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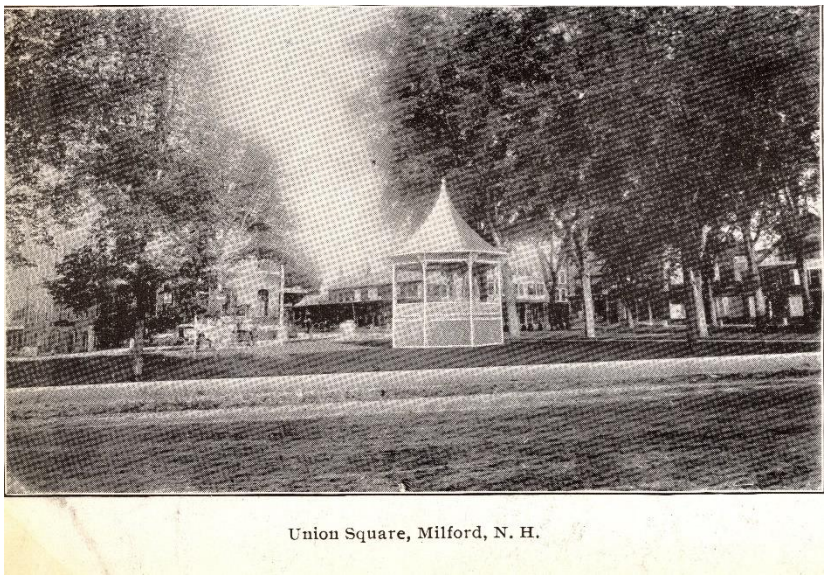
Preparing buildings of old for their next century

The Pillsbury Bandstand August 20, 2022

As with much of history, it comes with twists and turns and such is the case with the Milford, NH bandstand. The town of Milford set the date for July 4, 1896; there would be a clambake and a baseball game to start off the fundraising campaign for the new bandstand. A day of rain ensued and kept the likely crowds away. While the initial fundraising attempts by the citizenry may have been faltered by new England weather, history in making was not to be deterred. Milford native and music lover Albert E Pillsbury; who upon hearing of the town's misfortune took it upon himself to rectify the situation by simply telling the town to proceed with the design and building of the new bandstand and send him the bill. I can only imagine how this must have elevated the spirits of the town, from devastated to elated. I am certain many joyous citizens throughout history have thanked the philanthropic generosity of Mr. Pillsbury.



Union Square, Milford, N. H.

The Milford Bandstand has certainly seen its share of band concerts, political agendas and town celebrations and I believe it will soon be ready for many more. While it has weathered the storm quite well for its age, it is time for some appropriate maintenance and repairs to this beautiful structure. Though it has become immersed in the modern world which surrounds it, it beckons back to a time of horse and buggy and relative quiet, I can only imagine what tales it could tell!

Within the following pages of this brief report, I have done my best to document and encompass the existing conditions of the Milford, NH bandstand in hopes that it will encourage and allow for the future restoration and preservation of this unique historic structure.

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The band stand finial was replaced probably a few decades ago, from the few old photos that I have been able to view, it appears that it matches the original profile. One can see the glue lines from laminating multiple layers of wood together to form a large enough block to then turn the profile of the finial on a wood lathe (the original typically would have been one solid block). While the main body of the finial appears to be in fairly good shape, the finial base has substantial weather checking. The finial should be removed and stripped of all paint and repaired utilizing epoxy components.

Upper area of roof with well-formed terne metal roofing. While the paint is failing the terne roofing in this area is in very good shape. As with other areas of the roof, loose paint should be removed down to solidly adhered material and the surface put through a series of processes resulting in application of new paint.

A view of the main body of the bandstand’s roof, again showing the majority of the roof surface is in good condition. Not particularly easy to see in this photograph are the well-executed soldered seams.

One example a soldered seam on the curved hip of the roof. The craftsmen who completed this work were certainly well versed in their trade. All seam lines viewed on the main body of the roof were well formed and still tight.

A better view of the lower curving of the bandstand roof, again seam lines are in excellent shape for their age. As one can imagine the lower portion of the roof has taken the brunt of New England weather.

Surface rust was wide spread, more so on the lower less sloped areas of the roof. This can generally be cleaned up and coated with specific products once a treatment process has been established. Sadly, Follansbee Steel Corporation went out of business some time ago, no doubt this metal roof was produced by them. There are a few other manufacturers still producing Terne metal roofing and others who produce specific restorative coatings.

I did find a couple areas where the soldered seam has failed. This particular seam appears to have been damaged by some form of impact. I would then posit that perhaps the freeze-thaw cycles of ice on the lower areas of the roof slowly worked this area further apart over time. These areas should be able to be patched in utilizing an individual well versed in soldered seam metal roofing.

The spindle work is well balanced with the triangular motifs hinting at Eastlake style and the decorative bracketing tying the inverted posts to the upper structure.

