

Conditions Assessment for the Andrew Peterson Farmstead



Prepared by

Peggy Anderson, Alejandro Sanchez, Mohamed Alqari, Fred Counts, Anne Drolet, Holly Engle, Joel Holstad, Elizabeth Kinney, Jenna Rempfert, Sarah Ward, Alexandr Young, and Lisa Zeeb

Students in ARCH 5672: Historic Building Conservation
Instructor: Todd Grover, AIA

Prepared on Behalf of

Carver County Historical Society

Fall 2015



Resilient Communities Project

UNIVERSITY OF MINNESOTA
Driven to DiscoverSM

This project was supported by the Resilient Communities Project (RCP), a program at the University of Minnesota that convenes the wide-ranging expertise of U of M faculty and students to address strategic local projects that advance community resilience and sustainability. RCP is a program of the Center for Urban and Regional Affairs (CURA).



This work is licensed under the Creative Commons Attribution-NonCommercial 3.0 Unported License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc/3.0/> or send a letter to Creative Commons, 444 Castro Street, Suite 900, Mountain View, California, 94041, USA. Any reproduction, distribution, or derivative use of this work under this license

must be accompanied by the following attribution: “Produced by the Resilient Communities Project at the University of Minnesota. Reproduced under a Creative Commons Attribution-NonCommercial 3.0 Unported License.”

This publication may be available in alternate formats upon request.

Resilient Communities Project

University of Minnesota

330 HHHSPA

301—19th Avenue South

Minneapolis, Minnesota 55455

Phone: (612) 625-7501

E-mail: rcp@umn.edu

Web site: <http://www.rcp.umn.edu>

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

ANDREW PETERSON FARMSTEAD Carver County, Minnesota



ANDREW PETERSON FARMSTEAD

Carver County, Minnesota

This document was prepared for the Carver County Historical Society by:
Historic Building Conservation | Architecture 4672/5672 | Fall 2015

Instructor:

Todd Grover, AIA, Adjunct Assistant Professor

Student Authors:

Peggy Anderson
Alejandro Sanchez
Mohamed Alqari
Fred Counts
Anne Drolet
Holly Engle
Joel Holstad
Elizabeth Kinney
Jenna Rempfert
Sarah Ward
Alexandr Young
Lisa Zeeb

ANDREW PETERSON FARMSTEAD

Carver County, Minnesota

Table of Contents:

Farmhouse Exterior	1
Farmhouse First Floor.....	10
Farmhouse Second Floor.....	49
1917 Barn Structure	58
1917 Barn Exterior.....	72
The Granary	78
South Barn	84
Smokehouse	89

Condition Assessment | South Face of Farmhouse

The south face of the Peterson Farmhouse is the side with main entrance to the building. In general the condition is good, with some maintenance required, but it does not seem major repairs are necessary at this time.

Description



Figure 1. 1885 Photograph of farmhouse

The farmhouse is a two-story building with a three season porch running almost the full width of the house. The porch is visible in a photograph of the house from 1885, see Figure 1. At that time it seems to have been just a covered porch, and was enclosed at some later date. The foundation wall of the porch is concrete and is generally in good condition with minor cracking. The concrete is painted brown to match the siding, and the

paint is peeling in places, see Figure 2. The siding of the porch runs vertically, similar to the rest of the house and the barns. It appears to be in good condition with little to no rot visible and is painted brown.



Figure 2. Concrete foundation wall of porch.

The front steps leading up to the porch door are concrete and have two risers. The concrete has a coarse aggregate, and seems to be in good condition except on the side faces where there is some spalling. The steps are not attached to the porch, and there has been some movement of the steps relative to the porch. This has resulted in a 1"-2" gap between the steps and the porch and an overall downward slope, See Figure 3.



Figure 3: Steps at front porch.

There is a brick chimney made of Chaska brick, see Figure 4. It has 14 courses visible above the roof flashing, and appears to be in good condition. It was impossible to get a close look of the chimney, so further inspection would be recommended. The flashing appears to be new and was probably installed when the new roof was installed. From our visual inspection from the ground it looks like it is possible that the flashing is inadequately sealed, but this would need to be verified. The chimney flue appears to have a metal liner with a screen cap, but it was not possible to determine whether this metal liner went full height of the chimney flue. There is some staining on the chimney exterior, but this should not affect its durability.



Figure 4: Chimney and roof of farmhouse

The farmhouse was recently re-roofed with standing seam metal roofing. It is a tan colour. The timber fascia boards below the roof were not replaced at this time, and are showing some deterioration.

Recommendations

It is recommended to paint any deteriorating painted wood of the building exterior. This would include window frames and the fascia boards.

The concrete steps should be stabilized and repositioned to eliminate the gap and slope.

ANDREW PETERSON FARMSTEAD Carver County, Minnesota

Farmhouse - East Elevation

Description:

The Andrew Peterson farmhouse is a vernacular wing-and-gable-front farmhouse. The original house dates to 1870, with a Chaska brick kitchen wing added on the north side sometime between 1870 and 1885 when it appears in a photograph. The east elevation includes facades of all three of the house's sections: a south-end enclosed single-story porch, the central end-gable two-story main house, and the north-end, single-story el wing perpendicular to the central section (fig. 1). On the east elevation, the north and south sections both recede about 8 feet from the front of the central main house section. The 1885 photograph shows the south and north enclosed porches originally were both open.¹ The current primary entrance is part of this enclosed porch.

All three sections of the elevation are clad in vertical tongue-and-groove siding. On the south enclosed porch, the wood boards are approximately 5 inches wide with an inch-wide groove section between the boards. (fig. 2) The central main house's brown

¹ Thorbeck, Dewey, *Historic Andrew Peterson Farmstead Concept Major Plan* (Carver County Historical Society, 2015), p 10.

Painted wood boards are approximately 5 inches in width with a left-side beveled interlapping joint. Although the vertical orientation of the siding is unusual, the 1885 photograph shows the siding as vertical at that point, suggesting the siding is original to that time. The boards are approximately 20 feet high, with the central section having pieced-in boards cut to fit the gable front's angle. The central main house has approximately 12-inch-wide, edge-butt corner boards. (figs. 1 & 4)

The north wing and the southern enclosed porch do not have any corner boards and only an edge-butt setting of the primary siding boards. On the north wing, the brown painted boards are 8 inches in width and appear to be mid-late 20th century synthetic wood, which would correspond with the date of the more recent enclosing of the porch.

The roof of each section has a different pitch. All of the roofing is of standing seam metal panels with seams running vertical with each roof pitch. The south enclosed porch has a flat roof with short overhangs, and the north wing and central section both have gable roofs. None of the roofs have fascia separating the vertical siding from the shallow soffits. The north wing has a painted metal rain gutter; there are no rain gutters on either the central or south sections.



Fig. 1) East elevation of the farmhouse. Photo taken facing southwest.



Fig. 2) Detail of the transition from the central main house siding on the right and the southern enclosed porch siding on the left. Photo taken facing west.

ANDREW PETERSON FARMSTEAD

Carver County, Minnesota

The fenestration is inconsistent in window style or layout beyond being single-hung windows with white painted wood frames.

- The southern section has three one-over-one wood-frame windows with approximately 5-inch-wide flat board surround and aluminum-framed modern screens (fig. 3).
- The central main house has four symmetrically set windows, two on each story, and a single, centered triangular fixed window set in the attic. These windows are original to the house in terms of placement. The first story's windows are two-over-two single hung wood windows. The second story's windows are six-over-six wood windows. The 1885 photograph show the six-over-six windows and the attic triangular window divided into three lights by two muntins.
- All four single-hung windows have contemporary aluminum storm windows added. The wood casings are painted white and the windows are framed with vinyl, red-painted faux shutters. The peeling paint on the shutters expose varying original colors. (fig. 4)
- The north wing has five windows and the front door. All five windows are one-over-one contemporary white vinyl, with a single window to the left of the red-painted steel door and two sets of

double windows to the door's right. (fig. 5).

- The front steps are contemporary concrete with contemporary white-painted turned wood railings. The light fixtures are also contemporary metal and glass.

The foundation of the central wing is rough fieldstone and appears to be original. A brown-painted 12-inch-wide base board covers the top portion of the fieldstone. (fig. 6) The foundation for the north wing and south porch is not visible due to the enclosures.

Condition:

The overall condition of the east elevation is structurally sound but lacking more than basic maintenance.

The siding has no visible signs of imminent structural failure. The paint on the north façade is intact. The paint on the central and south façades, though, does show failure with flaking, peeling and weather-damage. The central main house section's



Fig. 3) Southern enclosed porch. Photo taken facing west.



Fig. 4) Central main house section. Photo taken facing west.

brown paint has chipped off in a number of places, exposing layers of light blue and white paint as well as bare wood. (fig. 7) Notes about the 1885 photograph indicate the house was painted blue at that point in time, and the 2015 Master Plan indicates the house paint will be restored to this blue during the second stage of the farm's development.²

At the base of the northeast corner of the central section, a short board is plastered in with a mortar-like substance that crumbles when pulled away from the structure. Beneath the mortar patch, trapped water has degraded the wood, which is damp to the touch. Due to the placement of the downspout extension and splash-block, it is likely that defective ground and surface drainage has caused the degrading of the wood. (fig. 8)

The roofing material does not show deterioration or failure, although the soffits do have some water staining. The north wing's downspout does not show any deterioration of the paint. (fig. 5)

The windows do not show any structural decay. The paint is in similar condition as the siding paint with the overpainting peeling and in need of removal. (fig. 9) The glazing is

all intact and places of the caulking show normal degradation and loss.

The aluminum storm and screen insets have signs of wear. The screen on the center section's lower northeast window and the screen on the north wing's window are both in need of repair. (fig. 10)

The north wing's door, concrete steps, railings and concrete block foundation are all intact and have no obvious degradation.

Recommendations:

As noted before, much of the east elevation's surface restoration involves paint accumulation and failure. The siding and window trim all require paint removal and replacement.

If the 2015 Concept Master Plan continues to be the guiding program for the Peterson Farm, then the Farmhouse will be restored to its 1885 appearance. The south and north side enclosed porches will be removed and reconstructed.³ For the south enclosed porch and north, then, the east façade recommendation is to do nothing to the current materials except minimal basic repair and maintenance to prevent extensive degradation.



Fig. 5) North wing; enclosed porch. Note windows, door placement, and gutters. Photo taken toward the southwest.



Fig. 6) Detail of foundation and siding baseboard. Photo taken facing northwest.

² Ibid, p. 40.

³ Ibid.

For the central main house's siding, the peeling and cracking of the brown paint requires removal, particularly in anticipation of restoration to the earlier 1885 blue.

- An initial scraping and testing of the layers of paint is necessary. While the brown paint appears to be very recent, and likely a latex or other modern composition, the method of removal requires a complete identification. The underlying white and blue layers need testing for age and to determine if they have a lead base and so require extra precautions with removal.
- The National Park Service guidelines dictate that paint removal be done in the least invasive and gentlest manner possible.⁴ A recommended method would be sanding – either by hand or mechanically, although the sanding needs to be done with care in order to not damage the wood.
- Examination for any hidden wood degradation needs to be done once the paint has been identified and removed. If wood degradation is present, causes for that degradation should be identified and mitigated.

⁴ Weeks, Kay D, and David W. Look, "Preservation Briefs 10: Exterior Paint Problems on Historic Woodwork," (Technical Preservation Services, NPS, 1982). <http://www.nps.gov/tps/how-to-preserve/briefs/10-paint-problems.htm>

The cracking and peeling of paint is most likely due to water infiltration between the layers of the paint. It is notable that some of the areas where cracking appears are along the tongue and groove interlapping. (fig. 11)

- Repainting requires a proper preparation of the wood to lessen the chance of future paint failure. The Secretary of Interior's Standards indicate an oil primer is to be used, followed by an oil-based or latex paint.⁵

The wooden window framing restoration should follow the same process of stripping and wood examination. Extensive cracking and peeling was not obvious during this evaluation, but some areas do show paint failure and closer examination is needed. The Preservation Brief 9 describes the method of restoration for windows which should be followed.⁶

- Any situation where windows are painted shut needs to be attended and the window made useable again through removal of the paint.

⁵ Ibid.

⁶ See <http://www.nps.gov/tps/how-to-preserve/briefs/9-wooden-windows.htm>; Myers, John, "Preservation Briefs 9: The Repair of Historic Wooden Windows," (Technical Preservation Services, NPS, 1981).



Fig. 7) Flaked off paint revealing white and then blue paint beneath. Photo taken facing north.



Fig. 8) Replaced wood piece plastered in with mortar-like substance. Note splash block. Photo taken facing southwest.

ANDREW PETERSON FARMSTEAD

Carver County, Minnesota

- Because the two-over-two windows of the first story are wooden and not vinyl, it is theorized they likely replaced the original six-over-six windows at some time during the years when Peterson's wife and then daughter lived in the house. Research would need to be done to confirm this dating. Despite the age of the windows, though, and due to the intention to restore the house to its 1885 appearance, along with their prominent position in regards to the east elevation and approach to the house, these windows need to be replaced and not just restored.
- The Secretary of the Interior's Rehabilitation Standard 6 requires the replacement of a window on the primary elevation "must match the historic windows in all their details and in material." The window's interior details are determined by the significance of the window's relationship to the interior's integrity.⁷
- The aluminum screen and storm windows should be removed.

Replacement storm windows should be wooden if possible and compatible with the original window profile.

- Due to the condition and material of the shutters, and the fact that no shutters were on the house in 1885, the shutters should be removed.

Although the metal roofing is in good condition, the Master Plan calls for the roofing to be returned to the original wood shingles. The recommendation is to engage the help of a historic architect and roofing expert to appraise the state of the roof support beneath the metal roofing and to determine the best replacement shingles and methods.



Fig. 9) Detail of window frame and shutters. Note condition and inappropriate addition of the aluminum storm windows. Photo taken facing west.



Fig. 10) Identification of windows with broken screens and storm windows. Photo taken facing south west.

⁷ "Planning Successful Rehabilitation Projects: Replacement Windows that Meet the Standards," (Technical Preservation Services, NPS), <http://www.nps.gov/tps/standards/applying-rehabilitation/successful-rehab/windows-replacement.htm>

North Elevation

Wood Siding and Soffit

The original farmhouse is clad in brown-painted wooden boards that are oriented vertically and are approximately 4 inches in width. On the left sides of each board, there is a beveled edge. Siding overlaps at approximately 20 feet in height. The 20-foot boards start at the foot of the building. The shorter boards appear at the top of the building, to cover the remaining height. The upper vertical boards meet the wood soffit. The shallow eaves are unembellished. On the northeast corner of the original farmhouse, there are wider boards to finish the edge.

Overall, the condition of the wood boards is good. There is minimal damage to the upper portions from expected wear and tear, but no signs of rot-out or failure on this part. However, the bottom of the wood boards has degraded at the water table. Some of the lower parts of the boards have been partially covered with a mortar-like substance. This is caused moisture to become trapped behind the substance and in the wood. There is also evidence on the northeast corner of the main structure of a previous rear addition. A 'ghost' mark is visible around 10 feet in height.

It is recommended that the substance covering the wood boards around the water table be removed immediately. After it is removed, it is recommended that the wood beneath be examined to determine if repairs to the existing wood are necessary. If replacement is necessary, the wood should be replaced in-kind and be appropriate in material, size, shape, color, and texture.

Windows

The north façade of the original structure has wood-framed windows with non-historic weather-stripping around them. The windows themselves are double hung with six-over-six glass, and appear to be historic.

It is recommended that the exterior trim of the windows be replaced with the same kind of wooden trim that used to exist. An appropriate trim can be determined by examining the trim of historic windows on the structure, as well as by referencing historic photographs.

Brick and Siding

The north elevation of the rear addition is mostly Chaska brick in a running bond, but has brown-painted vertical siding on the northeast corner, which wraps around from the modern enclosed porch on the east. The

top of the north exterior wall and the eave is covered with wood. The treatment is similar to the historic portion of the farmhouse.

The Chaska brick itself is in fairly good condition. However, there are several cracks in the mortar joints, and signs of water infiltration. The vertical board siding is similar in appearance to the historic wood siding on the original portion of the farmhouse. However, the vertical boards on the porch side are not wood, but a composite material. The wood at the eave of the house is in good condition.

The Chaska bricks are in need of repointing and general cleaning. It is important that this be a high priority, because deferring maintenance of mortar joints can cause water to infiltrate and spall off front portions of bricks. Bricks that have evidence of this should be replaced in kind, and should match in size, shape, color, and texture. The repointing should be done in according to the standards outlined in Preservation Brief 2: "Repointing Mortar Joints in Historic Masonry Buildings." Cleaning should be done by the gentlest means possible, and sandblasting should not be used. For information on appropriate cleaning methods, please consult Preservation Brief 1: "Assessing Cleaning and Water Repellent Treatments for Historic Masonry Buildings." The condition of the composite siding is

generally good. It is recommended that the siding be removed if the non-historic enclosed porch is removed. If the decision is made to keep the porch, then the composite siding should undergo normal maintenance.

Windows

There is one pair of windows on the north elevation of the rear addition near the non-historic enclosed porch. They are two single-hung, single-lite windows that share a center frame. There are also two separate window openings on the north elevation in the Chaska brick side. The upper window does not contain glass, and is in filled with wood that has been painted brown. The lower window has a non-historic vinyl single-hung, single-lite window. It has a storm window covering the main glass on the exterior side. This window does not fit the historic opening, and the top and bottom has been in filled with wood. Both windows on the Chaska brick side have a soldier course of brick that defines the top of the opening, and creates a flat arch. On the bottom of these windows, there is a single row of sill bricks in a rowlock orientation. This row slightly protrudes from the primary brick surface.

The condition of the non-historic vinyl windows and storm window is good. However, it is recommended that the vinyl window on the Chaska brick side be

removed, and a wood framed window be put in its place. The new window should be selected according to the appearance of historic windows in the building, as well as evidence from photographs as available. The infill in the upper window should be removed and should be replaced with a wood framed window. The new windows should both fit the size of the original opening, and should follow the flat arch shape defined by the brick at the headers. If the non-historic enclosed porch is removed, it is recommended that the pair of windows on the northeast side also be removed.

Interior Preservation Philosophy and Objectives

This section of the Conditions Report of the Andrew Peterson Farmstead focuses on the interior first floor and basement of the house in the western portion of the property. The basic philosophy underlying this conditions survey is outlined by the Secretary of the Interior's Historic Preservation Briefs. This report will summarize material descriptions, conditions, and recommendations. The initial recommendations for repairs are based on structural stabilization of the Andrew Peterson house. Overall, these basic recommendations will outline the specific tasks that need to be completed in order to halt further deterioration. Since an adaptive reuse plan is not finalized, our recommendations use Historic Preservation Briefs as a guideline. These recommendations are based on our assessments of the interior visual character described in Preservation Brief 17. Preservation Brief 17 will be a guideline in identifying visual characteristics of interior spaces, features, and finishes. Our observations and recommendations also include repairs or replacements to exterior features which may have an affect on the interior of the house. These are described in

further detail in the final recommendations section.

Basement- South

Original Basement Walls

The original basement measures 28' wide by 18' long with the approximate square footage of 504. The foundation walls have been white washed with an unknown paint that is peeling and fading in places. The basement walls are made of stone and concrete. While in structurally sound condition there is evidence of rising damp. It was raining on the first visit to the farmstead on Friday, October 2. Although these conditions were not present in subsequent visits, there was water penetrating the interior of the original basement through a small hole on the floor. The hole appeared to have served an unidentified purpose at one point in time, but it is currently allowing water to penetrate the basement floor and foundation. The water that is penetrating is affecting and damaging other parts of the basement such as the heavy timber posts and the stairs which have been seriously damaged by water.

Recommendations

The first recommendation for the original walls on the South Basement is to professionally



Basement- Hole in Foundation by Main Stairs



Original Basement- Foundation Wall



Original Basement- Foundation

inspect the hole that is flooding the basement. Inspection includes checking for an appropriate drainage system such as gutters, down spouts, stucco, backfilling, and other causes that may lead to water and moisture penetration. When locating moisture, as illustrated by Preservation Brief 39, careful care should be made to make a proper diagnosis of the water damage. However, there are temporary solutions that should be put into place. These must be reversible, as to not destroy the historic character. This damage is “below grade ground moisture” that is entering the foundation. This will require at least Level II: Repair and Corrective Action. This is usually handled by managing run off sources, such as down spout drainage. Other examples of problems include positive sloping grade, gutter and the inspection and installation of subsurface water collection through gravel or waterproof sheeting. It is recommended to install a dehumidifier, as the airflow in the basement is most likely not operating properly, evidenced by rising damp. An interior drain or sump pump may need to be added to the basement to remove excess water during rain events. While the damage to the foundation does not appear to affect the structural integrity, a professional opinion is mandatory. This recommendation is vital, as water is the leading source of damage in historic buildings. To reiterate,

this is an important, character defining space in the interior.

