

Facilities  
Condition  
Assessment  
of the Main Street offices of  
Mercantile Bank  
for  
Ionia Community Library

Project No. 201317  
December 8, 2020

**Mercantile Bank Buildings**  
302 West Main Street, Ionia Michigan

**Facilities Assessment**

**Prepared For:**  
**Ionia Community Library**  
**Ionia, Michigan**

**December 8, 2020**  
**Project No. 201317**

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## Project Information

### Building Location

The Mercantile Bank facility is located at 302 West Main Street, Ionia, Michigan.

### Project Participants

#### *Ionia Community Library*

Dale Parus, Library Director

Paula Wood, Library Business Manager

Gale Yeomans, Library Board President

#### *Fishbeck*

Gregg Yeomans, Architect & Project Manager

Vern Toman, Senior Mechanical Engineering Specialist

Matt Baker, Senior Electrical Engineering Specialist

### Scope of Project

Ionia Community Library has directed Fishbeck to conduct a facilities condition assessment and provide an overview of the existing operating status and state of repair of the mechanical, electrical, and building construction systems. Specific focus is on the potential ease of adapting the bank facility for library use. A structural study is being done as a separate work effort.

The scope of this assignment is limited to a high-level investigation that focuses on equipment at the systems level, without investigation into the details.

This Report is the culmination of Fishbeck's work efforts. It catalogs the conditions observed around the buildings; with associated observations of work recommended or required for conversion to a library. Comments are also included about factors that will have a bearing on the facility's long-term occupancy.

The Bank occupies three adjacent buildings that have been combined by interior connections into one business use. For purposes of this Report the buildings will be described as the East Building, the Center Building, and the West Building. These buildings would be locally known (east to west) as the National Bank, JC Penney, and the Lawyers office. There is a large addition to the north that wraps behind the East and Center Buildings. This will be referred to as the North Addition. See Floor Plan on page 14.

Each of the three front buildings is over eighty years old and the North Addition was constructed in 1991.

## Executive Summary

The findings of this assessment support the concept of reutilizing this facility as a public library. In the eyes of the Building Code it's the same type of use. Building systems, building circulation, barrier free concerns, and other factors contributing to use of the building could mainly remain unaltered.

This general assessment is stated with some caveats:

1. Code requirements have changed since the last building renovation in 1991. That means that a major renovation project now would likely require that some elements of the building be modified as required to meet the current Codes. The extent of this would depend on the amount of remodeling, the specific Code requirement being addressed, and a ruling of the Code Official.
2. The largest concern would be the ability of the floor structure to handle the extreme weight of bookshelves. The stack area of a library is prescribed to be able to support 150 pounds per square foot. These buildings did undergo some structural modification in 1991 but this was likely to reach the Code requirement for commercial space which is, at most, 80 psf. A separate report addresses this issue. Preliminary findings are that modifications to the first-floor structure would be able to be made to meet this loading requirement. This would require opening up the floor structure from below and augmenting what's there with new joists and beams.
3. Maintenance and replacement of building components is an ongoing process. Some existing elements are closer to the end of service or require more maintenance attention than others.

### *Architectural Summary*

The exterior shells of the buildings are in generally good repair. There is nothing that is overdue for replacement or in imminent threat of failure. The roofs are of different ages and some will likely require replacement within 10 years.

There is one area that has water getting into the building. There is an assumed cause for that so a course of action could be developed to address the issue.

The interiors of the buildings are in good condition. It's noted that the first floor of the East Building is at a different floor height, but that is currently dealt with in a satisfactory manner and shouldn't prove much of an impediment to future changes in building circulation paths.

### *Electrical Summary*

Everything is suitable for use "as is". The main electrical service and distribution panels may require upgrade in the event of a major remodeling. Rust is present on some of the panel bases due to the water infiltration problem. Lighting types are outdated and should be upgraded to LED systems.

### *Mechanical Summary*

Much of the mechanical equipment was installed in 1991 and is either in need of replacement or is approaching the end of its service life. It's recommended that six out of the eight rooftop heating and cooling units be replaced. One of the domestic water heaters should be replaced. The hot water boiler system (for perimeter heating) is functioning adequately but it's recommended that the way it is designed to function be improved. A new integrated building HVAC control system has the potential to improve performance and cut energy use.

All of these topics are presented in more detail in the body of the Report.