While somewhat difficult to see in this photo, the ceiling is inverted, sloping down toward the center. I have found this to be evident with several bandstands in NH with the thought that this provides acoustical enhancement by splaying the sound down and outwards.

There are several areas of concern with regards to the soffit. Some are below the roof damage mentioned prior, other areas are taking on water due to the detached metal at the roof edge.

In this photo, the lip of the terne roof has separated from the profiled fascia allowing weather to take its toll on the fascia and the underlying beaded soffit. The terne roofing material and wood fascia have substantially different expansion and contraction coefficients. This combined with the relentless New England weather which over time will corrode most fasteners has led to the current situation in which much of the roof edge is no longer physically attached and many areas have separated upward from the fascia.

Here, the profiled fascia has taken on severe weathering and has started to deform. Though in a deteriorated state this section could probably be repaired utilizing epoxy consolidate and epoxy putty. This could be determined once the section is removed and more closely inspected. If not a candidate for epoxy repair, knives should be ground to precisely match the existing profile and new fascia made up utilizing the same species. In this particular case it would typically be Eastern White Pine. This should be clear vertical grain stock whenever possible. With narrow stock such as this it is typically fairly easy to find “quarter sawn” pieces by going through a pile of clear pine.

Apparently past soffit damage was repaired and the new repair has suffered the same fate. As mentioned prior much of the metal roofing lip has separated from the fascia allowing moisture of various sorts to enter. It’s also important to note that care should be taken when matching existing materials and profiles, here (though hard to see in this photo) the edge bead size is noticeably different than the original. Best practice when completing preservation work is to match all profiles as precisely as possible, this respects the inherent architectural details of any particular historic property.

The area of concern here is the top of the post just above the decorative turned beads and below the bracketing. It would appear that the corner of the post has split off; perhaps at the annual growth rings though hard to tell, regardless, this can be easily repaired by scraping back all the paint in the affected area, drilling a number ¼" holes (thereabouts) for a mechanical bond and either making up a new piece of material to match (and epoxying into place) or completing the repair with epoxy consolidate and putty. Once the epoxy is dry, carefully form the material to match the original profile. Typically posts of this period are turned from clear vertical grain Douglas Fir, however, whatever the species might be, one would want to match it.

Where everything comes together on the outside corners, well balanced and pleasing to the eye!

Again, inside corners with well executed workmanship, everything looks like it belongs there.

Another thing to note here is the edge bead (top edge) on the bottom rail of the spindle work, this does seem to correlate with the beading present on the bandstand railings. This gives hope that the existing railings (which appear to be replacements) might match the original profiles. Currently I have no photos or information to verify this.

While the majority of the decorative brackets are in good condition a couple of them have cracks that need attending to. Here the upper corner has opened up a bit, another good candidate for epoxy repair.

This bracket has a couple areas in need of repair. The upper crack has caused the plane of the bracket to offset, this should be cleaned out, re-set and epoxied into place. The lower crack appears to be split through; hence this piece would be removed cleaned up, hollowed out in the center leaving the original edges, consolidated and epoxied back into place. The hollowing process allows for the epoxy to build in thickness which allows for a much stronger connection.

The posts are the structural and decorative element that ties the bandstand together. Hence it is critical that a crack such as shown here be properly repaired. This can be done by taking a teardrop scraper and v-ing out the crack to a depth of 3/8” or so, then drill a series of 5/16” holes to a depth of about ¾ the depth of the crack or more (drill holes at slight downward angle) and vacuum well. Mix epoxy consolidate, saturate with two coats, followed with epoxy putty.

Another critical post crack repair, with the same procedure utilized here as previously mentioned adding additional epoxy as needed to rebuild the damaged decorative elements of this post. Once the epoxy has dried a full 24 hours (I prefer two days), clean up the epoxy and form to surrounding contours and prime.

This crack runs right through the decorative post turnings; however, the same repair procedure applies. V it out, drill downward angled holes, saturated with at least two coats of consolidate, mix epoxy putty and fill. On a straight run, holes should be approximately 1”-1-1/2” apart and ¾ the depth of the crack where feasible. Here, where there are more contours, hole placement should be planned to produce the greatest potential for deep epoxy consolidate saturation.

Well balanced turned details on the inverted posts, tying the upper cornice to the floor assembly.

Another candidate for epoxy repair, remove paint from affected area, rough up contact area for mechanical bond, apply epoxy consolidate and putty, after drying form to match contours.

A more traditional approach to such repairs would be to V the damaged area in to form flat planes which converge at top and bottom points, make up a filler piece matching species and grain and conforming to the repair cutout, I would then glue and clamp this into place. Once dry plane and sand to match existing contours. I then will typically nail the patch with copper, brass or stainless-steel nails, set the nail heads, putty and prime the affected area.

One of at least six post bottoms that need attention. It is apparent that some repairs were completed on this post the last time the bandstand was worked on.

