

Preservation Timber Framing, Inc.

CHESTER CONGREGATIONAL CHURCH

PHOTO REPORT MARCH\APRIL 2018

By Arron Sturgis on March 26, 2018





Photo 1: Chester Congregational Church/ Chester Meeting House

A model and painting of the original meetinghouse. An 1839 transformation of this early timber framed structure produces the current form of the church.

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Photo 2: Chester Meeting House

The original form shown in a painting of the Chester Meeting House now transformed into the Chester Congregational Church.

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Photo 3: Southeast Eave Wall

This eave faces Southeast. A full basement supports the sanctuary, Narthex and Tower.



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Photo 4: Retaining wall

In the 1960's the church cellar was dug out to insert a lower level for classroom and community space beneath the sanctuary. The retaining wall creates a transition from higher to lower grade.



Photo 5: Northeast Facade

The Northeast gable end of the church contains a center bump out that provides a recessed arch into which now sits the pipe organ.

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Photo 6: Northwest Eave Wall

The northwest eave is a grade with brown granite cut stones visible above grade.

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Photo 7: North Corner

The North Corner of the church also has a shallow retaining wall that contains a higher grade along the Northwest eave wall.

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Photo 8: West Corner

The West corner of the church contains the beginning of an accessible ramp to the two front entry doors.

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Photo 9: Southwest Facade and Steeple

A Greek Revival Front Facade completes the church. The tower contains a clock in the tower box frame supporting a belfry frame with louvers finally topped by a four sided spire.



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Photo 10: Brown and Blue Granite Foundation

This is the East corner of the added foundation under the Chester Congregational Church. Note the brown granite placed adjacent to the blue granite. Major work was done to create space beneath the sanctuary according to written history in the 1960's.



Photo 11: Southeast Wall: Blue Granite and New Windows

The blue granite is well done with mortar and windows have stone lintels, one piece. Sills are numerous pieces of stone.

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Photo 12: Ground Floor Entry: Southeast Foundation

This dog house entry allows almost at grade entrance to the cellar community space under the sanctuary. One steps down to the cellar floor just inside this entry to offices and class room spaces.

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Photo 13: Retaining wall: Southeast Foundation

As the original ground was dug away from under the church in the 1960's to allow for a parish hall and classroom space, this retaining wall was necessary to make the grade change and allow windows and doors to light the community space at grade.

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Photo 14: Southeast Foundation: Blue and Brown Granite

Blue Granite meets brown where the grade rises towards the front/Southwest facade of the church. The blue and brown create a distinct contrast.

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Photo 15: Southeast Foundation:
Asphalt drip line

An asphalt drip line has been laid up at the base of the eaves and follows the perimeter of the foundation save the front/west facade. It catches and directs water from the roof in most cases away from the structure.

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Photo 16: Southeast Foundation: Dog
house entry and walkway

Vertical boards sheath the entry and a small asphalt walkway passes to a dirt parking area along the east and south end of the church.

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Photo 17: Northeast Foundation: Brown Granite

The grade rises along the Northeast wall showing a brown granite foundation of cut stone ascending to a center small bump out for the interior pulpit and organ area. Wide corner boards and a mop board provide a Greek Revival style to the building exterior. Clapboard reveal is 3.5 inches on the south and east facades.



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Photo 18: Northwest Foundation: Brown Granite just above grade

Brown granite superbly cut and uniform slabs make up the above grade foundation along the northwest eave wall. The asphalt drip line allows water to flow both away from the building with considerable voids trapping water behind the asphalt drip edge.

A retaining wall at the North corner retains the grade that was taken away when the building was excavated for classroom space beneath the sanctuary. It appears that the retaining wall suffers from decay and has been rebuilt more than one time. Rebuilding this wall will be a maintenance issue because of the asphalt drip line. Water can get behind the asphalt and collect at this North corner and cause movement in this stone wall.



Photo 19: Northwest Foundation

A close up view of the asphalt drip line. It has been poured more than once and still allows water to get behind it and impact the foundation. Bushes are close along this line towards the rear of the church.