## Architectural Investigation

### Site Features

The buildings are bordered on the south and east sides by public sidewalks. No inventory or appraisal of the condition of the concrete walks was done.

The “site” on the west side of the facility is a masonry party wall common with the adjacent building. The interior face of the wall is covered with interior finishes so no appraisal of the wall construction (assumed to be brick) could be done.

There is an adjacent building sharing a party wall for the eastern portion of the north side.

The western portion of the north side of the facility is bordered by asphalt paved areas used primarily for parking. No appraisal of the condition of the paving was done. The owner’s representative said that the northwest corner of the building experiences water in the basement during heavy rains. There are indications that the poor design and/or condition of underground stormwater systems may be contributing to this issue. It is also apparent that the general slope of the land is towards the building. *It is recommended that further investigation be undertaken to discover the cause of the problem and provide recommendations for the improvement of existing conditions.*

### Building Envelope

#### Roofing Systems

The East Building roof is covered with an EPDM sheet membrane. This was installed at the time of the major facility renovation in 1991. Depending on the details of the materials and systems used, an EPDM roof should have a service life of from twenty-five to thirty-five years. The flashing details at the roof edges and equipment curbs are in good shape. The roof surface is well secured and shows no signs of stretching or premature aging. The only exception is that the membrane has loosened from the face of the parapet along parts of the north and east sides. This isn’t a sign of roofing failure, but it is a situation to monitor. It would be an easy repair if the material needed to be refastened. The roof is specified to be R-7 insulation under the membrane which provides minimal thermal insulation. The roof slopes to a roof drain installed in the 1991 renovation. It should be noted that it is a single drain. Standard practice is to provide an adjacent overflow drain as backup should the primary drain become obstructed. Based on the visual inspection it is estimated that the roof should last for more than another five years.

The south end of this roof finishes against a relatively tall sloped top wall that is capped with terra cotta tiles. The tiles have had an asphaltic sealer troweled on to the joints and this is failing. The roof-side of the wall is plywood with some type of asphaltic coating applied. The coating hasn’t failed but the coating has deteriorated. *It is recommended that the terra cotta tiles be cleaned and resealed and it’s recommended that the plywood face of the wall be covered with EPDM that can be sealed into the roof.*

The Center Building roof is called out on the 1991 drawings to be “an existing unballasted EPDM membrane”.

The owner’s representative said that this roof had been replaced less than ten years ago. The current roof surface is a mechanically fastened EPDM membrane with an unknown thickness of rigid insulation beneath it. The flashing details at the roof edges and equipment curbs are in good shape. The roof slopes down to a pair of drains at the north end. While there are no overflow drains, having multiple primary drains does provide backup should one drain become obstructed. This roof should perform adequately for another twenty years.

The West Building roof is called out on the 1991 drawings to be “an existing unballasted EPDM membrane”.

The owner’s representative said that this roof had been replaced less than ten years ago. The current roof surface is an EPDM membrane with an unknown thickness of rigid insulation beneath it. The flashing details at the roof edges and equipment curbs are in good shape. The roof drains to a gutter and downspout at the north end. The gutter and downspout are in fair condition. This roof should perform adequately for another twenty years. The west side parapet of this roof is common with the building next-door. The parapet cap is galvanized steel that is rusting. The adjacent buildings roof membrane appears to be in good condition and is properly detailed under the cap. This is important because water getting into the neighbor’s side of the parapet can damage the West buildings side. It looks like that shouldn’t be a concern. *It is recommended that the rusted wall cap be painted.*

The North Addition roof is an EPDM membrane. This was installed when the addition was constructed in 1991. The flashing details at the roof edges and equipment curbs are in good shape. The roof is specified to have R-29 insulation under the membrane which provides reasonable thermal insulation. The roof slopes to a pair of roof drains at the east end. While there are no overflow drains, having multiple primary drains does provide backup should one drain become obstructed. Based on the visual inspection it is estimated that the roof should last for more than another five years.

The North Addition has a common wall with the neighboring building and that building’s roof was also replaced in 1991. The detailing on the intermediate parapet wall is well constructed and should be protecting the wall (and North Addition roof) from damage.

