CHELSEA SOLDIERS HOME
LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL
CHELSEA, MA
GALE JN 830340

EXECUTIVE SUMMARY

The Lawrence F. Quigley Memorial Hospital is a multi-story concrete structure with solid and veneer brick masonry exterior walls. The building window systems include original steel windows, original wood windows, and vinyl and aluminum replacement windows installed within original wood frames. The building has multiple roof areas at varying elevations above grade. The main building consists of a seven-floor (including penthouse and equipment enclosures, but not including basement and sub-basement) central section with three South facing five-floor wings, or "fingers." There have been several additions to this building since its original construction. The 1949 addition of the North wing, which now serves as the front entrance, is the largest addition. Other additions and renovations include interior remolding and window installation in 1963, an elevator addition and penthouse in 1964, general renovations and an addition to the West wing in 1974, and miscellaneous roof and window repairs in 1979.

In general the exterior façade is in fair condition with numerous areas of deteriorated mortar, spalled brick, bowed façade, and missing sealants. Immediate and short term repairs are recommended.

Windows of the main building consist of aluminum framed double hung units set within the original wood frames of the original windows. The windows are in **fair** condition and require short term repairs to improve their performance and operability. The windows of the addition consist of steel framed single glazed units that are in **poor** condition and should be replaced. The doors consist of steel leafs set in original wood frames, with the exception of the North elevation doors which incorporate steel leafs and frames. The doors are in **fair to good** condition.

Multiple roofs existing on this building of varying ages and conditions. In general, Roof Area B is in poor condition and requires immediate replacement. In addition, there are various items that require immediate repair to prevent moisture infiltration or roof system failure. All other roof requires short or long term repairs.

Immediate Action Recommendations – (Immediate)

Perform masonry repairs to the exterior façade to restore deterioration and eliminate displaced, missing or loose masonry components. Remove and replace all steel window units at the Buildings Addition. Replace roof area B and repair all roof areas to extend service life and reduce the potential for moisture infiltration.

Exterior Facades……. .....$###,###
Windows and Doors……. .....$###,###
Roofs ……. .....$###,###
Construction Project Sub-total .....$#,###,###
Recommended Contingency (20%) .....$##,###

Recommended Base Bid Construction Budget ..... $#,###,###

Short Term Recommendations – (1-5 years)

Repair all window system and deteriorated wood surrounds, including window perimeter sealants and defective hardware. Replace roof areas showing signs of failure and perform masonry wall related repairs to extend the service life of the façade.

Exterior Facades……. .....$###,###
Windows and Doors……. .....$###,###
Roofs ……. .....$###,###
Construction Project Sub-total .....$#,###,###
Recommended Contingency (20%) .....$##,###
Recommended Base Bid Construction Budget ..... $#,###,###

Near Term Recommendations – (5-10 years)

Perform long term masonry wall repairs to improver façade performance.

Exterior Facades……. .....$###,###
Construction Project Sub-total .....$#,###,###
Recommended Contingency (20%) .....$##,###
Recommended Base Bid Construction Budget ..... $#,###,###

Long Term Recommendations – (Over 10 years)

Remove and replace all aluminum windows throughout the main building.

Windows and Doors……. .....$###,###
Construction Project Sub-total .....$#,###,###
Recommended Contingency (20%) .....$##,###
Recommended Base Bid Construction Budget ..... $#,###,###

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METHODOLOGY

In accordance with our contract, Gale Associates, Inc. (Gale) has performed an exterior visual evaluation of Sargent Hall elevations and roof areas. Gale's on-site evaluation was conducted in October of 2015 and consisted of an up-close visual evaluation at ground level and roof components, and a distant evaluation using high-powered binoculars of above ground level building elements.

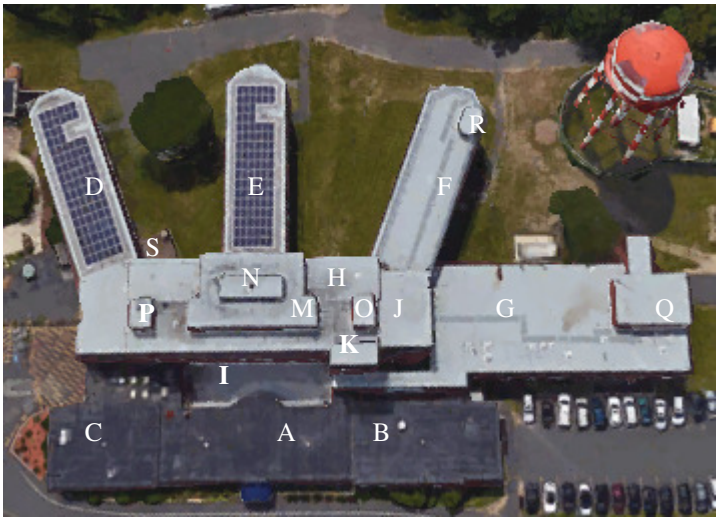
The purpose of this evaluation is to provide the Division of Capital Asset Management and Maintenance (DCAMM) with a better understanding of the current building conditions and to provide recommendations for the repair and/or replacement of various building components and roofs to extend the expected lifetime of the existing building.

Included herein are Gale's findings related to defective or deteriorated building components, elevations and roof area plans marked with defects, photographic documentation to provide a visual depiction of building defects, a multi-phase repair plan based on the anticipated priority of repairs, and preliminary construction cost budget estimates corresponding to each phase of the repair plan.

BACKGROUND INFORMATION

The Lawrence F. Quigley Memorial Hospital is a multi-story concrete structure with solid and veneer brick masonry exterior walls. The building window systems include original steel windows, original wood windows, and vinyl and aluminum replacement windows installed within original wood frames. The building has multiple roof areas at varying elevations above grade. The main building consists of a seven-floor (including penthouse and equipment enclosures, but not including basement and sub-basement) central section with three South facing five-floor wings, or "fingers." There have been several additions to this building since its original construction. The 1949 addition of the North wing, which now serves as the front entrance, is the largest addition. Other additions and renovations include interior remolding and window installation in 1963, an elevator addition and penthouse in 1964, general renovations and an addition to the West wing in 1974, and miscellaneous roof and window repairs in 1979.

The central building, the South-facing fingers, the West wing, and the various rooftop penthouses and equipment enclosures have SBS Modified Bitumen (Mod Bit) roof systems, which were installed in 2009. The West finger roof has a 10 foot fence installed around the perimeter of the roof area. The East and center finger roofs have solar panel systems resting atop insulation-faced paver stones that are placed on the SBS Modified Bitumen membrane. The lower triangular roofs along the sides of each finger consist of concrete decks with liquid-applied waterproofing, multi-ply felt, an asphaltic setting bed, and a grouted tile covering. The North wing roof areas have Ethylene Propylene Diene Monomer (EPDM) membrane systems. The various roof areas and systems are shown below in an aerial image from Google Earth.



EXISTING CONDITIONS

In September of 2015, Gale performed an on-site visual evaluation of the elevations and roof areas to ascertain the existing conditions. The visual evaluation was performed using high powered binoculars from grade or adjacent roof areas. The items listed below are based on this visual evaluation. Please refer to the appropriate appendix of this report for elevations, roof area plans, photographic documentation, and additional information upon which these observations are based. Defects noted below are indicated on the attached drawings.

Exterior Facades:

Although the Quigley building is constructed of multiple additions over varying time periods the masonry wall construction is generally similar. The red brick masonry is stacked in the Flemish bond style, which incorporates header bricks in each course but offset from the course below or above. This is typically indicative of solid masonry wall construction where multiple wythes of masonry are used to construct the wall. However destructive testing performed as part of a prior evaluation indicated that the wall systems vary from solid masonry mass walls to masonry veneers. Wall construction varies by addition. In cavity construction the masonry is mechanically attached to the backup with masonry wall ties for lateral support. Embedded through wall flashing are typically installed within the masonry and cavity at the base of the wall or around wall openings. The masonry veneer is supported around wall openings using steel lintels or brick masonry formed jack arches. At the foundation level, the masonry is supported on the concrete foundation. Mortar for each elevation and addition is similar and consists of a tan, Portland cement based mortar struck in the concave joint profile. The condition of the brick masonry exterior walls varies, as does the age and exposure of the exterior walls. In general, the exterior walls are in fair to unsatisfactory condition and exhibit the following defects:

1. A significant number of spalled bricks were observed, particularly along the East elevation, the South elevation, and the North facing courtyard elevation. The severity of these spalled

bricks ranges from shallow surface spalls due to weathering and micro-cracking of the brick to spalling of the entire brick face or corners.

2. A significant number of cracked bricks were observed, particularly along the East elevation, the building corners and the heads and sills of the window openings across all building elevations. Typically in these location, in addition to the masonry cracking the mortar has step cracked to alleviate the pressure applied through the mortar joint. Cracking of the mortar and bricks was more prevalent at openings that used steel lintels to support the spanning masonry. In these location there were no visible signs of a flashing component used to protect the lintel and drain moisture within the wall system. Rusting and scaling of the lintel was observed due to prolonged exposure to moisture. The cracks appeared to be caused by expansion of the rusting steel lintel applying pressures on the masonry. This process, called "rust-jacking" occurs when a steel lintel exposed to moisture begins to rust and expand. This expansion of the lintel thickness frequently cracks adjacent masonry and mortar, in turn allowing additional moisture to infiltrate the exterior walls and exacerbating the condition. Where this has occurred there is evidence of prior repairs in the form of parge coated mortar or injected sealant. Typically, where these types of repairs have been implemented they have failed.

3. Isolated areas of deteriorated mortar unrelated to rust-jacking are typical across all elevations. The depth of deterioration varies by wall location, but was noted to vary from minor surface deterioration to deterioration through the full depth of the masonry wall.

4. Lines of deteriorated mortar joints were observed along the length of the East elevation of the center finger, in line with the window lintels at the top row of windows, along the length of the North and South elevations of the North wing above the lintel line, and along a portion of the North elevation at the main building, at what appears to be an embedded relieving angle. As stated above some deterioration appeared to be related to surface spalling of the brick masonry units.

5. Coring of exterior walls for plumbing and electrical penetrations was observed in isolated areas. The cores are typically larger in diameter than the wall penetration or pipes and are unsealed. One such example is shown in the photograph below. Additional penetrations left unsealed or with failed sealant are typical across all elevations.

6. A substantial number of abandoned anchors were observed throughout all elevations. The most significant number of abandoned anchors were observed at rooftop penthouses and equipment enclosures. These anchors, typically steel, are rusting and staining adjacent brick. In some locations the anchors have exfoliated and cracked or deteriorated the masonry unit in which they are embedded.

7. Small areas of efflorescence and atmospheric staining were observed across all elevations. Efflorescence and staining from sealant, paint and concrete was typical below window sills.

8. Rust staining was observed below windows, louvers, and other penetrations across all elevations. Particularly severe staining was observed at the East elevation below a row of wall mounted conduits.

9. Mastic has been applied to the exterior vertical face of the copper through wall flashing and lower courses of brick at the base of the brick masonry mechanical penthouse walls and at the South elevation rising walls above the West and center finger roofs. The mastic appears to have been installed as an apparent repair attempt to prevent moisture infiltration. The mastic has since deteriorated from the masonry wall as well as clogged necessary weep holes above the through wall flashings. Moisture infiltration and deteriorated interior wall components were reported in this location.

10. Sealant installed along the copper through wall flashing of the East elevation penthouse rising wall is crazing and typically failed.

11. The front entrance steps at the North elevation exhibited failed control joint sealant, rusted railings, staining at railing and canopy post connections, severely deteriorated mortar, cracked and spalled bricks, and atmospheric staining of bricks at the base of the stone landing and stairs. Additionally, several bricks are loose, missing or displaced from the stair landing and steps.

12. At the foundation level, several areas of spalled concrete and exposed rebar were observed. The exposed rebar was typically corroded and caused staining of the surrounding concrete.

13. Vertical control joints were observed throughout several elevations at the brick veneer. Sealant expansion joints were also observed between buildings constructed at different eras. Typically, these control joints and expansion joint sealants have failed cohesively and adhesively.

14. Several painted wood and steel components were observed throughout all elevations, including window trim, window units, window sills, door frames and leafs, steel railings and steel lintels. Typically, the paint is white and several layers have been applied. The painted surfaces are typically failed.

15. Rusted lintels are typical throughout the main building and the North wing. Deflected lintels were also observed, specifically at the North elevation.

Windows/Doors:

The windows vary by building addition and age. The predominant window type is aluminum insert windows installed within existing wood window frames that were assumed to be original to the buildings construction. Steel framed windows were also observed within select openings, typically at the original building on its North elevation. The following window observations are noted:

1. Steel windows consist of fixed in place or fixed with projected window sashes. The steel frames and sashes are significantly rusted affecting the operation of the sash and effectiveness of the glazing sealants. While rusted, the frames do not seem to be structurally unsound or bowed. Disruption to the operability of the sash appears to be due to the expansion and corrosion of the rusted steel. Glazing putty used to seal the glass in place is typically deteriorated or missing. Glazing seals at the sash and the frame perimeters are missing or failed allowing for moisture and air infiltration. The operable unit hardware is aged and does not operate freely. Window perimeter sealants are failed, cracked or missing. Rusting of the windows has also stained the masonry walls and window sills.

2. The most common window type is aluminum framed insert windows set within the frame system of the original wood windows. It appears that the wood sashes were removed and the new aluminum window was set within the opening and anchored to the old frame. Where exposed, the wood components are heavily deteriorated with missing or peeling paint. The aluminum windows are double hung style with insulated glass and interior applied muntins. The aluminum windows do not appear to be thermally broken for increased thermal performance of the frame system, although the glass is insulated. Aluminum muntins are applied within the insulated window unit. Weather-stripping of the aluminum frames is in fair condition and consists of brush style weather-stripping. Although not every window unit was operated a significant number of units had failed or broken window balances, making operation of the window difficult. In addition, numerous glass lites were fogged with condensation. Wood window sills were found to range in condition from

satisfactory, to small weathering cracks, to large section of rot beyond repair. In some areas the rot had extended up the brick molds at the jambs. The South elevation exhibited particularly damaged sills. Original wood window brickmolds were left exposed and are in fair condition with peeling paint and some deterioration observed, typically at the sill.

3. Doors types vary and consist of steel and wood door frames with steel, aluminum or wood door leafs. Most doors contain vision lites within the door leaf and transoms or sidelites within the door frames. Frame and door paint is in fair condition with peeling paint observed. Surface rusting was also observed at some steel framed openings, typically at the threshold. Door hardware varies widely in style and condition. Most hardware appeared to be in fair condition and functioning.

Roofs:

The Quigley Building has numerous roof areas with roof coverings consisting of EPDM or SBS Mod Bit with granular surface cap sheet. The SBS system covers the main (original) building and "fingers" while the EPDM remains on the numerous additions. Roof top drainage is accomplished by interior roof drains at each roof area. Refer to the roof area plans within the Appendix for the location of the roof designations referenced below.

<u>SBS Modified Bitumen Roof Systems</u>

1. Roof Areas D, E, F, G, H, I, J, K, L, M, N, O, P, Q, and R incorporate SBS Modified Bitumen roof systems (Mod Bit). These roofs were reportedly replaced in 2009. According to the as-built drawings, the roof system consists of a concrete deck onto which polyisocyanurate rigid insulation board, gypsum coverboard, multi-ply modified bitumen membrane, and gray granular cap are placed, respectively. In general, the roof system appears to be in good condition.

2. Foil-faced Mod Bit flashing membranes were installed at rising walls, roof curbs, and miscellaneous roof penetrations. The membrane was typically adhered well, with isolated sections of fish-mouths (open seams) observed. One area of base flashing has failed such that it is open to moisture infiltration and should be repaired immediately. This area was shown to CSH staff while on site.

3. Roof to wall base flashings are general terminated to the masonry wall below an aluminum counterflashing clipped into original copper throughwall flashing. The aluminum counterflashing is in good condition although it is not compatible with copper sheet metal.

4. Edge metal consists of aluminum fascia installed with the new roof system. The metal appears to be in good conditions and stripped in with flashing membrane and cover sheet.

5. Lightning protection was observed at the perimeters of the roofs and at penetrations, including fan units and vent pipes. It could not be determined if the system was properly connected and grounded.

6. In lieu of replacing the existing drain bowls, aluminum insert replacement drains were installed throughout the roof areas. As insert drains are installed within the existing leader line the insert drains significantly decreased the leader line diameter of the drains. In one location at the main roof, it appeared that the insert drain was fully obstructed with debris and not allowing for proper drainage.

EPDM

1. Roof Areas A, B, C and S incorporate fully adhered EPDM roof systems. Overall, the EPDM roof systems are in poor condition as large amounts of the roof are unadhered and have lifted from the roof deck, however the membrane seams appear to be in fair condition.

2. Rigid insulation (4' x 8' sheets) are mechanically fastened to the roof deck at a rate of approximately eight (8) fasteners per board. This fastening pattern does not appear to comply with the industry requirements for wind uplift, specifically for this location that experiences high winds, frequently. No increase in fasteners was observed in roof perimeters or corners where higher uplift pressures can occur. Fastening patters are observed by telegraphic of the fastener plates through the adhered roof membrane.

3. Insert replacement drains have been installed at the existing drain locations.

4. At many of the rising wall locations, the EPDM membrane is terminated with a termination bar face fastened to the brick rising wall. Original copper throughwall flashing appears to be cut flush with the brick face, or they appear to extend over the termination bar a few inches.