The second recommendation is to remove the chipping paint and ensure the walls are repainted according to Preservation Brief 28 Painting Historic Interiors. The first step in repainting the basement walls is determining what the period of significance is. We hypothesize that the original basement walls contribute to the significance of the farmstead because have documentation and evidence that they are original. Defining this period of significance, through the consultation of the Andrew Peterson Diary, will inform the need for repainting. If the basement is to be repainted, the appropriate paint should be used not only to add to the historic significance, but also insure that the paint will properly bond to the stone and concrete. When removing the chipping paint, harmful techniques such as sandblasting should not be used. The paint chips should be contained and properly disposed of. This is a secondary recommendation; the water damage must be considered first.

Basement Walls Under Addition

The new basement measures 14' wide by 25' long with the approximate square footage of 350. The walls are 18 inches thick and are made of stone and concrete. The walls have also been painted white with noticeable



Original Basement- West Wall



Original Basement -Non-Operational Door



Basement- South Chimney

paint chipping and fading. Like the walls in the original basement, there is rising damp due to water penetrating through the original basement. The walls are also in good conditions and appear to be structurally sound. The walls look dirty as if they have not been maintained, but they are overall in good condition. Sometimes, the chipping of paint is caused by water penetration. This is important to note because, this informs our overall recommendations.

Recommendations

Our recommendations are similar to the original basement walls. As a first priority, the source of the water infiltration must be immediately repaired and diagnosed. The walls should be cleaned appropriately, chipping paint to be scraped off and the walls repainted, as described in the previous recommendation section for “Original Basement Walls.”

Connecting Door

The opening that connects the old basements to the portion of the basement under the addition is 3’ wide with a wood door made out of 3 vertical 1x10 boards and 2 1x6 boards at the top and the bottom. The materials that make up the door are weathered but still in functional condition. The main door is in working condition but cannot close because interference of copper water pipes and other plumbing.

Recommendations

Since the connecting door seems to be original to the home and is structurally, sound it should be left as is until an adaptive reuse plan is devised. Even though it does not close all the way, it can be used to demonstrate to originality of the door and the originality of the home.

Chimney in Original Basement

The chimney is made out of bricks and measures 18 inches by 18 inches. The chimney has been covered with cement but in some places you can still see and identify the original brick material. In the past, someone covered the entire chimney with a coating of cement instead of appropriately tucking and pointing the masonry. Due to moisture over the years, the base of the chimney is deteriorating. Even though the chimney was inappropriately repaired, it is still functioning as a furnace vent.

Recommendations

Although the repairs to the chimney show historical character, there is significant water damage cause by water. In chimneys, sometimes water damage occurs through the roof. A professional opinion on this subject matter is important. The roof should be inspected to make sure water is not collecting in the chimney from above. However, since water collects at the base, it is also likely that the water damage has

occurred from the water leakage in the basement. First, as mentioned in previous sections, the water source needs to be stopped. Next, repairs can be made to the chimney. These repairs depend on the period of significance and are secondary to fixing the water concerns. There is not a simple



New Basement- View of North Chimney



New Basement- View to the South

solution or answer to keeping the cement on the chimney or removing the cement from the chimney. In an adaptive reuse plan, the basement may not be used. The historic detailing of the masonry underneath is not incredibly important, but the water damage to the masonry should be fixed with tuck pointing according to Preservation Brief 2, which describes the use of specific mortar that matches in aggregate, texture, color, and lime amounts.

Chimney in the Basement Under Addition

The second chimney is located in the new basement and was built during the modern construction period, informed by its location underneath the new addition. The chimney is also made out of brick and measure 16 inches by 20 inches. The chimney shows signs of moisture towards the base but is structurally sound.

Recommendations

Repair the area allowing water to penetrate the basement and re-grading exterior to prevent moisture in the interior. The addition of a dehumidifier to the basement will eliminate raising dampness and moisture. These recommendations are outlined in previous sections. To reiterate, the source of the moisture must be located and stopped. When repairing masonry, the use of

waterproof coatings and Portland cement is not recommended.

Stairway to Basement

The stairs are composed of two stringers and 10 steps. The stairs are in bad condition and are unsafe. Water penetrating the basement has rotted the base of the stringers and caused the first and second steps to fail.

Recommendations

The steps must be repaired immediately. This is just as important as located and stopping the source of the water in the basement because of the high degree of unsafety. Although there is not a specific preservation brief that outlines repair to wooden stairs, the wood needs to be dried, treated with fungicide, waterproofed with two to three applications of linseed oil while waiting 24 hours for the subsequent coat to dry, and to fill the cracks with putty or epoxy until a skin forms. Moreover, this repair to the stairs needs to occur after basement stops flooding, as the new wood will continue to rot if the water source is not stopped.

Heavy Timber Beams and Posts

There are 4 timber posts in the original basement that are being used to support the weight of the house. The 4 timber posts are an average of 5'10" high and 7x7 inches wide. They are strategically placed every so many feet east to west and support a load bearing beam also made out of heavy timber.

The load-bearing beam measures 10x7 inches and runs from east to west and is located approximately in the middle of the basement. Both post and beam are original to the house and in good solid condition. There are signs of minimal moisture at the base of the two post located on the western part of the basement. This is likely due to the hole in the floor that causes flooding when it rains.



Basement Main Stairway- Broken Bottom Step



Basement Main Stairway

Recommendations

The moisture at the base of the two post located at the western part of the basement is minimal and has not affected the integrity of the posts. Our recommendation would be to repair the part of the foundation that is allowing water to penetrate the home. We also recommend that the base of both posts are treated in a similar fashion to the basement stairway. All of the beams and posts should be structurally assessed according to Preservation Brief 39. According to Preservation Brief 39, a test should be enacted to test the structural integrity of the post. If the water penetration problem is remedied and the room is dehumidified, there will be no further water damage to the posts.

Afterwards, the stabilization repair class methods should be carried out. While we assessed that the posts are in good structural conditions, the water damage and rot must be repaired. We define the timber posts and beams as character defining features, because of the originality to the house and the farmstead as a whole. Before treating the wood with fungicide, it must be thoroughly dried out. After application of fungicide, it should be treated with linseed oil in two to three applications. 24 hours should have passed before the subsequent applications of linseed oil. This provides a way to waterproof the beams. Epoxy or other putties may be

used for repairs any cracks in the wood. We further encourage a professional to analyze the structural integrity of the basement in case there is structural damage. However, for basic stabilization, accessing water damage should be sufficient.

Basement Floor

The basement floor is made of poured concrete but there are areas of the original basement where there is evidence of brick floors. We hypothesize that the original floor was all brick, and concrete was poured on both the basement underneath the addition and original basements at the time the former was constructed. Again, constructing a period of significance will aid in rehabilitation efforts. Since the condition of the brick underneath the cement is unknown, this should be checked. For now, the cement is structurally sound and may be left as is.

Floor Joists in Original Basement

The floor joists in the original basement are also original and seem to be in structurally stable condition. The material is heavy timber that measures an average of 9x7 inches and span 18 feet. The joists are running north to south and are spaced 29" on center.

Recommendations

Even though they appear to be in good condition we suggest a professional

structural assessment according to Preservation Brief 39. Once again, the main focus of Brief 39 is that the floor joist should be inspected and tested to ensure that there is no additional rotting missed in our inspection. If the floor joist needs replacement, it should be replaced with an appropriate material. The material should be of a similar wood species, similar dimensions, similar time period, and color if at all possible. However, complete replacement should be avoided if confirmed by a professional. According to Preservation Brief 39, the framing on the floor should be reinforced by adding a lolly column support and also a reinforcement to the joist ends by adding a parallel support. Additionally, a non ferrous metal "vapor impermeable shield" could be added to reduce direct contact with the moisture source. If replacement is needed, the structural pieces can be replaced with pressure treated wood to reduce moisture. Again, these materials will be new but must be similar in character to the old joists.

Floor Joists in Basement Under Addition

The floor joists in the new basement are also in good condition with no noticeable damage. The material is structural lumber that measures 2x8 inches and span 14'. The joist that run from east to west are spaced an average of 20" on center. The joists in the

new basement are constructed of newer, traditional dimensional lumber.

Recommendations

The same recommendations as the floor joist in the old basement. Again, we have seen evidence of water penetrating the basement. Because we do not know when this basement underneath the addition was constructed and have no identified a period of significance, the joist should be examined to the same standards as the original basement.

Water Heater

The regular, 60 gallon water heater appears to be at least 10 years old. It does not have any exterior rust on the base because it sits on a wooden pedestal. The water boiler has all of the standard exterior components such as: a pressure relieve valve, a drain valve, gas thermostat and gas shut off valve.

Recommendations

The condition of the boiler is unknown. From the exterior the boiler seems to be in good operable condition. However, we did not do a temperature test to ensure that the internal components are operating properly. We recommend that the boiler be professionally inspected.

Furnace

The home is heated by a furnace water baseboard radiator system. The exterior of

the furnace seems to be unkempt but shows no signs of major rust. The furnace is placed over a rising platform.

Recommendations

The furnace looks old but it could still be in good operating conditions if it is given regular maintenance checks. The exact condition of the furnace is unknown because it was not operation when we toured the home. We recommend that the furnace be professionally inspected. A routine maintenance tune up should be scheduled.

Well System

The original construction of the well is unknown. The drainage pipes and pressure switches have heavy rust. The electrical control box has untidy wires. The bases of the 2 principal drainage pipes have foam insulation around them. It is unknown if the well system is the main source of water for the home but if it is, it will need to be inspected by a professional to insure health and safety.

Water Filtration System

The water filtration system is located in the new basement. It looks worn and the condition is unknown. We recommend that the Water filtration system is inspected.



Original Basement- Water Well Pump



Original Basement- East Window

Back Stairs (Not in Regular Use)

The stairs are made out of stone and concrete. We hypothesize that these were the original stairs that allowed access to the basement. Currently the stairs are inoperable because there has been an addition constructed directly on top of these original stairs. The stairs no longer serve their intended function. We recommend that stairs be left as is and be showcased to repress the originality of the home.

Electrical Panel

The electrical panel is not original to the house and the condition is also unknown. There is currently electricity in the house but it is unknown if the electrical system was appropriately installed. Our recommendation is that a professional electrician inspects the electrical system.

Overall Basement

Recommendations

Our overall recommendation for the basement is that professionals examine the structure and mechanics. If there are any repairs needed, we recommend that they are performed according to code and Historic Preservation Brief guidelines. Our second major recommendation is that the penetration of water is investigated and remedied according to Preservation Briefs 39 and the guidelines stated above. After the

water and moisture problem is controlled, we recommend that the stairs are professionally repaired according to city code and Historic Preservation Briefs guideline. Preservation guidelines include proper material and proper workmanship. In addition, the stairs should be designed to meet current city codes. Overall, damage to the foundation has occurred because water is not properly draining away from the building. Although the exact source is unknown, run off from the gutter should be directed far away from the building – at at least twice the depth of the basement. The condition of gutters and downspouts also must be checked, and if in poor condition, replaced with inexpensive aluminum units.

Historic Windows

Introduction

The historic windows of the farmhouse are character-defining features, which should be carefully considered to ensure that as much of the historic fabric as possible is retained. Although some windows are not original to the building, we recommend that the overall fenestration, or opening pattern, be retained. Further recommendations depend on the future use for the building.

We will discuss individual recommendations for each window according to its current condition. For ease of window description, each room has been given a number, and each window has been given a letter. For example, window 2a is located in room 2, and is given the letter "a". Please refer to the overall building plan on page 34 for the numbering and locations of windows.

Window 2a Conditions

Window 2a is a 6 by 6 single-hung historic wooden window the east wall of Room 2. The glass on the window is wavy and there is use of square headed nails, which indicates its historic status. The frame surround Window 2a is architrave style and has a short apron underneath the stool. The jamb is a modern addition and is painted with a white, oil based paint. In addition, there is hardware attached to the casing and a hook attached

to the header. This instance of hardware is informative, as it explains the grooves on the casing in Windows 1a, 3a, and 3b.

Window 2a is in excellent condition. This window used to face the outdoors. Because of the addition in Room 4 that was added after the original house, this historic window is protected from the elements. Before this addition, this eastern facing window would have been exposed outside. This is important because water causes the most damage to historic wooden windows, as outlined in Preservation Brief 9: Historic Wooden Windows. Overall, Window 2a is both structurally and operably in good condition. Cosmetically, the wood appears to be in excellent shape; there is little to no scratches or dents. The paint is in excellent condition as well. The window panes also appear clear and unbroken. However, the glass panes may have been replaced, as the modern glazing putty is visible around the muntin. Otherwise, the entirety of the sash is in good condition.

Recommendations

If the intent is to stabilize the structure, then no further work is recommended. However, if the structure is to be adaptively reused, some cosmetic changes should occur. Since the wooden window frame is in good condition, stripping the paint is not necessary. However, if the paint color on



Window 2a



Window 2a Head Detail

the other window frames changes, it is recommended that these colors match. In addition, the hardware on the casing should be removed to stay accurate to the other window casings on the first floor. Most importantly, a professional should examine the glazing on the window. The glazing, although been repaired, does not seem to be airtight. This is not the most important change. Although weatherproofing is not needed because of the Room 4 addition, the current glazing is poorly executed and should be refinished to make it airtight. This follows Preservation Brief 9, which highlights that the final glazing compound should complete the seal.

Window 3c

Window 3b is a 6 by 6 single-hung historic wooden window on the east wall of Room 3. The glass on the window is wavy and there is use of square headed nails, which indicates its historic status. The frame is in architrave style and does not have an apron beneath the stool. The jamb is a modern addition and is left unpainted. White, maroon, army green, and beige paint layers are visible on the window frame. There is evidence of previous hardware on the interior of the casing as well.

Window 3b is fair condition. Because of the Room 4 Breezeway addition, this historic window is protected from the elements. This

is important because water causes the most damage to historic wooden windows. Overall, Window 2b is both structurally and operably in good condition. It's difficult to know what the wood looks like underneath the paint without using destructive techniques, but it appears to be in good condition. There are few visible scratches or large dents in the wood. The window panes are cloudy and dirty. The sash appears to be structurally sound, but much of the paint is peeling off and the glazing putty looks poorly executed.

Recommendations

If the house is adaptively reused, we recommend the paint is stripped from the wood to reveal the overall surface. Paint samples should be taken in order to establish previous colors used. Based on the findings of the paint study, a color should be selected. In addition, we recommend the sash be removed and repainted. A window specialist should examine the glazing putty and window panes to suggest further treatment. We recommend retaining as much of the existing glazing as possible.



Window 3c



Window 3c

ANDREW PETERSON FARMSTEAD Carver County, Minnesota

Windows 6a, 6b, 6c, 6d

Windows 6a, 6b, 6c, and 6d are historic but not original single-hung wood windows. The windows have one vertical mullion and four panes of glass in each window. The original windows can be seen in historic photographs as six over six lights. Overall, the condition of the windows is good. However, there are modern vinyl blinds attached to the wood frames. Window 6d is missing the horizontal vinyl blinds, but the brackets from the blinds are still present. The blinds on windows 6a, 6b, and 6c are present and operable. The lower left pane of glass on window 6a is broken. It has been temporarily stabilized with clear packing tape.

Recommendations

This section of glass should be replaced. If this house is made into a house museum, it is recommended that the modern blinds be removed.

Modern Windows with Historic Frames

Windows 1a, 3a, 3b, and 5a

Windows 1a, 3a, 3b, and 5a are modern, vinyl, and single-hung. These windows were recently replaced as evidenced by an Energy



Window 6a



Window 6b with Blinds Up



Window 6a



Window 6d- Missing Blinds

ANDREW PETERSON FARMSTEAD

Carver County, Minnesota

Star and “American Craftsman” labels that were not removed from the window panes. The casing, header, and sills utilize square headed nails, indicating that these windows have historic frames. A white, oil based paint covers each window frame. Each window is both structurally and operably functional. Since the windows were recently replaced and the frames were recently painted, any water damage or rotten wood was not able to be determined without more obstructive testing. Each will be explained in further detail below.

The framing style of Window 1a is architrave, where the head rests on the two casings. In addition, there is a modern wooden apron that sits beneath the sill and stool. The casings, sill, and stool have a considerable amount of damage. There are many scratches, cracks, and dents on the casing which were simply painted over. There is a noticeable dent in the stool as well. These characteristics give the Window 1a a very rough texture. Window 3a and Window 3b both have a post and lintel style frame, where the header rests on top of the two casings. Unlike Window 1a, both of these windows do not have aprons. The frames on Window 3a and Window 3b are in good condition. While there are minor scratches on the wood, the texture of the wood is not as rough as in Window 1a.

For Window 5a, there is a non-historic screen on the exterior. The installation is poor, and spray filler is visible around the window edges. The new vinyl window is not tall enough to fill the original frame. A wood infill panel has been added to close the opening. On the interior of the historic wood frame, there is a strip of missing paint. Examination of other original wood frames of the farmhouse suggests that the unpainted strip was once concealed by a wood guide. The top right interior of the frame shows water damage. Investigation into the source of this damage must be made and the issue should be addressed as soon as possible in order to prevent further damage. There are also insect holes in the top of the window frame. These are most likely caused by powderpost beetles. The presence of these insects is an indicator of moisture problems within the wood. Before repairing the window, overall moisture problems should also be addressed.



Window 6c with Blinds Drawn



Window 6b- Blinds Detail

ANDREW PETERSON FARMSTEAD Carver County, Minnesota

Overall, it is recommended that the windows undergo routine maintenance as outlined by the U.S. Department of the Interior's Standards for Rehabilitating Historic Wooden Windows. Although the windows are structurally sound, the Society of the Interior recommends the rehabilitation of historic windows wherever possible. For possible reuse of the interior, it is recommended to remove the paint on the casement in order to reach the surface of wood. Repairs to the cracks should be made with epoxy. Additionally, a suitable replacement window should restore the character of the Andrew Peterson House and matches the other historic windows, such as Window 2b or Window 6a, if the project is for alternative reuse.

Additionally, a replacement window that matches the existing historic windows should be used to restore the character of the Andrew Peterson House. Window 2b and Window 6a should be consulted as examples when considering replacement options.



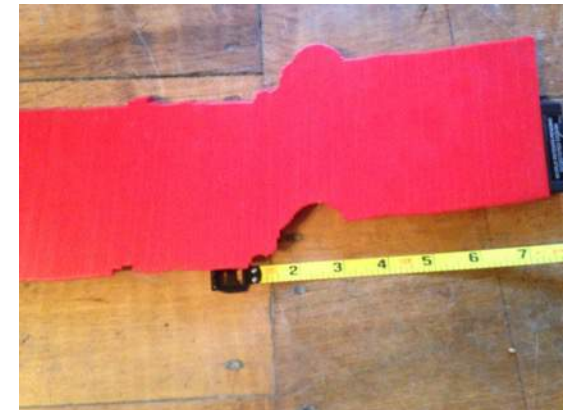
Window 1a



Window 1a- Frame Detail



Window 3a



Window 3a Detail

Modern Windows

Windows 4a, 4b, 4c, and 4d

Window 4d is a single-hung wood window with a metal guide. Windows 4a, 4b, and 4c are all paired, modern, single-hung wood windows with metal guides. Although not original to the house, these windows are older than the modern vinyl windows seen in other rooms. Each individual window has a latch at the top of the bottom panel and a handle on the bottom of the operable panel. Metal storm windows are present on the outside of each window. Overall, the condition of these windows is moderate. The area between the storm windows and the main single hung windows should be cleaned. Each pair of windows measures 56 inches across.

In addition, the window panes are cloudy. Many of the joints between the sill and the jamb are slightly separated, which could cause water collection. It is suggested to test the joint between the sill and the jamb with an ice pick to see if the wood is sound. This process is outlined in Preservation Brief 9. However, these modern windows are located in Room 4, which is a newer addition to the house. These windows are not considered significant because they do not reflect the original design intent of the building as outlined in Historic Preservation Brief 9. Although the source of water in Room 9 is

currently unknown, it is recommended to find this source of water to stop further deterioration of the windows. However, the modern windows appear to be structurally sound. The breezeway windows also have patterned, ruffled fabric valances draped over their tops on the interior of the room. Since the breezeway itself is not original, the valances can either remain or be removed.



Window 5a- Wood Filler at Head



Window 3b



Window 5a

Doors

Door B-1

Door B-1 is original. The door is a four panel traditional stile and rail door. The original knob and lockset are intact. The existing white paint is scratched and peeling on some areas.

Door 1-1

Doorway 1-1 is historic, as evidenced by the use of square nails. The frame is painted white with the same oil based paint as the windows in Rooms 1, 2, and 3. On Doorway 1-1, the wood is damaged, especially at the base, from years of use. There are many cracks, scratches, and dents in the wood. There have also been epoxy repairs made on the casing. These repairs are poorly executed and not painted over. The threshold of the door is raised, as evidenced on the photograph on page 15. The threshold is 5 inches wide 30 inches long. For Doorway 1-1, the modern ceramic tile in Room 1 is higher than the historic wooden floors in Room 3. The wood that constitutes the threshold is severely damaged. Dirt, scratches, and deep cuts are present in the wood. However, it is in good structural condition and should be preserved.

