Conditions Assessment for the Alexander Baker Building

900 5th Street
International Falls, MN

Photo courtesy of Citizens for Backus/AB

Conditions Assessment Report prepared by Kaas Wilson Architects
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Kaas Wilson Architects | 1301 American Blvd E, Suite 100 | Bloomington, MN 55425

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I. Introduction

History of the Building

The Alexander Baker School was the first substantial school building built in International Falls to accommodate the rapid growth of student enrollment at the turn of the 20th century. The paper milling industry at the time was a major economic force and caused a rapid influx of the city's population. From 180 students enrolled in 1910 to 379 just two years later, the need for a larger building became apparent. Bonding was passed in February of 1912 for a new school building and the firm of Bell, Tyrie, and Chapman of Minneapolis was hired for its design. Bell designed many county courthouses including the Koochiching County Courthouse which is located just a few blocks to the East and was completed in 1909. In addition, Bell was the designer of the Montana and South Dakota state capitol buildings. In 1924 a new school building was built specifically to house high school students. In 1936, the adjoining A.B. Backus Junior High School was constructed with the efforts of the WPA. The Alexander Baker School continued to serve as a grade school until 1988 when all classes were moved to various other buildings and the district converted the building to district office space. In 1995 the district ceased operations in the Alexander Baker School and it has remained vacant since that time. Both the Baker and Backus buildings were added to the National Register of Historic Places in 2004.

Timeline

1912 - Construction begins on the Alexander Baker School
1914 - The Alexander Baker School is completed in June as a school serving all grades
1924 - A new high school building is built a few blocks away.
1936 - The A.B. Backus Building is built adjacent and served as the district's junior high school
1949 - One story addition constructed at the southeast corner between the Baker and Backus buildings.
1978 - Windows in the Baker and Backus Buildings are replaced with aluminum framed insulated panels and reduced glazing
1983 - The Alexander Baker Building is tuck-pointed.
1988 - Classes discontinued but the building remains in use as district offices
1995 - District offices move out of the Alexander Baker Building
1996 - The building's roof suffers hail damage
1999 - Both the Baker and Backus buildings are placed on the Preservation Alliance of Minnesota's list of 10 Most Endangered Historic Buildings
2002 - The Baker and Backus Buildings are purchased by the Citizens for Backus/AB for $850
2004 - Both buildings are placed on the National Register of Historic Places
2009 - Roofing replacement

Description of Process

Kaas Wilson Architects was contracted by the Citizens for Backus/AB to conduct a Conditions Assessment for the Alexander Baker Building in January 2019. Representatives from the firm visited the site between February 12-13 to inspect and document the existing conditions in order to compile this report as follows. At the time of the visit there was substantial snow cover which prohibited a comprehensive investigation of the site, foundation, and roof. The owner has since provided photos of the roof and foundation which are incorporated in the following report.

Methods used

The methods for preparing this report were through non-invasive/non-destructive visual inspection of the interior spaces and exterior facades. This was done by physically walking the building, photography, notes, and documentation through visual inspection. This assessment does not include exploratory demo or removal of parts of the building or structure. A review of the original building plans was also conducted to evaluate the extent and function of concealed building systems and construction methods

Naming conventions for levels and rooms

For the purposes of clarity, and to better relate to the original drawings of the building, the following terms shall be used to describe levels

i. Basement - The building's one level below grade
ii. Ground Floor - The buildings level at grade
iii. First Floor/Level 1 - The building's first story above grade
iv. Second Floor/Level 2 - The building's second story above grade

Room numbers are based on those found on the original drawings. Numbers with a,b,c,d, etc… are locations where original rooms have been subdivided through various remodels. B indicates Basement, single and double digit numbers at Ground Floor, 100s at First Floor, and 200s at Second Floor.

II. Existing Conditions & Character Defining Elements

Exterior

a. General Description of Elements

The exterior consists of masonry of a dark red brick with limestone accents including water table at the base, belt coursing, window sills, and parapet cap. The brickwork at the ground level is staggered with every 4th course being slightly inset up to the limestone belt course at first floor. The entire building was repointed in 1983 and is generally in good condition with the exception of parts of the chimney. The repointing utilized a plain gray mortar with a concave tooled joint which stands out against the original red brick. A section of the original unmodified brick mortar is visible in part of the one story 1949 addition between the Baker and Backus buildings that reveals the original color of the mortar was much darker. It also confirms that the slightly imperfect coursing observed in the repointed areas was present in the original brickwork. The exterior masonry also features “dog toothed” brick accents above some second floor window heads.

b. Site

Parking - surface parking covers the site and extends up to the face of the building on the east, north, and west sides. The Backus Building is directly adjacent to the south.

Accessibility - Accessibility is limited to the ground floor of the building via the two main entrances on the north side. Since there is no elevator to the floors above, the only accessible level currently is ground floor. The restrooms on the ground floor are elevated above the rest of the floor and are accessed from an intermediate landing on each stair making them inaccessible to wheelchairs or persons with limited mobility.

c. Envelope - Exterior Walls

Exterior Wall Construction - The exterior walls are comprised of multiple wythes of brick with a common bond pattern and faced on the interior side with plaster. The north facade has a series of colorful mosaics between the windows of first and second floor depicting various Native American scenes. They are encircled by spiraling brick which adds a sense of movement. The two entrances on this facade are surrounded with glazed terra cotta reliefs and decorative brickwork. A projecting conservatory at ground floor on the west facade originally consisted of mostly glazing. The windows have been replaced and covered with sheet metal and the original wood framing clad in aluminum.