5. The copper edge metal appears to be in good condition, however cover plates have not been installed over the seams. Seams are not soldered and tops of seams are covered with EPDM and sealant.

6. Preformed pipe wrap is installed at vent pipes with hose clamps. The sealant at the hose clamp is typically failed.

Lower Triangular Built-Up Tile Roofs along Fingers

1. Small triangular roofs, as shown in the above photograph, exist at the first floor of the long elevation of each "finger." The triangular roofs consist of concrete decks onto which liquid applied waterproofing, multi-ply felt, an asphaltic seating bed, and tiles and mortar were layered. The tiles are typically unadhered from the seating bed. Several are cracked, missing, or displaced. The asphaltic seating bed is typically deteriorated, particularly at the front edge of the roofs

2. Along the multi-wythe brick masonry walls, lead-coated copper base flashing extends out onto the roof surface up to 4" and up the wall approximately 8". The base flashing is crimped into copper throughwall flashing. All copper seams are soldered. The copper components are typically in good condition.

<u>Roof Area A (North Wing):</u>

1. A hole in the copper edge metal gravel stop was observed at the West edge, along with a puncture in the membrane behind the edge metal.

2. A broken vent pipe was observed at South-West edge of the roof area.

3. Open seams and fish-mouths in the EPDM membrane were observed in multiple locations.

4. A slice/puncture in the EPDM membrane was observed near North edge of the roof area.

5. Several EPDM patches were observed throughout the roof area. The patches typically have failed seams and failed lap sealant.

6. A backed-out fastener was observed at East edge of roof area, which has stretched the membrane and could potentially puncture the membrane.

Roof Area B (North Wing)

1. At the East and West rising walls, the EPDM membrane is terminated with a termination bar face fastened to the brick rising wall, and does not incorporate a counterflashing. The original throughwall flashing is cut flush with the brick face above the termination bar.

2. Buckled insulation was observed throughout, particularly in the center of the roof area. This may be due to a lack of fasteners or the fasteners may not be penetrating the roof deck sufficiently.

3. An abandoned conduit line penetration was observed at the North-West corner of roof area.

4. Open seams in the EPDM membrane were observed in the center of the roof area.

7. An EPDM patch was observed at the South-East corner of the roof area, which has delaminated from the EPDM roof membrane.

5. An area of unadhered membrane was observed at South-East corner of roof near air conditioning and vent units.

Roof Area C (North Wing)

1. At the South and West edges of the roof area, the sheet metal fascia and cover plates appear to be unsecured and has started to lift up off the roof edge.

2. An open section of counter flashing was observed at South edge of the roof area.

Roof Area D (East Finger Roof and East Side Roof) and Roof Area E (Center Finger Roof)

1. This roof area consists mostly of solar panels installed over a Mod Bit roof system. The solar panels are approximately 5'x3' in size, placed on ¼" thick, 2'x2' concrete pavers "laminated" to 2" XPS insulation blocks, which are installed directly on the roof surface.

2. A drainage composite was not observed to facilitate drainage under the pavers to the roof drains. Evidence of trapped water was observed, such as stained roofing cover and XPS insulation, deteriorating XPS insulation, and algae/vegetation growth between insulation boards and solar panels.

3. Several concrete paves are cracked or chipped.
4. The solar panel cables are exposed between the panels and are laid directly atop the concrete pavers.

5. The sheet edge metal does not incorporate cover plates or sealant at the joints.

Roof Area F (West Finger Roof)

1. The sheet edge metal does not incorporate cover plates or sealant at the joints.

2. The pipe penetrations appear to be flashed with mastic and grey granules.

3. A low flashing height was observed at the rising wall; below the recommended 8" height.

4. At the roof edge of the stair penthouse, the wood blocking under the sheet edge metal is exposed. The fascia does not appear to be properly secured to the edge wood blocking and appears to be lifting up.

Roof Area G (West Wing)

1. Several open seams were observed in the Mod Bit membrane.

2. Along the North facing rising wall, the foil-faced base flashing is not properly secured and has pulled away from the rising wall. Moisture is capable of infiltrating the roof system at this location, behind the unadhered base flashing. Reported recurring leaks are located below this area. As stated above, this areas was shown to CSH staff during our field evaluation.

3. Low flashing heights were observed at the rising walls; below the recommended 8" height.

4. The lightning protection has been disconnected at this roof area. The tabs to secure the lightning protection cables to the roof system are typically unadhered from the roof membrane.

Roof Area H (Main Building Roof)

1. Several open seams or fish-mouth defects at the seams of the membrane were observed.

2. Ponding water was observed at the North-West quadrant of the roof area. It appears that there is a low-point of the roof system at this area, however there is no drain installed. The existing drawings of the main roof area, provided by CSH, indicate that there was a drain installed at this location at one time. It appears the drain has since moved, however the roof deck or the tapered insulation layout continues to slope to the old drain location, causing the ponding water.

Roof Area I ("Courtyard" between North Wing and Main Building)

1. Weeps were not observed at the throughwall flashing where the roof membrane is terminated.

2. The roof drain and strainer is covered by debris, which is obstructing the drainage of the roof area.

Roof Areas K, M, O, P, Q, E – (Penthouses)

1. Penthouse doors are typically elevated off the main roof areas and are accessible by steel stairs, which are cantilevered off from the penthouse walls and unsupported at the base. It appears the base supports were removed when installing the new roof and not reinstalled. The railing penetrations at the brick masonry penthouse walls are coated in mastic. Railing supports are flashed with mastic.

Roof Area N – (Penthouse)

16. Several open seams were observed in the Mod Bit membrane.

17. Base flashing around equipment enclosure consists of aluminum counterflashing pinned to the wall with face-fastened drive pins over the foil-faced base flashing.

18. Foil-faced base flashing appears to have lifted up along East edge of equipment enclosure.

19. Holes in the copper throughwall flashing were observed across the North and West edges of the penthouse roof, allowing water behind the counterflashing.

LEAK AUDIT SUMMARY

On Friday, September 11, 2015, representatives of Gale toured the facility and performed interior leak audits for areas of the Lawrence F. Quigley Memorial Hospital where leaks were reported. At this time, the weather was dry so it could not be determined if leak areas were active or not. Leak documentation was based on discussions with the Chelsea Soldiers Home staff and residents and visible evidence of water staining on the ceiling or wall surfaces. The following leaks were reported:

1. A masonry wall leak was observed at the center penthouse of the main building roof, referred to as Penthouse 1 herein. The interior wall exhibited blistered paint, deteriorated plaster, and exfoliated brick. The exterior wall exhibited deteriorated masonry throughout.

2. A roof leak was observed from the center penthouse rising wall into the fifth floor hallway. The original copper through wall flashing was present with a new modified bitumen roof and aluminum counterflashing. The brick courses immediately above the through wall flashing were coated with mastic, which suggests leaks have been a long-term issue.

3. A window/masonry leak was observed at the North facing East stairwell, which exhibited deteriorated plaster and paint throughout.

4. A leak was observed in the corner of the doctor's office at the third to fourth story floor line where the interior and exterior walls meet. Blistered paint and staining of the ceiling were present.

5. A roof leak was observed at the top floor of the addition hallway at the North. The area exhibited stained ceiling tiles, particularly in the center of the hallway.

6. A leak was observed at the South-West stairwell. This area exhibited stained ceiling tiles in the vicinity of the roof drain.

7. A leak was observed at the roof access door of the mechanical penthouse under and in the vicinity of the door threshold. No weather stripping was present at the jambs or mullion and the threshold was sealed with silicone.

8. A leak was observed in the Quigley junction of the tunnel. This area exhibited blistered plaster and an active leak.

Additional Leaks

1. Deteriorated plaster walls, stained ceiling tiles, and rusted interior steel door frame were observed. A floor drain in the mechanical room in the vicinity was reported and the insulation at this leader was stained and deteriorated. Since this leak was not on the top floor of the building, it is improbable this is an exterior leak.

TEST CUT ANALYSIS

Test cuts were performed for verification of the existing wall construction, to observe as-built construction of the wall assembly, flashing types, and conditions of the various wall system components (i.e., flashing, lintels, masonry ties, steel structure, and moisture intrusion). Test cuts were performed at roof to wall locations, window openings and in the field of the various masonry areas. Test cut locations are noted on the attached Elevations and representative photographs are included in the Appendix. Please be reminded that these test cuts represent the typical construction details, but are not all inclusive of the construction configurations. Gale recommends that additional test cuts be performed should masonry repairs and replacement be considered to determine the unique condition detailing.

Destructive testing was performed in 2007 as part of our initial assessment and at some additional areas of concern observed during this evaluation. A recap of the 2007 destructive testing is as follows:

Masonry Test Cuts

M1. Test Cut No 1 was performed approximately four feet above the third floor roof level at the corner of the elevator shaft masonry rising wall. At the test cut location a masonry crack was noted, which ran the height of the elevator addition. The test cut was approximately 8" wide at each corner and 14" tall. The masonry wall was measured at the test cut location to vary ½" to 1½" from plumb. The brick veneer was removed to expose a cavity space blocked by mortar dropping and additional brick masonry units on end. Further removal exposed rusted steel beam, large flakes of rust were loose from the steel web. Between webs the steel column was encased in concrete; the steel was wrapped in a reinforced wire mesh which was embedded in the concrete. A rusted metal channel was embedded into the concrete and a dovetail masonry tie was observed rusted through.

M2. Test Cut No 2 was performed at the lintel of a window on the west elevation of the third floor. A masonry jack arch was noted above copper flashing, though no weep holes were observed. A test cut of approximately 12" wide by 8" tall was removed at the lintel bearing point. The flashing extended 6" past the rough opening, no end dams were noted, and extended 8" up and turned into a masonry joint. The lintel continued approximately 5" beyond the extent of the flashing. Though the lintel remained unprotected it appeared in fair condition.

M3. Test Cut No 3 was performed at the window lintel of the third floor elevator lobby. The masonry projects approximately 1½" beyond the lintel. The projecting mortar, exposed to the weather, has an aggregate finish. The masonry mortar joints have been previously repointed; a darker colored mortar was noted for a depth of ¼". The lintel extends up to a concrete cast in place beam; a 4" gap was noted between the end of the lintel and the adjacent parse covered concrete masonry unit, loose bricks were observed at this gap. While flashing was noted at the lintel, copper fabric flashing extended down the wall stopping approximately 4½" above the bottom leg of the lintel. The lintel exhibited signs of rusting and rust jacking.

Roof Test Cuts

R1. Test cut No 1 was performed at the base of the elevator's rising masonry wall at the third floor roof area QH1. The EPDM roof membrane is adhered to polyisocyanurate insulation (1-1/2 inches thick). The insulation is mechanically attached to the sloped concrete roof decks over a four ply asphalt built up roof with a two ply base sheet adhered to polyisocyanurate insulation (2 inches thick). Both layers of insulation **are retaining moisture**. A terminated bar is installed over the membrane flashing with a bead of sealant at the top edge. An 8" flashing height is maintained except at the third floor elevator lobby window which is lower.

R2. Test cut No 2 was performed at the base of the elevator's rising masonry wall at the roof penthouse roof area QH2. Three roof systems were uncovered at this location. The current roof system, an EPDM roof membrane is adhered to polyisocyanurate insulation (1 inches thick) which is adhered to a PVC membrane adhered to polyisocyanurate insulation (2 inches thick) which is mechanically attached thru a four ply pitch built up roof over fiberboard insulation (1 1/2 inches thick) on a sloped concrete deck. All layers of insulation **were retaining moisture**. A PVC coated termination bar is installed over the EPDM membrane flashing with a bead of sealant at the top edge. A 12" flashing height is maintained.

R3. Test cut No 3 was performed at the tile roof area QH3 which occur at each saw-tooth along the south wings. The deteriorated tile roof and grout was removed to reveal a four ply asphalt built up roof over polyisocyanurate insulation (1 inches thick) over a two ply asphalt base coating on a concrete deck.

Additional test cuts are anticipated to be performed in January 2016.

PREFERRED SOLUTIONS

Exterior Facades:

In general, the exterior walls are in fair condition. Immediate action repairs that would reduce the potential for water infiltration associated with the existing leak locations are strongly recommended. In addition to these immediate repairs, a series of short term repairs are also recommended to extend the service life of the building's exterior façade. The following outlines the minimum recommended scope of repairs that would reduce the potential for water infiltration associated with the existing leak locations. Note that this scope of work does not address the low flashing heights at the transition of the low slope roof areas to the masonry rising walls.

1. Seal all non-watertight wall penetrations with backer material and sealant including, but not limited to, conduits, cables, pipe penetrations, and openings in exterior brick masonry wythes.

2. Remove a minimum of three courses of masonry at each indicated window lintel; this scope is inclusive of emergency lintel repairs only. Remove existing lintel and install new galvanized lintel. Install through wall flashing and masonry.

Windows and Doors:

In general, the existing windows were observed to be in fair condition. The main issue observed was the misalignment of the sash locks and difficulty associated with the operability of the sashes, which is likely indicative of improper weights for the sash balances. While an operability defect, it would not be considered an immediate action repair. However, the existing steel windows are failed and should be replaced as well as a seal failed glass. In addition, the wood door should also be removed and replaced.

1. Repair, prepare, and repaint wood egress doors.

2. Remove and replace all seal failed insulated glazing units.

3. Remove and replace all steel windows with new insulated aluminum framed window units with insulated glass.

Roofs:

The age of Roof Areas A and C could not be determined during our evaluation and no supporting history was available. Both roof areas consist of fully adhered EPDM roof membranes over an undetermined thickness and type of insulation. EPDM roof systems typically begin to exhibit seam deterioration in seven (7) to ten (10) years after installation. After that time, frequent deterioration of the seams should be expected requiring repair or replacement of the roof system. Typically, EPDM roof seams can be "stripped-in" with wide strips of self-adhering flashing membrane to extend the service life of the adhered seam and ultimately the roof system. This repair technique is dependent on numerous factors, such as how well the roof membrane is adhered, the insulation attachment, the extent of any wet insulation within the system, how well the roof drains operate, the height and condition of the flashings, the past repair histories, etc. Based on our review of these roof systems, Gale would not recommend roof repairs as it is does not appear to be economically

feasible to repair the roof systems. Full replacement is recommended. Therefore, Gale recommends full replacement of these roof areas within the next three (3) years.

Roof Area B was observed to be in a failed condition and is recommend to be replaced immediately. Numerous areas of open and delaminated field and flashing seams were observed in addition to large areas of bowed and unsecured insulation and roof membrane. Unsecured areas are susceptible to blow-off that could cause personal injury and property damage.

Based on our discussions with CSH and our on-site observations, Roof Areas D, E, F, G, H, I, J, K, M, N, O, P, and Q were installed in 2009 and generally appear to be in good condition. Gale anticipates that these roof areas won't require roof replacement within the next 15 years if properly maintained. However, isolated defects were observed that should be repaired to address the long term performance of the roof systems.

On Roof Area G, in particular, a section of newly installed SBS base flashing has become dislodged and is open, exposing the roof deck and rigid insulation. The flashing should be repaired under the roofs current warranty. On Roof Area H, the stair supports appear to have been removed from the penthouse stairs during roof replacement operations. The stairs are currently cantilevered away from the masonry wall and unsupported at the steps. New stair supports should be reinstalled. As this roof is currently under warranty, these supports should be installed by the roofer who installed the roof system.

Additionally, the lower triangular roofs located on the base of the wall on the long dimension of each "finger" roof are in a failed condition and should be replaced.

1. A 4' long section of the SBS base flashing along Roof Area G is open and has become dislodged from the wall termination. Remove and Replace.

2. The penthouse appears to have been removed and not reinstalled with the new roof system. Currently the stairs cantilever from the masonry wall and the supports for the stair treads are elevated above the roof system. The stairs and the wall system were not designed to support a cantilevered system and this could damage the masonry and stairs if the base supports are not reinstalled. New stair supports should be reinstalled. As this roof is currently under warranty, these supports should be installed by the roofer who installed the roof system.

3. Remove and replace the existing EPDM roof system at Roof Area B. Remove the existing roof down to the roof deck. Repair and deteriorated section of decking and install new roof system complete with insulation, membrane and flashings.

4. Remove and replace second floor triangular roofs at "fingers". Remove the roof system down to the structural concrete roof deck and install new roof insulation and membrane.

<u>ALTERNATIVE SOLUTIONS</u>

Exterior Facades:

Alternative Solution No. 1 –Exterior Façade Repairs

1. Remove and replace all cracked, spalled, loose, delaminated and otherwise deteriorated brick masonry units. The replacement of these deteriorated units reduces the potential for moisture infiltration. Where existing brick masonry was missing, install new brick units. Replacement brick units should match the existing brick in size, color, texture, and compressive strength. Due to the historic nature of the building and varying sizes of brick, there is a potential that special order units or long lead times may be required to obtain small quantities of individual brick units.

2. Repoint the deteriorated masonry mortar joints as required to prevent water intrusion associated with these components. Remove deteriorated mortar joints to a minimum depth of 3/4". Re-point joints with mortar between like materials. Replacement mortar shall match existing and be installed in 3/8" deep lifts maximum. Install soft joints (backer rod and sealant) in all joints between dissimilar materials. Pointing work is to include the mechanical penthouse 100%.