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Photo 20: Northwest Foundation:
Dressed granite above grade

The dressed block foundation along the north eave wall is extremely well executed with very small mortar joints. This wall is visible from the road.

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Photo 21: Southeast Facade: Shutters and Windows

Modern storm windows are placed over wood sash on the lower portions of the southeast facade windows. The shutters are made of wood and need to be repaired and painted.

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Photo 22: Southeast Facade: Window Sills

The windows on the church have heavy sills with wide trim. The windows are double hung and appear in good shape save for some needed glazing.

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Photo 23: Northwest Facade Windows

The Northwest windows and shutters are in better shape than those along the southeast wall. Heavy sills with a pair of large double hung sash with divided lights make for uniform fenestration and wonderful light in the sanctuary space.



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Photo 24: Northwest Facade: Roof eave details

A wide frieze supports a small soffit created by boards nailed to the ends and underside of the tie beams. A fascia and crown molding creates the dressed overhang.

Wide corner boards and a large pitched head casing complete the Greek Revival motif. Clapboards along the northwest eave wall have a reveal of 4 inches to the weather.



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Photo 25: Southwest Accessible Ramp

Dressed granite cap stones are masked by an asphalt drip line followed by a concrete accessible ramp. Black railings rise with the ramp to access the front entry door.



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Photo 26: Greek Revival Flush Board Siding

This facade created with flush boards and Greek Revival trim elements encapsulates the original tower box. The 1733 tower measures 14 feet square and remains part of the front wall of the church. Northwest and Southeast wings were added to make the tower flush with a new front facade c. 1839.



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Photo 27: The Steeple

Standing at ground level, the tower rises through the roof pitch and incorporates a clock in the tower base frame. The Belfry frame above extends from the tower base frame and the spire sits atop the belfry top plates. The spire is reinforced by a "low battered die with recessed horizontal panels" as described in the National Register Nomination. This trim detail reinforces the base of the spire and resists wind loads. It is deteriorated and losing paint. It also appears that the roof leaks at the base of the clock level where it meets the asphalt roof.



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Photo 28: Southwest Tympanum

Greek Revival trim is failing across the front of the church. A ledge above the trim may need a copper cover to prevent future damage once this trim is repaired in kind.



Photo 29: Steeple Base and Clock Face

The clock faces appear in very good condition. The flush board siding shows signs of wear and must be painted often to ensure that the walls are weather tight. Caulking should be kept to a minimum which does not appear to be the case here.

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Photo 30: Southwest Facade Windows

Large one over one sash are in place in the front facade of the church. They appear later than the divided lights in the sanctuary. The openings appear to match the trim elements from the c.1839 upgrades to the Greek Revival form.

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Photo 31: Southwest (Front) Entry

A large pair of double doors provide entry to the narthex. Wide door trim and side jambs give depth to the entry. A small ramp threshold provides accessible entry to the narthex from the ramp.

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Photo 32: Southwest Entry Facade

The entry doors swing into the narthex and the depth of wall is the result of the large 12 inch square tower posts that are within the finished wall plane of the west wall.

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Photo 33: Entry Threshold

The accessible ramp sits adjacent to a shallow threshold designed for easy access into the narthex.

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Photo 34: Entry door hardware

Greek Revival double doors host early hardware and lockset.

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Photo 35: Southwest Entry Steps

A concrete walkway for accessible entry is flanked by what appears to be the original dressed brown granite stairs that likely provided access to the double doors. The stone steps are wonderfully sculpted and blend naturally into the ramp and railings.

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Photo 36: Accessibility

A near code compliant ramp rises from grade to the front entry of the church. It is created in concrete with an asphalt skirt.

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Photo 37: Southwest accessible hand rails

Accessible hand rails flank the concrete ramp to the front entry of the church.

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Photo 38: Front Facade

From Rout 121, the church is accessed from an asphalt pathway.