Photo 1
Location: North Elevation
Description: Mosaic detail on north facade. *Courtesy of Citizens for Backus/AB*

Photo 2
Location: North Elevation
Description: Mosaic detail on north facade. *Courtesy of Citizens for Backus/AB*

Cornice - A sheet metal cornice with modillions and dentils wraps the entire perimeter of the building. A brick parapet extends above and is capped with limestone. The cornice looks to be in fair condition from visual inspection from the ground. Rust staining and peeling paint can be seen as well as slight efflorescence of the brickwork just below. One of the dentils on the northeast corner was observed to be missing but overall cornice seems to be intact. The sheet metal cornice pitches away from the parapet and drains over the edge, likely contributing to the rust stains on the fascia.

Photo 3
Location: Southeast corner
Description: Typical cornice detail.

Photo 119
Location: South cornice
Description: Rusting and staining on top of sheet metal cornice, typical. *Courtesy of Bob Marquardt*

Chimney - The chimney shows areas of deterioration both of portions of the face brick and of mortar joints from the 1980s tuck-pointing. From the photos it can be assumed that the tuck-pointing did not include a full removal and replacement of mortar joints but rather a 'skim' coat of mortar leaving the original in place. A metal strap has been added to the limestone band capping the top of the chimney, likely in an effort to prevent movement of the capstones caused by movement of the brickwork below.

Photo 120
Location: Southeast corner of chimney taken from Backus roof.
Description: Spawling face brick and deteriorated mortar joints on east side of chimney. *Courtesy of Bob Marquardt.*

Photo 121
Location: SE corner taken from roof of Backus building.
Description: View of chimney showing location and extents of damage on south/east sides. *Courtesy of Bob Marquardt*

Photo 122
Location: Southeast corner of chimney taken from Backus roof.
Description: Failed mortar joints and shifting of brick near limestone cap. *Courtesy of Bob Marquardt.*

Photo 123
Location: West side of chimney taken from Backus roof.
Description: Hairline cracks in mortar joints leading down from joint at limestone cap. *Courtesy of Bob Marquardt.*

Parapet - The parapet is faced in the same brick as the body of the building and is capped with limestone. An inscription of the north facing parapet reads "Alexander Baker School"

Foundation - Per original drawings the foundation is cast in place concrete varying in thickness from 1'-6" to 2'-1" with only the south half of the basement level being excavated space. The foundation is faced with a water table course of limestone. The northern half of the building beneath the central corridor and north classrooms is unexcavated/crawl space. The building's foundation appears to be in good condition with the exception of some deteriorated limestone in the water table band on the exterior at grade. Visual inspection on the interior at the basement level and through photos of the exterior did not show signs of structural instability. The brick exterior does not have cracking or shifting which would indicate movement of the foundation.

Photo 124
Location: Foundation
Description: Deteriorated limestone at water table course. *Courtesy of Bob Marquardt*

Floor System - The floors are cast in place concrete with hollow clay tile runs to form the concrete joists. Original plans called for 2"x10" - 16" O.C. joists but system appears to have been substituted for concrete joists prior to construction

Roof Framing System - The roof system is a structurally sloped concrete cast in place deck and joists with hollow clay tile runs between the joists similar to the floor construction.

d. Envelope - Roofing & Waterproofing

Roofing System - A new, fully adhered, EPDM roofing membrane with 6" of new rigid insulation was installed in 2009. Work was also done at that time to stabilize the interior face of the parapet walls. Original exhaust ventilators and two smaller brick chimneys were also removed at this time. Removal of the exhaust ventilators effectively decommissioned the buildings fresh air and exhaust system which would likely not have been suitable for an adapted reuse.

Photo 125
Location: Roof looking east
Description: Roof with ventilators prior to re-roofing. *Courtesy of Citizens for Backus/AB*

Photo 126
Location: Roof looking east
Description: Roof after replacement. Appears to drain properly. *Courtesy of Citizens for Backus/AB*

Photo 127
Location: Roof
Description: Parapet walls and flashings after roof replacement. *Courtesy of Bob Marquardt*

Drainage System - The buildings roof drainage system is comprised of 4 drains slightly north of the center of the building running east to west. An overflow scupper is provided on the east and west parapets in line with the roof drains as well. The four drains run vertically through the building to a crawl space below the north half of the building and are connected to the main sanitary line connected to the city sanitary sewer. Buildings of this era often predate the installation of city storm sewers and as such roof drains were typically connected into the buildings main sanitary line and were discharged into the city sanitary sewer system as is the case with this building. Original drawings indicate an 8" line exiting the building at the boiler room in the southeast corner where the Backus building is now connected. The roof drains were modified at an unknown date with valves in the crawl space allowing for seasonal daylighting of stormwater to grade. In this case, two "P traps" were installed at the north and west sides of the building to daylight water to the surface parking lot in warmer months. In the fall the valves would be closed to direct water back to the sanitary sewer in winter months. The owner confirmed that the switchover is still performed each year, though they never see water discharging at grade in the summer. The owner has also reported water infiltration in the basement of the building, primarily in the summer months. Further consideration strongly indicates that the plumbing lines within the crawl space have perforated or completely broken causing water infiltration within the crawl space and adjacent basement rooms. This is most likely a result of the building not being heated in the winter due to disuse.