Another post bottom that has badly deteriorated along with a peek into the decayed sill below the post, which is hidden behind the horizontal trim. All post bottoms that have been repaired should be replaced with new material (assuming to be CVG Douglas Fir) to match the existing species. Best practices are to utilize a mortise and tenon joint, bladed scarf joint or epoxy embedded fiberglass rods.

Utilizing a mortise and tenon joint with the tenon on the new post bottom and the mortise cut into solid material on the existing post, if well executed this can be glued with Titebond lll. More commonly the joint can be fit to allow a 1/8” space on the mortise and tenon to allow for epoxy. Epoxy needs some thickness for strength. Either way, pegs or stainless-steel screws should be installed as a second lock to the joint, both being sunk below the surface and filled.

Quite severe deterioration on this post bottom, I believe this is the replaced material and not the original. If it were original material, it would be possible to splice in new material with epoxy. As mentioned prior, this should be repaired by splicing a new post bottom to the original post.

If utilizing fiberglass rods, a straight horizontal cut can be made, then four 5/8”-3/4” vertical holes can be drilled up into the post and down into the new post bottom approximately 6” deep in preparation for ½” fiberglass rods and epoxy. All meeting surfaces must be fully saturated with epoxy consolidate and certain epoxy putties must be thinned (with consolidate) to lower the viscosity, this allows for the rods to be pushed in and displace the epoxy, fully filling the void around the fiberglass rod. Best to complete testing prior to actual assembly.

A good view of an existing post bottom, it’s not clear to me how this post bottom was joined to the original nor what the horizontal channel’s purpose is, this would fully be understood once repair work begins. Regardless a new post bottom should be spliced to the original post by one of the forementioned methodologies.

It is not all that clear in this photo, however, if you look closely one can see nail heads protruding from the face of this original post bottom. This fastening method has so far securely held the posts to the floor framing system. While a fairly strong assembly if nailed correctly on all sides, these fasteners have been there for decades and are failing. Where new post bottoms have been added in the past and are now decaying, we have a similar situation with regards to the fasteners.

Once the new post bottoms are in place and all other repair work is completed, new fasteners should be installed which would consist of either, A: Utilizing a more traditional approach, 12d-16d common galvanized nails or B: A more modern approach 3”- 4” GRK (or equivalent structural screw). Both approaches call for the pre-drilling and countersinking of the fastener through the new (or original) post bottom and if the fastener is being driven into an epoxy repair to the sill below, the epoxy should be piloted to help receive the fastener.

Shown here is a typical section of the existing rail scrollwork which has been cut out of a ¾" plywood sheet; just a bit of a variation from the traditional baluster approach! New balusters should be cut from cedar or eastern white pine. Though today, cedar, particularly red cedar can be cost prohibitive. The original balusters were most likely EWP so utilizing eastern white pine as a replacement is certainly a viable choice. However, the original balusters would have been cut from first growth pine or the trailing edge of it, either way a superior product to what we generally have today. To counter this I typically dig through piles of lumber in search of "quarter sawn" pieces to utilize for projects such as this. Any straight log when flat sawn produces several pieces of "quarter sawn" lumber, however as mentioned one must look for it. Though originally such scrollwork on a structure such as this would have been cut out by hand utilizing a bowsaw (though certain patterns were available from manufacturers at this time) and you can carefully cut these out with a modern powered jig saw, the most efficient method that I have found is to make up an accurate template and cut them with a guide bushing and router. It is also sometimes possible to find a woodworking shop that can complete this work utilizing this method or a pin router.

Despite my best efforts I was unable to find any clear photos of the railing assemblies. As mention prior, I am hopeful that the current rails match the original profiles as close as possible. I had alluded to the observation that the beading on the rails seems to match the beading on the spindle rails. Being that I have no other information to refer to and the existing rails appear to be in good shape, I would recommend re-using them in the restoration efforts. Another observation is that the quarter round molding used to hold the scrollwork in place does seem a bit large to me, however again I have no reference to the original, nor do I know whether this is the original railing assembly design.

It is assumed that the flower boxes are used throughout the year. Being that they will be removed during the restoration process, best practice would be to re-install them with metal L-brackets using ¾” spacers (at the screw locations) between the vertical leg of the bracket and the horizontal trim, this allows for plenty of air circulation and prevents moisture retention which can lead to decay over time.

Stair entrance is in pretty good shape though will need some tread repair.

I wanted to point out the grade level here, as one can imagine any wood in contact with the ground is subject to more rapid decay. Grade should be altered if possible; if existing topography does not allow for this, then the new trim should be installed a couple inches above existing grade level.

This particular side of the bandstand has a more appropriate clearance above grade.

While the original lattice was diagonal, it had a tighter weave, hence the existing lattice work should be replaced with something that more closely matches the original. I would propose this to be somewhere around 1-1/2” – 1-5/8” slats with the diagonal spacing matching the slat width.

Perhaps this photo better displays the inverted ceiling fairly common on bandstands for acoustical enhancement.

