

Building Envelope and Window Restoration Study

Topsfield Town Hall

Town of Topsfield



Adams & Smith / Finch&Rose

Architects / Preservation Consultants

55 Thomas Road

Swampscott, Massachusetts

617-512-5697

rsmitharch@verizon.net / finch@finchrose.com

9 March 2015

Topsfield Town Hall

Exterior Envelope and Window Restoration

Study Report

Contents

• Executive Summary	2
• Building envelope issues	4
• Preliminary budgets	10
• Photography list by areas	12
• Condition photographs	1-52
• Vendor quotes	Appendix A
• Draft window restoration specification	Appendix B
• Window schedule	Appendix C
• Plans and elevations	Appendix D

Executive Summary

The Topsfield Town Hall has been a landmark in downtown Topsfield since it was constructed in 1873. It was designed by John F. Potter in the Second Empire style, with an elaborate front façade featuring steeply pitched roofs with polychrome slate, a clock tower, wood detailed to imitate rusticated stone, and a porch surrounded by a cascade of wooden steps. The building has served as the seat of government in Topsfield since its construction; the original design housed town offices on the first floor and a municipal auditorium above. In more recent years, the auditorium has been converted to office uses, with storage on the balcony.

Over the years, the Town has funded maintenance and repairs for the Town Hall, which have included some design changes. The slate roof was replaced in the 1950's (?), and the banding of the original design was not recreated. The front porch has lost a column from the clusters of three which originally marked its corners, and the pyramid of steps on three sides has been reduced to a single flight in front. The elaborate chimney was rebuilt in concrete block. Apart from those changes, however, the essence of the original design remains. Repair work in the 1990's included reconstruction of the front porch and the construction of semi-enclosed vestibules over the exterior landings and steps at the north side entrances. Major residing and repairs in 2003 included the recreation of the original color scheme, and the removal of a fire escape from the south side façade. The building has been sprinklered, and accessibility improvements including a ramp to the westerly entrance on the north side and a first floor accessible toilet room. The boiler has been replaced, but the building lacks central air conditioning, which may be addressed as part of a more comprehensive scheme of interior renovations and building expansion.

Priorities

At this point, the building exterior envelope has a number of issues that should be addressed. While the slate roof is largely in good condition, the flashings have deteriorated. The windows are in need of varying levels of repair and restoration, and the addition of storm windows should be considered for energy conservation and protection of historic building elements. The sash and flashing conditions are especially critical at some of the larger second floor. Some window frames, sills and trim are in need of repairs and consolidation. The 2003 repainting is near the end of its service life and should be repainted. The major priorities are as follows:

Critical

- Repair and reconstruction of three large type B windows on the second floor
- Repair of flashings, colonette bases and Type F window sash immediately above the front porch
- Removal of severely decayed covered porch at north (parking lot) facade

High

- Sash repairs, new weatherstripping and sash locks for first floor windows
- Repair, reglazing weatherstripping and sash locks for large (type B) second floor windows
- Repair and reglazing of Type C, D, E, and G windows at east facade
- Addition of exterior storm windows to type B second floor windows

- Replacement of three Type H windows at the third floor on the east façade
- Repairs to exterior frames and trim at windows
- Repair and repaint woodwork at clock dormers and small dormers
- Repaint rusticated siding at east (front) façade
- Replace decayed woodwork at front porch
- Repair and flash projecting belt course at south façade
- Repaint building exterior
- Remove and replace deteriorating vinyl asbestos tile

Moderate

- Replace broken or missing slates at roof
- Replace valley flashings at roof
- Repair flashings at weathervane
- Replace first floor storm windows
- Add storm windows to second and third floor windows at east (front) façade
- Replacement of window hoods and flashings at south façade
- Replace clapboards at south façade
- Repoint masonry at foundation and ramp

Low

- Rebuild concrete block chimney in brick

The following sections of this report look at specific areas of the building envelope at a more detailed level and identify issues and priorities for repair and restoration.

