Bauman Hall
Condition Assessment Report

March 20, 2020

PERFORMANCE
DRIVEN DESIGN.

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ASSESSMENT TEAM

LHB, Inc.

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CLIENT

Reclaim Community
Elicia Kortus, Executive Director

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PROJECT DATA

Historic Name:	North Sioux Falls Hotel, Farmer's Cooperative Mercantile Company, Silverberg's Bauman Hall, Sacks General Store
Other Names:	Jasper Senior Center
Current Name:	Bauman Hall
Address:	201 W. Wall Street, Jasper, Minnesota N. 56144
UTM Coordinates:	14 / 709110 / 4858240
Land/Building Owner:	Reclaim Community
Site Description:	Lots 1 & 2, Block 3, N. 80' of Original Plat
Historic uses:	Hotel, General Store, Performance Hall, Senior Center
Current use:	Vacant
Landmark status:	Listed in the National Register of Historic Places, January 8, 1980 #80002116
Period of significance:	1908-1939
Dates of construction:	1881 as a hotel in the no-longer-extant town of North Sioux Falls, moved to Jasper in 1908 by the Henry Holvig
Architects/Builders:	Unknown

Figure 1 Aerial view of property location in Jasper, Minnesota

INTRODUCTION AND STUDY SUMMARY

The intent of this summary is to provide a brief description of the project and a general overview of the present condition of the historic building. The report must be reviewed in its entirety for a complete understanding of our conclusions and recommendations.

Reclaim Community has retained LHB to provide a condition assessment report for Bauman Hall in Jasper, Minnesota. The building was originally constructed in the 1880s in a quarry town called North Souix Falls, approximately 3 miles to the northeast of Jasper. Following the failure of the quarry, the building was moved to Jasper around 1908. Historically, the building served as a general/grocery store at ground level and a multi-purpose assembly space at the second floor. Following the opening of a new gymnasium/auditorium at the Jasper School in 1939, the second story assembly function greatly diminished and it appears that very few improvements have been made to the second floor since. In the early 1980s the ground floor of the building was converted to Jasper's senior center. It remained the senior center until 2009 when, due to structural concerns and upkeep costs, the city divested itself of the building. The building has remained largely unused since.

The project team conducted its condition assessment on September 27, 2019. During the site visit the team met with Reclaim Community director Elicia Kortus and local contractor Terry Skyberg. Terry has been responsible for much of the major upkeep at Bauman hall going back to the early 1980s and was able to provide much enlightening information on the maintenance history of the building.

Bauman Hall generally appears to be in good condition at first glance, but there are significant concerns with the building that should be addressed soon.

The highest priority recommendations are listed below. Note that this is only a partial list of recommendations and that there are additional recommendations throughout the report.

- Provide shoring as designed by a licensed engineer to stabilize the critical areas of the building until major repairs can be undertaken
- Rebuild the top of the wall on the north end of the east wall to correct inward bowing
- Repair the sagging floor framing beneath the bowing area at the east wall
- Repair the roof gutter, downspouts, and eave flashing to ensure water is not entering the top of the stone wall
- Repair windows and masonry openings to improve weather-tightness of the building.

Treatment Approach

Because the second floor of the building will have to be altered significantly due to the need to repair underlying masonry, the presence of asbestos in the plaster, and serious code issues in regards to exiting, the recommended treatment approach for the building is Rehabilitation as defined by the Secretary of the Interior Standards for the Treatment of Historic Properties.

BUILDING PLANS

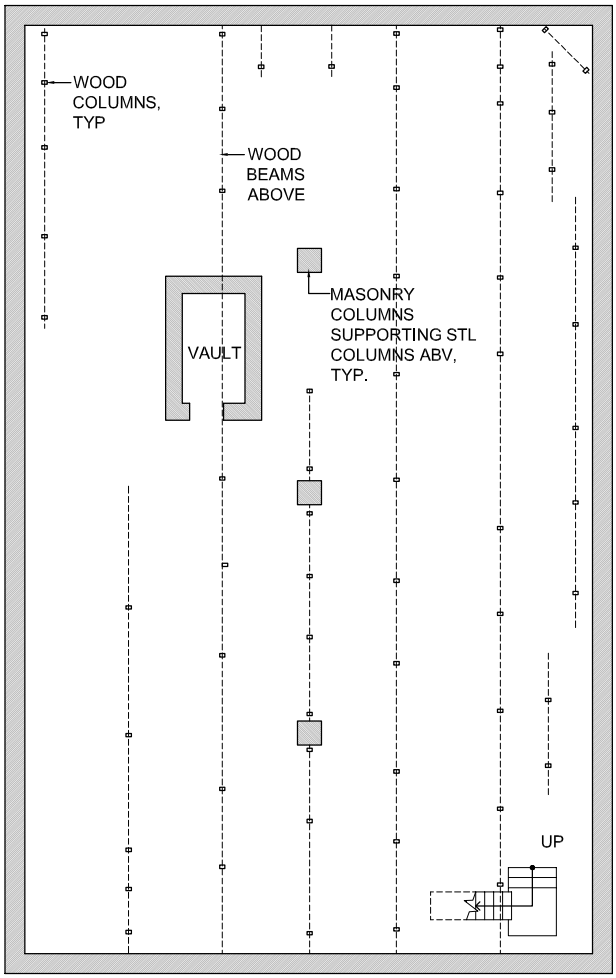
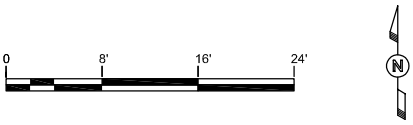


Figure 2 Basement



BUILDING PLANS

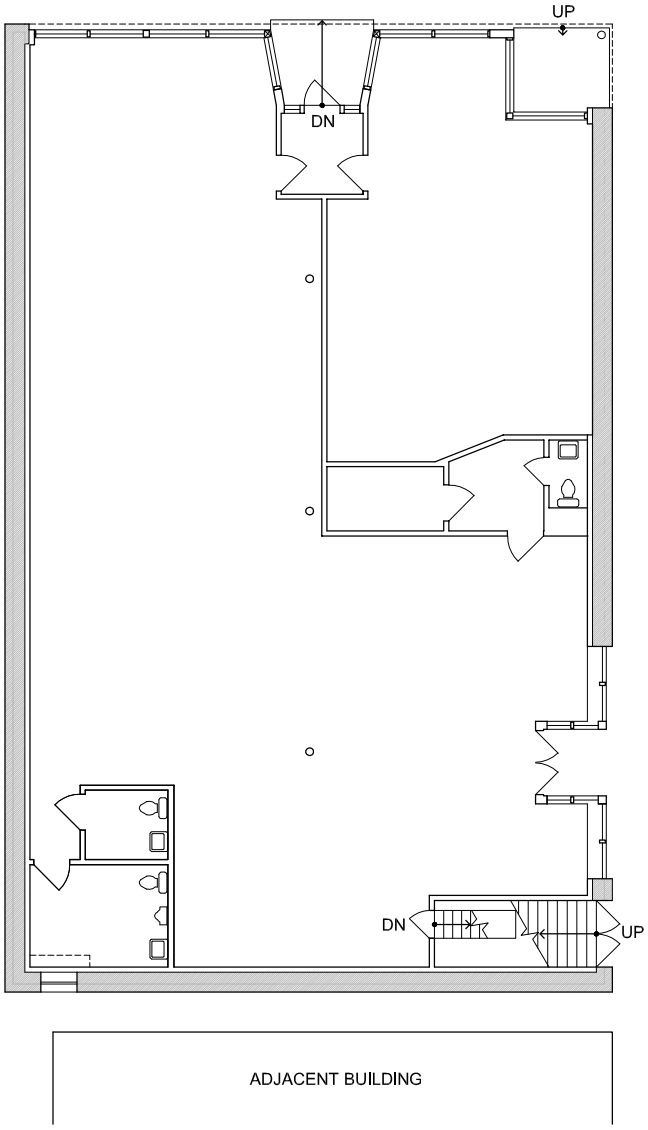
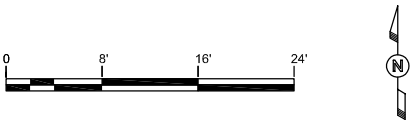


Figure 3 First Floor



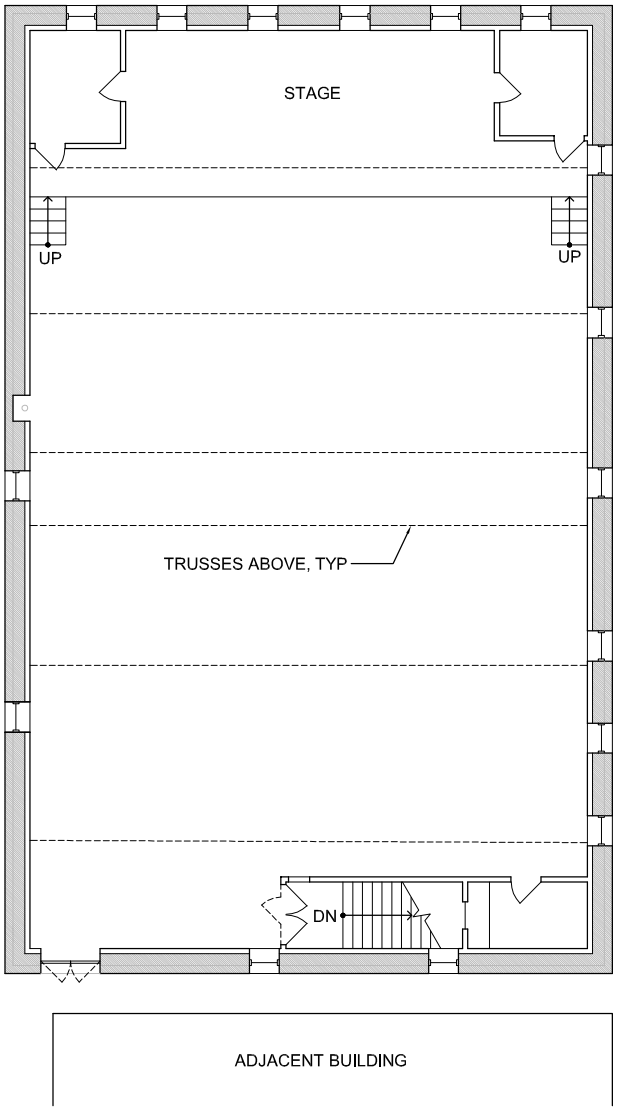
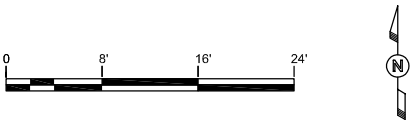


Figure 5 Second Floor



ORIENTATION PHOTOS

Figure 6 East facade looking west

Figure 7 North facade looking south

Figure 8 West facade looking northeast

Figure 9 South facade looking north

Figure 10 West side of first floor looking south

Figure 11 Looking northeast at first floor

Figure 12 Second floor, looking southeast from stage

Figure 13 Basement (photo by Reclaim Community)

SCOPE OF WORK

The objective of the condition assessment is to:

- Determine the existing condition of the building
- Identify and prioritize maintenance and repair needs of the building
- Identify and prioritize historic preservation needs of the building
- Review for accessibility and building code compliance

The scope of services for the condition assessment includes:

- Perform the necessary inspections to complete an assessment of existing conditions
- Develop recommendations for necessary work to the building
- Prepare a report summarizing the existing conditions and recommendations
- Respond to State Historic Preservation Office/Minnesota Historical Society comments

ARCHIVAL REVIEW

A comprehensive archival search of the Minnesota Historical Society Collections, the Minnesota State Historic Preservation Office files, or other historical archives was not within the scope of this project. However, the following documents were located by the investigation team, or provided by Reclaim Community and reviewed during the course of the study. Some of the information is specific to Bauman Hall and some, such as the Preservation Briefs, is general to Historic Preservation.

