CENTURY ENGINEERING
A Kleinfelder Company

February 3, 2023

Helping Up Mission / House of Freedom ("Client")
1029 East Baltimore Street
Baltimore, MD 21202

Attn: Mr. Tom Stone

Re: Hendler Building Façade Evaluation
Baltimore, Maryland
CEI Project # 20234347.001A

Dear Tom:

In accordance with our revised proposal dated January 11, 2023, we are submitting our report of the Hendler Building Façade Evaluation, located on East Baltimore Street in Baltimore, Maryland.

**SUMMARY OF WORK**

Our services included conducting a visual structural evaluation of a partially demolished building on and around East Baltimore Street. The south, west and north facades of the building were observed and documented. The goal of this investigation was to understand the structural condition of the existing façades and the potential for their preservation.

On August 31, 2022, we visited the site to familiarize ourselves with the existing conditions and discuss the possibility of the Client acquiring the property. We were also able to gain an initial understanding of the condition of the three remaining facades.

On January 9, 2023, we participated in a kick-off meeting at the site. The purpose of this meeting was to discuss our work plan and approach to conducting a visual structural evaluation. Due to the presence of the steel bracing on the exterior and the piles of building rubble on the interior, it was determined for safety and practical reasons that accessing the higher sections of the facades could not be performed using a traditional manlift or ladder. There are also existing basements and open holes present that precluded the use of manlifts. However, high elevation areas could be photographed by use of a drone. The Client was able to use their drone to perform this work and share it with Century for our mutual benefit. The photographs were very useful in understanding the deteriorated condition of the facades. Captioned drone photographs of representative conditions are included within this report.

Our third site visit occurred on January 18, 2023. The weather conditions were dry and clear with temperatures in the 50's. We were accompanied by Mr. Tom Stone during this visit. We visually inspected the south, west and north facades. Elevation sketches were prepared in order to document the location of the many photographs taken. Limited field measurements were made, including plumbness measurements using a standard 4 foot carpenter's level. Probing of mortar joints was performed using a sharp screwdriver to assess the condition of the mortar. Brick and stone areas were observed to look for signs of distress such as cracking, spalling, efflorescence, delamination, bulging and swelling around embedded metal elements due to rusting. Field notes were prepared, and digital photographs were taken of areas of interest.

Our office work included compiling our field data and photographs, email correspondence and report preparation.

## BACKGROUND INFORMATION

The Hendler Building, which is the focus of this assignment, was originally constructed in 1894 as a steam-powered hoist cable station for trolley cars. It is located in the southwest corner of a 2.2 acre site directly across East Baltimore Street from the Helping Up Mission.

The building has served many functions for different owners over the past 129 years. One of the more modern uses included an ice cream production plant for Hendler Creamery.

There is visual evidence that additions were constructed to expand the building at various times during its lifespan. The building includes multi-wythe brick exterior bearing walls and a combination of steel, concrete and wood interior framing. The façades of this building contain ornate brickwork believed to be from the original construction.

The site is located on the north side of East Baltimore Street between East Street and Aisquith Street. The north side of the site borders East Fayette Street. East Fairmount Street, which bisects the site, has been closed.

The current owner acquired the property several years ago and demolished most of the onsite structures except the Hendler Building. The south, west and north building façades were externally braced with structural steel frames then cut free from the internal floor and roof framing. The bracing frames are attached to the façades with rows of horizontal walers on the interior and exterior sides of the facade, clamped together with steel all-thread rods. The facades were not protected from water infiltration and the effects of freeze-thaw conditions. The tops of the walls were left open to the weather and allowed moisture to permeate the walls. The east façade was completely demolished and removed. A portion of the internal framing is still standing and requires final demolition. Work on the property ceased about five years ago. The site is dangerous due to many hazards and is fenced to prevent access.

We understand the Client is interested in purchasing the property and using the site as recreational space for its clients, residents and staff. Potential longer-term uses include residential housing for graduates, a storage/shipping/receiving facility, underground parking and a recreation area. The Client's current intent is to demolish all three façades and the interior of the remaining building and establish a clean and green area over the entire site.

The Client wishes to understand the structural implications if the Baltimore City Commission for Historical and Architectural Preservation ("CHAP") requires that some or all of the façades be retained. The Client has engaged Century Engineering to evaluate the three façades and prepare a report to address the following:

1. Provide a description of existing conditions.
2. Document evidence of structural degradation that would potentially compromise the continued historic character of the building.
3. Document evidence of structural degradation that could only be corrected by performing demolition and rebuilding of the facades.
4. Document evidence of structural degradation or other conditions that pose a safety hazard to the public.
5. Provide an engineering opinion as to whether or not the three façades could be retained, considering their current condition.
6. Include captioned digital photographs to document representative conditions encountered.

## SUMMARY OF FINDINGS

Our findings are summarized in six sections, one for each exterior and interior surface of the three façades. Exhibit A contains representative photographs of the South Façade, Exhibit B contains representative photographs of the West Façade, and Exhibit C contains representative photographs of the North Façade. Each section also includes drone photographs to document conditions at the top of the facades. Collectively, this information documents the condition of the three facades.

Throughout this section we make a generalized reference to the condition of the mortar as "hard", "moderate" or "soft". These conditions are defined as follows:

1. Hard mortar is existing mortar that is well adhered in the joints and has a positive bond to the brick. The mortar exhibits no or little signs of cracking and weathering. Either none or minimal amounts of mortar matrix can be dislodged when the joint surface is scratched with a sharp instrument. The mortar cannot be penetrated with a sharp instrument and is very difficult to remove using ordinary hand effort.
2. Moderate mortar is existing mortar that is partially adhered in the joints and still has some bond to the brick. The mortar exhibits signs of cracking and weathering. In some instances the surface of the mortar has receded from the face of the wall a short distance due to the effects of freeze-thaw. The mortar matrix can be dislodged when the joint surface is scratched with a sharp instrument. The mortar can be penetrated with a sharp instrument up to 1 inch deep and is somewhat difficult to remove using ordinary hand effort.
3. Soft mortar is existing mortar that is poorly adhered in the joints and has lost its bond to the brick. Much of the original lime and cement has leached out of the mortar, leaving behind a low-strength sandy material. The mortar exhibits significant signs of cracking and weathering. In many instances the surface of the mortar has receded from the face of the wall to a significant depth due to the effects of freeze-thaw. The mortar matrix can be easily dislodged when the joint surface is scratched with a sharp instrument. The mortar can be easily penetrated with a sharp instrument to depths greater than 1 inch and is very easy to remove using ordinary hand effort.

Our field work of the exterior walkway system has yielded the following information.

### South Façade (Exterior Surface)

1. The south façade is approximately 120 feet long and 40 feet high. A taller brick pediment occurs near the middle of the wall. The façade contains a combination of large and small arched openings and rectangular openings of various sizes and purposes.
2. The walls are generally 5 wythes thick (20 inches) at the base and decrease in thickness until they are about 8 to 12 inches at the top. The actual wall thickness varies along the façade due to the presence of pilasters and different construction materials. It appears there are no header bricks in the façade to anchor the outer wythe to the interior courses of brick. This suggests the outer wythe of brick is freestanding for the height of the wall. If there is any method of attachment it is hidden from view and its condition cannot be understood without invasive investigation.
3. There is a noticeable lean to the upper section of the façade at the east end.
4. Plumbness measurements made at the base of the wall with a carpenter's level range from 0" out of plumb in 4 feet to ¼" out of plumb in 4 feet, leaning towards the south.
5. There is evidence of eroded mortar joints and weathered brick throughout the façade.

6. There is evidence that portions of the wall were tuck pointed at some time in the past. The tuck pointed mortar is hard, while the underlying (original) mortar is moderate to soft.
7. Portions of the wall had been sandblasted to remove either efflorescence or graffiti.
8. Portions of the sandstone trim, watertables and carvings have deteriorated due to exposure to the elements.
9. The pilaster at the overhead door at the west end is cracked. Previous repairs were made with non-matching brick.
10. Efflorescence was observed in several areas, indicating that water has penetrated the interior of the facades.
11. There are no vertical control joints to accommodate thermal expansion as are found in modern wall construction.
12. The top of the façade is open to the elements, allowing water to freely enter the wall.
13. Deteriorated and / or missing window frames allow water to enter the wall.

**South Façade (Interior Surface)**

1. There are numerous open joints, open beam pockets and ledges allowing water to penetrate the facade.
2. There are sections of soft-burned brick that are exposed to the weather and have been saturated.
3. Mortar was found to be moderate throughout, although some areas of both hard and soft mortar were found.
4. There are numerous cut off beams that remain embedded in the brick walls that have swelled with pack rust and are actively stressing the surrounding brick. Rusting steel expands up to ten times the original volume of the steel, depending on the degree of oxidation. The heavy conglomeration of rust that results is often referred to as "pack rust". This material is layers of rust fused together and has no structural strength. Pack rust is porous and will trap water, thereby accelerating the rusting process. The result is the loss of the steel cross section and in severe cases can weaken the steel to the point of failure. The lateral pressure developed by the pack rust spalls away the surrounding brick, allowing additional moisture to reach the steel and enter the wall.
5. Some of the steel lintels are swelled with pack rust and are actively stressing the surrounding brick.
6. There is no visual evidence of any kind of connection between the various phases of building construction. The different sections of façade simply abut each other.
7. There are sections of concrete floors and beams that remain embedded in the walls. These allow water to enter the wall around their margins.

**West Façade (Exterior Surface)**

1. The west façade is approximately 180 feet long and varies from 35 to 40 feet high due to the slope of East Street. The top of the wall is relatively level and originally formed the roof eave and gutter. The façade contains a combination of large arched openings and rectangular openings of various sizes and purposes.
2. The walls are generally 5 wythes thick (20 inches) at the base and decrease in thickness until they are about 8 to 12 inches at the top. The actual wall thickness varies along the façade due to the presence of pilasters and different construction materials. It appears there are header bricks in the façade to anchor the outer wythe to the interior wythes of brick.
3. Plumbness measurements made at the base of the wall with a carpenter's level range from 0" out of plumb in 4 feet to ¾" out of plumb in 4 feet, leaning towards the west.
4. There is evidence of severely eroded mortar joints, open mortar joints and severely deteriorated brick throughout the façade. In several locations the brick surface has eroded

back from its original vertical plane up to 2 inches. The mortar has also eroded to depths of more than 1 inch typically and to greater depths where the brick deterioration is severe.
5. There is evidence that portions of the wall were tuck pointed at some time in the past. The tuck pointed mortar is hard, while the underlying (original) mortar is moderate to soft. We found extensive areas of very soft mortar that offered no resistance to penetration with a sharp instrument.
6. Some of the steel lintels are swelled with pack rust and are actively stressing the surrounding brick.
7. There are numerous cracks throughout the façade and especially at some of the arched openings, weakening the wall. Bulging brick was found at the spring point of one of the large arches.
8. Portions of the wall had been sandblasted to remove either efflorescence or graffiti.
9. Portions of the brick watertable has deteriorated due to exposure to the elements.
10. Efflorescence was observed in several areas, indicating that water has penetrated the interior of the facades.
11. Open vertical slots in the façade were found at the locations of previous roof leaders. These openings allow water to penetrate the wall.
12. There are no vertical control joints to accommodate thermal expansion as are found in modern wall construction.
13. The top of the façade is open to the elements, allowing water to freely enter the wall.
14. Deteriorated and / or missing window frames allow water to enter the wall.

**West Façade (Interior Surface)**

1. There are numerous open joints, open beam pockets and ledges allowing water to penetrate the facade.
2. There are sections of soft-burned brick that are exposed to the weather and have deteriorated. We found areas where the brick surface is flaking away from the base material due to moisture absorption and freeze-thaw effect.
3. Mortar was found to be moderate throughout, although some pockets of soft mortar were found. Voids behind the surface mortar were found at the northern section and offered no penetration resistance with a sharp instrument.
4. There are numerous cut off beams that remain embedded in the brick walls that have swelled with pack rust and are actively stressing the surrounding brick.
5. Some of the steel lintels are swelled with pack rust and are actively stressing the surrounding brick.
6. There is protruding debris from prior construction that is allowing water to penetrate the wall.
7. A large area below an arched opening shows severe brick deterioration, eroded mortar joints and soft mortar.
8. There are large cracks and complete delamination of the interior wythe of brick, resulting in dangerous condition at the southwest door entrance. The bricks in this area may fall without warning on a person entering this door.
9. There are sections of concrete floors and beams that remain embedded in the walls. These allow water to enter the wall around their margins.

**North Façade (Exterior Surface)**

1. The north façade is approximately 100 feet long and 35 feet high. A taller brick pediment occurs toward the middle of the wall that aligns with the pediment on the south facade. The façade contains a combination of large and small arched openings and rectangular openings of various sizes and purposes.

2. The walls are generally 5 wythes thick (20 inches) at the base and decrease in thickness until they are about 8 to 12 inches at the top. The actual wall thickness varies along the façade due to the presence of pilasters and different construction materials. It appears there are header bricks in the façade to anchor the outer wythe to the interior courses of brick.
3. Plumbness measurements made at the base of the wall with a carpenter's level range from 0" out of plumb in 4 feet to ¾" out of plumb in 4 feet, leaning towards the north.
4. There is evidence of eroded mortar joints and weathered brick throughout the façade. In one area the mortar joints are eroded to a depth of 3 inches.
5. There is evidence that portions of the wall were tuck pointed at some time in the past. The tuck pointed mortar is hard, while the underlying (original) mortar is moderate to soft.
6. Severe cracking and deterioration were found at both jambs of a large opening at the northwest corner.
7. Some of the steel lintels are swelled with pack rust and are actively stressing the surrounding brick.
8. There are no vertical control joints to accommodate thermal expansion as are found in modern wall construction.
9. The top of the façade is open to the elements, allowing water to freely enter the wall.
10. Deteriorated and / or missing window frames allow water to enter the wall.