Door 2-1

Doorway 2-1 is similar to Door 1-1. Doorway 2-1 is also heavily damaged with dirt,

scratches, and puncture marks. The frame on Doorway 2-1 is also painted white, but the paint layer is peeling which reveals the army green paint coat present on the Window 3c and Door 3-1. At the base of the casing on Door 2-1, there are two boards that make up the casing. The first board extends from the floor and is 12 inches in length and 4 inches in width. The next board extends from the base of the smaller board and is 42 inches long and 4 inches wide. The threshold for Door 2-1, the floors are level. The wood that constitutes the threshold is severely damaged. There is dirt, scratches, and deep cuts in the wood. However, it is in good structural condition and should be preserved.

Door 3-1

Door 3-1 is not original. It is a wooden door, with a window in the center that is 25.5 inches long and 21.5 inches wide. The overall clearance is 80.5 high and 30 inches in width. There is dirt and grass attached to the east side of the door. The east side of the door is painted white, while the west side is unpainted and displays the modern wood. This door is operable and structurally sound. The door frame for Door 3-1 is historic. Many layers of maroon, beige, and army green paint are visible on the door frame.



Window 5a- Close-up of Improper Spray Fill



Window 4c

Door 3-2

Doorway 3-2 is historic, as evidenced by the use of square nails. This door frame is different from the other frames in that it has more detail. This door frame is more ornate than the other frames, and shows high quality craftsmanship. This suggests it is an original frame, because it matches the detail of other features existing in the house, such as the chair rail. There is an additional layer of casing which has a wavy profile on the east casing frame is painted white with an oil based paint. On Doorway 3-2, the paint is peeling, especially on the head and on the west casing. The maroon paint layer, army green paint later, and the wood grain is visible in these areas. In the areas where the wood grain is exposed, there are deep dents and scratches. This is especially evident on the top portion of the east casing.



Window 4a, 4b



Door 1-1 Casing



Door 1-1 Threshold



Door 1-1 Threshold Detailing

Door 4-1

Door 4-1 is a modern four panel stile and rail door. It is painted red and in good condition.

Door 5-1

The wood doorframe is historic. The overall opening clearance is 79 inches high and 29 inches in width. Although there is currently no door, there is evidence on the frame that one existed. The inside of the northern frame section has holes and an outline of where the hinges once were. The southern side of the frame has holes and an outline of



Door B-1

a lockset. The door head has a non-historic metal track attached.

Door 6-1

Door frame 6-1 is original and in poor condition. The bottom of the east side of the frame is severely damaged. Some of the wood edges are nicked and portions of the frame are completely missing.

Door 7-1

Door 7-1 has the original door frame and original four panel stile and rail door. However, the lockset and knobs are contemporary.

Overall Door Recommendations

If the preservation goals of the interior are to stabilize the structure, then no further action is required for Doors B-1, 1-1, 2-1, 3-1, and 3-2. However, it is recommended that some of the paint is carefully removed to further inspect the quality of the wood and subsequent repairs to make the condition "like new." The threshold on doors 2-1 and 3-1 makes recommendations difficult, as they are in poor condition. If the wood is not salvageable and the threshold is removed, the floor in Room 1 will not be at the same level as the floor in Room 3. If the wood is not salvageable, it should be replaced in a historically accurate manner.

The metal track of Door 5-1 should be removed and a new door be installed. According to the interpretation and function of the room, a historically appropriate door should be used. Existing doors in the house should be examined when selecting door for compatibility.

On Door 6-1, it is recommended that wood be added to the bottom of the frame and patched to appear continuous. It should then be repainted in the original white color. Depending on the interpretation of the house, it may be necessary to find historically compatible wood for subsequent repairs.



Door 2-1 Frame and Threshold



Doors 1-1 and 2-1

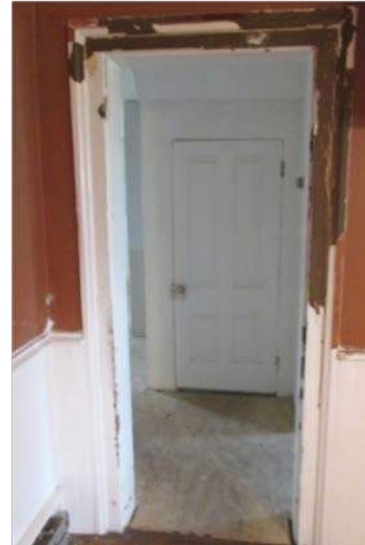


Door 3-1 Frame Detail and Chair Rail Detail

ANDREW PETERSON FARMSTEAD Carver County, Minnesota



Door 3-1, Broken Light



Door 3-2



Door 4-1



Door 4-1 Width



Door 5-1

Ceiling

Room 1

There is a tongue and groove pattern on the ceiling in Room 1. Each board measures about 2 inches in width and there is about 3/8 of an inch between each board. The ceiling boards are varying lengths, with the longest boards measuring up to 4 feet long. These ceiling boards are painted white. There is also a modern light fixture attached to the ceiling.

In general, the ceiling is in poor condition. There is water damage in the southeast corner of Room 1. In this area, there are gaps and small pools of paint within the grooves. There also appears to be mold growing at the spaces within the grooves in this southeast corner. Additionally, this area of the ceiling has a rough texture and the paint seems to be peeling. The light fixture is in working condition. There is possible water damage where the ceiling is sagging and there is mold growing. The pools of paint drops and small gaps within the grooves are also indicative of water damage.

Room 2

There is a tongue and groove pattern on the ceiling in Room 1. Each board measures about 2 inches in width and there is about 3/8 of an inch between each board. The ceiling boards are varying lengths, with the

longest boards measuring up to 4 feet long. These ceiling boards are painted white. In There is also a modern light fixture attached to the ceiling, but it is not properly attached to the ceiling.



Door 5-1 Metal Track



Door 5-1 Width of Wood Trim



Door 5-1 Wood Trim Profile



Door 6-1

The ceiling is in poor condition. There is less damage to the ceiling in Room 2, but the boards are still rough and there are pools of paint drops and small gaps within the grooves.

Room 3

There is a tongue and groove pattern on the ceiling in Room 3. Each board measures about 2 inches in width and there is about 1 centimeter between each board. The ceiling boards are varying lengths, with the longest boards measuring up to 6 feet long. These ceiling boards are painted white. In There is also a modern light fixture attached to the ceiling.

In general, the ceiling is in poor condition. Firstly, the ceiling is sagging at the northeast corner of Room 3. In this area, there are gaps and small pools of paint within the grooves. The light fixture is in working condition. Just north of this light fixture, there is a small circular depression where another light fixture may have been attached. The ceiling is also covered with some small scratches and dents.

Room 4

The ceiling in room 4 is acoustical ceiling tile. There is considerable water damage to the tiles in the northeast corner of the room, southeast corner of the room, and on the

west side of the room to the south of door 3-1. There is also a water spot west of window 4c. This water spot lines up with one of the hooks embedded in the ceiling.

Room 5

There is a tongue and groove wood pattern on the ceiling. Each board measures about 2 inches in width and there is about 1 centimeter between each board. Each board is roughly 4 feet long. The ceiling boards are painted white. Due to the poor installation of the new gypsum panels, ceiling edges are exposed where they were formerly covered by the preceding gypsum. As a result, we can see a small strip of the wood ceiling that was not painted white. At the edges of application, the paint is peeling off and cracking. On the southwest corner of the ceiling, there is a rectangular hole about 20 ½ inches by 18 ¼ inches. The floorboards above are exposed. The ceiling hole should be eliminated by installing new boards. New boards should be painted white to match the existing ceiling color. There is also a circular hole in the ceiling next to the rectangular hole. This hole is framed in metal and the sides are infilled with insulation. It appears to have been a hole for a light fixture.

Room 6

The ceiling in room 6 is made up of wood boards in a tongue and groove pattern



Room 3 Central Ceiling



Room 3 Sagging Ceiling

is about 1 centimeter between each board. Each board is roughly 4 feet long. All ceiling boards are painted white. The ceiling differs from the other tongue and groove wood ceilings in the area defined by doors B-1 on the south, 5-1 on the west, and 3-2 on similar to the kitchen (Room 3). Each board measures about 2 inches in width and there the north. In this area, the boards form a flat arch and the boards become slightly wider. The side profile of this feature is made out of one continuous piece of wood. In order to properly interpret the building as designed, this feature must be preserved. Overall, its condition is very good, and should be routinely assessed.

Room 7

The ceiling in the bathroom is similar to the white tongue and groove wood boards in other rooms on the first floor. However, it is in poor condition. The white paint is peeling, and there are some holes. The damage is most likely due to improper ventilation of the room and moisture from the shower. There is a light without a cover in the ceiling and a small square exhaust fan.

Ceiling Recommendations

It is a high priority to locate and eliminate the cause of the water damage in Rooms 1, 2, 3, and 4. A possible source of damage could be leaking pipes. It is recommended that the plumbing on the second floor is inspected.

A structural engineer should examine the ceiling as well. According to Preservation Brief 39, the roof and plumbing should both be inspected. Since there is water infiltration in the basement, these could perhaps have the same source. Ceiling water damage often occurs because of condensation on pipes, mildew growth, and drainage channel blockage in the interior. The pools of paint drops and small gaps within the grooves are also indicative of water damage. While it is visible in the ceiling, it could likely affect structural members in the interior as well. This stabilization should also occur in the breezeway. Although it is not original as evidenced by the materials used, it should mothballed and stabilized by installing a proper drainage system to stop runoff that could be causing damage to the roof and eventually the interior.

In Room 5, the hole in the ceiling should be either filled in with wood boards or a light fixture should be installed.

In Room 7, it is recommended that the ventilation be improved. Once moisture problems are remediated, the ceiling should be repainted white. Paint removal should be done in the gentlest means possible. New paint should be selected based on the color and texture of existing paint samples.



Room 4- Ceiling Water Damage



Room 4- Ceiling Water Damage in Southwest Corner

ANDREW PETERSON FARMSTEAD Carver County, Minnesota



Room 4 Water Damage on Ceiling



Room 5- Holes in Ceiling at Southwest Corner



Room 7- Bathroom Ceiling Light



Room 5- Gaps Between Wall and Ceiling



Room 6- Character-Defining Ceiling Feature



Room 3- South Wall Chair Rail and Door 3-2



Room 5- Flaking Paint at Ceiling/Wall Edges

Walls

Room 1 and 2

In Rooms 1, 2, and 3 the original plaster was removed from the walls and modern gypsum board was put up in its place. The walls appear to be in structurally good condition, however their texture is still very rough on most walls. There is evidence of modern spackle repairs that were poorly executed.

Room 3

Like in Rooms 1 and 2, the original plaster was removed from the walls and modern gypsum board was put up in its place. These walls are structurally in good condition, but have scratches and rough areas. In Room 3, there is additionally a historic chair rail made from tongue and groove boards. The chair rail is in poor condition because the paint is peeling and there are many dents and scratches.

On the west and south walls, in the backsplash behind the cabinets, there is modern 6-inch by 6-inch brown tile

On the north wall, there is a remnant of the old chimney extruding. It is covered by a gypsum board panel. The top has trim that matches the modern trim on the north wall. If the interior is adaptively reused, this board should be removed revealing the historic brick masonry underneath.

Room 4

Room 4 is a new construction. Therefore, the walls are not historic. 4 inch by 8 inch wood paneling is placed over the gypsum boards. These panels have evidence of water damage.

Room 5

New gypsum board has been installed on the walls. There are large gaps between the top of the drywall and the ceiling on all walls. There are prominent seams and screws visible. The cut edges around the window are rough. Some pieces have large chunks or chips hanging off the edges

Room 6

The walls in this room have recently been covered by new gypsum panels. The outermost gypsum layer has been installed directly over an existing layer of sheetrock. This application results in an adverse effect to the historic wood trim around the windows, doors, and baseboards. The profile of these trims has



Room 1 Wall Texture



Room 2 Wall Damage



Room 3- Chimney Remnant

been lost by the increased thickness of gypsum.

Room 7

The walls in the bathroom are white tile at the bottom and floral wallpaper at the top. The small section of wall enclosing the shower has a wood trim facing the door with an embedded light switch. The light switch has a cover that matches the floral wallpaper. Although the condition of the walls in this room is good, the bathroom is not original, so walls can be changed as desired.

Overall Wall Recommendations

In Room 3, the cabinets should be removed. In Room 4, it is recommended that these panels are removed to check the underlying drywall for further water damage. However, since Room 4 will not belong to the period of significance, these changes are not necessary. The walls are structurally sound. In Room 5, the installation should be cleaned up with drywall tape, putty, or possibly even redone depending on the use determined for this room. In Room 7, the bathroom, the walls can be changed as desired because it not original.

In Room 6, it is recommended that the outermost layer of gypsum be taken down. The older layer of plaster should be

removed before re-installation of gypsum or plaster board. This new installation will allow the profiles of the wood trims to be visible. After installation, all seams and holes should be puttied to create an even surface. Then the wall should be finished with paint. Painting should be done in accordance with Preservation Brief 28: Painting Historic Interiors. Paint removal should be done in the gentlest means possible. New paint should be selected based on the color and texture of existing paint samples. According to the decided interpretation of the home, it may be desirable to determine what color(s) the room was painted historically. The older gypsum below may show signs of painting, but historical research from the Peterson Diaries may result in the discovery of historic paint colors.

Baseboards/Trims

Rooms 1 and 2

The baseboards and ceiling trim in Room 1 and Room 2 are modern additions. The Baseboards are 4 inches tall. The gypsum boards on the walls in Room 2, on the west and south walls were not installed properly. Thus, the baseboards are not fully attached to the walls. There is a 3/8 inch gap between the board and the baseboard. This causes no



Room 4 Water Damage on West Wall



Room 5- South Wall

adverse effects to the historical fabric, as the original plaster walls were removed. Specific treatment of baseboard depends on use. However, the baseboards are currently stable.

Room 3

There is no baseboard in Room 3 because of the chair rail and the heaters. In addition, the cabinets on the west and north walls cover the base of the wall. The trim on the top of the wall is a modern addition. The boards are 3 inches in width and crown molding. They are left unpainted. In addition, in the area above the cabinets there is faux tongue and groove paneling. This located in the 1 foot area in between the cabinets and the ceiling.

Room 4

Baseboard and trim in room 4 is modern. There is a 2-inch width board for the trim and a 4-inch board for the base. No further recommendations are needed, as Room 4 is a modern addition and the condition is stable.

Room 5

The base molding is 5 inches tall, with the exception of sections with missing boards. The boards are missing on the west side of the room, below the window, where the radiant baseboard heater was installed. There is also a small strip of baseboard missing on the south wall of the room next to the southwest corner. In place

of this section of baseboard, there is a square piece of wood nailed to the end of the baseboard. This should be removed when making improvements to this room.

Room 6

Wood baseboards are not continuous around the entirety of the room. Baseboards are absent from around the chimney and where radiant baseboard heaters are present. There are also gaps between the baseboards and the wood frame of door 6-1.

Room 7

A small wood piece of baseboard is present on the outside of wall that encloses the shower. This is no longer secured to the wall. There is also a small strip of vinyl baseboard near the sink. Since the bathroom is not historic, the baseboards can be removed, replaced, or repaired as the owners see fit.

Electrical Outlets and Wires

All electrical outlets and wires should be inspected by a licensed electrician. Recommendations made in this section pertain to aesthetic considerations, and do not provide an assessment of electrical safety.



Room 6- View West of Walls, Chimney



Room 6- South Wall



Room 6- East Wall

Room 4

There are wires visible behind two light switches in the wall to the north of door 4-1. The outlet to the west and underneath of window 4a has a faceplate that appears to be in good condition.

Room 5

The electrical outlet on the south side of the room is hanging out of the wall and does not have a faceplate. Visible wires are hanging out of the north wall towards the bottom. It appears that these wires are fairly contemporary. As mentioned earlier, a light fixture hole exists. There is also a non-original hanging light fixture towards the center of the room. It is in good shape, but has not been electrically tested

Room 6

The outlets are missing faceplates.

Room 7

As mentioned in the wall section, there is a light switch in the wall enclosing the shower. It appears to be in working condition. An electrician should inspect the wiring in this room and stabilize as necessary. The outlets are also in good condition but should be professionally assessed. An enclosure for the light bulb in the bathroom should be added.

Overall Electrical, Wire, and Plumbing Recommendations

In Rooms 4 and 5, an electrician should inspect the wiring and stabilize as necessary. In Room 4 specifically, a new faceplate should be added to hide visible wires. In Room 5, depending on the function and interpretation decided for this room, the wires may need to be concealed. If they are determined to be desired as part of the new function, they should be properly secured. In addition, the style and date of the fixture in Room 5 may not be desirable for certain interpretations of the house. If determined undesirable, the light fixture should be taken down and the residual ceiling hole should be repaired. New faceplates should be added prior to use of electrical outlets. Rooms 1, 2, and 3 have no exposed wiring.



Room 2- Baseboard Corner



Room 3- Modern Wood Trim

Floors

Rooms 1 and 2

Flooring tile is modern tile and is in excellent condition.

Room 3

This appears to be historic or original, as evidenced by square nails. Boards are 13 feet long and 4.5 inches wide. All are in line with one another; there are no varying lengths to these boards. Once one goes past the 13-inch mark, the boards are 4 feet and 10 inches long. The floors are in good condition. There are a couple of scratches, but overall there is no water damage or large dents. The floor is very dirty.

Room 4

Flooring is modern, striped carpet.

Room 5

The wood floorboards present are original and are constructed in the same manner as the wood floor in adjacent rooms. Since there are no nail holes, we can reasonably assume that there was never a wood finish layer over it. The boards are of varying lengths. Most of the boards are about 5 ¾ inches wide and constructed with square



Room 1- Laundry Room Connections



Room 5- Electrical Outlet with No Cover, Hanging Out of Wall, Missing Baseboard



Room 5- Non-historic Hanging Ceiling Light

nails. The boards closest to the wall on the north and south sides of the room are cut in

half long ways. The smallest cut width is 1 inch and the other cut width is 4 ½ inches. The total dimensions of the floor are 10 feet 1 ½ inches by 9 feet 6 inches. Besides the presence of dirt pushed in between the boards, the floor is in decent shape overall.

Room 6

The floor in this room is overlaid with plywood. Examination of the edges of the room shows that the original flooring is underneath. The construction of this floor is similar to the wood floor in the room 3 (the kitchen). The floor seems to be uneven in portions. Some of the unevenness may be due to the plywood itself. However, the plywood was most likely added in an attempt to level the floor and prevent further wear. Its presence hints there may be an issue with the original floor. The floor may have had carpeting over it at one point

Room 7

The floor in the bathroom is white tile. The tile should be replaced due to several chipped areas. The tile in the threshold of door 7-1 should be removed for safety issues. In this area, the tile is chipped and is a tripping hazard. The flooring in the bathroom is not historic and can be replaced with anything the owner sees fit.

Overall Flooring Recommendations

In Rooms 1 and 2 it is recommended that this tile be removed and a suitable replacement be installed that is reflective of the house's historic character. We recommend that a wood finish be considered due to the amount of wood flooring that exists in bordering rooms.

In Room 3, as a first priority, the floor should be cleaned and repaired according to SOI standards. This would be routine maintenance, as nothing is structurally wrong with the floor. Since the floor is likely original to the house, it should be left as is.

In Room 4, no further action is required for stabilization. If desired, carpet can be removed to expose the wood flooring beneath.

In Rooms 5 and 6, the condition of the original floor should be assessed for structural, material, and aesthetic integrity by pulling up the plywood. Without destructive techniques we were not able to access what was underneath the plywood.

Heaters

In Room 3, radiant baseboard heater is located on the east, west, and north walls. In Rooms 5 and 6, the metal cover is missing from units in rooms 5 and 6. Radiant heating



Room 1 and 3 Flooring Transition



Room 4- Striped Carpeting



Room 2 Tile and Walls

in Room 5 is located on the west wall. Radiant heating in room 6 is located on the entire east wall, and part of the north and south walls. The metal cover is missing from all of the units in Rooms 5 and 6. The radiant baseboard heater in Room 7 is located on the south and west walls. In the hallway between Room 6 and Room 7, the heater is located on the west wall of the hallway. The metal cover is missing.

Heater Recommendations

A review of the entire heating system should be undertaken by a professional. Recommendations for work are done according to the National Park Service's "Preservation Brief 24: Heating, Ventilating, and Cooling Historic Buildings- Problems and Recommended Approaches." If a new heating or cooling strategy is developed, it should be done according to recommendations listed in the Preservation Brief. For instances where the metal covers are present, they should be cleaned. If there are no metal covers, they should be replaced. Portable radiant heaters may be used if heat is necessary during the winter. It is not recommended to use the current system before it is inspected.

