Preservation Timber Framing, Inc.

4/10/2023 | 101 Photos

Bowdoinham Old Town Hall Photo Report

Introduction

1

Southeast Elevation. The building is situated on the height of land, and serves as a waypoint for visitors.

Date: 9/9/2022, 2:18pm

2

South eave elevation. The addition is not original and houses a contemporary, accessible bathroom.

Date: 9/9/2022, 2:17pm

3

West Gable end, rear egress.

Date: 9/9/2022, 2:16pm

4

North eave elevation. This photo shows how the rear wall of the tower is stepped back from the main front gable wall.

Date: 9/9/2022, 2:15pm

5

East gable elevation. The fairly humble front wall belies an elegant interior.

Date: 9/9/2022, 2:13pm

6

The front entrance doors are tall. The ceiling is higher in the foyer than in the side-bay storage rooms.

Date: 9/9/2022, 2:11pm

7

The main hall has a beautiful ceiling which connects to all four walls with a shallow elliptical cove.

Date: 9/9/2022, 2:11pm

8

The tall windows let in a lot of light. The eave posts in each bent are expressed in the room, and cased with trim.

Date: 9/9/2022, 2:11pm

9

The main room is accessible and has a lot of potential for community and rented functions.

Date: 9/9/2022, 2:10pm

10

The narthex wall also shows two posts expressed from the wall. These are not aligned with rear tower posts.

Date: 9/9/2022, 2:09pm

11

The stage area is very sweet and is a great community resource for presentations and functions.

Date: 9/9/2022, 2:10pm

Foundation and Grounds

1

The foundation has received many generations of repair. Above ground, it is mortared, with stones of widely varying size.

Date: 2/8/2023, 3:49pm

2

This stone wall is unusual for a building of this age. It is more typical for the foundation to have a fieldstone foundation below grade and capped with granite capstones. It is common for a dry-laid foundation to be infilled with mortar, but it is uncommon for the stones to vary so widely in size.

Date: 2/8/2023, 3:49pm

3

Recently, movement has been observed in the foundation. Here a long crack is visible in the mortar.

Date: 2/8/2023, 3:49pm

4

This capstone is proud of the wall plane. Water that lands on this corner can be redirected into the building, rotting the framing from the foundation up.

Date: 2/8/2023, 3:49pm

5

The infill mortar work varies in neatness and skill, and appears to have been applied in multiple generations.

Date: 2/8/2023, 3:49pm

6

Northwest foundation corner. This section has moved dramatically, and shows multiple repair attempts. The footer is not adequate to withstand annual freeze-thaw cycling.

Date: 2/8/2023, 3:47pm

7

Despite mortaring attempts, this north eave foundation stone has tipped into the crawl space.

Date: 2/8/2023, 3:48pm

8

Behind the ramp, the grade pitches toward the building and directs rainwater under the building. Water and snow get trapped in the gully between the ramp and building.

Date: 2/8/2023, 3:50pm

9

Consequently, the water table is showing signs of rot.

Date: 2/8/2023, 3:50pm

10

The crawl space is full of old bottles, debris, and broken glass. It will need to be removed, and some of the items may be of interest to a local antiquarian.

Date: 2/8/2023, 3:07pm

Undercarriage

1

Entrance to the crawl space from the stage hatch shows wall framing below the stage. A mid-wall timber is wide and shallow, and shows the remains of former casing.

Date: 2/8/2023, 2:49pm

2

Southwest corner. A new south sill has been installed without engaging the undercarriage joinery. The new sill is about 3" narrower than the original sill.

Date: 2/8/2023, 2:50pm

3

The floor is bisected longitudinally by two major summer beams. These are intersected by large floor girts aligned with the bents. large log joists intersect the summer beams and eave sills, parallel with the floor girts. The major intersections on picked up on stone piers, which has significantly contributed to the longevity of this frame.

Date: 2/8/2023, 3:01pm

4

The floor girts are beautifully hewn.

Date: 2/8/2023, 3:07pm

5

The longitudinal summer beams are picked up on stone piers, which lends the floor system significant stability.