   The new mortar color should match the original mortar as best as possible. Note that spot repointing to address sections of deteriorated mortar joints may provide a "spotty" appearance to the wall surface. If funding is available, full scale repointing of all elevations is recommended. A few areas of sound mortar joints were identified, however an extensive amount of deteriorated mortar was observed at all elevations and a full repointing process can provide a uniform appearance and continuous barrier against moisture infiltration.

   Prior to repointing, it is recommended that the existing brick masonry and mortar be tested to determine the appropriate replacement materials. In order to determine the appropriate mortar mix for this structure, testing of the original mortar is recommended with a comprehensive mortar analysis, which will identify the existing mortar composition for matching. Comprehensive historic mortar analysis includes petrographic examination of the mortar to assess the quality of the mortar and determine its "ingredients" (binder, aggregate and potential admixtures), and a chemical analysis to estimate the binder and sand proportions, sand recovery, and gradation. Multiple repair mortar applications were observed, so finding the original mortar type may be difficult. If the newly installed mortar is incompatible with the original building design, the building may develop a range of problems, including spalled and cracked masonry units and elevated moisture in the wall systems. Restoration mortar formulation must be as vapor-permeable and as soft, or softer than the historic mortar (measured in compressive strength). Typically, in addition to compatible performance, the appearance of newly installed material should also be consistent with the original. One of the key elements is the sand used in the mortar mix. The sand should match the original as much as possible in gradation, color, and texture.

   In addition to testing the mortar, it is also recommended that the brick masonry be tested for absorption and compressive strength. Variations in the manufacturing process between manufacturers, origin of materials, and other factors can affect the absorption rates of the brick units. Brick units that have an absorption rate in excess of approximately 12% have a higher potential for damage due to exposure to repeated freeze/thaw cycles. In addition to the damage

of individual units from freeze/thaw, the absorption of water results in the expansion of the brick, which is not 100% reversible as the brick dries out. While a historically soft clay or lime mortar is capable of accommodating some of the changes in the brick size, significant expansion of the brick masonry will result in stresses in the wall. These expansive forces are greater in brick that are not properly fired in the manufacturing process.

3. Removal of existing abandoned surface mounted TV cables, conduits, and fasteners. Repair/fill fastener holes with mortar to match existing adjacent mortar and/or masonry.

4. Remove and rebuild damaged and broken brick areas including:
    - The area adjacent to an exterior steel egress stair at the West elevation of West Quigley Hospital wing
    - The East elevation of the North-East corner of the two story part of the building
    - A bulging area of brick at the base of North-West corner of the Annex mechanical penthouse
    - At cracked brick at a vertical crack in the North-West corner of the elevator tower above the EPDM corridor roof

5. Install metal through wall counter flashing at the third floor low roof and at the upper roof areas adjacent to the elevator tower constructed in 1965. This will involve the removal of a minimum of three courses of brick. Counter flashing should be 8" minimum above the adjacent horizontal EPDM surface at the roof-to-rising elevator wall intersection. Install new properly terminated EPDM flashing lapped onto the existing membrane.

6. Saw-cut vertical control joints into the East and West elevations at the corners of the North elevation.

7. Remove existing sealant from control and expansion joints, properly prepare substrates including grinding and priming as required by the sealant manufacturer, install backer rod, and properly tool sealant into place.

8. Remove railing ends and flanges of previously removed hand railings, which are mechanically fastened to the South elevation tower at the roof level.

9. Remove abandoned equipment on the mechanical penthouse walls, remove metal embedments and fasteners, remove damaged brick, and fill holes with mortar to match existing. Properly seal counterflashing overlap joints and terminate on the inside face of the solid brick masonry penthouse bearing walls.

10. Remove areas of efflorescence and/or staining.

11. Remove and replace existing wood trim to accommodate lintel replacement.

Alternative Solution No. 2 - Install Window Throughwall Flashings

1. Remove and reinstall existing wood trim to accommodate lintel repair work

2. Replace deteriorated or damaged wood trim.

3. Remove a minimum of three courses of masonry at each indicated window lintel.

4. Remove existing lintel and install new galvanized lintel.

5. Install through wall flashing and masonry.

6. Remove existing perimeter sealants, properly prepare substrates including grinding and primer application if recommended by sealant manufacturer, install backer rod or bond breaker tape, install appropriate sealant and tool into place to assure proper adhesion to substrates.

7. Strip existing paint from doors, windows, trim, and window surrounds and apply wood consolidant or adhesive wood-replacement paste and finish as recommended by consolidant manufacturer. Prime and re-paint.

8. A second floor window in the North elevation of the 1965 elevator tower is directly above areas of very significant water infiltration on the first, ground, and basement levels. It is recommended that the window, trim, and surrounds be removed with the installation of throughwall flashing, new metal head, sill and jamb flashing and a replacement window and perimeter sealant.

Alternative Solution No. 3 - Replace Elevator Brick Veneer

Due to the condition of the masonry wall, the interior steel columns, and the extent of reported water infiltration it is recommended that elevator tower brick masonry veneer is removed and replaced.

1. Remove the existing masonry veneer.

2. Remove and replace window and perimeter sealant.

3. Remove and replace deteriorated window lintels.

4. Install through wall flashings.

5. Remove and replace existing window trim.

6. Perform structural repairs to steel columns and relieving angles.

7. Flash wall penetrations.

8. Install waterproofing to existing substrate.

9. Install new veneer, flashings, waterproofing, and structural ties to the CMU back-up wall.

10. Clean masonry surfaces after construction is completed.

Windows and Doors:

The existing window components are primarily aluminum frames double hung units with insulated glass and window muntins. In general, the existing windows were observed to be in fair condition. The main issue observed was the misalignment of the sash locks and difficulty associated with the operability of the sashes, which is likely indicative of improper weights for the sash balances.

Aluminum frames are not easily repaired if damaged and may require compete replacement of the window system. Sash replacement is easier as the sash is independent of the window system and can be removed if necessary. Therefore, typical observed defects such as broken glazing, displaced weather-stripping, and failed or missing perimeter sealants are repairable or replaceable. However, the renovation of the windows to rectify the operability would involve additional investigation and repairs that may be almost as cumbersome and costly as removing and replacing the existing units, if the cost is calculated over the longevity achieved by the repair versus a new unit. Additional investigative work would involve the removal of each type of window size to access the existing balances and to determine whether the system is appropriate or requires replacement. Calculations would then have to be made to determine the appropriate new balance systems, and each window requiring a new system would have to be removed and reinstalled to perform the repair. Note that if these repairs are deemed achievable, the cost of the repairs may be approximately 25% of the cost of new windows. As aluminum windows typically require replacement in 20 to 30 years, it may be beneficial to explore the option of performing selective repairs to the existing aluminum windows to extend the life of these windows.

Alternative Solution No. 4 - Repair Aluminum Windows

Based on Gale's field evaluations, the following repair methods may be utilized to repair the existing windows to extend their service life: (Note this will not address the operability issues associated with the windows):

1. Install interior perimeter sealants.

2. Remove and replace all broken insulated glazing units.

3. Remove and replace failed weather-stripping.

4. Remove and replace broken or missing balances.

5. Remove and replace damaged or missing screens.

6. Remove and replace failed exterior perimeter sealants. Remove existing perimeter sealants, properly prepare substrates including grinding and primer application if recommended by sealant manufacturer, install backer rod or bond breaker tape, install appropriate sealant and tool into place to assure proper adhesion to substrates.

Alternative Solution No. 5 - Replace Aluminum Windows

After ten (10) years, the existing window units can be expected to have wide spread failures due to broken hardware, deterioration of sash and frame weather-stripping's, deteriorated perimeter sealants and seal failures of the insulated glazing units. Replacement of all the window units should be anticipated and budgeted for Long Term.

Roofs:

Alternative Solution No. 6 - Replace Roof Areas A, C, and L

Replace Roof Areas A, C, and L. Roof replacement should include the following:

1. Prepare and clean roof surface of all debris, dirt, and abandoned items.

2. Remove all existing roofing, rigid insulation, underlayments, wood blocking, roof edge flashings, membrane vents, etc. down to the top of the existing roof deck.

3. With the existing roof system removed, the roof deck should be evaluated to determine if it is a suitable substrate for installation of the new roof system. Any damaged sections of the deck should be repaired or replaced.

4. Install new vapor retarder, insulation, coverboard, and single ply thermoplastic (PVC) roof membrane over properly prepared roof deck areas. It should be noted that the existing roof systems do not appear to provide adequate slope. Therefore, to reduce the potential for standing and ponding water, ¼" tapered insulation should be considered. Install new tapered rigid insulation of sufficient thickness to achieve code requirements and new roof membrane system. New roof membrane systems includes:

    a. Wood blocking and cants

    b. Roof to wall flashings

    c. Flashings at pipe penetrations

    d. Flashings at curbs

    e. Roof edge metal

5. Remove and replace all roof drain assemblies.

6. Replace all fascia and flashings.

7. Clean roof surfaces after repairs are completed.

Alternative Solution No. 7 - Repair Roof Areas D, E, F, G, H, I, J, K

1. The photovoltaic trays installed atop Roof Areas D and E are laid directly on the roof surface with no roof top protection or accommodations for drainage of runoff water to the roof drains.

2. During the roof replacement, the internal roof drains were replaced with aluminum insert drains. Insert drains are installed by sliding an aluminum leader that is pre-attached to the underside of the drain assembly into the existing drain leader. The bands are then tightened to expand against the interior of the leader creating a seal. This type of drain system reduces the diameter of the original drain line that was sized by the area of roof it services. A reduced drain diameter could restrict proper drainage of the runoff water from the roof surface.

GENERAL DESIGN CONSIDERATIONS/ CODE ANALYSIS

When design options for repairs and replacement of exterior envelope building components are generated, several design standards and building codes should be analyzed. Refer to the Appendix of this report for a narrative of applicable codes and standards which should be considered during the design phase of the renovation projects relating to Lawrence F. Quigley Memorial Hospital.

SYSTEM NARRATIVES

Overall, Lawrence F. Quigley Memorial Hospital is in poor condition and requires repairs to the exterior façade such as masonry, window, door and portico components within the next 1-3 years. Several replacement options of varying functions and costs are available. The System Narratives, located in the Appendix of this report, describe the various window materials, glass and operability choices, and door and hardware options.

PRELIMINARY COST ESTIMATES

The cost estimates presented below are compiled from various sources and are based on our experience with projects similar to this type. The estimates are preliminary as the actual construction schedule, scope of work and construction details have not been fully defined. These estimates are intended to give DCAMM an indication as to what construction costs may be given the existing conditions and Gale's recommendations.

Gale has broken down these estimates based on the recommended repairs and replacement options presented for consideration. Should funding be of concern, additional alternates can be generated to complete specific scopes of services requested.

We have included a twenty percent (20%) contingency within the recommended construction budget cost in the event that unforeseen conditions are encountered during the design development phase of this project.

Immediate Action Recommendations – (Immediate)

Exterior Facades……. .....$###,###
Windows and Doors……. .....$###,###
Roofs ……. .....$###,###

Construction Project Sub-total .....$#,###,###
Recommended Contingency (20%) .....$##,###
Recommended Base Bid Construction Budget ..... $#,###,###

Short Term Recommendations – (1-5 years)

Exterior Facades……. .....$###,###
Windows and Doors……. .....$###,###
Roofs ……. .....$###,###

Construction Project Sub-total .....$#,###,###
Recommended Contingency (20%) .....$##,###
Recommended Base Bid Construction Budget ..... $#,###,###

Near Term Recommendations – (5 - 10 years)

Exterior Facades……. .....$###,###
Windows and Doors……. .....$###,###
Roofs ……. .....$###,###

Construction Project Sub-total .....$#,###,###
Recommended Contingency (20%) .....$##,###
Recommended Base Bid Construction Budget ..... $#,###,###

Long Term Recommendations – (Over 10 years)

Exterior Facades……. .....$###,###
Windows and Doors……. .....$###,###
Roofs ……. .....$###,###

Construction Project Sub-total .....$#,###,###
Recommended Contingency (20%) .....$##,###
Recommended Base Bid Construction Budget ..... $#,###,###

Please note that the estimated cost noted do not include any permitting fees which may or may not be required for this project. Also note that these costs do not include internal renovations, or the City's administration of the project.

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LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

SUMMARY SHEET

PREPARED FOR:
Chelsea Soldiers Home
DCAMM
PREPARED BY:
DHK Architect, Inc.
Gale Associates, Inc.

UPDATED: April 26, 2016
PHASE: 75% Submission
GALE JN: 830340
PREPARED BY: Varies
CHECKED BY: SRM

Approach Catergory	Component	Proposed Actions	Cost Estimate	Total
Immediate	Roofs		$246,700.00	
	Windows/Doors		$22,625.00	
	Walls		$44,375.00	
			Immediate Total	**$313,700.00**
Short Term (1-5 Years)	Roofs		$263,980.00	
	Windows/Doors		$999,780.00	
	Walls		$1,026,547.00	
			Short Term Total	**$2,290,307.00**
Near Term (5-10 Years)	Roofs		$0.00	
	Windows/Doors		$0.00	
	Walls		$5,126,150.00	
			Near Term Total	**$5,126,150.00**
Long Term (Over 10 Years)	Roofs		$0.00	
	Windows/Doors		$2,207,520.00	
	Walls		$0.00	
			Long Term Total	**$2,207,520.00**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

IMMEDIATE ACTION RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

	QTY	Unit		Unit Price		Est. Cost
Roofs						
Access / Disposal / Miscellaneous						
Staging	0	SF	$	3.50	$	-
Crane time for material handling	3	Day	$	3,200.00	$	9,600.00
Dispose of material	2	Dump	$	1,000.00	$	2,000.00
Scope of Work						
1 Repair open SBS base flashing (warranty)	4	LF	$	-	$	-
2 Replace roof area B	4,200	SF	$	28.00	$	117,600.00
3 Replace triangular tiled roofs	900	SF	$	25.00	$	22,500.00
4 Install penthouse stair supports	8	Each	$	500.00	$	4,000.00
		SubTotal			**$**	**155,700.00**
		Mobilization at		10%	$	15,600.00
		SubTotal			$	171,300.00
		Overhead and Profit at		20%	$	34,300.00
		SubTotal			$	205,600.00
		Design Contingency at		20%	$	41,100.00
		Estimated Total			**$**	**246,700.00**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

IMMEDIATE ACTION RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

	QTY	Unit		Unit Price		Est. Cost
Window/Doors						
Access / Disposal / Miscellaneous						
Staging	0	SF	$	3.50	$	-
Dispose of material	0	Dump	$	1,000.00	$	-
Scope of Work						
1 Repair deteriorated wood door	1	Lump	$	2,500.00	$	2,500.00
2 Replace Steel windows	120	SF	$	85.00	$	10,200.00
3 Replace seal failed glass	25	Each	$	65.00	$	1,625.00
		SubTotal			**$**	**14,325.00**
		Mobilization at		10%	$	1,400.00
		SubTotal			$	15,725.00
		Overhead and Profit at		20%	$	3,100.00
		SubTotal			$	18,825.00
		Design Contingency at		20%	$	3,800.00
		Estimated Total			**$**	**22,625.00**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

IMMEDIATE ACTION RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

		QTY	Unit		Unit Price		Est. Cost
Walls							
Access / Disposal / Miscellaneous							
	Staging	5,000	SF	$	3.50	$	17,500.00
	Crane time for material handling	0	Day	$	3,200.00	$	-
	Dispose of material	1	Dump	$	1,000.00	$	1,000.00
	Dispose of abandoned MEP equipment	0	Lump	$	3,000.00	$	-
Scope of Work							
1	Replace missing bricks	45	Each	$	65.00	$	2,925.00
4	Patch wall penetrations	10	Each	$	55.00	$	550.00
13	Replace displaced lintel	24	LF	$	250.00	$	6,000.00
			SubTotal			**$**	**27,975.00**
			Mobilization at		10%	$	2,800.00
			SubTotal			$	30,775.00
			Overhead and Profit at		20%	$	6,200.00
			SubTotal			$	36,975.00
			Design Contingency at		20%	$	7,400.00
			Estimated Total			**$**	**44,375.00**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

SHORT TERM RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

	QTY	Unit		Unit Price		Est. Cost
Roofs						
Access / Disposal / Miscellaneous						
Staging	0	SF	$	3.50	$	-
Crane time for material handling	3	Day	$	3,200.00	$	9,600.00
Dispose of material	2	Dump	$	1,000.00	$	2,000.00
Scope of Work						
1 Repalce roof area A	2,400	LF	$	35.00	$	84,000.00
2 Replace roof area C	2,200	SF	$	28.00	$	61,600.00
3 Replace roof area L	160	LF	$	28.00	$	4,480.00
		SubTotal			**$**	**161,680.00**
		Mobilization at		10%	$	16,200.00
		SubTotal			$	177,880.00
		Overhead and Profit at		20%	$	35,600.00
		SubTotal			$	213,480.00
		Design Contingency at		20%	$	42,700.00
		SubTotal			$	256,180.00
		1 year Cost Escalation at		3%	$	7,800.00
		Estimated Total			**$**	**263,980.00**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