**North Façade (Interior Surface)**

1. There are numerous open joints, open beam pockets and ledges allowing water to penetrate the facade.
2. There are sections of soft-burned brick that are exposed to the weather and have deteriorated. We found areas where the brick surface is flaking away from the base material due to moisture absorption and freeze-thaw effect.
3. Mortar was found to be moderate throughout, although some areas of both hard and soft mortar were found.
4. There are numerous cut off beams that remain embedded in the brick walls that have swelled with pack rust and are actively stressing the surrounding brick.
5. There is no visual evidence of any kind of connection between the various phases of building construction. The different sections of façade simply abut each other.
6. Some of the steel lintels are swelled with pack rust and are actively stressing the surrounding brick.
7. There is evidence of delamination of the interior wythe of brick, resulting in protruding and loose bricks.
8. There are sections of concrete floors and beams that remain embedded in the walls. These allow water to enter the wall around their margins.
9. Cracks were found in various locations, especially at the east end around a door opening.

## CONCLUSIONS

Our investigation has led us to the following conclusions.

1. The overall physical condition of the three facades is marginal to poor. Of the three, the condition of the west façade is clearly the worst.
2. The presence of deteriorated brick, eroded mortar joints and efflorescence in all three facades points to a combination of long term exposure to the elements and significant water infiltration into the top and vertical faces of the facades over the last five years. Combined with freeze-thaw effects, the result is exterior and internal damage to the façade.

3. The situation has worsened during the period of time in which the property has not been developed. The tops of the facades are exposed. This has allowed moisture to enter the walls at the top, saturating the brick for the full height. The numerous ledges, beam pockets and remaining rusted framing members have also allowed water direct access into the walls, hastening deterioration.
4. Prior sandblasting of the exterior brick surface has also contributed to the deterioration process because the sandblasting removes the hard burned outer skin of the brick. It is this "skin" that gives the brick its' weather and moisture resistance. Without the skin the brick will absorb moisture and quickly deteriorate.
5. The lack of header bricks on the exterior side of the south façade is a significant issue. As previously stated, the lack of header bricks means that the outer wythe of brick is not properly connected to the interior portion of the wall. Water can penetrate the wall and freeze in cold weather, causing the outer wythe to separate. We suspect that there may be some type of brick tie present because the building has stood for many years. However, there is no way to know for certain without removing the entire outer wythe of brick.
6. We have concern over the west and north facades where brick headers do occur. Water will infiltrate the walls and freeze in cold weather because the walls are exposed to the elements. This will cause the brick headers that connect the different wythes of brick to crack, rendering them useless. As a result the wythes can separate and cause the wall to peel apart. This often happens in older brick walls under normal circumstances and will definitely occur when the tops of the walls are left exposed to the elements.
7. The interior face of the facades and interior wythes are composed of soft-burned brick. This is commonly known as "salmon-brick" due to its pinkish color. This brick is much softer than hard-burned face brick and was never intended to be left exposed to the weather. Water is easily absorbed into this brick leading to deterioration from freeze-thaw action. Scaling and peeling of the brick surface were observed in many locations throughout the facades, along with mortar deterioration. This brick would have to be completely removed and replaced with durable brick if the facades were to remain.
8. The facades have no thru-wall flashing over embedded steel lintels. This was normal construction technology at the time these buildings were built. Long-term moisture infiltration will occur, resulting in rusting and swelling of the steel lintels from the formation of pack rust. Once this occurs, any rusting steel lintels must be removed and replaced, otherwise the wall will continue to deteriorate. Likewise, abandoned steel beams and concrete slabs embedded in the walls must also be removed. Removal of many of these elements require removal and reconstruction of significant portions of the facade above them.
9. We found numerous areas of severely eroded brick, especially along the west façade. This material must be removed and replaced with new materials to restore structural integrity. This is especially problematic at the arched openings, because removing and reconstructing the arches requires removal of the entire wall above them.
10. It is important to understand that where large areas need repair, the deteriorated exterior side of the facades cannot be repaired independently of the interior side. For safety and practical construction reasons the entire thickness of the façade would need to be removed and replaced at the area of repair. It is impossible to replace only the interior wythes of the walls while leaving the exterior wythe intact, and vice-versa, because only one of two wythes of brick in such fragile condition cannot safely span between the horizontal whalers of the steel shoring system.
11. We believe all three facades have deteriorated to the point where preserving and restoring them to maintain their historic fabric and character is not possible, based on their current condition. The degree and extent of deterioration is very extensive and touches every

portion of the facades in some manner. The amount of demolition required, and reconstruction necessary to overcome these deficiencies will leave none of the original historic fabric of the building.

12. We also believe that the facades have deteriorated to the point where they are a safety hazard, even with the steel bracing. For the steel bracing to function, the brick facades must have enough structural integrity to span vertically between the rows of horizontal walers. We believe the deterioration is so extensive that this integrity is significantly compromised. We anticipate that portions of the walls could collapse at any time, showering Baltimore Street and the parking garage to the west along East Street with brick rubble. This obviously poses a serious risk to the public.

## RECOMMENDATIONS

Our investigation has led us to the following recommendations.

1. We recommend that all three facades be demolished as soon as possible. As discussed above, the degree and extent of deterioration eliminates the possibility of preserving the historic fabric.
2. Many dangerous conditions are present; therefore, the site must remain fenced to keep out intruders.
3. Demolition must be conducted in accordance with State and Local laws and ordinances. The demolition must be conducted in a controlled, systematic manner to prevent falling debris and or unexpected collapse. We recommend that at least one lane of East Baltimore Street be temporarily closed for a safety buffer.
4. Building rubble must be disposed of in a legal manner. The external steel framing could be salvaged and repurposed or scrapped and recycled.
5. Existing basements must be properly infilled using engineered materials. We do not recommend building rubble be dumped into the basements in an uncontrolled manner and covered with soil. This will cause sinkholes to eventually form in the ground surface and render the site unusable for future use.
6. Building rubble could be used for fill material, provided it is crushed, graded and screened to remove unacceptable debris. All fill materials must be placed in lifts and properly compacted under the supervision of a Geotechnical Engineer.
7. Any existing basement walls and foundations should be removed if they have the potential to interfere with future development.
8. The existing utility tunnels under the East Baltimore Street sidewalk must remain sealed off. A suitable concrete wall or "plug" may be needed for this purpose if the basement walls are removed.

## GENERAL AND LIMITATIONS

The observations, opinions and recommendations stated in this report are based upon data obtained by limited visual observation of the building facades as they existed on the dates and times of our inspections. This report does not and cannot include any observations, opinions and recommendations for hidden conditions and any uninspected conditions. The nature, extent and effect of any hidden conditions or uninspected conditions may not become evident until a future date and may have a detrimental effect on the structural integrity of the facades and adversely affect their safety. No evaluation has been made of any other improvements not specifically stated herein.

Century Engineering, LLC, represents that the engineering services provided herein were conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering profession currently practicing in the same locality as this Project under similar

conditions. We make no other warranties, either expressed or implied, as to our findings or professional advice contained herein.

## CONCLUSION

Thank you for the opportunity of serving you. If you have any questions or need further assistance, please do not hesitate to contact me at (443) 589–2400.

Very truly yours,

**CENTURY ENGINEERING, LLC, A KLEINFELDER COMPANY**

William B. Rockey, PE, LEED AP
Senior Engineer Specialist
Building Structures Division

Enclosures: Exhibits A, B and C


"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 19809, Expiration Date 10/10/24"