Date: 2/8/2023, 2:55pm

6

The log joists are supported at the midspan by little 2x8 kickstands. These stand on long 2x8s laid in the dirt, and are a temporary repair.

Date: 2/8/2023, 3:01pm

7

The large floor girts do not join to the new south eave sill. The sill is quite undersized and do not appear to have ever engaged the joinery.

Date: 2/8/2023, 3:02pm

8

The floor girt tenons were left in place, and no joinery was cut into the sill.

Date: 2/8/2023, 3:02pm

9

The new sills were joined to one another with short lap joints.

Date: 2/8/2023, 2:52pm

10

The ends of the log joists show signs of rot. They do not connect with the replacement sill.

Date: 2/8/2023, 2:54pm

11

Another log joist end showing signs of rot, not connecting with the eave sill, and propped up on a rickety 2x8.

Date: 2/8/2023, 2:54pm

12

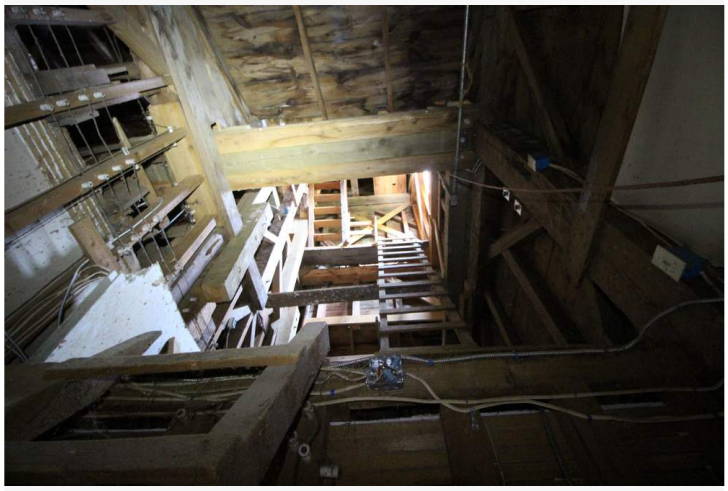
This duct work is disconnected. Ducts will need to be serviced.

Date: 2/8/2023, 2:55pm

Tower Frame

1

Looking north and up into the tower. The tower is accessed through the ceiling of the south storage closet. There is good access to the tower, with new ladders and stairs.



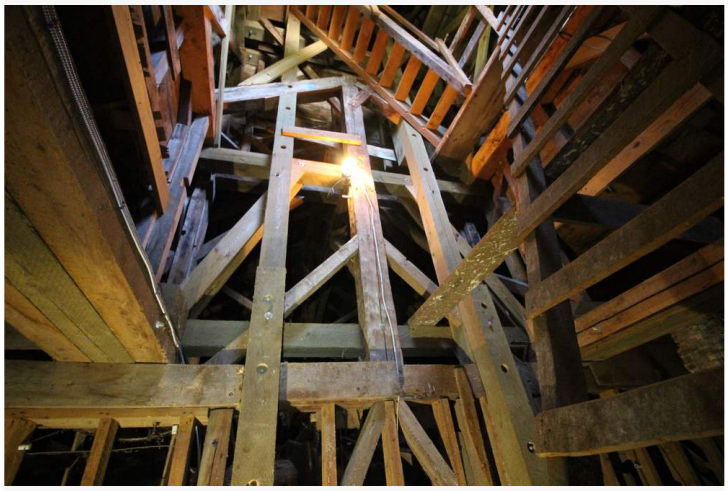
Date: 9/8/2022, 12:43pm

2

Looking north and up into the tower. The walls have been extensively braced with additional 2x8 kiln-dried lumber.

Date: 2/8/2023, 11:39am

3



Looking west and up into the trusses. The hewn king post can be seen at the center of all this framing. A lot of framing has been added and primarily attached without joinery and with through bolts. It appears that the builder was attempting to load the tower onto the narthex wall, which isn't a bad idea.