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Photo 39: Route 121 and 102

The church sits on the corner of routes 102 and 121. Route 121 in the foreground leaves little room for drop off and pick up in front fo the church.



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Photo 40: Sanctuary Interior

Slip seat pews without doors adorn the floor of the sanctuary. These date from the 1839 renovation. The coved ceiling is elliptical and the walls hide original heavy timber framing posts at each roof truss. An original cove remains above this ceiling and behind these walls that exposed the posts into the space. The posts are painted a yellow/gold. Additional photos provided above the ceiling level.

An organ sits in front of an arched bump out that protrudes from the rear/ Northeast gable of the church. The wide trimmed columns are actually covering structural gable end columns in this rear wall.

Six over six windows adorn and light the sanctuary. Walls and ceiling in very good shape.



Photo 41: Sanctuary windows: 6 over 6

The six over six double window sash lets superb light into the sanctuary space and the windows are in excellent order save some needed glazing. Balcony trim intersects the window trim.

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Photo 42: Sanctuary Windows: 6 over 6

Windows are operational with lower sash covered by a storm window on the exterior. Upper windows are protected by closed shutters.

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Photo 43: Sanctuary Windows: 6 over 6

It appears that these windows may have been a part of the 1839 renovation. They are well cared for.

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Photo 44: Sanctuary Balcony

The Sanctuary has a balcony over a structural Narthex wall. The Narthex wall was the original meeting house gable end. The Narthex ceiling hides the cantilevered framing of the this balcony. Three columns rise from the balcony up through the narthex wall. Two columns are structural with heavy tower base frame posts passing through boxed trim. The center column is hollow and boxes in the bell rope and clock weights.

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Photo 45: Sanctuary Ceiling

The sanctuary ceiling hosts a center medallion created in plaster. This ceiling level is close to the original ceiling level of the meetinghouse but the cove has been lengthened and brought to an interior wall that covers what was once an exposed and dressed timber frame.

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Photo 46: The Organ

The pipe organ is highly decorated and wonderfully finished. It sits at the rear of the pulpit slightly elevated from the podium. It runs in front of an arched opening at the rear gable of the church.

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Photo 47: Sanctuary lighting

The coved ceiling is brought to the window tops and the walls are thick as they cover the original structural posts. Hanging lighting include a large center chandelier followed by aisle fixtures to illuminate the space.



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Photo 48: Sanctuary Pulpit

Slip pews were removed towards the pulpit of the church to make way for an upgraded pulpit and choir loft.



Photo 49: Sanctuary Vaulted Ceiling
A close up of the elliptical coved ceiling at the Northeast corner of the sanctuary.

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Photo 50: Northeast facade of Sanctuary

A structural gable end post and a chimney is hidden behind this plastered column.

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Photo 51: Sanctuary

A view of the sanctuary from the pulpit. Note the two narthex wall entry doors and wainscoting with built in cabinets. A clock adorns the center of the balcony. An early painting of the original meetinghouse is at center rear.

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Photo 52: Sanctuary

Aisles to pews align with narthex doorways

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Photo 53: Sanctuary

An electric clock sits at balcony center. A chase for the tower clock above. Emergency lighting over an original painting and model of the meetinghouse before its 19th century upgrade to its current form.



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Photo 54: Sanctuary and Tower

Two structural columns pass through trimmed boxes in the balcony. The center column is a chase for the clock above.



Photo 55: Sanctuary

A commanding view from the balcony of the sanctuary.

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Photo 56: Narthex/Sanctuary Door

The doors to the sanctuary are hung within the original gable end of the 1733 meetinghouse. As you can see the narthex wall is very thick. This is because the 12 x 12 posts that make up the tower are hidden within this wall.

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Photo 57: Narthex/Sanctuary Wall

Due to the depth of the Narthex wall, there is room for built in cabinets and shelving above the wainscot.

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Photo 58: Elevated Pulpit

A much more recent expanded pulpit sits in front of the organ. There is room for a piano and sound board. The pastor speaks at the center front.