# Exhibit A

## Representative Photographs
## South Façade

**Photo 1**
Hendler Building South Façade - Exterior Face
Note Efflorescence on Wall

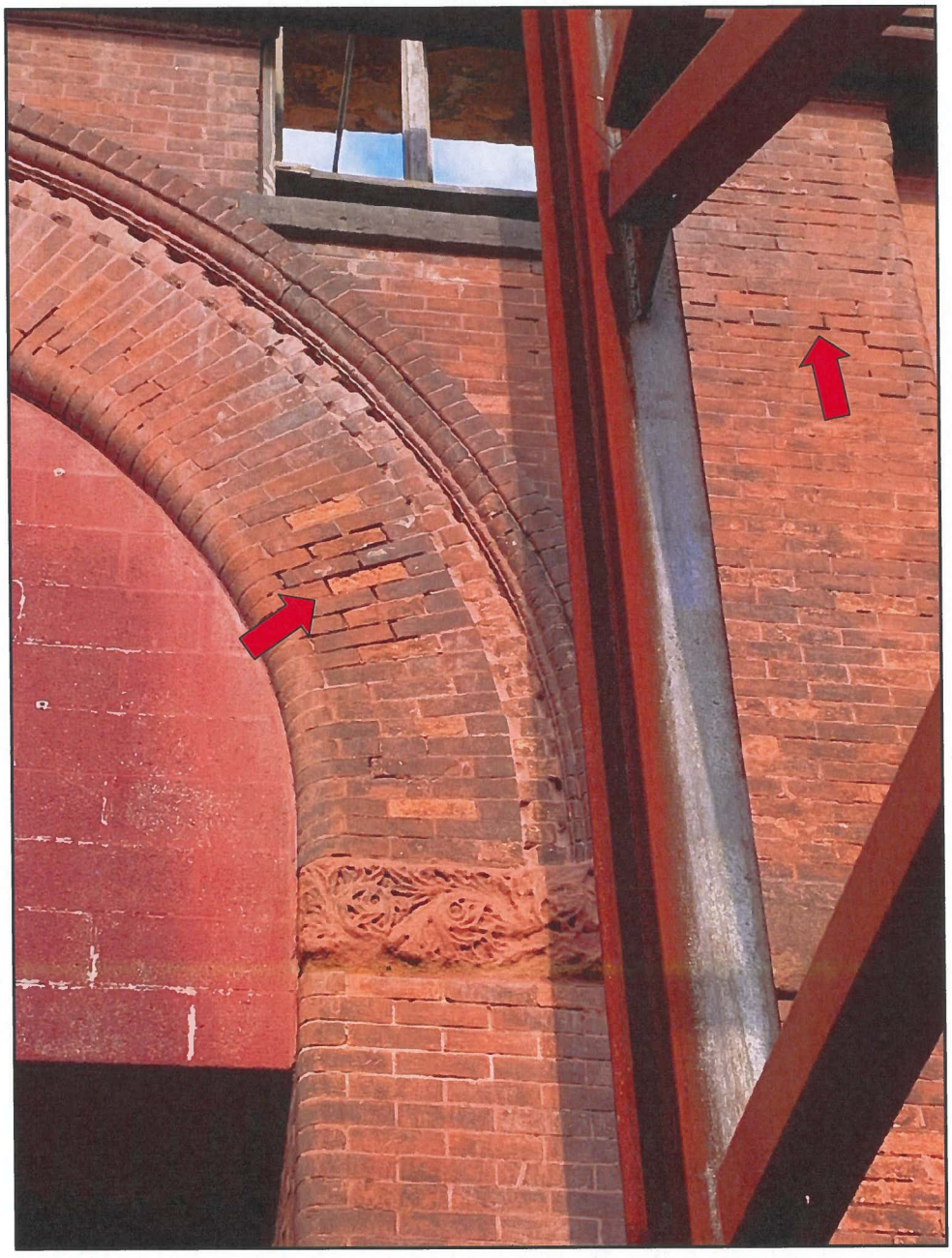

**Photo 2**
Hendler Building South Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints

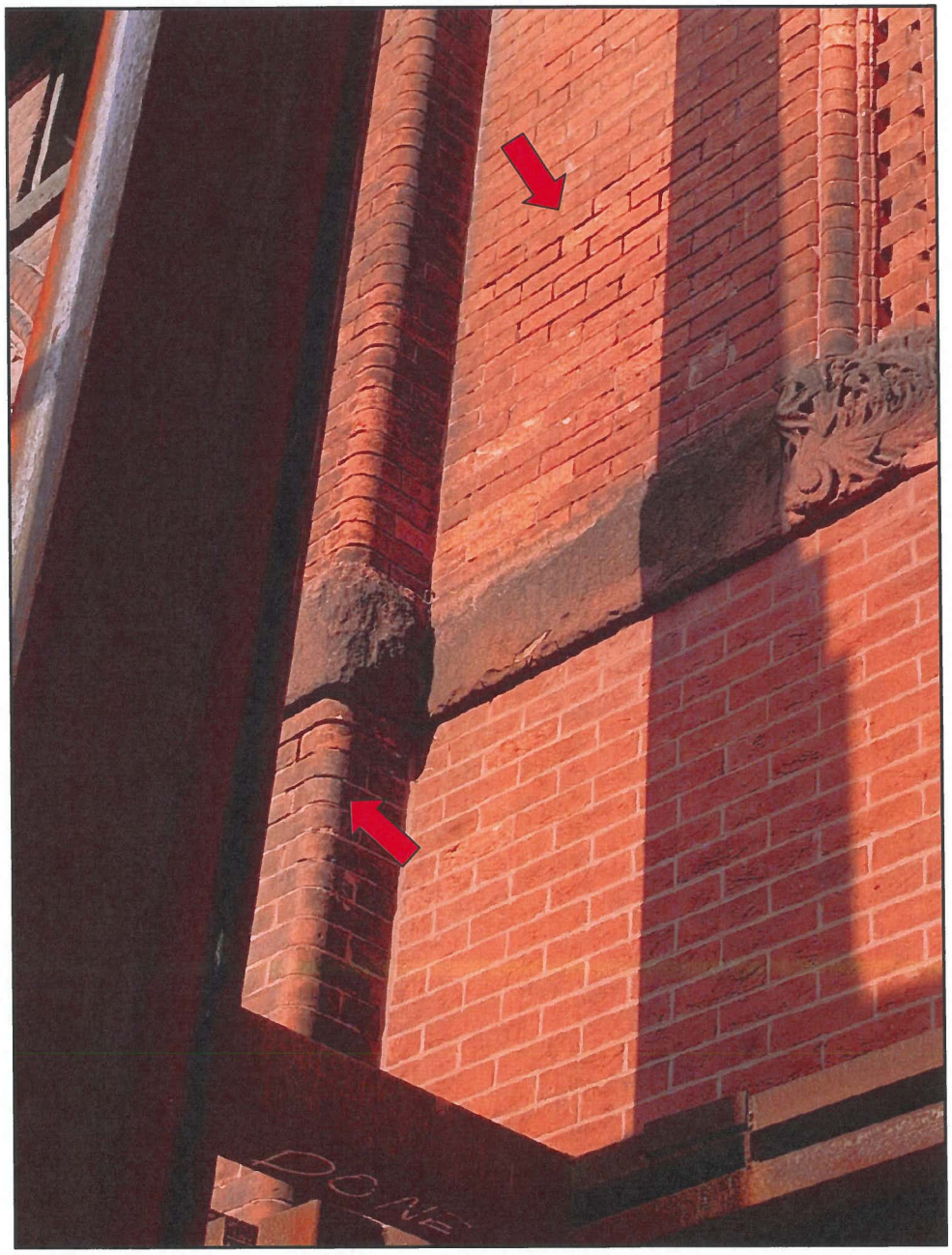

**Photo 3**
Hendler Building South Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints

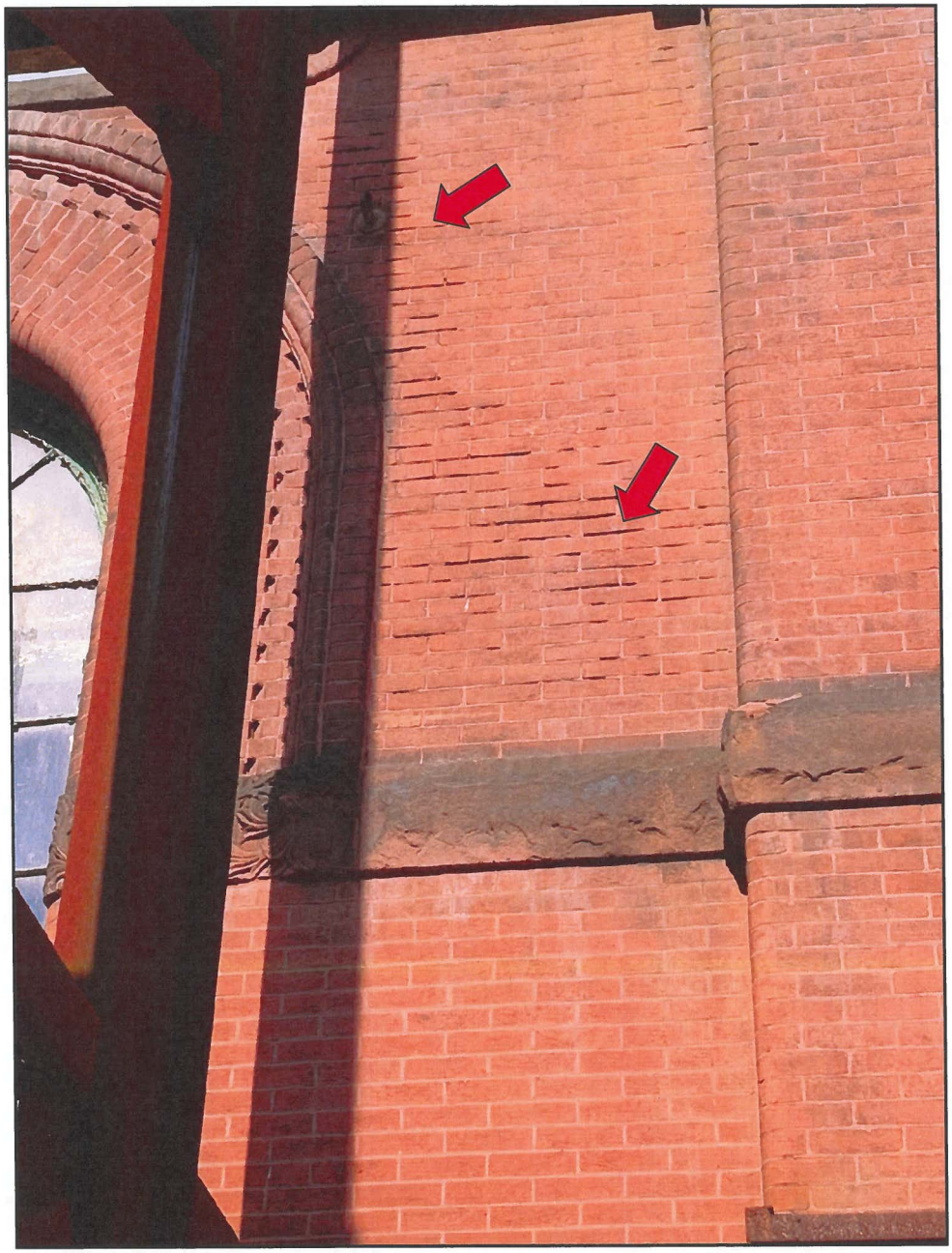

**Photo 4**
Hendler Building South Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints

**Photo 5**
Hendler Building South Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints

**Photo 6**
Hendler Building South Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints
Cracks and Prior Repairs

**Photo 7**
Hendler Building South Façade - Exterior Face
Note Lean in Upper Section of Facade

**Photo 8**
Hendler Building South Façade - Interior Face
Note Openings in Brick, Beam Pockets and
Embedded Concrete Floor

**Photo 9**
Hendler Building South Façade - Interior Face
Note Openings in Brick, Beam Pockets,
Eroded Mortar and Loose Brick

**Photo 10**
Hendler Building South Façade - Interior Face
Note Openings in Brick, Missing or Deteriorated Window Frames
and Embedded Concrete Floor

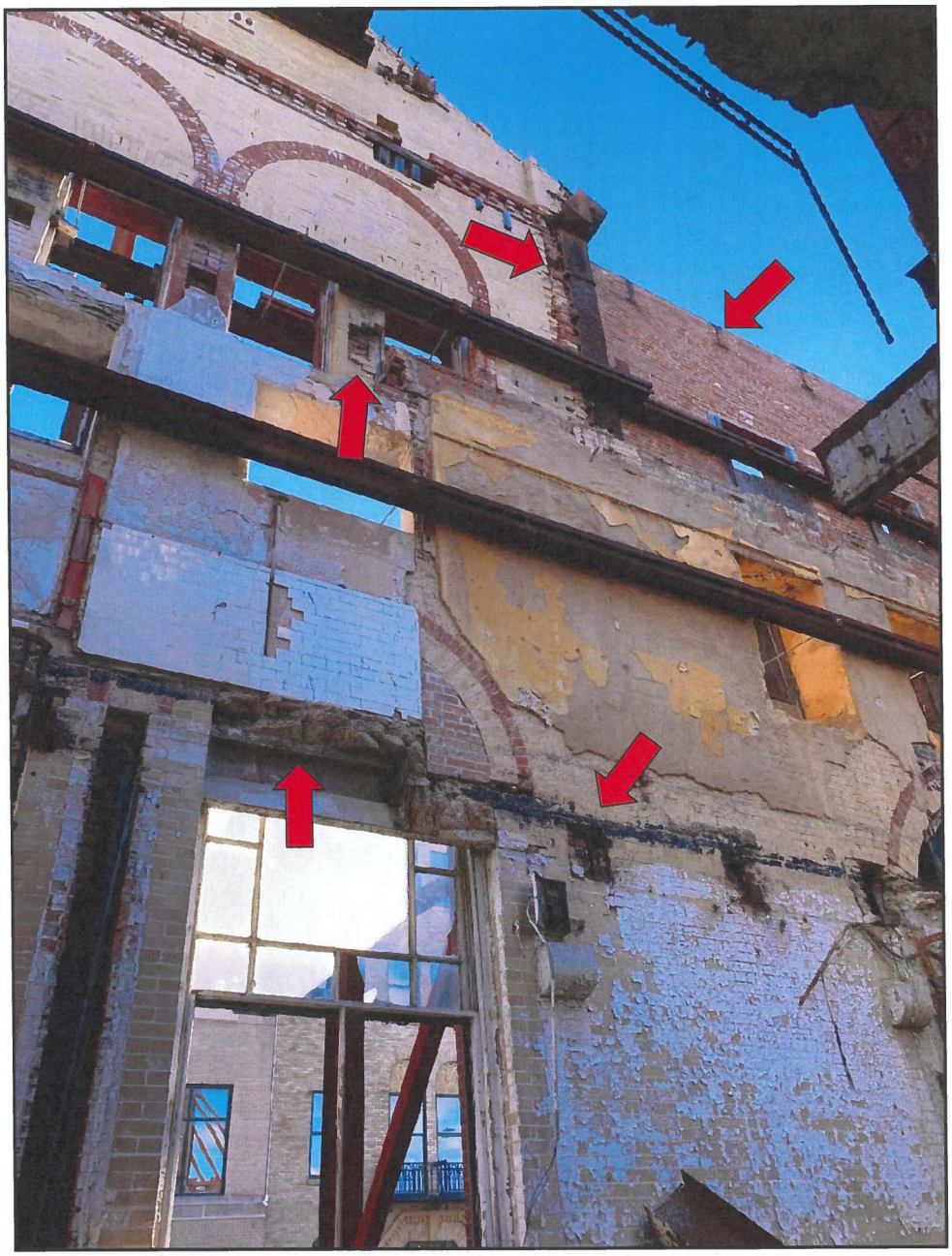

**Photo 11**
Hendler Building South Façade - Interior Face
Note Openings in Brick, Beam Pockets
and Embedded Concrete Floor

**Photo 12**
Hendler Building South Façade - Interior Face
Note Openings in Brick, Embedded Beam with Pack Rust
and Spalled Brick