1. City of Jasper, City Council, *City Council, Regular Meeting, Meeting Minutes, December 8, 2009.*
2. Harvey, Thomas "National Register of Historic Places Registration Form, Bauman Hall." U.S. Department of the Interior National Park Service, January 8, 1980.
3. Hensley, Jo Ellen; Antonio Aguilar. "Preservation Brief 3 Improving Energy Efficiency in Historic Buildings." National Park Service. December 2011. Accessed on November 26, 2019. https://www.nps.gov/tps/how-to-preserve/briefs/3-improve-energy-efficiency.htm
4. Jester, Thomas C.; Park, Sharon C., AIA. "Preservation Brief 32 Making Historic Properties Accessible." National Park Service, September 1993. Accessed on Febryary 25, 2019. https://www.nps.gov/tps/how-to-preserve/briefs/32-accessibility
5. Kortus, Elicia and Jason Madtson of Reclaim Community, *Proposal to Pipestone County in Re: Bauman Hall, Jasper,* September 25, 2018.
6. Landon, Mark of TSP Engineers, "Bauman Hall Structural Observation Site Report." December 7, 2009
7. Mack, Robert C., FAIA; Grimmer, Anne E. "Preservation Brief 1 Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings." National Park Service. November 2000. Accessed on November 26, 2019. https://www.nps.gov/tps/how-to-preserve/briefs/1-cleaning-water-repellent.htm
8. Mack, Robert C., FAIA; Speiwek, John P. "Preservation Brief 2 Repointing Mortar Joints in Historic Masonry Buildings." National Park Service. October 1998. Accessed on November 25, 2019. https://www.nps.gov/tps/how-to-preserve/briefs/2-repoint-mortar-joints.htm

Figure 14 Bauman Hall c. 1910 (courtesy Jasper Historical Society)

Figure 15 Looking east on Wall St., c. 1910. Bauman Hall at right (courtesy Jasper Historical Society)

BUILDING DESCRIPTION & HISTORY

Description

Bauman Hall is a 1908 two-story "Main Street" style commercial building with basement. Its footprint is approximately 50 feet by 80 feet and it is approximately 29 feet tall from the first floor level to the top of stone. It is constructed of stone mass masonry walls comprised of the Sioux quartzite that the region is known for. The walls are 20 inches thick with 8 inches of split stone in a coursed ashlar running bond pattern at the north and east facades. These walls feature 12 inches of mortared rubble back-up. At the south and west facades the walls consist of full 20 inch mortared rubble masonry in an uncoursed, roughly squared pattern. There is a simple decorative pattern with two horizontal bands infilled with an alternating vertical stone and larger horizontal rectangular stone that repeats approximately every 24 inches at the cornice of the east and north facades. The design of the building is simple but the original masonry work is of fine quality. While it is difficult to associate such a simple building with a style, the massing and quality of the masonry work suggests the Richardsonian Romanesque style that was popular around the time the building was built. The wood and glass storefronts at east and north facades were installed in the 1980s, but resemble storefronts that are visible in historic photos of the building. The building has a hipped roof. The existing metal roofing was installed around 1990.

The first floor is currently divided into two units at the interior; a smaller unit at the northeast corner and a larger, ell-shaped unit that surrounds the smaller unit. Historic cast iron or steel columns and a pressed metal ceiling are still extant at the first floor.

While the first floor has been occupied within the last decade or so, it has been many decades since the second floor has been actively used. The second floor is accessed by a long steep staircase from the exterior at the southeast corner of the building. The second floor is comprised of one large room with a stage at the north end. There are two small rooms that flank the stage on either side. There is a projector room above the stairs. The ceiling has been removed to expose the trusses and roof structure. The walls are lath and plaster with a red stripe painted along the bottom 3 feet of the entire perimeter of the room to create a faux wainscot effect. There are 16 wood double hung windows at the second story. A double door has been blocked off at the southwest corner of the second floor. This presumably lead to an exterior exit. Directly below, a single door at the first floor is blocked by furring at the restroom area.

Walls at the first floor are a mix of lath and plaster on wood furring and gypsum board and insulation. The second floor consists of lath and plaster exclusively.

Figure 16 Interior of the Farmer's Cooperative Mercantile Co. c. 1910 (Courtesy Jasper Historical Society)

Figure 17 Broadsheet advertisements used as formwork liners in the ceiling of the vault from the Holvig Brothers, original operators of the store on the first floor of Bauman Hall

Historical Overview

The building was originally constructed near the end of the 19th century as a hotel for workers in a no-longer-extant quarry town nearby called North Sioux Falls. When the quarry was abandoned in the early 20th century, the building was moved by a businessman named Henry Holvig and reassembled between 1908 and 1910 in Jasper. Holvig operated a store on the first floor of the building called the Farmer's Cooperative Mercantile Company. There is a brick masonry vault in the basement with a concrete ceiling. Old newspapers and broadsheets, advertising hats available at a previous store operated by the Holvig Brothers are still visible (Figure 17). It was common historically to use such ephemera as form liners when pouring concrete. One newspaper article used as a form liner from a paper called the American Republic is still legible. It details an incident in which then South Dakota State Superintendent of Instruction H. A. Ustrud insinuated that the Lutherans of South Dakota would not vote for a Catholic candidate for governor due to religious bigotry. Cross referencing the incident against other articles from other papers of the era indicates that the paper dates from the spring of 1910.

In 1916 the building was purchased by Fred Bauman and the first floor became a store called Silverbergs. The second floor was used as an assembly space, which hosted vaudeville acts, operettas, dances, and other community events. At some point the area above the stairway was modified to serve as a projection room for films. The room was entirely wrapped in sheet metal, presumably to provide some semblance of fire protection as early films were highly flammable. This would likely have occurred no earlier than the late 1910s to early 1920s, as it is unlikely Jasper would have had a location to show films much earlier than that. The hall also served as a venue for the community's graduation ceremonies. The names of many of the local graduates are still visible written and etched on the plaster in and on the two small rooms flanking the stage.

When the nearby school built a large gymnasium and auditorium in 1939, most of the community's assembly activities moved to the school. There is little evidence that the second floor was used much after that. The original fittings for gas lights are still visible around the stage as well as rudimentary knob-and-tube electrical wiring and fixtures. Much of the wood trim, baseboards, and doors appear to be original to the space.

The Sacks Brothers General store operated on the first floor from 1933 until 1960. From then until 1973 it was a grocery store operated by another owner. The building was purchased in 1978 by the Jasper Historical Society and restoration efforts were begun. In 1980 the building was listed on the National Register of Historic Places and in 1981 the building was turned over by the Historical Society to the city to serve as the Jasper Senior Center. The city sold the building in 2011 after discovering structural issues and the purchaser later abandoned the building. The current owner, a non-profit organization called Reclaim Community, purchased the property at auction in 2018.

While the original National Register Nomination Form doesn't list a period of significance for the building, a logical period would be from 1908, when the structure was relocated, until 1939 when the upstairs hall stopped being the community's primary assembly space

Figure 18 The building as Sacks General Store in 1940 (Courtesy Jasper Historical Society)

Figure 19 The building as photographed in 1979 for the National Register of Historic Places Nomination Form

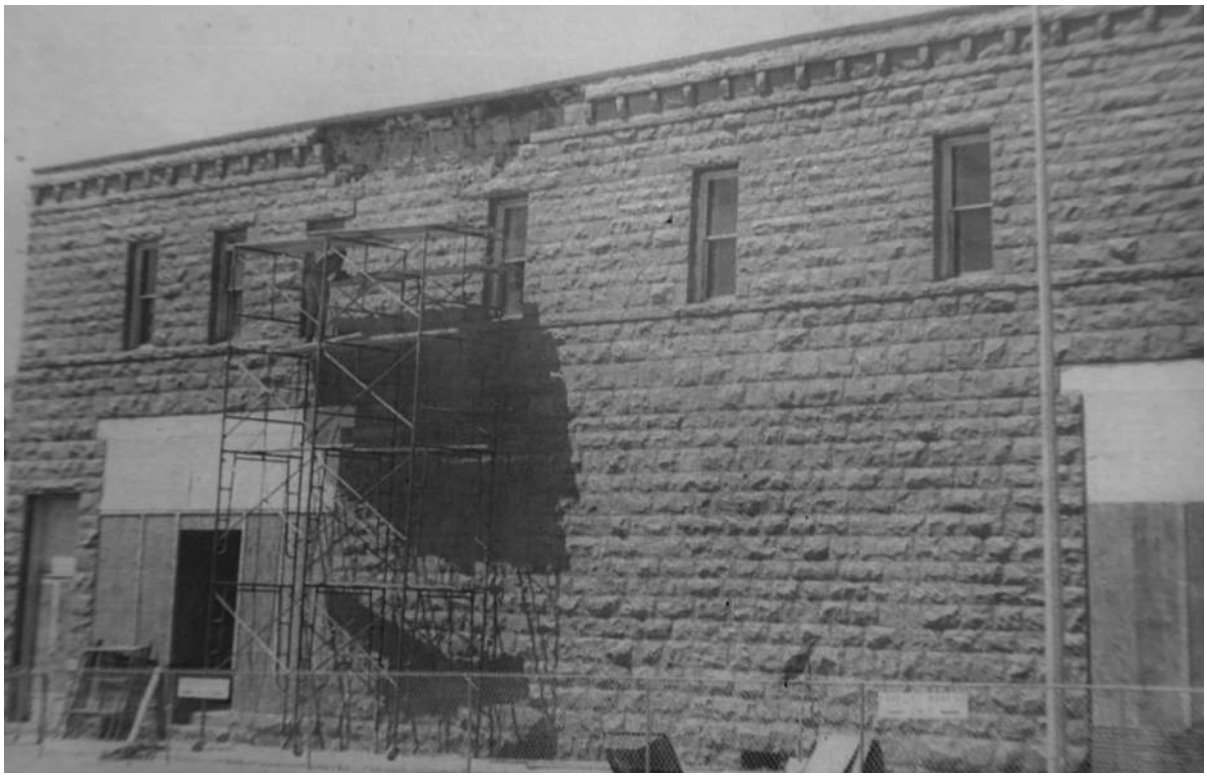


Figure 20 Damage to the east wall c. 1981 (courtesy Jasper Historical Society)

Figure 21 Repair work being undertaken at the east wall in 1981 (Courtesy Jasper Historical Society)

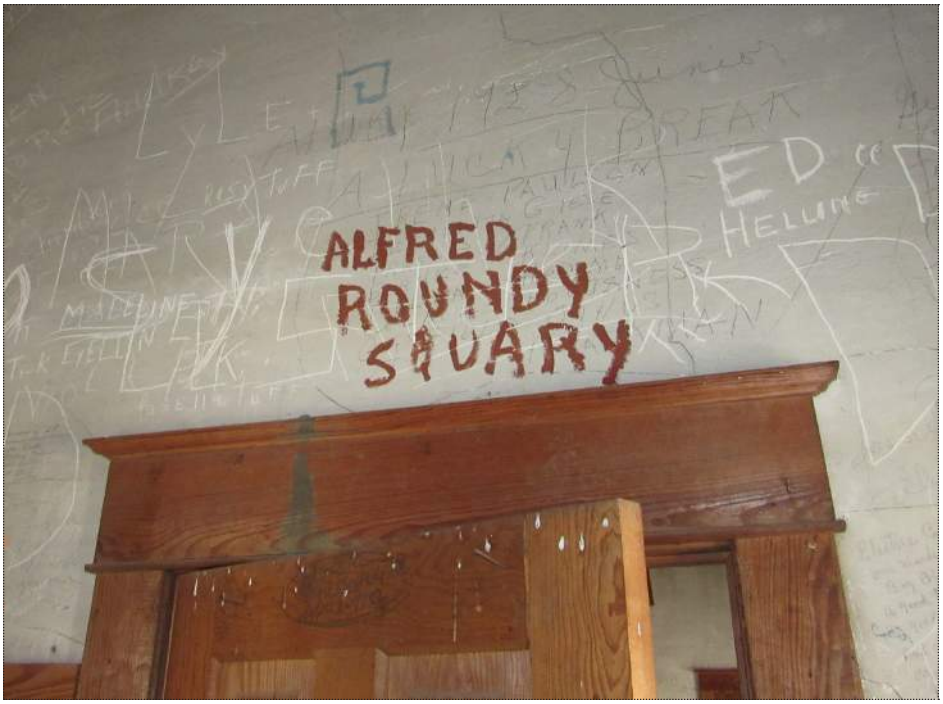


Figure 22 Names of graduates written inside the rooms on either side of the stage

ASSESSMENT PARAMETERS

The assessment observations of Bauman Hall were completed by historical architect Michael Lovato, AIA, and structural engineer Dean Smith, PE on September 27, 2019. We conducted our assessment in accordance with the recommendations contained in ASCE's Guideline for Structural Condition Assessment of Existing Buildings, (SEI/ASCE 11-99) and the National Park Service's Preservation Brief 43, "The Preparation and Use of Historic Structure Reports." The scope of work was limited to the following:

- Visual inspection of the exterior and interior of the building from ground level
- Review of existing historical information (a comprehensive search was not within the scope of the project).
- Preliminary condition evaluation and recommendations

The conclusions and recommendations found within this report are based on visual observations only; no testing or invasive investigation was undertaken. There are no guarantees direct or implied within this report.