Photo 128
Location: North Facade
Description: P trap from roof drain discharging at north side. *Courtesy of Bob Marquardt*

Photo 129
Location: West Facade
Description: P trap from roof drains discharging at west side. *Courtesy of Bob Marquardt*

Photo 130
Location: Basement crawl space
Description: Roof drain with seasonal changeover valve. *Courtesy of Bob Marquardt*

e. Windows & Doors

Doors - All exterior doors have been replaced with metal panel doors with single tall vertical lites offset to one side, painted blue with transoms. Nearly all original interior door frames, trim, and transoms remain. Some examples of original wood doors to ancillary spaces (closets, janitor rooms) remain and retain their original hardware. All classroom door panels and hardware were replaced with modern flush panel doors with a square centered lite and light-colored wood finish. The finish of original doors is a dark stained wood.

Photo 4
Location: North Elevation
Description: Replacement metal exterior doors with transom.

Photo 5
Location:
Description: Typical classroom replacement door with original transom above door.

Photo 6
Location: west stair, corridor 25
Description: Only remaining original exterior door/

Windows - The majority of the exterior windows were replaced by the school district in 1978. These replacement windows consist of aluminum frames set over the original wood window frames which are visible on the inside. The replacement windows have reduced the glazing by approximately half to two-thirds with fixed insulated panels in the upper section and sliding glazed lowers. Some sliders, particularly in the stairwells were observed to have large gaps allowing weather and animals to enter the building. Examples of the original wood windows are located in the men's and women's bathrooms located off the stair landings at ground floor. These windows were originally exterior windows but were concealed by the addition of the Backus gymnasium and the 1 story east addition from 1949. The original hot rolled steel windows in the stairwells have been infilled with the Backus addition or replaced with fiberglass insulated panels which allow diffused light but are not transparent and do not replicate the pattern of the original windows. One remaining section of the original steel frame windows is visible from the corridor side of the west stairwell at ground floor and looks into a vestibule that was added connecting to a tunnel to the Backus building and Forest Land School to the west.

Photo 7
Location: west stair, corridor 25
Description: Original metal frame window at west stairwell as seen from inside.

Historic photo of the Alexander Baker School with original six over nine double hung windows. *Courtesy of Citizens for Backus/AB*

Photo 8
Location: Room 23, Women's restroom
Description: Remaining historic wood windows in women's restroom on ground level covered over on exterior by Backus addition.

Photo 9
Location: East Elevation
Description: Typical existing 1978 aluminum/insulated panel replacement windows

Photo 10
Location: Room 222, west stair
Description: Typical fiberglass insulated replacement windows at stairwells.

Photo 11
Location: Room 126, east stair
Description: Failure at fiberglass insulated replacement windows at east stairwell.

Future replacement of the non-historic windows should follow the Secretary of the Interior's Standards for Rehabilitation and should be based off historical evidence and photographs to match as close as possible in pattern, size, frame proportion, operation, and profile. Since nearly all historic exterior windows have been removed from this building, replacement windows should be carefully considered so as not to detract from the building's historic character.

Interior

Spatial Configuration

Circulation - The primary defining characteristic of spaces within the building is the circulation via the main corridors on all levels and the two open stairwells that connect them. These were historically the buildings largest open spaces and contribute greatly to the function of the building as a school.

Previous Classroom Modification and Subdivision - Some division of the original classrooms occurred throughout the years and has been documented where found on the drawings in Appendix A of this report. Areas of more extensive modification include the east wing at ground level and classrooms in the middle on both the north and south sides of the corridor at level 1 for offices and ventilation.

Most substantial spaces located in Backus -
Substantial spaces, also known as large gathering or activity spaces, which are common in school building design and are often a significant piece of the historic character relating to the school typology are absent from this building. With the completion of the A.W. Backus Junior High School Building in 1936 came the addition of a gymnasium, auditorium, and other large spaces. Some classrooms on ground level and on level 2 are shown as larger rooms on the original drawings however site exploration shows that these rooms have been subdivided with non-historic partition walls, see Appendix A for locations of non-historic wall conditions.

Gymnasium (Original) - Original drawings for the Alexander Baker building indicate that a gymnasium was to be built at the basement level just outside of the footprint of the main building and directly connected to the buildings south facade. The gym, along with its adjoining girl's and boy's locker rooms would have been accessed through a middle stair which can be seen in the basement and has since been covered over at ground level with concrete and steel bar joists. Whether or not that gymnasium was actually constructed is unknown, though local residents whose family members had attended the school prior to 1936 do not recall the gymnasium existing prior to that time. The current gymnasium is located in the same place and accessed at the ground level of the adjacent Backus building (1936) is thought to be the complex's first and only gymnasium built. It appears that the locker room spaces were constructed as part of the Baker building but may not have ever been completed with fixtures as shown in the original plans. Plans for the Backus building indicate only the removal of pilasters on the south facade of the Baker building with no mention of demolition of a gymnasium thus leading to the conclusion that the Baker gym was never constructed.

Interior Finishes

Interior Partition Walls - Original interior partition walls consist of 4” hollow gypsum block with a plaster finish on the exposed surfaces. Corridor walls are typically constructed as chases to allow ventilation ductwork and other building systems to be concealed within. Walls modified to facilitate the construction of the Backus gymnasium in room 124 appear to be of similar composition whereas the other relocated walls are more modern stud framed and clad in gypsum board. All interior partition walls appear to terminate at the underside of the historic suspended ceiling. The remaining historic partitions are in good condition and damage is generally limited to the areas on the top floor around previous roof leaks.