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Photo 59: Slip Pews

Slip pews are upgrades from the original box pews likely added with the c. 1840 improvements. The elevated floor beneath the pews just above the aisles is part of the older box pew configuration.



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Photo 60: Pews and Flooring

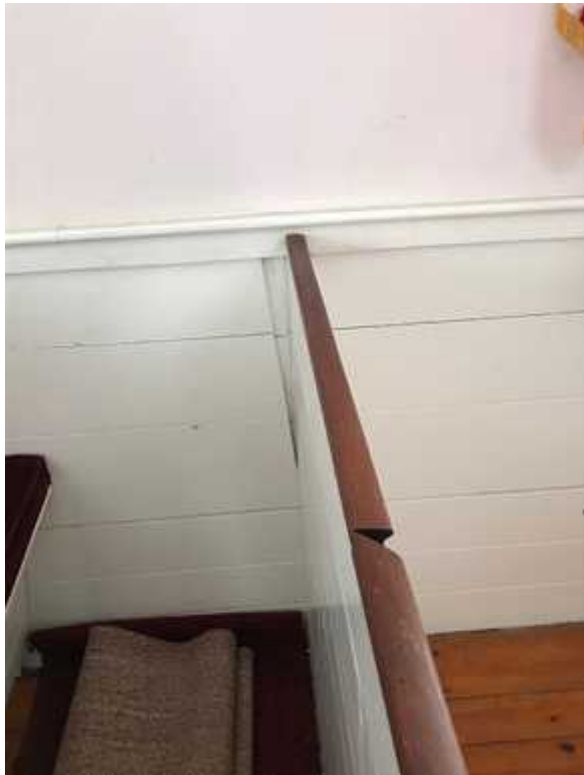
The slip pews are mortise and tenoned into the floor system. Some pews were removed for the new larger pulpit and the flooring repaired with small dutchman patches.



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Photo 61: Pew Fronts

At the front of the forward most pew is a half wall with raised panels.



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Photo 62: Pew Fronts

The pew front sits where once stood an additional slip pew. The groove for the pew is visible in the flush board wainscot.



Photo 63: Structural Columns

Structural columns are trimmed with wide pine boards and capitol moldings where they pass through the sanctuary.

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Photo 64: Structural Columns

The structural columns are part of the 1733 tower frame. Some stress around the columns is visible in the ceiling plaster, likely the result of flashing issues at the roof plane.

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Photo 65: Sanctuary Ceiling

Water runs down hill from roof leaks above and damages the paint, plaster and ceiling lathe. Insulation above the ceiling can become drenched and hold moisture to the ceiling plaster.



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Photo 66: Elliptical Ceiling Vault

Looking from the balcony towards the pulpit one can view the elliptical ceiling vault. This covers a steeper vault that rises from the top of the window to the bottom of the truss chord.



Photo 67: Sanctuary Ceiling

Ceiling damage over the balcony center. This aligns with the edge of the tower above.

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Photo 68: Sanctuary Ceiling

The ceiling over the balcony has been compromised from roof leaks above.

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Photo 69: Sanctuary Ceiling

This is a close up of peeling paint in the ceiling of the sanctuary. This is the result of a flashing issue where the roof meets the tower. While the roof shingles appear relatively new, there are buckets in the attic space above this ceiling damage that collect water leaking into the attic space. It is difficult to determine how long the leak has been occurring, but flashing at the tower is the likely culprit.

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Photo 70: Roof System

This view is from the access stairs to the attic looking Northeast. The original gable end tie beam is visible with its corresponding gable end rafter rising to the tower framing.

A dropped plate supports the added narthex wing walls. Common rafters sit atop a flying purlin to match the exterior trim line of the original meeting house. The front bay of the church is the only bay with common rafters. The rest of the meeting house has horizontal purlins between trusses.

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Photo 71: The Tower Frame at the Tie Beam

The original gable tie beam is discontinuous and mortise and tenons into very long 12 x 12 tower posts that terminate at the first floor level. The vertical studs to the left of the tower post still show signs of original siding and sheathing.