All roofs are easily accessible through a ladder and roof hatch located in a North Addition stairwell. *It is recommended that the metal hatch cover be repainted.*

### **Exterior Openings- Windows**

Window openings in the East Building are original metal frames with replacement glazing that looks like an early version of insulated glass. They are in good condition. Paint is peeling from the exterior trim at multiple locations. This is currently a cosmetic issue but will lead to deterioration of the metal. *It is recommended that the exterior window frames be repainted within the next two years.*

The Center Building has windows installed at the time of the 1991 renovation. They are wood framed with a prefinished aluminum exterior and thermal-pane glass. They are in good condition.

The south elevation of the West Building has two different window types. The first-floor windows are fixed panes of insulated glass in painted wood frames. They are in good condition. The second-floor windows are original wood frames, painted, with single pane glass. They are in fair condition. *It is recommended that the second-floor windows receive further study to plan for future maintenance or possible replacement.*

The second-floor windows on the north elevation of the West Building were retro-fitted into the original masonry openings. A closure panel was installed in the top portion of the larger original opening. The new windows are wood framed with a prefinished aluminum exterior and thermal-pane glass and are in good condition. There is one first floor window where an existing opening was downsized with brick and a new window installed. There is a metal security grille over the window. The window and grille are in good condition.

The North Addition windows are prefinished aluminum exterior frames with thermal-pane glass. They were installed at the time of the 1991 project and are in good condition.

### Exterior Openings- Doors

Door hardware such as latches, locks, panic bars, hinges, and closers were not surveyed as part of this assessment.

General use access doors on the north side of the buildings are painted metal doors and frames. They are in good condition and will have years of service as long as they are periodically painted. The hinges on the door into the West Building are beginning to rust. *It is recommended that the rusty hinges be replaced with stainless steel hinges to avoid a long-term maintenance concern.*

Doors on the east elevation are prefinished aluminum doors and frames. They are in good condition.

Doors on the south elevation of the Center Buildings are prefinished aluminum doors and frames in good condition. The West Building has a painted wood door in need of repainting.

### Exterior Walls

Walls on the north west corner of the North Addition are painted brick at the first story and painted concrete block above. The paint on the brick portion has failed over a large area of the wall at the corner. *It is recommended that the brick wall receive special examination to determine the cause of the painting failure, and then be repainted.* The block walls above the brick appear in good condition. There is cosmetic staining on the stone windowsills that isn't impacting building performance. The joint between this Addition and the adjacent building to the north appears tight and weather resistant.

The north wall of the West Building is painted brick and appears to be in good condition.

The northern portion of the east elevation is the exterior wall of the North Addition. It is painted concrete block with stone window surrounds. The stone window heads and sills have suffered some staining, but it is only cosmetic.

There are at least a dozen locations where hairline cracks either stair-step through the block joints or run vertically up the wall. These are not overly concerning, especially when its noted that the wall was constructed with no masonry control joints to control cracking. They are too minor to address with sealant or repointing at this time and don't appear to be signs of a worsening structural condition. The wall is in generally good condition. *It is recommended that the status of the cracks be monitored.*

The building entrance to the North Addition has a fabric canopy over it that is in good condition.

The southern portion of the east elevation is the side wall of the East Building. Most of the wall is terra cotta, with some stone at the base. There is minor damage to the terra cotta along the lower length of wall, probably from things hitting it. There are also a few pieces of terra cotta damaged higher up on the wall, but the damage is minor and not likely impacting the performance of the wall. There are horizontal cracks through the terra cotta pieces running along above three of the five bays of second floor windows. This damage is regular enough that it may have been caused by a building design flaw. It appears one bay has had sealant applied to the crack, so this isn't a recent occurrence and is unlikely to worsen. *It is recommended that consideration be given to have a building restoration specialist do a survey of the terra cotta to guide long term maintenance planning.*

The night deposit location on the east elevation was previously a walk-up teller window. It is of prefinished metal construction with a small canopy. The canopy has a membrane roof surface. The membrane has loosened and pillowed around the perimeter but there aren't signs of failure.

