WILLAMETTE HERITAGE CENTER

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PRESERVING HISTORY & STRENGTHENING OUR COMMUNITY'S GATHERING PLACE

The Willamette Heritage Center is bringing forward a 2025 Legislative funding request to the Oregon Legislature to provide critically needed repairs and maintenance to our historic wooden buildings. I've included the attached materials, in which you will find an analysis of the needs, photos, and our plan for stewardship of one of Oregon's most important historic sites. The need to make these repairs is now critical, and we must sustain and protect these historically priceless, well-used, and much-loved properties into the future.

Please take a moment to see our request for legislative support for the Willamette Heritage Center (WHC). This project seeks to create and implement a comprehensive preservation plan to protect the iconic Mill Building, outbuildings, and other historic structures, ensuring they endure for future generations.

WHC connects generations by gathering, preserving, and sharing the rich history of the Mid-Willamette Valley. Visitors step back in time as they explore our five-acre property, home to 14 historic structures, permanent and rotating exhibits, a research library and archive, and a textile learning center. Together, these elements vividly illustrate the development of the region and the stories of its diverse communities.

Additionally, WHC provides significant public space in Oregon's Capital City. In 2024, WHC's rentable event venues hosted more than 300 events, welcoming over 30,000 attendees. Many of these gatherings are held by Oregonians from all over our state, meeting in our event venues for cultural, civic, and legislative gatherings in our state capital. We are a resource for all Oregonians to come together, better understand our heritage, and meet in our historic buildings.

The WHC invites visitors to explore the history and culture of the Kalapuya people, who have called this place home since time immemorial. The immigration of 19th-century missionaries and Oregon Trail travelers is evidenced in the 1841 Jason Lee House and Methodist Parsonage - the oldest standing wooden frame houses in the Pacific Northwest, featured along with the John D. Boon House (1847) and Pleasant Grove Church (1858).

The 1895-1896 Thomas Kay Woolen Mill, designated an American Treasure by the National Park Service, represents the industrialization of the Mid-Willamette Valley, with two floors of exhibits that tell this pivotal story.

A detailed assessment of the campus, outlined in the attached Exterior Site and Building Observations report prepared by *CBTwo Architects*, documents the exterior conditions of WHC's historically significant buildings. This report highlights critical repairs are needed to address issues such as damaged or rotting siding, roof deterioration, structural vulnerabilities, and prior repairs that compromise the historic integrity of the site.

These findings emphasize the importance of preservation efforts to safeguard the architectural and historical significance of WHC's structures, ensuring they remain vital community resources for generations to come.

Please let us know if we can give you a tour of these much-needed repairs. The time is short, and the need is great.

I can be reached at (503) 585-7012 ext. 223 or
michellec@willametteheritage.org

Thank You!

Michelle Cordova

Michelle Cordova, Executive Director

WILLAMETTE HERITAGE CENTER

EXTERIOR SITE AND BUILDING OBSERVATIONS

NOVEMBER 2024

CBTWO ARCHITECTS LLC

WILLAMETTE HERITAGE CENTER

EXECUTIVE SUMMARY

In the spring of 2024, CBTWO Architects was hired by the board of the Willamette Heritage Center (WHC) to conduct a field study observing and documenting exterior conditions of the historically significant buildings on the WHC campus. This report is intended to provide supporting information for application of grant funding to make repairs to the noted building or site elements. Throughout the campus, there are several deficiencies that require mitigation, including damaged/rotting siding, roof damage and wear, structural damage, and previous repairs that do not appear to match historic integrity. Pfeifer Roofing was also commissioned to review the roof conditions of campus buildings, with repair needed in many areas. Their report is provided in Appendix A.

BACKGROUND

During the morning of May 28, 2024, four members of the CBTWO team conducted observations, took photos, and documented conditions of note. The tour of the full campus took about two hours to complete. Our campus observations were limited to the exterior portions of the buildings only. It is assumed that observed exterior issues, such as water intrusion, could be in some cases causing damage to the interior structure and finishes, whether visible or invisible from users of the building interior. Though our scope did not examine interior environments of the buildings, further investigation is recommended where exterior damage is detailed in this report.

