





EXISTING CONDITIONS ASSESSMENT

BELMONT, MA CIVIC COMPLEX

TOWN HALL | SCHOOL ADMINISTRATION BUILDING | HOMER BUILDING

OCTOBER 13, 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS

THIS PAGE LEFT INTENTIONALLY BLANK

TABLE OF CONTENTS

THIS PAGE LEFT INTENTIONALLY BLANK

ACKNOWLEDGMENTS

Prepared For:

Town of Belmont, MA
455 Concord Avenue
Belmont, MA 02478
(617) 993-2600
www.Belmont-MA.gov

Prepared By:

Spencer Preservation Group, Inc.
41 Valley Road Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

Project Team:

Lynne Spencer....................... *Principal of Preservation*
Doug Manley AIA.................. *Principal of Architecture*
Shawn Willett AIA, CSI.......... *Principal*
Meghan Rodenhiser.............. *Architectural Designer, Report Coordinator*

Structural Engineers:

Structures North Consulting Engineers
60 Washington Street | Suite 401
Salem, MA 01970
(978) 745-6817
www.Structures-North.com

Special Thanks To

Belmont Historic District Commission
David Blazon, Director of Facilities
Gabriel Distler, Staff Planner
Carl Solander, Co-Chair Historic District Commission
Cenaxo, LLC

THIS PAGE LEFT INTENTIONALLY BLANK

EXECUTIVE SUMMARY & METHODOLOGY

It has been a privilege to assess and provide recommendations for the stabilization and preservation of the historic Belmont Civic Complex.

The Spencer Preservation Group was engaged by the Town of Belmont in June of 2023 to conduct conditions assessments of the exterior envelopes at three buildings, including the Belmont Town Hall, School Administration Building, and Homer Building, and to provide recommendations and estimates for their stabilization. The study was commissioned by the Belmont Historic District Commission on behalf of the Town. Cost estimates developed in this report will be used to seek funding to stabilize the buildings to arrest further deterioration.

On August 24 and September 1, 2023 our team visited the Town Hall and adjacent buildings to perform our investigations. With assistance from the Belmont Department of Public Works to gain entry, the team inspected all three buildings and documented conditions with photos. No destructive investigation was performed, but the use of an aerial lift allowed easy viewing of various structural components and the condition of finishes.

Over the next several weeks we reviewed our field notes and evaluated stabilization requirements with the goal of describing work that would be necessary to halt areas of ongoing serious deterioration, allowing time to plan for full restoration in the future. To determine what work was most crucial, both structural and building envelope assessments were critical for each building. The narrative in this report assesses structural conditions and building elements, and provides suggested treatments and priorities. Stabilization repairs were quantified and estimated.

With a scope of work and estimate in hand, the Belmont Historic District Commission will approach the Community Preservation Committee with a request to fund the urgent stabilization work.

The urgent repair work recommended at the School Administration Building (Phase IA), which consists of limited repair work to the copper roof and south chimney, is estimated at ***$159,695.*** The critical reconstruction of the collapsing southeast retaining wall at the Town Hall (Phase I) is estimated at ***$1.3 million.*** Subsequent phased work at all three buildings are as follows:

Town Hall - Phase II (by 2033): ***$575,517***

School Administration Building Phase IB (by 2028): ***$218,502***

School Administration Building Phase II (by 2033): ***$489,647***

Homer Building Phase I (by 2025): ***$313,545***

Homer Building Phase II (by 2028): ***$111,669***

Moving Forward

With an understanding of the current physical state of each of the building envelopes, the stewards of the complex now have a framework to guide their stabilization, preservation, and restoration. This report can also serve as a platform for pursuing funding support.

The Community Preservation Act offers a real prospect for support of the stabilization and preservation of the buildings.

The Report

Part One of the report, Existing Conditions and Treatment Recommendations, includes a brief history of each building, physical descriptions, examinations of conditions at each building, both exterior and interior, from roof slates to framing to the foundation, and recommendations for repair. A structural and masonry assessment by Structures North Consulting Engineers makes important observations and recommendations. Note: Mechanical, electrical, plumbing, sanitary and water systems assessment were not within the scope of this study.

Part Three, Cost Estimate, distills the existing conditions information with a summary of probable costs for stabilization, future restoration, and rehabilitation of the building. The Appendix includes the following documents:

- 1979 nomination form to the National Register of Historic Places for the Pleasant Street Historic District wherein the Town Hall and School Administration buildings are included as contributing structures.
- The Inventory Form B for the Belmont Town Hall on file with the Massachusetts Historical Commission.
- The Inventory Form B for the School Administration Building on file with the Massachusetts Historical Commission.
- The Inventory Form B for the Homer Building: Town Hall Annex on file with the Massachusetts Historical Commission.

This report includes existing conditions drawings with recommended scope notes that were produced by Spencer Preservation Group.

METHODOLOGY

The Conditions Assessment Report represents a collaborative effort between Spencer Preservation Group (SPG), its consultant, Structures North Consulting Engineers (structural engineers), and the Town of Belmont. The Town was represented by David Blazon, Director of Facilities.

The project team was assembled and directed by Lynne Spencer, partner and preservation principal at Spencer Preservation Group. On-site building documentation and assessment was directed by preservation architect and principal, Doug Manley, and carried out by architect and principal, Shawn Willet, and architectural designer, Meghan Rodenhiser. Meghan prepared the conditions assessments, recommendations, scope drawings, and coordinated the assembly of this report.

SPG assessed conditions at the building envelope and interior and documented them with narrative and photographs. The consultants conducted surveys and prepared reports on their respective areas of study and provided treatment recommendations.

All photographs were taken by Spencer Preservation Group unless otherwise indicated. The final report was issued both as a printed document and in electronic format as a portable document format (pdf).

THIS PAGE LEFT INTENTIONALLY BLANK

THIS PAGE LEFT INTENTIONALLY BLANK

BELMONT TOWN HALL

Roof

Observations

Designed by the architect Henry W. Hartwell in 1881, the Belmont Town Hall stands as a symbol of Belmont's commitment to civic life and reflects its late 19th century prosperity. With its steep, polychrome slate roof, dramatic conical turret, twin ventilation cupolas, crenelated copper cresting, and intricate terracotta bas-reliefs, the Town Hall is an excellent example of the Queen Anne/Romanesque Revival style in public architecture **[Image A-01]**.

Image A-01: View of the south elevation of the Belmont Town Hall, constructed in 1881.

The polychromatic slate roof is one of the Town Hall's most impressive original features, combining gable and hipped roof shapes with conical turrets. Across the roof, the slates are arranged in wide, color-blocked bands of gray and red, mixing both rectangular and clipped corner slates at the gable and hipped roofs and scalloped slates at the conical roofs, where they decrease in size as they climb. Overall, the slate appears to be in relatively good condition, though there are several locations where the slates have cracked, slipped, or are altogether missing. At the time of this report, a roofing project was underway to selectively replace slates and repair damaged sections of the roof **[Image A-02]**.

Image A-02: Aerial view of the polychromatic slate roof featuring copper crenelated cresting, turrets, and cupolas.

The valley flashings and hip caps at the Town Hall, as well as the ridge cap at the addition, have been replaced within the last 20 years as the copper has patinated to a dark brown color **[Image A-03]**. The only visible damage to these elements can be seen at the southwest corner of the southern ventilation cupola, where a hip cap is missing, exposing the sheathing below and along the ridge cap where there are several broken solder seams **[Image A-04 & A-05]**. To prevent water damage and moisture infiltration, the hip cap should be replaced as soon as possible and the ridge cap should be cleaned and re-soldered.

Image A-03: Aerial view of the roof showing recently replaced hip caps and valley flashing.

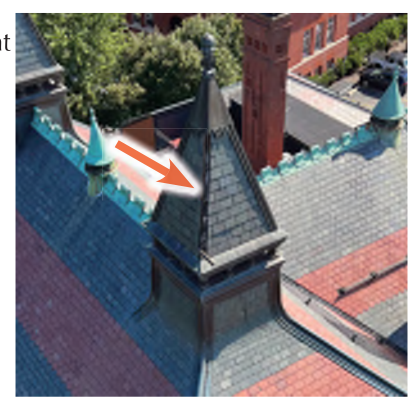


Image A-04: Missing hip cap at southern ventilation cupola. roof sheathing is exposed.

Image A-05: Broken solder seam at ridge cap over the northeast addition of the Town Hall.

Image A-06: Original crenelated copper cresting is in poor condition due to age and weathering.

Image A-07: Ferrous nails were driven through the cresting to attach it to the roof. Mastic used to seal broken seams.

Image A-08: View of copper ventilation cupola intergrated with the crenelated cresting at the north-south ridge.

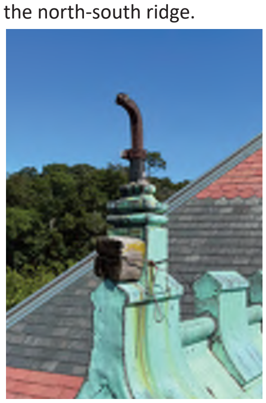


Image A-09: View of the original copper floral finial at the west gable end (Left) and the missing finial (Right)

While the hip caps and valley flashings were replaced, the original crenelated copper cresting remains. The cresting is in poor condition due to age and weathering **[Image A-06]**. Many of the solder seams binding the crenelations together have split, allowing water to seep below the copper. Several attempts have been made to seal these seams using mastic, though the mastic has also begun to crack. In addition to the damage at the solder seams, the copper cresting has corroded and deteriorated where ferrous nails were driven through the metal to attach it to the roof **[Image A-07]**. The nails puncturing the copper and the slate below create a path for water to travel behind the copper and onto the sheathing. Ferrous fasteners in copper create galvanic corrosion, accelerating the deteroration of the copper. Given the age and the poor condition of the copper crenelations, it is recommended that they be removed and recreated.

Integrated into the crenellations along the north-south and east-west ridges are two ventilation cupolas made entirely of copper. These cupolas are small compared to the ones clad in slate on the north-south ridge and show similar signs of age and deterioration as the crenelations **[Image A-08]**. The solder seams where the crenelations meet the cupolas have been coated in black mastic and ferrous metal netting has been wrapped around the open portion of the cupola to keep birds from nesting. Cracks and openings in the metal walls of the cupola are present and could lead to water infiltration. It is recommended that the copper ventilation cupolas be recreated at the same time as the copper crenellations.

There is a unique, original detail that remains on top of the crenellations at the west gable, a floral copper finial. Part of the floral/natural theme seen elsewhere in the decorative elements of the building, this floral finial was originally found on both the south and west gable ridges. Though still present at the west gable ridge, it is missing from the south and the iron neck attaching the finial to the base is corroded **[Image A-09]**. The existing finial should be salvaged and reinstalled once the iron neck and copper base have been replaced. A replica of the floral finial should be installed at the south gable ridge with the copper isolated from the iron.

There are other locations across the Town Hall where original copper details remain, the most prominent of which being the gable ornamentation at the south and west elevations. At both gables, the copper moldings show significant signs of deterioration, including open miter joints, broken and messy solder seams, and warped/damaged sections of copper **[Image A-10]**. In several locations, mastic was used to prevent water infiltration, and ferrous nails were used to reattach or secure the copper to the masonry, damaging the decorative brick **[Image A-11]**. Much like the crenellations, these copper details are at the end of their life expectancy and require replacement.

The condition of the copper finial over the projecting bay at the south elevation is similar to the condition of the gable ornamentation. Like the moldings, the finial is aged and deteriorated and relies heavily on mastic and secondary flashing to prevent water infiltration **[Images A-12 & A-13]**. Though originally attached to the roof using screws, the finial is no longer securely anchored, as the remaining screws can be removed by hand. Given its condition, combined with its integration with the gutter, the finial is at high risk for further wind and water damage. At a minimum, the copper finial needs to be removed and recreated, using copper cleats to fasten it to the roof. Further study is required to determine how to best detail the intersection of the finial with the gutter.

The final decorative copper detail of note is the weathervane located at the top of the turret. While the turret cap has been recently replaced, (likely at the same time as the valleys and hip caps) the weathervane is original, though incredibly damaged. Large portions of the weathervane are

Image A-14: Significantly deteriorated original copper weathervane at the top of the turret. Much of the weathervane is missing.

Image A-10: View of deteriorated decorative copper mouldings at the south gable end. Condition is typical across building.

Image A-11: Damaged decorative brick cornice as a result of deteriorating copper and face nailing.

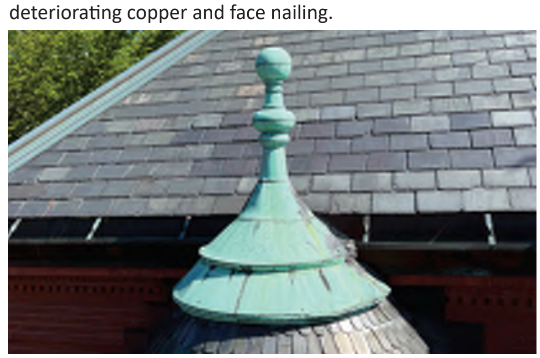


Image A-12: View of severely deteriorated original copper finial at south projecting bay window.

Image A-13: Heavy mastic and other patching to prevent water infiltration at questionable gutter intersection.

Image A-15: Heavy mastic wash over deteriorated copper skirt at the base of the turret roof.

Image A-16: Deteriorated copper cricket and flashing between the turret and chimney. Heavily coated with mastic.

Image A-17: Severely deteriorated copper skirt, cornice, and flashing turret roof and chimney.

missing and what remains is heavily corroded and at risk of falling **[Image A-14]**. For safety reasons, the existing weathervane should be removed and replaced with a replica of the original weathervane.

The copper skirt at the base of the turret roof is in extremely poor condition. Black mastic was washed over the entire surface of the copper in an attempt to seal any pinhole openings and prevent water from seeping into the tower **[Image A-15]**. A similar treatment was given to the copper cricket between the turret and the chimney to the north. Further inspection of the cricket and associated flashing uncovered multiple broken solder seams, corroded counter-flashing, open joints at flashing reglets, and ferrous nailed embedded in the mortar joints securing the flashing. Sealant has been used at the vertical flashing to prevent water infiltration, however, the entire area is compromised **[Image A-16 & A-17]**. To prevent future damage, the deteriorated copper skirt should be replaced in kind. The cricket between the turret and chimney should be rebuilt and new copper flashing installed with urethane sealant at flashing reglets.

It is important to note that there is currently no lighting protection at the Town Hall. Installing lighting rods at the high points of the roof would help to protect the building from a direct lightning strike and prevent any subsequent fire.

Recommendations

- Replace existing crenellated copper ridge caps with new to match existing. Use copper cleats to fasten ridge cap to the roof.
- Replace existing copper ventilation cupolas with new to match existing.
- Replace all ridge flashing with new 20 oz copper and replace damaged slates at ridge line.
- Salvage existing floral finial at the west elevation. Replace the iron neck and copper base and reinstall the finial. Recreate the finial at the south gable ridge.
- Replace existing decorative copper with new to match existing in size and profile.
- Recreate copper finial at southern bay window projection. Use copper cleats to fasten the finial to the roof. Further study is required to determine how to best detail the intersection of

the finial with the gutter.

- Replace deteriorated copper skirt at the turret with new 20 oz copper.
- Rebuild the existing cricket between the turret and chimney. Install new flashing with urethane sealant at flashing reglets.
- Repair/ replace damaged sheathing at the southern ventilation cupola. Install new hip cap to match existing.
- Clean and re-solder broken solder seams at copper ridge cap over addition.

Rainwater Control

Observations

Copper gutters and downspouts are the primary means of rainwater control across the Town Hall. Based on the color of the patinated copper, it is probable that the gutters and downspouts were replaced at the same time as the hip caps and valley flashings. The copper gutters are high-back, k-style (cyma recta) gutters with twisted hangers intermittently spaced across the length of the gutter. Overall, the gutters appear to be in good shape, with a few solder seams beginning to crack **[Image A-18]**. The primary issue with the gutters is the pitch. In several locations across the Town Hall, water and debris are collecting in the gutters away from the downspouts, suggesting an issue with the pitch **[Image A-19]**. Continued collection of water/ debris could lead to further deflection of the gutters.

Unlike most downspouts which sit proud of a wall, the copper downspouts on the Town Hall are inset into the brick walls with copper straps holding them in place **[Image A-20]**. Typically the soldered seams are located at the back of the downspouts, obscuring them from view. While this is more aesthetically pleasing, it makes it difficult to note if there are any broken seams or moisture issues. Inspection of the masonry joints behind the downspouts is recommended to check for any signs of mortar deterioration or damage to the downspouts.

