# AGENDA OF THE AD HOC FACILITIES COMMITTEE

## MONDAY, FEBRUARY 21, 2022, 10:00 AM
### Virtual Meeting. Public may join via Zoom.

**A. Zoom Meeting Information.**

1. This item contains Zoom information, instructions, and a link to the Virtual Comment Form.

**B. Roll Call.**

**C. Approval of the Agenda.**

**D. Regular Business.**

1. Consideration with possible action to appoint a Chair.
2. Consideration with possible action to appoint a Vice Chair.
3. Communication by Ald. Johnson approved by Common Council on 6-1-2021 to approve the creation of an ad-hoc committee to assess the feasibility and necessity of a unified municipal building to include city hall, police, fire and municipal court and for the Committee to include appointees as selected by the Mayor with a least two city council members, a Mayors office representative, 4-5 community members and appropriate City department heads and to report out to Finance Committee.
4. Overview of the Berners Schober 2015 evaluation of City-owned facilities by Director of Public Works.
5. Overview of the current status of City Hall by Parks Director.
6. Overview of Bray Architects presentations.
7. Consideration with possible action the use of the remaining 2018 bonded money for Public Safety building analysis of $34,361.60.
8. Determine next meeting date.

## E. Adjournment.

1) THIS MEETING IS RECORDED: THE VIDEO OF THIS MEETING AND MINUTES ARE AVAILABLE ONLINE AT www.greenbaywi.gov
2) ACCESSIBILITY: Any person wishing to attend who requires special accommodation because of a disability, should contact the City Safety Manager at 920-448-3125 at least 48 hours before the scheduled meeting time so that arrangements can be made.
3) QUORUM: Please take notice that a majority or quorum of the Common Council will attend this Ad Hoc Committee meeting and will constitute a meeting of the Common Council for purposes of discussion and information gathering relative to this agenda.
4) REPRESENTATION: The party requesting the communication, or their representative, should be present at this meeting.

# Virtual Meeting Instructions

## Ad Hoc Facilities Committee

Zoom Meeting Information

### Join Zoom Meeting

https://us02web.zoom.us/j/85147566451?pwd=UCtxQVBoWlFYZnNWVmlYQ2FtWERsZz09

**Meeting ID: 851 4756 6451**
**Passcode: 285448**

### One tap mobile

+19292056099,,85147566451#,,,,*285448# US (New York)
+13017158592,,85147566451#,,,,*285448# US (Washington DC)

### Dial by your location

+1 929 205 6099 US (New York)
+1 301 715 8592 US (Washington DC)
+1 312 626 6799 US (Chicago)
+1 669 900 6833 US (San Jose)
+1 253 215 8782 US (Tacoma)
+1 346 248 7799 US (Houston)

Meeting ID: 851 4756 6451
Passcode: 285448
Find your local number: https://us02web.zoom.us/u/kbFShJXPlT

## Public Comments

If you wish to speak at this public meeting or leave a comment, please fill out the online Comment Form prior to the meeting.

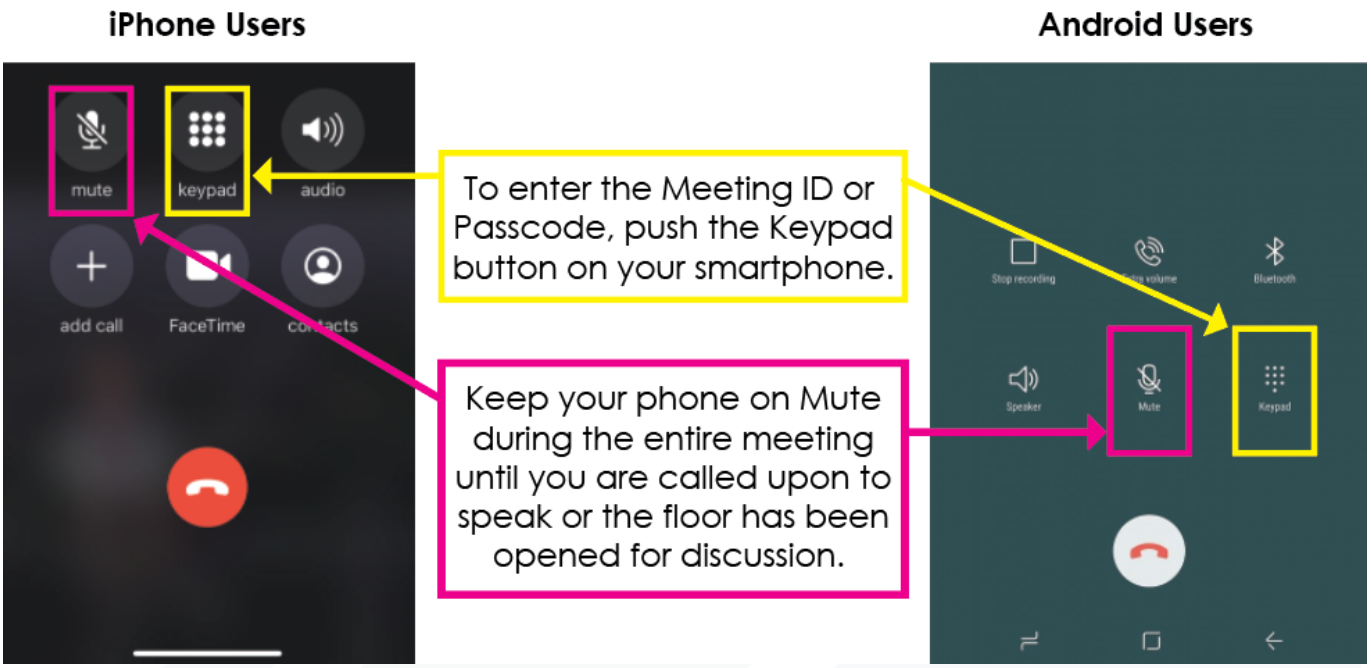
## Additional Information

1. Wisconsin Open Meetings Law still applies
    a. Persons interested in speaking to an item must state their name and address for the minutes.
    b. Committee/Commission/Board members will still follow *Roberts Rules of Order Newly Revised 12th edition.*
2. Please log into the Zoom meeting at least 10 minutes before the meeting begins to ensure a proper connection and that your technology is working.
    a. If you are a Board Member, please log into CivicClerk with a computer, laptop, or tablet device.
3. Once you are in the meeting please mute yourself.
    a. You may unmute yourself when you are called upon to speak.
4. Waiting room
    a. When you call in or connect via web or Zoom app, you will be placed in a "waiting room."
    b. The meeting host will then admit you to the meeting, and mute you upon entrance (you will still be able to hear and or otherwise observe the meeting).
5. Registering
    a. The host may ask you to register for the meeting. A registration link will be sent to you along with the invite. You'll receive another email confirming that you're registered for the meeting.
    b. If you're using a phone, your registration will be tied to an email.
6. Raising your hand
    a. Committee/Commission/Board members—you can either use CivicClerk and request to speak or you can also utilize the "raise your hand" tool in the Zoom platform (you'd need to use a computer or tablet) to let the host know you would like to speak. You can also un-mute yourself and start speaking.
    b. Persons with items on the agenda or other interested parties —you can also utilize the "raise your hand" tool on the Zoom platform via computer or mobile device. You will be allowed to speak once the committee, commission, or board has moved to "open the floor for interested parties to speak." Once discussion on your agenda item has concluded, the host will mute you, unless the committee opens the floor again.
7. What devices should I use?
    a. Smart phone (please see more detailed instructions on page 3)
    b. Land line
    c. Tablet— in advance of the meeting, please download the Zoom Meeting app by using either the Apple Store or the Play Store. You will be asked to input your name, to identify you for the meeting.
    d. Computer— you can access the meeting through a web browser by clicking on the meeting link, or through the Zoom Meeting app. If using the app, please download it in advance of the meeting. You will be asked to input your name, to identify yourself for the meeting.
    e. For tablet and computer users--if you download the app you may be asked to verify your email.

8. Zoom etiquette
    a. Muting yourself when you're not speaking will prevent your background noise from interfering with others' ability to listen to and participate in the meeting.
    b. If you're using a telephone, please identify yourself with your phone number and state your name and address before you speak. Zoom meeting hosts can see only your telephone number and will ask you to identify yourself.
9. Closed session
    a. Persons in the Zoom meeting will be put into a waiting room while the committee/commission/board meets in Closed Session. Participants will be admitted back into the Zoom meeting once the committee reconvenes in Open Session.
    b. Persons watching a Common Council meeting live on YouTube will see a gray screen with the City logo during closed session.
10. Persons interested in attending anonymously or listening to the meeting may call in by dialing *67 followed by the phone number in the Zoom Meeting Information box.

## Calling into the Zoom meeting using a smartphone

1. Dial the phone number listed at the beginning of this document.
2. When prompted, enter the Meeting ID number followed by **#**
3. Once you are in the meeting, notify the meeting host that you are in and state your name.
4. If you do not wish to speak, please make sure your phone is on **Mute**
    a. If you're using a smartphone, look at your screen and click the Mute button



Report to the
# Ad Hoc Facilities Committee of the City of Green Bay

## MEETING DATE

February 21, 2022

## AGENDA ITEM # D.4

Overview of the Berners Schober 2015 evaluation of City-owned facilities by Director of Public Works.

## BACKGROUND

## RECOMMENDATION

## FISCAL IMPACT

## ATTACHMENTS

1. 564300_PoliceDepartment_FINAL
2. 564300_FireDepartment_FINAL
3. 564300_GBcity_DPW_FINAL
4. 564300_MunicipalGarages_FINAL
5. 564300_ParksDepartment_FINAL

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## POLICE COLD STORAGE

**August, 2015**

## POLICE DEPARTMENT

# SUMMARY

***Date of Visit: July 9, 2015***
***Address: 2230 N. Quincy Street***

## Building Description

The storage building at the Quincy Street site is an uninsulated metal panel structure. There is a mezzanine across the west 1/3 of the interior, a portion of which is fenced and locked. The area under the mezzanine is also fenced off from the rest of the interior. That area has its own access doors on the north side of the structure. Additional fenced areas are at the east side of the interior, accessed by a locked gate. All doors are painted metal, with varying degrees of rust apparent. The construction date of this building is unknown.

## Code/Accessibility

Two legal means of egress are provided from the main building area. A separate means of egress is provided to the locked storage cage under the mezzanine. The mezzanine meets criteria to be served by a single means of egress, the stair.

As a typically unoccupied building, accessibility would not be a factor in the functionality or usage of this building.

## Structural System

The structure is a pre-engineered metal building by "Varco-Pruden" consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations.

## Plumbing Systems

No plumbing systems to report. Building roof has perimeter gutters and numerous downspouts.

## HVAC Systems

The pre-engineered storage building is unheated, but is ventilated. The building is used to store various equipment including motorized vehicles. Two exhaust fans and two air intakes are utilized to ventilate the space. The systems are interlocked with the building lights such that the fans operate and the intake dampers open, when the lights are on and the fans turn off and the dampers close when the lights are off. This interlocked situation does not meet current code and is recommended for alteration.

## Electrical Systems

The building is served by a 200 Amp, 120/240 Volt, single phase electrical service. The electric service panel is in good condition.

Receptacles are not GFCI protected.

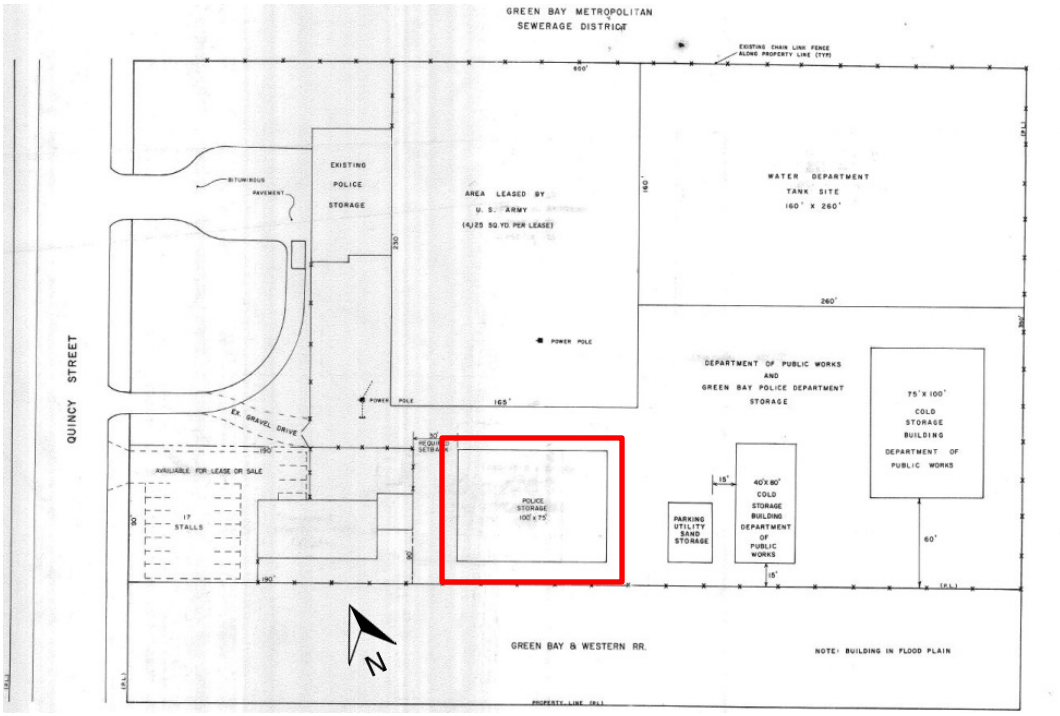
Lighting fixtures are HID in the full-height portion of the building. Fixtures in the mezzanine and beneath the mezzanine utilize T8 fluorescent lamps with electronic ballasts.

## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | Exterior doors | **$5,000** |
| **Code/ADA** | | | | **NA** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | | **NA** |
| **HVAC Systems** | Ventilation controls | | | **$5,000** |
| **Electrical** | | | Receptacles | **$750** |
| **Building Total** | | | | **$10,750** |




**Site Plan**

**Aerial View of Site**

# ARCHITECTURAL

## Building Description

The storage building at the Quincy Street site is an uninsulated metal panel structure. There is a mezzanine across the west 1/3 of the interior, a portion of which is fenced and locked. The area under the mezzanine is also fenced off from the rest of the interior. That area has its own access doors on the north side of the structure. Additional fenced areas are at the east side of the interior, accessed by a locked gate.

## Building Envelope

### Exterior Walls

Building walls are corrugated metal wall panel on steel frame. The panels are dented and oxidized in spots, but this appears to be an aesthetic concern only.

### Doors

A large overhead door is centered on the east façade, with a single swing door to its north. A pair of doors on the north façade provides access to the caged area under the mezzanine. A single swing door is on the south façade, near the bottom of the stair to the mezzanine. All doors are painted metal, with varying degrees of rust apparent.

### Roof

Minimally pitched, corrugated metal roof panel on steel frame appeared to be in good working condition. Gutters and downspouts are as listed in the plumbing report.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Unknown | **Gross Area** | 1,000 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group U – Utility and Miscellaneous | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

The Building Code for the State of Wisconsin has included the Utility building occupancy group since the adoption of the IBC family of codes in 2000.

### Egress and Safety

Two legal means of egress are provided from the main building area; one by the stair to the mezzanine, and the other adjacent to the overhead doors. A separate means of egress is provided to the locked storage cage under the mezzanine.

The mezzanine itself is accessed by a single stair. As this is essentially a non-occupied building, and there is limited area on the mezzanine, it would comply with IBC Table 1015.1for spaces with one exit.

The stair handrails and mezzanine guard rails have openings larger than currently allowed by code, but are presumed to have complied at the time they were built. As there is limited access to this building, safety is not a concern with the opening sizes.

## Summary of Accessibility/ADA Compliance

As a typically unoccupied building, accessibility would not be a factor in the functionality or usage of this building. Regardless, two of the three doors do provide at-grade accessibility, and the required accessible width of opening.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | F | | | |
| Exterior Facade Condition | F | | | |
| Exterior Door Condition | F HP | $5,000 | | Doors with more significant rust may need replacing earlier. |
| Accessibility | NA | | | |

**East Elevation**

**North Doors to Caged Area**

**East Door**

**South Door**

## STRUCTURAL SYSTEM

### Summary

The structure is a pre-engineered metal building by "Varco-Pruden" consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | Unknown |
| **Structure type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. |
| 1st Floor | **C** | | | Concrete slab on grade with minimal shrinkage cracking near overhead door. |
| Mezzanine | **C** | | | Plywood floor over steel deck and open web steel joists supported by structural steel channels and pipe columns. |
| Roof | **C** | | | Standing seam steel roof deck over z-purlins supported by structural steel rigid frames. |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams and columns, 0 hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

## PLUMBING SYSTEMS

### Summary

This is a metal pole building.
No plumbing systems to report. Building roof has perimeter gutters and numerous downspouts.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | |
| Sanitary Piping/Main | NA | | | |
| Storm/Clearwater Drainage | F | | P1 | |
| Code Issues | NA | | | |

**NOTES:**

**P1.** Metal building with gable roof. Roof has gutters and numerous downspouts. Downspouts discharge to grade. Area around the building is gravel, pitches to the south lower area/railroad tracks.

**Building Roof Edge**

**Gravel site Area**

## HVAC SYSTEMS

### Summary

The pre-engineered storage building is unheated, but is ventilated. The building is used to store various equipment including motorized vehicles. Two exhaust fans and two air intakes are utilized to ventilate the space. The systems are interlocked with the building lights such that the fans operate and the intake dampers open, when the lights are on and the fans turn off and the dampers close when the lights are off.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Air intake/Make-up | C | | H1 | Two intakes, line voltage damper actuators open when lights are turned on. |
| Exhaust Fan | C | | H1 | Two cabinet fans ducted to near floor. CFM rate is unknown. |
| Control | D | $5,000 | H1 | System interlocked to lights. |

**NOTES:**

**H1.** The building is not heated but ventilated because of the vehicles. The air intakes are compliant and the fans appear to be sized to ventilate the building adequately but the exact CFM could not be verified. The fans are connected to operate with the lights. This does not meet current code.

A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. A garage exhaust fan project to revise the exhaust fans and control system is necessary to improve garage ventilation and occupant safety.

Installing a small fan to continuously ventilate the space at the minimum flow rate, and retain the light switch interlock on the existing fans is recommended.

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 200 Amp, 120/240 Volt, single phase electrical service. The electric service panel is in good condition.

Receptacles are not GFCI protected.

Lighting fixtures are HID in the full-height portion of the building. Fixtures in the mezzanine and beneath the mezzanine utilize T8 fluorescent lamps with electronic ballasts.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Disconnect Panel | C | | | Good condition |
| Branch Panels | C | | | Same as Main Service Disconnect Panel |
| **Emergency Power Distribution Equipment** | | | | |
| Branch Panels | NA | | | There are no emergency branch panels |
| **Lighting** | | | | |
| Interior | C | $5,000 | E1,E2 | Consider replacing HID lamped fixtures with LED sourced fixtures |
| **Power** | | | | |
| Receptacles | HP | $750 | | Replace non-GFCI receptacles with GFCI type |

**NOTES:**

**E1.** LED fixtures provide the convenience of immediate ON while HID fixtures go through a warm-up cycle which lasts several minutes.

**E2.** Immediate reduced operational costs plus reduced future maintenance costs should be evaluated before investing in retrofitting fixtures. ROI may not warrant replacement cost due to building's limited occupied use.

**Service Equipment**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## EAST SIDE INCINERATOR

**August, 2015**

## POLICE DEPARTMENT

## SUMMARY

***Date of Visit: July 9, 2015***
***Address: 2228 North Quincy Street***

### Building Description

The east side incinerator, now decommissioned for incineration, was constructed in 1946. Interior walls are primarily modular face brick of the exterior wall construction. The office and toilet rooms are glazed ceramic block.

Exterior walls are comprised of the following: 12" solid masonry wall with running bond, modular sized face brick exterior, assumed filler brick core, and modular sized face brick inner surface. Major masonry repair, including tuck pointing at most mortar joints, is required.

Windows of steel mullion with single-pane glass and divided lights original to the building are still in place. Several original window openings are infilled with concrete block. Others are blocked off with building materials on the exterior, while the window itself is still in place on the interior.

Exterior doors are in very poor condition. The main door does not have functioning hardware aside from hinges. Other doors are in need of paint.

The higher roof is gravel infused built-up roofing, beyond deteriorated. The lower roof is ballasted EPDM membrane roof in equally poor condition. The majority of the floor is concrete. The former office and toilet room have quarry tile, damaged in areas. Parapet stone is damaged in several areas, missing in others. Copper flashing is well beyond lifespan. Majority of sealant and seams are supporting plant life.

### Code/Accessibility

For both security and safety reasons, legal means of egress should be re-established. This will require replacement of two doors and hardware; one at main entry, and one of the doors serving the basement.

The first floor of this building is at grade. Its lower level is abandoned, and has no need for access.
There is no water to the facility; plumbing fixtures have been disconnected. Although this building has no need for accessibility, a clear entry/egress path should be maintained for safety purposes.

### Structural System

The structure consists of precast concrete over structural steel purlins/girders and cast-in-place floor slabs over concrete encased steel purlins all supported by an interior steel frame and/or exterior load-bearing masonry walls.

There are various locations of cracking in the upper and lower level concrete slabs, due to concrete shrinkage. This is not a cause for structural concern.

### Plumbing Systems

Services in the building have been removed and/or abandoned. Plumbing fixtures have been disconnected and abandoned in place. Roof drains are still in place and functioning. Storm piping is not insulated. There is no secondary roof drainage.

### HVAC Systems

Currently there is no ventilation in this building. The original boiler system, piping, radiators, and incinerators are abandoned. An electric heater installed in the storage area appears to be 20+ years old and is abandoned.

## Electrical Systems

The building is served by a 100 Amp, 120/240 Volt, single phase electrical service. The present equipment was installed to replace the original service equipment – which remains abandoned in place on the east wall. There is an abandoned chest freezer occupying the working clearance space in front of the electrical equipment.

Receptacles are not GFCI protected.

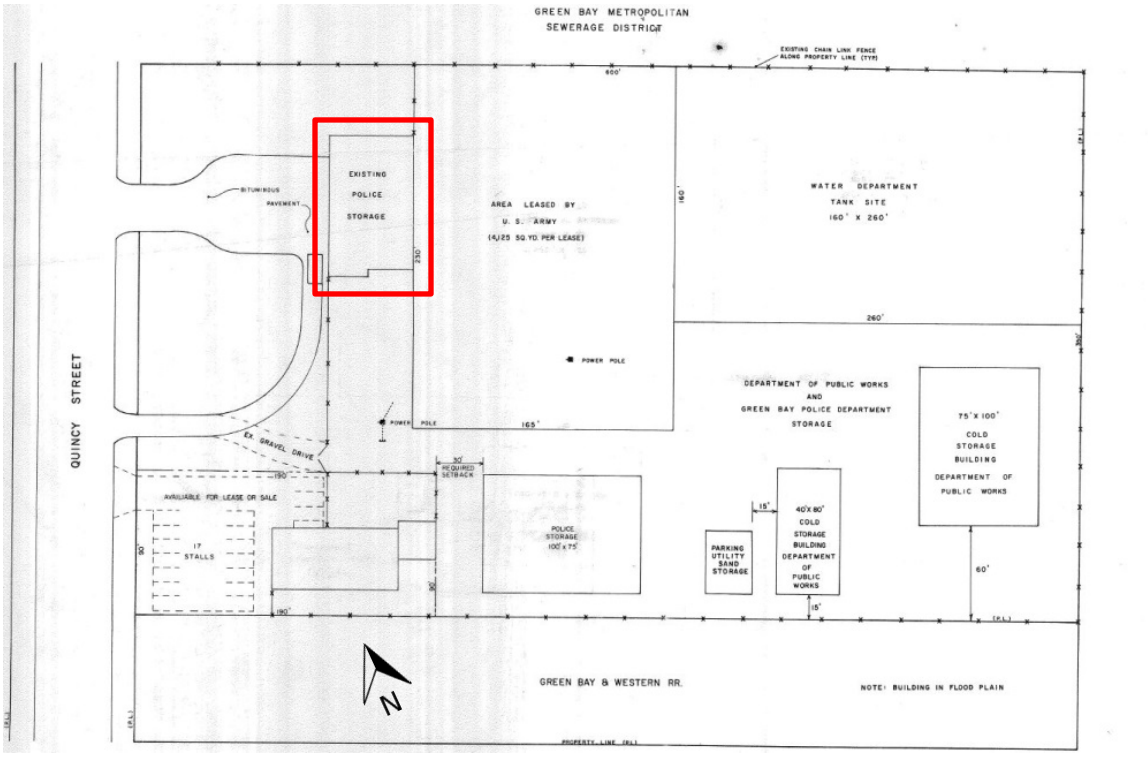
Lighting fixtures utilize T12 lamps and presumably magnetic ballasts. Many lighting fixtures do not work. Exit signs are not working.

## Estimates

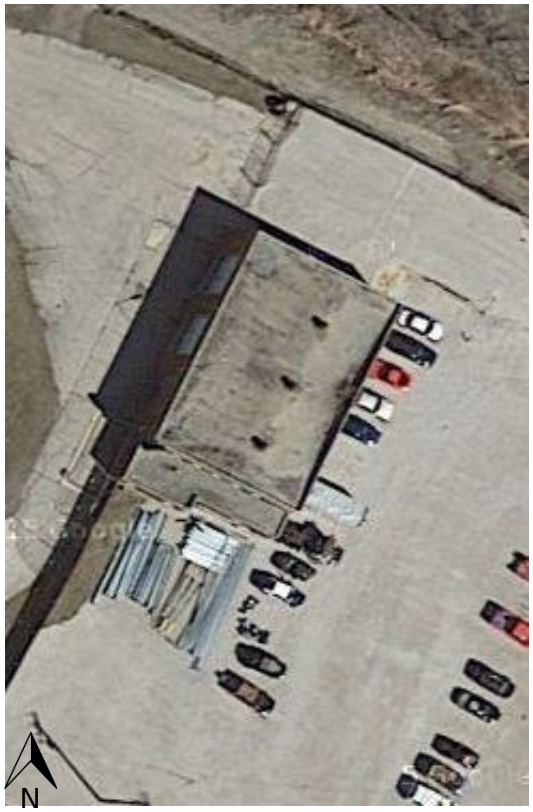
Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

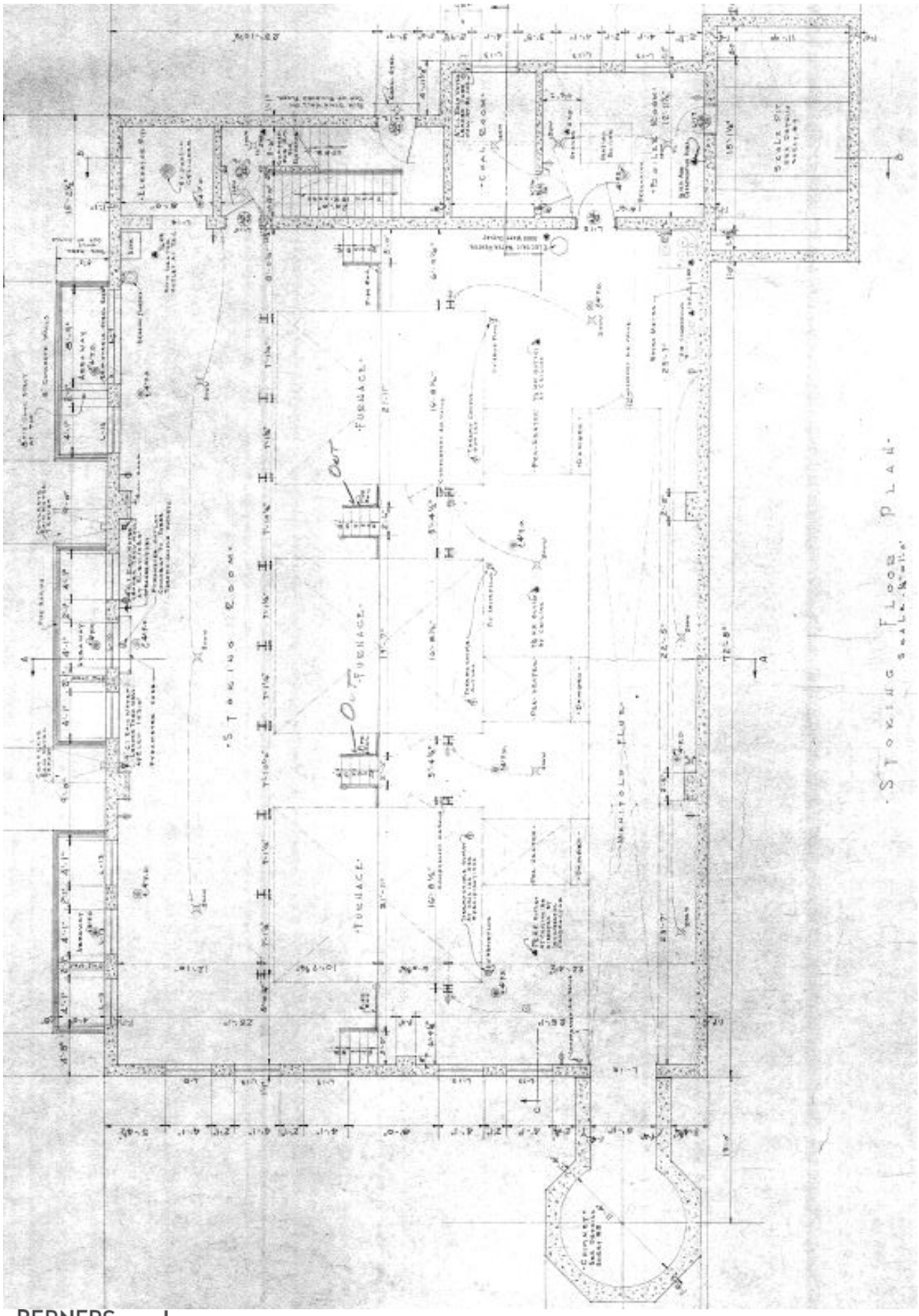
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | Roof Condition | | | **$40,000** |
| | | Exterior Façade Condition | | **$20,000** |
| | Exterior Door Condition | | | **$10,000** |
| | | Window Condition | | **$25,000** |
| **Architectural Subtotal** | | | | **$95,000** |
| **Code/ADA** | Egress and Safety | | | **(doors as noted in Arch. above)** |
| | Exterior doors | | | |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | | **NA** |
| **HVAC Systems** | Exhaust Ventilation | | | **$20,000** |
| | Control | | | **$10,000** |
| **HVAC Subtotal** | | | | **$30,000** |
| **Electrical** | | | Receptacles | **$750** |
| **Building Total** | | | | **$130,750** |

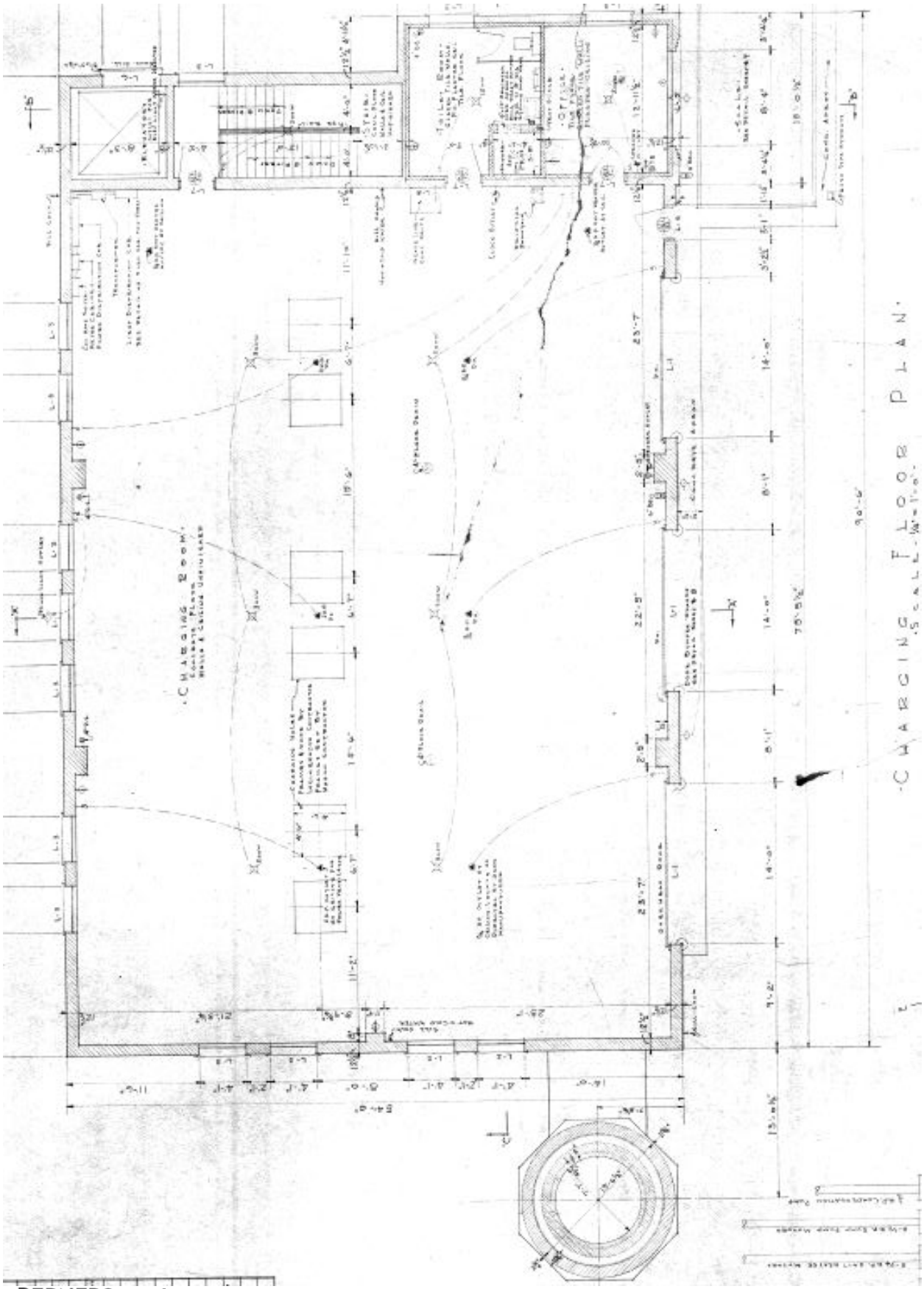



**Site Plan**




**Aerial View of Site**


STORAGE ROOMS
FURNACE
FURNACE
FURNACE
MANIFOLD FLUE
STORAGE FLOOR PLAN


CHARGING FLOOR PLAN
Scale: 1/8"=1'-0"
CHARGING ROOM

# ARCHITECTURAL

## Building Description

After being de-commissioned as a city garbage incineration facility, this building has been used as storage for both the Department of Public Works (1 garage bay) and the Police Department (remainder of building). Wood frame and poultry netting partition is used inside the building to separate and secure the two departments' areas, and to establish a walkway along the perimeter near the office and stair access.

The basement is unlit. All old equipment and incinerators are in place, many with trash remaining in them. A metal grate stair leads to a back exit directly from the basement. The exit opens to an exterior stair in a partially below-grade concrete well. Debris and plant growth prevented close observation of this area.

## Building Envelope

### Exterior Walls

Walls are comprised of 12" solid masonry wall with running bond, modular sized face brick exterior, assumed filler brick core, and modular sized face brick inner surface. Major masonry repair, including tuck-pointing at most mortar joints, is required.

Limestone trim is excessively stained and chipped at majority of the building. The limestone is damaged or missing at portions of the parapet cap. Engaged bollards at exterior of garage doors are damaged or missing.

### Windows

Windows of steel mullion with single-pane glass and divided lights original to the building are still in place. Several original window openings infilled with concrete block, several others blocked off with various building products on the exterior, while the window itself is still in place on the interior. Sealant at perimeter is split, separated and torn from jambs in most cases.

### Exterior doors

Exterior doors are in very poor condition. The main door at the front of the building does not have any functioning door hardware aside from hinges. Side door at stair landing and exterior elevator door are both rusted and most paint layers are worn off. Garage doors also are in need of paint.

### Roof

The higher roof is gravel infused built-up roofing, beyond deteriorated. Excessive holes, failures, vegetation, debris, etc. are present. Lower roof is a ballasted EPDM membrane roof, younger but in equally poor condition. Parapet stone is damaged in several areas, missing in others. Copper flashing is well beyond lifespan. Majority of sealant and seams are supporting plant life.

## Interior Finishes

### Floors

Basement and main garage area have concrete floors. The former office and toilet room have quarry tile, damaged in areas. Concrete at stair shaft was painted at one time. The paint is significantly worn and peeling.

### Walls

The majority of interior walls are modular face brick of the exterior wall construction. The office and toilet rooms are glazed ceramic block.

### Doors

Original interior doors are in place at the office, toilet room and stair. They are 5-panel wood doors. Stair and office doors have vision lights in the upper panels. Hardware looks to be original.

### Ceilings

The majority of the building has exposed structure at ceiling. A portion of the police storage area of the garage has had a wood frame with gypsum board attached, presumably to retain heat in that area. Stair, toilet room and office have plaster ceilings in poor condition. Paint is peeling over much of the surface.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | N/A | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | D | $40,000 | | |
| Exterior Facade Condition | CP | $20,000 | | |
| Exterior Door Condition | D | $10,000 | A1 | |
| Window Condition | CP | $25,000 | | |
| Walls | F | | | Adequate for the building's current use. |
| Doors | F | | | Adequate for the building's current use. |
| Ceilings | F | | A2 | |

**NOTES:**

**A1.** Replacement of two exterior doors is recommended to maintain security of building and weather-tightness; the front door and the door at the stair landing.

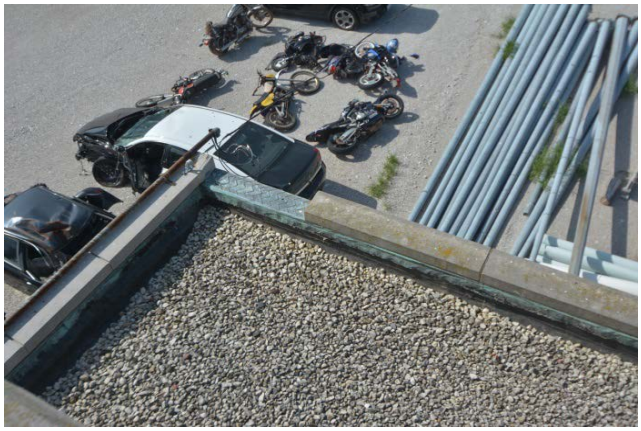
**A2.** Addressing the roof issues will help the ceiling integrity to be maintained. Although not in good condition, since the building is currently unoccupied, they do not pose a risk in their current state.

**West Elevation**

**South Elevation**

North Elevation

East Elevation



Missing Parapet Cap

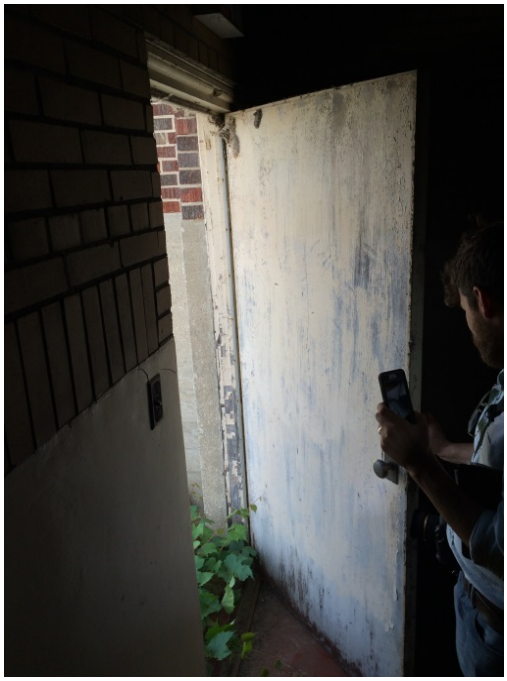
Damage Parapet Cap and Flashings

Roof Condition

Roof Condition

**Garage Doors**

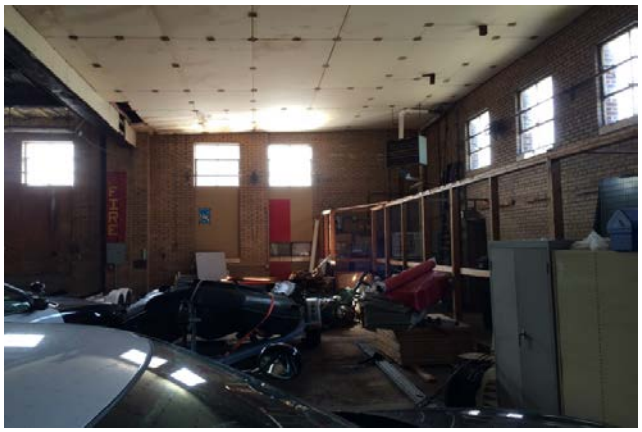
**Main Entry Door**



**Exterior Door at Stair Landing**

**Exterior Elevator Door**

**Garage Interior**

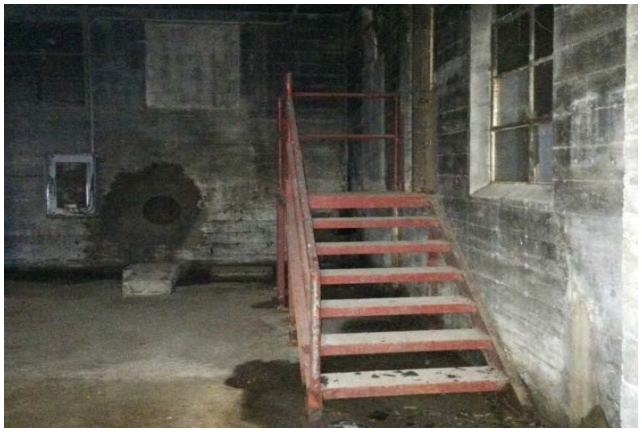


**Partition Along Garage Edge**

**Ceiling at Office**

**Basement Incinerators**

**Floor at Stair**



**Basement Egress Stair**

**Existing Windows Blocked in at Exterior**

**Door to Stair Shaft**

**Quarry Tile at Office**

**Duct Through Office**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1946 | **Gross Area** | Basement: 4,212 SF<br>First Floor: 4,780 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Current usage is S-2 Low Hazard Storage | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type II-B | | |

## Summary of Code Compliance/Life Safety

Due to the state of the building, a complete listing of non-compliant items would be extensive. This summary will address items that are of short term concern in terms of life safety and building security. Although the side and back portions of the building face a locked, fenced enclosure that only city employees have access to, the front and one side are not within the enclosure.

Despite current condition, it should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility of the renovated items. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**. Simple one-for-one repair or replacement of existing elements will not trigger upgrades or accessibility requirements.

### Egress and Safety

Any building is presumed to have complied with code at the time it was built. This building did not have two legal means of egress from the first floor that would be far enough apart to comply with current codes. Both then and now, the building's occupant level would qualify it for a single means of egress.

The entry door has no operable hardware, but must be opened by lock and key, and then pushed. If anyone were accidentally trapped inside, they would not be able to exit via this door. This door is on the publicly accessible side of the building. For basic safety and security reasons, in addition to weather-tightness, this door should be replaced.

Although not a legal means of egress, the garage doors that function via operators from inside the building do provide some level of egress safety. For the one garage stall used by the Department of Public Works, this is the primary way in and out of their space.

The egress door at the stair shaft is also in very poor condition, although it does have operable hardware. The other egress point from the basement is at the northeast side of the basement, accessed via a metal grate stair and egressed through an exterior stair well. For basic building safety, at least one of these two doors should be made functional.

### Stair Shafts

The one stair shaft has a door at top and bottom, but there are no fire ratings to the openings. This is presumed to have complied with code at the time it was built.

### Handrails and Guardrails

Hand and guard rails at stair are on one side only, and openings are larger than current code allows. Since the building has limited use and access, this is not a concern.

## Summary of Accessibility/ADA Compliance

The first floor of this building is at grade. Its lower level is abandoned, and has no need for access. There is no water to the facility; plumbing fixtures have been disconnected.

**Accessible Route**

Although this building has no need for accessibility, a clear entry/egress path should be maintained for safety purposes. Recommend clearing and/or organizing the animal cages and other stored material to provide a minimum 36" wide corridor along the passageway from front door to stair door.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

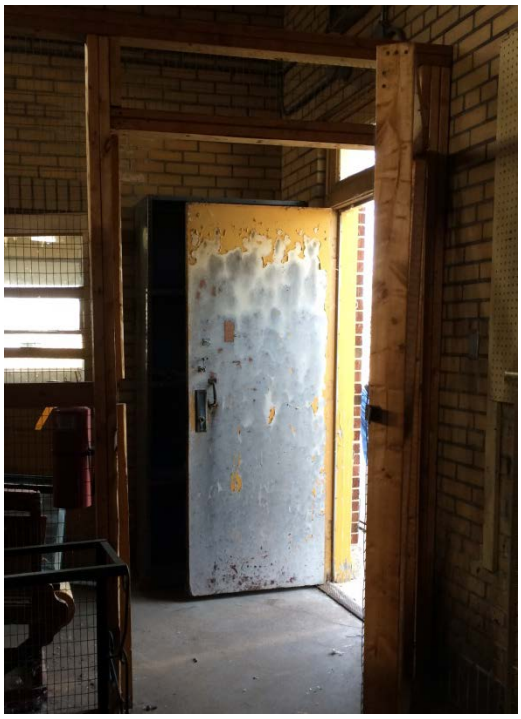
| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Egress and Safety | D | | CA1 | |
| Stair Shafts | F | | | |
| Handrails/Guardrails | F | | | |
| **Code Compliance/Life Safety** | | | | |
| Accessible Route | F | | CA2 | |
| Exterior Doors | D | | CA1 | |
| Plumbing Fixtures | NA | | | |

**NOTES:**

**CA1.** See architectural report for cost estimates on replacing doors. Recommend replacing at least one of the existing exterior doors. Lever handles are code requirement for any new or renovated work.

**CA2.** Create a 36" wide clear path from front entry door to stair door for safety purposes.

**Lack of Hardware, Front Door**



**Exterior Pull at Front Door**

**Railings and Door at Stair Shaft**

**Railings at Exterior Stair Well**

## STRUCTURAL SYSTEM

### Summary

The structure consists of precast concrete over structural steel purlins/girders and cast-in-place floor slabs over concrete encased steel purlins all supported by an interior steel frame and/or exterior load-bearing masonry walls.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1946 (Levi A. Geniesse Architects Project 464) |
| **Structure type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation and/or basement walls bearing on individual spread or continuous strip footings. |
| Lower Level | **C** | | **S1** | 7" concrete slab on grade with 6x6 #6/#6 wire mesh reinforcing over concrete incinerator footings or 3" base slab. |
| Upper Level | **C** | | **S1** | One-way solid concrete slab over concrete encased steel wide flange purlins/girders bearing on interior steel H-columns and exterior load-bearing masonry walls. |
| | | | | |
| Roof | **C** | | | Precast concrete channel slabs over steel wide flange purlins/girders bearing on exterior load-bearing masonry walls. (Low roof on south end of building is a 5" thick cast-in-place concrete slab.) |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams, columns, floor slabs, 0 hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There are various locations of cracking in the upper and lower level concrete slabs. The cracking is primarily due to concrete shrinkage and is not a cause for structural concern. No remedial action is recommended at this time.

**Typical Precast/Steel Roof Structure**

**Concrete Slab Cracking in Lower Level**

## PLUMBING SYSTEMS

### Summary

Building was constructed in 1946. Building is used strictly for storage; services in the building have been removed and/or abandoned. Plumbing fixtures have been disconnected and abandoned in place. Roof drains are still in place and functioning, but roof is in need of repair. Storm piping is not insulated.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | Disconnected/abandoned |
| Sanitary Piping/Main | NA | | | Abandoned |
| Storm/Clearwater Drainage | F | | P1 | Poor condition |
| Code Issues | NA | | | No apparent code issues. |

**NOTES:**

**P1.** Building is served by numerous interior roof drains and piping. Piping is not insulated. No secondary roof drainage. Roof is in poor condition.

**Roof Drain & Piping – Not Insulated**

**Building Roof**

## HVAC SYSTEMS

### Summary

The building was original constructed in 1946. The boiler system, piping, radiators, and heaters all appear original to the buildings construction. The system is abandoned. An electric heater installed in the storage area appears to be 20+ years old and is abandoned. The building is now used as unheated storage and currently there is no ventilation in this building.

The incinerators still remain in the building and have been abandoned.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Storage Garage Ventilation** | | | **H1** | |
| Exhaust Ventilation | **D** | $20,000 | **H1** | No Ventilation at this time. |
| Control | **D** | $10,000 | **H1** | No Controls at this time. |

**NOTES:**

**H1.** The building is used for unheated storage of miscellaneous equipment and vehicles. The vehicle storage requires this building to be classified as an enclosed storage garage.

An enclosed garage has specific exhaust code requirements. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. A garage exhaust fan project to install exhaust fans is recommended. To minimize fan energy and installed cost, it is recommended to install a small fan to operate continuously and a larger fan, interlocked to the lights, that will operate when the building is occupied (lights are on.)

**Steam Heater**

**Electric Heater**

**Typical Radiator**

**Boiler**

**Typical Steam Piping**

**Steam Heater**

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 100 Amp, 120/240 Volt, single phase electrical service. The present equipment was installed to replace the original service equipment – which remains abandoned in place on the east wall. There is an abandoned chest freezer occupying the working clearance space in front of the electrical equipment.

Receptacles are not GFCI protected.

Lighting fixtures utilize T12 lamps and presumably magnetic ballasts. Many lighting fixtures do not work. Exit signs are not working.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | N/A | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Disconnect | **C** | | E1 | Adequate |
| Branch Panels | **C** | | E1 | Adequate |
| **Emergency Power Distribution Equipment** | | | | |
| Branch Panels | **N/A** | | | There are no emergency branch panels |
| **Lighting** | | | | |
| Interior | **F** | **$4,000** | E1,E2, E3 | Adequate unless building's use intensifies |
| Exterior | **F** | **$900** | E3 | Consider replacing HID lamped lighting fixtures with LED sourced fixtures |
| **Power** | | | | |
| Receptacles | **HP** | **$750** | | Replace non-GFCI receptacles with GFCI type |

**NOTES:**

**E1.** The existing electrical equipment is adequate for the building's use as storage with short term occupancy by City personnel. Working clearance to the equipment should be maintained to comply with code.

**E2.** T12 lamps are no longer manufactured and will become difficult to acquire once supplier's stocks are depleted.

**E3.** Consider replacing fixtures with more energy efficient LED sourced fixtures.

**Service Equipment**

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## POLICE STATION

**August, 2015**

## POLICE DEPARTMENT

## SUMMARY

***Date of Visit: June 18, 2015***
***Address: 307 South Adams Street***

### Building Description

The Police Station consists of a vehicle maintenance and repair garage adjacent to the 3-floor (basement, 1st and 2nd floors) office building. Vestibule entrances at the northwest and southwest corners are single-story. The building is clad in a combination of brick and cast concrete panels.

The basement still exhibits many finishes that date from its 1968 original construction. It houses locker rooms, mechanical spaces, evidence storage, forensics and shooting range.

First floor includes public entry lobby with accessible restroom, staff entry vestibules, a lunch room with vending, open office space at the building center, smaller offices at the perimeter, and a suite of interview rooms. A portion of the attached garage houses the garage office, supplies, and SWAT team storage with mezzanine. The garage itself has drive-through access for vehicles at its center, space for multiple vehicles to be serviced, a bike and equipment storage area, and a concrete block room for gasoline and oil storage.

The second floor of the police station was added to the original building in 1992. In addition to more office space, it contains a training center, small break room, and access to the mezzanine space over the west third of the garage. The mezzanine contains personal storage, mechanical spaces, and the upper mezzanine area of the SWAT team storage room.

### Code/Accessibility

The office area of the building is Business occupancy; the garage is a separated S-1 Storage occupancy, with an incidental use room of H-2 Hazardous. Although current code requires a 3 hour separation for non-sprinklered buildings between the H-2 hazardous room and adjacent occupancies, there is no requirement for separation between Business and S-1. ***Due to the location of the unenclosed generator in the repair garage, and its proximity to the hazardous storage room, it is recommended that the 4-hour separation between Business and S-1 Storage be maintained at this time.***

Entry to the building is at grade at the public front entrance, but an accessible visitor parking stall was not provided. Travel within the building is generally accessible. The following accessible features should be provided:

- Shower in Men's room
- Break room counter with sink
- Toilet in basement Men's room
- Cups for accessible drinking (near fountains)
- A first floor accessible staff toilet room

### Structural System

The structure consists of steel roof deck and open web steel joist/joist-girders supported by exterior load-bearing masonry walls and interior steel columns, all constructed over the original one-story cast-in-place concrete frame, slabs, beams, basement, load-bearing masonry walls, and shallow foundation system.

### Plumbing Systems

The original piping is in fair condition. Glass fiber insulation on the water piping helps to conserve energy, but the insulation is missing in several areas. Insulation from 1969 probably contains asbestos. A thermal mixing valve(s) (TMV) should be added to the hot water systems and hot water temperature adjusted to 110° Fahrenheit. Eyewash in the garage should have a TMV installed.

There is a sanitary pipe installed over the Evidence dryers in the basement. It would be advisable to install a drain trough below the piping to protect the equipment from potential piping leaks.

## HVAC Systems

The office area is served by three modular air units located in a second floor mechanical mezzanine above the garage. One air unit is dedicated to each floor of the building. A packaged roof top air unit serves the firing range. A fifth air unit, a roof top air unit, is dedicated to the training room area.

Exhaust ventilation for toilet rooms, janitor closets and other miscellaneous spaces is served by a variety of power roof ventilators and ceiling exhaust fans which vary in age, size, and condition.

The garage ventilation consists of two gas-fired make-up air units and multiple exhaust fans. One make-up air unit does not function and the other is not capable of providing adequate heat or ventilation. The units are time clock operated and there is no gas detection system.

A hot water boiler system installed with the 1992 addition project is located in the second floor mechanical room. A pump motor has been replaced. Hot water is distributed to fin tube radiation, reheat coils, and cabinet heaters throughout the office building.

The controls are primarily pneumatic with a few newer components utilizing low voltage DDC controls. An air compressor is located in the second floor mechanical room.

## Electrical Systems

The building is served by a 1600 Amp, 120/208 Volt, three-phase electrical service. The original panels are in fair condition; the panels added in the 1992 renovation are in good condition. The panels have capacity for future load. The emergency generator serving the building is in fair condition. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads. Storage is currently blocking the code required 3-feet for electrical clearance for Panel C.

There are numerous outlets around the building that need to be GFCI protected. Lighting fixtures are in fair to good condition. There are several fixtures with broken or missing lenses. These should be replaced or repaired. The facility should install occupancy sensors in all offices, meeting rooms, break room, storage rooms and janitor's closets. Consideration should be given to replacing the exterior HID fixtures with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition and the facility is pulling Cat 5 and Cat 6 data and voice cabling from data racks on each floor and coax for CATV. The fire alarm system is a zoned system with smoke detectors, pull stations, and notification devices located around the building. Coverage does not comply with current code, a new addressable fire alarm system upgrade is recommended with additional devices provided to meet code.

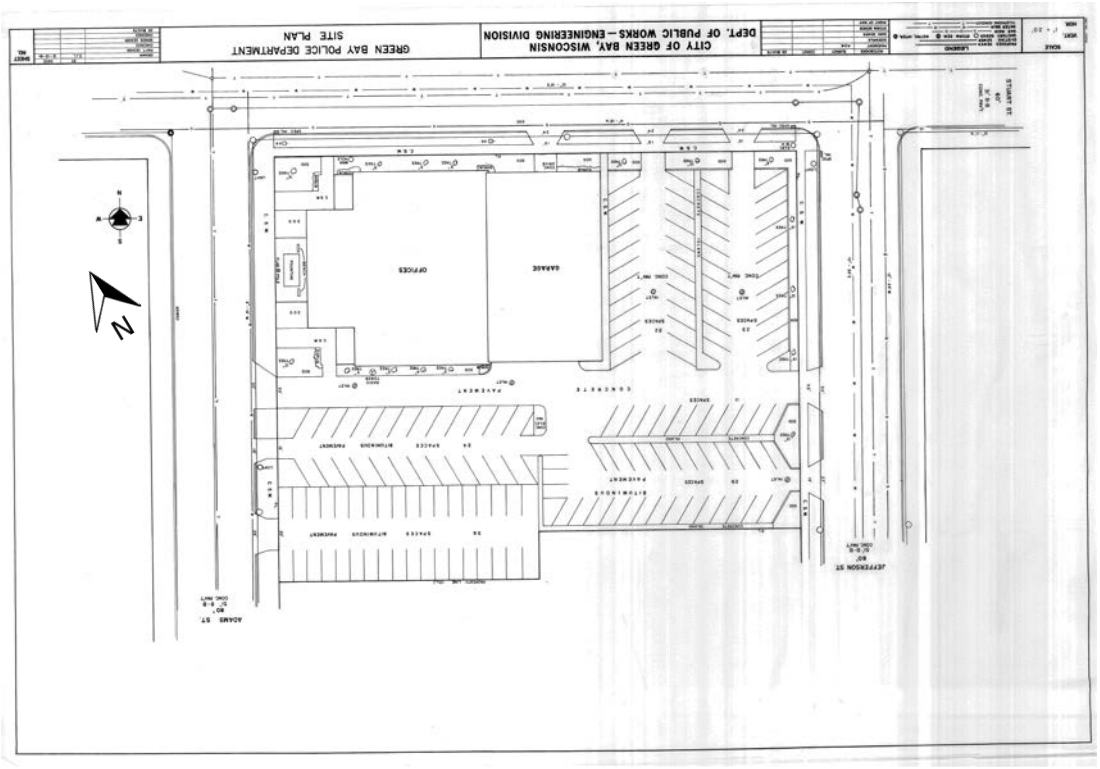
## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

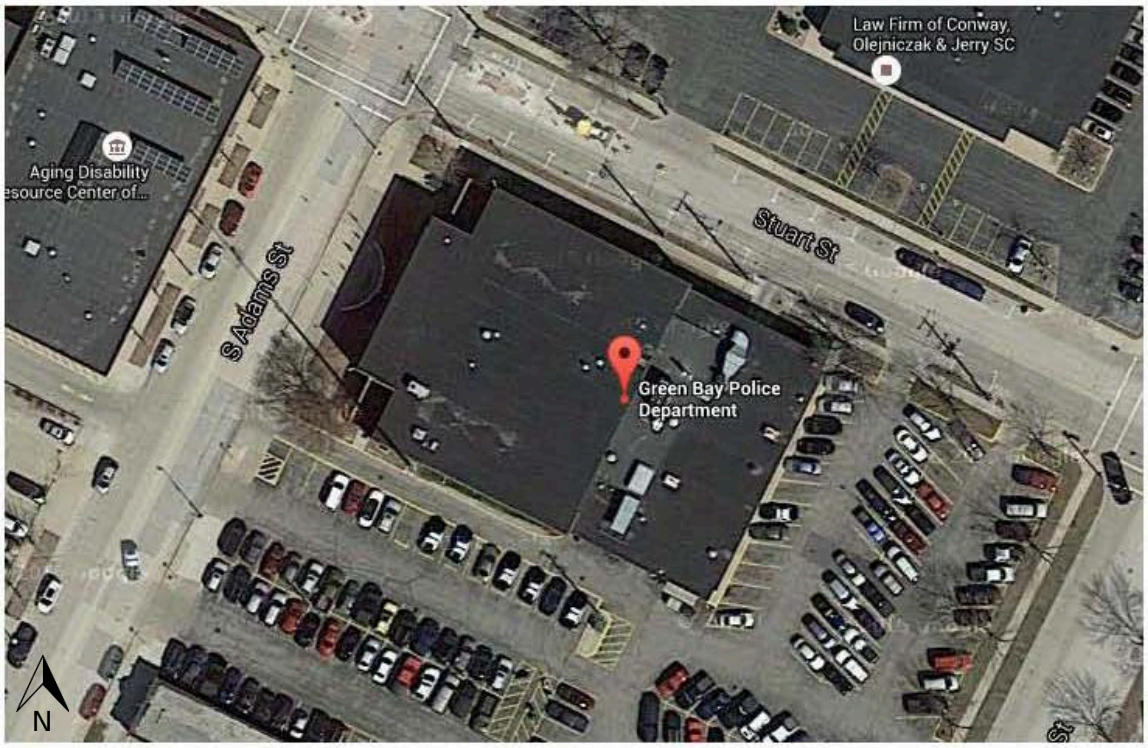
**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| Architectural | | | New EPDM roof | $350,000 |
| | | | Floors | See Report |
| | | | Casework | See Report |
| | | | Doors | $7,200 |
| Architectural Subtotal | | | | $357,200 |
| Code/ADA | | | Showers | $8,000 |
| | | | Doors | See Report |
| | | | Sinks/Lavatories | $6,000 |
| | | | Toilets/Urinals | $4,000 |
| | | | Grab bars | $300 |
| | | | 1st floor accessible toilet room | $10,000 |
| Code Subtotal | | | | $28,300 |
| Structural | | | | NA |
| Fire Protection | | | | NA |
| Plumbing | Thermal Mixing Valve (TMV) | | | $8,000 |
| | Backflow Prevention | | | $5,000 |
| Plumbing Subtotal | | | | $13,000 |
| HVAC Systems | | | Housing | $225,000 |
| | | | Insulation | $2,000 |
| | | | Occupied Space Thermal Comfort | $120,000 |
| | | | Pumps | $2,000 |
| | | Insulation | | $1,000 |
| | Housing | | | $1,000 |
| | Condensing Units | | | $1,000 |
| | | | Exhaust Ductwork | $12,000 |

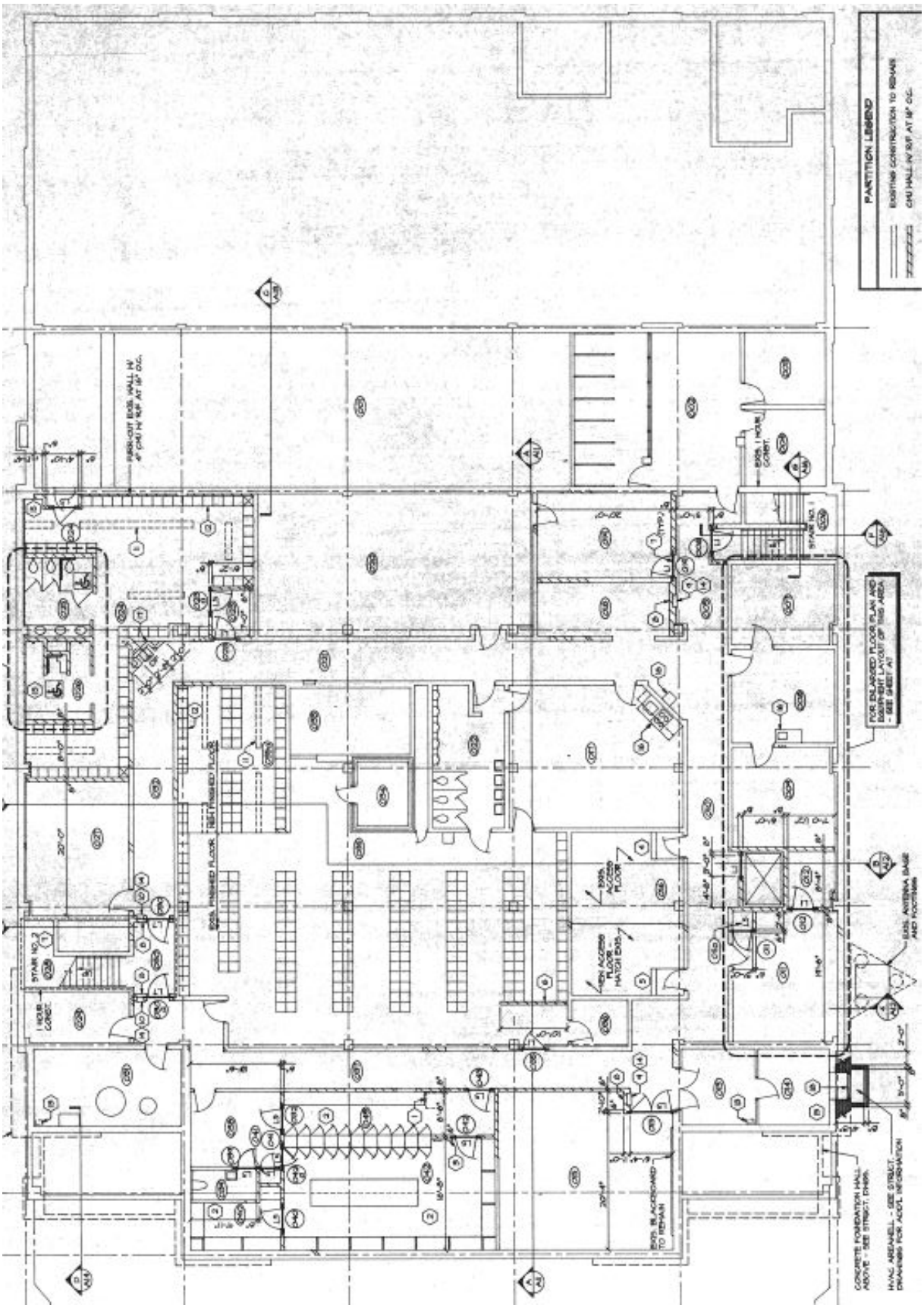
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| | | | Boilers | **$85,000** |
| | | | Pumps | **$10,000** |
| | | | Room Terminal Units | **$10,000** |
| | Mechanical Room Ventilation | | | **$2,000** |
| | Make-up Air Unit | | | **$110,000** |
| | Exhaust | | | **$30,000** |
| | Control | | | **$10,000** |
| **HVAC Subtotal** | | | | **$421,000** |
| **Electrical** | | | Transfer Switch | **$20,000** |
| | | | Main Distribution Panel | **$7,000** |
| | | | Branch Panel | **$20,000** |
| | Receptacles | | | **$1,000** |
| | | | Offices, Conference Rooms, Break Room | **$5,000** |
| | | | Toilet Rooms/ Small Storage Rooms | **$1,000** |
| | | | Fire Alarm System | **$30,000** |
| **Electrical Subtotal** | | | | **$84,000** |
| **Building Total** | | | | **$1,103,500** |



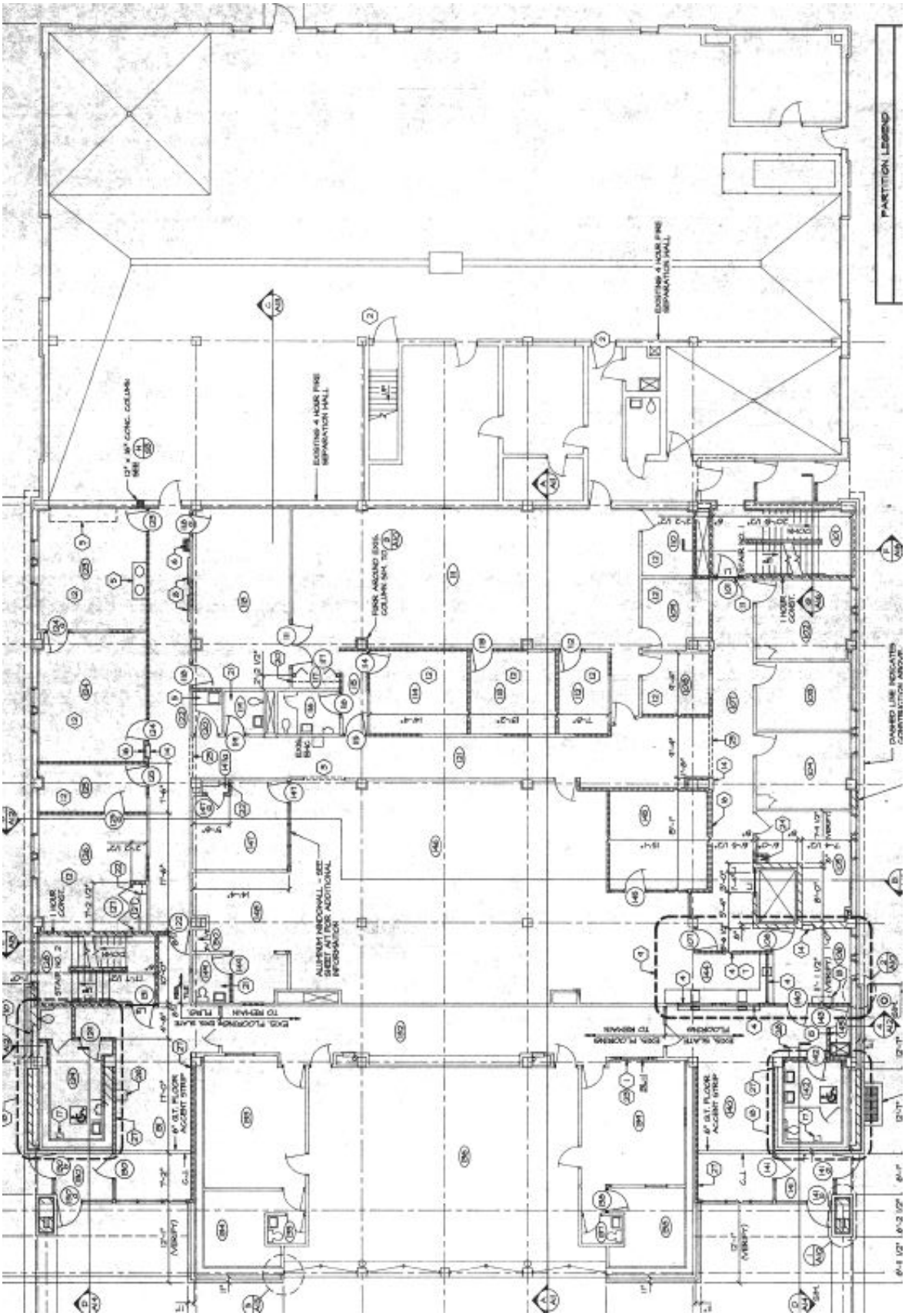

**Site Plan**



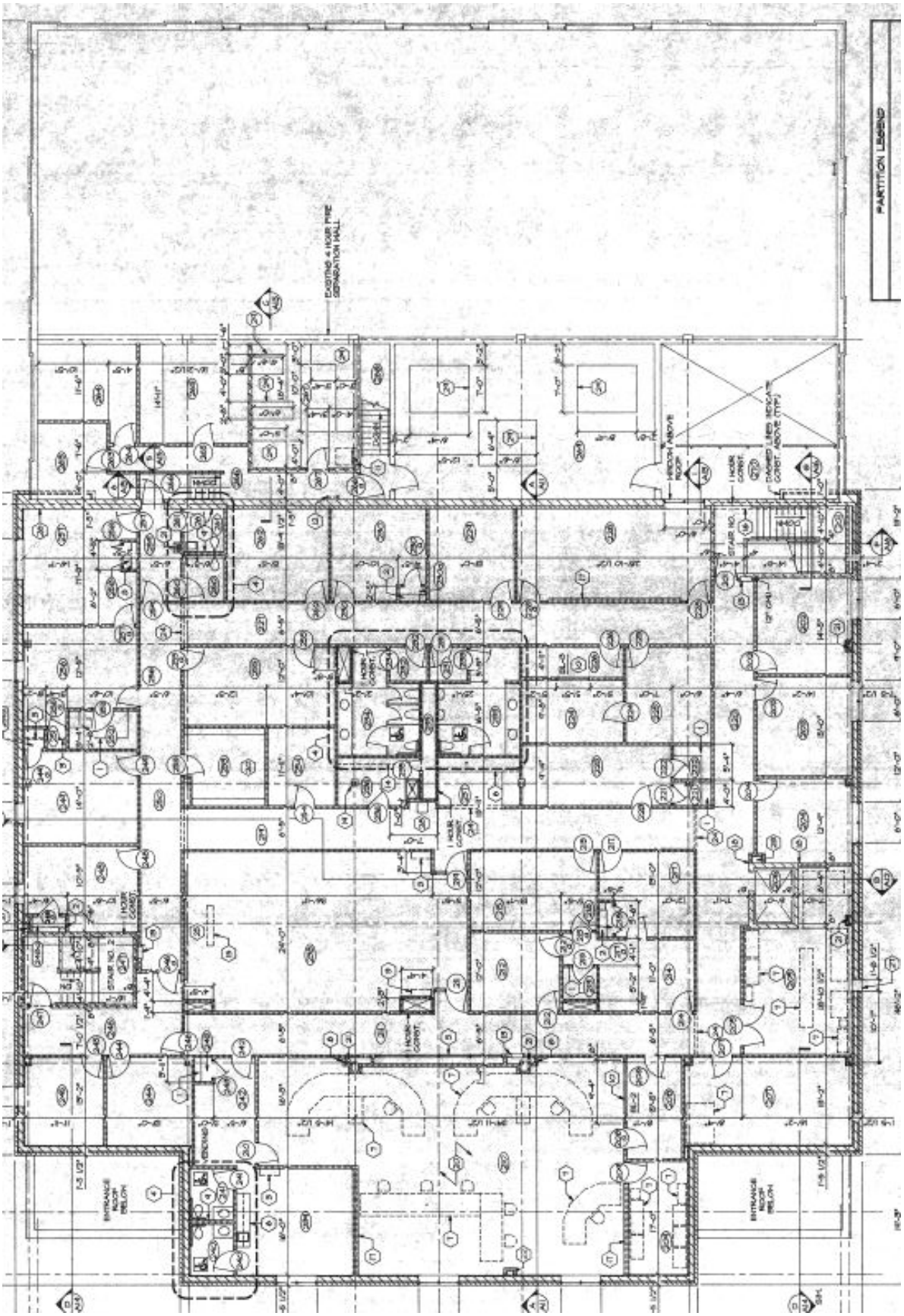

**Aerial View of Site**


PARTITION LEGEND
EXISTING CONSTRUCTION TO REMAIN
CMU HALL W/ R/F AT 16" O.C.
FOR ENLARGED FLOOR PLAN AND EQUIPMENT LAYOUT OF THIS AREA - SEE SHEET A7
EXIS. ANTENNA BASE AND FOOTINGS
EXIS. BLACKBOARD TO REMAIN
CONCRETE FOUNDATION HALL ABOVE - SEE STRUCT. DWGS.
HVAC AREAWELL - SEE STRUCT. DRAWINGS FOR ADDL. INFORMATION
EXIS. FINISHED FLOOR
EXIS. ACCESS FLOOR
MEN ACCESS FLOOR - HATCH EXIS.
STAIR NO. 1
STAIR NO. 2
1 HOUR CONST.

Basement




First Floor




Second Floor

# ARCHITECTURAL

## Building Description

The Police Station consists of a vehicle maintenance and repair garage adjacent to the 3-floor (basement, 1st and 2nd floors) office building. Vestibule entrances at the northwest and southwest corners are single-story. The building is clad in a combination of brick and cast concrete panels. Power-operated coiling metal shutters are housed above each window opening on the building exterior. Vestibule entrances and other doors do not have coiling shutters. A horizontal canopy extends to cover a service entrance and area at the east side of the building.

Originally built in 1969 (original plans not available), the basement still exhibits many original finishes. It houses locker rooms, mechanical spaces, evidence storage, forensics and shooting range. Several corridors have older casework installed for additional storage space.

First floor includes public entry lobby with accessible restroom, staff entry vestibules, a lunch room with vending, open office space at the building center, smaller offices at the perimeter, and a suite of interview rooms. A portion of the attached garage houses the garage office, supplies, and SWAT team storage with mezzanine. The garage itself has drive-through access for vehicles at its center, space for multiple vehicles to be serviced, a bike and equipment storage area, and a concrete block room for gasoline and oil storage. (See code assessment for additional information.)

The second floor of the police station was added to the original building in 1992. In addition to more office space, it contains a training center, small break room, and access to the mezzanine space over the west third of the garage. The mezzanine contains personal storage, mechanical spaces, and the upper mezzanine area of the SWAT team storage room.

## Building Envelope

### Exterior Walls

Exterior wall is comprised of beveled edge cast stone panels, face brick and metal trim. The cast stone panels, added with the 1992 addition are the exterior wythe of the a 15" wide cavity wall. The backup wall is an 8 inch concrete block. The inside face typically includes 2" cellular insulation, thermal studs and ½" gypsum board.
The original building is built of 12" masonry walls, 4" modular face brick and 8" concrete block back-up.
The garage and maintenance shop, to the east, is built of 12" wide masonry walls, 4" modular face brick and 8" concrete block back up. The upper portion exposes the ends of the precast beams.

A bay of the north wall of the garage is showing signs of movement and moisture penetration. The face brick shows significant cracking, moisture drive and efflorescence. The expansion joint filler, where the garage meets the second floor addition, had been scraped out and exposed the insulation.

There is a flat concrete slab overhang at the refueling station on the southeast corner of the garage. Spalling and chipping is prevalent at the outermost corner. This appears to be aesthetic only.

Sealant joints throughout are showing their age and need to be maintained.

### Windows

The majority of the windows are a dark-bronze anodized, fixed, aluminum system with insulated glass and appear in good working condition. The clear anodized aluminum operable windows in the garage portion appear original to the building and are showing their age. The windows on the foremost west elevation include security closers on switched operators. The security gates were not tested as a part of this building evaluation.

The overhead sectional door on the north elevations of the garage/maintenance portion of the building are five-panel, three-light variety. The two overhead sectional doors to the south are both (7) panel and have no lights. All three doors appear in good operating condition.

### Roof

The roofing portion of the building envelope can be divided into five areas, separated by differing elevations. The five areas, the entry, the breakroom, the office space, the mechanical room and the garage are all various aged fully-adhered EPDM membrane systems. Multiple penetrations, both prior to the roofing and patched in after installation were noted.

A concrete canopy at the loading dock is damaged, but not of a structural concern.

With the exception of the mechanical room roof, which has seen a considerable amount of modification since its installation circa 2008, the various roof areas are beyond their anticipated lifespan. Tenting, wrinkled surface and splitting seams were observed. Signs of ponding prevalent and inconsistent with drain locations.

## Interior Finishes

### Floors

Stairwells have the original quarry tile treads and risers. The basement rooms have concrete, composite tile, and worn and stained carpet. Toilet and shower rooms on all floors have ceramic mosaic tile, typically 1" squares. The locker rooms have 2" ceramic mosaic tile. A data room in the basement has an access floor which is raised approximately 10 ½" above the concrete floor.

First floor includes slightly better condition carpet and sheet vinyl areas. Entrance lobbies have slate tiles, which were at one time waxed. The vending area of the 1st floor lunch room has 1" ceramic mosaic, with a small patch area of 2" ceramic mosaic. Second floor is primarily carpet in occupied areas, with composite tile at lunch room and storage rooms. The training room has been remodeled more recently, and still has carpet in good condition.

### Walls

Many basement and stair areas have glazed ceramic tile wainscots of approximately 4'-0" height. Toilet rooms throughout the building also have tile wainscots. Most are in fair condition; one toilet room's wainscot has been painted over with a durable finish product. Shower rooms have full height tile walls.

Most basement walls are painted concrete block. First and second floor walls are primarily gypsum board on metal studs.

### Doors

Doors to mechanical rooms and the garage are hollow metal, most likely insulated at garage connection. Other interior doors are flush wood, with lights in the doors of offices.