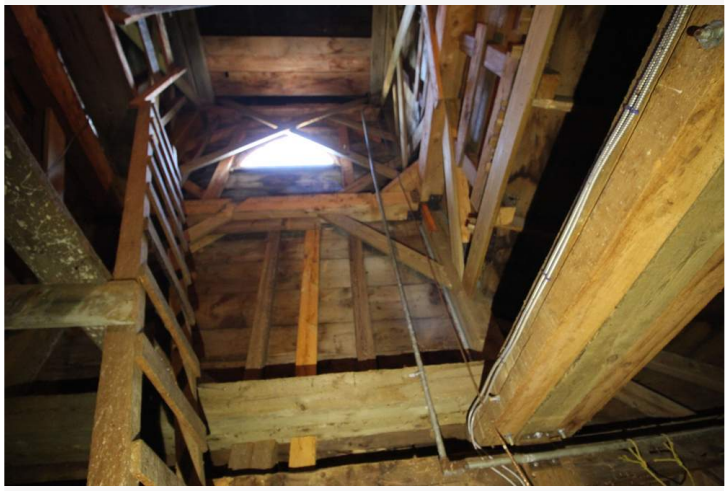
Date: 9/9/2022, 2:30pm

4

Looking south and up into the tower. The tower contains both original bracing and later stabilization bracing made from long pieces of dimensional kiln-dried lumber.

Date: 2/8/2023, 11:39am

5



Looking East and upwards into the tower. The triangular front window can be seen from the interior.

Date: 9/8/2022, 12:58pm

6

North tower bed timber and sisters. The tower beds cross from Bent 1 to bent 3 and pick up the tower posts, and other framing, like this stud and brace. The original bed timber was at 8x8 and is sandwiched between two new 8x8 sisters.

Date: 2/8/2023, 11:38am

7

South tower bed timber. The rear corner stud of the plinth frame is landing on the bed timbers here, the rear tower post is behind the Bent 2 truss.

Date: 2/8/2023, 11:39am

8

SW rear tower post, on short blocks, over replacement bed timbers.

Date: 9/9/2022, 3:24pm

9

South bed timbers, blocks and SW tower post. These tripled bed timbers appear to be cut from completely new material. The center timber is not original.

Date: 9/9/2022, 12:45pm

10

NW tower post, short blocks. The post is relieved on the rear face so that part of the bottom of the post foot is not in contact with the blocks.

Date: 9/9/2022, 3:24pm

11

North bed timber and block. The center timber appears to be the original bed timber and has been severed and sistered.

Date: 2/8/2023, 12:17pm

12

At Bent 1, the south gable, two sleeper timbers cross the tower bed timbers.

Date: 2/8/2023, 11:38am

13

Front tower sleepers cross bed timbers and support SE tower post. The post has been severed and is secured to the sleepers with angle iron and lag screws.

Date: 2/8/2023, 11:38am

14

When the SE post was installed, all joinery was severed. Many of the tower girts were also replaced, and connected to the tower post with angle iron. Unfortunately, the tower posts were undersized, and there are significant gaps between the ends of the girts and the face of the tower post. These should be filled, and additional shear blocks installed.

Date: 2/8/2023, 11:37am

15

The NE front tower post was also replaced. This is the section immediately BELOW the bed timbers. The replacement section was butt cut and stacked upon the original post, it can be seen in the lower center of the frame. The joint is sistered with a new large 8x8 timber, which is through-bolted to the replacement section.