Fixtures and Plumbing

Room 1

Wires are in good working condition in Room 1. In the first visit to the Peterson Farmstead,

there was a washer and dryer unit in the northwest corner. Upon second visit, after the sale of the property was closed, the washer and dryer were removed. This exposed the hot and cold water pipes. The water appears to be shut off, so this is not of concern. Recommendations for this depend on the intended use of the building.

Room 3

Room three has modern, light wooden cabinets. Many cabinet doors are broken or missing. The countertops are modern plastic in a faux granite pattern. There is a modern refrigerator, a modern dishwasher, and a 20th century oven and gas stove. There is also stainless steel sink underneath Window 3b on the west wall. These modern appliances and fixtures are in working condition.

Room 7

The bathroom has a toilet, a sink with a cabinet underneath, and a shower. The sink has dark stains at the bottom of the bowl. It is likely that this is from hard water



Room 3 Floor, West



Room 7- Damaged Bathroom Tile



Room 3- Radiant Baseboard Heater

Deposits. The shower appears to be in good condition. There is an exposed sewage pipe on the southwest side of the bathroom near the shower

Fixtures and Plumbing

Recommendations

As of right now, the exposed pipes in Room 1 and the plumbing in Room 3 will not cause adverse effects. However, if the house is adaptively reused and the overall program changes, these pipes should be inspected by a professional plumber to make sure they are in good working order.

In Room 3, these fixtures should be removed if an adaptive use plan is put into action. However, they are not causing harm and can be left as if the intent is for stabilization.

In Room 7, it may be desired to enclose the pipes and repair the floor surrounding the pipes. The improvements to the bathroom may only be superficial to accomplish the desired appearance of the room. However, the plumbing should be professionally inspected to ensure there are no larger issues to be addressed.

Chimneys

The base of the chimney is located the basement. It then goes into room 6, continues up through the second floor, the

attic, and exits out of the roof. On the first floor, gypsum board panels have been installed directly over the chimney. Since this is no longer in use, the gypsum board can remain if desired. However, if room 6 is to be interpreted as a house museum, the gypsum panels should be removed to reveal the historic brick underneath.

Another chimney is in Room 1. This chimney is covered up by gypsum board panels in the southeast corner of Room 1. This chimney is no longer in use, so the gypsum board on this chimney can remain if desired.

More research needs to be conducted before specific recommendations. It is currently unknown whether the chimney was originally exposed.



Room 6- Uncovered Radiant Baseboard Heaters on Southeast Corner



Room 7- Southwest Corner, Wall and Heater



Room 3 Kitchen Fixtures

Recommendations by Rooms

Room 1

The high priority item in this room is preserving the historic window and door frames. The threshold on Door 1-1 between Room 1 and Room 3 should be leveled. In addition, the ceiling should be assessed by a structural engineer to ensure safety. The water source should be located and stopped to ensure that there are no further adverse effects. Since the plaster behind the gypsum panels was removed, the historic fabric of Room 1 was destroyed. An effective plan for reuse should be established before further recommendations.

Room 2

The high priority item in this room is preserving the historic window and door frames to the Historic Brief 9 standards. Window 2a is in good condition because of its recent restoration. In addition, the ceiling should be assessed by a structural engineer to ensure safety. The water source should be located and stopped to ensure that there are no further adverse effects. Since the plaster behind the gypsum panels was removed, the historic fabric of Room 2 was destroyed. An effective plan for reuse should be established before further recommendations.

Room 3

The high priority item in this room is to preserve the historic window and door frames. In addition, the ceiling must be assessed by a structural engineer to ensure safety. The water source should be located and stopped to ensure that there are no further adverse effects. Since the plaster behind the gypsum panels was removed, the historic fabric of Room 2 was destroyed. An effective plan for reuse should be established before further recommendations. The modern cabinets, appliances, modern tile black splash, and tongue and groove paneling should be removed to ensure historic integrity.

Room 4

The high priority in the room is to identify the source of water damage and to decrease moisture levels of the wood on the window frames. However, Room 4 is a modern addition. If the source of moisture is stopped, Room 4 will be stabilized until an adaptive reuse for the house is planned.

Room 5

The high priority item in this room is to identify the source of water damage and decrease moisture levels of the wood window frame. Electrical outlets should be assessed and secured by an electrician for safety. The radiant baseboard heater should also be assessed by a professional. A cover

should be installed over the heater. The holes in the ceiling and by the base board on the southwest corner of the room should also be addressed.

Room 6

The high priority items in this room are the floors and the walls. The plywood covering the original floors should be removed so the floor boards can be inspected. The floor should also be assessed by a structural engineer to ensure safety. The new gypsum panels should be removed to assess the condition of the materials behind. They should also be removed because the additional thickness they have added to the walls has obscured the profiles of the original wood casements around the windows and doors. To restore the original thickness of the walls, the older gypsum panels behind the new panels should be removed before new gypsum is reinstalled. The walls should be refinished and painted. Painting should be done in accordance with Preservation Brief 28: Painting Historic Interiors. The electrical outlets and radiant baseboard heaters should also be appropriately covered. Throughout the process, the architectural feature by doorways B-1, 5-1, and 3-2 should be preserved.

Room 7

Since the bathroom is not original to the house, it can be updated as determined

necessary for function. The only high priority items in this room are inspection of the sewage pipes and removal of the chipped tile at the threshold.



Room 7- Stained Bathroom Sink



Room 7- View West, Shower

Works Consulted

Chase, Sara B. "Preservation Brief 28: Painting Historic Interiors." Technical Preservation Services. National Park Service and U.S. Department of the Interior, 1992.

Web. <<http://www.nps.gov/tps/how-to-preserve/briefs/28-painting-interiors.htm>>.

Jandl, H. Ward. "Preservation Brief 18: Rehabilitating Interiors in Historic Buildings." Technical Preservation Services. National Park Service and U.S. Department of the Interior, 1988. <<http://www.nps.gov/tps/how-to-preserve/briefs/18-rehabilitating-interiors.htm>>.

Kay Weeks and David Look. "Preservation Brief 10: Exterior Paint Problems on Historic Woodwork." Technical Preservation Services. National Park Service and U.S. Department of the Interior, 1982. <<http://www.nps.gov/tps/how-to-preserve/briefs/10-paint-problems.htm>>.

Meyers, John H. "Preservation Brief 9: The Repair of Historic Wooden Windows." Technical Preservation Services. National Park Service and U.S. Department of the Interior, 1981. Web. <<http://www.nps.gov/tps/how-to-preserve/briefs/9-wooden-windows.htm>>.

Nelson, Lee H. "Preservation Brief 17: Architectural Character." Technical Preservation Services. National Park Service and U.S. Department of the Interior, 1988. Web. <<http://www.nps.gov/tps/how-to-preserve/briefs/17-architectural-character.htm>>.

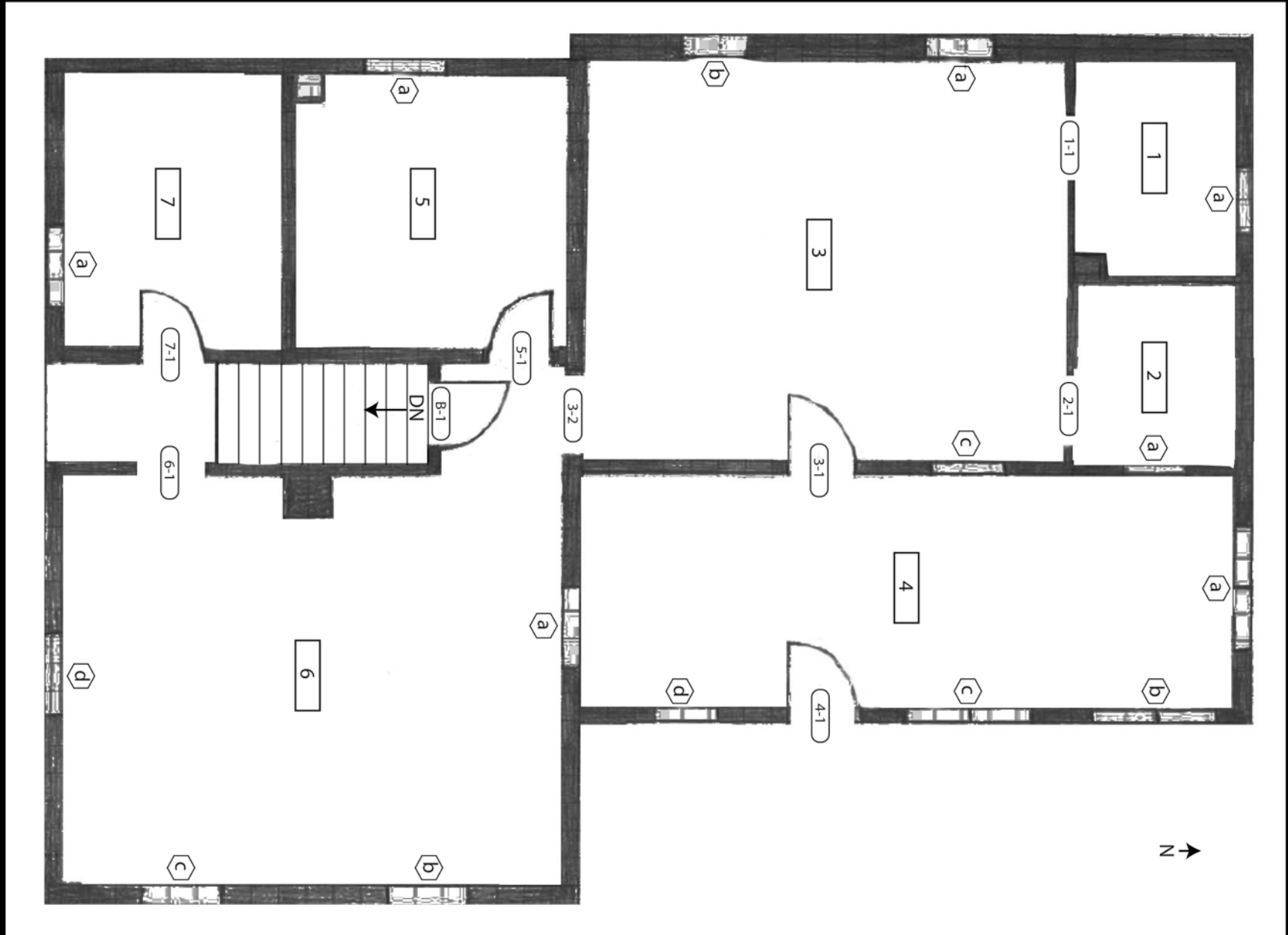
Park, Sharon C. "Preservation Brief 24: Heating, Ventilating, and Cooling Historic Buildings- Problems and Recommended Approaches." Technical Preservation Services. National Park Service and U.S. Department of the Interior, 1991. Web. <<http://www.nps.gov/tps/how-to-preserve/briefs/24-heat-vent-cool.htm>>

"Preservation Brief 15: Preservation of Historic Concrete." Technical Preservation Services. National Park Service and U.S. Department of the Interior, 2007. Web. <<http://www.nps.gov/tps/how-to-preserve/briefs/15-concrete.htm>>.

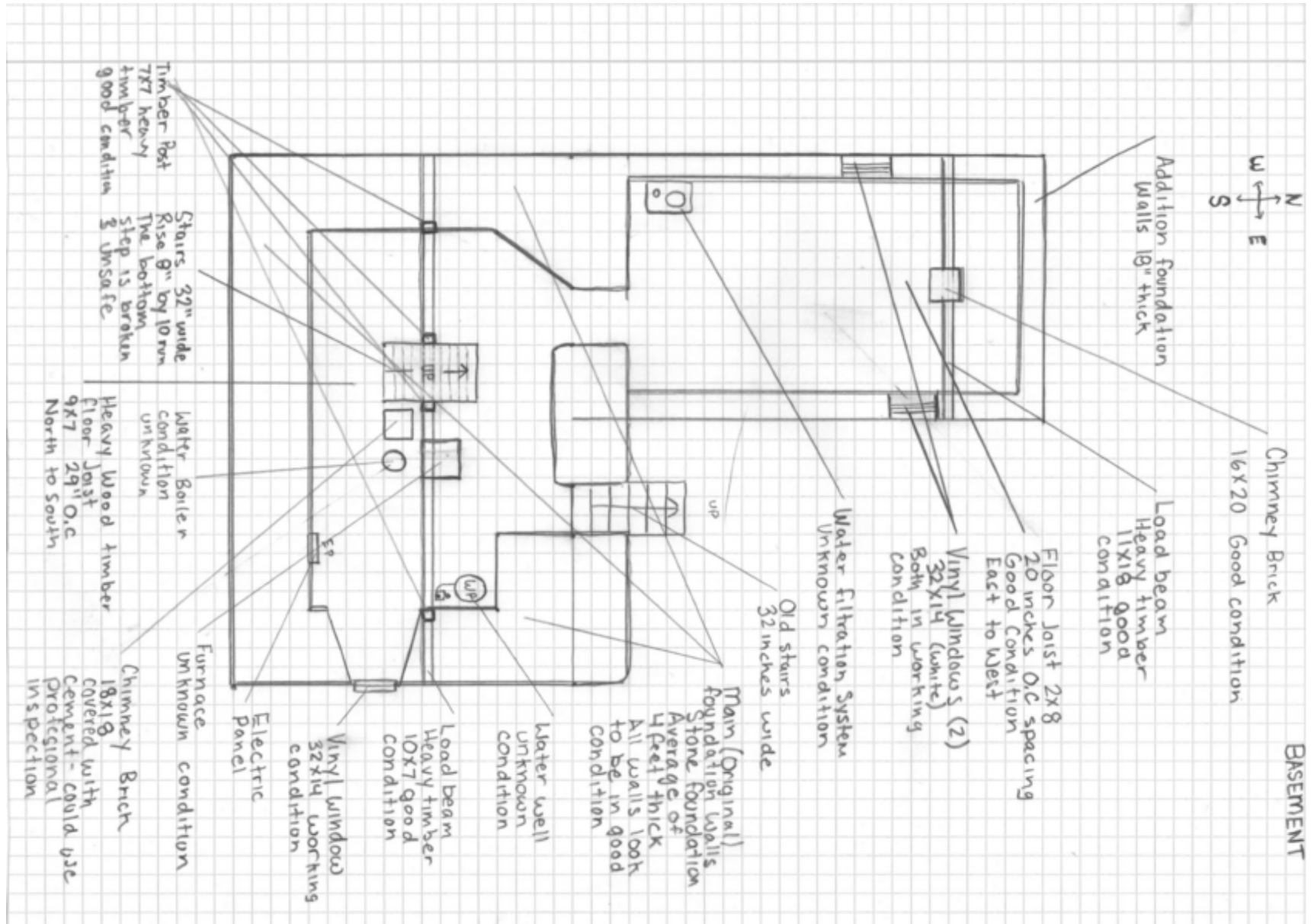
"Preservation Brief 31: Mothballing Historic Building." Technical Preservation Services. National Park Service and U.S. Department of the Interior, 1993. Web. <<http://www.nps.gov/tps/how-to-preserve/briefs/31-mothballing.htm>>

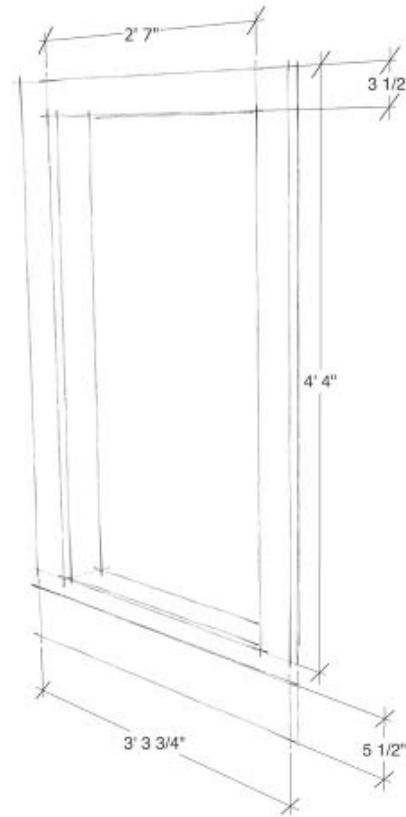
"Preservation Brief 39: Holding the Line: Controlling Unwanted Moisture in Historic Buildings" Technical Preservation Services. National Park Service and U.S. Department of the Interior, 1996. Web. <<http://www.nps.gov/tps/how-to-preserve/briefs/39-control-unwanted-moisture.htm>>

ANDREW PETERSON FARMSTEAD Carver County, Minnesota

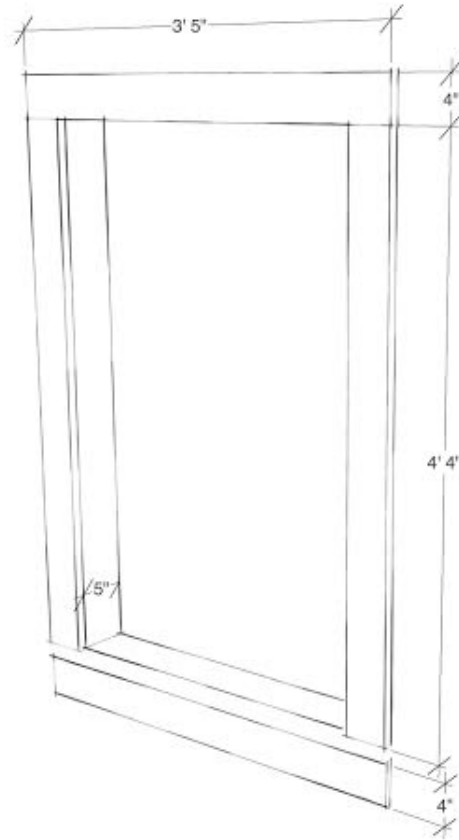


ANDREW PETERSON FARMSTEAD Carver County, Minnesota

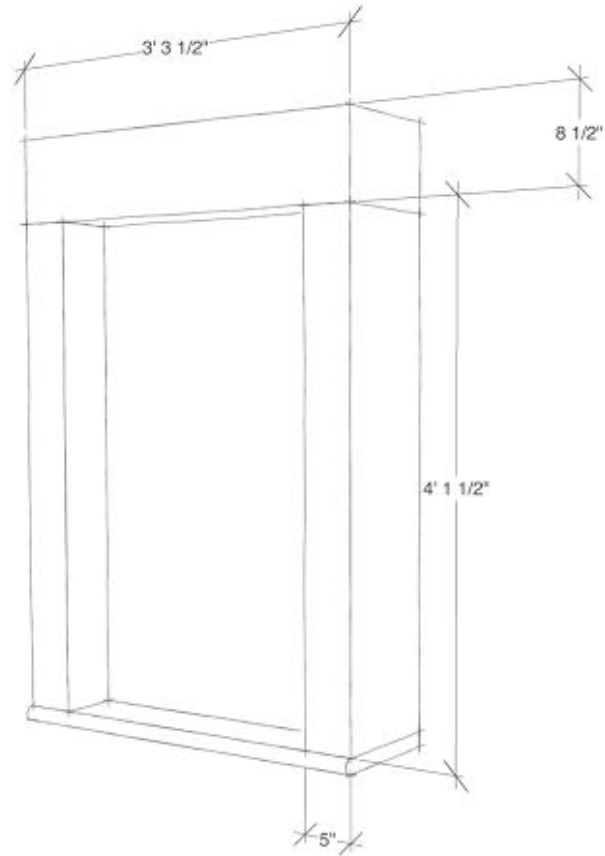




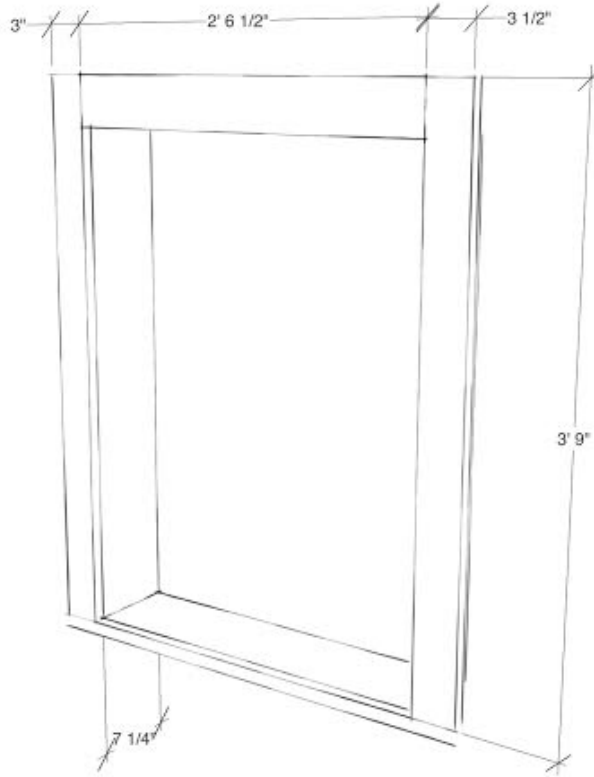
Window 1a Detail and Measurements



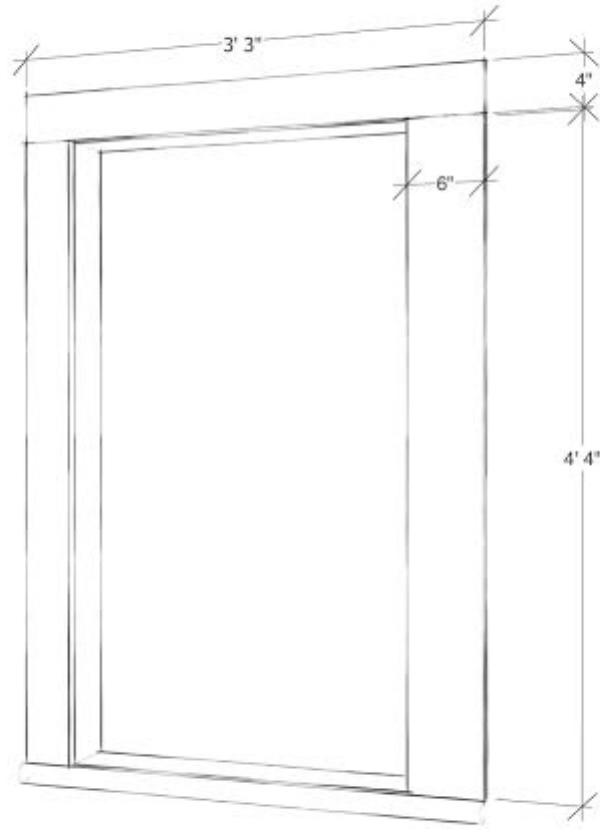
Window 2a Detail and Measurements



Window 3a Detail and Measurement



Window 3b Detail and Measurement



Window 3c Detail and Measurement

Farmhouse, Second Floor

The second story and the attic tell us much about the house overall. Nearly all of the windows at this level appear date to the initial construction of the farmhouse, with the exception of window 1 at the landing. Many windows on the lower level appear to have been replaced. The unfinished attic gives us a clear look at the methods of construction that can be corroborated with recorded activities in the Peterson diaries.