SHORT TERM RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

		QTY	Unit		Unit Price		Est. Cost
Window/Doors							
Access / Disposal / Miscellaneous							
	Staging	0	SF	$	3.50	$	-
	Portable lift	8	Week	$	1,100.00	$	8,800.00
	Dispose of material	2	Dump	$	1,000.00	$	2,000.00
Scope of Work							
1	Remove/Reinstall ex.wood framing/trim	4,550	LF	$	12.00	$	54,600.00
2	Replacement wood trim	700	LF	$	25.00	$	17,500.00
3	Remove/Reinstall masonry	930	CF	$	25.00	$	23,250.00
4	Remove/Install new lintel	1,240	LF	$	185.00	$	229,400.00
5	Install throughwall flashing	1,240	LF	$	40.00	$	49,600.00
6	Perimeter Sealant	19,800	LF	$	8.00	$	158,400.00
7	Repair and paint and wood window trim	4,550	LF	$	15.00	$	68,250.00
8	Replace window	35	SF	$	28.00	$	980.00
			SubTotal			**$**	**612,780.00**
			Mobilization at		10%	$	61,300.00
			SubTotal			$	674,080.00
			Overhead and Profit at		20%	$	134,800.00
			SubTotal			$	808,880.00
			Design Contingency at		20%	$	161,800.00
			SubTotal			$	970,680.00
			1 year Cost Escalation at		3%	$	29,100.00
			Estimated Total			**$**	**999,780.00**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

SHORT TERM RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

		QTY	Unit		Unit Price		Est. Cost
Walls							
Access / Disposal / Miscellaneous							
	Staging	5,600	SF	$	3.50	$	19,600.00
	Crane time for material handling	0	Day	$	3,200.00	$	-
	Portable lift	4	Week	$	1,100.00	$	4,400.00
	Dispose of material	2	Dump	$	1,000.00	$	2,000.00
	Dispose of abandoned MEP equipment	0	Lump	$	3,000.00	$	-
Scope of Work							
1	Removal of TV cables and conduits	1,150	LF	$	2.00	$	2,300.00
2	Clean algea growth	490	SF	$	2.00	$	980.00
3	Replace failed glass	16	Each	$	150.00	$	2,400.00
4	Cracked brick replacement	495	Each	$	100.00	$	49,500.00
5	Repair cracked concrete	26	LF	$	110.00	$	2,860.00
6	Repair cracked stone	8	LF	$	110.00	$	880.00
7	Preclean masonry	3,195	SF	$	2.00	$	6,390.00
8	Deteriorated mortar pointing	3,195	SF	$	40.00	$	127,800.00
9	Post construction clean masonry	3,195	SF	$	1.00	$	3,195.00
10	Clean effloresence	506	SF	$	2.00	$	1,012.00
11	Patch exposed reinforcing	25	LF	$	140.00	$	3,500.00
12	Replace control joint sealants	10	LF	$	8.00	$	80.00
13	Replace previous patched mortar	709	SF	$	40.00	$	28,360.00
14	Replace failed sealant	136	LF	$	8.00	$	1,088.00
15	Replace missing fasteners	75	Each	$	-	$	-
16	Replace missing sealant	12	LF	$	8.00	$	96.00
17	Repalce perimeter sealants	68	LF	$	8.00	$	544.00
18	Replace rusted lintels	826	LF	$	250.00	$	206,500.00
19	Spalled brick repalcement	1,624	Each	$	100.00	$	162,400.00
21	Repair spalled concrete	22	SF	$	125.00	$	2,750.00
22	Clean atmospheric staining	196	SF	$	2.00	$	392.00
23	Remove/Reinstall ex.wood framing/trim	10	LF	$	12.00	$	120.00
			SubTotal			**$**	**629,147.00**
			Mobilization at		10%	$	62,900.00
			SubTotal			$	692,047.00
			Overhead and Profit at		20%	$	138,400.00
			SubTotal			$	830,447.00
			Design Contingency at		20%	$	166,100.00
			SubTotal			$	996,547.00
			1 year Cost Escalation at		3%	$	30,000.00
			Estimated Total			**$**	**1,026,547.00**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

NEAR TERM RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

	QTY	Unit	Unit Price	Est. Cost
Roofs				
Access / Disposal / Miscellaneous				
Staging	0	SF	$ -	$ -
Crane time for material handling	0	Day	$ -	$ -
Dispose of material	0	Dump	$ -	$ -
Scope of Work				
1 Yearly budge for maintenance	0	Lump	$ 2,500.00	$ -
		SubTotal		**$ -**
		Mobilization at	0%	$ -
		SubTotal		$ -
		Overhead and Profit at	0%	$ -
		SubTotal		$ -
		Design Contingency at	0%	$ -
		SubTotal		$ -
		5 year Cost Escalation at	15%	$ -
		Estimated Total		**$ -**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

NEAR TERM RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

	QTY	Unit		Unit Price		Est. Cost
Window/Doors						
Access / Disposal / Miscellaneous						
Staging	0	SF	$	3.50	$	-
Dispose of material	0	Dump	$	1,000.00	$	-
Scope of Work						
1 Yearly budget for maintenance	0	Lump	$	2,500.00	$	-
		SubTotal			**$**	**-**
		Mobilization at		0%	$	-
		SubTotal			$	-
		Overhead and Profit at		0%	$	-
		SubTotal			$	-
		Design Contingency at		0%	$	-
		SubTotal			$	-
		5 year Cost Escalation at		15%	$	-
		Estimated Total			**$**	**-**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

NEAR TERM RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

	QTY	Unit		Unit Price		Est. Cost
Walls						
Access / Disposal / Miscellaneous						
Staging	78,100	SF	$	3.50	$	273,350.00
Crane time for material handling	5	Day	$	3,200.00	$	16,000.00
Dispose of material	2	Dump	$	1,000.00	$	2,000.00
Dispose of abandoned MEP equipment	1	Lump	$	3,000.00	$	3,000.00
Scope of Work						
1 Preclean masonry	58,600	SF	$	2.00	$	117,200.00
2 Deteriorated mortar pointing	58,600	SF	$	40.00	$	2,344,000.00
3 Post construction clean masonry	58,600	SF	$	1.00	$	58,600.00
		SubTotal			**$**	**2,814,150.00**
		Mobilization at		10%	$	281,400.00
		SubTotal			$	3,095,550.00
		Overhead and Profit at		20%	$	619,100.00
		SubTotal			$	3,714,650.00
		Design Contingency at		20%	$	742,900.00
		SubTotal			$	4,457,550.00
		5 year Cost Escalation at		15%	$	668,600.00
		Estimated Total			**$**	**5,126,150.00**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

LONG TERM RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

	QTY	Unit	Unit Price	Est. Cost
Roofs				
Access / Disposal / Miscellaneous				
Staging	0	SF	$ -	$ -
Crane time for material handling	0	Day	$ -	$ -
Dispose of material	0	Dump	$ -	$ -
Scope of Work				
1 Yearly budget for maintenance	0	Lump	$ 2,500.00	$ -
		SubTotal		**$ -**
		Mobilization at	0%	$ -
		SubTotal		$ -
		Overhead and Profit at	0%	$ -
		SubTotal		$ -
		Design Contingency at	0%	$ -
		SubTotal		$ -
		10 year Cost Escalation at	30%	$ -
		Estimated Total		**$ -**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

LONG TERM RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

	QTY	Unit		Unit Price		Est. Cost
Window/Doors						
Access / Disposal / Miscellaneous						
Staging	12,000	SF	$	3.50	$	42,020.00
Dispose of material	10	Dump	$	1,000.00	$	10,000.00
Scope of Work						
1 Replace window units	12,000	SF	$	85.00	$	1,020,000.00
		SubTotal			**$**	**1,072,020.00**
		Mobilization at		10%	$	107,200.00
		SubTotal			$	1,179,220.00
		Overhead and Profit at		20%	$	235,800.00
		SubTotal			$	1,415,020.00
		Design Contingency at		20%	$	283,000.00
		SubTotal			$	1,698,020.00
		10 year Cost Escalation at		30%	$	509,500.00
		Estimated Total			**$**	**2,207,520.00**

LAWRENCE F. QUIGLEY MEMORIAL HOSPITAL

LONG TERM RECOMMENDATIONS

PREPARED FOR:		**UPDATED:**	April 26, 2016
Chelsea Soldiers Home		**PHASE:**	75% Submission
DCAMM		**GALE JN:**	830340
PREPARED BY:		**PREPARED BY:**	Varies
DHK Architect, Inc.		**CHECKED BY:**	SRM
Gale Associates, Inc.			

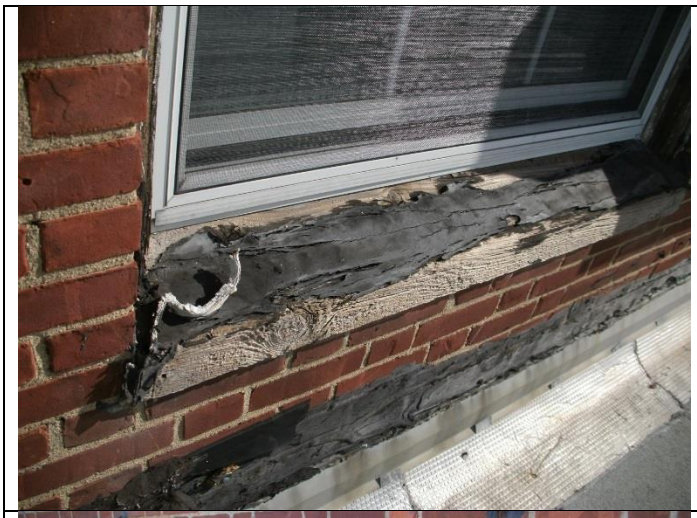
	QTY	Unit		Unit Price		Est. Cost
Walls						
Access / Disposal / Miscellaneous						
Staging	0	SF	$	3.50	$	-
Crane time for material handling	0	Day	$	3,200.00	$	-
Dispose of material	0	Dump	$	1,000.00	$	-
Dispose of abandoned MEP equipment	0	Lump	$	3,000.00	$	-
Scope of Work						
1 Yearly Budget for maintenance	0	Lump	$	2,500.00	$	-
		SubTotal			**$**	**-**
		Mobilization at		0%	$	-
		SubTotal			$	-
		Overhead and Profit at		0%	$	-
		SubTotal			$	-
		Design Contingency at		0%	$	-
		SubTotal			$	-
		10 year Cost Escalation at		30%	$	-
		Estimated Total			**$**	**-**

PHOTOGRAPHIC DOCUMENTATION
Exterior Building Envelope Evaluation
Chelsea Soldiers Home
Quigley Hospital
Gale JN 830340

Quigley Photograph Documentation – Exterior Facades

	Photo 1: Aerial view of Quigley Hospital
	Photo 2: Typical window sill with small weather cracks (Keynote 5)
	Photo 3: Typical rotted window sill and/or bottom of brick mold rotted (Keynote 6)

PHOTOGRAPHIC DOCUMENTATION
Exterior Building Envelope Evaluation
Chelsea Soldiers Home
Quigley Hospital
Gale JN 830340

	Photo 4: Roofing mastic used as repair for damaged sill at south elevation above center finger roof
	Photo 5: Roofing mastic along courses of brick just above lower roof flashing and as sealant at penetrations at south elevation above west finger roof
	Photo 6: Cracked glass

PHOTOGRAPHIC DOCUMENTATION
Exterior Building Envelope Evaluation
Chelsea Soldiers Home
Quigley Hospital
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	Photo 7: Steel window rusted
	Photo 8: Typical penetration missing sealant
	Photo 9: Deteriorated concrete roof slab and rusted exposed roofing fasteners at low roof on west elevation

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Exterior Building Envelope Evaluation
Chelsea Soldiers Home
Quigley Hospital
Gale JN 830340

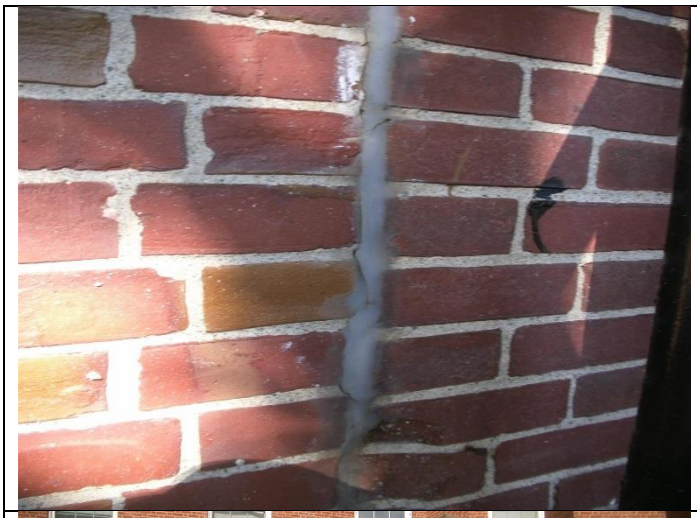	Photo 10: Surface applied sealant at control joint
	Photo 11: Approximately 18’x16’x5’10” walls with 3’4”x3’4”x12’ chimney and gravel surface built up roof, copper fascia and reglet addition constructed at southwest elevation (Elevation 4) with no control joint at connection to existing construction. Algae and atmospheric staining and deteriorated masonry throughout
	Photo 12: Typical staining below louvers

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	Photo 13: Typical deteriorated mortar at sides of window head where lintel extends into masonry
	Photo 14: Typical rusted lintel at window
	Photo 15: Severely deteriorated masonry at north elevation main entrance steps (east side shown, west side in similar condition)

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Exterior Building Envelope Evaluation
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Quigley Hospital
Gale JN 830340

	Photo 16: Rust staining at railing connections at north elevation main entrance
	Photo 17: Typical cracked concrete at base of building
	Photo 18: Typical exposed reinforcing steel

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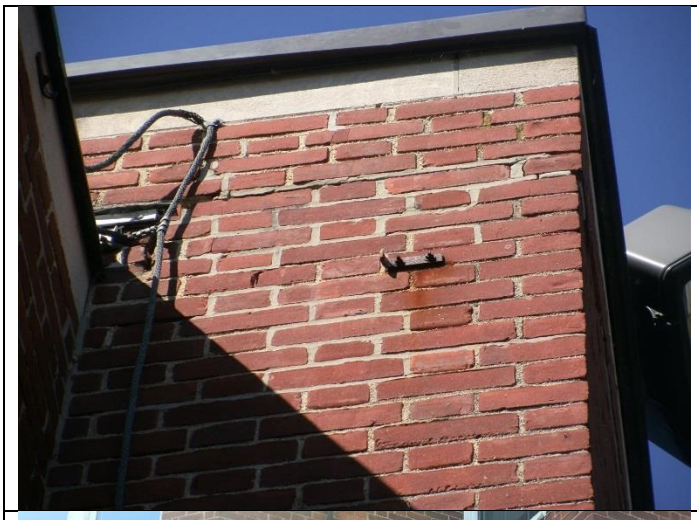
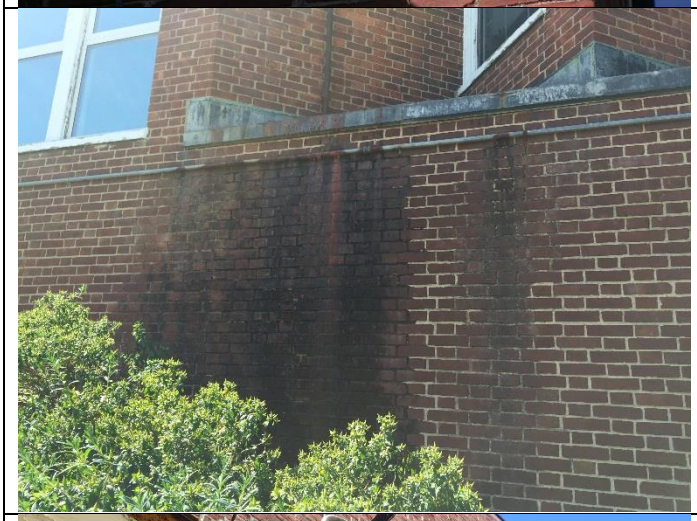
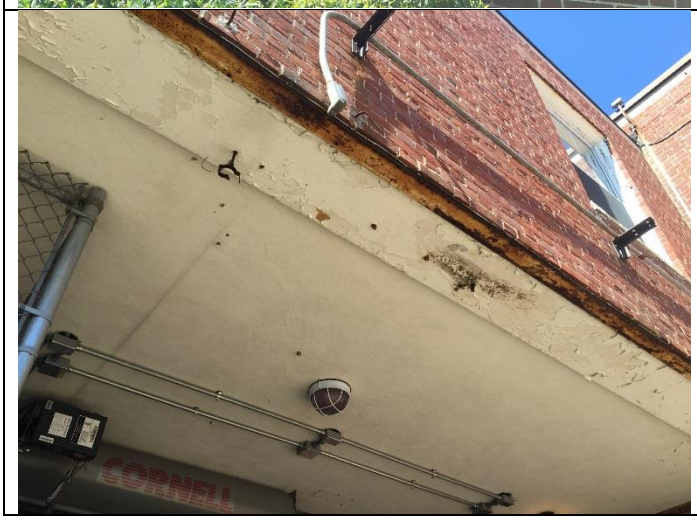
Exterior Building Envelope Evaluation
Chelsea Soldiers Home
Quigley Hospital
Gale JN 830340

	Photo 19: Mortar joint below fourth course of bricks across length of east elevation
	Photo 20: Brick staining below adhered conduit at east elevation
	Photo 21: Rusted lintel along ambulance entrance at east elevation

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Exterior Building Envelope Evaluation
Chelsea Soldiers Home
Quigley Hospital
Gale JN 830340

	Photo 22: Typical step cracking at corner of window
	Photo 23: Typical failure at previously repaired mortar joint
	Photo 24: Pipe deposits against foundation- puddle formed and starting to deteriorate concrete foundation wall at Elevation 6 (Keynote 8)

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	Photo 25: Typical spalled bricks
	Photo 26: Silicone used to repair spalled brick

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Chelsea Soldiers Home
Quigley Hospital
Gale JN 830340

	Photo 27: Deteriorated mortar between stones
	Photo 28: Typical cracked brick at west finger roof rising wall

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Exterior Building Envelope Evaluation
Chelsea Soldiers Home
Quigley Hospital
Gale JN 830340

	Photo 29: Cracked stone sill

Quigley Photograph Documentation –Roof Areas

Roof Area A	
	Photo 30: EPDM membrane is face fastened with a termination bar to the brick masonry wall. Counterflashings were not installed.