Ceiling Finish Materials - Original ceilings throughout were flat plaster on expanded metal lath suspended from the structural concrete system above. The dropped ceiling on ground floor and second floor allowed building systems to be routed in the concealed space between the ceiling and structure above. Several areas of ACT have been added during later modifications that further reduce the ceiling height below the original dropped ceiling and are associated with areas subdivided by modern gypsum board walls. The condition of the plaster ceilings varies greatly throughout the building with most spaces appearing unaltered from their original condition, other areas have readily visible staining from past water intrusion and the worst damage being located on the top floor ceiling. The ceilings directly below the old roof leaks are largely non-existent due to failure of the steel lath and support wires.

Floor Finish Materials - Typical floor finish in classroom spaces is hardwood maple flooring. Corridor flooring on all three levels and bathrooms consists of terrazzo with marble dividers and marble base.Classroom flooring on the ground level is a mixture of 9”x9” asbestos tiles, some of which are missing or deteriorating, and some carpeted rooms. Former office suites along the north wall of the first floor are also carpeted.

Wood - Some areas of buckling are apparent. In some classrooms on the west side of the building, the wood floor has been heavily damaged due to previous leaking from the roof. Some buckling of the wood flooring was observed in areas noted on floor plans.

Photo 12
Location: Room 116
Description: Typical wood flooring in classroom.

Photo 13
Location: Room 207
Description: Example of Buckling of wood flooring.

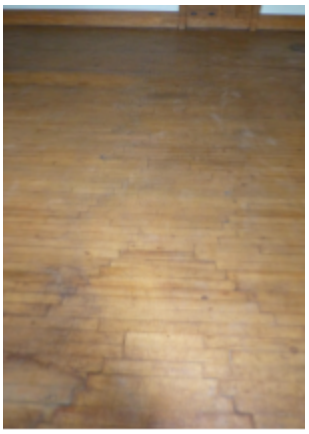

Photo 15
Location: Room 225
Description: Patched floor at former location of original wall.

Photo 14
Location: Room 218
Description: Damage to wood floor in room 218.
Courtesy of Citizens for Backus/AB

Terrazzo - Terrazzo flooring extends throughout the corridors on all levels as well as at the bottom of stairs leading to the basement spaces. Lightly colored terrazzo fields are bordered and divided by pink marble. The same pink marble is also used as wall base in corridors and as toilet partitions. The surface appears dull and dirty but in fair to good condition. One section at the bottom of the west stairwell has cracked and heaved likely due to lack of heat in the building.

Photo 16
Location: Room 126
Description: Terrazzo corridor flooring with marble dividing strips and marble base.

Trim & Built-in Casework

Nearly all wood baseboards and wall trim including that which is integrated with chalkboards remains in unaltered classroom spaces as well as the original built-in casework. A slight difference in style of baseboards can be observed in some areas where historic walls have been moved or modified but are of the same general size and proportion. Other later alterations are less consistent with original millwork and trim and include simulated wood wall paneling and ACT ceiling tiles.

Casework - with the exception of limited altered classroom spaces, the original built-in casework is present in the majority of classrooms as indicated on the original drawings.

Photo 17
Location: classrooms, typical
Description: Typical classroom built-in casework. *Courtesy Citizens for Backus/AB*

Photo 18
Location: Room 8
Description: Casework in room 8 on ground level. Original built-in casework with upper cabinet doors replaced.

Stairs & Railings

The building has two stairwells that serve all three levels and the basement on the east and west ends of the main corridor. They are composed of metal pans and poured concrete treads and metal railings with newel posts. The original railing height was very low and was modified when the building was used as school district offices with metal guard rail extensions to meet modern fall protection requirements. Both stairwells are in good condition with the exception of the section leading to the basement level on the west stair where the heaving basement floor has buckled the steel risers. An additional stair in the center of the building labeled with the room number 26 led from the main corridor at ground floor to the basement below. The stair was abandoned in place with the construction of a new floor slab on steel bar joists over it when the adjoining Backus Building was constructed to allow for a connecting hallway between The Alexander Baker Building and the Backus Gymnasium. It is still visible in the basement mechanical room.

Photo 19
Location: Room 25, east stair
Description: View of east stair from ground level looking up. Handrail extensions were added.

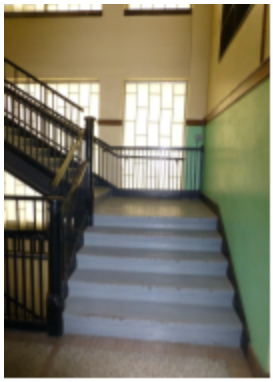

Photo 20
Location: Room 126 east stair
Description: Landing at east stair showing metal pan and cast concrete treads.

Photo 21
Location: Room B14, west basement stair
Description: Stair treads damaged due to heaving.

Lighting Fixtures

The original ornate cast plaster and gold painted corridor fixtures and most of their original glass shades remain in place in the corridors. All corridor lighting fixtures on the second floor have been taken down and stored within the building due to ceiling damage from previous leaking. Many less ornate, but typical for the period, lighting fixtures remain in some coat rooms and janitor's closets. Lighting fixtures in classroom spaces appear to have been replaced with more modern long spanning fluorescent fixtures connected into the historic rough in locations.

