.0% / year
General Conditions			20.00%	0		
General Contractor OH & Profit			10.00%	0	0	
TOTAL DIRECT CONSTRUCTION COST **10 | Repair source of water intrusion @ south elevation entry stairs**					**$0**	
11 | Remove elastomeric roofing @ garage & mechanical room						
remove roofing & disposal	780	sf	2.25	1,755		
Sub-total					$1,755	
SUB-TOTAL 11 | Remove elastomeric roofing @ garage & mechanical room				1,755	**$1,755**	
Estimating Contingency			10.00%	176		
Index To Construction Start	June 2015		4.00%	77		@ +/- 4.0% / year
General Conditions			20.00%	402		
General Contractor OH & Profit			10.00%	241	895	
TOTAL DIRECT CONSTRUCTION COST **11 | Remove elastomeric roofing @ garage & mechanical room**					**$2,650**	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
12 | Install PMMA liquid-applied roofing @ garage & mechanical room						
liquid-applied roofing system	780	sf	15.00	11,700		
misc. flashing / sheet metal / tie-in work	190	lf	20.00	3,800		
Sub-total					$15,500	
SUB-TOTAL 12 | Install PMMA liquid-applied roofing @ garage & mechanical r				15,500	**$15,500**	
Estimating Contingency			10.00%	1,550		
Index To Construction Start	June 2015		4.00%	682		@ +/- 4.0% / year
General Conditions			20.00%	3,546		
General Contractor OH & Profit			10.00%	2,128	7,906	
TOTAL DIRECT CONSTRUCTION COST **12 | Install PMMA liquid-applied roofing @ garage & mechanical room**					**$23,406**	
13 | Repair holes / openings in roofing system						
repair allowance	10	ea	$300.00	$3,000		
item		lf	0.00	0		
Sub-total					$3,000	
SUB-TOTAL 13 | Repair holes / openings in roofing system				3,000	**$3,000**	
Estimating Contingency			10.00%	300		
Index To Construction Start	June 2015		4.00%	132		@ +/- 4.0% / year
General Conditions			20.00%	686		
General Contractor OH & Profit			10.00%	412	1,530	
TOTAL DIRECT CONSTRUCTION COST **13 | Repair holes / openings in roofing system**					**$4,530**	
14 | Provide proper flashing @ attachment for ridge ornaments						
remove ornaments	12	ea	$100.00	$1,200		
reinforce attachment	12	ea	100.00	1,200		
flashings	12	ea	125.00	1,500		
Sub-total					$3,900	
SUB-TOTAL 14 | Provide proper flashing @ attachment for ridge ornaments				3,900	**$3,900**	
Estimating Contingency			10.00%	390		
Index To Construction Start	June 2015		4.00%	172		@ +/- 4.0% / year
General Conditions			20.00%	892		
General Contractor OH & Profit			10.00%	535	1,989	
TOTAL DIRECT CONSTRUCTION COST **14 | Provide proper flashing @ attachment for ridge ornaments**					**$5,889**	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
15 | Remove existing flashing @ dormers						-
remove & disposal	60	lf	$15.00	$900		
item		lf	0.00	0		
Sub-total					$900	
SUB-TOTAL 15 | Remove existing flashing @ dormers				900	**$900**	
Estimating Contingency			10.00%	90		
Index To Construction Start	June 2015		4.00%	40		@ +/- 4.0% / year
General Conditions			20.00%	206		
General Contractor OH & Profit			10.00%	124	459	
TOTAL DIRECT CONSTRUCTION COST **15 | Remove existing flashing @ dormers**					**$1,359**	
16 | Install new stepped flashings @ wall integrated into stepped flashings @ roof						-
new flashings	60	lf	$35.00	$2,100		
item		lf	0.00	0		
Sub-total					$2,100	
SUB-TOTAL 16 | Install new stepped flashings @ wall integrated into stepped fl				2,100	**$2,100**	
Estimating Contingency			10.00%	210		
Index To Construction Start	June 2015		4.00%	92		@ +/- 4.0% / year
General Conditions			20.00%	480		
General Contractor OH & Profit			10.00%	288	1,071	
TOTAL DIRECT CONSTRUCTION COST **16 | Install new stepped flashings @ wall integrated into stepped flashings @ roof**					**$3,171**	
17 | Install new flashing @ drain bodies @ west entry						
new flashings @ drain bodies	2	sum	$350.00	$700		
item		lf	0.00	0		
Sub-total					$700	
SUB-TOTAL 17 | Install new flashing @ drain bodies @ west entry				700	**$700**	
Estimating Contingency			10.00%	70		
Index To Construction Start	June 2015		4.00%	31		@ +/- 4.0% / year
General Conditions			20.00%	160		
General Contractor OH & Profit			10.00%	96	357	
TOTAL DIRECT CONSTRUCTION COST **17 | Install new flashing @ drain bodies @ west entry**					**$1,057**	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
18 | Remove degraded sealant & replace w/ new backer rod & sealant						
new sealant	30	lf	$35.00	$1,050		
item		lf	0.00	0		
Sub-total					$1,050	
SUB-TOTAL 18 | Remove degraded sealant & replace w/ new backer rod & sea				1,050	**$1,050**	
Estimating Contingency			10.00%	105		
Index To Construction Start	June 2015		4.00%	46		@ +/- 4.0% / year
General Conditions			20.00%	240		
General Contractor OH & Profit			10.00%	144	536	
TOTAL DIRECT CONSTRUCTION COST **18 | Remove degraded sealant & replace w/ new backer rod & sealant**					**$1,586**	
19 | Install new liquid membrane roof system @ garage & mechanical room						
item	0	sf	0.00	0		
item	0	lf	0.00	0		
Sub-total					$0	
SUB-TOTAL 19 | Install new liquid membrane roof system @ garage & mechan				0	**$0**	
Estimating Contingency			10.00%	0		
Index To Construction Start	June 2015		4.00%	0		@ +/- 4.0% / year
General Conditions			20.00%	0		
General Contractor OH & Profit			10.00%	0	0	
TOTAL DIRECT CONSTRUCTION COST **19 | Install new liquid membrane roof system @ garage & mechanical room**					**$0**	**see item 10 above**
20 | Install plywood substrate over exposed brick soldier course						
plywood substrate & furring	115	lf	15.00	1,725		
item	0	lf	0.00	0		
Sub-total					$1,725	
SUB-TOTAL 20 | Install plywood substrate over exposed brick soldier course				1,725	**$1,725**	
Estimating Contingency			10.00%	173		
Index To Construction Start	June 2015		4.00%	76		@ +/- 4.0% / year
General Conditions			20.00%	395		
General Contractor OH & Profit			10.00%	237	880	
TOTAL DIRECT CONSTRUCTION COST **20 | Install plywood substrate over exposed brick soldier course**					**$2,605**	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
21 | Install copper counter flashing below first course of sandstone over top of brick soldier course						
copper flashing	115	lf	45.00	5,175		
item	0	lf	0.00	0		
Sub-total					$5,175	
SUB-TOTAL 21 | Install copper counter flashing below first course of sandstone				5,175	**$5,175**	
Estimating Contingency			10.00%	518		
Index To Construction Start	June 2015		4.00%	228		@ +/- 4.0% / year
General Conditions			20.00%	1,184		
General Contractor OH & Profit			10.00%	710	2,640	
TOTAL DIRECT CONSTRUCTION COST						
21 | Install copper counter flashing below first course of sandstone over top of brick sc					**$7,815**	
22 | Provide new skylight @ garage / mechanical room						
Demolition						
remove skylight	60	sf	$0.00	$0		
New Work						
install new skylight	60	sf	0.00	0		
new seal	32	lf	0.00	0		
Sub-total					$0	
SUB-TOTAL 22 | Provide new skylight @ garage / mechanical room				0	**$0**	
Estimating Contingency			10.00%	0		
Index To Construction Start	June 2015		4.00%	0		@ +/- 4.0% / year
General Conditions			20.00%	0		
General Contractor OH & Profit			10.00%	0	0	
TOTAL DIRECT CONSTRUCTION COST						
22 | Provide new skylight @ garage / mechanical room					**$0**	**see item 34 below**
23 | Remove existing pre-painted coping flashing						
remove coping flashing - dispose	180	lf	$8.00	$1,440		
item		lf	0.00	0		
Sub-total					$1,440	
SUB-TOTAL 23 | Remove existing pre-painted coping flashing				1,440	**$1,440**	
Estimating Contingency			10.00%	144		
Index To Construction Start	June 2015		4.00%	63		@ +/- 4.0% / year
General Conditions			20.00%	329		
General Contractor OH & Profit			10.00%	198	735	
TOTAL DIRECT CONSTRUCTION COST						
23 | Remove existing pre-painted coping flashing					**$2,175**	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
24 | Install lead shields in horizontal coping stone joints						
install lead shield	180	lf	$25.00	$4,500		
item		lf	0.00	0		
Sub-total					$4,500	
SUB-TOTAL 24 | Install lead shields in horizontal coping stone joints				4,500	**$4,500**	
Estimating Contingency			10.00%	450		
Index To Construction Start	June 2015		4.00%	198		@ +/- 4.0% / year
General Conditions			20.00%	1,030		
General Contractor OH & Profit			10.00%	618	2,295	
TOTAL DIRECT CONSTRUCTION COST						
24 | Install lead shields in horizontal coping stone joints					**$6,795**	
25 | Remove existing corroded galvanized counter flashing, replace w/ stainless						
remove & dispose	320	lf	$8.00	$2,560		
new stainless flashing	320	lf	30.00	9,600		
Sub-total					$12,160	
SUB-TOTAL 25 | Remove existing corroded galvanized counter flashing, replac				12,160	**$12,160**	
Estimating Contingency			10.00%	1,216		
Index To Construction Start	June 2015		4.00%	535		@ +/- 4.0% / year
General Conditions			20.00%	2,782		
General Contractor OH & Profit			10.00%	1,669	6,203	
TOTAL DIRECT CONSTRUCTION COST						
25 | Remove existing corroded galvanized counter flashing, replace w/ stainless					**$18,363**	
26 | Install industry standard termination bars below new counter flashing						
termination bar	320	lf	$7.50	$2,400		
item		lf	0.00	0		
Sub-total					$2,400	
SUB-TOTAL 26 | Install industry standard termination bars below new counter f				2,400	**$2,400**	
Estimating Contingency			10.00%	240		
Index To Construction Start	June 2015		4.00%	106		@ +/- 4.0% / year
General Conditions			20.00%	549		
General Contractor OH & Profit			10.00%	329	1,224	
TOTAL DIRECT CONSTRUCTION COST						
26 | Install industry standard termination bars below new counter flashing					**$3,624**	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
27 | Replace sealant at specific locations						
remove / replace sealant	320	lf	$12.00	$3,840		
item		lf	0.00	0		
Sub-total					$3,840	
SUB-TOTAL 27 | Replace sealant at specific locations				3,840	**$3,840**	
Estimating Contingency			10.00%	384		
Index To Construction Start	June 2015		4.00%	169		@ +/- 4.0% / year
General Conditions			20.00%	879		
General Contractor OH & Profit			10.00%	527	1,959	
TOTAL DIRECT CONSTRUCTION COST **27 | Replace sealant at specific locations**					**$5,799**	
28 | Repair deck to base stone flashing @ nw elevation						
repair flashing	25	lf	$30.00	$750		
item		lf	0.00	0		
Sub-total					$750	
SUB-TOTAL 28 | Repair deck to base stone flashing @ nw elevation				750	**$750**	
Estimating Contingency			10.00%	75		
Index To Construction Start	June 2015		4.00%	33		@ +/- 4.0% / year
General Conditions			20.00%	172		
General Contractor OH & Profit			10.00%	103	383	
TOTAL DIRECT CONSTRUCTION COST **28 | Repair deck to base stone flashing @ nw elevation**					**$1,133**	
29 | Remove biological growth from the stone						
clean stone	25	lf	$15.00	$375		
item		lf	0.00	0		
Sub-total					$375	
SUB-TOTAL 29 | Remove biological growth from the stone				375	**$375**	
Estimating Contingency			10.00%	38		
Index To Construction Start	June 2015		4.00%	17		@ +/- 4.0% / year
General Conditions			20.00%	86		
General Contractor OH & Profit			10.00%	51	191	
TOTAL DIRECT CONSTRUCTION COST **29 | Remove biological growth from the stone**					**$566**	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
30 | Remove existing paint, remove corrosion, prime & paint sheet metal						
prep & paint	250	sf	$10.00	$2,500		
item		lf	0.00	0		
Sub-total					$2,500	
SUB-TOTAL 30 | Remove existing paint, remove corrosion, prime & paint sheet				2,500	**$2,500**	
Estimating Contingency			10.00%	250		
Index To Construction Start	June 2015		4.00%	110		@ +/- 4.0% / year
General Conditions			20.00%	572		
General Contractor OH & Profit			10.00%	343	1,275	
TOTAL DIRECT CONSTRUCTION COST **30 | Remove existing paint, remove corrosion, prime & paint sheet metal**					**$3,775**	
31 | Replace significantly corroded sheet metal						
remove & replace	20	sf	$25.00	$500		
item		lf	0.00	0		
Sub-total					$500	
SUB-TOTAL 31 | Replace significantly corroded sheet metal				500	**$500**	
Estimating Contingency			10.00%	50		
Index To Construction Start	June 2015		4.00%	22		@ +/- 4.0% / year
General Conditions			20.00%	114		
General Contractor OH & Profit			10.00%	69	255	
TOTAL DIRECT CONSTRUCTION COST **31 | Replace significantly corroded sheet metal**					**$755**	
32 | Repair entire gutter system						
drill & remove existing pop rivets	1,000	lf	$10.00	$10,000		
clean the faying surfaces	1,000	lf	8.00	8,000		
install new stainless steel pop rivets	1,000	lf	20.00	20,000		
Sub-total					$38,000	
SUB-TOTAL 32 | Repair entire gutter system				38,000	**$38,000**	
Estimating Contingency			10.00%	3,800		
Index To Construction Start	June 2015		4.00%	1,672		@ +/- 4.0% / year
General Conditions			20.00%	8,694		
General Contractor OH & Profit			10.00%	5,217	19,383	
TOTAL DIRECT CONSTRUCTION COST **32 | Repair entire gutter system**					**$57,383**	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
33 | Repair all holes in welds						
repair gutters	1,000	lf	$0.00	$0		included above
item		lf	0.00	0		
Sub-total					$0	
SUB-TOTAL 33 | Repair all holes in welds				0	**$0**	
Estimating Contingency			10.00%	0		
Index To Construction Start	June 2015		4.00%	0		@ +/- 4.0% / year
General Conditions			20.00%	0		
General Contractor OH & Profit			10.00%	0	0	
TOTAL DIRECT CONSTRUCTION COST **33 | Repair all holes in welds**					**$0**	**with item 30 above**
34 | Remove / replace gutter						
where incomplete repair / replace gutter	25	lf	$35.00	$875		
item		lf	0.00	0		
Sub-total					$875	
SUB-TOTAL 34 | Remove / replace gutter				875	**$875**	
Estimating Contingency			10.00%	88		
Index To Construction Start	June 2015		4.00%	39		@ +/- 4.0% / year
General Conditions			20.00%	200		
General Contractor OH & Profit			10.00%	120	446	
TOTAL DIRECT CONSTRUCTION COST **34 | Remove / replace gutter**					**$1,321**	
35 | East Wing - New (2) 18' Radius Skylights						
Demolition						
remove skylight units	510	sf	$12.00	$6,120		
New Work						
install new skylights	510	sf	294.12	150,000		
new seal / curb modifications	113	lf	75.00	8,475		
Sub-total					$164,595	
SUB-TOTAL 35 | East Wing - New (2) 18' Radius Skylights				164,595	**$164,595**	
Estimating Contingency			10.00%	16,460		
Index To Construction Start	June 2015		4.00%	7,242		@ +/- 4.0% / year
General Conditions			20.00%	37,659		
General Contractor OH & Profit			10.00%	22,596	83,957	
TOTAL DIRECT CONSTRUCTION COST **35 | East Wing - New (2) 18' Radius Skylights**					**$248,552**	

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Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
36 | Provide new skylight @ garage / mechanical room						
Demolition						
remove skylight	60	sf	$10.00	$600		
New Work						
install new skylight	60	sf	175.00	10,500		
new seal / curb modifications	32	lf	50.00	1,600		
Sub-total					$12,700	
SUB-TOTAL 36 | Provide new skylight @ garage / mechanical room				12,700	**$12,700**	
Estimating Contingency			10.00%	1,270		
Index To Construction Start	June 2015		4.00%	559		@ +/- 4.0% / year
General Conditions			20.00%	2,906		
General Contractor OH & Profit			10.00%	1,743	6,478	
TOTAL DIRECT CONSTRUCTION COST						
36 | Provide new skylight @ garage / mechanical room					**$19,178**	
37 | Remove deteriorated sealant, new backer rod & sealant						
remove existing deteriorated sealant	7,000	lf	$5.00	$35,000		
new backer rod & sealant	7,000	lf	7.50	52,500		
Sub-total					$87,500	
SUB-TOTAL 37 | Remove deteriorated sealant, new backer rod & sealant				87,500	**$87,500**	
Estimating Contingency			10.00%	8,750		
Index To Construction Start	June 2015		4.00%	3,850		@ +/- 4.0% / year
General Conditions			20.00%	20,020		
General Contractor OH & Profit			10.00%	12,012	44,632	
TOTAL DIRECT CONSTRUCTION COST						
37 | Remove deteriorated sealant, new backer rod & sealant					**$132,132**	
38 | Remove existing glazing putty & install new putty						
remove & install putty	422	windov	$300.00	$126,600		
item		lf	0.00	0		
Sub-total					$126,600	
SUB-TOTAL 38 | Remove existing glazing putty & install new putty				126,600	**$126,600**	
Estimating Contingency			10.00%	12,660		
Index To Construction Start	June 2015		4.00%	5,570		@ +/- 4.0% / year
General Conditions			20.00%	28,966		
General Contractor OH & Profit			10.00%	17,380	64,576	
TOTAL DIRECT CONSTRUCTION COST						
38 | Remove existing glazing putty & install new putty					**$191,176**	