Windows

All of the windows except for the one on the north end of the hall are 6-over-6 double-hung sashes. There are nine total windows including the newer, smaller window that was installed on the north end of the hallway to accommodate the new roofline of the entryway addition on the main level.

Condition: The windows on the second story of the Peterson Farmhouse are all in fairly good condition and are original to the building. The original paint color for all of the wooden components is white. All of the stiles and muntins are in one piece as well as the top and bottom rails, upper and lower sashes, and head and side jams. There are a few areas on some of the stiles on the lower sash where there used to be some sort of mechanism drilled into the wood that would need to be refinished, but the main issue

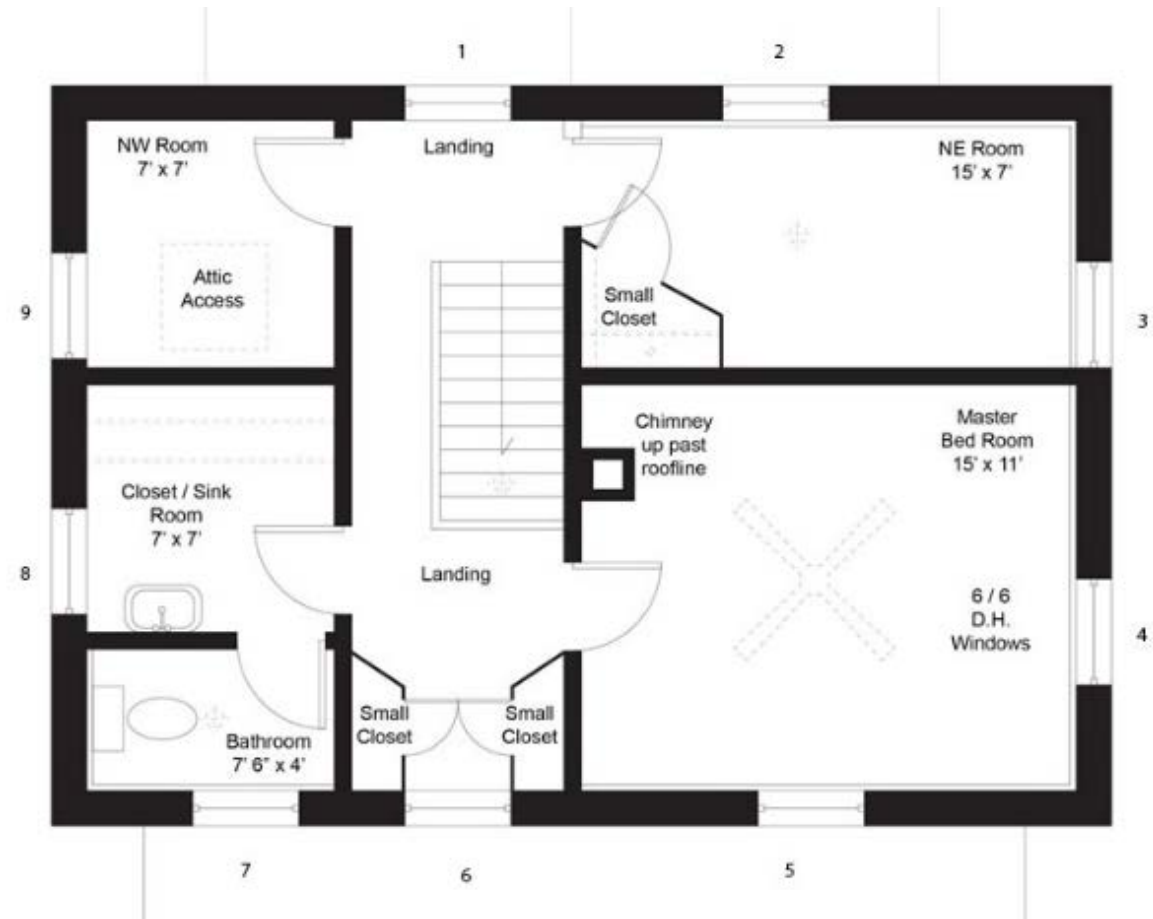


Figure 1. Second story floor plan of the Peterson farmhouse. The numbers correspond to the windows pictured below. Window #1 is not original. North is up.

with the wooden components is peeling paint. The floor plan (Figure 1) shows the layout of the second story and is a key to the locations of the windows pictured in this section. The glazing is in acceptable condition with the exception of a few panes which

might need to be replaced. These are identified using the diagram in Figure 2.

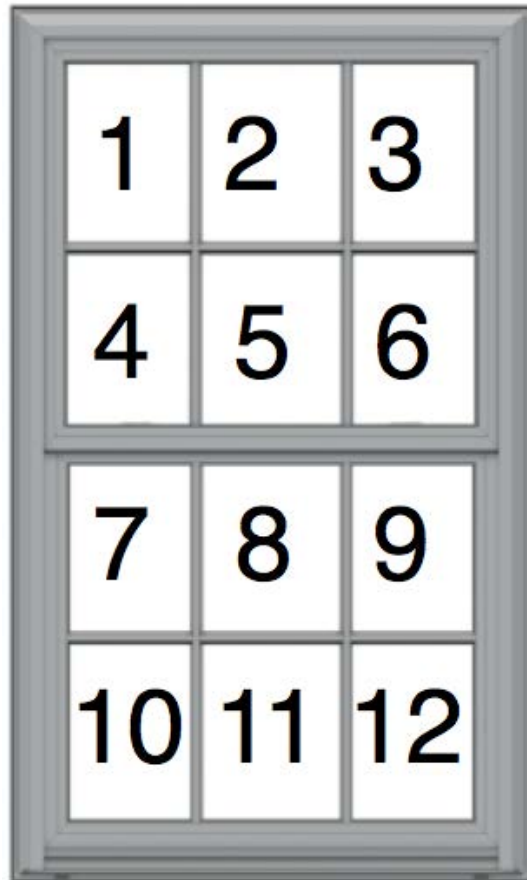


Figure 2. This diagram is a key to identify which panes in each window need replacing due to cracking or breaking.

Recommendations: As has been stated in the Peterson Master Plan, repairing the original windows is preferred over replacing them. Restoring the original windows would do much to enhance the historical appearance of the property, therefore it is recommended that a professional contractor experienced in restoring old windows be brought in to do the work. Using *Preservation Brief 9: The Repair of Historic Wooden Windows* by John H. Myers as a guide, it has been determined that the windows of the second story fall under Repair Class 1, meaning there is minimum repair needed to bring the windows into “like new” condition. As the windows are in fairly good condition the cost to repair them should be minimal.

In selecting a contractor to do the restoration of the windows, make sure that they are familiar with handling lead paint as the age of the house suggests that there is more than likely lead paint somewhere in the home. Additionally, if the budget allows, having the contractor install double glazed, laminated, or insulated lites in the windows would greatly enhance their thermal performance. Another option is the use of interior removable storm windows. This would be the least visually obtrusive form of energy efficiency.



Figure 3. Window #2, lites (3), (9) and (12) are damaged.



Figure 4. Window #3, lite (11) is damaged.



Figure 5. Window #4, lite (9) is cracked.

The images at right detail damage to the windows throughout the rest of the second floor.



Figure 6. Window #5, lites (7) and (9) are damaged.



Figure 9. Window #8, lite (12) is damaged.



Figure 7. Window #6, lite (7) is damaged.



Figure 10. Window #9, lite (1) is cracked.



Figure 8. Window #7, lite (10) is damaged.

Walls

Several of the plaster walls have holes that need to be repaired. There is animal hair mixed in with the plaster. The vent in the wall at the top of the stairs next to the small window appears to be added on at a later date because the opening in the wall behind it is rough-cut and irregular shaped. It was hard for us to determine wall color on the plaster, but glue residue was evidence that the walls had been papered over at some point. A partition wall by the bathroom is recent and constructed with gypsum board. Beadboard walls are in good condition.



Figure 11. The horse hair matrix is clearly visible in this damaged portion of the wall.

Floors

The floors are constructed of 4" wide wood boards. There have been several different coatings of paint on the floorboards underneath the carpet and they are in fair condition with paint and glue on them. They would take some work to repair.

Conditions: Structurally, the floors appear to be in good condition, although the paint is unevenly applied, peeling, and often covered by old carpet adhesive.

Recommendations: Check the Peterson Diary for a reference of painting done to floors. It may be appropriate to repair and refinish some floors while leaving others painted. As can be seen in Figure 12, much of the floor area is covered with carpet and adhesive. We recommend scraping and sanding down these areas, followed by repainting. For the detailed areas on and around the stair railing, which have areas of very thick, poorly applied and peeling paint, scraping and chemical paint remover should be used. Chemical removal methods require ventilation of the work area, and since the paint almost certainly contains lead, appropriate safety measures should be taken. The first layer of paint on the floor is white; there is more about paint in a following section.



Figure 12. Two layers of carpet, thick adhesive, and paint layers of varying thickness cover much of the floor area.



Figure 13. Poorly applied, thick layers of paint on the floor near the stair railing.

Closets

It appears that the closets in all the rooms and in the hallway were added later than when the rooms were built. This is made evident by the thresholds. The closet thresholds differ from those between the hallway and the rooms. Also, painted wall trim is visible in the back of the closets. Additionally, the closets on the south side of the hall at either end of window # 6 (Figure 7) appear awkward in their placement, as if they were an afterthought and not a part of the original design.

Recommendation: Closets show the evolution of the farm and likely date to the period of significance. They could be preserved as-is. If a restoration to the original appearance is desired, they could be removed. Removing the closets would require paint removal and sanding of the floor to match (likely to be carried out anyway), and the repair of the wall. The beadboard wall is in good condition, but any replacement beadboard should be sized and painted to match.

Ceiling

The beadboard ceilings are all pretty uniform throughout the second story. They appear to have two layers of paint: white, over a layer of grey, over wood. It seems likely the boards were painted early in the farm's history. The structure of the ceiling can be seen at the opening of the attic. The beams that form the attic level are covered by 6" wide wooden planks. Covering these is the beadboard. Construction of the ceiling is discussed briefly in the diary.



Figure 14. The ceiling structure is revealed at the opening to the attic. The plain board around the opening is not original to the building.

Recommendations: Determine a period of significance and see what color or finish dates to that time period; check the Peterson Diary for a reference. The paint on the ceiling is not chipping or peeling and can remain. If paint removal is required, a heat gun would facilitate removal from the recesses in the beadboard and minimize lead-containing dust.

Doors

Several doors appear to be original to the construction of the house. These are solid wood doors with inserted panels. Hardware has a dark patina and the height of the knobs from the floor is lower than standard height. These doors have at least two layers of paint. The door to the bathroom is a more recent wood paneled door with a modern looking, off the shelf door brass doorknob. The older doors all have locking hardware, much of this hardware has been painted over (Figure 15).

Recommendations: The paint on the doors is not chipping or peeling, but has been thickly and unevenly applied. Areas of thick paint should be sanded down and repainted. Hardware should be removed and cleaned.



The new door and other new elements of the bathroom should be clearly distinguishable from the restored parts.

Attic

The rafters of are made of split tree trunks, probably of tamarack, since these are mentioned in the diary. Tamaracks grow in marshy areas and have a natural resistance to rot, though they are susceptible to certain insects. The rafters are covered with roughly cut wooden boards approximately 1" thick that have clear marks showing they were cut with a circular saw. The original roof has been covered with metal roofing panels, and

Figure 15. This original door is covered with uneven paint, and the hardware has been painted over.

flashing has been added around the chimney structure and a vent from the bathrooms. There are triangular windows at either end that appear to be original, as they match the second story windows in scale and construction.

Condition: The windows of the attic appear to be in good condition with no warping, cracking, or damaged glazing; however, they are dirty and much of the paint, both interior and exterior has peeled off.

The rafters and roof structure around the chimney have some discoloration that is probably due to water infiltration around the chimney opening, though this seems to have stopped when the roof was repaired.

The parging of the chimney is cracked and discolored. This is probably due to water that had been leaking at the opening. More analysis is required to determine the structural integrity of the chimney.



Figure 17. The chimney parging is cracked and discolored. Although water infiltration appears to have been halted, discoloration and insect nests remain.



discolored.

Recommendations: The leaks have been fixed, and the temporary metal roof seems to be a good solution for the moment, though research should be conducted to determine how to best represent the historical roof should the house be restored.

The paint on the two attic windows should be removed using chemical remover and manual scraping, and the windows repainted white. Again, use precautions required for lead paint removal.

The attic should be cleaned and the insulation removed. Most of the wood appears to be structurally sound; a surface cleaning of small amounts of water damaged areas may suffice. The structure of the attic is unique, original, and coincides with journal entries. Should the house be used as a museum, it presents an excellent glimpse into the construction of the building.

The chimney structure should be analyzed since it appears to have suffered water damage and probably plays a significant role in the stabilization of the roof itself. There is no venting evident in the attic; this should be added to prevent moisture build up in the future. The parging, which has been heavily water damaged, should be removed manually by carefully chipping away to avoid damaging the masonry underneath.

Preservation Technical Brief 22, by Anne

Grimmer, recommends a test using dilute hydrochloric acid to determine lime or cement-based stucco or parging (cement being more common after 1900). If the parging dates to the original construction (lime) it could serve, along with the rest of the attic, to demonstrate building methods and materials of the period.

There does not appear to be any ventilation in the attic space. To prevent moisture build up in the future, this should be added in such a way as not to disrupt the appearance of the house. Any ventilation scheme should take into consideration the purpose and final plan for the house. Adjustments will vary based on whether the attic is to remain closed off, or to be opened up to reveal construction. If the attic remains closed, a combination of low-profile ridge vent and soffit vents and new insulation may suffice. If the house is to be visited year-round and the attic significantly opened, it will need to be analyzed in the larger context of an HVAC scheme devised by a qualified engineer.



Figure 18. Old, dirty insulation should be removed.

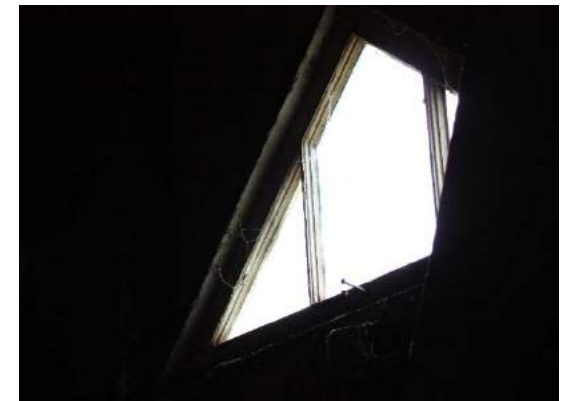


Figure 19. Attic windows are structurally sound but require cleaning and repainting.

Paint

The upstairs doors, windows, and stairwell have various layers of paint. Table 1 summarizes the layers that were determined using a simple scraping test. Most areas could still benefit from a more thorough investigation of paint layers, although it appears that the first layer of paint is white throughout.

Condition: The topmost layer of paint is bubbling, cracking, and in some cases missing. There may be a layer of lacquer or other clear finish on the wood of the stairwell, since the surface seems smooth and paint chips off easily. The underlying structure of the stair and hallway railing is solid. As mentioned in their respective sections, the quality of paint application varies significantly. Ceilings and walls have paint in excellent condition, while floors, details, and doors have large, uneven areas of bubbling and peeling.

Recommendations: Closer microscopic analysis (Figure 20) may be used to determine precisely paint layer and color. Most paint is chipped or peeling, and sometimes not applied correctly; the materials should be repainted properly in the appropriate color. The underlying material is in good condition; some chips may need to be filled. Paint on the floors, railings, and doors, because of its condition, should be

Floor	Stair railing	Hall railing	Walls (plaster)	Walls/paneling
white				
Primer?	white	White		white
Brown	Gray/off white	Gray/off white		Gray/off white
Blue	Blue	Blue	Wallpaper	Blue
White	White	White	White	White
Wood	Wood*	Wood*	Plaster	Wood

Table 1. These colors were determined using a rough scraping test. *indicates possibility of a clear layer over wood that is undetermined.

completely removed. The floor should be sanded to remove paint; chemical treatments are preferable for detail areas such as beadboard, railings and windows. Some paint will remain in areas that are repaired. Since there is almost certainly lead paint, this layer should be sealed in. Removed paint will need to be disposed of in accordance with state laws for hazardous material. Removal of large areas of paint should be carried out by a professional.

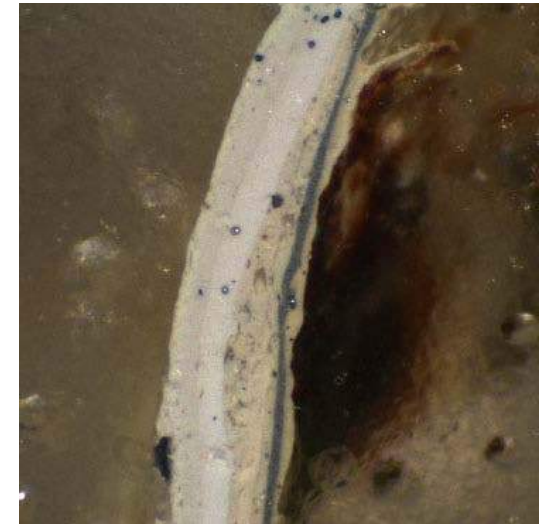


Figure 20. A sample from the floor reveals multiple layers of white paint when viewed under a microscope.

Farmhouse Porch

There is no doubt that the porch was added after the original construction of the house. There is evidence that the porch was originally not enclosed. There are side lites in the door to the house, which are not usually put by doors going to an enclosed porch.

Conditions: The roof of the porch seems to have good integrity, although water does pool on the flat surface. This should be more closely analyzed. The hollow metal exterior door of the porch is not original but is in good condition. Although the porch ceiling does not drain water very well, it does not appear to be leaking (Figures 22 and 23).

Recommendations: Again, being that this is a farm that evolved over time, showing some of this evolution may be appropriate. Much of this depends on the wishes of the client. The existing porch enclosure could be removed and the porch could be reconstructed to an 1885 appearance using as much existing historic material as is possible. A reconstruction could be based on photographic evidence.