Photo 23
Location: corridors, typical
Description: Original ornate plaster light fixtures typical in corridors.
Credit: Citizens for Backus/AB

Photo 24
Location: Room 225
Description: Typical fluorescent style lighting fixtures in classrooms.

Plumbing Fixtures

It should be noted that the layout of the men's and women's restrooms off of the landings at ground floor are of a similar general layout as the original drawings though they are mirrored, the men's restroom being on the east and the women's to the west. A bank of three toilets was removed and replaced with wall mounted sinks in the women's restroom. The men's restroom retains its original toilets and marble partitions but has had its sinks and urinals and partition doors replaced. In the men's restroom on second floor, wall hung sinks and urinals appear to be replacements. Toilets in stalls appear to be the original fixtures. The smaller restroom (Rm 215) appears to retain its original toilet and urinal but the wall hung sink is a replacement. The women's restroom on second floor retains its original fixtures including a pair of pedestal sinks and three toilets. The small restroom adjacent (Rm 202) also contains its original pair of pedestal sinks and single toilet.

Photo 25
Location: Room 27
Description: Men's restroom at ground level showing replacement fixtures.

Photo 26
Location: Room 27
Description: Men's restroom on ground level original toilet partitions.

Photo 28
Location: Room 213
Description: Replacement fixtures in men's restroom on level 2. Replacement plywood door and laminate on partitions visible.

Photo 29
Location: Room 202
Description: Double pedestal sinks found in women's room 202 and 204 on level 2.

Photo 30
Location: Room 204
Description: Original marble stall partitions in women's restroom 204 shown with their original wood doors.

Systems

Mechanical systems

Heating - Two steam boilers in the basement feed radiators throughout the Baker and Backus buildings. Radiators in classroom spaces are generally wall mounted and are free-standing in corridors near the stairs. Many of the original classroom radiators have been replaced over time with more modern fixtures. Some instances, such as in coat rooms, have been removed.

Photo 31
Location: Room B03
Description: The buildings two original steam boilers which have been recently rebuilt and currently serve to heat the Backus Building.

Photo 32
Location: Room 128
Description: Bank of few remaining original radiators.

Ventilation - A large air handler is located at the basement level feeds fresh air up through the building from the ceiling of the corridor on ground floor connecting to vertical chases within corridor walls to feed the upper floors. Vertical exhaust chases connect back via ductwork above the ceiling of second floor and originally discharged through rooftop ventilators which were removed when the building was reroofed in 2009. A large central chase along the south wall was extended up through first floor to connect to air intake louvers added to the east and west walls of the Backus gymnasium addition. Large ductwork visible on the ceiling of room 124 was added at the same time to add a source of return air to the air handler from the corridor and stairs. The existing ventilation

system cannot be reused as it was originally designed and would require significant alteration or replacement for future use of the building. When considering future ventilation systems, refer to **Preservation Brief 24 Heating, Ventilating, and Cooling Historic Buildings: Problems and Recommended Approaches** for systems which can be incorporated without compromising the buildings historic character. Selection of systems will be highly dependent on the building's future use and should be evaluated accordingly with sensitivity to historic features. Damaged historic dropped plaster ceilings create potential opportunities to conceal future mechanical systems as they have been historically while repairing or restoring the building to its historic condition.

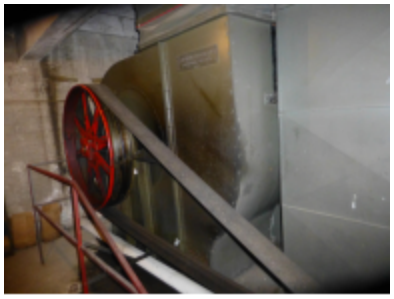

Photo 33
Location: Room B11
Description: Motor for large air handler unit.

Photo 34
Location: Room 124
Description: Ductwork from central air handler at ceiling of level 1 installed when the Backus building was built.

Water Service, Plumbing, and Sewer Utilities

Water service enters at basement level of southeast corner near boilers. The domestic water supply is connected to a gas fired boiler and two domestic storage tanks for hot water. The main sprinkler for the Backus building also enters at this location. Location of plumbing and sanitary services is generally limited to the restrooms on ground floor and level 2. Piping appears to be original cast iron and is only visible in basement level mechanical areas.

Fire Suppression

Currently only the boiler room in the basement of the Baker Building is sprinklered. Sprinkler service was extended throughout the Backus Building. The stand pipe for the fire suppression system is located in the maintenance room connecting the Baker and Backus buildings.

Fire Detection System - The building does not have a comprehensive fire detection system.

Electrical Systems

Electrical Service and Panels - Located in a room off the boiler room in the basement. Main electrical switch gear appears to have been upgraded with more modern circuit breakers. Electrical wiring throughout the building is for the most part run above the dropped ceiling or through the walls. It is assumed that most of the wiring is original to the building based on the style of switches and some exposed wiring and would require replacement for future reuse

III. Priorities and Recommendations

Recommendations Ranked

The following are recommendations to ensure that the buildings' integrity and historic character remains intact until a suitable re-use project can be undertaken. The goal of the recommendations is not to restore or replace any historic features or alter character defining elements but rather to ensure that such elements are protected to the furthest extent possible while the building awaits a re-use. The recommendations below are ranked in order of urgency with 1 being of greatest importance and are within the assumed treatment approach of first "mothballing" the building and ultimately Rehabilitation.