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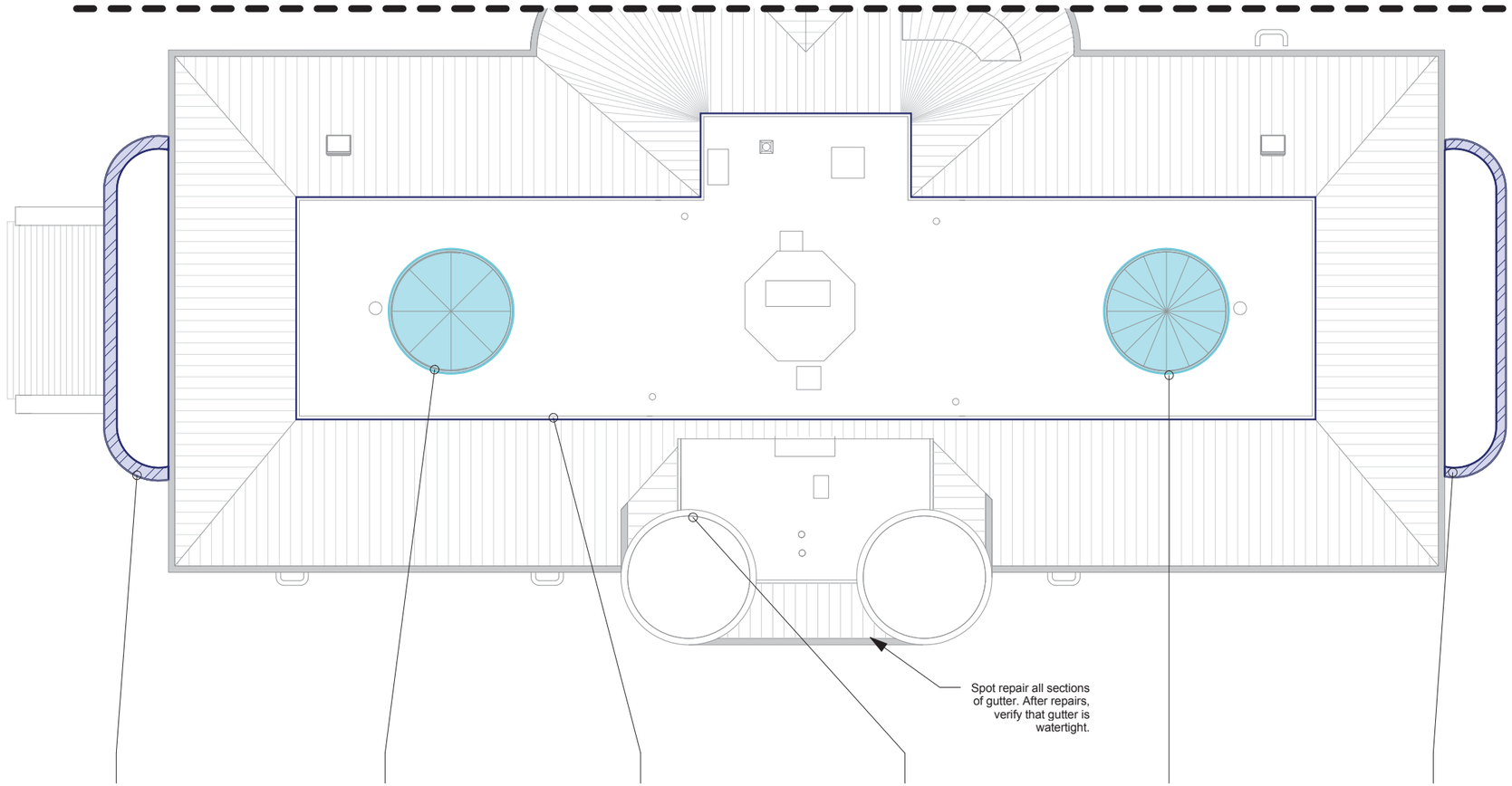
Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
39 | Repair window sashes						
repair window sashes	60	ea	$400.00	$24,000		
item		lf	0.00	0		
Sub-total					$24,000	
SUB-TOTAL 39 | Repair window sashes				24,000	**$24,000**	
Estimating Contingency			10.00%	2,400		
Index To Construction Start	June 2015		4.00%	1,056		@ +/- 4.0% / year
General Conditions			20.00%	5,491		
General Contractor OH & Profit			10.00%	3,295	12,242	
TOTAL DIRECT CONSTRUCTION COST 39 | Repair window sashes					**$36,242**	
40 | Remove window sashes, shop repair, install new weather-strip, reinstall sash						
remove / reinstall sashes	422	ea	$1,044.25	$440,674		
item		lf	0.00	0		
Sub-total					$440,674	
SUB-TOTAL 40 | Remove window sashes, shop repair, install new weather-stri				440,674	**$440,674**	
Estimating Contingency			10.00%	44,067		
Index To Construction Start	June 2015		4.00%	19,390		@ +/- 4.0% / year
General Conditions			20.00%	100,826		
General Contractor OH & Profit			10.00%	60,496	224,779	
TOTAL DIRECT CONSTRUCTION COST 40 | Remove window sashes, shop repair, install new weather-strip, reinstall sash					**$665,453**	
41 | Repair checked & decorated wood frames						
fill minor check w/ filler, re-paint	80	ea	$350.00	$28,000		
replace full sills & sashes	30	ea	800.00	24,000		
provide Dutchman repair	50	ea	750.00	37,500		
Sub-total					$89,500	
SUB-TOTAL 41 | Repair checked & decorated wood frames				89,500	**$89,500**	
Estimating Contingency			10.00%	8,950		
Index To Construction Start	June 2015		4.00%	3,938		@ +/- 4.0% / year
General Conditions			20.00%	20,478		
General Contractor OH & Profit			10.00%	12,287	45,652	
TOTAL DIRECT CONSTRUCTION COST 41 | Repair checked & decorated wood frames					**$135,152**	

Old State Capitol Exterior Building Assessment Olympia, Washington Peter Meijer Architect, PC Probable Budget Cost Estimate - 1.3	*Architectural Cost Consultants, LLC* Stanley J. Pszczolkowski, AIA 8060 SW Pfaffle Street, Suite 110 Tigard, Oregon 97223-8489 Phone (503) 718-0075 Fax (503) 718-0077 www.archcost.com	Estimate Date: 16-Apr-14 Document Date: March 2014 Print Date: 16-Apr-14 Print Time: 4:10 PM Constr. Start: June 2015

Component	Quantity	Unit	Cost / Unit	Cost	Sub-totals	Comments
42 | Provide new liquid flashing @ rough openings						
remove window frames & sashes	10	ea	$1,000.00	$10,000		
item		lf	0.00	0		
Sub-total					$10,000	
SUB-TOTAL 42 | Provide new liquid flashing @ rough openings				10,000	**$10,000**	
Estimating Contingency			10.00%	1,000		
Index To Construction Start	June 2015		4.00%	440		
General Conditions			20.00%	2,288		
General Contractor OH & Profit			10.00%	1,373	5,101	
TOTAL DIRECT CONSTRUCTION COST **42 | Provide new liquid flashing @ rough openings**					**$15,101**	
43 | Remove sources of water intrusion						
item		ea	$0.00	$0		
item		lf	0.00	0		
Sub-total					$0	
SUB-TOTAL 43 | Remove sources of water intrusion				0	**$0**	
Estimating Contingency			10.00%	0		
Index To Construction Start	June 2015		4.00%	0		@ +/- 4.0% / year
General Conditions			20.00%	0		
General Contractor OH & Profit			10.00%	0	0	
TOTAL DIRECT CONSTRUCTION COST **43 | Remove sources of water intrusion**					**$0**	**w/ above items**
44 | Remove & repair plaster to match existing						
remove & repair	250	sf	$30.00	$7,500		
item		lf	0.00	0		
Sub-total					$7,500	
SUB-TOTAL 44 | Remove & repair plaster to match existing				7,500	**$7,500**	
Estimating Contingency			10.00%	750		
Index To Construction Start	June 2015		4.00%	330		@ +/- 4.0% / year
General Conditions			20.00%	1,716		
General Contractor OH & Profit			10.00%	1,030	3,826	
TOTAL DIRECT CONSTRUCTION COST **44 | Remove & repair plaster to match existing**					**$11,326**	

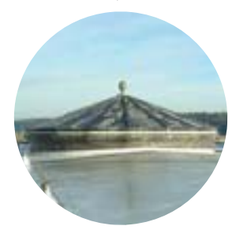


Balcony flashing is corroded. Replace flashing and coping surrounding balcony.

Existing skylight is a source of water intrusion. Solar reflective film is delaminating and the glazing is in poor condition. Replace with new skylight to match existing.

Termination of standing seam is an open joint. (No additional work required).

Existing tower apron flashing is corroded. Install new apron flashing.



Existing skylight is a source of water intrusion. Solar reflective film is delaminating and the glazing is in poor condition. Replace with new skylight to match existing.

Balcony flashing is corroded. Replace flashing and coping surrounding balcony.

1 Assessment - East Roof

0 4' 8' 16'

** See Appendices C and D for a full window survey that notes window condition and recommended repairs.

Material Legend

Material
Roof membrane
Sheet Metal
Wood
Glazing
Stone

Repair Quantities

Stone
- Repoint joints - 4,500 SQFT

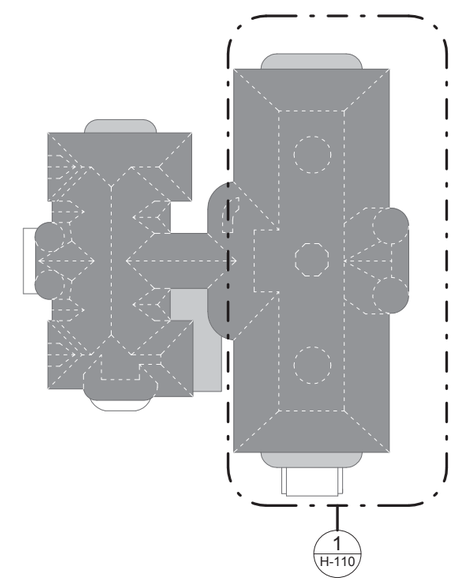
Flashing & Sheet Metal Restoration
- Repair wall to rooof flashing - 30 LFT
- Repair balcony flashing - 320 LFT
- Replace balcony coping - 180 LFT
- Install copper counter flashing at mechanical room roof - 115 LFT
- Provide localized repairs to gutter - 1000 LFT
- Replace / fix incomplete gutter - 25 LFT
- Repair through wall roof drains - 2 UNITS
- Provide new diverter to redirect roof run-off - 2 UNITS
- Repair broken / unconnected drainline unit - 1 UNIT
- Repair ridge ornaments - 12 UNITS

Waterproofing/Roof Deck
- Replace mechanical room roof with (n) liquid membrane roof - 780 SQFT
- Install liquid membrane roof flashing system over (n) plywood substrate along mechanical room roof - 115 LFT

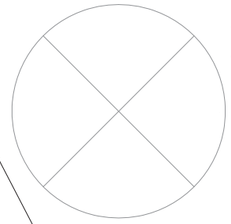
Openings
- Replace skylights - 3 UNITS
- Repair interior water damage to plaster - 250 SQFT

** Note all quantities are estimates and should be verified in the field.

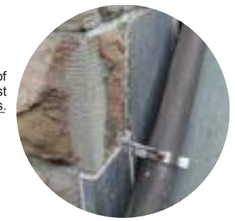
Key Map



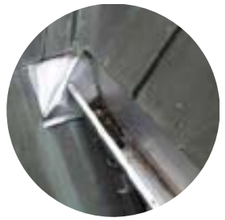
Sealant at the wall to roof flashing is deteriorated, and flashing has failed. Repair wall to roof flashing at all West dormers.



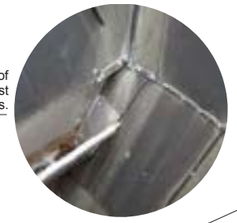
Ridge to ridge flashing detail reported as source of water intrusion. Provide full copper lapped & soldered joint repair.



Repair wall to roof flashing at all West dormers.



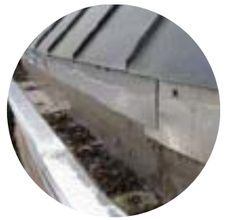
Repair wall to roof flashing at all West dormers.



Repair wall to roof flashing at all West dormers.

Fix hole in roof.

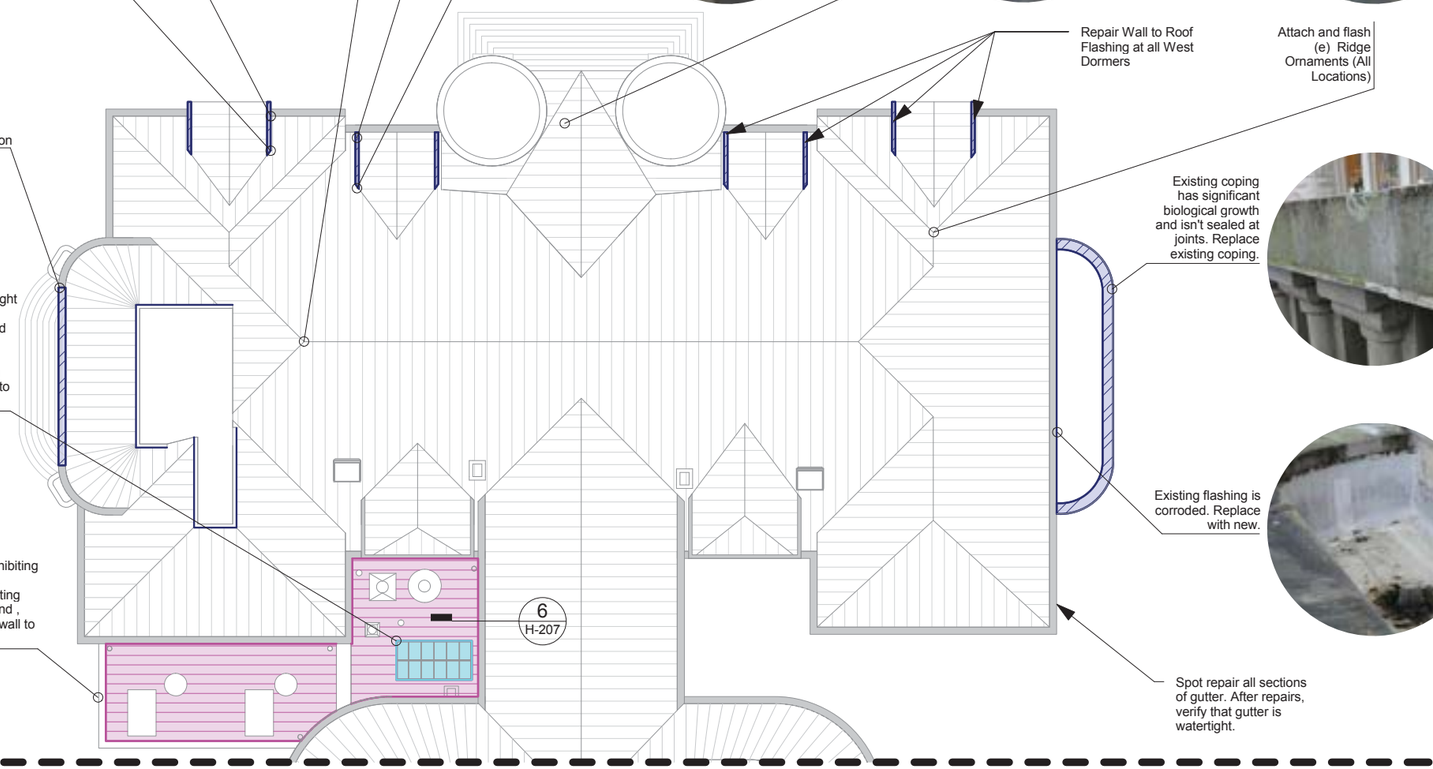
Attach and flash (e) Ridge Ornaments (All Locations)



Flashing is incomplete, replace section

Existing skylight over garage has exceeded its life expectancy. Replace with new skylight to match.

Existing roof coating is exhibiting spot failures. Replace existing membrane and , provide new wall to roof flashing.



Repair Wall to Roof Flashing at all West Dormers

Existing coping has significant biological growth and isn't sealed at joints. Replace existing coping.

Existing flashing is corroded. Replace with new.

Spot repair all sections of gutter. After repairs, verify that gutter is watertight.

1 Assessment - West Roof

0 4' 8' 16'

** See Appendices C and D for a full window survey that notes window condition and recommended repairs.

Material Legend

Material
Roof membrane
Sheet Metal
Wood
Glazing
Stone

Repair Quantities

Stone
- Repoint joints - 4,500 SQFT

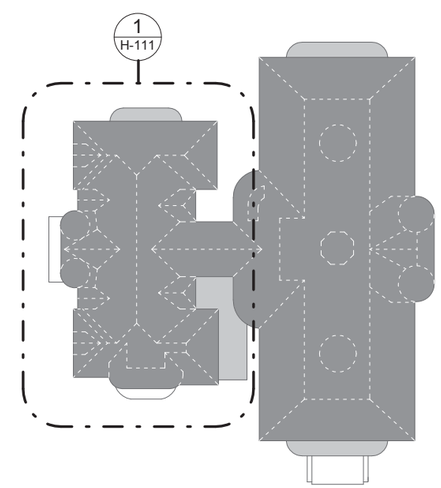
Flashing & Sheet Metal Restoration
- Repair wall to rooof flashing - 30 LFT
- Repair balcony flashing - 320 LFT
- Replace balcony coping - 180 LFT
- Install copper counter flashing at mechanical room roof - 115 LFT
- Provide localized repairs to gutter - 1000 LFT
- Replace / fix incomplete gutter - 25 LFT
- Repair through wall roof drains - 2 UNITS
- Provide new diverter to redirect roof run-off - 2 UNITS
- Repair broken / unconnected drainline unit - 1 UNIT
- Repair ridge ornaments - 12 UNITS

Waterproofing/Roof Deck
- Replace mechanical room roof with (n) liquid membrane roof - 780 SQFT
- Install liquid membrane roof flashing system over (n) plywood substrate along mechanical room roof - 115 LFT

Openings
- Replace skylights - 3 UNITS
- Repair interior water damage to plaster - 250 SQFT

** Note all quantities are estimates and should be verified in the field.

Key Map



** See Appendices C and D for a full window survey that notes window condition and recommended repairs.

Material Legend

Material
Roof membrane
Sheet Metal
Wood
Glazing
Stone

Repair Quantities

Stone
- Repoint joints - 4,500 SQFT

Flashing & Sheet Metal Restoration
- Repair wall to rooof flashing - 30 LFT
- Repair balcony flashing - 320 LFT
- Replace balcony coping - 180 LFT
- Install copper counter flashing at mechanical room roof- 115 LFT
- Provide localized repairs to gutter - - - - - - - - - - - - - - - - - - 1000 LFT
- Replace / fix incomplete gutter - 25 LFT
- Repair through wall roof drains - 2 UNITS
- Provide new diverter to redirect roof run-off - - - - - - - - - - 2 UNITS
- Repair broken / unconnected drainline unit - - - - - - - - - - 1 UNIT
- Repair ridge ornaments - 12 UNITS

Waterproofing/Roof Deck
- Replace mechanical room roof with (n) liquid membrane roof - 780 SQFT
- Install liquid membrane roof flashing system over (n) plywood substrate along mechanical room roof- - - - - - 115 LFT

Openings
- Replace skylights - 3 UNITS
- Repair interior water damage to plaster - - - - - - - - - - - - 250 SQFT

** Note all quantities are estimates and should be verified in the field.

Roof run off is bypassing gutter system. Install new diverter to direct water into drainage system and away from building face.