Note the many buckets hanging to catch rain water.



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Photo 72: Access Stairs

Non-code compliant stairs provide access to the tower from the balcony.



Photo 73: Roof and Wall Framing:
West corner

This tie beam dates to 1840 updates to the building. Note the interrupted plate engaging the vertical corner post. The tie beam hosts a flying purlin at its end that accepts the load of common rafters.

Braces ascend to plate and tie beam.

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Photo 74: Access Stairs

This is the first visible framing seen in the attic stairs as you enter from the balcony.

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Photo 75: Roof System and Gable Walls

A triangle of sheathing and original clapboards remain from the original 1733 meetinghouse configuration.

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Photo 76: Tie Beam and Plate Connection

A vertical flared post accepts a dropped top plate and a perpendicular continuous tie beam.

The principal rafter chord mortise and tenons into the tie beam.

The post shows an original steep vaulted ceiling with clear paint lines remaining behind the newer elliptical vaulted ceiling now in place.

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Photo 77: Tie Beam and Ceiling Joists

The full length hand hewn tie beam accept ceiling joists that place the plaster and lathe at the base of the tie beam on strapping. The attic is well insulated with unfaced fiberglass insulation.

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Photo 78: Chimney

A chimney rises up through the East gable end. As it rises through the attic it corbels around the gable tie beam and then angles towards the peak to exit the roof. The wooden form work for building the angled chimney remains present.

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Photo 79: The Chimney

The chimney rises hidden in the sanctuary and then corbles out around the gable end tie beam rising at an angle to the roof. This chimney meets no modern safety standards. Its original wooden false work is still in place albeit rotten from flashing leaks above in the roof plane.



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Photo 80: The Chimney

Bricks are layered with a slight step in each course to create the pitch of the chimney towards the ridge.



Photo 81: The Chimney

A close up of the chimney as it corbels around the gable end tie beam. While not up to code in any way, it appears to be performing as designed.

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Photo 82: Gable End Framing

The East corner post shows the top plate and tie beam connecting atop the post. The original arch form still remains nailed to the post and some lathe can be seen from the newer walls added to the sanctuary interior when the elliptical vaulted ceiling was installed.

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Photo 83: Original Vaulted Ceiling

The original vertical post of the early meetinghouse was exposed in the sanctuary. It is painted and the arched shadow line shows the division where the post was exposed in the room and the original form of the vaulted ceiling. This is now covered over by the elliptical vault in front of it.

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Photo 84: The Roof System

Looking Southwest from the rear of the church towards the tower. The queen post truss hosts tremendous lateral bracing between queen posts and the bottom chords host long horizontal braces between trusses.

Two full length peeled but unhewn logs notch over each rafter with many of the junctions pinned with large two inch pins. The queen posts engage the principal rafters and utilize a straining beam between queen posts supported by ascending struts mortise and tenoned into the tie beam. Most joints are double pinned.

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Photo 85: Roof Truss Lateral Bracing

A horizontal girt passes low from queen post to queen post down the length of the roof trusses. Ascending braces rise from the girt to the queen posts as well creating a great deal of lateral bracing in each bay between the trusses.

The peeled log at the bottom of the photo also adds additional bracing.

The roof purlins are laying horizontally between the principal rafters. These purlins accept the roof sheathing and the loads form the asphalt roof covering.



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Photo 86: Roof Truss Lateral Bracing

This photo shows the lateral bracing between trusses. This bracing stops just prior to the original gable end of the meetinghouse form. Cross bracing is seen in the ceiling plane passing from one tie beam/bottom chord to the next. This creates a very rigid roof system.

Also note how the queen posts ascend from the bottom chord to the principal rafter. A truss chord not quite parallel to the principal rafter ascends from the bottom chord to the queen post and it is balanced by a horizontal straining beam that passes across the center of the roof system to the queen post opposite (just out of photo).



Photo 87: Roof Truss

In this photo you can see the entire queen post system with its lateral bracing.