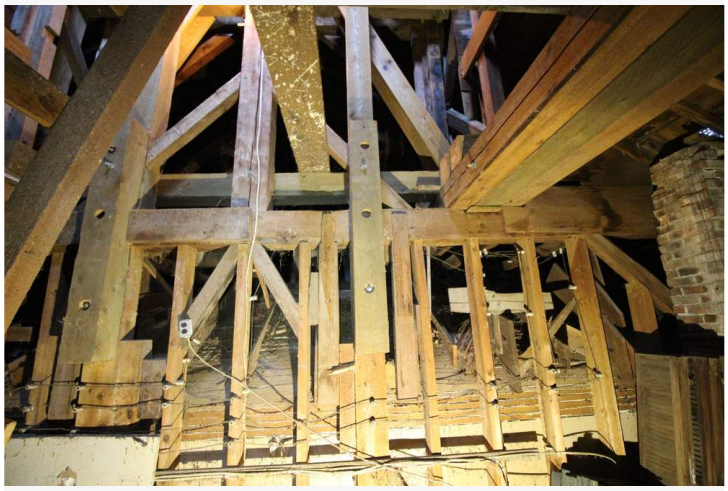
Date: 9/8/2022, 12:59pm

16

Bent 2, rear tower wall. Two additional 8x8 posts have been installed on either side of the king post.

Date: 2/8/2023, 11:37am

17



The posts land on the narthex wall. It would seem that the builder was attempting to transfer the belfry load to the narthex wall. It is unclear whether this was successful. Vertical bolsters reinforce the butt cut connections.

Date: 9/9/2022, 2:31pm

18

These large vertical bolsters and through bolts take the place of timber frame joinery. They are working for now. Through-bolts should be checked periodically for tightness.

Date: 9/9/2022, 2:33pm

19

West tower wall and belfry "crab." The additional tower posts run up to the belfry bed timbers.

Date: 9/9/2022, 3:48pm

20

The belfry posts are supported on a stack of timbers that crisscross the tower plates. The long additional posts are visible at the very top of the frame, attached to two of the belfry bed timbers with angle iron

Date: 2/8/2023, 1:55pm

21

Belfry crab, looking south. The lower two belfry bed timbers cross beneath the plate, and the upper bed timbers criss above the plate. A bolster fills a void the thickness of the plate. The bed timbers are through-bolted together.

Date: 9/9/2022, 3:48pm

22

The belfry posts land on the belfry bed timbers, and are through-bolted. A section of angle iron crosses the joint on the opposite side. Everything is secured to the plates, but are the plates secured to the tower posts?

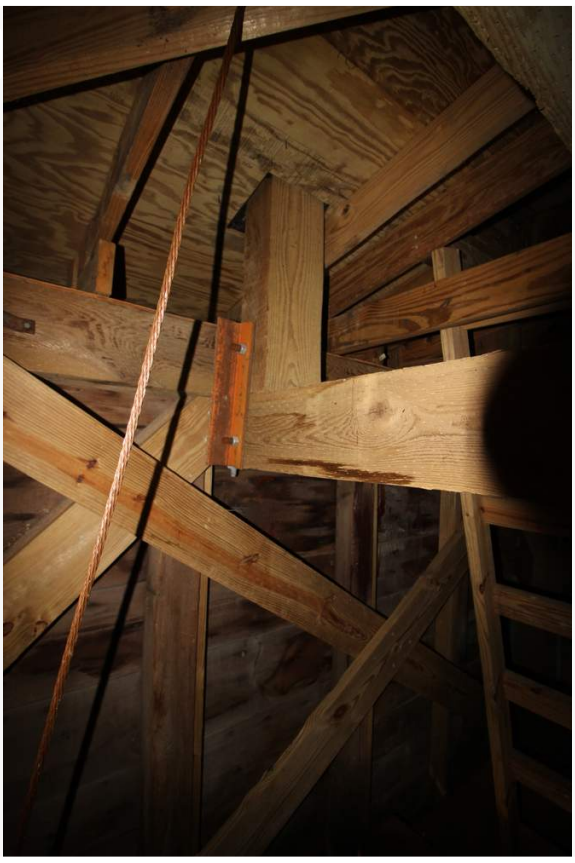
Date: 2/8/2023, 1:58pm

23

Belfry crab and post, north tower plate. In the background, the additional Bent 2 posts can be seen crossing the upper belfry bed timber.

Date: 2/8/2023, 1:58pm

24



SSW belfry post, set upon the lower belfry bed timber.

Date: 2/8/2023, 2:01pm

25

The tower roof is a new addition from the 1990s, and is a conventionally-framed hip roof.

Date: 2/8/2023, 2:09pm

26

Detail of the tower roof cornice framing.