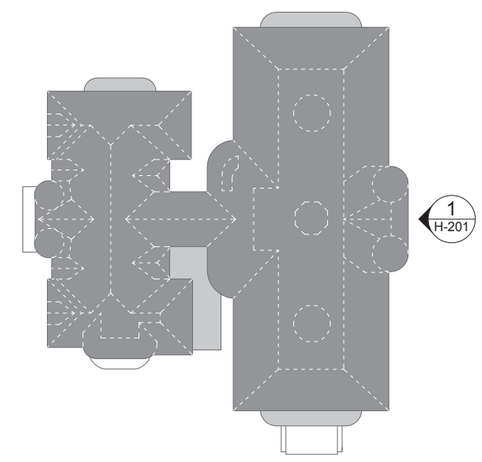
Windows are deteiorated as a result of water runoff from roof. See window survey for extent of window repairs.

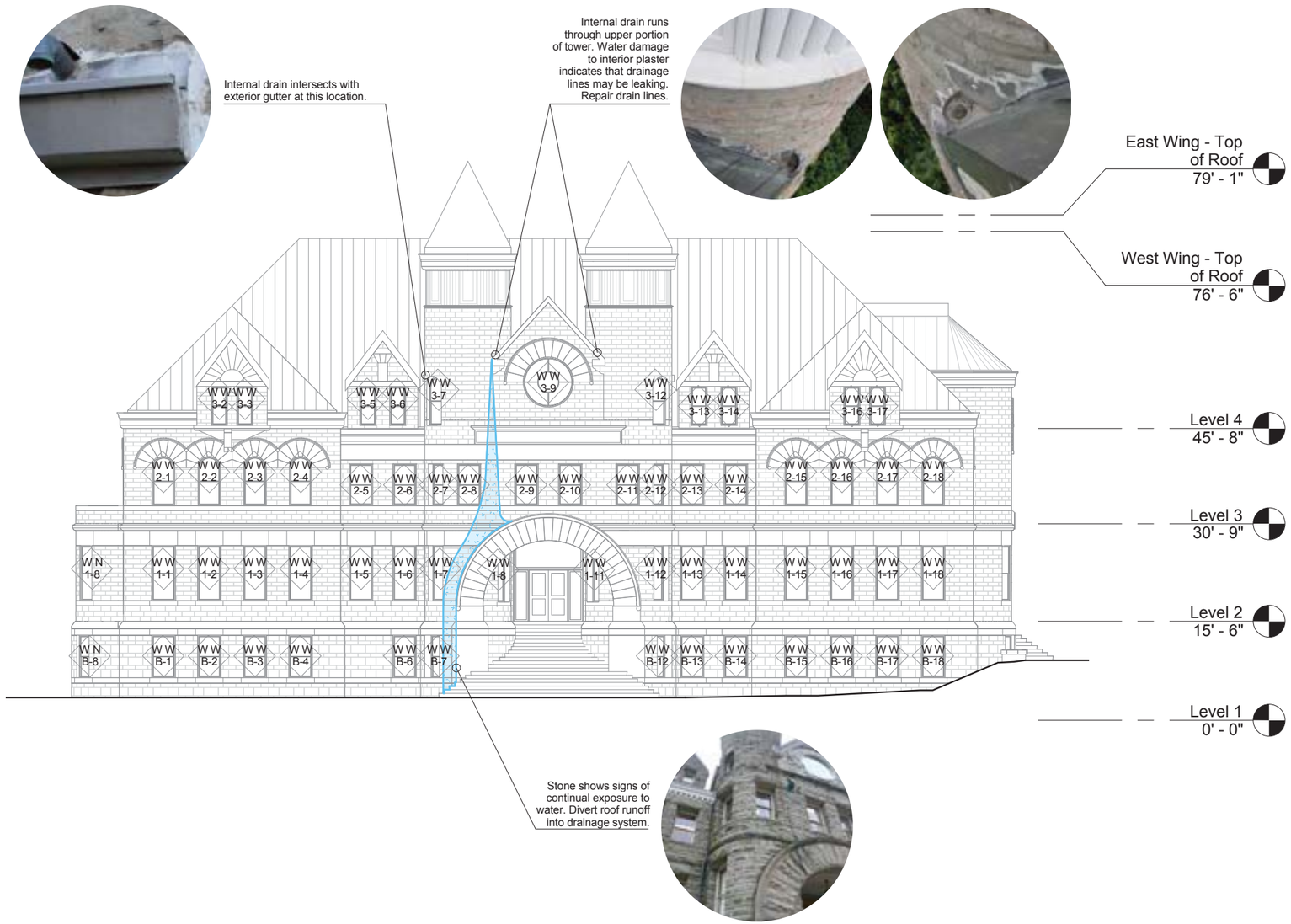
Stone exposed to significant water from roof runoff.

1 Assessment - East Elevation

0 4' 8' 16'

Key Map





1 Assessment - West Elevation

0 4' 8' 16'

** See Appendices C and D for a full window survey that notes window condition and recommended repairs.

Material Legend

Material
Roof membrane
Sheet Metal
Wood
Glazing
Stone

Repair Quantities

Stone
- Repoint joints - 4,500 SQFT

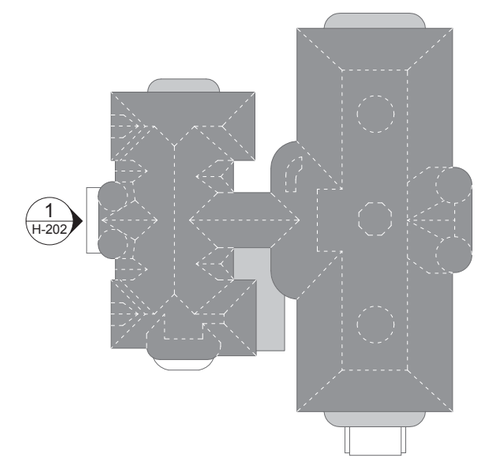
Flashing & Sheet Metal Restoration
- Repair wall to rooof flashing - 30 LFT
- Repair balcony flashing - 320 LFT
- Replace balcony coping - 180 LFT
- Install copper counter flashing at mechanical room roof - 115 LFT
- Provide localized repairs to gutter - 1000 LFT
- Replace / fix incomplete gutter - 25 LFT
- Repair through wall roof drains - 2 UNITS
- Provide new diverter to redirect roof run-off - 2 UNITS
- Repair broken / unconnected drainline unit - 1 UNIT
- Repair ridge ornaments - 12 UNITS

Waterproofing/Roof Deck
- Replace mechanical room roof with (n) liquid membrane roof - 780 SQFT
- Install liquid membrane roof flashing system over (n) plywood substrate along mechanical room roof - 115 LFT

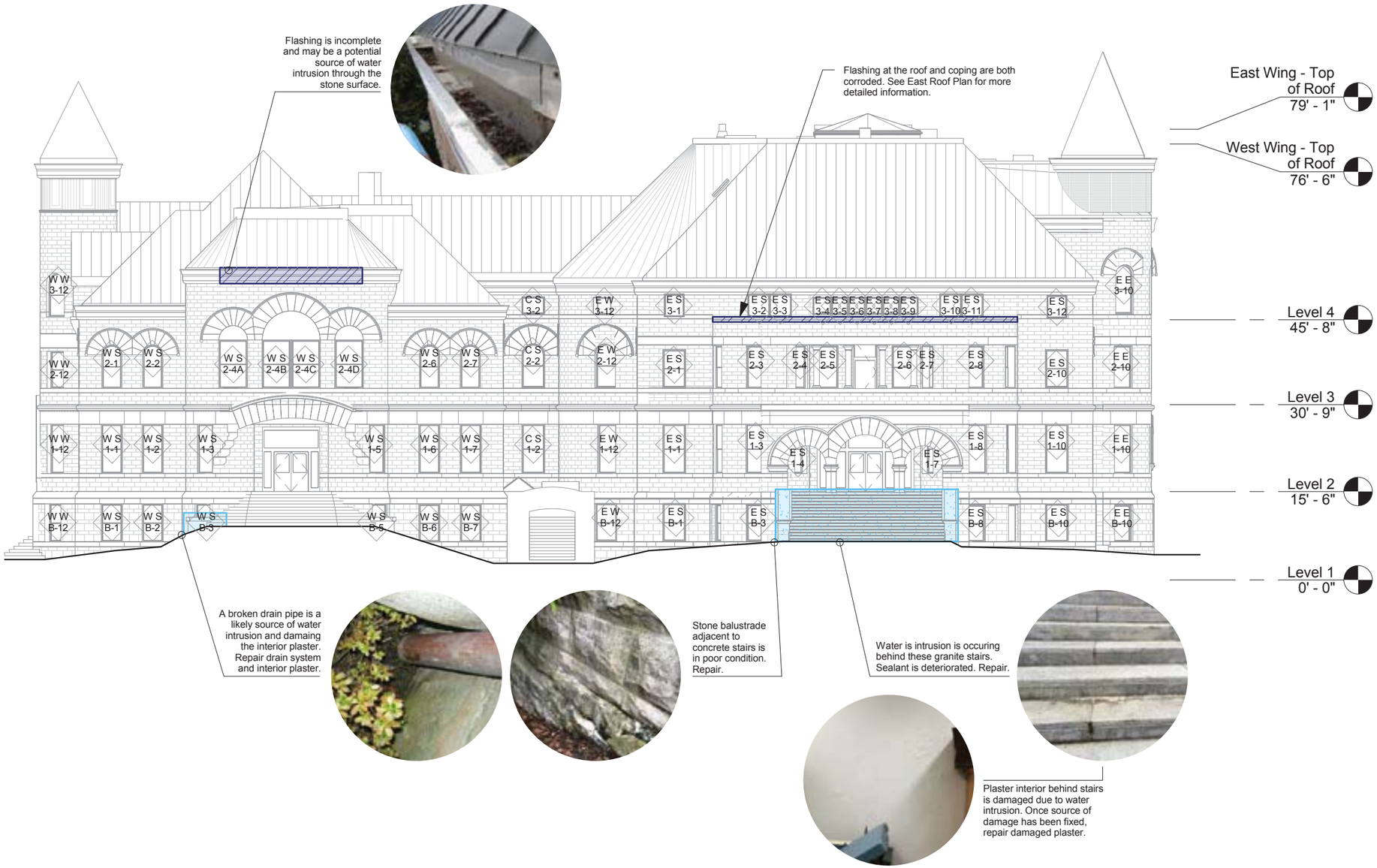
Openings
- Replace skylights - 3 UNITS
- Repair interior water damage to plaster - 250 SQFT

** Note all quantities are estimates and should be verified in the field.

Key Map



** See Appendices C and D for a full window survey that notes window condition and recommended repairs.



1 Assessment - South Elevation

0 4' 8' 16'

Material Legend

Material | Roof membrane | Sheet Metal | Wood | Glazing | Stone

Repair Quantities

Stone
- Repoint joints - 4,500 SQFT

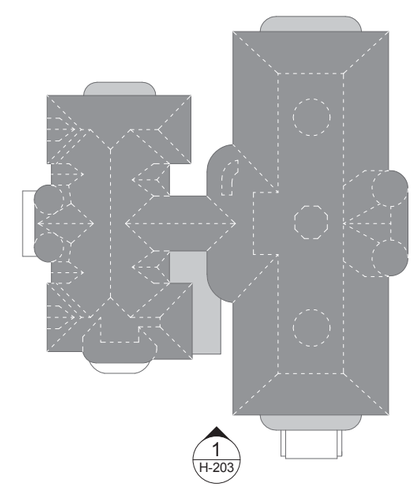
Flashing & Sheet Metal Restoration
- Repair wall to rooof flashing - 30 LFT
- Repair balcony flashing - 320 LFT
- Replace balcony coping - 180 LFT
- Install copper counter flashing at mechanical room roof - 115 LFT
- Provide localized repairs to gutter - 1000 LFT
- Replace / fix incomplete gutter - 25 LFT
- Repair through wall roof drains - 2 UNITS
- Provide new diverter to redirect roof run-off - 2 UNITS
- Repair broken / unconnected drainline unit - 1 UNIT
- Repair ridge ornaments - 12 UNITS

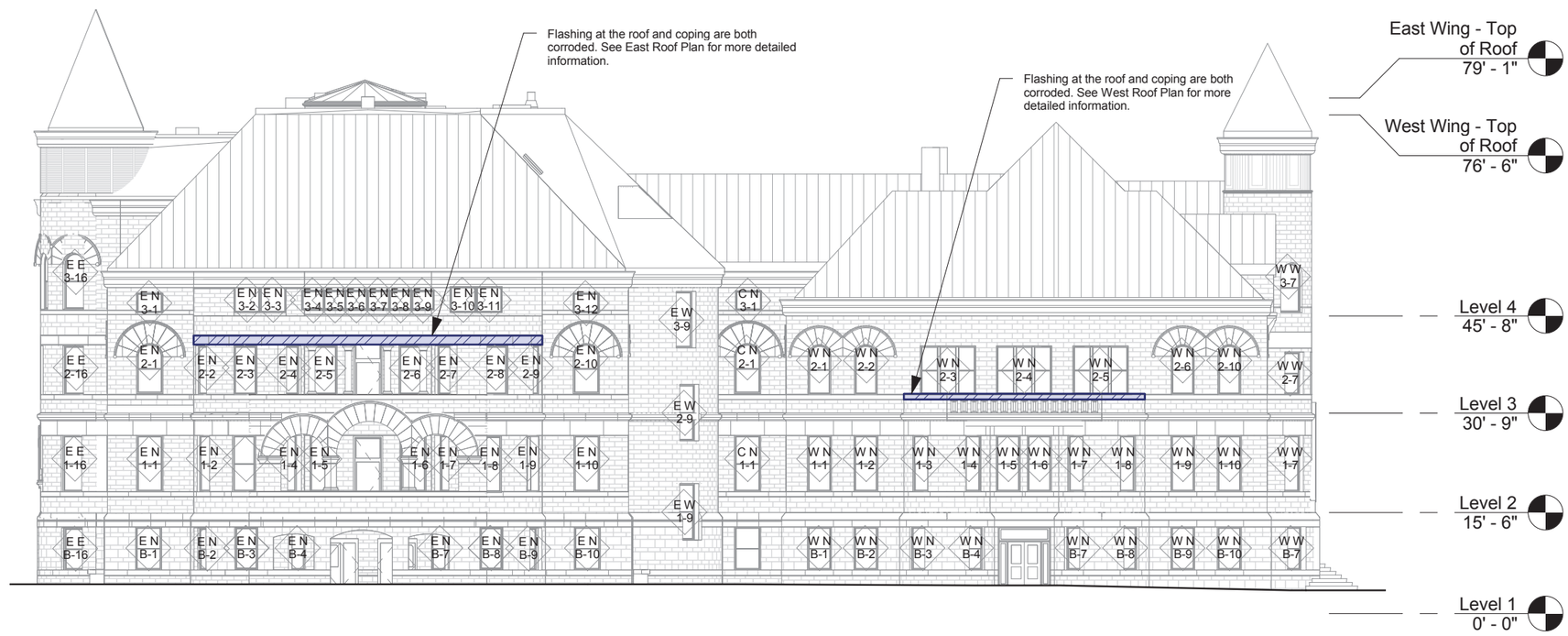
Waterproofing/Roof Deck
- Replace mechanical room roof with (n) liquid membrane roof - 780 SQFT
- Install liquid membrane roof flashing system over (n) plywood substrate along mechanical room roof - 115 LFT

Openings
- Replace skylights - 3 UNITS
- Repair interior water damage to plaster - 250 SQFT

** Note all quantities are estimates and should be verified in the field.

Key Map





1 Assessment - North Elevation

** See Appendices C and D for a full window survey that notes window condition and recommended repairs.

Material Legend

Material
Roof membrane
Sheet Metal
Wood
Glazing
Stone

Repair Quantities

Stone
- Repoint joints - 4,500 SQFT

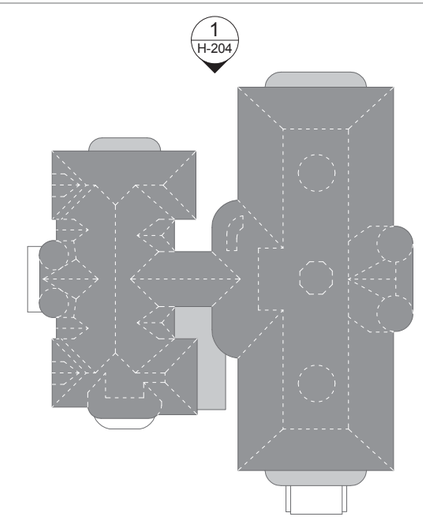
Flashing & Sheet Metal Restoration
- Repair wall to rooof flashing - 30 LFT
- Repair balcony flashing - 320 LFT
- Replace balcony coping - 180 LFT
- Install copper counter flashing at mechanical room roof - 115 LFT
- Provide localized repairs to gutter - 1000 LFT
- Replace / fix incomplete gutter - 25 LFT
- Repair through wall roof drains - 2 UNITS
- Provide new diverter to redirect roof run-off - 2 UNITS
- Repair broken / unconnected drainline unit - 1 UNIT
- Repair ridge ornaments - 12 UNITS

Waterproofing/Roof Deck
- Replace mechanical room roof with (n) liquid membrane roof - 780 SQFT
- Install liquid membrane roof flashing system over (n) plywood substrate along mechanical room roof - 115 LFT

Openings
- Replace skylights - 3 UNITS
- Repair interior water damage to plaster - 250 SQFT

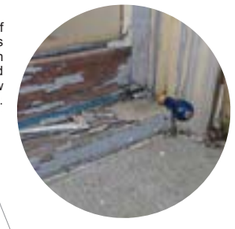
** Note all quantities are estimates and should be verified in the field.

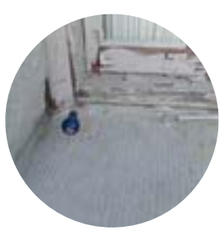
Key Map



There is significant damage to the interior plaster on the interior face of this wall. Source was investigated and identified as a previous gutter overflow. Repair interior plaster damage.

Windows are showing signs of deteioration due to previous water damage from an overflowing gutter. Repair and replace windows. See window survey.

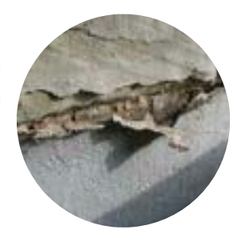




Windows are showing signs of deteioration due to previous water damage from an overflowing gutter. Repair and replace windows. See window survey.

Masonry wall has significant efflorescence. Masonry surface and mortar are deteriorated. Efflorescence and deterioration is likely a restult of water intrusion.

Exposed masonry soldier course isn't adequatly flashed, allowing water to infiltrate the building. Install new flashing when new membrane roof is installed over Garage.