**Photo 13**
Hendler Building South Façade - Interior Face
Note Openings in Brick and Embedded Beam with Pack Rust

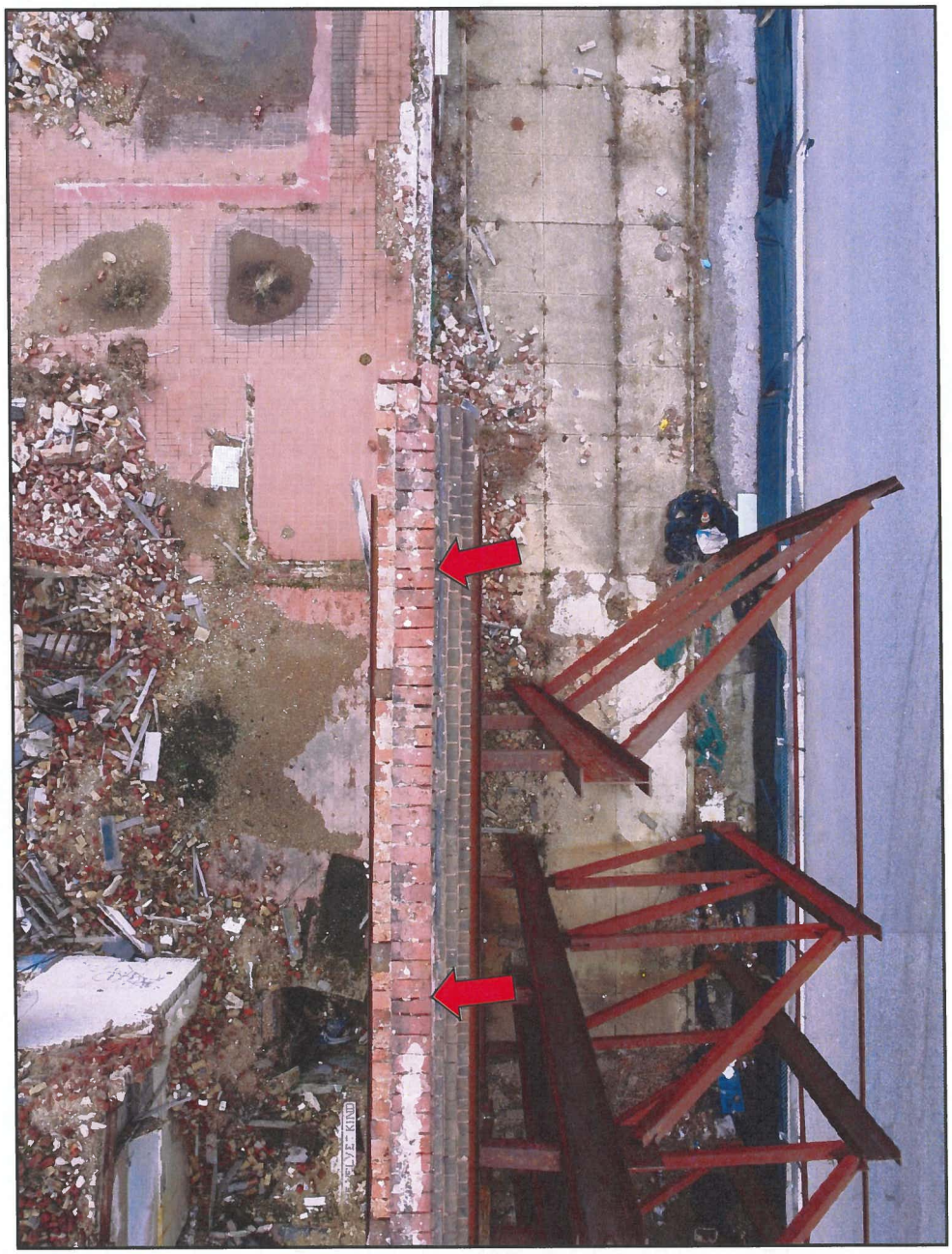

**Photo 14**
Hendler Building South Façade – Top Surface
Note Missing Coping and Openings in Brick

**Photo 15**
Hendler Building South Façade – Top Surface
Note Missing Coping and Openings in Brick

**Photo 16**
Hendler Building South Façade – Top Surface Above Pediment
Note Missing Coping and Openings in Brick

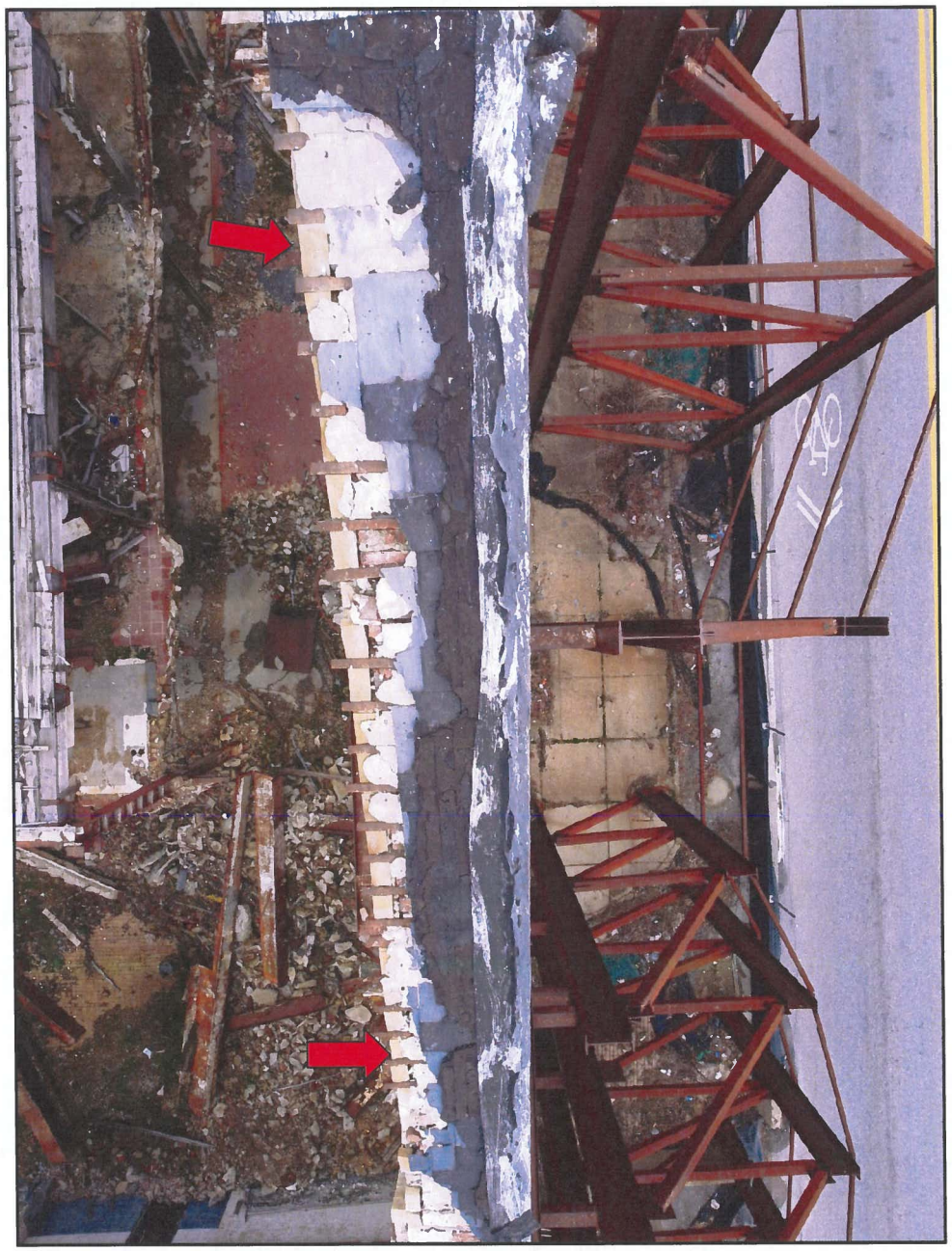

**Photo 17**
Hendler Building South Façade – Top Surface Above Pediment
Note Missing Coping and Openings in Brick

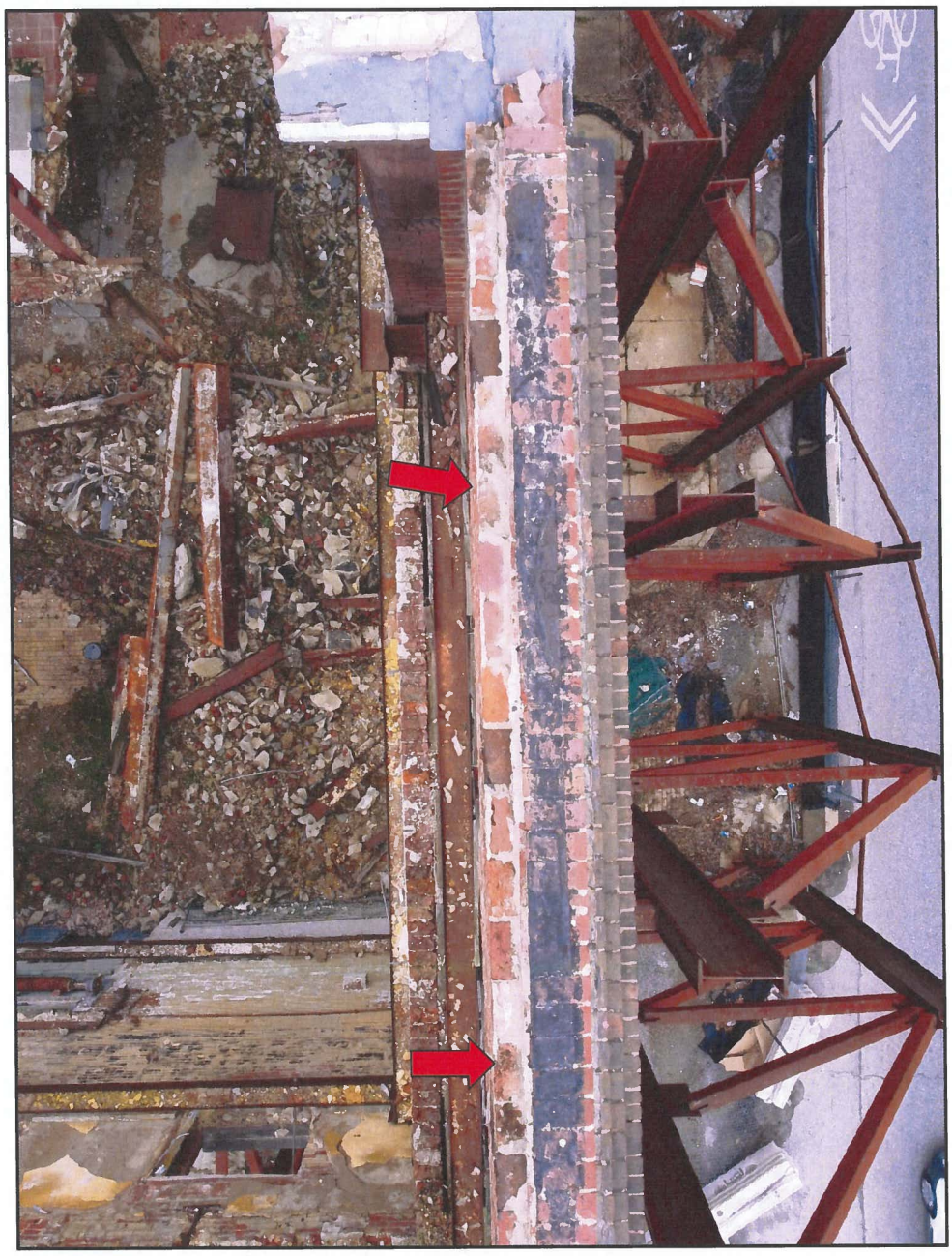

**Photo 18**
Hendler Building South Façade – Top Surface
Note Missing Coping

# Exhibit B

## Representative Photographs
## West Façade

**Photo 1**
Hendler Building West Façade - Exterior Face
Note Deteriorated Brick and Mortar Joints, Cracks, Bulge
And Efflorescence

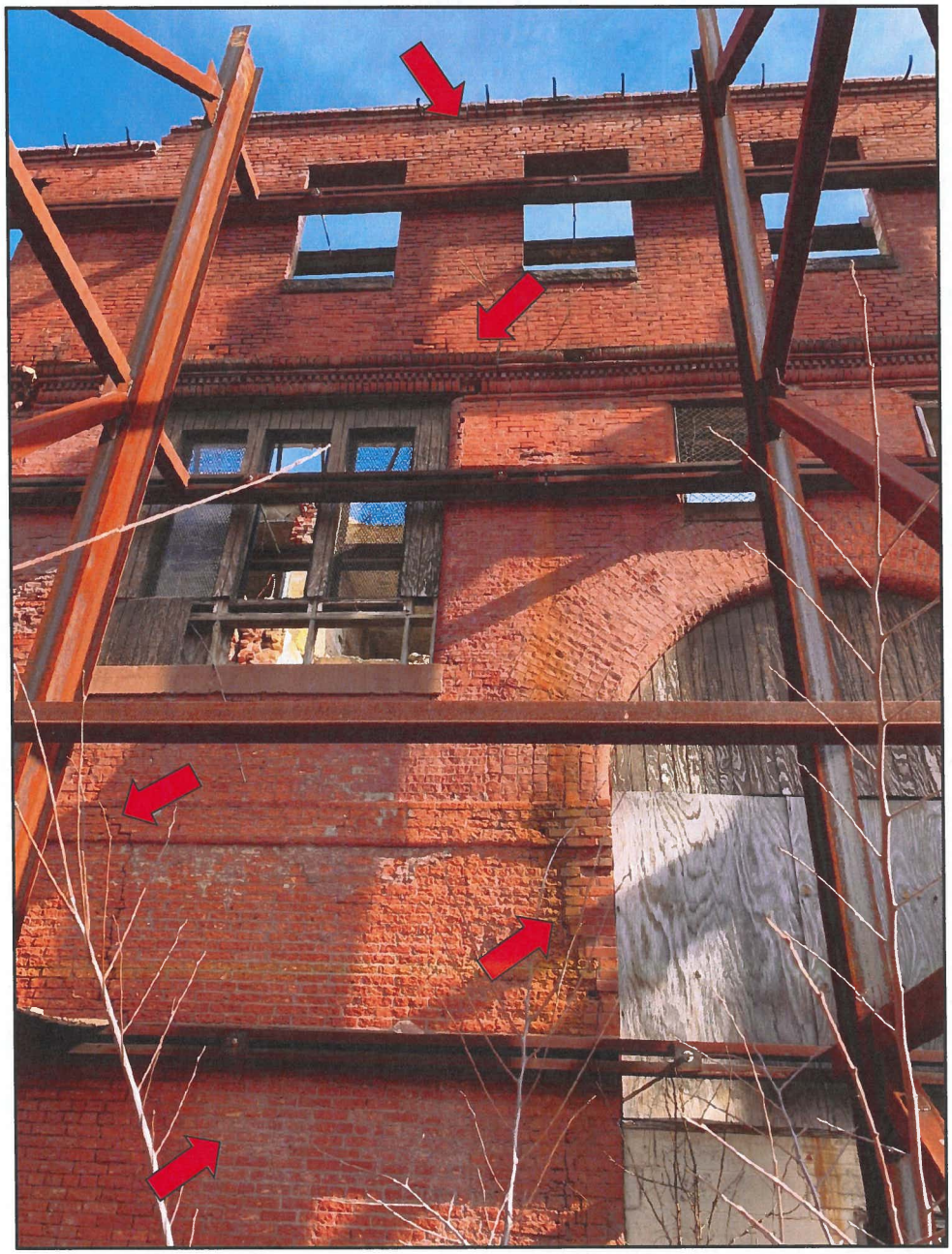

**Photo 2**
Hendler Building West Façade - Exterior Face
Note Deteriorated Brick and Mortar Joints, Cracks, Bulge
And Efflorescence