The flooring appears to be in relatively good shape; I am not sure when this floor was installed or whether the original flooring was tongue and groove douglas fir or not. Though T&G would have been more typical for that period of time. T&G does have the advantage of forming a complete barrier to the framing below, provided it is well maintained with paint or sealer.

There are a few damaged areas that should be repaired with the same 5/4” x 4” (1” x 3-7/16” nominal) clear vertical grain douglas fir flooring.

Good idea to inspect the floor thoroughly and replace any damaged material. Also, being that it is square edge stock (though tedious) it is a good idea to clean out any debris in the crevasses. Once completed, it is important to check for any decay in the floor joists below, this is typically where it begins.

One thing that was quite obvious is that many of the nails have popped up, these should all be re-set below the surface

I believe this is the only damaged bench, fairly simple fix.

A general view of the floor framing, my best guess is that the floor system was rebuilt in the 1950s-1960s. It is comprised of what appears to be rough circular sawn Hemlock and from what is visible the inner framing and joists appear to be in very good condition.

Here is where it all comes together at the center post. To help tie the center hub and floor joists together they utilized small metal hangers, this along with the look of the sawn lumber helps with the dating of framing. The hangers and nails appear to be galvanized and look to be holding up quite well.

All lower framing appears to be sound, however, no doubt one could find the beginnings of decay where any framing member is in contact with the ground and where the post bottoms contact the granite piers. Any framing decay found during the repair process should be replaced or repaired, post bottoms should be checked for decay and I would recommend treating all with consolidate if any decay is found. This can help eliminate any future moisture wicking issues via the post bottom end grain.

Although the framing material does appear to be in very good shape, I did notice some fasteners failing. All connections should be inspected, best practice would be to re-nail (pre-drill & hand nail) all connections with galvanized common nails, while structural screws such as GRK work well, nails are more in keeping with the history and integrity of the bandstand.

Typical joist mortise and tenoned into the 6” x 6” perimeter sill. The 2” x 6” ledger board you see under the floor joist appears to have been added later.

As is typical, most of the problematic areas of decay reside bellow the bandstand posts. Here we have a view of the inside sill corner and floor joist intersection. In this particular corner, it appears that there is substantial decay to the sill corner and one can see that the joist tenon has completely rotted away. It is possible to repaired the decayed joist end with epoxy and fiberglass rods. Any replacement material should match the existing species, dimensions and texture, hence floor framing would be rough sawn Hemlock matching same dimensions as existing frame and should be dry.

The ledger board and L-brackets have been added to help compensate for areas of the structure that are failing. This can all be removed once repairs are complete.

The original granite piers appear to be sound; I don’t see any need for a new foundation with regards to any current structural issue. If a firmer storage area is wanted it would be possible to excavate the necessary material, fill the excavated area with 8 inches of 1 inch stone and top with hard pack, this would produce a firm usable surface while still maintaining excellent drainage and most importantly preserving the original foundation stones.

Center post and foundation stone, both appear to be in excellent condition.

Existing Conditions and Repair Methodologies

General Notes

1. All contractors should have a familiarity with The Secretaries of the Interior Standards for the Treatment of Historic Properties (nps.gov/tps/standards.htm)
2. As a general rule, pressure washers should not be utilized on historic structures.
3. All old paint should be thoroughly and properly prepared as should be new wood. Both should then be primed with linseed oil-based primer such as California oil-based Trouble Shooter Primer or Mad Dog Professional Primers.
4. Once oil primer is completely dry, lightly sand new work prior to top coating with two coats of high-quality exterior latex paints such as Sherwin Williams, Benjamin Moore, California.
5. I would recommend OSI Quad-max caulking, preferably oil based, however they do also make a water-based version.
6. My recommendation for epoxy is PC Products, Rot Terminator and PC Woody, another good product line is ConServ Epoxy.
7. All end cuts should be primed prior to installation.

Foundation

The granite foundation stones supporting the Milford bandstand appear to be solid and structurally sound. I dug down approximately 18” to inspect one stone, I suspect they are perhaps 24” in height and well set into the surrounding soil.

I believe there was mention of the possibility of installing a new foundation. I found no structural reason for doing so and certainly worth mentioning here that when working with any historic structure preserving the original fabric is a high priority. If there are other particular reasons that the town would want to pursue a new foundation there are certainly creative approaches that would cater to both circumstances.

If the town is looking for a more uniform storage surface, it would be possible to excavate material from under the bandstand, place 8 inches of 1” – 1-1/2” stone and top with hardpack. This would provide a firm and workable surface for any storage needs while maintaining excellent drainage.

From a preservationist’s perspective, I am hesitant to suggest this one option, though it would improve lateral and uplift stability under severe wind loads. Though wind load is certainly minimized by the roof shape and “open air” layout of the bandstand.