Building Envelope Issues

Roof

- **Slate:** The slate appears to be black Monson, and it is largely in good condition. A few broken slates and small areas of missing slate, but no leaks associated with these were observed.

*Treatment: Replace broken or missing slates – **Priority; Moderate***

- **Main Roof Flashings:** Closed valley flashings at front façade right dormer, and at front north side clock tower cause roof leaks in the attic during major storms with prolonged wind driven heavy rain, though these leaks do not appear to be affecting interior finishes. South side flashings not currently leaking but are probably in similar condition.

*Treatment: Replace all closed valley flashings with new copper flashings – **Priority; Moderate***

- **Front Window Flashings:** Poor flashing installation at pilaster bases on front (east) façade immediately above entrance porch roof. Associated pilaster bases splitting and rotting. Probable source of leaks inside front doors to Town Hall. Flashings at the window above this level appear to remain sound.

*Treatment: Rework flashings and replace deteriorated pilaster bases to match existing design. – **Priority; Critical***

- **Clock Tower Copper Roof:** This roof at the weathervane leaks during major storms with prolonged wind driven heavy rain directly above clock mechanism, which is somewhat protected by plastic tarp above it. Cause is probably flashing defects where the weathervane rod penetrates the roof.

*Treatment: Needs further inspection, but probably the vane rod needs to be removed and reset. – **Priority; Moderate***

Windows (see elevations and detailed inventory spreadsheets)

- **First floor prime windows** (all type A): These are generally in good structural condition. Recently installed weatherstripping is of mediocre quality. Sash locks are of varying type and functionality. Ropes and pulleys are sound and functional. Glazing putty is generally sound with limited small areas of deterioration, and there are a very few cracked panes of glass.

*Treatment: Provide new higher quality weatherstripping and new sash locks at most first floor windows, carry out spot reglazing where required, replace of broken glass panes, and repaint all sash exteriors. – **Priority; High***

- **First floor storm windows:** These are nearing the end of their service life, although still moderately functional.

*Treatment: Consider Replacement of first floor storm windows with higher quality new units such as HarveyTrueChannel.- **Priority: Moderate***

- **Second floor type B windows:** These all have extensive and severe glazing failure. Recently installed weatherstripping is of mediocre quality. Sash locks are of varying type and functionality. Ropes and pulleys are sound and functional. Some windows have moderate separations between rails and stiles at lower corners along with moderate weathering. 3-5 windows have 20-30 year old replacement sash of poor quality and match to the original sash. 2 sash at the auditorium stage/rear stairs are badly eroded on their interior side due to lack of paint, and the one at the stair is falling apart.

*Treatment: Remove to shop and 100% reglaze and repaint all sash that are to remain. Replace poorly matched modern replacement sash and severely eroded sash to match originals using restoration glass. Repair loose corner joints and epoxy conserve weather checks. – **Priority: High***

- **Storm Windows at Type B Sash:** These windows do not have storm windows.

*Treatment: Consider installing storm sash for thermal performance and protection of the prime historic windows. Due to the size of these windows the selection and design of storm windows is complex and will require some degree of compromise on aesthetics and functionality. – **Priority: High***

- **Second floor Type C windows:** These 4 units are generally in good structural condition except #26 which has severe deterioration at its corner joints. Sash locks are of varying type and functionality. Ropes and pulleys are sound and functional. Glazing putty is generally sound with limited small areas of deterioration. A few lower corner joints have minor separations.

*Treatment: Provide new higher quality weatherstripping and new sash locks, carry out spot reglazing where required, and repaint all sash exteriors. Window 26 will require more extensive repair or in kind replacement of existing sash. – **Priority: High***

- **Type F Sash** (removable sash for access to the front porch roof): This single window has severe rot at its lower corner where water has been getting to it through the poor flashing at the pilaster base.

*Treatment: Replace to match the existing sash. – **Priority: Critical***

- **Type D Sash** (mezzanine level): These 4 fixed units are in fair condition with weathering of the lower rails and some corner separations and moderate glazing failure. Window 45 is worse than the others.