1 Assessment - West Elevation of East Wing

0 4' 8' 16

** See Appendices C and D for a full window survey that notes window condition and recommended repairs.

Material Legend

Material
Roof membrane
Sheet Metal
Wood
Glazing
Stone

Repair Quantities

Stone
- Repoint joints - 4,500 SQFT

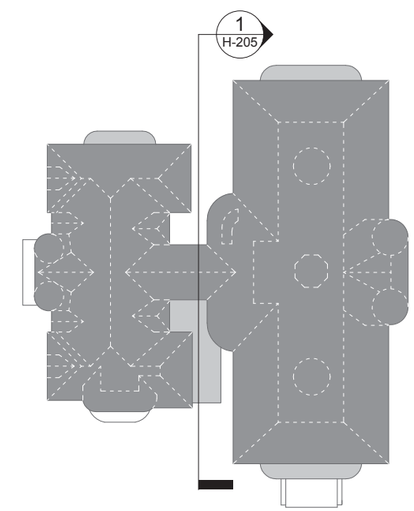
Flashing & Sheet Metal Restoration
- Repair wall to rooof flashing - 30 LFT
- Repair balcony flashing - 320 LFT
- Replace balcony coping - 180 LFT
- Install copper counter flashing at mechanical room roof - 115 LFT
- Provide localized repairs to gutter - 1000 LFT
- Replace / fix incomplete gutter - 25 LFT
- Repair through wall roof drains - 2 UNITS
- Provide new diverter to redirect roof run-off - 2 UNITS
- Repair broken / unconnected drainline unit - 1 UNIT
- Repair ridge ornaments - 12 UNITS

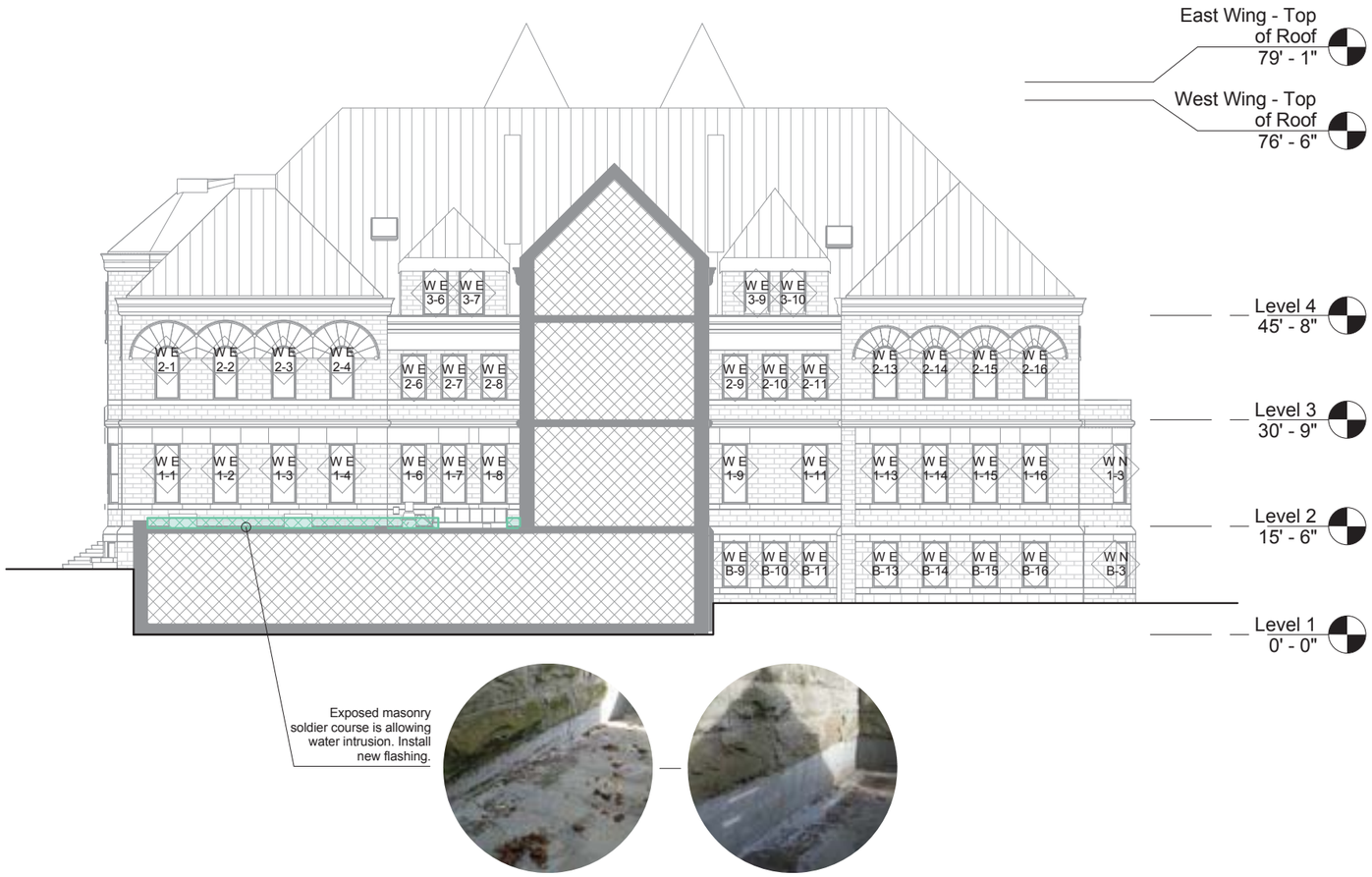
Waterproofing/Roof Deck
- Replace mechanical room roof with (n) liquid membrane roof - 780 SQFT
- Install liquid membrane roof flashing system over (n) plywood substrate along mechanical room roof - 115 LFT

Openings
- Replace skylights - 3 UNITS
- Repair interior water damage to plaster - 250 SQFT

** Note all quantities are estimates and should be verified in the field.

Key Map





1 Assessment - East Elevation - West Wing

0 4' 8' 16'

** See Appendices C and D for a full window survey that notes window condition and recommended repairs.

Material Legend

Material
Roof membrane
Sheet Metal
Wood
Glazing
Stone

Repair Quantities

Stone
- Repoint joints - 4,500 SQFT

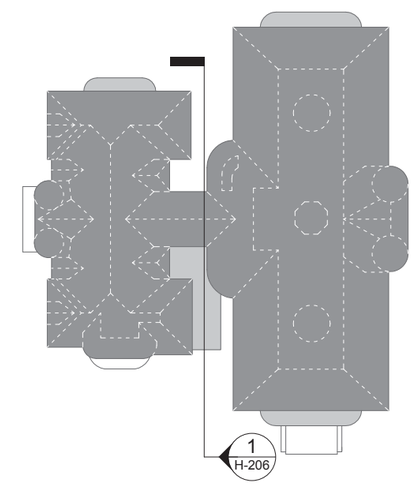
Flashing & Sheet Metal Restoration
- Repair wall to rooof flashing - 30 LFT
- Repair balcony flashing - 320 LFT
- Replace balcony coping - 180 LFT
- Install copper counter flashing at mechanical room roof - 115 LFT
- Provide localized repairs to gutter - 1000 LFT
- Replace / fix incomplete gutter - 25 LFT
- Repair through wall roof drains - 2 UNITS
- Provide new diverter to redirect roof run-off - 2 UNITS
- Repair broken / unconnected drainline unit - 1 UNIT
- Repair ridge ornaments - 12 UNITS

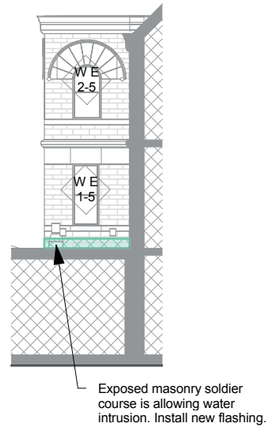
Waterproofing/Roof Deck
- Replace mechanical room roof with (n) liquid membrane roof - 780 SQFT
- Install liquid membrane roof flashing system over (n) plywood substrate along mechanical room roof - 115 LFT

Openings
- Replace skylights - 3 UNITS
- Repair interior water damage to plaster - 250 SQFT

** Note all quantities are estimates and should be verified in the field.

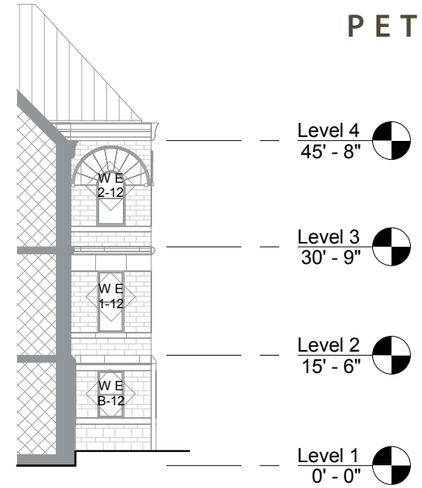
Key Map





4 Assessment - South Return

0 4' 8' 16'



3 Assessment - North Return

0 4' 8' 16'

** See Appendices C and D for a full window survey that notes window condition and recommended repairs.

Material Legend

Material
Roof membrane
Sheet Metal
Wood
Glazing
Stone

Repair Quantities

Stone
- Repoint joints - 4,500 SQFT

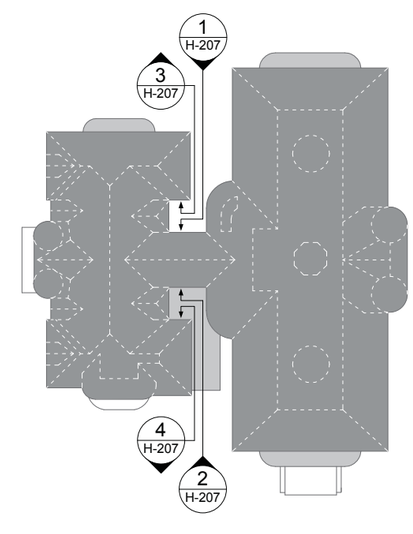
Flashing & Sheet Metal Restoration
- Repair wall to rooof flashing - 30 LFT
- Repair balcony flashing - 320 LFT
- Replace balcony coping - 180 LFT
- Install copper counter flashing at mechanical room roof- 115 LFT
- Provide localized repairs to gutter - - - - - - - - - - - - - - - - - 1000 LFT
- Replace / fix incomplete gutter - - - - - - - - - - - - - - - - - - - 25 LFT
- Repair through wall roof drains - - - - - - - - - - - - - - - - - - - 2 UNITS
- Provide new diverter to redirect roof run-off - - - - - - - - - 2 UNITS
- Repair broken / unconnected drainline unit - - - - - - - - - 1 UNIT
- Repair ridge ornaments - 12 UNITS

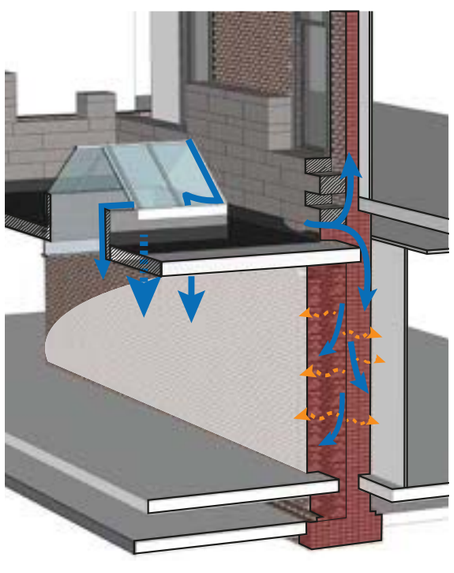
Waterproofing/Roof Deck
- Replace mechanical room roof with (n) liquid membrane roof - 780 SQFT
- Install liquid membrane roof flashing system over (n) plywood substrate along mechanical room roof- - - - - 115 LFT

Openings
- Replace skylights - 3 UNITS
- Repair interior water damage to plaster - - - - - - - - - - - - 250 SQFT

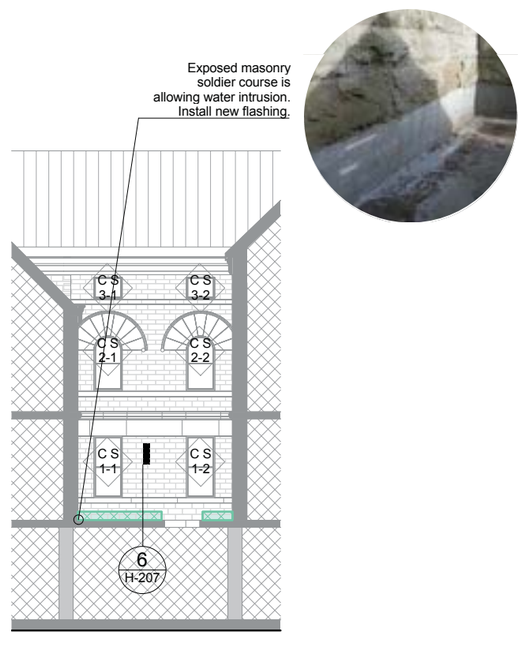
** Note all quantities are estimates and should be verified in the field.

Key Map



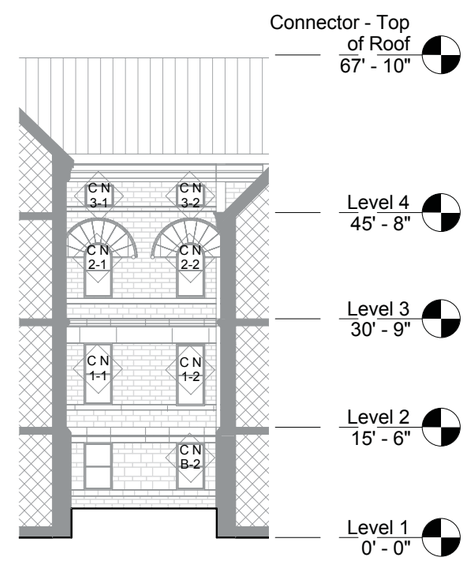


6 Assessment - Mechanical Room Section



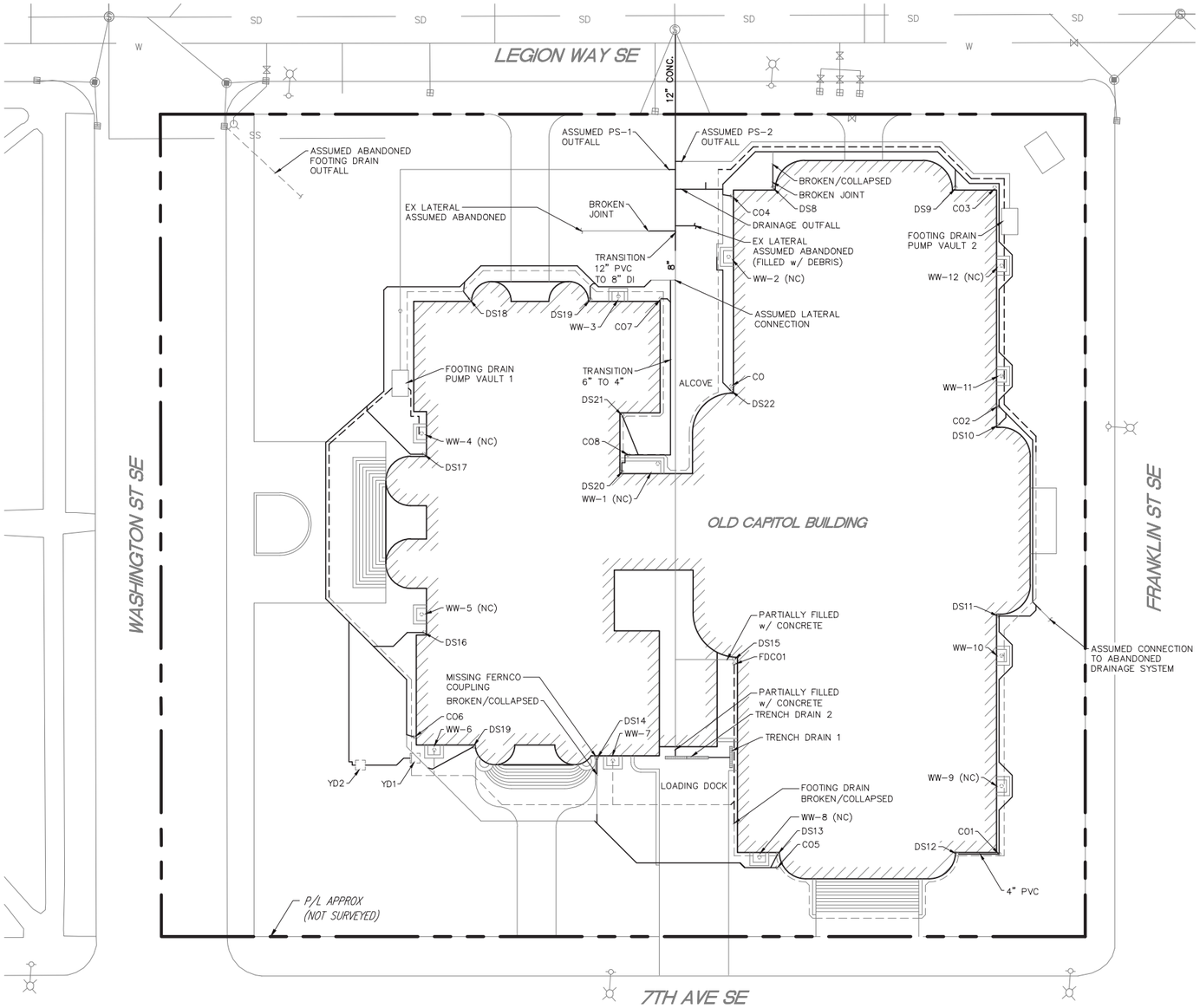
2 Assessment - South Elvation - Center Wing

0 4' 8' 16'



1 Assessment - North Elevation - Center Wing

0 4' 8' 16'



N

0 20 40

Scale 1"=40'

LEGEND

- PROPERTY LINE (NOT SURVEYED)
- EX BUILDING
- SD — EX PUBLIC STORM DRAINAGE PIPE (GIS)
- EX STORM DRAINAGE PIPE
- EX ASSUMED STORMED DRAINAGE PIPE*
- EX FOOTING DRAIN
- EX ASSUMED FOOTING DRAIN*
- EX PUBLIC STORM DRAINAGE STRUCTURES
- YD2 — EX YARD DRAIN
- DS15 — EX DOWNSPOUT
- CO4 — EX CLEANOUT
- EX TRENCH DRAIN
- EX FENCE
- EX WINDOW WELL (NC – NOT CONNECTED)

*NOTE: THESE PIPES ARE "ASSUMED" DUE TO BEING INACCESSIBLE DUE TO DAMAGE OR BLOCKAGE. THESE PIPES ARE RECOMMENDED TO BE CLEANED AND VIDEO INSPECTED ONCE UPSTREAM UPSTREAM IMPROVEMENTS ARE MADE.