Recommendations for repair or restoration are not explicitly included as part of this report. However, as a part of the report, CBTWO did assign priority to repairs in a three-tiered system: high priority, mid priority, or low priority. These designations are subjectively based on CBTWO's valuation of each historic building, related to the recommended urgency each repair requires for each area. This report does not mandate repairs be performed in a certain order; instead, Ownership should have the final authority in determining what repairs are needed, and when they should be performed. As part of this report, CBTWO also enlisted Pfeifer Roofing to provide roofing inspections for the campus buildings. Their findings are appended to the end of this report. Recommendations for repair, if needed, will be provided in subsequent documents.

Though the primary scope of work was observation of the historic buildings, CBTWO also documented some site-specific deficiencies or issues that may require mitigation, especially when it relates to site accessibility. It should be noted that when alterations to a building are performed, Oregon State Law (ORS 447.241) generally mandates that 25% of construction cost be invested in removing existing accessibility barriers.

Pfeifer Roofing was also brought to the campus to review the conditions of the roofs throughout the campus. Though some roofs were in good shape, many showed several instances of disrepair or damage. Some shingles are approaching end of life, losing granules. Flashings, pipe penetrations, and flat roof areas are in need of replacement throughout the campus. The complete breakdown of their findings are detailed in their report, attached to this document as Appendix A.

Finally, the following report contains a condensed subset of the nearly 1,000 photos that were taken as part of CBTWO's tour of the WHC campus. The selected photos do not show every instance of damage or disrepair that was observed, but instead provide a more concise snapshot of the issues observed, particularly in circumstances where damage was repetitive or prevalent in certain locations. All photos from the visit can be provided upon request by the Owner.

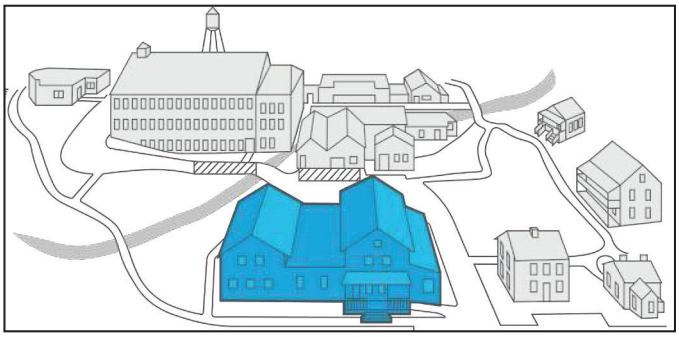
The Warehouse serves as the front door for the entire WHC campus, providing the first impression for visitors and staff. In addition to the cosmetic repair needed on the building, some accessibility improvements will likely be required.

On the wooden decks, several boards are warped or pulling away from the substructure, causing an uneven surface with tripping hazards (Figure 5.1). The sliding gate serving as the main entry to campus currently remains opened during operating hours, but the swinging side gate serves as the main exit point when the sliding gate is closed. This gate is accessed through a gravel walkway, which is not an accessible route (Figure 5.5).

There were many instances of damage to siding and window trim, leading to water intrusion and eventual wood rot. In some areas, siding has chipped or broken away, leaving exposed nailheads and an unknown plastic substrate (Figure 5.2). At window and door trim heads, there appears to be no caulk, waterproofing, or flashing used to deflect water away, which is allowing for water intrusion behind the trim and moss growth (Figure 6.3). A electrical panel was observed splitting away from wooden mounting plate on the east wall of the building (Figure 5.4).

Finally, masonry foundations appear to be in generally good condition, but appear to include some temporary solutions. Wood shims and other material have been placed on top of masonry piers, which are exposed to weather (Figure 7.1). Flashing is observed at piers which are slightly proud of exterior siding, but the flashing in some cases do not extend the full length of the pier, allowing for water intrusion (Figure 7.2).

Observation	Figure	Priority
Uneven boardwalk surfaces, and a mix of historic and non-historic boards used from previous repairs	5.1	Low
Chipped/rotting siding, allowing for water intrusion	5.2, 6.1, 6.4,	High
Siding reveal type changes occur on front elevation	5.3	Low
Panel breaking away from siding	5.4	Low
After-hours exit not accessible due to gravel path	5.5	Mid
Doorway/window trims are rotting, exhibiting moss growth and likely contributing to water intrusion	6.2, 6.3	High
Masonry foundations are flashed inappropriately and built up with improper materials, many of which do not appear historically accurate	7.1, 7.2	Mid
West door missing flashing and trim	7.3	Low
Siding nails are rusting/deteriorating	7.4	Mid