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Photo 88: Roof System

Dave sits atop the straining beam that supports the queen posts. The principal rafters meet with a bridle joint at the peak of the roof and the horizontal purlins are pocketed across the rafters. The purlins travel two or three bays in length and are created by hewing only two sides of a sapling tree flat to accept the roof sheathing.

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Photo 89: Eave Wall Framing

The top plate of the eave walls accept original studs mortise and tenoned into the plate (left side of photo). In the right side of the photo is the added stud that brings the current wall plane to the front of the post thus hiding any of the frame from the sanctuary.

In the foreground a small horizontal ceiling joist with nailed hangers supports the elliptical arched ceiling in the sanctuary below.

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Photo 90: Truss Bracing

A close up of the queen post reveals hand hewn surfaces with marriage marks. These marks are from the original builder who numbered each joint so that on raising day all of the frame fit together perfectly. The joinery is scribed together and therefore a numbering system had to be employed to show where each piece of the timber frame fit into the building.

Note how tight and beautiful the joinery is within the truss. It is performing perfectly.

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Photo 91: The Queen Post

This close up of the bottom of the queen post indicates a dovetailed through mortise in the bottom chord. With the dove tail form, the mortise is widened to accept the dove tail and once inserted into the bottom chord it is forced to one side of the mortise and plugged with a hardwood wedge (in foreground). A large pin also secures the joinery. This is a tension connection for the truss and is performing very well.

Note the angled brace top right as it mortises into the side of the bottom chord. It too has a strong hard wood wedge forcing it into place.



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Photo 92: The Queen Post

This is a clearer view of the pin securing the queen post to the bottom chord and the wedged brace.



Photo 93: Queen Post

This is a very close view of the bottom of the queen post where it meets the tie beam. There is some separation between the two members but it is minimal. This indicates some shrinkage in the wood and the joinery is performing as intended.

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Photo 94: Eave Wall Studs

Old and newer wall studs show the evolution of the original sanctuary walls followed by the in build of the wall when new studs were placed to hide the original timber frame. The studs are deeper and wider than the top plate.

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Photo 95: Attic Insulation

Ample insulation lays atop the ceiling and between ceiling joists in the attic space. It is well done and comprehensive across the sanctuary space.

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Photo 96: Original Meetinghouse Gable End

Where a roof rafter meets the tower framing one observes original sheathing and clapboards from the original exterior wall of the 18th century meetinghouse. This area is no interior to the building with the addition of two wings that encapsulate the tower.

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Photo 97: Roof System

Standing in the tower frame provides a good view of the roof system. Note that Dave is standing in the background. The timbers are large and the roof system substantial.

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Photo 98: The Tower Frame

Top of photo is one of tower posts. It is full length from the basement of the church up through to the belfry frame. The original gable end tie beam is interrupted by the full length post. Here you can view the tenon where the tie beam engages the post.

A tower floor joist extends to the right of the picture.

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Photo 99: Narthex Roof System

In this photo one is looking down from the attic to the South wall of the narthex. This wall was added as part of the 1839 upgrade. A dropped plate passes from the original gable end post to the new post creating the current greek revival front of the church. Common rafters sit atop a flying purlin in this bay. The rest of the roof is created with purlins between principal rafters.

You can see the plaster and lathe on the narthex stud wall.



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Photo 100: Narthex Roof System

The added narthex roof hosts a principal purlin that accepts common rafters. Roof sheathing is horizontal in the narthex roof but vertical elsewhere.



Photo 101: The Tower Box

This is the top of the tower box post. It rises from the basement to the belfry roof framing. Note that the horizontal girt is mortised into the post a few inches below the hip roof framing of the belfry roof. This indicates that the posts were once taller but now cut down for a new belfry and spire form.

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Photo 102: Tower Stairs and Belfry Framing

The four sided belfry framing passes down through the interior of the tower box frame onto bed timbers below. The stairs ascend to a hatch accessing the bell and bell roof. Angled braces reinforce the belfry frame and with the overlap of the two frames, the tower is very strong and resistant to wind.