The metal wall cladding system of the night deposit area is still functioning as a weather barrier but the appearance of some of the framing and panels is becoming worn. As a whole, this area will require close attention for future maintenance due to its complexity of materials and connections. *It is recommended that all of this area be considered for replacement.*

The south elevation of the East Building is terra cotta and granite. All of these wall areas are in good condition. One bay of the storefront is where the original bank entrance was. This was filled in to match the adjacent two bays of windows. The window framing is painted wood and spots are starting to deteriorate. The terra-cotta look of the sill and support brackets is nicely executed. The panels below the window appear to be acrylic plaster and are starting to show minor flaws. *It is recommended that the condition of these replacement elements be closely monitored with their maintenance and replacement planned for.*

The first floor of the south elevation of the Center Building was all new as part of the 1991 project. Nothing is in current need of repainting or refinishing, but the lower elements are beginning to show some weathering. These wall panels appear to be acrylic plaster and some of the edges are beginning to deteriorate. This is especially the case at the freestanding column base. *It is recommended that the condition of these wall panels be closely monitored with their maintenance and replacement planned for.*

The second story of the Center Building elevation is original brick. It's apparent that repair work has been done at some time at the top of the wall. No brick spalling, loss of mortar or cracking is visible from the ground. It appears the wall is in good condition.

The first-floor of the south elevation of the West Building is painted wood construction with acrylic plaster panels below the windows. The acrylic plaster is beginning to deteriorate. There is an area of painted brick to the east of the door where the paint is failing. *It is recommended that the storefront be prepped and repainted within two years.*

The second story is existing brick, painted. There are areas near the top of the wall where the paint is failing, and it appears there may be damage to the brick. This type of damage is indicative of water in the wall. *It is recommended that a detailed investigation of the roof flashing and wall cap be done to find the reason for, and fix the damage to, the brick and the paint.*

## **Building Interior**

### **Below Grade Walls and Floors**

The Basement walls vary in construction building to building and sometimes even wall to wall. Stone masonry and brick masonry predominate with some poured concrete walls mixed in. Most walls are exposed to view and the vast majority of wall area observable is in good condition. In general, there are no areas in need of structural repair and the only work anticipated would be coordinated with efforts to increase floor loading capacity.

There are signs of water penetration at only one location around the perimeter of the facility. This is at the northwest corner of the West Building. A parking lot drainage issue is the cause of that, and the problem needs to be solved at the source not by changing the wall construction.

All of the basement areas have poured concrete floors. They are in generally good repair.

### **Basement**

The East Building basement is not intended to be habitable space except for the south end Restrooms. Most of the Center Building basement has painted walls and a ceiling. The West Building basement has painted walls and a ceiling.

It should be emphasized that all finishes in all of the basements would be greatly impacted by efforts to increase floor loading capacity. New beams and columns will require removal of ceilings and cutting into floors. Head room in some areas may be compromised as well.

The East, Center and West Buildings all have basements under them, except for the north portion of the East Building that has a crawl space. The first floor of the North Addition is a slab on grade so there is no basement under that area of the facility.

All basements are interconnected, and accessible from the existing elevator. No attempt was made to assess exit routes or other life safety requirements that are associated with occupying a basement level of a building.

The East Basement Restrooms appear non-usable. *It is recommended that they be rehabilitated or the fixtures removed.*

### **First Floor**

All four buildings are interconnected on the first-floor level. The only explicit ramp is at the front of the Center Building where one rises up to the East Building floor height. All other floor height transitions are done by sloped floors in corridors and connector links. This disparity in floor height between buildings must be taken into consideration if circulation paths and/or connections are changed as part of a new library floor plan.

There are at-grade barrier free entrances on the east and south elevations. The doors on the north elevation are both accessed from short flights of steps up from the first floor.

There are four stairways between the first and second floors. The original building stair at the south end of the East Building is likely not constructed to meet the current Building Code. The other stairs met Code when constructed almost 30 years ago, but more detailed analysis would be required to determine if they meet current Code requirements.

A general survey of the interior spaces found no conditions that would pose a challenge to the first floor of this facility being used for library functions. It is almost a certainty that none of the first floors are constructed to support the weight of library book stacks. This is being explored in a separate report.

The existing plumbing fixture count would appear to satisfy Code requirements for a library use group. Compatibility with barrier-free requirements wasn't investigated. What was allowed in 1991 isn't necessarily adequate today so a substantial building remodeling may require upgrades.

### **Second Floor**

All four buildings are interconnected on the second-floor level. Any change in floor elevation between any of the four buildings isn't discernable. The floor is serviced by the elevator and four stairs.

A general survey of the interior spaces found no conditions that would pose a challenge to the second floor of this facility being used for library functions. It's a safe assumption that none of the second floors are constructed to support the weight of library book stacks. No study of those conditions has been done.