"The three highest priorities for a mothballed building are 1) to protect the building from sudden loss, 2) to weatherize and maintain the property to stop moisture penetration, and 3) to control the humidity levels inside once the building has been secured." - Preservation Brief 31: Mothballing Historic Buildings

1. **Chimney masonry repair and restoration**

   The client shared concerns about the condition of the brickwork on the chimney. Though weather conditions prevented an up close physical inspection, photos from the client indicate areas of previously re-pointed mortar and spalling brick. A metal strap was added to the limestone cap of the chimney at an unknown time, likely to prevent movement of the large capstones. To prevent structural failure and possible damage to the rest of the structure or to the life safety of occupants, it is our recommendation that priority 1 be the repair or reconstruction of the chimney. Photos indicate that the original mortar may not have been fully removed during the 1980s re-pointing, but rather covered over with new mortar inconsistent with the original in composition, color, or joint condition. Any masonry repair or restoration should follow the National Park Service's **Preservation Brief 2 Repointing Mortar Joints in Historic Masonry Buildings.**

2. **Roof drainage and connection to storm sewer**

   Currently the roof drains are connected to the building's main sanitary line running through the basement crawl space to the city sanitary sewer. The system was modified with 2 "P traps" to daylight the rainwater to grade in summer months once diverter valves are opened. The owner has mentioned that areas of the basement floor near the boiler room experience moisture issues in the spring and summer months. Photographs provided by the owner indicate that parts of the sanitary line in the crawl space area have failed due to lack of heating the building. We recommend that the roof drainage system be re-routed to drain into the city's storm sewer at the intersection of 3rd St. and 10th Ave. to both modernize the system and to eliminate water issues in the basement and crawl space. We also recommend replacing the original cast iron drain pipes running vertically through the building in the future as the existing may have also been compromised due to lack of winter heating.

3. **Sealing gaps in windows to weather**

   This recommendation can be accomplished easily by sealing gaps in the non-historic windows to ensure that the building is enclosed to weather and to prevent animals from entering. The windows requiring attention are primarily in the stairwells and do not pose a security concern. A simple, temporary, and removable application of plywood to areas where large gaps exist will help to keep animals and the elements from degrading the historic interiors.

4. Measures for prevention of frost heaving

Heaving of the terrazzo and concrete slabs was noted at the basement level near the west stair. The heaving slab also caused the metal pan and concrete tread stair section between the basement and ground levels to shift making them unsafe for future use. Replacement of this section of stairs and floor should be considered during any future reuse project. In an effort to reduce the likelihood of future heaving or damage to footings and foundations, it is our recommendation that efforts be made to temper the habitable areas of the basement level. This may include the use of rigid foam insulation sheets or other insulation to temporarily cover the open stairwells at ground level and fans to circulate warm air from the boiler room throughout the basement spaces. Small gas or electric unit heaters may also aid in tempering the space. This recommendation is listed as priority 4 as the area of damage appears to be fairly limited and confined to relatively unused spaces. Monitoring of the slabs should be done seasonally to confirm that there is no ongoing deterioration.

Probable Cost Estimates

Due to the unique conditions associated with the repair or renovation of historic building elements and systems, it is very difficult to accurately predict cost. Calculations based on published material and labor takeoffs are often misleadingly low since they cannot quantify the challenges posed by unique existing conditions or access limitations. The methodology used to arrive at the following estimates are based on extrapolating unit costs for similar repairs on other recent renovations and then applying that unit cost to the takeoff from the original drawings.

1. Cost of chimney masonry repair and restoration $42,580
    a. Approximately 756 square feet of brick masonry on chimney to be repaired/ tuck pointed at $55/ sq ft.
    b. Allowance for material cost of some replacement of shaling/ damaged brick $1,000.

2. Cost of roof drainage and connection to storm sewer $118,700
    a. Sever connections of four (4) rain water leaders from sanitary line in crawl space, $2,500
    b. New pipe approximately 155 linear feet at $140/ft to west exterior wall. $21,700
    c. Cut through foundation wall to connect line to city storm sewer, $1,500.
    d. New exterior storm sewer connection approximately 100 linear feet from exterior wall of building to city storm sewer located at the intersection of 3rd St and 10th Ave.
        i. Excavate trench/remove asphalt paving 2000 sq ft x $15/sq ft, $30,000
        ii. Run new line and connect to city utility $230/ft $23,000
        iii. Backfill and repair asphalt pavement 2000 sq ft x $20/sq ft, $40,000

3. Cost of sealing gaps in windows to weather, $5,000
    a. Plywood
    b. Weather strip/sealing
    c. Rigid insulation
    d. Miscellaneous

4. Cost of preventative measures for prevention of frost heaving, $5,000
    a. Plywood
    b. Weather strip/sealing
    c. Rigid insulation
    d. Miscellaneous
    e. Space heaters or fans $1,000

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IV. Appendix A, Secretary of the Interior's Standards for Rehabilitation

Secretary of the Interior's Standards for Rehabilitation

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

V. Appendix B, Photos of Existing Conditions

Photos of existing conditions and character defining features.

Photo 40
Location: Room B04
Description: manhole cover in ceiling where leaking around rim was observed.