Carefully drill a ¾” centered hole into the granite foundation stones about 10” down from top, inserting a lead anchor sleeve, fabricating a L shape out of ½” stainless steel rod with vertical leg flattened and drilled for structural screws. The horizontal leg is non-mechanically inserted into the lead sleeve and the vertical leg screwed into the supporting posts of the bandstand. Another alternative would be to install ground anchors and tie the support posts to these.

Floor Framing

The inner floor framing system is in visibly good condition. I did not see any evidence of decay or insect infiltration on the main spans of the floor framing. As mentioned, my best guess is that the existing floor framing was built 1950s-1960s utilizing circular sawn hemlock.

However, when inspecting the outer joist framing and 6” x 6” perimeter sills I found substantial decay at the sill corners under the bandstand posts and in some cases extending into the intersecting corner joists. While it is difficult to know for certain without dismantling the affected areas, I am assuming that the sill corners are cut on the appropriate bevel, butted together and then fastened with nails as opposed to half lapped.

Regardless, this underlying decay is responsible for the continued destabilization of the structure and is one of the primary components of the structural repairs to the bandstand. While it is impossible to know the full extent of the damage to each area before disassembly, one can assume that the degree of damage will vary per location, hence so will the approach to repair.

For situations where the sill/joist ends are “punky” but still have plenty of solid material to bear on the post below, one can dig out the soft material and apply epoxy consolidate and fill any voids with epoxy putty. Once dry, form the epoxy to match the original surfaces.

Where bearing surfaces have begun to deteriorate, one can utilize fiberglass rods by drilling into solid material, embedding the rods into epoxy and building up the affected areas with epoxy putty and forming as needed.

If substantial decay has occurred at the sill/joist ends it is possible to complete a structural splice adding a new sill end using fiberglass rods and epoxy. This is done utilizing the same methods explained with the post bottoms.

All the above is applicable to any damage that may be found on any of the under-deck support posts too.

The above mentioned are some of the repair methods which can help preserve as much of the existing material as possible. Whole sill/joist replacement would normally be a last resort from

a preservation perspective. While the existing framing is not the original it is now part of the bandstand and decades old.

If it is found necessary to replace a complete section of sill, the new sill (in this case) should be Hemlock (if possible) and more importantly, the timber wants to be dry. This can sometimes be tricky to source, though I can usually find salvaged hemlock or spruce to fill the need. When all else fails I will utilize rough sawn Douglas Fir ordered to size. I specify rough sawn (in this case band sawn) so that it more closely matches the existing surface texture. Douglas Fir typically is sitting around in the supplier's yard for a while so much of the moisture has dissipated, for this reason you normally have a lower shrinkage ratio which is critical here, it is also quite stable and has excellent structural parameters.

Decorative Posts

The turned inverted posts are the sole support system for the bandstand roof, taking on wind and snow loads and providing a visual connection as well. Needless to say, great care should be taken with regard to their repair. Many of the post bottoms have been replaced before, however are again failing. New post bottom material should match the original post material in species and grain pattern (presumably clear vertical grain Douglas Fir). New material should be acclimated on site for a minimum of two weeks. Post bottoms should be cut back to sound original material and new material should be joined by one of a few methods described prior and, in more detail, below. This assumes that the upper structure has been jacked up from the lower floor assembly.

1. Utilizing a mortise and tenon joint (5" tenon) with the tenon on the new post bottom and the mortise cut into solid material on the existing post, if well executed this can be glued with Titebond lll. More commonly the joint can be fit to allow a 1/8" space on the perimeter of the mortise and tenon to allow for epoxy. Epoxy needs some thickness for strength. This approach again requires all meeting surfaces to be first coated with epoxy consolidate. Either way, pegs or stainless-steel screws should be installed as a second lock to the joint, both being sunk below the surface and filled.
2. A modified mortise and tenon could be utilized here and would most likely be my approach. By making a router jig which indexes from the inside face of the posts and allows for cutting mortises into both side faces of the post, one can achieve accurate joinery in a reasonable amount of time. Cutting the mortises with a router on a post this size, with a cutting depth of around say 1-3/4" to 2" will leave a solid center section. This can then be mirrored on the new post bottom to fit around this and it gives more surface area to bond to. Once everything is fit, I typically dimple the end grain cuts to provide more grab for the epoxy. I then coat all meeting surfaces with epoxy consolidate, mix the

epoxy putty and mix in some consolidate to form a viscosity that will squeeze out yet fill all voids.