The existing plumbing fixture count would appear to satisfy Code requirements for a library use group. Compatibility with barrier-free requirements wasn't investigated. What was allowed in 1991 isn't necessarily adequate today so a substantial building remodeling may require upgrades.

## Electrical System Investigation

### *Service and Distribution*

The service and distribution system consists of a 120/240-volt 2000-amp Schneider QED switchboard which powers an automatic transfer switch, a 600-amp QMB distribution panelboard along with two other 600-amp QMB distribution panelboards that formerly served as the electrical service for the building. The three Schneider QMB distribution panelboards serve mechanical equipment, the elevator, along with other Schneider NQOD panelboards located throughout the building. There is also an 80KW Detroit Diesel generator located outside that powers the entire building except for the elevator and roof top units during a utility outage. The equipment appears to be in good shape except for the two QMB distribution panelboards that formerly served as the electrical service. These two panelboards are rusting out at the bottom. The current distribution configuration is suspected as being installed per the National Electrical Code (NEC) in effect at that time, based on visual observations.

*It is recommended that this service and distribution system to be looked at further if significant modifications to the electrical system are to occur, as substantial repairs and or modifications may need to be made at that time.*

### *Generator and Transfer Switch*

The emergency power system consists of an 80KW generator and one Zenith transfer switch. The owner has the generator serviced four time a year and indicated that the system is in excellent working condition. The owner indicated that the entire building is powered by the generator during an outage except for the elevator. Based on Fishbeck visual observations, we believe the elevator and roof top units are not powered by the generator during a utility outage. The current configuration of one transfer switch does not meet current codes as the life safety systems need to be powered from their own transfer switch and cannot be combined with optional standby power loads. If significant electrical modifications are to be made, this system may need to be modified to comply with current codes.

### *Grounding and Bonding System*

The grounding and bonding system appeared to be intact, but much of this system is concealed by building materials and electrical components. As many electrical issues and anomalies occur due to poor or incorrectly grounded and bonded equipment, *Fishbeck recommends a grounding and bonding study by performed to ensure the system is installed per the NEC.*

### *Lighting*

The lighting in the building consists of a combination of incandescent and fluorescent lighting. The fluorescent lighting consists of T8 and T12 lamps with prismatic and parabolic lenses. There are some standalone battery operated "frog eye" emergency lighting fixtures throughout the building, but it was unclear if they are still operational. Exit lighting was noted throughout the building. Some exit fixtures were operational while others were not. While most of the lighting was operational, it should be noted that the technologies being utilized are outdated, not efficient, and provide poor lighting. *Fishbeck recommends replacing the fixtures with LED type luminaires, if major renovations are to occur.*

***Lighting Controls***

There are minimal lighting controls installed in the building. Lighting is controlled via wall switches. The systems as installed do not meet current ASHRAE requirements and should be changed or may be required to be changed by the authorities having jurisdiction if major renovations are to occur.

***Wiring Devices***

Wiring devices appeared to be in good working order. If devices are found to inoperative or worn out, they should be replaced as needed.

***Fire Alarm System***

The fire alarm system appeared to be in good working order. It appears to be serviced and maintained by SecurAlarm. It is unclear if the current installation meets current codes. SecurAlarm should be contacted to provide additional information if needed.

***Security System***

The security system appeared to be in working order. It appears to be serviced and maintained by SecurAlarm. SecurAlarm should be contacted to provide additional information if needed or to remove the system if not needed.

***Closed circuit Camera System***

The closed-circuit camera system appeared to be in working order. The system supplier should be contacted to provide additional information if needed or to remove the system if not needed.

## Mechanical System Investigation

### Heating, Ventilating, and Air Conditioning

#### Rooftop Equipment

The main source for heating, and all of the cooling, for the buildings are roof top units (RTU's). There are eight direct expansion (DX) natural gas fired rooftop heating and cooling units spread over the four roof areas.

East Building roof:

RTU-2 and RTU-3 are newer Lennox units and appear to be in good operating condition:

Center Building roof:

RTU-1 is an older Lennox unit. *Fishbeck recommends replacement within the next five years by a unit having higher energy efficiency.*

North Addition roof:

RTU-4 is an older Lennox unit. Fishbeck was told that this Unit had its natural gas heat exchanger replaced in 2017. Even so, *replacement within the next five years by a unit having higher energy efficiency is suggested.*

RTU-5 is an older Lennox unit. Fishbeck was told that this Unit had its natural gas heat exchanger replaced in 2017. Even so, *replacement within the next five years by a unit having higher energy efficiency is suggested.*

RTU-6 is a newer Lennox unit, and appears to be in good operating condition.