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Photo 103: Belfry Frame

The belfry frame is very strong. Ascending and descending braces stiffen the frame. The wedges driven into the wide brace mortises allow the frame to be stood up one post at a time inside the tower box frame and with the braces added later and then wedged tight.

Horizontal sheathing with graffiti protects the clock room.

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Photo 104: Asphalt Roof Covering

The asphalt roof covering appears in good shape save some leaks through the flashing at the interface with the tower. Simple lightning protection traverses the ridge.

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Photo 105: Roof Covering

Architectural shingles hold some snow after a storm but wind also takes the majority of snow from the roof.

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Photo 106: Northeast Facade, Belfry Tower

Northeast facade of the tower. Vertical flush board siding provides a Greek Revival look for the steeple.

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Photo 107: Belfry interface with Asphalt Roof

Step flashing from the new roof is painted and tucks under the face flashing. This does not keep water out of the roof.

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Photo 108: Face Flashing and Lead Paint on Flush Siding of Belfry

Poorly installed face flashing over flush board siding is letting water into to the interior of the church. Siding is coated with years of lead paint and must be abated.

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Photo 109: Bell Roof

The bell roof is one of the strongest framed roof systems we have ever seen. It is created with a hewn camber on top and bottom planes of a heavy center beam. Horizontal purlins span between this primary roof beam to hip rafters making a shallow hipped roof that is really strong and supportive of the bell and bell cradle above.

Photos do no justice for the craftsmanship and beauty of this center support beam.



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Photo 110: Bell Roof

It is difficult to get a full perspective view of this center beam with the limited space beneath the bell. The curved beam engages a horizontal belfry frame girt.



Photo 111: Bell Roof

The center beam has been hewn thinner at each end and thickens in the middle of the span. Purlins pocket into the beam.

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Photo 112: Hip Rafters

Bell roof hip rafters come to the tower box posts and small cripple studs support the hip rafter from the belfry tower girts.

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Photo 113: Bell Roof

A short hip rafter passes from the belfry post to the top of the tower box post just above the girt line. The hip roof protects both the belfry frame and the tower box frame.

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Photo 114: Belfry Posts

The West corner post of the belfry is completely rotten.

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Photo 115: Belfry Post

A parallel girt just below the belfry post top plate accepts the spire frame from above. The top plates and the spire girts at the West corner show signs of water damage, mold and rot. They will need to be repaired when the belfry post is replaced.



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Photo 116: Spire Base Frame

A set of crossing beams create the base of the spire frame. These beams are loaded on the lower girt below the belfry frame top plate. This creates some overlap in the frames but still allows an open space for the bell to swing.

Small cripple studs stand vertically above the spire girt and support the top plate of the belfry. Small hip rafters ascend from the belfry plate to the spire frame. The interior view does not show the build out of trim that is visible from the building exterior.

Water damage does appear to be prevalent at the base of the spire.



Photo 117: Belfry Tower Frame

The belfry frame joinery is completely square ruled and this indicates that it is later than the original tower box frame below. This is in keeping with historical evidence documented over time.

Large louvers are placed near center of each belfry wall face. Small studs infill the belfry walls to support the louvers.

Angled braces ascend from the post to the spire girt to stiffen the frame and support the weight of the spire frame above.

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Photo 118: Belfry and Spire Frames

The belfry and spire frames have some overlap and redundancy but it is limited because of the bell cradle and bell below.

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Photo 119: Spire Base Frame

The base of the spire frame is created in heavy timber showing some decay but sound.

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Photo 120: Spire Base Frame

The ends of the spire base frame is through bolted into the spire girt just below the belfry top plate.

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Photo 121: Spire Base Frame

Two belfry spire base frame beams cross 90 degrees to each other and cog over each other at center of belfry. A small mast rises from the apex of the crossed beams and supports the small hip rafters of the spire base roof.

An angled strut also ascends from the left side of the picture to a center spire mast to stiffen the mast and it runs parallel to the spire rafter.