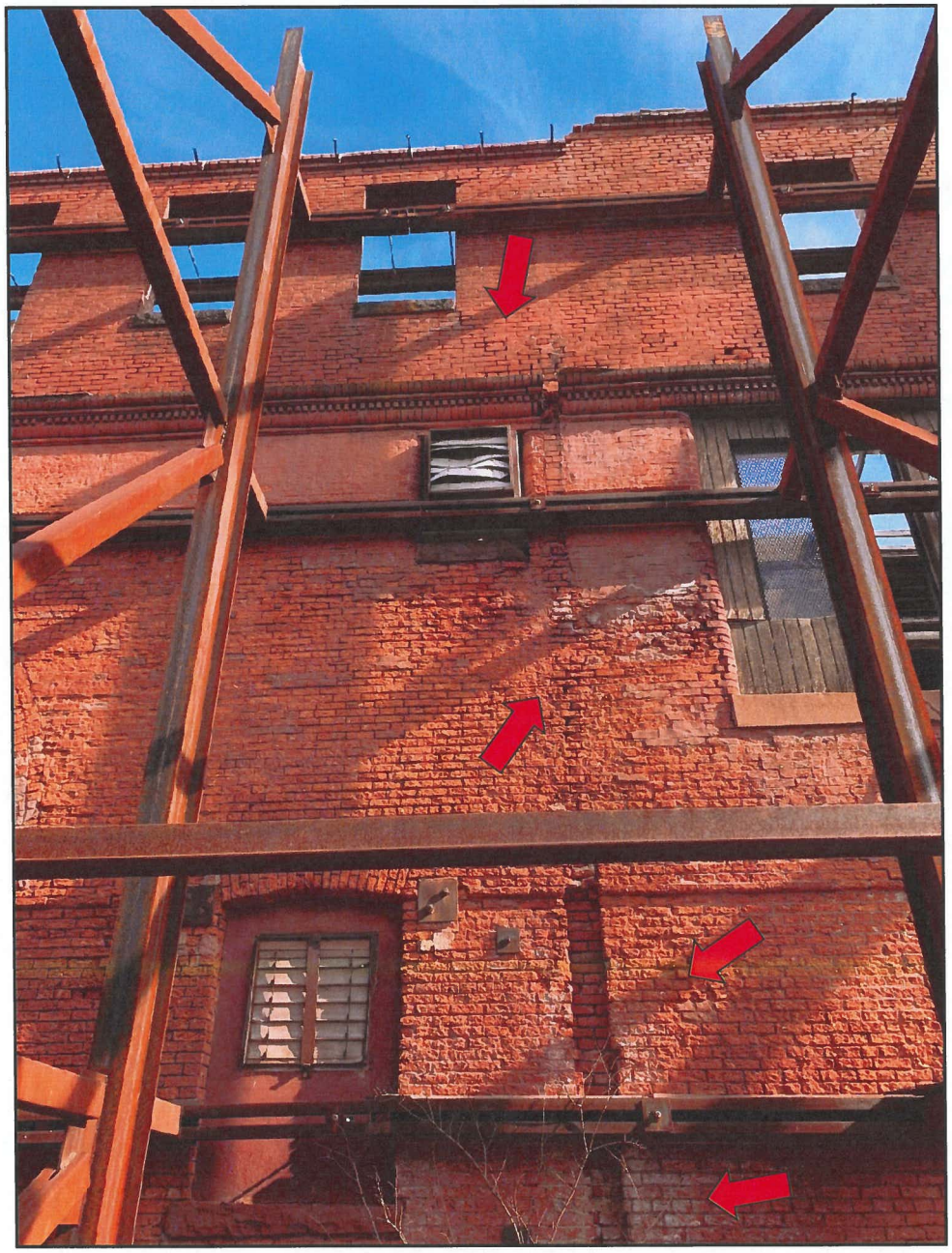

**Photo 3**
Hendler Building West Façade - Exterior Face
Note Severely Deteriorated Brick and Mortar Joints, Cracks, and Efflorescence

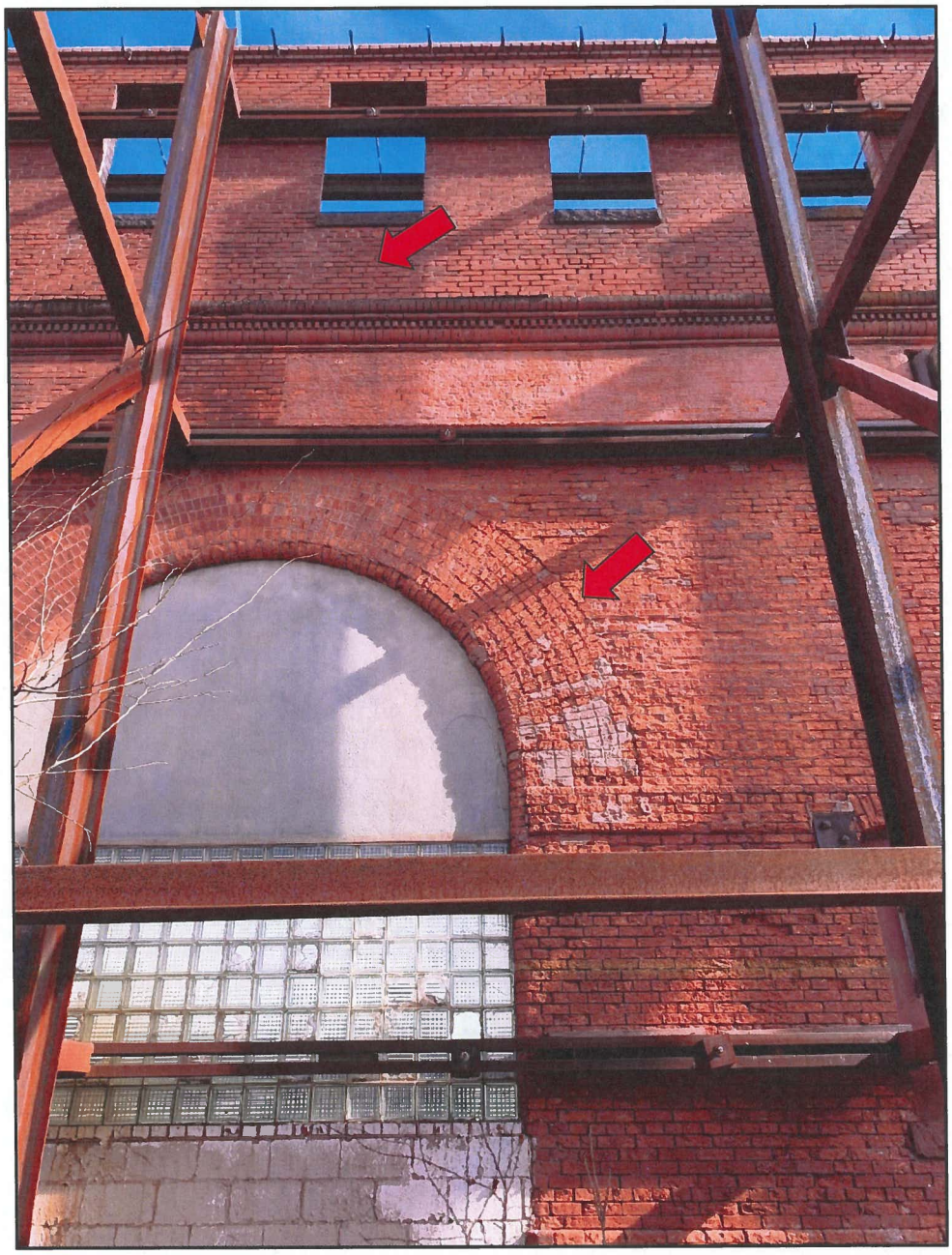

**Photo 4**
Hendler Building South Façade - Exterior Face
Note Severely Deteriorated Brick and Eroded Mortar Joints

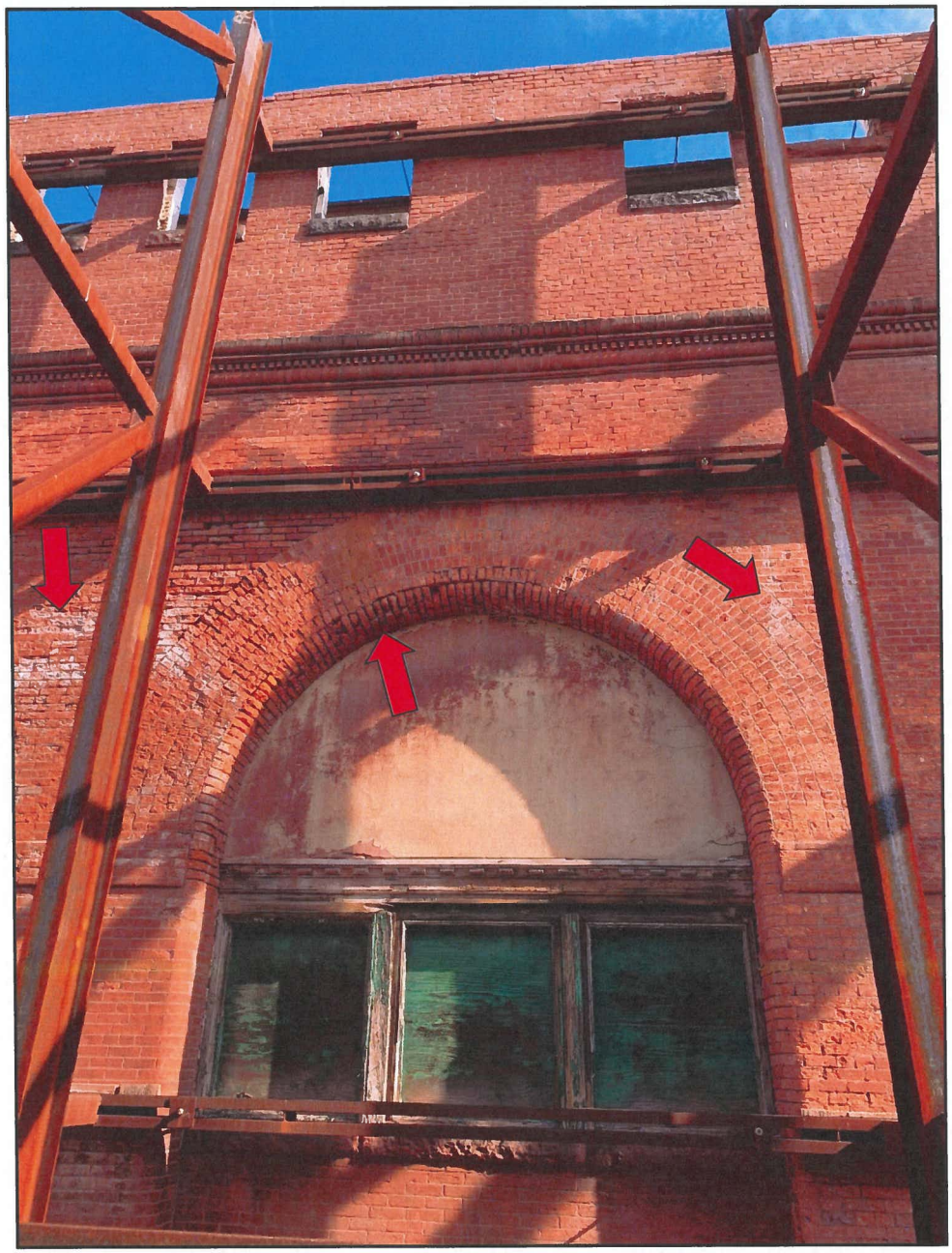

**Photo 5**
Hendler Building West Façade - Exterior Face
Note Severely Deteriorated Brick and Mortar Joints,
and Efflorescence

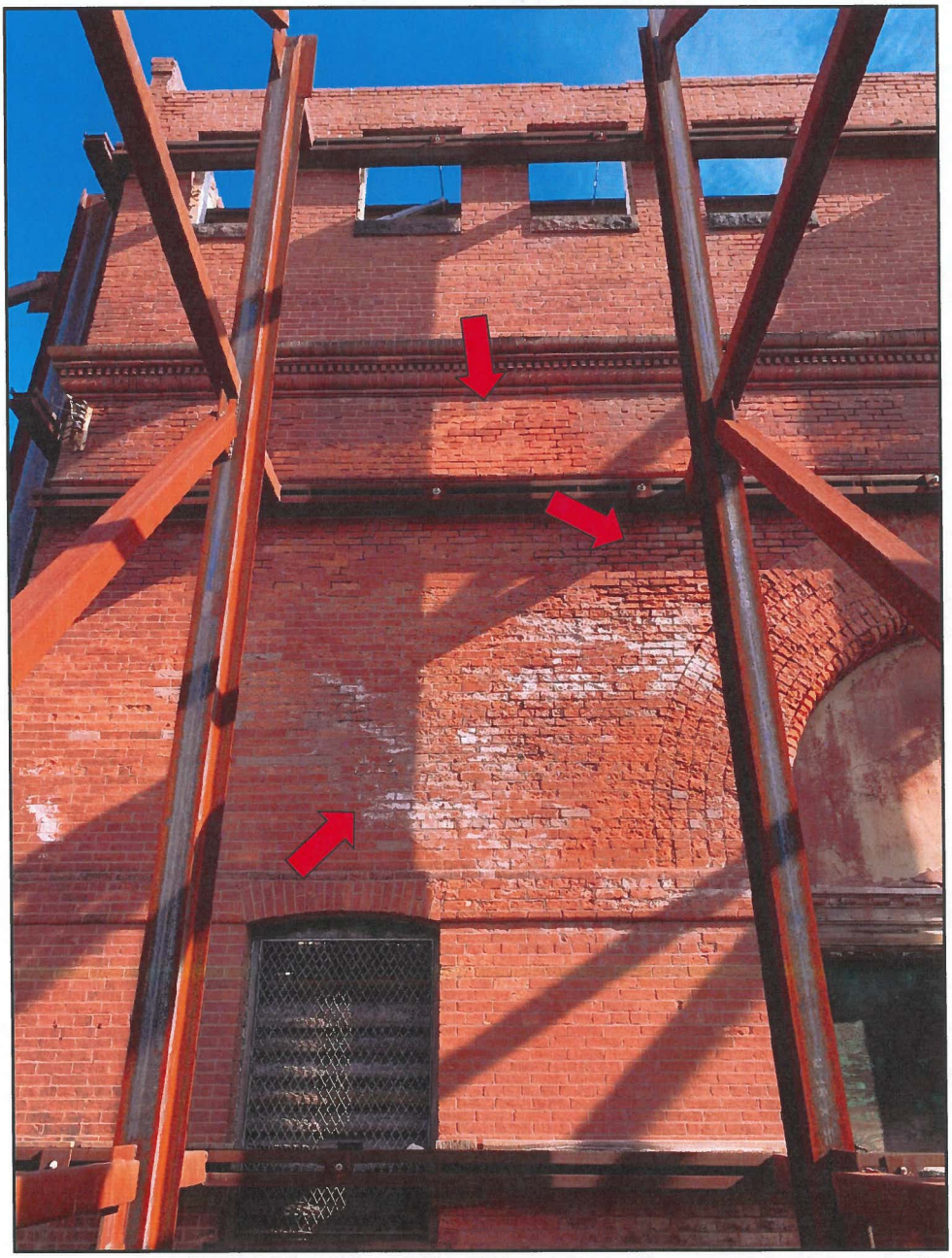

**Photo 6**
Hendler Building West Façade - Exterior Face
Note Severely Deteriorated Brick and Mortar Joints,
and Efflorescence