The following rating system was used in assessing the building condition:

- Good: The building component is new or like new, with no apparent defects.
- Fair: The building component is able to perform its originally intended function in its current condition. Any defects are minor and do not affect the performance of the building component.
- Poor: The building component is unable to perform its originally intended function in its current condition. The component has major defects, but is repairable.
- Unacceptable: The building component is unable to perform its originally intended function in its current condition, and cannot be economically repaired. Replacement of the building component is required.

Figure 23 Detail of sidewalk at east facade. Note basement window well at bottom of photo

Figure 24 Looking east through alley at south end of building

Figure 25 Underside of southwest corner of roof, note water damage around vent penetration

Figure 26 Detail of eave configuration at southeast corner of the building

CONDITION ASSESSMENT

Site and Drainage

The building is set at the southwest corner of the intersection of Wall Street and Burr Avenue along Jasper's primary historic commercial district. It appears that the building is built out to the extent of its lot lines. The north and east facades are flanked by the public right-of-way with sidewalk. To the west is a narrow empty lot. To the south is a single story commercial building. A narrow alley, approximately 3'-4" wide, separates Bauman Hall from the building to the south. The high point on the site is at the northeast corner of the building. Grade slopes to the west and to the south. The sidewalks generally appear to slope away from the building, as does the empty lot to the west. The narrow space to the south was too overgrown to properly observe the ground condition, but it likely that this area does not drain properly away from the building (Figure 23). Achieving appropriate drainage here will be difficult due to the proximity of the adjacent building. A high point should be created at the middle of the building, with a swale built to drain water out from this space and away from each building. This could either be done with earth or with concrete.

Along the east and south facades of the building there are several locations where ground level windows originally provided light into the basement. Some have been infilled with brick, while others have been boarded over (Figure 23). It is recommended that all be infilled with an appropriate aggregate base and concrete at the walking surface and masonry to match existing at the wall in order to prevent further water infiltration. Infilled masonry at the wall should be set back from wall surface 1 inch to clearly delineate infill from original wall surface.

Roof

A hipped metal roof sits on the top of the masonry walls at the same level all around the perimeter of the building. The difference in height between the top of the ends of the roof trusses and the top of the masonry walls where the trusses bear is made up with vertical metal flashing that covers the ends of the roof trusses and top course of stone by approximately 4 to 6 inches (Figure 26). The roof was replaced in the 1990s according to discussions on site with Terry Skyberg. The roof is accessed through a small access panel in the projection room above the stairs. The team was not able to gain access at this location during the assessment, hence the roof was only observed from the ground and from below at the interior.

The roof surface itself appears to be adequately performing its function, as no areas of water damage were identified from general roof leaks at the interior. However, significant water damage was observed at the southwest corner of the building, where a plumbing vent penetrates the roof (Figure 25). It can be assumed that the flashing is in poor condition at this area.

Figure 27 Showing cut face stone

Figure 28 Showing areas of deflection at east wall

Additionally, the downspouts draining the roof are in poor condition and missing in some locations. It appears that more downspout locations than are currently present may be required to properly drain the roof. The gutters were not directly observed, but it is likely that they are in similar condition to the downspouts. It is possible that the gutters are overflowing at the area above the wall section at the east, and contributing to the failure of that wall. It is recommended that roof detail at the perimeter be closely inspected and the flashings and gutters be replaced with the appropriate number of downspouts. It is also recommended that all roof penetrations be evaluated and removed if obsolete. If the penetrations are to remain, they should be reflashed. The penetration at the southwest corner is also compromising the roof structure. It should be moved and the cut roof members should be repaired.

Masonry Walls

The four main exterior walls of the building are load-bearing stone masonry. The walls consist of two wythes of mortared stone with a total thickness of approximately 20-inches. The stone is Sioux quartzite, a durable stone that has been quarried in the region for as long as it has been inhabited. The exterior face generally consists of higher-quality, larger stone, while the interior face generally consists of lower-quality rubble. From limited measurements, the exterior face wythe is approximately 8 to 12-inches thick.

On the north and east elevations, the exterior portion of wall consists of large, well-fitting, rectangular cut "face stone" laid in running bond (Figure 27). The condition of masonry on the north and east elevations varies. Baring the defects noted below, this exterior masonry is generally rectilinear, plumb and in good condition. Along the east elevation, near the roof level, there is a portion of wall that has deflected out-of-plane up to approximately 6 inches toward the interior of the building. In figure 28, the orange highlights indicate the defect area and red highlight indicates where the defect is most pronounced. Reflecting the exterior condition, on the interior of the building at this east wall location, the wall bulges inward approximately 6 inches (Figure 29). There is a portion of the north facade that also bulges slightly to the interior, though to a lesser degree. At the windows near these areas on the east and north facades sand is present on the window sills, indicating the complete breakdown of lime-based mortar within. At the south end of the east elevation, above the steel entrance lintel, there are large, rectangular stones with loose or missing mortar (red dashed rectangle in Figure 30).

On the south and west exterior elevations, the masonry consists of irregular, roughly rectangular stone and thicker, irregular mortar (Figure 31). These walls generally appear to be in good condition with only minor areas of repair to mortar required.

On the basement interior, similar to the south and west exterior, the masonry consists of irregular, roughly rectangular stone (Figure 32). At various locations in the basement, mortar joints are loose or

Figure 29 Showing deflection at the interior of the east wall

Figure 30 Showing stones with missing mortar above steel lintel

Figure 31 Showing rough cut rubble masonry

Figure 32 Showing foundation masonry and typical support posts at basement level

Figure 33 Masonry columns at basement

Figure 34 Basement vault

Figure 35 Showing nailing strip at interior wall

Figure 36 Showing previous chimney location. Note that the original wall section, with furring, lath, and plaster is best viewed at this location

Figure 37 Top of stone near bearing point for roof trusses

missing. In some locations, earlier re-pointing efforts are distinguishable. Along the base of the wall, deteriorated mortar has fallen from the wall and collected at the base. The humidity level in the basement was noticeably high. Condensation was observed on the surfaces of metal ductwork and corrugated steel deck.

Along the center of the building three masonry columns spaced approximately 20-feet apart, support steel columns and wood floor framing above. These masonry columns are approximately 24-inches square and consist of mortared roughly rectangular stone (Figure 33)

In the northwest quadrant of the basement there is an 8-foot x 12-foot brick enclosure with a cast-in-place concrete cap. Originally, this may have been a vault, the foundation for a vault or safe above, or cold storage area. The brick walls are approximately 16-inches thick. There is a steel lintel over the opening and steel rails within the concrete cap (Figure 34).

At the interior face of the ground-level east wall, where the interior finish is damaged, the masonry construction is visible. Here, the masonry consists of less regular, roughly rectangular stone. A horizontal band of 1x wood lumber is visible. Historically, these wood strips were placed at intervals to provide a nailing surface for the furring required for a lath-and-plaster finish. The nailing strip here has rotted and deteriorated. Access to this area was limited and, although the exterior wall at this location shows no significant defects, there is a small horizontal gap at the nailing strip and the interior masonry wythe may be deflecting inward slightly (Figure 35). In December of 2019, following the project team's site assessment bur prior to the finalization of this report, the non-historic interior furring at this wall failed and collapsed completely (Figure 38).

At the second floor along the west interior wall where a flue has been retrofitted, the full thickness of wall construction is visible. A brick chimney once occupied this location. The bricks were removed within the last 10 years and are stacked nearby. Here, the masonry consists of large, mortared stone blocks on the exterior wythe and smaller, rough, mortared stone pieces on the interior (Figure 36). Daylight is visible in many locations at this area, and in some places gaps have been filled with expanding foam.

At the top-of-wall, visible near the roof truss bearing, the interior masonry wythe consists of irregular stone pieces loosely bonded with mortar (Figure 37).

Masonry Discussion

The upper east wall bow is likely the most challenging condition in the building. A strict structural analysis of this wall is beyond the scope of this report, but from visual observations, it is possible that

Figure 38 Interior wall at northeast corner after December 2019 collapse of modern furring assembly

the masonry in this area is unstable. Due to its potentially unstable condition and load-bearing role, the masonry in this area is deemed to be in poor to unacceptable condition. It is recommended that a barrier be placed at grade to restrict access to the sidewalk adjacent to the entire east wall until a repair is made. Also, it is recommended that access to the interior of the building be restricted to those who understand the inherent risk of this potentially unstable condition. Due to the scale of the repair project and the possibility that it could be a matter of years before a proper repair is completed for this wall, it is recommended that a licensed engineer prepare a shoring plan for this area in order to stabilize it until appropriate repair measures can be complete.

There are several possible contributing factors to the condition of the east wall. Based on limited observations, the interior rough stone wythe likely has poorly fitting stone, a greater percentage of soft mortar and pockets with no mortar or stone. It is likely that this rough wythe, being lower quality, has deteriorated and crushed downward and inward under the weight it is carrying. This internal deficiency and movement could have, in turn, brought the exterior wythe inward with it.

The building, as was common to its era, originally had no specific thermal or moisture barrier but likely was heated. The original plaster and lath finish was porous and allowed the wall to be heated, which in turn assisted in drying out the wall when it became saturated with water. In recent times, since the upper level has not been conditioned, moisture has not been consistently dried or driven out. Consequently, the daily and seasonal temperature changes have likely resulted in condensation, especially on the east wall where the sun's cyclic influence is greatest. As mentioned in the roofing section, the roof gutters may have clogged and overtopped allowing water to run down and absorb into the masonry. Any water within the wall during winter would also promote freeze-thaw expansion-contraction and deterioration of the masonry. Regardless of the source, moisture in some form has likely hastened the deterioration of the soft mortar of the interior rough stone masonry wythe. It is also likely that, as the second floor is not conditioned, that snow has been slower to melt from the roof, creating greater prolonged snow loads that have further hastened the failure of the wall.

The first recommended course of action is to remove the finishes at interior of the building at this location to better inspect the condition of the masonry. As previously mentioned, the modern furring below this area at the first floor has completely failed and collapsed, leaving this wall exposed from the interior. It is also recommended that the plaster and lath be removed at this area at the second floor in preparation of reconstruction of this area and in order to inspect the interior face of the stone at this location. It should be noted that a previous hazardous materials report has indicated that the plaster at the second floor contains asbestos, so this plaster should be abated by a licensed professional. The damaged area at the east wall should be the first area to receive this treatment, but this is a recommended approach for the entire building, as inspection and repointing may be required at other areas at the interior of the building. It is believed that the original plaster and lath has been removed at the entire first floor in order to install

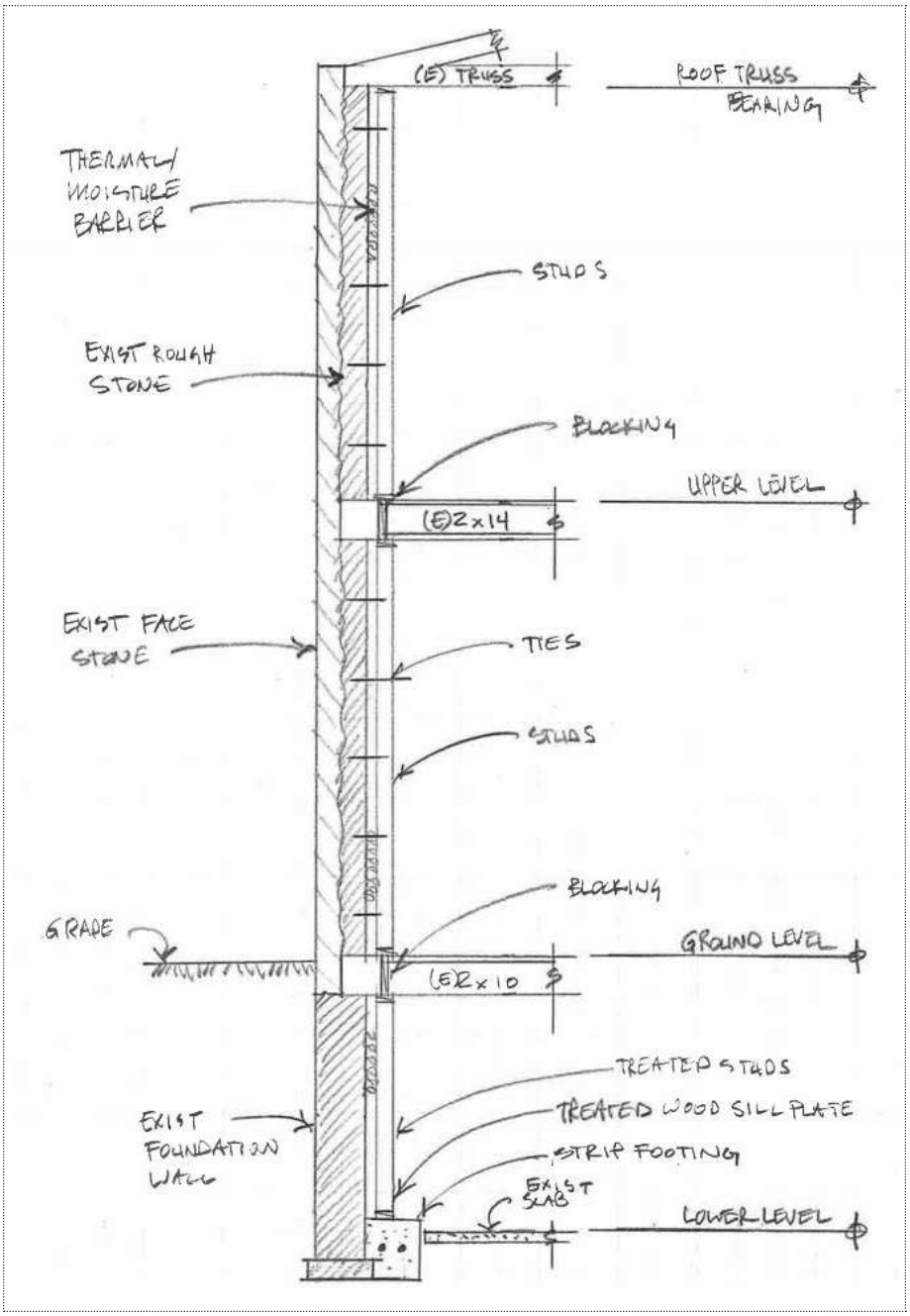


Figure 39 Wall section illustrating potential strategy for structural reinforcing of masonry walls.