Parsonage

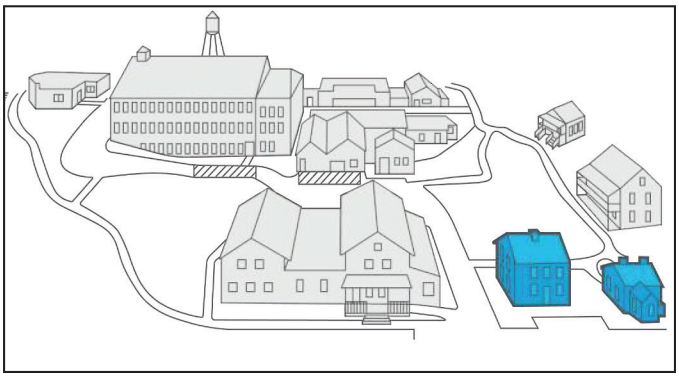

Boon House

The Parsonage exterior displays some of the heaviest weathering and damage observed among the buildings on campus, especially in regard to the category of buildings that were relocated to the WHC campus.

Primary weathering damage occurs at transitions at first floor building corners (Figure 9.1), walls against roof shingles due to lack of step flashing (Figure 9.3), and exposed doors and window trim (Figure 9.5). A column supporting the east edge of the front porch roof is showing signs of significant structural damage, with the wood base splitting apart and wind-driven water intrusion evident. The wood boards on the second floor stairway landing are showing significant weathering, with the railing supports and joints beginning to split away.

The Boon House has very similar issues as the Parsonage, though to a lesser degree of damage. The trim at the southeast corner wall base has significant damage (Figure 10.4), and the siding against the roofing is rotting at the end grain of the wood (Figure 10.5). The roof shingles appear to be nearing their end of life, with significant moss growth across the entire surface (Figure 10.1). Siding on the east elevation in particular is warping and bowing, creating an uneven surface where water can intrude behind the siding.

Observation	Figure	Priority
Corner trims at base of siding heavily deteriorating at Parsonage and Boon House	9.1, 10.4	Mid
Structural damage at Parsonage porch column	9.2	High
Siding against roofing rotting, heavy water intrusion at Parsonage and Boon House	9.3, 10.5	High
Upper stair landing deteriorating at Parsonage	9.4	Low
Chips in siding and trim causing water intrusion at Parsonage and Boon House	9.5, 10.2, 10.3	Mid
Boon House roof sagging	10.1	Mid



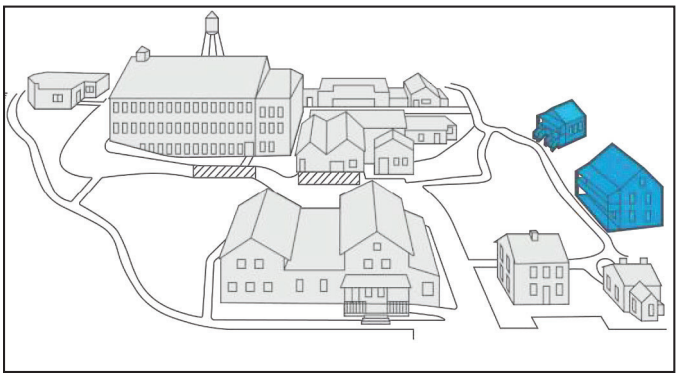

Jason Lee House


Church

The Jason Lee House is displaying many of the same issues as the Parsonage and Boon House, with several deferred maintenance items that require remediation. In several instances, we observed Bondo or a similar wood filler substance used on window trim and window sashes (Figures 12.3 and 13.1), but further treatment (sanding and painting) was not performed to match the adjacent finish. Most of the other observations on the following pages highlight issues with aging exterior envelope items. Mold growth was visible on siding on the rear elevation (Figure 13.2). Balcony decking on the front elevation is weathering and/or rotting, resulting in chipping and cracking in the wood boards (Figure 12.1 and 12.2). Elsewhere, paint is chipping from siding and door/window trim (12.4, 13.3, 13.4), as well as window mullions (13.5).

The Church includes many of the same issues as the Jason Lee House, including mold growth on exterior walls (Figures 14.4 and 14.5) and paint chipping and cracking (Figure 14.3). Some unique issues observed on the Church exterior were gaps in the porch roof soffit and structure (Figure 14.1), and a couple instances of bubbling water pockets in the siding, which is being caused by water intrusion from the window sills (14.2).