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Exterior Building Envelope Evaluation
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Quigley Hospital
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	Photo 31: Patch seam failure
Roof Area B	
	Photo 32: Insulation fastener failure and insulation buckling at front low roof
	Photo 33: Low flashing height; rusted pipe

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Exterior Building Envelope Evaluation
Chelsea Soldiers Home
Quigley Hospital
Gale JN 830340

	Photo 34: Area of sealant applied to the roof membrane, expected to originally support the lightning protection arranged around the roof perimeters.
	Photo 35: Sleepers placed directly on roof membrane at front low roof
Roof Area C	
	Photo 36: Open sheet metal seam at smaller raised roof as viewed from front roof

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Exterior Building Envelope Evaluation
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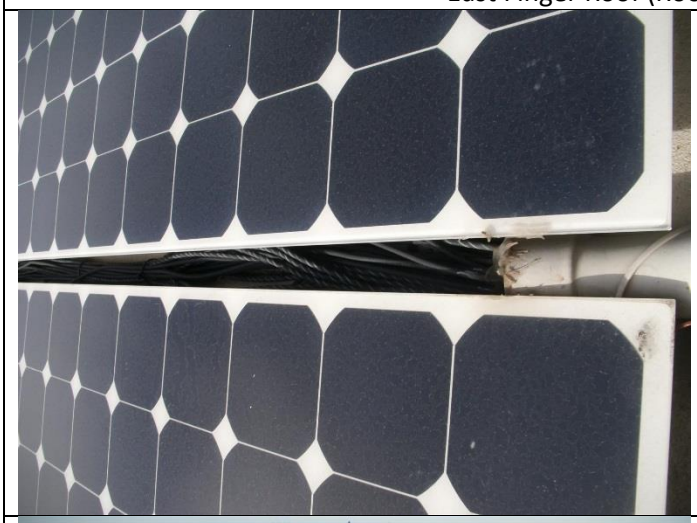
Quigley Hospital
Gale JN 830340

	Photo 37: Roofing mastic used to repair flashing at front low roof. Mastic applied at coper throughwall flashings and brick masonry above was common at the main roof. Copper throughwall flashing is bent and has an open seam.
East Finger Roof (Roof Area D)	
	Photo 38: Exposed cables between panels (Roof Area D)
	Photo 39: Approximately 5'x3' solar panels placed on ¼" concrete "laminated" to 2" XPS insulation blocks, which were placed directly on roof surface at east and center finger roofs with no drainage (east finger roof shown)

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Chelsea Soldiers Home
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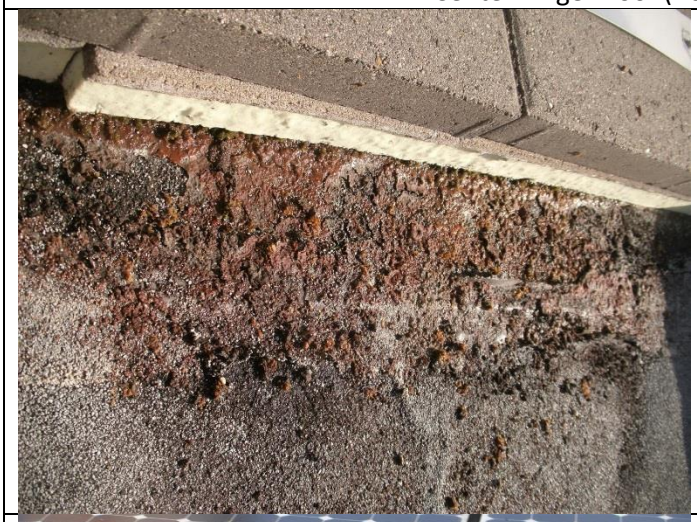
Center Finger Roof (Roof Area E)	
	Photo 40: Debris under insulation faced paver stones adjacent to drain on center finger roof (Roof Area E)
	Photo 41: Vegetation developing between solar panels at center finger roof (Roof Area E)
West Finger Roof (Roof Area F)	
	Photo 42: Exposed wood framing at the base of the copper penthouse (Roof Area R) at west finger roof (Roof Area F). Wood is typically deteriorating.

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Exterior Building Envelope Evaluation
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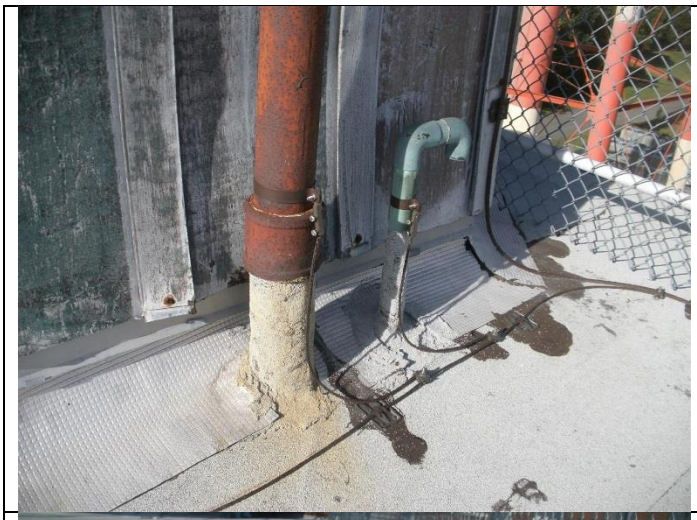
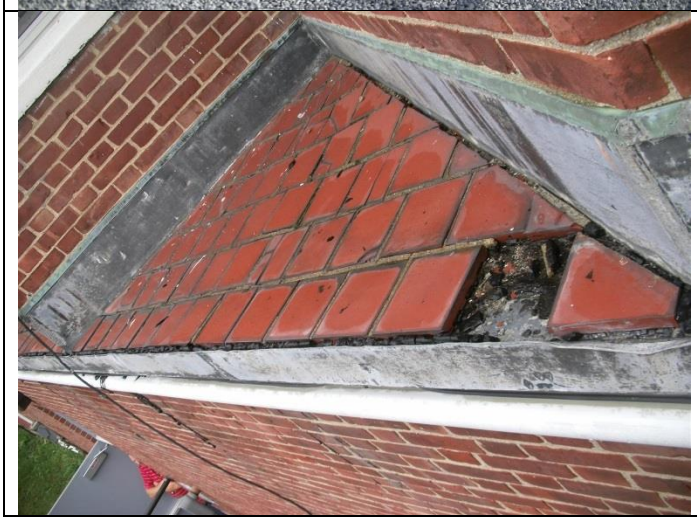
	Photo 43: Roof penetrations flashed with mastic and granules at west finger roof (Roof Area F)
	Photo 44: Fish mouth at west finger roof (Roof Area F)
	Photo 45: At the “fingers” of the Quigley building, small triangular roofs exist above the first floor levels, as shown. The roofing materials are typically deteriorated and unadhered. Several tiles are broken or missing.

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	Photo 46: Open sheet metal flashing at low triangle roofs along building fingers
West Roof (Roof Area G)	
	Photo 47: Membrane staining around drain at Roof G.
	Photo 48: Open base flashing at north elevation rising wall of penthouse on Roof G

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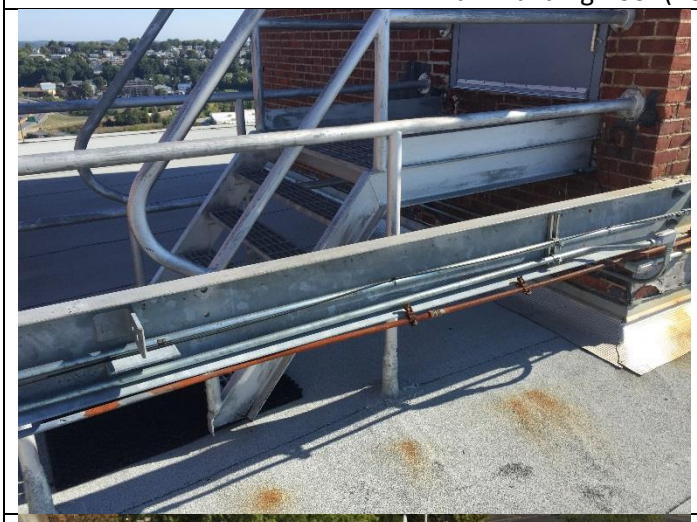
Main Building Roof (Roof Area H)	
	Photo 49: Metal stairs at the main roof are cantilevered out from penthouses. They are not supported at the base.
	Photo 50: Roof membrane unadhered
Roof Area I	
	Photo 51: Typical debris at roof drain

ROOFING DEFECT LEGEND

ROOFING DEFECTS

- PATCH; SEAMS FAILED, LAP SEALANT FAILED
- LIFTED INSULATION
- OS # — OPEN SEAM # INDICATES LINEAR FEET
- P # — MEMBRANE PUNCTURE # INDICATES UNITS
- FM # — FISH MOUTH # INDICATES UNITS
- TF # — TENTED FASTENER # INDICATES UNITS
- RS # — RUST STAINING # INDICATES SQUARE FEET
- UM # — UNADHERED MEMBRANE # INDICATED SQUARE FEET

ROOFING PENETRATIONS

- AC — AIR CONDITIONER
- V — VENT
- D — DUCT
- F — FAN
- ROOF DRAIN
- VENT PIPE
- SOLAR PANELS

ROOFING KEY NOTES

1. – SLICE IN MEMBRANE
2. – BROKEN VENT PIPE
3. –HOLE IN COPPER EDGE METAL GRAVEL STOP. MEMBRANE BELOW MATERIAL IS VISIBLE AND PUNCTURED.
4. –LIFTING FASCIA
5. –LIFTED COVER PLATE
6. –OPEN COUNTERFLASHING
7. –MISSING COUNTERFLASHING
8. –OPEN TERMINATION BAR
9. –BOLTS MISSING FROM BOTTOM OF LADDER
10. –OPEN BASE FLASHING SEAM
11. –"RIDGE" IN INSULATION SEPARATES WATER FROM DRAIN ALONG ROOF EDGE
12. –LOW FLASHING HEIGHT AT WINDOWS AT ROOF TO RISING MASONRY WALL
13. –TABS FOR LIGHTNING PROTECTION UNADHERED
14. –LIGHTNING PROTECTION DISCONNECTED
15. –METAL PIPE ON ROOF SURFACE CAUSING RUST STAINING AND CONDENSATE
16. –COPPER STAIR PENTHOUSE EXHIBITS DENTS AT BASE OF COPPER, RUSTED BOLTS, EXPOSED WOOD AT JOINTS OF COPPER, RUST STAINING AT CEILING, AND MINOR CRAZING OF SEALANT
17. –BASE FLASHING CONSISTS OF ALUMINUM FLASHING PINNED TO WALL WITH DRIVE PINS (NOT CLIPPED)
18. –LIFTED ALUMINUM COATED BASE FLASHING
19. –HOLE IN COPPER THROUGHWALL FLASHING ALLOWING WATER INFILTRATION
20. –INDENTED AREA SUGGESTIVE OF PONDING
21. –ALUMINUM LAYER AT BASE FLASHING IS WORN AND FLASHING IS EXPOSED
22. –LIMITS OF COUNTERFLASHING AND THROUGHWALL FLASHING ARE SEALED AND SEALANT HAS FAILED

ELEVATION DEFECT LEGEND

MASONRY

- CB # – CRACKED BRICK # INDICATES UNITS
- SB # – SPALLED BRICK # INDICATES UNITS
- DM # – DETERIORATED MORTAR JOINT # INDICATES SQUARE FEET
- MJ # – DETERIORATED MORTAR JOINT # INDICATES LINEAR FEET
- RS # – RUST STAINING # INDICATES SQUARE FEET
- ST # – STAINING # INDICATES SQUARE FEET
- DL # – DEFLECTED LINTEL # INDICATES LINEAR FEET
- RL # – RUSTED LINTEL # INDICATES LINEAR FEET
- AG # – ALGAE GROWTH # INDICATES SQUARE FEET
- EF # – EFFLORESCENCE # INDICATES SQUARE FEET
- ER # – EXPOSED REINFORCING STEEL # INDICATES LINEAR FEET
- × – ABANDONED ANCHOR/METAL STUB
- – STEP CRACKS IN BRICK MASONRY

STONE/CONCRETE

- SC # – SPALLED CONCRETE # INDICATES SQUARE FEET

SEALANTS

- PS # – FAILED PERIMETER SEALANT # INDICATES LINEAR FEET

WINDOWS

- C –CONDENSATION

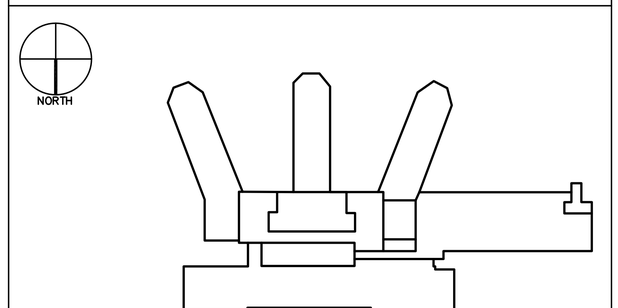
TYPICAL DEFECTS

1. FAILED PAINT AT ALL WOOD COMPONENTS, INCLUDING WOOD WINDOWS AND TRIM.

ELEVATION KEY NOTES

1. –CRACKED AND SPALLED BRICK AROUND T.W.F. AT INTERSECTION OF ADJACENT ROOF. DM THROUGHOUT
2. –MISSING T.W.F. AT WINDOW LINTEL
3. –DM AT VERTICAL LIMESTONE JOINTS SPACED AT 4' O.C.
4. –DISPLACED MASONRY
5. –WINDOW SILL HAS SMALL WEATHER CRACKS
6. –WINDOW SILL AND BOTTOM BRICK MOLD ROTTED
7. –CONCRETE DECK EXPOSED; STRATING TO SPALL AT BASE; EXPOSED FASTENERS AND CLIPS WITH CORROSION
8. –PIPE DEPOSITS AGAINST FOUNDATION–PUDDLE CREATED AND STARTING TO DETERIORATE CONCRETE FOUNDATION WALL
9. –ORIGINAL WOOD WINDOW HAS BEEN REMOVED; CONCRETE SILL INSTALLED WITH UNFINISHED WOOD FRAMING AROUND VINYL INSERT SLIDER; WOOD IS SPLINTERING
10. –MISSING COUNTERFLASHING
11. –COPPER T.W.F. INSERT 1" +/– FROM FACE OF BRICK; SEALED OVER; SEALANT FAILED
12. –ROOF FASCIA NOT CLIPPED OR SECURED
13. –APPROXIMATELY 1' OF ROOFING CEMENT AT BASE OF BRICK ACROSS LENGTH
14. –DAMAGED INSERT AND/OR SECURITY SCREEN
15. –ABANDONED WOOD ATTACHED TO WALL
16. –LOW FLASHING HEIGHT
17. –ROOF UNIT IN FRONT OF WINDOWS BLOCKS DRAINAGE
18. –ALMOST ALL PAINT IS REMOVED FROM WINDOW UNITS
19. –STEEL WINDOWS WITH WIRE GLASS–FAILED GLAZING COMPOUND
20. –SEALANT INSTALLED ALONG COPPER T.W.F.; SEALANT IS CRAZING
21. –TWO WINDOWS REMOVED ALONG WITH JACK–ARCH; OPENING BRICKED IN; STEEL LINTEL REMAINS; COVERED WITH MORTAR
22. –METAL WALL PANELS
23. –NEW CONTROL JOINT INSTALLED
24. –ADDITIONAL BUILDING IN FRONT OF ELEVATION (18'X16'X5'10" WITH 3'4"X3'4"X12' CHIMNEY; REPOINT 100%; EF AND AG THROUGHOUT; GRAVEL SURFACE BUILT UP ROOF)
25. –UNSEALED CONDUIT THROUGH BRICK
26. –CONCRETE FOUNDATION HAS BEEN PARGED
27. –BRICK LOOKS SHIFTED OUTWARD; OVERHANGING LINTEL TOO FAR; NOT CONSISTENT WITH OTHER LOCATIONS
28. –TRIANGLE SHAPED ROOF CONSISTING OF COPPER FASCIA WITH BUILT UP ROOF OVER CONCRETE DECK–APPEARS TO BE IN POOR CONDITION; TEST CUT NEEDED
29. –BRICKED IN; LINTEL REMAINS
30. –CHIPPED SILL
31. –NO CONTROL JOINT; SILICONE SEALANT SURFACE–APPLIED AT CORNER
32. –4 COURSES OF BRICK WALL WITH LIMESTONE CAP; HIGH ROOF EXTENDS 2'3" ABOVE LOW ROOF SURFACE; 4' LIMESTONE BLOCKS FOR CAP; COPPER T.W. WITH FABRIC FLASHING; DM THROUGHOUT; DM AT STONE; CONTAINS LCC COUNTERFLASHING; OSM AT COUNTERFLASHING;
33. –4 COURSES OF BRICK WALL WITH LIMESTONE CAP; HIGH ROOF EXTENDS 2'3" ABOVE LOW ROOF SURFACE; 4' LIMESTONE BLOCKS FOR CAP; COPPER T.W. WITH FABRIC FLASHING; DM THROUGHOUT; DM AT STONE; DISPLACED BRICK AT NORTH CORNER (2 S.F.)