batt insulation and a modern electrical system. This finish need not be considered historic. Note that all existing crown molding should remain in place. Due to the presence of asbestos in the plaster at the second floor, and the desire to inspect and repair the masonry behind, it is recommended that all the plaster and lath at the exterior walls on the second floor also be removed, again, by a properly licensed professional. The plaster at the interior walls should either be removed or encapsulated. See the interior finishes section for further discussion related to the preservation of the markings on the walls. Note that all trims removed from the second story walls should be salvaged for reinstallation.

The deflected masonry wall in the damaged area should be dismantled and re-laid plumb and level. For all masonry repairs in the building it is critical that a chemical analysis be performed and mortar consistent with the original masonry be used in repair. To be compatible with masonry of this era, mortar often must be quite soft by modern standards.

It is acceptable for the interior stone masonry to remain exposed indefinitely. This will provide the most breathable condition for the masonry wall and hasten the drying of the wall when it does get wet. It will also allow better observation of the condition of the walls from the interior. It is not, however, the optimum condition for thermal comfort of occupants and energy efficiency. An additional long-term solution that would improve thermal performance and strengthen the masonry wall would be to install a thermal/moisture barrier on the inside face of the masonry, re-support the floor and roof framing with a new bearing wall just inside the barrier and provide intermittent lateral ties from the new bearing wall to the original masonry (Figure 39). In this way, the wall system would perform similarly to a modern masonry and backup wall rainscreen system. This system should be designed by an architect and licensed professional engineer. The north, west and south walls, being in average condition, should also receive the repair detail, but since they are currently stable, it is less urgent.

Reportedly, a ceiling was once in place, attached to the roof truss bottom chords. With the ceiling removed, the rigid diaphragm action of a ceiling is no longer present to brace the wall between truss bearings. This may have contributed to allowing inward bowing of the masonry between truss bearings. To replace this bracing function, it is recommended that a horizontal diaphragm or truss be reinstalled on the underside of the roof trusses.

Besides for the specific areas of damage mentioned above, the exterior walls are generally in fair condition with some areas being in quite good condition. Sioux quartz is notable for its durability and the stones themselves are in good condition with the mortar generally in fair condition with localized areas of failure. The east and north facades feature a delicate beaded joint and a red mortar that generally matches the color of the Sioux quartz. The south and west walls feature grayish brown mortar laid in a less delicate fashion with a wide joint that could be described as a cross between a concave and flush joint.

Figure 40 Steel beam and columns at the north facade

Figure 41 Steel lintel beam at east facade

Figure 42 Steel columns at interior

The basement foundation walls are in average to poor condition. They are not, however, in unexpected condition for a structure of this age. Over time, the effects of moisture, temperature variations and settlement all contribute to mortar deterioration in stone masonry walls. There is no noticeable bowing but some of the mortar between the stones is loose, deteriorated or missing. In some locations, re-pointed mortar of various types has been used. Accordingly, the lower level masonry walls should be re-pointed with compatible mortar. These defects do not appear to have significantly compromised the structural integrity of the wall now, however if they remain unrepaired and worsen, they could lead to structural problems in the future.

Due to the moisture mentioned above at the basement, the walls appear to require approximately 50%-70% repointing. At the exterior walls, excluding the areas at the east discussed above, approximately 10% appears to require repointing, particularly along the areas where the walls meet the ground. Repointing will also likely be required at the interior walls following removal of finishes and inspection. Mortar shall match the historic mortar in strength, composition, color, texture, and tooling.

The steel entrance lintel beam over the east elevation is likely undersized for the masonry weight, floor load and roof load bearing on it. Due to the deflection and loose mortar above, this condition is deemed poor. As noted above, due to the possibility of loose stone, it is recommended that the sidewalk adjacent to this lintel be restricted until a repair is made. The steel lintel should be reinforced, and the masonry re-pointed with compatible mortar to ensure it is bearing properly and not loose. Required steel reinforcement should be determined by a licensed Professional Engineer to carry all tributary loads.

If the interior finishes are removed to inspect the conditions of the walls, the integral horizontal nailer strips should be inspected. Where in sound condition, they should remain. Where rotten, they should be relaced in kind.

At the top-of-wall, near the roof truss bearing, the masonry is irregular and in poor condition. To enhance the integrity of this area, the stone pieces should be re-mortared solid with compatible mortar.

Structural Steel

Structural steel columns and beams were observed in several locations in the building. As previously mentioned, the building was originally constructed in the 1880s then dismantled and reconstructed in Jasper in 1908. It is likely, but not certain, that the original steel members were reused in the reconstructed building. During this time period, there was a transition in the use of cast iron, wrought iron and carbon steel. Accordingly, the type of steel used in the building is not definitively known and can only be accurately determined by a more thorough investigation or chemical analysis.

Figure 43 Steel beam span shown in green

Figure 44 Assumed original wood beams at basement level

On the north face of the building, four steel columns support steel beams which in turn support the masonry above (Figure 40). The steel columns are 8-inches outside diameter and the steel beams are 12-inches deep. The steel members on the north facade are in good condition and show no signs of excessive deflection. Intermittent steel fasteners, in a floral shape, are visible at the beam webs. These fasteners are likely tie rod connections to the upper level interior wood floor framing and diaphragm. The beam-to-column end connections have been concealed.

On the east face of the building, a single 12-inch deep steel lintel beam supports the masonry bearing wall above the entrance storefront. This lintel has deflected and the masonry above has shifted with loose and missing mortar (Figure 41). Based on the observed deflection, it is likely that the intermediate storefront verticals are not load bearing.

On the interior ground level, equally spaced along the center of the building, three steel columns bear on masonry columns below and support steel beams above. These columns are 8-inches in outside diameter (highlighted by red arrows in Figure 42). The interior columns appear to be in good condition and show no sign of buckling or distress.

At the upper level floor framing, along the center of the building, steel beams span between steel columns below (green highlight in Figure 43). These steel beams are in the same plane as the wood floor joists and are 12-inches deep with a flange width of 5-5/8-inches. These steel beams show no signs of excessive deflection from above or below.

Structural Steel Discussion

Generally, the structural steel elements are in good condition. The steel sizes and material properties should be determined by a specific investigation and chemical analysis. This is usually carried out by a material testing agency. The steel column and beam capacities should be verified by a licensed Professional Engineer for the required live load of the proposed occupancies. Where deflection has been noted on the south end of the east elevation, the storefront should be redesigned to incorporate additional steel supports. These could be designed to be hidden within the wood storefront.

Wood Framing

Wood Post-and-Beam Framing (Observed from Basement)

The wood joist framing of the ground floor is supported by a series of wood posts and beams visible from the basement. At least two types of wood post-and-beam lines were observed. From their distinctly different size, location, and patina, it is believed these are from different time periods and previous efforts to bolster the ground floor framing above.

Figure 45 Differentiated structural support at basement level

Figure 46 Additional beams at basement

Running north-south, two lines spaced approximately 15-feet apart, 6-inch wide x 8-inch deep wood beams support wood floor joists (Figure 44). Due to the patina, size and relation to the wood floor joists, these two beam lines are believed to be original.

These 6-inch x 8-inch beams are supported by wood posts. The posts vary in size, but some measure 5-1/2-inch x 3-1/2-inch. These wood posts rest on small, rectangular or circular formed concrete bases. It is unclear if these concrete post bases simply rest on the slab-on-grade or if they extend below to bear on the soil or if they bear on footings hidden below the slab. From the variety and condition of the wood posts and their bases, they may have been cut and re-supported on newer concrete bases at some time (Figure 45). At their extreme ends, these original beam lines are pocketed into the north and south masonry walls.

Running north-south between the original beam lines, additional wood post-and-beam lines have been added. These beam lines are discontinuous and do not consistently reach all the way across the building from exterior wall to exterior wall. The beams measure 3-3/8-inch wide x 5-5/8-inch deep and the posts measure 5-1/2-inch x 3-1/2-inch (Figure 18). In some cases, these newer posts rest on formed concrete bases and in other cases they rest on precast concrete pieces.

Ground-Level Wood Floor Framing Observations

The ground-level wood floor joists measured 2-inches x 10-inches (actual) at 16-inches on-center. These joists originally spanned three spans east-west, approximately 15-feet each from the exterior masonry walls and to the original wood beam lines. The joists were originally spliced over these beams and cross bridging was installed at third points in the first and third spans and at midpoint in the center span. As described above, subsequently in most, but not all locations, an additional post-and-beam line was added in between these original beam lines effectively reducing the joist span and stiffening the floor.
At the east and west masonry walls, the joists typically bear on a wood sill plate. The sill plate and joist ends are embedded into the masonry (Figure 47). On the east side the sill plate and joist ends are rotted and deteriorated. On the west side, deterioration is less severe. In some locations on the east and west sides, an additional line of post-and-beams has been added at the face-of-wall.

Two layers of decking is laid over the joists with 3/8-inch plywood laid over the decking. The bottom layer is 1-inch material, the middle layer is 3/4-inch tongue-and-groove material and the plywood is 3/8-inch thick (Figure 48).

Upper-Level Wood Floor Framing Observations

The upper-level wood floor joists measured 1-3/4-inches x 13-1/4-inches (actual) at 16-inches on-center. These joists span two spans east-west, approximately 23-feet each from the exterior masonry walls and to

Figure 47 Bearing point at joist ends in basement

Figure 48 First floor assembly at location of register. From bottom to top: subloor, finish floor, plywood and vinyl tile

Figure 49 Floor decking at second floor

Figure 50 Damaged roof framing due to vent addition at southwest corner

the steel beam-and-column line in the center of the building. 3/4-inch tongue-and-groove decking is laid over the joists with wood flooring laid over the decking, both layers perpendicular to the joists (Figure 49).

At the east masonry wall, wood posts have been fitted between two roof trusses and the floor. At this location the floor is noticeably out-of-level (Figure 49). In one location a joist pocket into the masonry wall was visible. The joist at this location was rotted and deteriorated but otherwise appeared intact. During a previous work effort, five north-south strips of flooring and decking were removed to install insulation. The original decking and flooring were replaced with wood boards. The floor elevation of the upper level drops slightly from the center post-and-beam support to the exterior bearing walls.

Roof Wood Framing Observations

The primary members of the hip roof are six wood trusses spanning east-west clear to the exterior masonry walls. The typical truss spacing is approximately 12-feet with the two central trusses spaced closer at 6-feet. The truss top and bottom chord members are approximately 6-1/4-inch x 7-1/2-inch and the diagonal members are approximately 6-1/4-inch x 4-1/2". In a previous strengthening effort, the truss south faces, and north face panel points were sheathed in plywood. The trusses bear on the rough stone wythe of the exterior masonry walls (Figure 23). At two locations, wood posts have been fitted between the first east panel point and the floor framing below. 2x framing spans between roof trusses with wood decking laid perpendicular. This 2x framing is spliced mid-span in various locations and is sagging at some locations. At the southwest corner of the building, the roof joists have been comprised to accommodate a vent from the bathroom below. (Figure 50)

Wood Framing Discussion

The ground level floor framing is generally in average condition, but the end bearings are in poor condition. Since the wood joists show deterioration at the foundation joist pockets, it is recommended that the joists be supported by a bearing wall according to the detail discussed in the masonry section (Figure 39).