Observation	Figure	Priority
Balcony decking deteriorating at Jason Lee House	12.1, 12.2	Low
Wood filler not properly finished at Jason Lee House	12.3, 13.1	Low
Wood trim and thresholds at end of life on Jason Lee House	12.4, 13.4	Mid
Corner base trim at Lee House heavily deteriorating or missing entirely	12.5, 13.3	Mid
Mold growth on siding at Jason Lee House and Church	13.2, 14.4, 14.5	Mid
Paint chipping from window mullions at Jason Lee House	13.5	Low
Church siding bubbling due to water intrusion	14.2	Mid
Paint chipping on Church siding	14.3	Low



PGE POWER EXHIBIT / SOUTH SCOURING ROOM

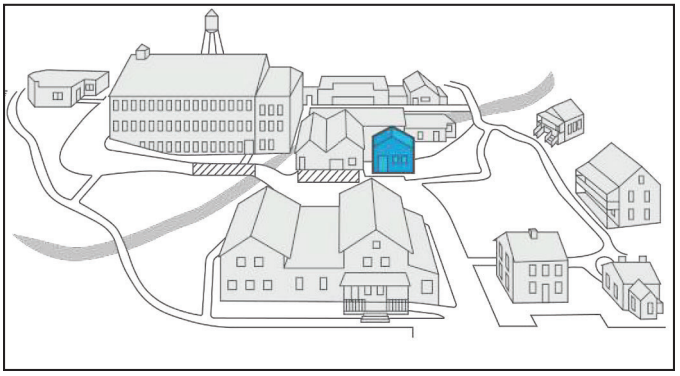
PGE Power Exhibit

South Face of Scouring Room

The PGE Power Exhibit building, as the newest building on campus, appears to be in suitable condition, with no critical repairs appearing necessary. To the north side of the PGE building, the top of the wooden guardrail is beginning to split and warp (Figure 16.2).

The south portion of the Scouring Room, included on the following page, shows signs of foundation erosion on the south elevation (Figure 16.3), along with siding damage that requires further remediation from what has been done previously (Figure 16.4).

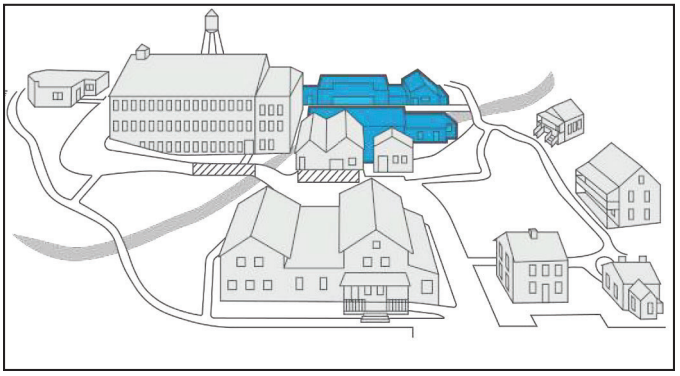
Observation	Figure	Priority
Railing against creek splitting	16.2	Low
Foundation eroding beneath Scouring Room	16.3	High
Paint finish on wall is inconsistent	16.4	Low
Plywood siding on upper wall of Scouring Room deteriorating, and does not match typical siding on lower walls	16.5	Mid



The Mentzner Machine Shop was observed to be in better exterior condition than most of the other buildings on campus. The major concern is the east roof, which is directly underneath a willow tree. The roof shows heavy debris from the tree, which provides potential to trap water and erode the roof surface (Figure 18.1).

At the Picker House deck, there is a vast layering of historical interventions and changes that make it difficult to discern what is historically significant, and thus determine priority in making repairs. A large panel of plywood is covering a large hole that appears to be temporary (Figure 19.3). In addition, there are several holes or missing pieces of cladding that are providing ample space for water intrusion, including a missing panel of lap siding above the tunnel (Figure 18.3) and missing brick veneer where a pipe penetrates into the Picker House (18.5). A circular hole in the concrete wall contains a mesh screen, but it does not fully cover the hole (19.4). Most importantly, dripping water was visible underneath the concrete creek run, suggesting structural damage or cracking that should be rectified immediately to prevent further damage or leaking (19.5).