### Ceilings

Throughout the building, many of the 2' x 2' lay-in acoustic panel is showing age and sagging slightly at the center. The Men's Locker room in the basement has a washable 2' x 2' lay-in panel. The second floor training center has an acoustic finish panel installed at the time of the room's most recent remodeling.

### Casework

Casework throughout the building is in fair to poor condition. The casework falls into three general categories:

- Old wood cases with plastic laminate tops: cases are in fair condition. Tops are fair, but may have chips or be separating from the substrate.
- Older plastic laminate tops and cases; both portions tend to be chipped or separating from substrate in many locations.
- Newer wood or plastic laminate cases with plastic laminate tops; in generally good condition.

Older wood casework is still in use both in storage rooms and where it has been apparently relocated to corridors when newer plastic laminate pieces were installed. All toilet rooms have plastic laminate counters.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | HP | $350,000 | A5 | Based on $15 per sq. ft. |
| Exterior Facade Condition | F | | A1 | |
| Exterior Door Condition | F | | | |
| Window Condition | C | | | |
| **Interiors** | | | | |
| Floors | HP | | A2 | See note for SF budget costs |
| Walls | F | | | Tile wainscot is dated in color, but serviceable. |
| Doors | F / HP | $7,200 | A3 | Verify number of doors. See note. |
| Ceilings | F | | | |
| Casework | HP | | A4 | |

**NOTES:**

**A1.** Repair required at north side of intersection of the garage and office.

**A2.** Flooring most in need of attention is carpeting. This could be replaced on a room-by-room basis. All existing carpet except that in the training room is broadloom. Recommend replacing with carpet tile to facilitate future replacement of damaged or stained areas. Budget $1/SF for existing carpet removal, and $40/SF for new carpet tile installation.

**A3.** Original wood doors in the basement which do not have kick plates are damaged and in poor condition. Recommend door replacement, and installation of minimum 12" high kick plates. Verify number and locations of doors with owner. For purposes of this report, assuming replacement of 6 doors and hardware at $1,200 per door.

**A4.** Updates to older casework could provide better functionality for staff. Repairs recommended where laminate is missing or separated to maintain counter's integrity and serviceable life.

**A5.** Recommend new EPDM roof.

West Elevation

North Elevation

South Elevation

South Elevation at Garage Entry

East Elevation

Bay of North Wall at Garage

Newer Wood Casework with Laminate Top

Older Wood Casework with Laminate Top

Unfinished End at Laminate Top

Condition of Composite Tile

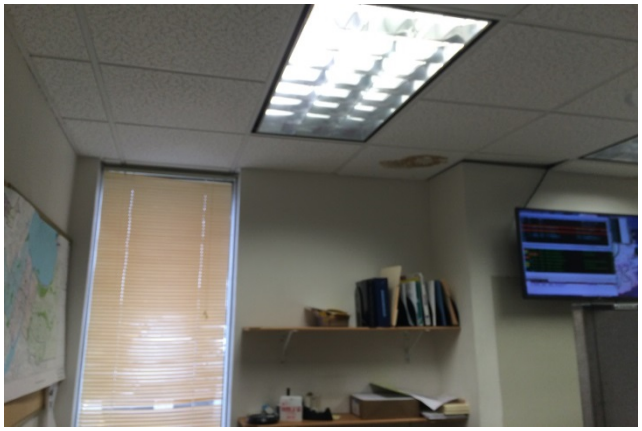
Floor and Wall Finishes at Bathroom

Multiple Floorings at Lunch Room

**Stair Finishes**

**Basement Corridor Finishes**

**Damaged/Missing Ceiling Tile (Basement)**



**Stained Ceiling Tile (1st Floor Office)**

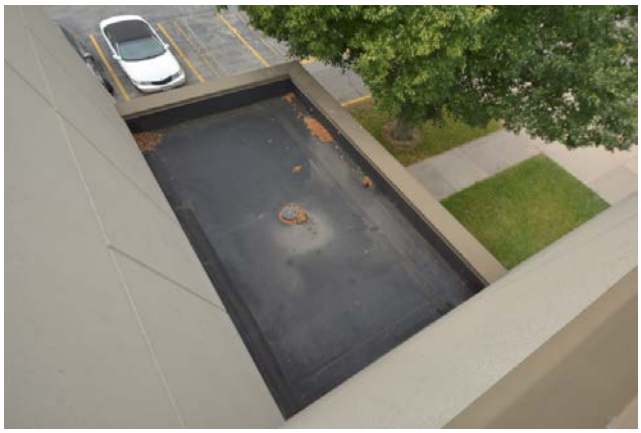
**Damaged Exterior Canopy**

**Damaged Door Surface**

**Worn Door Finish**

**Wrinkled and Patched EPDM**

**Ponding Evidence**



**Debris at Drain**

**Various Roof Levels**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1968 (original documents not available) | **Gross Areas:** | Basement: 13,952 SF<br>1st Floor: 14,592 SF<br>2nd Floor: 13,952 SF<br>Garage: 8,646 SF<br>(includes garage office)<br>Mezz of garage: 1,872 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Separated occupancies: B - Business and S-1 Moderate-hazard Storage with an incidental use room of H-2 Hazardous (gas and oil storage) (See discussion below) | | |
| **Construction Type** *(Chapter 6 IBC)* | The class of construction in the code at the time would have been 5B, Exterior Masonry, Unprotected.<br>The building materials and ratings of structural items in that classification would be equivalent **to Type II-B** in the 2009 IBC. | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

### Occupancy

The Building Code for the State of Wisconsin at the time would have placed the office portion of this building in Chapter 54 Factory, Office, Mercantile occupancy. The vehicle repair garage would have been reviewed under Chapter 59 Hazardous Occupancies. Current code would have a similar split occupancy. The office portion would be B-Business occupancy. The vehicle repair garage would be S-1 Moderate Hazard Storage, with the gas and oil storage room considered an incidental use, and H-2 Hazardous occupancy.

### Egress and Safety

The wall separating the office from garage occupancies appears to be a 4-hour rated wall. A fire door label on at least one of the doors to the space indicates a 3 hour rating, which would be consistent with the requirements for opening protection in a 4-hour wall. Although current code requires a 3 hour separation for non-sprinklered buildings between the H-2 hazardous room and adjacent occupancies, there is no requirement for separation between Business and S-1.

The generator is currently housed behind chain link fence within the repair garage. It is presumed to be grandfathered in as compliant with the code at the time it was installed. If the generator were to be replaced, it would have to comply with current code, which required it to be housed in a separate, 2-hour rated room. Codes should be verified at that time if its current location is maintained, in order to verify that legal egress is provided to both the generator room and the hazardous storage room.

***Due to the location of the unenclosed generator in the repair garage, and its proximity to the hazardous storage room, it is recommended that the 4-hour separation between Business and S-1 Storage be maintained at this time.***

Two legal means of egress are provided from all areas of the building. An elevator provides access to floors other than the entry level.

Some corridors are reduced in width by the placement of casework in the corridor for additional storage. These areas appear to all provide minimum width for an accessible route. One room, a secure evidence storage room in the basement, had an access route from an adjacent room that did not meet accessible width requirements. That room was provided with an additional egress-only door, so presumably it could be opened for access if necessary.

Several locations in the building have coded security systems to gain access. No situations were observed where an occupant would have to enter a security code to egress, thus these arrangements are code-compliant.

**Stair Shafts**
There are two stair shafts on opposite ends of the office building and an additional stair from the garage to the garage mezzanine. Fire rating labels of ¾ hour were observed on most of the doors and frames to the stair shafts, indicating a 1-hour rated shaft. Some of the frame labels were painted over, but evident.

**Handrails and Guardrails**
Hand rails at stairs are typically between 32" and 33 ½" above the treads. This is below the current minimum requirement of 34", but allowable because it is presumed to have complied at the time of construction. Handrail extensions appear to comply with current codes in most of the Business occupancy area. Those in service areas do not comply, but are grandfathered in as acceptable.

## Summary of Accessibility/ADA Compliance

While code issues can be grandfathered into compliance, accessibility issues are a combination of building code and federal law. Employers and public buildings are required to comply, regardless of original date of construction.

**Accessible Route**
Entry to the building is at grade at the public front entrance, but an accessible visitor parking stall was not provided.

Travel within the building is generally accessible. There is one connection between evidence storage rooms in the basement which does not comply, but this is only accessed by a limited number of employees.

A piece of storage furniture is partially obstructing maneuvering clearance into the Women's room on 2nd Floor.

**Doors**
The building has a combination of push/pull hardware and knob handles. Knobs are not accessible, and not as easy/fast to use as lever handles. Secure locking devices are located above the forward or side reach accessible height of 48".

At least one door (Men's locker room) has a thumb-turn latch surface mounted over 48" above floor. The latch was difficult to operate, and is higher than accessible reach range. It is recommended that the door be modified to provide latching by an alternate method, if that is a feature the owner requires for this door.

The doors to the two saunas in the basement locker rooms are not accessible width. In some instances in the basement, column placement forces the doors into locations that do not have required maneuvering clearances.

**Plumbing Fixtures**
Sinks in casework/counters throughout the building (break room, lunch room, etc.) are at 36" height, which is above the 34" maximum required for accessibility. Most lavatories in the building are at or below 34", and most provide adequate knee clearance as well. The lavatories in the Women's locker room are at 34 ¾" rim height.

The height of toilet seats in the building ranges from 15 ½" to 16 ½", which is below the acceptable range of 17" to 19". An exception is the toilet at the front public lobby, which is at 17". Urinals are either floor mounted, or multiple heights are provided in one room. Both situations comply with accessibility requirements.

Drinking fountain spout heights vary from 34 ½" to 39" height through the building. ADA calls for 36" maximum spout height (with required approach clearances) for seated persons, and 38" to 43" for standing persons. All of the drinking fountains will comply with one or the other of these standards.

**Grab Bars**

Typical grab bar configuration at toilet stalls in the building is a single connected bar that extends in an L-shape along the back and side walls of the toilet. Some of these provide the required extension length at both back and side. The Women's locker room provides an accessible shower stall, the Men's does not. The following are some of the situations in which grab bars or fixtures are in non-compliance:

- Men's locker room does not provide an accessible toilet.
- Men's locker room does not provide an accessible shower.
- 1st Floor staff toilet rooms do not provide grab bars.
- 1st Floor Men's staff toilet does not provide accessible turning radius in the room.
- 2 of the 6 toilet rooms on 2nd Floor do not provide grab bars.
- Other 2nd Floor toilet rooms do not provide grab bars of adequate length at back or sides. Some rooms do not have adequate space to provide compliant grab bars.

The 2009 IBC references ICC/ANSI A117.1-2003, which calls for an additional vertical grab bar at the sides of toilets which the ADA guidelines do not include. As this is a code issue, not an ADA compliance issue, the toilet rooms would not be required to have these if they were compliant at the time of their construction.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Code Issues** | | | | |
| Egress and Safety | C | | | Maintain separation between garage and office functions |
| Stair Shafts | C | | | |
| Handrails/Guardrails | C | | | |
| **Accessibility Issues** | | | | |
| Accessible Route | F | $0 | CA1 | |
| Accessible Parking Stall | F | | CA2 | |
| Doors | C HP | | CA3 | New hardware could range from $300 to $1,000 per door |
| Showers | F HP | $8,000 | CA6 | Accessible shower in Men's Locker Room |
| Sinks/Lavatories | HP | $6,000 | CA4 | Accessible Break Room counter with sink |
| Toilets/Urinals | F HP | $4,000 | CA5 CA6 | Cost for basement Men's room ADA toilet |
| Drinking Fountains | C | | | Provide cups for accessible drinking |
| Grab bars | HP | $300 | CA7 | |
| 1st floor accessible toilet room | HP | $10,000 | CA6 | |

**NOTES:**

**CA1.** Recommend removing/relocating storage shelves at entry to Women's room on 2nd Floor.

**CA2.** Recommend creating an accessible parking stall in the adjacent surface parking lot. Budget cost to stripe stall and install signage.

**CA3.** Recommend replacing knobs and other non-compliant hardware on an incremental basis. Lever handles would comply with accessibility codes and facilitate ease of use. Lever handles are code requirement for any new or renovated work.

**CA4.** Recommend creating an accessible height counter/casework with sink at one of the break areas. Cost for 8 lineal feet of lower casework with re-used sink.

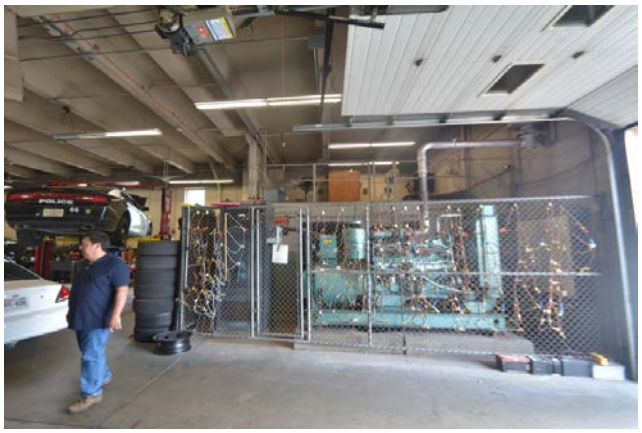
**CA5.** Lifts can be retrofitted onto low height toilets to bring them into compliance. Since heights are close to compliance, recommendation is to replace at compliant height as fixtures are updated.

**CA6.** As any employee could be temporarily injured and in need of accessibility accommodations, the following upgrades are recommended for consideration:

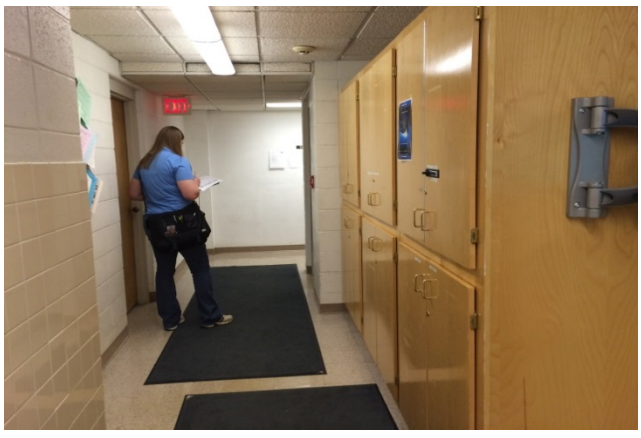
- An accessible toilet in the basement Men's room.
- An accessible shower in the Men's locker room.
- Modify one of the 1st floor staff toilet rooms to be unisex accessible.

**CA7.** Provide grab bars at single user toilet room near garage and interview rooms to establish an accessible toilet room for non-office staff.

**At-grade Entry, No Accessible Parking Space**



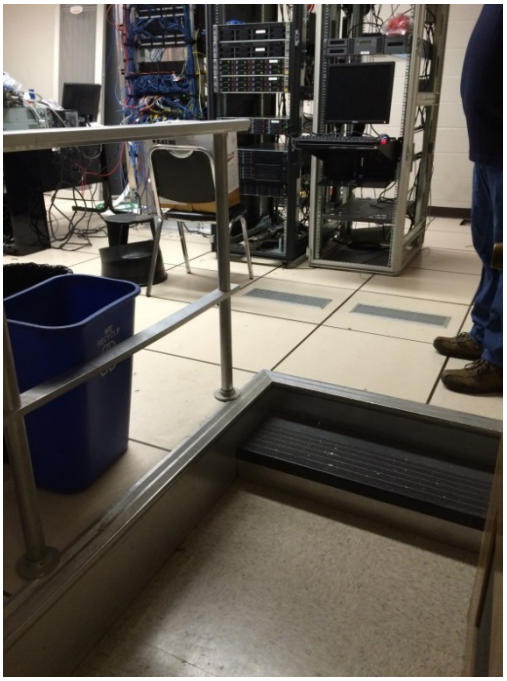
**Generator in Repair Garage**



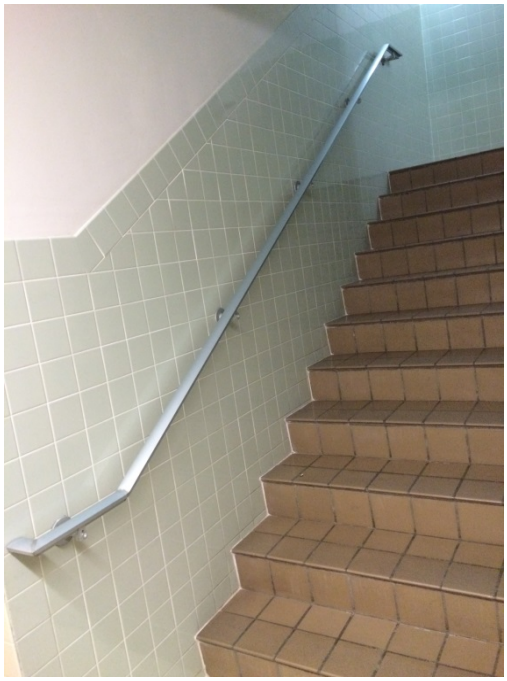
**Storage Cabinets in Corridor**

**Gas and Oil Storage in Hazardous Storage Room**

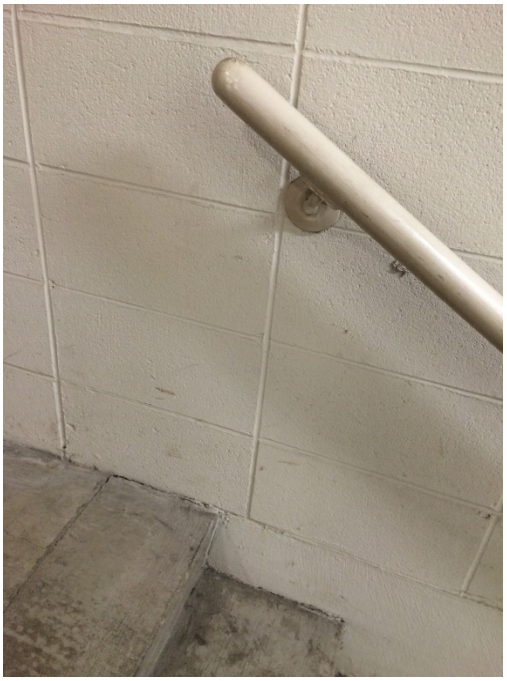
**Labeled Fire Doors at Stair Shaft**



**Non-accessible Data Room Floor**



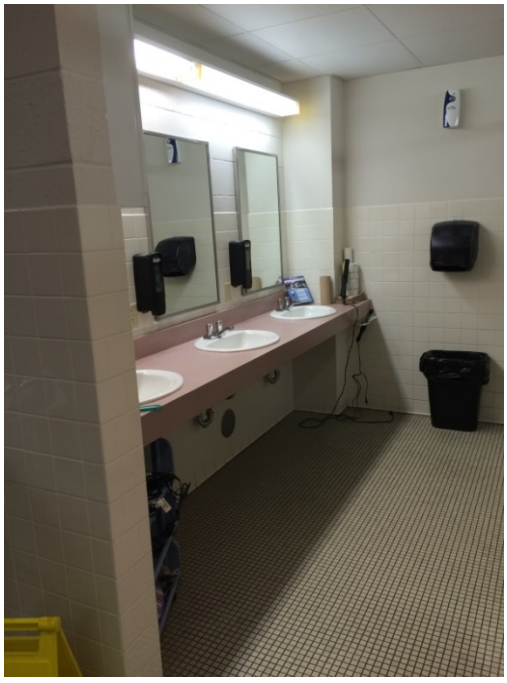
**Compliant Handrail Extensions**



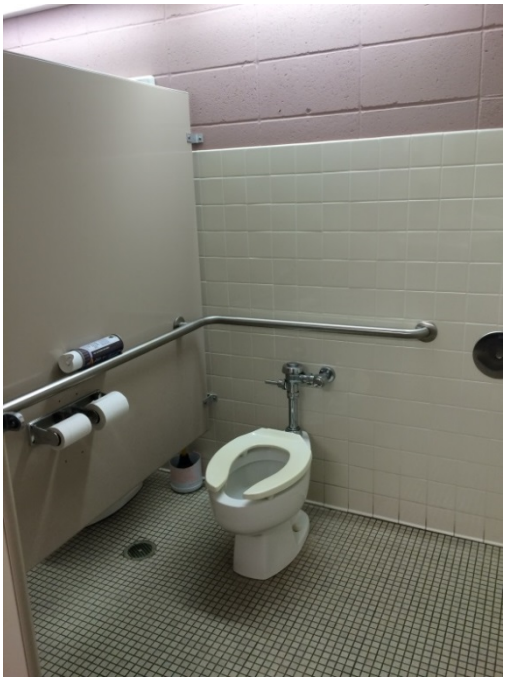
**Lack of Handrail Extension**

**Storage Obstructing Door Maneuvering Clearance**

**Hardware Mounted Above Accessible Height at Locker Room Entry**



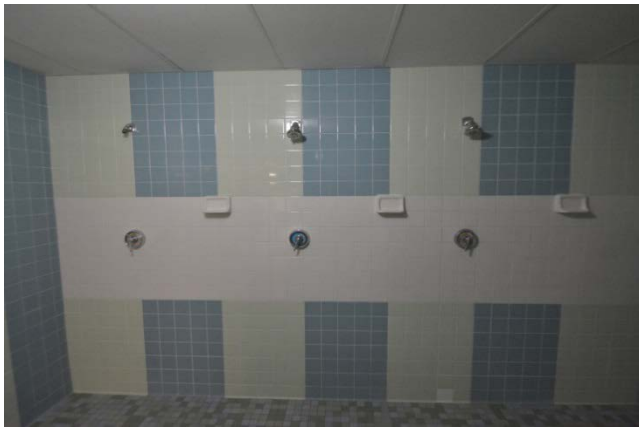
**Accessible Lavatories**



**Typical Toilet Grab Bars**

**Women's Shower – Accessible**

**Single User Toilet Room**



**Men's Shower**

**Single User Non-accessible Toilet Room**

## STRUCTURAL SYSTEM

### Summary

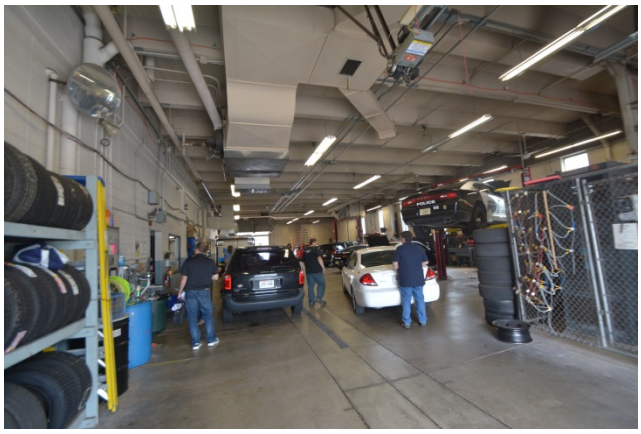
The structure consists of steel roof deck and open web steel joist/joist-girders supported by exterior load-bearing masonry walls and interior steel columns, all constructed over the original one-story cast-in-place concrete frame, slabs, beams, basement, load-bearing masonry walls, and shallow foundation system.

**LEGEND**

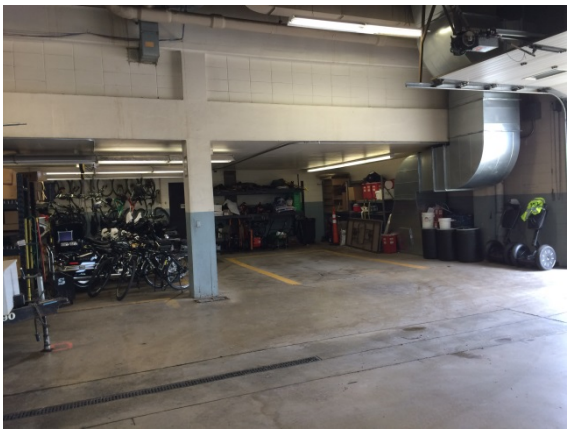
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1968 Original Building (R.W. Surplice-Job 2564)<br>1992 Addition (Somerville Assoc. Proj. 3072) |
| **Structure type** | | | | |
| Foundations | C | | | Cast-in-place concrete foundation/basement walls bearing on individual spread or continuous strip footings. |
| Basement | C | | | Concrete slab on grade with wire mesh reinforcing |
| First Floor | C | | | 10" cast-in-place concrete two-way flat slab with capitals supported on concrete columns and basement walls typical. One bay of 16"+4" concrete joist-slab on west end and one bay of 10" concrete one-way solid slab to the east. Vehicle maintenance garage on the far east end is concrete slab on grade. |
| Second Floor (original roof) | C | | | 10" cast-in-place concrete two-way flat slab with capitals supported on concrete columns typical. One bay of 16"+4" concrete joist-slab on west end and a garage mezzanine of 10" concrete one-way solid slab to the east. |
| Roof | C | | | 1. Office - 1 ½" 22 gauge steel roof deck and open web steel joists/joist girders supported by exterior load-bearing masonry walls and interior steel wide flange columns.<br>2. Vehicle maintenance garage – Light-weight precast concrete decking/keystone joist system supported on load-bearing masonry walls and concrete frame. |
| **Occupancy Category** | NA | | | Occupancy Category IV |
| **Construction Type** | NA | | | Construction Type **II-B** (2 hour beams, columns, floor slabs, 0 hour roof) |
| **Vertical Expandability** | NA | | | None. |
| **Typical Column Spacing** | NA | | | |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |



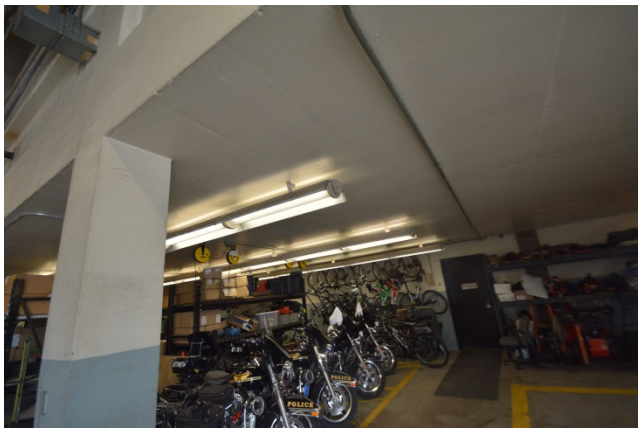
**Roof Structure at Garage Bay**



**Concrete Column, Typical**

**Roof Structure at Garage Bay**

**Roof Bearing at Office/Garage Supporting Wall**



2nd Floor Plan Structure as Seen from Garage

Cracked Slab at Garage

Concrete Roof Purlins at Garage

Lintels at Garage Door Openings

## PLUMBING SYSTEMS

### Summary

Police Department building was constructed in approximately 1969 and remodeled in 1992. The original piping is in fair condition. Glass fiber insulation on the water piping helps to conserve energy, but the insulation is missing in several areas. Insulation from 1969 probably contains asbestos. The building is served by a water heater on 2nd floor. A thermal mixing valve(s) (TMV) should be added to the hot water systems and hot water temperature adjusted to 110° Fahrenheit. Eyewash in the garage should have a TMV installed. Eyewash requires tempered water. These are code issues that should be corrected.

There is a sanitary pipe installed over the Evidence dryers in the basement. It would be advisable to install a drain trough below the piping to protect the equipment from potential piping leaks.

The building has some accessible ADA toilet rooms. Some of the areas would need modifications to make the toilet rooms fully compliable (i.e.: flush valve on the wrong side, install safety covers etc.)

Building is served by interior storm drainage – roof drains. No secondary roof drainage installed. Most of the roof has a spill-off roof edge. Roof over the entrance has a single roof drain, no secondary drainage.
First and second floor plumbing fixtures discharge by gravity. Basement fixture(s) are pumped to grade. Basement has drain tile installed around the perimeter.
Parking lots are served by interior storm drainage (i.e. catch basins)

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | Cast iron, no-hub connection |
| Storm/Clearwater Piping | F | | P3 | Pump discharge - galvanized |
| Valves | F | | P4 | Ball valve(s) |
| Domestic Water Service | C | | P5 | 4" water service |
| Insulation | C | | P6 | Glass fiber, elastomeric insulation |
| Code Issues | D | See TMV's | P7 | Add TMV at water heater & eyewash |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | AO Smith, Gas-fired heater |
| Drench Shower Station | NA | | | |
| Recirculation Pump(s) | F | | P9 | B&G pump |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $8,000 | P10 | Add TMV's (code issue) |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Grease Interceptor | NA | | | No grease interceptor required. |
| Kitchen Equipment | F | | P11 | |
| Plumbing Fixtures | F | | P12 | |
| Oxygen Storage | NA | | | |
| Backflow Prevention | D | $5,000 | P13 | Install RPZ backflow preventer |
| "Shop" Air Compressor | F | | P14 | Vertical tank |
| Laundry Equipment | NA | | | |
| Drain Tile Sump/Pump | F | | P15 | Duplex submersible, PVC piping |
| Sanitary Sump/Pumps | F | | P16 | Submersible, Cast iron piping |
| Elevator Sump/Pump | F | | P17 | Simplex submersible |
| Maintenance Garage | F | | P18 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage, Roof Drainage | F | | P19 | Roof Drain(s) |
| Lawn Irrigation | NA | | | |
| Utilities | F | | P20 | |

**NOTES:**

**P1.** Water piping is mainly copper, soldered joints. Fair condition. Some galvanized piping at the water meter. Some PEX piping also installed. Most of the piping is insulated.

**P2.** Original sanitary waste/vent is cast iron hub & spigot. 1992 piping is cast iron, no-hub connections. Pump discharge is cast iron. Piping is in fair condition.

**P3.** Building storm is picked up by interior roof drainage. Downspouts discharge underground to storm sewer. Pump discharge piping for the Clearwater pump(s) is black PVC, glue connections.

**P4.** Ball valves on the water piping.

**P5.** Building is served by a 4" water main – combined for fire protection and domestic water. Domestic water is a 2" main (verify) with 3-valve bypass around the meter set.

**P6.** Water piping is insulated with glass fiber and elastomeric insulation. 1969 insulation probably contains asbestos. Verify. No insulation on the storm piping is causing condensation on the piping and is resulting in ceiling tiles being stained.

**P7.** Code issues: water temperature is set higher than the allowed 110° Fahrenheit per code. No thermostatic mixing valve (TMV) at the heater. Add TMV per code, and adjust temperature to 110° F.

**P8.** Water heater is gas fired, AO Smith MasterFit, 365,000 BTU.

**P9.** Hot water recirculating pump(s) are installed at the water heaters. Building is separated into a west and an east zone, with separate heaters, pumps and HWR piping.

**P10.** Add TMV to the water heater. Set hot water temperature to 110° Fahrenheit maximum temperature. Code issue.

**P11.** Kitchen equipment: 2 compartment sink(s). No garbage disposal or dishwasher.

**P12.** Plumbing fixtures: Most of the fixtures are ADA-compliant. WC's are floor mounted or wall-hung with flush valves. Lavatories are vitreous china set in the countertop and wall-hung, lever handle faucets. No safety covers installed. Urinals are wall-hung with flush valves (regular and ADA height). The 1969 urinals are floor mounted with door activated flushing. Showers are built-up. One ADA shower in the Women's toilet rooms. Group shower in the Men's toilet room. Shower should technically have a master anti-scald TMV installed. Single unit Elkay electric water cooler(s) installed throughout the building-heights vary. Kitchen/breakroom sink(s) are stainless steel double compartment-no garbage disposal. Garage has several cold water service faucets with hose thread vacuum breaker connections. Non-freeze sill faucets installed on the perimeter of the building. Basement sink by the gun range is a recent installation. Waste is pumped overhead by a small pump basin unit on the floor.

**P13.** There is a Watts 9D inline backflow in the boiler room for the HVAC boilers. Boiler feed should be an RPZ backflow preventer. Faucets with hose connection ends have a threaded hose end vacuum breaker installed.

**P14.** Vertical tank, "shop" air compressor installed in the garage.

**P15.** Drain tile/clear water pumps are duplex submersible 1 1/2" discharge. Pumps serve the building drain tile system around the basement. High water alarm could be installed.

**P16.** Sewage pumps are submersible 3" discharge. Pumps serve the basement toilet rooms and floor drains. High water alarm could be installed.

**P17.** Elevator pump is simplex, submersible. Located in closet adjacent to the elevator. High water alarm could be installed.

**P18.** Maintenance garage has trench drain(s) and catch basins installed. No evident oil separators installed.

**P19.** Building roof pitches to interior roof drain(s), served by 4" piping. "Secondary" roof drainage is the spill-off roof edge. Canopy roof over the entrance has (1) interior roof drain and no secondary scupper relief drainage. Parking lots are picked up by interior storm catch basins.

**P20.** Utilities are routed from Adams and/or Stuart Street. Building is served from a 4" water main (combined fire protection and domestic feeds). Multiple 4" sanitary and storm sewers serve the building.

**Water & Sanitary Piping**

**Water & Sanitary Piping**

**Water, Sanitary & Storm Piping**

**Sanitary Piping**

**Water & Sanitary Piping**

**Water Piping**

**Sanitary Piping – Over Evidence Dryers**

**Water Meter**

**Water Heater**

**HWR Recirculation Pump**

**Breakroom Sink**

**Breakroom Sink Piping**

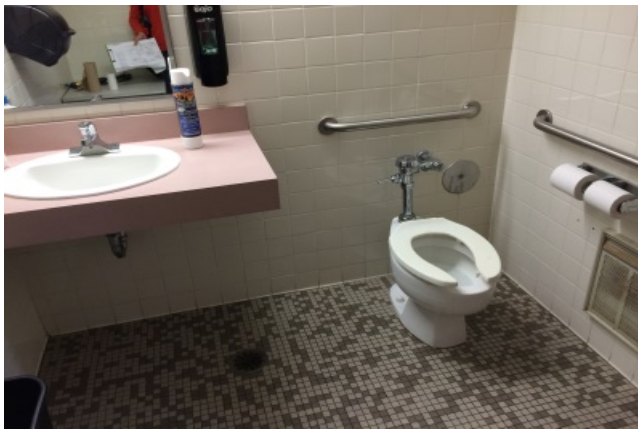
**Breakroom Sink**

**Men's Toilet Room**

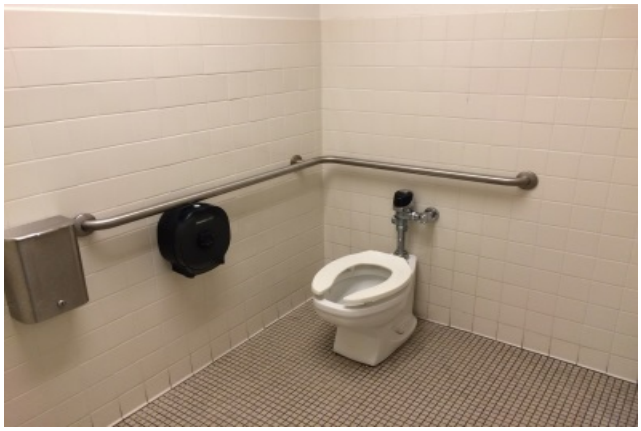
Lavatory – Men's

Women's Toilet Room

Single Toilet Room



Single Toilet Room



WC – Toilet Room (Battery Sensor)

Lavatory – Sensor Faucet

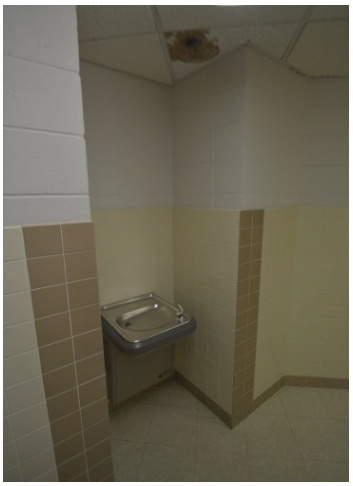
Men's Toilet Room – Urinals

Men's Toilet Room Lavatories

Women's ADA Shower

Men's Shower Room

Sink in Gun Range



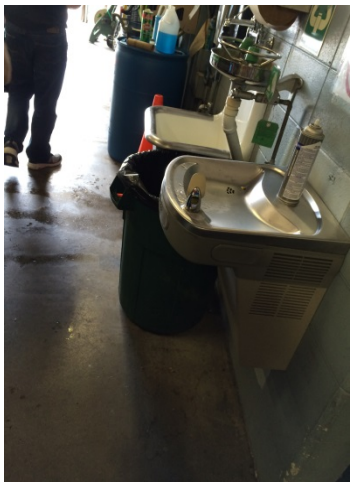
Electric Water Cooler

Electric Water Cooler

Electric Water Cooler

Janitor's Closet

"Evidence" Sink



Sink, EWC & Eyewash in Garage

"Shop" Air Compressor

Sump, Duplex pumps

Elevator Sump/Pump

Sanitary Sump/pump

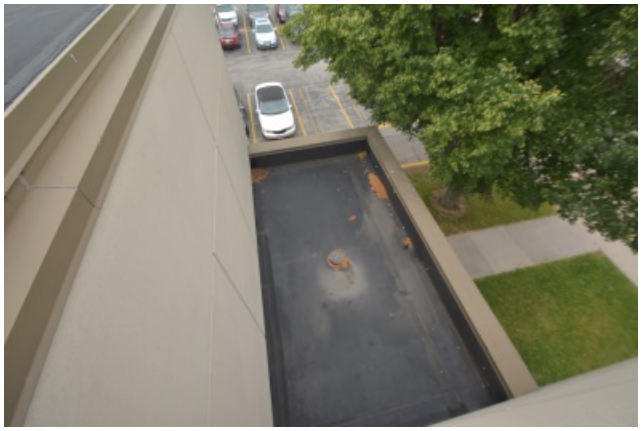
Sill Faucet, Roof Drain

Non-freeze Sill Faucet

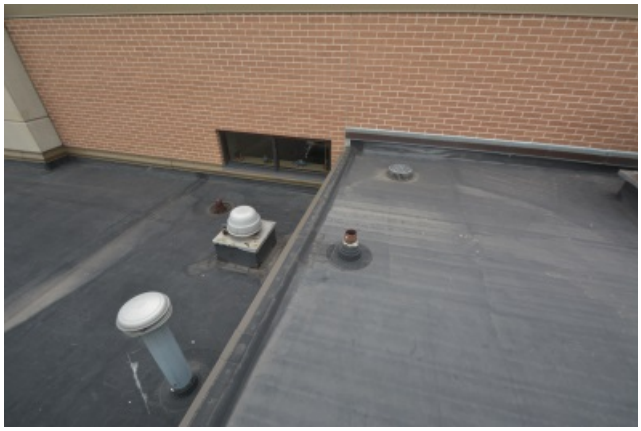
Garage Trench Drain

**Garage Catch Basin**

**Garage Catch Basin - Vent**



**Roof Over Entrance**



**Roof Drain(s) and Sanitary Vent**

**Parking Lot Catch Basin**

# HVAC SYSTEMS

## Summary

The building was constructed in 1969 and underwent a major addition and remodeling project in 1992. Some minor office renovations and ventilation upgrade projects have been completed in recent years.

The office area is served by three modular air units, installed during the 1992 project. The units are located in a second floor mechanical mezzanine above the garage. One air unit is dedicated to each floor of the building. A fourth unit located in the mechanical mezzanine originally served the firing range and is abandoned, replaced in 2010 with a packaged roof top air unit. A fifth air unit, a roof top air unit, is dedicated to the training room area.

The three main air units are variable air volume type, with hot water and chilled water coils. The building, in general, utilizes plenum return air spaces above the ceiling. There are a few areas where the returns are ducted. The ceilings are discolored near the air unit return openings due to dust build-up which indicates air movement through the ceiling tile. The chiller system serving the air units was replaced in 2011.

Exhaust ventilation for toilet rooms, janitor closets and other miscellaneous spaces is served by a variety of power roof ventilators and ceiling exhaust fans. The fans vary in age, size, and condition as they have been installed and replaced during the various remodeling projects.

The garage ventilation consists of two gas-fired make-up air units and multiple exhaust fans. One make-up air unit does not function and the other is not capable of providing adequate heat or ventilation. The units are time clock operated and there is no gas detection system.

A hot water boiler system is located in the second floor mechanical room and is original to the 1992 project. A pump motor has been replaced. Hot water is distributed to fin tube radiation, reheat coils, and cabinet heaters throughout the office building.

The controls are primarily pneumatic with a few newer components utilizing low voltage DDC controls. An air compressor is located in the second floor mechanical room.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Air Unit-(3) units serving office area.** | | | **H1** | Installed 1992. |
| Housing | **HP** | $225,000 | **H1** | Showing signs of 23 years of operation. Minor rust. |
| Air intake | **C** | | | Roof hood |
| Coils | **C** | | | Hot water, Chilled water. |
| Fan | **C** | | | (2) 10,000 CFM-10HP, (1) 8,000 CFM-7.5HP |
| Filters | **C** | | | |
| Controls | **C** | | | Pneumatic actuators. Facility replacing with low voltage DDC. |
| Ductwork | **F** | | | Original except where replaced during projects. |
| Insulation | **HP** | $2,000 | **H1** | Duct liner. Most piping insulation is in fair condition. Poor at AHU control valves. Outside air duct insulation starting to fail. |
| Occupied Space Thermal Comfort | **HP** | $120,000 | **H1** | AHU discharge temperature set at 60 degrees. Some VAV zones do not have reheat coils. VAV units are up to 23 years old-poor modulation. Boiler off in summer months. Lots of complaints. |
| **Chiller** | | | **H2** | Installed 2010 |
| Housing | **C** | | | 100-ton air cooled scroll with R-410A |
| Pumps | **HP** | $3,000 | **H2** | Appear original to 1992 addition. 252GPM@50FT, 5HP-Lead/Lag |
| Insulation | **CP** | $1,000 | **H2** | Insulation has failed at one pump (or pump is leaking). Condensation on pump and across floor. |
| **Air Unit-training room** | | | **H3** | Installed 2011 |
| Housing | **D** | $2,000 | **H3** | Not positioned as designed. It is too close to roof edge. Provide rail. |
| Air Intake | **C** | | | |
| Condensing Unit | **C** | | | 8-tons cooling |
| Fan | **C** | | | 2,400 CFM, 2HP |
| Filters | **C** | | | 30% |
| Controls | **C** | | | Low voltage |
| Ductwork | **C** | | | |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Insulation | C | | | Duct liner. |
| Occupied Space Thermal Comfort | C | | | Staff did not report issues like other areas but did indicate that when room is fully occupied, it can overheat. |
| **Air Unit-firing range** | | | H4 | Installed 2010 |
| Housing | C | | | |
| Air intake | C | | | |
| Heat | C | | | Gas-fired heat |
| Fan | C | | | 100% outside air |
| Filters | C | | | 30% |
| Controls | C | | | Low voltage |
| Ductwork | C | | | |
| Insulation | C | | | |
| Occupied Space Thermal Comfort | C | | | No cooling. No complaints indicated. |
| **Data Room Cooling Units** | | | H5 | |
| Housing | F | | | Leibert units-DX and water cooled. Humidifier on basement unit. Ages vary. |
| Condensing Units | D | $2,000 | H5 | One unit too close to roof edge. Provide rail. |
| **Exhaust Fans** | | | H6 | |
| Toilet/locker Room Exhaust | C | | | Multiple power roof ventilators. Ages and condition vary. Ceiling fan in single fixture toilet rooms – light switch operated. |
| Exhaust Ductwork | HP | $12,000 | H6 | Mostly original. Minimal replacement during renovation projects. Lint/dust is coating the grilles and ductwork. Recommend cleaning and rebalance. |
| **Boiler System** | | | H7 | Installed 1992. |
| Boilers | HP | $85,000 | H7 | PK-1200. 1,200,000 BTU (redundant units) |
| Pumps | HP | $10,000 | H7 | B&G .5 HP primary<br>B&G 5 HP lead/lag secondary pumps<br>175GPM@70 feet |
| Piping | C | | | Mostly original to the 1992 project. Revised during renovation projects. Mix of copper and steel. |
| Pipe Insulation | C | | | |
| Room Terminal Units | HP | $10,000 | H7 | Convectors, VAV, cabinet heaters. Some fin tube radiation installed at floor, restricting air movement through devices. |
| **Mechanical Room Ventilation** | D | $2,000 | H8 | Combustion air terminates near floor only. |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Controls** | | | | |
| Air Compressor | **C** | | | Duplex, 3HP. |
| Room Control | **F** | | **H9** | Original pneumatics. Replace with low voltage DDC during mechanical projects |
| **Garage Ventilation** | | | **H10** | |
| Make-up Air Unit | **D** | $110,000 | **H10** | One unit has failed. The other does not keep up. |
| Exhaust | **D** | $30,000 | **H10** | Some fans have failed. Exhaust openings not positioned correctly. |
| Control | **D** | $10,000 | **H10** | Time clocks. No gas detection. |

**NOTES:**

**H1.** These units are original to the 1992 project. Units are 23 years old with an expected useful life of 25 years depending on maintenance and operation of the unit. Overall the units have been maintained well but are beginning to show signs of age and beginning to rust. The coils appear to be in fair condition, however most deterioration occurs from the inside out and won't be visible until leaks occur. The unit grade is mainly based on the unit's age and expected useful life. The estimated replacement cost assumes many factors, including ability for extended unit outage during construction, and combining of multiple units into one. The actual cost could widely vary depending on the project specifics.

The units are indoor modular units with hot water heating coil, chilled water cooling coil and VAV control. The supply ducts are lined. Duct liner erodes overtime and this will lead to system inefficiency and condensation which will damage building material. It is recommended to seal the ductwork and install duct wrap insulation during renovation projects.

The pneumatic actuators are slowly being replaced with low voltage DDC. When the units are replaced it is recommended to provide all new DDC control as this will allow for more in-depth monitoring and remote monitoring.

The occupants had many thermal complaints. The 1992 project installed reheat coils on the perimeter rooms only along with fin tube radiation. The interior rooms only allowed for VAV modulation. As the VAV devices have set minimum air flows, this leads to overcooling of some interior spaces. To compensate for the overcooling the air unit discharge temperature has been set at 60 degrees. The original design was 55 degrees. The increased discharge temperature has less ability to dehumidify which is why the building feels "clammy or sticky". The boilers are turned off in the summer, which does not allow for the VAV system to utilize their reheat ability to maintain individual thermal control. It is recommended to install reheat coils on all VAV terminals serving occupied spaces, replace poorly functioning VAV terminals, lower the discharge temperature to 55 and operate the boilers year round.

**H2.** The chiller was replaced in 2010. No system complaints relayed by staff. Insulation is damaged at the chilled water pump. Recommend repair to the insulation to prevent condensation and further deterioration of the insulation and piping. The insulation prevented inspection of the pump seals to determine if the water was condensation from the damaged insulation or if the pump itself was starting to leak and causing the insulation damage.

**H3.** Air unit was replaced in 2011 and is dedicated to the training room area. Staff indicated that when the training room is fully occupied with "70 people" the room can overheat. The high occupancy rate is not the normal occupancy. The unit is located too close to the roof edge. It was designed to be at least 10 feet away. Recommend guard rail for protection of maintenance staff.

**H4.** The firing range air unit and exhaust fan were replaced in 2010. The exhaust air is filtered at the roof exhaust fan. The make-up air unit is a gas fired roof top unit. The unit is 100% outside air.

**H5.** Multiple Leibert cooling units dedicated to multiple data rooms. The units vary in age but, in general have a fair physical condition. The units appear to be keeping up with the cooling load. The basement data room is not sealed well. Sealing of the room will improve the unit's ability to maintain temperature and humidity as more data equipment is added to the room. One of the roof mounted condensing units is located too close to the edge of the building. A guard rail for maintenance staff protection is recommended. There are no recommendations for replacement of the units at this time.

**H6.** The office building exhaust system is served by multiple roof mounted fans and ceiling mounted fans. The ages and conditions vary greatly as the units have been installed during various projects. Dust and lint build-up is prevalent at many of the locker and toilet room grilles. Air flow within these spaces appears diminished and can be attributed to older ductwork combined with the dirtying of the systems. Duct cleaning, taping and sealing, and air balancing are recommended.

**H7.** The boiler system is original to the 1992 project. One pump motor appears to have been replaced. The boilers expected useful life is 25 years. The staff did not indicate problems with the units at this time. The system grade is based on the expected useful life. It is expected that the units will require replacement within the next 5 years.

Some of the fin tube radiation units are located too close to the floor which will restrict their ability to provide heat. To improve the units heating ability it is recommended to raise the radiation devices at least 4" above the floor.

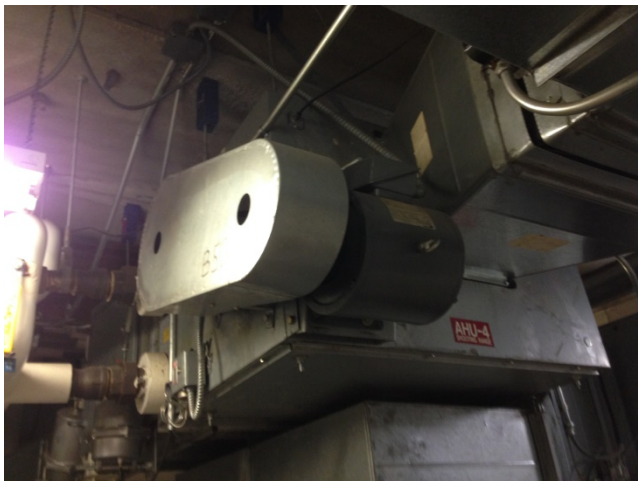
**H8.** The mechanical room combustion air duct terminates at the floor only. Current code requires the duct to terminate at high and low points in the room. It is recommended to correct the combustion ductwork when the boiler system is replaced.

**H9.** The air compressor serving the buildings pneumatic controls appears to operate sufficiently. As systems are replaced, low voltage DDC controls are recommended for installation as this will allow greater monitoring of the system.

**H10.** The garage is currently served by two gas fired make-up air units and multiple exhaust fans. One make-up air unit has failed and the other cannot ventilate and heat the space properly. One of the exhaust fans has failed. The system operates on a time-clock to provide ventilation when the space is occupied. There is no gas detection system. The exhaust locations are at the floor which allows them to be easily blocked with stored items. Raising the exhaust slightly will allow removal of contaminants without restricting the air flow.

The space is used for auto repair and storage, so it does not neatly fall into one code category. Based on actual space use, the recommendation is to define the space as an enclosed garage. An enclosed garage has specific exhaust code requirements and the garage is required to have a negative pressure in relation to the occupied space. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets 4 specific code provisions including the installation of a gas detection system. The current system does not meet the ventilation requirements for an enclosed garage. A garage ventilation upgrade project to install radiant heaters, make-up air units, exhaust fans, and control system with gas detection, is necessary to improve garage ventilation and occupant safety. The recommendation is to operate the system continuously with increased ventilation during the occupied period.

**Air Unit (Typical)**

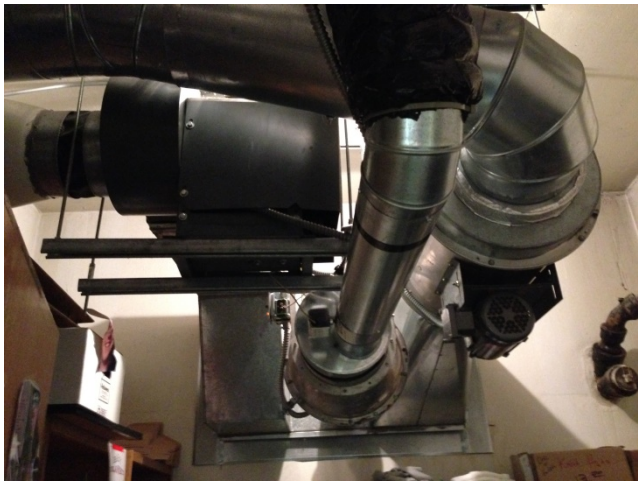


**Air Unit (Typical)**

**Firing Range Air Unit**

**Training Room Air Unit**

**Power Roof Ventilators (Typical)**



**Forensic Lab Exhaust Fans**

**Firing Range Exhaust**

**Chiller**

**Leibert Unit**

**Data Room Condensing Unit**

**Typical Ceiling Exhaust Fan**

**Boiler**

**Hot Water Pumps**

**Chilled Water Pumps**

**Gas Meter**

**Temperature Control Air Compressor**

**Firearm Cleaning Exhaust Hood**

**Firing Range Control Panel**

**Electric Heat (Stair and Toilets)**

**Fin Tube (Installed at Floor)**

**Air Unit VFD's**

**Garage Control Panel**

**Garage Exhaust (Near Ceiling)**

**Generator Louver**

Garage Make-up Air Unit

Garage Exhaust Vent (Behind Storage)

Garage Exhaust Vent (Typical)

Fuel Tank Vents

Hazardous Storage Room (Vented Tanks)

Garage Storage Exhaust Fan

# ELECTRICAL SYSTEMS

## Summary

The building is served by a 1600 Amp, 120/208 Volt, three-phase electrical service. The original panels are in fair condition; the panels added in the 1992 renovation are in good condition. The panels have capacity for future load. The emergency generator serving the building is in fair condition. The emergency electrical system is fed from a single transfer switch which serves a main distribution panel to feed emergency panels throughout the building. The equipment is in fair condition and has some future capacity. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads. Storage is currently blocking the code required 3-feet for electrical clearance for Panel C.

There are numerous outlets around the building that need to be GFCI protected. Lighting fixtures are in fair to good condition and utilize T8 lamps and ballasts, incandescent and compact fluorescent lamps. There are several fixtures with broken or missing lenses. These should be replaced or repaired. There are a few occupancy sensors located in office areas, but the facility should install occupancy sensors in all offices, meeting rooms, break room, storage rooms and janitor's closets. HID building mounted fixtures and parking lot poles are in fair condition; consideration should be given to replacing the HID fixtures with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition and the facility is pulling Cat 5 and Cat 6 data and voice cabling from data racks on each floor and coax for CATV. The fire alarm system is a zoned system with smoke detectors, pull stations, and notification devices located around the building. Coverage does not comply with current code, a new addressable fire alarm system upgrade is recommended with additional devices provided to meet code.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Electrical Service** | | | | |
| Utility Service Entrance | C | | | Pad mounted utility transformer serves 1600 Amp underground electrical utility service and feeds main service equipment in the 2nd floor mezzanine. |
| **Normal Power Distribution Equipment** | | | | |
| Main Distribution Panel | C | | | 600 Amp GE Power Panel in good condition with some future capacity. |
| Branch Panels | F | | E1 | Original GE NLTG panels in fair condition and 1992 renovation GE A-Series panels in good condition. Panels have future capacity. |
| **Emergency Power Distribution Equipment** | | | | |
| Generator | F | | E2 | 200 KW Onan natural gas generator located in the vehicle garage, in fair condition. |
| Transfer Switch | HP | $20,000 | E3 | Onan 800 Amp ATS in fair condition. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Main Distribution Panel | HP | $7,000 | E3 | 800 Amp GE Power Panel in good condition with some future capacity. |
| Branch Panel | HP | $20,000 | E3 | Original GE NLTG panels in fair condition and 1992 renovation GE A-Series panels in good condition. Panels have future capacity. |
| **Power** | | | | |
| Receptacles | D | $1,000 | E4 | Garage outlets and outlets within 6' of sinks, and outlet in Elevator Equipment room needs to be GFCI. Plug strips are being used in locker rooms for charging devices. |
| **Lighting** | | | | |
| Garage | C | | | Industrial fixtures and surface mounted wraps with T-8 lamps in good condition. |
| Office Spaces, Conference Rooms, Gun Range, and Corridors | C | | | Recessed acrylic lens and parabolic louver troffers, surface wraps with T-8 lamps, and incandescent downlights and track heads. Fixtures are in good to fair condition. |
| Toilet Rooms | F | $500 | E5, E6 | Recessed troffers and surface mounted wraps in good condition. Men's Shower and Sauna have incandescent lamps (sauna fixture is missing lens). |
| Mechanical Spaces, Storage Rooms, Utility Areas | F | $2,000 | E5, E6 | Industrial strips and surface mounted wraps with T-8 lamps, (some fixtures have broken lenses) and ceramic sockets with incandescent and compact fluorescent lamps. |
| Exterior | F | $6,000 | E7 | HID parking lot poles and wall packs in good condition controlled by photocell. |
| **Lighting Controls** | | | | |
| Offices, Conference Rooms, Break Room | HP | $5,000 | E8 | Add occupancy sensors. |
| Toilet Rooms/ Small Storage Rooms | HP | $1,000 | E8 | Add occupancy sensors. |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Corridors | C | | | Fixtures connected to emergency panels. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Exit Signs | C | | | LED type in good to fair condition. |
| **Fire Alarm Devices** | | | | |
| Fire Alarm System | HP | $30,000 | E9 | Simplex 4002 zoned system in fair condition, coverage does not meet code. Some pull stations are not ADA compliant for mounting height. |
| **Telecommunications** | | | | |
| Data/Voice | C | | E10 | UPS's protecting the telecom equipment. Cat 5 and Cat 6 cabling. |
| CATV | C | | | Coax |

**NOTES:**

**E1.** Code required 3-feet for electrical clearance and clear space above the equipment is not being maintained for Panel C, closet storage needs to be moved.

**E2.** When the generator is replaced in the future, it will need to be located within a dedicated electrical room with appropriate floor, ceiling, and wall fire-rated construction.

**E3.** Recommend providing an additional automatic transfer switch and a new distribution panel to separate the critical and equipment branch loads from the life safety loads. Additional branch panels would be needed to transfer circuits from existing panels that have mixed loads.

**E4.** Replace all outlets located in the garage area with GFCI type device. Replace existing outlets within 6-ft of sinks with GFCI type device, unless they are currently protected from a nearby GFCI outlet. If this is the case, the outlet should be labeled per NEC requirements. The elevator equipment room receptacle needs to be GFCI.

**E5.** Replace incandescent lamps with compact fluorescent or LED type for energy savings.

**E6.** Consideration should be given to replacing older fixtures with new. Replacement or repair should be done on fixtures with broken or missing lenses.

**E7.** Consider replacing all HID fixtures with more efficient LED in the future.

**E8.** Occupancy sensors should be installed in the meeting room, conference rooms, offices, storage rooms, and janitor's closets, etc. to provide additional energy savings. If areas are renovated, controls will be required to be updated to meet current energy code.

**E9.** Recommend upgrading the fire alarm system to an addressable system with device locations that meet current code requirements.

**E10.** Due to plenum return for HVAC, all cables should be plenum rated type.

Main Electrical Service Meter

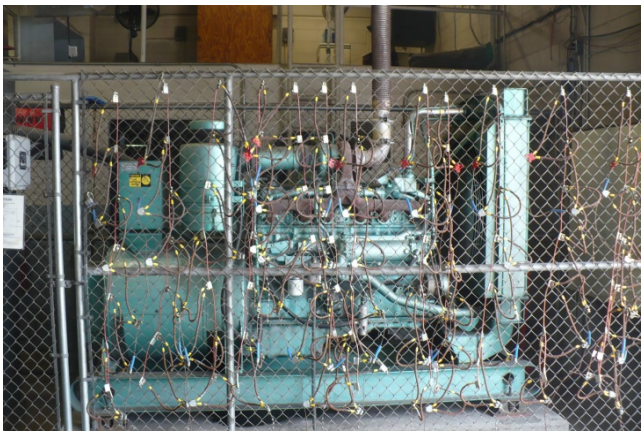
Utility Transformer

Main Electrical Equipment

Main Fusible Switchboard

Surge Suppression

Normal Main Distribution Panel



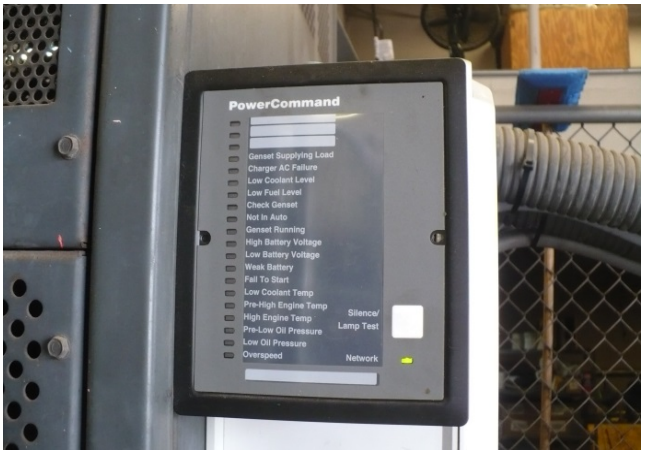
**Generator**

**Automatic Transfer Switch**

**Emergency Main Distribution Panel**

**1992 Renovation Panel**

**Original Panel**




**Generator Annunciator Panel**

**Basement Data Rack**

**Fiber Service**

**1st Floor Data Rack**

**UPS**

**2nd Floor Data Rack**

**UPS**

**Wireless Access Point**

**Plug Strips**

**Old Exit Sign**

**1st Floor Corridor Lighting**

**Office Lighting**

**Office Lighting Mixed Fixture Types**

Gun Range Spot Lighting

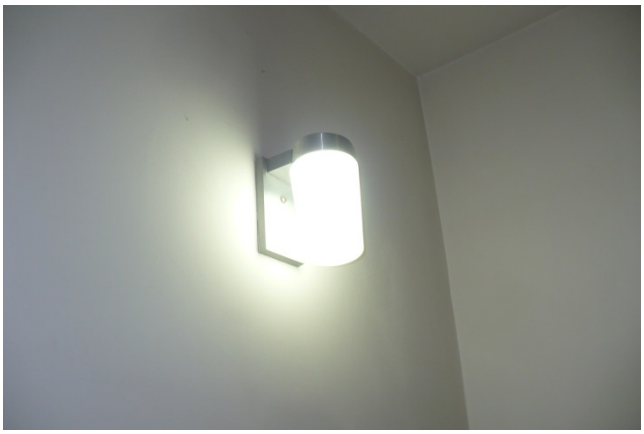
Panel Board Surge Suppression

Garage Outlet and Door Controllers

Basement Corridor Lighting

Garage Lighting

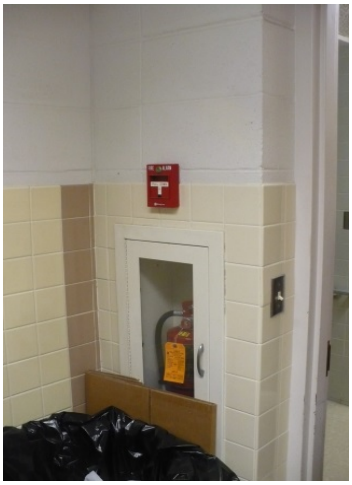
Break Room Lighting



**Stairwell Lighting**

**Sauna Light Missing Lens**

**Fire Alarm Notification Device**



**Non-ADA Pull Station**

**HID Wall Pack Lighting**

**HID Parking Lot Pole Lights**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## MUNICIPAL COURT

**August, 2015**

## POLICE DEPARTMENT

# SUMMARY

***Date of Visit: July 16, 2015***
***330 South Jefferson Street***

## Building Description

The structure was originally constructed in 1967 as an Employment Security Building for the State of Wisconsin. It was later transferred to the City and converted to municipal court usage. The first floor of the building is used for municipal court functions; offices, reception and service counter, waiting, interview and courtroom itself. These spaces were all part of a remodeling project in 2000. They are in good condition. The basement is used for police functions; workout rooms, storage, and offices. Building services are also on this floor.

An elevator and two stair shafts serve the basement. One stair shaft is in need of repair to maintain the 1-hour rating.

The exterior of the building is double wythe cavity wall construction with brick as the exterior wythe. Soffits and fascia are interlocking metal panel, unvented. Windows are fixed panel over operable hopper and composite panel.

## Code/Accessibility

### Code

Two legal means of egress are provided from all areas on both floors.

The front stair shaft has an unprotected/sealed penetration at the lower level. This does not appear to be an original condition, thus it is not grandfathered in as compliant. The opening should be sealed to provide a 1 hour rated shaft enclosure. Some lockers are located at the upper landing of the back stair. They should be relocated to comply with code.

### Accessibility

Accessibility is a higher priority in this building, as its first floor is primarily intended for public access and use. Both public restrooms off the lobby were remodeled with the 2000 renovation and are ADA compliant. An elevator is provided for access to both floors.

Accessible drinking fountains are provided, but if remodeling is done, an accessible break room counter and sink should be provided.

## Structural System

The structure consists of steel roof deck and open web steel joists supported by exterior load-bearing masonry walls, and concrete filled metal form deck over open web steel joists at first floor supported by exterior basement walls and an interior steel frame of steel tube columns and wide flange beams.

## Plumbing Systems

The original piping is in fair condition. Majority of the water and storm piping is insulated. A thermal mixing valve (TMV) should be added to the system.

Building is served by (4) 3" roof drains, along the outer edge. Roof has no internal secondary drainage or relief scuppers.

Plumbing fixtures in the basement toilet room are older and could be updated to conserve water. Building utilities in general appear adequate.

## Fire Protection Systems

This building is only partially sprinkled with a fully sprinkled basement and no sprinkler system on the first floor. The sprinkler system piping, valves, sprinkler heads, and equipment appear to be in good condition and free of corrosion and leaks. There are several minor deficiencies on the sprinkler system that are not affecting the proper operation of the system but should be corrected. See Fire Protection report for details.

## HVAC Systems

A modular air unit installed in a basement mechanical room serves the entire building. The system has filtration, heating coil, and a refrigerant cooling coil which serves an outdoor condensing unit. The air unit is past its expected useful life. Replacement of the unit will require an extended period of outage.

Grilles through the basement area are loud. The basement remodeling has left the some ductwork in a semi-abandoned state. The main supply ducts are insulated with duct liner and the insulation has eroded slightly.

The boiler is past its expected useful life. Piping insulation is missing or in disrepair in a variety of locations. It appears that staff has removed and not replaced insulation in areas where they required access to the piping and system components.

## Electrical Systems

The electric service is rated 600-Amps at 120/208-Volt, 3-Phase. The main distribution panel is in good condition, and has additional capacity. There are three branch panels also in good condition, but at capacity of circuits. Code required clearance needs to be provided in front of the panel located in the utility room in the basement.

Interior lighting fixtures predominantly use T8 fluorescent lamps with electronic ballasts. A few fixtures on the basement level are missing lenses or have sagging lenses. Emergency egress lighting coverage is not at current code levels, and many of the emergency fixtures do not function.

Coverage with audible and audible/visual alarm (A/V alarm) devices is not code compliant. The elevator lobby smoke detector outside the basement elevator doors is located too close to the sidewall, and is not permanently fastened. There is no evidence of a shunt-trip mechanism to automatically disconnect power to the elevator when sprinklers are activated in the elevator machine room and/or elevator shaft as required by code.

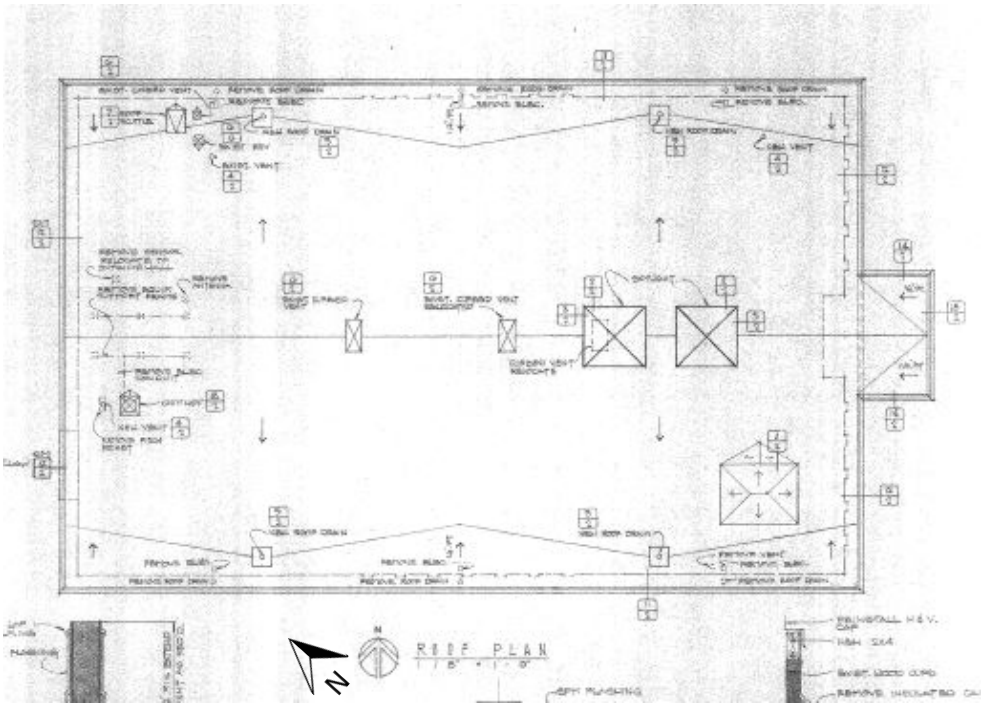
In the basement a few electrical boxes are missing covers, and a couple of conduit runs are not supported properly. Conduit penetrations through the east stairwell wall in the basement are not fire sealed.

## Estimates

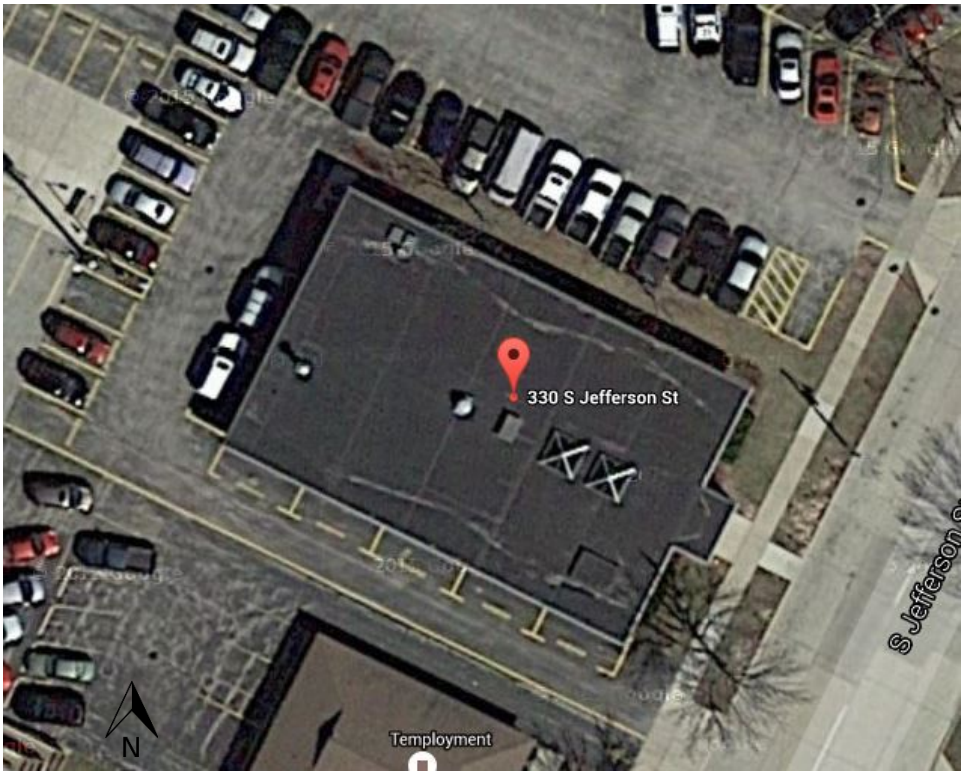
Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

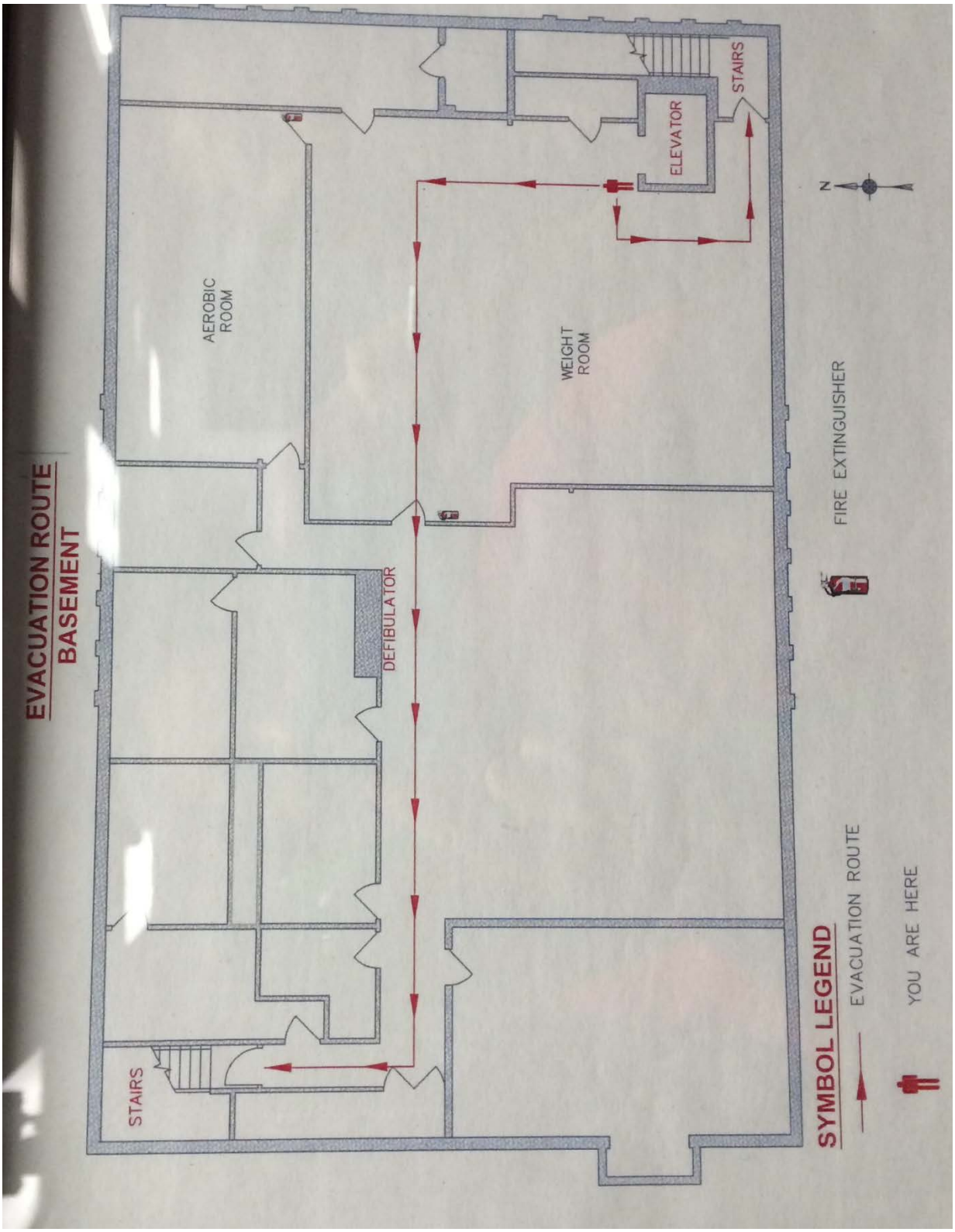
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | | **NA** |
| **Code/ADA** | Stair Shafts | | | **$500** |
| **Structural** | | | | **NA** |
| **Fire Protection** | Wet Pipe Sprinkler System | | | **$1,000** |
| **Plumbing** | | | Insulation | **$3,000** |
| | Thermal Mixing Valve (TMV) | | | **$4,000** |
| **Plumbing Subtotal** | | | | **$7,000** |
| **HVAC Systems** | | Housing (Coils, Fan, Filters, Controls) | | **$125,00** |
| | | | Ductwork | **$30,000** |
| | | | Insulation | **$2,000** |
| | | | Occupied Space Thermal Comfort | **$20,000** |
| | | | Exhaust Ductwork | **$12,000** |
| | | Boilers | | **$85,000** |
| | | | Pipe Insulation | **$5,000** |
| | Mechanical Room Ventilation | | | **$10,000** |
| **HVAC Subtotal** | | | | **$262,000** |
| **Electrical** | Emergency Battery Packs and Exit Signs | | | **$3,300** |
| | | Horns and Horn/Strobes | | **$8,000** |
| | Shunt-trip Mechanism | | | **$7,500** |
| **Electrical Subtotal** | | | | **$18,300** |
| **Building Total** | | | | **$316,300** |



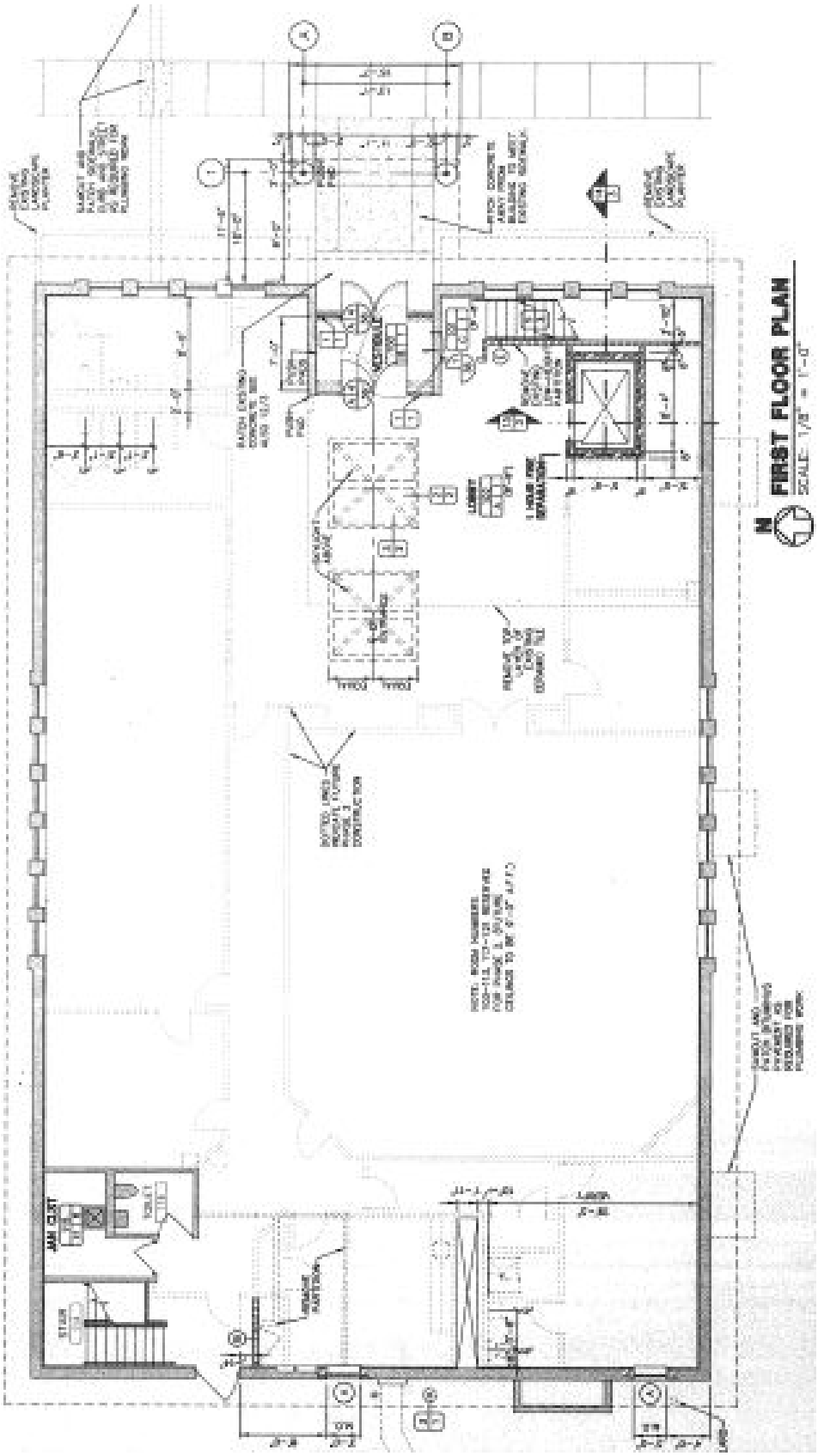

**Roof Plan**




**Aerial View of Site**


EVACUATION ROUTE
BASEMENT
AEROBIC ROOM
WEIGHT ROOM
ELEVATOR
STAIRS
DEFIBULATOR
STAIRS
N
FIRE EXTINGUISHER
SYMBOL LEGEND
EVACUATION ROUTE
YOU ARE HERE

**Basement**




First Floor Plan

# ARCHITECTURAL

## Building Description

The first floor of the building is used for municipal court functions; offices, reception and service counter, waiting, interview and courtroom itself. These spaces were all remodeled in a 2000 project and are in good condition.