In the lower level, where the newer post-and-beam lines are discontinuous, the floor stiffness will be inconsistent, and it is possible that, at these locations, the floor live load capacity is insufficient. Therefore, it is recommended that posts and beams be added in the lower level to result in a consistent ground floor load capacity and serviceable floor. The size, spacing and footing for these posts should be determined by a licensed Professional Engineer to achieve the required live load capacity for the proposed ground-level occupancy.

Generally, wood in direct contact with concrete should be avoided since the wood will absorb moisture at the contact point. Due to the moisture in the basement, all wood used should be treated for ground

Figure 51 Shoring at location of depressed flooring

Figure 52 Roof trusses

contact. It is preferable that specific galvanized hardware be used where wood bears on concrete or masonry. Where existing wood post bases have signs of moisture damage, it is recommended that they be cut and re-supported using galvanized hardware.

The slab on grade does not cover the entire footprint of the building and is in poor condition. To mitigate moisture transmission from the ground into the lower level and the rest of the building, it is recommended that a vapor barrier and perhaps rigid insulation be installed, and a new concrete slab-on-grade be placed over it. The vapor barrier should be sealed to the foundation walls or spliced to the vapor barrier of the new wall detail. If a new slab is placed, during construction the building must be properly ventilated to allow evaporated water from the concrete to escape without further damaging the building.

Similar to the ground floor framing, the upper level floor framing is in average condition, but end bearings are in poor condition. Since wood joists show deterioration at the exterior masonry wall joist pockets, it is recommended that the joists be supported by a bearing wall according to the detail at figure 39. The upper level floor live load capacity should be evaluated by a licensed Professional Engineer to verify it is adequate for any proposed occupancy. In the strips where flooring has been removed and replaced, properly fitted wood decking/flooring should be installed to ensure appropriate diaphragm action at this level. In the area at the northeast corner where the floor is noticeably sagging (Figure 51), flooring material should be removed and joist ends should be inspected and repaired as required.

The roof truss component size, rafter size, spacing, and species should be determined by a testing agency. The load capacity of the roof framing should be verified by a licensed Professional Engineer. Since the trusses required reinforcement in the past and sagging of the rafters is noticeable, it is likely that engineered reinforcement of the trusses and additional rafters will be needed to adequately support code-required snow load. The roof rafters that have been compromised to accommodate the vent at the southwest corner should be repaired and the vent should be relocated to an area that leaves structural components undamaged. As was previously mentioned, the original ceiling at the second floor may have been acting as a diaphragm, bracing the walls between trusses. Since historically the space contained a ceiling, and since it will ease structural, mechanical, and electrical interventions, it is recommended that the ceiling be replaced.

Windows and Doors

Bauman Hall features 16 2'-6" x 5'-8" double hung windows at the second floor. These appear to date to the building's proposed period of significance. The windows feature wood casings and stools with a natural finish that also appear to be historic. The condition of the windows and casings ranges from fair to unacceptable with many missing or deteriorated components. At the exterior, aluminum combination

Figure 53 Second floor window behind stage. Note significant powdered mortar at stool. This window been wallpapered on its casing. This is not typical

Figure 54 Ticketing window at top of stairs to second floor

Figure 55 Typical deterioration at storefronts. Note slope of flashing back towards window and rot at base of vertical members and at horizontal stops

Figure 56 Detail of deterioration at door to stairs to second floor

storms/screens have been added, which are also generally in poor condition. In several locations, particularly at the areas where the stone wall is bowing, deteriorated mortar has powdered and collected on the window stools (Figure 53). There is also an interior ticketing window at the top of the stairs to the second story (Figure 54) and in interior window from the stairs into an adjacent room. These window are in fair condition.

At the ground floor there are wood frame storefronts at the east and north facades. The storefronts are in fair to poor condition. These date from the 1980s when the building was rehabilitated as the senior center. These storefronts generally appear to be designed to match the configuration and profile of the storefronts as they appeared c. 1910 in Figure 14, although the original entrance was at the corner. This configuration has since been modified to have a pair of entrances at the center of the north facade. The paint is peeling on the storefronts, and the aluminum sill flashing is caving in most places, so that water flows back towards to windows. There is evidence of water damage at the interior near the west side of the entrance at the north facade. Where vertical wood components of the storefront meet horizontal components, the bottom few inches of the vertical components are often rotten (Figure 55).

There is a storm door that leads into the vestibule at the north facade. The two doors that lead into the two different spaces in the main building are not historic and are in fair condition. They do not match the restored storefronts either. At the east storefront are two doors that likely date from the 1980s rehabilitation and better match the storefronts. These doors are in fair condition, with peeling paint and minor wood deterioration at the bottom rails.

At the bottom of the stairs is another pair of wood doors with a large transom above. It is possible that these doors date to the period of significance. The hardware is quite ornate and consistent in design to the period of significance. These doors are in poor condition. The stiles and rails are separating, and the wood is in poor condition at the bottoms of the doors. It appears that the doors might have featured a large glass light at one point, which has since been replaced with modern plywood (Figure 56).

At the southwest corner of the building at the second floor is a set of double doors that has been covered with what appears to be sheet metal at the exterior. The doors and frame with transom are visible from the interior and appear to date from the period of significance. The transom sash appears to be missing. The doors are missing operation hardware, but they feature what appears to be the original top lock hardware. The doors themselves are in poor condition, with large portions of stiles, rails and panels separated and missing (Figure 57). There is a similar covered opening visible at the exterior on the first floor, but it is furred out to create the restrooms at the interior. It is unknown if a door is located within the opening.

There are several interior doors at the second floor that appear to be original. These vary in condition from fair to poor. Many of these feature original hardware (Figure 58-59).

Figure 57 Covered exterior door at southwest corner

Figure 58 Typical second floor interior door. Note burned area, which directly corresponds to placement of gaslight fittings when door is open

Figure 59 Original interior hardware

Figure 60 It appears that original sashes may have been removed and placed at the interior. These should be repaired and refitted in their original locations

All interior doors at the first floor are non-historic and in acceptable condition.

Windows and Door Discussion

The historic windows at the second floor should be rehabilitated. The aluminum storefronts and any associated fittings should be removed. At a bare minimum the second story windows should be made weather-tight. If the space is to be reused, it is recommended that the windows be fitted with new wood storm windows. The existing wood windows and casings should be removed from the openings. The masonry at the openings should be inspected and repointed. The windows and casings should be shop repaired, with kerfed-in weather stripping added. Portions of windows that are damaged beyond repair should be replaced with wood ducthmen of the same species and appearance as the window. Since the interior windows were never painted, epoxy repairs are not recommended. Window openings should be properly flashed before windows are reinstalled.

The interior windows should be retained and repaired as required, particularly the ticket window, with the faint writing indicating ticket prices for "ladies" and "gents."

The storefronts at the east and north facades should also be repaired. Rotten wood members should be replaced. Flashings should be redone to properly direct water away from the system. Since these elements are not historic, it is not essential that the existing material be retained, but it is recommended that repairs generally match the existing conditions so as to retain a unified appearance that is generally historically appropriate.

The door at the bottom of the stairs to the second floor should be retained and repaired. All interior doors at the second floor should be retained and repaired where required. The door leading into the east side of the room at the west side of the stage features a charred spot on the interior where it was clearly swung too close to a gas light, the fittings which are still extant on the wall (Figure 58). It is recommended that the fittings and charred spot are left as is, as an interesting illustration of some of the dangers of early building systems.

Interiors

Generally speaking, the interiors at the first floor are primarily modern and non-historic. Since the second floor has largely been unused for the last 50 years or so, it appears that most finishes have not been updated and are historic. The pressed metal ceiling at the first floor is an exception to this rule. These date to the historic era and are largely in-tact. Going forward, the, base, trims, and casing at the second floor should serve as the basis for new millwork at the first floor.

Figure 61 Wall assembly at northeast corner before collapse. Note gyp board over vapor barrier over gyp board.

Figure 62 Typical plaster thickness at stairs and second floor

Figure 63 Southeast corning of second floor. Note original wood base and door casing, painted red "wainscot" and finish floor boards removed to install blown-in insulation.

Figure 64 Plywood wainscot and worn stair treads at stairway to second floor

Walls

At the first floor, it appears that the original lath and plaster furring and finishes have been completely removed to install modern electrical wiring and batt insulation. At the time of the assessment, the interior furring was failing at the north side of the east wall and the interior of the wall could be observed. The assembly appeared to be modern 2x wood framing with batt insulation attached to the original nailing strips embedded in the masonry, with gyp board nailed to the framing. Over this was a vapor barrier with an additional gyp layer over that (Figure 61). This is not a standard assembly. It is possibly that, following the original installation of the new furring, insulation, and gyp board, moisture at the finished surface of the wall continued to be a problem. At this point the vapor barrier may have been added to control this, which likely trapped the moisture on the other side of the wall, hastening the failure of the wood framing and it's weak connection to the wall at the historic nailer strips. This condition would have been significantly worsened after the building stopped being conditioned in the early 2010s. As previously described this wall assembly has since failed completely and collapsed. It is not fully known why this has only occurred at this location. It is unknown if this is the only area where the vapor barrier and extra layer of gyp board was added at the first floor. No other walls at the first floor appear to be failing in a similar manner, and generally appear in good condition. The other exterior perimeter walls also all feature the original pressed-metal cornice. It is possible the cornice was removed when the additional thickness of the vapor barrier and extra gyp board were added at this location. This could mean that the other walls do not have the vapor barrier and additional layer of gyp board. This may have allow better vapor transmission at those locations which has helped to prevent rot at the interior of the furring.

At the second floors the original lath and plaster wall finishes remain. A hazardous materials report commissioned by a previous owner indicated that the plaster at the second floor (excluding the stairway) contains 2% chysotile asbestos. The remaining plaster, at both the stairway and second floor, is quite thin, only 1/4"-3/16" thick (Figure 62). Typically, plaster would include 3 layers: a rough base layer called a scratch coat; an intermediate layer called a brown coat; and a finish layer called a top coat. A typical plaster assembly would be 3/4" to 1" thick. The plaster at Bauman Hall appears to only contain two layers. That being said, the plaster is in no worse condition than you might expect for a building that has been unused for so long.The plaster is in tact in many locations. The plaster has fallen from the lath in other locations, particularly in the areas previously mentioned where the masonry walls are bowing in. The plaster would be easily repairable if it weren't for the asbestos content. It isn't likely that it will be possible to repair the existing plaster walls. They will either need to be encapsulated, likely with a layer of gyp board, or completely removed. The walls at the second floor feature a red painted strip meant to simulate a wainscot (Figure 63). It is recommended that this feature be recreated if the wall finishes are rehabilitated.

The stairs between the exterior and the second floor feature plaster walls that do not seem to contain asbestos. It is recommended that the plaster finish be retained and repaired as required at this area, as

Figure 65 Typical condition of plaster at interior of side-stage rooms with wall writing

Figure 66 Detail of pressed metal ceilings and crown molding at first floor

it is relatively small and there is no indication of damage to the masonry walls at this location. Another interesting feature at the stairway is the plywood wainscot. Plywood did not become a common building material until the late 1920s, so this is likely a later addition (Figure 64).

Wall discussion

As previously mentioned in the masonry section, it is recommended that the interior finishes be completely removed from both the first and second floor. This will ensure that the assembly at the first floor isn't causing more harm than good, as in the north side of the east wall. It will allow for inspection and correction of masonry issues not currently observable. Finally, it would be the first step in providing more permanent structural and thermal improvements at the exterior wall, similar to the sketch in figure 39. If wall finishes are removed, care should be taken to retain the pressed metal ceiling and crown molding in place at the first floor. At the second floor all window and door casing and wood trims should be carefully salvaged for reinstallation following abatement and removal of plaster walls.

Wall finish removal at the second floor is complicated by the fact that the wall writing left by early 20th century graduating classes contributes one of the most interesting character defining features to the building (Figure 65). Treatment of these areas should be addressed as sensitively as possible. The easiest way to abate the asbestos and still retain the majority of the wall writing would be to abate everywhere but the interior of the two rooms flanking the stage. These rooms could remain essentially untouched but would likely need to remain unused. There may also be creative ways to encapsulate the plaster walls that still allows the writing to be viewed, either behind glass or some sort of transparent coating. Another approach would be to retain a professional photographer to fully document the wall writing. The photographs could be used as art in the building and the second floor walls would then be fully abated. With good enough documentation, it might be possible to create wall paper that could be applied at the location of the original wall writing.