3. If utilizing fiberglass rods, a straight horizontal cut can be made, then four 5/8”-3/4” vertical holes can be drilled up into the post and down into the new post bottom approximately 6” deep in preparation for ½” fiberglass rods and epoxy. All meeting surfaces must be fully saturated with epoxy consolidate and certain epoxy putties must be thinned (with consolidate) to lower the viscosity, this allows for the rods to be pushed in and displace the epoxy, fully filling the void around the fiberglass rod. Best to complete testing prior to actual assembly.
   No matter what joining methodology is used, once the new post bottom is in position, I utilize straight helper cleats to hold everything in place until dry.
   Once post is cut to final length (matching original post length) coat bottom cut with epoxy consolidate.
   After work to floor framing is complete, cover any exposed joists or sills with butyl joist tape or 30lb felt paper prior to lowering posts. When posts are in final position, pre-drill post bottoms and fasten with 6- 3-1/8” GRK structural screws or equivalent, fill all holes with epoxy putty. Fabricate or purchase (Example: Simpson Strong Tie) stainless steel or galvanized hold down hardware minimum of 26” long to tie lower supporting posts, sills and decorative posts together. Decorative posts need to be routed out so that tie down is set below surface at least ¼”, attached with 4-2-1/2” GRK #10 structural screws then filled with epoxy putty and formed to post surface. Hardware should be configured to accommodate existing contours and fastened with GRK structural screws as above.

   There are other areas of the decorative posts that also need attention. There are large cracks on a number of posts and other surface blemishes which must be repaired as part of this restoration process.
   It is critical that large and/or deep cracks be properly repaired. This can be done by taking a teardrop scraper and v-ing out the crack to a depth of 3/8” or so, then drill a series of 5/16” holes to a depth of about ¾ the depth of the crack or more (drill holes at slight downward angle) and vacuum well. On a straight run, holes should be approximately 1”-1-1/2” apart, where there are more contours, hole placement should be planned to produce the greatest potential for deep epoxy consolidate saturation. Mix epoxy consolidate, saturate with two coats, followed with epoxy putty. Allow to thoroughly dry and form to surrounding contours.

Railings and Scrollwork

It is apparent that the current railings are replacements stemming back to the last renovations. I am hopeful that the current railing profiles match or come close to matching the originals. Though I am not aware of any existing original material or pictures that would answer this question. The beading on the replacement rails does match the upper spindle rails, this is one detail that does give me hope.

The existing scrollwork which has been cut out from ¾" plywood, has begun to fail and should be replaced with traditional individual balusters as were the originals. Time and care should be taken to average out the measurements of the existing scrollwork in hopes that one will arrive as close to the original patterns as possible. Once a pattern and template have been established, the most efficient way that I have found to cut them out is typically with a router, finishing up details with wood rasps and sandpaper.

While the original balusters were most likely Eastern White Pine, I will sometimes substitute cedar due to its decay resistance. Though cedar (depending on the current market) can be cost prohibitive. When I utilize EWP I pick out "quartersawn" stock which is usually available with a little digging through lumber piles. When the bandstand was originally built the standard nominal thickness for "1 inch" stock was 7/8", hence I would specify 7/8" material for the new balusters. If using EWP for such an application I typically will coat the end grain and one inch of the bottoms with epoxy consolidate to prevent moisture wicking prior to priming.

While I have no evidence of what the original configuration was, the existing set up could be close to the original, however, the quarter round seems a bit large to me. My recommendation would be to down size the quarter round to 3/4"". This same quarter round molding that sandwiches the balusters in place (top and bottom) is an inherent design flaw with respect to the bottom configuration. This design tends to trap water in the channel formed by the quarter round molding and can lead to decay of the surrounding wood. To help counteract this effect I would recommend placing a ¼" brass, copper or stainless-steel rod (square or round) under each baluster as a spacer, thus eliminating direct contact with the bottom rail. This in combination with the epoxy consolidate can add many years to the longevity of the balusters.

Decorative Brackets

The majority of the decorative brackets are in good condition, though a couple of them have cracks or splits that need attending to. All of them are good candidates for epoxy repair. The repairs would be completed in a similar way to the post repairs, though I would refer back to the photo section for the specifics on each particular bracket. Once the epoxy has fully dried, I

would form the epoxy to the existing paint surface. I see no need to strip the paint off these areas.

Spindle Work

The decorative spindle work appears to be in good condition. While there is significant paint build up from over the years, all areas that I observed seem to be sound, so I see no need for paint removal in these areas. If any minor repairs are discovered they can be easily filled with epoxy putty, once dry the epoxy can be formed to match the surrounding paint surface which will allow the repair to blend in well with the existing old paint.

In preparation for painting the spindle work and decorative bracketing should be cleaned well with a cleaning solution of choice specifically made for this purpose. Once these areas are clean and completely dry, either lightly sand surfaces or chemically etch for proper bonding. Whether lightly sanding or chemically etching, provide proper containment and protection.

Soffit and Fascia

As noted in the photo section there are several decayed and/or damaged areas along the fascia and soffit. Some of the fascia may be repairable with epoxy, if not, a molding knife should be ground to match the existing profile and new fascia stock made up for replacement of the damaged areas. Again, keeping replacement to a minimum is the goal, thus keeping as much of the original fabric of the bandstand as possible.