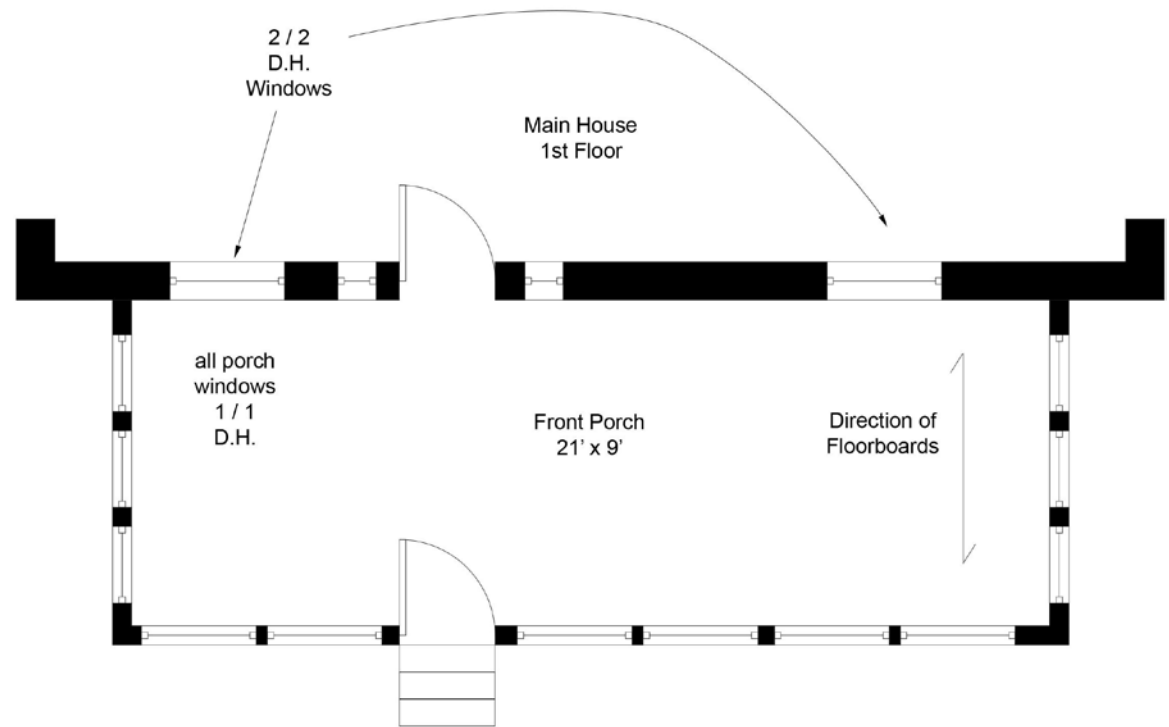


Figure 21. Floor plan of the porch. North is up.



Figure 22. The beadboard ceilings of the porch are in good condition.



Figure 23. The beadboard ceiling is in good condition.



Structure Condition Assessment | Barn

The barn on the property of the Andrew Peterson Farmstead was built around 1917. The structural system is comprised of a heavy timber framing, common for barns of that era. The materials include reclaimed timbers and foundation elements from a previous structure along with new wood members. Since the primary function of the barn was for storage of crops and animals, the building does not contain any thermal components, which reveals the exposed structure.

A qualitative structural review of the barn was completed, and is documented for each member of the system. The assessment was completed on a purely visual basis, and it is necessary that a complete structural analysis with access to all portions of the barn be undertaken. This should involve some non-destructive and destructive testing to ascertain the structural capacity of the barn.

The most complete approach would be to address all the issues with the barn condition simultaneously; however, the following is a prioritized list to facilitate repairs and preservation of the barn safely.

Priority List

Step 1: Conduct a complete structural analysis of members to ensure that preservation work can begin safely for contractors. This will require cleaning and removing all items from the barn in order to facilitate an accurate assessment of concealed materials, systems and conditions.

Step 2: Fumigate for bug infestation in order to arrest the present rapid disintegration of essential structural systems.

Step 3: Determine what the future programming of the barn will be, as this will inform the next steps of the renovation.

Powderpost Beetle

Assessment

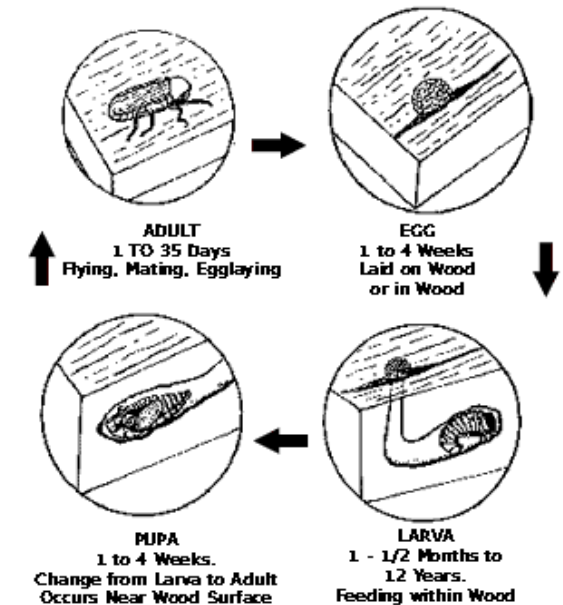
The lower level and upper levels of the barn structure are infested with Powderpost Beetles (PPB). The PPB damage can be seen in structural columns, joists, floor boards, and siding. It is unclear when the PPB infestation started; due to the extent of the holes visible on the wood and the PPB damage occurring slowly over time, the assumption can be made that this infestation has been happening for a long time. These wood eating insects require specific moisture levels that are above 13%. The lower level has more PPB damage due to the higher

moisture level. The lower level contains more moisture because it is partially below grade causing the moisture from the ground to migrate through the concrete walls and floors into the air. Evidence of active PPB locations contained a fine powder (frass) around the exit holes. It is unclear whether the infestation is Lyctid or Anobiid beetle. The frass felt like talc which would suggest a Lyctid infestation but the exit holes were larger suggesting an infestation by Anobiid beetles. Further investigation needed to determine beetle type.

Treatment

To remediate the PPB infestation, fumigation of the entire structure is recommended and should occur before spring when the humidity in the air is still low. Also in spring, the beetles emerge from the timber and it is important that the timber be fumigated before spring, as the beetles are most vulnerable at this time. After fumigation has occurred, the next step would be to reduce the moisture in the building by fixing the leaking roof, siding, and the silo. The silo roof was missing a panel while the concrete floor was cracking and upheaving from water infiltration and soil pressure. If the condition here is consistent with common silo construction, the silo floor will consist of compacted subsoil without any treatment or covering.

PPB infested structural components should be individually assessed using core drillings to determine structural integrity. Components that have been compromised should be replaced to match existing structure. Finally, all wood components should be treated or painted to reduce further PPB damage from occurring.



1.1 Beetle Life Cycle



1.2 Evidence of PPB infestation - beam condition in Lower Level



1.3 Evidence of PPB infestation – (above) Frass build up on around the column (right) Joist condition in lower level



1.4 Joist failure from PPB. Interior damage of joist is visible.

Interior | Lower Level

Joists

The joists supporting the main barn floor are 4" wide by 8" deep. Some of the joists are single pieces of timber, but mostly they are several narrow beams about 1" thick connected together to form the 4" wide beam. It is possible that the variation in the beam type is because they were salvaged from a previous structure as was in the upper level of the barn. The joists span 11'-6" between beams that run between the columns. Several joists show evidence of where a metal connection had been attached at their midpoints, but has now been removed. It is possible that this was a railed system for removing the slurry from the cow barn. If this were the case, the loading would have been higher in the past from the weight of the slurry hung off the beams, and could have caused the cracking. Although the loads have been removed, the damaged beams still have a lowered capacity for current loads.

Condition

Many joists have failed with severe cracking in the bottom section of the joist at mid-span. As noted above it is likely that the joist have seen significantly higher loading in the past, which could have caused this failure of the joists. Although the loads have been removed, the damaged beams still have a lowered capacity for current loads. The most

severely damaged joists are those at the East and West ends of the barn, with the center section being in better condition. This could be related to the previous heavier loading on the center section, or the fact that the shorter spans put less strain on the joists.

As well as the bending failure of the joists, there is obvious sagging of all the joists especially in the central bay of the barn basement and the deflection was estimated to be about 1-½".

Furthermore, many joists show evidence of PPB damage, particularly in the west third of the building. This type of damage is discussed in an earlier section of this report, as it was prevalent throughout the barn. As described there, it is impossible to determine the full extent of the damage as the beetles digest the interior of the wood, as only the exit holes are visible on the surface. One joist had been completely destroyed by the beetles and had been removed (photo) and replaced by a new joist on either side of the original location. It is fair to assume that many other joists are in a similar condition and have a fraction of their initial capacity.



1.4 View of center of joists with metal connection



1.5 Joist cracking at mid-span



1.6 Joist deflection

Recommendation

The infestation of PPB must be exterminated to stop further damage to the structure. The extent PPB damage should be assessed to determine how much of the strength of the joists have been lost. Joists should be investigated in several locations to gain an idea of the extent of the damage. It will probably be necessary to involve a structural engineer to assess the current reduced capacities of the joists.

The proposed programming and usage of the barn will determine the loading the joists will see. If the barn is simply to be stabilized to prevent collapse then it might not be necessary to do an extensive repair of the joists as the internal loading of the barn would be small. However, if the barn is to be used as an event center then significant work would be required. This would constitute a change of occupancy, to a higher level of occupancy, and as stated in The International Existing Building Code (IEBC) "No change and from chapter 14 in the IEBC "the owner shall have a structural analysis of the existing building made to determine adequacy of structural systems for the proposed *alteration, addition or change of occupancy*. The analysis shall demonstrate that the building with the work completed is capable of resisting the loads specified in Chapter 16 of the *International Building*

Code (IBC)". Chapter 16 in the IBC contains all the current loadings for the various occupancy types in buildings. In effect, this means that the barn would need to be shown to have the capacity to support current loads for gathering spaces. Furthermore, there are requirements in the IEBC that the building be evaluated for compliance with the code for fire safety, means of egress and general safety (section 1401.4.3).



1.7 Joist deflection



1.8 Close-up of joist condition. Evidence of PPB holes



1.9 Joist fracture

Foundation | CMU

Barn site has sloped topography resulting in south, east and portion of northerly foundation walls being substantially above grade.

It appears much of the CMU walls are constructed more recent than primary

foundation construction. CMUs observed at SE corner do not intersect and overlap in typical masonry lay up technique suggesting separate construction periods.

Condition

Referenced joint between south and east CMU is moving as result of exterior water pressure from the exterior soil pressure or settling not determinable within the scope of this initial inspection.

Overall these CMU sections and horizontal joints appear in sound condition.

Footings for referenced wall sections of less certain origin and warrant detail inspection

Recommendation

The cause of differential wall settling/expansion should be determined by a structural engineer and possibly with some exploratory excavations. The causes should be addressed consistent with long-term program expectations. Consider repointing joints at corner to facilitate insertion of reinforcing wire to provide lateral stability at corner.



1.10a CMU condition at West corner



1.10b CMU condition at East Corner

Silo Basement | CMU

The south wall of the silo basement is made of old concrete masonry blocks. They are 24" long, by 12" wide and 8" high. They are cavity blocks, with four cavities total (two cavities wide and two cavities in the length). The blocks are made of a fairly coarse and large aggregate, with sandy mortar. The north-side face is quite rough, the south face is more finished.

The east and west walls of the silo basement are made of newer concrete block of a more uniform aggregate mix. The dimensions are approximately 16"X 8"8"

Condition

East Wall: The wall is bowing inward and has a horizontal crack at about mid-height along the length of the wall. The wall is damp, especially in the areas adjacent to the mortar joints.

South wall: The masonry blocks are severely deteriorated on the north side faces, and with much of the section gone. The mortar between the blocks has also disappeared between many blocks, with no mortar in the north side of the joint at all (Fig 1.11)

West wall: This wall is in better condition than the others. This could be because the ground level is lower in this area, resulting in less water infiltration and lower soil pressure against the wall.

Recommendation

East Wall: The wall is failing due to soil and water pressure outside the silo basement. Investigate whether the water pressure can be relieved in this area by installing a drain tile or weep holes. Alternatively, it could be possible to strengthen the wall by adding an intermediate support vertically or horizontally to prevent further movement and damage.

South wall: Determine load on wall from the future loading consistent with the anticipated programming, and whether it is necessary to stabilize, repair or replace the south wall. This will require a structural engineer to perform the calculations. The concrete masonry is original and is an unusual size and composition. It should be preserved if at all possible.



1.11 South silo wall CMU contains course, large aggregate with sandy mortar. Missing mortar in this area



1.12 East silo wall and ceiling contain evidence of water



1.13 Mortar joints on East silo wall show evidence of water infiltration and a horizontal crack, above the first course in the photograph.

Basement Columns | Timber

There are five columns supporting the beams in the basement. They are all about 5.5' high and 12" square timber. The beams are supported on haunches that bear on the columns. The timber columns sit on a concrete foundation. It was not possible to see what kind of foundation is under the columns.

Condition

There was some PPB damage in the columns, particularly at the lower end, Fig 1.3. There were some checks in the timber, but apart from the PPB damage, the columns appeared to be in adequate condition. However, in two locations there was some obvious damage to the footing, with at least 1" of downward movement of the column observed, Fig 1.15.

Recommendation

The concrete footings supporting the timber columns need to be investigated. Both the size and type the footings are should be determined. This could be achieved by digging some exploratory excavations at the footings. It will also be necessary to calculate the past and future loadings are that the columns and footings are supporting. This will show why the footings have failed in the past, and whether it is likely that they will continue to be overloaded. Furthermore, if possible the type soils in the area should be determined, so that an estimate of the soils bearing capacity can be made. It is possible that some earlier and higher loads caused the failure of the footing and that current or future loadings would not cause future damage. As with most of the timber in the barn, the extent of PPB damage needs to be determined, and the timber

should be fumigated to prevent further damage.



1.14 Beams supported on haunches that bear on a column



1.15 Evidence of footing failure

East Loft Wall | Lumber

Primary material of east facade consists of 1x10 common boards installed vertically with occasional lateral joints to enable long runs. Effort appears to have been given to avoid horizontal joints as a strategy to prevent bulk water infiltration.

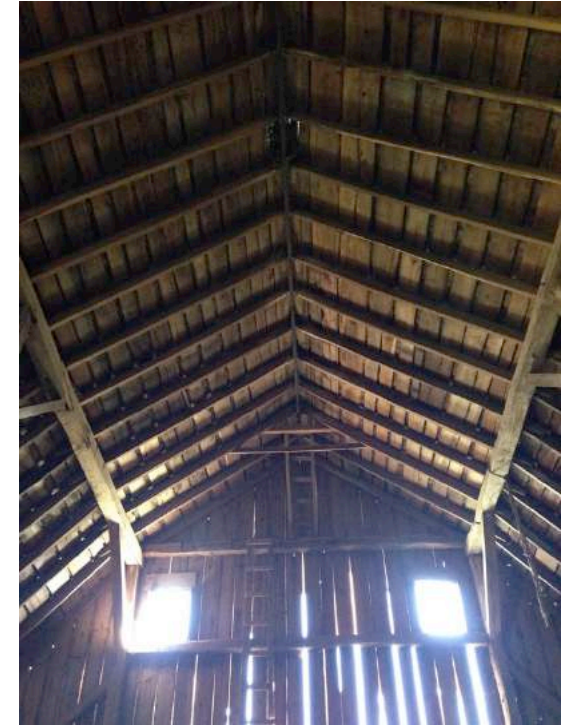
Design intent is to maintain weather integrity accomplished with milled batten approximately 2 inch by 1 inch with milled profile to aid shedding of weather and add smooth gradation to primary plane. These battens are also found to be consistently of long dimension precluding need of horizontal joint. Batten installed to provide coverage to the vertical gap resulting from the adjacency of primary vertical siding material.

Condition

Primary surface material seems to be intact. Battens significantly missing causing water to infiltrate into primary structural members.

Recommendation

Provide for weather integrity to protect interior components by replacing battens and damaged siding as needed. Additional comments and considerations can be found in the exterior assessment of this report.



1.16 Evidence of missing battens on exterior of East Loft Wall



1.17 East Loft Wall

Roof Beams in Loft | Timber

It was not possible to measure or look closely at the upper beams in the loft. They are

substantial (possibly 12" deep by 8" wide) and are rough-hewn, not sawn. They are joined together, see fig 1.18, to create one continuous beam.

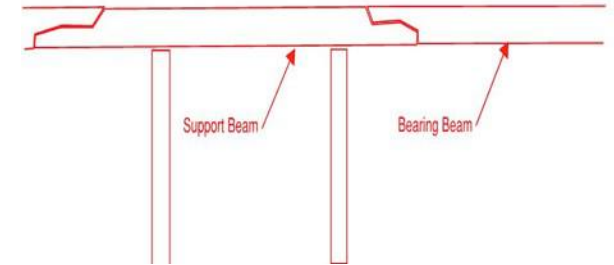
Condition

As we could not get close to the beams it was not possible to evaluate the condition of the timber. It seemed that there might be some lateral movement at the joints between the beams. It seemed that the beams were pinned together with possibly just one bolt or dowel. In general the beams do seem to be in good condition, with no obvious signs of damage or deterioration.

Recommendation

A close up inspection of the beams is necessary to tell whether there is any PPB damage, and how or whether the beams are connected. It is also important to determine whether there has been any shifting of the beams relative to each other. This inspection should be done when the inspection of the wall and roofing lumber is undertaken. When inspecting the upper barn it is important to keep in mind the low capacity of the upper barn floor when choosing what equipment to use. For this reason any lifting machinery should be avoided, or only used after determining that the loading imposed will not cause the loft floor to fail. Even a tall ladder should be placed on a pad to spread

the load as the floorboards are severely damaged in places.



1.18 Beam Diagram



1.19 Loft Beam



1.20 South Loft Wall



1.21 Loft Wall to Roof Connection

Bracing Timbers

The barn is braced in four interior locations with a braced frame on the north and south sides of the barn. Each end of the barn is also braced. The interior braces are shown in

Fig 1.22 and the diagonal member penetrates through the floor and attaches to a floor joist. The joist is attached to the flooring which bring the lateral forces back to the side walls.

Condition

In general the condition of the braces was good. There was some PPB damage seen one brace in the upper section. The connection of the bracing to the joists was compromised in places, and it seemed that the lateral forces would not transfer well. In one location the joist had been completely destroyed by PPB and had been removed, See Fig 1.4. The two smaller replacement joists were not attached in the same manner, and it is probable that the effect of the bracing has been reduced.

Recommendations

As the inspection was done without ladders, the upper parts of the braces must be checked for damage, as it was not possible to see their condition from the ground. Like most of the timber in the building, the bracing should be fumigated to get rid of any PPB. The missing joist that connects to the bracing must be replaced and reconnected to the bracing. Lastly, all the connections of the bracing to the joists must be examined for structural integrity. Depending on the level of damage seen, it could be possible to splice

in replacement sections, or if necessary entire members might need to be replaced.



1.22 Loft Bracing Timbers



1.23 Bracing Timber attaches to joist in lower level



1.24 Close-up of Bracing Timbers with PPB Damage



1.25 Close-up of Bracing Timbers with PPB Damage

Roof Interior | Sawn Planks

There are two types of planks that form the roof of the barn. One is an old sawn plank with unfinished edges, so that the width of the plank varies along its length (as the trunk of the tree would have varied). The other kind of plank is probably newer and more regular with sawn sides as well as faces.

Condition

It was hard to tell without a ladder what the condition of the planks is. The newer planks look like they are in fairly good condition. The older rougher planks have some longitudinal splitting (along their length), which is probably not affecting their strength. Due to the irregularity of the planks there are some gaps between the edges of the planks, and also gaps along their length due to splitting. It was impossible to tell whether there was any damage due to beetles.

Recommendation

It would be good to survey the roofing planks from up close if possible. Close inspection of primary structural members should be done using a ladder and lift to access and confirm integrity of fastener systems, and absence of PPB and moisture damage.



1.26 Roof Interior

Floor | Upper Level

The floor is a critical system that should be thoroughly analyzed for present, continued and repurposed use. The existing condition is unable to be inspected due to excessive material and debris. Referenced hay may have served either to protect subject floor or in alternative mask concealing longstanding damage.

Condition

The floor was difficult to assess because of the hay in the barn. Damage to the floorboards was seen below in the lower level. Water damage and PPB infestation would be likely causes for this damage but undetermined based on the inability to closely analyze members.

Recommendation

The hay should be removed to allow for a full assessment. A complete structural analysis of the floor will ensure that preservation work can begin safely for contractors. As with most of the wood in the barn, the extent of PPB damage has greatly reduced the strength and quality of each floorboard in the barn.



1.27 Loft Floor



1.28 Floor damage seen from lower level



1.29 Floor damage seen from lower level

Conclusion

It is the conclusion of this inquiry that consideration of the 1917 dairy Barn for active use, and perhaps even as a mere scenic icon, requires immediate response to the combined impact of moisture and insect assault. Structural damage found appears manageable at present, though escalation of these invasions may alter that conclusion quickly. If this structure is deemed useful, let alone important, remedial action towards stabilization must be swift and comprehensive.

We urge the following simple steps.

- Restrict external moisture penetration
- Eliminate the insects
- Repair or replace evident damaged structural members with found old growth members or new milled stock

ANDREW PETERSON FARMSTEAD Carver County, Minnesota

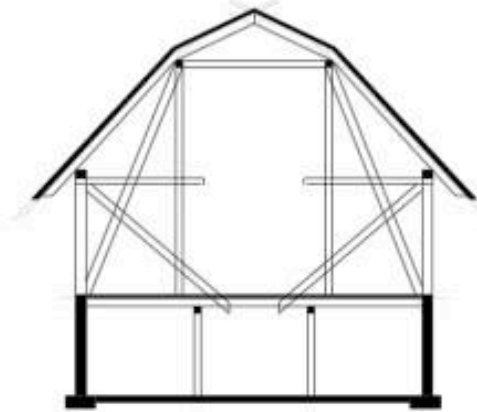
to match dimension and appearance

of historic material.