Though most of the downspouts are inset, there are several instances where the gutters are proud of the wall, including to the east of the projecting bay, to the east of the south gable, and around the addition.

Image A-18: Typical k-style copper gutter at south west corner of the Town Hall. Note the open miter joint.

Image A-19: Water and debris collecting in the gutters away from the downspouts, suggesting an issue with the pitch.

Image A-20: View of inset copper gutters at the south elevation. Copper gutters typically drain into cast iron boots.

Image A-21: Slipping jack arch and step cracking at ground floor windows at south elevation

Image A-22: Slipping jack arch and step cracking at ground floor windows at south elevation Note widened joint at arch.

Image A-23: Slipping jack arch and step cracking at the second floor window at north elevation .

These downspouts appear to be in good condition. The downspouts drain into cast iron boots at the foundation of the building, though it is not currently known where they take the water.

Recommendations

- To correct the pitch install an insert in copper gutter to direct water towards the downspout.
- Inspect the brick joints behind the inset copper downspouts. Remove and salvage downspouts as needed to repoint any deteriorated mortar joints. Re-install downspouts.
- Inspect the underground drainage system to determine the condition of the cast-iron boots and pipes and determine the drainage location.
- Remove debris from gutters. Clean and re-solder copper gutters and downspouts as needed.

Masonry Walls: 1881 Portion

Observations

The masonry walls of the Belmont Town Hall are comprised of brick, brownstone, and terra-cotta. Overall, the brick masonry across all four elevations is in good condition, with minimal amounts of pitting or scarring, typical of 140-year-old brick. The condition of the brick is likely due in part to the thickness of the masonry joint, about a ¼ inch thick, limiting its exposure to the elements. Though the majority of the brick masonry is in good condition, there are several areas of concern.

On the south elevation, between the portico and the turret, the two jack arches above the ground floor windows have slipped, resulting in significant step cracks running from the jack arches to the sills of the windows above **[Image A-21]**. It appears that the gaping mortar joints of the arches were repointed after they began to slip; however, that repointing has only further displaced the bricks, causing partial loss of support to the masonry above **[Image A-22]**. This is not only a critical structural issue, but a potential point of entry for water. If left unchecked, water can seep into these cracks causing them to expand as a result of the freeze-thaw cycle, further compromising the brick masonry. To stabilize the wall, the jack arches need to be shored and rebuilt in place. The area above the jack arches needs to be deep cut and repointed, using slate shims and mortar to infill any widened gaps.

In addition to those on the south elevation beside the turret, there are three more slipping jack arches, one on the second floor at the east elevation, one on the second floor at the north elevation, and one at the projecting bay window at the south elevation **[Image A-23]**. All three arches will have to be shored and rebuilt as described above. Step cracking is also present above the round-arched entry to the portico at the south elevation. The stress of the shifting bricks caused the front of the keystone to shear off, leaving the brick and mortar joints exposed **[Image 24]**. Similar to the jack arches, the round arch will need to be shored before deep cutting and repointing can occur to repair the step cracks.

Also at the south elevation are two instances of spalling: one at the west side of the intrados of the main entry arch, and the second at the east column of the portico. Spalling typically occurs when the brick is exposed to moisture, either through a crack in the brick or through damaged mortar, causing the surface of the brick to peel and flake as a result of the freeze-thaw cycle. Given that the rest of the intrados is in good condition, it is likely that the spalling was the result of water infiltrating isolated damaged brick units **[Image A-25]**. In this case, the recommendation would be to cut and repoint the deteriorated mortar joints, leaving the damaged brick in place, and watch for any further spalling.

The spalling and deterioration of the brick at the south portico is likely the result of a combination of several factors including overuse of de-icing salts, prolonged exposure to the elements, and the deterioration of gutters that have since been replaced **[Image A-26]**. The continuous exposure to water eroded both the brick and the mortar joints, resulting in the present damage. Similar to the

Image A-24: Slipping round arch and step cracking at the south portico. Note the broken keystone at the center of the arch.

Image A-25: Isolated spalling at the west side of the intrados of the main entry arch.

Image A-26: Deteriorated and spalling brick masonry at the interior of support column at south portico.

Image A-27: Area of efflorescence at interior brick masonry above east facing arch of south portico.

Image A-28: Deterioration and efflorescence at base of east entry vestiblue causing by rising damp and de-icing salts.

Image A-29: Mortar deterioration and efflorescence at decorative brick cornice caused by prior leaking gutters.

Image A-30: View of west elevation showing varying types brick banding that circumvent the Town Hall.

Image A-31: View of brownstone and brick banding at the turret. Note the erosion at the brownstone band.

main arch, it is recommended that the deteriorated masonry be cleaned, cut, and repointed to arrest any further damage.

At the entry vestibule on the east elevation, there is a considerable amount of efflorescence and brick deterioration at the base of the wall, likely as a result of rising damp and overuse of de-icing salts **[Image A-28]**. This has not only caused the efflorescence but has also resulted in significant mortar loss and spalling on either side of the door. Given the condition of the masonry, it is recommended that the brick be replaced with salvaged or new to match existing and the remaining masonry be cut and repointed.

Typical of the Victorian era, there is a considerable amount of decorative brickwork and masonry found across the 1881 portion of the Belmont Town Hall. The decorative brick cornice consists of molded, egg-and-dart, and dentil clay bricks set atop a cavetto bedmould. There are only a few locations where the cornice shows signs of minor mortar deterioration and efflorescence, such as at the projecting bay to the south and over the lower arched windows on the west elevation **[Image A-29]**. This damage was likely caused by leaking gutters, which have since been replaced. There are also several instances where the cornice bricks have cracked or spalled, either due to age and weathering, prolonged water damage, or improper use of face nails to fasten copper to the masonry. For severely deteriorated bricks, it is recommended that they be replaced, in kind.

In keeping with the Romanesque Revival style of the building, there are several types of decorative brick banding and reliefs that circumvent the original portion of the Town Hall. These elements make use of protruding, recessed, and offset bricks to form various patterns seen on the south, east, and west elevations **[Image A-30]**. Where the tops of these bands protrude from the wall plane, the vertical-facing mortar joints are at risk of water infiltration and erosion. While there is currently limited mortar loss at these joints, applying a thin mortar wash at the top course would protect the bands from future damage and deterioration. A similar mortar wash should be applied to projecting bricks at the various chimneys.

In addition to the brick banding, brownstone was also used at the Town Hall, both as a decorative band element and as a watertable. Overall the brownstone is in decent condition, with varying levels of staining and biological growth across all four facades. As it is a softer stone, and given the age of the building, it is not surprising that several of the brownstone units have begun to experience the effects of weathering, including scaling and erosion **[Image A-31 & A-32]**. Though there is deterioration present, it has not affected the structural integrity of the stone to the point where it needs replacement. It is recommended that the stained brownstone be gently cleaned using non-abrasive methods and watched for any further deterioration.

Of all the decorative details on this building, the terra-cotta bas-reliefs found at the gables, turret, and south elevation are the most elaborate and intricate. These reliefs range in style from heavily geometric at the turret, to featuring natural elements such as florals and foliage at the south elevation. In the gables, the design of the terracotta blends these two distinct styles, focusing on geometric swirls and sweeps with floral motifs throughout **[Image A-33 & A-34]**. As noted in previous sections, the floral motif is one found across the building.

Recommendations

- Shore and rebuild slipping jack arches and slipping round arch. Deep cut and repoint step cracks and surrounding brick. Use slate shims to infill widened gap.
- Mortar anaylsis should be conducted in order to match new mortar to existing.
- Cut and repoint spalled brickwork at intrados. Leave the damaged brick in place and watch for any further spalling.
- Clean, cut, and repoint deteriorated brick masonry to arrest any further damage. Replace severely deteriorated brick be replaced with salvaged or new to match existing.
- Clean brick masonry to remove efflorescence at the decorative brick cornice. Replace severely deteriorated cornice bricks in kind.
- Add mortar wash to projecting brick at chimneys and, banding, and window hoods to protect sky-facing joints.
- Gently clean brownstone using non-abrasive methods and watch for any further deterioration.

Image A-32: Staining, scaling, and open joints at brownstone watertable typical across the building.

Image A-33: Aerial view of the southeast corner of the building showing different geometric terra-cotta decorations.

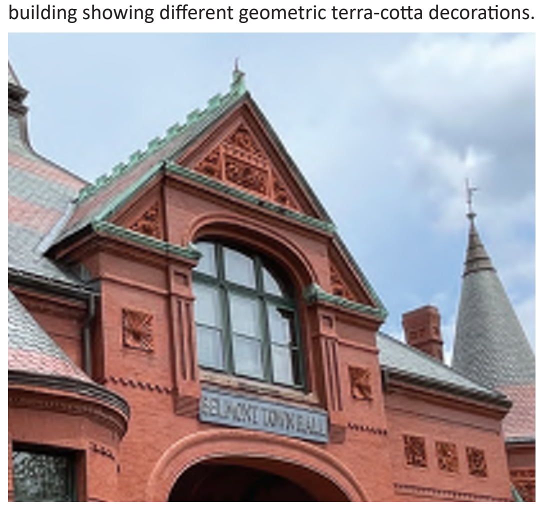


Image A-34: View of the south gable showing different floral/naturesque terra-cotta decorations.

Image A-35: View of the north elevation of the Town Hall addition showing the three different brick colors.

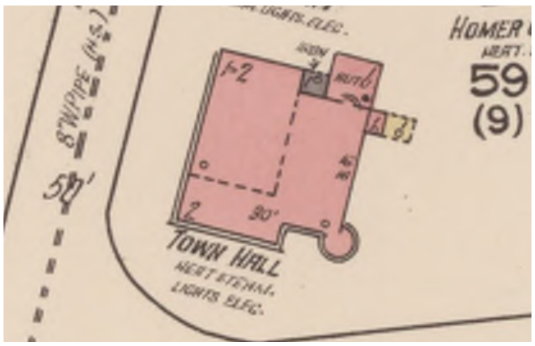


Image A-36: Town Hall on the 1922 Sanborn Map of the area. Note the single story addition labeled “auto”.

Image A-37: Vertical cracks in brick masonry below the first floor cast stone window sills at the north elevation.

Image A-38: Spalling at brick masonry below the cracked first floor cast stone window sills at the north elevation.

Masonry Walls: Northeast Addition

Observations

It is evident from the color of the bricks that the addition, located at the northeast corner of the Town Hall, was built in multiple stages, with the first stage of construction occurring sometime between 1915 and 1922 **[Image A-35]**. The original purpose of this addition was as an “auto garage” for the early Belmont Police Department, which occupied several rooms in the basement until 1931. Its use as a garage, noted on the 1922 Sanborn Map of the area **[Image A-36]**, explains the size and shape of the first floor windows at the east elevation, which resemble large bay doors. The original footprint of this addition was smaller than it is today, with the rear wall located between the far west window and the double door on the north elevation where there is currently an expansion joint. It is not known when the addition was expanded and the top two levels were added, but the difference in brick color suggests each level was constructed separately.

In comparison to the rest of the building, the brick masonry at the addition has not held up as well as the rest of the Town Hall. At the north elevation of the addition, there are multiple locations at the first floor level where vertical cracks have formed and the masonry below the window sills have spalled **[Image A-37 & A-38]**. According to Structures North, structural engineers, this cracking and deterioration is likely the result of the unloaded brick below the window sills expanding, causing both the brickwork and the sills to bend and crack upward. Without intervention, the masonry will continue to crack and expand, allowing water to infiltrate the building, causing both structural and internal damage. It is recommended that the deteriorated brickwork be reconstructed and the cast stone sills replaced.

At both the east and north elevations of the addition, there are areas of bulging masonry at the second-floor windows **[Image A-39]**. Unlike the windows on the original portion of the building, which rely on jack arches to span the opening and transfer the load of the masonry above, these windows use steel lintels. In each location, the lintels have likely rusted over time causing them to expand and move the surrounding brick in the process. A similar situation is occurring at a window that was modified at grade level on the south elevation, resulting not only in movement of the brick above but the brownstone as well **[Image 40]**. If the rusting is not substantial, then the lintels could be exposed, cleaned, and rust-protected. However, if the lintels are substantially deteriorated, they should be removed and replaced with galvanized steel, and the bulging brick masonry repaired.

The brick masonry that comprises the second phase of the addition is not only different in color from the brick above and below it, but it has more efflorescence than the other two levels **[Image A-41]**. This could be because it is a different type of brick, a different type of mortar, insufficient flashing, etc. Further investigation and mortar analysis would help to determine what is causing the efflorescence at this level. In any case, the masonry should be cleaned to remove the efflorescence.

At the rear of the addition, the masonry opening around the door to the fire escape has begun the spall and deteriorate. This deterioration is likely the result of improper flashing at the edge of the half-pitch roof above and water spilling over the edge of the copper gutter, as evidenced by the staining patterns on the copper by the door **[Image A-42]**. It is recommended that the masonry opening be repaired using salvaged or new brick to match existingdamaged brick, cut, and repointed.

Recommendations

- Reconstruct deteriorated brickwork beneath first-floor windows. Remove and replace cast stone sill.
- Replace rusted steel lintels with new galvanized steel lintels and associated flashings. Repair areas of bulging brick masonry.
- Remove and salvage shifting brownstone lintel at south elevation. Expose, clean, and rust protect existing steel lintel. Reinstall brownstone. Cut and repoint damaged brick masonry.
- Repair deteriorated masonry opening using salvaged or new brick to match existing. Cut and repoint existing mortar joints.

Image A-39: Area of buldging brick masonry at second floor window at north elevation due to rust jacking.

Image A-40: Movement at the modified brownstone lintel at the south elevation due to rust jacking

Image A-41: Efflorescence appears to be more prominent at second phase of addition.

Image A-42: Spalling and deterioration of the masonry opening around the door to the fire escape.

Image A-43: View of the east elevation where showing the various types of new aluminum windows on the building.

Image A-44: View of original wood window at south projecting window bay with stained glass transom.

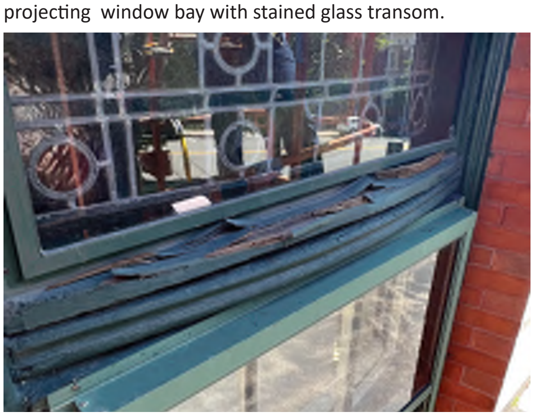


Image A-45: Spalling at brick masonry below the cracked first floor cast stone window sills at the north elevation.

Windows and Trim

Observations

There are several types of window configurations present across the Belmont Town Hall, the most common of which is a 6 over 2, double-hung window with a three-light transom above, found primarily on the south and east elevations. These windows, along with the 6 over 6, 6 over 2, and 3 over 2 double-hung windows, found elsewhere on the building, are new aluminum windows that have been replaced within the last ten years and look to be in good condition **[Image A-43]**. Though many of the windows have been replaced, there are multiple locations on the building where the original windows remain, including the large, arched, stained glass windows on the west elevation, the stained glass windows in the gable ends, and the 3 over 2, double-hung, curved wood windows with stained glass transoms at the south projecting bay and turret **[Image A-44]**. Unlike the other windows on the building, the original wood windows are in poor condition.

At the projecting bay and turret on the south elevation, the wood trim and brickmoulds around the windows are significantly deteriorated, especially the horizontal mullions separating the double-hung windows from the transoms. As a result of water collecting on the horizontal surface, and years of weather and sun exposure, these wood mullions have rotted and require replacement **[Image A-45]**. In addition to the rotten wood and deteriorated brickmoulds, the caulking around the windows has also begun to crack and pull away from the masonry opening. Left alone, the caulking will continue to degrade and allow for water to enter the building, compromising not only the windows but the interior finishes as well. It is recommended that the brickmould be replaced, in kind, and sealed with new caulking to prevent any further water infiltration.