If wall finishes are removed at the second floor and not replaced, careful consideration should be given to how the existing original wood bases and door and window casings are treated. They should be removed for abatement and reinstalled in their original location, sensitively detailed to address the lack of interior finish.

Floors

The floors consist of a 1" thick sub floor, with a 3/4" finish floor above that (Figure 48) At the first floor the finish floor has been covered with plywood and vinyl composite tile. The vinyl tile is in poor condition and is delaminating from the plywood in many locations. The condition of the floor below is unknown, but it is at the least likely uneven and in need of minor repairs. It can be assumed that the observable finish floor at the second floor is similar to that at the first floor.

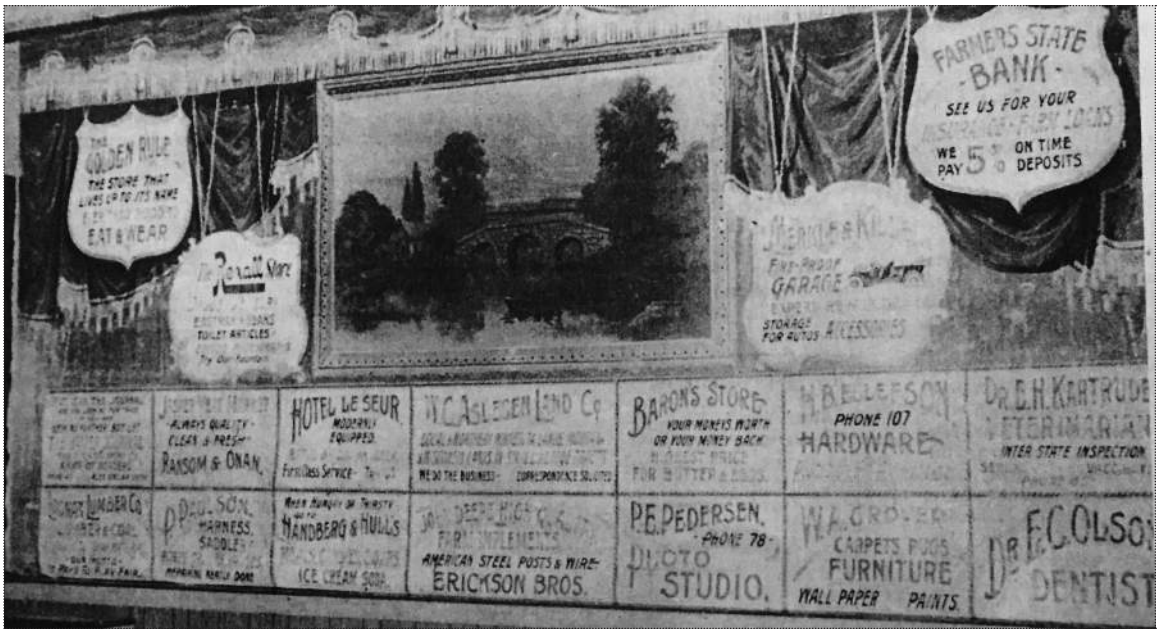


Figure 67 Original drop curtain, currently housed at the Jasper Historical Society (courtesy Jasper Historical Society)

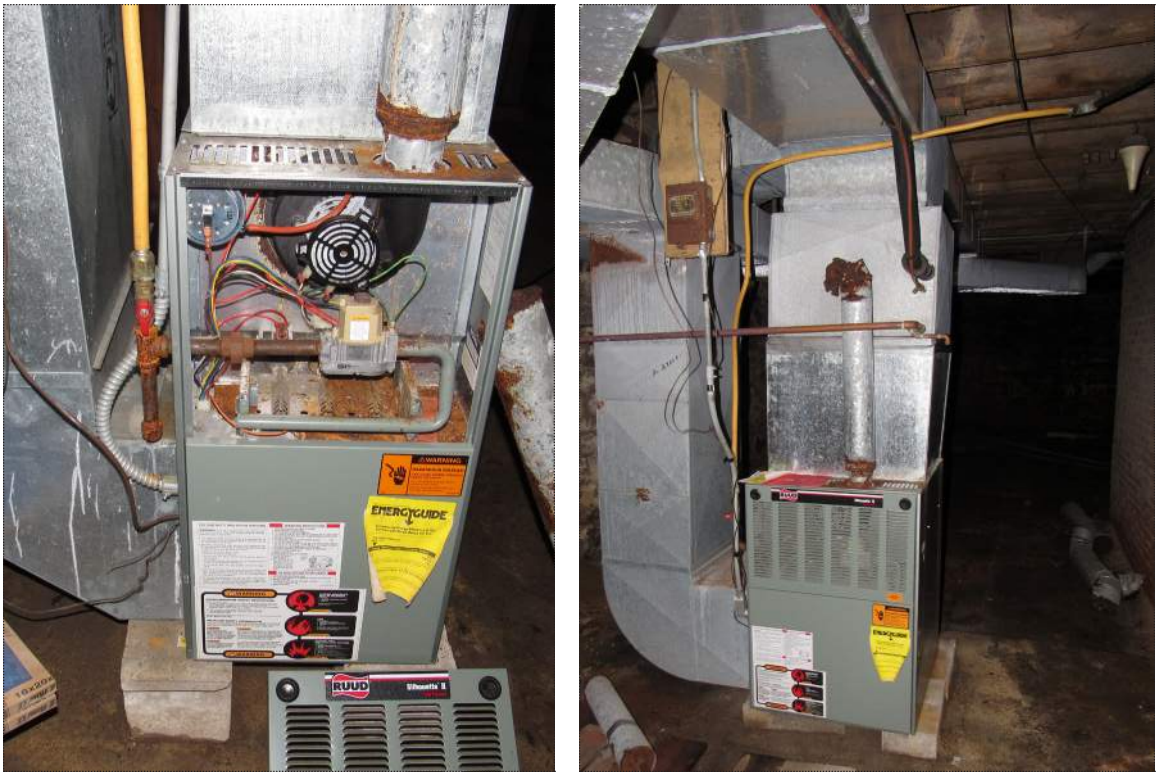


Figure 68 Photos of the two existing forced-air furnaces

At the second floor the original flooring is present and uncovered. Several section have been removed for the installation of blown-in insulation between the floor joist. There are areas where the floor is in poor condition, particularly near the area at the east wall where the floor joists are failing. It is recommended that this floor be retained and repaired to provide a level walking surface. Where new flooring planks are required, they should match the originals in wood species, appearance, and profile.

The walking surface at the stairs is also in poor condition from decades of use. At the minimum uneven and broken treads should be replaced in kind.

Ceilings

Ceilings have been discussed at length in other areas of the report. At the first floor the pressed metal ceilings and crown molding should be retained and repaired to match existing where required. At the second floor a hard lid ceiling should be reinstalled. See *Wood Framing Discussion* on page 41 for further information (Figure 66).

Stage

The stage at the north side of the second story is an important character defining feature and should be retained and repaired. The area beneath the stage should be cleaned of all accumulated refuse and the wood beadboard paneling along the front should be repaired with paneling to match existing. The Jasper Historical Society retains the original drop curtain from the stage (Figure 67). Once the conditions at the interior of Bauman Hall are appropriately renovated, the curtain should be returned to Bauman Hall for display. Appropriate conservation measures should be undertaken on the curtain itself prior to display.

Building Systems

A primary difference between modern masonry veneer walls and historic mass masonry walls is the way in which they deal with the inevitable penetration of moisture into the masonry system. Modern masonry veneer systems assume that moisture will travel through the masonry to a cavity and a waterproof membrane beyond, at which point the water will drain to the bottom of the cavity and be expelled back through the masonry veneer by way of weep holes and flashings. Historic masonry walls were designed to be massive enough to absorb and accommodate any moisture that entered the wall within the depth of the wall itself, the system then relies on thermodynamic forces to drive the water back out of the wall. Moisture generally travels towards the colder side, so in order to maintain the proper flow of moisture, it is essential that the interior space be conditioned and the walls are allowed to warm up enough to drive the moisture towards the exterior. This system also requires a generally porous interior finish so that if the

Figure 69 Interior of the projector room. Note the knob and tube wiring penetrating the sheet metal walls, creating the possibility for truly horrific electrical incidents

Figure 70 Original piping for gas lights at the stage area

Figure 71 Existing electrical panels. Inspection notes indicate that they were inspected in 1981

moisture does travel towards the interior to is allowed to escape the wall and evaporate quickly. Moisture traveling through masonry walls, even when functioning properly, is hard on them. Because of this, mortar is designed to bear the brunt of the damage as it is much easier to repair than the masonry itself. Unfortunately, this system requires a minimum of insulation and was designed in a time period when energy was cheap and environmental concerns were not as acute as they are today. The desire to make these buildings energy efficient must always be balanced with what is best for the fundamental building materials themselves.

At Bauman Hall the first floor was modernized in the early 1980s to accommodate the senior center. This included providing insulation and at the exterior walls and at the ceiling level. This may have ultimately had a deleterious effect on the masonry walls themselves, as the insulation prevented the walls from warming and driving out moisture rapidly enough. The insulation at the ceiling level may have prevented the walls at the second story from warming enough to effectively drive out moisture at that level.

Currently the building relies on forced-air furnaces that are well past their useful lives. It should be noted that these systems sat unused from 2011 until 2019 when they were recently restarted. Radiant heat is a more efficient way to provide heat at the wall surface and is what the building would have had originally. Ultimately, it is recommended to install a boiler and radiators be installed at both levels. At the minimum ductwork to the second floor should be provided in order to maintain some degree of conditioning during the coldest months. While inefficient, this will be better for the masonry walls as well as aiding the prevention of excessive snow loads at the roof.

The simplest wall treatment would be to leave the stone masonry exposed at the interior and accept that the building will always be energy inefficient. If an interior finish is desired, then it could be designed to match the porosity and thermal properties of the original lath and plaster walls. One downfall of this system is that if air conditioning is introduced in the warm months, it can create the effect of drawing excess moisture into the building.

Creating energy efficiency in buildings like Bauman Hall is complex and can often cause more harm than good. The consensus is that the best way to provide energy efficiency to mass masonry walls is to completely spray foam the interior masonry walls and provide furring at the inside face of the foam. This essentially disconnects the interior climate from the exterior walls by eliminating any thermal bridging and providing much more effective insulation than can be provided by batt insulation in the cavities between studs. The issue with this system is that once it is applied, it is irreversible. It may be 100 years from now, but at some point it will be required to access the interior of the masonry walls for inspection and repair, and this will be nearly impossible once they are spray foamed. This method is irreversible and

Figure 72 This fixture base at the stairway is about all that remains of original fixtures in the building

Figure 73 Pocket for stage lights at front of stage

Figure 74 Accessible parking spot at street and main entrance to building

thus does not meet the Secretary of the Interior Standards. It is not recommended. An alternate approach would be to provide a full covering, properly sealed, of rigid insulation at the inside of the exterior masonry walls. Interior wood frame walls would then be created at the inside face of the insulation so there are no gaps at studs. This system inevitably does not seal as well as spray foam, but does provide easier access to the inside face of the masonry walls for future maintenance. Any future energy efficiency improvements should be designed by a qualified mechanical engineer working in concert with a historical architect to ensure that the system is effective and does not do lasting damage to the masonry walls.

Plumbing

No historic plumbing fixtures remain. Plumbing at the first floor is modern and has been installed to accommodate the building's use as a senior center. There is also a small restroom to associated with the small commercial space at the northeast corner of the building. It does not appear that plumbing was ever extended to the second floor.

Original fittings and pipes for gas lighting are still present at the second floor. These should be inspected for proper abandonment and should be retained in place as a character defining feature.

Electrical Systems

The electrical systems that serve the first floor are modern and date from improvements related to the senior center and tenant space. Electrical lighting served by knob and tube wiring is present at the second floor. The stage also originally had lighting along the front edge, although very little of the original lighting is extant. It does not appear that the modern electrical system was ever extended to the second floor. No outlets are present. If it is desired to utilize the second story, then the entire building's electrical system should be evaluated and updated at that point. There are no historic light fixtures present at the first floor. At the second floor only there are very basic portions of light fixtures that remain in some areas. These should be retained and reused where possible. Stage lighting fixtures should be retained where extant. It is recommended that new lighting be designed and installed at the stage lip to serve whatever new use may go into the space.