The basement is used for police functions; workout rooms, storage, and offices. Building services are also on this floor: mechanical rooms, data room, janitor room and larger toilet rooms. Some walls have been removed and minor remodeling done since the 2000 work, which also installed an elevator. The basement is in fair condition.

## Building Envelope

### Exterior Walls

The exterior wall is a double wythe, cavity wall construction. The wall is flashed and weeped at the soldier course base of modular sized face brick, topped with a running bond of the same brick, and capped below the soffit with another soldier course.

The soffits and fascias are an interlocking metal panel; the soffit panel is unvented. The building trim is a break-metal profile, matching the soffits and fascia in color. The entry overhang, level with the adjacent, continuous soffits, is also an unvented aluminum metal panel.

The areaway intake has been extended from the original building with a similar brick color.

### Windows

Window units are a combination of fixed panel over hopper, the total of which is a square approximately 1/3 of height of the exterior wall. Windows are set in between brick piers, with a soldier course of brick at the bottom, and composite panel filling the remaining space.

### Roof

The existing roof is a 60 mil thick, fully adhered EPDM membrane system and appears in good condition. No leaks have been reported. The surface includes four roof drains, two skylights, a collection of mechanical exhaust and ventilation, a few vent pipes and the elevator overrun. The flashings, counterflashings, trim and seams appeared in good condition. A few exceptions are a length of parapet along the southwest corner where the parapet flashing appears to be turned up and some minor wrinkling and tenting. Continued inspection and maintenance is recommended.

No secondary drainage system was observed. The potential for clogged roof drains, or a backed-up storm sewer could yield ponding on the roof and the condition should be remedied when reroofing comes due.

The elevator overrun discharges directly on the adjacent surface.

## Interior Finishes

### Floors

Floor finishes on 1st floor were updated with the 2000 renovation and are in good condition. The lobby is a 12x12 porcelain tile with wood base. Toilet rooms have 2x2 ceramic tile floors. A staff toilet room and janitor room have 2x2 ceramic tile floor and base. The remaining areas on 1st floor are carpet.

The basement toilet rooms have not been updated since the original construction. Floors are mosaic tile. Carpet is in fair condition, with some unravelling at seams. The main workout area also has textured rubber floor mats for protection from weight equipment. Stairs have patterned rubber treads and risers.

### Walls

Most walls are painted gypsum board. The walls in the first floor public toilet rooms have a 4'-0" high ceramic tile wainscot, while the older basement toilet rooms have full height 4 ¼" x 4 ¼" glazed tile. Tile in the older toilet rooms has numerous holes from previous locations of wall-mounted equipment. Some walls in the basement have been modified. The wall behind the bench in the courtroom is full height wood panel. There are penetrations in the stair shaft walls that should be addressed.

One basement work-out room has been lined with athletic pads.

**Doors**
First floor doors look to be from the time of the 2000 renovation. Most are hollow metal frame with flush doors; some have a narrow center light. Lower level has a mixture of original doors, and some lesser quality 6-panel doors, apparently added by staff in subsequent renovations. The 6-panel doors have wood frames. The stain on the later basement renovations does not match that of other building finishes.

**Ceilings**
Typical ceilings are 2' x 2' acoustic tile with tegular edge. The courtroom and main lobby has a gridded 2x2 acoustic panel. A center area of the lobby ceiling is raised approximately 6". It also has the gridded panel, and two 4' x 8' skylights.

The basement workout areas have black ceiling grid from which various lights and HVAC elements are either suspended or attached.

**Casework**
A basement break room has wood cabinets with a plastic laminate top that appears to date from the original construction. It is dated, but serviceable. A first floor breakroom has a section of casework that is plastic laminate tops, bottoms and uppers in good condition.

Courtroom casework is newer and in good condition.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|---|
| Roof Condition | C | | | | |
| Exterior Facade Condition | C | | | | |
| Exterior Door Condition | C | | | | |
| Window Condition | C | | | | |
| **Interiors** | | | | | |
| Floors | F | C | | A2 | 1st floor in good condition. |
| Walls | F | C | | A1 | 1st floor in good condition. |
| Doors | F | C | | | 1st floor in good condition. |
| Ceilings | F | C | | | 1st floor in good condition. |
| Casework | F | C | | | 1st floor in good condition. |

**NOTES:**

**A1.** Recommend patching walls at stair shaft.

**A2.** Patch/repair damaged carpet at basement.

**Northeast Elevation**

**Southeast Elevation**

**Flashing at Parapet**

**Elevator Overrun**

**Skylight**

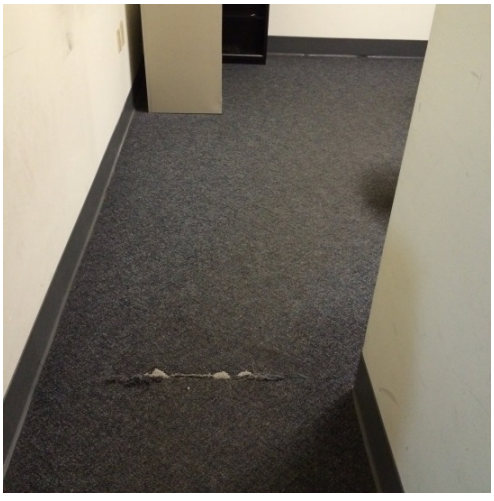
**Typical Projected Window**

**Soffit/Overhang**

**Condition of Composite Tile**

**Floor and Wall Finishes at Lobby**

**Wall and Floor Finishes at 1st Floor Toilet Rooms**



**Carpet at Basement**

**Basement Workout Room Floor Mats**

**Court Room Finishes**

**Judge's Bench Finishes**

**1st Floor Corridor**

**Judge's Office**

**Judge's Toilet Room**

**Staff Toilet Room**

**Staff Office Area**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1967 original construction<br>2000 renovation | **Gross Area** | Basement: 6,227 SF<br>1st Floor: 6,227 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Business | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

### Egress and Safety

Two legal means of egress are provided from all areas on both floors.

### Stair Shafts

There are stair shafts at the front (east) and back (west) sides of the building providing egress from the basement. While the back stair egresses directly outside, the front one empties into the lobby as opposed to the outside. This is presumed to have complied with code at the time it was built. The stair shaft has an unprotected/sealed penetration at the lower level. This does not appear to be an original condition, thus it is not grandfathered in. The opening should be sealed to provide a 1 hour rated shaft enclosure.

Some lockers are located at the upper landing of the back stair. Storage is not permitted in a stair shaft. As it is movable furniture, the lockers are not considered grandfathered in to compliance; they should be relocated.

### Handrails and Guardrails

Hand and guard rails at back stair provide height, and opening protection per current codes. Those at the front do not have the current code required extensions at both sides, but are considered grandfathered in as compliant.

## Summary of Accessibility/ADA Compliance

Accessibility is a higher priority in this building, as its first floor is primarily intended for public access and use.

### Accessible Route

Entry to the building is at grade, with an accessible parking stall near the entrance with a post-mounted door operator. An elevator is provided for access to both floors. The judge's bench is one step up from floor level, which is not accessible.

Service counters from the lobby to the office space are at 29" height and 41 ½" height. This meets requirements for both low and high counters.

**Doors**
The main entry to the building has a door operator for automatic opening of entry doors. Doors on the first floor have accessible lever hardware. The 6-panel doors in the basement have knob handles, which are not considered accessible. These tend to be on non-egress doors, so safety is not an issue.

**Plumbing Fixtures**
Both public restrooms off the lobby were remodeled with the 2000 renovation and are ADA compliant. A single-user staff toilet located in the first floor office area is not sized for accessibility, but has been provided with some grab bars. The grab bars are not code required length, but as this is in excess of the compliant toilets, there is no need to change.

The judge's office has a private bathroom off of it, with toilet, lavatory and shower. Per code, none of these is currently accessible, but space may be available to convert it if necessary. (New lavatory, grab bars and field measuring required to confirm.)

The sinks in both basement and first floor break rooms are at 36" rim height. This is above the side-reach accessible height of 34". A drinking fountain in the hallway, and a second in the basement provide accessible drinking water. If remodeling is done, an accessible break room counter and sink should be provided.

Both Men's and Women's rooms in the basement date from the original 1967 construction. Lavatories are at accessible height, and turning radius is available in the room, but the toilets are not accessible.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Egress and safety | C | | | |
| Stair shafts | D HP | $500 | CA1 & CA2 | |
| Handrails/guardrails | C | $0 | | |
| **Accessibility/ADA compliance** | | | | |
| Accessible route | C F | | CA5 | |
| Doors | C | | | |
| Plumbing fixtures | F | | CA3 | |
| Sinks | HP | | CA4 | |

**NOTES:**

**CA1.** Repair penetration in stair shaft wall.

**CA2.** Remove storage lockers at rear stair shaft.

**CA3.** Since compliant toilets are provided on the main level, and an elevator is provided, the basement toilets are not required to be made accessible.

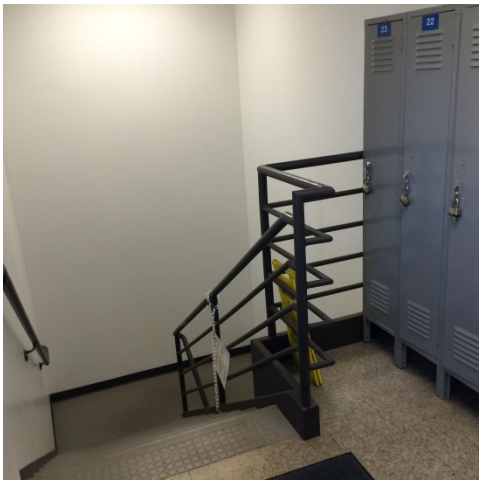
**CA4.** A break room sink and counter at accessible height (34" rim height) should be provided.

**CA5.** If a judge or someone who uses the judge's bench is in need of accessibility to the platform, the city would have to provide a ramp access.

**Accessible Parking with Signage**

**Post-mounted Door Operator**

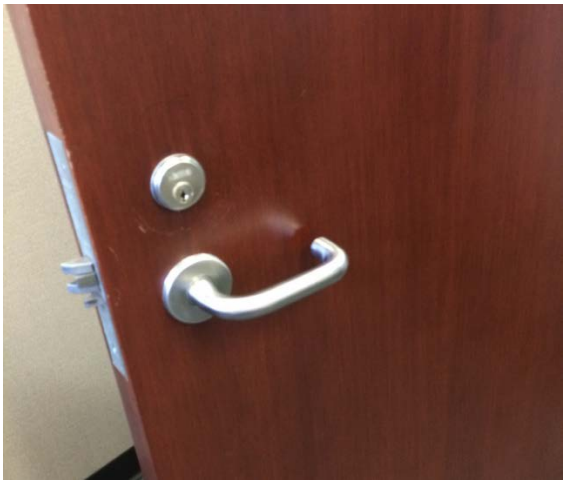
**Penetration in Front Stair Shaft Wall**



**Storage Lockers in Rear Stair Shaft**

**Judge's Platform**

**Courtroom**



**Typical Door Hardware**

**Handrails With and Without Extension**

**Accessible Men's Room**

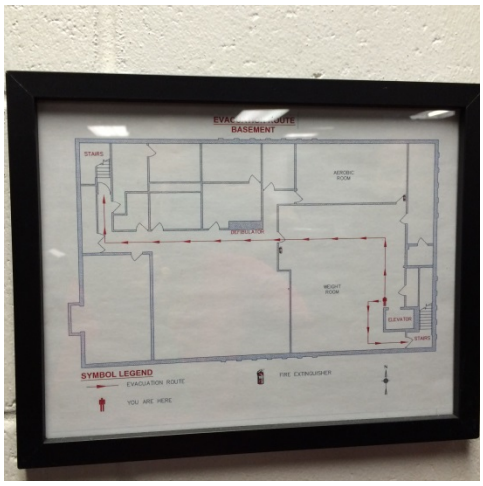
**Accessible Women's Room**

**Non-accessible Sink**

**Non-accessible Sink**

**Non-accessible Men's Room**

**Non-accessible Women's Room**




**Posted Basement Egress Routes**

**Dual-height, Accessible Drinking Fountains**

# STRUCTURAL SYSTEM

## Summary

The structure consists of steel roof deck and open web steel joists supported by exterior load-bearing masonry walls, and concrete filled metal form deck over open web steel joists at first floor supported by exterior basement walls and an interior steel frame of steel tube columns and wide flange beams.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1967 (Former Employment Security Building by State of Wisconsin – Department of Administration) |
| **Structure type** | | | | |
| Foundations | **C** | | **S1** | Cast-in-place concrete foundation/basement walls bearing on individual spread or continuous strip footings. |
| Basement | **C** | | | 4" concrete slab on grade with 6x6 #10/#10 wire mesh reinforcing. |
| First Floor | **C** | | | 3" concrete slab on metal form deck over open web steel joists, supported by exterior basement walls and an interior steel frame of steel tube columns and wide flange beams. |
| | | | | |
| Roof | **C** | | | 1 ½" A-20 steel roof deck and type "LH" open web steel joists supported by exterior load-bearing masonry walls. |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams, columns, floor slabs, 0 hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There is a minor vertically oriented shrinkage crack below the steel beam bearing location in the east foundation wall of the basement storage room. The crack shows no evidence of movement or water infiltration, and is not a cause for structural concern. No remedial action is recommended at this time.

**Concrete Shrinkage Crack in Basement Storage Room**

# PLUMBING SYSTEMS

## Summary

The Municipal Court building was constructed in approximately 1967 and remodeled in 2000. The original piping is in fair condition. Majority of the water and storm piping is insulated. A thermal mixing valve (TMV) should be added to the system. This is a code issues which needs to be corrected.

Building is served by (4) 3" roof drains, along the outer edge. Building was re-roofed in 2000. Roof has no internal secondary drainage or relief scuppers.

Plumbing fixtures in the Basement toilet room are older and could be updated to conserve water. The 1st floor fixtures were updated in 2000. Building utilities in general appear adequate.

### LEGEND

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | PVC & cast iron |
| Storm/Clearwater Piping | F | | P3 | Cast iron |
| Valves | F | | P4 | Gate & ball |
| Domestic Water Service | C | | P5 | 2" main, 4" service |
| Insulation | HP | $3,000 | P6 | Add insulation |
| Code Issues | D | See below | P7 | Add TMV, relocate FP drain |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | Newer electric heater |
| Recirculation Pump(s) | F | | P9 | |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $4,000 | P10 | Add TMV (code issue) |
| Grease Interceptor | NA | | | No grease interceptor required. |
| Kitchen Equipment | NA | | | |
| Plumbing Fixtures | F | | P11 | |
| Backflow Prevention | C | | P12 | |
| Elevator Sump/Pump | F | | P13 | Simplex |
| Drain Tile sump/Pumps | F | | P14 | (3) Simplex , (1) Duplex |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Sewage Ejector Sump/Pumps | F | | P15 | Duplex |
| **Exterior** | | | | |
| Storm Drainage, Roof Drains | F | | P16 | |
| Lawn Irrigation | NA | | | |
| Utilities | F | | P17 | |

**NOTES:**

**P1.** Water piping is mainly copper, soldered joints. Fair condition. There are some pre-press connections at the water heater. Some sections of piping are missing insulation.

**P2.** Original sanitary is cast iron hub & spigot. 2000 remodeling is cast iron no-hub. Pump discharge piping from ejectors is newer PVC.

**P3.** Storm piping is cast iron hub & spigot. Piping is insulated with glass fiber. Pump discharge is original galvanized or newer PVC.

**P4.** Original valves are gate, newer valves are ball.

**P5.** Building is served by a 4" water service for the combined fire protection and domestic water. 2" water main, 1" meter set with 3-valved by-pass in the Mechanical room.

**P6.** Water and storm piping is insulated with glass fiber. Some sections of water piping are missing insulation – repair as required.

**P7.** Code issues: water temperature is set at 120° Fahrenheit - maximum temperature to be 110° Fahrenheit. No thermostatic mixing valve (TMV) at the heater. Add TMV per code. Fire protection drain discharges to a janitor's sink in the basement – not allowed per code. Re-route drain piping to floor drain. Install hose end vacuum breaker on the hose bib at the water main.

**P8.** Water heater is electric, AO Smith model #ECS 40 200, 208/240Volt, 40 gallon unit. Piping has pro-press connections, also missing insulation. 1" hcw connections.

**P9.** Existing B&G 120Volt recirculation pump with timer. ¾" hot water return piping to pump.

**P10.** Add TMV to water heater. Set hot water temperature to 110° Fahrenheit. Code issue.

**P11.** Plumbing fixtures: Plumbing fixtures on 1st floor are ADA accessible. 1st floor Men's and Women's toilet rooms have wall-hung vitreous WC's at regular and ADA height. Urinal is wall-hung at 17" aff., lavatory is wall-hung with metering faucet. Safety covers installed. Lobby has bi-level ADA electric water coolers. Judges' Chambers has a tank-type WC installed, vitreous lavatory in countertop, lever handle control on faucet. Toilet room also has a fiberglass modular shower. Staff toilet room has wall-hung WC and lavatory.

Basement fixtures appear to be original vintage. WC's and lavatories are wall-hung, vitreous fixtures. Urinal is floor mount with flush valve. Break room sinks are stainless steel drop-in type with faucet.

Each floor has a janitor's sink. Basement sink has the fire protection inspector's test discharging to it-which is not allowed per code. Test drain needs to be routed to a floor drain.

Exterior of building has non-freeze sill faucets installed.

**P12.** Janitor's sink faucet with hose connection ends have a threaded vacuum breaker installed. Hose bib at the water main needs to have a hose end vacuum breaker installed.

**P13.** Elevator sump/pump is simplex, submersible with a high water alarm installed.

**P14.** Building has (4) separate drain tile sump/pump locations. One unit is a duplex, other three are simplex pump(s), and all are submersible. Simplex unit in the workout area (located under the mats) has a high water alarm installed. High water alarms should be installed on the other pumps also.

**P15.** Sewage ejector pumps are duplex top-mount. Pumps are 1½ hp, 208Volt.

**P16.** Building is served by (4) 3" roof drains, 4" roof leaders to below grade. Piping is insulated with glass fiber. There is no secondary roof drainage installed.

**P17.** Utilities are fed from Jefferson Street. 4" water main to the building serves the domestic water and fire protection systems combined. 4" sanitary sewer. 4" and 6" storm sewers combined, route to a 6" storm main to the street. Parking lot has internal storm drainage with catch basin(s).

**4" Water Service**

**Water Piping**

**Water Piping, Gate Valve**

**Water Piping**

**Sanitary Piping (cast iron & PVC)**

**Storm Piping -insulated**

**Storm Piping, Sanitary/Pump Discharge**

**Water Piping at Water Heater, Pro-press Piping**

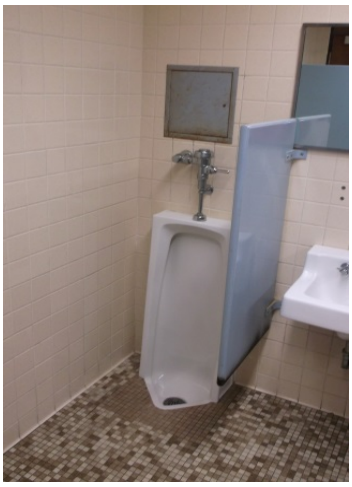
**Water Meter with By-pass**

**Water Heater**

**Hot Water Recirculating Pump**

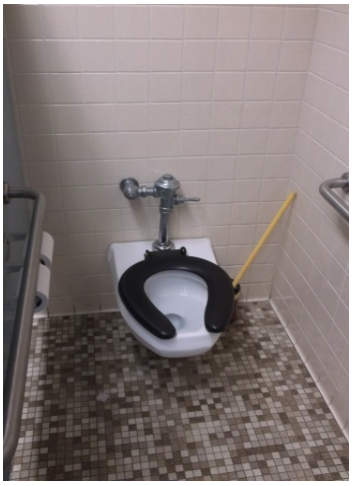
**Water Closet – 1st Floor Men's**

Lavatories – 1st Floor Men's

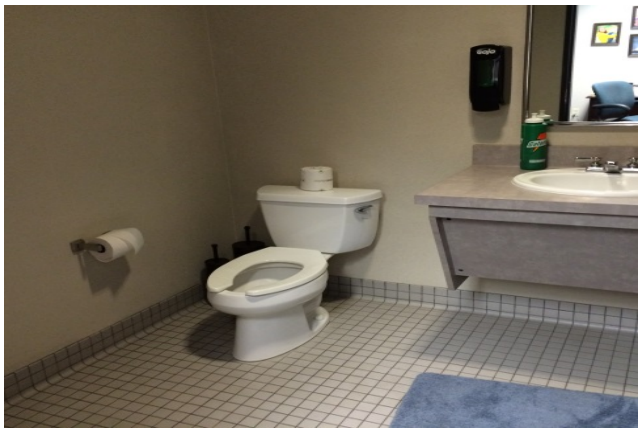


Urinal – Basement Men's

Lavatories – Basement Women's

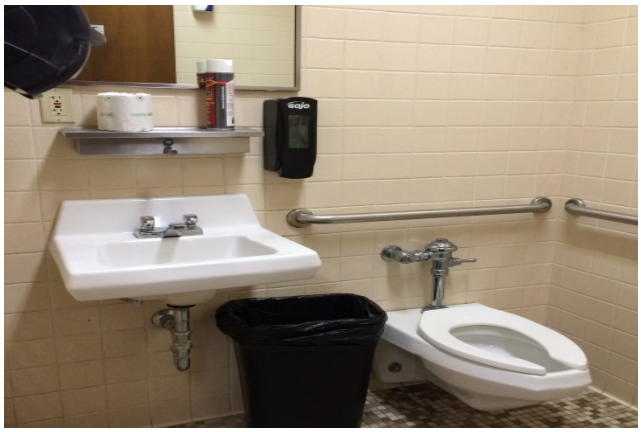


Water Closet – Basement Men's



Water Closet – Judge's Toilet room

Shower – Judge's Toilet room



**Staff Toilet Room – 1st Floor**

**Janitor's Sink**

**Electric Water Coolers – Lobby**

**Electric Water Cooler – Basement**

**Basement Sink**

**Elevator Sump/Pump**

Elevator – High Water Alarm

Clearwater Sump/Pump

Drain Tile Sump/Pump, Alarm

Drain Tile Sump/Pump

Sewage Ejector – Duplex Pumps

Fire Protection Drain into Janitor's Sink

**Non-freeze Sill Faucet**

**Exterior Cleanout**

**Parking Lot – Catch Basin**

**Parking Lot – Catch Basin**

# FIRE PROTECTION SYSTEMS

## Summary

The Municipal Court building was constructed in approximately 1967 and remodeled in 2000. This building is only partially sprinkled with a fully sprinkled basement and no sprinkler system on the first floor.

The 4" water main comes into the basement through the east wall and supplies both the domestic water supply and the fire protection sprinkler system.

The sprinkler system piping, valves, sprinkler heads, and equipment appear to be in good condition and free of corrosion and leaks.

There are several minor deficiencies on the sprinkler system that are not affecting the proper operation of the system but should be corrected.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| FIRE PROTECTION | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Water Service** | **C** | | **FP1** | 4" Water Service. |
| Backflow Prevention | **C** | | **FP2** | |
| Fire Pump | **NA** | | | |
| Fire Pump Controller | **NA** | | | |
| Jockey Pump | **NA** | | | |
| Jockey Pump Controller | **NA** | | | |
| **Wet Pipe Sprinkler System** | **D** | $1000 | **FP3** | |
| Valves | **F** | | **FP4** | |
| Piping | **F** | | **FP4** | |
| Sprinkler Heads | **F** | | **FP4** | |
| **Percent of Building Unit Sprinkled** | **50%** | | | Basement is sprinkled, first floor is not. |
| Elevator Machine Rooms sprinkled | **C** | | **FP5** | |
| Electrical Switchgear Room sprinkled | | | | |
| Elevator hoist way pits are sprinkled | **C** | | **FP5** | |
| **Other Fire Protection Systems** | | | | |
| Pre-action System | **NA** | | **FP6** | |
| Kitchen Hood System | **NA** | | **FP6** | |

**NOTES:**

**FP1.** The 4" water service enters the building in the basement and splits to the domestic water system and the Fire Protection System.

**FP2.** The backflow preventer is an Ames 2000 SS 4" double check valve backflow preventer with OS&Y gate valves. The backflow preventer and the gate valves are in good condition.

**FP3.** The basement level and the stairwells are fully sprinkled. The deficiencies on the fire sprinkler system include the following. The sprinkler flow indicator stickers installed on the piping to the Fire Department Connection are pointing in the wrong direction. The automatic ball drip valve on the Fire Department Connection check valve is capped. This drip valve is meant to allow water in the check valve to drip out to prevent freezing. A pendent sprinkler head was discovered that was not replaced with an upright head when the ceiling was removed. The inspector's test drain is piped to a sink. All valves, piping, and sprinkler heads appear to be in good condition. The piping shows no indication of corrosion and the valves appear to be in good condition.

**FP4.** The elevator equipment room and hoist-way pit are sprinkled which meets the requirements of NFPA 13.

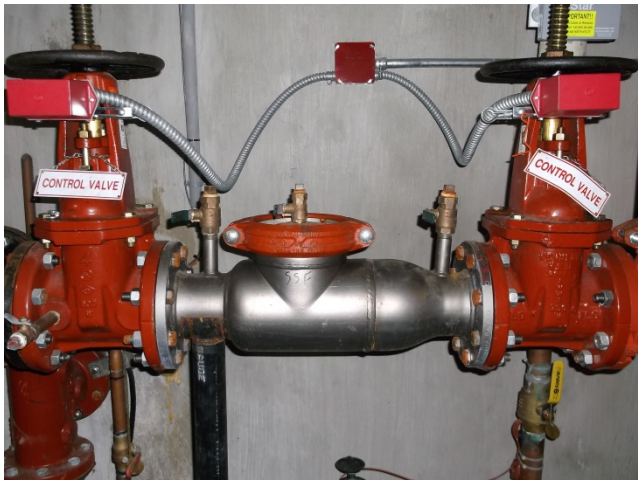
**FP5.** The elevator is a hydraulic elevator which requires sprinkler heads both in the pit of the hoist-way shaft and in the elevator equipment room. Sprinkler heads are located in both of these locations.

**FP6.** There are no kitchens or server rooms requiring fire suppression systems in the building.

**Fire Department Connection**

**Test Connection**

**Fire Protection Riser**




**Backflow Preventer**

**Flow Direction Points the Wrong Direction**

**Automatic Ball Drip Capped**

**Pendent Sprinkler Head too far from Ceiling**

**Sprinkler Head with Baffle in Electrical Room**

**Inspector's Test Drain Discharging in Sink**

**Sprinkler Head Under Duct**

# HVAC SYSTEMS

## Summary

The building was constructed in 1967 and in 2000 was remodeled for the municipal court. The remodeling installed ductwork, VAV terminals and heating devices on first floor and minimally renovated the basement systems. The basement has recently been revised to create police department work out spaces. The HVAC systems were minimally affected.

A modular air unit installed in a basement mechanical room serves the entire building. The system has filtration, heating coil, and a refrigerant cooling coil which serves an outdoor condensing unit. The condensing unit was replaced about two years ago according to maintenance staff. The air unit mechanical room is very cramped. The air unit is past its expected useful life. Components are being maintained and replaced as they fail, but due to the cramped conditions, maintenance is difficult and time consuming. Replacement of the unit will require an extended period of outage.

Due to the low structure clear height in the basement, the ductwork has been routed through the joist space and has been sized as medium pressure ductwork, which increases air velocity and noise. Grilles through the basement area are loud. The basement remodeling has left the some ductwork in a semi abandoned state. The main supply ducts are insulated with duct liner and the insulation has eroded slightly.

Exhaust ventilation for toilet rooms, janitor closets and other miscellaneous spaces is served by a variety of power roof ventilators and ceiling exhaust fans. The fans vary in age, size, and condition as they have been installed and replaced during the various remodeling projects.

A hot water boiler installed adjacent to the air unit serves the building heating requirements. The boiler appears to be original to the facility and was last inspected in 2013. The hot water pumps have been replaced and components on the boiler have been replaced as they have failed. The boiler is past its expected useful life. Piping and insulation is, in general, original to the building with some exceptions at the revised VAV terminals installed in 2000. Piping insulation is missing or in disrepair in a variety of locations and is missing in areas where maintenance staff has required access to the piping and system components and insulation was not replaced.

The controls are low voltage DDC. An operator terminal is located in the mechanical room.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | N/A | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Air Unit** | | | **H1** | Trane modular unit. Unit's exact age unknown, but appears to be at least 30 years old. |
| Housing | **CP** | $125,000 | **H1** | Maintenance staff has kept unit operating, well past expected useful life. |
| Condensing Unit | **N** | | | Carrier Unit model 38aks028, R-22 |
| Air Intake | **C** | | | Area way to 6 feet above grade |
| Coils | **CP** | (incl) | **H1** | Hot water and refrigerant coils. |
| Fan | **CP** | (incl) | **H1** | 15 HP, 11,000 CFM |
| Filters | **CP** | (incl) | **H1** | 30% |
| Controls | **CP** | (incl) | **H1** | DDC, Valves have been replaced. |
| Ductwork | **HP** | $30,000 | **H1** | Original except where replaced during projects. Medium pressure. Loud and leaky. Sealing and/or replacement required. |
| Insulation | **HP** | $2,000 | **H1** | Duct liner is slightly eroded. Most piping insulation is in fair condition. Poor at AHU control valves. |
| Occupied Space Thermal Comfort | **HP** | $20,000 | **H1** | Some VAV units do not have reheat coils, rooms can overcool. |
| **Exhaust Fans** | | | **H2** | |
| Toilet/locker Room Exhaust | **F** | | | Multiple fans. PRV, cabinet, centrifugal. |
| Exhaust Ductwork | **HP** | $12,000 | **H2** | Mostly original. Minimal replacement during renovation projects. Lint/dust is coating the grilles and ductwork in the basement, less on first floor. Recommend cleaning, sealing, and rebalance. |
| **Boiler System** | | | **H3** | Unit's exact age unknown, but appears to be at least 30 years old. |
| Boilers | **CP** | $85,000 | **H3** | Peerless, 630MBH input, 504 MBH output. Inspected 2013. |
| Pumps | **C** | | | Taco 1/3 HP, in-line pumps |
| Piping | **C** | | | Mix of copper and steel. |
| Pipe Insulation | **HP** | $5,000 | **H3** | Insulation missing at a variety of locations. Poor condition around unit coils. |
| Room Terminal Units | **C** | | | Convectors, VAV, cabinet heaters. |

| | | | | |
|---|---|---|---|---|
| **Mechanical Room Ventilation** | **D** | $10,000 | **H4** | Elevator machinery room is not separate system. It is combined with other exhaust. Air unit/Boiler room is under negative pressure and will affect boiler operation. |
| **Controls** | | | **H5** | |
| DDC | **C** | | | Upgrade front end with major equipment replacement project. |

**NOTES:**

**H1.** The unit is an indoor modular unit with hot water heating coil, refrigerant cooling coil and VAV control. The unit appears to be at least 30 years old, which exceeds the units expected useful life. The condensing unit was replaced approximately 2 years ago as the old one had failed. Maintenance staff has replaced components on this unit as they have failed, which has allowed the unit to maintain operation to this point. Eventually, corrosion, tube erosion, and metal fatigue will cause major failure of the coils and/or fans. The mechanical room is extremely tight and a replacement will require an extended period of downtime. A project to replace the air handling unit, possibly with an outdoor, on-grade unit is recommended.

The supply ducts are lined. Duct liner erodes overtime and this will lead to system inefficiency and condensation which will damage building material. It is recommended to seal the ductwork and install duct wrap insulation during renovation projects.

An older DDC control system controls the air unit and VAV controls. The system is operational but will require updating when the unit is replaced.

Some VAV terminals did not have reheat coils and temperature control is dependent on the room's load and terminals ability to shut-down. These units are primarily located in the basement, which has been revised to work-out space. The HVAC was not modified during the room revisions and the spaces were quite cool, when unoccupied. During the basement remodel, some ductwork was removed and left in a partially abandoned state. Some grilles were removed and the ductwork is left open to blow into the space, while other grilles remain and are quite noisy. A project to add reheat coils and modify the basement ductwork is recommended to improve occupant comfort and reduce noise levels.

**H2.** The building exhaust system is served by multiple fans of various sizes and types. The ages and conditions vary greatly as the units have been modified and replaced as necessary. Dust and lint build-up is prevalent at the lower level grilles and ducts. Air flow within these spaces appears diminished and can be attributed to older ductwork combined with the dirtying of the systems. Duct cleaning, taping and sealing, and air balancing are recommended.

**H3.** The boiler appears to be at least 30 years old. The boiler is 80% efficient. It was inspected in 2013 per a sticker on the unit. Pumps have been replaced. The staff did not indicate problems with the units at this time. The unit is turned off during the summer months, and its operational capability will not be known again until the 2015/2016 heating season. As the boiler has exceeded its expected useful life and new boilers will easily achieve 10-15% greater efficiency, a project to replace the boiler with a high efficiency condensing boiler is recommended.

Pipe insulation is missing or in disrepair in a variety of locations around the building. The insulation is especially poor around the air unit and boiler, where maintenance work has required the removal of the insulation and it was not repaired or replaced. It is recommended to insulate this piping and repair insulation during an air unit and/or boiler replacement project.

**H4.** The elevator machinery room is exhausted by a building general exhaust fan. Code requires independent systems to serve elevators. A fan dedicated to the elevator room is recommended to be installed.

The boiler room is under negative pressure. This can affect the boilers ability to operate and cause combustion fumes to enter the buildings ventilation system. An air unit replacement project or boiler replacement project will address this issue.

**H5.** Controls are low voltage DDC controls. The system will require upgrade when a major equipment replacement project occurs. Upgrades will allow this building to be monitored from a central location.

**Air Unit**

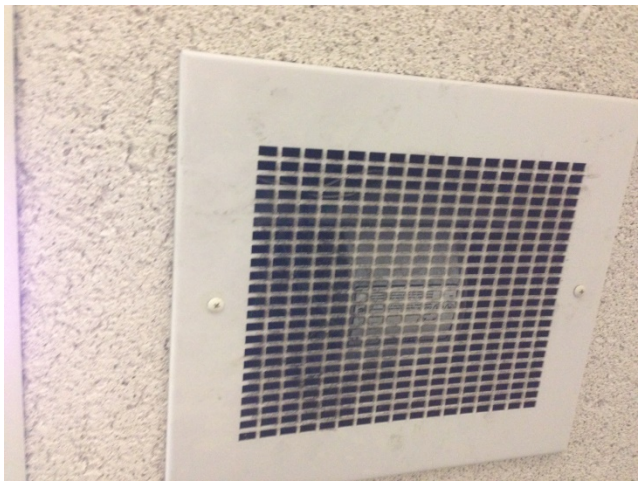
**Air Unit**

**Supply Duct (Grille Removed)**

**Open Ducts**

**VAV Terminal (No Reheat)**

**Older VAV Terminal**



**Cabinet Fan**

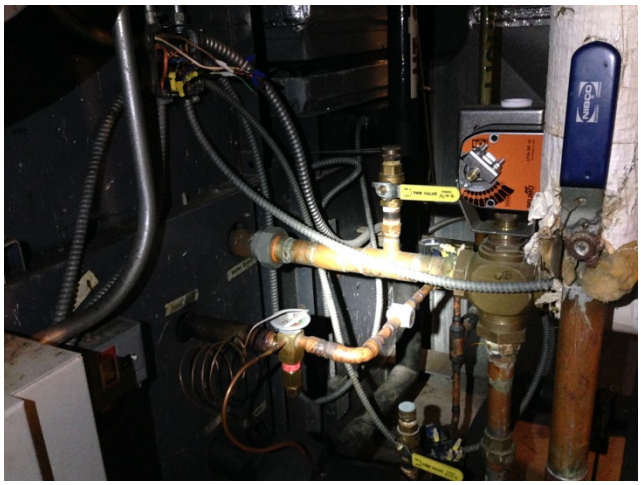
**Old Grille (Plugged)**

**Condensing Unit**

**Refrigerant Piping**

**Good Insulation (Typical)**

**Poor Insulation (Typical)**



**Air Unit Coils**

**Boiler**

**Hot Water Pumps**

**Gas Meter**

**Area Way**

**Variable Frequency Drive**

**Electric Thermostat**

**Low Voltage Thermostat**

# ELECTRICAL SYSTEMS

## Summary

The electric service is rated 600-Amps at 120/208-Volt, 3-Phase, and is fed underground from pole-mounted transformers located west of the building. The main distribution panel (MDP) is located in the basement. It was installed during a renovation project in 2000. There is a spare 4" conduit routed from the MDP to the CT cabinet located on the building's west elevation. The MDP was manufactured by Square D, is in good condition, and has a total of 19.5-inches of unused space available for new circuit breakers. New and replacement circuit breakers are still available. There are three branch circuit panels. Two were added with the 2000 project and are manufactured by Square D (type NQOD); the other is manufactured by Westinghouse. The Square D panels are in good condition. new and replacement parts are available for the Square D panels, however, Westinghouse no longer manufactures electric panel boards or circuit breakers. All circuit breaker positions in all branch circuit panelboards are occupied. Code required clearance is not maintained in front of the panel located in the utility room at the east end of the basement, plus storage in this room is obstructing access to the panel.

Interior lighting fixtures predominantly use T8 fluorescent lamps with electronic ballasts. Generally lighting fixtures appear to be in good condition. A few fixtures on the basement level are missing lenses or have sagging lenses. The majority of can fixtures or recessed downlight fixtures use compact fluorescent lamps. The courtroom includes 6 incandescent downlight fixtures; there are approximately a dozen incandescent downlights in one of the fitness rooms in the basement. Some downlights have been retrofit with self-ballasted compact fluorescent lamps. Two methods have been used to support 2x4 prismatic troffer lighting fixtures in the main fitness room of the basement – it is doubtful either method complies with the manufacturer's installation instructions. Method 1: four eye bolts are installed through a fixture's housing and these eye bolts support the fixture by resting on the building's structural steel members; method 2: two C-channels are attached to the top of a fixture and the C-channels support the fixture by resting on the building's structural steel members. Interior spaces are equipped with occupancy sensors or electronic timer switches that shut lighting OFF for energy conservation. Exterior lighting fixtures are soffit-mounted recessed HID (metal halide) controlled via a time clock.

Unit equipment or battery-packs are used for the emergency egress lighting; coverage does not comply with today's emergency egress illumination codes. Only one of the half dozen fixtures tested actually worked.

The building has a zoned fire alarm system whose control panel was reportedly replaced in 2014. The panel has 6 spare zones. Coverage with audible and audible/visual alarm (A/V alarm) devices is not code compliant. The elevator lobby smoke detector outside the basement elevator doors is located too close to the sidewall, and is not permanently fastened. This detector is mounted on a piece of 2x4 lumber spanning, but not fastened to the building's structural members. There is no evidence of a shunt-trip mechanism to automatically disconnect power to the elevator when sprinklers are activated in the elevator machine room and/or elevator shaft. A shunt-trip operation is required by code when the machine room and elevator shaft are protected by fire sprinklers.

In the basement a few electrical boxes are missing covers, and a couple of conduit runs are not supported properly. Code requires conduit be supported within 3-feet of a box and at intervals not exceeding 10 feet. Conduit penetrations through the east stairwell wall in the basement are not fire sealed.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Switchboard | C | | | Square D I-Line model is in good condition, and actively supported by the manufacturer |
| Distribution Panels | C | | | The Main Switchboard is also the Distribution Panel |
| Branch Panels | F | $7,500 | E1 | Replace the obsolete Westinghouse panel |
| **Emergency Power Distribution Equipment** | | | | |
| Branch Panels | NA | | | There are no emergency branch panels |
| **Lighting** | | | | |
| Atrium, Office Spaces, Conference Rooms and Corridors | C | | | Mixture of parabolic and prismatic lensed fixtures using T8 fluorescent lamps and electronic ballasts; fixtures are generally in good condition |
| Interior Downlights | F | $1,200 | E2, E6 | Consider replacing the A19 incandescent lamped and self-ballasted compact fluorescent lamped downlights with LED lamps. |
| Exterior Soffit Downlights | F | $1,200 | E5, E6 | Consider replacing HID lamped lighting fixtures in the exterior soffit with LED sourced fixtures |
| Mechanical Spaces, Storage Rooms, Utility Areas | C | | | Industrial fixtures using T8 fluorescent lamps and electronic ballasts |
| **Lighting Controls** | | | | |
| Conference or Meeting Rooms | C | | | Occupancy sensors are used |
| Offices | C | | | Occupancy sensors are used |
| Toilet Rooms/ Small Storage Rooms | C | | | Occupancy sensors or electronic timer switches are used |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Emergency Battery Packs and Exit Signs | D | $3,300 | E3 | Replace batteries; confirm lamps are good and fixtures work properly |
| **Fire Alarm Devices** | | | | |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Horns and Horn/Strobes | CP | $8,000 | E4 | Install additional audible and audible/visual alarm devices. |
| Shunt-trip Mechanism | D | $7,500 | E7 | Install shunt-trip control on main power to elevator |

**NOTES:**

**E1.** Availability of new and replacement parts will eventually become an issue for the obsolete Westinghouse panels.

**E2.** The A19 incandescent lamp is no longer manufactured and when supplier's current warehouse stocks are exhausted this lamp will no longer be offered for sale in the United States. Retrofitting the downlights with LED lamps will require changing the existing dimming switches as they are not compatible with LED sources.

**E3.** Keeping emergency egress lighting operational is important to limit liability exposure.

**E4.** When non-code required devices are voluntarily added to a fire alarm system, code requires the entire installation comply with code. There are several rooms without audible or audible/visual alarms.

**E5.** Since existing HID downlights utilize a medium base lamp socket they can be retrofit with medium base LED lamps. If retrofit, the HID ballast will need to be removed and the fixture rewired. Alternatively the entire fixture could be replaced. The Budget Cost listed reflects rewiring the fixture and retrofitting with LED screw-in lamps.

**E6.** Immediate reduced operational costs plus reduced future maintenance costs should be evaluated before investing in retrofitting fixtures.

**E7.** Code requires the power to the elevator be disconnected if fire sprinklers in the elevator machine room and/or elevator shaft are activated. Releasing water on energized electrical circuits could result in a passenger in the elevator being electrocuted.

MDP – with Room for Additional Circuit Breakers

Fire Alarm Control Panel with Spare Zones

Unit Equipment or Battery Pack

Electronic Timer Switch

Detector not Installed Properly at Basement Elevation

Non-compliant Method of Supporting Fixture

**Opening through Wall Common with Stairwell**

**Conduit not Supported at Required Intervals**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## FIRE STATION #1

**August, 2015**

## FIRE DEPARTMENT

# SUMMARY

***Date of Visit: May 21, 2015***
***Address: 501 S. Washington Street***

## Building Description

The building, dating from 1929, is symmetrical about its north-south axis. It is mostly rectangular, with 4 chamfered corners, each of which features a door or window. Four overhead doors serving the apparatus bay face south. Exterior wall comprised of modular sized, wire-cut face brick, clay tile back up and a combination of cast stone and break-metal trim, ornamentation and copings. Windows are a variety of fixed and double-hung operable, vinyl-clad and aluminum extrusions, none of which original to the building.

The partial basement, which houses boiler and storage, has a concrete tile and joist ceiling, with board-formed concrete exterior foundation wall. Filler brick and filler tile is partially covered with plaster.

The first floor consists of a large apparatus bay at the center of the building, with additional office, bathrooms and storage rooms on either side. An intermediate floor level over the boiler room is accessed off the north side of the stair landing.

Second floor houses the majority of the Fire Department offices and training rooms. A central corridor extends from the top of the stair enclosure at the east to an office on the west side. The office includes an insulated metal door that leads to a fire escape stair and jump platform.

## Code/Accessibility

The building is presumed to have complied with the code at the time it was built or remodeled. This evaluation is done with reference to the occupancy and construction type that current code would assess. For Fire Station #1, the partial basement and 1st floors are non-separated B-business and S-1 storage. 2nd floor is also B-business, with one room of residential that would be termed an incidental use, since it is less than 10% of the floor area.

The building does not meet most of the current accessibility requirements. As a historic building, additional accessibility modifications would not be required if they were technically infeasible, or where compliance would threaten the historic significance of the structure.

Accessible, lever door handles are suggested to make door operation quicker and easier for the building users. Modification to make one first floor toilet accessible is recommended.

## Structural System

Overall, the concrete framed structure is in good condition. The structure consists of cast-in-place concrete floor slabs bearing on steel girders or load-bearing masonry walls and wood roof joists over steel girders or wood stud bearing walls.

## Plumbing Systems

The original piping is in fair condition; it could be replaced as needed when issues arise. Insulation could be added to the hot water piping for energy savings. Building utilities in general appear adequate.

Code issues include lack of a thermostatic mixing valve and recirculating pump, discharge of the laundry unit, storage of oxygen cylinders, and the water main in an electrical closet.

## HVAC Systems

First floor is not ventilated; it utilizes a thru-wall air conditioner for cooling and steam radiator for heat. The second floor office area is served by a 2007 packaged roof top air unit with gas fired heat. Zone thermostats and ventilation diffusers did not get modified during the latest renovation, which is exacerbating thermal discomfort issues. The toilet room exhaust systems are exhausting the spaces at rates below code minimum while other spaces have no exhaust. The combustion air for the generator is deficient.

Steam radiation units equipped with Danfoss valves for temperature control are located around the building perimeter. The pipe insulation is missing or has failed.

Apparatus room ventilation system was replaced in 1987 and consists of a make-up air unit, unit heater, and exhaust fan. The make-up air unit outside air duct is capped off. A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave the building. The garage make-up air, exhaust air, and control system are deficient and cannot ventilate the garage at code minimum levels. A clothes dryer is vent terminates within the apparatus room.

## Electrical Systems

The building is served by two utility services, a 200 Amp and a 100 Amp, 120/208 Volt, three phase. The panels are in good condition, but have limited future capacity. The emergency generator serving the building is in fair condition. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads. The outlets within the garage are not GFCI protected. The fire alarm system includes stand-alone smoke detectors and carbon monoxide detectors throughout the building, which are in good condition.

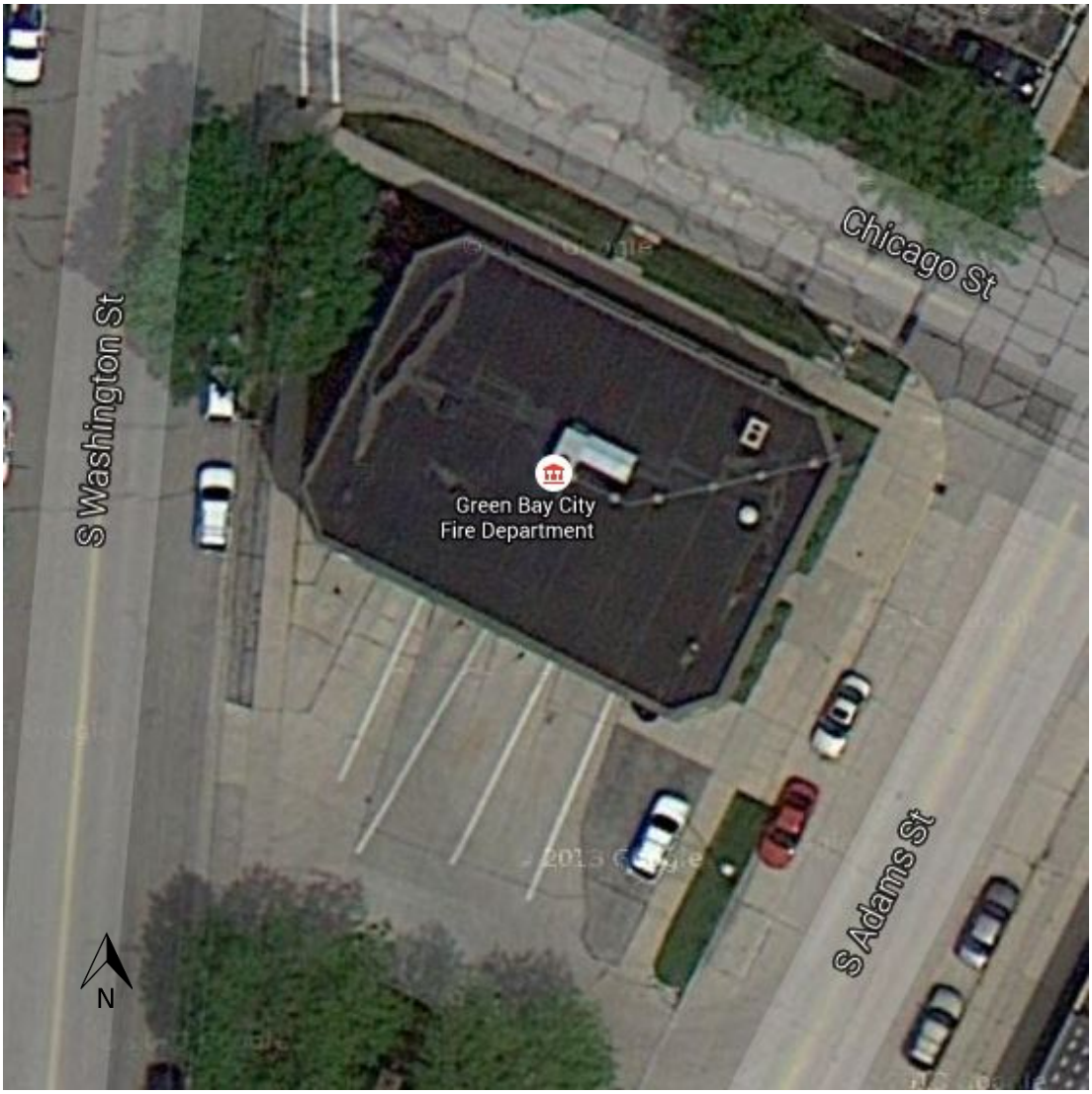
## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | Roof condition | **$75,000** |
| | | | Carpet | **8,000** |
| | | | Clean adhesive from mosaic tile | **$1,000** |
| | | | Replace composite tile | **$4,000** |
| **Architectural Subtotal** | | | | **$88,000** |
| **Code/ADA** | | | Accessible toilet | **$6,000** |
| **Structural** | | Storage Room 7' above first floor | | **$3,000** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | Pipe insulation | **$20,000** |
| | Relocate water main | | | **$8,000** |
| | Recirculation pumps | | | **$6,000** |
| | Thermal mixing valve | | | **$6,000** |
| **Plumbing Subtotal** | | | | **$40,000** |
| **HVAC Systems** | | | Air unit humidity | **$10,000** |
| | Occupied space ventilation (office) | | | **$8,000** |
| | | Occupied space thermal comfort | | **$10,000** |
| | | | Occupied space thermal comfort | **$90,000** |
| | Men's Room exhaust | | | **$3,000** |
| | Women's Room exhaust | | | **$3,000** |
| | | | Kitchen hood, fan and exhaust | **$25,000** |
| | Building exhaust ventilation | | | **$15,000** |
| | | Boiler pumps | | **$500** |
| | Boiler pipe insulation | | | **$10,000** |
| | | Boiler room terminal units | | **$3,000** |
| | Mechanical room ventilation | | | **$8,000** |
| | | | Garage heaters | **$20,000** |

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| | Garage make-up air unit | | | **$40,000** |
| | Garage exhaust | | | **$15,000** |
| | Control garage ventilation | | | **$10,000** |
| | | | Toilet room exhaust | **$500** |
| | | | Storage room exhaust | **$500** |
| | Dryer exhaust | | | **$500** |
| **HVAC Sub-total** | | | | **$272,000** |
| **Electrical** | | | Transfer switch | **$5,000** |
| | | | Branch panel | **$15,000** |
| | Power receptacles | | | **$1,000** |
| | | | Lighting controls: offices | **$3,000** |
| **Electrical Sub-total** | | | | **24,000** |
| **Building Total** | | | | **$378,000** |




**Aerial View of Site**

## Wisconsin Architecture & History Inventory

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| | | |
|---|---|---|
| County: **BROWN** | Record #: **37945** | Location: **501 S WASHINGTON ST** |
| City or Village: **GREEN BAY** | Town, Range, Section: | Quarter Sections: |
| Civil Town: | National Register Date: | State Register Date: |
| Unincorporated Community: | | District: |
| Current Name: **Fire Station No. 1** | NR Multiple Property Name: | |
| Survey Map: **GB-ISM** | Historic Name: **Fire Dept. Station No. 1** | Wall Material: **Brick** |
| Map Code: **80/11** | Construction Date: **1928** | Structural System: |
| Survey Date: **1986** | Designer Name: | Other Buildings on Site?: **N** |
| Style or Form: **Neoclassical** | | Cultural Affiliation: |
| Resource Type: **fire house** | | Demolished Date: |
| View Additional Comments | | |

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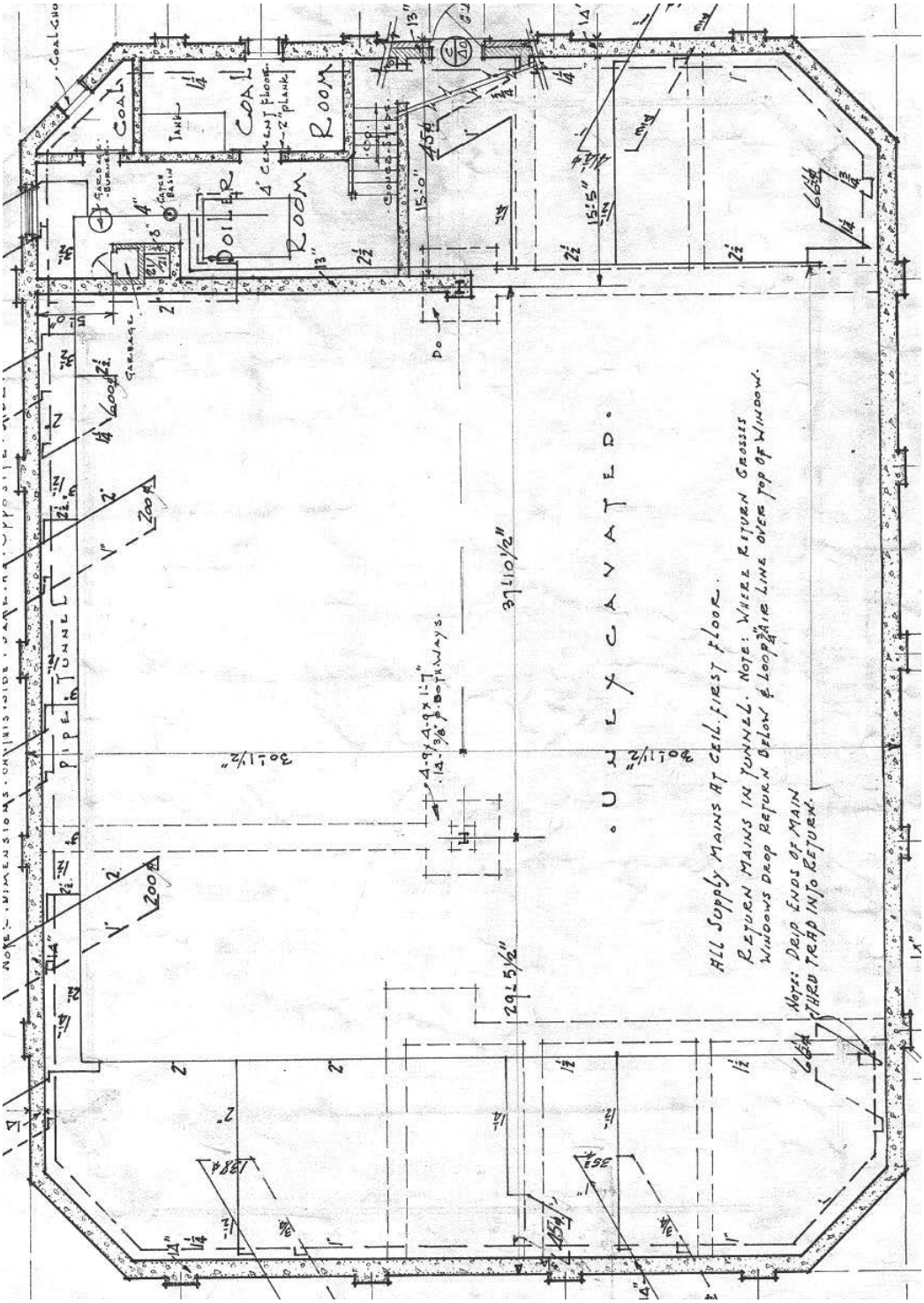
**AHI: 37945**

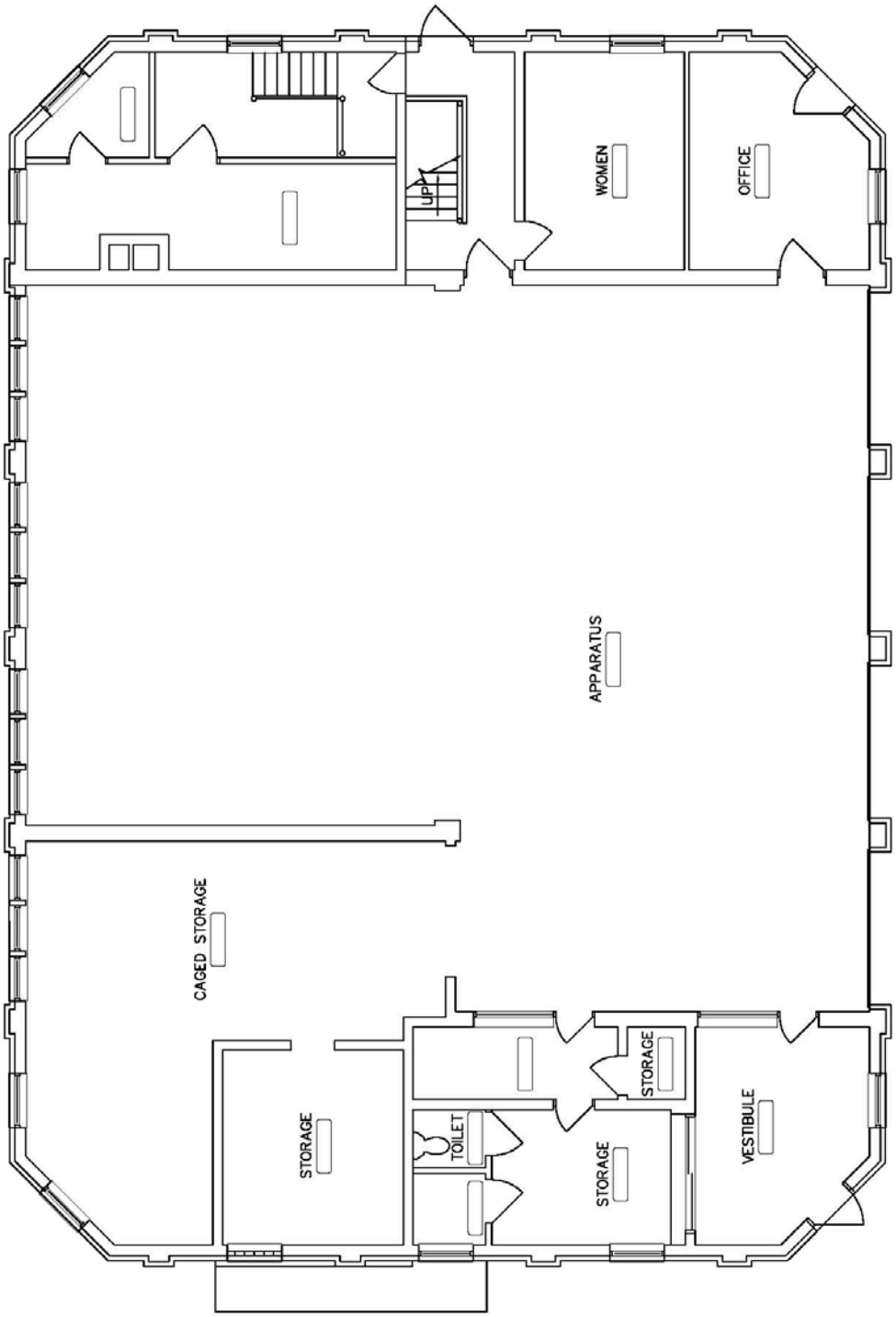
**Additional Comments:**

Fine fire house building designed in a late and somewhat abstract Neo-Classical Revival style. All front corners are canted and all four of the principal facades are pilastered. The pilasters have concrete capitals and support a wide concrete beltcourse which surrounds the building and serves as the second floor window lintel. Thinner concrete bands encircle the building at the foundation and water course level and also form the second floor window sills. A brick parapet rises above a wide concrete cornice band. All windows on the building have been replaced with modern energy efficient units with those on the first floor also having been reduced in size. Four large garage door openings are placed between the pilasters on the south facing or main facade. These doors have blind resurfaces segmental arches above with spandrels being filled with brick laid in a herringbone pattern.

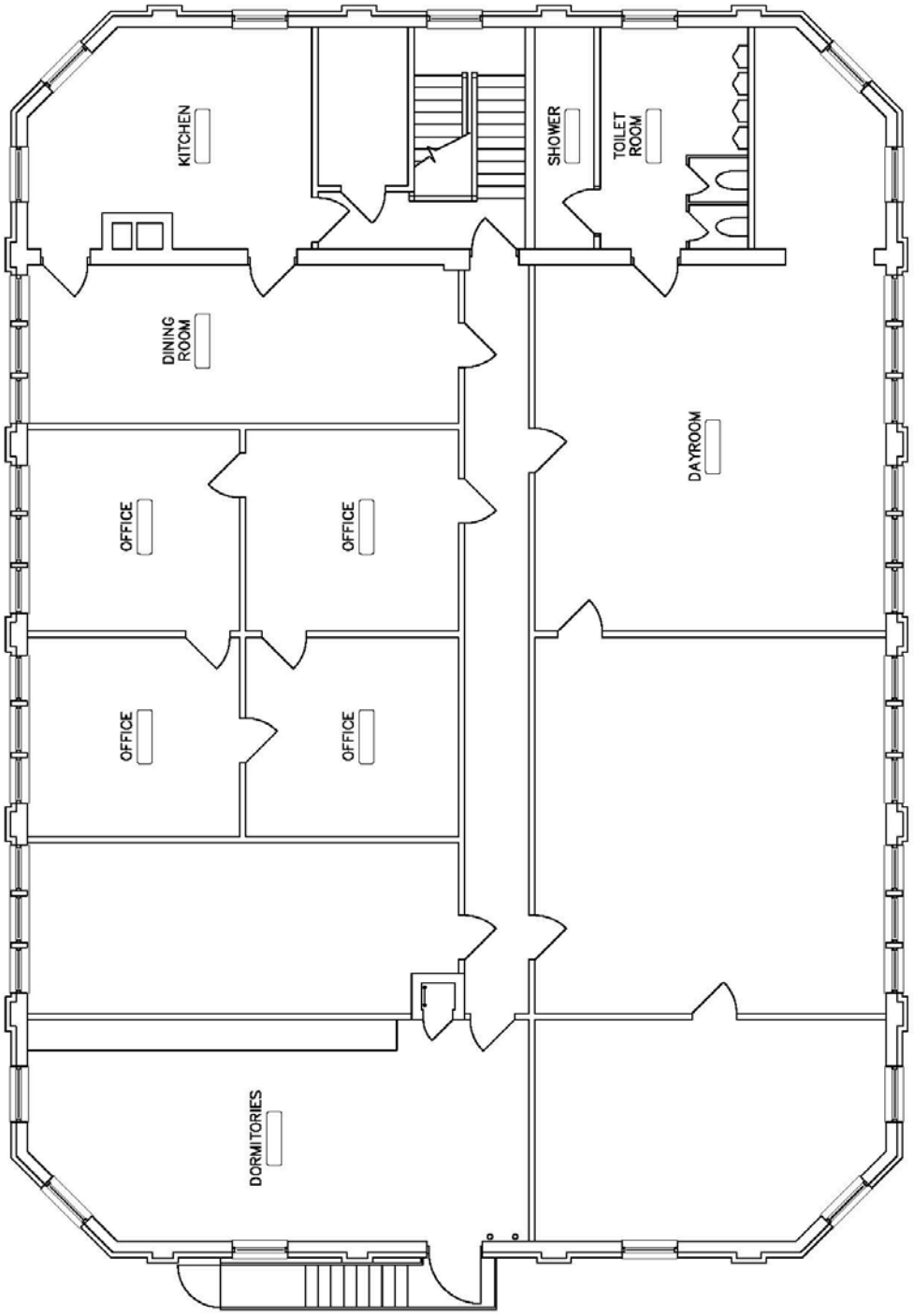
**Bibliographic References:**

(A) Sanborn-Perris Map Co, Inc. Fire Insurance Map of Green Bay, Wisconsin. New York, 1957. (B) Green Bay Press-Gazette, 7/14/1949.


COAL
COAL ROOM
BOILER ROOM
PIPE TUNNEL
UNEXCAVATED.
ALL SUPPLY MAINS AT CEIL. FIRST FLOOR.
RETURN MAINS IN TUNNEL. NOTE: WHERE RETURN GROSSES
WINDOWS DROP RETURN BELOW & LOOP 3/4" AIR LINE OVER TOP OF WINDOW.
NOTE: DRIP ENDS OF MAIN
THRU TRAP INTO RETURN.
37'-10 1/2"
30'-1 1/2"
29'-5 1/2"
15'-0"
15'-5"




Fire Station #1
First Floor Plan
No scale




Fire Station #1
Second Floor Plan
No scale

# ARCHITECTURAL

## Building Description

Originally constructed in 1929, Fire Station #1 is an active fire station, but is primarily used for Fire Department offices. Renovations to the building over the years have not altered its exterior form or size. Alterations include, but are not limited to the following:

- Interior alterations,1983
- Overhead door replaced, 1990
- A renovation was done in 2013 by the department to convert the building from fully staffed fire station to a single dormitory room and offices.

The building is symmetrical about its north-south axis. It is mostly rectangular, with 4 chamfered corners, each of which features a door or window. Four overhead doors serving the apparatus bay face south.

The partial basement, which houses boiler and storage, has a concrete tile and joist ceiling, with board-formed concrete exterior foundation wall. Filler brick and filler tile is partially covered with plaster. Areas of plaster have been removed for renovations over the years.

The first floor consists of a large apparatus bay at the center of the building, which is used for vehicle storage, with additional storage rooms, a small bathroom and storage rooms on the west side. A section of the apparatus bay to the north side has been gated off to segregate additional storage. The northern storage room includes a pull-down ladder to access a partial storage level. An opening was cut between the SW vestibule and the former storage closet at some time. The former closet has wood paneling on most walls. There is a 2" floor height difference through this passage, at the cased wall opening.

The east side of the first floor includes an office, women's toilet and locker room, entry, and access to the boiler room. The former locations of fire poles are visible by the plywood in-fill in the ceiling of the apparatus bay.

An intermediate floor level over the boiler room is accessed off the north side of the stair landing. It currently serves as storage for materials used in school and other presentations. Ceiling height is 6'-5" in this area.

Second floor houses the majority of the Fire Department offices and training rooms. A central corridor extends from the top of the stair enclosure at the east to an office on the west side. The office (Assistant Chief's Administrative Assistant) includes an insulated metal door that leads to a fire escape stair and jump platform. The east portion of the floor includes an office and the men's bathrooms to the south of the stair, and a recently renovated kitchen to the north of the stair. The former dining room, adjacent to the kitchen, is used as a conference room. Across the hall, on the south side of the corridor, the former day room is now used for training.

One bedroom is maintained at the station, between the training room and a call room on the south side of 2nd floor. Rooms on the north side of the central corridor are all offices. The former dormitory on the west end of 2nd floor has been converted to the Assistant Chief's office and his Administrative Assistant's office. Two of the remaining offices access the corridor directly, while the other four are accessed through one or two intervening offices.

### Doors

There are three exterior doors at the station; the primary entrance door on the east side, one from a former vestibule at the southwest corner, and the other to an office at the southeast corner. The office has a screen door in addition to an exterior grade door at the door to the apparatus bay. The door from the vestibule to the apparatus bay is a newer hollow metal frame and insulated hollow metal door. Both door and frame are labeled fire rated, although exact rating could not be determined.

Throughout the facility there is a large diversity of door widths. See Code/Accessibility section for discussion of door widths in relation to access width required.

## Building Envelope

### Exterior walls

Exterior wall comprised of modular sized, wire-cut face brick, clay tile back up and a combination of cast stone and break-metal trim, ornamentation and copings. No insulation present and typically the interior face is direct applied plaster.

The overhead doors on the south elevation to the apparatus room are highlighted with arched, textured, stucco transoms and a helmet and shield emblem detail. Insulated overhead doors are (6) panel, (2) window variety; broken window noted.

Original face brick appeared in generally good condition including the mortar, but several through-bolt anchors and braces suggest previous masonry repair.

West elevation includes a steel emergency exit stair from the second floor office space. Stair terminates approximately 8'-0" above grade.

Lintels throughout the building are showing oxidation and age. Cleaning, repainting and sealant recommended.

Exterior as a whole collects a fair amount of what appears to be wind-driven coal dust from the nearby coal storage. Cleaning with low-pressure, non-chemical spray recommended.

### Windows

Windows are a variety of fixed and double-hung operable, vinyl-clad and aluminum extrusions, none of which original to the building. The aluminum windows appear to be probably early 1980s vintage. Vinyl-clad windows are a relatively recent replacement of the aluminum operables on the south side.

The majority of the first floor fenestrations include a transom panel comprised of a variety of materials. Panels consist of break-metal, fluted panels, plywood and hollow metal. The plywood is very weathered and should be replaced. A fair amount of the transom panels include a penetration of one kind or another – venting, air conditioner units, electrical penetrations, etc. The northeast corner has a window in-filled with glass-block.

Sealant at perimeter of fenestrations appeared ruptured at spots and should be properly maintained.

### Roof

Existing roofing is a fully adhered EPDM membrane, showing its age. Observed tenting at the perimeter; separating seams are prevalent; vegetation growing at debris collected at the low points; several post-roof-installation penetrations and various equipment mounts noted.

Leakage is probably occurring at the clamping flange on the eastern drain. Debris and staining at the low points of the insulation suggest ponding prior to reaching the roof drains. Coping at parapet has been replaced or covered with break-metal. It is in good condition.

## Interior Finishes

Much of the building's original interior finishes appear to be in tact: terrazzo floors and coved bases in the bathrooms; ceramic mosaic tile at kitchen, showers, and west 1st floor areas; glazed tile at bathroom wainscot and kitchen walls over counters. Older, worn carpet is prevalent in offices, corridor and bedroom. The training room has a linoleum or sheet vinyl flooring. The 9" composite tile in electrical room at mid-level floor is likely to contain asbestos. When the tile is loose, or friable, asbestos could become airborne and pose a health risk. **Further evaluation by a qualified abatement professional is recommended.**

The finish on various wood items appear to date to the year of its installation, with attempts on newer wood trim and doors to match the color (if not size) of older trim.

Exterior walls and original interior walls are typically painted masonry or plaster. Bases are wood at original walls, and 6" high rubber at added or remodeled walls.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | HP | $75,000 | n/a | |
| Exterior Facade Condition | F | | A1 | |
| Transom panels | F | | | Replace plywood. Repaint, seal. |
| Exterior Door Condition | F | | | |
| Window Condition | C | | | |
| Lintels | F | | | Clean, repaint, seal |
| **Flooring** | | | | |
| Carpet | HP | $8,000 | A4 | Approximately 300 SY |
| Clean adhesive from mosaic tile | HP | $1,000 | A2 | |
| Terrazzo | C | | | |
| Replace composite tile | HP | $4,000 | A3 | |

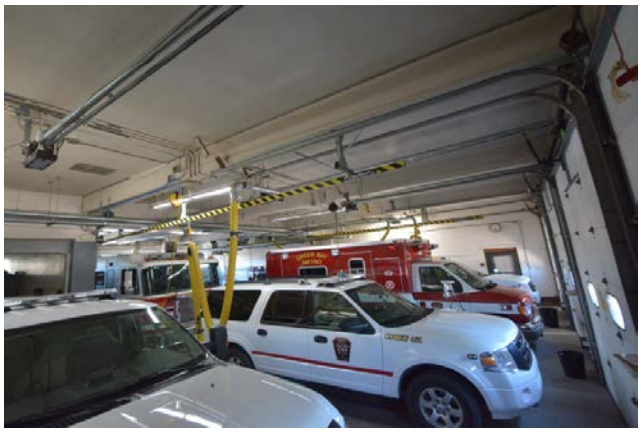
**NOTES:**

**A1.** Maintenance required on sealants and paint. Clean exterior with low-pressure, non-chemical based cleaner.

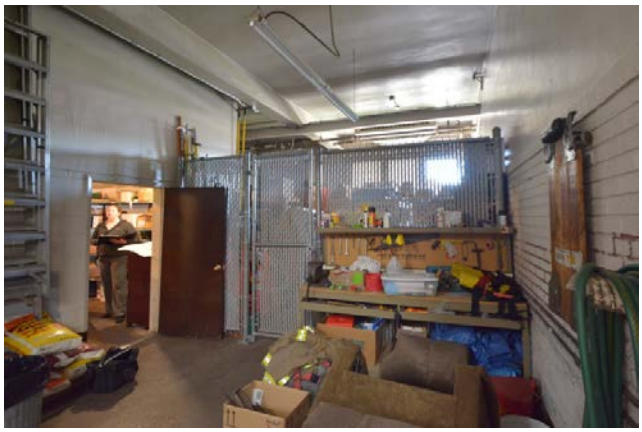
**A2.** Clean old carpet adhesive off tile at east side first floor storage room.

**A3.** 9" composite tile should be evaluated by a hazardous material professional for possible asbestos. Since its condition is leading to some cracking of tile, particles could become airborne and pose a health risk.

**A4.** Carpet replacement cost does not include cost to remove and dispose of existing carpet.



**Apparatus Room**



**Caged Storage**

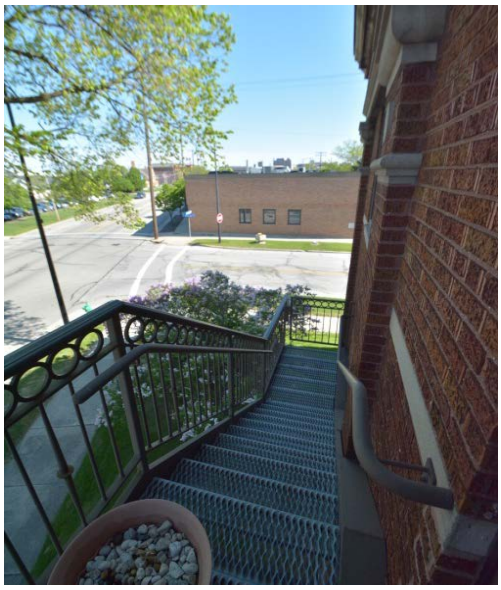
**Vestibule/Storage**

**Access to Toilet & Electrical Rooms**

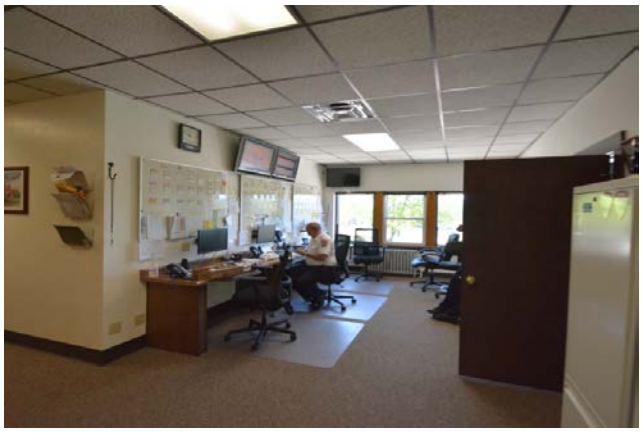
**Kitchen**

**Training Room**

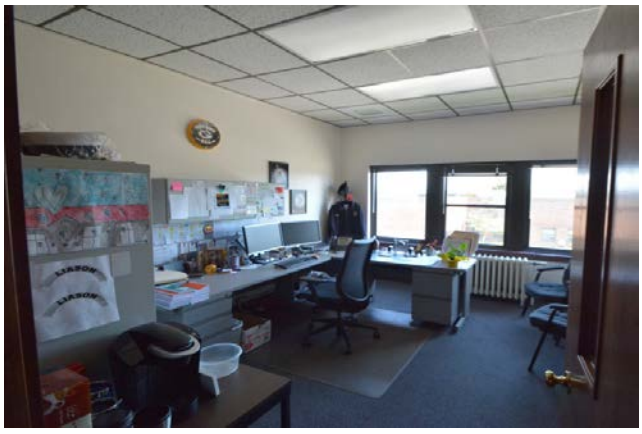
Top of Stair and 2nd Floor Hall



Exterior Stair and Jump Platform



Call Room

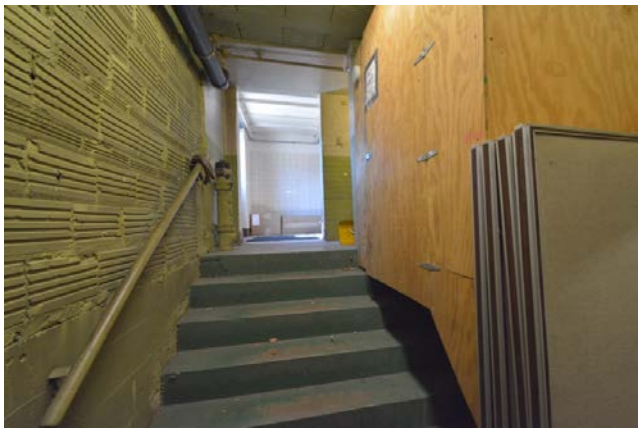


Typical Office

Roofing at Parapet

Roof Drainage

**Bedroom**



**Basement and Foundation Wall**

**South Elevation**

**East and North Elevations**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Original building: **1929**<br>Women's room remodeling: **2003** | **Gross Area** | 4,955 SF floor plate<br>10,356 SF total |
| **Occupancy Classification**<br>*(Chapter 3 of IBC)* | **S-1** Moderate-hazard Storage non-separated from **B** Business<br>2nd floor is **B** Business with **R-3** residential as incidental use | | |
| **Construction Type**<br>*(Chapter 6 IBC)* | 1929 building code class of construction undetermined; probably "ordinary"<br>IBC 2009 equivalent: Construction Type II-B | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

The Wisconsin building code in effect at the time of construction (1929) would have been the Wisconsin State Building Code as published in 1927. Although this code was not available to review, a code from 1931 was referenced. It should also be noted that Henry Foeller, who was the architect of the original building, was on the Building Code Advisory Committee that wrote the 1931 code.