Due to the detached metal roofing along the roof edge and the inevitable windblown rain and snow, there are several areas of the original and replaced soffit that need attention. Again, epoxy is generally an easy approach to the repair of the original material that is failing. Though a more traditional approach is certainly available (and sometimes necessary) for this repair. This can be done by making up new edge-bead board that matches the original in species, (with good vertical grain) and a precise match to the complete profile (T&G, width, thickness and bead size). One can then cut out the damaged areas of the original edge-bead and fit and install the new material, typically with the help of a backer board set up and secured above the existing edged-bead. All the “new” edge-bead should be replaced with new stock that exactly matches the original as detailed above.

Lower Trim and Lattice

The existing lower trim and lattice which was replaced during the last renovations will need to be removed to allow for the repairs to the lower framing. When replacing this trim after all other repairs are complete, I would specify that the trim thickness should be 7/8” which again would be the standard nominal thickness of “one inch” material when the bandstand was built.

The current width dimensions of the lower trim should change; the skirt board width should narrow to 6-3/4” (skirt board sets horizontally just under the floor boards), vertical trim, narrow each side to 3-1/2”, the lower horizontal trim, reduce width to 4”. All trim should be clear Eastern White Pine handpicked for tight straight grain wherever possible, fully primed with linseed oil-based primer (such as California’s Trouble Shooter Oil Primer). Best to allow this to fully dry (I prefer two days) prior to finish coating. All cuts should be primed prior to final installation of trim.

The existing lattice matches the original in its diagonal orientation, however I do not believe that the spacing is correct. If purchasing pre-made lattice I would specify new diagonal lattice with a minimum of ¼” (preferably thicker 5/16”-3/8”) x 1-1/2” slats spaced 1-1/2” apart. If making up new diagonal lattice then I would make up the slats to be 5/16” x 1-3/4” and space them 1-3/4” apart. If making the lattice I would fully prime the slats (with trouble shooter oil based) prior to assembly, if purchasing the lattice and if available, purchase fully primed sections. Regardless, cedar is the preferred wood species for lattice.

Ceiling

Fortunately, as with much of the upper structure the ceiling appears to be original, uniquely there seems to have been a bit of a math problem and a different approach to the installation of the ceiling beadboard. If you look up at the ceiling center you will see that the beadboard end cuts do not line up which would indicate that the octagonal segments that make up the bandstand are not equal. While a little variation is typical, one can see that there is substantial offset of these miter cuts. Secondly, it is apparent that they installed the beadboard from the outside in, more commonly this is done from the center outward, in this way any offsets are less noticeable. Just one of the items that make your bandstand unique.

Albeit the quirkiness of the ceiling, it does appear to be in good condition, though certainly in need of care. While there are various methodologies for the surface restoration, the end result wants to be a varnished surface with a uniform tone. An experienced painting contractor could employ several different methods to acquire the needed result. Chemical stripping can work if one is very familiar with the product and process, however my preference is hand scraping which works quite well and goes fairly quickly with a couple people working at it on some form of staging (as opposed to ladders). However, extreme caution must be taken not to damage the beading. This can be accomplished by utilizing a scraper ground or filed to fit the bead. Once the majority of the varnish has been removed, sanding can commence, again extreme caution must be used as to not flatten the edge bead during the sanding process. As would be normal operating procedure, a method of collection and protection should be utilized.

Once surface preparation is complete three coats of varnish should be applied. Varnish should be of high quality such as Total Boat Gleam or Lust varnish or equivalent.

Flooring

While it is unknown (from the information that I have) what the original flooring was, my best guess would be that it was tongue and groove CVG Douglas Fir as opposed to square edged stock, this tends to provide better protection for the framing below. Though I did not notice any decay to the inner areas of framing, only the perimeter as mentioned.

The existing floor seems to be in fairly good shape excepting a few damaged floor boards and protruding nail heads. I am hopeful that the nail heads can simply be re-set below the surface, if this is not possible, one can try removing the nails and refastening the floor boards with a small headed ring shank nail utilizing the same nail hole. All damaged flooring should be removed and replaced with matching CVG Douglas Fir. In addition, new CVG Douglas Fir perimeter boards (wider stock with a nosing profile) should be installed (once work progress permits) around the outside edge of the bandstand with a 1" overhang past the new skirt board and a ¾" x 5/8" scotia molding installed underneath. I would then recommend that the floor be sanded and coated with either 3 coats of spar varnish or painted with 3 coats of a high-quality oil-based floor enamel. Another approach is to apply a form of deck stain which does not afford as much protection, however prep and re-coat is a bit easier. All the above applications must be maintained on a regular basis.

Roofing

As mentioned in the photo section, the roof is certainly in good condition for its age particularly if it's the original roof (which I believe it is). While it could have been replaced over the years terne roofing has a great track record of lasting a couple centuries or more if properly maintained.

Currently all the issues I observed were on the lower more horizontal areas subject to more rain flow and standing snow. The main body of the roof does have surface rust in various areas; however, this should be able to be treated and then coated with paint formulated for terne roofs.