The original windows, both the double-hung and stained glass transoms, are protected by aluminum storm windows that were likely installed at the same time as the new windows. While the storms protect the original windows from weathering and storm damage, they obscure the curved sashes and detract from the overall aesthetic of the building **[Image A-45]**. Additionally, the storm windows over the stained glass could potentially do more harm than good. If the protective glazing is unvented, moisture/condensation can build up and the air between the storm window and the stained glass can become superheated. When this occurs the stained glass expands and contracts, cracking and damaging the different components of the window. To protect the transoms and other areas of stained glass from further damage, it is recommended that the storm windows be replaced with vented storm windows.

Like the turret and bay windows, the stained glass windows in the gable ends have seen better days. The wood mullions, both vertical and horizontal, have deteriorated as a result of prolonged exposure to the elements. The worst of the deterioration is occurring just below the aluminum storm windows protecting the fixed stained glass above. Here the paint has peeled away, allowing for water to come off the storm window and rot the wood below. The bullseye rosettes, located at the mullion intersections, are cracking and broken with sections of the decorative wood elements altogether missing **[Image A-46 & A-47]**. It is recommended that the rotten sections of wood trim be removed and replaced/ recreated in kind. The remaining wood trim should be scraped, repaired with epoxy where needed, prepped, and painted.

For many years, the large stained glass windows at the west elevation have been suffering from severe deterioration. Issues such as buckling, broken panes, cracking solder seams, and deteriorated wood sashes are consistent across all three sets of windows **[Image A-48]**. These unique windows, which are original to the building, require extensive investigation by a stained glass expert before they can be repaired.

The window sills across the original portion of the Town Hall are made of the same type of brownstone used for the decorative banding seen around the building. By nature, brownstone is an incredibly porous, sedimentary stone. While this made it easier for masons to carve, this quality also makes it more susceptible to water infiltration and weathering. With this in mind, it is not surprising that many of the original sills are experiencing varying degrees of deterioration due to weathering **[Image A-49]**. At a minimum, the majority of the brownstone sills are showing signs of surface

Image A-46: View of the deteriorated wood trim and bullseye rosettes at the south gable end's stained glasss windows.

Image A-47: View of the deteriorated wood trim and bullseye rosettes at the south gable end's stained glasss windows.

Image A-48: Buckling and deteriorated lead joints at large stained glass windows at the west elevation.

Image A-49: Deterioration of brownstone sills across the Belmont Town Hall.

Image A-50: Cracking and spalling caused by the pressure of the load traveling down the edges of the masonry openings.

Image A-51: Sky-facing joints at large brownstone sills are susceptible to water infiltration and deterioration.

erosion and staining, not uncommon or unexpected for stone of this age. For this, the recommendation, as noted in previous sections, is to gently clean the brownstone using non-abrasive methods and to watch for any further deterioration.

More severe instances of deterioration are present on the south and east elevations of the building where several of the sill ends have cracked and spalled. The initial cracking was likely caused by the pressure of the load traveling down the edges of the masonry openings and onto the sills embedded in the wall. Once the cracks formed, water was able to enter the brownstone and the freeze-thaw cycle caused the surface of the stone to break off from the rest of the sill **[Image A-50]**. Though not aesthetically pleasing, the brownstone sills in cases such as these, do not appear to be structurally compromised and therefore do not have to be replaced. If desired, the sills can be repaired via dutchman repair using stone to match the existing. Full replacement of the deteriorated sills is also an option, however, it may be cost-prohibitive and difficult to source stone.

One area of concern, particularly at the west elevation and the gable ends, is the large brownstone sills with multiple sky-facing joints **[Image A-51]**. By nature, these joints are more susceptible to mortar deterioration and a number of them are already experiencing mortar loss. Open joints at these sills could not only increase the speed at which these sills deteriorate but open the masonry walls below to potential water infiltration issues. The best course of action at these locations would be to cut and repoint the sky-facing sill joints and apply lead Ts to prevent water infiltration.

Recommendations

- Remove unvented storm windows at stained glass transoms and windows and replace with vented storm windows.
- Replaced deteriorated horizontal wood mullions and brickmoulds at south projecting bay windows in kind. Prep and paint to match existing.
- Repair/ replace deteriorated and broken bullseye rosettes and horizontal wood mullions at stained glass windows using epoxy. Prep and paint to match existing.

- Re-caulk masonry to wood joints at all brickmoulds.
- Gently clean brownstone sills using non-abrasive methods. Monitor existing spalled and damaged brownstone sills for any further deterioration.
- Optional: repair sill via dutchman using stone to match the existing.
- Optional: replace deteriorated brownstone sills with new to match existing.
- Cut and repoint sky-facing sill joints and apply lead Ts to prevent any future water infiltration.

Foundation and Grade

Observations

The most critical issue at the Belmont Town Hall is the collapsing retaining wall separating the driveway from the courtyard at the southeast corner of the building **[Image A-52]**. Made of fieldstone and capped with granite coping stones, the partially collapsed wall is failing in multiple locations. Where the wall has already collapsed, there does not appear to be any backing wall or other form of structural support. It appears that the wall was simply backfilled with soil to create the driveway leading to the entries above **[Image A-53]**. The mortar seen on the face of the retaining wall serves no structural purpose, as the wall was dry-laid, though it is rapidly deteriorating and pulling away from the face of the stones **[Image A-54]**. According to structural engineers, it is likely that the failure was due to water becoming trapped behind the wall, and through the freeze-thaw cycle, pushing the stones out. Due to the severity of the failure, the entire retaining wall will have to be rebuilt. See the structural report for more detailed information.

The necessary reconstruction of the southeast retaining wall will impact the treatment of several architectural elements in the immediate area, one of which is the stairs leading to the south portico. Currently, the cheek wall of the portico stairs is pulling away from the granite steps, causing a wide gap to form between these elements. This gap has been filled numerous times with sealant in an effort to prevent water infiltration, however, the sealant acted like a shim and further encouraged the wall to pull away **[Image A-55]**. The cheek wall is integrated with the retaining wall, therefore when

Image A-52: Collapsing retaining wall between the driveway and the courtyard at the southeast corner of the building.

Image A-53: Dry-laid stone retaining wall backfilled with soil. no other structural support present.

Image A-54: Buldging stone masonry at south retaining wall. Mortar is cracking and falling away from the stone.

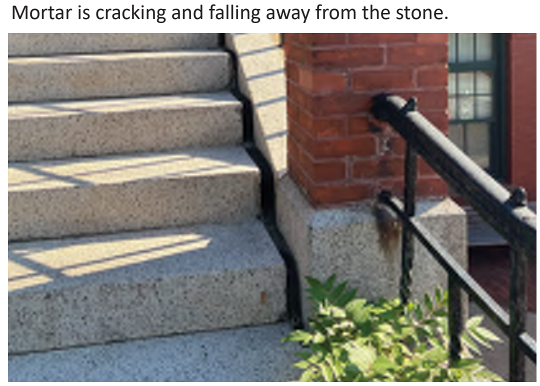


Image A-55: Wide cracking joint between the cheek wall and the granite steps at south portico infilled with sealant.

Image A-56: View of the cheek wall at the south portico integrated with the retaining wall.

Image A-57: brick deterioration caused by twisting metal handrails as a result of the failing retaining wall.

Image A-58: Original metal handrails embedded in the granite coping stones at the south retaining wall.

Image A-59: Crack at the concrete window well wall at the foundation on the south elevation.

the retaining wall is reconstructed the cheek wall will be too **[Image A-56]**. Once it is reconstructed, the granite steps can be reset and repointed.

Original to the retaining wall and south portico are the metal handrails that are embedded into the granite coping stones and brick columns. As the retaining wall began to collapse and shift, the granite coping stones and handrail went with it. This caused the handrails to twist cracking and spalling the brick where it was embedded **[Image A-57]**. Though the handrails along the driveway have been recently restored, those at the stairs and the portico are rusted with peeling and cracking paint. To salvage the handrails from the granite coping stones, they would have to be cut from the granite at the base of the metal **[Image A-58]**. This would result in lost height if the handrails were reinstalled upon the completed reconstruction of the retaining wall. The issue is that the handrails are already too short and do not meet modern code standards, therefore it is not possible to reinstall them at the new wall. It is recommended the new handrails be fabricated, inspired by the original design, to meet the necessary height requirements. Instead of embedding the handrails into the brick piers and columns, the handrails should remain independent to avoid future twisting and cracking caused by wall movement.

Apart from the retaining wall, the foundation and grade along the remainder of the Town Hall is in good condition with the exception of a few isolated locations. At the south elevation, to the left of the portico, the west wall of the concrete window well is cracked against the foundation **[Image A-59]**. This crack is likely the result of settlement, causing the front of the window well to pull away from the foundation. Though it is long, the crack is thin enough to be repaired using epoxy. In addition to the damage to the concrete wall, there is a considerable amount of vine overgrowth that needs to be removed from the window well.

Given the building's age, it is not uncommon for stair cheek walls and step joints to deteriorate over time. While the stairs at the south portico are an extreme example, similar conditions are occurring at the main entry stairs and the stairs at the north elevation. In both cases, the joints between the cheek walls and the steps have cracked and widened due to settlement over time. At the north elevation, vines and vegetation have started to grow in the open joints, causing the cracks to widen even more **[Image A-60 & A-61]**. To prevent future masonry damage, the cheek walls at each stair should be reset and the joints between the walls and the steps be cut and repointed. Any vegetation growth at or around the stairs should be removed.

There are several vertical cracks present at the concrete foundation of the northeast addition at both the north and east elevations. These cracks primarily occur where the brick piers of the former garage doors for the police department land **[Image A-62]**. When the doors were removed and replaced with windows, a concrete sill was poured at the base of the bay doors and a parge coat was applied to make the foundation appear cohesive. According to the structural engineers, these cracks are likely the result of poor joints between the original foundation and the infilled portion and are not indicative of structural issues.

Recommendations

- Reconstruct the retaining wall between the driveway and courtyard at the southeast corner of the building. See the structural report for more information.
- Replace the existing handrails and guardrails with new ones inspired by the original. Handrails are to remain independent of brick masonry to prevent future damage as a result of movement.
- Repair cracked concrete well wall using epoxy.
- Selectively repair surface cracking at northeast addition parge coat
- Reset cheek walls at north and south elevations. Cut and repoint joints between cheek walls and granite steps.
- Repoint open sky-facing joints at brownstone watertable and granite foundation.
- Remove vine or vegetation overgrowth at or around stairs and masonry.

Image A-60: Vine overgrowth at brick masonry and granite stairs along the north elevation.

Image A-61: Wide cracking joint between the cheek wall and the granite steps. Vegetation is growing through the cracks.

Image A-62: Cracks in the parge coat at the concrete foundation where the bay doors where infilled.

THIS PAGE LEFT INTENTIONALLY BLANK

SCHOOL ADMINISTRATION BUILDING

Roof

Observations

The School Administration Building, once the town's first public library, is a beautiful example of Classical Revival architecture featuring a semi-circular portico with Ionic columns, Palladian windows, semi-circular arched windows, and intricate sandstone trim **[Image B-01]**. This building is one of three structures that comprise this civic complex and continues to support its original purpose of educating the people of Belmont.

The pitched roofs of the School Administration Building are primarily comprised of weathering green slate shingles **[Image B-02]**. Given that the slate roof is fairly new it is unusual to see this amount of damaged and worn slates. Across the roof, there are a number of slates that are cracked, broken, or altogether missing. There are also numerous areas where the slates have oxidized as a result of natural iron deposits in the stone **[Image B-03]**. In addition to being aesthetically unpleasant, the oxidation can cause the affected slates to become soft and flakey, resulting in more rapid deterioration. In this case, it is recommended that the Town selectively replace any broken, damaged, missing, or oxidized slates to preserve the roof and prevent any future water infiltration.

At the same time the slate was replaced in 2002, the copper valleys, ridge caps, and barrel tile roof, now oxidized to a dark brown - almost black color, were also replaced along with the skylight over the east-west ridge. Overall, the copper valleys and barrel tile roof look good with no visible signs of open seams or deterioration.

The skylight also appears to be in relatively good condition, with no reports or visible signs of leaks or water infiltration at the interior of the building. A visual inspection of the skylight via aerial lift revealed heavily soldered joints where the ridge caps meet the skylight and several open joints at the frame, where water could enter the skylight **[Image B-04]**. To ensure the skylight remains dry, the open joints should be re-soldered/repaired and the intersections be monitored for any cracks or pinholes that could lead to water infiltration. Unlike the copper valleys, there are several broken solder seams across the ridge caps that require re-soldering. Otherwise, the copper appears to

Image B-01: Belmont School Administration Building, then Underwood Public Library, circa 1915

Image B-02: Aerial view of the School Administration Building from the southeast.

Image B-03: Oxidized slates at original slate roof on School Administration Building.

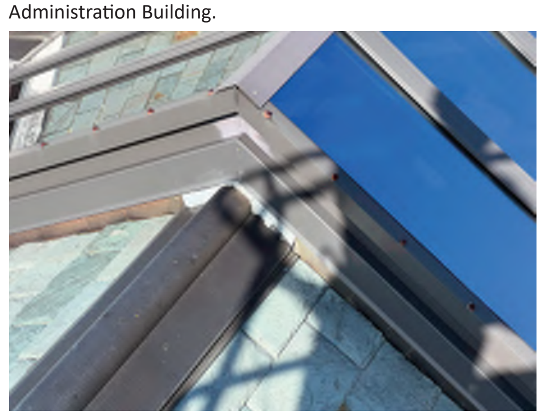


Image B-04: Heavily soldered joint where ridge cap meets the skylight and visibly open frame joint.

Image B-05: Broken solder seam at ridge cap. Copper appears to be in otherwisw good condition.

Image B-06: Flat seam copper roof over east portico. Evidence of ponding present around spotlights.

Image B-07: Open mortar joint at reglet of east portico counter flashing. Requires new urethane sealant joint.

Image B-08: Interior damage at southwest stairwell caused by chronic roof leaks.

be in good condition with no visible corrosion or deterioration **[Image B-05]**.

While slate was used on the pitched roofs of the School Administration Building, flat-seamed copper was used on the flat sections of the roof, including the single-story portico and projection at the east elevation and behind the parapet walls on either side of the west gable. Judging by the oxidation level of these roofs, they were likely installed at the same time the valley and ridge caps were replaced, approximately 20 years ago. Due to site constraints, only the flat roofs at the east elevation were able to be closely inspected.

Overall, the flat seam copper roofs appear to be in good condition, with no visible broken solder seams or open joints present at either roof along the east elevation. The east portico roof has considerable ponding stains which suggests rainwater is not properly draining into the gutters and downspouts. The ponding is concentrated around the spotlights placed on top of the roof, therefore it is likely the additional weight of the lights that is causing the ponding **[Image B-06]**. Left unchecked, standing water can cause roofing materials, such as copper, to deteriorate much faster, resulting in broken solder seams, metal degradation, and water infiltration. To prevent further damage, it is recommended that the spotlights be relocated.

At multiple locations across the building, including these two roofs, there are open mortar joints at the reglets of the roof counterflashing **[Image B-07]**. This is a common problem when mortar is used in a reglet as opposed to caulking. As copper expands and contracts readily due to temperature change, mortar can be easily cracked and loosened in the reglet, resulting in the mortar loss seen on this building. It is recommended that a urethane sealant be used to reseal the joints due to its flexibility, elasticity, and durability. Sealant joints generally have a lifespan of about 20 years and should be monitored for any signs of cracking or separation.

Interviews with facilities staff, along with an initial walk-through of the building's interior, revealed that the School Administration Building suffers from chronic roof leaks that are active and apparent in several locations at the southwest quadrant of the building **[Image B-08]**. This area of the roof, which already included the south chimney, was modified to accommodate the override and shaft ventilation for the new elevator with the addition of a hipped roof structure. It is reported that multiple attempts at repairs have not contained the leaks, and the facilities staff relies on buckets to capture the water **[Image B-09]**.

A visual inspection of this section of the roof via aerial lift uncovered several areas where water infiltration is likely occurring. One such area is at and around the walls of the south chimney. When the elevator override structure was constructed, its hipped roof was designed in such a way that it focused the water and any snow accumulation directly at the back of the chimney **[Image B-10]**. With no cricket flashing provided at the chimney, the structure is exposed to a considerable amount of water, which over time has caused mortar deterioration and open joints to occur. These open joints are just one path through which water could enter the building **[Image B-11]**.

The south chimney has a significant number of structural cracks and damaged bricks throughout the upper portion of the stack, as well as a severely deteriorated capstone. While these cracks certainly allow water into the building and contribute to the ongoing leaks, they pose a much greater structural and life safety risk. Left unchecked, these cracks will continue to expand until the top of the chimney becomes unstable and bricks begin to fall away **[Image B-12]**.