The Wisconsin building code at the time would have placed this building in Chapter 6 Factory, Office and Mercantile Buildings. The classes of construction at the time were frame, ordinary, and mill construction, in increasing levels of fire protection. The building's materials would place it equivalent to Type II-B in the current IBC.

The current IBC does not specify fire stations as being Business occupancy, therefore the building occupancy may be determined more by usage of space. For Fire Station #1, the partial basement and 1st floors are non-separated B-business and S-1 storage. 2nd floor is also B-business, with one room of residential that would be termed an incidental use, since it is less than 10% of the floor area.

### Egress and safety

First floor rooms west of the apparatus bay (CMS supplies, toilet room, electrical room and storage rooms) are currently too full of storage items to provide a safe route of egress out of the rooms. Even though minimally occupied, it is recommended that the egress from these rooms be addressed by relocating some storage items. An electrical room on the mid-level floor has the plumbing main in it; this is a code issue that should be addressed.

The second floor does not have a second route of egress that is internal. The exterior steel stair and jump platform, which were updated in 2008, are maintained to provide the second route.

### Stair Shafts

The one stair shaft in the building has several other rooms opening off of it at various levels. Although current code would not allow this, the building is assumed to have complied with code at the time it was built. Even a renovation of the building would be unlikely to require this aspect to comply with current code, for two reasons. One is that there is no other way to access the mid-level room, so it would be deemed "technically infeasible". The second reason is that the age of the building would allow it to be reviewed under Chapter 11 of the IEBC, Historic Buildings. This chapter allows older, historic structures additional provisions to maintain their original configuration when undergoing renovations.

**Handrails and Guardrails**
There are few intermediate guards on the open sides of the one stair and top landing. Although this would not comply with current code, there is a provision in the Historic Buildings chapter of IEBC that may allow this to remain, even if a renovation is done. Current condition has one intermediate horizontal bar, of heavy pipe stock, and a metal newel post at each floor level or landing. The stairs themselves have edge protection. The size of guard openings are a safety hazard that could be addressed at this time, even though not mandated. If the building were converted to another use, the openings may need to be addressed.

Handrails are only provided on the inside run of the stair. Although the mid-level floor's door would conflict with some handrail, it would be possible to add a wall-mounted rail in other areas of the stair to improve safety.

## Summary of Accessibility/ADA Compliance

While in other fire stations, it is acknowledged that persons using the building can only do their jobs if they do not have accessibility needs, in the case of this facility, general office staff does not meet those criteria. Thus if a remodeling or change of use is done to the building, accessibility may be an issue depending on the scope and extent of work being done. As a historic building, additional accessibility modifications would not be required if they were technically infeasible, or where compliance would threaten the historic significance of the structure. That said, certain upgrades, such as lever door handles, could be done that would make operation easier and quicker.

**Accessible Route**
Entry to the building for fire fighters/employees is at-grade at the east side of the building. A Women's toilet room is provided on the 1st floor, which is marginally accessible in space. The toilet does not meet accessibility requirements in terms of clear floor space or grab bars, although there is room to provide this if desired. The 3'x3' shower stall does not have accessible elements. Another at-grade toilet room on the west side of the apparatus bay is not accessible. See text above pertaining to egress route.

The remainder of functional spaces, with the exception of one office, are on upper levels and not accessible. All doors appear to be 36" wide. The main living/dining/kitchen space is adequate to provide turning space. There is no elevator to basement or 2nd floor, but as stated above, those who use the facility will not be in need of such accessibility.

**Doors**
Most doors in the building, both original and replaced/renovated openings, had knob handles, which are not accessible. Push/pull door hardware is considered accessible. Doors in the facility are of a variety of widths, ranging from 31 ½" to 40". The wood stop on the jambs brings the clear opening dimension an inch less than the door, which means many openings do not provide minimal accessible passage width of 32" clear.

**Plumbing Fixtures**
The kitchen counter and sink is at a height of 37 ¾", which is above the accessible height of 34" to rim. Sinks in the kitchen are in counters that are 36" high, as opposed to the 34" required for accessible height. All lavatories in the facility are mounted with the rim at or below ADA maximum height of 34". All are wall-hung units which comply with standard front-approach knee clearances.

A drinking fountain located in the training room has a spout height of 38". This complies with ADA 602.7 for standing height persons. A different water source with cups could be used to comply with the lower accessible height.

Toilets appear to be original to the time of original construction. They do not provide ADA clear floor space, nor compliant grab bars. One stall in the Men's room does provide side grab bars in a non-ADA size stall. In all but the west first floor toilet room, turning area is available in the toilet rooms. Modification to make one first floor toilet accessible is recommended.

Showers in both the Men's and Women's rest rooms are not accessible in the following ways:

- Threshold to enter (8" at Men's, standard stand-alone unit height at Women's)
- Opening width of 24" clear at Men's
- Unconventional configuration at Men's
- No grab bars, seats, or wand shower heads

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Stair shafts/circulation | NA | | CA1 | |
| Handrails/guardrails | C F | | CA1 CA2 | Additional wall-mounted handrail could be added. |
| Accessible route | F | | CA3 | 1st floor only is accessible |
| Doors | C F | | CA4 | |
| Plumbing fixtures | F | | | See text above and Plumbing section |
| Accessible toilet | HP | $6,000 | | Creating 1 accessible toilet is recommended. |
| Electrical panel at mid-level | HP | | CA5 | Cost is listed under plumbing report |

**NOTES:**

**CA1.** As an historic building (pre 1937), the shaft would not be required to comply with current codes.

**CA2.** The size of openings at sides of stairs does not comply with current code limits of 4 3/8". Although they may not be required to comply with current codes if renovated, it may be advisable for safety/liability reasons.

**CA3.** Removal of some storage items from first floor west rooms is recommended to provide safe egress from these rooms.

**CA4.** Lever handles would comply with accessibility codes and facilitate ease of use. Lever handles are code requirement for any new or renovated work.

**CA5.** An electrical room on the mid-level floor has the plumbing main in it; this is a code issue that should be addressed.

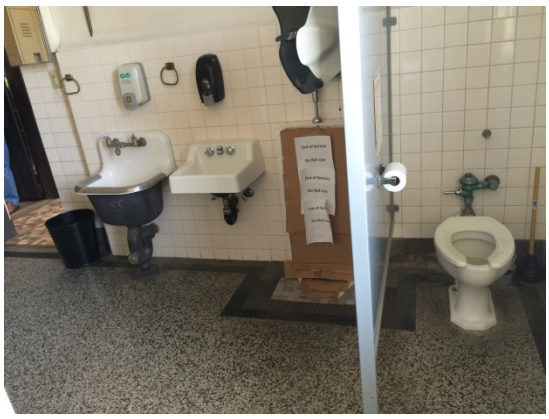
**Kitchen Counters and Sink**

**Non-accessible Shower**

**Stair Shaft**

**Men's Stall with Grab Bars**

**Men's Room Fixtures**



**Women's Room Fixtures**

## STRUCTURAL SYSTEM

### Summary

The structure consists of cast-in-place concrete floor slabs bearing on steel girders or load-bearing masonry walls and wood roof joists over steel girders or wood stud bearing walls.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1929 (Berners-Schober Comm. No. 1262) |
| **Structure type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation and/or basement walls bearing on individual spread or continuous strip footings. |
| Boiler Room/Generator 4' below First Floor | **C** | | **S1** | Floor is a 4" concrete slab on grade with 6x6 - 6/6 welded wire mesh reinforcing. |
| 1st Floor | **C** | | | Floor is a 6" concrete slab on grade with 6x6 - 10/10 welded wire mesh reinforcing. |
| Storage Room 7' above First Floor | **CP** | $3,000 | **S2** | 4"+2" Tile & Joist slab supported by load-bearing masonry walls |
| 2nd Floor | **C** | | | 4"+2" Tile & Joist slab supported on steel girders and load-bearing masonry walls |
| Roof | **C** | | | 2x10 wood joists at 16" on center typical, supported by steel girders or 2x4 wood stud bearing walls. |
| **Occupancy Category** | **NA** | | | An active Fire Station would be Occupancy Category IV, however, the current office function of the building would be considered Occupancy Category II. |
| **Construction Type** | **NA** | | **S3.** | Construction Type **II-B** (2-hour exterior bearing walls, 1-hour beams, columns & floor slabs, 0-hour roof) |
| **Vertical expandability** | **NA** | | | None. |
| **Typical column spacing** | **NA** | | | N/A |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There is a vertical crack in the east foundation wall of the room housing the generator. However, it does not extend into the brick wall above and the owner is not aware of any water infiltration through the crack. Therefore, no remedial action is recommended at this time.

**S2.** There are (5) concrete joists above the generator room that have exposed reinforcing bars. Although this condition has been present since the original construction, reinforcing bars in joists require a minimum of 3/4" of concrete cover to maintain a 2-hour fire resistance for the slab assembly. Recommend application of cementitious repair mortar to develop required cover to steel reinforcing.

**S3.** The 1985 publication "Fire Resistance Ratings" by Engineering and Safety Service (American Insurance Services Group) would have credited the plastered 2x10 roof system with a 1-hour rating which would have brought the current IBC Construction Type up to Type **II-A**.

**Foundation Wall in Generator Room**

**Exposed Reinforcing in Joists above Generator**

## PLUMBING SYSTEMS

### Summary

Fire Station #1 was constructed in approximately 1929. The original piping is in poor/fair condition, it has been replaced as needed when issues arise. Insulation could be added to the hot water piping for energy savings. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. These are code issues which need to be corrected. The location of the water main in the Electrical Closet is another code issue that should be addressed.

Building is served by (2) 4" roof drains. Roof has no secondary drainage or relief scuppers.

Plumbing fixtures in the 2nd floor men's toilet room are older and could be updated to conserve water. The 1st floor Women's toilet room was converted from a Men's and the urinal is still installed. Building utilities in general appear adequate.

This building is not equipped with an automatic fire sprinkler system. The exhaust hood in the kitchen should have an Ansul (or equal) kitchen suppression system installed.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | PVC & cast iron |
| Storm/Clearwater Piping | F | | P3 | Cast iron |
| Valves | F | | P4 | Gate & ball |
| Domestic Water Service | C | | P5 | 2" main |
| Insulation | HP | $20,000 | P6 | Add insulation |
| Code Issues | D | $8,000 | P7 | Relocate water main |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | Newer gas-fired |
| Drench shower station | NA | | | |
| Recirculation Pump(s) | D | $6,000 | P9 | Add pump (code issue) |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $6,000 | P10 | Add TMV (code issue) |
| Grease Interceptor | NA | | | No grease interceptor required. |
| Kitchen Equipment | F | | P11 | |
| Plumbing Fixtures | F | | P12 | |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Oxygen Storage | NA | | | |
| Backflow Prevention | C | | P13 | 1 ½" hose connection |
| "Shop" air compressor | NA | | | HVAC pneumatics only |
| Laundry equipment | F | | P14 | |
| Drain tile sump/pump | NA | | | |
| Ambulance/Truck Garage | F | | P15 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage, roof drains | F | | P16 | Discharge to street |
| Lawn Irrigation | NA | | | |
| Utilities | F | | P17 | |

**NOTES:**

**P1.** Water piping is mainly copper, soldered joints. Fair condition. There is some original galvanized pipe in the boiler room. Kitchen sink on 2nd floor has PEX water piping installed.

**P2.** Original sanitary is cast iron. Some newer PVC piping in the boiler room and garage. Vent piping on the 2nd floor was replaced to cast iron no-hub connection. 4" vent on the roof is cracked. One studor vent in the garage vents the trench drain(s).

**P3.** Storm piping is cast iron hub & spigot. Piping is not insulated. Noise issue on the 2nd floor office area due to lack of insulation on the piping.

**P4.** Older valves are gate, newer valves are ball.

**P5.** Building is served by a 2" water main. 2" water meter with 3-valved by-pass in the boiler room.

**P6.** None of the water or storm piping is insulated. Insulation should be added for energy savings and to control noise issues.

**P7.** Code issues: water temperature is set at 119° Fahrenheit maximum temperature to be 110° Fahrenheit. No thermostatic mixing valve (TMV) at the heater. Add TMV per code. No recirculating pump at heater. Add recirculating pump. Hot water piping length exceeds 100'-0" per code. Water main is installed in the electrical closet and needs to be relocated.

**P8.** Water heater is gas fired, direct vent to chimney, AO Smith ProMax. Model FCG 75 300, 75 gallon, 75,000 BTU. Hot/cold water connection at the heater is 1". Piping is not insulated.

**P9.** Install hot water recirculation pump. Length of hot water piping exceeds 100'-0" per code. Hot water to 2nd floor kitchen sink exceeds 1 minute.

**P10.** Add TMV to water heater. Set hot water temperature to 110° Fahrenheit. Code issue.

**P11.** Kitchen equipment: 2 compartment sink with garbage disposal. No dishwasher. Water purifier on faucet.

**P12.** Plumbing fixtures: No ADA handicap fixtures in the building. 1st floor unisex toilet room has a tank-type WC, 15" rim aff. Lavatory outside the room is wall-hung, rim at 29" aff. Floor drain in the room. Women's toilet room on 1st floor is a converted Men's toilet room. Floor mounted urinal is still installed but not functioning. WC is floor mounted, 16" rim aff. 3.5 gpf valve. Lavatory is wall-hung, 30" rim aff. Mustee modular fiberglass shower unit with Moen shower valve. Room also has a janitors' sink.

The 2nd floor Men's toilet room has floor mounted WC's at 16" rim aff., 3.5 gpf valve. Lavatories are wall-hung, rim at 30 ½" rim aff. Urinal is floor mounted with Sloan Royal flush valve. Shower is built up tile unit with Delta shower valve. Piping has "hammering" and should have water hammer arrestors installed. There is an older version EWC in the meeting room, rim at 37" aff. Also a new version water bottle cooler in the dining room area is being used in lieu of the older EWC. Plumbing fixtures could be replaced with low flow and water conserving units. There are no exterior non-freeze water sill faucets on the building.

**P13.** There is a Watts 009 RPZ backflow in the boiler room for the HVAC boiler. 1 ½" hose connection in the garage has an elevated atmospheric vacuum breaker installed. Faucets with hose connection ends have a threaded hose end vacuum breaker installed. All backflow prevention is compliant.

**P14.** Residential washer (and dryer) installed in the garage area.

**P15.** Garage: trench drains which discharge to a garage catch basin.

**P16.** There are (2) 4" roof drains (east and west side of roof) which discharge separately to the street. Drains are in fair condition, have some issues with tree debris clogging the drains. There is no secondary roof drainage. Parapet relief drains could be added for secondary drainage. (Secondary drainage is now a code requirement but was probably not required in 1926 when the building was erected). Storm piping is not insulated.

**P17.** Building is served from a 2" water main. The main routes from South Adams Street. Sanitary sewer is 6". Main routes north to Chicago Street, exits the lower boiler room at 20" aff., gravity discharge. (2) 4" storm sewers route to South Washington and South Adams Streets –verify. Parking lot/drives are pitched and discharge to the adjacent streets – no internal drainage. Technically draining over the public sidewalk is not allowed.

**Service Faucet - Garage**

**Sanitary Piping – Boiler Room**

**Sanitary Piping – Boiler Room**

**Piping to Kitchen Sink**

**Water Piping- Electrical Closet**

**Water Service, Water Meter with By-pass**

Storm Piping, Sanitary Vent

Water Heater – Gas Fired

Water Heater Vent Piping

Hot/Cold Water Piping at Water Heater

Studor Vent - Garage

Water Main – Electrical Closet

**Water Closet - Unisex**

**Water Closet – Women's**

**Sink, Lavatory, Urinal – Women's**

**Exposed Piping – Women's**

**Shower – Women's**

**Electric Water Cooler**

**Washer/Dryer Laundry Units**

**Kitchen Sink – Garbage Disposal**

**Water Closet – Men's**

**Urinal – Men's**

**Lavatory Sink – Men's**

**Shower – Men's**

**Roof Drain, Sanitary Vent**

**Sanitary Vent (cracked)**

**Garage Manhole/Separator**

**Garage Trench Drain**

## HVAC SYSTEMS

### Summary

The building was original constructed in 1929. Multiple renovation and mechanical upgrade projects have taken place over the last 90 years. The upper level was renovated in 2012 to transition the living quarters into administrative office area.

The second floor office area is served by a 2007 packaged roof top air unit with gas fired heat. The air unit system provides either heated or cooled air to the living quarters and utilizes zone dampers to regulate air flow and provide a measure of individual room temperature control. Steam radiation units equipped with Danfoss valves for temperature control are located around the building perimeter. The manual control of the steam radiation units combined with automated zone damper control and varying occupancies and envelope orientations is creating some undesirable air unit zone temperature fluctuations and causing thermal discomfort. During the last remodeling project, partition walls were constructed, sub-dividing the thermal zones. The zone thermostats and ventilation diffusers did not get modified sufficiently thereby exacerbating the thermal discomfort issues.

A residential style humidifier is located in the facility's one sleeping room.

Toilet/shower rooms are ventilated by ceiling mounted fans. These fans are timer or light switch operated. Some storage rooms and closets that store paint and cleaning chemicals are not ventilated.

An electric heater is located in the womens toilet/shower to supplement the steam radiator unit.

The kitchen ventilation hood is served by a roof mounted exhaust fan. The hood appears to be and older type 1. The ductwork is constructed of galvanized sheet metal. A cook-top stove is located beneath the hood.

A low pressure steam boiler, installed in 2007, is located in the lower level mechanical room. Steam is distributed to the office area and the apparatus room heating units.

The air unit and zone VAV controls are low voltage. Apparatus room ventilators utilize pneumatic controls. The air compressor is located in lower level mechanical room.

The apparatus room ventilation system was replaced in 1987 and consists of a make-up air unit, unit heater, and exhaust fan. The make-up air unit outside air duct is capped off. The make-up air unit and exhaust fan were not operating and the building occupants did not believe these system are currently operated to ventilate the garage. The make-up air and exhaust fan were originally designed to operate via a 60 minute timer switch. A unit ventilator is located over the old machine shop area (now storage). A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave the building. Additional vehicles and powered equipment are also stored in the garage.

Through-the-wall air conditioning units are located in a vestibule, Lieutenants office, and a storage room. The unit in the vestibule is abandoned (covered over with a blank off panel). Ceiling exhaust fans are located in the storage room and an abandoned toilet room off the west side of the apparatus rooms. These fans are timer switch operated.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Air Unit** | | | **H1** | Installed 2007. Trane roof top packaged YSC series, 10 ton cooling with gas heat. |
| Housing | **F** | | | |
| Air intake | **C** | | | |
| Condenser Fins | **C** | | | |
| Fan | **C** | | | 4000 CFM, 3 HP |
| Filters | **C** | | | 30% filters |
| Controls | **C** | | | Low voltage, zone dampers. |
| Ductwork | **C** | | **H2** | Installed 2007. Not revised during last remodeling project. Rain cap over exterior ductwork. |
| Insulation | **C** | | | Duct liner in exterior ductwork. |
| Humidity | **HP** | $10,000 | **H1** | Residential type unit. Manually filled. Humidification is not a code requirement. |
| Occupied Space Ventilation (Office) | **D** | $8,000 | **H2** | No ventilation in first floor office. |
| Occupied Space Thermal Comfort | **CP** | $10,000 | **H3** | Air unit zone thermostat and manual radiation control conflict. Air unit discharge temperature is affected. Zones are not split to serve rooms modified in last project. |
| | **HP** | $90,000 | | |
| **Exhaust Fans** | | | | |
| Men's Room Exhaust | **D** | $3,000 | **H4** | Ceiling mounted fan. Timer switch operated. |
| Women's Room Exhaust | **D** | $3,000 | **H4** | Ceiling mounted fan. Light switch operated. |
| Ductwork | **C** | | | |
| Kitchen Hood, Fan and Ductwork | **HP** | $25,000 | **H5** | Type 1 hood. Roof mounted fan discharges below 40" above the roof line. Galvanized ductwork. |
| Building Exhaust Ventilation | **D** | $15,000 | **H6** | Rooms with chemical stored within them have no ventilation. |
| **Boiler System** | **C** | | **H7** | Installed 2007 |
| Boilers | **C** | | | Weil McLain, 787 MBH input, 634 MBH output Low Pressure steam |
| Pumps | **CP** | $500 | **H7** | 1/3 HP Simplex Condensate pump. Spare motor and seals next to pump. |
| Piping | **C** | | | New at boiler room. Mostly original |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| | | | | throughout building. |
| Pipe Insulation | D | $10,000 | H8 | Most of the piping is bare and uninsulated throughout the boiler room and apparatus room. Damaged insulation in multiple exposed locations. |
| Room Terminal Units | CP | $3,000 | H9 | Radiators and fin tube with Danfoss Valves. Electric heater in the womens toilet. |
| **Mechanical Room Ventilation** | D | $8,000 | H10 | Damper for boiler combustion. No intake for generator combustion air. Gas meter regulator vent close to intake louver. |
| **Controls** | | | | |
| Air Compressor | C | | H11 | Serves boiler room and apparatus room equipment. |
| **Garage Ventilation** | | | H12 | |
| Heaters | HP | $20,000 | H12 | Steam unit heater and unit ventilator. |
| Make-up Air Unit | D | $40,000 | H12 | Outside air cut off. 1300 CFM, ½ HP motor. |
| Exhaust | D | $15,000 | H12 | 1500 CFM, ½ HP fan motor |
| Truck Exhaust | C | | | PlymoVent. |
| Control | D | $10,000 | H12 | Pneumatic control. 60 minute timer switch. |
| Toilet Room Exhaust | HP | $500 | H13 | Ceiling mounted fan. Timer switch operated. 50 CFM. Installed 1983. Room appears abandoned. |
| Storage Room Exhaust | HP | $500 | H13 | Ceiling mounted fan. Timer switch operated. 100 CFM. Installed 1983 |
| Dryer Exhaust | D | $500 | H14 | Terminates inside. |

**NOTES:**

**H1.** The air unit is 8 year old. Expected useful life is 20 years. The air unit is a multi-zone system utilizing zone dampers to regulate individual room air flow. The unit has a master zone terminal to set the unit to heating or cooling mode. The zone dampers will adjust air flow to maintain space temperature based on a rooms heating or cooling requirements. When installed, this system was an economical way to provide some measure of individual room temperature control. In addition to the zone VAV units, perimeter rooms utilize fin tube or radiators for additional heat. When both systems are operational, the zone damper control can conflict with the radiation control and this causes variations in the air unit discharge temperature which will then affect heating and cooling throughout the office area.

A portable residential style humidifier is located in a sleeping room. This indicates that the occupant is attempting to regulate the building humidity to improve their comfort. This unit will actually improve humidity only slightly, but may have a greater psychological effect. This is because the air unit will introduce a greater amount of dry outside air than this unit can properly humidify. To humidify this building, it is recommended to install an electric or gas fired humidifier that is sized to serve the entire office space.

**H2.** During the last remodeling project, partition walls were constructed, sub-dividing the thermal zones. The zone thermostats and ventilation diffusers did not get modified sufficiently thereby exacerbating the thermal discomfort issues. To increase room comfort, it is recommended to install individual room reheat coils controlled in parallel with the room radiation devices through a single zone thermostat.

A first floor office uses a radiator for heat and a through wall air conditioner for cooling. There is no outside air ventilation for this room. Recommend extending the ductwork from the air unit system to this room to provide ventilation and to positively pressurize the room in relation to the apparatus room.

**H3.** There are many thermal comfort complaints with this building. Two estimates are indicated in the spreadsheet above. The first estimate is for revisions to the ductwork, dampers and thermostats to accommodate the previous office revisions and improve ventilation and thermal comfort with the system available. The second estimate is an increase to the first, to replace the zone dampers and manual radiation valves with VAV heating terminal units and automatic radiation valves to provide true individual room comfort control. A second less expensive option is to only replace the manual valves with automatic control valves.

**H4.** The mens toilet fan is ventilated with timer switch operated ceiling fan. The Women's toilet fan is interlocked with the rooms light switch. The type of fan and physical size indicate that they do not provide enough ventilation to properly exhaust the room. In addition, the number of toilet fixtures and showers require that the ventilation be continuous when the building is occupied. Replacement of the fans and interlocking them with the air unit operation is recommended.

**H5.** For stove top appliances, where grease vapors may be exhausted, a type 1 hood is required. This hood has a flat filter which is not allowed in newer hoods as grease can drip into the food being prepared. The ductwork is galvanized and not sealed liquid tight. In addition the exhaust fan does not discharge the code required distance above the roof. The building occupancy has changed slightly and indications are that the stove and exhaust system are rarely utilized, unlike the other 6 fire stations. A new type 1 hood equipped with a fire suppression system and vented with approved liquid tight ductwork is recommended if this stove continues to be utilized for cooking food that produces grease vapors.

**H6.** Inadequate exhaust in some toilet/locker spaces and there is no exhaust in the janitors room and storage rooms where chemical/cleaning supplies are stored. Fans where installed, are operated via timer or light switches. An exhaust system improvement project is recommended to improve building ventilation.

**H7.** The boiler system was replaced in 2007. The boiler is a low pressure steam boiler. The boiler was inspected in 2014. A condensate pump is located behind the boiler. The pump is beginning to leak. A spare motor and pump seals are stored next to the pump. It is recommended to repair the pump seals before the next heating season.

**H8.** There is very little pipe insulation installed on the building steam and condensate piping. Insulation was visible in some occupied areas and storage areas. Uninsulated piping is visible in the mechanical rooms and apparatus room, where the majority of the building piping is located. The bare piping radiates uncontrolled heat which will affect thermal comfort.

**H9.** The fin tube and radiator units are controlled with Danfoss valves. Some of the radiator units are covered with sheet metal covers to prevent physical contact. The unit in the Women's toilet is positioned poorly, the insulation is falling apart and the electric heater suggests is inadequate to maintain the space temperature.

**H10.** The mechanical room ventilation consists of an outside air louver covered with a damper. The ventilation damper opens when the boiler is firing. The louver is otherwise closed. There is no make-up air for the water heater combustion. This damper should remain partly open, even in the closed position to accommodate the water heat combustion needs. A generator is located outside of the mechanical room. If the fire door to the boiler room was shut, the generator combustion air would be shut-off. The intake louver is too close to the gas meter and its regulator. A project to provide combustion ventilation for the generator and pipe the gas regulator away from the intake louver is recommended.

**H11.** A small simplex fractional horsepower air compressor serves the building pneumatic control system. The building pneumatic controllers consist mainly of a few control valves on apparatus room equipment. The remainder of the control system (air unit, room terminal units, and boiler) is low voltage electric (DDC) controls. It is recommended that building improvement projects include the replacement of the pneumatic controls with low voltage devices. This will allow the removal of the air compressor.

**H12.** A steam unit heater and unit ventilator provide heat to the apparatus room. A make-up air unit and exhaust fan was installed in 1987. These units were originally operated by a manually operated timer switch. The building occupants indicated they believe these units to be abandoned. The exhaust duct has been cut back to a height of 8 feet (originally terminated at 18" above the floor). The exhaust should be extended to near the floor for best contaminant removal. The make-up air unit outside air intake has been capped off.

A PlymoVent exhaust system is connected to each truck parked in the garage. This system operates whenever a truck is started and the vehicle exhaust is expelled from the garage. The fan is mounted on the building exterior wall (outside) and terminates above the roof.

An enclosed garage has specific exhaust code requirements and the garage is required to have a negative pressure in relation to the living quarters. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets 4 specific code provisions including the installation of a gas detection system. The PlymoVent truck exhaust system alone does not meet the ventilation requirements for an enclosed garage. A garage exhaust fan upgrade project to install new make-up fan, exhaust fan, ductwork, and control systems is necessary to improve garage ventilation and occupant safety.

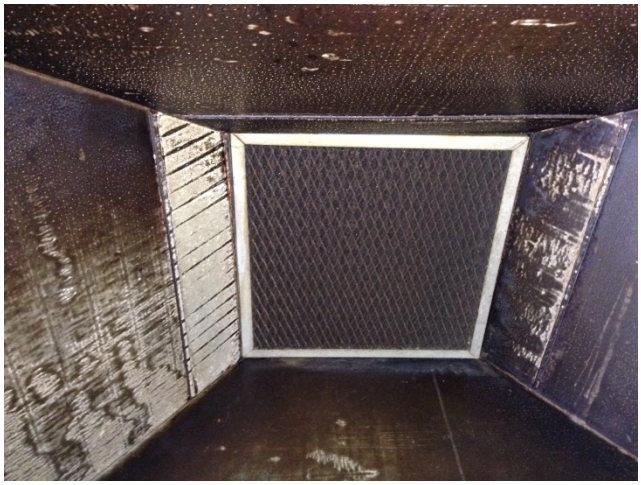
**H13.** A laundry dryer is located in the apparatus garage. The dryer terminates inside the room. This termination allows warm, moist air to be vented directly into the garage. This vent should be terminated outside.

**Roof Top Air Unit**

**Roof Exhaust Hood**

**Ceiling Mount Fan (Typical)**

**Kitchen Exhaust Fan**

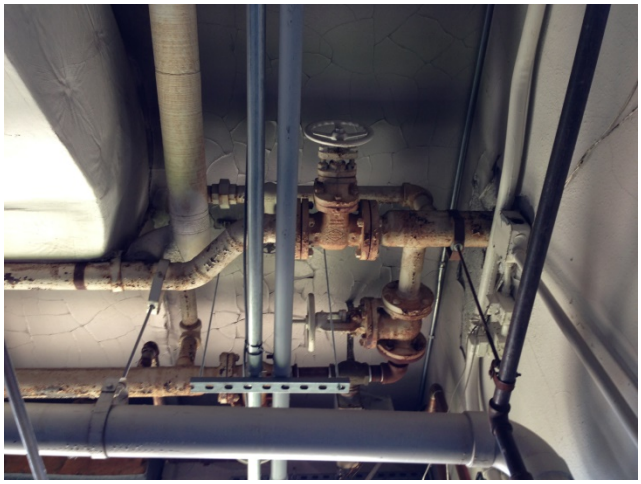


**Kitchen Hood (Inside View)**

**Boiler**

**Condensate Pump**

**Radiation Unit (Typical)**



**Uninsulated Pipe (Typical)**

**Poor Insulation Condition**

**Home Humidifier in Sleeping Room**

**Electric Heater in Womens Toilet**

**Wall Built Over Valve**

**Radiator at Women's Toilet**

**Supply Grille (Typical)**

**Destratification Fan**

**Temperature Control Air Compressor**

**Typical Thermostat (This one too close to fridge)**

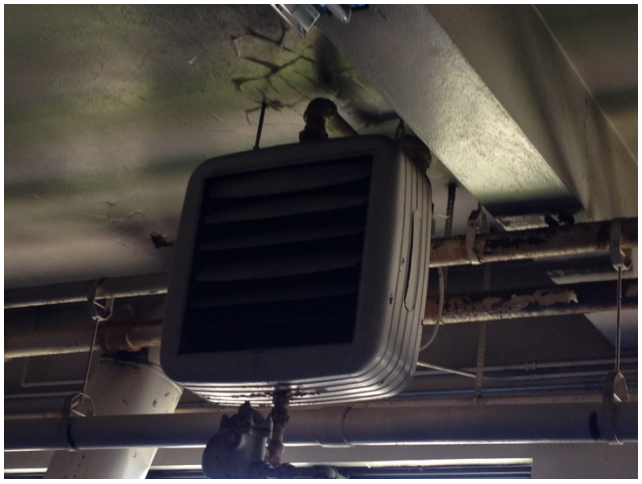
Exhaust Fan Manual Switch (Typical)

PlymoVent Control Panel

Unit Ventilator (Steam)

Through Wall Air Conditioner

Gas Meter (Intake Louver Out of Frame)



Steam Unit Heater (Bare Piping)

**Make-up Air Unit**

**Hose Dryer Exhaust Vent to Outside**

**PlymoVent Fan**

**Laundry Dryer Vent**

# ELECTRICAL SYSTEMS

## Summary

The building is served by two utility services, a 200 Amp and a 100 Amp, 120/208 Volt, three phase. The panels are in good condition, but have limited future capacity. The emergency generator serving the building is in fair condition. The emergency system is fed from a single transfer switch which feeds three separate small emergency panels. The panels are in fair condition, but have limited future capacity. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads.

The outlets within the garage are not GFCI protected. Lighting fixtures are in good to fair condition and utilize T8 lamps and ballasts and compact fluorescent lamps. There are occupancy sensors located in the toilet rooms and in the conference room, but the facility should install occupancy sensors in offices, storage rooms and janitor's closets. Decorative compact fluorescent building mounted fixtures are in good condition; consideration should be given to replacing with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition and the facility is pulling Cat 5 data and voice cabling and coax for CATV. The fire alarm system includes stand-alone smoke detectors and carbon monoxide detectors throughout the building, which are in good condition.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Electrical Service** | | | | |
| Utility Service Entrance | C | | | Two overhead utility services, one 200 Amp, one 100 Amp enter the building on the north side into the 2nd floor electrical closet. |
| **Normal Power Distribution Equipment** | | | | |
| Disconnect Switch | F | | | 200A Bulldog Electric disconnect in fair condition. |
| Branch Panels | F | **$5,000** | E1 | Two panels on 2nd floor, two panels on 1st floor. Bulldog Electric panel on 2nd floor in poor condition, Square D load centers in good condition. |
| **Emergency Power Distribution Equipment** | | | | |
| Generator | F | | | 10 KW Kohler natural gas generator in fair condition. |
| Transfer Switch | HP | **$5,000** | E2 | Kohler 50 Amp ATS in fair condition. |
| Disconnect Switch | C | | | 50A/2P Square D disconnect on incoming generator feed to the ATS in the boiler room in good condition. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Branch Panel | HP | $15,000 | E2 | Three small Square D load centers in fair condition with limited future capacity. Mixed loads. |
| **Power** | | | | |
| Receptacles | D | $1,000 | E3 | Garage outlets need to be GFCI. Outlets within 6' of sinks need to be GFCI. |
| **Lighting** | | | | |
| Garage | C | | | Industrial fixtures with T-8 lamps in good condition. |
| Office spaces, conference rooms, and corridors | F | $2,000 | E4 | Recessed acrylic lens troffers with T-8 lamps in good to fair condition. |
| Sleep Rooms and Toilet Rooms | C | | | Recessed acrylic lens troffers in good condition. |
| Mechanical spaces, storage rooms, utility areas | F | $2,000 | E4 | Ceramic lamp holders with screw-in compact fluorescent lamps, surface mounted wraps and industrial strips with T-8 lamps, in fair condition. |
| Exterior | F | $5,000 | E5 | Decorative wall mounted fixtures are in good condition. Fixtures are using screw-in compact fluorescent lamps. |
| **Lighting Controls** | | | | |
| Conference or Meeting Rooms | C | | E6 | Existing occupancy sensors |
| Offices | HP | $3,000 | E6 | Add occupancy sensors |
| Toilet Rooms/ Small Storage Rooms | F | $500 | E6 | Toilet rooms have occupancy sensors in good condition; add sensors in janitor and storage rooms. |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Corridors | C | | | Fixtures connected to emergency panel. |
| Exit Signs | C | | | LED type in good condition. |
| **Fire Alarm Devices** | | | | |
| Smoke Detectors | C | | | Stand-alone smoke and carbon monoxide detectors throughout the building. |
| **Telecommunications** | | | | |
| Data/Voice | C | | | Cat 5 cabling |
| CATV | C | | | Coax |

**NOTES:**

**E1.** Consideration should be given to replacing the existing Bulldog Electric panel that is in poor condition and will have limited parts available with a new panel.

**E2.** Recommend providing an additional automatic transfer switch and panel board to separate the critical and equipment branch loads from the life safety loads. The existing panels have several circuits listed as "unknown". These circuits should be traced and identified to get a better idea of available capacity.

**E3.** Replace all outlets located in the garage area with GFCI type device. Replace existing kitchen outlets with GFCI type device, unless they are currently protected from the adjacent GFCI outlet. If this is the case, the outlet should be labeled per NEC requirements.

**E4.** Consideration should be given to replacing older fixtures with new.

**E5.** Consider replacing fixtures with more efficient LED in the future.

**E6.** Occupancy sensors should be installed in the offices, storage rooms, and janitor's closets to provide additional energy savings. If areas are renovated, controls will be required to be updated to meet current energy code.

Electrical Utility Service Entrance

Electrical Utility Service Entrance

200A Service Entrance Meter and Disconnect

100A Service Entrance Meter and Disconnect

10 KW Generator

Emergency Feeder Disconnect and 50A ATS

Emergency Panel #3

Emergency Panel #1

**Emergency Panel #2**

**Existing Panel Board**

**Existing Panel Board**

**Existing Load Center**

**Flagpole Light**

**Exterior Outlet**

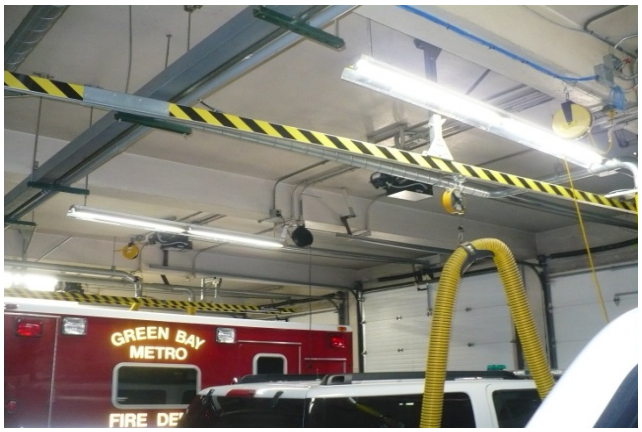
**Garage Outlets**

**Kitchen Outlets**

**Typical Office Room Lighting**

**Stand-alone Smoke and Carbon Monoxide Detectors**

Decorative Exterior Fixtures




Garage Lighting

Exit Sign

Typical Garage Door Controllers

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## FIRE STATION #2

**August, 2015**

## FIRE DEPARTMENT

## SUMMARY

***Date of Visit: April 16, 2015***
***Address: 929 University Avenue***

### Building Description

Interior walls are primarily concrete block in the original building (1964) areas. A 2003 renovation to create a Women's Rest Room added one stud wall within existing space. Wood stud and gypsum board walls in the basement have been constructed to add a conference room, work shop, storage and work out space.

The primary building frame of structural precast concrete and precast concrete panels is exposed. Between precast elements, the exterior walls (original construction) are comprised of the following: uninsulated 12" masonry; 4" face brick and 8" concrete block with a header brick course, 16" on center. A recent re-roofing (completed April 2015) was comprised of ballasted EPDM membrane, aluminum trim and flashings. Facilities

Interior finishes are in fair to good condition. The majority are painted CMU or gypsum board. Kitchen and bath rooms have porcelain tile as either a full wall or wainscot. The apparatus bay and areas open to it have structural glazed tile to a height of 8'- 8" with painted CMU or exposed concrete above.

Floors are concrete, ceramic mosaic tile, quarry tile and 9" composite tile. The composite tile may contain asbestos and should be evaluated, as it is friable and chipping in areas. If the asbestos becomes airborne, it poses a health risk.

### Code/Accessibility

The building is presumed to have complied with the code at the time it was built. One code issue that should be addressed is the removal of storage from the stair shafts.

The building does not meet most of the current accessibility requirements, but it is acknowledged that persons using this facility can only do their job if they do not have accessibility needs. Accessible, lever door handles are suggested to make door operation quicker and easier for the building users.

### Structural System

Overall, the concrete framed structure is in good condition. Remedial actions are recommended for the repair of spalling concrete at the exterior faces of five columns and one beam. See additional notes in structural section.

### Plumbing Systems

The original piping is in fair condition; it could be replaced as needed when issues arise. Insulation could be added to the hot water piping for energy savings. Code issues include lack of thermostatic mixing valve and recirculating pump, discharge of laundry unit, and storage of the oxygen cylinders. The building is not equipped with an automatic fire sprinkler system.

### HVAC Systems

The building's HVAC systems are split into two sections: the living quarters and the truck storage garage. The original ventilation and heating systems have been replaced. The basement has inadequate ventilation, even with some natural ventilation available from operable windows. The apparatus bay/garage has inadequate exhaust ventilation and no gas detection system.

### Electrical Systems

Most electrical systems serving the building are in fair to good condition. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads. Other minor repairs and upgrades are recommended.

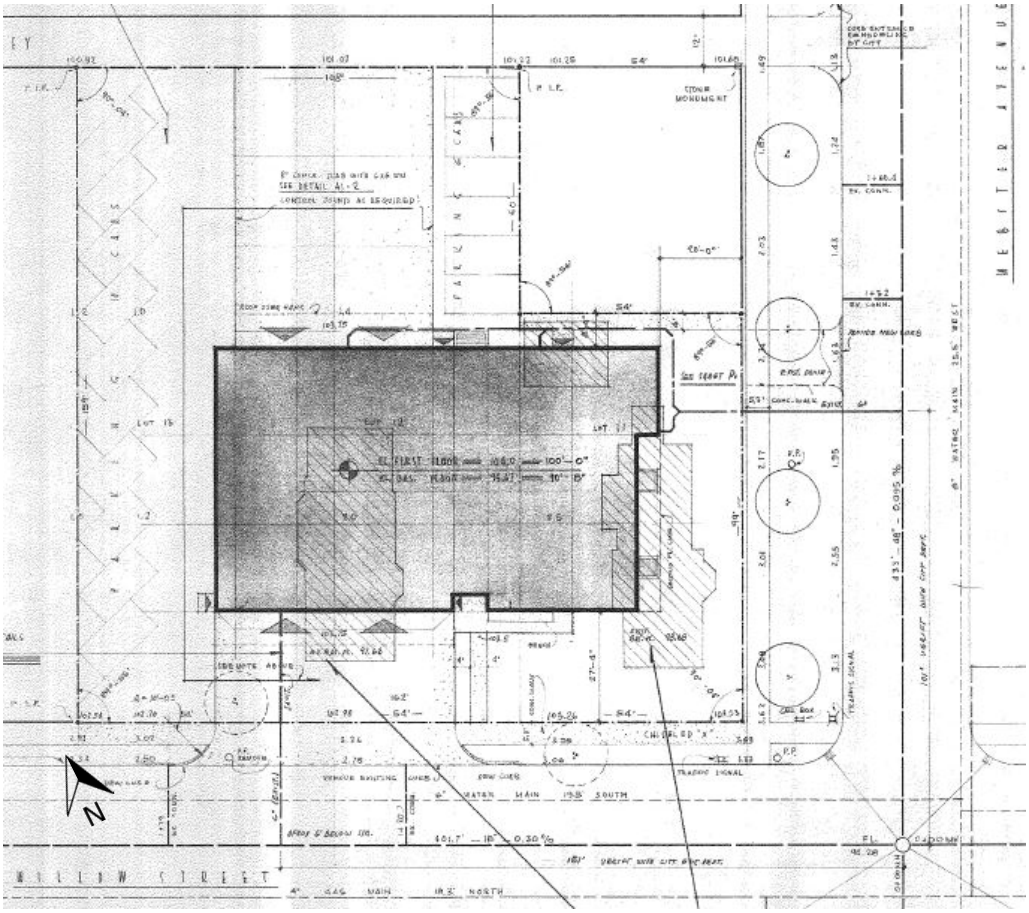
### Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

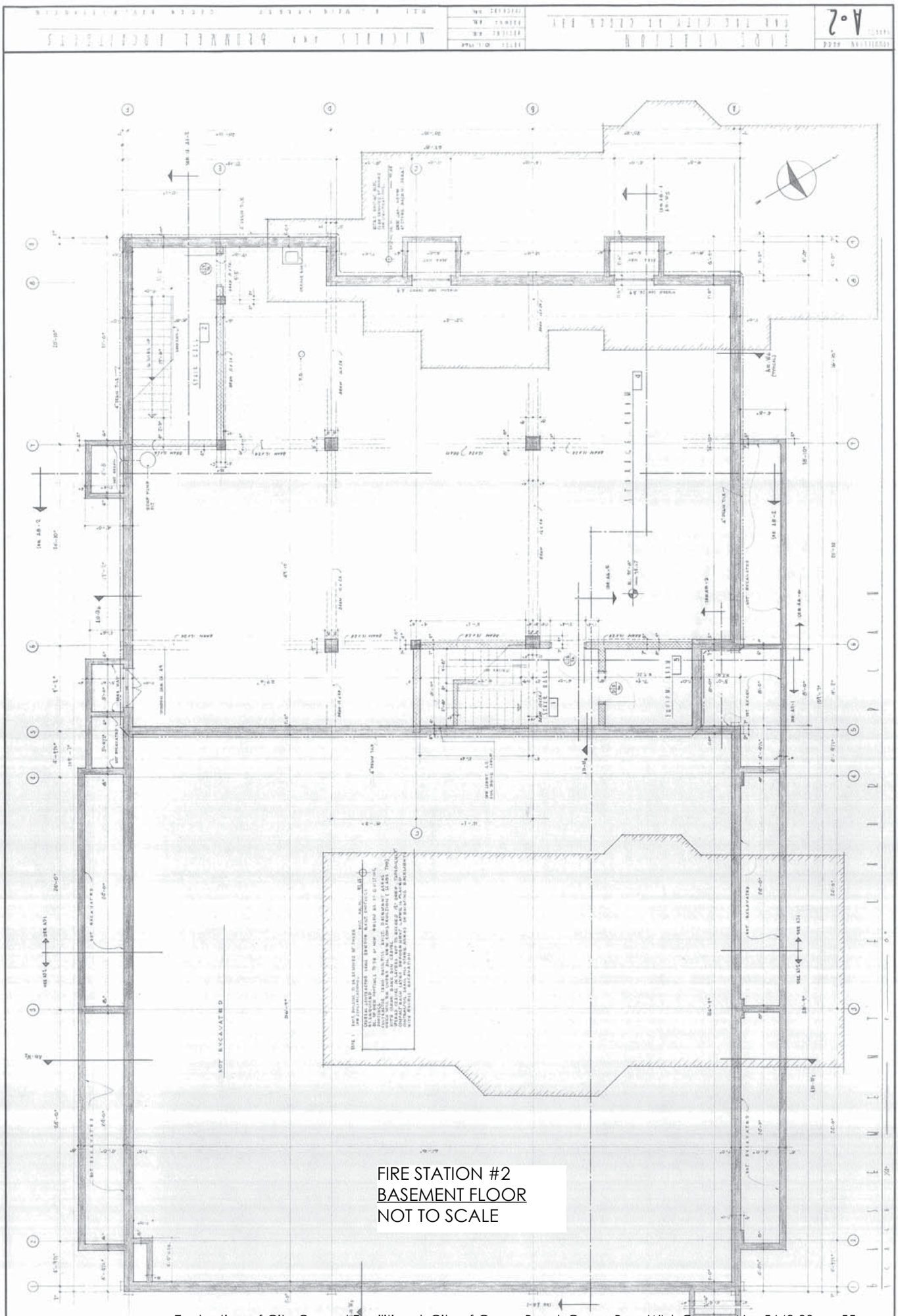
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | Composite Tile | **$4,000** |
| **Code/ADA** | Relocate storage in stair shafts | | | **No cost** |
| | Oxygen storage | | | **$4,000** |
| **Structural** | | Spalling concrete columns and beam | | **$30,000** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | Insulation | **$5,000** |
| | Recirculation pump(s) | | | **$6,000** |
| | Thermal mixing valve | | | **$6,000** |
| **Plumbing Subtotal** | | | | **$17,000** |
| **HVAC Systems** | Air intake | | | **$500** |
| | | | Humidity | **$10,000** |
| | Occupied space ventilation (Basement) | | | **$35,000** |
| | | | Occupied space thermal comfort | **$48,000** |
| | | | General exhaust fan | **$500** |
| | | | Men's room exhaust fan | **$500** |
| | | | Kitchen hood fan | **$25,000** |
| | | Clean ductwork | | **$7,000** |
| | Additional building ventilation | | | **$15,000** |
| | | Pipe insulation | | **$5,000** |
| | Garage exhaust | | | **$30,000** |
| | | | Control | **$10,000** |
| **HVAC Subtotal** | | | | **$186,500** |
| **Electrical** | | | Transfer switch | **$5,000** |
| | | | Branch panel | **$10,000** |
| | Power receptacles | | | **$1,000** |
| | | | Lighting controls: meeting rooms | **$1,000** |
| | | | Lighting controls: offices | **$1,000** |

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| | | | Smoke detectors | **$200** |
| **Electrical Subtotal** | | | | **$18,200** |
| **Building Total** | | | | **$259,200** |

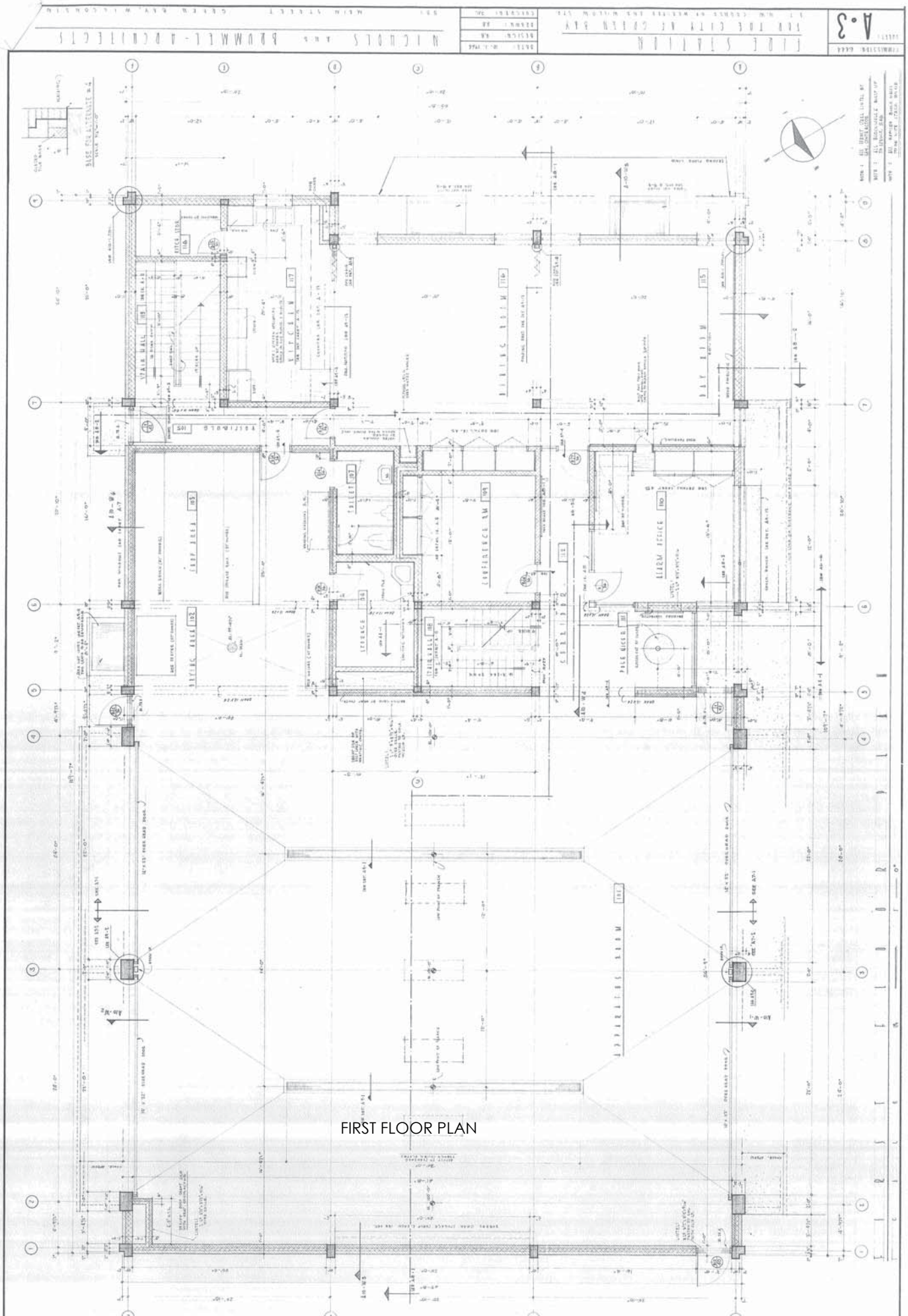


**Site Plan**

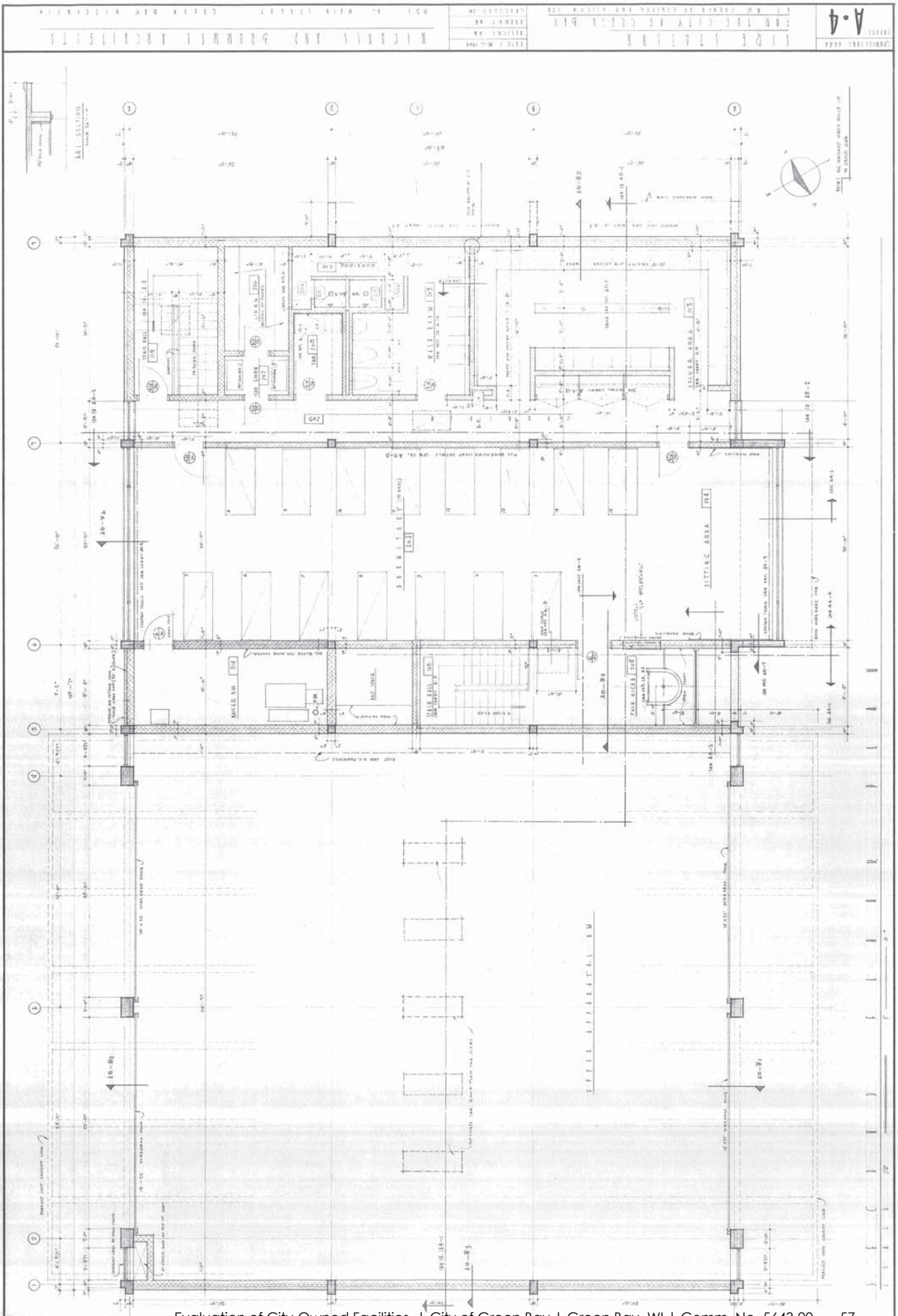
**Aerial view of site**



FIRE STATION #2
BASEMENT FLOOR
NOT TO SCALE



FIRST FLOOR PLAN



# ARCHITECTURAL

## Building Description

Fire Station #2 consists of a large apparatus bay on the west side of the building and the work/living quarters for the fire fighters on the east side. First floor living quarters include a living room, dining room, and recently updated kitchen. A TV room, laundry and toilet room are accessed off the apparatus room. The 1st floor also includes a call room/office on the south wall, and the captain's bedroom across the hall from it, which have been recently switched from the original room designations. The 2nd floor includes the dormitory, Men's and Women's toilet rooms and showers, a locker room, janitor room and mechanical rooms.

Interior walls are primarily concrete block in the original building (1964) areas. A 2003 renovation to create a Women's Rest Room added one stud wall within existing space. Wood stud and gypsum board walls in the basement have been constructed to add a conference room, work shop, storage and work out space.

### Doors

Doors dating from the original construction are showing wear on some of the veneers, especially at Men's Rest Room. Doors in the basement build-out areas (conference room and storage) are residential grade, hollow-core doors.

Overhead doors at the apparatus room have been replaced with insulated sectional doors. The department has had a history of problems with remote operation of the door openers. Further investigation is needed on this issue.

### Windows

Exterior windows at the living and office quarters were replaced circa 2008 with extruded aluminum fixed and operable frames. On the second floor, some of the units are operable hoppers, providing fresh air to the dormitory, central corridor and Men's room. The basement workshop area has in-swinging casement aluminum windows that face a window well. They are sized to provide egress and/or fresh-air.

The area between single-T concrete joists at the apparatus bays are glazed with tinted glass, original to the building. Several are cracked, and held together with duct tape.

## Building Envelope

### Exterior walls

The primary building frame of structural precast concrete and precast concrete panels is exposed. Between precast elements, the exterior walls (original construction) are comprised of the following: uninsulated 12" masonry; 4" face brick and 8" concrete block with a header brick course, 16" on center.

Where the 2nd floor overhangs the first floor at east side of the building, the exposed underside of occupied second floor appears uninsulated. Adding insulation to an existing structure in areas where it was not originally designed is not recommended.

### Roof

A recently completed re-roofing was comprised of ballasted EPDM membrane, aluminum trim and flashings. General maintenance is recommended to keep membrane in good condition long term.

## Interior Finishes

### Walls

Interior walls are painted concrete masonry units (CMU) throughout the majority of the original building. The living room has a wood paneled wall on two walls. The dormitory area has painted CMU walls with approximately 5'-0" high fabric-covered cubicle partitions separating each personal space.

Toilet rooms, kitchen and janitor room have porcelain tile as either a full wall or a wainscot. The more recent Women's Room has only painted CMU in the toilet room. The shower enclosures for both Men's and Women's rooms have full porcelain tile walls.

The TV area adjacent to and open to the apparatus bay has structural glazed tile walls.

Newer basement walls are painted gypsum board on wood studs.

The stair and corridor/vestibule between the apparatus bay and the living quarters has face brick and painted, exposed concrete columns.

Walls of the apparatus bay have structural glazed tile to a height of 8'-8", with painted CMU above.

**Floors**
Floors in unfinished basement areas, janitor and mechanical rooms, and rooms in or connected to the apparatus bay are sealed concrete. Stairs have diamond-patterned vinyl or rubber treads. Floors in toilet rooms and showers are ceramic mosaic tile. Quarry tile is used in the kitchen and janitor rooms.

Most other areas have a 9" composite tile that looks to be original to the building. Previous experience has shown these to be likely to contain asbestos, or to have had an asbestos adhesive. As long as the tiles stay in place, the asbestos is not an issue. However, in the basement, there are some areas of replaced composite tile and areas with missing pieces of tile. When the tile is loose, or friable, asbestos could become airborne and pose a health risk. **Further evaluation by a qualified abatement professional is recommended.**

**Ceilings**
Ceilings in most living and work areas are lay-in acoustic panels. Panel sizes are 2x2 at the 2nd floor locker area, and 2x4 at the 1st floor kitchen/dining/living rooms, and basement conference room.

Ceilings in Men's room, showers and janitor rooms are painted gypsum board. Ceilings in the 1st floor Men's Toilet and Women's room are washable 2x4 lay-in panels.

Ceilings at stairs and other spaces with exposed structure are painted.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | N | | n/a | |
| Exterior Facade Condition | C | | A1 | |
| Exterior Door Condition | F | | n/a | |
| Overhead door operators | F | | A4 | |
| Window Condition | C F | | A2 | |
| Floors | | | | |
| Composite tile | HP | $4,000 | A3 | |
| Other floor products | C | | | |
| Stairwell | D | No cost | | Remove storage items from stair shaft. |

**NOTES:**

**A1.** Needs paint. Sealants were in good condition throughout. Annual inspection for ruptures, tears or shrinkage recommended.

**A2.** The glazed areas between single-T concrete joists should be replaced. Although only some are cracked, it would be better both for visual and thermal performance to replace all of the original glazing.

**A3.** 9" composite tile should be evaluated by a hazardous material professional for possible asbestos. Since its condition is leading to some cracking of tile, particles could become airborne and pose a health risk.

**A4.** The department has worked with American Overhead Door to try for better operation of the remote overhead door operators. It is difficult for the operators to get the signal through from one end of the ladder truck to the operators. Further research of this issue is required.

**South and East Elevations**

**North and East Elevations**

**Underside of Overhanging 2nd Floor**

**Apparatus Room**

**Call Room/Office**

**TV Room**

**Kitchen**

**Living/Dining/Kitchen**

**Captain's Room**

**Conference Room**

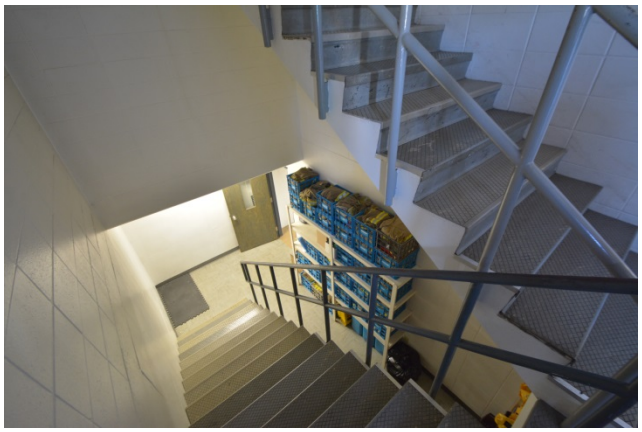
**Workout Area**

**Men's Room**

**Men's Shower**

**Locker Room**

**Fire Pole (not used)**



**North Stair from 1st Floor**

**North Stair at Basement**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Original building: **1964**<br>Women's room remodeling: **2003** | **Gross Area** | 9,155 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | **S-1** Moderate-hazard Storage non-separated from **B** Business<br>2nd floor is non-separated **R-3** residential | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type II-B | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

The Wisconsin building code at the time would have placed this building in the Wisconsin Commercial Code Chapter 54 Business. Its class of construction would likely have been Fire Resistive Type B, which is similar to IBC Type II-B.

The IBC does not specify fire stations as being Business occupancy, therefore the building occupancy may be determined more by usage of space. For Fire Station #2, the basement and 1st floors are non-separated B-business and S-1 storage. 2nd floor is R-3 residential, based on the definition of congregate living facilities as those where residents share bathroom and/or kitchen facilities.

**Fire rated storage**

Small oxygen tanks are currently stored in the hallway outside of the call room. These are required to be stored in a 1-hour rated space, either a room or rated cabinet. Since it is not a pre-existing construction issue, this should be addressed immediately.

**Stair Shafts**

The primary items in terms of code compliance for this facility would be fire rating of shafts within the building. The stair shafts at both north and south sides of the building connect all three levels, and are open to first floor. The south stair 2nd floor has a door and frame with a rating label attached, but listing of hourly rating was visible. Since only 1 hour rating would have been required, it likely complies. The north stair is similar, except that the label appears to have been removed from the door.

The basement level enclosure for both stairs has unrated doors and frames. A stair is allowed to be open to a maximum of two floors, thus verification of the rating of the 2nd floor openings would mean the stair shafts are compliant. IBC Section1009.6.3 states that any usable space must be separated from the stair shaft by a ceiling or soffit rated the same as the stair enclosure, and that the usable space must not be accessed from within the stair itself.

- **It is recommended that storage units and materials currently in the stairs be relocated to other areas in the building to comply with this code. Since this is not a pre-existing structural issue, it should be addressed at this time.**

**Handrails and Guardrails**
The existing handrails at stairs are approximately 34" above the toe of the stairs, which complies with current code. Guard rails at landings and other openings are approximately 41 ½" above floor level, which is ½" below current code minimum.

Current IBC 1013.3 limits openings in required guards (any area over 30" above adjacent grade) to not allow the passage of a 4" sphere. Both stairs have a single horizontal bar spanning the verticals and no toe kick, thus allowing large open areas at guards. Although presumed to comply at the time the building was constructed, this would not comply with current code. Any work on the stairs would require that these issues be brought into compliance with current codes.

One exception is the open area at and adjacent to the fireman's pole. These areas have been fitted with a metal grating panel across the entire opening (swinging/latching panel at pole) that has openings less than ½". The pole does not appear to be in current usage.

## Summary of Accessibility/ADA Compliance

The following summary of accessibility is provided for owner reference, with the acknowledgement that persons using this building can only do their job if they do not have accessibility needs. That said, certain upgrades, such as lever door handles, could be done that would make operation easier and quicker. As noted above, accessibility may be mandated by code based on the extent of work being done.

**Accessible Route**
Entry to the building for fire fighters/employees is at-grade at the north side of the building, directly from the parking lot. A Men's toilet room is provided on the 1st floor. All doors appear to be 36" wide. The main living/dining/kitchen space is adequate to provide turning space.

There is no elevator to basement or 2nd floor, but as stated above, those who use the facility will not be in need of such accessibility.

**Doors**
In general, doors that date from the time of the original construction have knob handles, which are not accessible, and not as easy/fast to use. Doors added or changed as a result of various renovations over the years, such as the Women's rest room and the basement Conference Room, have lever handles.

**Plumbing Fixtures**
Sinks in the kitchen are in counters that are 36" high, as opposed to the 34" required for accessible height. There is room for side approach, however, which can be used to access sinks in certain cases.

A drinking fountain located in the dining room has a rim height of 33 ½". This appears to comply with ADA 602.4, which requires spout height to be 36" maximum above floor height. The niche in which it is located, however, does not provide adequate clear floor space for approach. Other sinks in the building can be used to comply with the requirement for standing persons' access.

Toilets installed at the time of original construction do not provide ADA clear floor space, nor grab bars, nor turning radii. The renovation which created the Women's room on the 2nd floor provided a toilet with grab bars that would have complied at the time they were installed. The room is large enough to provide a 5' turning radius as well, per the construction drawings. The radiant heater in the room impedes on the clear floor space required for the fixture to be considered accessible. There is no toilet in the basement, and no accessible toilet on the 1st floor.

Lavatories throughout the building are at heights varying from 32 ½" to 34 ¼". The lavatory in the Women's room is at 34 ¼". ADA 606.3 lists a 34" maximum, but again, it is debatable whether any of these items would be required to comply. The majority of lavatories do comply with the ADA listed height, and are wall-hung units, which typically comply with front-approach clearances.

Showers in both the Men's and Women's rest rooms are not accessible in the following ways:

- Threshold height of 4" outside, 3 ¼" from inside
- Opening width of 22 ¾"
- Stall size of 30 ½" x 41"
- No grab bars, seats, or wand shower heads

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Stair shafts/circulation | D | | CA1 | |
| Handrails/guardrails | C F | | CA2 | Opening sizes in guards |
| Accessible route | F | | | 1st floor only is accessible |
| Doors | C F | | CA3 | |
| Plumbing fixtures | F | | | See text above |
| Oxygen tanks | D | $4,000 | CA4 | |

**NOTES:**

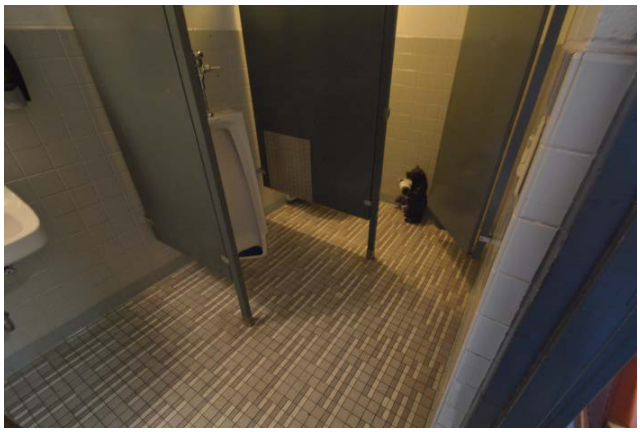
**CA1.** It is recommended that storage units and materials currently in the stairs be relocated to other areas in the building to comply with this code. Since this is not a pre-existing structural issue, it should be addressed at this time.

**CA2.** The size of openings at sides of stairs does not comply with current code limits of 4 3/8", nor does the lack of edge protection on stairs. Any work on the stairs would require that these issues be brought into compliance with current codes. If no work is done, the elements are deemed to be in compliance with code for the time they were constructed.

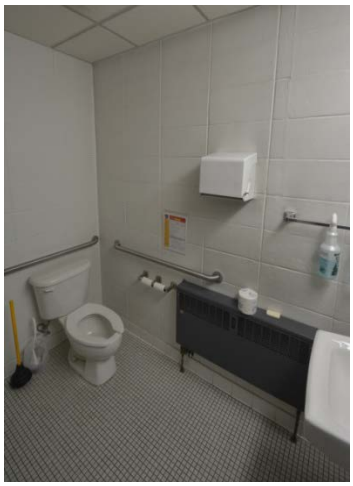
**CA3.** Lever handles would comply with accessibility codes and facilitate ease of use. Lever handles are code requirement for any new or renovated work.

**CA4.** Costs would be to construct a closet within the building with UL rated walls and framed opening. Costs could range from $2,000 to $4,000 depending on location selected for closet and the surrounding existing walls.

**Accessible Entry Door**

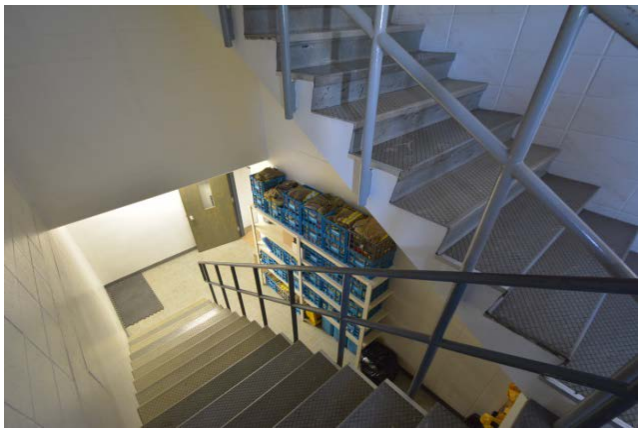


**Non-accessible Toilet Room**



**Women's Toilet**

**Women's Toilet and Shower**



**Hand Rails at Stairs**

**Knob-style Door Handles at Captain's Room**

## STRUCTURAL SYSTEM

### Summary

The structure is a frame of cast-in-place concrete beams and columns. The living quarters consists of cast-in-place concrete floor slabs at First and Second Floors and concrete roof slab. The apparatus bay is a two-story high space with precast pre-stressed concrete giant tees at the roof.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

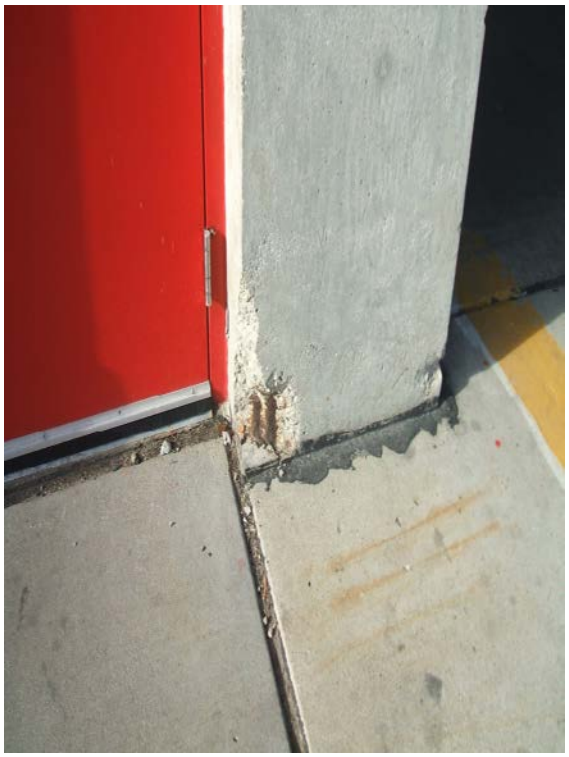
| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1964 (Nichols and Brummel Architects) |
| **Structure type** | | | | |
| Foundations | C | | | Cast-in-place concrete foundation and/or basement walls bearing on individual spread or continuous strip footings. |
| Basement | C | | | Under east half of building only. Floor is a 4" concrete slab on grade with 6x6 - 6/6 welded wire mesh reinforcing. |
| 1st Floor | C | | | a. West half (Apparatus Garage) is a 7" concrete slab on grade with 6x6 – 4/4 welded wire mesh reinforcing.<br>b. East half (Work/Living quarters) is a 6"cast-in-place concrete 2-way flat slab with beams, supported on cast-in-place concrete columns. |
| 2nd Floor | C | | | (Work/Living quarters) 6" cast-in-place concrete 2-way flat slab with beams, supported on cast-in-place concrete columns. |
| Roof | C | | | a. West half over garage has 36" deep precast pre-stressed concrete giant tees bearing on the cast-in-place concrete frame.<br>b. East half over work/living quarters is a 5" cast-in-place concrete 2-way flat slab with beams, supported on cast-in-place concrete columns. |
| **Occupancy Category** | NA | | | Occupancy Category IV |
| **Construction Type** | NA | | | Construction Type **I-B** (2 hour beams, columns, floor slabs, 1 hour roof slab) |
| **Vertical expandability** | NA | | | None. |
| **Typical column spacing** | NA | | | Approximately 21'x21' in living quarters. |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Overall Structural Condition** | **CP** | $30,000 | **S1, S2** | The existing building is structurally sound, however, there are five concrete columns and one concrete beam with varying degrees of cracking/spalling that will need attention in the near future. |

**NOTES:**

**S1.** Based on the reinforcing steel that is exposed where the concrete has spalled, it is evident that there has been ongoing water infiltration that has started to cause corrosion in the reinforcing steel. As this corrosion progresses, the cross section of the steel bars starts to increase and expand, which creates pressure against the concrete. As the pressure builds, cracks start to develop until there is sufficient pressure to cause a section of concrete to break away. While this is not currently a major structural concern, it does indicate ongoing deterioration that, if left unaddressed, will continue and eventually lead to loss of structural capacity in some of the members. At this stage of the deterioration, the typical remedial action would be to chip away any loose or cracked concrete from the damaged areas, sand blast any exposed reinforcing steel down to white metal, apply a corrosion-inhibitive primer/bonding agent, and install a cementitious patch material to restore the original column or beam cross sections. Additionally recommended at this time, would be to apply a penetrating, corrosion-inhibitive sealer to the exterior surfaces of all of the concrete columns in order to slow the progression of similar deterioration that has already begun but has not yet surfaced.

**S2.** The estimated cost of $30,000 is for the anticipated extent of repairs that will be necessary (approximately 40 man-hours at each of 6 locations). The actual extent will not be known until the repair process has started and the deteriorated concrete is removed. The estimate does not include any additional investigation required in determining when the acceptable limit of the concrete removal has been reached.



**Concrete Column on North Elevation**

**Concrete Column at Southwest Corner**

**Concrete Column at Southwest Corner**

**Concrete Column between OH Doors on South Elevation**

Concrete Column at University Avenue Entrance

Concrete Column at University Avenue Entrance

Concrete Column at University Avenue Entrance

Concrete Beam on South Elevation

Concrete Column at Northeast Corner

## PLUMBING SYSTEMS

### Summary

Fire Station #2 was constructed in 1964. The original piping is in fair condition; it could be replaced as needed when issues arise. Insulation could be added to the hot water piping for energy savings. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. These are code issues which should be corrected.

Another code issue is the storage of oxygen cylinders. The oxygen cylinders should be stored in a 1-hour fire rated room. The laundry unit waste discharge is not code compliant; it discharges to a janitors curb.

Plumbing fixtures in the 2nd floor men's toilet room are older and could be updated to conserve water. Fixtures in the women's toilet room are newer and are set up to be accessible; however there is no ADA access to the 2nd floor. Building utilities in general appear adequate.

This building is not equipped with an automatic fire sprinkler system. However the exhaust hood in the Kitchen should have an Ansul (or equal) kitchen suppression system installed.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | PVC & cast iron |
| Storm/Clearwater Piping | F | | P3 | Cast iron |
| Valves | F | | P4 | Gate & ball |
| Domestic Water Service | C | | P5 | 2" main |
| Insulation | HP | $5,000 | P6 | Fiberglass & elastomeric. Asbestos-1964 |
| Code Issues | D | | P7 | See below… |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | Installed in 2007 |
| Drench shower station | C | | P9 | TMV on wall |
| Recirculation Pump(s) | D | $6,000 | P10 | Add pump (code issue) |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $6,000 | P11 | Add TMV (code issue) |
| Grease Interceptor | NA | | | No grease interceptor required. |
| Kitchen Equipment | F | | P12 | |
| Plumbing Fixtures | F | | P13 | |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Oxygen Storage | D | See Code/ Access-ibility | P14 | Small O2 cylinders |
| Backflow Prevention | C | | P15 | 1 ½" hose connection |
| "Shop" air compressor | F | | P16 | |
| Laundry equipment | F | | P17 | |
| Drain tile sump/pump | F | | P18 | |
| Ambulance/Truck Garage | F | | P19 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage | F | | P20 | Catch basin |
| Lawn Irrigation | NA | | | |
| Utilities | F | | P21 | |

**NOTES:**

**P1.** Water piping is copper, soldered joints. Fair condition.

**P2.** Original sanitary is cast iron. Some PVC piping in the kitchen area. Sanitary piping in the basement is insulated with glass fiber insulation.

**P3.** Storm piping is cast iron. Piping on the upper floor is insulated with elastomeric insulation. Storm piping in the Ambulance garage is not insulated.

**P4.** Older valves are gate, newer valves are ball.

**P5.** Building is served by a 2" water main. 2" water meter with 3-valved by-pass in basement closet.

**P6.** Insulation is missing at the water heater. Some elastomeric insulation has been added to piping. Older original 1964 insulation probably contains asbestos and will require abatement. Asbestos abatement by owner – TBD.

**P7.** Code issues: water temperature is set at 119° Fahrenheit, maximum temperature to be 110° Fahrenheit. No thermal mixing valve (TMV) at the heater. Add TMV per code. No recirculating pump at heater. Add recirculating pump, hot water piping length exceeds 100'-0" per code. Laundry unit connections to the existing janitors curb is questionable. Oxygen cylinders should be stored in a 1-hour fire rated room.

**P8.** Water heater is gas fired, AO Smith Preferred, model BT 80-12, 74 gallon, 75,100 BTU. Installed in 2007. Hot water connection at heater is 1".

**P9.** Drench shower has a TMV on the east wall. Adjust temperature as required for tepid water.

**P10.** Install hot water recirculation pump. Length of hot water piping exceeds 100'-0" per code. Hot water to kitchen sink exceeded 3 minutes in timing.