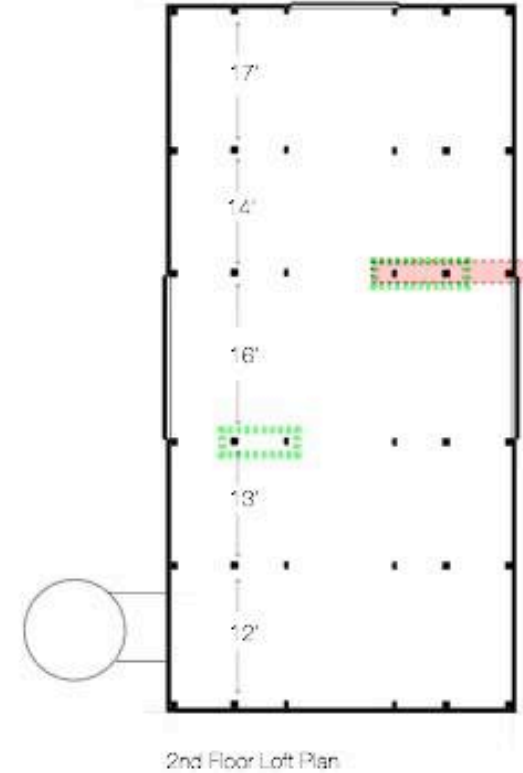
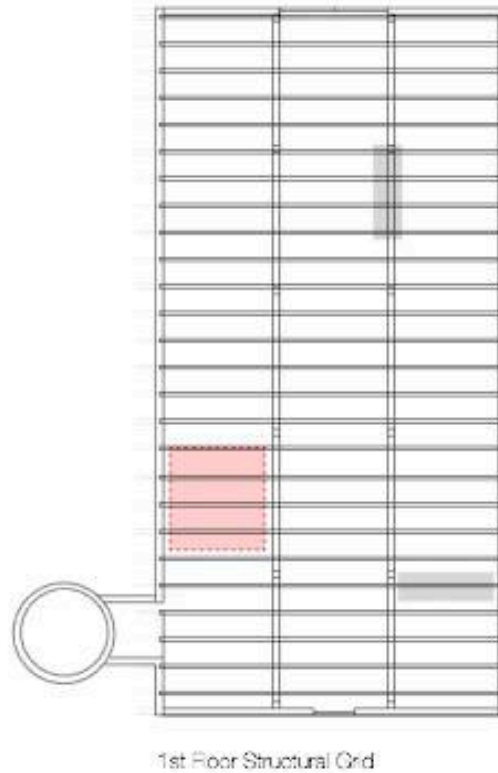
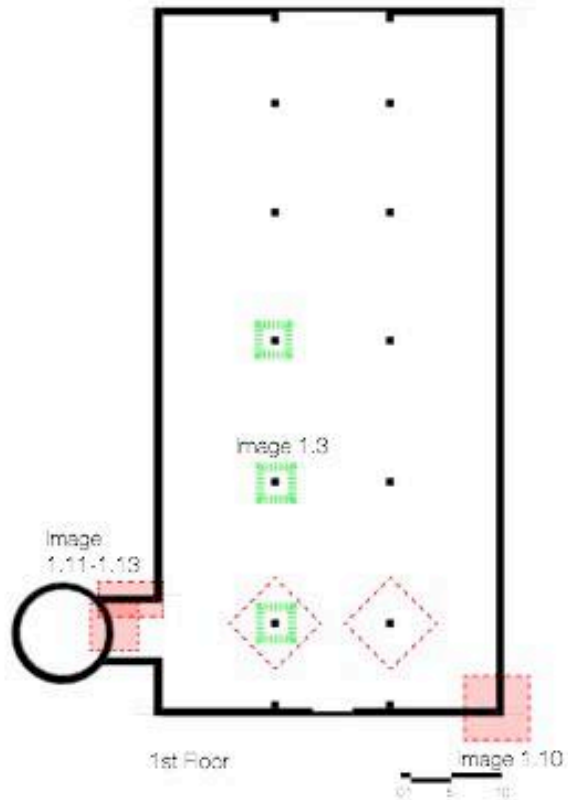
- Reassess next steps in context of

inte
nde
d
use

Structural Diagram | Image Reference



Section



Works Consulted

Apps, Jerry. "Ethnic History and Beauty of Old Barns." Evergreenquiltersguild.org. University of Wisconsin-Extension, 1996. Web. 10 Nov. 2015.

Auer, Michael. "Preservation Brief 20: The Preservation of Historic Barns." National Parks Service. U.S. Department of the Interior, 1 Oct. 1989. Web. 10 Nov. 2015.

"Chapter 14, Chapter 16." International Existing Building Code 2012: IEBC. Country Club Hills, IL: International Code Council, 2011. Print.

Ogg, Barb. "Wood-destroying Beetles." Wood-destroying Beetles (wooddestroying103). University of Nebraska. Web. 18 Nov. 2015.

Ohman, Doug, and Will Weaver. Barns of Minnesota. St. Paul, MN: Minnesota Historical Society, 2004. Print.

Potter, Michael. "POWDERPOST BEETLES." Powderpost Beetles. University of Kentucky, 1994. Web. 10 Nov. 2015.

Slaton, Deborah. "Preservation Brief 43: The Preparation and Use of Historic Structure Reports." National Parks Service. U.S. Department of the Interior, 1 Apr. 2005. Web. 10 Nov. 2015.

The Big Barn 1917

The Big Barn, or the Dairy Barn, is not an original part of the complex. However, it was built on the site of a previous barn, which shows in photographs from 1885.¹ The new barn was built using the timber framing and foundation wall of the old barn after it was dismantled. It was particularly built in 1917, and the concrete silo was probably added in the late 1920s.² The barn is a “basement barn” that is rectangular in shape.³ It is constructed on a hill in a way that is parallel to the hill from the south side, which achieves the exposure of the livestock to sunlight. That is why it has some openings on the south elevation that is adjacent to a paddock. The barn consists of two levels. The lower level is constructed of a combination of fieldstone, sandstone, and concrete blocks. This combination testifies the fact that the building was built in phases, and modified numerous times. This level is used to house livestock and draft animals. It comprises a central aisle and stanchions for

¹ Dewey Thorbeck, *Historic Andrew Peterson Farmstead Concept Master Plan* (Carver County Historic Society, 2015).

² *Ibid.*

³ Cynthia Falk, *Barns of New York: Rural Architecture of the Empire State*, (New York: Cornell University Press, 2012), 37.

dairy cows.⁴ The second level, which is the main level, is built of hewn timber covered with board and batten siding.

The elevations of the barn are similar in terms of material. Each elevation consists mainly of two parts that are the basement (built of a combination of concrete and stone blocks), and the first floor (covered with wood siding.) However, these elevations are quite different. The north elevation is almost plain, except for the fenestration. (Figure 1.) It comprises the main entrance, which is a sliding door made of the wood siding similar to those of the wall. It, therefore, cannot be easily recognized. On the west side of this elevation, there is a 5x4 glass blocks window. Under the glass blocks window there is a small poultry access door.

The west elevation comprises the new addition on the barn. (Figure 2.) The new addition is constructed of a concrete blocks base painted with white, and topped with wood siding similar to those of the older parts of the barn. However, the windows are different than those of the barn. They are one over one double hung windows with

⁴ Pennsylvania Historical & Museum Commission, accessed December 17, 2015, http://www.portal.state.pa.us/portal/server.pt/community/barn_types/21170/basement_barn/1260126



Figure 1: North elevation.



Figure 2: West elevation.



Figure 3: South elevation.

ANDREW PETERSON FARMSTEAD

Carver County, Minnesota

aluminum frames and wooden casings painted with red. The windows on the north and south of the new addition are similar to those on the west with the addition of a rectangular fixed window on the north. The west side of the older part of the barn, however, comprises two picture windows made of wooden frames and muntins.

The south elevation faces a horse paddock. It comprises five 5x4 glass blocks windows. Above these windows, there are two metal tin canopies. (Figure 3.) The central higher part of the wooden part comprises an opening that is covered with wood siding topped with metal hardware. On the left side of this opening is a relatively new wall mounted light.

The east elevation is symmetric, with a main door placed in its center. It is a new double set of double X braced door that is painted in white and red. The door is flanked on the lower level by two square 4x4 glass blocks windows, and on the higher level by two picture windows with wooden frames and muntins. On the east side of the elevation there is a relatively new wall mounted light. In the middle of the wood siding part, there are two pipes that do not serve any function. (Figure 4.)

The roof style is gambrel that runs west to east. It was originally constructed with cedar

shingles.⁵ These shingles were replaced with metal tin plate sheet, which is the current material, and is the same as the material that is used for the canopies on the south elevation, and the roof of the new addition. However, the roof of the new addition is a gable style.

Material Condition

North Elevation:

The major issue in the north elevation is the deterioration of wood, especially along the bottom edges due to weathering. (Figure 5.) The sliding door, which is the main entrance to the upper level, is severely decayed. It is slightly inclined at an angle. The paint is peeling off in some parts and fading away in others. Some of the wood siding has holes and scratches, too. Also, some parts of the metal hardware on top of the door are missing.

On the west side of the elevation, the wood sidings are cut and patched forming a triangular line right on top of the glass blocks window. The patched part is severely deteriorated and missing parts along the bottom edge. (Figure 6.)

The glass blocks window is in a good condition with only one small crack. The glass

⁵ Thorbeck. *Historic Andrew Peterson Farmstead Concept Master Plan*.

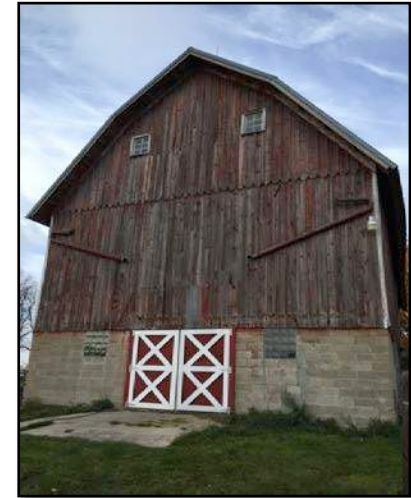


Figure 4: East elevation.



Figure 5: Efflorescence in the concrete block foundation, and deterioration of the wood.



Figure 6: The triangular cut in the wood siding, and the discoloration of the concrete blocks.

ANDREW PETERSON FARMSTEAD

Carver County, Minnesota

blocks are of two types, the patterned glass blocks, and the plain ones. This combination is probably due to problems that some patterned blocks suffered from, and therefore were replaced with plain blocks. The top part of the concrete block foundation suffers from discoloration due to the running of the paint of the wood sidings above it. (Figure 5,6.)

The sandstone and field stone foundation is in a good condition. However, the concrete blocks foundation suffers from efflorescence, which means there is a moisture issue perhaps caused by weather or rising damp. (Figure 5.) The bottom part of the fieldstone also suffers from moisture, which is possibly caused by lack of foundation's insulation, which caused crumbling.

West Elevation:

The west elevation has the new addition. The new addition is in a generally good condition. However, the main door frame's paint is peeling off, mainly on the sides. The bottom parts of the wood siding are deteriorated above the windows that can be a result of collecting water. The paint is fading away at these parts, too.

The window wooden casings have slight deterioration at the corners with the red paint peeling off. Also, the windows of the west elevation of the main barn have severe deterioration on the corners and the bottom parts.

The concrete blocks foundation is in a generally good condition. However, the blocks are chipping from the corners. (Figure 7.) Also, the concrete blocks white paint is peeling off in the bottom parts and areas near the windows.

The connection between the new addition and the big barn is clear near the roofline above the new addition's roof. Particularly, there is a line with the width of a board siding with no paint. (Figure 8.)

South Elevation:

The concrete block foundation suffers from severe efflorescence, mainly in the top parts closer to the wood sidings. Also, it has some vertical cracks in various locations of the concrete blocks more than the mortar. Similarly, the stone foundation suffers from moisture that caused crumbling of the bottom part of the stone. (Figure 9.)

The wood siding's paint is faded away in the central parts more than the edges. (Figure 3.) Some parts of the wood battens are missing, especially in the lower left corner of the façade. (Figure 10.)

The metal tin gambrel roof is painted in one of its parts with a white paint. This might be a result of a rust or failure.

Also, the metal lightning rods suffer from severe corrosion that extends to the metal tin roof. (Figure 11.)

The glass blocks windows are in a good condition with a consistency of patterns.



Figure 7: Concrete chipping at the corners.



Figure 8: Connection between the new and the old parts.



Figure 9: Stone foundation crumbling.

However, in the lower left corner of the first window on the left the glass is cracked.

East Elevation:

The concrete blocks foundation suffers from some chipping at the corners, but overall is in a good condition, except for some vertical cracks mainly in the corners. (Figure 12.) The mortar is in a good condition. However, it presumably absorbs water, which resulted in efflorescence in the concrete blocks foundation.

The wood sidings have a lot of holes and deteriorations, especially along the bottom edge due to weathering. The paint of the wood sidings is fairly faded away, and running over the concrete blocks underneath it. A part of the wood sidings is missing and replaced with metal sheets, in the center of the elevation above the door. (Figure 13.) The existing 2 pipes serve no function. Their color is peeling off, too. (Figure 4.) In addition, the window wooden casings have some deterioration in the corners, and the white paint is peeling off, too. The glass and the wooden muntins are in a good condition. The glass blocks windows are in a good condition with only one small crack. The blocks are of two types, the patterned blocks, and the plain ones. This combination is probably due to problems that some patterned blocks suffered from, and therefore were replaced with plain blocks.

The door is fairly new, and is in an excellent condition. (Figure 4.)

The Silo:

The silo is a new addition, and in a fairly good condition. However, the concrete suffers from moisture, presumably weather related, which resulted in efflorescence, especially at the top parts. Also, the steel ladder has some rusts at some parts. (Figure 14.)

The Aluminum ladder cover is a newer addition and in a good condition, except for some small portions that suffer from corrosion.

Recommendations

Since this assessment focuses on the exterior of the barn and the silo, the recommendations will be for the external materials only.

Generally, the wood batten and board siding need repair especially along the bottom edges as a result of weather-related moisture, or possibly from the walls underneath it. It is recommended first to test how much the wood is affected by the moisture, if it is the only outer surface, then it can be cleaned and painted. If it is soft that means it is severely affected and needs to be cut and patched. This repair can be done by a



Figure 10: Missing parts of the wood battens.



Figure 11: Thunder rod rusting.



Figure 12: Concrete chipping at the corners.

method called the Dutchman Repair.⁶ In this method, the first step is to remove the paint from the damaged area as a preparation for the mechanical removal. Then, a similar wood material should be cut in a slightly larger size than the original wood. Once the new wooden piece is prepared, it should be placed to create an outline on the existing wood. After that, a chisel is used to create an opening in the existing wood, following the outline created earlier. Finally, the new piece is glued with waterproof adhesive. After this step is done, the new piece is trimmed to flush with the old surface. Once the Dutchman Repair is done, the new patched part should be painted with a top-quality exterior paint.

Besides repairing the wood that was affected by moisture, the moisture itself needs to be removed. This can be done by looking for the moisture source first. If it is the rain penetrating the wood, it should be repainted with a good preventative paint. If it is from broken gutters, for instance, it should be rectified before repairing the wood.

Also, some wood siding suffers from holes in various locations. These holes

should be filled before painting the wood. The filling can be done by using epoxy or wood fillers, and then painting it with a top quality exterior paint.

The missing parts of wood that are covered with metal sheets should be restored. First, the metal sheet should be removed, and then similar wood should be placed in the places of missing parts and then painted.

The main entrance is in a vulnerable condition. There are two recommendations for it. The first, which would require less time and effort, is to replace the whole door. The second is to cut the rotten parts, and patch with similar wood, and then paint the whole door, preferably using the Dutchman Repair discussed earlier. The missing hardware of the door can be salvaged and combined with the existing hardware in order to restore the original look of the door.

For the meeting line between the new addition and the west elevation of the barn, a sealant must be installed before painting along with the rest of the wood sidings.

Since the glass blocks windows are in a good condition, we recommend a general cleaning that complies with the Secretary of Interior's



Figure 13: Metal sheet covering a missing part of the wood siding.



Figure 14: The concrete silo.

⁶ "Technical Preservation Services," National Park Service, accessed on December 17, 2015, <http://www.nps.gov/tps/how-to-preserve/briefs/45-wooden-porches.htm#repair>.

Standards.⁷ At first, water only should be tried. If the water alone did not achieve the desired look, non-ionic detergent should be used with soft sponges. Also, the cracked blocks need to be replaced with similar ones.

The concrete foundation, generally, needs many treatments to rectify its various issues. First, the efflorescence indicates that moisture exists within the wall. This moisture is penetrating the wall through either the concrete blocks or the mortar. Thus, a moisture test for both will indicate the absorptive material. If it is the mortar, we recommend repointing. If it is the concrete blocks, we recommend using sealants for the cracks such as elastomeric sealants to keep out moisture. Also, the running red paint from the above wood needs to be cleaned following the Secretary of Interior's Standards. There are 3 main methods to clean concrete: water methods, abrasive treatments, and chemical treatments. Since this is a historic building, low pressure water cleaning should be tried first. If it did not achieve the desired result, micro abrasive cleaning can be tried, however, it can damage the concrete sometimes. If the chemical treatment is decided to be used,

⁷ "The Secretary of the Interior's Standards for the Treatment of Historic Properties," accessed November 26, 2015, <http://www.nps.gov/tps/standards/four-treatments/treatment-guidelines.pdf>

only mild or diluted acid cleaners can be used, since strong acid products can damage the concrete.⁸ In addition, the chipping corners of the concrete foundation should be patched.

The windows' wooden casings suffer from deterioration in the corners. This problem can be rectified by cutting the damaged part and patching it with similar wood, and then painting the whole casing with an appropriate paint that prevents the moisture from penetrating the wood.

The metal tin roof is not original. Thus, we recommend, if possible, restoring the cedar shingles that were originally used. Moreover, the metal lightning rods suffer from severe corrosion that extends to the metal tin roof. It needs to be tested by scraping using a wire brush in order to determine how deep the metal is rusted and if it needs to be cleaned or replaced. Also, a rust converting paint can be used, with a brush or spray method. Additionally, the rusted parts of the steel ladder that is attached to the silo need to be tested following the methods described above, and then either replaced with similar

⁸ "Technical Preservation Services," National Park Service, accessed December 17, 2015, <http://www.nps.gov/tps/how-to-preserve/briefs/15-concrete.htm>

material, cleaned, or painted with rust converting paints.

The Granary

The Granary, also known as the Log Building, is an example of reuse of an earlier building to create a newer one. The actual construction date for the current Granary is unknown. In 1885, a version of this building was in a different area on the farm, and there is no identified date when it was moved or assembled on its current site. While this building was used as a Granary during Peterson's life, whether or not that was its intended use is unknown.¹ Because of these factors, there is no obvious period of significance apart from the span of Peterson's life on this farm. The Swedish Andrew Peterson Society restored this structure in 2005.²

The Granary is a rectangular structure with its gable roof running north to south. The roofing is of hand-split wood shingles. A single east-west wall divides the interior into

¹ Edward Lofstrom, *National Register of Historic Places Inventory – Nomination Form: Andrew Peterson Farmstead*, (St. Paul, MN: Minnesota Historical Society SHPO, 1978)

² Dewey Thorbeck, *Historic Andrew Peterson Farmstead Concept Master Plan* (Carver County Historic Society, 2015).

two sections, with the north part assembled with horizontal hewn logs and chinking material, and it is thought that the hewn logs came from a previous log house.³ The south part has a light-frame structure constructed with hewn lumber.

The exterior cladding is of machine-hewn lumber set in a vertical board-and-batten style and painted red. The siding covers the north side's hewn logs, but it forms the walls of the south side's section. This use of a single siding over the two differently framed interior sections was not unusual and often it was done to give uniformity to the appearance.⁴ On the north and south gable ends are horizontal wood sills separating the full length boards from the boards cut to fit the gables.

The exterior hardware is limited to hinges and a latch. The primary door has forged iron strap hinges in a spear design that appear to be original to the current Granary. The latch also appears to be iron and of the same age

³ Ibid.

⁴ Bruce Bomberger, *Preservation Brief 26: The Preservation and Repair of Historic Log Buildings* (Washington, D.C.: National Park Service, 1991).

as the hinges. A small opening on the south side has double-triangular strap hinges which



Fig. 1: North façade.



Fig. 2: West façade. Note South Barn in the background.



Fig. 3: South façade. Note 1917 Barn in the background.