West Building roof:

RTU-7 is an older Lennox unit. *Fishbeck recommends replacement within the next five years by a unit having higher energy efficiency.*

RTU-8 is an older Lennox unit. *Fishbeck recommends replacement within the next five years by a unit having higher energy efficiency.*

On the roof of the Center Building there is a Mini-Split air conditioning (A/C) Condensing unit. It has an indoor evaporator A/C cassette in a computer equipment room on the Second Floor. It appears to be in good operating condition.

The Mechanical Investigator detected carbon monoxide upon entering the building. It is likely that the undersized and improperly installed combustion air intake gravity vent for the building boilers was the cause. As an added precaution *it is recommended that the natural gas fired heat exchangers in RTU's 1, 2, 3, 6, 7, and 8 be checked for cracks that could allow carbon monoxide (CO) to entering the building.* The heat exchangers in RTU's 4 & 5 were replaced in 2017 and should be in good repair.

#### Controls

Room air supply zone control is provided by Carrier variable air volume (VAV) control dampers in the branches of the RTU ductwork. Fishbeck was informed that all RTUs are operating as "stand-alone" control for all RTUs. *It is recommended that controls are in need of total and complete replacement.* Integrated temperature management has the potential to increase comfort and reduce energy cost.

## Exhaust Fans

First Level Men's and Women's Restrooms have dedicated ceiling mounted exhaust fans (EF) vented to the sidewall and are individually controlled with wall switches. *Exhaust fans are now required to be operating continuously during building occupied hours. This switching may be required to be changed to meet Code if the building is renovated, even if the Restrooms aren't touched.*

Second Level Men's and Women's Restrooms have dedicated roof mounted EFs vented to the roof and are controlled with a switch on wall. *Exhaust fans are now required to be operating continuously during building occupied hours. This switching may be required to be changed to meet Code if the building is renovated, even if the Restrooms aren't touched.*

Center Building general EF appears to be in good working condition.

West Building general EF appears to be in good working condition.

## Baseboard Heat

### Boilers

The Facility has radiant baseboard perimeter heat along some of the exterior walls. The hot water is supplied by natural gas fired heating boilers. The boilers appear to be in good working condition, but there are issues with the design of the systems.

The current combustion air intake duct appears to be undersized based on the capacity of the boilers. This could be an issue with generating carbon monoxide buildup in the building. *Fishbeck recommends that this condition be investigated, and any appropriate changes be made.*

The two flue stacks are combined into one flue stack up out the roof. It isn't a Code requirement, but *it is suggested the flue stacks be separated to be individual flue stacks.*

Boilers are 80% efficient, atmospheric vented, natural gas boilers, which require sufficient combustion air into the boiler room. It is suggested that they be replaced with separated combustion air boilers when replacement is required. The remaining life of the existing boilers couldn't be estimated.

There are two separate circulation pumps and the layout does not offer redundancy. This could be modified to allow for continued hot water supply to the baseboard heat should one pump or boiler become disabled.

## Perimeter Fin Tube Radiators

The hot water heating system is designed to provide supplemental heat along exterior walls. The baseboard heating devices are of varying age and condition. None appear to be in need of repair or replacement.

## ***Plumbing***

### **Building Services**

The facility water meter assembly is located in the East Basement. The water system appears to be in good condition.

The fire protection trim assembly is located in the East Basement and is a stand-alone system. The fire protection system appears to be in good condition. The facility is fully sprinklered.

The facility natural gas meter assembly is located on the north side of the facility, west side of North Addition. The gas piping appears to be in good condition.