KEY PLAN



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ONE ASHBURTON PLACE, 15TH FLOOR, BOSTON, MA

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	830340
CADD FILE	QB ALL
DESIGNED BY	
DRAWN BY	
CHECKED BY	SRM
DATE	NOV 18, 2015
DRAWING SCALE	AS NOTED

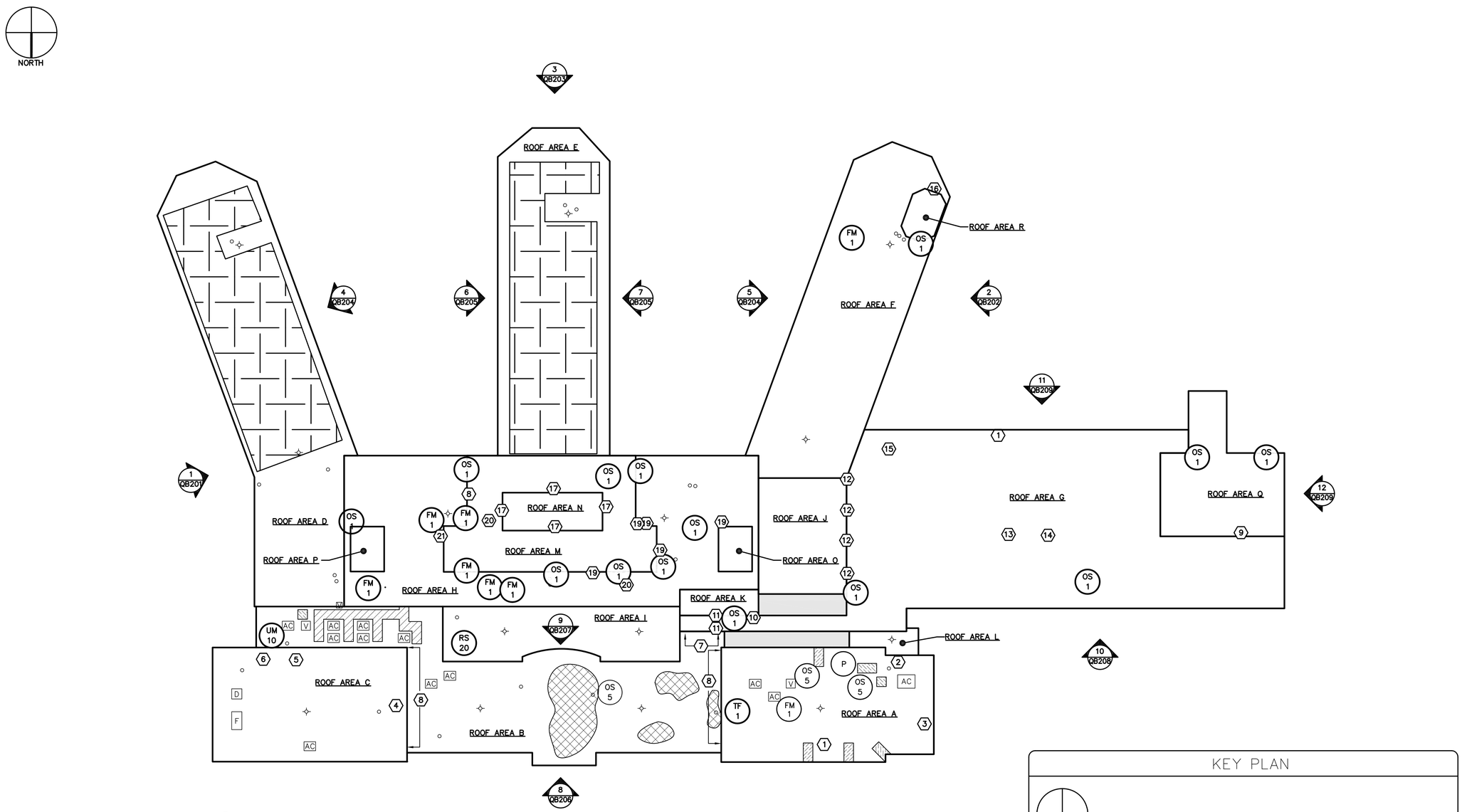
GRAPHIC SCALE

SHEET TITLE

QUIGLEY BUILDING
SHEET NOTES

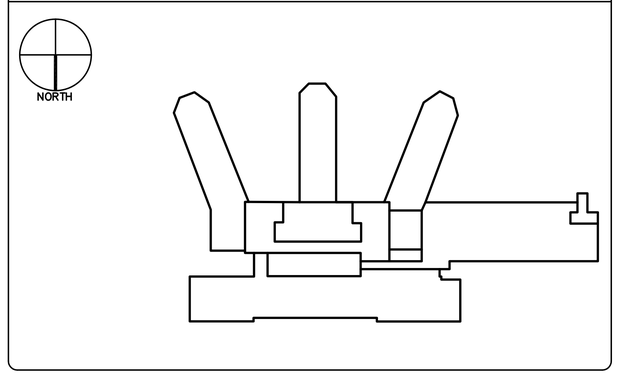
DRAWING NO.

QB001



1 ROOF AREA PLAN
SCALE: 1/16"=1'-0"

KEY PLAN



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DRAWN BY	
CHECKED BY	SRM
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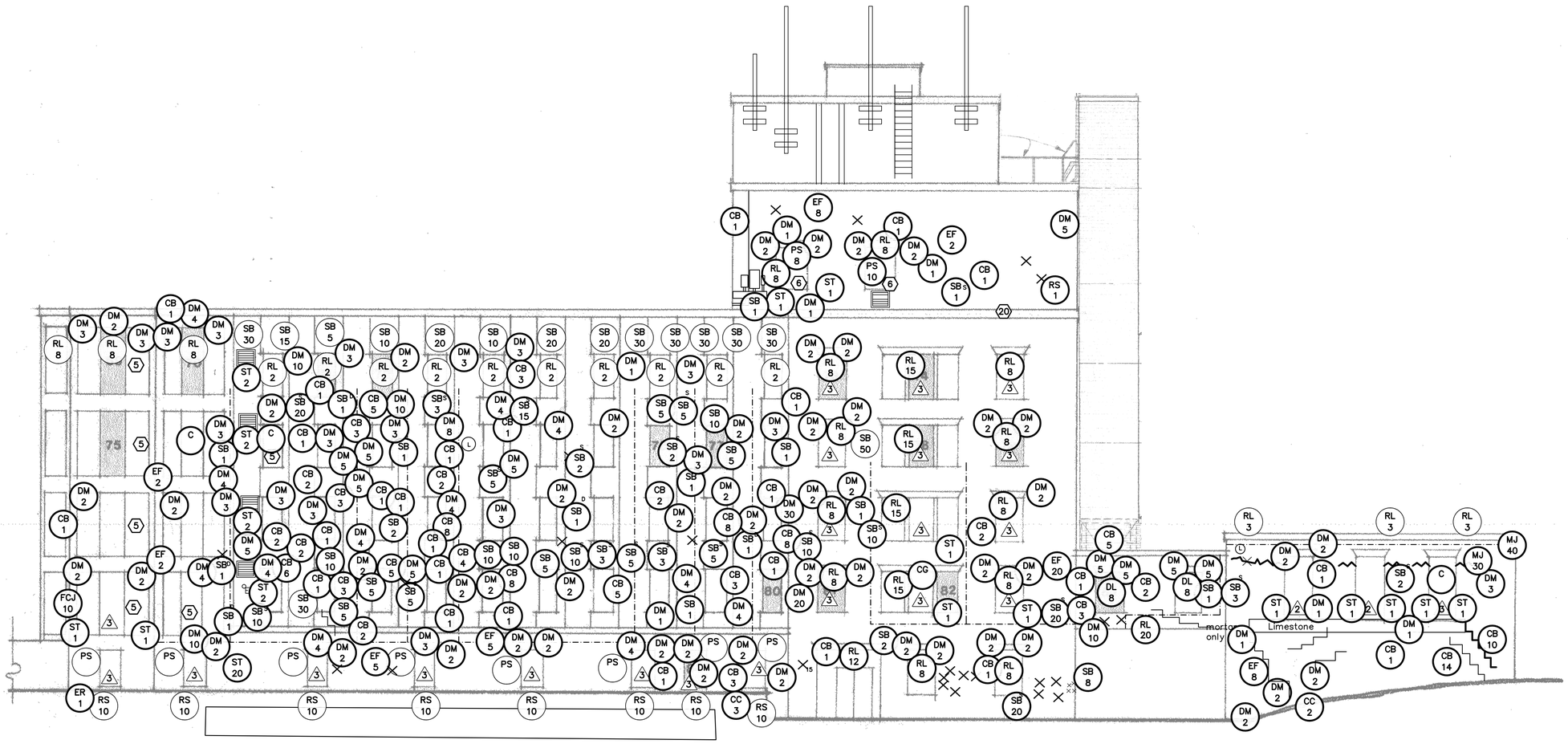
DRAWING SCALE	1/16" = 1-'0"

GRAPHIC SCALE

SHEET TITLE
QUIGLEY BUILDING
ROOF AREA
PLANS

DRAWING NO.
QB101



1 EAST ELEVEVATION
SCALE: 1/8"=1'-0"

ELEVATION NOTES

1. THE ELEVATIONS ARE PROVIDED TO SHOW APPROXIMATE QUANTITIES AND CONFIGURATIONS. THE ACTUAL SIZES AND CONFIGURATION WILL VARY FROM THOSE SHOWN. THE CONTRACTOR SHALL BASE THE BID AND CONTRACT AMOUNTS ON ACTUAL FIELD CONDITIONS.
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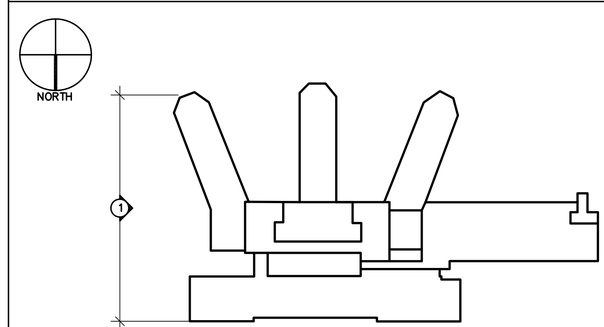
TYPICAL DEFECTS

1. STAINING BELOW WINDOW SILLS
2. CRACKED WOOD AT WOOD PANEL WINDOWS
3. FAILED PAINT

KEY PLAN



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CHECKED BY	SRM
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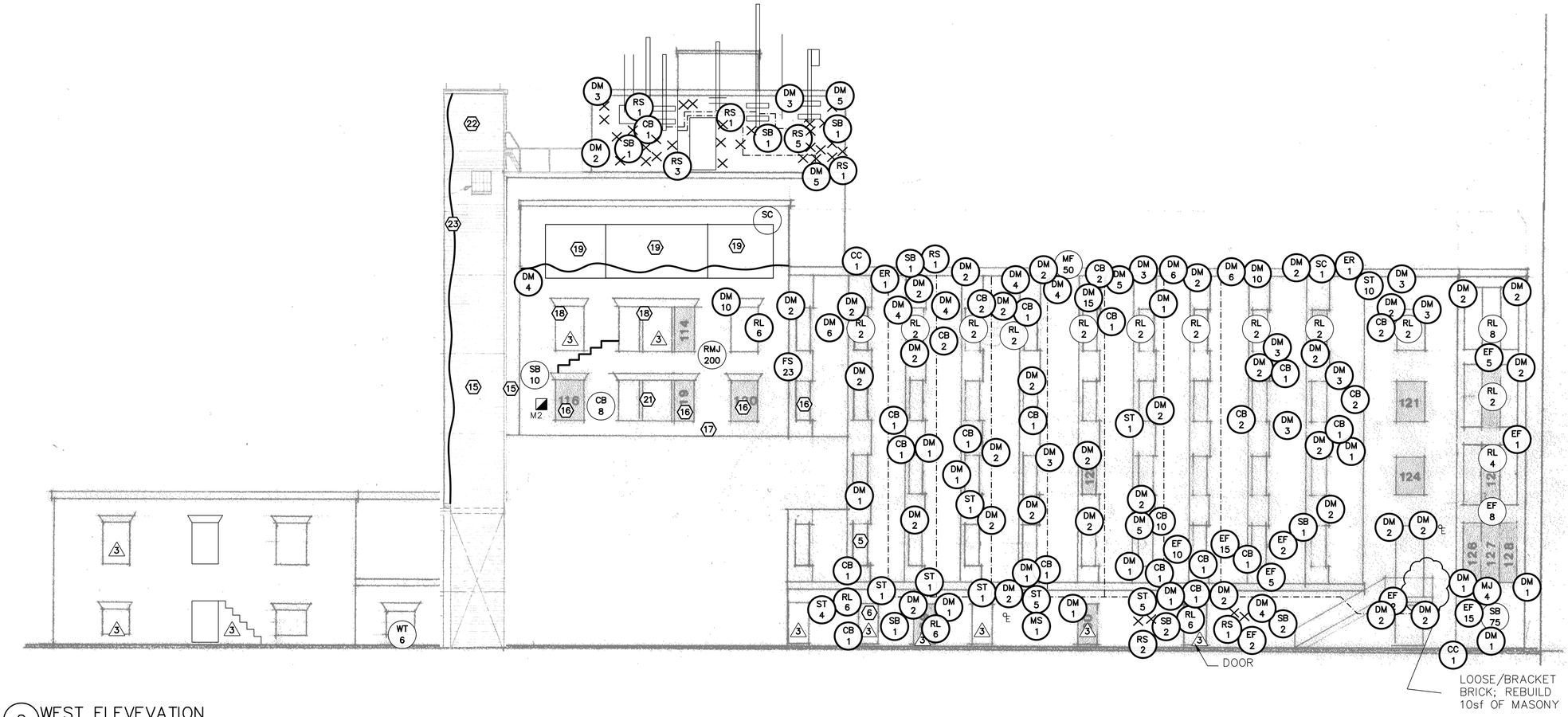
DRAWING SCALE	1/8" = 1'-0"

GRAPHIC SCALE

SHEET TITLE
QUIGLEY BUILDING
EAST ELEVATION

DRAWING NO.
QB201



2 WEST ELEVEVATION

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

TYPICAL DEFECTS

1. RUSTED LINTEL ACROSS ELEVATION
2. APPROXIMATELY 8 COURSES OF BRICK ABOVE TOP WINDOWS ON RIGHT SIDE OF ELEVATION (NOT SHOWN ABOVE)

ELEVATION NOTES

1. THE ELEVATIONS ARE PROVIDED TO SHOW APPROXIMATE QUANTITIES AND CONFIGURATIONS. THE ACTUAL SIZES AND CONFIGURATION WILL VARY FROM THOSE SHOWN. THE CONTRACTOR SHALL BASE THE BID AND CONTRACT AMOUNTS ON ACTUAL FIELD CONDITIONS.
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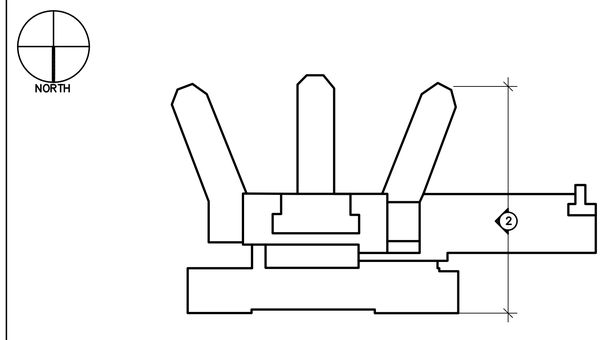
KEY PLAN



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DRAWN BY	
CHECKED BY	SRM
DATE	NOV 18, 2015
DRAWING SCALE	1/8" = 1'-0"

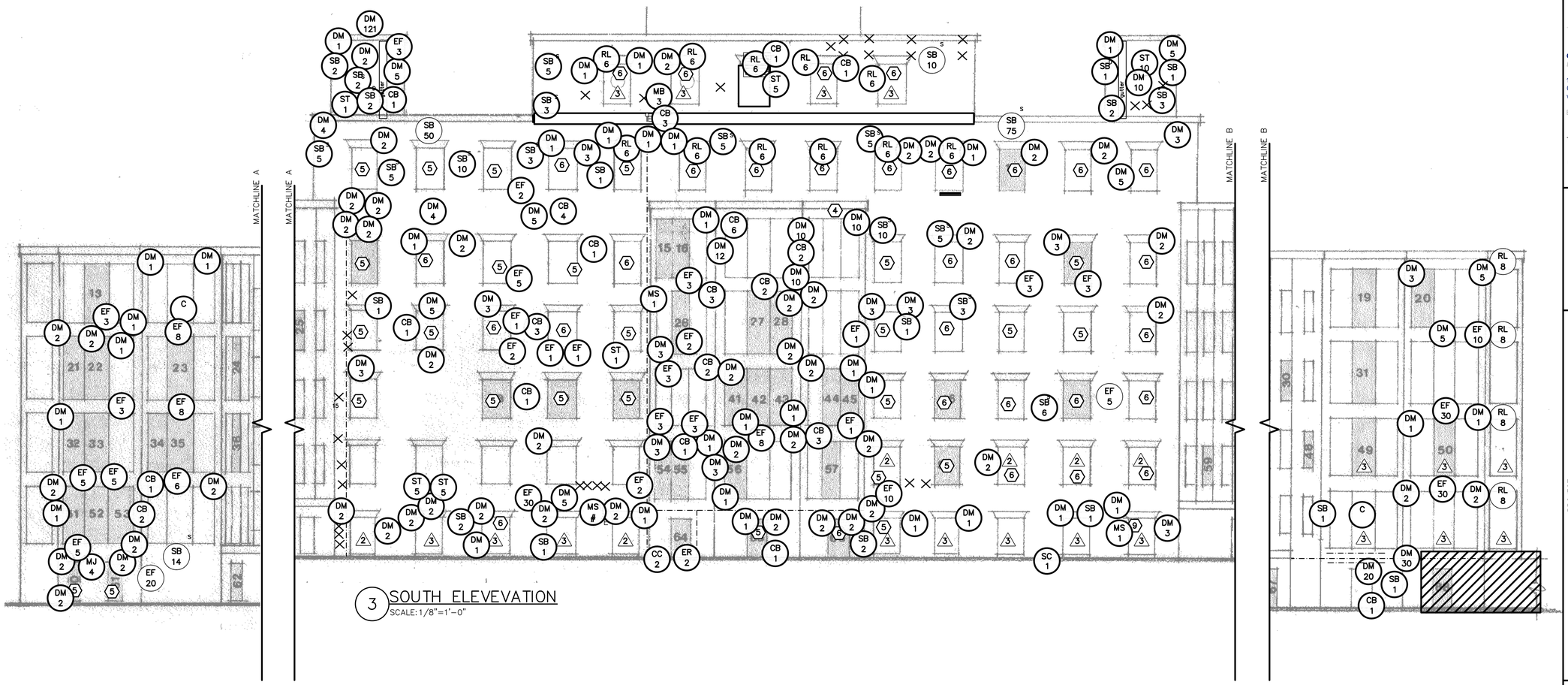
GRAPHIC SCALE

SHEET TITLE

QUIGLEY BUILDING
WEST ELEVATION

DRAWING NO.