**P11.** Add TMV to water heater. Set hot water temperature to 110° Fahrenheit. Code issue.

**P12.** Kitchen equipment: 2 compartment sink with garbage disposal. No dishwasher.

**P13.** Plumbing fixtures: Men's locker room – wall hung WC, Sloan Royal flush valve 3.5 gpf 18" aff. Lavatory-wall hung with back ledge faucet, 32" aff. Urinal, floor mounted with Sloan Regal flush valve. Single stall shower. Newer Women's toilet room had American standard 1.6 gpf, tank-type WC, wall hung lavatory, 34" aff. Safety covers installed. Single stall shower-Symmons valve. Single unit EWC-spout at 35" aff. Janitors' curb has a vacuum breaker on spout. Non-freeze sill faucets on east and north sides of building. Janitors' sink and floor drain in the basement drain to sump pit and discharge to storm sewer.

**P14.** Small oxygen cylinders are stored in a hallway – should be stored in a 1-hour rated room. Code issue.

**P15.** 1 ½" hose connection in the ambulance garage has a Watts 188A atmospheric vacuum breaker.

**P16.** New shop air compressor installed on the west wall of the ambulance garage.

**P17.** Milnor commercial laundry unit – gear Guardian 8 has PVC connection to an existing janitors' curb. Not a technically compliant connection, because it drains to a janitors curb.

**P18.** Drain tile sump and submersible pump in the basement. Check valve installed in pump discharge. Janitors sink and floor drain in the basement drain into this pit, in addition to the building drain tile. Sump/pump discharges to the exterior storm sewer. No high water alarm installed.

**P19.** Ambulance garage: trench drains and a garage catch basin installed.

**P20.** Parking lot pitches to a storm catch basin. Roof drains in fair condition, roofing material new in 2015.

**P21.** Building is served by a 2" water main from University Avenue. 6" sanitary discharges to University Avenue. Sanitary sewer main is 66" (above floor) in basement. Sanitary sewer has backwater valve installed (in the ambulance garage floor). 8" storm sewer discharges to Webster Avenue.

**Water Piping – Boiler Room**

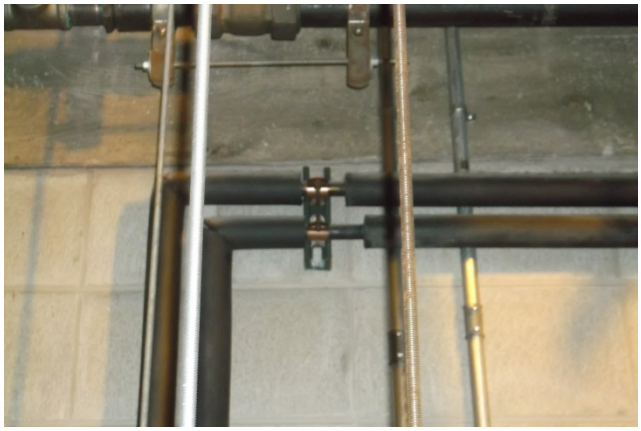
**Sanitary Piping, Insulated – Basement**

**Cast Iron Storm Piping**

**Cast Iron Storm Piping – Garage**

Gate Valve at Water Heater

Water Service, Water Meter with By-pass



Water Piping – Elastomeric Insulation

Water Heater – Gas Fired

Emergency Drench Shower with TMV

2-Compartment Sink – Kitchen

Garbage Disposal at 2-Compartment Sink

Water Closet – Men's

Floor Urinal – Men's

Lavatory – Men's

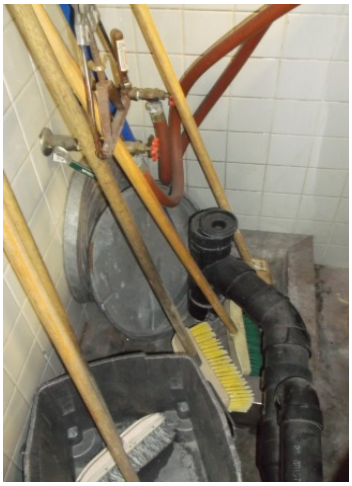
Shower – Men's

Toilet – Women's

Lavatory – Women's

Electric Water Cooler

Commercial Laundry Unit



Laundry Unit Discharge

Oxygen Storage

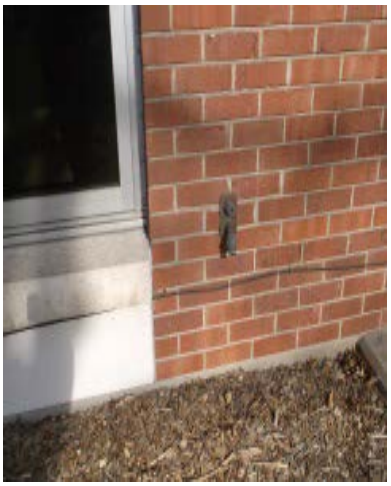
"Shop" Air Compressor

Trench Drain – Garage

Oil Interceptor – Garage

Roof Drain

Parking Lot – Catch Basin



Non-freeze Sill Faucet

Drain Tile Sump Pump

# HVAC SYSTEMS

## Summary

The building was constructed in 1964-1965. The building's HVAC systems are split into two sections: the living quarters and the apparatus room/garage. The original ventilation and heating systems have been replaced.

The living quarters is served by a packaged roof top air unit with gas fired heat. The air unit system provides either heated or cooled air to the living quarters and utilizes zone dampers to regulate air flow and provide a measure of individual room temperature control. The living quarters is also served by perimeter radiation using separate thermostats or manual operation for temperature control. The dual space thermostats combined with varying occupancies and envelope orientations, and some manually controlled radiation units is creating some undesirable air unit zone temperature fluctuations. The basement is not mechanically ventilated. An inadequate amount of operable window provides some measure of natural ventilation.

Locker and toilet rooms are served by roof top PRV fans. Some of the fans can operate continuously, but can be overridden and turned off, other fans are switch operated. Lint blockage combined with leaky ductwork reduces air flow below required ventilation levels. A women's toilet/shower room was recently added and is served by a ceiling exhaust fan.

The kitchen ventilation hood is served by a side wall exhaust fan located on the Webster Street side of the building. The fan is positioned adjacent to an operable window.

A hot water boiler system is located in a second floor mechanical room. Hot water is distributed to the living quarter's fin tube radiation and convector units. The first and second floor heating units are controlled by thermostats or through manual regulation of a chain wheel operator. The basement convector units are manually operated utilizing a Honeywell radiation valve.

The air unit and zone VAV controls are low voltage. The radiation units are pneumatically controlled. The air compressor is located in the second floor mechanical room. The garage heating units are electrically controlled.

The original garage ventilation system has been removed. Gas fired heating and make-up air units are located in the corners of the garage. A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave during fire calls. The garage exhaust fan is abandoned leaving inadequate exhaust ventilation in the garage. There does not appear to be a gas or occupant detection system or a time clock to control the operation of the garage ventilation.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Air Unit** | | | **H1** | Installed 2008<br>Trane roof top packaged YSC series, 7.5 ton cooling with gas heat |
| Housing | **F** | | | |
| Air intake | **D** | $500 | | 10" above stone ballast. 12" minimum clearance required by code.<br>400 CFM |
| Condenser Fins | **F** | | | Bent fins caused by hail and physical contact. |
| Fan | **C** | | | 3000 CFM, 3 HP |
| Filters | **C** | | | 30% filters |
| Controls | **C** | | | Low voltage, zone dampers |
| Ductwork | **C** | | | |
| Insulation | **C** | | | Duct liner on exterior ductwork. |
| Humidity | **HP** | $10,000 | **H1** | Residential type unit. Manually filled. Humidification is not a code requirement. |
| Occupied Space Ventilation (Basement) | **D** | $35,000 | | Basement is utilized for meetings, training, weightlifting and maintenance. |
| Occupied Space Thermal Comfort | **HP** | $48,000 | | Separate air unit and radiation thermostat and manual radiation control conflict. Air unit discharge temperature affected. |
| **Exhaust Fans** | | | | |
| General Exhaust | **HP** | $500 | **H2** | Moderate fan noise<br>1/6 HP, 580 CFM |
| | **F** | $0 | | Relocate items stored in front of exhaust vent in garage. |
| Men's Room Exhaust | **HP** | $500 | **H2** | Noisy fan<br>1/10 HP, 250 CFM |
| Women's Room Exhaust | **F** | | **H3** | Installed 2003<br>90 CFM, .375"SP, 120/60/1<br>Manually operated |
| Exhaust Ductwork | **CP** | $7,000 | **H5** | Dust/Lint Build-up, dirty ductwork reduces air flow |
| Kitchen Hood, fan and Ductwork | **HP** | $25,000 | **H4** | Jenn Air Fan, slight grease build-up<br>Concealed duct. Old type 1. |
| Building Exhaust Ventilation | **D** | $15,000 | **H6** | Rooms with chemical storage have no ventilation |
| **Boiler System** | **C** | | **H7** | Installed 2011 |
| Boilers | **C** | | | Rheem XFyre. 470,000 BTU |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Pumps | C | | | ½ HP primary<br>1HP lead/lag secondary pump<br>42GPM@35 feet |
| Piping | C | | | New at boiler room.<br>Mostly original throughout building |
| Pipe Insulation | CP | $5,000 | H8 | Missing insulation or poorly insulated in basement |
| Room Terminal Units | C | | H9 | |
| **Mechanical Room Ventilation** | F | | H10 | Natural Ventilation |
| **Controls** | | | | |
| Air Compressor | F | | H11 | Simplex, ¼ HP<br>Oil has obscured the name plate |
| Room Control | F | | | |
| **Garage Ventilation** | | | H12 | |
| Heaters | C | | | Two 120 MBH Modine gas fired units, sealed combustion. |
| Make-up Air Unit | C | | | Gas fire unit |
| Exhaust | D | $30,000 | H12 | Exhaust is abandoned |
| Truck Exhaust | F | | | PlymoVent. Flex at truck connections showing signs of wear and tear |
| Control | HP | $10,000 | H12 | Electric. Heaters operating with doors open on day of visit. |

**NOTES:**

**H1.** The air unit is 7 year old. Expected useful life is 20 years. The air unit is a multi-zone system utilizing zone dampers to regulate individual room air flow. The unit has a master zone terminal to set the unit to heating or cooling mode. The zone dampers will adjust air flow to maintain space temperature based on a rooms heating or cooling requirements. When installed, this system was an economical way to provide some measure of individual room temperature control. In addition to the zone VAV units, some rooms utilize fin tube or convector radiation for additional heat. When both systems are operational, the zone damper control can conflict with the radiation thermostat and this causes variations in the air unit discharge temperature which then will affect heating and cooling throughout the living quarters. To increase room comfort, it is recommended to install individual room reheat coils controlled in parallel with the room radiation devices through a single zone thermostat.

The intake hood rain guard is 10" above the roof ballast (ballast is considered part of the roof). Due to possibility of snow accumulation, 12" is the code required minimum clearance. Although the air intake on the unit is 12" above the roof ballast, the air is drawn under the enclosure, which could become plugged with drifted snow. It is recommended to modify the enclosure to increase the clear distance to 12" while maintaining the functionality of the rain guard.

The coil condenser has a few damaged locations where the fins are bent over and restricting air flow. These restrictions reduce unit efficiency. It is recommended to comb out the condenser fins.

A portable residential style humidifier is located in the sleeping room. This indicates that the occupants are attempting to regulate the building humidity to improve their comfort. This unit will actually improve humidity only slightly, but may have a greater psychological effect. This is because the air unit will introduce a greater amount of dry outside air than this unit can properly humidify. To humidify this building, it is recommended to install an electric or gas fired humidifier that is sized to serve the entire living quarters.

The basement is utilized for multiple functions including training, weightlifting, and maintenance. The space is not mechanically ventilated but does have some operable windows for mechanical ventilation.

However, the amount of operable windows does not meet code minimum requirements. A dehumidifier is located in the basement, near the sump pump. The basement, as typical for most unventilated lower level spaces, is cool and clammy, indicating high humidity during the summer months. If the space is to be utilized as an occupied space, it is recommended to renovate and expand the buildings mechanical system into the basement areas.

**H2.** The two fan units located on the roof are not fastened to their curbs. A light push moves these units. A heavy wind will shake these units and possibly knock them off their curbs. A reroofing project is currently ongoing and may have been the reason the fans were not fastened to the curb. Recommend verification that these fans are fastened down before the conclusion of roofing project. Both fans are mildly noisy. Recommend the replacement of fans, when replacement is necessary, with units that operate more slowly and have a lower sound production level.

**H3.** Fan was installed as part of a 2003 remodeling project to create a women's toilet/shower. The fan is manually operated.

**H4.** The kitchen hood appears to be an older type 1hood. The ductwork is concealed within a soffit and cannot be inspected. However, when compared to other fire station installations it is likely this ductwork is galvanized and not sealed liquid tight, which is a requirement for this hood. The exhaust fan is located in close proximity to an operable window which is opened during moderate weather conditions. As long as the window adjacent to the fan remains closed this is a relatively minor issue. The existing hood and ventilation system may have met minimum code at time of installation. However, when a component is replaced, the entire system should be upgraded to meet current requirements. A new type 1 hood equipped with a fire suppression system and vented with approved liquid tight ductwork is recommended.

**H5.** The exhaust ductwork has visible signs of lint and dust build-up in the duct as well as on the face of the grilles. The duct restriction causes a reduction in air flow. Duct cleaning and air balancing is recommended to restore required air flows. Most of this ductwork is older. Recommend taping and sealing of the duct joints to reduce leakage.

**H6.** Inadequate exhaust in some toilet/locker spaces and there is no exhaust in the janitors room and rooms where chemical/cleaning supplies are stored. An exhaust system improvement project is recommended to improve building ventilation.

**H7.** The boiler system was replaced as part of a 2011 building efficiency project. The boiler is a gas fired high efficiency condensing water boiler. The boiler was inspected in 2014. Lead/lag circulating pumps provide a small measure of redundancy. A micron filter was installed in 2011 to facilitate cleaning of the circulated fluid.

**H8.** The pipe insulation in the boiler room is in good condition as most of it was installed with the 2011 boiler project. In the basement, pipe insulation is missing in a significant amount of locations. In addition, some pipe runs are insulated but not with the correct insulation type or thickness. The result is unregulated heat loss into the basement area.

**H9.** The fin tube and convector radiator units are controlled in a variety of ways. Some units in public areas, such as corridors, have convectors with unregulated water flow. The heat off the unit is manually controlled utilizing a heat shield which is raised or lowered over the heating coil. In the first and second floor occupied spaces, the fin tube radiation is controlled with pneumatic thermostats and control valves. In the lower level, the units are manually controlled utilizing Honeywell radiation valves.

**H10.** The mechanical room is naturally ventilated. The rooms louver previously served as the combustion intake for the boiler and water heater. The 2011 mechanical equipment project installed a sealed combustion boiler. There is no damper on the louver to modulate and regulate room temperature. Room temperature is subject to outside air temperature, wind, and heat radiated off the equipment. During future building upgrade projects, it is recommended to install a damper over the louver to aid in temperature regulation.

**H11.** A small simplex ¼ HP air compressor serves the building pneumatic control system. The building pneumatic controllers consist mainly of a few control valves on radiation and convector units. The remainder of the control system (air unit, room terminal units, and boiler) is low voltage electric (DDC) controls. It is recommended that building improvement projects include the replacement of the pneumatic controls with low voltage devices. This will allow the removal of the air compressor.

**H12.** The apparatus garage is currently served by two high efficiency gas fired unit heaters and a gas-fired make-up air unit. The exhaust fan is abandoned behind a masonry enclosure. A couple of ceiling fans circulate air around the room. The ceiling fans are manually operated. The garage exhaust fan is concealed behind a masonry shaft wall and is abandoned. The unit heaters and make-up unit are automatically controlled from space thermostats. On day of visit, the doors were open as the outdoor temperature was moderate. The unit heaters were operating. It is recommended to decrease the thermostat set point, install automatic controls to stop unit heaters when doors are open, or keep overhead doors closed until the outside air temperature is above ambulance room temperature set point.

A PlymoVent exhaust system is connected to each truck parked in the garage. This system operates whenever a truck is started and the vehicle exhaust is expelled from the garage. The hoses, where attached to the trucks, are showing some signs of wear and tear.

An enclosed garage has specific exhaust code requirements and the garage is required to have a negative pressure in relation to the living quarters. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets 4 specific code provisions including the installation of a gas detection system. The PlymoVent truck exhaust system and the gas fired make-up unit alone do not meet the ventilation requirements for an enclosed garage. A garage exhaust fan upgrade project to install a new exhaust fan and control system is necessary to improve garage ventilation and occupant safety. Eventually the make-up air unit and heaters will require replacement. At that time it is recommended to install new make-up air and radiant heaters.

Roof Top Air Unit

Roof Top Exhaust Fan (Typical of Two)

Womens Toilet Exhaust Fan

Kitchen Exhaust Fan

Exhaust Grille (Typcial)

Ventilation Grilles

**Chemical Feeder and Micron Filter**

**Secondary Pumps**

**Primary Pump**

**Boiler**

**Home Humidifier in Sleeping Room**

**Typical Basement Heater**

**Poorly Insulated Piping**

**Bare Piping**

**Gas Meter**

**Basement Dehumidifier**

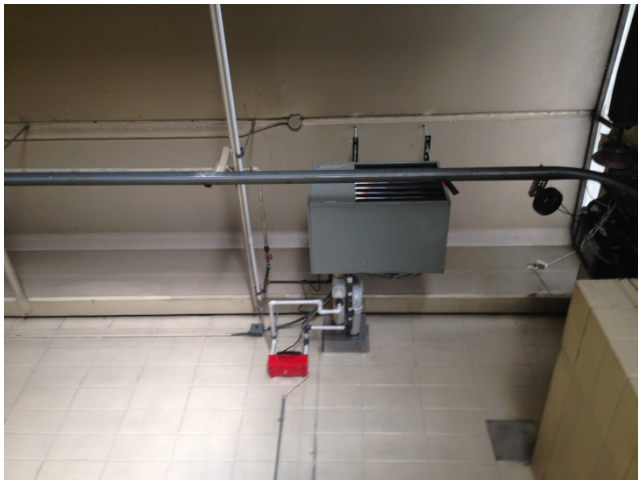
**Temperature Control Air Compressor**

**Heating and Ventilation Thermostats**

**Exhaust Fan Manual Switches**

**Air Unit Control Panel**

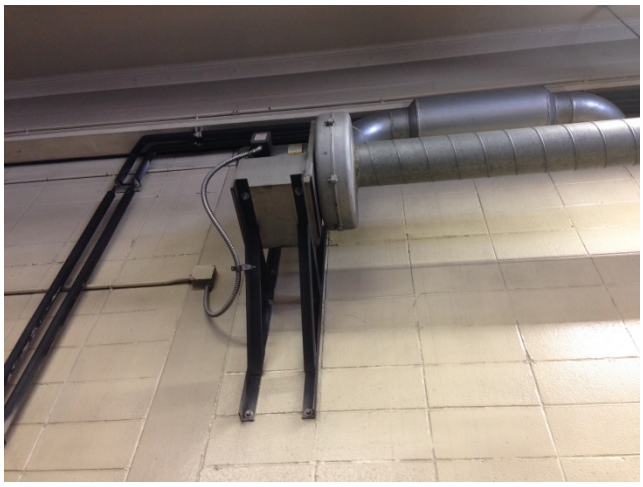
**Garage Make-up Air Heater**



**Gas Fired Heater**

**Abandoned Garage Ventilation**

**Truck Exhaust (PlymoVent)**



**PlymoVent Exhaust Fan**

**Dryer Exhaust Vents**

**Garage Exhaust Louver**

**Garage Exhaust Vent (Blocked with Storage)**

## ELECTRICAL SYSTEMS

### Summary

The building is served by two utility services, a 400 Amp and a 100 Amp, 120/208 Volt, three phase. The panels are in good condition, but have limited future capacity. The emergency generator serving the building is in fair condition. The emergency system is fed from a single transfer switch and panel board. The panel is in good condition and has some future capacity. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads.

The outlets within the garage and exterior mounted outlets are not GFCI protected. Exterior outlet covers are also not weatherproof while-in-use. Lighting fixtures are in good to fair condition and utilize T8 lamps and ballasts and compact fluorescent lamps. There are several fixtures with broken or missing lenses. These should be replaced or repaired. There is occupancy sensors located in the toilet rooms, but the facility should install occupancy sensors in offices, conference rooms/classroom, storage rooms and janitor's closets. HID building mounted fixtures and the flagpole light are in fair condition; consideration should be given to replacing with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition and the facility is pulling Cat 5e and Cat 5 data and voice cabling and coax for CATV. The fire alarm system includes stand-alone smoke detectors on the 2nd floor area, which are in good condition. Additional smoke detectors are recommended to provide complete coverage of all sleeping areas.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | N/A | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Electrical Service** | | | | |
| Utility Service Entrance | C | | | Two overhead utility services, one 400 Amp, one 100 Amp enter the building from the roof into the 2nd floor boiler room. |
| **Normal Power Distribution Equipment** | | | | |
| Disconnect Switch | F | | | 400A ITE disconnect in fair condition. |
| Enclosed Circuit Breakers | C | | | 150A Square D ECB feeding 1st floor panel in good condition.<br>100A Square D ECB feeding Boiler room load center in good condition. |
| Branch Panels | C | | E1 | Two panels on 2nd floor and one panel on 1st floor – all Square D load centers, mostly full. |
| **Emergency Power Distribution Equipment** | | | | |
| Generator | F | | | 50 KW Cummins Onan Quiet Site II with sub-base fuel tank in fair condition. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Transfer Switch | HP | $5,000 | E2 | Cummins Onan 150A ATS in good condition. |
| Disconnect Switch | C | | | 200A Cutler Hammer disconnect on incoming generator feed to the ATS in the boiler room in good condition. |
| Branch Panel | HP | $10,000 | E2 | 200A Cutler Hammer load center in good condition and with future capacity. Mixed loads. |
| **Power** | | | | |
| Receptacles | D | $1,000 | E3 | Garage outlets and exterior outlets need to be GFCI. Provide weatherproof while-in-use covers for exterior outlets. |
| **Lighting** | | | | |
| Garage | C | | | Industrial fixtures with T-8 lamps in good condition. |
| Office spaces, conference rooms, and corridors | F | $2,000 | E4 | Recessed acrylic lens troffers and surface mounted wrap-arounds with T-8 lamps, compact fluorescent downlights in fair condition. |
| Sleep Rooms and Toilet Rooms | F | $2,000 | E4 | Surface mounted wrap-arounds some fixtures have broken lenses, others are in good condition. |
| Mechanical spaces, storage rooms, utility areas | F | $2,000 | E4 | Ceramic lamp holders with screw-in CF lamps, industrial strips with T-8 lamps, in fair condition. |
| Exterior | F | $5,000 | E5 | HID wall packs and a stem mounted flagpole light in fair condition. |
| **Lighting Controls** | | | | |
| Conference or Meeting Rooms | HP | $1,000 | E6 | Add occupancy sensors |
| Offices | HP | $1,000 | E6 | Add occupancy sensors |
| Toilet Rooms/ Small Storage Rooms | F | $500 | E6 | Toilet rooms have occupancy sensors in good condition; add sensors in janitor and storage rooms. |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Corridors | C | | | Fixtures connected to emergency panel. |
| Exit Signs | F | | | LED type in fair condition. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Fire Alarm Devices** | | | | |
| Smoke Detectors | **HP** | **$200** | E7 | A few stand-alone smoke detectors on 2nd floor. |
| **Telecommunications** | | | | |
| Data/Voice | **C** | | | Cat 5 and Cat 5e cabling |
| CATV | **C** | | | Coax |

**NOTES:**

**E1.** Additional panels will need to be added if a renovation would require additional circuits.

**E2.** Recommend providing an additional automatic transfer switch and panel board to separate the critical and equipment branch loads onto a new panel and leave the existing panel with the life safety loads.

**E3.** Replace all outlets located in the garage area and exterior outlets with GFCI type device. Add weatherproof while-in-use covers on exterior outlets.

**E4.** Consideration should be given to replacing older fixtures with new. Replacement or repair should be done on fixtures with broken or missing lenses. There could be some energy savings available by modifying the lighting layout in areas like the dining room.

**E5.** Consider replacing HID fixtures with more efficient LED in the future.

**E6.** Occupancy sensors should be installed in the meeting room, classroom, offices, storage rooms, and janitors closet to provide additional energy savings. If areas are renovated, controls will be required to be updated to meet current energy code.

**E7.** Recommend adding an additional detector in the sleeping area on 2nd floor and one in the corridor outside the 1st floor sleeping room/office.

Electrical Utility Service Entrance

Telephone Pedestal

400A Service Entrance Meter and Disconnect

100A Service Entrance Meter

Generator

Emergency Feeder Disconnect and 150A ATS

**Emergency Panel**

**Existing Panel and 110 Blocks**

**Existing Panel**

**Sleeping Area Lighting**

**Generator Alarm Panel**

**Downlight**

**Flagpole Light**

**Exterior Outlet**

**Garage Outlets**

**Exit Sign**

**Office/Sleeping Room Lighting**

**Dining Room Lighting**

**Exterior Wall Packs**

**Garage Lighting**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## FIRE STATION #3

**August, 2015**

## FIRE DEPARTMENT

# SUMMARY

***Date of Visit: May 28, 2015***
***Address: 885 Shawano Avenue***

## Building Description

Originally constructed in 1936, Fire Station #3 has had relatively few modifications over the years. Renovations to the building over the years have not altered its exterior form or size. There is a partial basement, first floor, and split second level, extending over both the lower living/office area and the higher apparatus bay area.

It is recommended that the air filling and motor storage be located in separate spaces. Oxygen tanks should be stored in a 1-hour rated room.

Flat portions of the roof supporting vents and mechanical equipment are EPDM. EPDM has been patched, but is in fair condition. Gutters are in need of cleaning from tree debris. EPDM roof at top of hose tower has considerable ponding. One steel air intake on level area of high roof is significantly rusted.

## Code/Accessibility

The building is presumed to have complied with code at the time it was constructed. Existing items that are unchanged are grandfathered into compliance. It is recommended that one unisex, accessible toilet room be created.

## Structural System

The structure is a combination of cast-in-place floor slabs and steel beams on steel columns or load-bearing masonry walls, and wood ceiling joists on steel beams or load bearing masonry walls. There is additional steel and wood framing above the second floor ceilings to create the pitched roof profile.

Tuck-pointing is recommended at the north face of the work/living quarters, the east wall of the apparatus garage near the intersection of that north wall (which would include some work on the interior side as well), and a small amount on the exterior side of the west wall.

## Plumbing Systems

The original piping is in fair condition. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. These are code issues which should be corrected. Fixtures could be updated to conserve water. There are no accessible plumbing fixtures. The exhaust hood in the kitchen should have an Ansul (or equal) kitchen suppression system installed. Oxygen cylinders should be stored in a 1-hour rated room, separate from motor equipment.

## HVAC Systems

The facility is split into two areas, the apparatus room/storage and the living quarters. Although a majority of the distribution infrastructure is original, multiple minor renovations and mechanical upgrade projects have taken place over the buildings life. Exhaust and ventilation issues need to be addressed in several areas. Older pneumatic controls are in need of replacement or upgrading.

## Electrical Systems

The building is served by a 200 Amp, 120/240 Volt, single phase service. The panels are in good condition, but have limited future capacity. The emergency generator serving the building is in fair condition. The panel is in good condition and has some future capacity. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads.

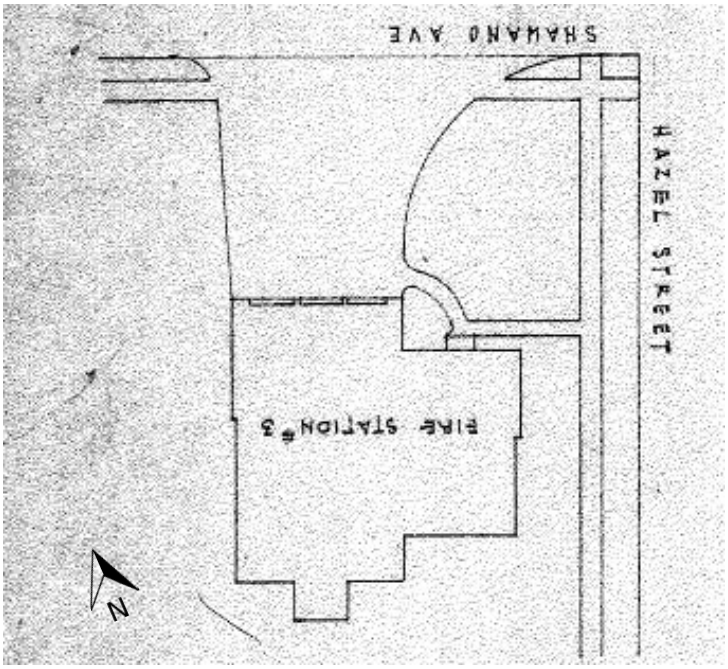
## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

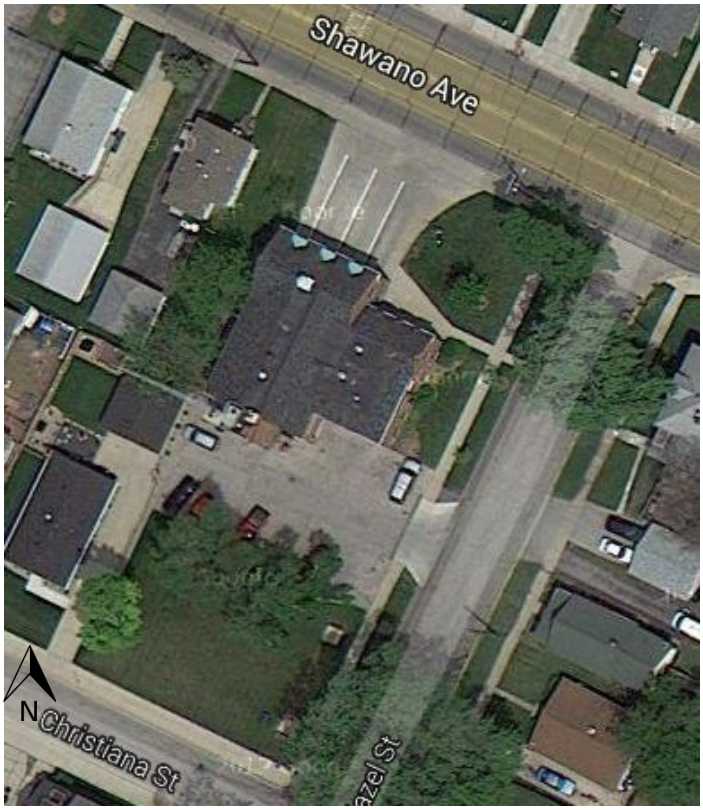
**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | Exterior Facade Condition | **$5,000** |
| | | Rated room for oxygen storage | | **$5,000-$8,000** |
| **Architectural Subtotal** | | | | **$10,000-$13,000** |
| **Code/ADA** | | | Accessible toilet | **$8,000-$12,000** |
| | | | Stair Shafts | **$5,000** |
| **Code Subtotal** | | | | **$13,000-$17,000** |
| **Structural** | | Exterior masonry walls | | **$8,000** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | Domestic Water Service | | | **$500** |
| | | | Insulation | **$10,000** |
| | Recirculation Pump(s) | | | **$6,000** |
| | Thermal Mixing Valve (TMV) | | | **$6,000** |
| | Oxygen/Air Storage | | | **See Architectural** |
| **Plumbing Subtotal** | | | | **$22,500** |
| **HVAC Systems** | | | Humidity | **$10,000** |
| | Basement work/storage room ventilation | | | **$12,000** |
| | | | Occupied Space Thermal Comfort | **$60,000** |
| | Men's Room Exhaust | | | **$5,000** |
| | Women's Room Exhaust | | | **$5,000** |
| | Ductwork | | | **$1,000** |
| | | | Kitchen Hood, | **$25,000** |

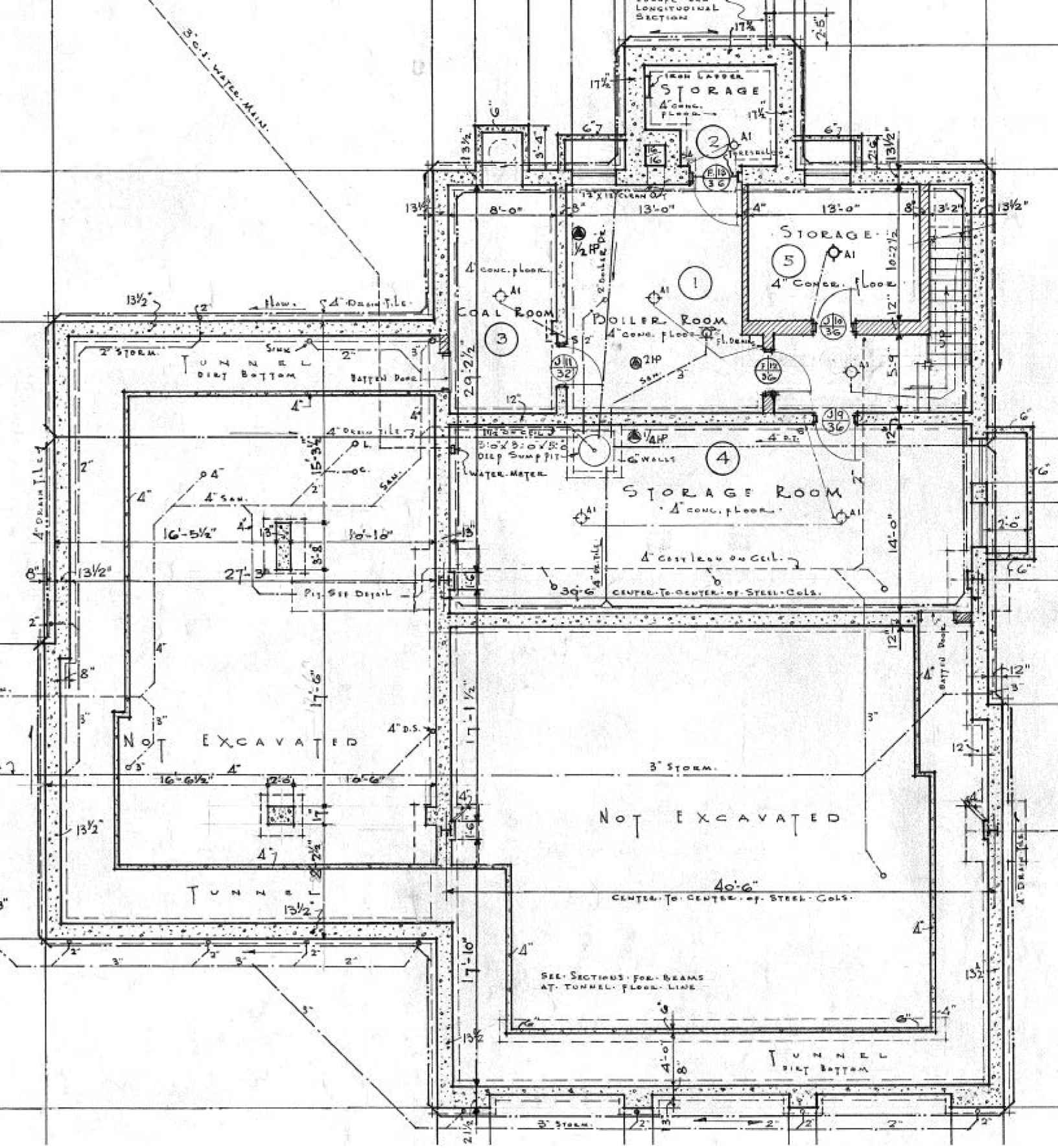
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| | | | Fan and Ductwork | |
| | | | Pumps | **$1,000** |
| | | | Pipe Insulation | **$4,000** |
| | | Room Terminal Units | | **$20,000** |
| | Mechanical Room Ventilation | | | **$5,000** |
| | | Make-up Air Unit | | **$60,000** |
| | | Exhaust | | **$20,000** |
| | Control | | | **$10,000** |
| | Storage Room Ventilation | | | **$5,000** |
| | Dryer Exhaust | | | **$500** |
| **HVAC Subtotal** | | | | **$243,500** |
| **Electrical** | | | Transfer Switch | **$5,000** |
| | | | Branch Panel | **$10,000** |
| | Receptacles | | | **$1,000** |
| | | | Conference or Meeting Rooms | **$1,000** |
| | | | Offices | **$1,000** |
| | | | Smoke Detectors | **$200** |
| **Electrical Subtotal** | | | | **$18,200** |
| **Total** | | | | **$317,200-$324,200** |



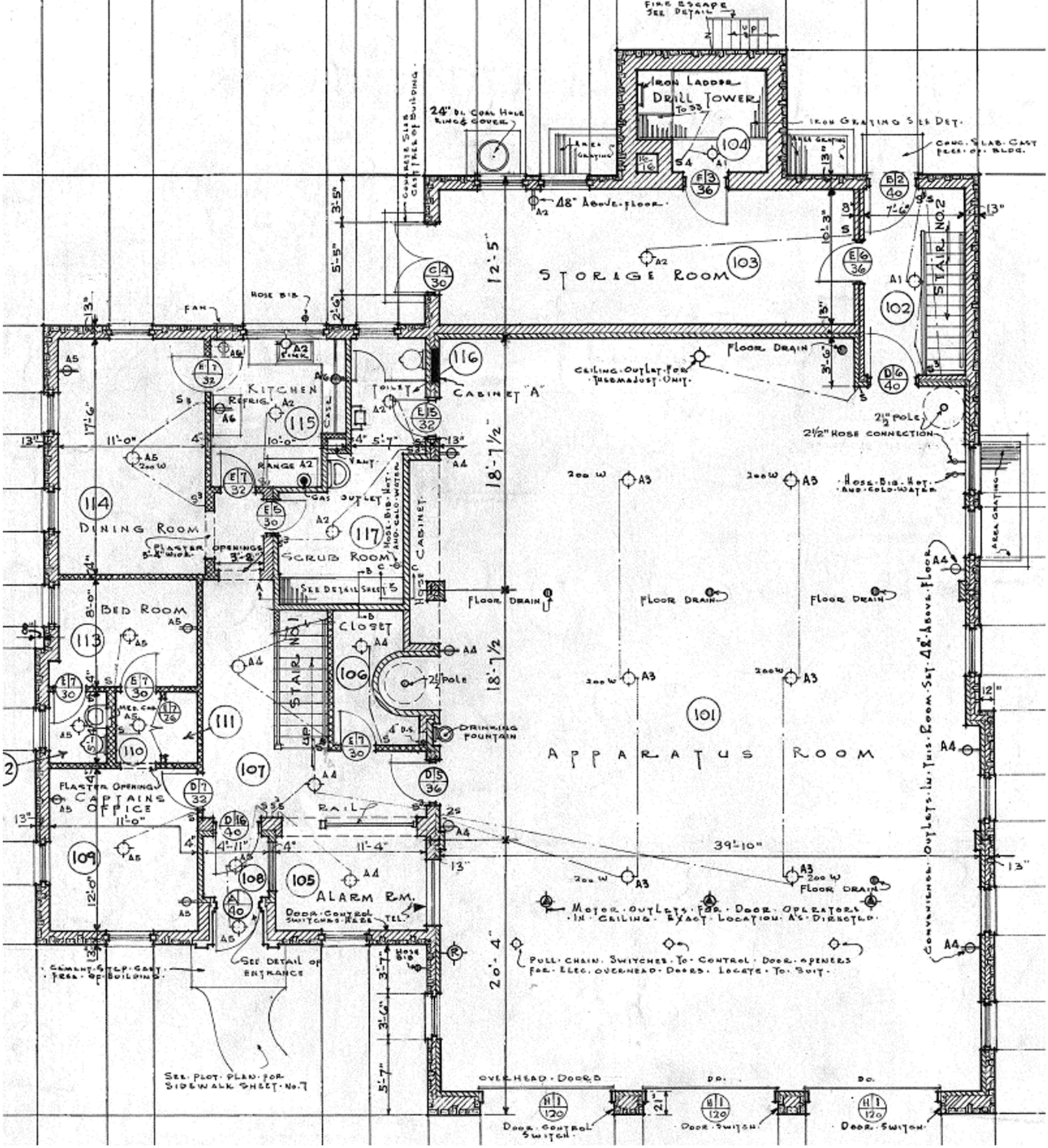

**Site Plan**



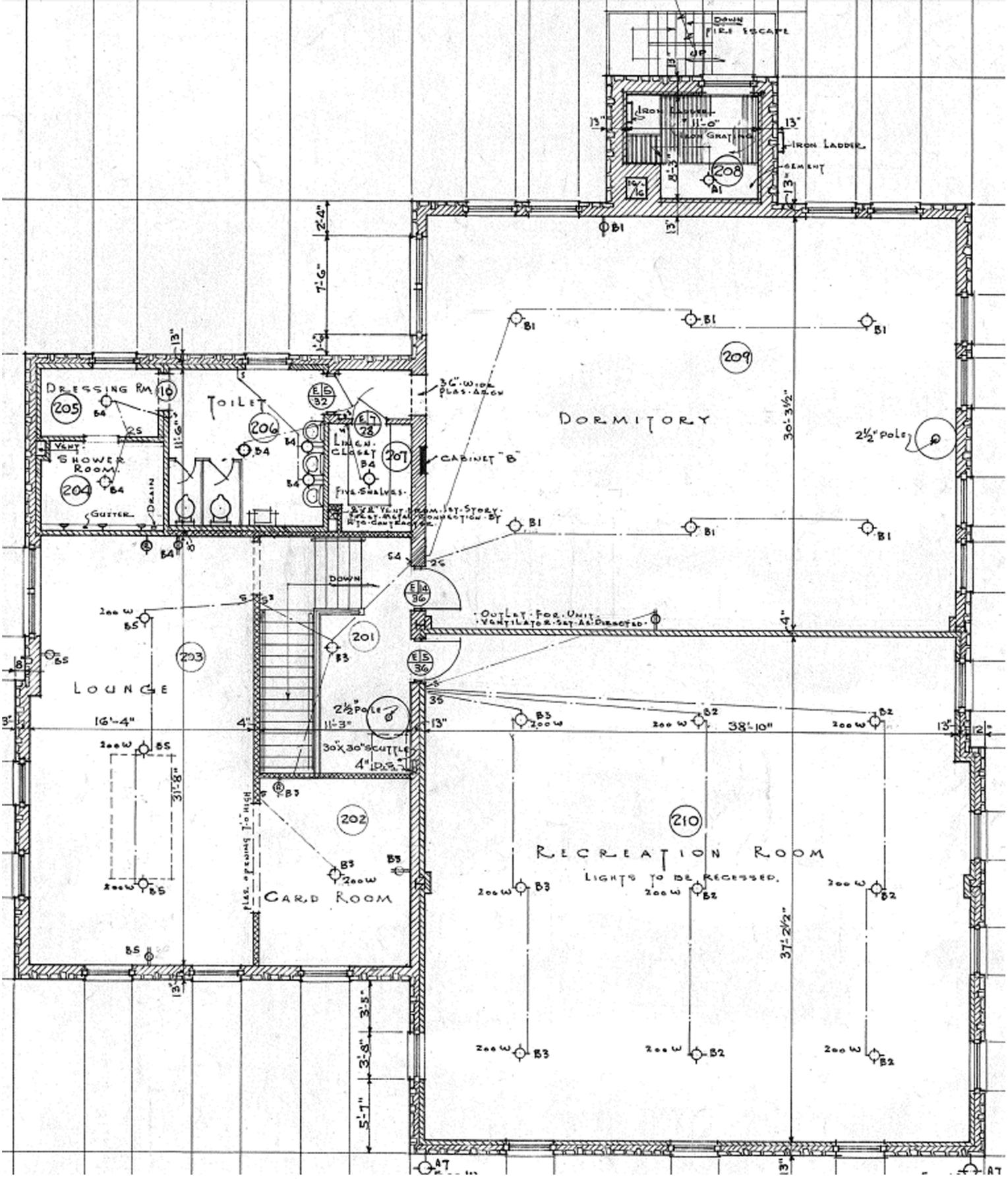

**Aerial View of Site**




FIRE STATION #3
BASEMENT PLAN
NOT TO SCALE




FIRE STATION #3
FIRST FLOOR PLAN
NOT TO SCALE




FIRE STATION #3
SECOND FLOOR PLAN
NOT TO SCALE

# ARCHITECTURAL

## Building Description

Originally constructed in 1936, Fire Station #3 has had relatively few modifications over the years. Renovations to the building over the years have not altered its exterior form or size.

The station is comprised of a partial basement with access tunnels at the perimeter of other foundation walls; apparatus bay, storage, office and dining/kitchen on first floor; and a split-level second floor with lounge over the lower structure of the office/living space, and dormitory and training/work-out space over the apparatus bay. A former hose drying tower is utilized for storage and placement of new generator.

Basement is accessed from an open stair off the back entry corridor. Walls are either board-formed concrete or triple-wythe thick brick walls. Floors are concrete. Ceiling is concrete joists with clay filler tile, some of which has been chipped away to allow patching of concrete joists due to water infiltration in the past. This situation seems to have been remedied. Basement spaces include storage rooms, mechanical equipment and workshop.

A storage room on first floor, situated between the apparatus bay and hose tower, has an overhead door access at one end, and standard cased opening to the apparatus bay corridor at the other end. Filling of air tanks occurs in this room; both air and oxygen tanks are stored in the room. By code, oxygen tanks should be stored in a 1-hour rated room. Also in the room are a lawn mower, a boat motor, and other equipment. Due to the prevalent odor of gas in the room, it is recommended that the air filling and motor storage be located in separate spaces.

A combination toilet/shower/locker/storage room is located between living quarters and apparatus bay. Kitchen has been remodeled over the years, and a former rear window at the adjoining dining area has been converted to a back door to the parking area.

The building has a split second level. Over the lower structure height living and office area is a lounge. Five steps up across the landing, is the floor area over the apparatus bay, which houses toilet/shower room, dormitories, and combination training and work-out room. The fire pole is still located in one of the dormitory rooms, but the floor opening has been covered by a removable plastic top. An opening has been added between dormitory rooms. To fit under the soffit in the rooms, the opening is 6'-0" high.

### Doors

Most doors appear to date from the original construction. They are oak, two-panel construction, with v-jointed vertical boards within the panel frame. In some cases, the upper panel has divided light glazing. A new opening between dormitories on the 2nd floor is a 3' X 6' flush wood door with approximately 6" x 3' lite and louver at bottom. Basement doors are typically original metal. Doors at rear corridor entry and passage are newer insulated metal doors with lights.

Apparatus bay doors are sectional overhead doors with three lights at center section.

## Building Envelope

### Exterior walls

The exterior has a red-brown brick with red-painted wood trim. Cracking is visible along mortar lines from front window opening corners extending upward, and other instances at high roof projections. Lintel over front entry door is missing mortar. Doric piers and entablature of wood surround the front entrance. The first floor windows on either side of the entrance have shutters. There are three gabled windows interrupting the cornice along the office/living section of the building (the east half), and three hipped gables above the apparatus bay doors (west half).

### Windows

All exterior windows, both at the apparatus bay and the living/office quarters have been replaced with aluminum casement or double-hung windows. One original metal framed, single pane window remains in basement storage room.

### Roof
The hipped gables are roofed in a fully oxidized copper, while the rest of the visible roof is asphalt shingle. Flat portions of the roof supporting vents and mechanical equipment are EPDM. EPDM has been patched, but is in fair condition. Gutters are in need of cleaning from tree debris. EPDM roof at top of hose tower has considerable ponding. One steel air intake on level area of high roof is significantly rusted.

## Interior Finishes
### Floors
Most of first floor has tile flooring. Older tile areas (bathrooms, kitchen) are varied size/color mosaic, while apparent newer tile areas are 2x2 tiles in similar color tones to the mosaics.

### Walls
The main office room has wood paneled walls that appear to be 30 to 40 years old. Some walls of the upstairs dormitory have wood paneling that appears to be original to the building. Original interior walls are typically painted masonry or plaster, with some glazed concrete block at the entry vestibule. A combination of concrete block and furniture partitions are used to separate sleeping quarters. Furniture partition is used to separate training and work-out areas.

Walls of the apparatus bay and storage areas are painted concrete block.

### Ceilings
Most of the station's living and office space has lay-in acoustic tile with either dark or light toned suspension grid. The toilet rooms have plaster ceilings. Basement has exposed structure ceilings. The apparatus bay ceiling is painted plywood applied to structure. Exposed beams in the bay are also painted.

### Casework
The kitchen casework and counters appears to have been remodeled within the past 5 years. Walls have glazed tile and tile cove base. The stove hood is non-compliant (see mechanical report). It is plastic laminate on particle board, surrounding a metal hood coated with old paint.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **D** | Deficient – Immediate Replacement | **CP** | Critical Priority – Replace in 1-2 years | **HP** | High Priority – Replace in 3-5 years | **F** | Fair – Replace in 6-10 years | **C** | Compliant/ Adequate | **N** | New | **NA** | Not Applicable |

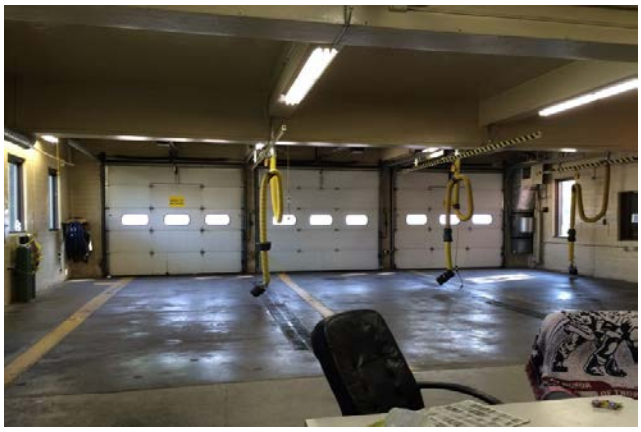
| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | F | | A1 | |
| Exterior Facade Condition | HP | $5,000 | A2 | |
| Exterior Door Condition | C | | | |
| Window Condition | C | | | |
| Interior space | F | $0 | A3 | |
| Rated room for oxygen storage | CP | $5,000 to $8,000 | | Current open storage is not code compliant. |
| **Interior Finishes** | | | | |
| Carpet | F | | | |
| Tile | C | | | |
| Interior doors | C | | | |

**NOTES:**

**A1.** Maintenance required: clean out gutters and rooftop areas of tree debris.

**A2.** Regular maintenance and re-painting of wood elements is recommended. Tuck pointing of brickwork is needed at cracks.

**A3.** It is recommended to move any food preparation related items out of the bath/shower/locker room.

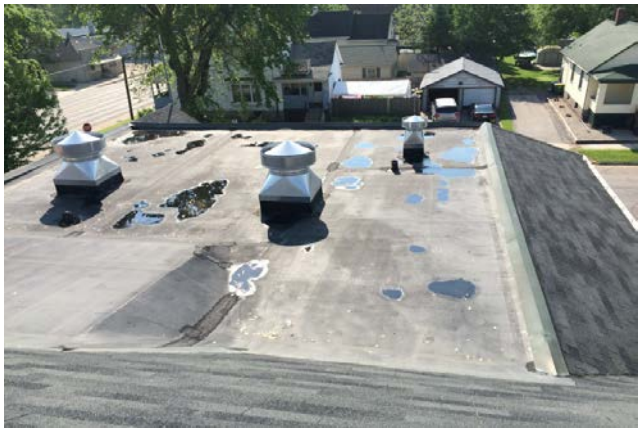


Apparatus Room

Equipment and Air Tank Storage

Roof

High Roof Ponding



Lower Roof

Copper Hip Gables

Bath/Shower/Locker/Storage Room

Kitchen

Typical Interior Door and Floor Tiles

Landing at 2nd Floor

Roofing at Parapet

Roof Drainage

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1936 | **Gross Area** | Basement: 4,406 SF<br>1st Floor: 4,358 SF<br>2nd Floor: 4,358 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | B and 1st floor: **S-1** Moderate-hazard Storage non-separated from **B** Business<br>2nd floor: **R-3** residential non-separated from **B** Business | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type II-B | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

The 1934 Building Code for the State of Wisconsin at the time would have placed this building in Chapter 6 Factories, Office and Mercantile Buildings. The classes of construction at the time were frame, ordinary, and mill construction, in increasing levels of fire protection. The building's materials would place it equivalent to Type II-B in the 2009 IBC.

The IBC does not specify fire stations as being Business occupancy, therefore the building occupancy may be determined more by usage of space. For Fire Station #3, the basement and 1st floors are non-separated B-business and S-1 storage. 2nd floor is non-separated B Business and R-3 Residential, based on the definition of congregate living facilities as those where residents share bathroom and/or kitchen facilities.

### Egress and Safety

Two legal means of egress are provided by the front door, and the door added from the kitchen/dining area, exiting to the parking lot to the south. The stair risers are approximately 7 ¼" each, which is over the current code's maximum of 7". This would have complied with code at the time, and would not be required to be updated due to structural restrictions.

Second floor has one legal means of egress, via the stairs. One of the original two fire poles has been removed and its space walled off in the apparatus bay below. The other remains, with a plastic cap over it in the dormitory section. For a single means of egress to be legal under current code, there can be a maximum of 10 persons in Residential occupancy (the dormitories), OR a maximum of 49 persons for Business occupancy (the meeting room and work-out room). The standard usage of the 2nd floor spaces appears to comply with these maximums. The apparatus bay has a hinged door egress via the stair/corridor to the south.

### Stair Shafts

The one stair shaft in the normally occupied area of the building connects only 1st and 2nd floors, although 2nd floor is split level. The basement stair is also open to 1st floor. The door from the passage to the apparatus bay appeared to have once been a rated opening. If that is the case, this would create the separation of floors needed for the other stair to be legally open to 2nd floor under current code (708.2, exception 7). As it stands this situation is presumed to have complied with code at the time it was constructed, and is thus acceptable.

The business and residential occupancies are somewhat separated from the storage occupancy of the apparatus bay, although doors between the two do not appear to be rated.

The stair to the basement is accessed from a corridor south of the apparatus bay. Although connecting 2 floors is allowable, connection to a third level is not. The penetration of the fire pole, and the apparent lack of rating between apparatus bay and business/residential occupancy may mean the stair should be separated. There is currently not a door from the corridor to the south storage room that houses air tank filling equipment and various motors and equipment. **It is recommended that a door be installed at this location to separate the stair shaft from other areas.**

**Handrails and Guardrails**
Hand and guard rails at stair from 1st to 2nd floors are wood. They would have complied with code at the time of construction. Openings between guards on 2nd floor are larger than currently allowed, but also compliant at time of construction. Openings are approximately 6" at 2nd floor guard.

Guard at back entry by stair to basement has large openings (over 12 x 24). It is recommended that this be addressed as a safety issue. There are not handrail extensions on either stair's handrails.

**Miscellaneous Items**
The stove hood is painted metal interior with plastic laminate on particle board exterior. Both the paint and the combustible material on the exterior of the hood are not recommended. See mechanical section of this report for replacement costs.

The Women's restroom is a combination restroom/toilet room and storage room. **It is recommended that stored items relating to food or food preparation be removed from this room.**

## Summary of Accessibility/ADA Compliance

The following summary of accessibility is provided for owner reference, with the acknowledgement that persons using this building can only do their job if they do not have accessibility needs. That said, certain upgrades, such as lever door handles, could be done that would make operation easier and quicker. As noted above, accessibility may be mandated by code based on the extent of work being done.

**Accessible Route**
Entry to the building is at grade from both doors at the back parking lot, and the front entry, but the front entry door, and the door from the rear corridor do not meet accessibility clear floor space and maneuvering clearances. The stairs have risers of approximately 7 ½", which is higher than current code allows.

**Doors**
The building has a combination of push/pull hardware and knob handles. Knobs are not accessible, and not as easy/fast to use as lever handles.

**Plumbing Fixtures**
The sink in the kitchen is at 36" rim height, which is above the 34" required for side-accessibility. Lavatory sinks are all below 34", which would comply with accessibility requirements.

There is no accessible toilet in the building. Showers in both the Men's and Women's rest rooms are not accessible in the following ways:

- Threshold height of 4" outside, 3 ¼" from inside
- Opening width of 22 ¾"
- Stall size of 30 ½" x 41"
- No grab bars, seats, or wand shower heads

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Egress and safety | F | | | |
| Stair shafts | HP | $5,000 | CA1& 2 | |
| Handrails/guardrails | F | $2,000 | CA3 | |
| Miscellaneous items | HP | $0 | CA4 | |
| Accessible route | F | | | |
| Doors | C F | | CA5 | |
| Plumbing fixtures | F | | | |
| Accessible toilet | HP | $8,000 - $12,000 | CA3 | Creating 1 accessible toilet is recommended. |

**NOTES:**

**CA1.** Recommend a rated door between rear passage/stair and equipment room.

**CA2.** Recommend removing gas-fired engines from the air tank filling room.

**CA3.** Recommend reducing the opening size in the guardrail between passage and basement stair.

**CA4.** Move food and food-prep related items out of Women's restroom.

**CA5.** Lever handles would comply with accessibility codes and facilitate ease of use. Lever handles are code requirement for any new or renovated work.

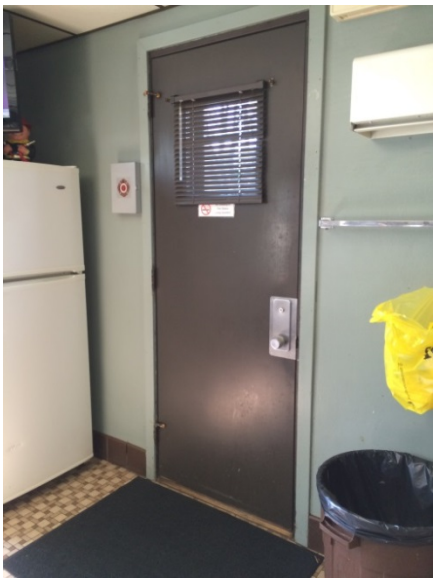
**CA6.** Recommend investigating the feasibility of creating a separate storage room and unisex accessible toilet/shower room.

**Back Entry to Parking Lot**

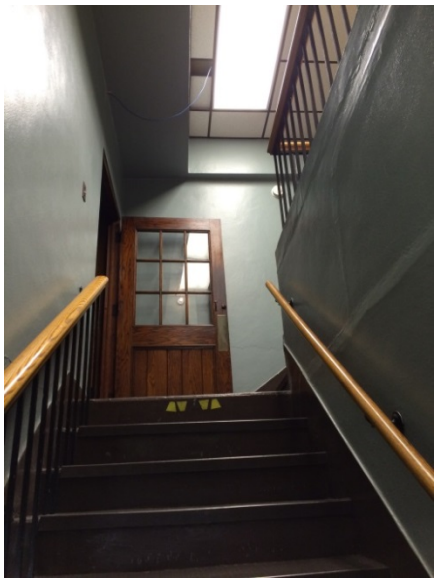
**Front Entry Route**

**Stair to Basement**

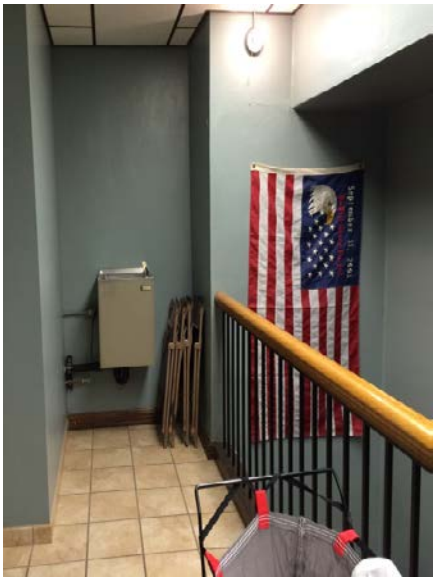
**Back Entry Corridor**



**Door to Parking Lot From Dining**



**Stair to 2nd Floors**



**Guard at 2nd Floor**

**Kitchen**

Women's Restroom

Hood at Kitchen

Women's Toilet Stall

Men's Room Lavatories

Men's Showers

Men's Restroom (Access to Showers)

## STRUCTURAL SYSTEM

### Summary

The structure is a combination of cast-in-place floor slabs and steel beams on steel columns or load-bearing masonry walls, and wood ceiling joists on steel beams or load bearing masonry walls. There is additional steel and wood framing above the second floor ceilings to create the pitched roof profile.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1936 (Berners-Schober Comm. No. 1487) |
| **Structure type** | | | | |
| Foundations | C | | | Cast-in-place concrete foundation and/or basement walls bearing on individual spread or continuous strip footings. |
| Basement | C | | | Under south half of building only. Floor is a 4" concrete slab on grade with 6x6 10/10 welded wire mesh reinforcing. |
| 1st Floor | C | | | a. Apparatus Garage floor is a 5" concrete slab on grade with 6x6 - 10/10 welded wire mesh reinforcing.<br>b. Floor to the south of the Apparatus Garage over the basement area is 6"+3" or 8"+3" concrete Tile & Joist slab with 5" joists at 17" on center typical.<br>c. Work/Living quarters to the east is a 4" concrete slab on grade with 6x6 10/10 wire mesh reinforcing. |
| Exterior Masonry Walls | CP | $8,000 | **S1.** | 13" common brick/face brick load bearing walls typical. |
| 2nd Floor | C | | **S2.** | a. West half of living quarters is a 5" solid one-way slab over steel beams supported by steel columns or load-bearing masonry walls.<br>b. East half of living quarters is 4"+2" or 6"+2" Tile & Joist slab supported on concrete beams and load-bearing masonry walls |
| Ceiling/Roof | C | | | a. Ceiling consists of 2x6 or 2x8 wood joists at 16" on center typical, on steel girders supported on steel columns or load-bearing masonry walls.<br>b. Pitched roof profile above ceiling consists of additional steel and wood framing. |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Occupancy Category** | **NA** | | | Occupancy Category IV |
| **Construction Type** | **NA** | | **S3.** | Construction Type **II-B** (2-hour exterior bearing walls, 1-hour beams, columns, & floor slabs, 0-hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | Varies. |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

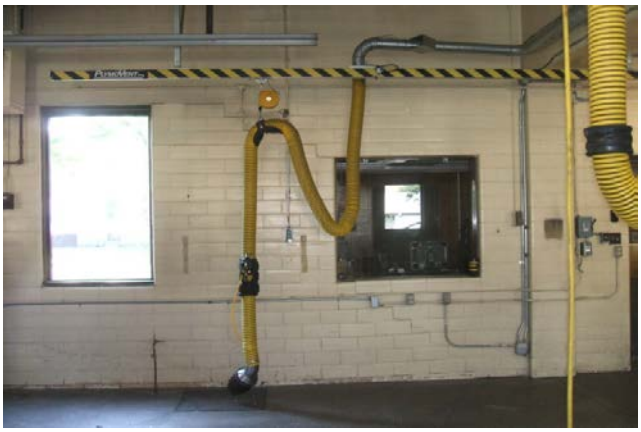
**NOTES:**

**S1.** There are a few areas of masonry cracking, predominantly near the northern side of the building that should have some tuck-pointing work done in the near future. The cracking appears to be the result of some settlement of the masonry walls in this area. This is further substantiated by the Owner's report that around 2011, the apparatus garage floor had to be mud-jacked after settling approximately 4" due to some groundwater activity below. The floor has remained stable since the mud-jacking. The tuck-pointing recommended at this time would be on the north face of the work/living quarters, the east wall of the apparatus garage near the intersection of that north wall (which would include some work on the interior side as well), and a small amount on the exterior side of the west wall.

**S2.** At the weight room area on second floor, while the present equipment appears to be adequately distributed, caution should be advised that free weights should not be dropped from a distance onto the floor.

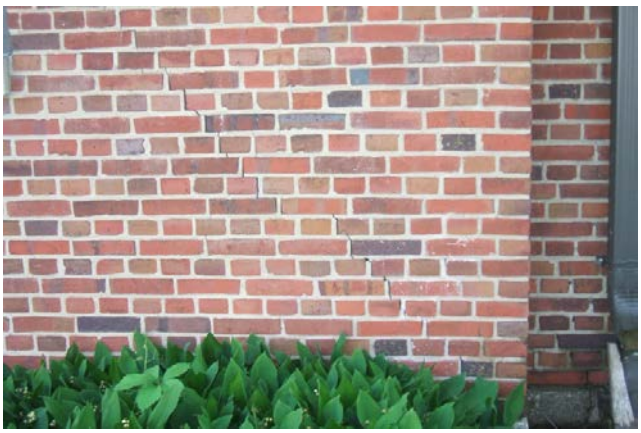
**S3.** Construction Type is limited by the lath-and-plastered 2x6 or 2x8 ceiling joists. If test results were available to substantiate a 1-hour fire resistance for the roof system, the current IBC Construction Type could be brought up to Type **II-A**.

Settlement Cracking of Brick West of Front Entrance



Settlement Cracking at East Wall of Garage

Second Floor Weight Room



Settlement Cracking of Brick at West Wall of Garage

## PLUMBING SYSTEMS

### Summary

The original piping is in fair condition; it could be replaced as needed when issues arise. Insulation could be added to the hot water piping for energy savings. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. These are code issues which should be corrected.

Presently, air and oxygen cylinders are stored in the same room as the gas fueled lawnmower and snow blower. Per code, oxygen cylinders should be stored in a 1-hour rated room.

Plumbing fixtures in the 2nd floor Men's toilet room are older and could be updated to conserve water. Fixtures in the Women's toilet room are slightly newer and are accessed through either the garage or an interior corridor. There are no ADA accessible plumbing fixtures. Building utilities in general appear adequate.

This building is not equipped with an automatic fire sprinkler system. However the exhaust hood in the kitchen should have an Ansul (or equal) kitchen suppression system installed.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper, galvanized |
| Sanitary Piping Condition | F | | P2 | PVC & cast iron |
| Storm/Clearwater Piping | F | | P3 | Cast iron, gutter 7 downspout |
| Valves | F | | P4 | Gate & ball |
| Domestic Water Service | D | $500 | P5 | 2" main, needs 3-valve bypass |
| Insulation | HP | $10,000 | P6 | Fiberglass & elastomeric. Asbestos ?? |
| Code Issues | D | | P7 | Hot water, cylinder storage |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | Installed in 2002 |
| Drench shower station | NA | | | |
| Recirculation Pump(s) | D | $6,000 | P9 | Add pump (code issue) |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $6,000 | P10 | Add TMV (code issue) |
| Grease Interceptor | NA | | | No grease interceptor required. |
| Kitchen Equipment | F | | P11 | |
| Plumbing Fixtures | F | | P12 | |
| Oxygen/Air Storage | D | See Arch | P13 | Oxygen & Air cylinders |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Backflow Prevention | C | | P14 | 1 ½" hose connection |
| "Shop" air compressor | NA | | | |
| Laundry equipment | F | | P15 | Commercial washer |
| Drain tile sump/pumps | F | | P16 | Clearwater and drain tile sumps/pumps |
| Ambulance/Truck Garage | F | | P17 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage | F | | P18 | Roof drain, gutters, Catch basin |
| Lawn Irrigation | NA | | | |
| Exterior Utilities | F | | P19 | |

**NOTES:**

**P1.** Water piping is mainly copper, soldered joints. Fair condition. Also some old galvanized piping present. Water piping is exposed in the toilet rooms – no insulation.

**P2.** Original sanitary is cast iron. Some PVC piping in the basement area. Minimal vents from the floor drains in the garage – venting could be added.

**P3.** Storm piping is cast iron from one interior roof drain. Remainder of the building roof pitches to the edge and is drained by gutters/downspouts around building perimeter.

**P4.** Older valves are gate, newer valves are ball.

**P5.** Building is served by a 2" water main. No bypass-code issue. Install 3-valve bypass around existing meter.

**P6.** Insulation is missing throughout the building. Insulation could be added to conserve energy and avoid condensation on piping. Asbestos abatement by owner – TBD.

**P7.** Code issues: water temperature is set at 119° Fahrenheit, maximum temperature to be 110° Fahrenheit. No thermal mixing valve (TMV) at the heater. Add TMV per code. No recirculating pump at heater. Add recirculating pump. Hot water piping length exceeds 100'-0" per code. Oxygen and air cylinders should be stored in a 1-hour fire rated room.

**P8.** Water heaters are gas fired, AO Smith ProMax, Model FCGL 40 248, 40 gallon, 40,000 BTU. Installed in 2002. Hot water connection at heaters is ¾". Vents from heaters combine into one and direct to chimney.

**P9.** Install hot water recirculation pump. Length of hot water piping exceeds 100'-0" per code. Hot water to 2nd floor lavatory exceeded 3 minutes in timing.

**P10.** Add TMV to water heater. Set hot water temperature to 110° Fahrenheit. Code issue.

**P11.** Kitchen equipment: 2 compartment sink with garbage disposal. No dishwasher.

**P12.** Plumbing fixtures: Women's locker room – floor mounted WC, Sloan Royal flush valve 3.5 gpf 16" aff. Lavatory-wall hung with ledge faucet, 33" aff. Urinal, floor mounted in place, water piping disconnected. Single stall Mustee shower stall, Moen valve. Toilet room off dining/kitchen has floor mounted WC with 3.5 gpf, wall hung lavatory. 2nd floor had a single unit EWC with the spout at 41" aff. Janitors' curb has a vacuum breaker on spout. 2nd floor Men's' Toilet room had (2) floor mounted WC's with flush valves-16" aff., (3) wall hung lavatories, rim @ 32" aff. Shower was built-up with (3) shower heads. All water piping in the toilet rooms is copper, exposed, not insulated.

**P13.** (3) small oxygen cylinders are stored in the garage – should be stored in a 1-hour rated room. Air cylinders and filling station/compressors are in the same room as the gas fueled lawnmower and snow equipment, and should be in separate rooms. Code issues.

**P14.** 1 ½" hose connection in the ambulance garage has a Watts 188A atmospheric vacuum breaker. Faucets have hose threaded end vacuum breakers. Watts 009 RPZ backflow preventer installed for the boilers.

**P15.** Continental commercial laundry unit located in the garage.

**P16.** Drain tile sump and 1 ½" discharge submersible pump in the basement. Clearwater and 2" discharge submersible pump in the workshop for basement floor drains. Check valve installed in pump discharge. Sump/pumps discharges to the basement storm sewer. No high water alarm installed.

**P17.** Ambulance garage: trench drains and a garage catch basin installed.

**P18.** Parking lot pitches to the adjacent streets. Gutters/downspouts discharge to grade/street.

**P19.** Building is served by a 2" water main from Hazel Street. 6" sanitary discharges to Shawano Avenue. Sanitary sewer main is 94" (above floor) in basement. Storm sewer discharges to Shawano Avenue. Fire hydrant on the SE corner of property. Main vent and sump pit vents exit the west wall of the building.

**Water Piping – Garage**

**Sanitary Piping - Garage**

**Cast Iron Sanitary Piping - Basement**

**Sanitary piping - Basement**

PVC Piping – Basement

Water Service, Water Meter

Water Heaters – Gas Fired

Water Heater – Gas Fired

Backflow Preventer (serving boilers)

2-Compartment Sink – Kitchen

Water Closet – Women's

Lavatory – Women's

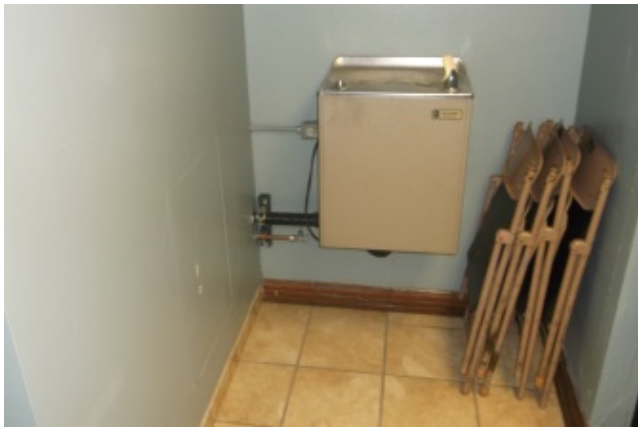
Shower – Women's

Toilet Room – Off Dining Area

Water Closet – Men's

Lavatories – Men's

Urinal – Men's



Electric Water Cooler

Shower – Men's

Shower Service Faucet

Commercial Washer – Garage

Sink – Garage

Oxygen Storage in Garage

Air Cylinders and Filling Equipment

Cylinder Storage and Filling Equipment

Sump Pit and Pump

Clearwater Sump/Pump

Main 4" Vent and Sump Pit Vent

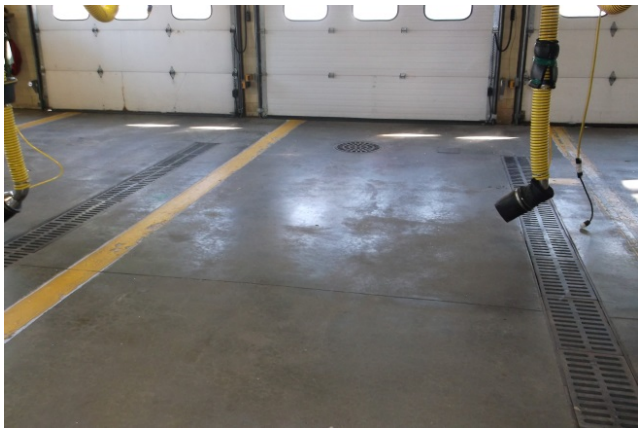
Hydrant and Water Stop

Manhole – Storm

Gutter and Downspouts

Gutter and Downspouts

Gutter and Downspouts



Garage Trench Drains & Catch Basin

# HVAC SYSTEMS

## Summary

The facility is split into two areas, the apparatus room/storage and the living quarters. Although a majority of the distribution infrastructure is original, multiple minor renovations and mechanical upgrade projects have taken place over the buildings life.

The living quarters is served by a packaged roof top air unit with gas fired heat. The air unit system provides either heated or cooled air to the living quarters and utilizes zone dampers to regulate air flow and provide a measure of individual room temperature control. The living quarters is also served by perimeter radiation using separate thermostats or manual operation for temperature control. The dual space thermostats combined with varying occupancies and envelope orientations, and some manually controlled radiation units are creating some undesirable air unit zone temperature fluctuations. Occupants indicated that the temperature regulation is difficult in the heating season due to the manual adjustments of the steam radiators.

The return grill at the sleeping room nearest the air unit is somewhat noisy. Some noise is noticeable from the supply grilles in the same room. This noise may be objectionable to the occupants.

The basement workshop/storage room is ventilated with a two speed exhaust fan. No make-up air source, other than opening a series of doors, was visible.

Residential style humidifiers are located in the facility's sleeping rooms.

The toilet/shower rooms are ventilated by ceiling mounted fan. This fan is light switch operated and appears to be too small to ventilate the room at acceptable flow rates. Some storage rooms and closets that store cleaning chemicals are not ventilated.

The kitchen ventilation hood is served by a side wall exhaust fan located on the side of the building. The fan is positioned above an operable window approximately 9 feet above grade. The kitchen hood appears to be a type 1 hood, painted, with a horizontal grease filter. A stove with side griddle is located beneath the hood.

A low pressure steam boiler, installed in 2008, is located in the lower level mechanical room. Steam piping is routed to the office area and the apparatus room heating units through a tunnel located around the buildings perimeter.

The air unit and zone VAV controls are low voltage. Apparatus room ventilators utilize pneumatic controls. The air compressor is located in a first level mechanical/storage room.

The areaway louver for boiler combustion and room exhaust air is partially plugged with leaves and debris. The areaway appears to be retaining water.

The apparatus room ventilation system was replaced in 1987 and consists of a steam unit heater, make-up air unit, and exhaust fan. The make-up air unit and exhaust fan was designed to operate intermittently using a 60 minute timer switch. A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave the building. A sign adjacent to the door between the apparatus room and living quarters indicates the door must be kept shut due to pressure and odor issues.

Lawn mowers, snow blowers and other equipment are stored in a separate, non-ventilated room off the back of the apparatus room. Compressed air and oxygen cylinders are also stored in this room.

The generator is located in the original tower structure. There is an abandoned exhaust fan approximately ½ of the way up the tower. This opening appears to be the ventilation combustion air opening for the generator.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Air Unit** | | | **H1** | Installed 2008.<br>Trane roof top packaged YSC series, 10 ton cooling with gas heat. |
| Housing | **C** | | | |
| Air intake | **C** | | | |
| Condenser Fins | **C** | | | |
| Fan | **C** | | | 4000 CFM, 5 HP |
| Filters | **C** | | | 30% filters |
| Controls | **C** | | | Low voltage, zone dampers |
| Ductwork | **C** | | | All new in 2008 |
| Insulation | **C** | | | |
| Humidity | **HP** | $10,000 | **H1** | Residential type unit. Manually filled. Humidification is not a code requirement. |
| Basement work/storage room ventilation | **D** | $12,000 | **H1** | Exhaust fan, no make-up air source. Objectionable room odors. |
| Occupied Space Thermal Comfort | **HP** | $60,000 | **H1** | Air unit zone thermostat and manual radiation control conflict. Air unit discharge temperature is affected. |
| **Exhaust Fans** | | | | |
| Men's Room Exhaust | **D** | $5,000 | **H2** | Two speed ceiling mounted fan. Light switch operated. |
| Women's Room Exhaust | **D** | $5,000 | **H2** | Exhaust vent low in room, unknown fan source. |
| Ductwork | **D** | $1,000 | **H2** | Undersized for higher ventilation rates. |
| Kitchen Hood, Fan and Ductwork | **HP** | $25,000 | **H3** | Type 1 hood. Wall mounted fan discharges too low to ground and between operable windows. Galvanized ductwork. Horizontal grease filter. |
| **Boiler System** | **C** | | **H4** | Installed 2008 |
| Boilers | **C** | | | Weil McLain, 639 MBH input, 515 MBH output<br>Low Pressure steam. Inspected 2012. |
| Pumps | **HP** | $1000 | **H4** | 1/3 HP Simplex Condensate pump. |
| Piping | **C** | | | New at boiler room. Mostly original throughout building. Steel. |
| Pipe Insulation | **HP** | $4,000 | **H5** | Most of the piping is insulated. A few spots are bare or have damaged insulation. |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Room Terminal Units | CP | $20,000 | H6 | Radiators and fin tube with Danfoss Valves. Some do not appear to have control. Units appear to be original. |
| **Mechanical Room Ventilation** | D | $5,000 | H7 | Damper for boiler combustion. No intake for generator combustion air (possibly the abandoned tower fan above). Gas meter regulator vent close to operable window. |
| **Controls** | | | | |
| Air Compressor | C | | H8 | Serves boiler room and apparatus room equipment. |
| **Garage Ventilation** | | | H9 | |
| Make-up Air Unit | CP | $60,000 | H9 | Installed 1987, McQuay 3LSL103CH, steam heat. Older unit abandoned in place. Hose exhaust now discharges into old unit intake. |
| Exhaust | CP | $20,000 | H9 | Installed 1987. 1300 CFM, ½ HP fan motor. |
| Truck Exhaust | C | | | PlymoVent. |
| Control | D | $10,000 | H9 | Pneumatic control. 60 minute timer switch. |
| Storage Room Ventilation | D | $5,000 | H10 | Gas storage adjacent to gas powered equipment. No room ventilation. |
| Dryer Exhaust | D | $500 | H11 | Terminates inside. |

**NOTES:**

**H1.** The air unit is seven year old. Expected useful life is 20 years. The air unit is a multi-zone system utilizing zone dampers to regulate individual room air flow. The unit has a master zone terminal to set the unit to heating or cooling mode. The zone dampers will adjust air flow to maintain space temperature based on a rooms heating or cooling requirements. When installed, this system was an economical way to provide some measure of individual room temperature control. In addition to the zone VAV units, the perimeter rooms utilize radiators for additional heat. When both systems are operational, the zone damper control can conflict with the radiation control and this causes variations in the air unit discharge temperature which then will affect heating and cooling throughout the office area. Occupants confirmed a general dissatisfaction with the ability to regulate temperatures, especially during the heating months. To increase room comfort, it is recommended to install individual room reheat coils controlled in parallel with the room radiation devices through a single zone thermostat. Consideration should be given to replacement of the steam radiators with hot water radiation devices.