ANDREW PETERSON FARMSTEAD

Carver County, Minnesota

appear to be machine-produced and considered add more recently.

The fenestration is limited to two six over six double-hung windows centered in the north and south gables. On the lower section of the south façade and centered in the wall of the light-framed section is a boarded over opening the same size as the double-hung windows. A similar opening on the east façade is to the right of the door. This second opening appears to be centered in the wall of the log half of the building. All four of these openings and windows have white painted casings of two-inch wide hewn lumber with simple sills and drip-caps. There are also two sections that appear to have once been open but now are filled in with board and batten: a two-foot square to the left of the east façade door, and a three foot by one foot opening with four-inch strap hinges that has a board nailed over it. The purpose for these two openings isn't clear, although perhaps they were a window and a poultry access door.

The foundation is a series of piers made from rubble stone, bricks, and common lumber. These are not uniform or consistent, so it is unknown if some were changed during the

2005 restoration. The brick used, though, for the piers and as part of an "entry pad" of three rows of 8 bricks buried in the ground are marked "Evens and Howard St. Louis." This company stamp suggests they might be original to the site since the Evens and Howard Brickworks began production in 1855 and became widely known for the quality of their bricks.⁵

Conditions

General:

The structure as a whole is settling unevenly; the south end is lower than the north, and the whole structure leans toward the west side (Figs. 1 - 4). Whether this settling is due to structural or foundational shifting was not determined.

The exterior sheathing has significant decay and splitting along the bottom edges on all sides. Various boards and battens on all facades also have deteriorated, split and broken sections. Many battens are missing, allowing water to infiltrate along the edges of the boards which are not connected through any tongue-and-groove construction. (Fig. 5).

⁵ "Evens and Howard Brick Company, Cheltenham Fire Clay Works," *Brick: Special Issues on St. Louis* 20, no. 5 (May 1904): 232-233.



Fig. 4: East façade.



Fig. 5: Missing battens and metal patches. Photo taken facing southwest.



Fig. 6: Example of lower edge board and batten decay and wood-stacked pier. Photo taken facing southwest.

The roofing shingles appear to be in good shape. On the east side, some of the shingles appear to have less weathering suggesting replacement during the 2005 restoration. The color and lack of extensive decomposing from general weathering of these shingles suggests they are cedar while the boards and battens are pine (Fig. 2 & 4).

The foundation's piers show varying degrees of failure. Surprisingly, though, the individual rubble stone, bricks, and common sawn wood used to construct each pier are generally without obvious wear. That this foundation provides no protection from the ground water, foliage, or other destabilizing elements suggests that the end decay of the board and batten cladding is due to the wood's water and insect exposure as well as weathering (Fig. 6).

North Façade:

The original red paint has weathered significantly and unevenly, with extensive chalking and peeling present due to continual exposure to rain and snow. Similar to the other three sides, the material degradation indicates there possibly is rising damp as well as weather related moisture, a likelihood

that comes from the lack of a full foundation and ground contact (Fig. 1).

In places where the wood has rotted or decayed, the inner wall of hand-hewn logs is exposed. Though the hewn logs used as internal framing show some signs of beetle infestation, there is no evidence that the infestation is current, and the logs maintain integrity. Since the wood does not show sign of internal decay when tested, then, it is less likely contact between the hewn log beetles and the siding boards caused extensive amount of the external siding degradation (Fig. 7).

Small pieces of metal are nailed on the wood, presumably to repair smaller holes, and painted the same red as the rest of the exterior. Because of the condition of the paint, likely these metal patches were in place before the 2005 restoration (Figs. 5 & 8).

The gable window is six over six, appears original to the current structure, and has in-tact glazing. Due to not being able to inspect the windows closely the degree of loss or degradation of the caulking is unknown.



Fig. 7: Exposed inner hand-hewn log structure. Photo taken facing south.



Fig. 8: One of many metal patches. Also shows condition of overhang and fascia. Photo taken facing west.

The wood mutins, casing, and drip cap on the window and the fascia boards all have paint loss of the white trim paint that exposes the wood, resulting in expected deterioration (Fig. 9).

West Façade:

The wood of the board and batten siding is in the same condition as on the north façade. The paint degradation is also similar. One difference is that there is moss and more extensive signs of water damage along the bottom edges of the wood. The settling of the building to the west may have led to greater contact with the ground (Fig. 2 & 10). Although there are hand-hewn logs lining the north end of the structure, the west façade siding decay does not expose that secondary wall.

South Façade:

The south façade's condition matches the north façade. The board and batten siding is deteriorated along the lower edge and the paint shows signs of uneven chalking and peeling from weather-related moisture. There are red-painted metal patches intermittently placed on the siding. The white paint trim on the fascia as well as the

window and boarded-opening frames shows degradation from weather exposure. The glazing, while unknown in terms of the state of the caulking, does not appear to have any cracks or breaks (Fig. 3).

Though some battens are missing, the wood in general does not show extensive breakage or decay apart from the ends. The wood used for the fill of the boarded-up opening centered on the main story does not show the same signs of wear as the surrounding boards and battens. This suggests the wood is either newer than the board and batten or has worn differently due to the framing paint as seen on the upper window frame. The exposed wood does not show any real decay (Fig. 11).

The boards and battens of the small cut-in door to the lower right of the window has the same paint and wear as the surrounding wood. That the double triangular strap hinges are also red suggests that this was cut and then painted at the same time as the rest of the façade. The unfinished and random appearance of the board nailing the door shut raises questions about the opening's use (Fig. 12).



Fig. 9: Gable window, frame paint and weather wear, and exposed inner hand-hewn beam wall. Photo taken facing south.



Fig. 10: Rising damp and moss. Photo taken facing

The material used for the southwest and southeast foundational piers perhaps explain the structural settling to the west as stacked wood piers support the southwest corner (Fig. 6) while a large granite field stone supports the southeast corner (Fig. 13).

East Façade:

The board and batten wood and paint is in similar condition to that found on the other three façades. The wood edges show signs of decay and splitting due to water infiltration from ground contact. The paint shows signs of chalking and peeling, most likely due to weather-related moisture.

Notable failure of the wood board to the right of the door and where the two internal sections come together raises concerns about settling. The extensive splitting and breakage down the board's center possibly is due to unequal stresses, particularly since there are no other boards on this façade with an equal degree of degradation. (Figs. 4 & 14).

The wood door is still in good condition with minimal decay, and like the south façade's boarded window, appears to be of newer construction and not painted. The framed

boarded-up window opening also is in similar condition as the one on the south side. (Fig. 4).

The hardware is in good condition, with the hand-forged iron strap-hinges and latch still firmly attached. The only part of the door that shows signs of decay is the door frame and along the top edge of the wood boards (Fig. 14). The top edge decay is probably due to water leaking behind the drip cap.

Recommendations:

Since this analysis focused on the exterior of the Granary, full investigation of the relationship between the structure's interior and exterior was not done beyond a cursory view. It is recommended that a more thorough investigation of the interior's structural integrity be undertaken to determine the general stability of the structure, particularly if this building is going to have any visitor use.

Due to failing piers and the need to mitigate contact between the cladding and the ground, methods for restoring the foundation requires further study. Research is needed to determine the historical relevance of the pier-styled foundation, and



Fig. 11: Boarded over window opening with frame. Note peeling and weather worn frame.



Fig. 12: Small hinged door nailed shut with worn board. Photo taken facing north.

then to determine which piers still have historically chosen materials and which piers have been rebuilt. The possible responses include: 1) simply resetting the piers; 2) replacing the stacked wood piers, which have the greatest potential for failure, with stone and brick; or 3) completely replacing the pier system with a modern construction method that matches a historically appropriate appearance. The last option would be the last choice from a historical preservation perspective, but the use of the building might require that degree of stabilizing.

The weathering of the board and batten siding needs to be stopped, and that is achieved through repairing the wood and repainting. While a pick test showed the wood itself is not deeply rotted, there appears to be some rising damp in the boards as well as the end decay and broken boards.

The recommendation for treating the wood, then, is to replace the lost battens and the board areas extensively split or broken with pine boards of similar age. The decayed ends of the boards need to be either replaced or puttied.

In order to successfully repaint, the old paint needs to be stripped using a method that's as unobtrusive as possible in order to get rid of the paint loss. Paint testing might be useful, although testing might be unnecessary with some research into the 2005 restoration to determine if the building was repainted. Even if this paint is original historically, repainting is recommended to help preserve and prevent further deterioration of the wood.

The windows and accompanying frames, sills, and drip caps should be repaired and not replaced. This is the same for the frames and drip caps of the boarded up openings and the door. The wood members need stripping and repainting, and the glazing likely needs new caulking. Using available boards of comparable age always is preferable to replacing the deteriorated wood elements with new material from a preservation perspective. While repainting the siding will make matching the way the wood is cut less important, it could be worth looking for wood boards with similar band saw marks to keep any future weathering patterns consistent.



Fig. 13: Granite field stone pier. Photo taken facing west.



Fig. 14: Door hardware, decayed framing, broken wood and second boarded window space. Photo taken facing west.

ANDREW PETERSON FARMSTEAD

Carver County, Minnesota

South Barn

The South Barn was built during Andrew Peterson's lifetime in 1884 to be used as a cow barn. This date makes the time Peterson spent on the farm the most likely period of significance. According to the National Register of Historic Places nomination for the Peterson farm, the South Barn and the North Barn are both story and a half "bank barns" of about the same size. As a "bank barn," the South Barn has its gable roofline running east to west to allow for the ground to be "banked" against the north façade and allow access to the upper barn's threshing and storage space. The lower exposed foundation level on the south façade housed the animals in an open space and added solar heating for the livestock's welfare.¹

The north façade has stacked swinging double-door entrances. The lower, larger set opens into the main floor so the farmer could pull the wagon into the barn. The higher, smaller set leads to the upper loft. The main entrance doors have forged iron strap hinges in a spear design while the upper, smaller hay-loft doors have double triangular strap hinges. The latches have battens covering them, suggesting those battens were added later. (Fig. 1) The south façade's foundation is

¹ Michael Auer, "Preservation Brief 20: The Preservation of Historic Barns," 1989.

divided into four unevenly spaced and sized wall segments supporting the barn which create three openings that permit animals housed on the lower level to move between the inside and the outside. (Fig. 2)

The vertical board-and-batten siding is red with white painted trim. The foundation is made of fieldstone and the roof is covered with ribbed metal roofing. The barn's fenestration has two windows on each of the east and west façades as well as at-grade openings set into the foundation. (Figs. 3 & 4) Single six-pane windows are centered in each gable, and double-sash, six over six windows are centered on the main levels. The at-grade horizontal rectangular openings of approximately two feet high by four feet long have metal frames set into them, with twelve vertical rebar dividers separating the length into 13 equally sized spaces.

On the south façade is a barn quilt of the Swedish Apple Orchard design, a feature of the Quilt Trail phenomenon begun in 2001. The quilt, while not contributing to the period of significance, does identify the farmstead as part of the Carver County Barn Quilt Trail.² Since the South Barn is the structure closest to the road, the relationship

² Naomi Russell, "Virtual Tour and Map," *Barns of Carver County*, nd, <http://www.barnquiltsocarvercounty.com>



Fig. 1: North façade



Fig. 2: South façade



Fig. 3: West façade

between the Peterson Farm and the Carver County Barn Quilt Trail might be particularly

notable considering the intended plans for the farm.

Condition Analysis

General

The roof line sags in the middle, suggesting possible structural weakness. The foundation of field stone has signs of being grouted with a few different mortars and at different times. It is difficult to tell from the outside if any of the present mortar is original or if it has all been covered in subsequent repointing and surface grouting. A presumed older tan mortar has been used between the fieldstones and as surface grouting. In part due to its degradation and in part due to being used as a surface grouting, it is most likely the original mortar. A presumed newer gray cement-rich mortar has been used for more recent repair and repointing. (Fig. 5).

North façade

- The red paint has uneven weathering, although the paint in general is less deteriorated than on other buildings (Fig. 1). Flaking and chalking exists, with some wood exposed to the weather. The darkest, least deteriorated paint is under the eaves lending credence to the paint loss and degradation coming primarily from wet weather instead of other causes.

- Areas exposed from missing battens have been painted white, thus suggesting that this barn was once painted white. The type of white paint that was used might be influencing the greater stability of much of the red paint layer. Missing battens also promote the water infiltration from rain and snow and which creates wood decay of the boards. (Figs. 4 & 5)
- Extensive wood cracking and splitting exists along the bottom of the boards and battens, likely due to water infiltration from ground and stone and mortar contact. The rotted areas of these board ends also expose large hand-hewn sill beams, potentially adding bug infestation to the causes of wood rot. (Fig. 5)
- The white trim paint, different from the older white base paint, is extensively deteriorated, with flaking and peeling likely due to weather exposure, although possibly to the application of latex paint over an oil paint layer. The flaking exposes a red paint layer and the upper door hinges have white paint over red, all evidence of the white trim paint being added after the barn was originally painted red. (Fig. 6)



Fig. 4: East façade.



Fig. 5: Detail of foundation and mortar. Photo taken facing southeast.



Fig. 6: Upper swing doors. Photo taken facing south.

- The lower entrance swing door has substantial wood deterioration of boards, although less so along the bottom edges. It isn't clear if these breaks are due in part to trauma from use or completely to water infiltration. (Figs. 1 & 7)
- The threshold beam beneath the main doors has extensive signs of powderpost beetle infestation and deterioration from ground-water seepage from the stone and mortar contact. (Fig. 8)

West façade

- Like the north façade, the west façade's paint has uneven weathering, but it is not as degraded. The white trim paint is also primarily intact except for the window sills. (Fig. 3)
- The board ends of the siding do not show decay. The foundation has been repointed more recently with the assumed cement-rich mortar and primarily is between the wood and the fieldstone. The ground slope directing water away from the foundation and the intact mortar potentially is the reason the wood does not show extensive rising damp or rot. (Fig. 9)
- The casings of the gable and first story windows only show nominal flaking of

surface paint, with the sill wood exposed but not obviously degraded. (Fig. 10)

- The wood frame of the foundation window opening has some chalking, but the metal rebar insert is solid and shows no sign of deterioration. (Fig. 11)
- The foundation interior view reveals evidence of extensive powderpost beetle infestation of the exposed upper-level floor boards and hand-hewn load-bearing beam. Adjustable steel poles have been added for reinforcement. The wet earth floor with standing water creates a source for excessive humidity and water damage. (Fig. 12)

South façade

- The board and battens are almost completely exposed, with the red paint showing extensive weathering effects with chalking and peeling. (Fig. 2)
- The lower edges of the boards and battens have deteriorated where they meet the foundation. The foundation on this side appears to have more of the tan older mortar and surface grouting than the gray newer cement-rich mortar, suggesting that the moisture in the older mortar and stones has been able to easily be drawn up into the wood than the newer mortar. The base of the foundation sits in the standing



Fig. 7: Lower swing doors with breakage. Photo taken facing south.



Fig. 8: Hand-hewn beam door sill. Photo taken facing south.



Fig. 9: Northwest corner.

- groundwater, and the south is exposed more directly to the rain and snow, all which also provides easy conduction of water. (Fig. 13)
- Board breakage and rotting is present, particularly where battens are missing. (Fig. 14)
- Barn quilt square is in good condition, likely due to its age. (Fig. 2)
- There are no apparent structural weaknesses compromising the foundation at the openings. There are some places of minor loss of mortar along the sides of the openings. Surface grouting has a red tint that appears to be staining from the painted board and batten above. (Figs. 2 & 15)

East façade

- Due to the electric fence and pasture, detailed analysis was not possible. The general state of the façade, though, is similar to the north and south façade: Paint is extensively peeling and chalking due to weather, and exposed wood shows evidence of deterioration. The wall bows inward, though, indicating compromised structural framing. The condition of the gable and first story windows and glazing is unknown. (Fig. 4)
- Looking through the west foundation opening, it's possible to see that the east

foundation opening has been boarded over. (Fig. 12)

Recommendations

The most pressing need is to assess the structural integrity. The load-bearing beam and floor boards, the roof's sagging ridge, and the east façade's bowing all suggest potentially severely unstable framing. Particularly if this structure is to be used for visitor or other weight-bearing purposes, the stability of the structural construction is vital.

Even though the foundation's surface appears sound with only some minor cracking in the mortar, it is possible that the foundation will need to be reset or rebuilt to resolve any framing misalignment due to settlement. Attention needs to be given to repointing or surface grouting where mortar has been lost and threatens to compromise the foundation's integrity. Due to there being two types of mortar used, it is suggested that a Type M mortar be used for any repointing, and potentially to replace the older, tan mortar. Whether to color this gray or tan should be determined by appearance. Considering the plan for using this structure for visitor purposes, using a stronger mortar is recommended to help prevent further foundation shifting.

All missing battens and wood deterioration and decay should be repaired or replaced but



Fig. 10: First story window. Photo taken facing east.



Fig. 11: Foundation window opening. Photo taken facing east.



Fig. 12: Interior of lower level. Photo taken facing east.

ANDREW PETERSON FARMSTEAD Carver County, Minnesota

not with new lumber. The wood species is most likely a pine although this should be confirmed. The boards are not dovetailed, so replaced boards should be flat, milled 12-inch-wide boards. The battens, though, need to be replaced with three-inch wood strips chamfered on both sides. If possible, after the rotted end is removed, replacement wood pieces should be spliced onto the existing board. All wood surfaces should have the older paint stripped. Proper precautions should be taken if the paint, once tested, is lead-based. The cladding should then be primed and repainted in order to protect the siding and structure.

Since moisture in cement is drawn up into the wood when the one is in contact with the other, and the primary place where wood has degraded is where the siding comes in contact with the foundation, the replaced or repaired board ends should be primed on all surfaces with an oil based primer. The presence of standing water also indicates the need for re-grading around the building. Consistent maintenance should prevent further issues.



Fig. 13: Degraded boards, missing battens, and contact of boards on stone foundation. Photo taken facing northeast.



Fig. 14: Sill beam and broken boards. Photo taken facing north.



Fig. 15: Foundation opening, standing water, and surface grouting. Photo taken facing north

The Smokehouse

This roughly 5-foot-by-6-foot structure sits just to the northeast of the farmhouse, and is constructed of Chaska brick laid in a common bond matching that of the rear addition to the farmhouse. Featuring a simple gabled roof covered in cedar shake shingles, the only exterior penetrations consist of a simple wood door on the west elevation with rotating wood handle block and a small ventilation door on the east elevation just below the gable end.



Figure 1: Southwest Elevations of Smokehouse

Material Conditions

North Elevation

- Masonry surfaces at this location are in no need of immediate attention, with mortar joints and bricks showing no significant deterioration.
- The wood soffit, fascia, and rafter ends show no major deterioration. Very little paint remains on the soffits or rafter ends. A scraping sample should be collected to determine the earliest color of wood at this location and matched with new paint.

East Elevation

- Masonry surfaces at this location are in generally good shape, with no noticeable stress cracks. However, mortar joints have degraded near the ground level. A mortar sample should be taken, analyzed for strength, and replaced in-kind with a mortar specification no stronger than a Type N, due to the soft nature of the Chaska brick. The repointed mortar should match existing in terms of joint profile.
- The wood soffit, fascia, and rafter ends show no major deterioration. Very little paint remains on the soffits, fascia, or rafter ends. A scraping sample should be collected to determine the earliest color of wood at this location and matched with new paint.

- The ventilation door should also be subject to a scraping sample and matched with new paint.



Figure 2: Northeast Elevations of Smokehouse

South Elevation

- Masonry surfaces at this location are in generally good shape, with no noticeable stress cracks. However, mortar joints have degraded near the ground level and up the southeast corner. A mortar sample should be taken, analyzed for strength, and replaced in-kind with a mortar

specification no stronger than a Type N, due to the soft nature of the Chaska brick. The repointed mortar should match existing in terms of joint profile.

- The wood soffit, fascia, and rafter ends show no major deterioration. Very little paint remains on the soffits or rafter ends. A scraping sample should be collected to determine the earliest color of wood at this location and matched with new paint.

West Elevation

- Masonry surfaces at this location are in an acceptable condition, however, there is some stress cracking near the doorway, and much of the mortar is missing at the bottom course of bricks at the door. The brick coursing at this location is also spalling and is in need of replacement. Locating matching Chaska brick should be done before any work is done at this location.
- The door is in generally good condition, but requires paint. A scraping sample should be collected to determine the earliest color of wood at this location and matched with new paint.
- The wood soffit, fascia, and rafter ends show no major deterioration

save for a large, 2 inch round hole in the bottom left corner of the fascia. This should be repaired with two patched-in sections of wood to maintain the design of the wood. Very little paint remains on the soffits or rafter ends. A scraping sample should be collected to determine the earliest color of wood at this location and matched with new paint.

Recommendations

The current recommended use for this structure is that of a demonstration smokehouse in the summer months. With repointing to select masonry surfaces and repairs to the soffit and fascia, there should be no further hindrances to this proposed use.



Figure 3: Damage to fascia on north elevation