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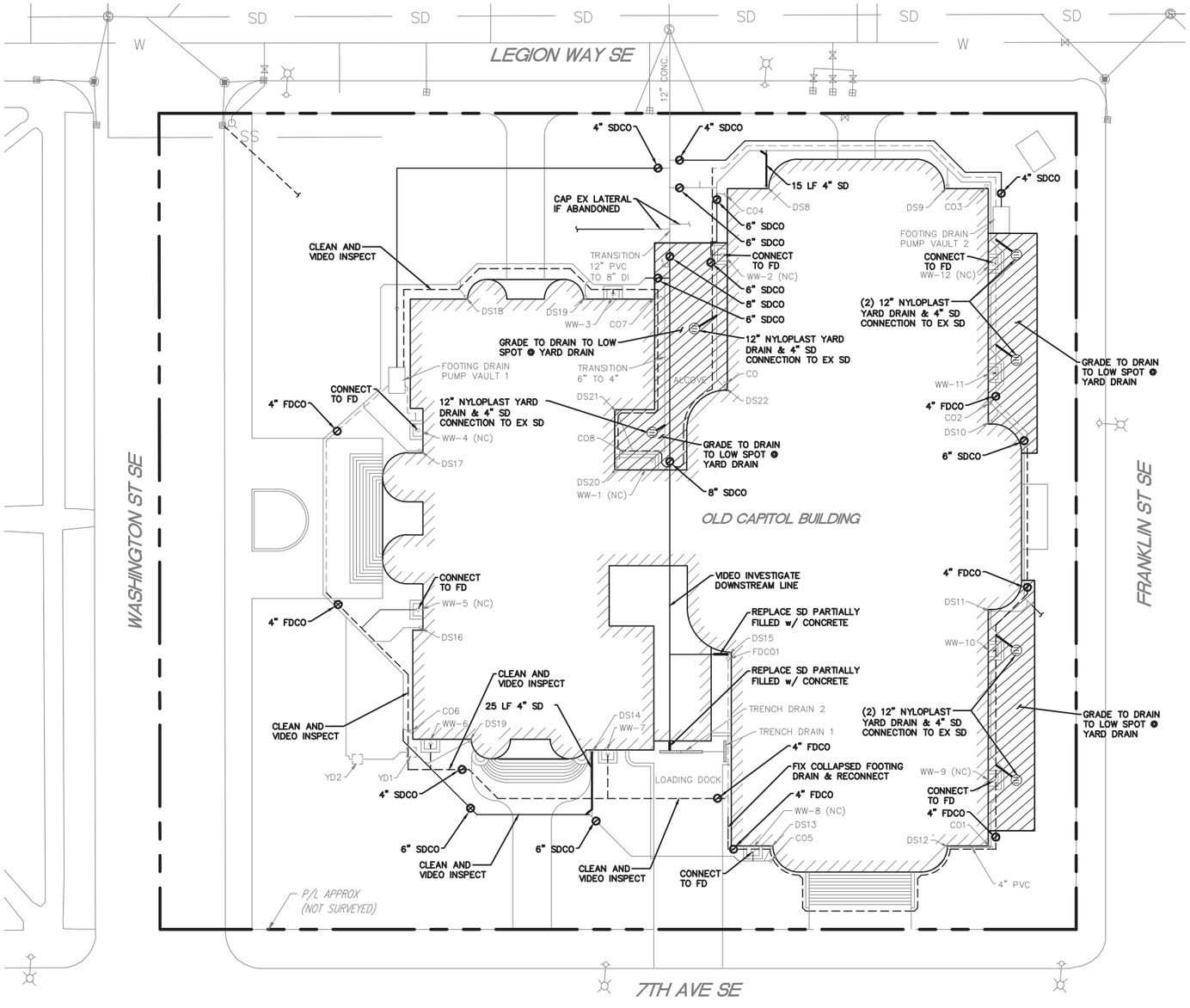
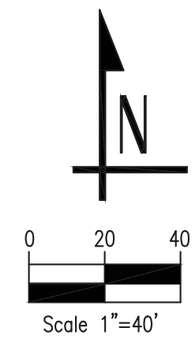
Description

Date: 4/11/14

EXISTING DRAINAGE INFRASTRUCTURE

Figure 1





LEGEND

- PROPERTY LINE (NOT SURVEYED)
- EX BUILDING
- STORM DRAINAGE PIPE
- FOOTING/SUBSURFACE DRAIN
- STORM DRAIN CLEANOUT
- YARD DRAIN
- AREA TO BE REGRADED

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Description: PROPOSED DRAINAGE INFRASTRUCTURE

Date: 4/11/14

Figure: 2

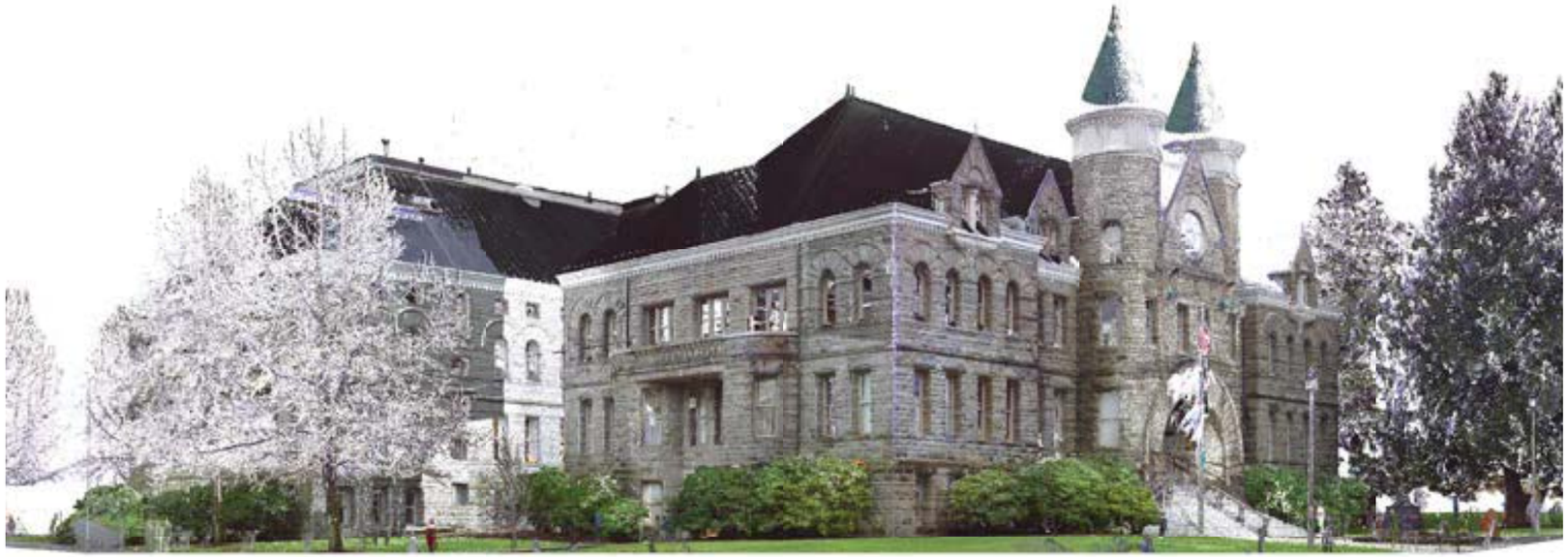


Figure E-1: Ground Level Perspective

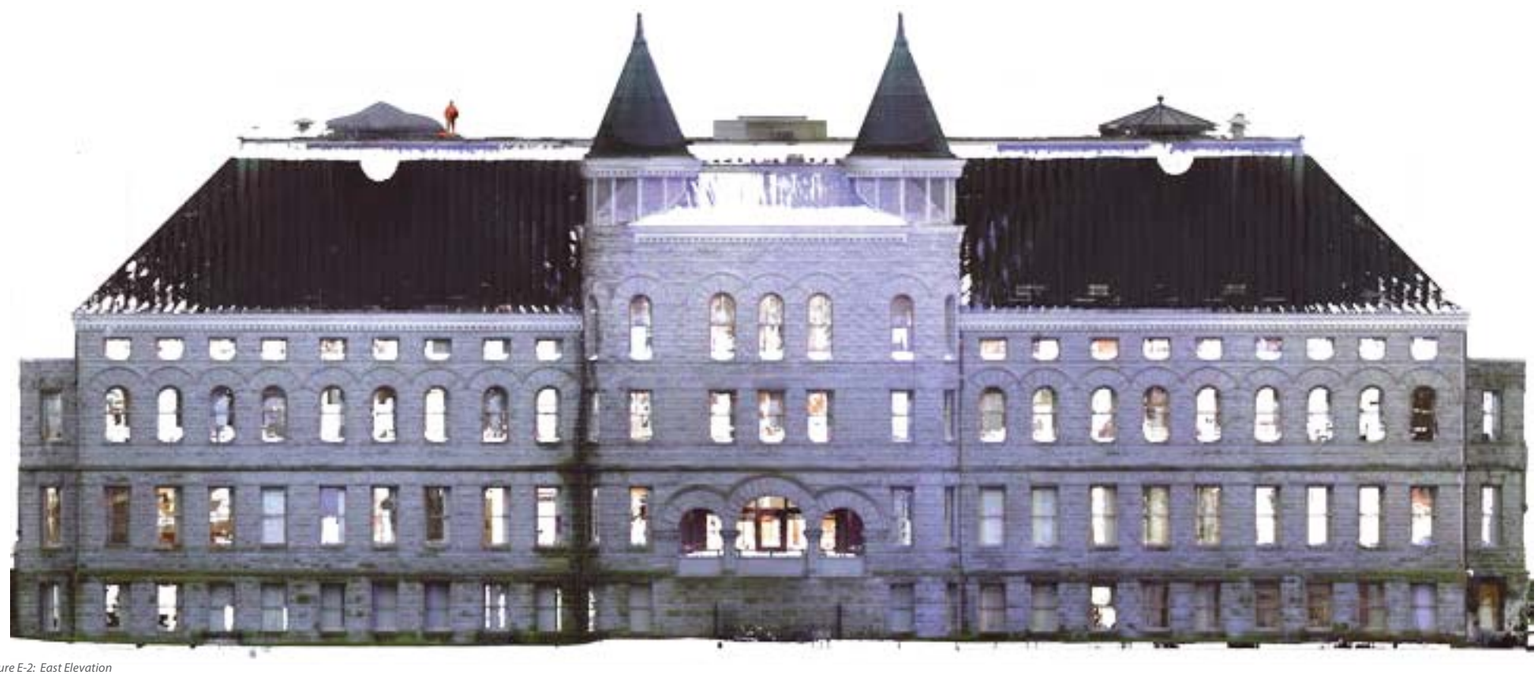


Figure E-2: East Elevation

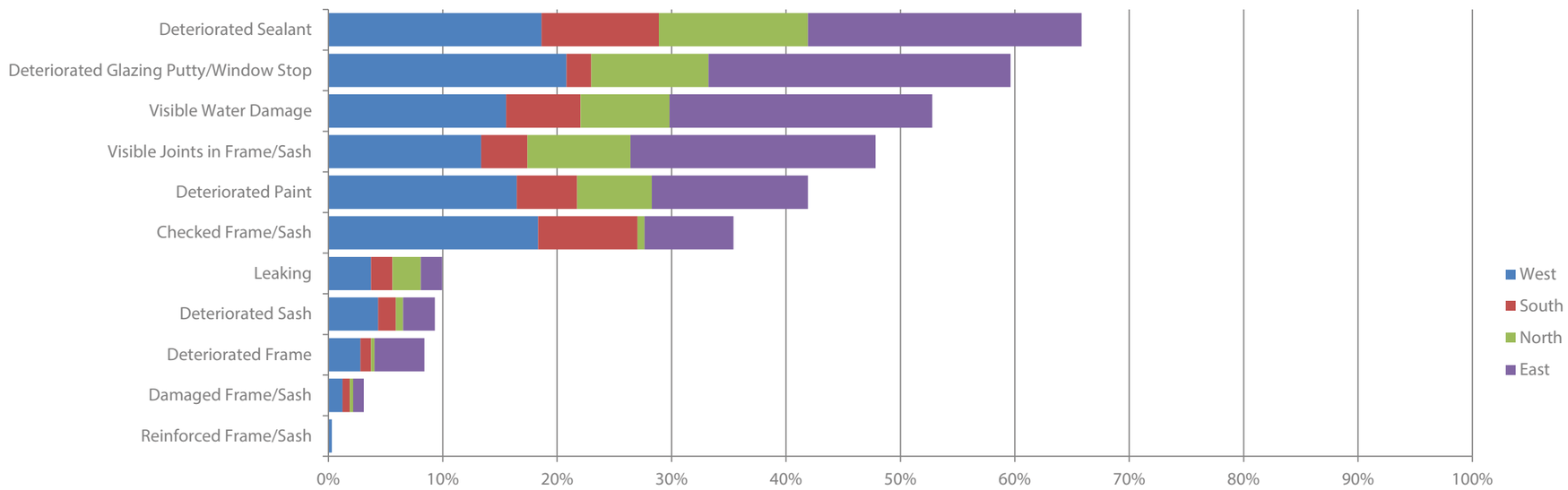
Figure E-3: Birds Eye from the Northeast

Figure E-4: Birds Eye from the Northeast

Figure E-5: Birds Eye from the Southeast

* All point cloud data to be delivered in a separate transmittal.

Window Deficiencies



	Reinforced Frame/Sash	Damaged Frame/Sash	Deteriorated Frame	Deteriorated Sash	Leaking	Checked Frame/Sash	Deteriorated Paint	Visible Joints in Frame/Sash	Visible Water Damage	Deteriorated Glazing Putty/Window Stop	Deteriorated Sealant
West	0%	1%	3%	4%	4%	18%	16%	13%	16%	21%	19%
South	0%	1%	1%	2%	2%	9%	5%	4%	7%	2%	10%
North	0%	0%	0%	1%	2%	1%	7%	9%	8%	10%	13%
East	0%	1%	4%	3%	2%	8%	14%	21%	23%	26%	24%

Window Repairs

Sealant Replacement :
275 window units

Glazing Putty Replacement:
422 window units

Sash Repair:
60 window units

Sash Replacement on Exposed Elevations
150 window units

Frame and Sash re-Painting
140 window units

Repair/Replace deteriorated frames/sashes:
repair: 80 window units
replace: 30 window units

Installation of New Flashing System:
10 window units

Minor Damage (No Repair Necessary)
10 window units

East Wing - East Elevation

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
E E 1-1	Double Hung	4' - 0"	8' - 8"		●				●						
E E 1-2	Double Hung	4' - 0"	8' - 8"					●	●				●	●	
E E 1-3	Double Hung	4' - 0"	8' - 8"					●						●	
E E 1-4	Double Hung	4' - 0"	8' - 8"					●	●		●			●	
E E 1-5	Double Hung	4' - 0"	8' - 8"						●		●		●	●	
E E 1-6	Double Hung	4' - 0"	8' - 8"					●	●		●		●	●	
E E 1-7	Double Hung	4' - 0"	8' - 8"						●		●			●	
E E 1-8	Double Hung	4' - 0"	8' - 8"					●	●					●	
E E 1-9	Double Hung	4' - 0"	8' - 8"			●		●	●					●	
E E 1-10	Double Hung	3' - 6"	8' - 8"			●		●	●	●	●		●	●	Missing glazing putty
E E 1-11	Double Hung	3' - 6"	8' - 8"												Not Assessed
E E 1-12	Double Hung	3' - 6"	8' - 8"								●				
E E 1-14	Double Hung	3' - 6"	8' - 8"												Not Assessed
E E 1-15	Double Hung	3' - 6"	8' - 8"					●			●		●	●	
E E 1-16	Double Hung	3' - 6"	8' - 8"					●						●	
E E 1-17	Double Hung	4' - 0"	8' - 8"		●			●	●		●			●	
E E 1-18	Double Hung	4' - 0"	8' - 8"		●			●						●	
E E 1-19	Double Hung	4' - 0"	8' - 8"		●						●		●	●	
E E 1-20	Double Hung	4' - 0"	8' - 8"		●			●			●		●		
E E 1-20B	Double Hung	4' - 0"	8' - 8"		●			●			●		●	●	
E E 1-21	Double Hung	4' - 0"	8' - 8"					●			●		●	●	
E E 1-22	Double Hung	4' - 0"	8' - 8"					●	●				●	●	
E E 1-23	Double Hung	4' - 0"	8' - 8"					●			●		●	●	
E E 1-24	Double Hung	4' - 0"	8' - 8"					●	●		●		●		
E E B-1	Double Hung	4' - 0"	6' - 8"	●		●		●						●	

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
E E B-2	Double Hung	4' - 0"	6' - 8"	●		●		●						●	
E E B-3	Double Hung	4' - 0"	6' - 8"	●		●		●						●	
E E B-4	Double Hung	4' - 0"	6' - 8"			●		●			●			●	
E E B-5	Double Hung	4' - 0"	6' - 8"					●		●	●		●	●	Patterned glass
E E B-6	Double Hung	4' - 0"	6' - 8"					●		●	●		●	●	Patterned glass
E E B-7	Double Hung	4' - 0"	6' - 8"			●		●		●	●			●	Patterned glass
E E B-8	Double Hung	4' - 0"	6' - 8"	●				●			●				
E E B-9	Double Hung	4' - 0"	6' - 8"	●				●			●				
E E B-10	Double Hung	3' - 6"	6' - 6"			●		●		●	●		●	●	
E E B-11	Double Hung	4' - 0"	6' - 8"					●		●	●			●	
E E B-15	Double Hung	3' - 6"	6' - 6"			●		●		●	●		●	●	Patterned glass
E E B-16	Double Hung	3' - 6"	6' - 6"					●		●	●		●	●	Curved Sill, Wired glass
E E B-17	Double Hung	4' - 0"	6' - 8"					●	●		●		●		Wired glass
E E B-18	Double Hung	4' - 0"	6' - 8"					●		●	●		●	●	Wired glass
E E B-19	Double Hung	4' - 0"	6' - 8"					●		●	●		●	●	
E E B-20	Double Hung	4' - 0"	6' - 8"					●	●		●				
E E B-21	Double Hung	4' - 0"	6' - 8"					●	●		●		●		
E E B-22	Double Hung	4' - 0"	6' - 8"					●	●		●		●		
E E B-23	Double Hung	4' - 0"	6' - 8"			●		●	●		●		●	●	
E E B-24	Double Hung	4' - 0"	6' - 8"					●			●		●		
E E B-25	Double Hung	4' - 0"	6' - 8"					●			●		●		