Photo 41
Location: Room B01
Description: Trench in concrete floor taking water to drain

Photo 42
Location: Room B12
Description: peeling painted floor of room B12.

Photo 43
Location: Room B15
Description: Plaster separating from concrete wall in basement.

Photo 44
Location: Room B14
Description: Cracking and heaving of terrazzo flooring and metal and concrete stairs.

Photo 45
Location: Abandoned west area well
Description: Abandoned west area well stair walled over and used as storage.

Photo 46
Location: Room B1
Description: Water from leaking plaza above addition to room B1 beneath east parking.

Photo 47
Location: Room B2
Description: Existing electrical equipment.

Photo 48
Location: Room B9
Description: Central stair to basement abandoned when Backus building was added.

Photo 49
Location: Room 25
Description: Ground floor corridor looking west, currently used as storage.

Photo 50
Location: Room 25
Description: Damage to corridor ceiling near damper valves.

Photo 51
Location: Room 28
Description: Modifications to room 28. Non-historic door at right currently used to seal off these rooms from main corridor.

Photo 52
Location: Room 29
Description: Modified room 29 with entry directly off of room 28 and stairs leading to raised teachers lounge.

Photo 53
Location: Room 30
Description: teachers lounge space created in location of original stock room. Wall and extents of raised floor have been modified.

Photo 54
Location: Room 30
Description: Kitchenette in teachers lounge.

Photo 55
Location: Room 31
Description: Raised floor at south end of room 31. Angled build out for stair to teachers lounge can be seen at right.

Photo 56
Location: Room 3
Description: Vestibule, original wall and doors removed at both vestibules.

Photo 57
Location: Room 10
Description: Four light ornate plaster light fixture at vestibules, rooms 3 and 10. Missing glass shades.

Photo 58
Location: Room 4
Description: Recess and non-historic shelving at modified wall between rooms 4 and 8.

Photo 59
Location: Room 8
Description: Looking east to modified wall between rooms 8 and 4.

Photo 60
Location: Room 15
Description: Historic fireplace with glazed tiles, *Courtesy of Citizens for Backus/AB*

Photo 61
Location: Room 15 & 16
Description: Archway between rooms 15 & 16. Originally Kindergarten rooms.

Photo 62
Location: Room 17-21
Description: Small restroom between rooms 17 and 21 that does not appear on original plans.Likely added when walls were demolished removing room 19.

Photo 63
Location: Room 21
Description: Interior of bay at southwest corner. Original wall and door separating the space have been removed.

Photo 64
Location: vestibule
Description: Vestibule added at south door. Large windows in stairwell at left covered with insulation.

Photo 65
Location: stair to tunnel
Description: Stair to tunnel connecting to adjacent buildings.

Photo 66
Location: Room 23
Description: Window above bank of stalls in Women's restroom looking into corridor room 24. Original light fixture is seen penetrating furred down non-historic ceiling. Access abandoned from main corridor room 25.

Photo 67
Location: Room 23
Description: Three toilets removed in Women's restroom and replaced with wall mounted sinks on original marble partition wall.

Photo 68
Location: Room 23
Description: Marble partition at entry to Women's restroom. Note Glazed brick wainscotting.

Photo 69
Location: east elevation
Description: 1949 one story addition between the Baker and Backus buildings.

Photo 70
Location: Room 105b
Description: Modified room 105, entry from corridor.

Photo 71
Location: Room 105a
Description: Room 105a is a further subdivision of the original room 105. Note wall at left is not original and baseboard is clearly different.

Photo 72
Location: Room 126
Description: Wood and glass sidelites and transoms around door to room 107. Door has been removed.

Photo 73
Location: Room 107
Description: Room 107 looking toward corridor. Door at right appears to be original. Finishes in this area appear to be later modifications.

Photo 74
Location: Room 110
Description: Originally shown as a small restroom, space appears to be converted to a pass through kitchenette/workroom.

Photo 75
Location: Room 105e
Description: Part of the divided room 105, base trim is proportional but differs from original and a suspended ACT ceiling has been added.

Photo 76
Location: Room 105d
Description: Part of the divided room 105, similar to room 105e. This room retains the original built-in casework from room 105.

Photo 77
Location: Room 108
Description: Originally a small closet, room has been expanded as an office and shows later modified wall, floor, and ceiling finish materials,

Photo 78
Location: Room 111
Description: Originally larger, room 111 was divided creating smaller office spaces. Ceiling tiles shown detaching from the original plaster ceiling.

Photo 79
Location: Room 113
Description: non-historic doorway installed between coat rooms 113-115. Note concrete floor patch and style of wood trim.

Photo 80
Location: Room 118
Description: Damage to wood flooring from previous roof leaking. Note gypsum wall tile can be seen where segment of slate chalkboard has been removed.

Photo 81
Location: Room 118
Description: Damage to ceiling from previous leaking roof.

Photo 82
Location: Room 126
Description: Doorway to room 122, door and frame removed, transom remains and is covered with plywood on corridor side.

Photo 83
Location: Room 122
Description: original book shelves and rolling ladders remain. Window in this room was removed when the Backus building was constructed.

Photo 84
Location: Room 126
Description: Indicated on original plans as a small closet access from inside room 123, Opening has been created for direct access from corridor 126.

Photo 85
Location: Room 123
Description: Shelving added later in room 123, originally this was the coat room to adjacent room 124. Window at far end was filled in when Backus building was constructed.