Original knob and tube wiring should be appropriately abandoned, but can be left in place as an historic building system artifact.

Accessibility and Building Code

Accessibility Assessment

The building does not feature a parking lot, but there is currently an accessible parking spot on the street at the north side of the building with access to a curb cut at the corner of Wall St. and Burr Ave. There is

Figure 75 Hallway to restrooms

Figure 76 North restroom

Figure 77 South restroom

a short steep ramp into the vestibule at the north side of the building that does not meet code. However, since the corner is higher than the sidewalk at the entrance, a sloped walk could be provided from near the corner that would meet the code maximum for rise (Figure 74).

The building features two spacious bathrooms that generally appear to have been designed to meet accessibility codes when they were installed. There are a few issues that do not meet current code. The most significant being that the current hallway is too narrow to accommodate door swing clearances. Additionally, the grab bars do not appear to meet size and location requirements either. The fixtures have not been used for a decade and are generally in fair to poor condition. Reopening the first floor would likely require new fixtures.

There is currently no accessible path to the second floor. The only way to accommodate this would be to install an elevator. The best location for this would be where the bathrooms are currently located at the first floor. Depending on the type of elevator, a machine room is also required. This could be located in the basement.

Door hardware at the building exits does not meet the accessibility code for graspability.

Building Code Summary

Building Type

Bauman Hall's building type most closely resembles type IIIB. According to MN Building Code section 6.02.3 Type IIIB buildings feature exterior noncombustible materials and interior building elements of any material permitted by code. Per table 503, the most restrictive limitation on building heights and stories for a type IIIB building would be 2 stories above grade and 8,500 square feet. Bauman hall features a basement and 2 stories above grade. It is approximately 7,010 square feet over two above-grade levels. Bauman Hall appears to meet the building height and story requirements of the building code for type IIIB buildings.

Exiting

Bauman Hall features two appropriately spaced exits at the first floor. The second floor only has one exit. Per table 1021.2(2) a single exit is allowable at the second floor for business, mercantile, factory, or storage occupancies that don't exceed 29. Both mercantile and business uses have occupancy load factors that would exceed the 29 occupants. At the second floor, the path from the furthest corner to the exit also exceeds the 75 feet maximum path of travel by a few feet. The stairs that provide exiting from the second

floor do not meet current code requirements for steepness, unbroken length, and landing configuration. The basement also has only one exit. This should be acceptable for any realistic proposed use of the basement.

Accessibility and Code Discussion

The first floor of the building is relatively compliant with current building and accessibility codes, with only minor alterations required to correct any deficiencies. The second floor will require major upgrades to ever be fully compliant. In order to make the second floor completely complaint with no restrictions on the space, an elevator and an additional interior stairway at the front of the building would be required. For the most intense uses, like the assembly use the space was originally designed for, it is likely that additional structural upgrades would be required at the floor level. It is possible that with buy-in from the code authority having jurisdiction the second floor may be usable for an business occupancy without major accessibility and exiting upgrades.

REPAIR RECOMMENDATIONS

Throughout the Assessment section of this document recommendations have been made related to the building systems and features being discussed. This section compiles and organizes those recommendations. They are designed to ensure the retention of the building's historic fabric, stabilize the building, and to preserve it indefinitely. Any recommendations undertaken should be designed to follow the Secretary of the Interior's Standards for Historic Preservation (the Standards).

Repair Recommendations

Repair recommendations are prioritized as Immediate Priority (should occur as soon as possible), High Priority (should occur within 1-3 years), Medium Priority (should occur within 3-5 years), and Low Priority (should occur within 5-10 years). Priority levels are assigned based on the recommendation's importance to maintaining the building's structural integrity, the building envelope's integrity, public safety and access, the building's programmatic function, and the building's historic integrity.

Immediate Priority

- Retain the services of a licensed shoring engineer to provide stamped and signed shoring drawings for the east wall until permanent repairs can be made.

High Priority (1-3 Years)

- Maintain the barrier at the sidewalk below the bowing east wall until a repair is made. It is also recommended that access to the interior of the building be restricted to those who understand the inherent risk of this potentially unstable condition.

- Repair bowing masonry at east wall. Dismantle and re-lay plumb and level. For all masonry repairs in the building it is critical that a chemical analysis be performed and mortar consistent with the original masonry be used in repair.

- Repair sagging flooring at northeast corner of second floor.

- Inspect and redesign roof flashing detail. Repair gutters and downspouts. Repoint and relay loose stones along top of wall where roof meets wall

- Remove all interior wall finishes at exterior walls. Repair mortar at interior of wall as required. Integral horizontal nailer strips should be inspected. Where rotten, they should be replaced in kind. See body of report for more information. At a minimum, remove wall finishes at the second floor as required to repair the damaged wall.

- Rehabilitate historic wood windows. Repair and repoint masonry at surrounds while windows are removed for restoration

- Reinforce steel lintel above east entrance and repoint masonry above

- Provide ductwork for heating to the upper floor in order to drive moisture out of walls and reduce snow loads on the roof in the winter.

Medium Priority (3-5 Years)

- Infill areaway openings at ground level

- Improve drainage at south side of building.

- Repair storefronts

- Reinstall ceiling at second floor to repair horizontal diaphragm. Provide additional reinforcing at ceiling trusses as required.

- Repoint approximately 50%-70% of basement masonry

- Repoint approximately 10% of exterior walls, excluding areas of excessive damage mentioned elsewhere

- Install vapor barrier and rigid insulation to mitigate moisture transmission from the ground into the lower level and the rest of the building. Install a new concrete slab-on-grade over it. The vapor barrier should be sealed to the foundation walls or spliced to the vapor barrier of the new wall detail

- Install properly fitted wood decking/flooring where removed at the second floor to ensure appropriate diaphragm action

- Investigate structural capacity of roof trusses and add additional structural support as required.

- Rehabilitate double doors to second floor staircase

- Modernize electrical systems, including providing code compliant electricity at the second floor.

Low Priority (5-10 Years)

- Add posts and beams at lower level to result in a consistent ground floor load capacity and serviceable floor.

- Cut and re-support using galvanized hardware existing wood post bases that have signs of moisture damage at the lower level

Cyclical Maintenance Recommendations

The following recommendations are intended to be utilized on a regular basis for the maintenance of existing building systems. Refer to Preservation Brief 47: Maintaining the Exterior of Small and Medium Size Historic Buildings for more detailed information.

Foundation Recommendations - Cyclical Maintenance:

- Annually inspect the grounds around the building for areas of standing water and verify that no water is being trapped against the building
- Annually conduct staff inspections of masonry for signs of loose or deteriorated mortar, cracking, or stone movement. Also monitor for water infiltration at the interior masonry
- Professionally inspect masonry every 5-10 years if concerns are noted during staff inspections
- Keep de-icing salts away from masonry. For slip-resistance adjacent to masonry surfaces, use a product such as New Ulm Cherrystone Poultry Grit, which is a sharp, angular, quartzite gravel that provides traction on ice and snow. It is chemically inert and will not harm masonry or plants.

Structural Component Recommendations - Cyclical Maintenance:

- Inspect annually for signs of movement or damage such as insect or water damage.

Exterior Wood Recommendations - Cyclical Maintenance:

- Inspect annually in the spring and repair items such as:
    - Cracked, peeling, or otherwise deteriorating paint and touch up as needed
    - Rot – patch with epoxy or do Dutchman repair (replace only the damaged area)
    - Popped nails – reset nails
    - Areas of organic growth - scrub growth off with water and bleach
    - Overgrown vegetation – trim back so that it is not touching siding and/or trim
- Fully repaint approximately every 10-15 years or, as needed.

Window & Door Recommendations – Cyclical Maintenance:

- Inspect annually in the spring and repair items such as:
    - Cracked, peeling, or otherwise deteriorating paint and touch up as needed
    - Rot – patch with epoxy or do Dutchman repair (replace only the damaged area)
    - Broken glass, loose or missing glazing putty – replace
    - Binding sash – adjust stop, wax sash frame, etc.
    - Damaged or worn weather-stripping - replace
- Fully repaint exterior window sash and storm windows approximately every 10-15 years or, as needed.
- Wash windows at least once a year by hand. Do not pressure wash.
- Clean hardware with a damp cloth annually. Also lubricate hinges, sash locks, etc.

Roof Recommendations – Cyclical Maintenance:

- Inspect roofs annually in the spring for evidence of damage, loose shingles, debris accumulation, and water staining in attic – remove/repair as needed. Check throughout the winter for ice dams and have professionally removed. Check attic during and after rains for evidence of leaks.

Flooring Recommendations – Cyclical Maintenance:

- Wood floors - sweep weekly to remove dirt and debris

Wall & Ceiling Recommendations – Cyclical Maintenance:

- Inspect annually for signs of wear and/or damage that might require repair or refinishing
- Dust wall surfaces as needed with a soft cloth. Wash as needed with damp sponge
- Repaint painted wall finishes as needed, or approximately every 5-10 years. Repaint painted ceiling finishes as needed, or approximately every 10-15 years

Millwork Recommendations – Cyclical Maintenance:

- Millwork – dust monthly. Wipe down with a damp cloth as needed.
- Inspect annually for signs of damage, wear, or finish deterioration that may need to be addressed

Stair Recommendations – Cyclical Maintenance:

- Unfinished wood stairs – sweep or vacuum monthly or quarterly depending on frequency of use.
- Railings/millwork – dust and wipe down with a damp cloth monthly
- Inspect interior and exterior surfaces annually for peeling, flaking, and chalked paint.

Insulation – Cyclical Maintenance:

- Inspect for pest infiltration. Retain pest control professional if pests detected

Plumbing Recommendations – Cyclical Maintenance:

- Replace faucet washers on a periodic basis.
- Inspect water heater venting and drain tank annually.

HVAC Recommendations – Cyclical Maintenance:

- Change filters bi-annually if present

Electrical Recommendations – Cyclical Maintenance:

- Inspect period light fixtures during lamp replacement for heat damage.

Lighting Recommendations – Cyclical Maintenance:

- Exterior inspection of lighting fixtures when replacing lamps.

Opinion Of Probable Cost

The following is an opinion of probable cost to undertake the recommendations discussed in the report and is intended to give the general order of magnitude of the work. Each line item demonstrates a scope of work that can be undertaken individually or as part of a larger project. Recommendations that are assumed to be completed by Reclaim Community staff or volunteers have not been included. Additional costs such as permitting, design fees, contractor general conditions and contingency costs have been omitted as it is unknown at this point how projects may be grouped. Generally speaking, additional fees are as follows: mobilization: 7% of construction budget; general conditions: 10% of construction budget; contingencies: 15% of construction budget; design fees 10% of construction budget. The dollar amounts shown are for 2019 and not adjusted for inflation in subsequent years.

IMMEDIATE PRIORITY (ASAP)	QTY	UNIT	COST per Unit	Subtotal
Engage a shoring engineer to provide shoring design documents. Note that this price is for the design only	1	ea	$8,050	$8,050

HIGH PRIORITY (1-3 YEARS)

Dismantle and reconstruct east wall masonry	300	sf	$440	$132,000
Repair sagging floor at northeast corner of 2nd floor	250	sf	$80	$20,000
Repair detail where roof meets masonry wall at entire perimeter	263	lf	$100	$26,300
Remove furring at first floor	3,690	sf	$4	$14,760
Abate plaster at second floor	3,690	sf	$20	$73,800
Rehabilitate second floor wood windows, provide wood storms	16	ea	$2,500	$40,000
Reinforce steel lintel above east entrance and repoint mortar	1	ea	$6,125	$6,125
Provide ductwork from furnace to second floor	1	ea	$2,000	$2,000

High Priority Construction Total:	$314,985
Design Fees (10% of construction budget)	$31,499
Mobilization (7% of construction budget)	$22,049
General Conditions (10% of construction budget)	$31,499
Contingencies (15% of construction budget)	$47,248
High Priority Total:	$447,279

MEDIUM PRIORITY (3-5 years)

Infill open areaways	4	ea	$900	$3,600
Improve drainage south in south alley	1	ea	$3,000	$3,000
Repair storefronts	1,080	sf	$12	$12,960
Install ceiling at second floor, reinforce roof structure	4,085	sf	$8	$32,680
Repoint foundations at basement 70%	1,442	sf	$25	$36,050
Repoint exterior at 10%	816	sf	$25	$20,400
Install vapor barrier and slab-on-grade at dirt area in basement	1,800	sf	$8	$14,400
Install flooring at second floor where missing	300	sf	$12	$3,600
Rehabilitate double doors, transom, and frame at exterior entrance to stairs to second floor	1	ea	$7,000	$7,000
Modernize electrical systems and provide electricity to second floor	1	ea	$35,000	$35,000