Date: 2/8/2023, 2:10pm

27

View from the first standing girt level, below the tower plate. This tower is tall.

Date: 2/8/2023, 2:38pm

28

Belfry interior. The belfry walls are conventionally framed out of 2x4s and 2x6s, and sheathed in plywood.

Date: 2/8/2023, 2:21pm

29

Belfry dome crab. The crab that supports the dome has been rebuilt out of new 8x8s, and bolted together. It is likely that this arrangement of timbers mimics the original timber-framed crab design.

Date: 2/8/2023, 2:23pm

30

The center timbers in the crab clasp the dome's mast.

Date: 2/8/2023, 2:29pm

31

The siren is supported on bed timbers that span the belfry interior and are attached to the belfry posts.

Date: 2/8/2023, 2:35pm

Trusses and Main Bent Framing

1

Bent 3 truss. The truss is composed of a king post (at the center of the triangle), two upper chords (or rafters), one bottom chord (or tie beam), two ascending braces (or struts), two descending braces and two additional struts farther out on the tie beam.

Date: 9/9/2022, 10:52am

2

Bent 5 truss. The second set of struts is farther out on the tie beam, and meet the rafter under the intersection with the principal purlin. They do not appear to be original to the truss construction.

Date: 9/9/2022, 12:48pm

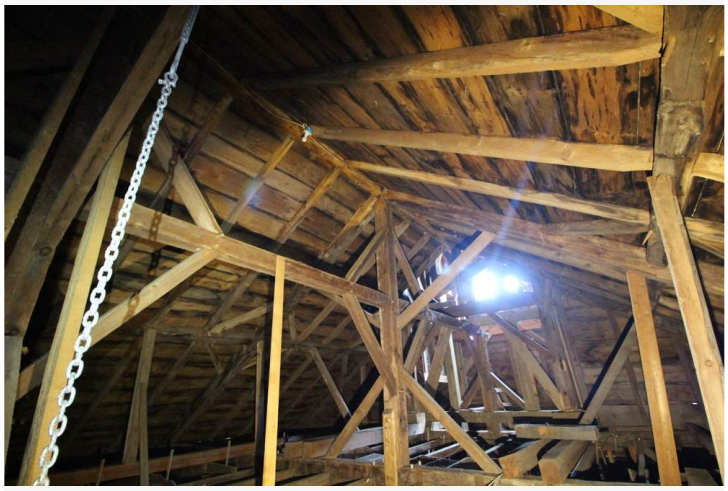
3

Bent 4 to Bent 5 trusses. The trusses are connected by a longitudinal girt, a pair of ascending braces and a pair of descending braces.

Date: 9/9/2022, 12:50pm

4

Bent 3 truss from behind, looking east. The trusses are well braced.



Date: 9/9/2022, 12:50pm

5

The ceiling cove is framed by 1x12 ribs with the profile of the cove cut into them.

Date: 2/8/2023, 12:40pm

6

Bent 3 king post. The joinery between the principal rafters and the head of the king post is tight.

Date: 2/8/2023, 11:45am

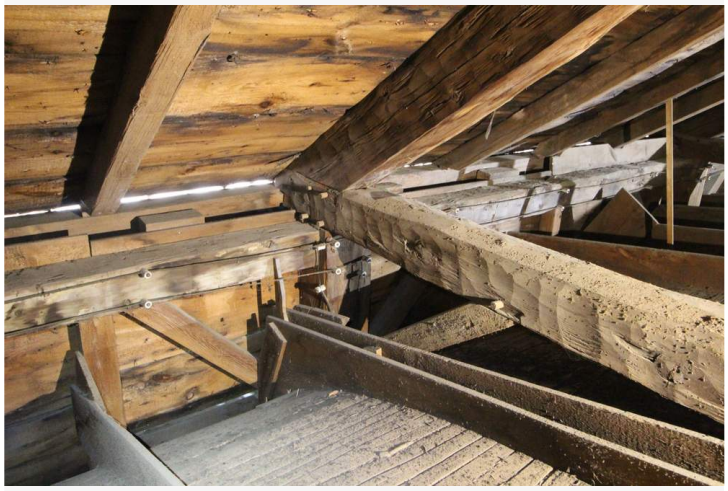
7

Bent 3, principal rafter and bottom chord. The north end of the bottom chord has a hole in the end that will require a face fix or other repair. The marriage marks indicate that the bents were originally numbered from rear to front.