Image B-09: Interior leaks at attic level of School Admin Building. Buckets are used to capture leaks.

Image B-10: Roof of elevator override directly abutts south chimney focusing water and snow on rear chimney wall.

Image B-11: Open mortar joint at the rear face of the south chimney caused by water and snow accumulation off of the elevator override.

Image B-12: Significant structural cracking at the top of the south chimney. Note the deteriorated capstone.

Image B-13: Vulnerable flashing transition at the southeast corner of elevator override. Broken seams, open joints, etc.

Image B-14: Poorly detailed copper counterflashing detail at chimney. No visible clips and new sealant joints required.

Image B-15: Poorly detailed copper counterflashing detail at chimney. No visible clips and new sealant joints required.

Throughout this area of the roof, there are a number of copper flashing transitions that appear to be vulnerable to water infiltration by the nature of their design, the most pronounced being at the southeast corner of the elevator override. Here, there are visibly broken solder seams, open joints, and pieces of copper flashing that lap over the top of several roof slates allowing water to run under the copper flashing and onto the roof structure **[Image B-13]**. In this case, the poorly designed transition directly corresponds with an active leak in the attic below. In order to correct this transition, it is recommended that the existing copper flashing be removed, along with any associated or lapped slate, and reconfigured so the valley and flashing remain below the slate.

There are a number of existing copper counter-flashings, at both the chimney and the elevator override, that are poorly detailed and do not sufficiently protect against water infiltration. In some instances, such as where the parapet wall meets the chimney, there are broken and sloppy solder seams that provide an opportunity for water to seep into the building **[Image B-14]**. Critically, the vertical edges of the counter-flashings should have had clips to help secure the copper to the masonry, however, it does not appear that clips have ever been used. Instead, sealant was added, likely after some time, to help prevent any water infiltration. Though the sealant was helpful, it is no longer sufficient as many of these sealant joints are cracked and separating. There are also a considerable number of open reglets at counter-flashings, similar to other locations on the building, that require new sealant, and many that currently rely on sealant joints that are reaching the end of their life expectancy **[Image B-15]**. Replacing and improving these copper transitions and counterflashing details is imperative to stopping and preventing leaks, now and in the future.

Recommendations

- Selectively replace broken, missing, and oxidized slate.
- Re-solder/ repair any open joints at skylight frame. Monitor intersections for any cracks or pinholes that could lead to water infiltration.
- Clean and re-solder any broken solder seams at copper ridge caps.

- Relocate spotlights at east portico to prevent further ponding.
- Caulk open mortar joints at flashing reglets using urethane sealant. Replace existing sealants at flashing reglets.
- Modify roof edge of the elevator override to provide space at the chimney to direct runoff away from the chimney. While working on the roof edge there, replace deteriorated wood fascia and soffit.
- Provide new copper flashing at chimney and add sealant. See masonry section for further recommendations.
- Re-design and refabricate some of the flashing details that are either open to the weather or do not allow positive drainage.

Rainwater Control

Observations

Across the School Administration Building, rainwater is captured and directed using copper gutters and downspouts, likely installed at the same time as the flat seam copper roofs, valleys, and ridge caps based on their level of oxidation, making them approximately 20 years old. In general, they are in good condition with no evidence of corrosion, pinholes, or other signs of metal deterioration **[Image B-16]**. While the metal itself is in good condition, there are multiple broken solder joints, at both the gutters and downspouts, in several locations across the building causing damage to not only the sandstone cornice but to the brick masonry below. The damage is typically more severe at the interior corners of the building where the mitered joints of the gutters have opened, causing water to run onto the sandstone cornice and brick below, deteriorating both the masonry and the mortar joints **[Image B-17 & B-18]**. In order to prevent further masonry damage, the copper gutter and downspouts will have to be cleaned and resoldered.

In addition to the broken mitered joints, the collector boxes found at the top of each of the downspouts also create a significant problem for the building's masonry. The collector boxes collect not only water from the gutter above but significant amounts of debris and are the ideal place for birds to build their nests, effectively blocking

Image B-16: Approx 20 year old copper downspouts in good condition. No corrosion, pinholes, or metal deterioration.

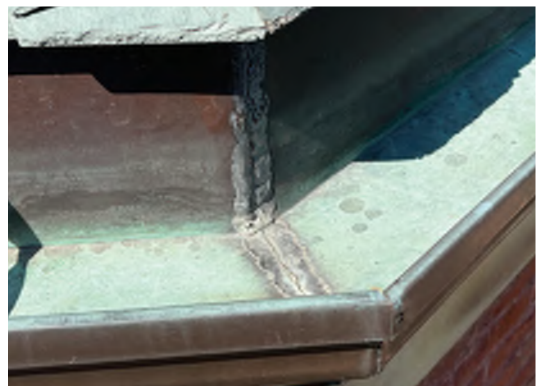


Image B-17: Broken solder seam at mitered corner of copper gutter.

Image B-18: View of northwest corner of the building showing deterioration to sandstone cornice and brick masonry.

Image B-19: Blocked collector box at downspout causing significant damage to sandstone cornice and brick masonry.

Image B-20: Through-parapet drainage detail suspected of compromising/damaging brick and sandstone masonry.

the downspouts. With nowhere to go, the water overflows onto the brick masonry, causing further damage to the wall and mortar **[Image B-19]**.
It is recommended that the collector boxes be removed in favor of more traditional, continuous downspouts.

One of the areas of great concern is the through-parapet drainage detail on either side of the west gable **[Image B-20]**. This drainage detail is designed to direct large amounts of rainwater from the west gable and flat copper roofs, through the parapet walls, and down into copper gutters along the west elevation. Severe brick masonry and mortar deterioration below this detail, including mortar loss, staining, efflorescence, and brick spalling, suggest that this area is vulnerable to water infiltration as a result of this detail **[Image B-21]**. Left unchecked, the continued deterioration will result in significant structural issues at both the parapet wall and the main masonry wall below. It is recommended that the detail be redesigned to avoid passing through the parapet and better distribute the rainwater.

Recommendations

- Clean and re-solder copper gutters and downspouts.
- Remove existing collector boxes in favor of continuous downspouts and rainleaders.
- Re-design flat roof drainage detail to avoid passing through the parapet and better distribute rainwater.

Image B-21: Severe brick masonry and mortar deterioration caused by ineffective copper gutters and downspouts.

Image B-22: Deteriorated and cracked mortar joints at sandstone cornice casued by ineffective copper gutters and downspouts.

Masonry Walls

Observations

Overall, the walls of the School Administration Building, comprised of red brick with sandstone trim, are in relatively good condition, given the age of the building. The majority of the damage seen on the building was caused by the water leaking from the broken seams of the gutters. As the water ran over the sandstone cornice and the brick masonry, the mortar joints began to deteriorate, causing them to erode and crack **[Image B-22]**. Continued exposure to moisture, particularly in areas behind downspouts, resulted in bio-growth and efflorescence over time as well as staining at both the brick and sandstone **[Image B-23]**. The deteriorated joints at the sandstone cornice should be cut and repointed and that the entire cornice be cleaned using non-abrasive methods. Areas of bio-growth and efflorescence at the brick masonry should be cleaned and areas of mortar loss and deterioration should be repointed using mortar to match the existing.

In addition to the general deterioration caused by the leaking gutters, there are a few areas where the condition of the masonry is more severe. One such area is at the southeast interior corner of the building, above the east portico, where the leaking copper downspout caused significant damage to the masonry window opening. Water leaking behind the brickmould and into the masonry opening from the gutter caused the brickmould to rot, bricks to spall, and mortar joints to erode, leaving gaping holes in the building envelope **[Image B-24]**. In order to prevent further water damage, the masonry opening should be repaired/rebuilt using salvaged or new bricks to match the existing.

The south chimney, as previously mentioned, is an area of great concern. In addition to the structural cracks at the upper portion of the stack, and the heavily damaged capstone, the mortar joints along the rest of the chimney are significantly deteriorated **[Image B-25]**. Without intervention, the mortar deterioration will worsen, resulting in increased water damage to the building's interior and chimney structure. The capstone should be replaced with a cast stone replica, the upper portion of the chimney be rebuilt, and the deteriorated mortar joint be repointed.

Image B-23: Staining and efflorescence at sandstone cornice and brick masonry caused by leaking gutter and downspout.

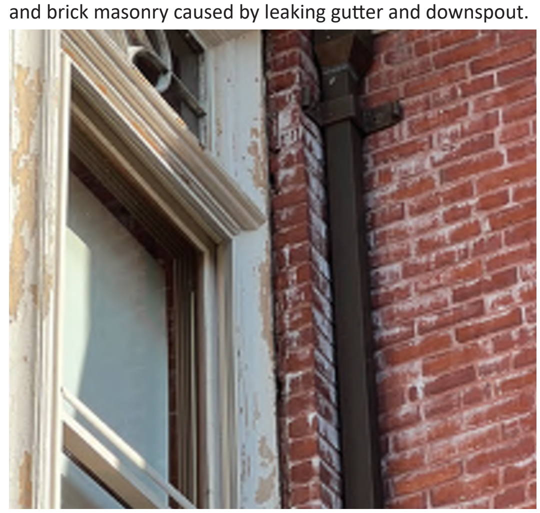


Image B-24: Spalled brick and eroded mortar joints at opening caused by leaking downspout and collector box.

Image B-25: Deteriorated capstone at chimney.

Image B-26: Bulging lintel at top floor or east projecting bay.

Image B-27: Severely deteriorated south site wall caused by water infiltration through sky-facing joints.

Image B-28: Severely deteriorated north site wall caused by water infiltration through sky-facing joints.

At the top floor of the projecting bay on the east elevation, there is a lintel that appears to be bulging **[Image B-26]**. It is not known what caused the lintel to move, but it is evident that the mortar joint between the lintel and the adjacent stone was recently repointed in an attempt to repair the damage. Unfortunately, this will not prevent the lintel from continuing to move if the cause is still present and active. It is recommended that the joints be cut, the lintel reset, and repointed.

The walls in the worst condition at the School Administration Building are not part of the building itself, but rather part of the site. These site walls, one to the south and one to the north, are comprised primarily of brick masonry with granite foundations and sandstone coping stones. Both of these walls are failing due to water infiltration. Water is entering the wall through the sky-facing joints in the coping stones, causing the mortar to deteriorate and resulting in bulging masonry. Evidence of moisture issues is further supported by the amount of lichen and moss growing in the mortar joints of the brick and granite **[Image B-27 & B-28]**. Both walls require rebuilding in order to prevent collapse and it is recommended that through-wall flashing is used to prevent future water infiltration.

Recommendations

- Cut and repoint deteriorated joints at the sandstone cornice.
- Cut and repoint areas of mortar loss and deterioration at brick masonry.
- Gently clean standstone cornice using non-abrasive cleaning methods.
- Clean areas of bio-growth and efflorescence at brick masonry.
- Repair/ rebuild deteriorated masonry opening using salvaged or new bricks to match the existing.
- Replace deteriorated capstone with new cast stone replica to match existing.
- Rebuild top portion of chimney. replace cracked bricks with new or salvaged to match existing.
- Clean and repoint mortar joints at chimney.
- Reset bulging lintel. Cut and repoint joints.

- Rebuild existing site walls. Include through-wall flashing to prevent future water infiltration.

Windows and Trim

Observations

The majority of the windows on the School Administration Building appear to be the original single-glazed, wood windows from 1902. Across the building, the original windows range in style from 1 over 1, double-hung windows with diamond-in-round transoms, to 2 over 1, double-hung windows with arched transoms, to the Palladian window centered in the main gable. The only non-original windows on the building are found on the east elevation at the first floor of the projecting bay and the single-story ell **[Image B-29]**.

At the time of our site visit, the original windows, including sashes and trim, were being re-painted to match the existing color, a project which we assume was completed shortly thereafter. In general, the sashes appear to be in good condition though the glazing putty was severely cracked and deteriorated. In order to preserve the windows, it is recommended that the windows be reglazed. The good condition of the sashes is likely due in part to the aluminum storm windows that are present across the building. While these storm windows protected the sashes, they did not protect the trim **[Image B-30]**.

Unlike the window sashes, the window trim, particularly the brickmoulds, shows signs of weathering and deterioration as a result of prolonged exposure to the elements. Generally, the most severe deterioration can be seen at the base of the trim at the sills, where the water has a tendency to collect and pool, and at the window head, where cracked joints at the sandstone cornice above have allowed water to collect and deteriorate the wood. Additionally, the caulking between the brickmoulds and the masonry openings is cracked and damaged across the entire building **[Image B-31]**. In several areas, the head caulking has separated from the brickmould, leaving an open joint where water can get behind the trim and damage the window. The brickmoulding should be removed and replaced in kind and the wood-to-masonry joint re-caulked with a urethane sealant. Any deteriorated window trim should be repaired using epoxy, prepped, and painted to match the existing color.

Image B-29: View of the southeast corner of the building showing various types of original and new windows

Image B-30: Close up of original window showing cracked glazing putty, aluminum storm window, and wood trim.

Image B-31: View of upper transom windows showing deteriorated caulking and brickmoulds.

Image B-32: Grate over areaway leading to mechanical room.

According to facilities staff, during a heavy rainstorm, water will flood the mechanical room of the School Administration Building through the areaway windows on the west elevation **[Image B-32]**. This areaway is currently overgrown with vines and debris, despite being covered by a metal grate. To prevent water from entering the basement, the areaway needs to be dug out and the walls waterproofed and the base filled with crushed stone. A site drain should be connected to a dry well directing water away from the building.

Recommendations

- Reglaze existing windows.
- Repair deteriorated window trim using expoy. Prep and paint to match existing trim color.
- Remove and replace all brickmould in kind. Re-caulk wood to masonry joint with a urethane sealant
- Dig out bottom of areaway. Waterproof walls and fill the base with crushed stone. Install a site drain to a dry well to direct water away from the building.

HOMER BUILDING: TOWN HALL ANNEX

Roof and Rainwater Management

Observations

The hipped roof of the Homer building is clad throughout in black slate shingles with copper ridge and hip caps, and open copper valleys **[Image C-01]**. Slate-clad, hipped ventilators adorn each end of the high central ridge, with flared slate walls penetrating the main roof **[Image C-02]**. A series of dormers punctuate the roof in both boxed and dutch-gable forms; quite unique in the sense that the gable ends of each dormer are similarly clad black slate, rather than merely their roofs and cheek walls **[Image C-03]**.

Visual inspection suggests at least two varieties of black slate comprise the roof, not including selective replacement slates. One variety is very monotone with noticeable, consistent vertical striations; the other is more textural **[Image C-04]**. Overall and in both instances, the slate appears intact and without deterioration from mineral impurities or otherwise inappropriate installation techniques. A few sliding or missing slates can be seen, but these are relatively unconcerning **[Image C-05]**.

Image C-01: The Homer Building is comprised entirely of black slate in at least two textural varieties.

Image C-02: A pair of slate-clad ventilators adorn the main ridge.

Image C-03: A unique, slate-clad dutch-gable dormer is a notable architectural feature on the southern facade.


Image C-04: Each type of slate exhibits its own unique texture.


Image C-05: Select slates are missing entirely (or loose), often sliding down to be caught by the snowguard rails.

Image C-06: Slate on the underside (intrados) of boxed gable dormers are intact and secure.

Image C-07: Aside from some patina'd copper at the ventilators ridge and hip caps and their joints are intact.

Remarkably, gable dormers with projecting arched gables display intact and undamaged slates on the undersides of arches, and are a testament to the condition of the slate overall **[Image C-06].** Slight differences in slate texture suggest that dormers may have been re-shingled more recently than the main roof planes.

Copper flashings appear intact and have retained most of their sectional mass without warping. A variety of patina indicate differences in age, the oldest of course displaying greener hues, and newest with browns and reds. The soldered hip caps atop each ventilator showcase the greatest patina, but the implied age of copper compared to slate below seem to indicate the hips were re-used after replacing the slates **[Image C-07].** Aside from these peculiar instances, the vast majority of copper caps and valleys are in good condition, well-soldered, and properly divert rainwater. Only one hip condition is constructed without a cap. At the lower flared portion of the dutch-gable dormers, mitered slate hips make used of individually-woven copper flashing at each course - an excellent and long-lasting detail **[Image C-08].** Decorative finials in rilled-copper at

Image C-08: Interwoven flashing between the slate courses on the dutch gable dormer is a quality detail and water-resistant.