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visiater Damage	Other
E E 2-1	Double Hung - Arched	4' - 0"	7' - 8"		●				●				●	●	
E E 2-2	Double Hung - Arched	4' - 0"	7' - 8"					●	●				●	●	
E E 2-3	Double Hung - Arched	4' - 0"	7' - 8"		●			●	●					●	
E E 2-4	Double Hung - Arched	4' - 0"	7' - 8"		●			●					●	●	
E E 2-5	Double Hung - Arched	4' - 0"	7' - 8"					●	●				●	●	
E E 2-6	Double Hung - Arched	4' - 0"	7' - 8"					●					●		
E E 2-7	Double Hung - Arched	4' - 0"	7' - 8"		●				●				●	●	
E E 2-8	Double Hung - Arched	4' - 0"	7' - 8"				●	●	●				●	●	
E E 2-9	Double Hung - Arched	4' - 0"	7' - 8"		●			●	●				●	●	
E E 2-10	Double Hung	3' - 6"	7' - 6"		●	●		●	●				●	●	
E E 2-11	Double Hung	4' - 0"	7' - 6"					●			●		●		
E E 2-12	Double Hung	4' - 0"	7' - 6"					●			●		●	●	
E E 2-13	Double Hung	4' - 0"	7' - 6"					●			●		●	●	
E E 2-14	Double Hung	4' - 0"	7' - 6"					●			●			●	
E E 2-15	Double Hung	4' - 0"	7' - 6"					●			●			●	
E E 2-16	Double Hung	3' - 6"	7' - 6"					●	●		●			●	
E E 2-17	Double Hung - Arched	4' - 0"	7' - 8"		●			●	●		●		●	●	
E E 2-18	Double Hung - Arched	4' - 0"	7' - 8"					●	●				●		
E E 2-19	Double Hung - Arched	4' - 0"	7' - 8"		●			●					●	●	
E E 2-20	Double Hung - Arched	4' - 0"	7' - 8"					●	●				●	●	
E E 2-21	Double Hung - Arched	4' - 0"	7' - 8"		●			●						●	
E E 2-21B	Double Hung - Arched	4' - 0"	7' - 8"		●			●			●			●	
E E 2-22	Double Hung - Arched	4' - 0"	7' - 8"		●			●	●		●		●		
E E 2-23	Double Hung - Arched	4' - 0"	7' - 8"		●			●					●	●	
E E 2-24	Double Hung - Arched	4' - 0"	7' - 8"		●			●					●	●	
E E 3-1	Fixed	4' - 0"	3' - 0"												Not Assessed
E E 3-2	Fixed	4' - 0"	3' - 0"												Not Assessed
E E 3-3	Fixed	4' - 0"	3' - 0"					●			●				
E E 3-4	Fixed	4' - 0"	3' - 0"								●				

East Wing - East Elevation

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
E E 3-5	Fixed	4' - 0"	3' - 0"			●					●		●	●	
E E 3-6	Fixed	4' - 0"	3' - 0"								●		●		
E E 3-7	Fixed	4' - 0"	3' - 0"					●			●				
E E 3-8	Fixed	4' - 0"	3' - 0"								●				
E E 3-9	Fixed	4' - 0"	3' - 0"								●		●		
E E 3-10	Double Hung - Arched	3' - 6"	8' - 8"		●			●	●				●	●	
E E 3-11	Double Hung - Arched	3' - 6"	8' - 8"								●		●		
E E 3-12	Double Hung - Arched	3' - 6"	8' - 8"					●			●				
E E 3-13	Double Hung - Arched	3' - 6"	8' - 6"					●						●	
E E 3-14	Double Hung - Arched	3' - 6"	8' - 8"					●			●				
E E 3-15	Double Hung - Arched	3' - 6"	8' - 8"					●			●		●		
E E 3-16	Double Hung - Arched	3' - 6"	8' - 8"										●	●	
E E 3-17	Fixed	4' - 0"	3' - 0"						●		●				
E E 3-18	Fixed	4' - 0"	3' - 0"			●		●	●		●			●	
E E 3-19	Fixed	4' - 0"	3' - 0"								●		●		
E E 3-20	Fixed	4' - 0"	3' - 0"						●		●				
E E 3-21	Fixed	4' - 0"	3' - 0"						●		●				
E E 3-21B	Fixed	4' - 0"	3' - 0"						●		●		●		
E E 3-22	Fixed	4' - 0"	3' - 0"								●		●		
E E 3-23	Fixed	4' - 0"	3' - 0"				●				●		●		
E E 3-24	Fixed	4' - 0"	3' - 0"								●				

East Wing - North Elevation

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
E N 1-1	Double Hung	4' - 0"	8' - 8"					•						•	
E N 1-2	Double Hung	3' - 6"	8' - 8"					•	•		•		•	•	
E N 1-3	Double Hung	3' - 6"	8' - 8"					•			•		•	•	
E N 1-4	Double Hung	4' - 0"	8' - 8"								•				
E N 1-5	Double Hung	4' - 0"	8' - 8"								•				
E N 1-6	Double Hung	4' - 0"	8' - 8"					•			•				
E N 1-7	Double Hung	4' - 0"	8' - 8"					•			•				
E N 1-8	Double Hung	3' - 6"	8' - 8"					•			•			•	
E N 1-9	Double Hung	3' - 6"	8' - 8"					•	•		•				
E N 1-10	Double Hung	4' - 0"	8' - 8"												Not Assessed
E N 2-1	Double Hung - Arched	4' - 0"	7' - 8"						•				•		Different frame
E N 2-2	Double Hung	3' - 6"	7' - 6"					•	•		•			•	4 nails in frame
E N 2-3	Double Hung	3' - 6"	7' - 6"					•	•		•		•	•	
E N 2-4	Double Hung	4' - 0"	7' - 6"					•							
E N 2-5	Double Hung	4' - 0"	7' - 6"								•				
E N 2-6	Double Hung	4' - 0"	7' - 6"						•						
E N 2-7	Double Hung	4' - 0"	7' - 6"								•				
E N 2-8	Double Hung	3' - 6"	7' - 6"					•			•		•	•	
E N 2-9	Double Hung	3' - 6"	7' - 6"												Not Assessed
E N 2-10	Double Hung - Arched	4' - 0"	7' - 8"						•		•			•	
E N 3-1	Fixed	4' - 0"	3' - 0"				•				•				

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
E N 3-2	Fixed	4' - 0"	4' - 0"								•				
E N 3-3	Fixed	4' - 0"	4' - 0"								•				
E N 3-4	Fixed	3' - 6"	3' - 0"								•		•		
E N 3-5	Fixed	3' - 6"	3' - 0"								•		•		
E N 3-6	Fixed	3' - 6"	3' - 0"								•		•		
E N 3-7	Fixed	3' - 6"	3' - 0"								•		•		
E N 3-8	Fixed	3' - 6"	3' - 0"								•		•		
E N 3-9	Fixed	3' - 6"	3' - 0"						•		•		•		
E N 3-10	Fixed	4' - 0"	4' - 0"												Not Assessed
E N 3-11	Fixed	4' - 0"	4' - 0"												Not Assessed
E N 3-12	Fixed	4' - 0"	3' - 0"								•				
E N B-1	Double Hung	4' - 0"	6' - 8"												Not Assessed
E N B-2	Double Hung	3' - 6"	6' - 6"												Not Assessed
E N B-3	Double Hung	3' - 6"	6' - 6"												Not Assessed
E N B-4	Double Hung	4' - 0"	6' - 8"												Not Assessed
E N B-7	Double Hung	4' - 0"	6' - 8"												Not Assessed
E N B-8	Double Hung	3' - 6"	6' - 6"												Not Assessed
E N B-9	Double Hung	3' - 6"	6' - 6"												Not Assessed
E N B-10	Double Hung	4' - 0"	6' - 8"												Not Assessed

East Wing - South Elevation

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
E S 1-1	Double Hung	4' - 0"	8' - 8"		•					•		•	•	
E S 1-2	Double Hung	3' - 6"	8' - 8"		•					•		•	•	
E S 1-3	Double Hung	3' - 6"	8' - 8"		•					•		•	•	
E S 1-4	Double Hung	4' - 0"	8' - 8"											Not Assessed
E S 1-7	Double Hung	4' - 0"	8' - 8"											Not Assessed
E S 1-8	Double Hung	3' - 6"	8' - 8"		•					•			•	
E S 1-9	Double Hung	3' - 6"	8' - 8"		•					•				
E S 1-10	Double Hung	4' - 0"	8' - 8"		•				•	•			•	
E S 2-1	Double Hung	4' - 0"	6' - 8"		•							•	•	
E S 2-2	Double Hung	3' - 6"	7' - 6"											Not Assessed
E S 2-3	Double Hung	3' - 6"	7' - 6"		•				•	•		•	•	
E S 2-4	Double Hung	4' - 0"	7' - 6"											Not Assessed
E S 2-5	Double Hung	4' - 0"	7' - 6"											Not Assessed
E S 2-6	Double Hung	4' - 0"	7' - 6"											Not Assessed
E S 2-7	Double Hung	4' - 0"	7' - 6"											Not Assessed
E S 2-8	Double Hung	3' - 6"	7' - 6"		•		•		•	•		•	•	
E S 2-9	Double Hung	3' - 6"	7' - 6"		•		•			•			•	
E S 2-10	Double Hung	4' - 0"	6' - 8"		•					•			•	

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
E S 3-1	Fixed	3' - 6"	4' - 0"												Not Assessed
E S 3-2	Fixed	4' - 0"	4' - 0"		•				•		•				
E S 3-3	Fixed	4' - 0"	4' - 0"		•				•		•				
E S 3-4	Fixed	3' - 6"	3' - 0"		•				•		•				
E S 3-5	Fixed	3' - 6"	3' - 0"		•				•		•				
E S 3-6	Fixed	3' - 6"	3' - 0"		•				•		•				
E S 3-7	Fixed	3' - 6"	3' - 0"		•				•		•				
E S 3-8	Fixed	3' - 6"	3' - 0"		•				•		•				
E S 3-9	Fixed	3' - 6"	3' - 0"		•				•		•				
E S 3-10	Fixed	4' - 0"	4' - 0"		•				•		•				
E S 3-11	Fixed	4' - 0"	4' - 0"		•				•		•				
E S 3-12	Fixed	3' - 6"	4' - 0"		•						•				
E S B-1	Double Hung	4' - 0"	6' - 8"												Not Assessed
E S B-2	Double Hung	3' - 6"	6' - 6"	•											
E S B-3	Double Hung	3' - 6"	6' - 6"	•											
E S B-8	Double Hung	3' - 6"	6' - 6"												Not Assessed
E S B-9	Double Hung	3' - 6"	6' - 6"												Not Assessed
E S B-10	Double Hung	4' - 0"	6' - 8"	•											Not Assessed

East Wing - West Elevation

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
E W 1-1	Double Hung	3' - 6"	8' - 8"		●			●		●	●			●	
E W 1-2	Double Hung	3' - 6"	8' - 8"		●			●	●		●		●	●	
E W 1-3	Double Hung	3' - 6"	8' - 8"		●			●	●					●	
E W 1-4	Fixed	3' - 6"	4' - 0"	●	●			●	●	●	●		●	●	
E W 1-5	Double Hung	3' - 6"	8' - 8"					●	●				●	●	
E W 1-6	Double Hung	3' - 6"	8' - 8"		●			●	●				●	●	
E W 1-7	Double Hung	3' - 6"	8' - 8"					●	●				●	●	
E W 1-8	Double Hung	3' - 6"	8' - 8"				●	●			●		●	●	
E W 1-9	Double Hung	4' - 0"	8' - 8"				●				●		●		Cracked upper sash
E W 1-10	Double Hung	4' - 0"	8' - 8"								●		●		
E W 1-11	Double Hung	4' - 0"	8' - 8"												Not Assessed
E W 1-12	Double Hung	3' - 6"	8' - 8"												Not Assessed
E W 1-13	Double Hung	3' - 6"	8' - 8"					●							
E W 1-14	Double Hung	3' - 6"	8' - 8"					●							
E W 1-14B	Double Hung	3' - 6"	8' - 8"												Not Assessed
E W 1-15	Double Hung	3' - 6"	8' - 8"												Not Assessed
E W 1-16	Fixed	2' - 6"	4' - 0"												Not Assessed
E W 1-16b	Fixed	2' - 6"	3' - 6"												Not Assessed
E W 1-17	Fixed	2' - 6"	4' - 0"												Not Assessed
E W 1-17b	Fixed	2' - 6"	3' - 6"												Not Assessed
E W 1-18	Double Hung	3' - 6"	8' - 8"		●						●			●	

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
E W 1-19	Double Hung	3' - 6"	8' - 8"		●						●			●	
E W 1-20	Double Hung	3' - 6"	8' - 8"		●			●			●			●	
E W B-1	Double Hung	3' - 6"	6' - 6"		●			●	●				●		
E W B-2	Double Hung	3' - 6"	6' - 6"					●	●		●		●		
E W B-3	Double Hung	3' - 6"	6' - 6"		●			●	●				●		
E W B-4	Fixed	3' - 6"	4' - 0"					●	●		●		●		
E W B-5	Double Hung	3' - 6"	6' - 6"	●				●	●				●		
E W B-6	Double Hung	3' - 6"	6' - 6"	●		●		●	●				●		
E W B-7	Double Hung	3' - 6"	6' - 6"					●	●				●		
E W B-8	Double Hung	3' - 6"	6' - 6"					●	●				●		
E W B-12	Double Hung	4' - 0"	6' - 8"												Not Assessed
E W B-13	Double Hung	3' - 6"	6' - 6"	●											
E W B-14	Double Hung	3' - 6"	6' - 6"	●											
E W B-14B	Double Hung	3' - 6"	6' - 6"	●											Not Assessed
E W B-15	Double Hung	3' - 6"	6' - 6"	●											Not Assessed
E W B-18	Double Hung	3' - 6"	6' - 6"	●											
E W B-19	Double Hung	3' - 6"	6' - 6"	●											
E W B-20	Double Hung	3' - 6"	6' - 6"	●											

West Wing - West Elevation

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
W W 2-1	Double Hung - Arched	3' - 6"	7' - 8"		●			●	●				●		
W W 2-2	Double Hung - Arched	3' - 6"	7' - 8"					●						●	New sealant
W W 2-3	Double Hung - Arched	3' - 6"	7' - 8"		●			●	●	●	●			●	
W W 2-4	Double Hung - Arched	3' - 6"	7' - 8"		●								●	●	Missing cover for fastener
W W 2-5	Double Hung	3' - 8"	6' - 6"		●			●	●	●	●			●	
W W 2-6	Double Hung	3' - 8"	6' - 6"					●	●	●				●	
W W 2-7	Double Hung	3' - 8"	6' - 6"				●		●	●	●		●	●	
W W 2-8	Double Hung	3' - 8"	6' - 6"								●		●		
W W 2-9	Double Hung	3' - 8"	6' - 6"		●			●			●				
W W 2-10	Double Hung	3' - 8"	6' - 6"												Not Assessed
W W 2-11	Double Hung	3' - 8"	6' - 6"	●											
W W 2-12	Double Hung	3' - 8"	6' - 6"	●	●			●			●		●		Excess sealant
W W 2-13	Double Hung	3' - 8"	6' - 6"								●				
W W 2-14	Double Hung	3' - 8"	6' - 6"					●	●						
W W 2-15	Double Hung - Arched	3' - 6"	7' - 8"		●						●		●		
W W 2-16	Double Hung - Arched	3' - 6"	7' - 8"		●			●			●				
W W 2-17	Double Hung - Arched	3' - 6"	7' - 8"	●	●						●			●	
W W 2-18	Double Hung - Arched	3' - 6"	7' - 8"	●	●			●			●			●	
W W 3-2	Double Hung	2' - 6"	6' - 0 7/8"		●	●				●			●	●	
W W 3-3	Double Hung	2' - 6"	6' - 0 7/8"		●			●					●	●	
W W 3-5	Double Hung	2' - 6"	6' - 0 7/8"								●			●	Sill sloped wrong way

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
W W 3-6	Double Hung	2' - 6"	6' - 0 7/8"		●						●		●	●	Sill sloped wrong way
W W 3-7	Double Hung - Arched	4' - 0"	7' - 8"		●			●	●					●	Not meeting at rail
W W 3-9	Fixed - Circular	4' - 2"	7' - 8"						●						
W W 3-12	Double Hung - Arched	4' - 0"	7' - 8"		●				●		●				
W W 3-13	Double Hung	2' - 6"	6' - 0 7/8"		●			●			●				Sill sloped wrong way
W W 3-14	Double Hung	2' - 6"	6' - 0 7/8"		●			●			●				Sill sloped wrong way
W W 3-16	Double Hung	2' - 6"	6' - 0 7/8"		●			●	●		●				
W W 3-17	Double Hung	2' - 6"	6' - 0 7/8"		●			●			●				

West Wing - West Elevation

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
W W 1-1	Double Hung	3' - 8"	8' - 8"					●	●					●	Falled upper stop
W W 1-2	Double Hung	3' - 8"	8' - 8"		●	●					●			●	
W W 1-3	Double Hung	3' - 8"	8' - 8"		●	●		●			●	●		●	
W W 1-4	Double Hung	3' - 8"	8' - 8"		●			●		●				●	
W W 1-5	Double Hung	3' - 8"	8' - 8"		●			●			●		●		
W W 1-6	Double Hung	3' - 8"	8' - 8"					●			●				
W W 1-7	Double Hung	3' - 8"	8' - 8"		●			●	●		●				
W W 1-8	Double Hung	3' - 8"	8' - 8"												Not Assessed
W W 1-11	Double Hung	3' - 8"	8' - 8"												Not Assessed
W W 1-12	Double Hung	3' - 8"	8' - 8"		●					●	●			●	
W W 1-13	Double Hung	3' - 8"	8' - 8"		●				●	●				●	
W W 1-14	Double Hung	3' - 8"	8' - 8"		●		●							●	
W W 1-15	Double Hung	3' - 8"	8' - 8"					●	●				●	●	
W W 1-16	Double Hung	3' - 8"	8' - 8"		●			●	●		●				
W W 1-17	Double Hung	3' - 8"	8' - 8"		●						●			●	Glazing cracked
W W 1-18	Double Hung	3' - 8"	8' - 8"		●			●						●	
W W B-1	Double Hung	3' - 8"	6' - 8"		●										
W W B-2	Double Hung	3' - 8"	6' - 8"						●		●				
W W B-3	Double Hung	3' - 8"	6' - 8"		●										
W W B-4	Double Hung	3' - 8"	6' - 8"						●						
W W B-6	Double Hung	3' - 8"	6' - 8"												Not Assessed
W W B-7	Double Hung	3' - 8"	6' - 8"												Not Assessed
W W B-12	Double Hung	3' - 8"	6' - 8"												
W W B-13	Double Hung	3' - 8"	6' - 8"		●						●				
W W B-14	Double Hung	3' - 8"	6' - 8"						●						
W W B-15	Double Hung	3' - 8"	6' - 8"												Not Assessed
W W B-16	Double Hung	3' - 8"	6' - 8"												Not Assessed
W W B-17	Double Hung	3' - 8"	6' - 8"					●					●		
W W B-18	Double Hung	3' - 8"	6' - 8"					●	●						