### **Domestic Hot Water**

The East Basement domestic use natural gas fired water heater is at the end of its service life. *It is suggested that the water heater be replaced.*

The second-floor domestic electric water heater is newer and appears to be in good condition. No estimate to its remaining service life could be made. *Fishbeck recommends that when the water heater needs to be replaced the switch be made to a natural gas type.*

*Its suggested that adding circulation pumps to the water heaters could reduce wait times to furthest fixtures and decrease energy costs.*

### **Water Removal**

There is a sump pump in an abandoned boiler pit in the East Basement. *It is suggested the pump be replaced.*

There is a sump pump in a pit in the northwest corner of the West Basement. It appears to be in good working condition. This is the location of water intrusion in heavy rain events. *It is suggested that the pump be provided with an alarm to sound in event of pump failure.*

### **Restroom Fixtures**

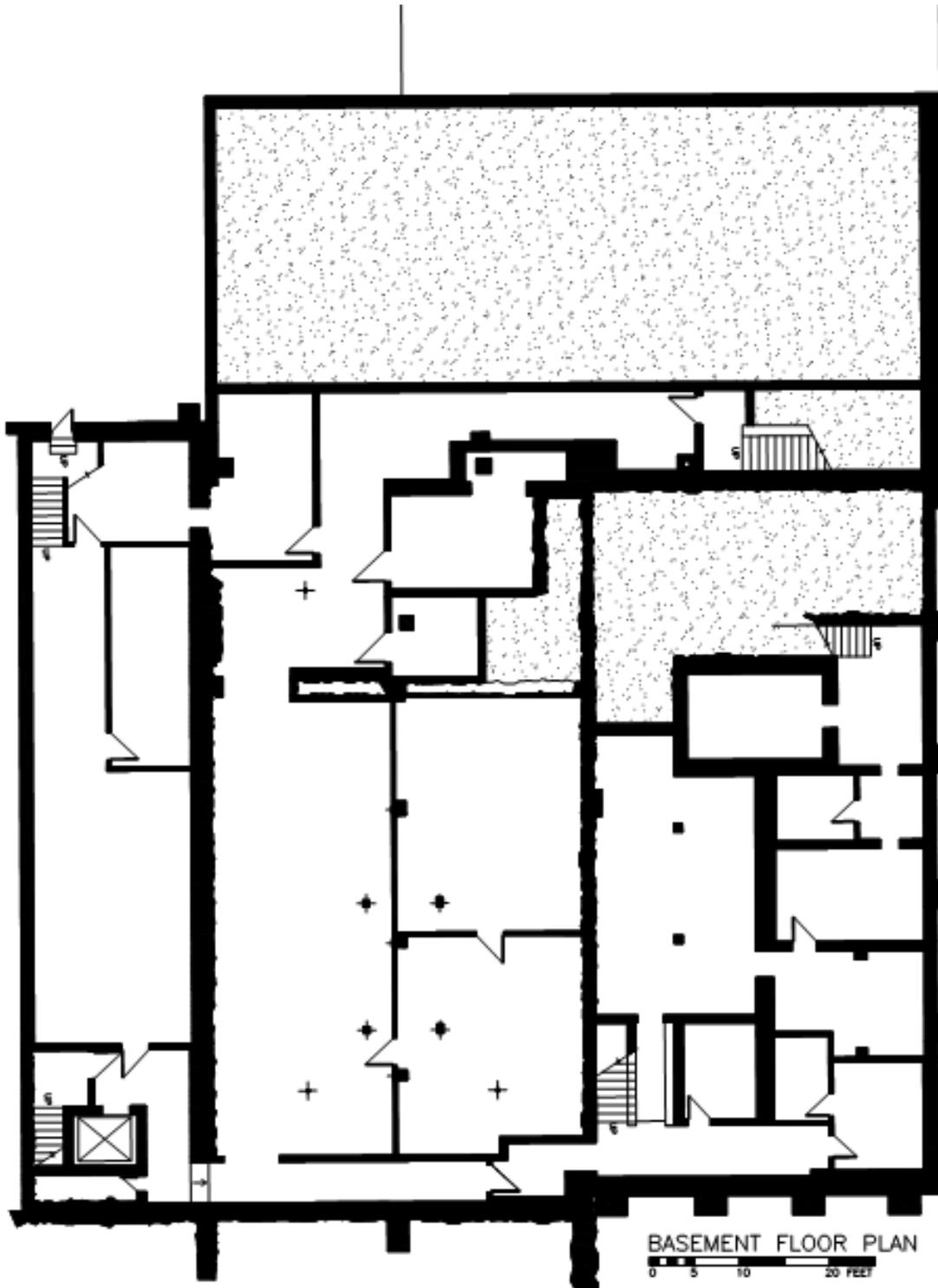
The East Basement Men's and Women's Restrooms appear to be abandoned. Some Water Closets have been removed and not replaced. The plumbing fixtures are not up to today's water saving standards. *The decision should be made of whether to replace missing fixtures and actively maintain the rooms or properly removed all plumbing fixtures and cap lines.*

First and Second Level Restrooms are in good condition.