Image C-09: The rilled copper at ridge caps and finials are intact and in good shape..

ridge peaks also appear in good condition. **[Image C-09].**

Roof penetrations are limited to copper vent stacks **[Image C-10],** and skylights, of varying sizes and configurations, all in good shape **[Images C-11 thru C-13].** A considerable skylight punctuates the northern roof slope, modern and built of aluminum. Close inspection reveals the aluminum skylight sitting atop what appears to be an older copper curb, step-flashed at the sides. The aluminum and what is visible of copper appear to be in good condition and undamaged or broken. Sealants and loose nails are visible along the top of the skylight, and it is unclear how well the detail performs during periods of heavy rain or snow accumulation. That being said, no leaks are reported and would be readily apparent if it were compromised.

Lastly, the slate roof has been equipped with snowguard "pads" and "rails," the latter often referred to as snow "fences." Snowguard pads are located in seemingly strategic locations to hold snow and ice high up on the roof and away from the eaves and gutters below. These appear to be retro-fitted,

Image C-10: Copper vent pipes are in good shape, well-flashed, with solder joints intact.

Image C-11: Modern skylight punctuate the slate roof in a few locations, with no reported leaking..

Image C-12: A large, generous modem skylight adorns the north roof slope, with no visible damage or compromised flashing.

Image C-13: The large modern skylight appears to sit on an older copper curb, intact and without reports of leaking.

Image C-14: Bent retro-fit snowguard pads are prevalent and generally ineffective at snow-retention.

Image C-15: An inconsistent array pattern of snowguard pads suggest many had been ripped off by snow/ice.

Image C-16: Wood and masonry deterioration appear to related directly to snowguard fences in areas between dormers.

installed long after the slate itself was laid, by sliding them up in between slate courses, far enough that they "hook" onto the top edge of a slate and remain permanently fixed (ideally). While this particular snowguard pad model is a marked improvement upon older "wire loop" style pads which tend to flatten easily under ice, the copper is rather thin and in many cases has bent sideways or unhooked itself from its "permanent" position **[Image C-14].** In several cases, the frequency and pattern of these pads appear sporadic and without rationale, suggesting either the vast majority were ripped off by snow, leaving only a select few stragglers, or initially installed ad-hoc **[Image C-15].**

Three-pipe snowguard rails are installed consistently across the perimeter eaves as a physical barrier to sliding snow and ice. These fences are robust but can cause unanticipated quantities of snow to build up in small areas if not carefully considered. The vast majority of these fences are in good shape and continue to (presumably) perform effectively. However, shorter sections located between dormers, particularly on the southern side, may be correlated with water infiltration and damage to the copper gutters, wood cornice, and brickwork below **[Image C-16].** Given the narrow space between each dormer's cheek wall and tendency for snow to collect in sheltered spaces, the snowguard rails at the immediate base disallow any snow or ice to pass beyond, possibly causing backups and dams.

Holding large quantities of snow in such a tight space, with added solar gain from southern exposure, may be causing ice dams to build up and melt, infiltrating the slate and any flashings which would otherwise protect the sheathing and framing below. The obvious localized damage to gutters, rafter tails, fascia/soffit, and brick efflorescence all point to a shared cause. While these aspects are discussed in a further section, these short sections of snowguard rails should be eliminated before repairs are made elsewhere. Fortunately, removal of the 3 pipes are a simple matter, and could be done ahead of time without attempted to uninstall the brackets and base plates, which interlock with the slate **[Image C-17].**

At the same perimeter eave throughout, hung copper gutters with twisted straps collect rainwater and divert into downspouts and a subsurface drainage system. Standing water in gutters with no recent rain event demonstrate improper pitch in several locations **[Image C-18].** Caked-on dirt and debris reinforce this condition **[Image C-19].**

At first glance, the outer face of the copper gutters appear smooth and in good condition, with a consistent brown patina. Physical inspection reinforces this condition, as the copper is sturdy and appears to have retained all its sectional mass **[Image C-20].** Unfortunately, a careful review of the interior reveal poorly-installed and damaged solder joints - sloppy, brittle, and cracked **[Images C-21 thru C-25].** These compromised joints easily allow water to pass through, even hairline cracks where inadequate solder penetration has allow thermal expansion cycles to rupture the thin walls. In some cases, liberal amounts of solder have been applied, perhaps to increase the amount of material present. The jagged, irregular seams create inconsistencies in solder mass and differential temperature changes in the solder create internal stress and lead to

Image C-17: The 3-pipe snowguard fences can be easily detached without removing their brackets.

Image C-19: Compact gutter sediment and debris suggest improper pitch, allowing collection over time.

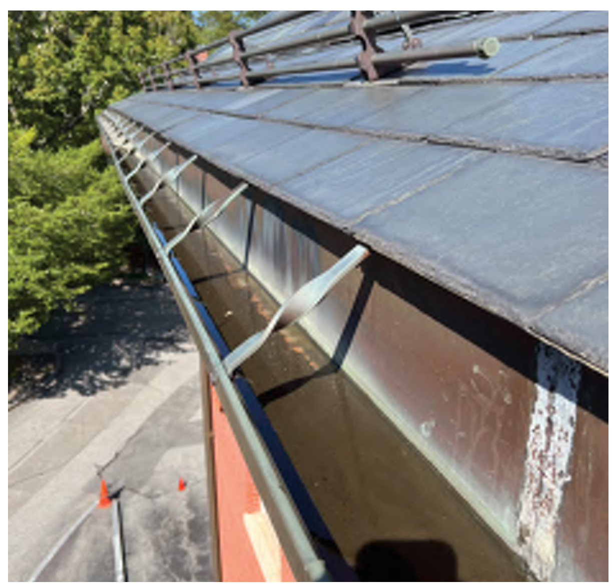


Image C-18: Ponding water in the gutters suggest improper drainage pitch.

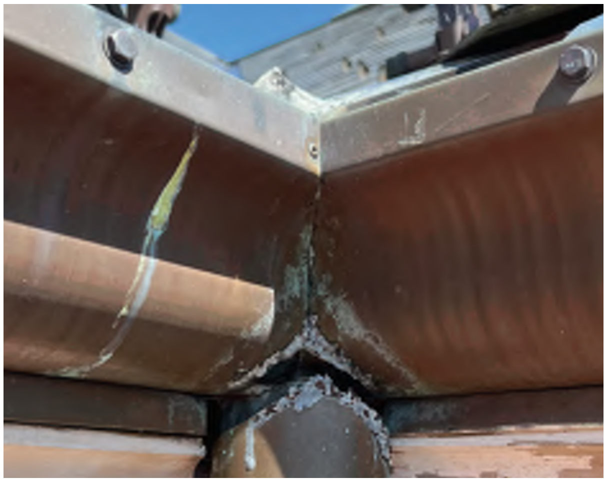


Image C-20: Aside from the discoloration, the copper is relatively recent and retains most of its sectional mass.

Image C-23: Large chunks of broken-off solder are indicative of unskilled application.

Image C-21: Hairline cracks at solder joints are a site for water to infiltrate the wood cornice below.

Image C-24: Hairline cracks at gutter miters suggest poor/inconsistent solder penetration.

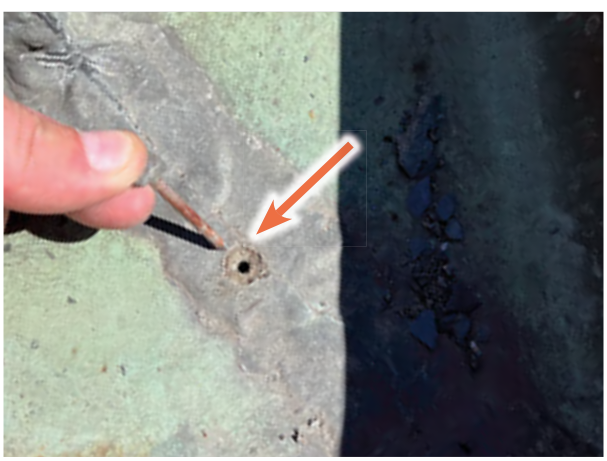


Image C-22: Nail holes in the solder joints render them virtually useless.

Image C-25: Large cracks at the intersection of copper valleys and gutters allow considerable water to enter and rot the woodwork.

cracking. Quality of solder joints are likely the sole issue, as expansion joints appear to be properly placed and therefore undue thermal expansion of copper is not to blame. Re-soldering gutters in-place is risky and difficult to achieve a quality finish. The aforementioned concerns with pitch, and need to repair woodwork below (discussed further), the gutters would do well to be carefully uninstalled, solder removed and cleaned, and re-installed/re-soldered by experienced craftspeople after wood repair.

Copper downspouts are intact and show no sign of damage or leaking **[Image C-26].** Elbows are intact and do not appear to leak **[Image C-27].**

Cast iron boots receive copper downspouts and divert rainwater to a subsurface drainage system, likely a modern storm water system integrated with the adjacent parking lot **[Image C-28].**

Recommendations

- Remove pipe rails from short snowguard rails between southern dormers.
- Selectively replace damaged, slipping, or missing slate shingles throughout.
- Carefully uninstall copper gutters and clean/de-solder. After completing related woodwork repairs at eaves, reinstall gutters with correct pitch and re-solder. Re-use all salvaged materials and hardware.

Woodwork and Trim

Observations

Woodwork and architectural trim is limited on the building, relegated to minor ornamentation at ventilators and dormers but also at the continuous eave. The ventilator roofs are accented by bracketing, and at least two are completely missing overall **[Image C-29].** The woodwork appears relatively sound, in need of mostly repainting. Corner boards at the ventilators frame the aluminum louvers, but are of a lesser quality wood and badly deteriorated, requiring replacement **[Image C-30]**.

Image C-26: Copper downspout elbows are intact and appear to perform as they should.

Image C-27: Copper downspouts are in good shape and their back-side seams appear intact and un-compromised.

Image C-28: Cast iron boots collect rainwater, and divert it presumably into a subsurface storm water system.

Image C-29: Missing brackets at the ventilator towers require replacement, and repainting overall.

Image C-30: Low-quality wood corner boards have reached the end of their life.

The dormers, both boxed and dutch, rely on simple wood profiles to transition between slate and soffit, with large wood brackets extending out from the slate walls, all in relatively good condition and need of a thorough repainting **[Image C-31]**.

At the boxed gable dormers, which boast slate-clad arches, the wood casings that surround a modern vinyl arched windows, are in poor condition **[Image C-32]**. Inspection reveals that wood is soft and easily pierced by an awl. Some sections have even let go of their fasteners and can move easily. Other sections have portions of trim missing entirely. Given their distance from the ground and modern window intervention, limited repair via epoxy consolidation is the most prudent course of action. Refastening and repainting should follow any repairs, but small, missing portions can be left alone.

Flexible sealants between the vinyl windows and adjacent flashings, such as copper, are very old and severely cracked, indicating need for replacement **[Image C-33]**.

The slender, bracketed eaves are the most generous portion of exposed woodwork. All things considered, the wood is in fair to good condition throughout, its lack of visual appear owing to very thin layers of paint and discoloration from organic growth or pollutants **[Image C-34]**. Paint is mostly so worn and thin that the wood grain has

Image C-31: Most paint on the dormers require light scraping and a new coat.

Image C-32: The arched dormer window casings would do well to receive epoxy consolidation for prolonged life.

Image C-33: Cracked sealants between aluminum or vinyl windows and copper require replacement overall.

Image C-34: Cupping soffit boards suggest they have been damp in years past, possibly due to low-quality woods used in replacement..

Image C-35: Flaking paint is prevalent at sites where water has entered the cornice and framing.

Image C-36: The worst of the cornice damage occurred at the inside corners of gutters where water is unimpeded.

Image C-37: Soft end grain at soffit boards are pierced easily by an awl, suggesting they have been damp for some time.

Image C-38: The worst of the woodwork is easily visible from below, requiring replacement.

Image C-39: Thin and inexpensive bedmoulds for the gutters have not stood the test of time since gutter installation.

become visible, but there are isolated areas of peeling paint to bare wood **[Image C-35]**. It goes without saying that the all the eave woodwork should be throughly scraped and repainted. Given the thin layer of existing paint and unreliable bond, paint should be scraped to 90% bare wood for new coats, using high-quality alkyd primers and acrylic top coats.

There are, however, isolated areas of extensive deterioration, mostly below areas where aforementioned solder joints in copper gutters have cracked and allowed water to flow into the framing, unimpeded. This has resulted in extensive damage to inside corners of the eave at the south facade **[Image C-36]**. In addition to repairs for cosmetics, there will likely be a need to selectively replace rotted rafter tails and related blocked, currently hidden from view.

Several other sections of deterioration persist elsewhere, such as below areas where snowguard rails allow snow to accumulate between dormers on the south facade. While the gutters above do not present a "smoking gun", it is like that water is infiltrating higher up, near the snowguard rails. Soffit boards and brackets have partially given way, their fasteners no longer secured to the inner blocking or rafter tails **[Image C-37 & C-38]**.

Cupping soffit boards are consisted and not entirely alarming, but do suggest that a modern replacement project may have taken place, re-using the brackets but replacing soffits and fascias without back-priming or using inferior woods.

The inconsistency of fascia grain texture and bowing-out of cheap "stock" gutter bedmoulds corroborate this, and replacement of both would be prudent before reinstalling the gutters **[Image C-39]**.

Nearly all windows have been replaced with modern insulated units made out of vinyl, aluminum, or a combination thereof. All windows appear to be in good condition and operational. There are only two remaining instances of wood trim related to windows, that being the profiled wood transoms at each pair of arched windows about the north and west entrances **[Image C-40]**.

Though the trim is no longer easily seen, the wood is stable and the paint is peeling, and should be repainted to at least continue protecting the final vestige of the original windows **[Image C-41]**.

Lastly, each entryway (door and surround) at the north and west facades are comprised of wood **[Image C-42]**. They are in good condition, and appear to need only a fresh coast of paint to ensure their protection. Though not woodwork, the arched portions of (presumably) iron gateways remain, appear intact, but would do well to receive a new application of rust-inhibitive protective coatings.

Image C-40: Two pairs of windows retain the sole visible woodwork, long since replacement by modern units.

Image C-41: Though small, the remaining window wood transoms should be cared for and repainted.

Recommendations

- Replace missing brackets and repaint ventilator woodwork. Replace corner boards with quality wood.
- Repair via epoxy consolidation deteriorating dormer arched casings, refasten loose trim, replace cracked sealants, and repaint all dormer woodwork throughout.
- Rebuild rotted sections of eaves, including soffits and rafter tails where water has entered, and refasten brackets/loose boards. Replace fascias and gutter bedmoulds throughout in conjunction with copper repair work, and repaint eaves throughout.
- Apply protective coating to arched ironwork at north and west entryways.
- Repaint north and west entryways (doors and surround).

Masonry

Observations

The roof is home to a single brick masonry chimney, plumb and intact **[Image C-43].** The red-tinted mortar is in good condition and bricks show no sign of spalling or other damage. The chimney is capped by flat-seam copper over concrete, with two flues flashed by membrane. capped by flat-seam copper over concrete, with two flues flashed by membrane. Details and relief at the corbeled crown are in good shape,

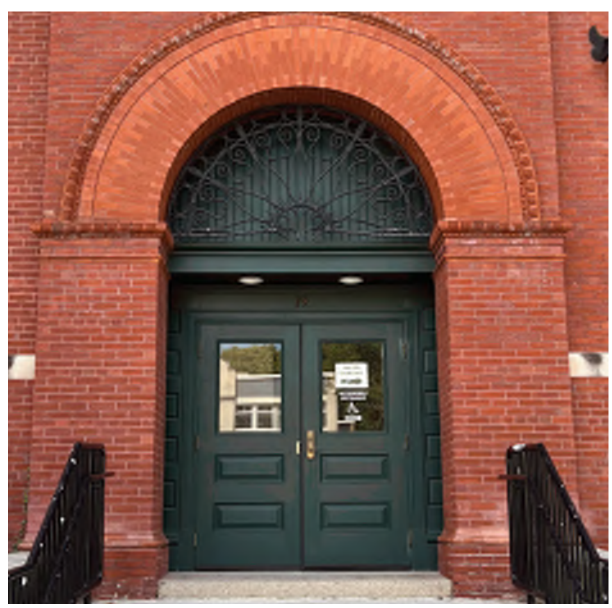


Image C-42: Entryway doors are intact and should be repainted regularly, including the iron arches above.

Image C-43: The building's sold brick chimney is plumb and intact, and appears to be well-capped.