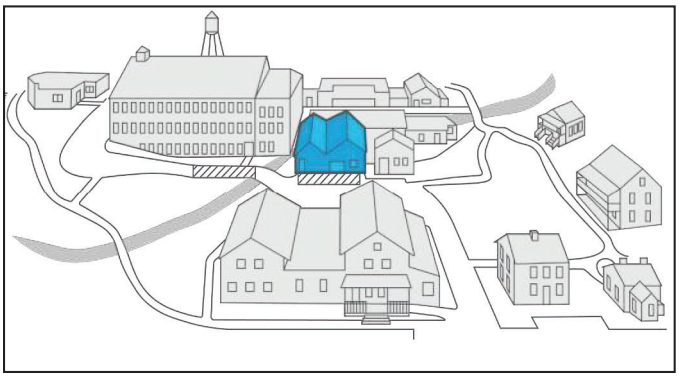
Observation	Figure	Priority
Moss and debris on Machine Shop roof, from overhanging tree	18.1	Low
Moss on Scouring Room roof	18.2	Low
Several instances of holes in exterior causing water/insect intrusion	18.3, 18.5, 19.3, 19.4	High
Rusting flashing on Picker House deck	18.4	Low
Water intrusion at base of window at masonry	19.1	Mid
Vertical slats on Picker House deck guard pulled apart, resulting in gap	19.2	Low
Dripping water beneath concrete creek run suggests failing structure	19.5	High



The exterior area between the mill building, picker house, and scouring room shows a variety of structures, most of which are clearly showing age but not pointing to any major issues. The one critical item observed at this location is a wood beam sitting on the ground that serves as part of the support for a bridge structure above. The base beam is showing severe water/insect damage, hollowing out from the center, which could compromise the column support (Figure 21.2). Siding on one of the equipment bridges is rotting at the bottom, allowing for water to penetrate inside (Figure 21.3). We also observed a unique area of masonry efflorescence on the west edge of the Picker House, which points to years of water intrusion behind the brick (Figure 21.1). The efflorescence itself is not a major issue, but remediation of the brick may be required to prevent future intrusion of water. Water damage to the brick is also evident above the arched doorway on the west elevation of the Picker House (Figure 21.4).

Lastly, significant mold growth was observed on the west elevation of the Scouring Room/Dye House, caused by a large crack in the siding (Figure 21.5).

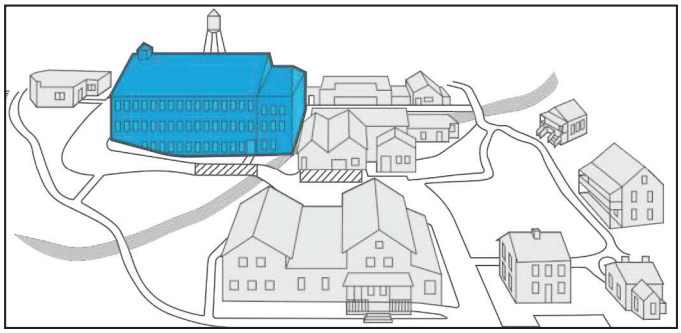
Observation	Figure	Priority
Masonry efflorescence on west side of Picker House	21.1	Low
Floor beams supporting mill turbine structure are rotting/hollowing out	21.2	High
Siding deterioration and incorrect installation of roof flashing	21.3	Mid
Heavy masonry weathering at west side of Picker House	21.4	Low
Moss growth on siding	21.5	Mid



The Thomas Kay Woolen Mill Building is the crown jewel of the Willamette Heritage Center campus. On the main building volume, we observed a large amount of surfaces requiring cosmetic repair due to weathering. Paint was beginning to chip away on the arched stone window headers (Figure 23.1), as well as most of the window sills, sashes, and window trim (Figure 23.2). There were localized pockets of damage on the roof cornice, which appears to be resulting from wind and water damage (Figure 23.3). Recessed doorways and other outside corners of masonry are eroding, causing small lips that allow for standing water and further water damage (Figure 23.4). Weeds and moss are growing on the repurposed stone used from the original mill building, but based on our review of the exterior, it is unclear if any remediation is needed beyond weed control (Figure 23.5).

The rear (north) side of the Mill Building would require extensive work in building repair and safety upgrades. Ventilation grates at the ground level were filled with insulation in recent history, but batts are now breaking away and hanging down in front of the grate (Figure 24.2). The roof of the submerged maintenance shop is approaching end of life, with moss growth and other debris scattered across the surface (Figure 24.3). The stairs down to the lower portion of the Boiler Room have been removed, leaving an open hole that is overgrown with weeds and grasses (Figure 24.4). On this portion of the campus, the grounds were overgrown, with debris scattered across pathways and unsafe stair conditions.