The supply and return grilles closest to the air unit are slightly noisy and may be objectionable to the occupants. Recommend relocation of the diffusers or installation of a sound attenuator to reduce the noise in this critical room.

A portable residential style humidifier is located in the sleeping rooms. This indicates that the occupants are attempting to regulate the building humidity to improve their comfort. These units will actually improve humidity only slightly, but may have a greater psychological effect. This is because the air unit will introduce a greater amount of dry outside air than these units can properly humidify. To humidify this building, it is recommended to install an electric or gas fired humidifier that is sized to serve the entire office space.

The storage rooms are not ventilated. There are some cleaning supplies and linens stored in the same room. The odors could be objectionable to the occupants. These couple rooms would benefit from a small amount of ventilation air.

A basement workshop/storage room is ventilated with only a two speed, manually operated exhaust fan. This room had a strong objectionable odor in it, the source of which could not be identified. There is no make-up air source to the room should the fan be operated. Recommend the installation of a make-up air source and replacement of the fan with controls to operate them automatically when the room/building is occupied.

**H2.** The Men's toilet fan is ventilated with a light switch operated ceiling fan. The fan is not sized to ventilate the shower and toilet room at current recommended ventilation rates. The Women's toilet has an exhaust grille, but a fan was not readily identified as being associated with this room. Replacement of the fans and interlocking them with the air unit operation is recommended.

**H3.** The kitchen hood appears to be an older type 1 hood. The ductwork is galvanized and not sealed liquid tight. The hood is painted which makes cleaning more difficult as paint will flake off and possibly drop into the food product. The grease filter is placed horizontally in the vent discharge. This position is inadequate as grease can drip from the filter into the food product being prepared on the stove top. The fan is located too close to grade and the adjacent operable windows. The installation of a type 1 hood equipped with a fire suppression system and vented with approved liquid tight ductwork is recommended.

**H4.** The boiler is a low pressure steam boiler. The boiler system was replaced in 2008 and last inspected in 2012. A more recent inspection sticker, similar to those seen at other fire stations, was not visible. A condensate pump is located behind the boiler. The pump is older but has a newer motor installed. The identification tags on the pump were unreadable. The pumps appearance indicates it will require replacement within a few years.

**H5.** Uninsulated piping is visible in the mechanical rooms and apparatus room. The majority of the piping appears to be insulated. The uninsulated pipe allows unregulated heat loss into the spaces. It is recommended to insulate all bare piping and repair the damaged pipe insulation.

**H6.** The radiator units are controlled with Danfoss valves. Some of the radiator units do not appear to be controlled and radiate heat whenever the boiler is operating. The units appear to be original to the building and paint is peeling from the units. The occupants indicated that adjusting the units to regulate space temperature is difficult and often the radiators will "fight" with the ducted ventilation system making other areas of the building uncomfortable.

**H7.** The mechanical room ventilation consists of an outside air louver covered with a damper. The ventilation damper opens when the boiler is firing. The louver is otherwise closed. There is no make-up air for the water heater combustion. This outside air damper should remain partly open, even in the closed position to accommodate the water heater combustion needs. The intake louver is partially plugged with debris as it appears to be set too close to the bottom of an areaway. The gas meter regulator is too close to an operable window. A project to improve the boiler room combustion ventilation, and pipe the gas regulator away from the operable window is recommended.

**H8.** A small simplex fractional horsepower air compressor serves the building pneumatic control system. The building pneumatic controllers consist mainly of a few control valves on apparatus room equipment. The remainder of the control system (air unit, room terminal units, and boiler) is low voltage electric (DDC) controls. It is recommended that building improvement projects include the replacement of the remaining pneumatic controls with low voltage devices. This will allow the removal of the air compressor.

**H9.** A make-up air unit and exhaust fan was installed in 1987. These units were originally operated by a manually operated timer switch, which was not readily identified within the space. These units have reached the end of their useful life. A steam unit heater provides additional heat to the front of the garage. The occupants identified that garage odors can be noticeable in the living quarters.

A PlymoVent exhaust system is connected to each truck parked in the garage. This system operates whenever a truck is started and the vehicle exhaust is expelled from the garage. The fan is mounted on the building exterior wall (outside) and terminates above the roof.

An enclosed garage has specific exhaust code requirements and the garage is required to have a negative pressure in relation to the living quarters. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. The PlymoVent truck exhaust system alone does not meet the ventilation requirements for an enclosed garage. A garage exhaust fan upgrade project to install new make-up air fan, exhaust fan and control systems is necessary to improve garage ventilation and occupant safety. Due to their age and current operational state, it is also recommended to replace the make-up air unit with radiant heaters at the same time as an exhaust upgrade project.

**H10.** A storage room behind the apparatus garage is not ventilated. This room houses the make-up air unit for the apparatus garage, a new boot dryer, gas powered equipment, a compressed air fill system, and gas storage racks. The compressed gas tanks are required to be stored in a ventilated room. The combination of all this equipment could be hazardous. It is recommended to create a compressed gas storage room and ventilate the room according to NFPA requirements.

**H11.** A laundry dryer is located in the storage room behind the apparatus garage. The dryer terminates inside the room. This termination allows warm, moist air to be vented directly into the room. It is recommended to vent this unit to the outside.

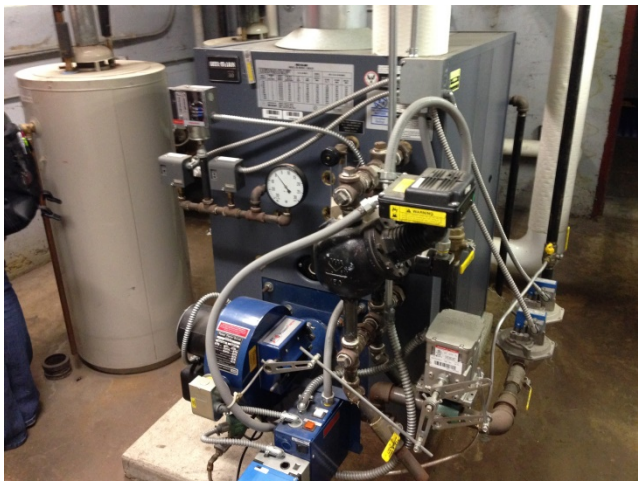
**Roof Top Air Unit**

**Roof Exhaust Hood (Typical)**

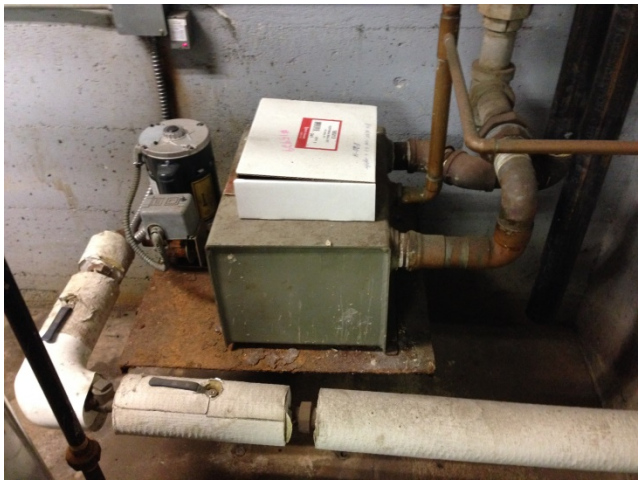
**Ceiling Mount Fan (Typical)**

**Kitchen Exhaust Fan**

Kitchen Hood (Inside View)



Boiler



Condensate Pump

Radiation Unit (Typical)

Uninsulated Pipe (Typical)

Poor Insulation Condition

Home Humidifier in Sleeping Room

Fan in Sleeping Room

Missing Radiation End Piece

Basement Exhaust Fan

Supply Grille (Typical)

Compressed Gas/Storage Room

Temperature Control Air Compressor

Typical Thermostat

Plugged Areaway (Boiler Intake)

PlymoVent Control Panel

Plymo Vent Hose

Garage Exhaust Vent Fan

**Gas Meter**

**Covered Areaway (Exhaust Fan Below)**

**Make-up Air Unit**

**Hose Dryer (Abandoned Air Unit)**

**PlymoVent Fan**

**Laundry Dryer Vent**

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 200 Amp, 120/240 Volt, single phase service. The panels are in good condition, but have limited future capacity. The emergency generator serving the building is in fair condition. The emergency system is fed from a single transfer switch and panel board. The panel is in good condition and has some future capacity. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads.

The outlets within the garage and exterior mounted outlets are not GFCI protected. Exterior outlet covers are also not all weatherproof while-in-use. Lighting fixtures are in good to fair condition and utilize T-8 lamps and ballasts, screw-in compact fluorescent lamps, and a few industrial strips with T-12 lamps and magnetic ballasts located in the basement. These should be replaced to T-8 lamps and electronic ballasts. There are occupancy sensors located in the toilet rooms, but the facility should install occupancy sensors in offices, conference rooms/classroom, storage rooms and janitor's closets. HID building mounted fixtures are in fair condition; consideration should be given to replacing with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition and the facility is pulling Cat 5e and Cat 5 data and voice cabling and coax for CATV. The fire alarm system includes stand-alone smoke detectors throughout the building, which are in good condition. There are also stand-alone carbon monoxide detectors located throughout the building in good condition.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Electrical Service** | | | | |
| Utility Service Entrance | C | | | Overhead utility service enters the building on the east side. |
| **Normal Power Distribution Equipment** | | | | |
| Branch Panels | C | | E1 | An old Westinghouse panel in the basement and two Square D load center panels, one on 1st and one on 2nd floor in good condition– all mostly full. |
| **Emergency Power Distribution Equipment** | | | | |
| Generator | F | | | 15 KW Kohler natural gas unit in fair condition. Generator currently surrounded by storage, remove and keep area clear for access. |
| Transfer Switch | HP | **$5,000** | E2 | Zenith Kohler ATS in fair condition. |
| Branch Panel | HP | **$10,000** | E2 | Square D load center in good condition and with some future capacity. Mixed loads. |
| **Power** | | | | |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Receptacles | D | $1,000 | E3 | Kitchen, garage, and exterior outlets need to be GFCI. Provide weatherproof while-in-use covers for all exterior outlets. |
| **Lighting** | | | | |
| Garage | C | | | Industrial fixtures with T-8 lamps in good condition. |
| Office spaces, conference rooms, and corridors | F | $2,000 | E4 | Recessed acrylic lens troffers and surface mounted wrap-arounds with T-8 lamps, in fair to good condition. |
| Sleep Rooms and Toilet Rooms | F | $2,000 | E4 | Recessed acrylic lens troffers and surface mounted wrap-arounds, in good condition. Shower fixture is incandescent and not wet location, or is missing a lens. |
| Mechanical spaces, storage rooms, utility areas | F | $2,000 | E4 | Industrial strips with mostly T-8 lamps and a few T-12 lamps, in fair condition. |
| Exterior | F | $5,000 | E5 | HID wall packs in fair condition. |
| **Lighting Controls** | | | | |
| Conference or Meeting Rooms | HP | $1,000 | E6 | Add occupancy sensors |
| Offices | HP | $1,000 | E6 | Add occupancy sensors |
| Toilet Rooms/ Small Storage Rooms | F | $500 | E6 | Toilet rooms have occupancy sensors in good condition; add sensors in janitor and storage rooms. |
| **Emergency Exit Signs** | | | | |
| Exit Signs | F | | | LED type in fair condition. |
| **Fire Alarm Devices** | | | | |
| Smoke Detectors | HP | $200 | E7 | Stand-alone smoke detectors and carbon monoxide detectors throughout the building. |
| **Telecommunications** | | | | |
| Data/Voice | C | | | Cat 5 and Cat 5e cabling |
| CATV | C | | | Coax |

**NOTES:**

**E1.** Additional panels will need to be added if a renovation would require additional circuits. It may require the existing service size to be increased. Recommend replacing the outdated Westinghouse panel in the basement with new.

**E2.** Recommend providing an additional automatic transfer switch and panel board to separate the critical and equipment branch loads onto a new panel and leave the existing panel with the life safety loads.

**E3.** Replace all outlets located in the garage area and exterior outlets with GFCI type devices. Replace existing plug mold and other outlets within 6 feet of the sink with GFCI type devices. Add weatherproof while-in-use covers on all exterior outlets.

**E4.** Consideration should be given to replacing older fixtures with new. Replacement or repair should be done on fixtures with broken or missing lenses. Fixtures still using T-12 lamping should be replaced to T-8 lamping and electronic ballasts. The shower fixture should be replaced with wet location type with T-8 lamps to provide a higher light level in the shower room.

**E5.** Consider replacing HID fixtures with more efficient LED in the future.

**E6.** Occupancy sensors should be installed in the meeting room, classroom, offices, storage rooms, and janitors closet to provide additional energy savings. If areas are renovated, controls will be required to be updated to meet current energy code.

**E7.** Recommend adding a smoke detector in the small sleeping area on 2nd floor. There appears to be a mounting bracket already located on the wall.

Electrical Utility Service Entrance

Main Electrical Equipment

Existing Panel

Telephone Network Board

Generator

Emergency Disconnect and Transfer Equipment

**Emergency Panel**

**Clearance Issue**

**Existing 1st Floor Panel**

**Sleeping Area Lighting**

**Existing 2nd Floor Panel**

**Data Rack**

Kitchen Plug Mold

Exterior Outlet

Garage Outlets

Exit Sign

Corridor Lighting

Dining Room Lighting

**Exterior Wall Packs**

**Garage Lighting**

**Stand-Alone Carbon Monoxide Detector**

**Stand-Alone Smoke Detector**

**Exposed Shower Light**

**Garage Door Controller**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## FIRE STATION #4

**August, 2015**

## FIRE DEPARTMENT

## SUMMARY

***Date of Visit: June 11, 2015***
***Address: 2650 West Point Road***

### Building Description

Constructed in 1999, the three-bay-wide apparatus room of Station #4 is flanked on the east by mechanical and storage rooms, and a storage mezzanine, and on the west by the office/residential wing. All roofs are intersecting pitched gables. There is a basement under the office/residential wing only. Sealants appeared dry, and are approaching their life span. Steel lintels throughout the building showing oxidation and spalling paint. Casework in the building is showing wear.

Excessive settlement around and including the storm sewer catch basin was observed on the north side, immediately outside of the furthest west bay of the apparatus room.

### Code/Accessibility

Most of the building is in compliance with current code and accessibility requirements. Some storage items are located in the stair shafts. As this is not a grandfathered building feature, and does not comply with current code (IBC 1022.1), these items should be removed.

### Structural System

The structure consists of steel roof deck and open web steel joists supported on a frame of steel wide flange beams and steel tube columns. Masonry walls are non-load-bearing and there is a basement under the living quarters.

### Plumbing Systems

The original piping and pipe insulation is in good condition. A thermal mixing valve(s) (TMV) should be added to the hot water systems and hot water temperature adjusted to 110° Fahrenheit. This is a code issue that should be corrected.

### Fire Protection Systems

Fire Station #4 was built in 1999 and was fully sprinkled at that time. The originally installed fire sprinkler system piping and equipment appears to be in good condition and is free of leaks and corrosion.

The building is considered fully sprinkled and appears to meet the requirements of that designation.

### HVAC Systems

The living quarters is served by a modular air unit. Wall mounted fin tube radiation provides additional heat along some of the perimeter rooms. The toilet/locker rooms are served by a cabinet fan located in the apparatus garage. The basement data/electric room is served by a ductless split system air conditioning unit. A hot water boiler system is located in a basement mechanical room.

Apparatus room controls are electric. The controls for the living quarters are pneumatic. The living quarter's control system has been revised slightly to lock-out the occupant's ability to change the space temperatures. To change the space temperature, the control company is called in to connect their computer to the building system and the set point is changed.

The apparatus garage is served by (2) gas fired make-up air units. A gas detection system is located in the garage. A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave during fire calls.

### Electrical Systems

The panels are in good condition, and have capacity for the future. There are two emergency generators serving the building; both are in good condition with some future capacity. The outlets within the garage are not GFCI protected.

Exterior outlets are GFCI, but their covers are not weatherproof while-in-use. HID building mounted fixtures and downlights are in good condition; consideration should be given to replacing the HID fixtures with more efficient and lower maintenance LED fixtures in the future. Fire alarm notification coverage appears to be compliant.

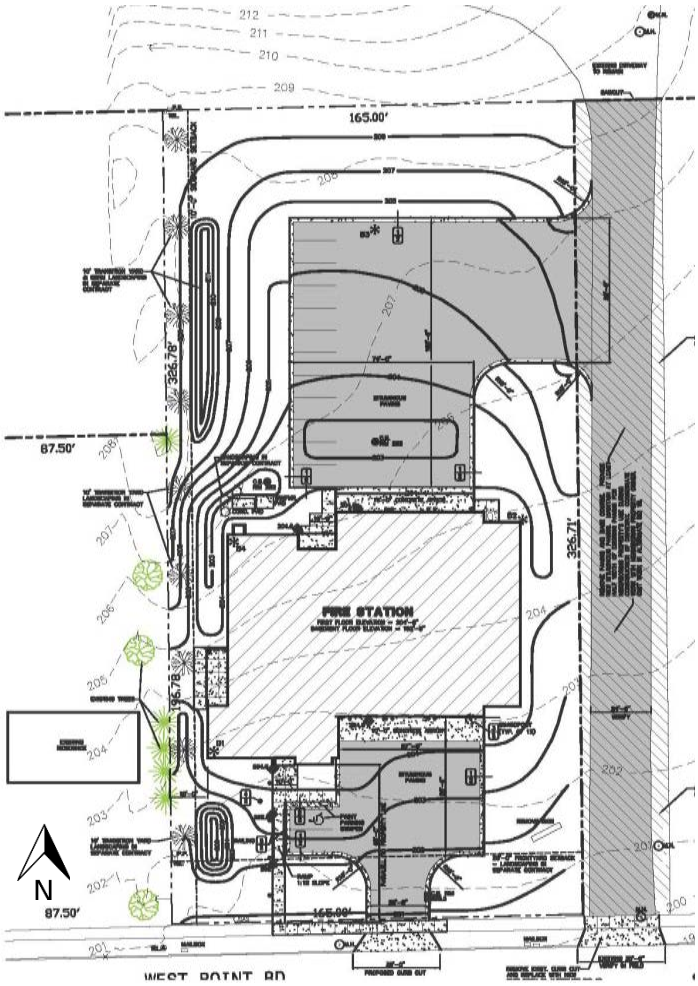
## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

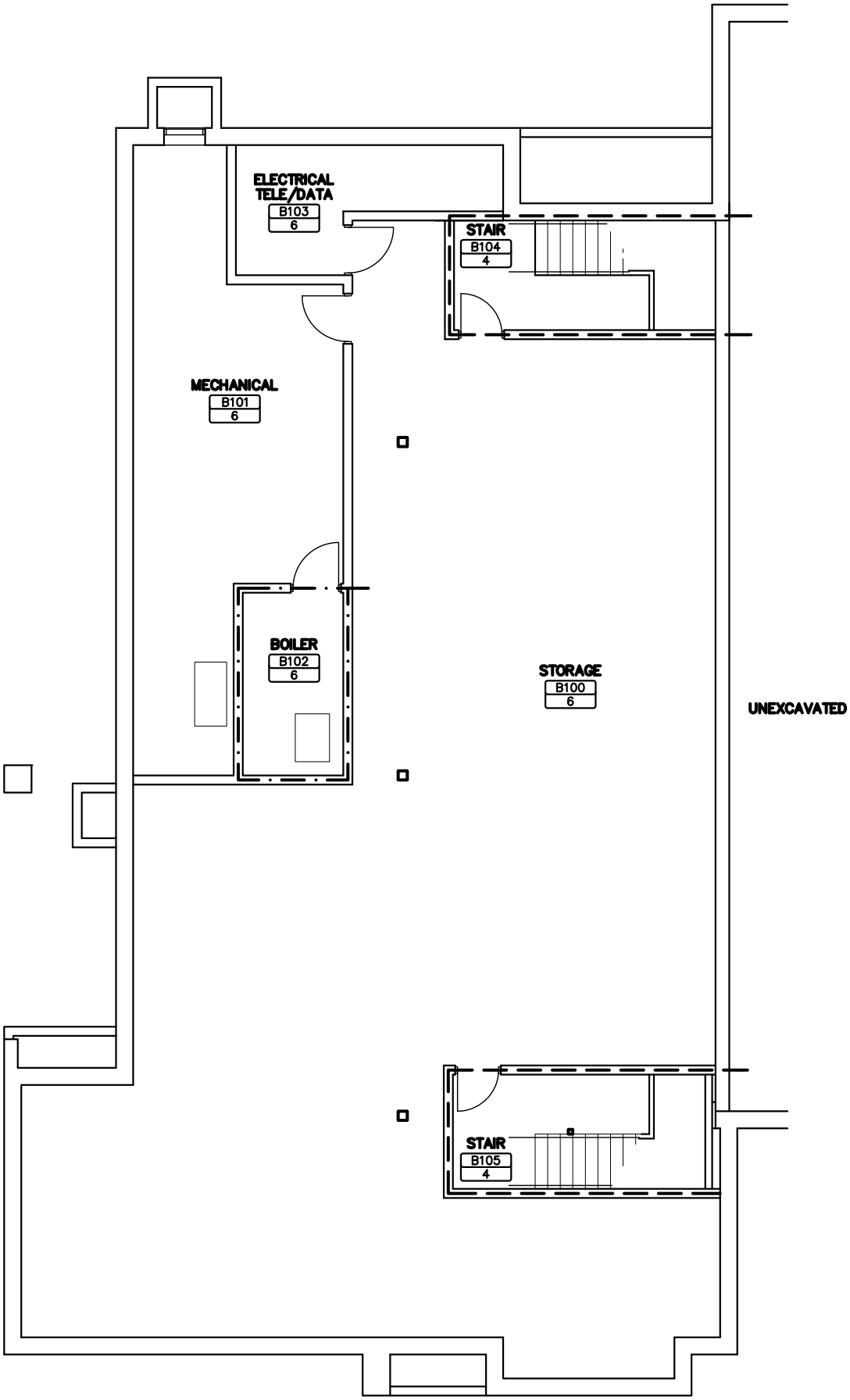
**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | Casework | **$6,000-$8,000** |
| **Code/ADA** | | | | **NA** |
| **Structural** | | | | **NA** |
| **Fire Protection** | Kitchen Hood System | | | **$100** |
| **Plumbing** | Code Issues | | | **See TMV** |
| | Thermal Mixing Valve | | | **$10,000** |
| **HVAC Systems** | | | Humidity | **$10,000** |
| | | | Occupied Space Ventilation (Basement) | **$7,000** |
| | | | Occupied Space Thermal Comfort | **$2,000** |
| | | | Exhaust Ductwork | **$2,000** |
| | | | Kitchen Hood, Fan and Ductwork | **$15,000** |
| | Piping | | | **$4,000** |
| | | | Mechanical Room Ventilation | **$500** |
| | | | Room Control | **$2,000** |
| | Dryer Exhaust | | | **$1,000** |
| **HVAC Subtotal** | | | | **$43,500** |
| **Electrical** | Receptacles | | | **$1,000** |
| **Building Total** | | | | **$60,600-$62,600** |

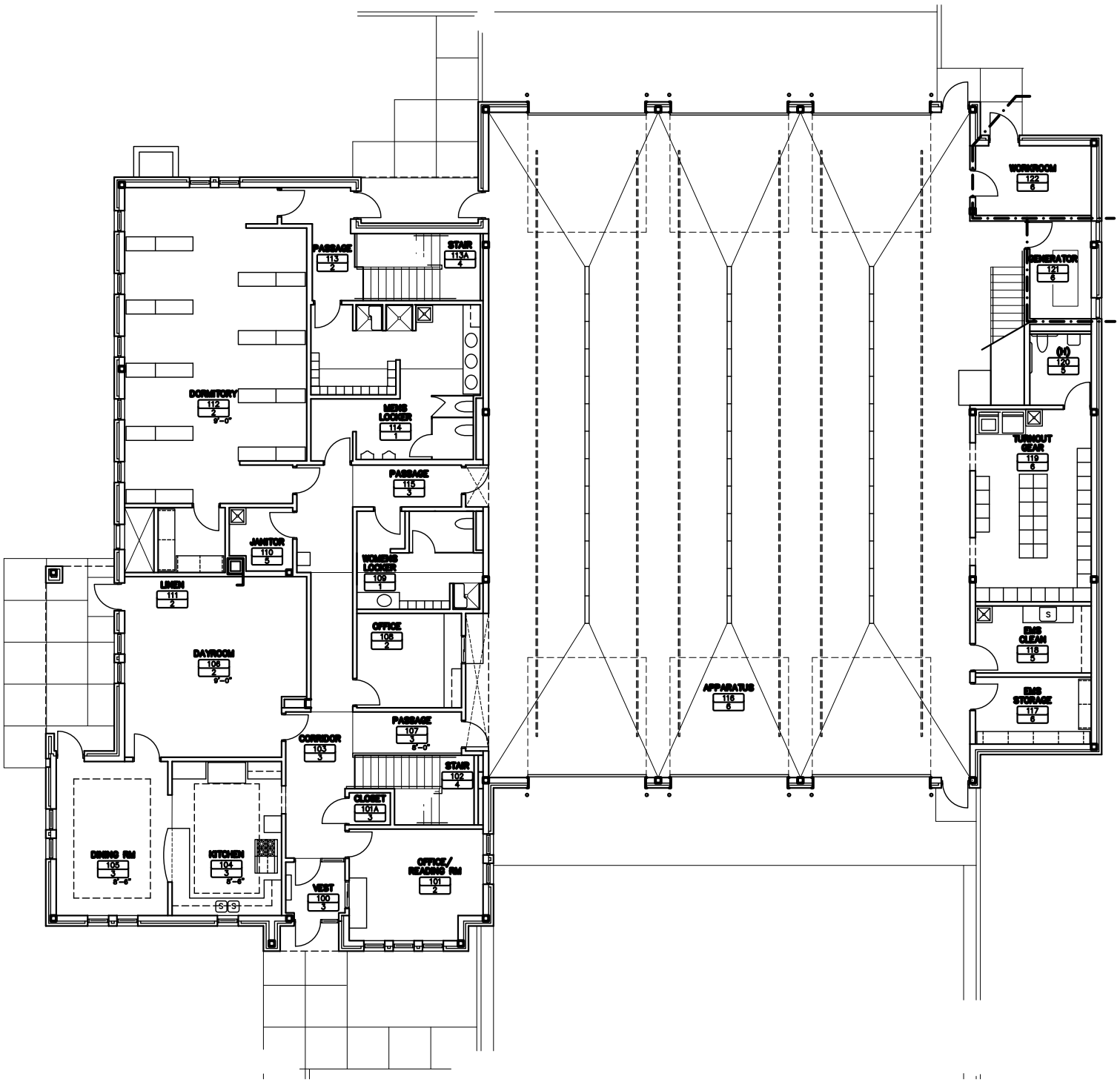
**Aerial View of Site**



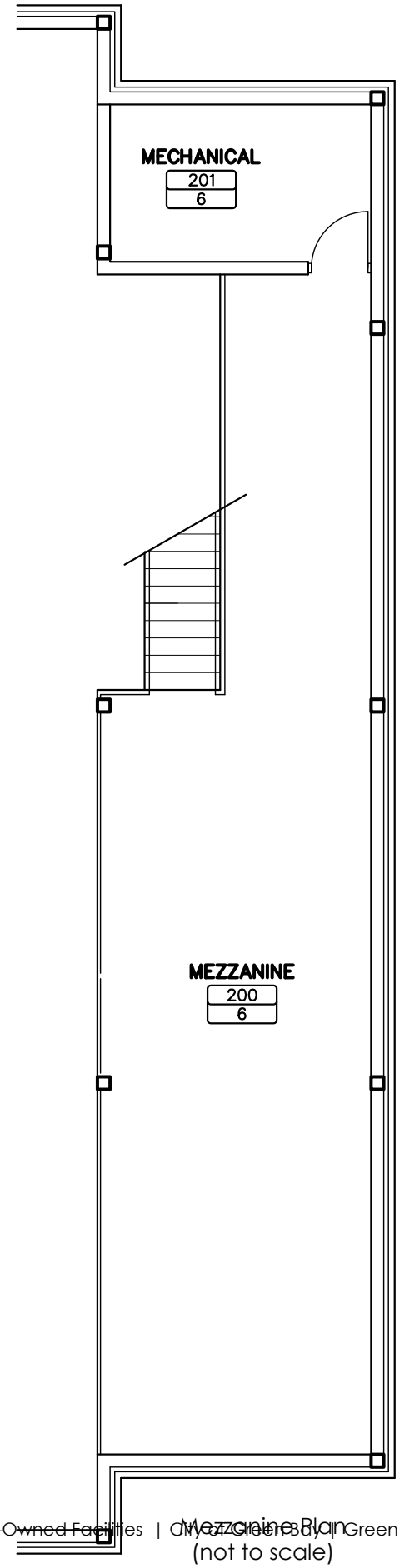

**Site Plan**




Basement Plan
(Not to scale)




Basement Plan
(not to scale)




Mezzanine Plan
(not to scale)

# ARCHITECTURAL

## Building Description

The three-bay-wide apparatus room of Station #4 is flanked on the east by mechanical and storage rooms, and a storage mezzanine, and on the west by the office/residential wing. All roofs are intersecting pitched gables. There is a basement under the office/residential wing only. The mezzanine is accessed by a metal grate stair from the apparatus room floor.

The office/residential wings have a central corridor connecting the aluminum front vestibule to two passages, both of which lead to the apparatus bay. Offices, kitchen/dining, dayroom, and janitor, Men's and Women's rooms and the south end of the dormitory are accessed from the corridor. The dormitory has a second egress via the rear stair enclosure, exiting to the north parking lot.

The basement includes mechanical rooms, workout space, a training room, storage, and a data room utilized by both fire department and other law enforcement branches. A caged storage area secures historical files for the department.

## Site Utility Settlement

Excessive settlement around and including the storm sewer catch basin was observed on the north side, immediately outside of the furthest west bay of the apparatus room. Saw cutting the paving, adding backfill and regrading, proper compaction, adding extension rings at the storm structure and patching the asphalt recommended to avoid damage to vehicular traffic utilizing the drive.

## Building Envelope

### Exterior walls

Exterior wall is comprised of a 1'-3" wide, double wythe cavity wall; a utility-height face brick separated by a weeped and vented air space, 2" of rigid insulation and an 8" concrete block backup. There is a soldier course band of utility brick at the base; two courses of split-faced concrete block headers at the doors and windows and five course of split-faced concrete block at the head of overhead sectional doors to the apparatus room.

Weep holes in the face veneer were generally clear and continued maintenance and inspection is recommended.

Sealants appeared dry, and are approaching their life span. Heightened inspection for separation from substrate recommended.

Cracks observed in a few locations along the inner wythe concrete block wall at the exterior. They were specifically noted at the outside corners of the southeast office/reading room and below the windows in the lounge near the patio. There were no signs of splitting or telescoping at the face brick mortar joints or the foundation wall.

Steel lintels throughout the building showing oxidation and spalling paint. Cleaning and touch-up paint is recommended.

Overhead sectional doors are seven-panel, with four lights. They appear to be in good working condition, including the operators.

### Roof

The pitched roof is on steel trusses, with the insulation and control layers typically at the roof line. Asphalt shingles appeared to be in good order; minimal penetrations were noted.

A minimal overhang is utilized at rakes and eaves. Overhang at the patio is finished with a solid interlocking aluminum panel.

Sheet metal flashings and trim appeared to be in good order. Gutters and open-faced downspouts were clean and well maintained.

**Windows**
The majority of the window openings are casement style, wood, operable windows and appear in good working condition.
Sealants appeared to be dry and are approaching their life span. Heightened inspection for separation from substrate is recommended.

## Interior Finishes

**Floors**
Basement training room and first floor living spaces are carpeted. Other basement areas are sealed concrete. Stair landings and floors within the enclosure are patterned rubber tile. Stair treads and risers are one-piece rubber with matching pattern on the treads.

First floor corridor, kitchen and dining has 12" porcelain tile floor with matching base. Locker/toilet rooms have a 2" x 2" ceramic tile floor and 4" glazed cove base.

**Walls**
Almost all interior walls are painted concrete block. The shower stall walls have glazed 4 ¼" x 4 ¼" tile. A basement wall built after the station's construction is gypsum board faced.

**Doors**
Most exterior and utility/storage room doors are painted metal. The main entrance from the south parking area has white aluminum entry doors and sidelight at both sides of the vestibule. Offices and the door from dining to exterior patio have a 3" wide central light in the door, half height. Other interior doors are flat-panel, oak veneer, medium stained, with metal frames.

**Ceilings**
The majority of ceilings are 2'x2' lay-in acoustic tile. Gypsum board soffits are used at casework locations. Open basement, apparatus and mezzanine areas are exposed structure.

**Casework**
Casework at kitchen, offices and toilet rooms is plastic laminate bodies and tops. One upper cabinet is noted as not secured to wall. Several tops and door fronts are showing chipping and wear.

Dormitory sleeping areas are separated by built-in plastic laminate closet/desk. These appear to be in good condition. Units are approximately 6'-10" tall, allowing 8 to 10 inches of clearance to the ceiling.

Storage rooms have painted particle board shelves on metal shelf standards. The equipment room of the apparatus bay has open metal grid lockers. Standard metal lockers are in Men's and Women's locker rooms.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | | | |
| Exterior Facade Condition | C | | | |
| Exterior Door Condition | C | | | |
| Window Condition | C | | A1 | |
| Floors | C | | | |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Walls | C | | | |
| Doors | C | | | |
| Ceilings | C | | | |
| Casework | HP | $6,000 - $8,000 | A2 | See note regarding budget. |

**NOTES:**

**A1.** Heightened sealant inspection recommended.

**A2.** Recommend repair/reattachment of casework upper that is not attached to wall currently. Due to wear on many tops, solid surface material should be considered for future replacements. Replace or resurface damaged plastic laminate at doors/drawer fronts. Low end of budget cost range reflects kitchen tops only. An evaluation by casework manufacturer is recommended to better assess amount of repair needed at door/drawer fronts.

**South (Front) Elevation**

**North/East Elevations**

**North/West Elevations**

**South/West Elevations**

Apparatus Bay and Mezzanine Beyond

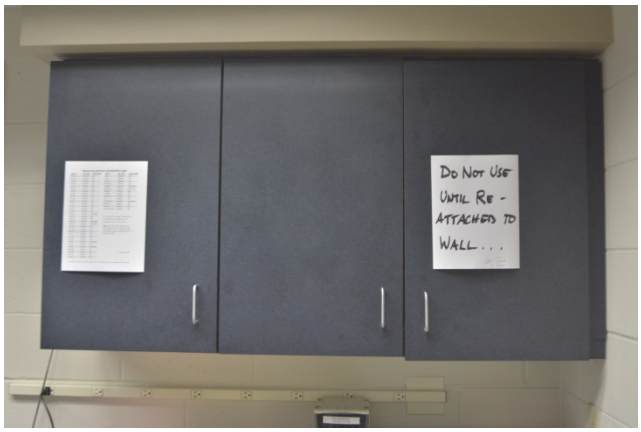
Depressed Catch Basin and Paving

Basement Workout Room

Basement Training Room

Kitchen/Dining

Damaged Laminate at Kitchen

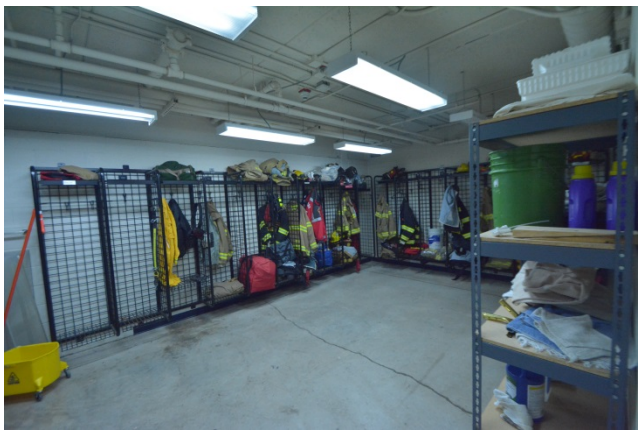



**Office Casework**

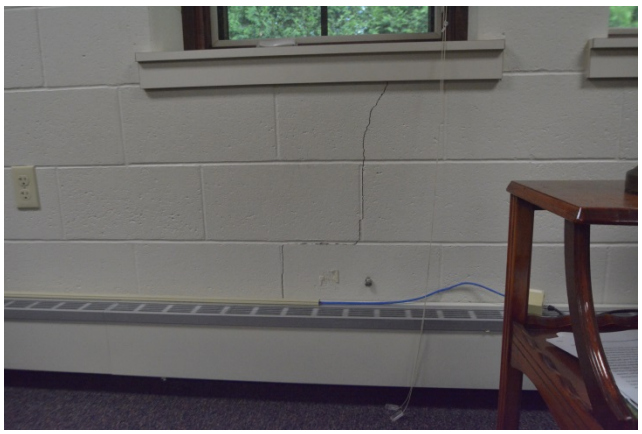
**Office/Reading Room**

**Men's Room**

**Dormitory**



**Equipment Storage**



**Reading Room Exterior Wall**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1999 | **Gross Area** | Basement: 4,273 SF<br>First Floor: 10,065 SF<br>Mezzanine: 1,022 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | **S-1** Moderate-hazard Storage non-separated from **B** Business and **R-3** residential | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type II-B | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

The building code for the State of Wisconsin at the time would have placed this building in Chapter 54, Factories, Office and Mercantile occupancy. The classes of construction at the time would have been Fire-resistive type B. The building's materials would place it equivalent to Type II-B in the 2009 IBC.

The current 2009 IBC does not specify fire stations as being Business occupancy, therefore the building occupancy may be determined more by usage of space. For Fire Station #4, the basement and the east half of1st floor are non-separated B-business and S-1 storage. The west half of 1st floor is non-separated B Business and R-3 Residential, based on the definition of congregate living facilities as those where residents share bathroom and/or kitchen facilities.

### Egress and Safety

The apparatus bay provides two legal means of egress doors in addition to the overhead doors. Storage and mechanical rooms and mezzanines on the east side of the apparatus bay also egress through these doors, with an additional egress door in the workroom.

The business and residential areas of the building offers three egress points in addition to the connections to the apparatus bay. The area of the mezzanine is less than one-third of the floor area of the room in which they are located, which complies with current codes (IBC 505.2). Mezzanine access is via an open metal-grate stair from the apparatus bay.

### Stair Shafts

The south stair is separated from the basement by a 1 -1/2 hour rated door, but is open to first floor. The north stair is similar, except that it opens to an enclosed passage on 1st floor that acts as a sort of vestibule. The enclosure at the bottom allows the stairs to technically comply with the requirement for enclosure (IBC 1022.1). Under current code, the Men's bathroom and locker room would not be allowed to open onto the exit enclosure at the north stair (IBC 1022.3), but would be allowed as grandfathered from the 1999 code.

Some storage items are located in the stair shafts. As this is not a grandfathered building feature, and does not comply with current code (IBC 1022.1), these items should be removed.

**Handrails and Guardrails**
Hand rails at both stairs in the business/residential area are at 33" above the nose of the tread, which is below the minimum of 34" per current code (IBC 1012). Guard rail height is just below the required 42" called for currently (IBC 1013). Openings at sides of stairs below handrails is typically 5 ½", with larger openings at the stair edges. None of these situations poses a significant hazard, and they are grandfathered in as compliant, so no changes are recommended. Handrail extensions comply with current code.

Handrails at the stair to the mezzanine are 32 ½". As noted above, this does not comply with current code, but is allowable. The guards at the open storage mezzanine are 42" above the floor, which does comply with current code. The openings at both the mezzanine stair and mezzanine floor are significantly larger than the interior stairs, ranging from 11 ½" to 17". As these areas are in the storage occupancy part of the building, and not open to the public, they would comply with IBC 1013.3, Exception 4.

## Summary of Accessibility/ADA Compliance

The following summary of accessibility is provided for owner reference, with the acknowledgement that persons using this building can only do their job if they do not have accessibility needs. Additionally, the public does occasionally access the fire stations for school tours etcetera, so safety and compliance are required. As noted above, accessibility may be mandated by code based on the extent of work being done.

**Accessible Route**
Entry to the building is at-grade at all building entrance/egress points. A 5'-0" wide corridor is provided in the occupied building areas. Accessible parking space and proper signage is provided at the front of the station.

**Doors**
All doors are 36" with lever or push/pull hardware, which complies with accessibility guidelines. Maneuvering space is provided in most cases as well. A refrigerator in the dining area could be moved to provide better maneuvering space for the door to the exterior patio.

**Plumbing Fixtures**
The sink in the kitchen is at 36" rim height, which is higher than allowable for accessible side reach. The drinking fountain spout height is at 35", which complies with ADA 602.4. Bathroom lavatories are slightly above the 34" maximum for accessibility. One accessible shower is provided in both Men's and Women's locker rooms. Since the time of construction, a vertical grab bar has been added to the requirements for accessible toilets. This could easily be added.

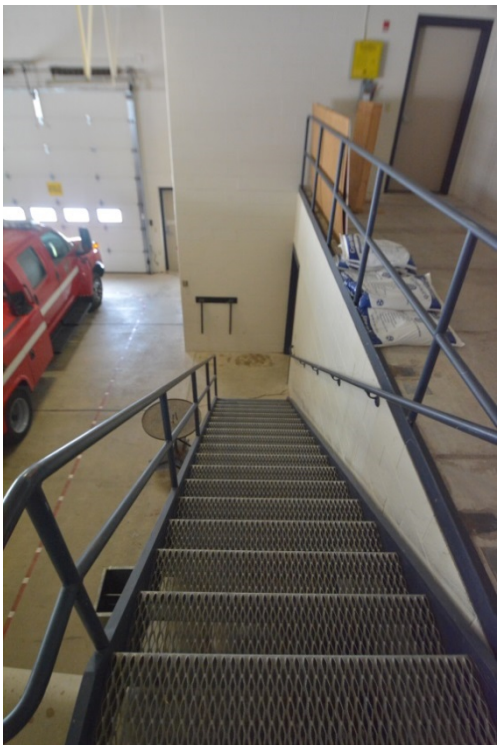
**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Egress and Safety | C | | | |
| Stair Shafts | C | | | All storage items should be removed from stair enclosures. |
| Handrails/Guardrails | C | | | |
| Accessible Route | C | | | |
| Doors | C | | | |
| Plumbing Fixtures | F | | | Sink rim is too high. |
| Grab Bars at Fixtures | C | | | Vertical grab bar could be added at toilets. |

**Accessible Parking and Entry**

**Corridor and Top of South Stair**



**Stair to Mezzanine**

**North Stair at Basement**

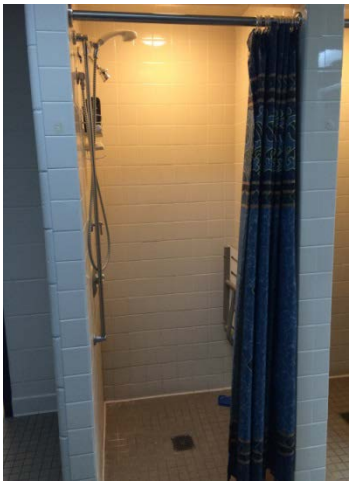
Doors and Hardware

Lever Handle

Kitchen

Men's Lavatories

Accessible Toilet Stall



Accessible Shower Stall

## STRUCTURAL SYSTEM

### Summary

The structure consists of steel roof deck and open web steel joists supported on a frame of steel wide flange beams and steel tube columns. Masonry walls are non-load-bearing and there is a basement under the living quarters.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1999 (Berners-Schober Comm. No. 4694) |
| **Structure type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation and/or basement walls bearing on individual spread or continuous strip footings. |
| Basement | **C** | | | Under west half (Living Quarters) of the building. Floor is a 4" concrete slab on grade with 6x6 – W1.4xW1.4 welded wire mesh reinforcing. |
| 1st Floor | **C** | | **S1, S2, S3** | a. Living quarters floor is 8" precast pre-stressed concrete plank with 3" non-structural concrete topping supported on steel beams.<br>b. Apparatus Garage floor is an 8" concrete slab on grade with 6x6 – W2.9xW2.9 welded wire mesh reinforcing. |
| Mezzanine on east side of Apparatus Garage | **C** | | | 8" precast pre-stressed concrete plank with no topping, supported on steel beams and columns. |
| Roof | **C** | | | 1 ½" B-20 steel deck and various sizes of Type "K" and Type "LH" open web steel joists supported on a structural steel frame. |
| **Occupancy Category** | **NA** | | | Occupancy Category IV |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0-hour beams, columns & floor slabs, 0-hour roof) |
| **Vertical expandability** | **NA** | | | None. |
| **Typical column spacing** | **NA** | | | N/A |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

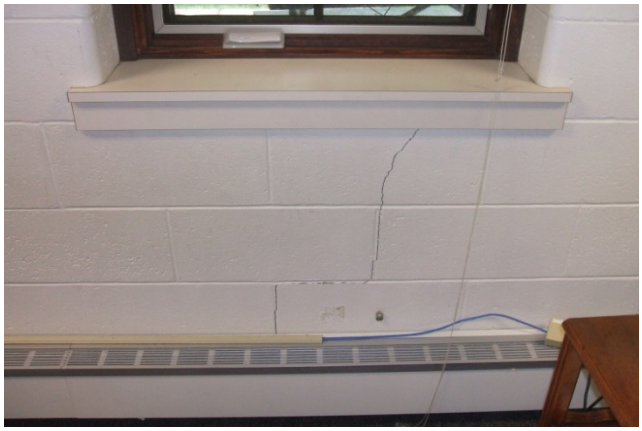
**S1.** There are two vertical cracks at the wall intersections in the southeast corner of the front office/reading room. These appear to be the result of shrinkage in the masonry combined with the multiple changes in direction of the wall in this area. There is no visible distress in the exterior brick and the wall is non-load-bearing. Therefore, no remedial action is recommended at this time.

**S2.** There is minor horizontal cracking near the top of the north wall in the Dayroom that proceeds around to the west wall and northwest door head. Because the north wall is built on top of the precast plank and parallel to the direction of its span, it is likely that this cracking is the result of the lower portion of the wall flexing with the plank, and the upper portion of the wall trying to bridge across the span. This wall is non-load-bearing and no remedial action is recommended at this time.

**S3.** There is a noticeable crack in the masonry below the sill of one of the windows on the west wall of the dayroom. A review of the original detail for the base of this wall shows that the precast plank bears on a 5" pocket in the foundation wall, which places the end of the plank around the middle of the 8" CMU. This also means that half of the block bears on the outer portion of the basement wall while the other half bears on the precast plank. As flexure in the plank would cause a slight rotation at the bearing end (which can vary between pieces of plank), it is likely that the differential rotation in this particular location was enough to cause a small shift of the CMU resulting in the crack that was observed. There is no visible distress in the exterior brick and the wall is non-load-bearing. Therefore, no remedial action is recommended at this time. However, the condition should be monitored over time and if it worsens, it should be investigated further.

**Masonry Cracking in Office/Reading Room (Note S1)**

**Masonry Cracking at North Wall of Dayroom (Note S2)**



**Masonry Cracking at West Wall of Dayroom (Note S3)**

## PLUMBING SYSTEMS

### Summary

Fire Station #4 was constructed in 1999. The original piping is in good condition. Glass fiber insulation on the water piping helps to conserve energy. The building is served by (2) water heaters in the basement (west side) and one on the east side mezzanine. A thermal mixing valve(s) (TMV) should be added to the hot water systems and hot water temperature adjusted to 110° Fahrenheit. This is a code issue that should be corrected.

With the building being newer, the toilet rooms have been designed per ADA guidelines.

Building is served by gutter and downspouts. Downspouts are directed underground to the storm sewer.
First floor plumbing fixtures discharge by gravity. Basement floor drain(s) are pumped to grade.
Parking lots are served by interior storm drainage (i.e. catch basins and curb inlet).

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | Cast iron, no-hub connection |
| Storm/Clearwater Piping | F | | P3 | Pump discharge - galvanized |
| Valves | F | | P4 | Ball valve(s) |
| Domestic Water Service | C | | P5 | 6" water service |
| Insulation | C | | P6 | Glass fiber insulation |
| Code Issues | D | See TMV's | P7 | Add TMV's at water heater(s) |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | (3) Gas-fired heaters |
| Drench Shower Station | NA | | | |
| Recirculation Pump(s) | F | | P9 | |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $10,000 | P10 | Add TMV's (code issue) |
| Grease Interceptor | NA | | | No grease interceptor required. |
| Kitchen Equipment | F | | P11 | |
| Plumbing Fixtures | F | | P12 | |
| Oxygen Storage | NA | | | |
| Backflow Prevention | C | | P13 | 1 ½" hose connection |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| "Shop" Air Compressor | **NA** | | | |
| Laundry Equipment | **F** | | P14 | |
| Drain Tile Sump/Pump | **F** | | P15 | Zoeller duplex |
| Sanitary Sump/Pumps | **F** | | P16 | Zoeller duplex |
| Ambulance/Truck Garage | **F** | | P17 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage, Roof Drainage | **F** | | P18 | Gutter & Downspouts |
| Lawn Irrigation | **NA** | | | |
| Utilities | **F** | | P19 | |

**NOTES:**

**P1.** Water piping is copper, soldered joints. Good condition. Piping is mostly insulated.

**P2.** Original sanitary waste/vent is cast iron, no-hub connection. Pump discharge is galvanized threaded connection.

**P3.** Building storm is served by gutters and downspouts. Downspouts discharge underground to storm sewer. Pump discharge is galvanized threaded connection.

**P4.** Ball valves on the water piping.

**P5.** Building is served by a 6" water main – combined for fire protection and domestic water. Domestic water is a 2" main with 3-valve bypass around the meter set.

**P6.** Water piping is insulated with glass fiber insulation.

**P7.** Code issues: water temperature is set higher than the allowed 110° Fahrenheit per code. No thermostatic mixing valve (TMV) at the heaters. Add TMV's per code, and adjust temperature to 110° F.

**P8.** Water heaters are gas fired, direct vented. Two heaters in the basement are Model PR6100NRRT, 100 gallon, 100,000 BTU. Heater on the mezzanine is a State model PR64ONBDVT, 40,000 BTU, sealed combustion.

**P9.** Hot water recirculating pump(s) are installed at the water heaters. Building is separated into a west and an east zone, with separate heaters, pumps and HWR piping.

**P10.** Add TMV's to water heaters. Set hot water temperature to 110° Fahrenheit maximum temperature. Code issue.

**P11.** Kitchen equipment: 2 compartment sink with garbage disposal. No dishwasher.

**P12.** Plumbing fixtures: Most of the fixtures are ADA-compliant. WC's are wall-hung with flush valves. Lavatories are vitreous china set in the countertop, lever handle faucets. Urinals are wall-hung with battery operated flush valves. Showers are built-up. One ADA shower in Men's/Women's toilet rooms. Men's toilet room also has a janitor's curb installed for clean-up. Single unit Elkay electric water cooler outside the locker rooms. Kitchen sink is stainless steel double compartment with garbage disposal. Garage has several cold water service faucets with hose thread vacuum breaker connections. 1 ½" hose connections have an elevated atmospheric vacuum breaker installed. Non-freeze sill faucets installed on the east and west sides of the building.

**P13.** There is a Watts 009 RPZ backflow in the boiler room for the HVAC boiler. 1 ½" hose connections in the garage have an elevated atmospheric vacuum breaker installed. Faucets with hose connection ends have a threaded hose end vacuum breaker installed. All backflow prevention is compliant.

**P14.** Residential washer (and dryer) installed in the turnout gear room.

**P15.** Zoeller duplex submersible 1 ¼" discharge pumps serve the building drain tile system around the basement area.

**P16.** Zoeller duplex submersible 2" discharge pumps serve the basement mechanical rooms floor drain(s).

**P17.** Garage: trench drains which discharge to a garage catch basin.

**P18.** Building roof pitches to perimeter gutter and downspout system. Downspouts are routed underground to the storm sewer. Parking lots are picked up by interior storm catch basins and curb inlet.

**P19.** Utilities are routed from West Point Road. Building is served from a 6" water main (combined fire protection and domestic feeds), 16" water main in street. 4" sanitary sewer routes to an 8" in the street. 6" and 10" storm sewers on each side of the building discharge to a 15"/18" storm lateral in the street.

**Sanitary Piping – Basement**

**Water Piping – Insulated**

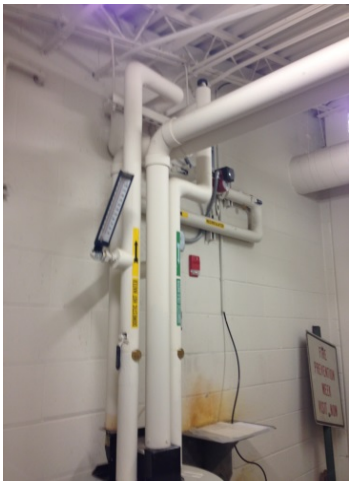
**Water Main & Meter**

**Water Meter Set with By-pass**

Water Heater(s)

Water Heater(s)

Water Heater – Mezzanine

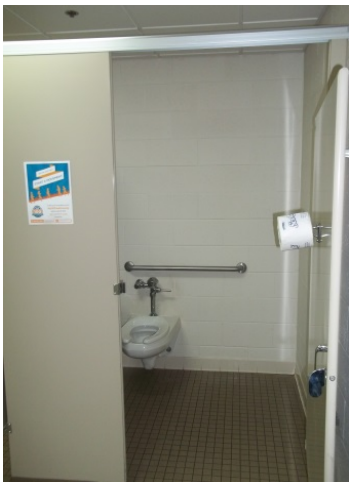


Water Heater Piping

Water Heater Recirculating Pump

Kitchen Sink

Garbage Disposal – Kitchen Sink



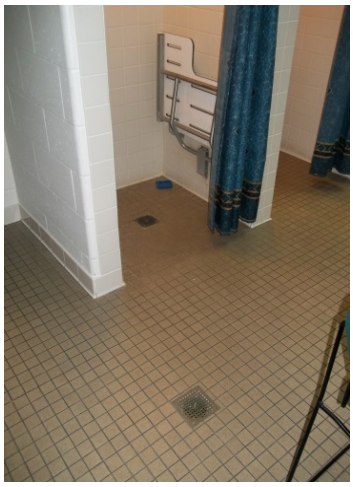
Water Closet-Men's (ADA)

Water Closet – Women's

Men's Urinals (Regulation Height & ADA)

Lavatory – Women's (ADA)

Lavatories – Men's (ADA)



**Shower – Men's**

**Shower – Men's**

**Shower – Men's**

**Sink – EMS Clean Room**

**Water Closet & Lavatory (ADA)**

**Janitor's Curb**

Electric Water Cooler

Janitors' Curb

Hose Connection(s)

Sump/Pumps

Sumps/Pumps

Garage Trench Drain

**Garage Catch Basin**

**Gutter & Downspouts**

**Gutter & Downspouts**

**Non-freeze Sill Faucet**

**Parking Lot Curb Inlet**

## FIRE PROTECTION SYSTEMS

### Summary

Fire Station #4 was built in 1999 and was fully sprinkled at that time. The originally installed fire sprinkler system piping and equipment appears to be in good condition and is free of leaks and corrosion.

The building is considered fully sprinkled and appears to meet the requirements of that designation. Sprinkler heads are installed in all rooms and below obstructions as required.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| FIRE PROTECTION | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Water Service** | **C** | | FP1 | 6" underground reduced to 4" in the building |
| Backflow Prevention | **C** | | FP2 | Double Check Valve |
| Fire Pump | **NA** | | | |
| Fire Pump Controller | **NA** | | | |
| Jockey Pump | **NA** | | | |
| Jockey Pump Controller | **NA** | | | |
| **Wet Pipe Sprinkler System** | **C** | | | |
| Valves | **C** | | FP3 | |
| Piping | **C** | | FP3 | |
| Sprinkler Heads | **C** | | FP3 | |
| **Percent of Building Unit Sprinkled** | **100%** | | | |
| **Other Fire Protection Systems** | | | | |
| Pre-action System | **NA** | | | |
| Kitchen Hood System | **D** | $100 | FP4 | Kidde WHDR 260 Wet Chemical System |

**NOTES:**

**FP1.** The underground water main is a 6" main that enters the building on the west wall of the Mechanical Room B101. The 6" main supplies both the Fire Sprinkler System and the Domestic Water System. After the 6" enters the building it splits and a 4" main serves the Fire Sprinkler System.

**FP2.** The backflow preventer is a 4" Ames 2000SS in good to new condition. OS&Y Gate Valves are located on either side of the backflow preventer and also appear to be in good to new condition.

**FP3.** The valves, piping, and sprinkler heads appear to be in good to new condition. The pipe is black steel pipe with a mix of threaded and grooved fittings and does not show any signs of leaking or corrosion. The sprinkler heads used are a mix of upright and pendent sprinkler heads with all rooms and closets protected with sprinkler coverage.

**FP4.** The Kidde Wet Chemical System appears to be in good condition. Blow off caps are not present on the discharge nozzles.

**Water Service and Double Check Valve BFP**

**Sprinkler Head below Ductwork**

**Spray Shield on Sprinkler in Data Room**

**Blow off Caps Missing on Hood System**

**Fike Wet Chemical System**

**Sidewalls Heads under Overhead Doors**

# HVAC SYSTEMS

## Summary

The building construction began in 1999. The city has added server equipment into an existing basement data/electrical room and has constructed a wall across the basement to create a meeting room separate from the exercise area.

The living quarters is served by a modular air unit, which is located in a basement mechanical room. The air unit utilizes split system DX cooling to condition the air. The condensing unit is located on grade adjacent to and above the mechanical room. The ventilation air is distributed to each room where a reheat coil heats the air to regulate the space temperature. Wall mounted fin tube radiation provides additional heat along some of the perimeter rooms.

The thermostat for the basement area is located in the exercise area. This thermostat also controls the air temperature in the meeting room.

The toilet/locker rooms are served by a cabinet fan located in the apparatus garage. The kitchen ventilation hood is served by cabinet fan located above the kitchen ceiling. The hood is a type 1 hood with a fire suppression system. The grease filter is horizontal and met code at the time of installation.

The basement data/electric room is served by a ductless split system air conditioning unit. The condensing unit is located on grade, above and adjacent to this room.

A hot water boiler system is located in a basement mechanical room. The pumps operate lead/lag and serve a single boiler. The hot water is distributed to reheat coils, fin tube radiation, convectors and cabinet heaters located throughout the living quarters.

The controls for the living quarters are pneumatic. Air compressors are located in the apparatus room and in the basement mechanical room. The unit located in the apparatus room appears to be dedicated to the PlymoVent System. The unit in the basement serves the living quarters. Apparatus room controls are electric. The living quarter's control system has been revised slightly to lock-out the occupant's ability to change the space temperatures. To change the space temperature, the control company is called in to connect their computer to the building system and the set point is changed.

The apparatus garage is served by (2) gas fired make-up air units. One unit ventilates the garage while the other unit serves the turnout room and other ancillary work, storage, and equipment rooms. An exhaust fan, located in the garage, provides the space with the required exhaust. A gas detection system is located in the garage. This system, when installed, allowed the exhaust system to remain off except for 5 hours a day and if gas was detected thereby providing energy savings. Radiant heaters are also utilized to heat the garage. A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave during fire calls.

A hazardous storage room is ventilated by a dedicated exhaust fan. A hose dryer is vented outside. The laundry dryer is vented into the turnout room.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Air Unit** | | | **H1** | Installed 2000. Free cooling design with open windows and return/exhaust fan operation. |
| Housing | **C** | | | |
| Air intake | **C** | | | |
| Condenser | **F** | | **H1** | 208/3, (2) 7.5 HP compressors. Housing beginning to rust, condenser fins are bent. |
| Fan | **C** | | | 5900 CFM, 5HP. |
| Filters | **C** | | | 30% filters |
| Controls | **C** | | | DDC with pneumatic operators. |
| Ductwork | **C** | | | Original to the 2000 installation |
| Insulation | **C** | | | Where viewed the insulation appears intact. |
| Humidity | **HP** | $10,000 | **H1** | Residential type unit. Manually filled. Humidification is not a code requirement. |
| Occupied Space Ventilation (Basement) | **HP** | $7,000 | **H1** | No thermostat in meeting room, controlled off exercise room. Separate reheat coil already exists. |
| Occupied Space Thermal Comfort | **HP** | $2,000 | **H1** | Controls revised to lock out occupant's ability to adjust. Control contractor called in to adjust each time. |
| **Exhaust Fans** | | | | |
| Toilet/locker room exhaust | **C** | | **H2** | 900 CFM cabinet fan, ¼ HP. |
| Exhaust Ductwork | **HP** | $2,000 | **H3** | Original to 2000 installation. Dust/lint build-up on grilles/ducts. |
| Kitchen Hood, Fan and Ductwork | **HP** | $15,000 | **H4** | 660 CFM, ¼ HP, Type 1 hood. Horizontal filter. Compliant at time of install. |
| **Boiler System** | **C** | | **H5** | Installed 2000 |
| Boilers | **C** | | | Bryan HED boiler, 350 MBH input, 290 MBH output |
| Pumps | **C** | | | B&G 3/4 HP lead/lag pump 25GPM@25 feet |
| Piping | **D** | $4,000 | **H5** | Copper water piping, steel gas piping. Gas regulators off gas meter are not piped away from doors and operable windows. |
| Pipe Insulation | **C** | | | |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Room Terminal Units | C | | | Convectors, cabinet heater, fin tube pneumatically controlled |
| **Mechanical Room Ventilation** | HP | $500 | H6 | High and low combustion air vents are short of the 12" termination distances. |
| **Data Room Ventilation** | C | | | Ductless Split. |
| **Controls** | | | | |
| Air Compressor | C | | | Simplex unit for PlymoVent.<br>Living quarters: 1.5 HP duplex unit with (1) motor replaced in 2008 |
| Room Control | HP | $2,000 | H7 | Pneumatic. Controls revised to lock out occupant's ability to adjust. Control contractor called in to adjust each time. |
| **Garage Ventilation** | | | H8 | |
| Make-up Air Unit | C | | | Gas fired units suspended high in apparatus room. 400 MBH and 175 MBH. |
| Exhaust | C | | | Cabinet fan (2,300 CFM) suspended high in apparatus room. Gas detection system. (1) 300 CFM fan dedicated to hazardous room. (1) 1,500 CFM fan for storage rooms. |
| Truck Exhaust | C | | | PlymoVent. |
| Control | C | | | Electric. |
| Dryer Exhaust | D | $1,000 | H9 | Vent terminates inside. |

**NOTES:**

**H1.** Air unit is original to the 1999 construction. Expected useful life is 20-25 years depending on maintenance and operation of the unit. The condensing unit is beginning to show signs of rust and condenser damage and may require replacement prior to the indoor components, thus the fair rating.

The air unit is a constant volume system with reheat coils at each zone to provide individual room control. The boiler must remain operational to allow the reheat system to operate. The control system was originally set-up to cumulate temperatures from three zones to allow the air unit to adjust its discharge temperature. Each zone was designed to allow occupant adjustments. This control has been overridden to lock-out the occupant's adjustability. Now a contractor is called in to adjust the temperature. To reverse this, the control contractor will need to provide some minor reprogramming to the DDC system.

The occupied basement area has been split into two zones but the ductwork and thermostat control was not modified. The meeting room space temperature is controlled by the thermostat in the exercise room. Recommend a reheat coil revision/installation to allow the meeting room to have dedicated thermal control.

A portable residential style humidifier is located in the sleeping room. This indicates that the occupants are attempting to regulate the building humidity to improve their comfort. This unit will actually improve humidity only slightly, but may have a greater psychological effect. This is because the air unit will introduce a greater amount of dry outside air than this unit can properly humidify. To humidify this building, it is recommended to install an electric or gas fired humidifier that is sized to serve the entire living quarters.

**H2.** The cabinet fan is located high in the apparatus garage and is designed to ventilate the space appropriately. Maintenance history and future maintenance practices will determine unit's useful life. Expected life is 20 years.

**H3.** Dust building up is visible on the grilles and visible portion of the duct. Duct cleaning and air balancing is recommended to ensure proper ventilation rates within these areas.

**H4.** The kitchen hood is a type 1 hood, equipped with fire suppression and a horizontal grease filter. The fan is located above the kitchen ceiling. Current code indicates that the filter should be mounted at a 45 degree angle. This is because a horizontal filter position more easily allows grease to drip onto the stove surface or into the food product being prepared. The hood system appears to be in good condition and was compliant at the time of install. There is not a recommendation to replace. However, the high priority rating is given so the estimate for future replacement will appear in the summary sheet.

**H5.** The boiler system is original to the 2000 construction. Boiler system will have an expected useful life of 25-30 years depending on maintenance practices. This boiler system is piped with lead/lag pumps and a chemical feeder unit. There is no filter unit, like stations 2 and 7. Future installation, when boiler is replaced, is recommended to aid in removing suspended particles from the heating system.

The gas meter was revised to extend a pipe to a second generator. Additional regulators were installed. The regulator vents are located too close to the operable doors and windows and are recommended to be piped away from these openings.

**H6.** The boiler combustion venting is split to a high and low position in the boiler room as required by code. Their terminations are just short of the 12" clearance maximum. Although a minor issue, the combustion ductwork should be made compliant. Recommend adjustment when the boiler system is replaced.

**H7.** Refer to item 1, air unit control as well. The occupant's ability to adjust temperature has been locked out. This is not a code issue. However the control company is called in, for a service charge, to adjust space temperature. It is recommended to have the control company reprogram the air unit DDC control sequence to reinstate the air unit reset schedule and allow occupant adjustment of their space. The control company could allow this system, or all fire station systems, to be monitored from a central computer system at any site.

**H8.** The apparatus garage is currently served by gas fired make-up air units and radiant heaters. The garage exhaust is served by a cabinet fan with additional fans serving the hazardous storage room and ancillary storage rooms. A gas detection system is installed in the garage to take advantage of a code provision to allow the system to operate for 5 hours a day and not continuously, which provides significant energy savings. Under current code a small exhaust fan could be installed to exhaust the garage continually and this would provide additional energy savings. No recommendations for immediate replacement or installation of equipment are made at this time.

A PlymoVent exhaust system is connected to each truck parked in the garage. This system operates whenever a truck is started and the vehicle exhaust is expelled from the garage. The hoses, where attached to the trucks, are showing some signs of wear and tear.

**H9.** A laundry dryer is located in the turnout room and terminates inside the room. It is recommended to vent this unit to the outside.

**Air Unit**

**Condensing Unit**

**Return Fan**

**Exhaust Fans**

**Hazardous Exhaust Fan**

**Kitchen Hood**

**Typical Exhaust Grille**

**Typical Supply Grille**

**Typical Fin Tube Radiation**

**Boiler Room Combustion Vent**

**Humidifier**

**Boiler**

Hot Water Pumps

Chemical Feeder

Gas Meter

Temperature Control Air Compressor

PlymoVent Air Compressor

Garage Make-up Air Unit

Garage Radiant Heater

Garage Gas Detection

Garage Heating Controls

Generator Combustion Louver

Generator Venting

Grille Gas Connection

**Garage Exhaust Vent**

**Truck Exhaust (PlymoVent)**

**PlymoVent Exhaust Fan**

**Dryer Exhaust Vent**

**Hose Dryer**

**Outside Air Louver**

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 600 Amp, 120/208 Volt, three-phase electrical service. The panels are in good condition, and have capacity for the future. There are two emergency generators serving the building, both are in good condition. Generator #1is serving two automatic transfer switches which supply emergency panels serving life safety loads and non-essential emergency loads respectively. Generator #2 is serving one automatic transfer switch which supplies an emergency panel serving non-essential emergency loads. The equipment is in good condition and has some future capacity.

The outlets within the garage are not GFCI protected. Exterior outlets are GFCI, but their covers are not weatherproof while-in-use. Lighting fixtures are in good condition and utilize T8 lamps and ballasts, incandescent and compact fluorescent lamps. There are occupancy sensors located in the toilet rooms, sleeping area, offices, gear room, and lounge. Timer switches are installed in storage, mechanical, and work rooms. HID building mounted fixtures and downlights are in good condition; consideration should be given to replacing the HID fixtures with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition and the facility is pulling Cat 5e and Cat 5 data and voice cabling and coax for CATV. There is an Edwards EST fire alarm system with smoke detectors and notification devices throughout the building which are in good condition. Fire alarm notification coverage appears to be compliant.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Electrical Service** | | | | |
| Utility Service Entrance | C | | | 600 Amp underground electrical utility service enters the building in the basement electrical room. |
| **Normal Power Distribution Equipment** | | | | |
| Main Distribution Panel | C | | | 600 Amp MCB Square D I-Line panel, in good condition. |
| Branch Panels | C | | | Square D NQOD panels in good condition with future capacity. |
| **Emergency Power Distribution Equipment** | | | | |
| Generators | C | | | Generator #1 Cummins Onan 30 KW natural gas mounted inside, Generator #2 Kohler 45 KW diesel mounted outside in weatherproof enclosure, both are in good condition. |
| Transfer Switches | C | | | A 30 Amp and a 100 Amp ATS associated with Generator #1 and a 150 Amp ATS associated with Generator #2. All are in good condition. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Branch Panels | C | | | A 30 Amp and 70 Amp Square D NQOD panel associated with Generator #1 and a 150 Amp Square D load center associated with Generator #2. |
| **Power** | | | | |
| Receptacles | D | $1,000 | E1 | Garage outlets need to be GFCI. Provide weatherproof while-in-use covers for all exterior outlets. |
| **Lighting** | | | | |
| Garage | C | | | Industrial fixtures with T-8 lamps in good condition. |
| Office spaces, conference rooms, and corridors | C | | | Recessed acrylic lens troffers and parabolic troffers with T-8 lamps and compact fluorescent downlights in good condition. |
| Sleep Rooms | C | $1,000 | E2 | Recessed acrylic lens troffers with T-8 lamps, incandescent downlights, and wall mounted incandescent sconces at each bed in good condition. |
| Toilet Rooms | C | | | Recessed troffers and surface mounted wrap-arounds in good condition. |
| Mechanical Spaces, Storage Rooms, Utility Areas | C | | | Industrial strips and suspended wrap-arounds with T-8 lamps, in good condition. |
| Exterior | F | $5,000 | E3 | HID parking lot poles, wall sconces and downlights in fair condition controlled by time clock. |
| **Lighting Controls** | | | | |
| Offices, Sleeping Room, Lounge | C | | | Occupancy sensors installed |
| Toilet Rooms, Storage Rooms, Mechanical | C | | | Occupancy sensors installed in toilet rooms, timer switches installed in storage rooms |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Corridors | C | | | Fixtures connected to emergency panel. |
| Exit Signs | C | | | LED type in good condition. |
| **Fire Alarm Devices** | | | | |
| Smoke Detectors | C | | | Edwards EST fire alarm system with smoke detectors, heat detector, and notification devices. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Telecommunications** | | | | |
| Data/Voice | C | | | UPS serving server equipment. Cat 5 and Cat 5e cabling |
| CATV | C | | | Coax |

**NOTES:**

**E1.** Replace all outlets located in the garage area with GFCI type device. Add weatherproof while-in-use covers on exterior outlets.

**E2.** Consideration should be given to replacing incandescent downlights and wall sconces in sleeping area and downlights in the lounge with compact fluorescent or LED type for energy savings.

**E3.** Consider replacing all HID building mounted fixtures and downlights with more efficient LED in the future.

Main Electrical Service Meter

Main Electrical Distribution Panel

Data Rack

Data and Phone System

UPS

Fire Alarm Control Panel

Generator #1

Generator #2

Generator #1 ATS EM1

Generator #2 ATS

Generator #1 ATS EM2

Generator #2 Annunciator Panel

**Panel P1**

**Generator Panel**

**Panel A**

**Panel EM2**

**Panel B**

**Panel EM1**

**Panel P2**

**Surge Suppression**

**UPS Panel**

**Time Clock and Lighting Contactor**

**Corridor Night Light**

**Sleeping Room Sconce**

Post Mounted Receptacle

Exterior Receptacle

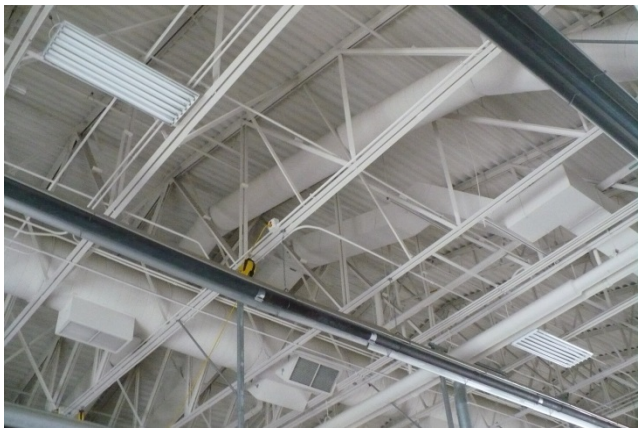
Garage Outlet and Door Controller

Exit Sign

Sleeping Room Lighting

Dining Room Lighting

HID Building Mounted Fixtures



Garage Lighting

Fire Alarm Notification Device

Smoke Detector

Office Lighting

HID Parking Lot Pole Light

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## FIRE STATION #5

**August, 2015**

## FIRE DEPARTMENT

## SUMMARY

***Date of Visit: June 11, 2015***
***Address: 2310 Finger Road***

### Building Description

Designed in 1996, Station #5 has a simple form of two intersecting gable roofs. The apparatus and storage/equipment bays extend north/south, and the lower office/residential wing extends east/west. There is a basement under the residential wing, accessed by two stairs.

Exterior sealants appeared dry and are approaching their life span. Interior finishes are in fair condition. Plastic laminate counter tops in kitchen are chipping and showing wear. Metal doors and frames are in need of paint touch up.

### Code/Accessibility

Most of the building is in compliance with current code and accessibility requirements. Some storage items are located in the stair shafts. As this is not a grandfathered building feature, and does not comply with current code (IBC 1022.1), these items should be removed.

An accessible route to and within the building is provided. One of each toilet fixture is accessible. The kitchen sink is located higher than per accessibility guidelines. Doors have compliant hardware with the exception of a sliding cabinet lock at the Women's room.

### Structural System

The structure consists of steel roof deck and open web steel joists supported on load-bearing masonry walls. There is a basement under the living quarters.

### Plumbing Systems

The original piping and insulation is in good condition. The building is split into a north and south zone for the hot water systems. A thermal mixing valve (TMV) should be added to both systems. The south mezzanine heater should have a HWR recirculating pump and piping added.

### Fire Protection Systems

The original fire protection equipment installed is still in service and overall appears to be in good working order.

### HVAC Systems

The equipment appears to be, in general, all original equipment. The living quarters is served by a modular air unit. The compressor for the unit operated continuously during site visit, while the condenser fan cycled approximately every 30 seconds with a 5 second run time.

Multiple exhaust fans serve the janitor's closet, toilet rooms and locker rooms. The units are quite dirty and the unit in the janitor's closet appears plugged. A hazardous storage room is ventilated by a dedicated exhaust fan.

The controls are a mix of pneumatic and electric. Apparatus room controls are electric.

The apparatus garage is served by (2) gas fired make-up air units and a gas detection system. A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave during fire calls.

## Electrical Systems

The panels are in good condition and have capacity for the future. The emergency generator serving the building is in fair condition. The equipment is in fair condition and has some future capacity. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads.

The outlets within the garage are not GFCI protected. Exterior outlets are GFCI, but their covers are not weatherproof while-in-use. There are several light fixtures with broken or missing lenses. There are occupancy sensors located in the toilet rooms, but the facility should install occupancy sensors in offices, dining room, storage rooms and janitor's closets.

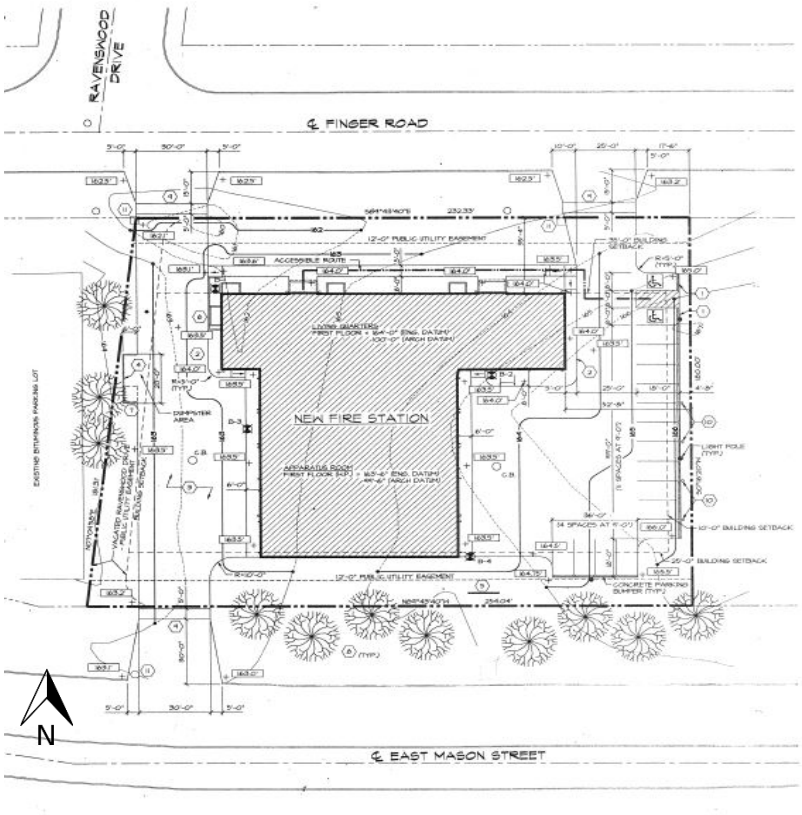
The server equipment is in good condition. The fire alarm system includes stand-alone smoke detectors and carbon monoxide detectors throughout the building which are in good condition.

## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

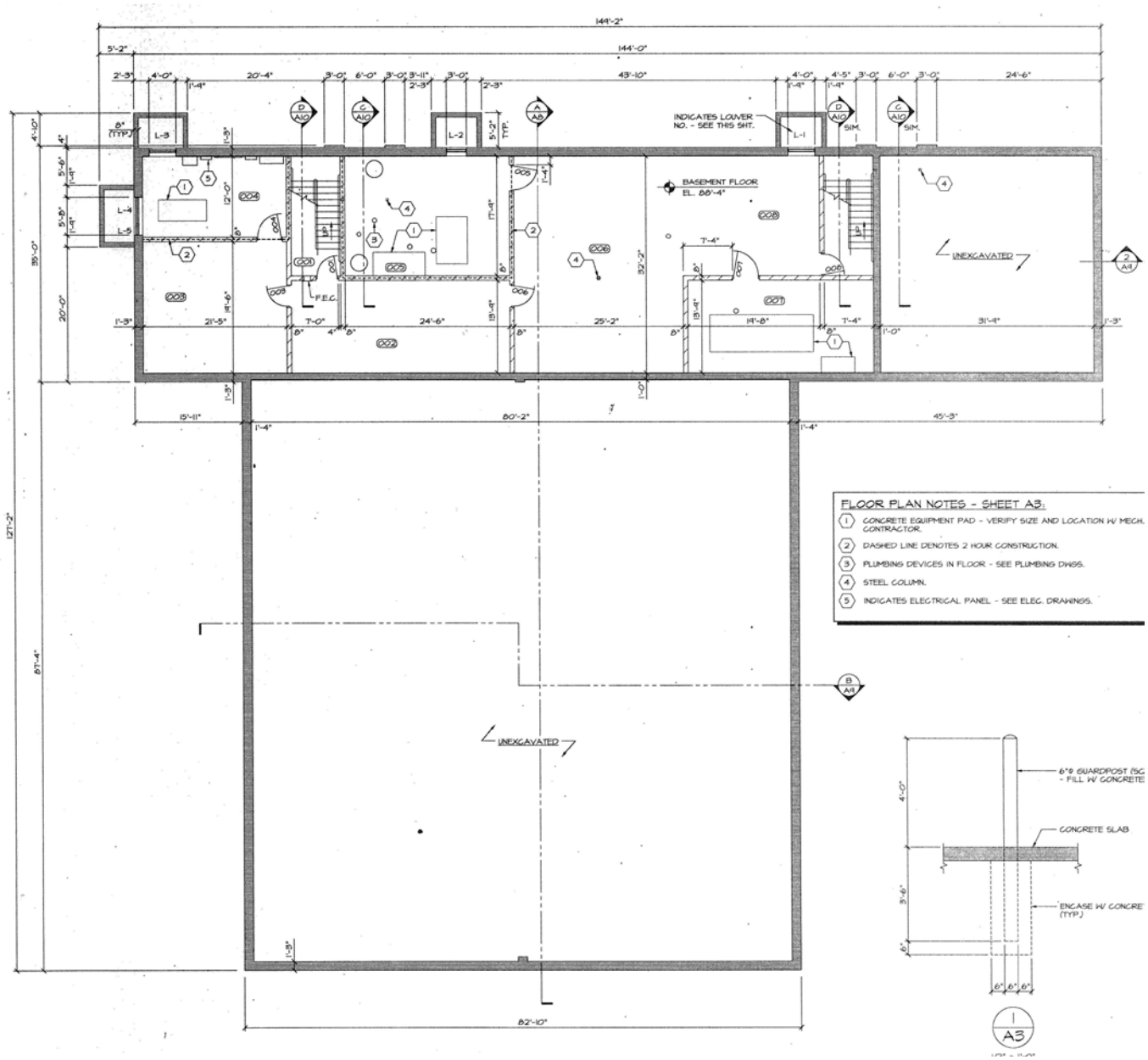
**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | Interior Door and Frames | **$1,500** |
| | Oxygen Tank Storage | | | **$15,000** |
| **Architectural Subtotal** | | | | **$16,500** |
| **Code/ADA** | Doors | | | **No Cost** |
| **Structural** | | | First Floor | **$5,000** |
| **Fire Protection** | Piping | | | **No Cost** |
| **Plumbing** | Recirculation Pump(s) | | | **$5,000** |
| | Thermal Mixing Valve (TMV) | | | **$10,000** |
| **Plumbing Subtotal** | | | | **$15,000** |
| **HVAC Systems** | | Condenser | | **$15,000** |
| | | | Humidity | **$10,000** |
| | | | Occupied Space Thermal Comfort | **$3,000** |
| | | Exhaust Ductwork | | **$2,000** |
| | Piping | | | **$6,000** |
| | | | Mechanical Room Ventilation | **$1,500** |
| | Dryer Exhaust | | | **$2,000** |
| **HVAC Subtotal** | | | | **$39,500** |
| **Electrical** | | | Transfer Switch | **$5,000** |
| | | | Branch Panel | **$10,000** |
| | Receptacles | | | **$1,000** |
| | | | Offices | **$1,000** |
| **Electrical Subtotal** | | | | **$17,000** |
| **Building Total** | | | | **$93,000** |

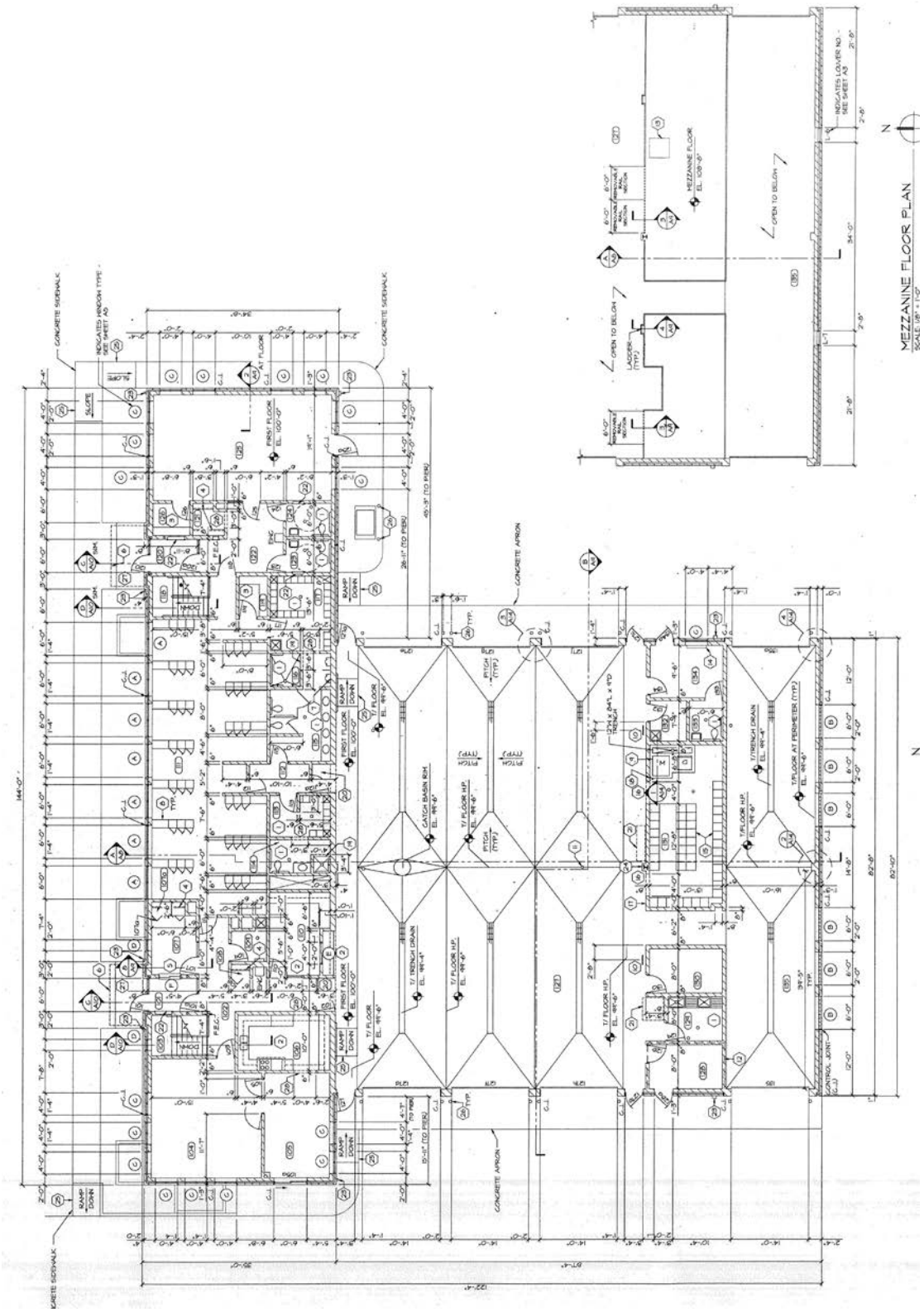



**Site Plan**

**Aerial View of Site**




**Basement Plan**
(Not to scale)




**First Floor Plan**
(Not to scale)

# ARCHITECTURAL

## Building Description

Designed in 1996, Station 5 has a simple form of two intersecting gable roofs. The apparatus and storage/equipment bays extend north/south, and the lower office/residential wing extends east/west. Original plans called for a community room extension to the residential wing, but this was not executed.

The apparatus bays are split. One double-loaded bay is at the south end, adjacent to an equipment and storage bay with mezzanines above, separating the end bay from the remaining three apparatus bays. The south bay has very little room for personnel to maneuver around the vehicles. When parked, personnel may need to exit the vehicles from one side only. The intervening rooms include equipment lockers, shop/work room, storage, and generator room.

The basement is accessed from two stairs; one at the main entry and one from the end of the dormitory, which also provides a second route of egress. The basement houses a work out area and recreation area, separated by furniture partitions. Mechanical room and electrical room are fire rated. A training room accessed primarily from the west stair by the entry also connects to the workout room.

Two corridors connect the office/residential wing to the main apparatus bay; one leads to the dormitory, the other to the main entry area. At either side of the main entry are located the kitchen, dining and day room spaces, and the office functions.

## Building Envelope

### Exterior walls

The exterior wall is comprised of 1'-3" wide, double wythe cavity wall; with an outside wythe made of split faced 8x8 concrete block lower, a smooth faced 8x8 band and a split-faced, scored concrete block upper. The inner wythe is a standard shape concrete block and typically exposed as the interior wall.

The entry door includes a cast stone arch with a painted "5" and a steel/break metal canopy.

The band of smooth faced block is substantially faded to various shades around the perimeter of the building.

Sealants appeared dry, and approaching their life span. Heightened inspection for separation from substrate is recommended.

Overhead sectional doors are seven- panels with two lights. Appeared in good working condition, including the operators.

### Roof

The pitched roof is on steel trusses, with the insulation and control layers typically at the roof line. Asphalt shingles appeared in good order; numerous penetrations noted. Most of the roof covering is asphalt shingles, with some EPDM utilized at mechanical areas. Metal trim is used at all rakes, eaves and canopies. The overhang at rakes and eaves is approximately 18 inches. Overhang at the overhead doors is approximately 2 feet.

Sheet metal flashings and trim appeared in good order. Gutters and downspouts were clean and well maintained.

### Windows

The majority of the windows are residential style casement operable windows. They appear in good working condition. Glass block is utilized at the exterior windows of the apparatus room.

Sealants are acceptable at this time, but approaching their life span and starting to dry. Heightened inspection for separation from substrate is recommended.

## Interior Finishes

### Floors

Primary corridors are two colors of porcelain tile, with porcelain tile coved base. The darker tone of porcelain is used in the kitchen and dining rooms. Locker and bath rooms have a mix of four colors of 2x2 ceramic tile with glazed sanitary cove base. The tile is pitched to a ½" peak at the entry to showers in lieu of a threshold.

Offices, dormitory and day-room are carpeted. Stairs have composite tile finish on treads and landings, with a rubber nosing extending 2 to 3 inches on both tread and riser. Risers are painted concrete.

### Walls

Most walls are painted concrete block. Showers have glazed tile full height at walls. There is a glazed tile wainscot at wall behind urinals.

### Doors

The main entry has dark bronze aluminum door and side light at both sides of the vestibule. Interior wood doors are standard oak veneer of medium stain color. The paint on metal frames at offices is chipped and in need of touch up. There is a sliding wood patio door from the dining area to the exterior. Utility area doors and exterior doors are painted metal. Some of the exterior doors paint has substantially faded.

### Ceilings

Basement areas and apparatus bay rooms have exposed structure, painted. All occupied areas have 2'x2' lay-in acoustic panels.

### Casework

All casework tops and bodies is plastic laminate. Casework in toilet rooms is in good condition. Tops at office and kitchen areas are chipped and cracked. A built-in table at the dining area has a plastic laminate top that is also chipped. Solid surface material is recommended for future replacement of casework tops.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | | | |
| Exterior Facade Condition | F | | A1 | Fading band of smooth-faced block is an aesthetic issue, but not a performance concern. |
| Exterior Door Condition | C | | | |
| Window Condition | F | | A2 | |
| **Interiors** | | | | |
| Floors | C | | | |
| Walls | C | | | |
| Interior Door and Frames | HP | $1,500 | | Re-paint metal frames |
| Ceilings | C | | | |
| Casework | F | | A3 | |
| Oxygen Tank Storage | D | $15,000 | | One hour rated room required |

**NOTES:**

**A1.** Sealants appeared dry, and approaching their life span. Heightened inspection for separation from substrate is recommended.

**A2.** Sealants are acceptable at this time, but approaching their life span and starting to dry. Heightened inspection for separation from substrate is recommended.

**A3.** Chipped plastic laminate could be repaired/replaced. Consider solid surface tops for future replacement.

North Elevation

East Elevation

South Elevation

Overhead Sectional Door

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1996 | **Gross Area** | Basement: 3,850 SF<br>First Floor: 11,064 SF<br>Mezzanines: 1,025 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | **S-1** Moderate-hazard Storage non-separated from **B** Business and **R-3** residential | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type II-B | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

The building code for the State of Wisconsin at the time would have placed this building in Chapter 54, Factories, Office and Mercantile occupancy. The classes of construction at the time would have been Fire-resistive type B. The building's materials would place it equivalent to Type II-B in the 2009 IBC.

The current 2009 IBC does not specify fire stations as being Business occupancy, therefore the building occupancy may be determined more by usage of space. For Fire Station #4, the basement and the east half of1st floor are non-separated B-business and S-1 storage. The west half of 1st floor is non-separated B Business and R-3 Residential, based on the definition of congregate living facilities as those where residents share bathroom and/or kitchen facilities.

**Egress and Safety**

The apparatus bay provides four legal means of egress doors in addition to the overhead doors. Storage and mechanical rooms and mezzanines on the south side of the apparatus bay also egress through these doors, with an additional egress door in the workroom.

The southern-most apparatus bay has very little room alongside the vehicles for personnel egress. There is one corridor connecting to the main apparatus bay and its egress doors.

The combined area of mezzanines is less than one-third of the floor area of the room in which they are located, which complies with current codes (IBC 505.2). Access to the mezzanines is via two wall-mounted ladders. Current code does not reference ladder access to storage areas, but these are considered grandfathered in as compliant.

A door to one of the mechanical rooms in the basement was noted as having its latch taped off and the handles rubber-banded to secure the tape for ease of access. A rated door is required to latch (IBC 715.4.8.1).

**Stair Shafts**
Access to the basement is provided by two stairs at either end of the business/residential wing. Both stairs are separated from the basement by an un-rated door, but are open to first floor. The lack of enclosure at the bottom results in the stairs being technically open to both floors. This does not comply with current code (IBC 1022.1). As noted above, it is presumed to have complied with code at the time it was built. (Note: old WI code allowed this if egress distances met certain criteria.)

A shelf and some storage items are located in the stair shafts. As this is not a grandfathered building feature, and does not comply with current code (IBC 1022.1), these items should be removed.

**Handrails and Guardrails**
Hand rails at the east stairs are at 33" above the nose of the tread, which is below the minimum of 34" per current code (IBC 1012). The west stair's handrail is at 35 ½" height, which is compliant. Guard rail height is at the required 42" called for currently (IBC 1013). Openings at sides of stairs below handrails is typically 5 ½", with larger openings at the stair edges. None of these situations poses a significant hazard, and they are grandfathered in as compliant, so no changes are recommended. Handrail extensions comply with current code.

The guards at the open storage mezzanines are 42" above mezzanine floor, which complies with current code. The openings are a minimum of 17" at the guards. As these areas are in the storage occupancy part of the building and not open to the public, they would comply with IBC 1013.3, exception 4.

## Summary of Accessibility/ADA Compliance

The following summary of accessibility is provided for owner reference, with the acknowledgement that persons using this building can only do their job if they do not have accessibility needs. Additionally, the public does occasionally access the fire stations for school tours etcetera, so safety and compliance are required. As noted above, accessibility may be mandated by code based on the extent of work being done.

**Accessible Route**
As the plan originally called for a community room at the east end of the residential wing, the accessible parking is located at the closest part of the parking lot to that area. The community room was not built, but an accessible path is provided to the main entrance on the north side of the building.

Entry to the building is at-grade at all building entrance/egress points. A 5'-0" wide corridor is provided in the occupied building areas.

**Doors**
All doors are 36" with lever or push/pull hardware, which complies with accessibility guidelines. Maneuvering space is provided as well. There is a sliding cabinet door latch installed on the women's room door, apparently due to the fact that it was originally intended as just a locker room. The lock provides privacy for female users, but is not accessible either in functionality or in height.

**Plumbing Fixtures**
The sink in the kitchen is at 36" rim height, which is higher than allowable for accessible side reach. The drinking fountain spout height is at 35", which complies with ADA 602.4. Bathroom lavatories are slightly above the 34" maximum for accessibility. One accessible shower is provided in both Men's and Women's locker rooms. One accessible toilet is provided in each toilet room, with horizontal grab bars. Since the time of this building's construction, a vertical grab bar has been added to the requirements for accessible toilets. This could easily be added.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | N/A | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Egress and Safety | C | | | |
| Stair Shafts | C | | | All storage items should be removed from stair enclosures. |
| Handrails/Guardrails | C | | | |
| Accessible Route | C | | | |
| Doors | C D | $0 | CA1 | |
| Plumbing Fixtures | F | | | Sink and lavatory rims are too high. |
| Grab Bars at Fixtures | C | | | Vertical grab bar could be added at toilets |

**NOTES:**

**CA1.** Remove tape and rubber band from rated door latch.

**Accessible Entry**

**Corridor and Top of Stair Near Entry**

**Stair to Mezzanine**

**East Stair at Basement**

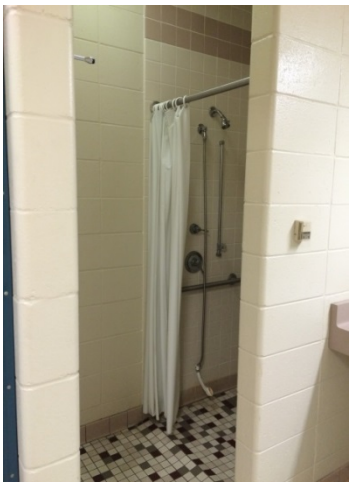
**Fire Door Hardware: Non-compliant**

**Sliding Lock at Women's Room: Non-compliant**

Kitchen

Women's Bathroom

Accessible Toilet Stall – Men



Accessible Shower Stall – Women

## STRUCTURAL SYSTEM

### Summary

The structure consists of steel roof deck and open web steel joists supported on load-bearing masonry walls. There is a basement under the living quarters.

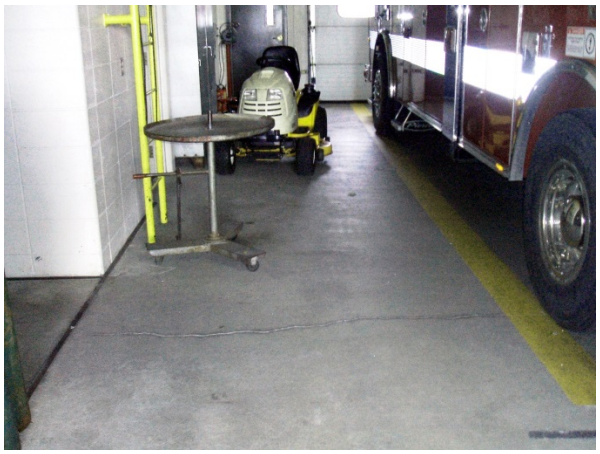
**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1996 design (Somerville Associates) |
| **Structure type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation and/or basement walls bearing on individual spread or continuous strip footings. |
| Basement | **C** | | | Under north half (Living Quarters) of the building. Floor is a 4" concrete slab on grade with fiber-mesh reinforcing. |
| 1st Floor | **HP** | $5,000 | **S1** | a. Living quarters floor is 8" precast pre-stressed concrete plank with 2" concrete topping supported on load-bearing masonry walls at the basement area, and 4" concrete slab on grade at the far west end.<br>b. Apparatus Garage floor is an 8" concrete slab on grade with #4 @ 12" o/c each way. |
| Mezzanines on South Side of Apparatus Garage | **C** | | | 8" precast pre-stressed concrete plank with no topping, supported on load-bearing masonry walls. |
| Roof | **C** | | | 1 ½" 20 gauge steel deck open web steel joists/joist girders supported on load-bearing masonry walls. |
| **Occupancy Category** | **NA** | | | Occupancy Category IV |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0-hour beams, columns & floor slabs, 0-hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | N/A |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There are some minor settlement and/or shrinkage cracks in the floor slab at several locations throughout the apparatus garage. Currently, none of the cracks observed are cause for any structural concern and could simply be routed and filled with sealant to keep water and debris out. Unless significant elevation differentials would start to develop at any of the cracks, no other remedial actions are recommended at this time.



**Slab Cracking in Apparatus Garage (Note S1)**

**Slab Cracking in Apparatus Garage (Note S1)**

**Slab Cracking in Apparatus Garage (Note S1)**

## PLUMBING SYSTEMS

### Summary

Fire Station #5 was constructed in approximately 1996. The original piping is in good condition. Water piping is insulated with glass fiber insulation, which helps to conserve energy. The building is split into a north and south zone for the hot water systems. A water heater is located in the north basement; the other water heater is on the south mezzanine. A thermal mixing valve (TMV) should be added to both systems. The south mezzanine heater should have a HWR recirculating pump and piping added. These are code issues which need to be corrected.

Storage of the gas cylinders should also be corrected. This is a code issue.

Building has a pitched roof and is served by gutters and downspout system. Downspouts are directed underground to the storm sewer. First floor plumbing fixtures discharge by gravity. Basement floor drain(s) are pumped to grade. Parking lots are served by interior storm drainage – catch basins.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping, soldered |
| Sanitary Piping Condition | F | | P2 | Cast iron, no-hub connection |
| Storm/Clearwater Piping | F | | P3 | Gutter & downspout |
| Valves | F | | P4 | Ball valve |
| Domestic Water Service | C | | P5 | 4" main |
| Insulation | F | | P6 | Glass fiber insulation |
| Code Issues | D | See below | P7 | TMV's, cylinder storage |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | Gas-fired, sealed combustion |
| Drench Shower Station | NA | | | |
| Recirculation Pump(s) | D | $5,000 | P9 | Add pump (code issue) |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $10,000 | P10 | Add TMV's (code issue) |
| Grease Interceptor | NA | | P11 | Verify if unit is installed |
| Kitchen Equipment | F | | P12 | |
| Plumbing Fixtures | F | | P13 | |
| Oxygen Storage | D | | P14 | See Architectural Summary Report |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Backflow Prevention | C | | P15 | 1 ½" hose connection |
| "Shop" Air Compressor | NA | | | |
| Laundry Equipment | F | | P16 | Milnor commercial unit |
| Drain Tile Sump/Pumps | F | | P17 | Duplex pumps, PVC discharge piping |
| Sanitary Sump/Pump | F | | P18 | Simplex |
| Ambulance/Truck Garage | F | | P19 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage, Roof Drainage | F | | P20 | Discharge to underground storm |
| Lawn Irrigation | NA | | | |
| Utilities | F | | P21 | |

**NOTES:**

**P1.** Water piping is copper, soldered joints. Good condition.

**P2.** Original sanitary is cast iron, no-hub connections. Pump discharge is galvanized with threaded connection.

**P3.** Building is served by gutters and downspouts. Downspouts are picked up underground by storm sewer. Clearwater discharge piping from the pumps is PVC and cast iron, no-hub.

**P4.** Ball valves are installed. Gate valve on the sanitary discharge piping.

**P5.** Building is served by a 4" water main – combined fire protection and domestic. 2" water meter with 3-valved by-pass in the basement.

**P6.** Water piping is insulated with glass fiber insulation.

**P7.** Code issues: No thermostatic mixing valve (TMV) at the heaters. Add TMV's per code. No recirculating pump at the south heater. Add recirculating pump. Hot water piping length exceeds 100'-0" per code. Gas cylinders are stored in a hallway – should be stored in a 1 hour rated room.

**P8.** Water heaters are gas fired, sealed combustion vented to the outdoors. North heater is an AO Smith Cyclone, Model BTH-199, 100 gallon, 100,000 BTU. South heater is an AO Smith Cyclone Model BTH-150, 100 gallon, 100,000 BTU.

**P9.** Install hot water recirculation pump to south heater. Length of hot water piping exceeds 100'-0" per code.

**P10.** Add TMV's to water heaters. Set hot water temperature to 110° F maximum temperature. Code issue.

**P11.** Grease interceptor: original plans showed a grease interceptor, 15gpm, 30# unit. Verify if unit is installed.

**P12.** Kitchen equipment: 2 compartment sink with garbage disposal. No dishwasher.

**P13.** Plumbing fixtures: Most of the fixtures are ADA-compliant. WC's are wall-hung with flush valves. Lavatories are vitreous china set in the countertop, lever handle faucets. Urinals are wall-hung with battery operated flush valves. Showers are built-up. One ADA shower in Men's/Women's toilet rooms. Men's toilet room also has a janitor's curb installed for clean-up. Single unit Elkay electric water cooler installed outside the kitchen area. Kitchen sink is double compartment stainless steel with garbage disposal. Garage has several cold water service faucets with hose thread vacuum breaker connections. 1 ½" hose connections have an elevated atmospheric vacuum breaker installed. Non-freeze sill faucets installed on the perimeter of building.

**P14.** Small gas cylinders are installed in a hallway. This is a code issue. Cylinders should be stored in a 1 hour rated room.

**P15.** There is a Watts 009 RPZ backflow in the boiler room for the HVAC boiler. 1 ½" hose connection in the garage has an elevated atmospheric vacuum breaker installed. Faucets with hose connection ends have a threaded hose end vacuum breaker installed. All backflow prevention is compliant.

**P16.** Commercial Milnor washer (and dryer) installed off the garage area.

**P17.** Zoeller duplex submersible pumps serve the building drain tile and a Clearwater drain in the basement.

**P18.** Zoeller simplex submersible pump serves the floor drain(s) in the basement mechanical room.

**P19.** Garage: trench drains which discharge to a garage catch basin.

**P20.** Building roof pitches and water is directed a gutter and downspout system. Downspouts direct to the underground storm sewer. Parking lots direct to interior catch basins.

**P21.** Utilities are located in Finger Road. Building is served from a 4" water main-combined fire protection and domestic water. Existing 12" water main in street. 4" sanitary sewer connects to an 8" sewer at the property line. (2) 6" storm sewers (east & west) connect to an existing 34"x 53" oval storm lateral.

**Water Meter and Sump Pits**

**Water Meter**

**Water Meter and Sump Pits**

**Glass Fiber Insulation**

**Water Heater Expansion Tank**

**Water Heater**

**Kitchen Sink**

**Garbage Disposal at Kitchen Sink**

**Water Closet – ADA**

**Urinals Regular Height & ADA**

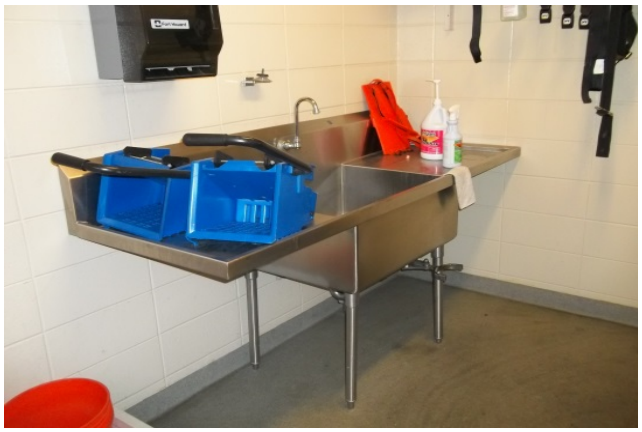
Lavatories – Men's

Safety Covers on Lavatories

Water Closet & Lavatory

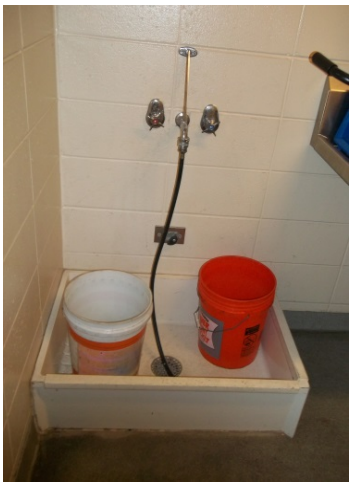
Shower – ADA

Shower – Women's

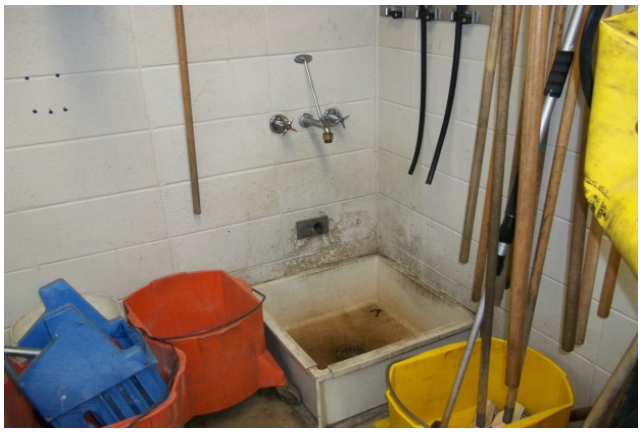


Clean-up Sink

Electric Water Cooler



Janitor's Curb

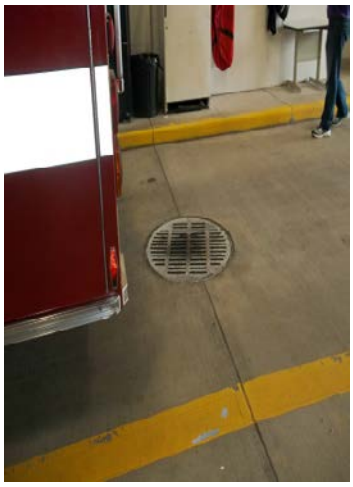


Janitor's Curb

Commercial Laundry Unit

1 ½" Hose Connection

Trench Drain



Garage Catch Basin

HWR Recirculation Pump

Gutter & Downspout

Downspout Non-freeze Sill Faucet

Gutter & Downspout

Gutter & Downspouts

Parking Lot – Catch Basin

Water Heater on Balcony

Cylinder Storage – Hallway

## FIRE PROTECTION SYSTEMS

### Summary

Fire Station #5 was constructed in 1996 and was fully sprinkled at that time. The original equipment installed is still in service and overall appears to be in good working order. The system is tested and maintained on a regular basis.

The only deficiency found was a minor offense that does not have a cost associated with its remedy. In Room 129 straps were found hanging from the sprinkler piping. Nothing is allowed to be hung from sprinkler pipes. Removing these straps from the sprinkler piping will remove the deficiency found.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| FIRE PROTECTION | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Water Service** | **C** | | **FP1** | 4" Underground |
| Backflow Prevention | **C** | | **FP2** | Double Check Valve |
| Fire Pump | **NA** | | | |
| Fire Pump Controller | **NA** | | | |
| Jockey Pump | **NA** | | | |
| Jockey Pump Controller | **NA** | | | |
| **Wet Pipe Sprinkler System** | **C** | | | |
| Valves | **C** | | **FP3** | OS&Y Gate and Butterfly Valves |
| Piping | **D** | No Cost | **FP4** | Black Steel |
| Sprinkler Heads | **C** | | **FP3** | Upright and Pendent |
| **Percent of Building Unit Sprinkled** | **100%** | | | |
| **Other Fire Protection Systems** | | | | |
| Pre-action System | **NA** | | | |
| Kitchen Hood System | **C** | | **FP5** | Ansul R102 Wet Chemical System |

**NOTES:**

**FP1.** The underground water main is a 4" main that enters the building on the north wall of the mechanical room. The 4" main supplies both the Fire Sprinkler System and the Domestic Water System. A 4" main that serves both systems is acceptable when calculations are performed and indicate that a 4" main is adequate for both systems.

**FP2.** The backflow preventer is a 4" Ames 2000SS in good to new condition. OS&Y Gate Valves are located on either side of the backflow preventer and also appear to be in good to new condition.

**FP3.** The valves, piping, and sprinkler heads appear to be in good to new condition. The sprinkler heads used are a mix of upright and pendent sprinkler heads with all rooms and closets protected with sprinkler coverage. The butterfly valves on the system riser are equipped with internal tamper switches. These switches are not wired to the fire alarm system but are chained in the open position. This meets the requirements of NFPA 13.

**FP4.** The pipe is black steel pipe with a mix of threaded and grooved fittings and does not show any sign of leaking or corrosion. In Room 129 straps are hung from the sprinkler piping. This is a violation of NFPA 13.

**FP5.** The Ansul Wet Chemical System appears to be in good condition. Blow off caps are present on the discharge nozzles and the system appears to be in good working order.

**Water Service and Double Check Valve BFP**

**Butterfly Valve Tamper Switch not Wired**

**Sprinkler Head Below Stair**

**Straps Hanging from Sprinkler Pipe**

**Ansul Wet Chemical System**

**Ansul Wet Chemical System**

# HVAC SYSTEMS

## Summary

The building was constructed in 1997. The equipment appears to be, in general, all original equipment. There are no visible indications that the building or equipment has been significantly modified.

The living quarters is served by a modular air unit, which is located in a basement mechanical room. The air unit utilizes split system DX cooling to condition the air. The condensing unit is located on grade adjacent to and above the mechanical room. The compressor operated continuously during site visit, while the condenser fan cycled approximately every 30 seconds with a 5 second run time. When operational the fan was noisy and could be heard inside the sleeping room.

Ventilation air is distributed to each room where a reheat coil will heat the air to regulate the space temperature. Wall mounted fin tube radiation provides additional heat along some of the perimeter rooms.

Multiple exhaust fans serve the janitor's closet, toilet rooms and locker rooms. The units are quite dirty and the unit in the janitor's closet appears plugged. Exhaust air is discharged through the roof.

The kitchen ventilation hood is served by a roof mounted fan. The hood is a type 1 hood with an angled grease filter and a fire suppression system. The unit appears to meet current code requirements.

A hot water boiler system is located in a basement mechanical room. The pumps operate lead/lag and serve a single boiler. The hot water is distributed to reheat coils, fin tube radiation, convectors and cabinet heaters located throughout the living quarters. The combustion air duct terminates near structure above, it does not terminate near the floor, and a sprinkler pipe is located directly above the outside air opening.

The gas meter and electric meter are located in close proximity. It appears that the electric service has been reworked and the meter is not in compliance with WPS standards which reference NFPA and the National Electric Code.

The controls are a mix of pneumatic and electric. An air compressor for the living quarters is located in the basement mechanical room. Apparatus room controls are electric. Some of the units in the living quarters, such as the unit heater in the boiler room, utilize electric controls to cycle the fan. An air compressor for the PlymoVent system was not located. The unit is possibly located on the apparatus mezzanine, concealed behind some storage.

The apparatus garage is served by (2) gas fired make-up air units. Radiant heaters are also utilized to heat the garage. Two exhaust fans, located on the garage roof, provide the space with the required exhaust. A gas detection system, for each fan, is located in the garage. This system, when installed, allowed the exhaust system to remain off except for 5 hours a day and if gas was detected thereby providing energy savings. A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave during fire calls.

A hazardous storage room is ventilated by a dedicated exhaust fan. This fan is located on the side of the building. A hose dryer is vented to the outdoors. A boot dryer is vented to the outdoors. The laundry dryer is vented into the turnout room. Multiple exhaust fans serve storage rooms, toilet rooms, and the turn-out room.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Air Unit** | | | **H1** | Installed 1997. |
| Housing | **F** | | | |
| Air intake | **C** | | | |
| Condenser | **CP** | $15,000 | **H1** | Carrier 38AKS012. Housing beginning to rust, condenser fins are bent. Compressor runs continuous, fan short cycles and is quite loud. |
| Fan | **F** | | | 4800 CFM, 5HP. |
| Filters | **F** | | | 30% filters |
| Controls | **C** | | | Pneumatic actuation. |
| Ductwork | **C** | | | Original to the 1997 installation. Return fan in poor location creates rumbling noise in the occupied area. |
| Insulation | **C** | | | Where viewed the insulation appears intact. |
| Humidity | **HP** | $10,000 | **H1** | Residential type unit. Manually filled. Humidification is not a code requirement. |
| Occupied Space Ventilation (Basement) | **C** | | | A cabinet heater is installed in the exercise area with ducted outside air. |
| Occupied Space Thermal Comfort | **HP** | $3,000 | **H1** | All thermostats labeled "Do not touch". Possible control sequencing issue. |
| **Exhaust Fans** | | | | |
| Toilet/locker room exhaust | **F** | | **H2** | Original units. |
| Exhaust Ductwork | **CP** | $2,000 | **H3** | Dust/lint build-up on grilles/ducts. Janitors exhaust grille is plugged almost solid. Reduced ventilation due to plugging grilles. |
| Kitchen Hood, Fan and Ductwork | **C** | | **H4** | Type 1 hood, fire suppression, and angled filter. |
| **Boiler System** | **C** | | **H5** | Original to 1997 construction. |
| Boilers | **C** | | | Burnam boiler, 462 MBH input, 389 MBH output |
| Pumps | **C** | | | Taco 1 HP lead/lag pump 36GPM@40 feet |
| Piping | **D** | $6,000 | **H5** | Copper water piping, steel gas piping. Gas meter and electrical meters are too close together. |
| Pipe Insulation | **C** | | | Appears intact wherever visible. |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Room Terminal Units | C | | | Convectors, cabinet heater, fin tube pneumatically controlled valves. Electric control for fan cycling. |
| **Mechanical Room Ventilation** | HP | $1500 | H6 | Combustion air venting is not compliant. No low vent termination. Water pipe located over vent. |
| **Controls** | | | | |
| Air Compressor | C | | | 1 HP duplex unit |
| Room Control | C | | | |
| **Garage Ventilation** | | | H7 | |
| Make-up Air Unit | C | | | Gas fired units suspended high in apparatus room. (2) units @ 350 MBH. |
| Exhaust | C | | | (2) 1,500 CFM fans. Multiple fans for storage and turn-out rooms. |
| Truck Exhaust | C | | | PlymoVent. |
| Control | C | | | Electric. |
| Dryer Exhaust | D | $2,000 | H8 | Vent terminates inside. Originally vented through roof (now abandoned.) |

**NOTES:**

**H1.** Air unit is original to the 1997 construction. Expected useful life is 20-25 years depending on maintenance and operation of the unit. The unit is beginning to show its age. The condensing unit is rusting and the condenser fins are damaged. The compressor runs continuously while the fan short cycles. The condenser is quite loud and can be heard in the sleeping room. It is recommended to plan for the replacement of the condensing unit in the near future and the air unit in approximately 5 years. When the unit is replaced, consider relocating the return fan to reduce vibration and noise issues in the basement spaces.

Ventilation air is distributed throughout the occupied space where reheat coils will heat the air to provide individual room comfort. The boiler must remain operational to allow the reheat system to operate and maintain individual room comfort. The boiler was disabled. Recommend review of the control sequences to ensure the units operate as intended to achieve the desired results.

A portable residential style humidifier is located in the sleeping room. This indicates that the occupants are attempting to regulate the building humidity to improve their comfort. This unit will actually improve humidity only slightly, but may have a greater psychological effect. This is because the air unit will introduce a greater amount of dry outside air than this unit can properly humidify. To humidify this building, it is recommended to install an electric or gas fired humidifier that is sized to serve the entire living quarters.

**H2.** Multiple exhaust fans are located throughout the facility and the apparatus area to ventilate storage rooms, toilet rooms, and janitor's closets. The fans are typically approaching the end of their expected useful life. No immediate replacements appeared to be necessary based on a visual inspection, however replacements in the near future will be necessary.

**H3.** Dust building up is visible on the grilles and visible portion of the duct. Some of the grilles were coated black and are plugging, reducing the ventilation air flow. Duct cleaning and air balancing is recommended to ensure proper ventilation rates within these areas.

**H4.** The kitchen hood is a type 1 hood, equipped with fire suppression and an angled grease filter. Unit appears to be in compliance with current requirements.

**H5.** The boiler system is original to the 1997 construction. Boiler system will have an expected useful life of 25-30 years depending on maintenance practices. This boiler system is piped with lead/lag pumps. There is no filter unit, like stations 2 and 7. Future installation, when boiler is replaced, is recommended to aid in removing suspended particles from the heating system.

The gas and electric meter are located immediately adjacent to each other. Public service requirements are 2' to 4' apart depending on arrangement. The electrical service appears to have been revised but the meter may have been set in this position since the 1997 construction. The deficiency is tagged as the installation does not meet current construction guidelines and requirements.

**H6.** The boiler combustion venting is high in the room. There is no duct terminating low in the room as required by code. A low vent is recommended. However, as this system has operated for 18 years, it is recommended to correct the deficiency when the boiler is replaced.

**H7.** The apparatus garage is currently served by gas fired make-up air units and radiant heaters. The garage exhaust is served by power roof ventilators with additional fans serving the hazardous storage room and ancillary storage rooms. A gas detection system is installed in the garage to take advantage of a code provision to allow the system to operate for 5 hours a day and not continuously, which provides significant energy savings. Under current code a small exhaust fan could be installed to exhaust the garage continually and this would provide additional energy savings. No recommendations for immediate replacement or installation of equipment are made at this time.

A PlymoVent exhaust system is connected to each truck parked in the garage. This system operates whenever a truck is started and the vehicle exhaust is expelled from the garage. The hoses, where attached to the trucks, are showing some signs of wear and tear.

**H8.** A laundry dryer is located in the turnout room and terminates inside the room. The original vent is abandoned, as it is not constructed of the proper material, is too long, and has too many elbows. It is recommended to replace the vent and terminate the dryer vent outside.

**Air Unit**

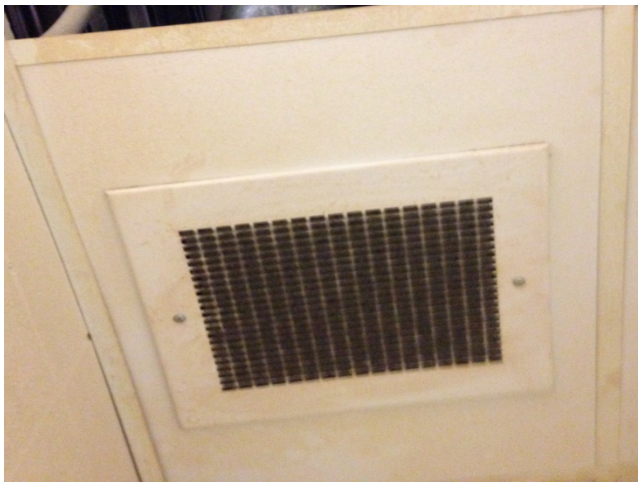
**Condensing Unit**

**Basement Cabinet Heater**

**Boiler Room Unit Heater**

**Boiler Room Venting**

**Kitchen Hood**



**Typical Exhaust Grille**

**Typical Supply Grille**

**Typical Fin Tube Radiation**

**Boiler Control**

**Humidifier**

**Boiler**

Hot Water Pumps

Electric Thermostat

Gas Meter

Temperature Control Air Compressor

Pneumatic Thermostat

Garage Make-up Air Unit

**Garage Radiant Heater**

**Garage Gas Detection**

**Garage Heating Controls**

**Generator Room Venting**

**Abandoned Dryer Vent**

**Grille Gas Connection**

Garage Exhaust Vent

Truck Exhaust (PlymoVent)

PlymoVent Exhaust Fan

Dryer Exhaust Vent

Hose Dryer

Hazardous Exhaust Fan

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 600 Amp, 120/208 Volt, three-phase electrical service. The panels are in good condition and have capacity for the future. The emergency generator serving the building is in fair condition. The emergency system is fed from a single transfer switch and panel board. The equipment is in fair condition and has some future capacity. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads. Storage is currently partially blocking the code required 3-feet for electrical clearance for Panels C and E2.

The outlets within the garage are not GFCI protected. Exterior outlets are GFCI, but their covers are not weatherproof while-in-use. Lighting fixtures are in good to fair condition and utilize T8 lamps and ballasts, incandescent and compact fluorescent lamps. There are several fixtures with broken or missing lenses. These should be replaced or repaired. There are occupancy sensors located in the toilet rooms, but the facility should install occupancy sensors in offices, dining room, storage rooms and janitor's closets. HID building mounted fixtures are in good condition; consideration should be given to replacing the HID fixtures with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition and the facility is pulling Cat 5e and Cat 5 data and voice cabling and coax for CATV. The fire alarm system includes stand-alone smoke detectors and carbon monoxide detectors throughout the building which are in good condition.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Electrical Service** | | | | |
| Utility Service Entrance | C | | E1 | Pad mounted utility transformer serves 600 Amp underground electrical utility service and enters the building in the basement. |
| **Normal Power Distribution Equipment** | | | | |
| Main Distribution Panel | C | | | 600 Amp Square D I-Line panel in good condition. |
| Branch Panels | C | | E2 | Square D NQOD panels in good condition with future capacity. |
| **Emergency Power Distribution Equipment** | | | | |
| Generator | F | | | 19 KW Kohler natural gas generator in fair condition. |
| Transfer Switch | HP | **$5,000** | E3 | Kohler 70 Amp ATS in fair condition. |
| Branch Panel | HP | **$10,000** | E2, E3 | Two Square D panels with future capacity. Mixed loads. |
| **Power** | | | | |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Receptacles | D | $1,000 | E4 | Garage outlets and outlets within 6' of sinks need to be GFCI. Provide weatherproof while-in-use covers for all exterior outlets. |
| **Lighting** | | | | |
| Garage | C | | | Industrial fixtures and surface mounted wraps with T-8 lamps in good condition. |
| Office spaces, conference rooms, and corridors | C | | | Recessed acrylic lens troffers and suspended wrap-arounds with T-8 lamps in good condition. |
| Sleep Rooms | C | $100 | E5 | Recessed acrylic lens troffers with T-8 lamps and wall mounted incandescent sconces at each bed in good condition. |
| Toilet Rooms | C | | | Recessed troffers, surface mounted industrials and wrap-arounds in good condition. |
| Mechanical Spaces, Storage Rooms, Utility Areas | F | $2,000 | E6 | Industrial strips and surface mounted wrap-arounds with T-8 lamps, some fixtures have broken lenses, others are in good condition. |
| Exterior | C | $5,000 | E7 | HID parking lot poles, wall packs and flagpole light in good condition controlled by photocell. |
| **Lighting Controls** | | | | |
| Offices | HP | $1,000 | E8 | Add occupancy sensors |
| Toilet Rooms/ Small Storage Rooms | F | $500 | E8 | Toilet rooms have occupancy sensors in good condition; add sensors in janitor and storage rooms. |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Corridors | C | | | Fixtures connected to emergency panel. |
| Exit Signs | C | | | LED type in good condition. |
| **Fire Alarm Devices** | | | | |
| Smoke Detectors | C | | | A few stand-alone smoke detectors and carbon monoxide detectors throughout the building. |
| **Telecommunications** | | | | |
| Data/Voice | C | | | Cat 5 and Cat 5e cabling |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| CATV | C | | | Coax |

**NOTES:**

**E1.** The electric meter is located adjacent to the gas meter which does not meet current WPS requirements. If the electrical utility service were updated in the future, the electric and gas meter would require being located further apart.

**E2.** Code required 3-feet for electrical clearance and clear space above the equipment is not being fully maintained.

**E3.** Recommend providing an additional automatic transfer switch and panel board to separate the critical and equipment branch loads onto a new panel and leave the existing panel with the life safety loads.

**E4.** Replace all outlets located in the garage area with GFCI type device. Add weatherproof while-in-use covers on exterior outlets. Replace existing outlets within 6-ft of sinks with GFCI type device, unless they are currently protected from a nearby GFCI outlet. If this is the case, the outlet should be labeled per NEC requirements.

**E5.** Replace incandescent lamps with compact fluorescent or LED type for energy savings.

**E6.** Consideration should be given to replacing older fixtures with new. Replacement or repair should be done on fixtures with broken or missing lenses.

**E7.** Consider replacing all HID fixtures with more efficient LED in the future.

**E8.** Occupancy sensors should be installed in the meeting room, classroom, offices, storage rooms, and janitor's closets to provide additional energy savings. If areas are renovated, controls will be required to be updated to meet current energy code.

Main Electrical Service Meter

Utility Transformer

Fiber Entrance and Data Rack

Data and Phone System

Surge Suppression

Main Electrical Distribution Panel

Generator

Automatic Transfer Switch

Panel A

Panel B

Panel C

Panel D

Emergency Panel E2

Emergency Panel E1

Lighting Contactor

Post Mounted Receptacle

Exterior Receptacle

Plug Strip

Exit Sign and Wireless Access Point

Hazardous Incandescent

Sleeping Room Lighting

Sleeping Room Sconce

Office Lighting

Surface Wraps Missing Lens

**Garage Outlet and Door Controller**

**Garage Passage Wall Lighting**

**Garage Lighting**

**Dining Room Lighting**

**Building Mounted Fixtures**

**HID Wall Pack and Flag Pole Lighting**

**Stand Alone Carbon Monoxide Detector**

**Stand Alone Smoke Detector**

**HID Wall Pack Lighting**

**HID Parking Lot Pole Light**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## FIRE STATION #6

**August, 2015**

## FIRE DEPARTMENT

## SUMMARY

***Date of Visit: May 28, 2015***
***Address: 1701 W. Mason Street***

### Building Description
The 1968 symmetrical, single-story, California style building places the vehicle/apparatus room at the center of the two lower wings. The north wing houses the majority of fire department living and working spaces. The south wing includes a large room on the west side used for fire department training in the winter, and park shelter space in the summer months. The Men's and Women's toilets for the park shelter are accessed from both the south exterior and a corridor from the training room on the interior. There is a basement under the south wing only.

Existing roofing is a fully adhered EPDM membrane, installed in 2014. The downspouts at the east face discharge directly to grade and extensions are recommended for getting the storm water away from the building foundation.

### Code/Accessibility
The Wisconsin building code at the time of construction would have placed this building in the Wisconsin Commercial Code Chapter 54 Business. It is presumed to have complied with code at the time it was built.

Several doors to the facility do not provide the amount of maneuvering clearance required to be accessible. Some interior doors have knob handles, which are not accessible, and not as easy/fast to use.

The Women's room (2007) and recent shower room (2013) met applicable IBC at the time of renovation, and meet current accessibility guidelines. The public toilet rooms used in the summer months in association with the park shelter do not have any accessible fixtures.

### Structural System
The structure is a frame of glued-laminated wood beams and columns with tongue-and-groove wood roof decking.

### Plumbing Systems
The original piping is in fair condition; it could be replaced as needed when issues arise. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. Hot water temperature to the public toilet rooms **exceeded 145° Fahrenheit**, major scalding potential. Building utilities in general appear adequate.

The oxygen and air cylinders should be stored in a 1-hour fire rated room.

This building is not equipped with an automatic fire sprinkler system. However the exhaust hood in the kitchen should have an Ansul (or equal) kitchen suppression system installed.

### HVAC Systems
The majority of the HVAC systems have been upgraded over the years.

The sleeping/dining area is served by a packaged roof top air unit with gas fired heat. The unit is controlled by two thermostats, one located in the dining room and one located in the sleeping room.

The TV room area and basement work out area is served by a residential style furnace with split system DX air conditioning. The meeting room area is served by a residential style furnace. Residential style humidifiers are located in the facility's sleeping rooms.

The kitchen hood appears to be a type 1 hood, with a horizontal grease filter.

A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave the building. The original room exhaust and make-up air fans have been removed. Gas fired unit heaters provide this room with heat.

## Electrical Systems

The building is served by a 400 Amp, 120/208 Volt, three phase electrical service. The panels are in good condition, and have capacity for the future. The emergency generator serving the building is in fair condition. The emergency system is fed from a single transfer switch and panel board. The equipment is in good condition and has some future capacity.

An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads. Other minor safety and efficiency changes are recommended.

The server equipment is in good condition and the facility is pulling Cat 5e and Cat 5 data and voice cabling and coax for CATV. The fire alarm system includes stand-alone smoke detectors and carbon monoxide detectors throughout the building which are in good condition.

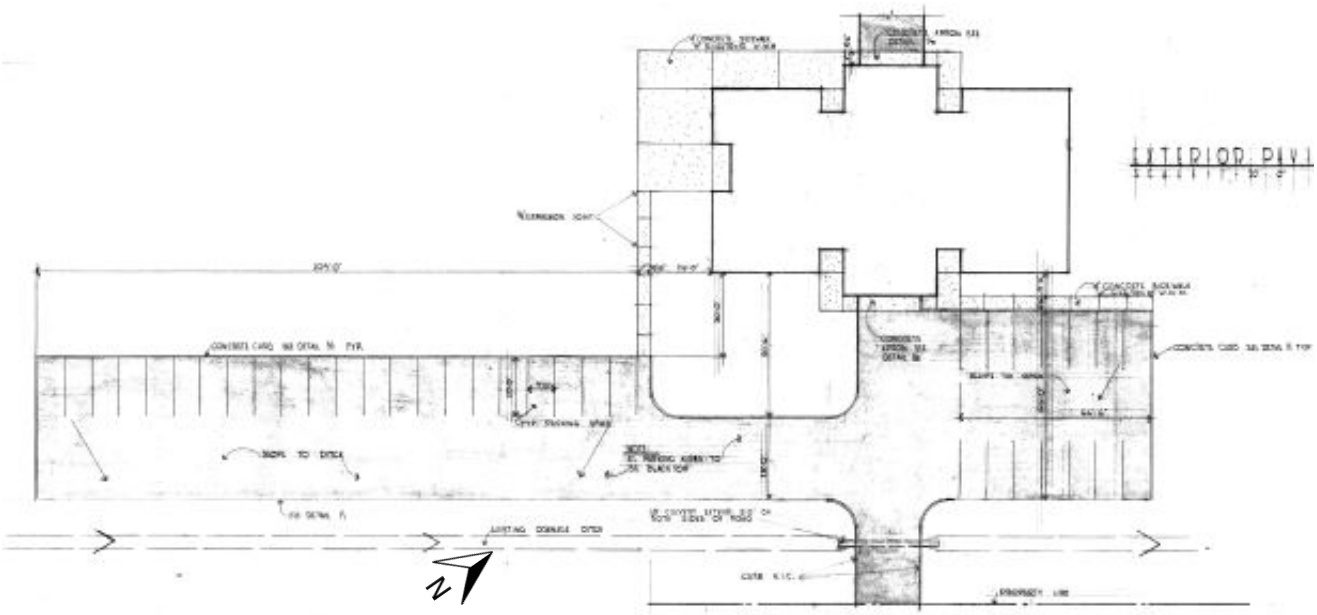
## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

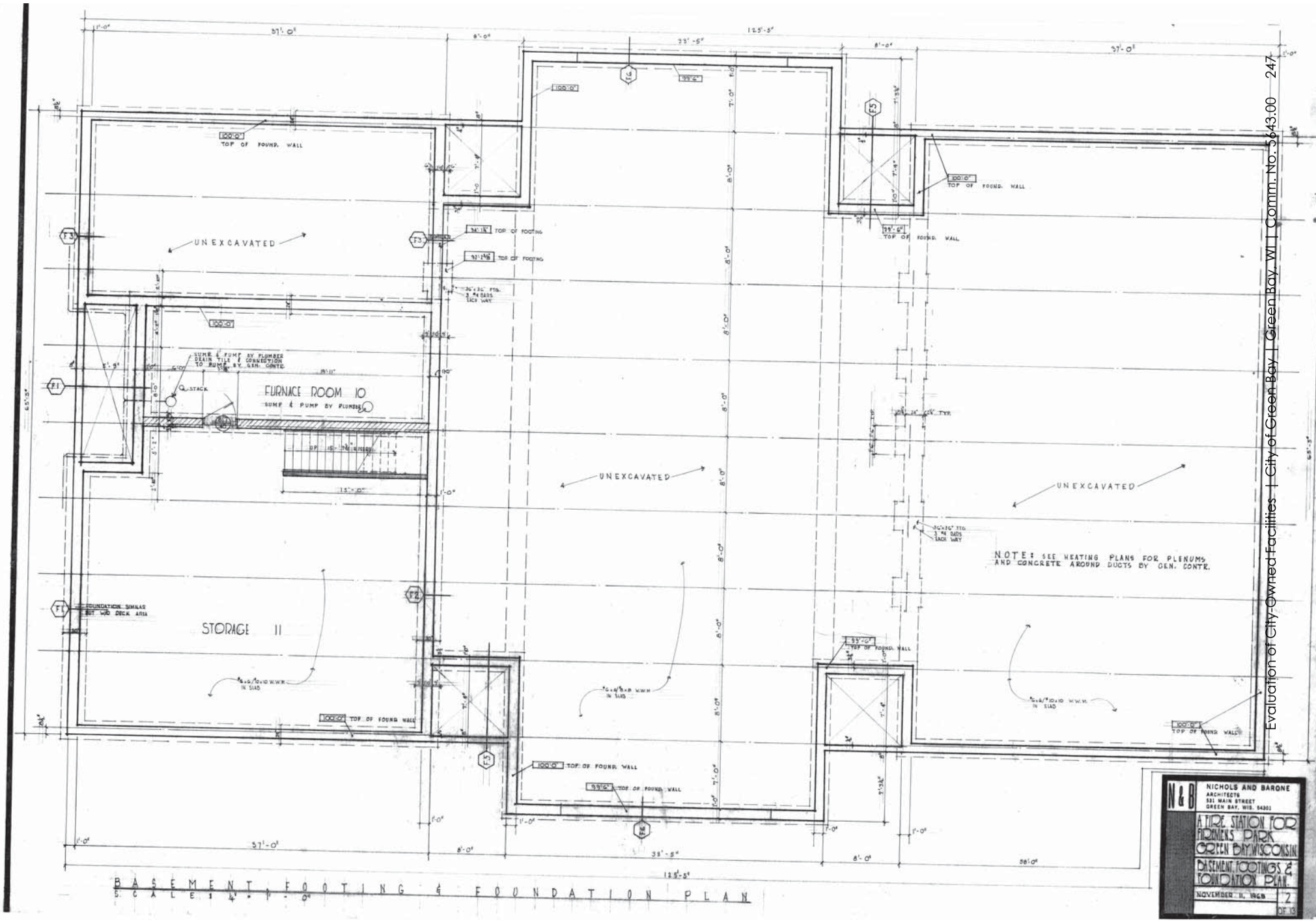
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | Oxygen Tank Storage | | | **$15,000** |
| **Code/ADA** | | | Accessible toilet | **$6,000** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | Insulation | **$5,000** |
| | Recirculation Pump(s) | | | **$6,000** |
| | Thermal Mixing Valve (TMV) | | | **$6,000** |
| **Plumbing Subtotal** | | | | **$17,000** |
| **HVAC Systems** | | | Humidity | **$1,000** |
| | | | Controls (Air Unit) | **$20,000** |
| | | Air Intake | | **$1,500** |
| | | Controls | | **$3,000** |
| | Ductwork | | | **$8,000** |
| | | | Humidity (Residential) | **$2,000** |
| | | | Public Toilet Rooms | **$1,000** |

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| | | | Kitchen Hood, Fan and Ductwork | **$25,000** |
| | | | Building Ventilation | **$3,000** |
| | Make-up Air Unit | | | **$110,000** |
| | Dryer Exhaust | | | **$500** |
| **HVAC Subtotal** | | | | **$175,000** |
| **Electrical** | | | Transfer Switch | **$5,000** |
| | | | Branch Panel | **$10,000** |
| | Receptacles | | | **$1,000** |
| | | | Conference or Meeting Rooms | **$1,000** |
| | | | Offices | **$1,000** |
| **Electrical Subtotal** | | | | **$18,000** |
| **Building Total** | | | | **$231,000** |



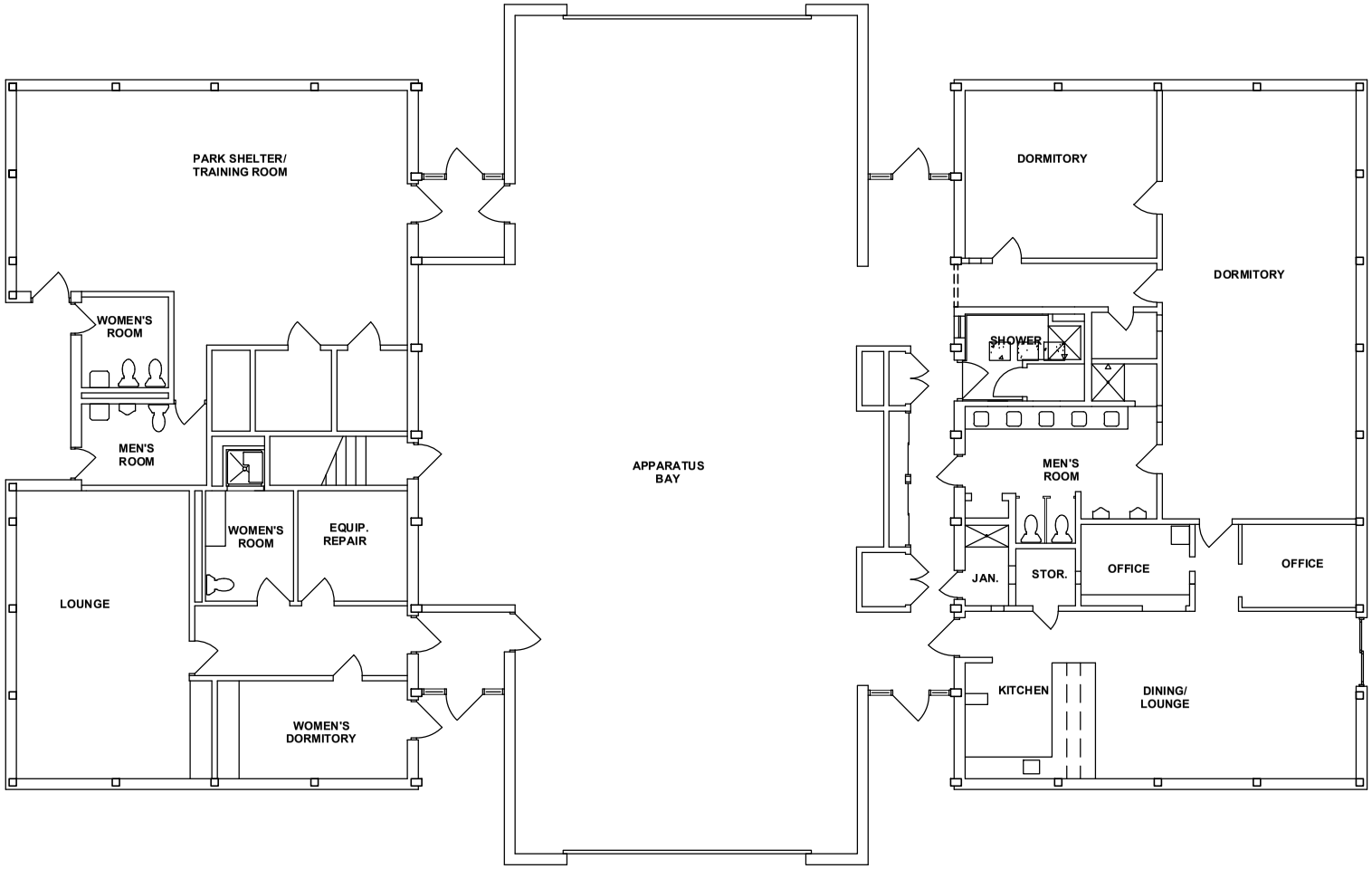

**Site Plan**

**Aerial View of Site**




BASEMENT, FOOTING & FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

Evaluation of City-Owned Facilities | City of Green Bay | Green Bay, WI | Comm. No. 5643.00 247




FIRE STATION #6
FIRST FLOOR

1/16" = 1'-0"

# ARCHITECTURAL

## Building Description

The exterior form of Fire Station #6 and its adjoining park shelter is symmetrical, although the rooms inside of each wing differ. The1968 single-story, California style building places the vehicle/apparatus room at the center of the two lower wings. There is a basement under the south (park shelter) wing only.

The north wing houses the majority of fire department living and working spaces. There is an aluminum frame glazed entry vestibule at both the east and west sides, providing access to both apparatus bay and living quarters. Perimeter rooms include kitchen, dining, one office, and dormitories. Interior rooms include office, storage, bathroom, and linen closet. Additional interior rooms are accessed from a corridor open to the apparatus bay, as opposed to the occupied spaces. They include storage rooms, a work counter, furnace room, and a recently (2014) remodeled additional shower room.

The south wing includes similar, symmetrical glazed entry vestibules on the east and west side. Between these vestibules is another open work area for the fire department, housing work bench, tools, drying racks and equipment, and the door to the basement area. A large room on the west side is used for fire department training in the winter, and park shelter space in the summer months. Two locked storage rooms open off the large room. The Men's and Women's toilets are accessed from both the south exterior and a corridor from the training room on the interior.

The east side of the south wing includes the fire department's lounge, a women's rest room (2007) and shower, a small dormitory, and equipment repair room. The basement houses the work-out space, storage, and mechanical equipment.

### Doors

Dark bronze colored aluminum doors and sidelights are at all four vestibule entrances. Sliding patio doors in the lounge are wood. A piece of wood trim has been placed along the threshold at the interior, apparently to stop drafts. Most interior doors are flush wood, probably birch veneer.

An exterior door from the south side dormitory room has been covered with paper and duct tape for privacy, but the door remains in the wall. The door from the apparatus room to the kitchen is a different stain color, with white steel framed double-hung half-light window in it. Sectional overhead doors are located at both sides of the apparatus bay for drive-through access.

### Windows

Windows are primarily fixed, dark-bronze anodized aluminum, and not original to the building. Most appear to be in good working condition and no leaks have been reported.

The apparatus room includes clerestory windows on the north and south. The occupied spaces have high windows north and south and the majority of the original windows were infilled on the east and west. Openings were infilled with stucco to match the transom of the garage door on the apparatus room.

The fenestrations, both in-filled and existing, make a continuous band at the perimeter of the building. The mullion lines and trim work are aligned with the glu-lam construction and are finished to match.

Some of the clerestory windows to the apparatus room have been infilled with either stucco-finished insulated panels and/or mechanical ventilation or exhaust.

Sealants at perimeter of fenestrations appear generally in good condition. Annual inspection for ruptures, tears and cracking should be continued.

## Building Envelope

### Exterior walls

Exterior wall comprised of modular sized face brick, concrete block back-up to a height approx. 5'-0" above grade and stucco above. No insulation noted at the masonry; stucco panel make-up is unknown.

The sectional overhead doors, facing plan east and west, include (2) windows near each jamb and appear to be in good, operating condition. The transom panel above the doors are finished with stucco and wood trim.

Original face brick appears in good condition including the mortar. Some chips observed at the jambs of the garage door openings.

The rakes and eaves form a significantly sized and low overhang, clad with a variety of wall panel strategies and colors. Extensive 'oil canning' and denting noted in the fluted panel and other exterior metal. The soffits are a solid stucco with blank-off cover panels at the removed light fixtures and several cracks were observed.

A residential style, sliding patio door was added off the kitchen. The face brick was cut back and patched with non-matching mortar. The high windows were in-filled with wood paneling.

### Roof

Existing roofing is a recently installed, fully adhered EPDM membrane. Roof was installed circa 2014. Multiple rooftop units and penetrations noted. Flashings and trim appear to have been salvaged from an earlier roof. On the north side, a residential-style gutter occurs at an added patio door off the kitchen. No downspouts are included.
The east face is fully guttered with downspouts at either end. The downspouts discharge directly to grade and extensions are recommended for getting the storm water away from the building foundation.

The sill/flashing line at the clerestory windows of the apparatus room is very shallow.

## Interior Finishes

### Floors

Offices, dormitories, lounge and meeting spaces are carpeted. The kitchen and dining area has 12"x12" glazed tile floor. All bathrooms have 2"x2" ceramic mosaic tile floor. Other interior areas such as storage, work-out and equipment repair rooms have 12"x12" composite tile. The large meeting room/park shelter area is half carpet, have composite tile.

Areas that are open to the apparatus bay have quarry tile floor finish, while the vehicle area itself is concrete. Basement storage rooms have sealed or painted concrete floors.

### Walls

Walls are primarily either painted concrete masonry units (CMU) or gypsum board. Dormitory rooms have CMU to a height of approximately 5'-4", with gypsum board above. A wood trim covers the joint between materials.

Some exposed brick is used in the area open to the apparatus bay. Glazed ceramic tile (4 ¼" x 4 ¼") is used as a wainscot at the kitchen, original bathrooms and janitor room. The recent shower room addition has full height ceramic tile walls. The 2007 Women's room has gypsum board walls with a prefabricated shower.

### Ceilings

Interior areas generally have 2'x2' lay-in acoustic panel ceilings with a white semi-recessed grid. Heavy timber beams from the roof structure are visible in most of the building's perimeter rooms. The ceiling of the apparatus bay is exposed structure, extending up to the underside of the roof deck, which is painted white.

### Casework

Casework appears to be original: medium stained oak flat panel door and drawer fronts with chamfered edges on oak frame. Counters are plastic laminate. Wood-look laminate wardrobe units are used in the dormitories to separate sleeping quarters.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | | n/a | |
| Exterior Facade Condition | C | | n/a | |
| Metal gutters and downspouts | F | $5000 | A1 | |
| Windows | C | | A2 | |
| Ceilings | C | | | |
| Oxygen Tank Storage | D | $15,000 | | One hour rated room required |
| **Flooring** | | | | |
| Carpet | C | | | |
| Composite tile | C | | | |
| Ceramic and quarry tile | C | | | |

**NOTES:**

**A1.** Provide full gutters and downspouts at north side. Provide downspout extensions at south side.

**A2.** Although a variance was granted to allow the windows in one of the dormitory rooms to be replaced with wall panel, it would be preferable to install better performing windows and be able to provide natural light to an occupied space.

**East Elevation**

**West and South Elevations**

**Sliding Patio Doors (North Elevation)**

**Basement Work-out Room**

**Training/Park Shelter**

Lounge (South Wing)

Dormitory (South Wing);
Paper-covered Door

Women's Room (South Wing)

Shower (North Wing)

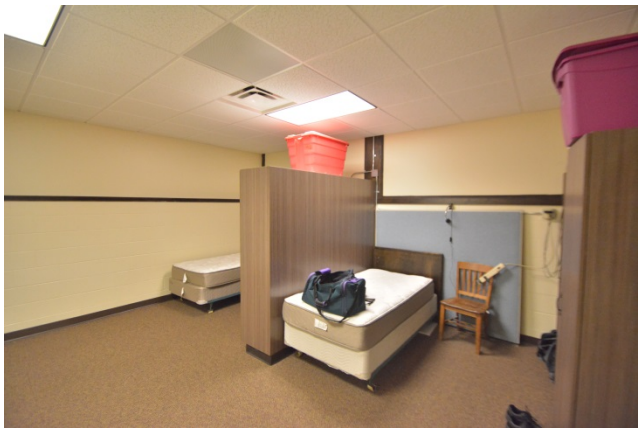
**Kitchen & Dining**

**Office**

**Corridor, North Wing**

**Southwest Vestibule**

**Dormitory**



**Dormitory with No Windows**

**Central Apparatus Bay**

**Park Shelter Restroom Entries**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1968 | **Gross Area** | Basement: 1,643 SF<br>First Floor: 8,322 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | **S-1** Moderate-hazard Storage non-separated from **B** Business and **R-3** residential | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type II-A (Primary structure of non-combustible materials and 1hr rated roof) | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**. Recent women's room (2007) and shower room (2013) updates to the building have met both IBC applicable at the time and ADA guidelines.

The Wisconsin building code at the time of construction would have placed this building in the Wisconsin Commercial Code Chapter 54 Business. Its class of construction would likely have been Fire Resistive Type A, which is similar to IBC Type II-A. Criteria for this rating include a 1 hour rated roof, which is met by the 2 ½" thick wood ceiling structure.

The IBC does not specify fire stations as being Business occupancy, therefore the building occupancy may be determined more by usage of space. For Fire Station #6, both the basement and 1st floors are non-separated B-business, S-1 storage and R-3 residential.

### Egress

There are multiple at-grade egress doors around the facility. Although there are more than would be required for the number of occupants, several doors have materials stored either interior or exterior which are partially obstructing the door. It is recommended that any doors currently available for use as egress be cleared of such obstructions.

### Shafts

The only stair in the facility connects the basement with the main level, accessed via the apparatus room. The stair is unenclosed at the basement level, but enclosed at the apparatus room. Since the stair connects only the two levels, this amount of enclosure complies with current code (708.2, exception 7).

A duct shaft between basement mechanical room and the upper level is noted as 2 hour rated in the original construction documents. This would exceed the current requirement for 1 hour rating of a shaft connecting fewer than 4 floors.

### Handrails

The existing handrails at stairs are approximately 32" above the toe of the stairs, which is slightly lower than current code requirement of 34" minimum. There are no handrail extensions at top or bottom of stair.

## Summary of Accessibility/ADA Compliance

The following summary of accessibility is provided for owner reference, with the acknowledgement that persons using this building can only do their job if they do not have accessibility needs. That said, certain upgrades, such as lever door handles, could be done that would make operation easier and quicker. As noted above, accessibility may be mandated by code based on the extent of work being done.

### Accessible Route

The multiple at-grade egress routes have been noted above, however, there are several doors which do not provide the amount of maneuvering clearance required to be accessible: the interior doors at the SW vestibule, the door to the living quarters at the SE vestibule, the door to the dormitory at the NW passage, and the door to the basement.

### Doors

Doors that date from the time of the original construction have a mixture of push/pulls and knob handles, which are not accessible, and not as easy/fast to use. Doors added or changed as a result of various renovations over the years, such as the Women's rest room and the basement Conference Room, have lever handles.

### Plumbing Fixtures

The Women's room (2007) and recent shower room (2013) met applicable IBC at the time of renovation. Since that time, an additional vertical grab bar has been added to the requirements for grab bars at toilets. Toilet rooms original to the construction of the building have stalls with side grab bars, but these do not meet current accessibility guidelines. The Men's room does not provide accessible toilet or shower. An accessible shower is provided in a separate room, and if necessary, the Women's single-user room could be utilized for an accessible toilet.

The public toilet rooms used in the summer months in association with the park shelter do not have any accessible fixtures. Neither toilets nor lavatories have the required clear floor space, and the toilets do not have compliant grab bars.

In the living quarters, the kitchen sink is at a rim height of 36", which is above the 34" that would be required for side approach access.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Stair shafts/circulation | C | | | |
| Handrails/guardrails | F | | | Handrail height is not a safety issue |
| Accessible route | F | | CA1 | |
| Doors | C F | | CA2 | |
| Plumbing fixtures | C F | | | Newer renovations are compliant |
| Accessible toilet | HP | $6,000 | CA3 | Creating 1 accessible toilet is recommended. |

**NOTES:**

**CA1.** Clear available egress doors of obstructions/stored items. Doors that do not provide proper maneuvering clearances would require remodeling to address, as switching the door swing would create a different obstruction to egress in most cases.

**CA2.** Lever handles would comply with accessibility codes and facilitate ease of use. Lever handles are code requirement for any new or renovated work.

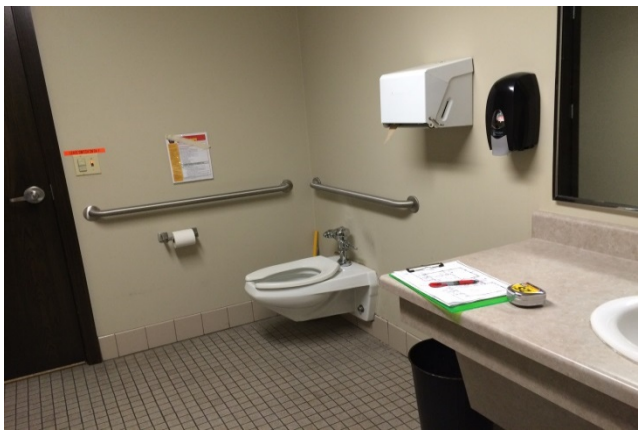
**CA3.** An accessible rest room should be provided for public use. Restroom should include toilet with grab bars and lavatory.

**Entrance**

**Obstructed Egress**

**Various Door Hardware**

**Kitchen**



**Women's Room**

**Public Men's Room**

**Women's Room**

**Shower Room**

## STRUCTURAL SYSTEM

### Summary

The structure is a frame of glued-laminated wood beams and columns with tongue-and-groove wood roof decking.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1968 (Nichols and Barone) |
| **Structure Type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation and/or basement walls bearing on individual spread or continuous strip footings. |
| Basement | **C** | | | Under the southeast corner of the building only. Floor is a 4" concrete slab on grade with 6x6 - 10/10 welded wire mesh reinforcing. |
| 1st Floor | **C** | | | a. Southeast area over basement is 10" precast concrete plank with 2" concrete topping over concrete beams.<br>b. Remaining work/living quarter's areas are a 4" concrete slab on grade with 6x6 - 10/10 welded wire mesh reinforcing.<br>c. Apparatus garage is a 6" concrete slab on grade with 6x6-8/8 wire mesh reinforcing. |
| Roof | **C** | | | 7" wide x varying depth glued-laminated wood beams with 2 ½" thick tongue-and-groove wood decking supported by 7"x11 3/8" glued-laminated wood columns. |
| **Occupancy Category** | **NA** | | | Occupancy Category IV |
| **Construction Type** | **NA** | | | Construction Type **II-A** (1-hour beams & columns, 2-hour floor slab, 1-hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | N/A |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

## PLUMBING SYSTEMS

### Summary

Fire Station #6 was constructed in 1968. Toilet room renovations occurred in 2007 and 2013. The original piping is in fair condition; it could be replaced as needed when issues arise. Insulation could be added to the older hot water piping for energy savings. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. Hot water temperature to the Public Toilet rooms **exceeded 145° Fahrenheit**, major scalding potential. These are code issues which should be corrected.

Another code issue is the storage of oxygen and air cylinders. The oxygen and air cylinders should be stored in a 1-hour fire rated room.

Plumbing fixtures in the original Men's toilet room could be updated to conserve water. Fixtures in the Women's 2007 toilet room are newer and are set up to be accessible. Unisex shower installed in 2013. Building utilities in general appear adequate.

This building is not equipped with an automatic fire sprinkler system. However the exhaust hood in the kitchen should have an Ansul (or equal) kitchen suppression system installed.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | PVC & cast iron |
| Storm/Clearwater Piping | F | | P3 | Cast iron |
| Valves | F | | P4 | Gate & ball |
| Domestic Water Service | C | | P5 | 2" main with 3-valve bypass |
| Insulation | HP | $5,000 | P6 | Fiberglass & elastomeric. Asbestos-1968 |
| Code Issues | D | | P7 | Hot water temp., cylinder storage |
| **Equipment** | | | | |
| Domestic Water Heater(s) | F | | P8 | Installed in 1994 and 2014 |
| Drench shower station | NA | | | |
| Recirculation Pump(s) | D | $6,000 | P19 | Add pump (code issue) |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $6,000 | P10 | Add TMV (code issue) |
| Grease Interceptor | NA | | | No grease interceptor required. |
| Kitchen Equipment | F | | P11 | |
| Plumbing Fixtures | F | | P12 | |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Oxygen Storage | D | See Arch | P13 | Oxygen and air cylinders; See Architectural Summary report |
| Backflow Prevention | C | | P14 | 1 ½" hose connection |
| "Shop" air compressor | NA | | | |
| Laundry equipment | F | | P15 | |
| Clearwater sump/pump | F | | P16 | |
| Ambulance/Truck Garage | F | | P17 | Trench drain, oil interceptor |
| **Exterior** | | | | |
| Storm Drainage | F | | P18 | Catch basin |
| Lawn Irrigation | NA | | | |
| Utilities | F | | P19 | |

**NOTES:**

**P1.** Water piping is copper, soldered joints. Fair condition.

**P2.** Original sanitary is cast iron. Some PVC piping in the basement area.

**P3.** No storm piping. Roof pitches to the north and south. Higher roof dumps on the lower roof. There are sections of gutter above building entrances.