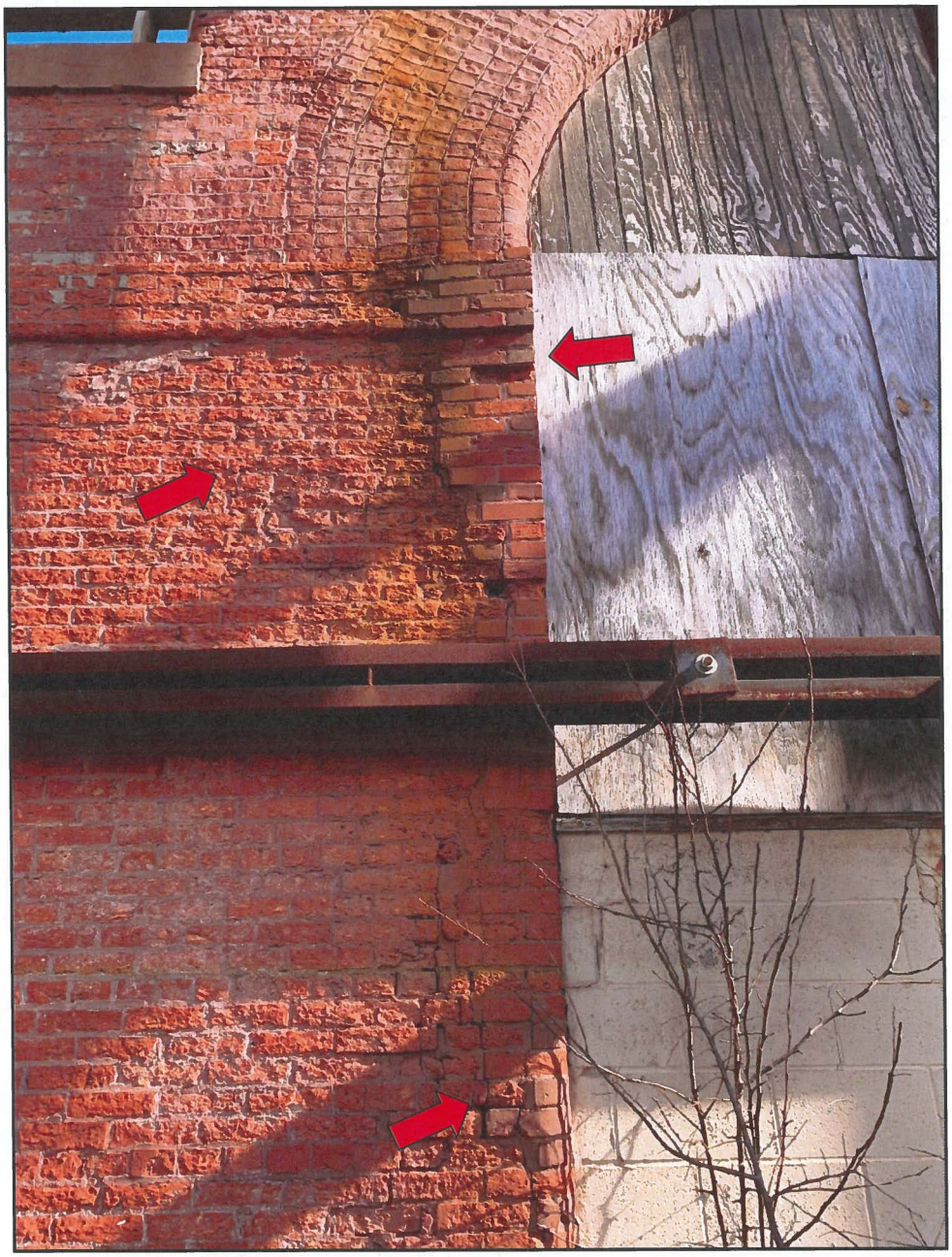

**Photo 7**
Hendler Building West Façade - Exterior Face
Note Severely Deteriorated Brick and Mortar Joints, Bulge and Cracks

**Photo 8**
Hendler Building West Façade - Exterior Face
Note Severely Deteriorated Brick and Mortar Joints,
and Efflorescence

**Photo 9**
Hendler Building West Façade - Exterior Face
Note Severely Deteriorated Brick and Mortar Joints, Cracks
Slot in Wall and Efflorescence

**Photo 10**
Hendler Building West Façade - Exterior Face
Note Severely Deteriorated Brick and Mortar Joints

**Photo 11**
Hendler Building West Façade - Interior Face
Note Openings in Brick, Beam Pockets
and Missing Window Frames

**Photo 12**
Hendler Building West Façade - Interior Face
Note Large Crack and Unsupported Brick Veneer

**Photo 13**
Hendler Building West Façade - Interior Face
Note Severely Deteriorated Brick and Mortar Joints,
and Embedded Steel Elements with Pack Rust