Observation	Figure	Priority
Paint chipping and deterioration on window trim and door/window headers	23.1, 23.2, 23.4	Low
Roof cornice damage, dutch gutter joints failing	23.3, 25.2	High
Original stone provides areas for water intrusion and weed growth	23.5	Low
Electrical outlet on west exterior wall is not protected nor appears to be historically significant	24.1	Low
Insulation damage in foundation vents	24.2	Low
Maintenance roof nearing end of life	24.3	Mid
Unsafe stairwell to lower Boiler Room	24.4	Mid
Water damage near maintenance shop door	24.5	Mid
Masonry wall buckling under weight of turbine structure	25.1	High
Retaining wall against creek settling due to damage against bank	25.3	High



HIGH PRIORITY

Observation	Figure	Location	Concern
Retaining wall against creek settling due to damage against bank	25.3	Mill	Structural, Liability, Accessibility
Dripping water beneath concrete creek run suggests failing structure	19.5	Picker House / Mill Race	Structural, Liability
Floor beams supporting mill turbine structure are rotting/hollowing out	21.2	Lower Picker House	Structural
Masonry wall buckling under weight of turbine structure	25.1	Mill	Structural
Foundation eroding beneath Scouring Room	16.3	Scouring Room	Structural
Roof cornice damage, dutch gutter joints failing	23.3, 25.2	Mill	Structural, Water
Structural damage at Parsonge porch column	9.2	Parsonage	Structural
Holes in exterior causing water/insect intrusion	18.3, 18.5, 19.3, 19.4	Picker House (at deck)	Structural, Water
Chipped, rotting siding, allowing for water intrusion	5.2, 6.1, 6.4	Warehouse	Structural, Water, Prevalent
Doorway, window trims are rotting, exhibiting moss growth and likely contributing to water intrusion	6.2, 6.3	Warehouse	Structural, Water, Prevalent
Siding rotting against roofing, heavy water intrusion	9.3, 10.5	Parsonage Boon House	Structural, Water, Prevalent

MID PRIORITY

Observation	Figure	Location	Concern
Boon House roof sagging	10.1	Boon House	Structural
Masonry foundations are flashed inappropriately and built up with improper materials, many of which do not appear historically accurate	7.1, 7.2	Warehouse	Structural, Historic Integrity
Siding deterioration and incorrect installation of roof flashing	21.3	Lower Picker House	Water, Structural
After-hours exit not accessible due to gravel path	5.5	Warehouse	Accessibility, Liability
Siding nails are rusting/deteriorating	7.4	Warehouse	Water Intrusion
Corner trims at base of siding heavily deteriorating	9.1, 10.4	Parsonage Boon House	Structural, Prevalent
Corner base trim heavily deteriorating or missing entirely	12.5, 13.3	Jason Lee House	Structural
Bubbling siding due to water intrusion	14.2	Church	Water
Plywood siding on upper wall of Scouring Room deteriorating, and does not match typical siding on lower walls	16.5	Scouring Room	Structural, Historic Integrity
Maintenance shop roof nearing end of life	24.3	Mill	Structural
Chips in siding and trim causing water intrusion	9.5, 10.2, 10.3	Parsonage Boon House	Structural, Water
Wood trim and thresholds at end of life	12.4, 13.4	Jason Lee House	Structural, Water
Mold growth on siding	13.2, 14.4, 14.5	Jason Lee House Church	Structural, Water
Water intrusion at base of window at masonry	19.1	Picker House deck	Water, Structural
Unsafe stairwell to lower Boiler Room	24.4	Mill Maintenance	Liability
Moss growth on siding	21.5	Dye House	Water
Water damage near Maintenance shop door	24.5	Maintenance	Water