QB202



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

TYPICAL DEFECTS

1. DETERIORATED MORTAR THROUGHOUT WEST PENTHOUSE WALL.
2. MASTIC ALONG APPROXIMATELY BOTTOM 6" OF BRICK WALL ABOVE FLASHING OF CENTER LOW ROOF AND AT BASE OF EAST PENTHOUSE.
3. PERIMETER SEALANT FAILED AT WINDOWS ABOVE CENTER LOW ROOF.

ELEVATION NOTES

1. THE ELEVATIONS ARE PROVIDED TO SHOW APPROXIMATE QUANTITIES AND CONFIGURATIONS. THE ACTUAL SIZES AND CONFIGURATION WILL VARY FROM THOSE SHOWN. THE CONTRACTOR SHALL BASE THE BID AND CONTRACT AMOUNTS ON ACTUAL FIELD CONDITIONS.
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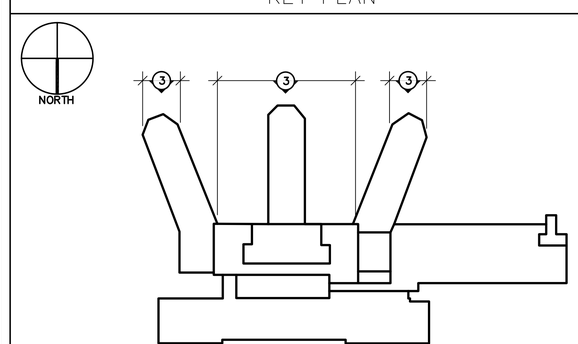
KEY PLAN



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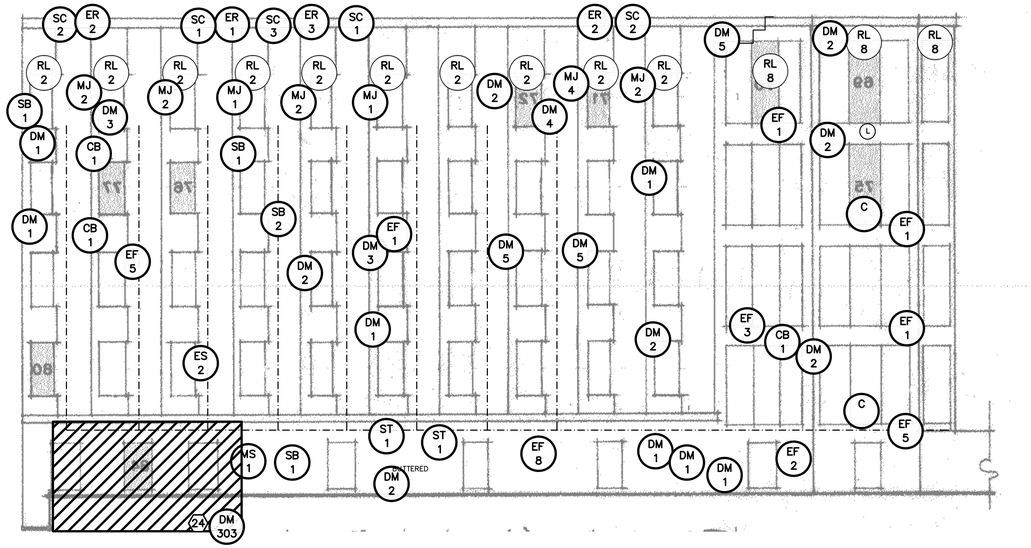
DESIGNED BY	
DRAWN BY	
CHECKED BY	SRM
DATE	NOV 18, 2015
DRAWING SCALE	1/8" = 1'-0"

GRAPHIC SCALE

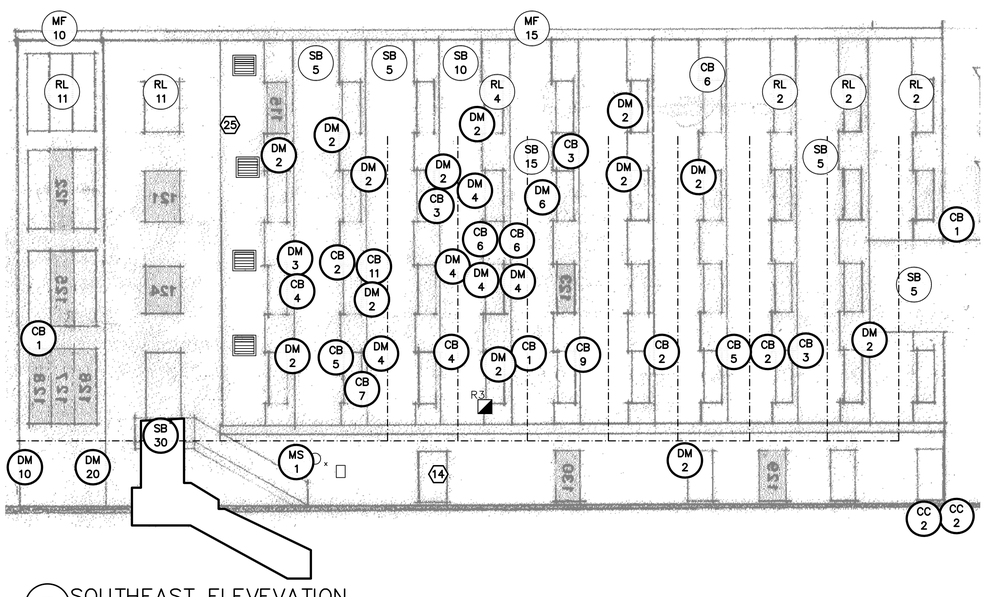
SHEET TITLE

QUIGLEY BUILDING
SOUTH ELEVATION

DRAWING NO.
QB203



4 SOUTHWEST ELEVATION
SCALE: 1/8"=1'-0"



5 SOUTHEAST ELEVEVATION
SCALE: 1/8"=1'-0"

TYPICAL DEFECTS

1. ELEVATION 4– SECOND BAY OF 3PIECE WINDOWS FROM SOUTH END ACTUALLY SINGLE WINDOWS
2.ELEVATION 5– WINDOWS ARE ALUMINUM INSERTS WITHIN ORIGINAL WOOD FRAMES. WOOD FRAMES AND BRICKMOLD IS EXPOSED AND PAINTED WHITE.

ELEVATION NOTES

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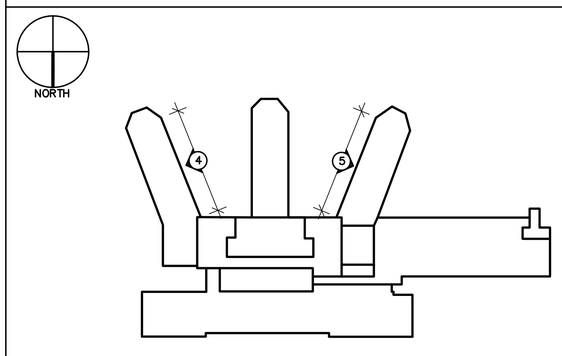
KEY PLAN



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CADD FILE	QB ALL
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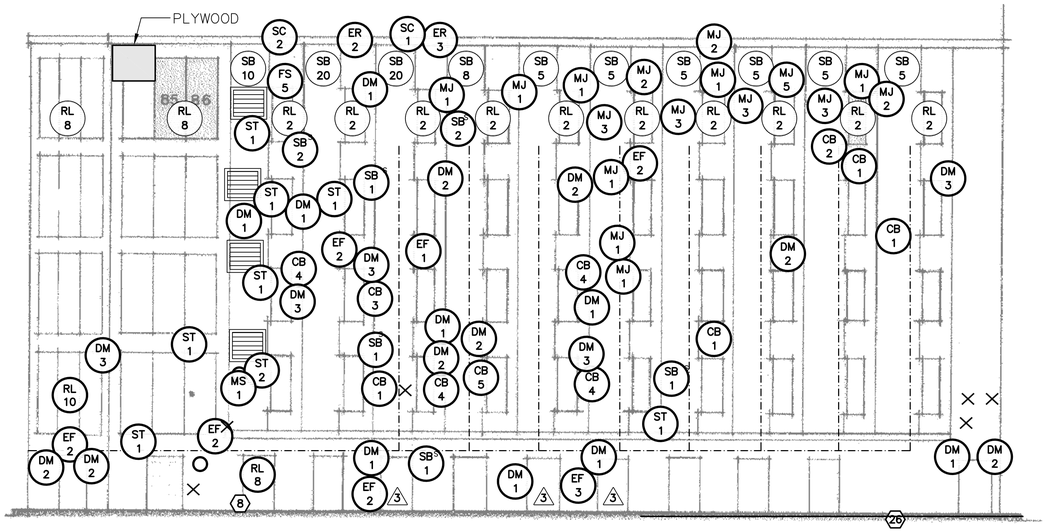
DRAWN BY	
CHECKED BY	SRM
DATE	NOV 18, 2015
DRAWING SCALE	1/8" = 1'–0"

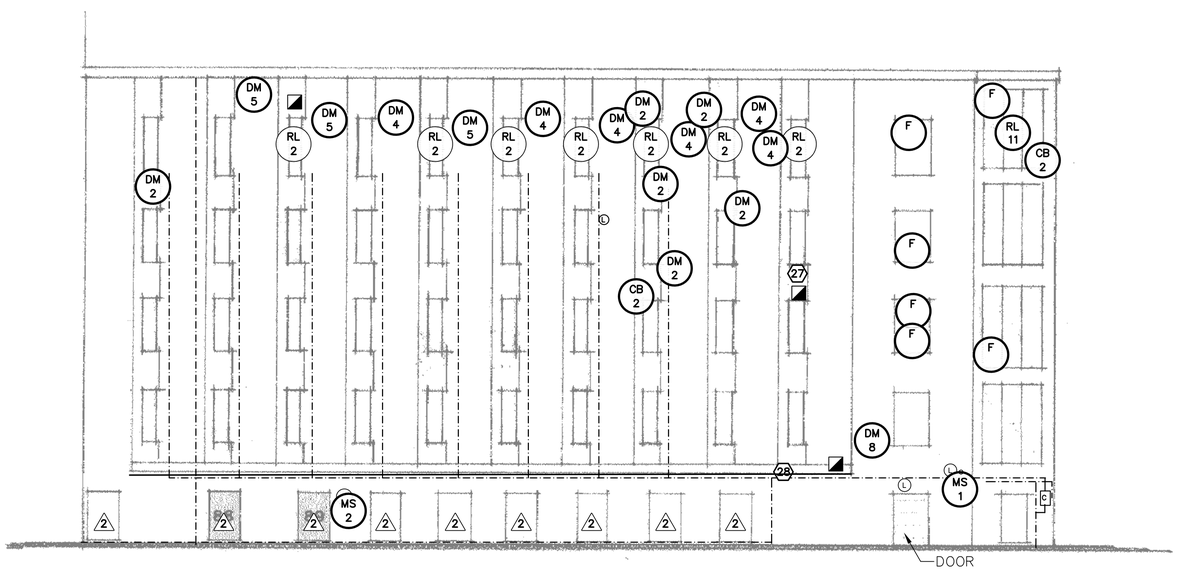
GRAPHIC SCALE

SHEET TITLE
QUIGLEY BUILDING SOUTHWEST AND SOUTHEAST ELEVATIONS

DRAWING NO.
QB204



6 EAST ELEVEVATION
SCALE: 1/8"=1'-0"



7 WEST ELEVEVATION
SCALE: 1/8"=1'-0"

ELEVATION NOTES

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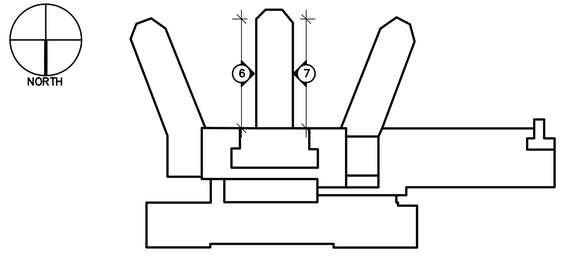
TYPICAL DEFECTS

1. ELEVATION 7- WINDOWS ARE ALUMINUM SET INSIDE OLD WOOD WINDOW FRAMES. FRAMES AND BRICKMOLDS ARE INTACT AND APPEAR TO BE IN GENERALLY FAIR CONDITION. SOME SILLS DETERIORATED.
2. ELEVATION 7- EXPOSED REBAR TYPICAL ACROSS VISIBLE UNDERSIDE OF CONCRETE ROOF SLAB

KEY PLAN



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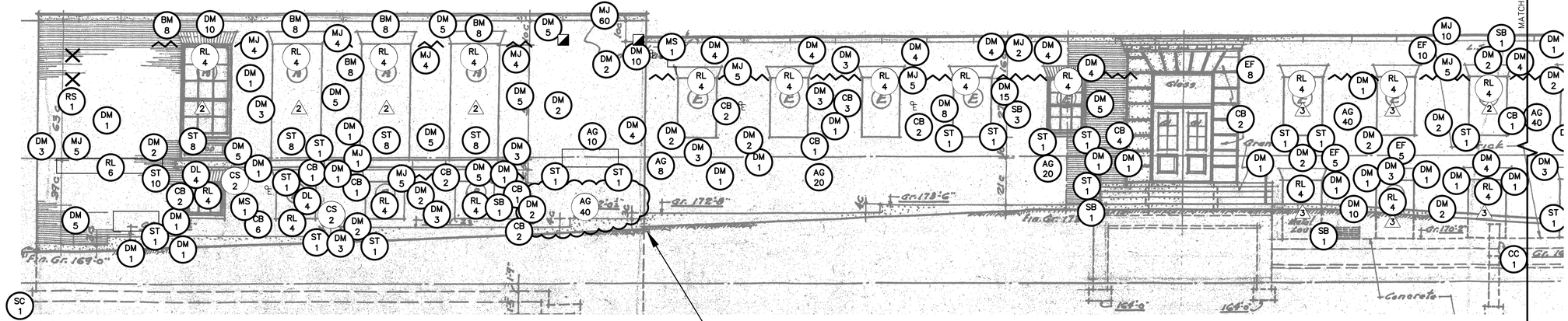
DRAWING SCALE	1/8" = 1'-0"