The lower damaged areas can be patched in, though one must find somebody who is familiar with the processes and preferably has an interest in historic roofing (and a decade or two of experience). Anybody that installs soldered seam copper would have the knowledge and respected skillset to complete these repairs. I have included sources for terne metal roofing on my reference page.

Finial

It is apparent by the laminations that the finial was replaced at some point in the bandstand's history, however from the few old photos that I have viewed, it does appear that the original profile has been maintained. The original would have been turned from a solid piece of wood.

From what I could see from the roof, the main body of the finial appears to be in fairly good shape. I could only see the edges of the finial base and observed substantial cracks and weather checking along the edges. From what I could see overall, I would suggest that the existing finial could be repaired utilizing epoxy consolidate and putty. If it is decided to replace the finial, I would suggest turning the replacement from old solid stock. Once turned it should receive multiple coats of varnish, paraffin wax and turpentine mixture or a coat of epoxy consolidate. When dry, lightly sand prior to coating with high adhesion primer such as Mad Dog Acrylic primer or Zinsser Bulls Eye 123 water-based primer.

General Order of Work

1. General project organization and worksite set up.
2. Removal of lower trim, lattice and perimeter floor boards.
3. Temporary cross bracing of decorative posts, labeling and removal of benches, railing assemblies, perimeter boards and 3 or 4 courses of floor boards to allow for structural work on floor framing.
4. Build or erect lifting framework through and under upper structure capable of temporarily holding upper structure while lower structural restoration work is completed. Brace to accommodate work, wind and dead loads. Remove or cut any fasteners attaching post bottoms and jack upper roof assembly off from floor assembly high enough to allow for efficient completion of lower work.
5. Complete all structural work to floor framing, re-level floor assembly if deemed necessary. Cut, fit and install new post bottoms where needed and complete other repairs to lower sections of decorative posts, keeping in mind to keep all posts lengths equal to original dimension.
6. Set decorative posts onto floor assembly and fasten, remove temporary support system.
7. Stage upper areas of band stand, compile information with regards to custom millwork (moldings, balusters, trim etc.) and source. Coordinate with painting contractor to prime new stock if needed and possibly apply first coat of finish paint to such things as the balusters.
8. Complete restorative work to all upper perimeter areas (posts, brackets, cornice, roof, etc.). Possibly coordinate with painting contractor to complete upper areas of bandstand utilizing existing staging.

9. Remove staging, install perimeter floor boards, new lattice and lower trim, re-install railings and new balusters as previously described (railing assemblies could wait until after the floor sander, up to the contractor).
10. Scrape out, sand and varnish ceiling.
11. Complete all repairs to flooring, sand out floor and apply appropriate coating.
12. Complete all other necessary repair work.
13. Complete all remaining painting.

Estimated Project Costs, Labor & Materials

The following estimates represent a general overview of the costs that could be incurred for the work outlined in this report. All costs are estimates; some costs could be higher, some lower.

1. Structural repairs, restoration or replacement of wooden elements	$58,000.00-70,000.00
2. Repair of historic terne roofing	$2,400.00-- 3,200.00
3. Sanding bandstand floor and coating	$1,900.00--2,800.00
4. Preparation and painting bandstand and roof	$17,700.00-23,800.00
Total Estimated Project Cost	**$80,000.00-$99,800.00**

Materials and Services

Paint Analysis

David Arbogast APA

Arbogast Paint Analysis

info@paintanalysis.biz

563-355-1553

Metal and Terne Coatings

AcryMax Technologies

Acrymax.com/historic-preservation.html

info@acrymax.com

800-553-0523

Benjamin Moore

Corotech Metal Primer (oil Base)

Sherwin Williams

Professional or Industrial Coatings

General Coatings

California Paints

Trouble Shooter Exterior Oil Based Primer

Materials and Services

General Coatings (cont.)

Mad Dog Professional Primers

Dura-Prime (for old work)

Dura-Last (for new work)

Total Boat

Totalboat.com

401-396-8199

Gleam Spar Varnish, Lust Varnish

Other Materials

OSI Products

OSI Quad-Max caulking

PC Products (wide assortment of epoxy and adhesives)

800-220-2103

jack@pcepoxy.com

PC Woody

Rot Terminator (both available through Zoro, Walmart)

ConServ Epoxy (wide assortment of epoxies for various applications, fiberglass rods)

Conservepoxy.com

203-484-4123

Materials and Services

Terne Roofing

Fine Metal Roof Tech

finemetalrooftech.com

801-462-5264

Molding Knives

Custom Molding Knives

customouldingknives.com

tim@cmkvt.com

802-753-7105

For a more traditional approach to wood preservation, here is an old recipe for a coating that I utilize for particular situations. I apply this prior to a linseed oil-based primer.

1oz paraffin wax (melted)

3-1/2 quarts of turpentine

½ cup boiled linseed oil

Mix very well and before each use.