Date: 2/8/2023, 12:21pm

8

Bent 3, south end of truss. This bottom chord is beautifully hewn.



Date: 9/9/2022, 11:54am

9

Bent 3, south end of bottom chord. The marriage marks on this and other trusses indicate that the bents were originally numbered from back to front.

Date: 9/9/2022, 11:58am

10

Bent 3, the bottom of the king post is gusseted on both faces at its intersection with the bottom chord.

Date: 9/9/2022, 12:46pm

11

Bent 3, the bottom of the king post, where it intersects the bottom chord, is gusseted. A stirrup strap would provide more support.

Date: 2/8/2023, 12:25pm

12

Bent 4 truss. The bent 4 bottom chord has suffered extensive water damage, and has been stabilized with 2x10 KD sisters and additional KD struts that sandwich both the upper chords and bottom chord. There are two additional chains that hang from the principal rafters and support the bottom chord between the king post and the eave plate.

Date: 2/8/2023, 12:19pm

13

Bent 4 king post head. The joinery at the top of the king post is tight.

Date: 2/8/2023, 12:26pm

14

Bent 4 truss. The bottom chord, like the rest of the attic, is covered in bat guano

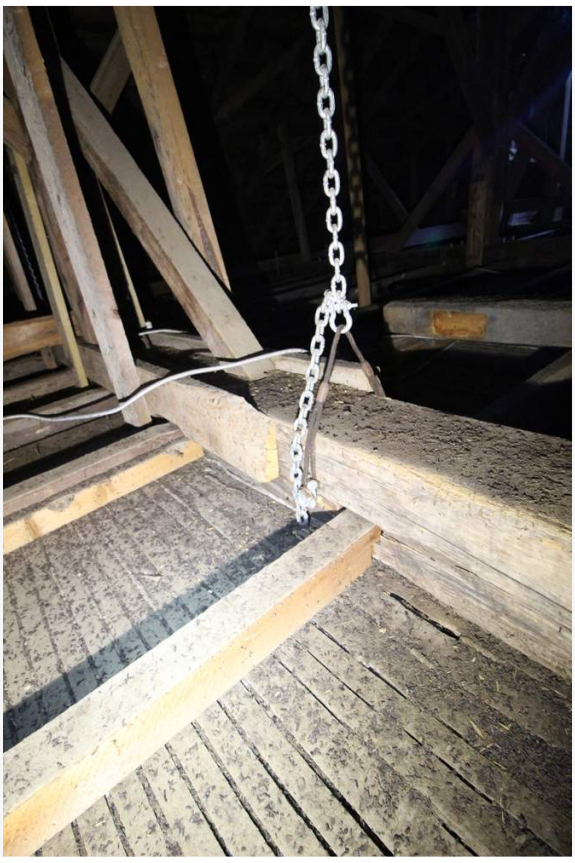
Date: 2/8/2023, 12:28pm

15

Bent 4 truss. There is extensive rot inside the king post mortise.

Date: 2/8/2023, 12:32pm

16



Bent 4 truss. Past the sisters, the bottom chord is picked up with a chain and cable, between the king post and the plate.

Date: 9/9/2022, 12:49pm

17

Bent 4 truss. Remarkably, the principal-rafter-bottom-chord connection looks stable.

Date: 9/9/2022, 12:54pm

18

The principal rafter is connected to the bottom chord with a mortise and tenon, which is double-pinned.

Date: 2/8/2023, 12:59pm

19

Bent 4 truss. South rafter heel is also tight. Bent 4 is referenced towards the rear.