**Photo 14**
Hendler Building West Façade - Interior Face
Note Severely Deteriorated Brick and Mortar Joints

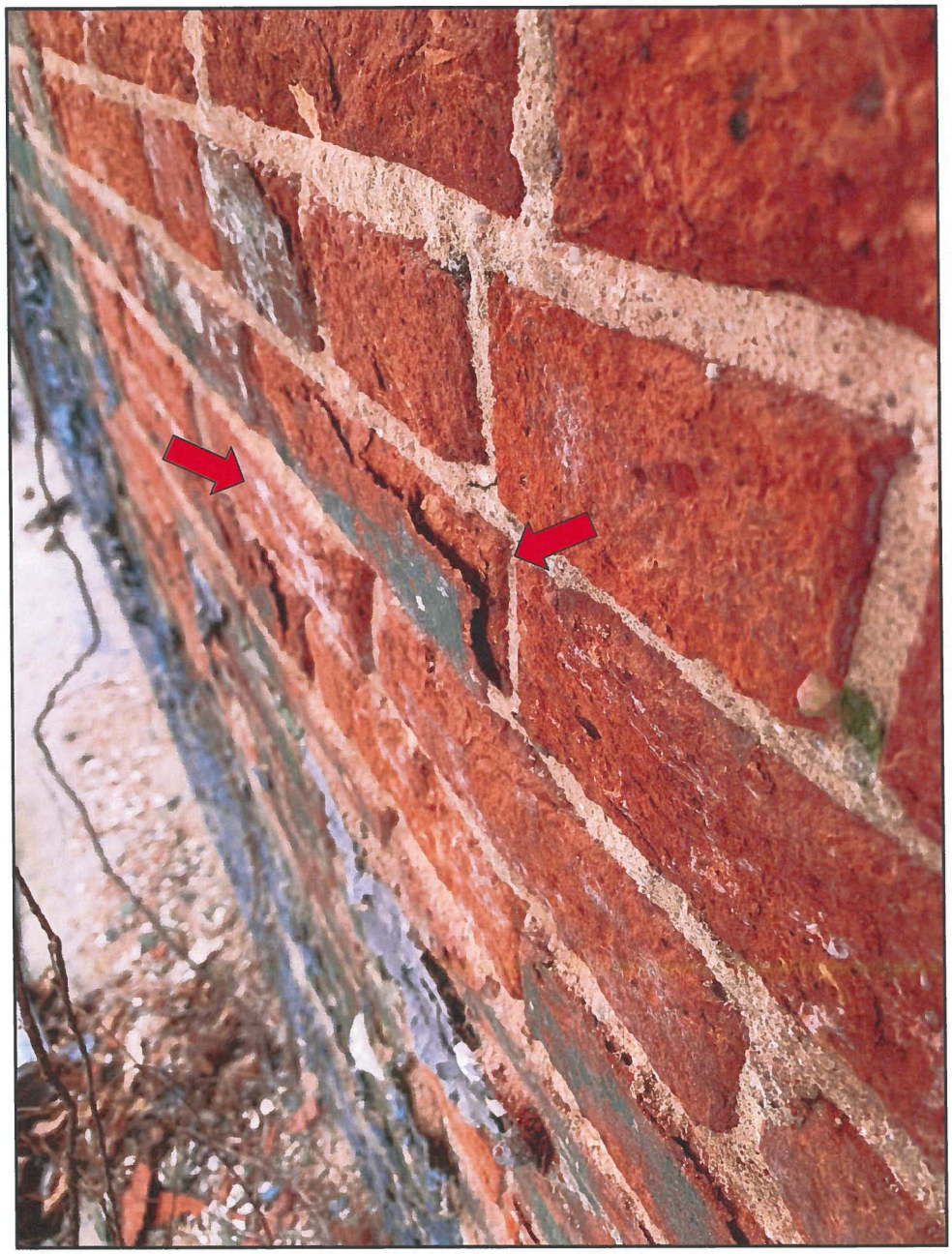

**Photo 15**
Hendler Building West Façade - Interior Face
Note Delaminated Brick and Efflorescence

**Photo 16**
Hendler Building West Façade – Top Surface
Note Missing Coping and Openings in Brick

**Photo 17**
Hendler Building West Façade – Top Surface
Note Missing Coping and Openings in Brick

**Photo 18**
Hendler Building West Façade – Top Surface
Note Missing Coping and Openings in Brick

**Photo 19**
Hendler Building West Façade – Top Surface
Note Missing Coping and Openings in Brick

# Exhibit C

## Representative Photographs
## North Façade

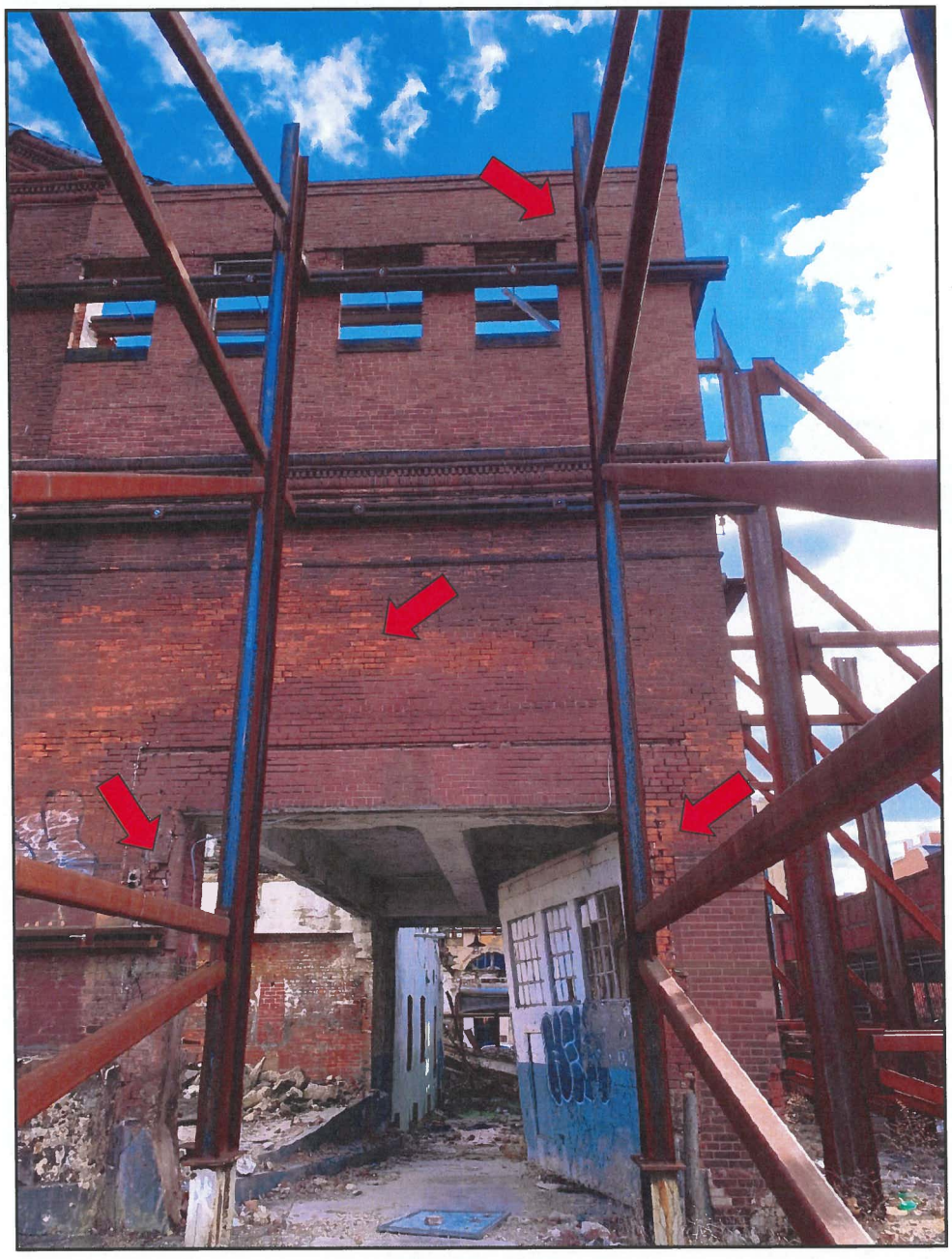

**Photo 1**
Hendler Building North Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints
and Cracks

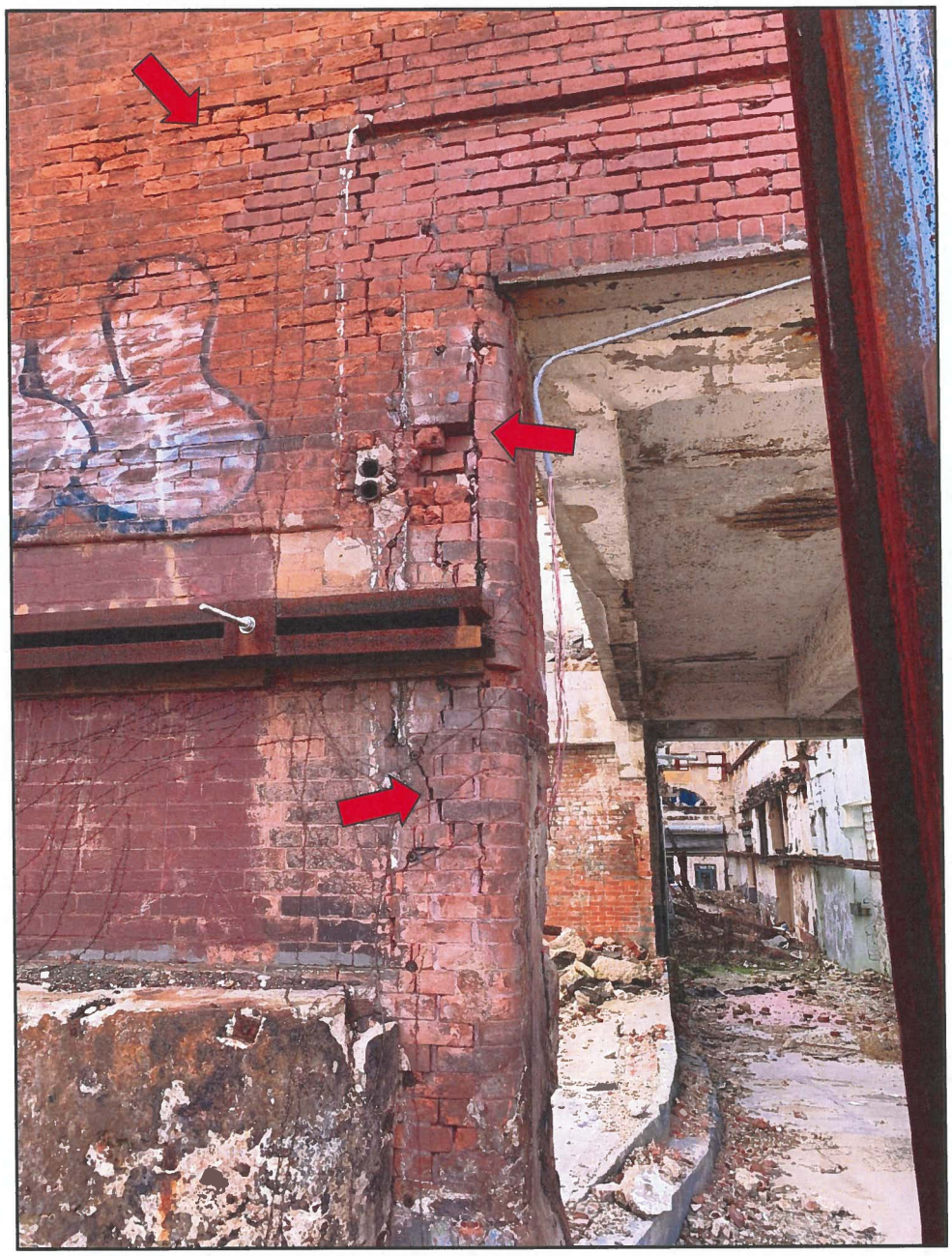

**Photo 2**
Hendler Building North Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints
and Cracks

**Photo 3**
Hendler Building North Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints
and Cracks

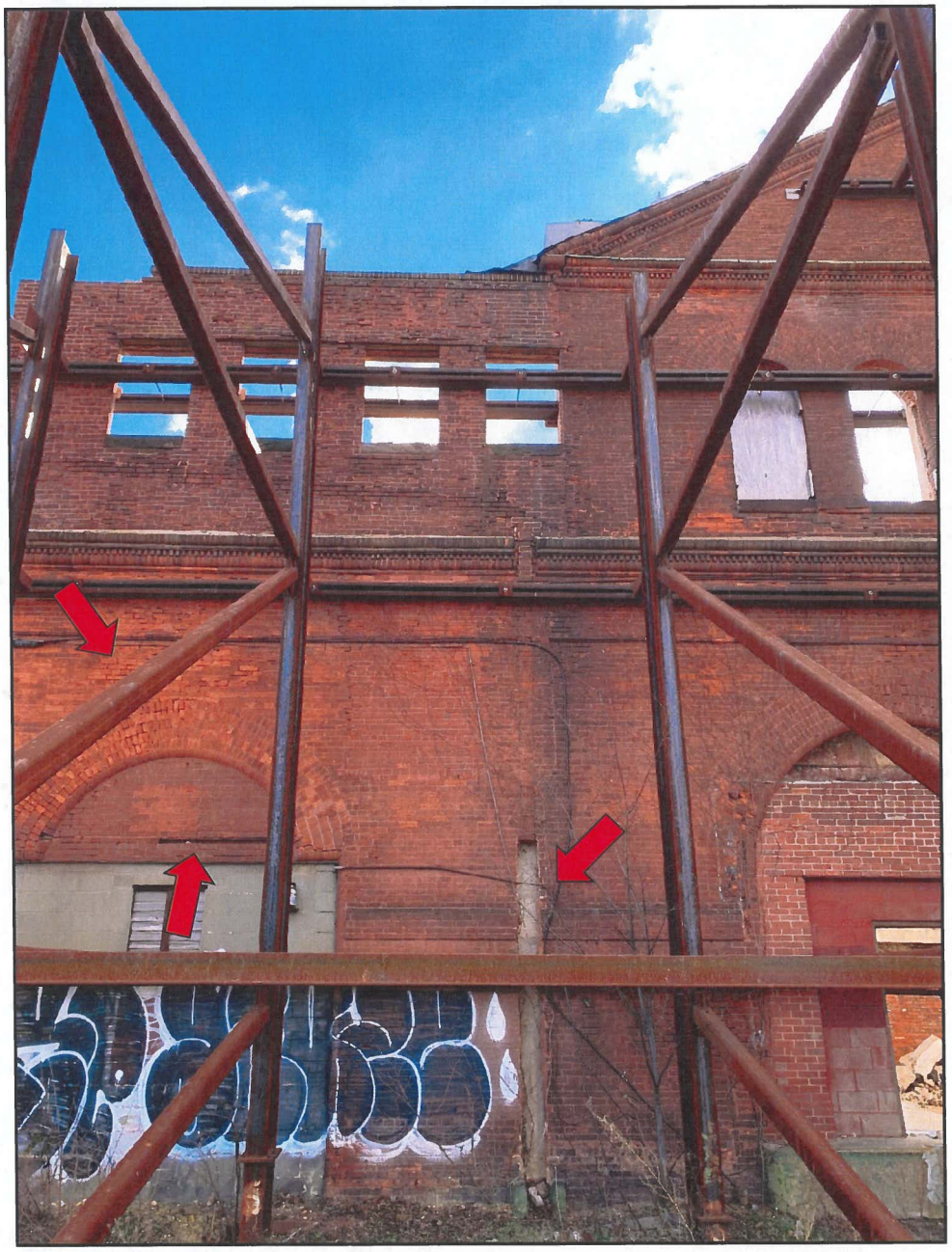

**Photo 4**
Hendler Building North Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints,
Open Joint and Slot in Wall

**Photo 5**
Hendler Building North Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints,
and Deteriorated Lintel with Pack Rust

**Photo 6**
Hendler Building North Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints,
and Deteriorated Lintel with Pack Rust

**Photo 7**
Hendler Building North Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints,
Screwdriver Inserted to 3" Depth

**Photo 8**
Hendler Building North Façade - Exterior Face
Note Deteriorated Brick and Eroded Mortar Joints, Cracks,
and Screwdriver Inserted to 6" Depth

**Photo 9**
Hendler Building North Façade - Exterior Face
Note ¼" Diameter x 6" Long Screwdriver That
Was Used to Probe Mortar Joints

**Photo 10**
Hendler Building North Façade - Interior Face
Note Openings in Brick, Beam Pockets
and Embedded Concrete Floor

**Photo 11**
Hendler Building North Façade - Interior Face
Note Openings in Brick, Beam Pockets
and Embedded Concrete Floor

**Photo 12**
Hendler Building North Façade - Interior Face
Note Openings in Brick, Beam Pockets
and Embedded Concrete Floor

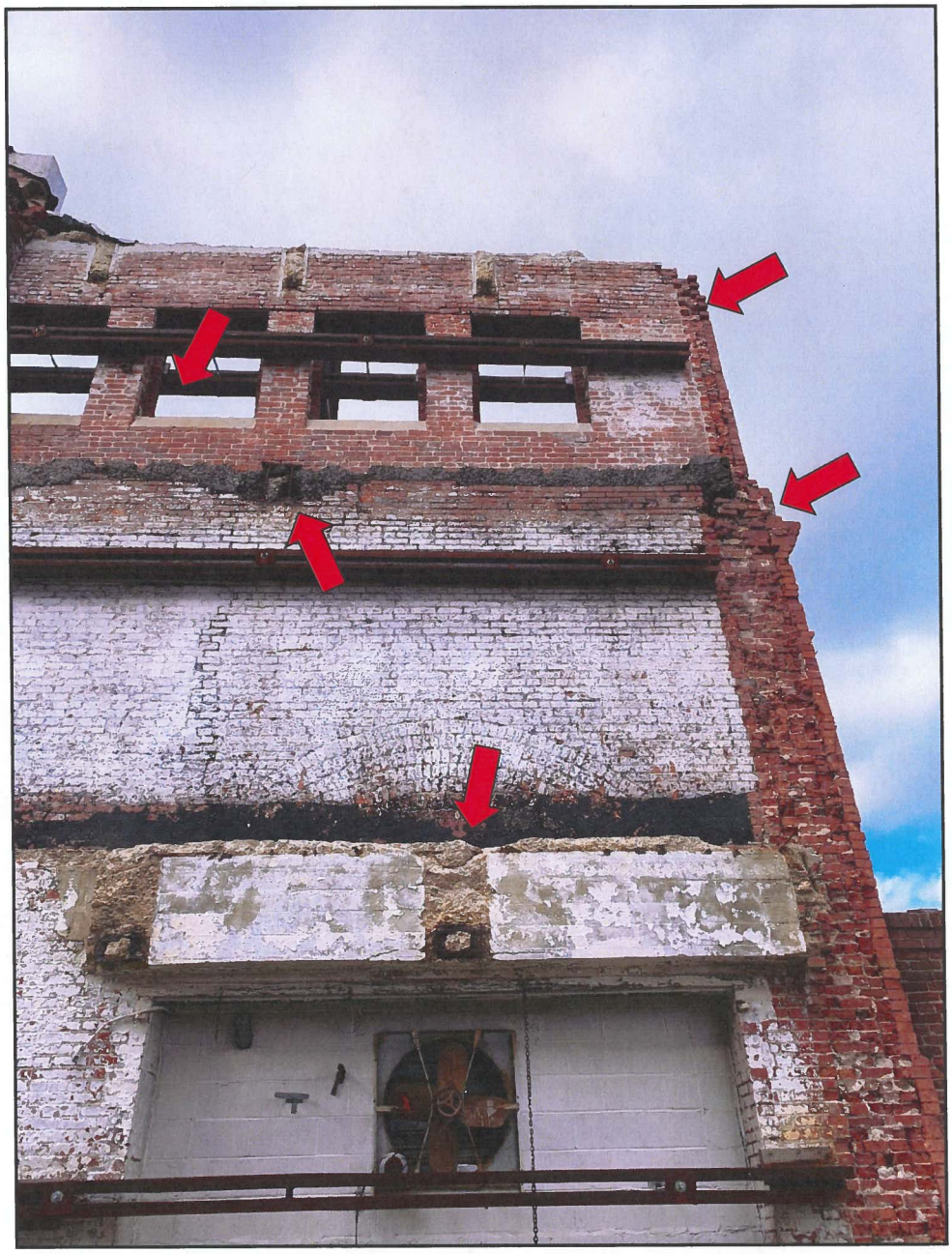

**Photo 13**
Hendler Building North Façade - Interior Face
Note Openings in Brick, Embedded Steel Beams, Missing Window Frames and Embedded Concrete Floor