West Wing - South & North Elevation

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
W N 1-1	Double Hung	3' - 8"	8' - 8"	●				●	●		●		●	●	
W N 1-2	Double Hung	3' - 8"	8' - 8"	●	●			●			●		●	●	
W N 1-3	Double Hung	3' - 0"	8' - 8"					●	●		●		●	●	
W N 1-4	Double Hung	3' - 0"	8' - 8"					●			●			●	Glazing cracked
W N 1-5	Double Hung	3' - 8"	8' - 8"					●	●					●	
W N 1-6	Double Hung	3' - 8"	8' - 8"					●						●	New glazing putty
W N 1-7	Double Hung	3' - 0"	8' - 8"					●			●			●	
W N 1-8	Double Hung	3' - 0"	8' - 8"					●	●		●		●		
W N 1-9	Double Hung	3' - 8"	8' - 8"						●	●				●	New glazing putty
W N 1-10	Double Hung	3' - 8"	8' - 8"								●			●	New glazing putty
W N 2-1	Double Hung - Arched	3' - 6"	7' - 8"						●		●		●	●	
W N 2-2	Double Hung - Arched	3' - 6"	7' - 8"					●	●		●				
W N 2-3	Sliding	8' - 6"	7' - 6"		●			●						●	
W N 2-4	Sliding	8' - 6"	7' - 6"					●			●		●	●	
W N 2-5	Sliding	8' - 6"	7' - 6"					●			●			●	
W N 2-6	Double Hung - Arched	3' - 6"	7' - 8"					●					●	●	
W N 2-10	Double Hung - Arched	3' - 6"	7' - 8"					●		●			●	●	
W N B-1	Double Hung	3' - 8"	6' - 8"	●				●					●		
W N B-2	Double Hung	3' - 8"	6' - 8"	●		●		●	●				●	●	
W N B-3	Double Hung	3' - 0"	6' - 8"	●				●	●		●		●	●	
W N B-4	Double Hung	3' - 0"	6' - 8"					●	●		●		●		
W N B-7	Double Hung	3' - 0"	6' - 8"					●	●		●		●		
W N B-8	Double Hung	3' - 0"	6' - 8"	●				●			●		●		
W N B-9	Double Hung	3' - 8"	6' - 8"	●				●	●		●		●		
W N B-10	Double Hung	3' - 8"	6' - 8"	●				●	●		●		●		

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
W S 1-1	Double Hung	3' - 8"	8' - 8"		●		●	●	●		●			●	Lower sash not sealed to frame
W S 1-2	Double Hung	3' - 8"	8' - 8"					●			●		●	●	
W S 1-3	Double Hung	3' - 0"	8' - 8"						●		●		●	●	
W S 1-5	Double Hung	3' - 0"	8' - 8"		●			●			●		●	●	
W S 1-6	Double Hung	3' - 8"	8' - 8"		●	●								●	
W S 1-7	Double Hung	3' - 8"	8' - 8"		●	●		●	●		●		●	●	
W S 2-1	Double Hung - Arched	3' - 6"	7' - 8"	●	●			●	●	●	●			●	Weatherstrip missing
W S 2-2	Double Hung - Arched	3' - 6"	7' - 8"	●		●		●	●		●		●	●	Weatherstrip missing
W S 2-4	Old Capitol - WW South 3rd Floor	4' - 2"	7' - 8"		●				●		●		●	●	Previously replaced
W S 2-4A	Double Hung	5' - 0"	8' - 6"								●			●	New sashes
W S 2-4B	Double Hung	5' - 0"	8' - 6"		●				●		●			●	
W S 2-4C	Double Hung	5' - 0"	8' - 6"						●					●	New sashes
W S 2-4D	Double Hung	5' - 0"	8' - 6"		●	●			●		●			●	New sashes
W S 2-6	Double Hung - Arched	3' - 6"	7' - 8"				●		●	●	●		●	●	Previously replaced
W S 2-7	Double Hung - Arched	3' - 6"	7' - 8"				●				●		●	●	Previously replaced
W S B-1	Double Hung	3' - 8"	6' - 8"								●				
W S B-2	Double Hung	3' - 8"	6' - 8"								●				
W S B-3	Double Hung	3' - 0"	6' - 8"												Not Assessed
W S B-5	Double Hung	3' - 0"	6' - 8"	●											
W S B-6	Double Hung	3' - 8"	6' - 8"												
W S B-7	Double Hung	3' - 8"	6' - 8"												Not Assessed

APPENDIX F: WINDOW SURVEY

West Wing - East Elevation

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
W E 2-1	Double Hung - Arched	3' - 6"	7' - 8"		●						●			●	
W E 2-2	Double Hung - Arched	3' - 6"	7' - 8"		●						●			●	
W E 2-3	Double Hung - Arched	3' - 6"	7' - 8"		●						●			●	
W E 2-4	Double Hung - Arched	3' - 6"	7' - 8"		●									●	
W E 2-5	Double Hung - Arched	4' - 0"	7' - 8"												Not Assessed
W E 2-6	Double Hung	3' - 8"	6' - 6"												Not Assessed
W E 2-7	Double Hung	3' - 8"	6' - 6"												Not Assessed
W E 2-8	Double Hung	3' - 8"	6' - 6"												Not Assessed
W E 2-9	Double Hung	3' - 8"	6' - 6"												Not Assessed
W E 2-10	Double Hung	3' - 8"	6' - 6"												Not Assessed
W E 2-11	Double Hung	3' - 8"	6' - 6"												Not Assessed
W E 2-12	Double Hung - Arched	4' - 0"	7' - 8"					●							
W E 2-13	Double Hung - Arched	3' - 6"	7' - 8"						●		●		●		
W E 2-14	Double Hung - Arched	3' - 6"	7' - 8"				●	●	●				●	●	
W E 2-15	Double Hung - Arched	3' - 6"	7' - 8"					●	●		●		●	●	
W E 2-16	Double Hung - Arched	3' - 6"	7' - 8"					●			●		●		
W E 3-6	Double Hung	3' - 8"	6' - 6"												Not Assessed
W E 3-7	Double Hung	3' - 8"	6' - 6"												Not Assessed
W E 3-9	Double Hung	3' - 8"	6' - 6"												Not Assessed
W E 3-10	Double Hung	3' - 8"	6' - 6"												Not Assessed

West Wing - East Elevation

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
W E 1-1	Double Hung	3' - 8"	8' - 8"								●			●	
W E 1-2	Double Hung	3' - 8"	8' - 8"								●			●	
W E 1-3	Double Hung	3' - 8"	8' - 8"								●			●	
W E 1-4	Double Hung	3' - 8"	8' - 8"		●						●			●	
W E 1-5	Double Hung	3' - 8"	8' - 8"												Not Assessed
W E 1-6	Double Hung	3' - 8"	8' - 8"												Altered
W E 1-7	Double Hung	3' - 8"	8' - 8"												Not Assessed
W E 1-8	Double Hung	3' - 8"	8' - 8"			●									Rotted sill
W E 1-9	Double Hung	3' - 8"	8' - 8"												Not Assessed
W E 1-11	Double Hung	3' - 8"	8' - 8"												Not Assessed
W E 1-12	Double Hung	3' - 8"	8' - 8"					●	●					●	
W E 1-13	Double Hung	3' - 8"	8' - 8"					●					●	●	
W E 1-14	Double Hung	3' - 8"	8' - 8"						●		●			●	
W E 1-15	Double Hung	3' - 8"	8' - 8"					●			●		●	●	
W E 1-16	Double Hung	3' - 8"	8' - 8"	●				●			●			●	
W E B-5	Double Hung	3' - 8"	6' - 8"												Not Assessed
W E B-9	Double Hung	3' - 8"	6' - 8"					●			●		●		
W E B-10	Double Hung	3' - 8"	6' - 8"					●					●		
W E B-11	Double Hung	3' - 8"	6' - 8"					●					●		

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
W E B-12	Double Hung	3' - 8"	6' - 8"					●					●		
W E B-13	Double Hung	3' - 8"	6' - 8"					●	●		●		●		
W E B-14	Double Hung	3' - 8"	6' - 8"					●			●		●		
W E B-15	Double Hung	3' - 8"	6' - 8"					●	●				●	●	
W E B-16	Double Hung	3' - 8"	6' - 8"					●	●				●		

Central Wing - North & South Elevation

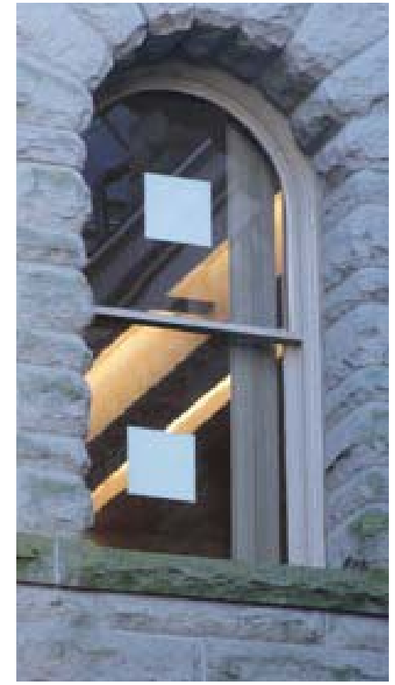
Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
C N 1-1	Double Hung	4' - 0"	8' - 8"												Not Assessed
C N 1-2	Double Hung	4' - 0"	8' - 8"												Not Assessed
C N 2-1	Double Hung - Arched	4' - 0"	7' - 8"												Not Assessed
C N 2-2	Double Hung - Arched	4' - 0"	7' - 8"												Not Assessed
C N 3-1	Fixed	4' - 0"	3' - 0"												Not Assessed
C N 3-2	Fixed	4' - 0"	3' - 0"												Not Assessed
C N B-1	Double Hung	4' - 0"	6' - 8"								•		•		
C N B-2	Double Hung	4' - 0"	6' - 8"										•		Previously replaced

Window #	Window Type	Height	Width	Leaking	Checked Frame/Sash	Deteriorated Frame	Damaged Frame/Sash	Deteriorated Glazing Putty/ Window Stop	Deteriorated Paint	Deteriorated Sash	Deteriorated Sealant	Reinforced Frame/Sash	Visible Joints in Frame/Sash	Visible Water Damage	Other
C S 1-1	Double Hung	4' - 0"	8' - 8"												Not Assessed
C S 1-2	Double Hung	4' - 0"	8' - 8"												Not Assessed
C S 2-1	Double Hung - Arched	4' - 0"	7' - 8"												Not Assessed
C S 2-2	Double Hung - Arched	4' - 0"	7' - 8"												Not Assessed
C S 3-1	Fixed	4' - 0"	3' - 0"												Not Assessed
C S 3-2	Fixed	4' - 0"	3' - 0"												Not Assessed

CN1-1.jpg

CN1-2.jpg

CN2-1.jpg



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CNB-2.jpg

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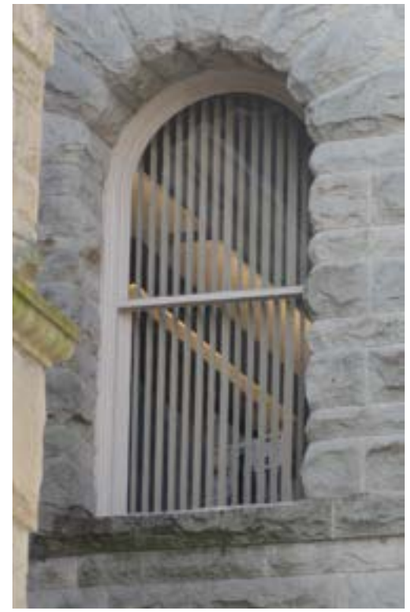
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EEB-8.jpg

EEB1-9
not pictured

EEB-10.jpg

EEB-11.jpg

EEB-15.jpg

EEB-16.jpg

EEB-17
not pictured

EEB-18.jpg

EEB-19.jpg

EEB-20.jpg

EEB-21.jpg

EEB-22.jpg

EEB-23.jpg

EEB-24.jpg

EEB-25.jpg

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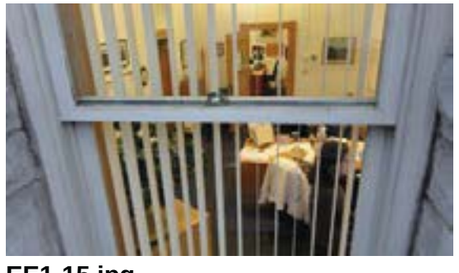
EE1-13.jpg

EE1-14.jpg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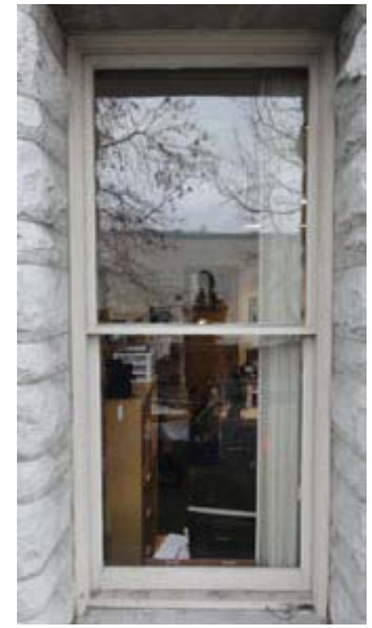
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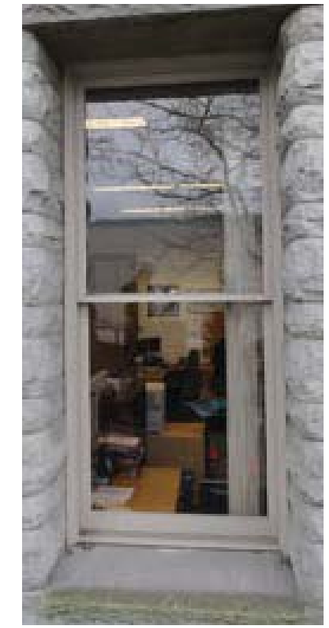
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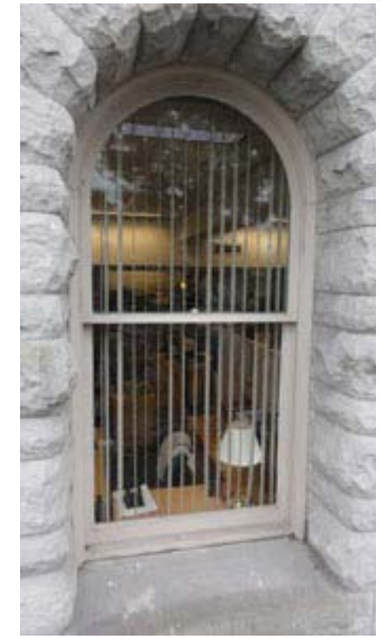
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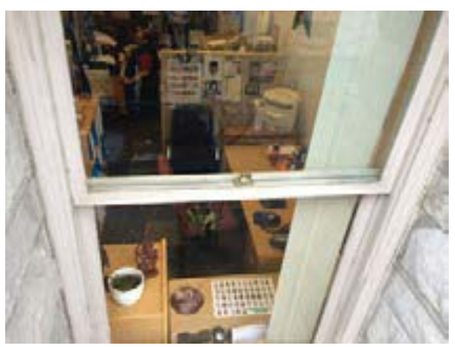
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EE2-21B.jpg

EE2-22.jpg

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EE2-24.jpg

EE3-1
not pictured

EE3-2
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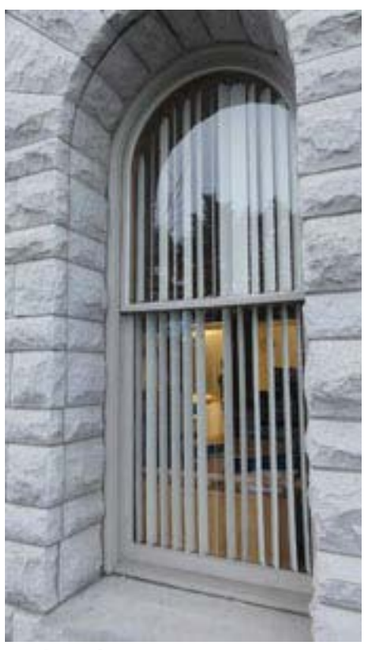
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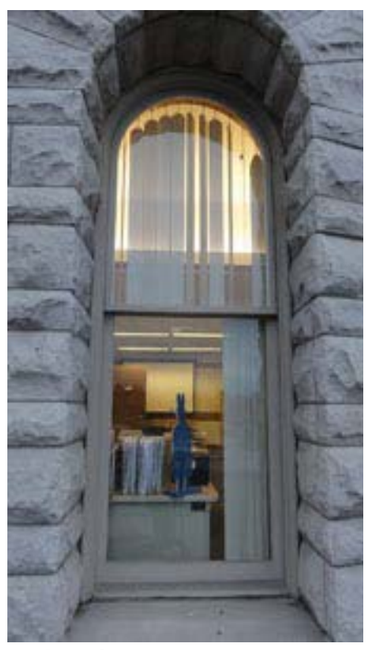
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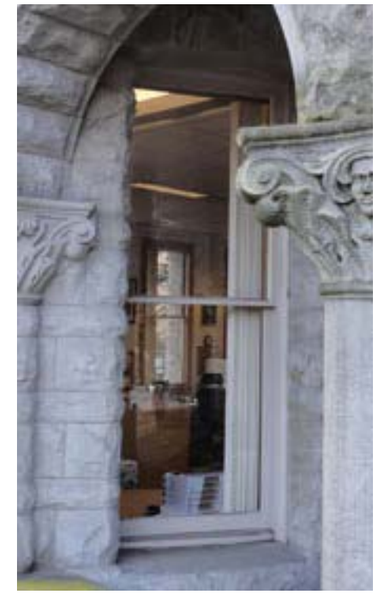
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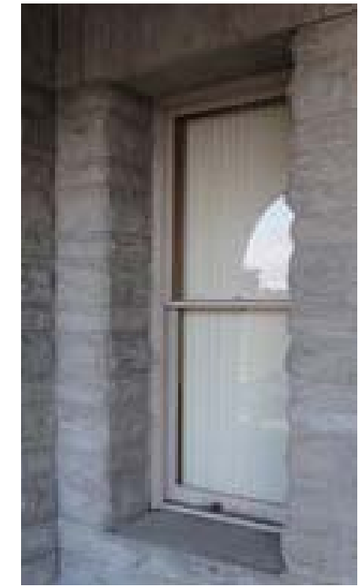
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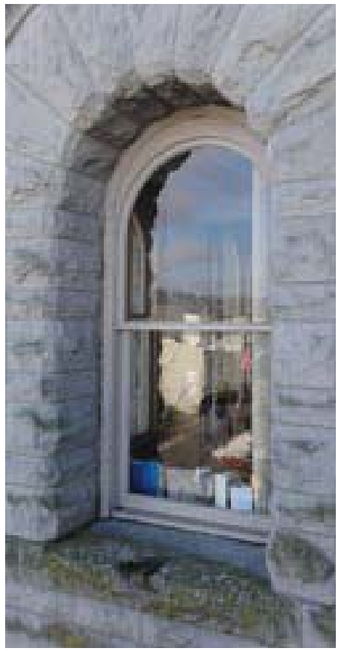
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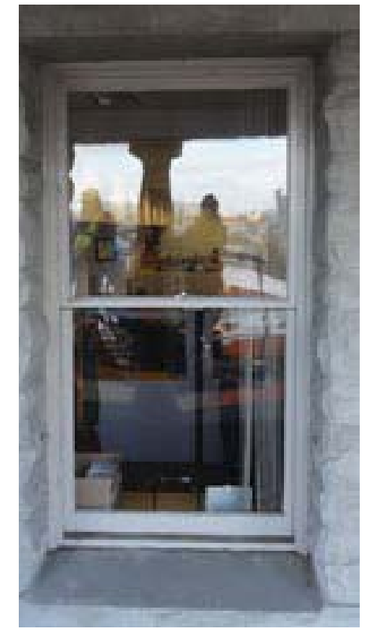
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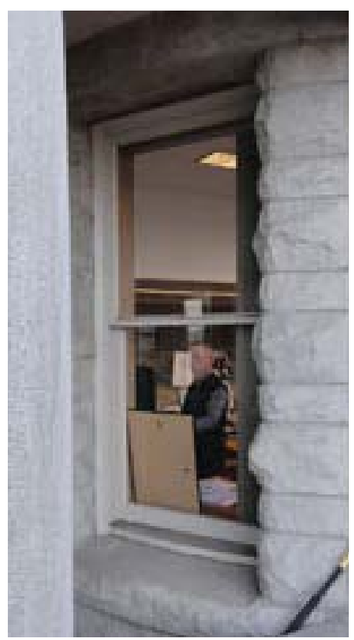
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EN3-5.jpg