Image C-44: A deteriorating mortar wash at the chimney should be replaced to ward off standing water.

Image C-45: An earlier red-tinted mortar wash and the chimney should be re-applied.

Image C-46: Base and stepped counter flashing, and a copper cricket, are all in good shape.

however, the wash as the projecting brick course is cracked and largely missing **[Image C-44].** At least two layers of the cementitious wash are present, a modern buff coating over an older red-tinted wash, seen elsewhere on the building **[Image C-45].** The base of the chimney is adequately step-flashed with copper, including a copper cricket, all in good condition **[Image C-46].**

The building facade is comprised entirely of standard unit brick and moulded brick profiles, all in excellent condition **[Image C-47].** The many large, deep arches showcase brickwork that is gauged (precisely shaped) and rubbed (specially finished) **[Image C-48].**

With some exception, nearly all brick and mortar are sound, intact, and relatively un-weathered. Most of the brickwork at the cornice is good shape **[Image C-49]**, but in select areas that include where water infiltration has damaged woodwork, joints

Image C-47: Overall, the building benefits from well-maintained masonry, all in excellent condition.

Image C-48: Standard brick units (left) stand in contrast with gauged and rubbed bricks at arches (right).

have been washed away and required repointing **[Image C-50**. A number of corbeled, outside corners contain loose brick and post a falling hazard, requiring re-setting **[Image C-51]**.

The projecting upward faces (extrados) of the second-story arches have a smooth, red-tinted wash to match the brick and mortar respectfully **[Image C-52]**. While the washes are not steep, they do not appear to be a site for birds to perch and are in good condition. A projecting brick stringcourse at the springline of each arch has a very steep wash in many locations, which is intact save for select missing chunks **[Image C-53]**. On other facades, the same projecting stringcourse is missing the steep wash entirely, likely because one was never applied **[Image C-54].** A thin layer of worn, buff mortar can be seen interspersed with anti-bird devices and wires, but otherwise missing. Ideally, the wash should be reintroduced consistently throughout, ideally with a red-tinted mortar similar to the upper arches. If nesting birds are a concern, the wash should be made similarly steep, rather than installing new anti-bird devices.

The north entryway is approached by a large, monolithic granite stair with cheek walls integrated into the brick walls **[Image C-55].**

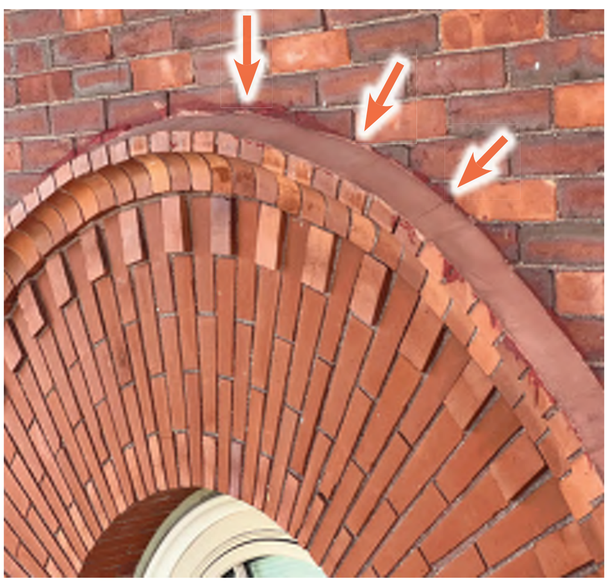


Image C-52: Red-tinted, smooth mortar at the upper archway surfaces appear to perform well..

Image C-49: Some brickwork at the eaves are intact, still with their red-tinted mortar.

Image C-50: Brickwork at the eaves share in the suffering experienced by their wood cornices above, where water enters.

Image C-51: Loose bricks, notably at outside corners, require re-setting.

Image C-53: Although some in intact, chunks of the steep wash are randomly missing, mostly at the inner arch returns.

Over time, likely due to water infiltration and poor substrate, the base on which the granite sits has washed away slowly, causing stones to shift and joints to widen **[Image C-56].** Attempts to close joints with sealants gradually fail as stones continue to shift and spaces widen, requiring more sealant. Additionally, the slow overturning of granite cheek walls have imposed upwards force on the brickwork in which they sit, cracking the masonry **[Image C-57].**

The west entryway, though absent of steps, is approached by a paved walk flanked by

Image C-54: Elsewhere on the same projecting stringcourse, a missing mortar wash should be reestablished.

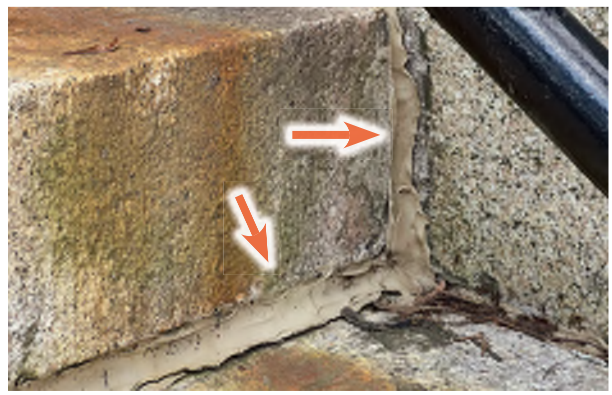


Image C-56: The slow shifting of granite treads are filled with sealants, wider and wider with each application.

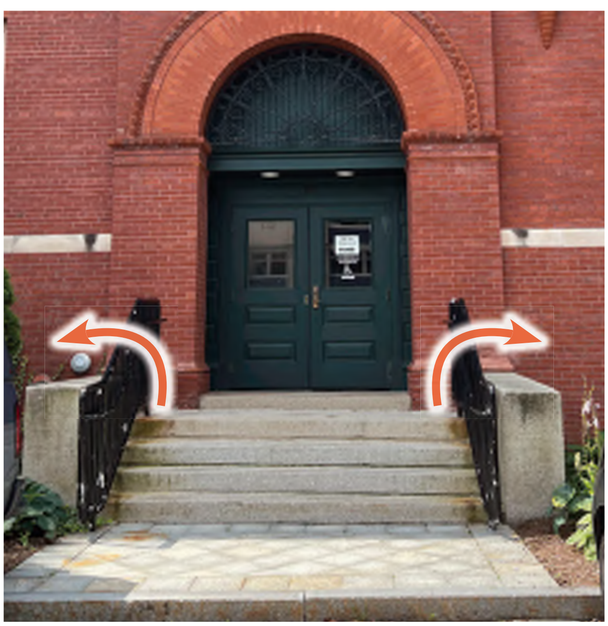


Image C-55: Rotating granite cheek walls at the north entry have slowly wreaked havoc on their adjacent bricks at the building.

Image C-57: Upward thrust of the rotating granite cheek walls have cracked the brickwork at the intersection, consistently.

the same granite cheek walls engaged into the brick masonry on either side of the entry **[Image C-58].** Similar to its north counterpart, the granite cheek walls have started to rotate slowly, putting pressure on the brick masonry and creating spalls and cracked **[Image C-59].** While granite is unlikely to experience rising damp due to its low porosity, excessive salt exposure can accelerate surface wear. Given the similar erosion of adjacent brick and mortar in highly-trafficked and presumably highly-salted walkways, this is likely a shared cause. Lastly, leaks in the basement directly below this west entryway suggest water is readily entering the foundation wall, where the pavers cross the continuous foundation below and enter the footprint of the building **[Image C-60].** Both damage to the foundation or insufficient waterproofing or drainage beds for the pavers allow water to seep between the paver joints and directly enter the building, or soak the soil sufficient to overcome waterproofing, if any. Stains on the portion of the walkway inside the footprint of the building suggest ponding water, meaning the pitch/slope of the walkway should be improved to direct rainwater away from the building perimeter.

Recommendations

- Re-set monolithic granite cheek walls are west entry and provide new concrete base. Replace spalling/cracked brick with salvaged units and repoint.
- Remove and reinstall pavers, excavate and provide waterproofing at the foundation wall and area in front of the entry.
- Replace cementitious wash at chimney and brick string-courses.
- Clean efflorescence from all masonry.
- Selectively repoint masonry at high eaves where deteriorated.
- Re-set and clean monolithic granite steps and cheek walls at north entry, with new concrete base. Replace spalling and cracked bricks with salvaged units and repoint. Re-set and repaint handrails.

Image C-58: Similar rotating granite cheek walls have damaged the west entry brickwork as well..

Image C-59: Excessive salts and de-icers at the high-traffic pavers have likely damaged both brick and granite.

Image C-60: Internal leaks below the west entry suggest that water both ponds and enters the foundation..

THIS PAGE LEFT INTENTIONALLY BLANK

Structures North
CONSULTING ENGINEERS, INC.

60 Washington St, Suite 401
Salem, Massachusetts 01970-3517
P.O. Box 01971-8560
T 978.745.6817 | F 978.745.6067
www.structures-north.com

28 September 2023

Doug Manley
Principal
Spencer Preservation Group
41 Valley Road, Suite 211B
Nahant, MA 01908

Reference: Belmont Town Hall Conditions Assessment

Dear Doug,

On September 19 and 21, 2023, we visited the Belmont Town Buildings to conduct an exterior conditions assessment of several structures: (A) The Town Hall, (B) The Town Hall Annex and the (C) The School Administration Building. The figure below shows the locations of each structure. The following sections present each structure, a description of their existing conditions, and *recommendations for repair.* Please note that all elevations facing Concord Ave will be referred to as the south elevation throughout this report.

Figure 1: Overall View of Town Buildings

EXISTING EXTERIOR CONDITIONS:

A. The Town Hall:

The Belmont Town Hall Building is one of three brick masonry buildings that we inspected on site. The south elevation has a raised grade driveway that meets the second floor level entrance. The first floor entrance is accessible from the east and north entrances. There is a stone retaining wall near to the southeast corner of the building that separates the south end driveway from the east end entrance.

- The stone retaining wall that holds back the south face driveway is starting to fail. Several stones have already begun to fall out and there are areas of bulging stone visible on the east elevation. The stone wall is capped with granite coping stones and appears to be a dry laid wall, backfilled with soil, and pointed just on the east exterior surface. It is very likely that the driveway and stairway are directing water towards the walls, causing it to become trapped, freeze/thaw, and ultimately push the stones outward. A temporary support has been put in place to support the facing where the stones have fallen out.

  The stone retaining wall must unfortunately be dismantled and reconstructed, given the fact that it has presently reached a point of instability.

  - *The pavement on the high side of the wall will need to be peeled back and the high side of the wall and granite steps should be removed up to the edge of the front entry portico (leaving the top two steps in place).*

  - *The soil should then be removed from the back side of the wall and the front of the building foundation. This will require the installation of temporary cribbing and lagging to hold back the soil beyond the excavation, and will expose the front foundation of the building wall, which covers the back side of the safe.*

  - *As soil is removed, the wall should be documented and taken down with the soil. The back-up construction and facing stones will need to be carefully unwoven from the southwest corner of the building foundation and the facing stones that run vertically below the portico. Restraining* *dunnage will likely be needed along the corner to help hold all of the stonework in place as the adjacent stonework is removed, and it will need to stay there until it is replaced. The existing building footing width will also need to be maintained in order to avoid settlement of the existing corner of the building.*

- *Following wall removal, the exposed building foundation, which will likely consist of loose, randomly projecting stones with little or no mortar between them, will need to be chinked, pointed and parged to create a solid, likely undulating surface to which concrete can bond.*

- *A wide spread footing will then be constructed and reinforced with horizontal rebar and vertical dowels to resist the sliding and overturning forces of the retaining wall that will be placed on it, and horizontal rebar dowels will be inserted with adhesive into the drilled holes in the restored foundation.*

- *A cast-in-place vertically cantilevered retaining wall will then be constructed with a 90-degree stiffening return against the building foundation, and a shelf on the front face from the footing to grade level to support the reinstallation of the facing stone.*

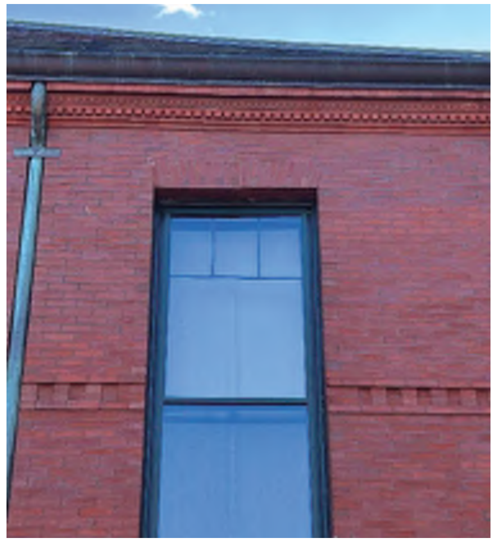
- *The facing stone will then be constructed against the face of the retaining wall and capped with the reinstalled coping.*

- *Depending upon the width and degree of width variation in the facing stone units, a percentage of the facing stones will likely need to be trimmed with a wet saw to a more uniform thickness so that they can be re-laid against the face of the concrete wall. Depending upon the stone units minimum and trimmed thicknesses, they can either be re-set with a weep cavity behind them or full mortar or grouted bond.*

- *The facing units should be arranged according to the original, documented layout, and inter-woven with the remaining stones below the corner of the entry portico, and tied back to the concrete retaining wall with concealed stainless steel ties.*

• We also observed several cases of arch slippage, either in the window jack arches, like on the north elevation (as shown in the photo on the following page), or on round arches above the south elevation side door entrance. Slippage occurs when the mortar deteriorates within the joints between the bricks and then compresses and loses shear capacity, allowing the bricks to slip downward along the deteriorated joints. The end result is the downward slippage and sagging of the arch and the partial loss of support to the masonry above.

If the downward movement is not too great, the arches can be shored in place and the mortar deeply cut out of the joints and replaced with new mortar or grout, along with slate shims to help fill any widened gaps caused by loosened bricks that are pushed upward by the shoring.



For arches with large deformations, they will need to be shored and incrementally rebuilt in place, again using a combination of mortar and slate shims at widened gaps.

- There are several areas of spalling brick and efflorescence at splash-back zones where water, often laden with deicing salts, splashes against an adjacent wall surface and soaks into the brickwork. Under dry conditions, the water then evaporates back out of the brickwork and the salts crystalize just under the outer brick surfaces (a process called cryptoflorescence) and cause the units to spall. Where the brick is not deeply spalled, the mortar joints can be cut and repointed and a breathable water repellant coating can be applied to slow down this process. *Where bricks are significantly eroded, the bricks must be replaced with visually matching, but harder fired bricks that can better survive these effects*.

- The bricks that form the lower left end of the soffit of the arch over the main entrance are spalling on their outer surfaces. The most likely cause of this spalling is water seeping downward within the porous back-up wall construction and out through the lower bricks in the arch, which are usually less porous and act like a dam to stop the flow. The water then saturates these bricks and causes their bottom, outer surfaces to spall off during repeated freeze-thaw cycling. *As it is both difficult and expensive to replace the bricks in these large arches, the best course of action is to try to slow down the water, most practically through cutting and pointing, flashing and sealing and/or*

application of a breathable water repellant coating applied to the brickwork above.

- At the north end of the east elevation, where the old fire station used to be, we found vertical cracks in the foundation's concrete and parging where the brick piers land. *This is likely not a structural concern, but rather a poorly made joint where the fire doors were filled in when it was converted.*

- We found three areas where the masonry appears to be bulging slightly. Two locations are at the second floor level windows on the east elevation and the other is at the same level on the north elevation. These areas should be probed further to determine the cause, which is most likely rust jacking of the outer steel lintel that runs over the openings and is causing the wall to bend outward. *If found to be significantly rusting, the lintel should be removed and replaced with galvanized steel, along with proper flashing*.

- We found a vertical crack at the first floor level of the north elevation along with cracked stone sills. Though further investigation is also needed, it is likely that the visible deterioration and resulting expansion of unloaded brick masonry below the windowsill has caused it to crack and bend upward. This expansion has also caused the brickwork to crack. *The sill and deteriorated brickwork should be dismantled with the sill being repaired with stainless steel pins and epoxy or it should be replaced*.

- On the south elevation, there is a set of three windows on the first floor that are located between the two entrances. We found some of the lintel stones starting to shift down and outwards, which is a result of the metal lintel embedded below that stone that is starting to rust jack. Vertical cracking was also found in the surrounding foundation in this area. This damage was most likely caused by the corrosion and expansion of a steel relieving shelf that runs over the windows. *The shelf should be probed to confirm this assumption and exposed, cleaned, rust protected and the brick put back if it is found to be valid*.