Date: 2/8/2023, 12:23pm

20

Bent 5 truss. The bottom chord is also rotted directly beneath the king post. Two gussets have been added to stabilize the bottom chord, but this is not a long-lasting repair.

Date: 2/8/2023, 12:44pm

21

Bent 5 bottom chord and king post connection. The bottom chord has separated from the king post and the descending braces. There is rot in the king post mortise.

Date: 9/9/2022, 12:52pm

22

The joinery at the top of the bent 5 king post is tight.

Date: 2/8/2023, 12:43pm

23

The joinery at the heel of the bent 5 principal rafter is also remarkably tight. However, the body of the rafter itself is showing signs of mold.

Date: 2/8/2023, 12:54pm

24

Bent 5 south rafter. The Bent 5 rafter shows significant water staining.

Date: 2/8/2023, 1:01pm

25

Bent 5, south post. The south post is moldy at the intersection with the ascending brace. Both the brace and post will need to be repaired.

Date: 2/8/2023, 12:58pm

26

Bent 6 rear gable wall. Bent 6 is studded and contains the framing that once supported a triangular window similar to the one in the front wall of the tower.

Date: 9/9/2022, 12:53pm

27

The bay in front of bent 6 gives a good view of the framing that supports the coved ceiling.

Date: 9/9/2022, 12:52pm

28

The bent 6 sheathing is badly water stained.

Date: 2/8/2023, 12:40pm

29

The north rafter in bent 6 also shows extensive water staining. We anticipate it will need to be repaired.

Date: 2/8/2023, 12:38pm

30

The north end of bent 6 is quite open at the cornice.

Date: 2/8/2023, 12:39pm

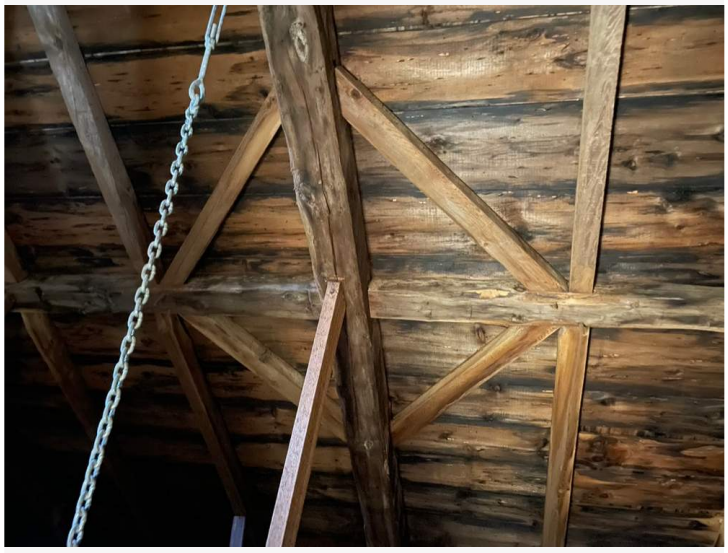
Roof Framing

1

The Bowdoinham Town Hall has a very strong roof system. It is composed of principal rafters connected by horizontal principal purlins and braces. Common rafters support the roof between the bents; they start at a flying purlin in the eave cornice, cross the principal purlin, and meet at a ridge purlin in the peak.

Date: 9/9/2022, 12:47pm

2



Ascending and descending wind braces in the roof plane lend the roof system extra stability.

Date: 9/9/2022, 10:53am

3

The sheathing shows extensive damage and water staining, not all of it recent.

Date: 2/8/2023, 12:46pm

4

Bent 5 rafter shows significant water damage, and a common rafter in the bay behind it has rotted through and been repaired with gussets and a bolster.

Date: 2/8/2023, 12:46pm

5

The attic is full of bats and their guano. Bats have many benefits, but their guano mixed with any amount of water can damage timbers.

Date: 2/8/2023, 12:42pm

6

The principal purlin between bents 5 and 6 is badly rotted, and is being stabilized with a couple of struts.

Date: 2/8/2023, 12:47pm

7

This principal purlin has been severed at the first common rafter, and will need to be replaced.

Date: 2/8/2023, 12:47pm