**Photo 14**
Hendler Building North Façade – Top Surface
Note Missing Coping and Openings in Brick

**Photo 15**
Hendler Building North Façade – Top Surface Above Pediment
Note Missing Coping and Openings in Brick

**Photo 16**
Hendler Building North Façade – Top Surface Above Pediment
Note Missing Coping and Openings in Brick

**Photo 17**
Hendler Building North Façade – Top Surface
Note Missing Coping and Openings in Brick

CENTURY ENGINEERING
A Kleinfelder Company

## William B. Rockey, PE, LEED AP®
## Senior Engineer Specialist
## Building Structures Division

**ENGINEERING EXPERIENCE** 41 years

**YEARS WITH CENTURY:** 24
**YEARS WITH OTHER FIRMS:** 17

**EDUCATION**
BS, 1982, Civil Engineering, Geneva College

**PROFESSIONAL REGISTRATION**

2009 LEED® Accredited Professional (LEED AP®)

1991, PE, Delaware Registered No. 8940
1994, PE, Maryland Registered No. 19809
1992, PE, Michigan Registered No. 38324
1987, PE, New Jersey Registered No. 24GE03274400
1987, PE, Pennsylvania Registered #PE036289E
1987, PE, Virginia Registered No. 0402017824

**PROFESSIONAL PUBLICATIONS**
Rockey, William B., Coleman, Pamela S., (2004) ***Baltimore Civil Engineering History - The Rebirth of Baldwin's Cathedral: 1884 Passenger Car Roundhouse, B&O Railroad Museum, Baltimore, Maryland,*** Proceedings of the History and Heritage Committee of the American Society of Civil Engineers, October 20–23, 2004, Baltimore, Maryland.

Rockey, William B., Coleman, Pamela S., (2004) ***Tragedy to Triumph, Rebuilding the Majestic B & O Roundhouse***, Baltimore, Maryland, Century Engineering, Inc. & the Baltimore & Ohio Railroad Museum, Inc. (2004)

**WORK BACKGROUND**

| | |
|---|---|
| 2018- present | Senior Engineer Specialist- Building Structures Division<br>Century Engineering, Inc.<br>Hunt Valley, MD 21031 |
| 2006- 2018 | Vice President- Building Structures Division<br>Century Engineering, Inc.<br>Hunt Valley, MD 21031 |
| 1999-2006 | Vice President – Building Structures Division<br>Century Engineering, Inc.<br>Towson, MD 21204 |
| 1982-1999 | Director of Engineering<br>George Evans Associates, Inc.<br>Baltimore, MD |

**PROFESSIONAL REFERENCES**

- Baltimore MFH, LLC • Mr. Chris Berry • 410.441.9690 • cberry@investpropassoc.com • City View Lofts Apartment Building
- Whiting Turner Contracting Company, Inc. • Mr. Christopher S. Moore • 443.324.5961 •christopher.moore@whiting-turner.com • Kennedy Krieger Institute Office Building

**EXPERIENCE**

William Rockey's experience as a Senior Structural Engineer Specialist includes multiple project management and design of various types of building structures for a wide range of clients. His diverse structural engineering background includes new construction, renovations, additions, alterations and adaptive re-use of existing facilities. Many of these projects include underpinning, bracing, sheeting and shoring, engineering consultation and forensic investigation. Mr. Rockey has extensive experience with the evaluation of historic and existing buildings, both as standalone projects and as part of larger developments.

**THE FOLLOWING PROJECTS INVOLVE INVESTIGATIONS, EVALUATIONS, ADDITIONS AND ALTERATIONS TO HISTORIC BUILDINGS.**

**RESTORATION OF THE B & O RAILROAD MUSEUM ROUNDHOUSE, BALTIMORE, MD.** Principal-in-Charge and Chief Engineer for the repair and restoration of this iconic 1884 Roundhouse facility. The February 2003 record breaking Presidents' Day snowstorm inflicted serious damage to the roundhouse at the Museum. The southwestern half of the low roof collapsed under the weight of tons of drifted snow and ice, causing extensive damage to the structure, exhibits and rolling stock. Services included emergency response, damage assessment, building stabilization, design of shoring, truss reinforcing and emergency hold-downs, forensic analysis of collapse including computer modeling, preparation of a forensic report. Other services included review of applicable building codes, preparation of the new design, coordination with the Contractor, site visits to observe construction progress, response to field questions and interfacing with the Owner.

**SOUTH CAR SHOP FLOOR INVESTIGATION, B&O RAILROAD MUSEUM, BALTIMORE, MD.** Principal in Charge, Project Manager and Project Engineer for the investigation of the South Car Shop at the B&O Railroad Museum to determine the feasibility of repurposing the facility. The investigation was focused on evaluating the first floor of the South Car Shop to assist the Owner in determining potential uses. This 1870's era, historic facility encompassed 39,800 square feet in one story with a partial basement. The Owner was considering an option to use the building for storage of artifacts and supplies, or re-purpose this space for additional museum exhibits much like the North Car Shop. Services included field work and selective demolition to expose existing conditions, a code study and engineering analysis of the existing floor framing. A detailed investigation report was prepared to develop potential strengthening repairs for adaptive reuse of the facility.

**THAMES POINT APARTMENTS, EXTERIOR WALKWAY INVESTIGATION AND REMEDIAL REPAIRS, BALTIMORE, MD.** Principal in Charge, Project Manager and Project Engineer for the partial demolition and reconstruction of a 4-story, 3,000 square foot exterior walkway system at the Thames Street Apartments. The existing walkway was repaired to correct several significant structural problems uncovered during a prior investigation. This historic property was once owned by the National Can Company and was part of their manufacturing complex in Fells Point. The rehabilitated exterior walkway system incorporated new steel post and beam construction with the existing wood framing and concrete slabs. A decorative steel railing provides fall protection at the elevated levels. Services included field and office work, review of record drawings of the walkway system, coordination with the Owner during the design and construction phases, preparation of permit plans for submission to Baltimore City, final engineered design drawings and assistance to the Owner during bidding the work. Construction services included review of shop drawings and submittals, and site visits to address field questions.

**ABELL BUILDING RENOVATIONS, BALTIMORE, MD.** Project Engineer for this project involving the renovation of an existing 1800's vintage, 52,000 square foot, six story iron façade, historic warehouse/tailor

shop building into apartments to house students attending the University of MD School of Nursing. The renovation project was completed as a design/build project, partially using HUD funds. The renovated first floor includes office space and main lobby, a new Fire Command Center, and spaces for two future retail tenants. The second through sixth floors each include 8 apartment-type units, for a total of 40 living units in all. Two new stairways and one elevator were included in the building. The Basement and Mezzanine levels contain a loading dock, the main electrical equipment room, a new BGE transformer vault, a telephone service room, a fire pump room, and main water and natural gas service entry areas. Services included preparation of plans and specifications.

**INSTITUTE FOR BEHAVIOR RESOURCES, 2104 MARYLAND AVE EXTERIOR ENVELOPE STRUCTURAL REPAIRS, BALTIMORE, MD.** Principal in Charge and Senior Engineer for the field investigation and development of repair drawings for the remedial repairs to this 1920s era building envelope. Typical repairs included concrete cutting and patching, removal of the deteriorated concrete matrix, cleaning & priming of exposed reinforcing steel and application of epoxy patching products. A breathable coating was applied over the epoxy and surrounding concrete to seal out water and mitigate future deterioration. The majority of the masonry repairs consisted of repointing of the brick work. Services include preparation of plans and specifications, and construction oversight.

**DOWNTOWN SILVER SPRING, BLOCK "C" RETAIL DEVELOPMENT, SILVER SPRING, MD**. Principal-in-Charge and Chief Engineer for part of the redevelopment of the historic Downtown Silver Spring retail district. The Silver Spring Historical Commission required that redevelopment of the Block "C" site include the preservation of the 1930's Art Deco shopping center façade in order to maintain the historic character of the area. To comply with this requirement, the design of the new building necessitated shoring of the existing limestone façade and demolition of the remainder of the existing building. A new, mixed-use retail facility was constructed behind the existing façade. Services included preparation of plans and specifications for the new shopping center, preparation of performance specifications for the façade shoring system and review of the Contractor's shoring designs for compliance with specification requirements. Construction services included site visits to observe progress and resolve field questions.

**THE BROKERAGE (34 MARKET PLACE), RETAIL AND MIXED USE FACILITY, BALTIMORE, MD.** Principal-in-Charge for the investigation of a historic structure that was renovated numerous times over the course of many years. Some of the previous work included haphazard removal of interior brick masonry bearing walls and other alterations that produced significant cracking and settlement in the remaining masonry structure. In addition, the entire east facade had tilted approximately 18 inches out of plumb as a result of dewatering performed during construction of the Baltimore Metro subway tunnels. Services included preparing various designs to address the numerous structural problems and to reinforce existing masonry bearing walls and members.

**NEW LIBRARY/ ACADEMIC BUILDING AND HISTORIC TOWNHOUSE RENOVATION FOR THE PEABODY INSTITUTE, BALTIMORE, MD.** Project Manager and Senior Engineer for construction of a new, 5-story Library/Academic Building along Saint Paul Street in the Mount Vernon district. The new building was surrounded by an existing parking garage to the south, Leakin Hall to the west (constructed in 1923), and four 1860's vintage townhouses to the north. Extensive sheeting and shoring, underpinning and building stabilization was required on all the surrounding buildings to allow construction of the new reinforced concrete Library/Academic Building. In addition to the new building, the four 1860's vintage townhouses required extensive masonry repairs to restore their structural integrity. The historic brick facade of each townhouse was carefully catalogued, disassembled and reconstructed using the original brick materials. Services included preparation of plans and specifications for the entire structure including performance specifications for the underpinning and sheeting / shoring design, and drawings for masonry repairs. Construction services included review of Contractor's shoring and underpinning systems for conformity with performance specifications, review of shop drawings, and site visits to observe construction progress and resolve field questions.

**RENOVATION OF KENT HALL, ST. MARY'S COLLEGE OF MD, ST. MARY'S CITY, MD.** Project Manager and Project Engineer for the renovation of the early 1900's Kent Hall. The proposed alterations included construction of a new elevator shaft, construction of new stairs, construction of new openings

through existing floors and roofs to accommodate mechanical ducts and piping, and infilling of existing openings where required. The new elevator shaft was constructed by providing new masonry bearing shaft walls to support each existing floor slab. A new reinforced concrete elevator pit and foundations were provided for adequate support of the new masonry shaft walls. In a similar fashion, new stair shafts were constructed with either new masonry bearing shaft walls or new steel framing to support each existing floor slab. New reinforced concrete foundations were provided for adequate support of the new masonry stair shaft walls. Services included preparation of plans and specifications for the renovation. Construction services included review of review of shop drawings, and site visits to observe construction progress and resolve field questions.

**ADDITIONS AND ALTERATIONS TO MERGANTHALER-JENKINS HALL, JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.** Project Engineer for the additions and alterations to a 1940's era, "U" shaped biology research building on the main campus of Johns Hopkins University. Numerous code upgrades and other work were required to make the building compliant and functional for the Owner's needs. Renovation work included construction of new stairs, elevators and mechanical shafts within the existing building. Extensive underpinning and shoring of existing basement foundation walls was necessary within the courtyard to accommodate a new mechanical room with a deep basement and one level above grade. Many large openings were cut through the existing brick foundation walls to accommodate new mechanical ductwork and piping. The structure of the mechanical room was designed to receive four future levels above to completely infill the courtyard. Design services included review of record drawings, field verification of existing conditions, and preparation of plans and specifications for the renovation work. Construction services included review of underpinning and shoring submittals to verify compliance with contract requirements, review of general material submittals, and site visits to observe construction progress and resolve field questions.

**ADDITIONS AND ALTERATIONS TO THE ADMIRAL FELL INN, BALTIMORE, MD**. Project Manager and Senior Engineer for additions and alterations to an 1800's era historic inn to provide a new rooftop restaurant, additional hotel rooms, new retail space and expanded kitchen facilities. Extensive bracing and shoring were required to prevent collapse of floors and existing masonry facades while new construction was in progress. Field evaluation was required to determine the stability of an existing brick facade that evidenced bowing and buckling. Existing brick walls were repaired by repointing where the old mortar had deteriorated and the strength of the wall was jeopardized. In some areas, existing basement foundation walls were repaired or replaced as the new design required. Services included preparation of plans and specifications for the entire renovation including performance specifications for the bracing and shoring design. Preparation of drawings and specifications for the masonry restoration and basement foundation wall repairs was also provided. Construction services included review of the Contractor's shoring systems for conformity with performance specifications along with site visits to observe construction progress and resolve field questions.

**GOVERNOR CALVERT HOUSE, ANNAPOLIS, MD.** Project Engineer for the renovation of the historic Governor Calvert House and the incorporation of this structure into a group of buildings known as the Historical Inns of Annapolis. The project included an archeological excavation of the site, which resulted in a glass floor in the renovated building to exhibit unique construction aspects of the historic building foundation. Special structural effort was made in the restoration of the original building floor systems and the original exterior brick walls to preserve the original building fabric. Services included design of new framing and checking of existing framing to support modern code required loads.