B. The Town Hall Annex:

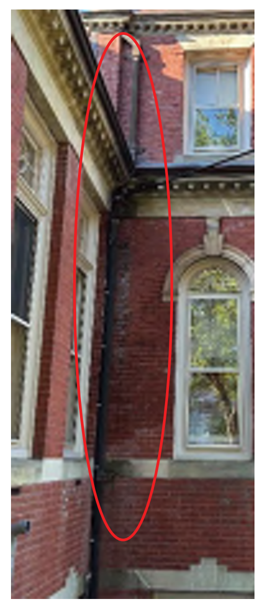
The Town Hall Annex is another brick masonry structure with a wood framed roof. There are jack arches at the first two floor levels and round arches at the third level.

- We did not identify significant structural issues with the Annex. There are a few areas with efflorescence and some deteriorated brick mortar joints, near to the arches and roof cornice. *The roof edge and flashing should be checked for leakage into the masonry that can cause this condition, and repaired if needed, and the brickwork should be cleaned.*

- One of the wooden soffit of the cornice appears uneven *and should be checked as to its attachment to the supporting framing from which it is suspended*. (See photo on following page)

C. The School Administration Building:

The School Administration Building is predominantly brick masonry with cast stone sills and lintels at each floor level.



- Just as with the Annex, there are several pockets of efflorescence and deteriorated mortar joints. *The water infiltration that is causing the efflorescence should be identified and stopped and the white deposits should be cleaned off*.

- We also found a few stones, both lintels and sills, that had chips or spalls in them *that should be patched with a matching stone repair mortar*.

- There are two brick masonry walls on the north and south sides of the Administration building that are starting to fail, more so on the south elevation than the north. The brick walls have precast coping stones on top, with deteriorating mortar joints. Water is penetrating into the wall, through the sky facing mortar joints and starting to bulge the masonry and erode the mortar. *Both walls will need to be rebuilt, with either a through wall flashing system or lead weather caps incorporated into the design to prevent water infiltration.*

Thank you for the opportunity to evaluate this beautiful collection of Belmont's town buildings. Please reach out to our office should there be any questions or concerns.

Respectfully,
Structures North Consulting Engineers, Inc.

John M. Wathne, PE (MA), President

Jillian Borghardt, EIT

THIS PAGE LEFT INTENTIONALLY BLANK

THIS PAGE LEFT INTENTIONALLY BLANK

COST ESTIMATE

Town of Belmont
Belmont Town Hall

Spencer Preservation Group
PRESERVATION ARCHITECTS

October 06, 2023 - (DRAFT)

PROJECT DESCRIPTION:

	DIV. 01 - *GENERAL REQUIREMENTS*	**PHASE 1 URGENT REPAIRS (by 2028)**	**PHASE 2 SHORT TERM (5-10 YEARS)**	**REMARKS**
	Access, disposal, general equipment, shoring	$200,000	$40,000	
	SUBTOTAL	**$200,000**	**$40,000**	

	DIV. 02 - *SITE*	**PHASE 1 URGENT REPAIRS**	**PHASE 2 (5-10 YEARS)**	**REMARKS**
	Dismantle, repair site wall, including drainage, paving, new reinforced cantilevered footing and concrete wall	$500,000		
	SUBTOTAL	**$500,000**		

	DIV. 04 - *MASONRY*	**PHASE 1 URGENT REPAIRS**	**PHASE 2 SHORT TERM**	**REMARKS**
	Clean and repoint chimney		$6,000	
	Selective cleaning of masonry		$6,000	
	Patch stone sills		$8,000	
	Selective repointing		$10,000	
	Reset slipped jack arches and adjacent masonry		$25,000	
	Reset check walls at steps, north elevation		$4,000	
	Patch brownstone sills		$6,000	
	Selective replacement of metal lintels		$8,000	
	SUBTOTAL		**$73,000**	

	DIV. 05 - *METALS*	**PHASE 1 URGENT REPAIRS**	**PHASE 2 (5-10 YEARS)**	**REMARKS**
	Remove, repair, re-set site railings	$8,000		
	SUBTOTAL	**$8,000**		

	DIV. 06 - *WOOD, PLASTICS, AND COMPOSITES*	**PHASE 1 URGENT REPAIRS**	**PHASE 2 SHORT TERM**	**REMARKS**
	Carpentry repairs at wood window mullions		$4,000	
	Capentry repairs at East porch		$6,000	
	Rake board replacement		$2,000	
	SUBTOTAL		**$12,000**	

DIV. 07 - *THERMAL AND MOISTURE PROTECTION*	PHASE 1 URGENT REPAIRS	PHASE 2 SHORT TERM	REMARKS
Crenelated ridge cap replacements		$40,000	
Replace copper skirt and cornice at turret roof		$16,000	
Replace copper gable end cornices		$24,000	
Replace copper ventilation cupola		$16,000	
Replace copper access panel		$6,000	
Replace copper finials		$15,000	
Selective solder repairs at ridge and hip caps		$8,000	
Parge coat repairs at foundation		$6,000	
Replace cracked keystone south elvation; step crack repairs		$8,000	
SUBTOTAL		**$139,000**	

DIV. 08 - OPENINGS	PHASE 1 URGENT REPAIRS	PHASE 2 SHORT TERM	REMARKS
Replace door at fire escape		$4,000	
SUBTOTAL		**$4,000**	

DIV. 09 - *FINISHES*	PHASE 1 URGENT REPAIRS	PHASE 2 SHORT TERM	REMARKS
Prep and paint fire escapes and areaway grates		$4,000	
Paint carpentry repairs		$4,000	
Repairs to window mullions		$4,000	
Paint site wall railing	$4,000		
SUBTOTAL	**$4,000**	**$12,000**	

DIV. 10 - SPECIALTIES			REMARKS
Lightning Protection		$35,000	
SUBTOTAL		**$35,000**	

SUBTOTAL	**$712,000**	**$315,000**
General Conditions: @ 15% +	$106,800	$47,250
HARD COST SUBTOTAL	**$818,800**	**$362,250**
Overhead + Profit: @ 10% +	$81,880	$36,225
SUBTOTAL	**$900,680**	**$398,475**
Payment + Performance Bonds: @ 1% +	$9,007	$3,985
CONSTRUCTION COST SUBTOTAL	**$909,687**	**$402,460**
Design & Pricing Contingency 5%	$45,484	$20,123
Construction Contingency: @ 15% +	$136,453	$60,369
Escalation & Inflation, 8% per year 8%	$72,775	$32,197
Architecture/Engineering Fees: @ 15% +	$136,453	$60,369
PROJECT COST TOTAL	**$1,300,852**	**$575,517**
COMBINED TOTAL	**$1,876,370**	

COST ESTIMATE

Town of Belmont
School Administration
Building

Spencer Preservation Group
PRESERVATION ARCHITECTS

October 06, 2023 - (DRAFT)

PROJECT DESCRIPTION:

DIV. 01 - *GENERAL REQUIREMENTS*		PHASE 1 URGENT REPAIRS (BY 2028)	PHASE 2 SHORT TERM (5-10 YEARS)	REMARKS
	Access, disposal, general equipment	$30,000	$20,000	
	SUBTOTAL	**$30,000**	**$20,000**	

DIV. 04 - *MASONRY*		PHASE 1 URGENT REPAIRS	PHASE 2 SHORT TERM	REMARKS
	Rebuild the site walls & provide thru wall flashing at capstones		$25,000	
	Rebuild/Repoint south chimney including new capstone	$16,000		
	Rebuild/Repoint north chimney including new capstone		$16,000	
	Repoint limestone cornice		$10,000	
	Selective masonry cleaning of efflorescence and biota		$7,000	
	Selective repairs at limestone units		$20,000	
	Repoint West steps		$4,000	
	Modify roof parapet walls, west elevation	$12,000		
	Repoint deteriorated joints adjacent to downspouts		$6,000	
	SUBTOTAL	**$28,000**	**$88,000**	

DIV. 06 - *WOOD, PLASTICS, AND COMPOSITES*		PHASE 1 URGENT REPAIRS	PHASE 2 SHORT TERM	REMARKS
	Fascia repair at elevator override	$4,000		
	SUBTOTAL	**$4,000**		

DIV. 07 - *THERMAL AND MOISTURE PROTECTION*		PHASE 1 URGENT REPAIRS	PHASE 2 SHORT TERM	REMARKS
	Provide sealant and brickmoulding where missing at window jambs	$12,000		
	Improve basement window areaway drainage	$15,000		
	Provide sealant at counterflashing reglets	$6,000		
	Repair/resolder at gutters, downspouts and flashings	$20,000		
	Flat seam copper roof replacement/repair in elevator area		$4,000	
	Selective repair and replacement of flat seamed copper roofs	$40,000		
	Selective replacement of broken and missing slates	$8,000	$8,000	
	Repairs of copper roofing at both parapets, west elevation	$10,000		
	Alterations to slate roofing at the elevator over-ride area	$8,000		
	SUBTOTAL	**$119,000**	**$12,000**	

DIV. 08 - OPENINGS		PHASE 1 URGENT REPAIRS (BY 2028)	PHASE 2 SHORT TERM (5-10 YEARS)	REMARKS
	Existing historic windows: remove, strip, reglaze, prime and paint		$146,000	
	SUBTOTAL		**$146,000**	

DIV. 09 - *FINISHES*		PHASE 1 URGENT REPAIRS	PHASE 2 SHORT TERM	REMARKS
	Paint metal fascia at east elevation		$2,000	
	Paint wood fascia at elevator override	$1,000		
	SUBTOTAL	**$1,000**	**$2,000**	

DIV. 10 - SPECIALTIES		PHASE 1	PHASE 2	REMARKS
	Lightning protection system	$25,000		
	SUBTOTAL	**$25,000**		

SUBTOTAL	**$207,000**	**$268,000**
General Conditions: @ 15% +	$31,050	$40,200
HARD COST SUBTOTAL	**$238,050**	**$308,200**
Overhead + Profit: @ 10% +	$23,805	$30,820
SUBTOTAL	**$261,855**	**$339,020**
Payment + Performance Bonds: @ 1% +	$2,619	$3,390
CONSTRUCTION COST SUBTOTAL	**$264,474**	**$342,410**
Design & Pricing Contingency 5%	$13,224	$17,121
Construction Contingency: @ 15% +	$39,671	$51,362
Escalation & Inflation, 8% per year 8%	$21,158	$27,393
Architecture/Engineering Fees: @ 15% +	$39,671	$51,362
PROJECT COST TOTAL	**$378,197**	**$489,647**

Town of Belmont, MA
Homer Municipal Building
Conditions Assessment

Spencer Preservation Group
PRESERVATION ARCHITECTS

October 05, 2023 *- (DRAFT)*

DIV. 01 - *GENERAL REQUIREMENTS*	PHASE 1 URGENT REPAIRS (BY 2028)	PHASE 2 SHORT TERM (5-10 YEARS)	REMARKS
Access, Disposal, Staging	$60,000	$30,000	
SUBTOTAL	**$75,000**	**$30,000**	

DIV. 04 - *MASONRY*	PHASE 1	PHASE 2	REMARKS
Replace cementitious wash at chimney and brick stringcourse, tinted red to match archway wash.		$7,000	
Selectively clean efflorescence from all masonry.		$4,000	
Selectively repoint masonry at eaves and re-set loose corbeled brick units.		$12,000	
Re-set and clean monolithic granite steps/cheek walls at north entry. Provide new concrete base. Replace spalling/cracked bricks from shifting stone with salvaged units and repoint. Re-set and repaint handrails.		$20,000	
Re-set monolithic granite cheek walls at west entry. provide new concrete base. Replace spalling/cracked bricks from shifting stone with salvaged units and repoint. Remove patio pavers at entryway and excavate to expose foundation and leaks. Rebuild any damaged foundation masonry and waterproofing. Rebuilt patio pavers with adequate slop and drainage.	$40,000		
SUBTOTAL	**$40,000**	**$43,000**	

DIV. 06 - *WOOD, PLASTICS, AND COMPOSITES*	PHASE 1	PHASE 2	REMARKS
Replace missing ventilator brackets and all corner boards. Repaint all wood.	$1,500		
Epoxy consolidate and refastened deteriorated arched trim at dormers.	$20,000		
Open up rotted sections of eaves/soffits to expose rafter tails. Replace damaged framing or sister new nailers. Refasten loose soffit boards and fascias and replace damaged/warped woodwork, including gutter bedmould in conjuction with copper work.	$60,000		
SUBTOTAL	**$81,500**		

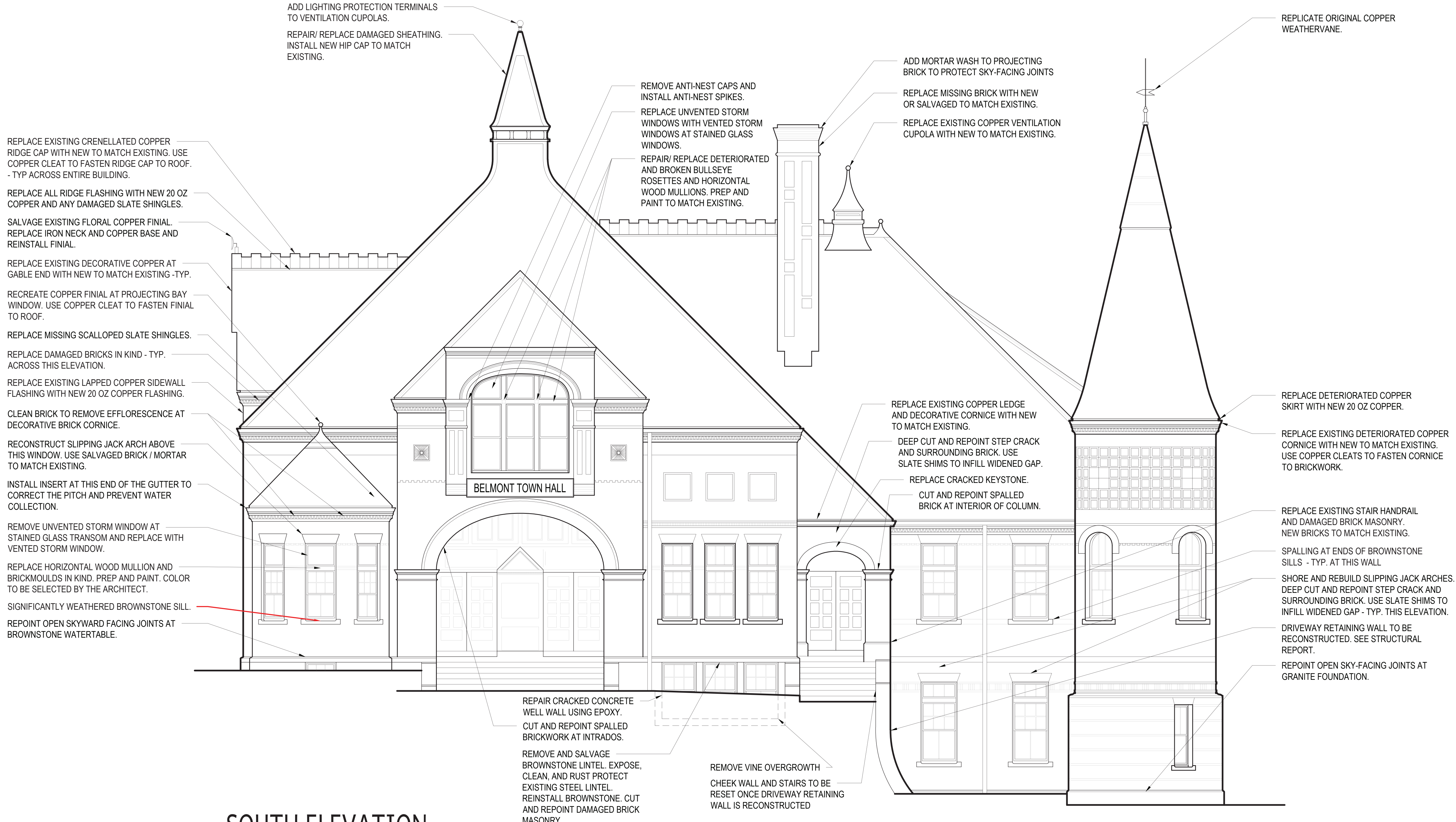
DIV. 07 - *THERMAL AND MOISTURE PROTECTION*	PHASE 1	PHASE 2	REMARKS
Selectively replace loose, missing, and damaged slates (allow 50 slates).	$6,000		
Remove pipe snow rails from existing brackets between south façade dormers.	$500		
Uninstall copper gutters, clean and remove solder, reattached/re-solder with proper drainage pitch and new underlayments.	$40,000		
Replace sealant at vinyl dormer windows.	$4,000		
SUBTOTAL	**$50,500**		