*Treatment: 100% reglaze, repair corner separations, and epoxy conserve weather checks. #26 may require in kind replacement. – **Priority: High***

- **Types E and G** (curved sash at front stair): These 4 fixed units are generally in sound condition with only minor glazing deterioration.

Treatment: Spot reglaze and repaint. – Priority: High

- **Type H Sash (attic at top of tower stair):** These three units are in very poor condition, having never received interior paint and lacking proper interior stops. They leak at their bottoms during heavy rain storms, although the water does not appear to run down to the lower levels of the stair hall.

Treatment: Replace all three to match existing sash, and provide properly finished interior frames, stops, and casings. – Priority: High

- **Type I Sash (tower dormers):** These fixed sash appear to be recent replacements and in are in reasonably sound condition.

Treatment: Repaint and spot glaze if needed. – Priority: Moderate

- **Front Facade Storm Windows:** None of the front façade windows (types C-J) have storm windows.

Treatment: Consider installing storm sash for thermal performance and protection of the prime historic windows from wind driven rain. – Priority: Moderate

Trim and Siding

- **Window Frames and Trim – North side:** A few windows on the north side have minor splitting at the base of the exterior casings.

Treatment: Epoxy conserve minor splits. – Priority: High

- **Window Frames and Trim – South side:** A few windows on the south side have minor splitting at the base of the exterior casings, some splits from rusting nails in their bullnose moldings, and a couple have loose or dislodged return moldings below the consoles (each about 3” long). There is some moderate-minor weather checking in 2 sills. Failing paint on sills is an issue

Treatment: Epoxy conserve minor splits in casings and bullnose moldings. Reset and renail loose return moldings below consoles. Epoxy conserve weather checking in sills and repaint. – Priority: High

- **Window Frames and Trim – East side:** The turned bases of the pilasters at the windows above the entry porch are delaminating badly (windows 22-24, 42 and 43), the second floor being worse than the third floor. The bases of the flat pilasters associated with these windows also have some moderate deterioration. One side of the curved bullnose moldings at the third floor center windows has some long splits and cracks that may be from failing past epoxy repairs.

Treatment: Replace badly delaminating turned pilaster bases to match existing details; Epoxy conserve bottoms of flat pilasters third floor turned bases at center windows. Replace curved bullnose molding having major splits at left side of third floor center window. – Priority: High

- **Window Frames and Hoods – all side:** Other than defects noted above, the frames and hoods have deteriorated paint but otherwise are generally sound. The hoods are all covered with metal flashings that appear to remain sound (recent copper on the north, east, and west sides, older painted metal of unknown material on the south side).

*Treatment: Repaint frames and hoods. On south side replace metal hoods and other window flashings with new copper in conjunction with replacement of clapboards if and when that is done. **Priority: repainting High, replacement of south side hoods and flashing, Moderate.***

- **Woodwork at Tower Clocks and Small Dormers:** The tracery below the north side clock is missing a substantial section on the left side. The woodwork associated with the other clocks and the small dormers appears to remain sound, although hands on inspection may reveal unseen defects. The paint on all the tower wood work is in poor condition.

*Treatment: Replace the missing woodwork at the north side clock to match the existing woodwork on the other clocks. Repaint all the tower woodwork. Note that access to this level of the building is an issue in determining when work should be done to these elements. **Priority: High***

- **Clapboard siding:** Clapboards on north, and west sides were installed ca. 2003 and remain serviceable other than their paint which is starting to fail. They are in short lengths with butt end joints, which is not ideal. There is occasional minor splitting at clapboard end butt joints, that condition is not severe enough to warrant replacing the clapboards again. On the south side the clapboards appear to be original and are also in short lengths with butt end joints. Paint failure is more extensive (they were not repainted in 2003), and on close inspection a substantial number have developed sizeable splits starting at the butt joints.

*Treatment: Repaint clapboards on all sides. Consider replacement of south side clapboards. **Priority: repainting High, replacement of south side clapboards – Moderate.***

- **Rusticated siding on front façade:** This siding was replaced in 2003, apparently using mahogany, It remains in sound condition other than paint that is starting to fail.”