LOW PRIORITY

Observation	Figure	Location	Concern
Front boardwalk surfaces are uneven, and a mix of historic and non-historic boards are mixed in from previous repairs	5.1	Warehouse	Liability, Accessibility, Historic Integrity
Moss and debris on Machine Shop roof from overhanging tree	18.1	Machine Shop	Structural, Cosmetic
Moss on Scouring Room roof	18.2	Scouring Room	Structural, Cosmetic
Siding reveal type changes occur on front elevation	5.3	Warehouse	Historic Integrity
West door missing flashing and trim	7.3	Warehouse	Water
Upper stair landing deteriorating	9.4	Parsonage	Structural, Water
Balcony decking deteriorating	12.1, 12.2	Jason Lee House	Structural, Water
Masonry efflorescence on west side of Picker House	21.1	Picker House	Structural, Water
Heavy masonry weathering at openings of Picker House	21.4	Picker House	Structural, Water
Wood filler not properly cleaned, finished	12.3, 13.1	Jason Lee House	Cosmetic, Water
Paint chipping from window mullions	13.5	Jason Lee House	Structural
Paint chipping from Church siding	14.3	Church	Cosmetic, Water
Original stone provides areas for water intrusion and weed growth	23.5	Mill	Water
Paint chipping and deterioration on window trim and door/window headers	23.1, 23.2, 23.4	Mill	Cosmetic, Water
Paint finish on Scouring Room wall is inconsistent hue/color	16.4	Scouring Room	Cosmetic, Historic Integrity
Railing against creek splitting	16.2	PGE Power Exhibit	Liability, Cosmetic
Meter panel is breaking away from siding	5.4	Warehouse	Cosmetic, Water
Rusted flashing on Picker House deck	18.4	Picker House deck	Structural
Vertical slats on Picker House deck guard pulled apart, resulting in gap	19.2	Picker House deck	Liability, Cosmetic
Insulation unraveling in foundation vents	24.2	Mill	Water, Cosmetic
Electrical outlet on west exterior wall is not protected against weather	24.1	Mill	Water, Historic Integrity

MSC
ENGINEERS
SINCE 1925

Date: October 25, 2024

Attention: Aaron Terpening
CB|Two Architects, LLC
500 Liberty St. SE
Suite 100
Salem, OR 97301

Re: **Willamette Heritage Center**
Structural Observation Report

Aaron;

On September 25, 2024 Cameron T. Carroll of MSC Engineers, Inc. met with Daniel Roth from your office at the Willamette Heritage Center (WHC) located in Salem, Oregon. The purpose of this site visit was to investigate (4) specific items; the observed settlement of the walkway adjacent to the Dye House, the observed deterioration at the Boon House, the carpenter ant damage at the Pleasant Grove Church, and the masonry damage at the east wall of the Mill Building. While onsite the leaking of the concrete elevated spillway at the Wheel House was also discussed. From conversations with you we understand that the WHC is doing an overall evaluation of the site and these items were flagged for additional review by a Structural Engineer.

The following is our review of the observed issues and proposed solutions. Representative photos of the observed issues are enclosed as well.

Dye House Walkway:

The walkway runs from the west side of the Dye House to the bridge over Mill Creek and appears to have settled about an inch in relation to the Dye House based on markings on the siding. Based on our conversation onsite with the Facilities Manager, we understand that the settlement has occurred slowly over the years and has progressively gotten worse, but no formal tracking of the settlement has been done to determine at what rate the settlement is occurring. The intent, according to the Manager, is to prevent the settlement from getting worse and they do not intend to attempt to lift the walkway back to its original elevation.

In our opinion the observed settlement is due to erosion of the bank from Mill Creek. Over time, and multiple floods, the water has washed away the fine soils causing voids that are then compressed leading to the observed settlement. To resolve this issue we recommend contacting a Civil Engineer to develop a plan to stabilize the bank and prevent future erosion from occurring. This could include removing some of the vegetation along the bank and installing erosion control measures, such as riprap. This would serve to protect the underlying soils from erosion and hopefully mitigate any future movement.

Boon House:

At the Boon House we were informed that deterioration has occurred to the vertical boards that make up the wall framing along the south side of the building. The area of concern was covered by lap siding at the time of our site visit so the deterioration could not be reviewed by our office. The house is framed via the "Board and Batten" method where the exterior walls consist of 2x flat vertical members, the boards, tied together via small vertical 1x members, the battens, at the seams. While in modern construction this method is typically only used for the siding, in this case the method was used to frame the structural exterior walls and is therefore a load bearing system.

If significant deterioration has occurred to the boards under the siding then the only way to effectively repair them and maintain the aesthetics of the structure would be to fully remove and replace the deteriorated board in like kind. However, if the deterioration is modest and penetrates less than ¼" into the board, we believe that it can be left in place and treated to prevent future deterioration. This would involve removing the deterioration via wire brush, treating the affected area with a fungicide to kill the mold spores, and then filling the void with wood putty. Once that is done the board and can be sanded and finished to match the existing. We recommend that if the lap siding is removed to repair the boards that appropriate waterproofing be applied to ensure no future deterioration occurs.