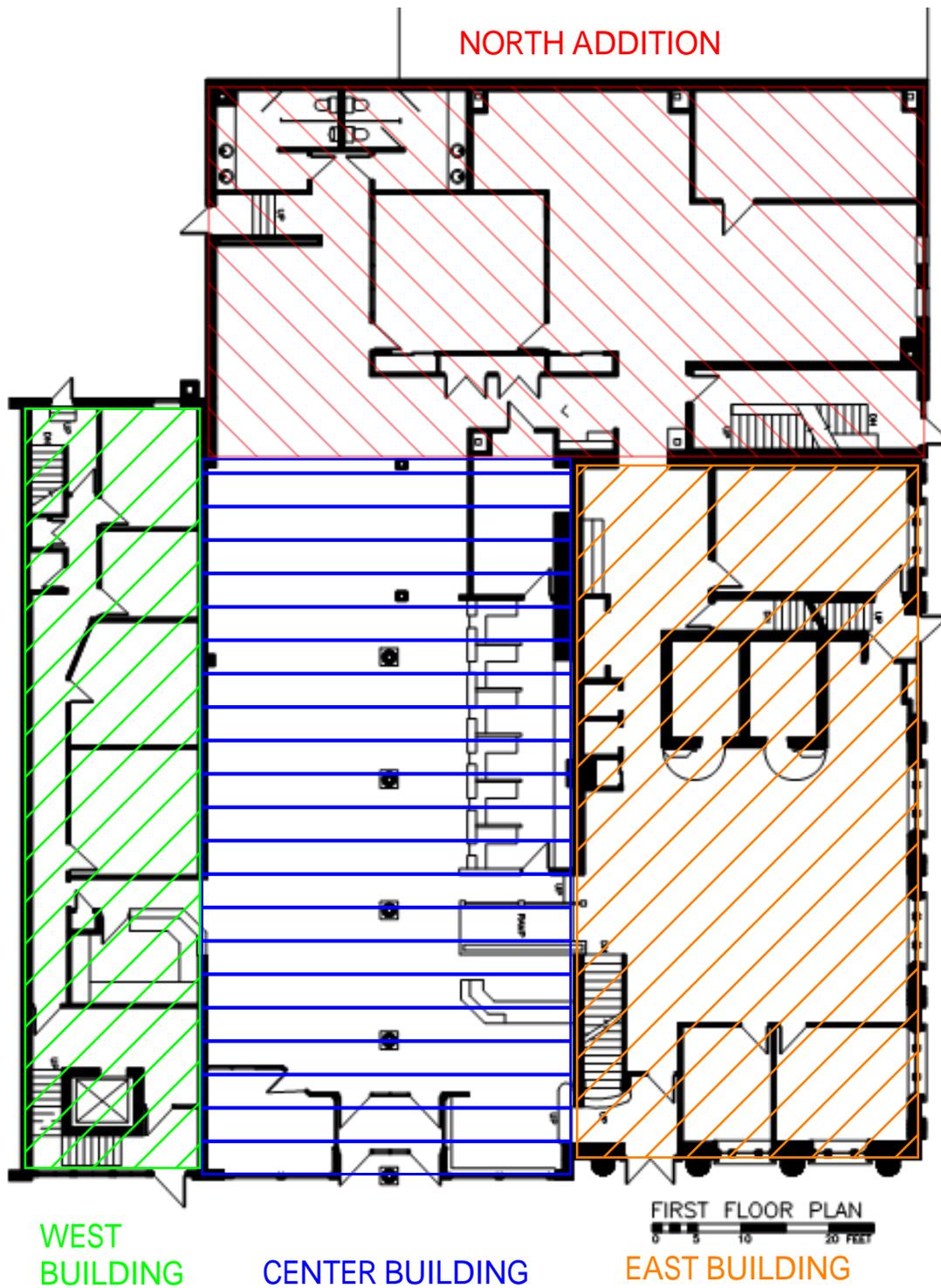
End of Report

# Appendix One

## Basement Floor Plan



First Floor Plan



*Second Floor Plan*