*Treatment: Repaint all rusticated siding. **Priority: High***

- **Front Entry Porch Woodwork:** Trim at the base of the north side column and pilaster are severely decayed due to poor quality wood used in the porch rebuilding. The rest of the woodwork appears to remain sound, including the substructure of the porch floor.

*Treatment: Replace rotted trim elements at the north side column and pilaster. – **Priority: High***

- **North façade entry porches:** The westerly glazed porch at the north façade has been removed because of advanced decay. The easterly porch also has severe decay.

Treatment: Reconstruct the porches using more rot resistant wood species (not pressure treated). – Priority: removal of east porch: Critical, reconstruction of both porches: High

- **Projecting belt course on the south façade:** the upward facing surface of the belt course has moderate weather checking but remains otherwise sound without rot.

Treatment: Epoxy conserve and repaint if the clapboards are to be left as is. If clapboards are to be replaced, install copper flashings on the tip surface matching the flashings installed in 2003 on the belt courses of the other facades. – Priority: High

Masonry

- **Exposed Brick at Foundation Level:** Extensive areas of brick visible above grade have open substantially eroded or open mortar joints. The bricks remain sound.

Treatment: Cut and repoint areas of defective joints using type S mortar (1:2:8, cement: lime: sand) matching the color and tooling of existing adjacent sound joints. Using a higher cement content may lead to spalling of the brick. – Priority: moderate

- **Front Façade Granite Foundation:** About ten lineal feet of mortar joints in the granite base of the east façade are open.

Treatment: Cut and repoint areas of defective joints using type S mortar (1:2:8, cement: lime: sand) matching the color and tooling of existing adjacent sound joints. – Priority: moderate

- **Main Chimney above the roofline:** The main chimney was reconstructed using painted concrete block.

Treatment: Rebuild with brick similar in size, color, and surface texture to the historic brick used in the foundation. – Priority: Low

- **Handicapped Ramp Masonry:** There are numerous open joints in the brick base of the ramp.

Treatment: Cut and repoint areas of defective joints using type N mortar (1:1:5, cement: lime: sand). – Priority: Moderate

Other

- **Window 34 on south façade:** Window 34 was altered to add a door to a fire escape that is no longer present.

Treatment: Make a decision on whether to reconstruct that window or leave it as is pending design decisions on the potential addition on this side. – Priority: Moderate

- **Interior flooring:** The first floor corridor is covered with a vinyl tile that is deteriorating and cracking. From the size, it appears likely to be vinyl asbestos tile. While this is not an issue if the

tile is intact, in this case it is cracking and breaking up, posing an asbestos hazard issue. This tile may be present in other areas under carpet.

*Treatment- Test tile for asbestos content. If it is asbestos tile, remove tile using containment and hazardous materials procedures and replace with new finish flooring. If not, removal does not require containment. **Priority: High; but vinyl asbestos tile contained under other finishes is not an immediate hazard and can be removed as part of future renovations.***

- **Timing of some work elements on the south façade (i.e., clapboard and flashing replacement) and at the tower roofs:** Coordination of clapboard and flashing replacement on the south relates to some extent to decisions regarding the eventual construction of an addition. Flashing replacement at the tower roof valleys is a major job requiring extensive staging and an additional sub-contractor. Given that the leaks associated with the valleys are infrequent and somewhat benign, this work could be postponed until other major roofing work is needed.

Repair and Restoration Budgets

From the analysis of conditions and conversations with vendors and contractors as noted below, we have developed budgets for a series of repair projects. These could be undertaken individually or as parts of a larger project, but we would recommend procurement in a manner that allows the Town to make use of specialists in restoration work.