Medium Priority Construction Total: $168,690

Design Fees (10% of construction budget)	$16,869
Mobilization (7% of construction budget)	$11,808
General Conditions (10% of construction budget)	$16,869
Contingencies (15% of construction budget)	$25,304

Medium Priority Total: $239,540

LOW PRIORITY (5-10 Years)

Add post and beams at lower level to improve floor capacity	1	ea	$8,000	$8,000
Improve wood post bases at basement	10	ea	$200	$2,000

Low Priority Construction Total: $10,000

Design Fees (10% of construction budget)	$1,000
Mobilization (7% of construction budget)	$700
General Conditions (10% of construction budget)	$1,000
Contingencies (15% of construction budget)	$1,500

Low Priority Total: $14,200

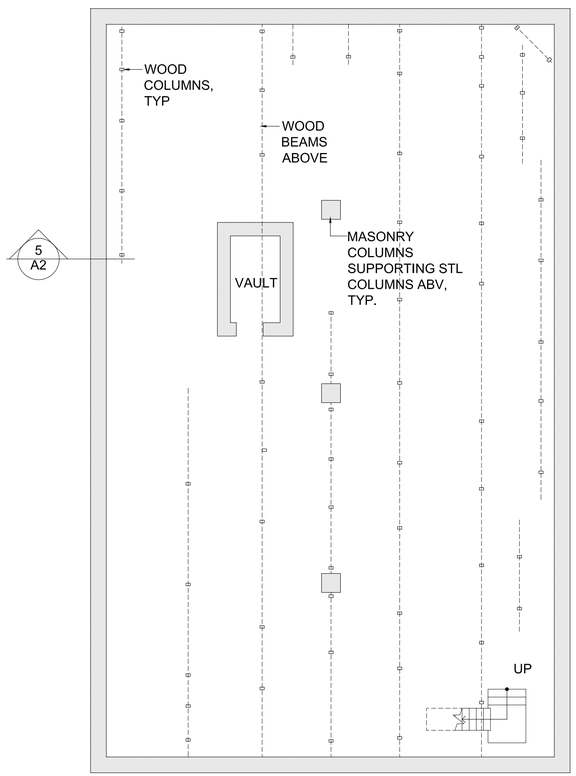
Construction Total: $493,675

Design Fees (10% of construction budget)	**$49,368**
Mobilization (7% of construction budget)	**$34,557**
General Conditions (10% of construction budget)	**$34,557**
Contingencies (15% of construction budget)	**$74,051**

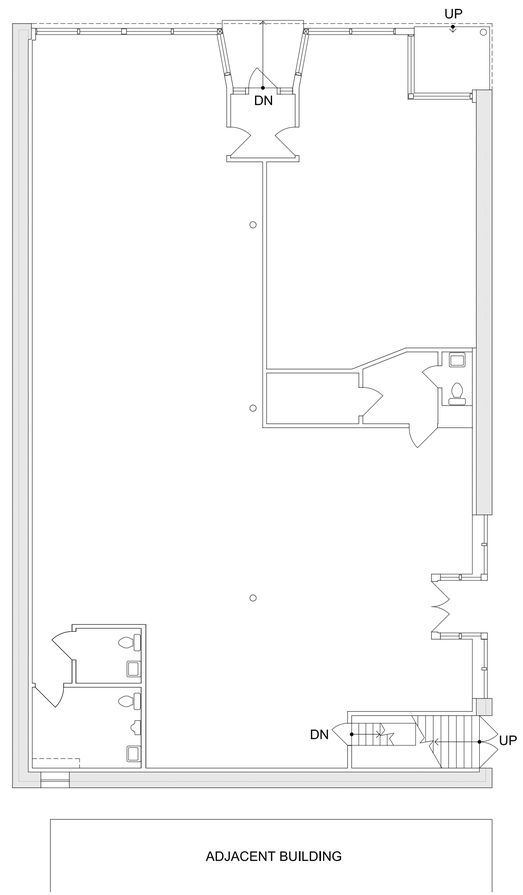
Project Grand Total: $694,258

APPENDIX A

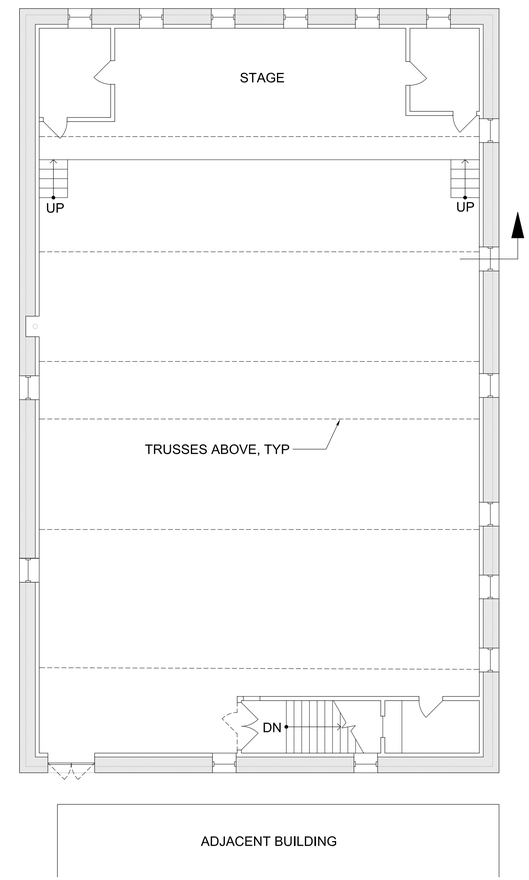
MEASURED DRAWINGS



1 A1 BASEMENT



2 A1 FIRST FLOOR



3 A1 SECOND FLOOR

0 8' 16' 24'

LHB
PERFORMANCE DRIVEN DESIGN.
LHBcorp.com
21 W. Superior St., Ste. 500 | Duluth, MN 55802 | 218.727.8446

CLIENT:
RECLAIM COMMUNITY

THIS SQUARE APPEARS 1/2" x 1/2" ON FULL SIZE SHEETS.

NO	DATE	ISSUED FOR

NO	DATE	REVISION

PROJECT NAME:
BAUMAN HALL
CONDITION ASSESSMENT

201 W. Wall St.
Jasper, Minnesota 56144

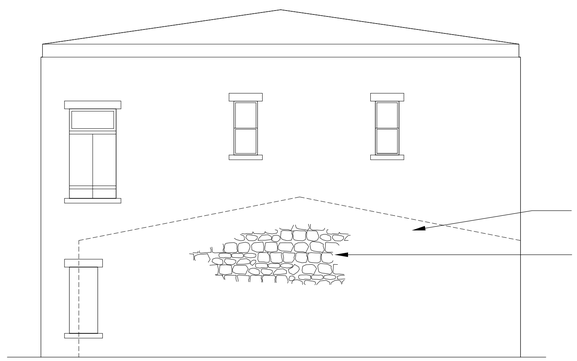
DRAWING TITLE:

FILE: ..\190465\600 Drawings\A\Bauman Hall.dwg
DRAWN BY:
CHECKED BY:
PROJ. NO: 190465
DRAWING NO: A1

CUT AND DRESSED STONE MASONRY THESE ELEVATIONS

1 / A2 NORTH ELEVATION

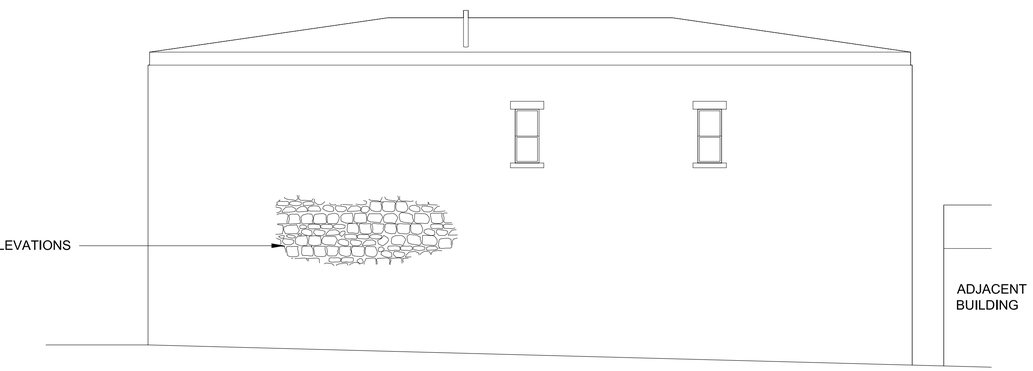
2 / A2 EAST ELEVATION



ADJACENT BUILDING

RUBBLE MASONRY THESE ELEVATIONS

3 / A2 SOUTH ELEVATION



4 / A2 WEST ELEVATION

5 / A2 WEST-EAST SECTION

0 8' 16' 24'

N

LHB
PERFORMANCE DRIVEN DESIGN.
LHBcorp.com
21 W. Superior St., Ste. 500 | Duluth, MN 55802 | 218.727.8446

CLIENT:
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FILE: ..\190465\600 Drawings\A\Bauman Hall.dwg
DRAWN BY:
CHECKED BY:
PROJ. NO: 190465
DRAWING NO:

A2

APPENDIX A

NATIONAL REGISTER OF HISTORIC PLACES NOMINATION FORM

MINNESOTA HISTORIC PROPERTIES INVENTORY FORM

JAN 8 1980

HISTORIC NAME: Bauman Hall

COUNTY: Pipestone

CURRENT NAME: Bauman Hall

CITY/TWP.: Jasper 80002116

LEGAL DESC.: Lots 1 & 2, Block 3, N. 80' of Original Plat

ADDRESS: 201 W. Wall Street

CLASSIFICATION:	CONDITION:	SIGNIFICANCE:	THEME/S:
Building X	Excellent	Local X	Primary Settlement
Structure	Good X	State	Secondary Commerce
Object	Fair	National	Others
District	Deteriorated		

OPEN TO THE PUBLIC: Yes ___ No X Restricted ___

VISIBLE FROM THE ROAD: Yes X No ___

OCCUPIED: Yes ___ No X

PRESENT USE: vacant

DATE CONSTRUCTED: 1891/c.1893

ORIGINAL USE: hotel/general store

ORIGINAL OWNER:

ARCHITECT/BUILDER:

OWNER'S NAME AND ADDRESS: Jasper Area Historical Society
c/o Les Kallsen
Jasper, MN

ACREAGE: Less than one acre X

UTM REFERENCE:
14 / 709110 / 4858240
Jasper Quad.

LOCAL CONTACT/ORG.:

FORM PREPARED BY: Thomas Harvey

DATE: March 1979

DESCRIPTION:

This building is a two-story, rectangular, rock-faced Sioux quartzite structure that occupies two commercial lots on a corner on Jasper's main street. The structure is simple in design. There are no windows on the first floor except the display areas that flank entrances in the front and at the rear, side of the building. These street facades have been modernized and do not retain their original integrity. The second floor front facade is pierced by six double-hung windows placed at regular intervals. There are six unevenly spaced windows down the side facade. A belt coursing of raised stone runs below the windows. Both facades have a corbeled cornice of contrasting quartzite.

SIGNIFICANCE:

Bauman Hall is significant as the westernmost stone building on Jasper's main street. It serves as a simple, yet important, edge to an interesting series of quartzite buildings. The building is also a reminder of one of Pipetsone County's ghost towns. The building was originally a hotel at North Sioux Falls. It was moved stone-by-stone to its present location.

North Sioux Falls was established as a post office in 1891, located three miles northeast of Jasper at some small quarries. In late 1891 a spur rail line was built to North Sioux Falls from Trosky. The erection of a hotel added to the importance of the town, but it was unable to compete with rival Jasper. A few years after construction, the hotel was dismantled and re-erected in its present location. This moving of townsites was common with prairie towns, but seldom were masonry buildings involved.

For many years after being reconstructed in Jasper, the former hotel was known as Bauman's Hall. It served as a community meeting hall and was used for plays and dances. The building has also functioned as commercial store space.

The pressed-metal ceiling is still in place and in excellent condition. Interior steel supports are original. The old drop curtain from Bauman Hall, which displays the names of early 1900s Jasper businesses, is owned by the Jasper Area Historical Society.


CURLESSENCE
SALON OF BEAUTY

Bauman Hall
Jasper, MN; Pipestone County
Thomas Harvey
July 1978
Minnesota Historical Society, 690
Cedar Street, St. Paul, MN 55102
View: South
02738/13

02738
13

Pipestone County Multiple Resource Area
(Partial Inventory)

Pipestone County, MN