EN3-6.jpg

EN3-7.jpg

EN3-12.jpg

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ES1-3.jpg

ES1-4
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ES1-7
not pictured

ES1-8.jpg

ES1-9.jpg

ES1-10.jpg

ES2-1
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ES2-2
not pictured

ES2-3.jpg

ES2-4.jpg

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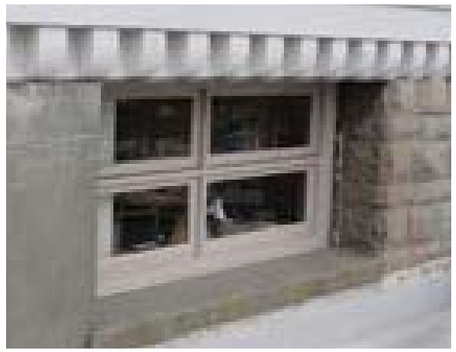
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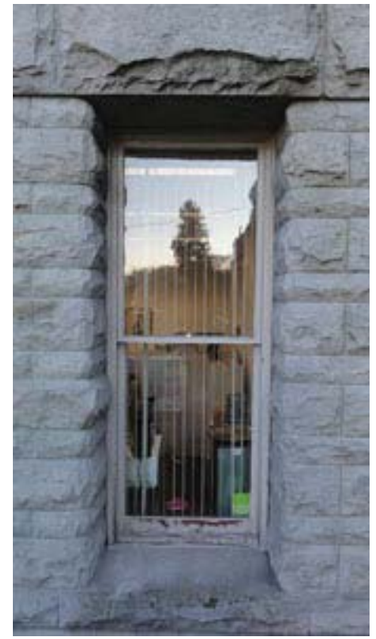
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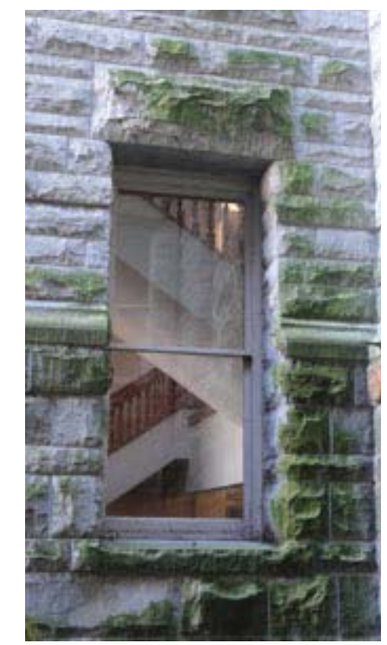
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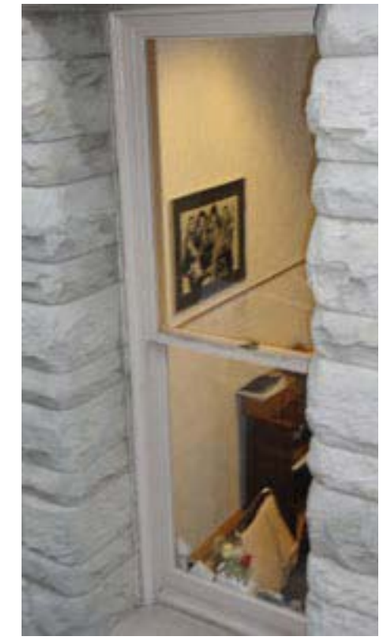

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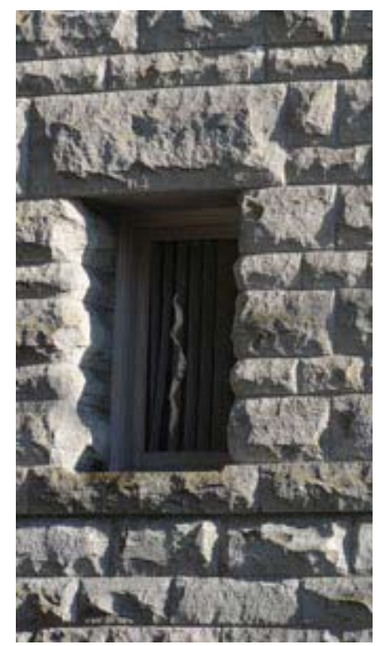

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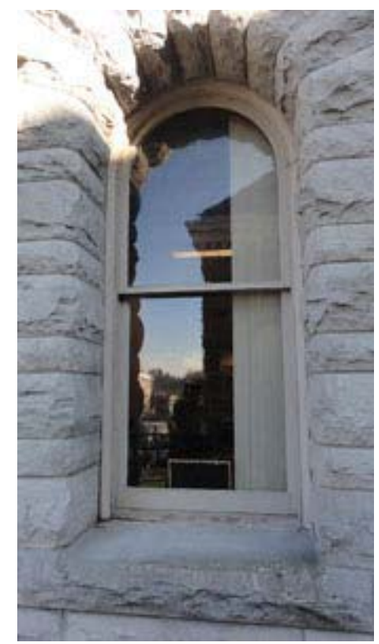
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EW 2-11
not pictured

EW2-12.jpg

EW2-13.jpg

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EW2-15.jpg

EW2-16.jpg

EW2-17.jpg

EW2-18.jpg

EW2-19.jpg

EW2-20.jpg

EW3-1.jpg

EW3-2.jpg

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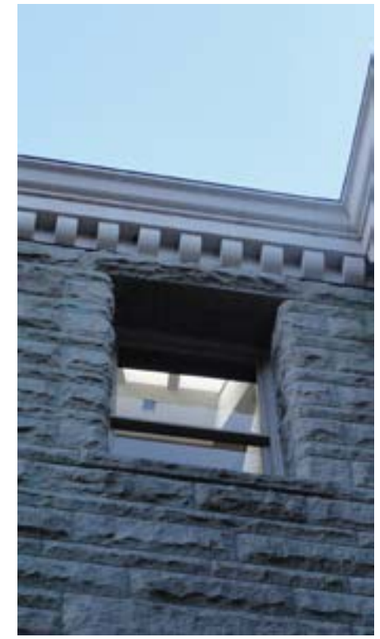
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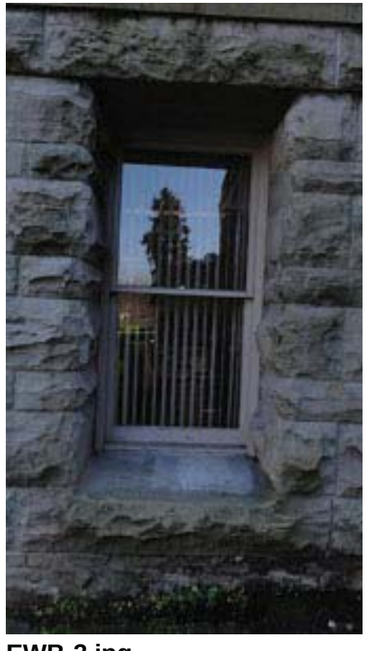
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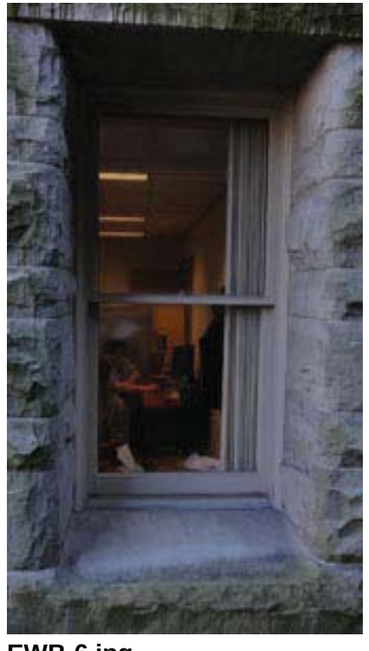
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EW B-14
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EW B-16
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EW B-19
not pictured

EW B-20
not pictured

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WE1-2.jpg

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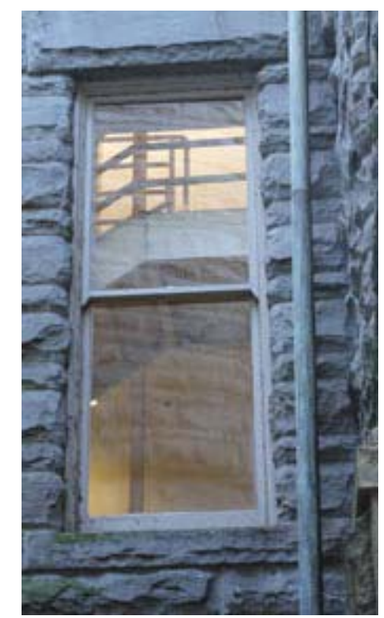
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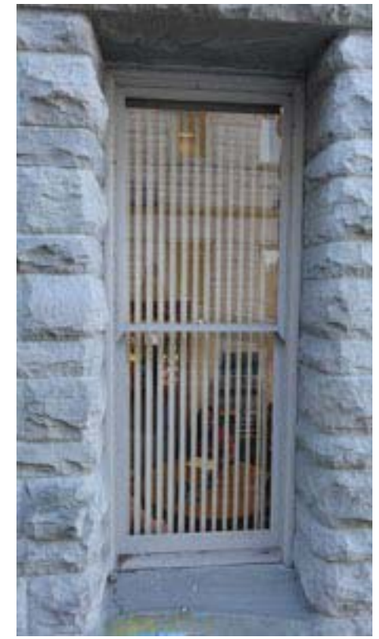
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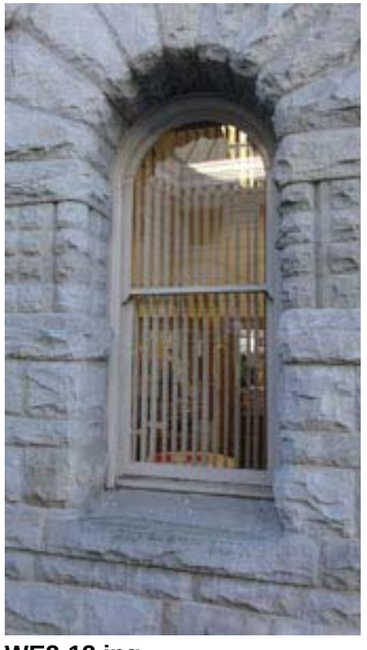
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WEB-9.jpg

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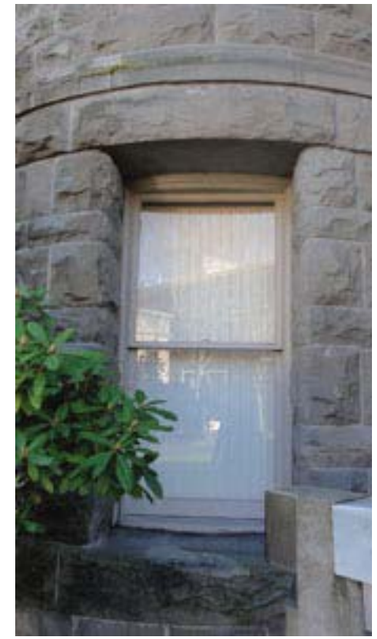
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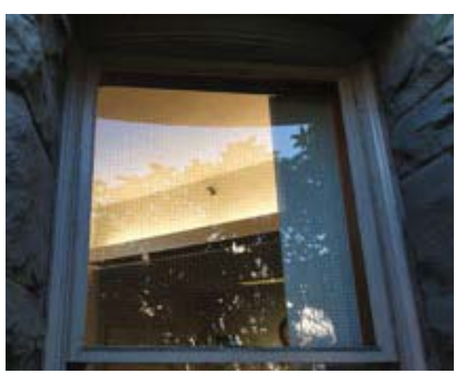
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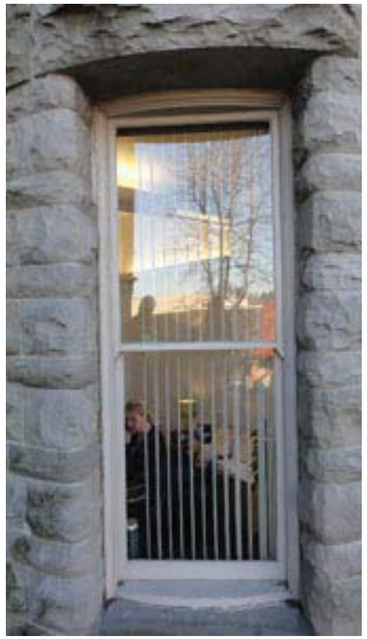
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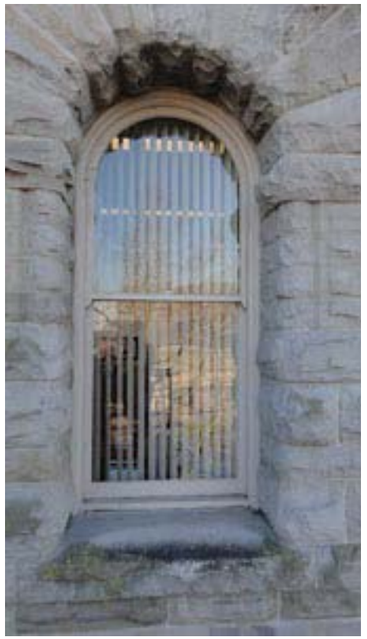
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WS B-7
not pictured

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WS1-2.jpg

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WS2-1.jpg

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WS2-4B.jpg

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WS2-4D.jpg

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WWB-4.jpg

WWB-5.jpg

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not pictured

WW B-7
not pictured

WWB-12.jpg

WWB-13.jpg

WWB-14.jpg

WW B-15
not pictured

WW B-16
not pictured

WWB-17.jpg

WWB-18.jpg

WW1-1.jpg

WW1-2.jpg

WW1-3.jpg

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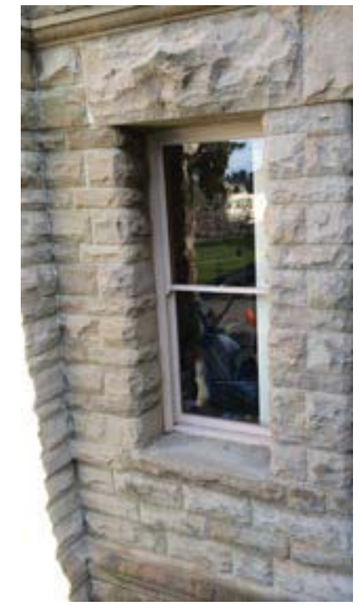
WW1-6.jpg

WW1-7.jpg

WW 1-8
not pictured

WW 1-11
not pictured

WW1-12.jpg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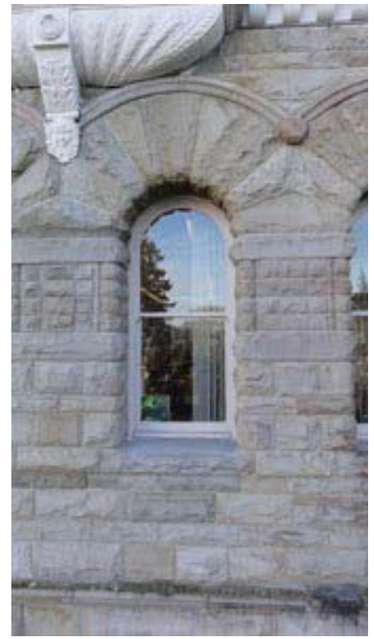
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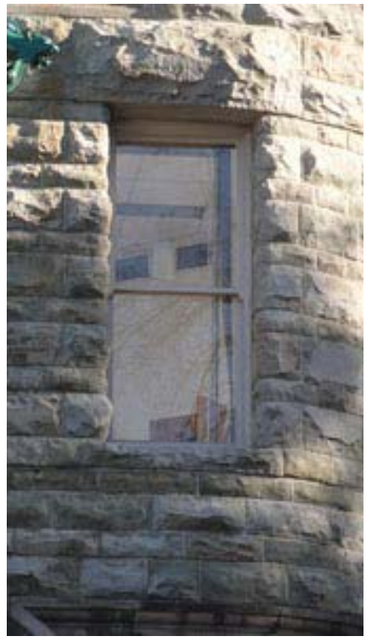
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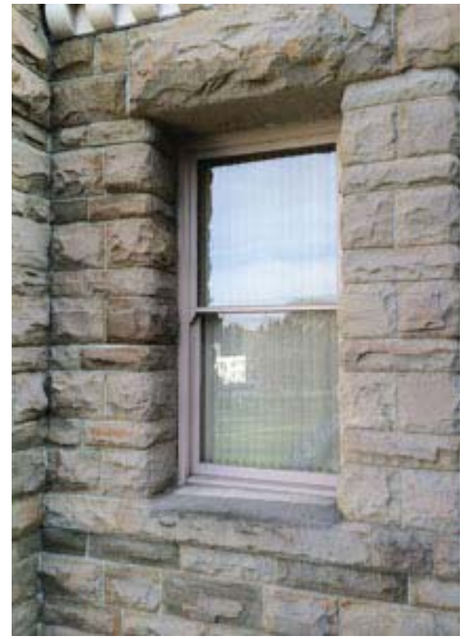
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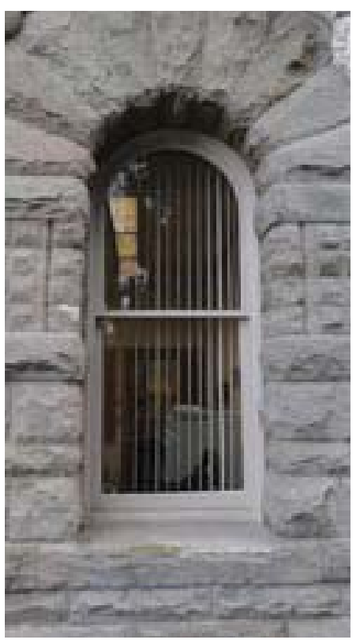
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