1. Front Façade Central Area Repairs

- Description: Replacement and repair of decorative woodwork is required of the first floor porch columns and pilasters. Repairing or reproducing the pilaster base detail at second and third floor levels. Replacing of single sash on window over porch roof which has severe rot caused by inadequate flashing allowing water penetration. Repair flashing on porch roof to prevent water infiltration to structure. These are important features, defining the architectural period of the Town Hall and setting off the main entry to the building.
- Vendor: NAPCO Construction
- Construction Cost: \$9500 + 950 painting= \$10,450 (Center section 2nd floor)
\$4 - 6,000 + 600 painting= \$6,600 (porch column repairs)
- Replace 3 Type H windows (#46-48): \$5,000 (add \$2100 for storm windows)

2. East Porch Portico Demolition and Removal

- Description: Due to its deteriorated and unsafe condition, the East Porch walls and roof must be removed. Work includes removal of porch, repair to exterior wall, cement step repair and the addition of handrails for access to the door. This parallels the removal of the West Porch.
- Vendor: Steve Nutter Carpentry
- Construction Cost: \$8,000

3. Select Window Restoration

- Description: The THBC is planning to undertake the restoration of the building's historic windows. However, three Type B second floor windows (#28, 32 & 33) require immediate attention with total sash replacement and single glazed window panes to match the existing historic window sash. They have been temporarily stabilized with plywood and 2x4 supports.
- Vendor: Window Woman of New England
- Construction Cost: \$11,550

4. Window Restoration

- Restoration of the existing historic wood window sash and frames. This includes varying levels of repair, restoration and reconstruction of wood windows as described in proposal from Window Woman of New England and the specification appended to this report. Windows 27, 32 and 33 from the proposal are covered under Item 3 above, windows 46-48 are covered under item 1 above.

- Vendor: Window Woman of New England
- Construction cost: \$69,350

5. Storm Window Purchase

- Description: As mentioned above, it is THBC's plan to restore all of the Town Hall's windows as they are significant part of the historic building fabric and analysis has shown that the construction of these windows, once repaired, will far exceed the life span of any replacement windows at a lesser or equal price. In order to achieve energy efficiency on par and to protect the primary sash thereby further extending the life of the windows, the THBC plans to install exterior storm windows. Installation of the storm windows will follow the project to repair all the windows in 2016.
- Vendor: Allied Windows
- Purchase Cost: \$21,500 (Budget \$5,000 for future installation)

6. Foundation Brick and Granite Repointing

- Description: Cut and repoint eroded or open mortar joints in exposed brick above the grade in the foundation; and cut and repoint mortar joints in granite base on east façade. Proper repair and maintenance of foundation mortar joints is critical for the integrity of the foundation blocks (brick and granite) and to prevent water infiltration during heavy rains and flooding.
- Vendor: Richard Irons
- Construction Cost: \$25,000- 30,000

7. Front Slate Roofing Repairs

- Description: The roof work for the steep front east side would include a scope of work for the replacement repairs to limited areas of broken and missing slates; replacement of closed valley flashing (4 valleys) by the clock tower and the two dormer roofs (4 valleys), weathervane flashing repairs, and repairs to woodwork at dormers and clock faces.
- Vendor: Stanley Roofing (NAPCO Construction budget similar)
- Construction Cost: \$34,500 (add \$22,400 to reflash 8 clock dormer valley flashings; \$1500 to paint dormers and clock faces)

Existing Conditions Photographs

The following 52 pages of 105 annotated photographs provide a visual survey of existing conditions at the Topsfield Town Hall. The locations of the photographs are indicated by the numbers and arrows on the six sheets of plans at the end of the photograph pages. The areas covered are as follows:

Photos 1-6:	Historic and current overall views of exterior
Photos 7-19	Front façade and porch issues
Photos 20 & 21	North façade “doghouse” issues
Photos 22 & 23	Mortar and repointing
Photos 24-27	South façade siding and trim
Photos 28-33	Slate roof
Photos 34-45	Second floor Type B window issues
Photos 46-50	East façade windows
Photos 51-57	First Floor type A windows
Photos 58-60	Third floor windows
Photos 61-72	First floor interior
Photos 73-80	Second floor interior
Photos 81-86	Balcony level interior
Photos 87-97	Attic and clock tower
Photos 98-105	Basement interior