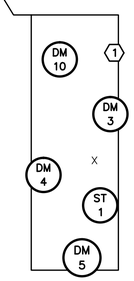
GRAPHIC SCALE

SHEET TITLE
QUIGLEY BUILDING EAST AND WEST ELEVATIONS

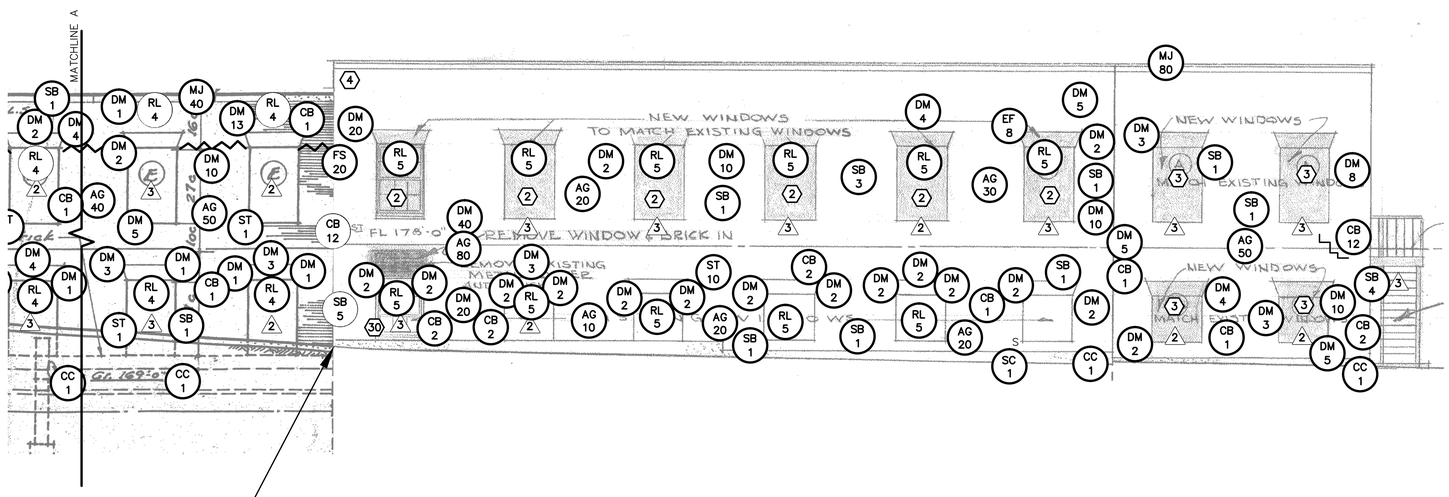
DRAWING NO.
QB205

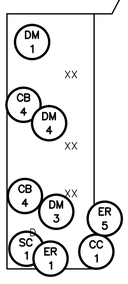


8 NORTH ELEVATION
SCALE: 3/16"=1'-0"



A WEST FACING RETURN WALL ELEVATION
SCALE: 3/16"=1'-0"





B EAST FACING RETURN WALL ELEVATION
SCALE: 3/16"=1'-0"

TYPICAL DEFECTS

1. SIDES OF ENTRANCE STAIRS HAVE DISPLACED AND LOOSE BRICK AT BASE OF STONE LANDING AND STAIRS; DM 50% CONTROL JOINTS IN LANDING AND STAIRS FAILED; RUST T CANOPY POST BASE AND BOTTOM STEP CONNECTION POINT.
2. FAILED SEALANT TYPICAL AT NORTH FACE

ELEVATION NOTES

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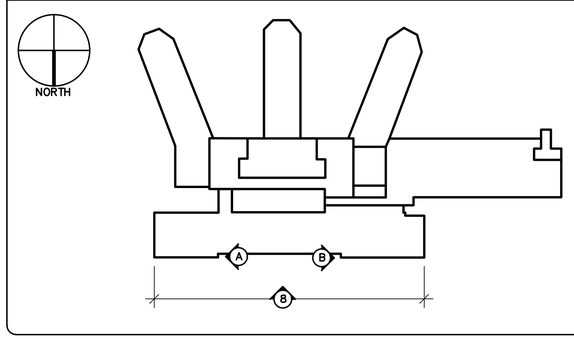
KEY PLAN



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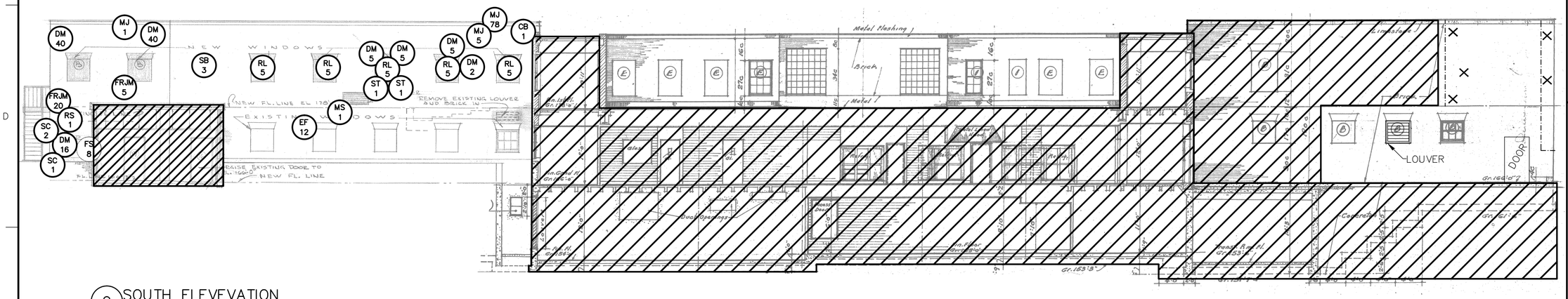
GRAPHIC SCALE

SHEET TITLE
QUIGLEY BUILDING
NORTH ELEVATION

DRAWING NO.
QB206



9 SOUTH ELEVEVATION
SCALE: 1/8"=1'-0"

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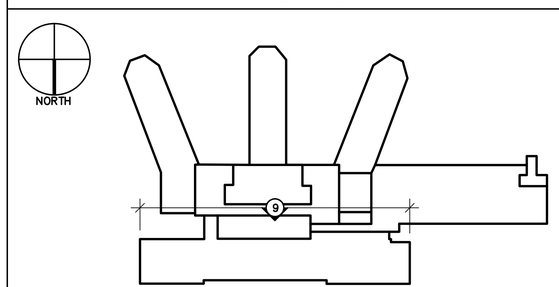
KEY PLAN



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PROJECT
EXTERIOR BUILDING ENVELOPE EVALUATION
CHELSEA SOLDIERS HOME
CHELSEA, MA

OWNER
THE COMMONWEALTH OF MASSACHUSETTS
DIVISION OF CAPITAL ASSET MANAGEMENT & MAINTENANCE
ONE ASHBURTON PLACE, 15TH FLOOR. BOSTON, MA

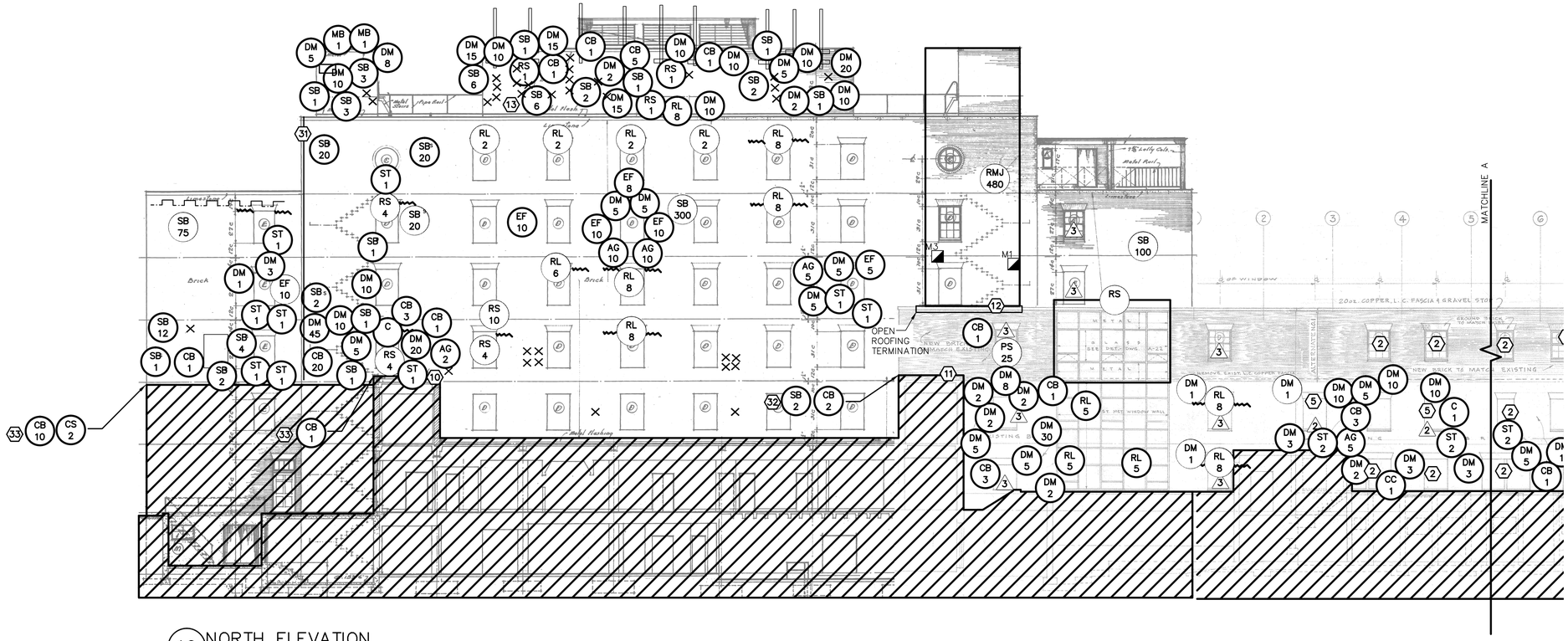
NO.	DATE	DESCRIPTION	BY

PROJECT NO.	830340
CADD FILE	QB ALL
DESIGNED BY	
DRAWN BY	
CHECKED BY	SRM
DATE	NOV 18, 2015
DRAWING SCALE	1/8" = 1'-0"

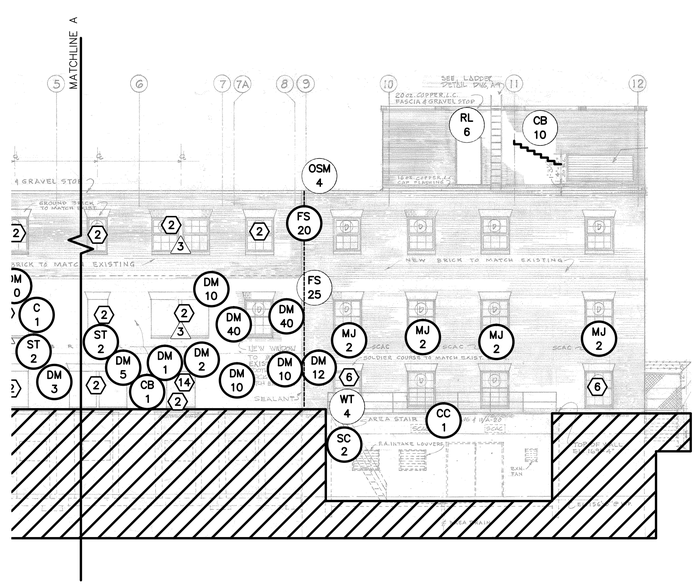
GRAPHIC SCALE

SHEET TITLE
QUIGLEY BUILDING
SOUTH ELEVATION

DRAWING NO.
QB207



10 NORTH ELEVATION
SCALE: 3/32"=1'-0"



ELEVATION NOTES

1. THE ELEVATIONS ARE PROVIDED TO SHOW APPROXIMATE QUANTITIES AND CONFIGURATIONS. THE ACTUAL SIZES AND CONFIGURATION WILL VARY FROM THOSE SHOWN. THE CONTRACTOR SHALL BASE THE BID AND CONTRACT AMOUNTS ON ACTUAL FIELD CONDITIONS.
2. THE ELEVATION DRAWINGS SHOWN ON THIS SHEET ARE ORIGINAL SCANNED DOCUMENTS USED TO EXPEDITE THE DESIGN PROCESS. THE DRAWING MAY NOT BE FULL SCALE AS SHOWN. CONTRACTOR TO VERIFY DIMENSIONS IN FIELD.
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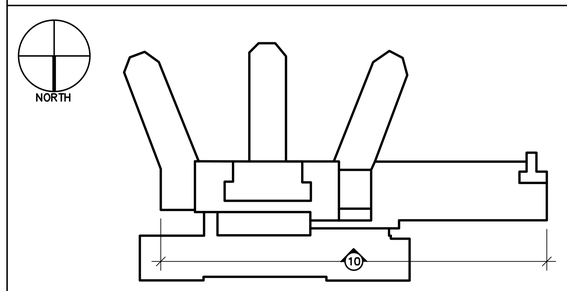
KEY PLAN



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CHECKED BY	SRM
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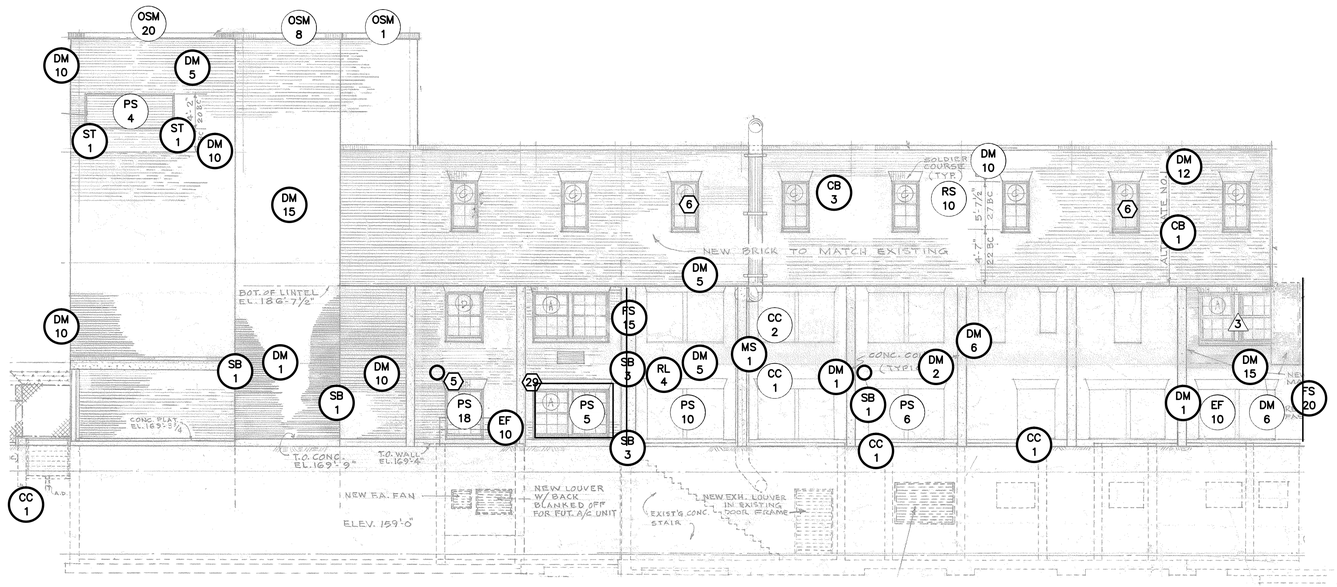
DRAWING SCALE	3/32" = 1'-0"

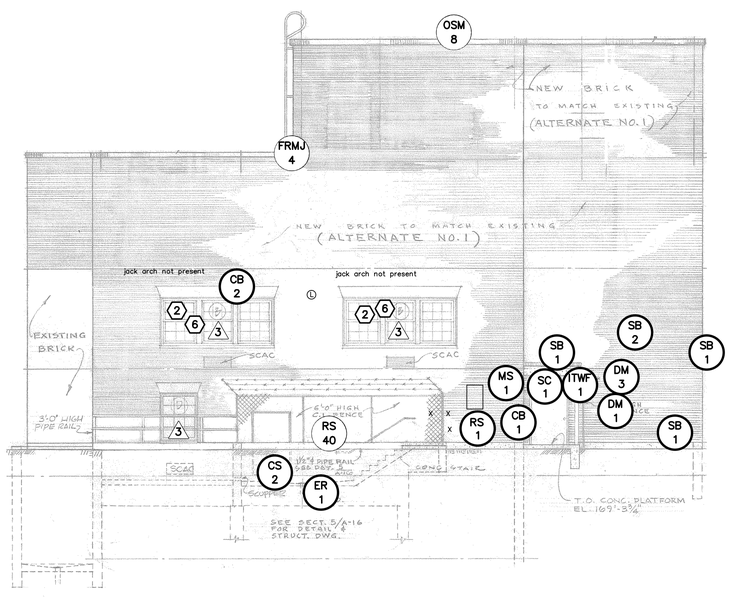
GRAPHIC SCALE

SHEET TITLE
QUIGLEY BUILDING
NORTH ELEVATION

DRAWING NO.
QB208



11 SOUTH ELEVEVATION
SCALE: 1/8"=1'-0"



12 WEST ELEVEVATION
SCALE: 1/8"=1'-0"

ELEVATION NOTES

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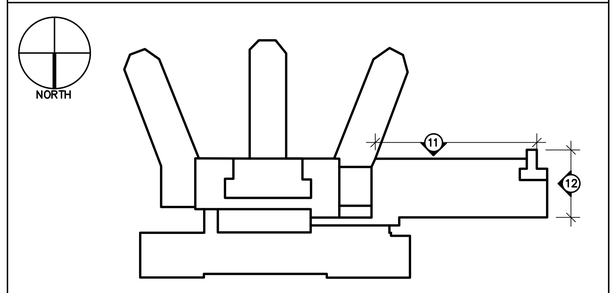
TYPICAL DEFECTS

1. STAINING BELOW WINDOW SILLS
2. CRACKED WOOD AT WOOD PANEL WINDOWS
3. FAILED PAINT

KEY PLAN



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GRAPHIC SCALE

SHEET TITLE
QUIGLEY BUILDING SOUTH AND WEST ELEVATIONS

DRAWING NO.
QB209