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Photo 122: Spire Rafters and Struts

On each leg of the crossing spire base frame ascend a full length spire rafter that meets at the peak of the spire and clasps the center mast.

Just in front of the spire rafter is a strut that angles more steeply to the mast to support it near midspan up the length of the spire. This creates a four sided spire that is set 45 degrees from the belfry faces.

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Photo 123: Spire Base Frame

Sheathing for the spire base roof closes in around the spire rafters and spire struts. A pin secures a mortise and tenon joint on top of the spire base for each spire rafter and strut.

This sheathing stiffens the spire base roof but obscures the upper levels of the spire.

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Photo 124: Spire

Looking up through the spire you can see that each spire rafter is connected by multiple nailed in tiny horizontal cross bracing. This allows for exterior sheathing to be nailed vertically up the length of the spire.

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Photo 125: Spire Internal Framing

Looking up into the spire one views the principal spire rafter connected with horizontal dimensional two by four purlins with vertical tongue and groove sheathing. Clapboards protect the spire from the exterior.

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Photo 126: Spire Mast

A close view of the hip roof mast atop the crossing spire support beams.

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Photo 127: Spire Hip Roof

A hip rafter travels from the spire mast to the corner of spire roof. horizontal purlins nailed to the sides of the hip rafters accept horizontal sheathing.

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Photo 128: Belfry Top Plate and Spire Girt

The West corner of the belfry shows signs of white mold and decay from a roof leak from above in the spire roof.

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Photo 129: Belfry Southeast Top Plate
Looking East along the Southeast Belfry top plate, you can see extensive rot and daylight through the belfry roof.



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Photo 130: Belfry Southeast Top Plate
The southeast top plate of the belfry frame is completely rotten.



Photo 131: Bell Cradle

An ancient bell cradle, very likely from the earlier meeting house support the bell. The cradle is white oak with ascending and descending braces for stiffness. Some repairs are needed on the post tops.

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Photo 132: Bell Wheel

Dave provides scale for the size of the bell wheel. The wheel is created with beautiful through mortises and the members wonderfully beveled along their edges. The bell guide boards appear to be replacements.

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Photo 133: The Bell

The cast bell is mounted to a steel yoke supported by the early bell cradle.

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Photo 134: Bell Cradle

The old bell cradle hosts through mortises for extra strength. Steel straps connect the cradle to the four belfry posts at the corners.

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Photo 135: Bell Cradle

The bell yoke appears to simply sit with gravity into a pocket within the bell cradle top plate.

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Photo 136: Bell Cradle

Angled steel straps connect cradle with belfry posts. A steel strap reinforces the joinery of the cradle.

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Photo 137: Bell Cradle

A steel strap connects the bell cradle to the belfry posts at each corner.

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Photo 138: Belfry Roof

Rolled roofing covers the belfry hip roof. It is very difficult to keep this roof from leaking. The rolled roofing turns up the belfry post and is nailed on the face of the post. This provides no counter flashing and invites water to the belfry interior.

Caulking and tar attempt to make the roof tight with little success.

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Photo 139: Belfry Roof

The belfry roof has to accommodate the penetrations of the belfry posts. The louvers and belfry siding protect this area from direct rain and snow, but the base of the louver lets snow blow in and build up inside the bell level. This roof is not ideal.

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Photo 140: Belfry Roof

Caulking has been applied to the face of the post to help keep the roof from leaking. This can help in the short term, but becomes an accelerant for decay once water begins to penetrate the caulking.

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Photo 141: Belfry Roof

The belfry roof has very little room to move around. The bell cradle must be lifted off the roof along with the bell to correctly repair the belfry roof. The roof would be replaced with copper from outside staging to access this level of the steeple.

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Photo 142: Steeples have residents

A vast ladybug and fly bloom in late April on the tower box window.

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Photo 143: Many have worked on the tower

Arthur E. Booker worked on the church from October 17 to the 31st 1876. Arthur, like the author of this report, was from Berwick, Maine.

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