Photo 86
Location: Room 124
Description: Extension of large vertical air chase and horizontal ductwork across ceiling. Notched corner at back for small toilet room in nurses office, next room. Windows in this room were removed when Backus building was constructed.

Photo 87
Location: Room 126
Description: Doorway created in location of original classroom built-in cabinet to serve nurses office.

Photo 88
Location: Room 125
Description: Inside room 125 looking to corridor where original built-in casework was removed for doorway.

Photo 89
Location: Room 125
Description: Small toilet room off room 125.

Photo 90
Location: Room 126
Description: Fire hose cabinets located at east and west ends of main corridor, all three levels.

Photo 91
Location: Room 121
Description: Damaged wall and ceiling west end of corridor. Rain leader from roof visible with spliced PVC section connecting to cast iron pipe.

Photo 92
Location: Room 222
Description: Damage to suspended metal frame, lath, and plaster ceiling above east stair in corridor. Support members visibly rusted.

Photo 93
Location: Room 222
Description: Corridor looking east. Damage to ceiling in center and original lighting fixtures removed due to previous roof leaking.

Photo 94
Location: Room 207
Description: Built-in casework flanking door inside room 207. Currently used to store lighting fixtures removed from corridor ceiling.

Photo 95
Location: Room 207
Description: Transom height windows between (now) room 207 and corridor.

Photo 96
Location: Room 209
Description: Damaged wood flooring, buckling, and concrete patch repair.

Photo 97
Location: Room 220
Description: Corridor looking south. Damage to ceiling and peeling paint.

Photo 98
Location: Room 218
Description: Extensive area of ceiling damage, small areas of spalled concrete beams with some visible structural rebar exposed.

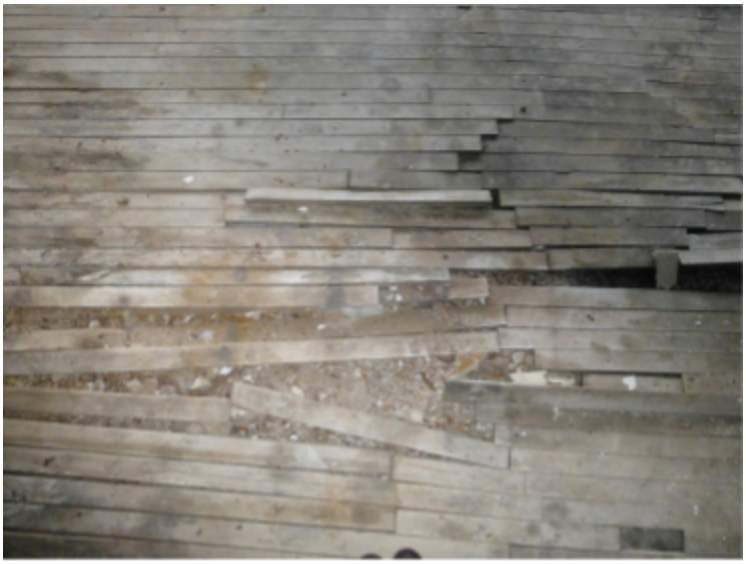

Photo 99
Location: Room 218
Description: Damage to wood floor extends throughout room.

Photo 100
Location: Room 222
Description: Original wood window frame at west stair window has rotted allowing weather and animals inside.

Photo 101
Location: east elevation
Description: East end of building, windows at ground level covered with insulation on inside.

Photo 102
Location: east elevation
Description: Damaged stone sill at level 1 window.

Photo 103
Location: east elevation
Description: Missing dentil at corner of cornice. Slight efflorescence below cornice at multiple locations.

Photo 104
Location: north elevation
Description: Cornerstone, "BELL TYRIE & CHAPMAN ARCHITECTS"

Photo 105
Location: north elevation
Description: Broken sliding window at ground level.

Photo 106
Location: north elevation
Description: north elevation, significant snow cover on site at time of visit. Pavement extends to face of building.

Photo 107
Location: north elevation
Description: Detail of glazed terra cotta reliefs and decorative brickwork around north entry doors.

Photo 108
Location: north elevation
Description: "ALEXANDER BAKER SCHOOL" carved in limestone at parapet. *Courtesy of Citizens for Backus/AB*

Photo 109
Location: west elevation
Description: west elevation with single door and projecting conservatory at ground level,

Photo 110
Location: southwest elevation
Description: southwest corner of Baker building, Backus building just to the south.

Photo 111
Location: southwest elevation
Description: hole beneath replacement scupper on addition to building over tunnel stairs.

Photo 112
Location: southwest elevation
Description: door to added vestibule space near west stair.

Photo 113
Location: southwest elevation
Description: corner of southwest wing and west stair showing types of non-historic windows.

Photo 114
Location: southeast corner
Description: View of chimney from first floor window. Exterior of Backus building at right.

Photo 115
Location: Crawl space
Description: wet soil in basement crawl space looking west. *Courtesy of Bob Marquardt*

Photo 116
Location: B5
Description: wet basement floor near access to craw space *Courtesy of Bob Marquardt*

Photo 117
Location: Crawl space
Description: wet soil in basement crawl space. *Courtesy of Bob Marquardt*

Photo 118
Location: Crawl space
Description: Roof drain valve. Note rusting and wet soil. P trap connecting pipe on floor to other drains daylighting to parking lot..
Courtesy of Bob Marquardt