Pleasant Grove Church:

The crawl space of the Pleasant Grove Church was investigated to determine the extent of damage that occurred from a carpenter ant infestation. We understand that the carpenter ants have been eliminated and WHC is asking for a proposed scheme to repair the damage. Additionally, while inside the church, we were made aware of a significant "soft" spot in the floor along the north wall at about the center point. The soft spot occurs where one of the floor beams intersects the north edge beam. We did not review this location while in the crawl space so can only speculate on the cause.

The church floor framing consists of a large support beam running east to west down the center of the church with support posts and concrete footings at approximate quarter points. The floor joists consist of milled logs at roughly 2' on center spanning north to south and attached to the center and edge beams via a mortise and tenon joint connection. It was apparent that a seismic upgrade has occurred to the foundation as the beams and posts were tied off to the structure and retrofit seismic anchors have been installed around the perimeter from the edge beams to the concrete foundation.

Just to the east of the first support post under the center floor beam significant damage has occurred from carpenter ants. The damage has resulted in the loss of approximately 50% of the wood section for a length of approximately 12" to 16". To solve this problem we recommend installing a new 6x6 support post and 2' square footing to the east of the damage to reduce the stress on the existing beam. The new post and footing should match the existing posts in the crawl space and should be installed as close to the existing floor joist as possible east of the damage. We also recommend that the void created by the carpenter ants be filled with an epoxy sawdust mix to protect the remaining wood material from future infestation. The mix can be turned into a paste that can be applied to the wood voids.

At the soft spot in the floor we speculate that the issue is the tenon of the floor joist has split where it intersects the edge beam causing the joist to be unsupported at this location. To solve this problem we recommend installing a new post and footing under this beam at the location of the soft spot similar to the solution described above. This will provide direct support to the joist and should eliminate the issue.

Mill Building:

At the east wall of the Mill Building there is an elevated raceway that carries water through the exterior brick wall into the building. The raceway is supported adjacent to the building by a wood frame consisting of 12x12 and 12x14 solid sawn wood members. The bottom 12x14 cross member of this frame sits directly atop the exterior grade and has suffered significant deterioration over the years. It has "crushed" over time resulting in a loss of section and subsequent settlement of the raceway above. This settlement has transferred the weight of the raceway onto the exterior brick wall of the Mill Building causing the brick to crack and crush under the weight.

To solve this problem, and to alleviate the weight off the brick and supporting wood frame, we recommend temporarily shoring the raceway and lifting it up to its correct elevation. The deteriorated members of the wood frame should be removed and replaced in like-kind to match the existing aesthetics and reinstalled to support the raceway. Once the raceway is lifted off the brick wall, the brick should be able to be patched and repaired to match the existing conditions. There is a second wood frame supporting the raceway approximately 10' or so from the Mill Building. This frame also appears to be suffering from deterioration and we recommend that its members be replaced as well as part of the repair.

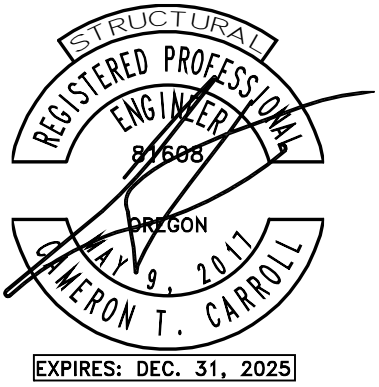
Wheel House:

At the Wheel House there is an elevated concrete raceway that was actively leaking water at the time of our site visit. A question was posed as to whether this was a structural concern and what strategies could be employed to solve the issue.

In order to truly understand if the leaking is a significant or minor issue would involve further investigation into the construction of the raceway and was outside the scope of this report. However, we believe at a minimum that steps should be taken to stop the leaks from occurring to prevent future cracking and deterioration of the concrete. The most straightforward solution would be to divert the water out of the raceway so that the upper surface can be accessed and an epoxy coating applied to stop the leaking below. This will also afford the opportunity to investigate the structural integrity of the elevated slab to determine if additional measures should be employed. These measures could include adding additional support below the slab to alleviate the stresses, or pouring a new structural layer of concrete above or below the slab to increase its load capacity. Other solutions exist and all solutions should be vetted for their practicality prior to proceeding with a repair scheme.

We trust that this report adequately summarizes our findings with respect to the requested scope of services. If you have any questions or concerns about the information provided in this report please feel free to contact our office.

Sincerely,



Cameron T. Carroll PE, SE
MSC Engineers, Inc.

Enclosure: Representative Photos