DIV. 09 - *FINISHES*	PHASE 1	PHASE 2	REMARKS
Prep and paint ventilator woodwork, brackets, cornerboards.	$5,250		
Prep and paint dormer woodwork and trim.	$7,000		
Prep and paint eave woodwork, brackets, window transoms.	$42,000		
Prep and paint wood doors and entryways.		$5,600	
Prep and apply protective coating to entry ironwork.		$500	
SUBTOTAL	**$54,250**	**$6,100**	

			Phase 1	Phase 2
		SUBTOTAL	**$301,250**	**$79,100**
General Conditions: @	15%	+	$45,188	$11,865
		HARD COST SUBTOTAL	**$346,438**	**$90,965**
Overhead + Profit: @	10%	+	$34,644	$9,097
		SUBTOTAL	**$381,081**	**$100,062**
Payment + Performance Bonds: @	1%	+	$3,811	$1,001
		CONSTRUCTION COST SUBTOTAL	**$384,892**	**$101,062**
Design & Pricing Contingency	5%		$19,245	$8,085
Construction Contingency: @	15%	+	$57,734	$15,159
Escalation & inflation cost, per year	8%		$30,791	$8,085
Architecture/Engineering Fees: @	15%	+	$57,734	$15,159
		PROJECT COST TOTAL	**$550,396**	**$147,551**

Combined Total ***$697,946***

THIS PAGE LEFT INTENTIONALLY BLANK



SOUTH ELEVATION

--

3/32" = 1'-0"

0 2' 4' 8' 16'

OCT. 06 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS

41 Valley Road | Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

CLIENT:
TOWN OF BELMONT
455 CONCORD AVE
BELMONT, MA 02478

PROJECT:
BELMONT CIVIC COMPLEX
MULTI-BUILDING CONDITIONS ASSESSMENT
#2312-R

TITLE:
PROPOSED SCOPE:
SOUTH ELEVATION

SHEET:
A-1

-- OF --

PRINT CHECK FULL SIZE SET MEASURES 1" ANSI B 11"×17"

EAST ELEVATION

--

3/32" = 1'-0"

0 2' 4' 8' 16'

OCT. 06 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS
41 Valley Road | Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

CLIENT:
TOWN OF BELMONT
455 CONCORD AVE
BELMONT, MA 02478

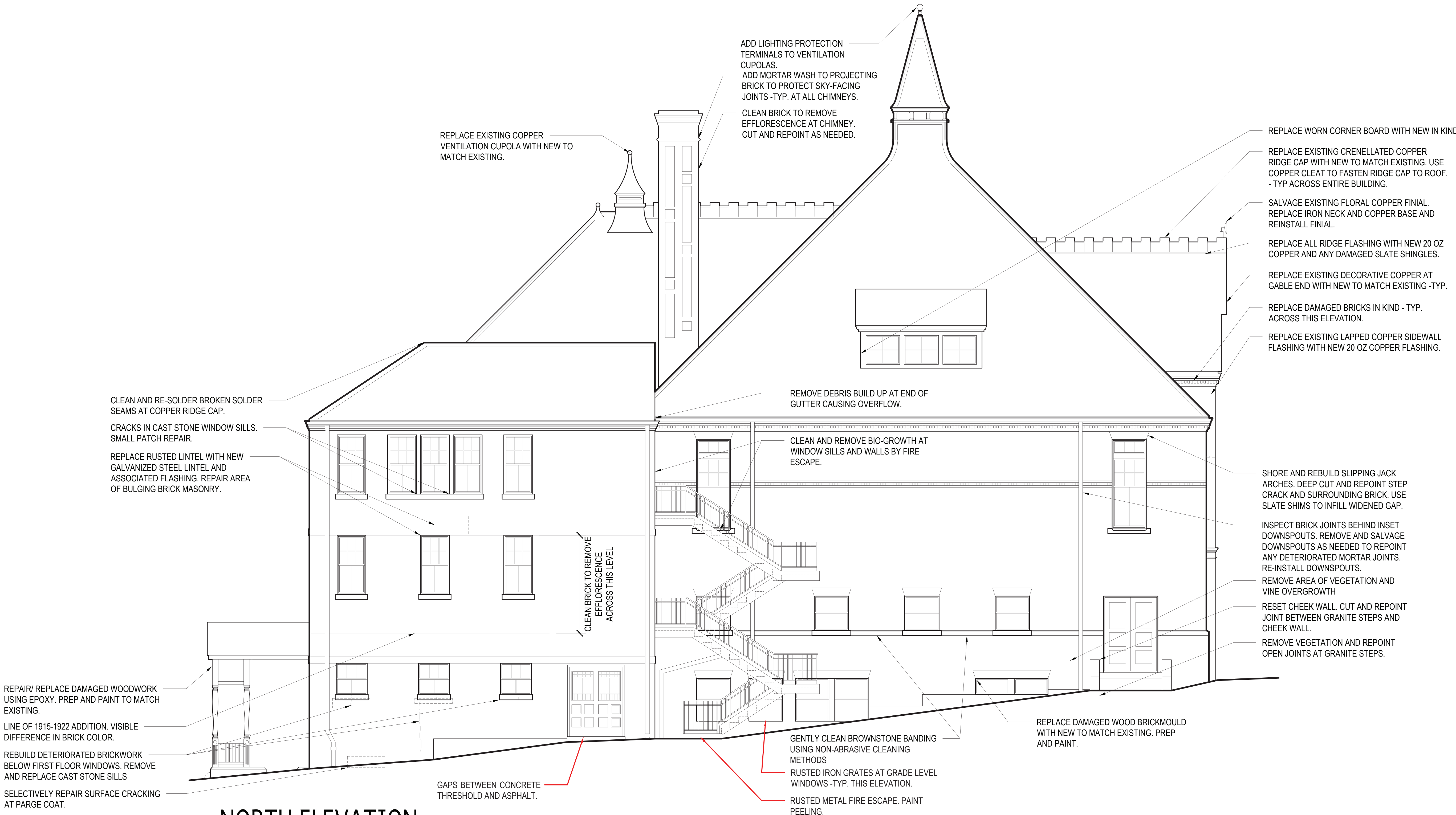
PROJECT:
BELMONT CIVIC COMPLEX
MULTI-BUILDING CONDITIONS ASSESSMENT
#2312-R

TITLE:
PROPOSED SCOPE:
EAST ELEVATION

SHEET:
A-2

-- OF --

PRINT CHECK FULL SIZE SET MEASURES 1" ANSI B 11"×17"



-- NORTH ELEVATION

3/32" = 1'-0"

0 2' 4' 8' 16'

OCT. 06 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS
41 Valley Road | Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

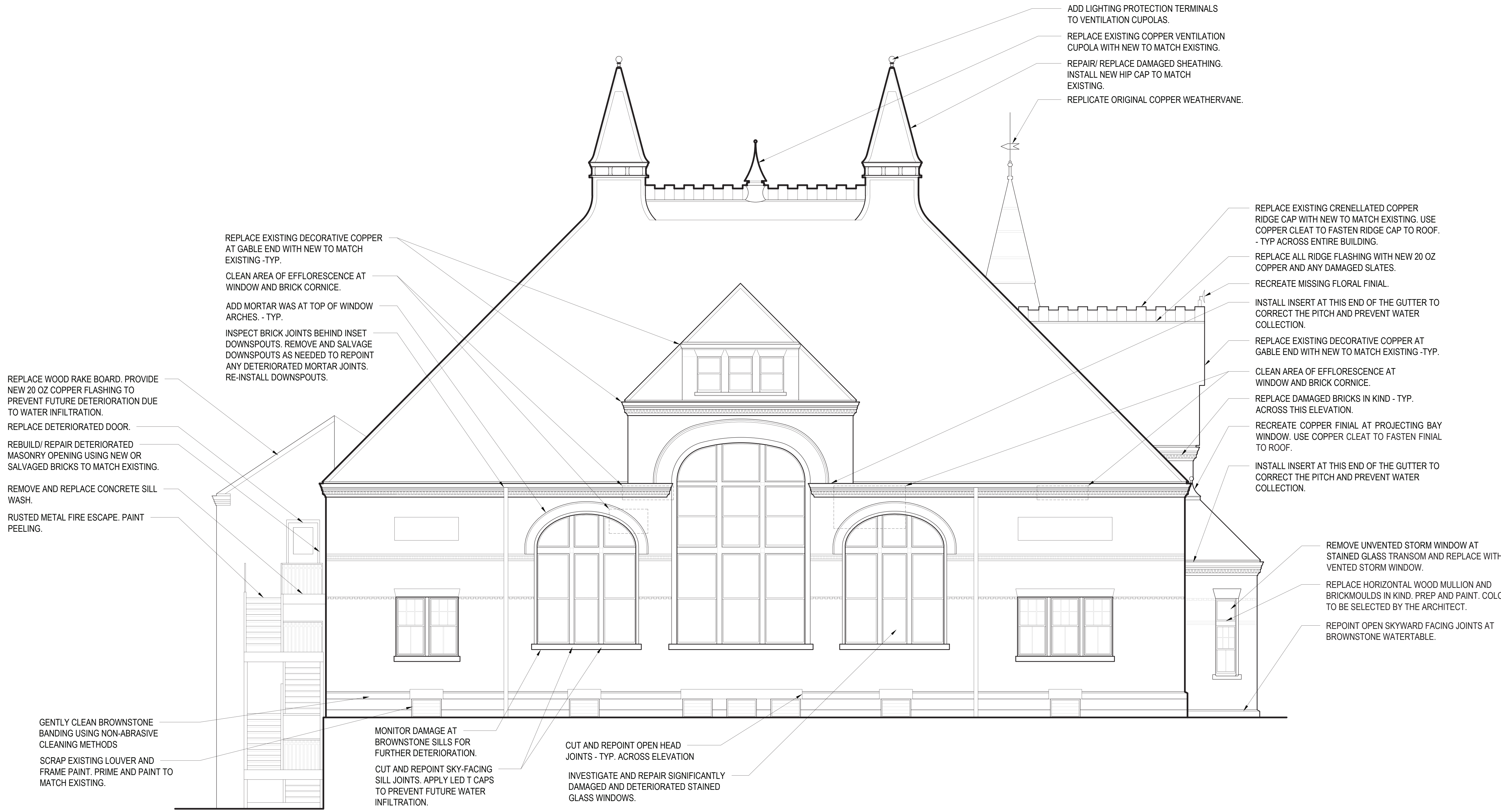
CLIENT:
TOWN OF BELMONT
455 CONCORD AVE
BELMONT, MA 02478

PROJECT:
BELMONT CIVIC COMPLEX
MULTI-BUILDING CONDITIONS ASSESSMENT
#2312-R

TITLE:
PROPOSED SCOPE:
NORTH ELEVATION

SHEET:
A-3
-- OF --

PRINT CHECK | FULL SIZE SET MEASURES 1" | R O Y G B V | ANSI B 11"×17"



-- WEST ELEVATION

3/32" = 1'-0"

0 2' 4' 8' 16'

OCT. 06 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS
41 Valley Road | Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

CLIENT:
TOWN OF BELMONT
455 CONCORD AVE
BELMONT, MA 02478

PROJECT:
BELMONT CIVIC COMPLEX
MULTI-BUILDING CONDITIONS ASSESSMENT
#2312-R

TITLE:
PROPOSED SCOPE:
WEST ELEVATION

SHEET:
A-4
-- OF --

PRINT CHECK FULL SIZE SET MEASURES 1" R O Y G B V ANSI B 11"×17"

--

EAST ELEVATION

1/8" = 1'-0"

0' 4' 8' 12'

OCT. 06 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS

41 Valley Road | Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

CLIENT:
TOWN OF BELMONT
455 CONCORD AVE
BELMONT, MA 02478

PROJECT:
BELMONT CIVIC COMPLEX
MULTI-BUILDING CONDITIONS ASSESSMENT
#2312-R

TITLE:
PROPOSED SCOPE:
EAST ELEVATION

SHEET:
A-1

-- OF --

PRINT CHECK FULL SIZE SET MEASURES 1"

R O Y G B V

ANSI B 11"×17"

-- NORTH ELEVATION

1/8" = 1'-0"

0' 4' 8' 12'

OCT. 06 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS
41 Valley Road | Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

CLIENT:
TOWN OF BELMONT
455 CONCORD AVE
BELMONT, MA 02478

PROJECT:
BELMONT CIVIC COMPLEX
MULTI-BUILDING CONDITIONS ASSESSMENT
#2312-R

TITLE:
PROPOSED SCOPE:
NORTH ELEVATION

SHEET:
A-2
-- OF --

PRINT CHECK FULL SIZE SET MEASURES 1" R O Y G B V ANSI B 11"×17"

WEST ELEVATION

--

$\frac{1}{8}" = 1'-0"$

0' 4' 8' 12'

OCT. 06 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS

41 Valley Road | Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

CLIENT:
TOWN OF BELMONT
455 CONCORD AVE
BELMONT, MA 02478

PROJECT:
BELMONT CIVIC COMPLEX
MULTI-BUILDING CONDITIONS ASSESSMENT
#2312-R

TITLE:
PROPOSED SCOPE:
WEST ELEVATION

SHEET:
A-3
-- OF --

PRINT CHECK FULL SIZE SET MEASURES 1"

R O Y G B V

ANSI B 11"×17"

-- SOUTH ELEVATION

1/8" = 1'-0"

0' 4' 8' 12'

OCT. 06 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS

41 Valley Road | Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

CLIENT:
TOWN OF BELMONT
455 CONCORD AVE
BELMONT, MA 02478

PROJECT:
BELMONT CIVIC COMPLEX
MULTI-BUILDING CONDITIONS ASSESSMENT
#2312-R

TITLE:
PROPOSED SCOPE:
SOUTH ELEVATION

SHEET:
A-4
-- OF --

PRINT CHECK — FULL SIZE SET MEASURES 1"

R O Y G B V

ANSI B 11"×17"

SOUTH ELEVATION

--

1/8" = 1'-0"

0' 4' 8' 12'

OCT. 06 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS

41 Valley Road | Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

CLIENT:
TOWN OF BELMONT
455 CONCORD AVE
BELMONT, MA 02478

PROJECT:
BELMONT CIVIC COMPLEX
MULTI-BUILDING CONDITIONS ASSESSMENT
#2312-R

TITLE:
PROPOSED SCOPE:
SOUTH ELEVATION

SHEET:
A-1

-- OF --

PLOT SIZE: ANSI A (8.50 x 11.00 Inches) | PLOT STYLE: ---- | PLOT DATE: 10/5/2023 5:56 PM | PLOTTER: None

PRINT CHECK FULL SIZE SET MEASURES 1" | R O Y G B V | ANSI B 11"×17"

WEST ELEVATION

--

$\frac{1}{8}" = 1'-0"$

0' 4' 8' 12'

OCT. 06 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS

41 Valley Road | Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

CLIENT:
TOWN OF BELMONT
455 CONCORD AVE
BELMONT, MA 02478

PROJECT:
BELMONT CIVIC COMPLEX
MULTI-BUILDING CONDITIONS ASSESSMENT
#2312-R

TITLE:
PROPOSED SCOPE:
WEST ELEVATION

SHEET:
A-2

-- OF --

PLOT SIZE: ANSI A (8.50 x 11.00 Inches) | PLOT STYLE: ---- | PLOT DATE: 10/5/2023 5:56 PM | PLOTTER: None

PRINT CHECK | FULL SIZE SET MEASURES 1" | ANSI B 11"×17"

-- NORTH ELEVATION

$\frac{1}{8}" = 1'-0"$

0' 4' 8' 12'

OCT. 06 2023

Spencer Preservation Group
PRESERVATION ARCHITECTS
41 Valley Road | Suite 211B
Nahant, MA 01908
(617) 227-2675
www.SpencerPreservationGroup.com

CLIENT:
TOWN OF BELMONT
455 CONCORD AVE
BELMONT, MA 02478

PROJECT:
BELMONT CIVIC COMPLEX
MULTI-BUILDING CONDITIONS ASSESSMENT
#2312-R

TITLE:
PROPOSED SCOPE:
NORTH ELEVATION

SHEET:
A-3
-- OF --

THIS PAGE LEFT INTENTIONALLY BLANK