**P4.** Older valves are gate, newer valves are ball.

**P5.** Building is served by a 2" water main. 2" water meter with 3-valved by-pass in the south basement.

**P6.** Insulation is missing at the water heater. Some elastomeric insulation has been added to piping. Older original 1968 insulation probably contains asbestos and will require abatement. Asbestos abatement by owner – TBD.

**P7.** Code issues: north water temperature is set at 117° Fahrenheit, maximum temperature to be 110° Fahrenheit. South water heater temperature **exceeded 145° Fahrenheit**. (This water heater serves the laundry, but also serves the public toilets which are used by the people in Fireman's' Park). No thermal mixing valve (TMV) at the heater. Add TMV per code. No recirculating pump at heater. Add recirculating pump, hot water piping length exceeds 100'-0" per code. Oxygen and air cylinders should be stored in a 1-hour fire rated room.

**P8.** North water heater is gas fired, AO Smith, Model FCG 75 300, 75gallon, 75,000 BTU. Installed in 2014. South water heater is an AO Smith Model BT 100 230, 76 gallon, 76,000 BTU. Both units are gas fired and direct vented to exterior. Hot water connection at heater is 1".

**P9.** Install hot water recirculation pumps. Length of hot water piping exceeds 100'-0" per code. Hot water to kitchen sink and toilet rooms was excessive.

**P10.** Add TMV to water heaters or public lavatories. Set hot water temperature to 110° Fahrenheit. Code issue.

**P11.** Kitchen equipment: 2 compartment sink with garbage disposal. No dishwasher.

**P12.** Plumbing fixtures: Men's and Women's public toilet rooms – wall hung WC, Sloan Royal flush valve 3.5 gpf 16" aff. Lavatory – wall hung with metering faucet, rim 34" aff. Urinal, floor mounted with Sloan Regal flush valve. Lavatories are ADA-compliant, WC's are not compliant. Women's toilet room (2007) ADA. WC is wall hung with flush valve at 18" aff. Lavatory in countertop, rim at 34" aff. Single stall ADA shower with Powers shower valve. Newer (2013) Unisex built-up shower has Power shower valve. Single unit EWC-spout at 40" aff. Men's original toilet room has newer tank-type WC's, 1.6 gpf, rim at 16" aff. Lavatories in countertop rim at 16" aff. Urinals are floor mounted with flush valve. Built-up shower with Moen shower valve. Janitors' curb has a vacuum breaker on spout.

**P13.** Small air cylinders are stored in a hallway, oxygen in the garage – both should be stored in a 1-hour rated room. Code issue.

**P14.** 1 ½" hose connection in the ambulance garage has a Watts 188A atmospheric vacuum breaker.

**P15.** Milnor commercial laundry unit – gear Guardian 8. Hot water temperature at 145° Fahrenheit.

**P16.** Sump and top mounted Weil pump in the basement. Check valve installed in pump discharge. Floor drain in the basement drains into this pit. Sump/pump discharges to the basement sanitary sewer. No high water alarm installed.

**P17.** Ambulance garage: trench drains and a garage catch basin installed.

**P18.** East parking lot pitches to a storm catch basin. West parking lot pitches to West Mason Street. Roof discharges to grade with downspouts.

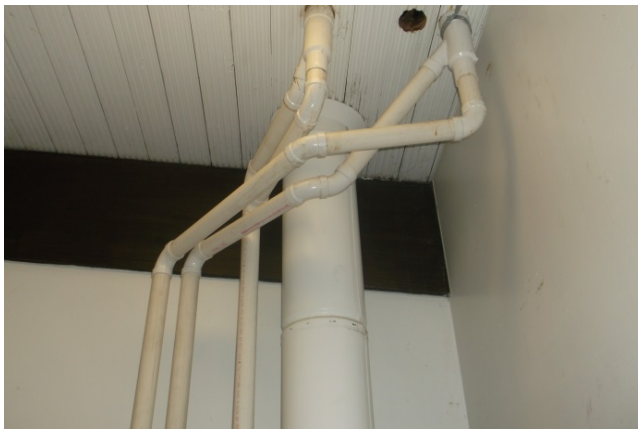
**P19.** Building is served by a 2" water main from West Mason Street. 4" sanitary discharges to West Mason Street. West parking lot site pitches to an east ditch along the property line.

Water & Sanitary Piping – Boiler Room

Gate Valve – Water Piping

Water Piping – Insulated

Water & Sanitary Piping Serving Newer Toilet Room



Boiler Breeching & Vent Piping

Water Service, Water Meter with By-pass

Commercial Laundry Unit - Garage

Water Heater – South Side

Water Heater – South Side

Kitchen – Double Sink

Sump Pit & Pump

Men's Public Toilet Room

Men's Public Toilet Room

Urinals – Men's

Urinals – Men's

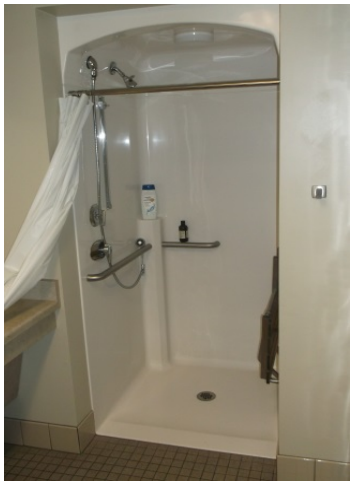
Lavatories – Men's

Tank-type WC in Men's

Shower – Men's

WC – Women's (Newer ADA Toilet Room)

Lavatory – Women's (Newer ADA Toilet Room)



Women's Shower -ADA

Built-up Shower

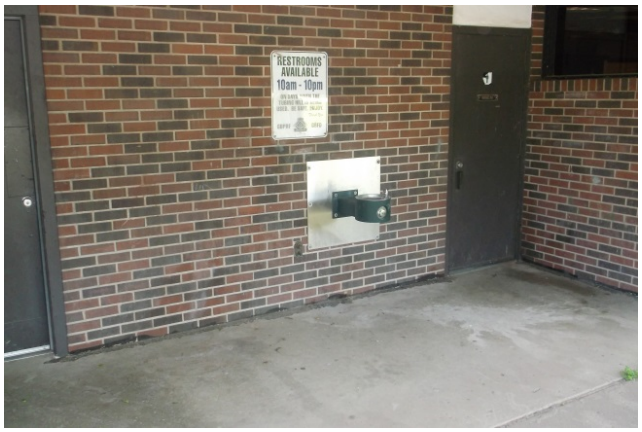
Cylinder Filling Station

Empty Tank Storage

Cylinder Storage

Cylinder Storage - Garage

Trench Drain in Garage




Water Cooler – Southside of Building (Park)

Gutter & Downspouts

Gutter & Downspouts

Gutter & Downspouts

Water Heater – North Side

Water Heater – North Side

# HVAC SYSTEMS

## Summary

The facility is split into three areas, the apparatus room/storage, a sleeping/dining area, and a TV/meeting area. There are two toilet rooms which are used by the public in the winter and the parks department in the summer. The meeting area is also used by the parks department in the summer. The majority of the HVAC systems have been upgraded over the years. The underground ductwork serving the sleeping areas has been abandoned. The original ductwork serving the TV/meeting area appears to be original to the facility.

The sleeping/dining area is served by a packaged roof top air unit with gas fired heat. The air unit system provides either heated or cooled air to the living quarters as required to maintain space temperature. The unit is controlled by two thermostats, one located in the dining room and one located in the sleeping room. Control is low voltage electric.

The TV room area and basement work out area is served by a residential style furnace with split system DX air conditioning. The meeting room area is served by a residential style furnace. Control is low voltage electric.

Residential style humidifiers are located in the facilities sleeping rooms.

Toilet/shower rooms located adjacent to the sleeping room are ventilated by a power roof ventilator fan. The Women's toilet located adjacent to the TV room is ventilated with a ceiling exhaust fan. The public toilet rooms are served by a roof mounted exhaust fan which draws air through the abandoned ceiling fans within each room.

The kitchen ventilation hood is served by a roof mounted exhaust fan. The fan discharges approximately 22" above the roof. The kitchen hood appears to be a type 1 hood, with a horizontal grease filter. A stove with side griddle is located beneath the hood.

A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave the building. The original room exhaust and make-up air fans have been removed. Gas fired unit heaters provide this room with heat.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Air Unit** | | | **H1** | Installed 2014.<br>Trane roof top packaged YSC series, 6 ton cooling with gas heat. |
| Housing | **C** | | | |
| Air intake | **C** | | | |
| Condenser Fins | **C** | | | |
| Fan | **C** | | | 2400 CFM, 1 HP |
| Filters | **C** | | | 30% filters |
| Controls | **HP** | $20,000 | | Two thermostats for averaging temp. |
| Ductwork | **C** | | | |
| Insulation | **C** | | | |
| Humidity | **HP** | $1,000 | **H1** | Residential type unit. Manually filled. Humidification is not a code requirement. |
| **Residential Style Furnaces** | | | **H2** | Guardian 80,000 BTUH, 79,000 BTUH output Goodman 80,000 BTUH (approx.) |
| Housing | **C** | | | |
| Air intake | **CP** | $1,500 | **H2** | Outside air damper is wide open, does not appear to be balanced. |
| Condenser Fins | **C** | | | |
| Fan | **C** | | | |
| Filters | **C** | | | 1" filter |
| Controls | **CP** | $3,000 | **H2** | Single zone, low voltage. |
| Ductwork | **D** | $8,000 | **H2** | Duct in workout room is located over electrical panels. One grille is blocked off. |
| Insulation | **C** | | | |
| Humidity | **HP** | $2,000 | **H2** | Residential type unit. Manually filled. Humidification is not a code requirement. |
| **Exhaust Fans** | | | | |
| Men's Room Exhaust | **C** | | **H3** | Power roof ventilator |
| Women's Room Exhaust | **C** | | **H3** | Ceiling exhaust fan |
| Public Toilet Rooms | **HP** | $1,000 | **H3** | Power roof ventilator, abandoned ceiling fans. Cords sticking out of the fans. |
| Ductwork | **C** | | | |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Kitchen Hood, Fan and Ductwork | HP | $25,000 | H4 | Type 1 hood. Roof mounted fan exhausts too close to roof. Fan near roof edge. Galvanized ductwork. Horizontal grease filter. |
| Building Ventilation | HP | $3,000 | H5 | Door grilles are open or blanked off with card board between living space and garage. |
| **Garage Ventilation** | | | H6 | |
| Make-up Air Unit | D | $110,000 | H6 | No make-up or exhaust. Gas fired heaters for room heat only. |
| Truck Exhaust | C | | | PlymoVent. |
| Dryer Exhaust | D | $500 | H7 | Terminates inside. |

**NOTES:**

**H1.** The air unit is one year old. Expected useful life is 20 years. The unit has a master zone terminal to set the unit to heating or cooling mode. The air unit is a single-zone system using two thermostats to control the air unit temperature. There has been some dissatisfaction with the single zone, two thermostat averaging control approach as the unit serves 5 zones (including lockers, sleeping, office, and dining areas). The city has previously investigated an option to install regulating dampers to provide zone control. These would be dampers similar to those at other facilities. Those facilities have additional difficulties with manual radiation control, this facility does not. Damper regulation will improve thermal comfort, however additional thermal comfort can be achieved by installing reheat coils (electric), on each zone damper.

A portable residential style humidifier is located in the sleeping room. This indicates that the occupants are attempting to regulate the building humidity to improve their comfort. These units will actually improve humidity only slightly, but may have a greater psychological effect. This is because the air unit will introduce a greater amount of dry outside air than these units can properly humidify. To humidify this building, it is recommended to install an electric or gas fired humidifier that is sized to serve the entire building.

**H2.** A residential style furnace serves the TV room and another serves the meeting room areas. The unit's ages could not be verified from an initial inspection but appeared to be in good physical condition. This type of unit will have an expected useful life of 20 years. Each unit is controlled from a single thermostat. The TV room unit also serves the basement workout area, which causes this area to over cool. One grille has been blocked off with a bundled up cloth. The lower level would benefit from the installation of a zone damper and thermostat to control its space temperature separate from the upstairs TV room.

There is an outside air connection to each furnace. The balancing dampers appear to be fully open on the units. It is recommended to balance the outside air quantities so the rooms receive adequate outside air ventilation, without over ventilating and wasting energy.

The furnaces are sealed combustion. The vents rise up through a storage room adjacent to the water heater vent. These vents should be concealed within a rated chase to maintain a fire rating from the basement to the roof. A rated enclosure is recommended.

Electrical gear/panels have been installed beneath the ductwork in the workout room. Code requires the space above the panels be kept clear to structure above. It is recommended that the ductwork be shifted away from the exterior wall and electrical panels.

A dehumidifier is located in the work-out room. Basements generally get cool, clammy, and have a high relative humidity. A separate thermal zone arrangement as indicated above will help control the space temperature and humidity to allow the occupants to feel more comfortable when occupying the space. The dehumidifier could then be relocated into the storage room where dehumidification will still be necessary.

The occupants have installed residential style humidifiers in the TV area as well. It is recommended to install a humidifier, matched to each residential furnace. This will control humidity throughout the occupied area and improve overall comfort.

**H3.** The power roof ventilator serves the Men's shower/toilet room. The Women's toilet/shower is served by a ceiling fan which is manually controlled. Public toilets are served by a roof mounted fan ducted to the abandoned ceiling grilles. The cords are sticking out of these fans. It is recommended to replace the public toilet fans with ceiling grilles.

**H4.** The kitchen hood appears to be an older type 1 hood. For stove top appliances, where grease vapors may be exhausted, a type 1 hood is required. The ductwork is galvanized and not sealed liquid tight. The grease filter is placed horizontally in the vent discharge. This position is inadequate as grease can drip from the filter into the food product being prepared on the stove top. The fan is located too close to the roof and the roof edge. It is recommended to install a type 1 hood equipped with a fire suppression system and vented with approved liquid tight ductwork and a new rated exhaust fan.

**H5.** The living spaces are to be positively pressurized in relation to the garage. The initial appearance is the spaces are positive to neutral, however, the doors between the living space and the garage contain door grilles, which allows the free transfer of air between spaces. Most of these grilles are blocked with cardboard. It is recommended to blank-off the louvers with a more permanent material or replace the doors to maintain the separation.

**H6.** A PlymoVent exhaust system is connected to each truck parked in the garage. This system operates whenever a truck is started and the vehicle exhaust is expelled from the garage. The fan is mounted on the roof. The garage is heated with (2) gas fired unit heaters.

An enclosed garage has specific exhaust code requirements and the garage is required to have a negative pressure in relation to the living quarters. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. The PlymoVent truck exhaust system alone does not meet the ventilation requirements for an enclosed garage. A garage exhaust fan upgrade project to install new make-up fan, radiant heaters, exhaust fan and control systems is necessary to improve garage ventilation and occupant safety.

**H7.** A laundry dryer is located in the apparatus garage. The dryer terminates inside the room. This termination allows warm, moist air to be vented directly into the garage. It is recommended to vent this unit to the outside.

**Roof Top Air Unit Connections**

**Roof Exhaust Fan (Typical)**

**Public Toilet Ceiling Mount Fan (Typical)**

**Kitchen Exhaust Fan**

**Kitchen Hood (Inside View)**

**Furnace (Typical)**

**Furnace (Return Duct)**

**Condensing Unit**

**Supply/Return Grilles**

**Blanked Off Door Grille**

**Home Humidifier in Sleeping Room (Typical)**

**Dehumidifier (Basement)**

Garage Heater (Typical)

Boot Dryer Vented to Old Exhaust Vent

Ceiling Fan (Women's Toilet)

Condensing Unit

Furnace Thermostat (AHU Similar)

PlymoVent Fan, Toilet Exhaust Fan

**Duct Over Electrical Gear**

**Combustion Vents**

**Basement Grille (Blanked Off)**

**Laundry Vent**

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 400 Amp, 120/208 Volt, three phase electrical service. The panels are in good condition, and have capacity for the future. The emergency generator serving the building is in fair condition. The emergency system is fed from a single transfer switch and panel board. The equipment is in good condition and has some future capacity.

An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads. Exercise equipment is currently inhibiting the code required 3-feet for electrical clearance. HVAC ductwork is also currently inhibiting the code required working clear space above the electrical equipment.

The outlets within the garage and exterior mounted outlets are not GFCI protected. Exterior outlet covers are also not all weatherproof while-in-use. Lighting fixtures are in good to fair condition and utilize T8 lamps and ballasts, incandescent and compact fluorescent lamps. There are several fixtures with broken or missing lenses. These should be replaced or repaired. There are occupancy sensors located in the toilet rooms, but the facility should also install occupancy sensors in offices, conference rooms/classroom, storage rooms and janitor's closets. HID building mounted fixtures are in fair condition; consideration should be given to replacing with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition and the facility is pulling Cat 5e and Cat 5 data and voice cabling and coax for CATV. The fire alarm system includes stand-alone smoke detectors and carbon monoxide detectors throughout the building which are in good condition.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Electrical Service** | | | | |
| Utility Service Entrance | C | | | 400 Amp underground electrical utility service enters the building in the basement storage room. |
| **Normal Power Distribution Equipment** | | | | |
| Enclosed Circuit Breaker and Wireway | C | | E1 | 400 Amp enclosed circuit breaker feeds a wireway that is tapped to feed panels and equipment, in good condition. |
| Disconnects | C | | E1 | Disconnects fed from the wireway feed panels and HVAC equipment, in good condition. |
| Branch Panels | C | | E1 | Three Cutler Hammer panels on 1st floor and one Square D load center in the basement – with future capacity. |
| **Emergency Power Distribution Equipment** | | | | |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Generator | F | | | 80 KW Cummins Onan Quiet Site II with sub-base fuel tank in fair condition. |
| Transfer Switch | HP | $5,000 | E1, E2 | Cummins Onan 400 Amp ATS in good condition. |
| Disconnect Switch | C | | E1 | 200 Amp Square D disconnect on incoming generator feed to the ATS in the storage room in good condition. |
| Branch Panel | HP | $10,000 | E2 | 200 Amp Cutler Hammer load center in good condition and with future capacity. Mixed loads. |
| **Power** | | | | |
| Receptacles | D | $1,000 | E3 | Garage, kitchen, and exterior outlets need to be GFCI. Provide weatherproof while-in-use covers for all exterior outlets. |
| **Lighting** | | | | |
| Garage | C | | | Industrial fixtures with T-8 lamps in good condition. |
| Office spaces, conference rooms, and corridors | F | $2,000 | E4 | Recessed acrylic lens troffers and surface mounted wrap-around with T-8 lamps, incandescent downlights and pendants in fair condition. |
| Sleep Rooms and Toilet Rooms | F | $2,000 | E4 | Surface mounted wrap-around some fixtures have broken lenses, others are in good condition. |
| Mechanical spaces, storage rooms, utility areas | F | $2,000 | E4 | Ceramic lamp holders with screw-in CF lamps, industrial strips with T-8 lamps, in fair condition. |
| Exterior | F | $5,000 | E5 | HID wall packs in fair condition. |
| **Lighting Controls** | | | | |
| Conference or Meeting Rooms | HP | $1,000 | E6 | Add occupancy sensors |
| Offices | HP | $1,000 | E6 | Add occupancy sensors |
| Toilet Rooms/ Small Storage Rooms | F | $500 | E6 | Toilet rooms have occupancy sensors in good condition; add sensors in janitor and storage rooms. |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Corridors | C | | | Fixtures connected to emergency panel. |
| Exit Signs | F | | | LED type in good to fair condition. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Fire Alarm Devices** | | | | |
| Smoke Detectors | C | $200 | | A few stand-alone smoke detectors and carbon monoxide detectors throughout the building. |
| **Telecommunications** | | | | |
| Data/Voice | C | | | Cat 5 and Cat 5e cabling |
| CATV | C | | | Coax |

**NOTES:**

**E1.** Code required 3-feet for electrical clearance and clear space above the equipment is not being maintained.

**E2.** Recommend providing an additional automatic transfer switch and panel board to separate the critical and equipment branch loads onto a new panel and leave the existing panel with the life safety loads.

**E3.** Replace all outlets located in the garage area and exterior outlets with GFCI type device. Add weatherproof while-in-use covers on exterior outlets. Replace existing kitchen outlets with GFCI type device, unless they are currently protected from the adjacent GFCI outlet. If this is the case, the outlet should be labeled per NEC requirements.

**E4.** Consideration should be given to replacing older fixtures with new. Replacement or repair should be done on fixtures with broken or missing lenses. Utilize compact fluorescent or LED lamps in lieu of incandescent.

**E5.** Consider replacing HID fixtures with more efficient LED in the future.

**E6.** Occupancy sensors should be installed in the meeting room, classroom, offices, storage rooms, and janitors closet to provide additional energy savings. If areas are renovated, controls will be required to be updated to meet current energy code.

Telephone Service Equipment

Main Electrical Service Equipment

Fiber Service Entrance and Data Rack

Feeder Wire Way and Disconnects

Generator

Emergency Feeder Disconnect and 400A ATS

Existing Panel A

Existing Panel B

Existing Panel C

Existing Panel D

Generator Alarm Panel

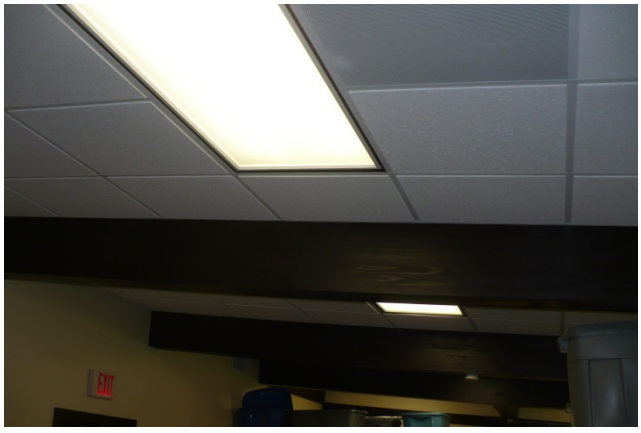
Classroom Lighting

**Pendant Lighting**

**Exterior Outlet**

**Garage Outlets and Door Controllers**

**Exit Sign**



**Sleeping Room Lighting**

**Dining Room Lighting**

**Exterior Wall Packs**

**Garage Lighting**

**Stand-Alone Smoke Detector**

**Hallway Lighting**

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## FIRE STATION #7

**August, 2015**

## FIRE DEPARTMENT

## SUMMARY

***Date of Visit: June 3, 2015***
***Address: 3489 Humboldt Road***

### Building Description

Built in 1981, Station #7 is comprised of two rectangular forms; the two-bay apparatus room and the lower height office/residential wing. Both wings have flat roofs. The east side and half of the north end of the office/residential wing are burmed several feet into the ground. A partial basement is accessed from one stair on the interior and one stair open to the environment on the exterior, west of the office/residential wing. The open stair collects leaves and debris at the bottom.

Existing exterior wall is combination of face brick and an Exterior Finish Insulation System (EFIS). The south wall of the apparatus room incudes a disconnected solar heating panel system and conceals a concrete block trombe wall.

Tuck-pointing is required at the mortar joints below the east windows. The EFIS, in areas, is damaged. Foam-in-place insulation is prevalent at areas along the perimeter of the roof.

Most interior finishes are in acceptable condition. There has been some tile damage in the Men's room. Basement has residential grade stick-on floor tile. Plastic laminate casework has some minor chipping. Solid surface counters at toilet room lavatories are in good condition.

### Code/Accessibility

No enclosure of the stair is provided or required, since it only connects 2 floors. Guard rails at the side of the exterior stair access to basement have greater than 6" openings. Due to the significant height differential, and unsecured exterior access, it is recommended that the openings be minimized to 4 3/8" maximum (at guards), to comply with current code.

Most rooms provide enough clear floor space to offer a turning radius in the room. Exceptions would be the area leading to each of the showers and locker areas, which is approximately 3'-0" wide, and the kitchen, with 4'-0" between casework. Knob hardware on doors is recommended to be replaced. Doors into toilet rooms are not wide enough to provide accessibility. Providing one accessible toilet in the building is recommended.

### Structural System

The structure consists of steel roof deck and open web steel roof joists on load-bearing masonry walls and includes a partial basement. There is some minor cracking in the masonry walls at various locations in the building. Recommend tuck-pointing of approximately three courses of brick under the long windows on the north and east walls of the building.

### Plumbing Systems

The original piping is in fair condition. Insulation could be added to the hot water piping for energy savings. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. The oxygen cylinders should be stored in a 1-hour fire rated room – not in the garage. The exhaust hood in the kitchen should have an Ansul (or equal) kitchen suppression system installed.

### HVAC Systems

The living quarters is served by a modular air unit, which utilizes split system DX cooling to condition the air. Wall mounted fin tube radiation is utilized to regulate space temperatures. Kitchen and toilet rooms are served by systems on the roof.

One basement storage room has ventilation; a workshop and other storage room have none. A return grille in the work-out room indicates supply air is delivered upstairs and pulled through the open stair into the work-out room, then returned to the air unit.

A hot water boiler was replaced in 2011. It provides hot water to fin tube radiation (living quarters), convector units (locker/toilet rooms) and cabinet heater (vestibule).

The apparatus room was originally ventilated by (2) exhaust fans and (2) make-up air units which utilized solar wall technology to provide some energy efficiency in the rooms' heating requirements. The solar unit is now abandoned. A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave during fire calls.

## Electrical Systems

The building is served by a 400 Amp, 120/240 Volt, single phase electrical service. The panels are in fair condition, but have no capacity for the future. The emergency generator serving the building is in fair condition. The emergency system is in fair condition and has some future capacity. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads. Some fixtures and outlets are in need of repairs and updates.

The server equipment is in good condition. The facility is pulling Cat 5e and Cat 5 data and voice cabling and coax for CATV. The fire alarm system includes stand-alone smoke detectors and carbon monoxide detectors throughout the building which are in good condition.

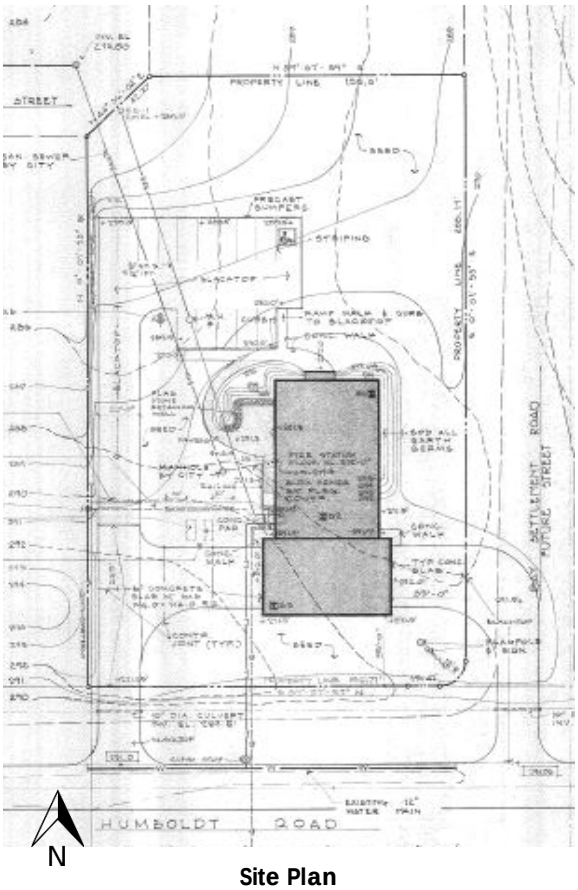
## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

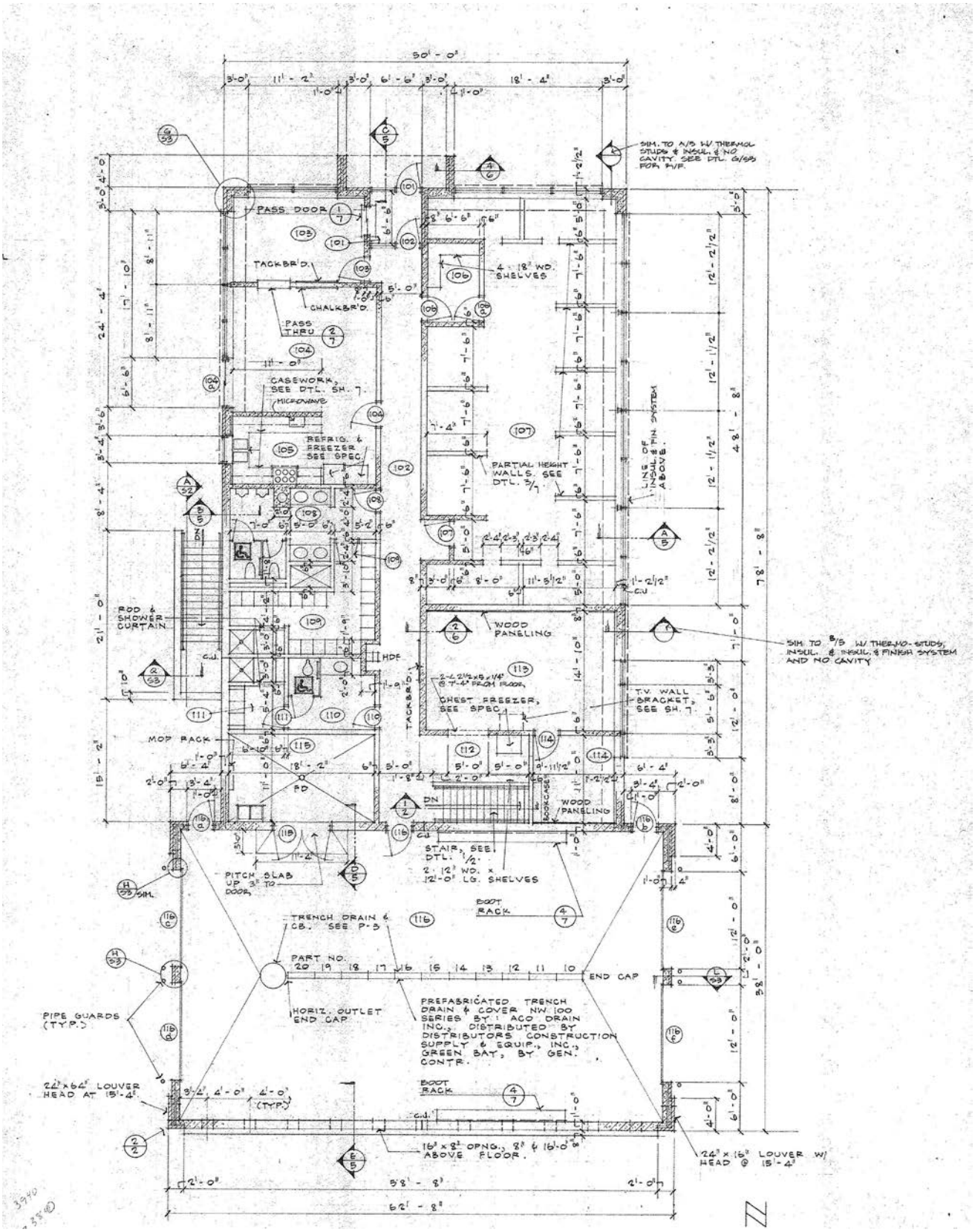
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | Oxygen Tank Storage | | | **$15,000** |
| **Code/ADA** | | | Handrails/Guardrails | **$8,000-$10,000** |
| | | | Grab Bars at Fixtures | **$1,000** |
| **Code Subtotal** | | | | **$9,000-$11,000** |
| **Structural** | | | Masonry Bearing Walls | **$3,000** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | Insulation | **$10,000** |
| | Recirculation Pump(s) | | | **$6,000** |
| | Thermal Mixing Valve (TMV) | | | **$6,000** |
| **Plumbing Subtotal** | | | | **$22,000** |
| **HVAC Systems** | | | Housing | **$40,000** |
| | | | Humidity | **$10,000** |
| | Occupied Space | | | **$10,000** |

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| | Ventilation (Basement) | | | |
| | | | Occupied Space Thermal Comfort | **$20,000** |
| | | | Exhaust Ductwork | **$4,000** |
| | | | Kitchen Hood, Fan and Ductwork | **$10,000** |
| | Piping | | | **$4,000** |
| | Mechanical Room Ventilation | | | **$500** |
| | Exhaust | | | **$60,000** |
| | | | Control | **$10,000** |
| **HVAC Subtotal** | | | | **$168,500** |
| **Electrical** | | | Transfer Switch | **$5,000** |
| | | | Branch Panel | **$10,000** |
| | Receptacles | | | **$1,000** |
| | | | Offices | **$1,000** |
| **Electrical Subtotal** | | | | **$17,000** |
| **Building Total** | | | | **$236,000-$238,000** |




**Site Plan**

**Aerial View of Site**




**Basement Plan**
(Not to scale)

# ARCHITECTURAL

## Building Description

Built in 1981, Station #7 is comprised of two rectangular forms; the two-bay apparatus room and the lower height office/residential wing. Both wings have flat roofs. The east side and half of the north end of the office/residential wing are burmed several feet into the ground.

A partial basement is accessed from one stair on the interior and one stair open to the environment on the exterior, west of the office/residential wing. The open stair collects leaves and debris at the bottom. A louver from the mechanical room into the exterior stair shaft creates uncomfortable vibration within the shaft. The basement includes work-out and recreation room, storage, shop and mechanical rooms.

The main level includes a public entry from the north, next to the only office in the building. Dining and kitchen include windows and a sliding patio door to the west. Also on the west are Men's and Women's restrooms, locker rooms and mechanical room. The east side includes a lounge, study and dormitory. A laundry and storage room is accessed from the apparatus bays.

## Building Envelope

### Exterior walls

Existing exterior wall is combination of face brick and an Exterior Finish Insulation System (EFIS). The south wall of the apparatus room incudes a disconnected solar heating panel system and conceals a concrete block trombe wall. The conceptual intent of the trombe wall is the energy and heat of southern, solar sunlight is absorbed throughout the day by a combination of vented air space and material thermal mass – and that energy is released into the building at night to reduce loads required by a mechanical heating system. The solar panels are very 'oil canned' and showing their age.

The typical wall construction is comprised of 4" modular face brick, 2" cellulous insulation and 6" concrete block. There are areas of uninsulated masonry wall. The EFIS system is typically backed with structural studs and batt insulation.

The east and west elevations include an earth berm and planter at the northwest corner. The retaining wall of the planter is built of stacked flag stone. The perimeter insulation appeared separated from the building along the north wall of the planter.

The apparatus room includes some subtle brick detailing at the openings. The public entry sequence is sheltered with a poured-in-place concrete cap. There is exterior basement access along the west elevation.

Tuck pointing is required at the mortar joints below the east windows. The EFIS, in areas, is damaged. Foam-in-place insulation is prevalent at areas along the perimeter of the roof.

### Windows

Bronze, aluminum windows throughout appear original to the building and in good working order.

Sealants at perimeter of fenestrations appear generally in good condition. Annual inspection for ruptures, tears and cracking should be continued.

### Roof

The living quarters and the apparatus room's existing roofing is a fully adhered EPDM membrane, installed approximately 2007. Leaks and repair reported around (1) of the two roof drains; no further issues have been reported.

Typical penetrations noted: vent pipes, antennas, various mechanical.
One roof drain screen was clogged with debris. Regular inspection and cleaning recommended.

## Interior Finishes

### Floors

The basement workout and recreation room has a residential grade stick-on composite tile floor. Storage, shop and mechanical areas are sealed concrete.

The locker and bathrooms have 2x2 ceramic tile floors with glazed sanitary cove base. There is some damage and attempt at repair under one of the Men's room urinals. Corridors, office, kitchen, dining and closets on first floor have commercial grade composite tile. Stairs have rubber tread-and-risers. Lounge, study and dormitory are carpeted.

### Walls

All walls are painted concrete, with the exception of the lounge and study, which each have one wall of wood paneling. The basement shop room is also wood panel covered on its interior walls. The showers are plastic stall units.

### Doors

Overhead sectional doors are insulated, seven-panel doors with four lights. Operators are in good working order.

Interior doors are flush, oak veneer, some with 6" x 30" lights. Exterior doors and mechanical room doors are painted metal. Both sides of public entry vestibule are dark bronze aluminum with full side light.

### Ceilings

The majority of ceilings are 2'x2' lay-in acoustic tile. Gypsum board soffits are used at casework locations. Open basement, apparatus and mezzanine areas are exposed structure.

### Casework

Casework at kitchen is plastic laminate at tops. There is minor chipping. The cases are flat-panel oak veneer construction. There is chipping at some doors. Wood grain plastic laminate is used at the reception window between vestibule and station office. Toilet partitions are painted metal, some wear evident. Lavatory counters at toilet rooms are solid surface material, in good condition.

### LEGEND

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | | | |
| Exterior Facade Condition | F | $5,000 | A1 | |
| Exterior Door Condition | C | | | |
| Window Condition | C | | | |
| Foam-in-Place Insulation | F | Minimal | | Should be cleaned |
| Flooring | F | $500 | A2 | |
| Walls | C | | | |
| Doors | C | | | |
| Ceilings | F | | A5 | |
| Casework | F | | A3/A4 | |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Oxygen Tank Storage | D | $15,000 | | One hour rated room required |

**NOTES:**

**A1.** Repairs at EFIS; Tuck-pointing at east elevation.

**A2.** Minor tile and base repair needed at Men's room below urinal.

**A3.** Kitchen casework will need replacement at some point, but not critical.

**A4.** Toilet partitions could be repainted.

**A5.** Most ceiling tile appears to be sagging at the center. No action needed at this time.

**South Elevation**

**North and East Elevations**

**West Apparatus Elevation**

**West and North Elevations**

**Exterior Stair**

**Overhead Door**

**Entry Vestibule**

**Typical Door**

**Lounge**

**Study**

**Women's Room**

**Men's Room**

**Kitchen**

**Wall at Dining**

**Apparatus Bays**

**Work-out and Recreation Room**

**Dormitory**

**Individual Dorm Space**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1981 | **Gross Area** | 1st floor: 6,550 SF<br>B: 1,910 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | **S-1** Moderate-hazard Storage non-separated from **B** Business and **R-3** residential | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type II-B | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

The Wisconsin building code at the time of construction (1981) would have placed this building in the Wisconsin Commercial Code Chapter 54 Business. Its class of construction would likely have been Fire Resistive Type B, which is similar to IBC Type II-B.

The current IBC does not specify fire stations as being Business occupancy, therefore the building occupancy may be determined more by usage of space. For Fire Station #7, the basement is non-separated S-1 Storage and B-Business. 1st floor is non-separated B-Business, S-1 Storage and R-3 residential, based on the definition of congregate living facilities as those where residents share bathroom and/or kitchen facilities.

### Stair Shafts

The only interior stair shaft connects basement and first floors. No enclosure of the stair is provided or required, since it only connects 2 floors.

### Handrails and Guardrails

The existing handrails at interior and exterior stairs are approximately 34" and 35 ½" above the toe of the stairs respectively, which complies with current code. Handrail extensions do not comply with current code, in that they do not continue past the bottom tread, and they do not return to the wall in some cases. They are presumed to be compliant with the code under which they were built, and thus grandfathered in as compliant.

Guard rails at the side of the exterior stair access to basement have greater than 6" openings. Due to the significant height differential, and unsecured exterior access, it is recommended that the openings be minimized to 4 3/8" maximum (at guards), to comply with current code.

## Summary of Accessibility/ADA Compliance

The following summary of accessibility is provided for owner reference, with the acknowledgement that persons using this building can only do their job if they do not have accessibility needs. That said, certain upgrades, such as lever door handles, could be done that would make operation easier and quicker. In addition, tours provided of various public facilities such as this would be well served to provide accessibility to the extent feasible. As noted above, accessibility may be mandated by code based on the extent of renovation work being done.

**Accessible Route**
Entry to the building for fire fighters/employees is at-grade (accessible) at the west side of the building, directly from the parking lot, and from the apparatus bay. See below for notes regarding toilet room access on 1st floor. There is no elevator to the basement, but as stated above, those who use the facility will not be in need of such accessibility.

Most rooms provide enough clear floor space to offer a turning radius in the room. Exceptions would be the area leading to each of the showers and locker areas, which is approximately 3'-0" wide, and the kitchen, with 4'-0" between casework.

A transaction counter at the entry vestibule is at 42 ½" high, well above the accessible height of 34". As the public may interact with the staff at this location, making the vestibule and counter accessible should be a priority.

**Doors**
Doors have either knob hardware or push/pull plates. Knobs comply with neither accessibility requirements nor code, because of the need to grasp and twist in order to operate them. Lever handles provide better ease and speed of use.

The clear opening width at doors is currently required to be 32" for minimum accessibility. Several doors, including those into the toilet rooms, are only 32" wide, which provides approximately 29" of clear space to enter. The aluminum front entry doors barely comply by providing just over 32" clear between stop and face of door.

**Plumbing Fixtures**
The original plans for the facility indicate an accessible toilet in both the Men's and Women's rooms. As the construction of this building pre-dated the ADA, neither the rooms nor the toilet stalls comply with current accessibility codes in the following ways:

- Toilet stall dimensions are 4'-0" x 4'-8", which is less than the 5'-0" x 5'-0" required.
- Insufficient grab bars at toilet stalls
- No grab bars, seats, or wand shower heads at showers
- Wall-mounted urinals with rim height of 23 ½" (ADA max. is 17")

Lavatory sinks do comply with current height requirements of rim heights of 34".

The kitchen counters are at 36", which was standard at the time of construction. Current accessibility code would call for 34" rim height, even for obstructed high side reach.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

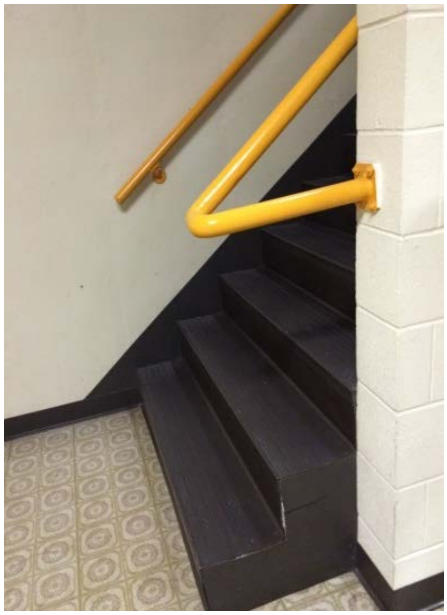
| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Code Issues** | | | | |
| Egress and Safety | C | | | |
| Stair Shafts | C | | | |
| Handrails/Guardrails | HP | $8,000 - $10,000 | CA1 | |
| **Accessibility Issues** | | | | |
| Accessible Route | C / HP | | CA2 | |
| Doors | C | | | |
| Plumbing Fixtures | F | | CA3 | |
| Grab Bars at Fixtures | HP | $1,000 | CA3 | |

**NOTES:**

**CA1.** Recommend providing code-compliant guard rails to protect rim of exterior basement stair.

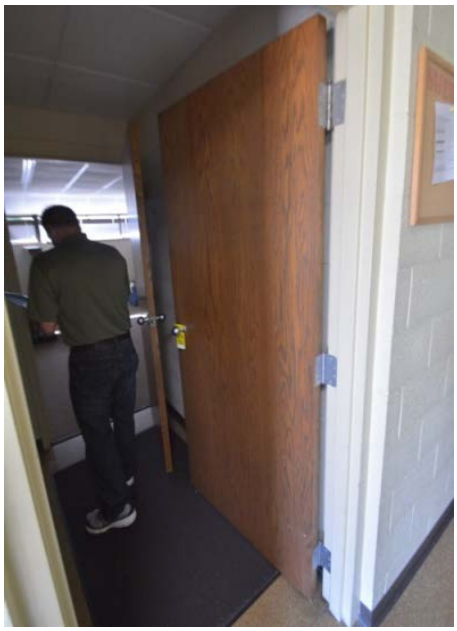
**CA2.** Recommend modifying opening at transaction counter to provide accessible height counter.

**CA3.** Further study is recommended to investigate the feasibility of creating one accessible toilet room. Until such a room can be created, installation of code-compliant grab bars in the existing larger toilet stalls would provide an improved accessibility situation.



**Lack of Extension at Handrails**

**Opening Size in Guard Rail**



**Knob Door Hardware**

**Push/Pull Door Hardware**

Main Entry, at Grade

High transaction counter

Entry vestibule

Kitchen (Lack of Turning Radius)

Locker and Shower Access

Lack of Grab Bars at Toilet

**Urinals (Rim Height)**

**Shower – Non Accessible**

**Women's Shower – Non Accessible**

## STRUCTURAL SYSTEM

### Summary

The structure consists of steel roof deck and open web steel roof joists on load-bearing masonry walls and includes a partial basement.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1981 (Somerville Associates) |
| **Structure type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation and/or basement walls bearing on individual spread or continuous strip footings. |
| Basement | **C** | | | Under center area of building only. Floor is a 4" concrete slab on grade with 6x6 – W2.0xW2.0 welded wire mesh reinforcing. |
| 1st Floor | **C** | | | a. North end is a 4" concrete slab on grade with 6x6 – W2.0xW2.0 wire mesh reinforcing.<br>b. Area over basement is 10" precast pre-stressed concrete plank. (Only the Hose Maintenance Room includes a concrete topping.)<br>c. Apparatus Garage floor is a 6" concrete slab on grade with 6x6 – W2.4xW2.4 welded wire mesh reinforcing. |
| Masonry bearing walls | **HP** | $3,000 | **S1, S2** | Various assemblies of CMU, brick, and cavity walls. |
| Roof | **C** | | | 1 ½" steel roof deck over open web steel joists supported by masonry bearing walls. |
| **Occupancy Category** | **NA** | | | Occupancy Category IV |
| **Construction Type** | **NA** | | | Construction Type **II-B** (1-hour exterior bearing walls, 1-hour floor slabs, 0-hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | N/A |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There is some minor cracking in the masonry walls at various locations in the building. The cracking is likely due to either slight settlement of the walls or simply volumetric changes of the masonry materials caused by temperature and moisture changes over time. This is most noticeable where two different walls (or wall types) intersect, such as in the northwest and northeast corners of the apparatus garage. This cracking is not impairing the function of the structure so there are no recommendations for remedial action at this time.

**S2.** Recommend tuck-pointing of approximately three courses of brick under the long windows on the north and east walls of the building.

**Masonry Cracking NW Corner Apparatus Garage**

**Masonry Cracking NE Corner Apparatus Garage**

**Brick under Windows at East Wall**

**Brick under Windows at North Wall**

## PLUMBING SYSTEMS

### Summary

Fire Station #7 was constructed in 1981. The original piping is in fair condition; it could be replaced as needed when issues arise. Insulation could be added to the hot water piping for energy savings. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. These are code issues which should be corrected.

Another code issue is the storage of oxygen cylinders. The oxygen cylinders should be stored in a 1-hour fire rated room – not in the garage.

Plumbing fixtures in the toilet rooms are older and could be updated to conserve water. Building utilities in general appear adequate.

This building is not equipped with an automatic fire sprinkler system. The exhaust hood in the kitchen should have an Ansul (or equal) kitchen suppression system installed.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | PVC & cast iron |
| Storm/Clearwater Piping | F | | P3 | Cast iron |
| Valves | F | | P4 | Gate & ball |
| Domestic Water Service | C | | P5 | 4" main with 2" meter |
| Insulation | HP | $10,000 | P6 | Fiberglass |
| Code Issues | D | | P7 | Hot water, oxygen cylinders |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | Installed in 2009 |
| Drench shower station | NA | | | |
| Recirculation Pump(s) | D | $6,000 | P9 | Add pump (code issue) |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $6,000 | P10 | Add TMV (code issue) |
| Grease Interceptor | NA | | | No grease interceptor required. |
| Kitchen Equipment | F | | P11 | |
| Plumbing Fixtures | F | | P12 | |
| Oxygen Tank Storage | D | See Arch | P13 | Small O2 cylinders; See Architectural Summary report |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Backflow Prevention | C | | P14 | 1 ½" hose connection, Watts 009 |
| "Shop" air compressor | NA | | | |
| Laundry equipment | F | | P15 | |
| Clearwater sump/pump | F | | P16 | |
| Ambulance/Truck Garage | F | | P17 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage | F | | P18 | Catch basin –adjacent property |
| Lawn Irrigation | NA | | | |
| Utilities | F | | P19 | |

**NOTES:**

**P1.** Water piping is copper, soldered joints. Fair condition.

**P2.** Original sanitary is cast iron. Some of the older piping has been replaced with PVC.

**P3.** Storm piping is cast iron. Storm piping in the ambulance garage is insulated with glass fiber.

**P4.** Older valves are gate, newer valves are ball.

**P5.** Building is served by a 4" water main - 2" water meter with 3-valved by-pass in basement.

**P6.** Insulation is missing at the water heater and the water piping in the garage. Glass fiber is installed on some of the water piping in the basement. Storm piping has glass fiber insulation.

**P7.** Code issues: water temperature is set at 119° Fahrenheit, maximum temperature to be 110° Fahrenheit. No thermal mixing valve (TMV) at the heater. Add TMV per code. No recirculating pump at heater. Add recirculating pump, hot water piping length exceeds 100'-0" per code. Oxygen cylinders should be stored in a 1-hour fire rated room. Sanitary sewer exiting the basement wall near the electrical panels is questionable.

**P8.** Water heater is gas fired, AO Smith Preferred, Model BT 80-300, 74 gallon, 75,100 BTU. Installed in 2009. Hot water connection at heater is 1".

**P9.** Install hot water recirculation pump. Length of hot water piping exceeds 100'-0" per code.

**P10.** Add TMV to water heater. Set hot water temperature to 110° Fahrenheit. Code issue.

**P11.** Kitchen equipment: 2 compartment sink with garbage disposal. No dishwasher.

**P12.** Plumbing fixtures: Men's locker room – wall hung WC, Sloan Royal flush valve 3.5 gpf 16" aff. Lavatory in countertop with cross handle faucet, 33" aff. Urinal, wall-hung with Sloan Regal flush valve. Single stall shower-Symmons valve. Women's fixtures are same as Men's toilet room. Single unit EWC-spout at 33" aff. Janitors' curb has a vacuum breaker on spout. Non-freeze sill faucets on east and west sides of building.

**P13.** Small oxygen cylinders are stored in the garage – should be stored in a 1-hour rated room. Code issue.

**P14.** 1 ½" hose connections in the ambulance garage have a Watts 188A atmospheric vacuum breaker. ¾" Watts RPZ backflow preventer installed for the HVAC boilers.

**P15.** Continental commercial laundry unit and a residential washer and dryer.

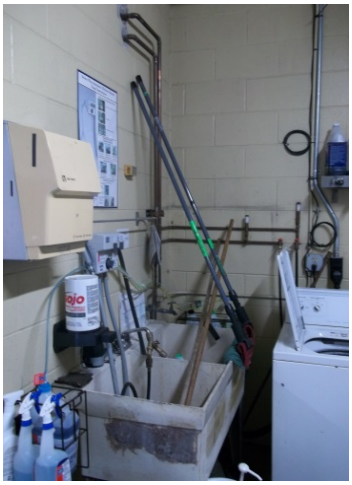
**P16.** Sump and submersible pump in the basement. Floor drain and condensate in the basement drain into this pit. Sump/pump discharges to the basement sanitary sewer. No high water alarm installed.

**P17.** Ambulance garage: trench drains and a garage catch basin installed.

**P18.** Parking lot pitches to a storm catch basin. Roof drains in fair condition, no secondary roof drainage. Entrance scuppers to grade.

**P19.** Building is served by a 4" water main (2" meter) from Humboldt Road. 4" sanitary and storm sewers discharge to Humboldt Road.

**Sanitary Piping – Basement**



**Water piping at Sinks**

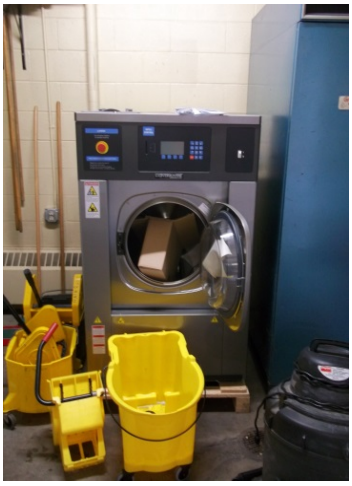
**Storm Piping – Garage**

**2" Water Meter, 3 valve By-pass**

Cylinder Storage – Garage

Water Heater – Gas Fired

Water Heater – Gas Fired



Commercial Washer

Residential Washer & Dryer

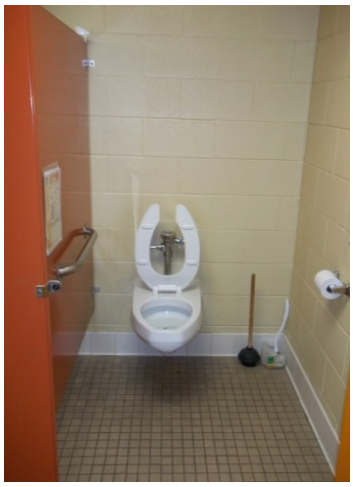
2-Compartment Sink – Kitchen

Garbage Disposal at 2-Compartment Sink

Water Closet – Women's

Lavatory – Women's

Shower – Women's

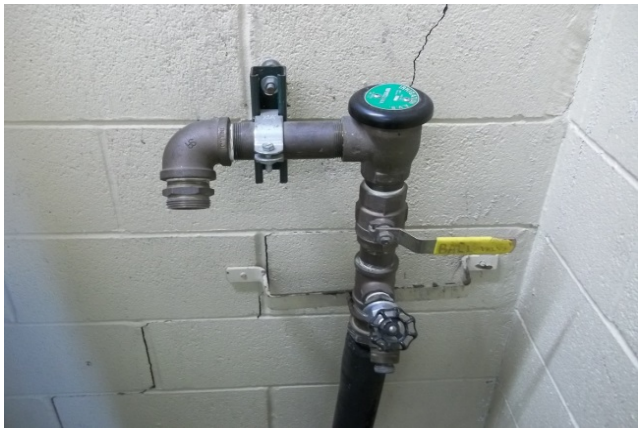


Water Closet – Men's

Lavatories – Men's

Urinals – Men's

Electric Water Cooler



1 ½" Hose Connection

HCW Service Faucet

Sump Pit and Pump

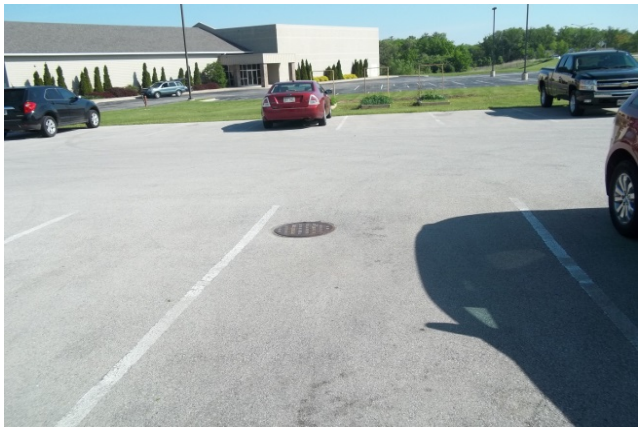
Non-freeze Sill Faucet

Trench Drain & Garage Catch Basin

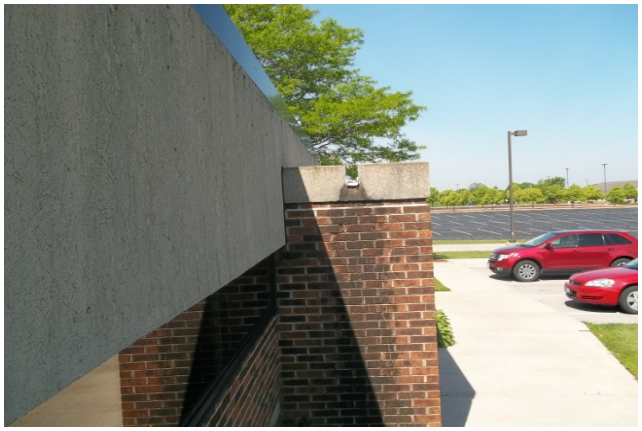
Roof Drain

Drain at bottom of Stairs

Drainage at Planters



Catch Basin – Parking Lot



Relief Drainage at Entrance

# HVAC SYSTEMS

## Summary

The building was constructed in 1981. The building has had minor updates, but no major revisions. Some of the HVAC systems have been replaced in recent years.

The living quarters is served by a modular air unit, which is hung in a basement mechanical room. The air unit utilizes split system DX cooling to condition the air. The condensing unit is located on grade adjacent to and above the mechanical room. The air is distributed to each room where a zone control damper regulates the air flow to the space to maintain room temperature. Wall mounted fin tube radiation is utilized to regulate space temperatures.

The basement contains work out equipment. A workshop room was constructed, but ventilation was not installed. One basement storage room has ventilation, another has none. A return grille in the work-out room indicates supply air is delivered upstairs and pulled through the open stair into the work-out room, then returned to the air unit.

The toilet/locker rooms were originally ventilated by a power roof ventilator. An energy recovery unit is installed on the roof and appears to now serve the toilet/locker rooms. Original fan appears abandoned.

The kitchen ventilation hood is served by a roof mounted fan. The hood was replaced with a unit that appears to be type 1 rated. The unit does not have a fire suppression system.

A hot water boiler system is located in a basement mechanical room and was replaced in 2011. The combustion air ductwork was upgraded at that time. Fin tube radiation is used primarily to heat the living quarters. Convector units are located in the locker/toilet rooms, and a cabinet heater is located in the vestibule.

The controls are pneumatic. An air compressor is located in the apparatus room and in the basement mechanical room. The unit located in the apparatus room appears to be dedicated to the Plyovent System.

The apparatus room was originally ventilated by (2) exhaust fans and (2) make-up air units which utilized solar wall technology to provide some energy efficiency in the rooms heating requirements. The solar wall system is abandoned in place with an intake louver blanked off. The exhaust fans appear to only operate if manually switched on and the west fan was not operational at all. A truck exhaust system (PlymoVent) is connected to each truck and utilized to capture and expel exhaust fumes as trucks leave during fire calls. There does not appear to be a gas or occupant detection system or a time clock to control the operation of the garage ventilation.

Laundry dryer is vented through the wall adjacent to the condensing unit and electrical meter. The hose dryer in the apparatus room appears to vent into the room whereas at other fire stations it is ducted to the outdoors.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Air Unit** | | | **H1** | Appears to be original 1981. Modular unit, suspended in mechanical room. Trane Climate Changer. Unit position makes maintenance and replacement difficult. |
| Housing | **HP** | $40,000 | | Showing signs of leakage. Unit is shaking and noisy. |
| Air intake | **C** | | | |
| Condenser | **C** | | | Trane TTA072, Replaced original unit, exact age unknown, good physical condition. |
| Fan | **C** | | | 2600 CFM, 1.5 HP. Fan is noisy and out of balance. Facility walls are vibrating. |
| Filters | **C** | | | 30% filters |
| Controls | **C** | | | Pneumatic, replace with unit upgrade project. |
| Ductwork | **C** | | | Original. Inspect and seal with air unit replacement project. Plenum return. |
| Insulation | **C** | | | Where viewed the insulation appears intact. |
| Humidity | **HP** | $10,000 | | Residential type unit. Manually filled. Humidification is not a code requirement. |
| Occupied Space Ventilation (Basement) | **D** | $10,000 | | Basement is utilized for weightlifting and maintenance. Return air transferred through space only. No ventilation in maintenance shop. |
| Occupied Space Thermal Comfort | **HP** | $20,000 | | Zone dampers to modulate air flow only. Replace with VAV terminal for air unit efficiency and improved thermal comfort. |
| **Exhaust Fans** | | | | |
| Toilet/locker room exhaust | **C** | | **H2** | Original PRV remains on roof. New ERV adjacent appears to ventilate rooms. Renewair ERV, model HE1XRT, (2) fans .75HP each. |
| Exhaust Ductwork | **HP** | $4,000 | **H3** | Grilles are beginning to rust. Dust and lint build-up is becoming visible. |
| Kitchen Hood, fan and Ductwork | **HP** | $10,000 | **H4** | Penn FMX-15W, discharges 34" above roof. |
| **Boiler System** | **C** | | **H5** | Installed 2011 |
| Boilers | **C** | | | Raypak Xfyre, 600MBH input, 550 MBH output |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Pumps | C | | | B&G 1 HP primary<br>B&G 1.5 HP lead/lag secondary pump<br>46GPM@42 feet |
| Piping | D | $4,000 | H5 | New copper pipe in boiler room.<br>Mostly original throughout building.<br>Electric meter located too close to gas meter. |
| Pipe Insulation | C | | | Minor damaged areas around area of maintenance. Replace with mechanical upgrade projects. |
| Room Terminal Units | C | | H6 | Convectors, cabinet heater, fin tube all appear to be thermostatically controlled. |
| **Mechanical Room Ventilation** | D | $500 | H7 | Combustion vent closed, needs adjustment for water heater. |
| **Controls** | | | | |
| Air Compressor | C | | | Simplex unit for apparatus room.<br>JCI ½ HP simplex unit updated in 2014 for the living quarters. |
| Room Control | F | | H8 | Original pneumatics. Replace with low voltage DDC during mechanical projects |
| **Garage Ventilation** | | | H9 | |
| Make-up Air Unit | C | | | Units suspended high in apparatus room.<br>B&G pumps on hot water coils. Solar wall is abandoned. |
| Exhaust | D | $60,000 | H9 | (2) fans, tags are unreadable. One fan does not function. Manual control. Automatic control abandoned. |
| Truck Exhaust | F | | | PlymoVent. |
| Control | HP | $10,000 | H9 | Pneumatic. Upgrade with mechanical replacements. |

**NOTES:**

**H1.** Air unit appears to be the original unit, approximately 34 years old. Expected useful life is 20-25 years depending on maintenance and operation of the unit. The unit is a constant volume type with an outdoor condensing unit. The condensing unit has been replaced and appears to be in good condition. The air unit is rumbling quite loudly and vibrating badly. The vibration is being transmitted through the structure and can be felt in other areas and is shaking the maintenance room walls. The air unit's suspended location in a tight room makes unit maintenance and replacement difficult. It is recommended to replace the air unit and consider a revised location/arrangement. The duct arrangement would allow a packaged roof top unit installation, assuming roof structure can support, with minimal revisions.

The air unit supplies air to the first floor living space, where damper controllers will modulate the air to regulate space temperature. Heating is done by the perimeter fin tube radiation. The system arrangement can only regulate the space so much without cutting off required ventilation completely. To improve ventilation, a project to replace the zone dampers with reheat coils or VAV terminals with reheat coils is recommended. The heating device control should be upgraded at the same time.

A portable residential style humidifier is located in the sleeping room. This indicates that the occupants are attempting to regulate the building humidity to improve their comfort. This unit will actually improve humidity only slightly, but may have a greater psychological effect. This is because the air unit will introduce a greater amount of dry outside air than this unit can properly humidify. To humidify this building, it is recommended to install an electric or gas fired humidifier that is sized to serve the entire living quarters.

A dehumidifier was located adjacent the humidifier. This indicates that the air unit system is not capable of dehumidifying the building properly in the summer. This unit, like the humidifier, can only improve the environment slightly as the air unit delivers poorly conditioned air faster than this unit can dehumidify.

The basement is used as a return plenum. As the floors are open this is technically allowable. However, the maintenance room should be ventilated and to improve thermal comfort and dehumidify the basement it is recommended to install supply ventilation and a reheat coil, or VAV terminal to serve the basement area.

**H2.** The original roof mounted fan remains in place. It appears that an energy recovery unit was installed to replace the fan and the fan is abandoned.

**H3.** Grilles around the shower area are beginning to rust. Dust building up is visible on the grille and part of the duct. It is unknown if the energy recovery unit installation project also balanced the exhaust grilles. However, grille replacement and duct cleaning will improve air flow. System will need to be rebalanced after duct cleaning.

**H4.** The kitchen hood has been replaced. It is stainless steel, appears to be type 1, and the grease filter is set at an angle. No fire suppression system is installed. The installation of a fire suppression system is recommended. The fan on the roof appears to be original and rated for kitchen hood use and was code compliant at the time of installation. Current code requires the fan to discharge 40" above the roof whereas the existing unit discharges at 34". A high priority grade is given as the fan appears to be older, possibly original to buildings construction and will eventually require replacement.

**H5.** The boiler system was replaced as part of a 2011 building efficiency project. The boiler is a gas fired high efficiency condensing water boiler. The boiler was inspected in 2014. Lead/lag circulating pumps provide a small measure of redundancy. A micron filter was installed in 2011 to facilitate cleaning of the circulated fluid. The boiler was operational on day of visit with an outside air temperature of 68 degrees. Boilers at other facilities were off on colder days. Windows were open for natural ventilation indicating no need to heat the building. The supply water temperature was above 90 degrees. Recommend verification of the boiler control sequences to ensure compliance with owner's intentions.

The gas and electric meter are located immediately adjacent to each other. Public service requirements are 2' to 4' apart depending on arrangement. These units have been installed in this manner since the buildings construction in 1981, however the deficiency is tagged as the installation does not meet current construction guidelines and requirements.

**H6.** The living quarters is served by a variety of fin tube radiation, convector, and cabinet heaters. They all appear to be pneumatically controlled with original equipment (34 years old). These devices will eventually need to be upgraded and are noted under the air unit/thermal comfort tag in item H1 to be replaced during an air unit/mechanical system upgrade project.

**H7.** The mechanical room ventilation was upgraded during the 2011 boiler project. The outside air damper should remain partially open in the closed position to accommodate the water heater ventilation requirements. It appears the damper position has slipped and requires a readjustment to remain partially open.

**H8.** The air compressor in the apparatus room appears to serve the apparatus room and the air compressor in the basement mechanical room appears to serve the living quarters. Both appear to be operational. Mechanical upgrade projects should include the replacement of the pneumatic devices with low voltage DDC. This will allow the removal of the air compressor and air dryer.

**H9.** The apparatus garage is currently served by two high modular air units with pumped, hot water heating coils. The unit's age could not be verified but they appear older and are equipped with new hot water pumps. The pumps were operating on a 68 degree day and the garage doors were open indicating there was no need to heat the space. Recommend verification of the control sequences of the pumps and make-up air units to ensure compliance with the owners intended use.

The air units were originally designed to pull air through a solar wall system attached to the buildings south wall. This system is turned off and the system has been abandoned. One of the outside air vents has been blanked off.

The garage exhaust is served by two cabinet fans. These fans were originally interlocked to the air unit, but appear to have been disconnected. The fans are manually operated. The west fan does not operate.

The laundry dryer is located in the garage and is vented to the outside. The hose dryer does not appear to be vented to the outside as these units are at the other facilities. It is recommended to extend the hose dryer vent to the outdoors, to vent the warm moist air to the outdoors and not into the space.

A PlymoVent exhaust system is connected to each truck parked in the garage. This system operates whenever a truck is started and the vehicle exhaust is expelled from the garage. The hoses, where attached to the trucks, are showing some signs of wear and tear.

An enclosed garage has specific exhaust code requirements and the garage is required to have a negative pressure in relation to the living quarters. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets 4 specific code provisions including the installation of a gas detection system. The PlymoVent truck exhaust system and the gas fired make-up unit alone do not meet the ventilation requirements for an enclosed garage. A garage exhaust fan upgrade project to install new exhaust fan and control systems is necessary to improve garage ventilation and occupant safety. Eventually the make-up air units will require replacement. At that time new make-up air units and radiant heaters are recommended for installation.

**Air Unit**

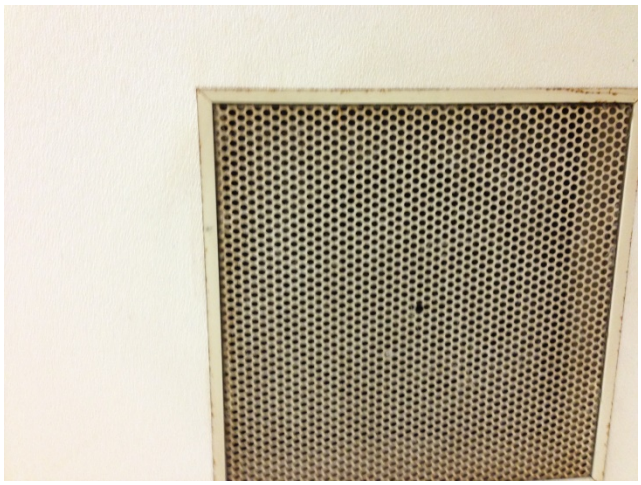
**Condensing unit**

**Original Toilet Exhaust Fan**

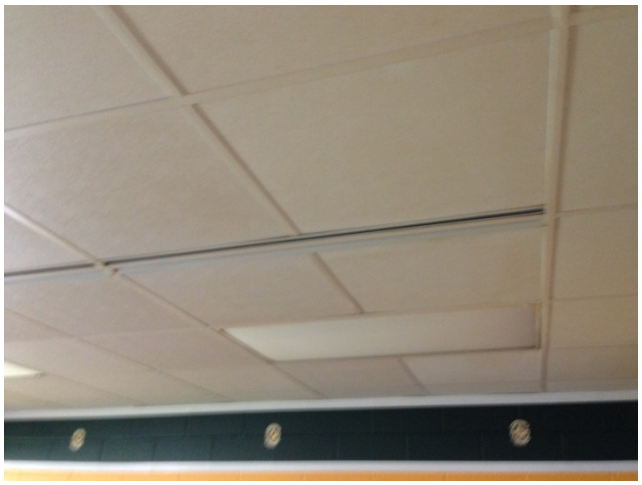
**Energy Recovery Exhaust Unit**

**Kitchen Exhaust Fan**

**Kitchen Hood**



**Typical Exhaust Grille**



**Typical Supply Grille**

**Typical Fin Tube Radiation**

**Mechanical Room Ventilation Damper**

**Humidifier/Dehumidifier**

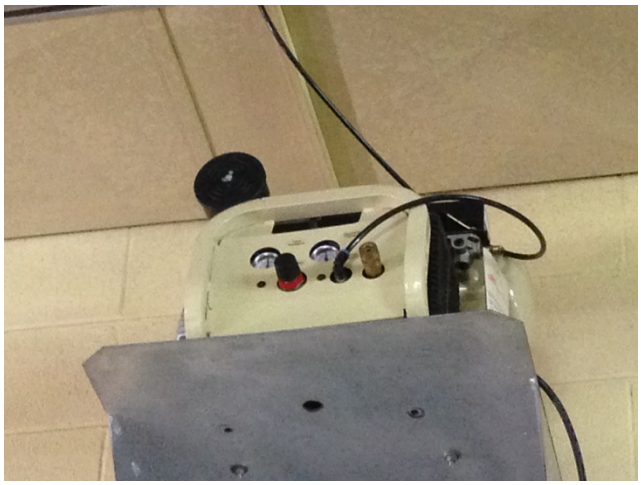
**Boiler**

**Hot Water Pumps**

**Chemical Feeder and Micron Filter**

**Gas Meter/Electric Panel**

**Temperature Control Air Compressor**



**Air Compressor**

**Air Dryer**

Garage Make-up Air Unit

Garage Make-up Air Unit

Exhaust Fan Manual Switches

Garage Exhaust Fan

Solar Wall

Solar Wall Controls (Abandoned)

Garage Outside Air Louver

Truck Exhaust (PlymoVent)

PlymoVent Exhaust Fan

Dryer Exhaust Vent

Hose Dryer

Garage Exhaust Louver

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 400 Amp, 120/240 Volt, single phase electrical service. The panels are in fair condition, but have no capacity for the future. The emergency generator serving the building is in fair condition. The emergency system is fed from a single transfer switch and panel board. The equipment is in fair condition and has some future capacity. An additional transfer switch and panel board is recommended to separate the critical and equipment loads from the life safety loads. Storage is currently partially blocking the code required 3-feet for electrical clearance for Panel B.

The outlets within the garage are not GFCI protected. Exterior outlets are GFCI, but their covers are not weatherproof while in-use. Lighting fixtures are in good to fair condition and utilize T8 lamps and ballasts, incandescent and compact fluorescent lamps. There are several fixtures with broken or missing lenses. These should be replaced or repaired. There is occupancy sensors located in the toilet rooms, but the facility should install occupancy sensors in offices, dining room, storage rooms and janitor's closets. LED and HID building mounted fixtures are in fair condition; consideration should be given to replacing the HID fixtures with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition. The facility is pulling Cat 5e and Cat 5 data and voice cabling and coax for CATV. The fire alarm system includes stand-alone smoke detectors and carbon monoxide detectors throughout the building which are in good condition.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Electrical Service** | | | | |
| Utility Service Entrance | C | | E1 | 400 Amp underground electrical utility service enters the building in the 1st floor laundry room. |
| **Normal Power Distribution Equipment** | | | | |
| Enclosed Circuit Breakers (ECB) and Wire Way | F | | E1 | 400 Amp ECB feeds a wireway that is tapped serving ECB's feeding panels and equipment, in fair condition. |
| Branch Panels | F | | E1, E3 | Two outdated Westinghouse panels, both are full and in fair condition. |
| **Emergency Power Distribution Equipment** | | | | |
| Generator | F | | | 12.5 KW Onan natural gas generator in fair condition. |
| Transfer Switch | HP | **$5,000** | E3, E4 | Outdated Onan 100 Amp ATS in fair condition. |
| Branch Panel | HP | **$10,000** | E3, E4 | 100 Amp outdated Westinghouse panel in fair condition and with future capacity. Mixed loads. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Power** | | | | |
| Receptacles | **D** | **$1,000** | E5 | Garage outlets and outlets within 6' of sinks need to be GFCI. Provide weatherproof while-in-use covers for all exterior outlets. |
| **Lighting** | | | | |
| Garage | **C** | | | Industrial fixtures with T-8 lamps in good condition. |
| Office spaces, conference rooms, and corridors | **C** | | | Recessed acrylic lens troffers with T-8 lamps in good condition. |
| Sleep Rooms | **C** | **$100** | E6 | Recessed acrylic lens troffers with T-8 lamps and wall mounted incandescent sconces at each bed in good condition. |
| Toilet Rooms | **F** | **$2,000** | E7 | Recessed troffers, surface mounted industrials and wrap-arounds, some fixtures have broken lenses, others are in good condition. |
| Mechanical spaces, storage rooms, utility areas | **C** | | | Industrial strips and surface mounted wrap-arounds with T-8 lamps, in good condition. |
| Exterior | **F** | **$3,000** | E8 | HID and LED wall packs in fair condition controlled by photocell and timeclock. |
| **Lighting Controls** | | | | |
| Offices | **HP** | **$1,000** | E9 | Add occupancy sensors |
| Toilet Rooms/ Small Storage Rooms | **F** | **$500** | E9 | Toilet rooms have occupancy sensors in good condition; add sensors in janitor and storage rooms. |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Corridors | **C** | | | Fixtures connected to emergency panel. |
| Exit Signs | **F** | | | LED type in good to fair condition. |
| **Fire Alarm Devices** | | | | |
| Smoke Detectors | **C** | | | A few stand-alone smoke detectors throughout the building. |
| **Telecommunications** | | | | |
| Data/Voice | **C** | | | Cat 5 and Cat 5e cabling |
| CATV | **C** | | | Coax |

**NOTES:**

**E1.** The electric meter is located adjacent to the gas meter which does not meet current WPS requirements. If the electrical utility service were updated in the future, the electric and gas meter would require being located further apart.

**E2.** Code required 3-feet for electrical clearance and clear space above the equipment is not being fully maintained.

**E3.** Replace outdated panels and equipment with new panels due to limited part availability. Provide additional panel, or utilize larger tub size, to allow for future capacity.

**E4.** Recommend providing an additional automatic transfer switch and panel board to separate the critical and equipment branch loads onto a new panel and leave the existing panel with the life safety loads.

**E5.** Replace all outlets located in the garage area and exterior outlets with GFCI type device. Add weatherproof while-in-use covers on exterior outlets. Replace existing outlets within 6 feet of sinks with GFCI type device, unless they are currently protected from a nearby GFCI outlet. If this is the case, the outlet should be labeled per NEC requirements.

**E6.** Replace incandescent lamps with compact fluorescent or LED type for energy savings.

**E7.** Consideration should be given to replacing older fixtures with new. Replacement or repair should be done on fixtures with broken or missing lenses.

**E8.** Consider replacing all HID fixtures with more efficient LED in the future.

**E9.** Occupancy sensors should be installed in the meeting room, classroom, offices, storage rooms, and janitors closet to provide additional energy savings. If areas are renovated, controls will be required to be updated to meet current energy code.

Main Electrical Service Meter

Main Electrical Service ECB

Telephone System

Data Rack

Generator

100A ATS

Existing Emergency Panel

Existing Panel A

Existing Panel B

Wireway and Enclosed Circuit Breakers

Time Clock

Manual Transfer Switches for AHU

**Shower Light – Missing Lens**

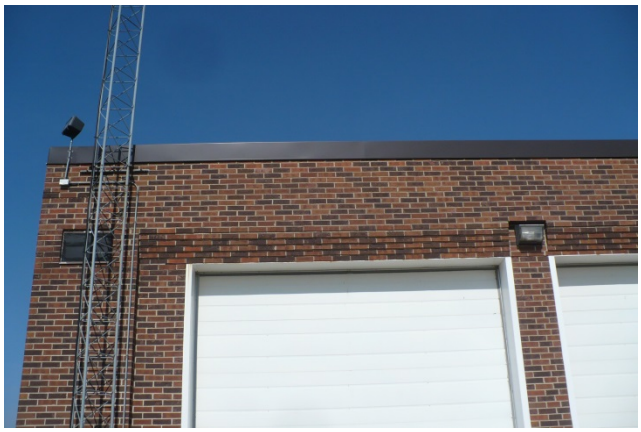
**Exterior Outlet**

**Garage Outlets and Door Controllers**

**Exit Sign**

**Sleeping Room Lighting**

**Dining Room Lighting**



HID Wall Pack and Flagpole Light

Garage Lighting

Stand-Alone Smoke Detector

Exterior Light with Weatherproof Switch

LED Wall Pack

Parking Lot Pole Light

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## FIRE DEPARTMENT MAINTENANCE SHOP

**August, 2015**

## FIRE DEPARTMENT

# SUMMARY

***Date of Visit: July 1, 2015***
***Address: 1820 Mills Street***

## Building Description

The fire department maintenance shop is a metal building with concrete block interior wall partitions. There is a storage mezzanine over the office and toilet room. This building was designed in 1970.

No drip edge was installed where the wall panel meets the foundation wall and rusting / deterioration is prevalent. The metal skin, both inside and out, is dented, marred and fading. The door to the east (parking lot side) has significant rust on the exterior surface.

## Code/Accessibility

The building is classified as Storage-Moderate Hazard (S-1) under current IBC. A rated room should be established for storage of hazardous material. Building itself is on-grade with adequate door/entry width, but bathroom is not. Recommend providing door to meet accessible width requirements.

## Structural System

The structure is a pre-engineered metal building consisting of structural steel rigid frames, z-purlins, and standing seam metal roof deck with cast-in-place concrete foundations. There is minor shrinkage cracking in the slab on grade, but it is not impairing the structural integrity of the slab, and no remedial actions are recommended at this time.

## Plumbing Systems

Fire department storage garage is a metal building with minimal plumbing. The building has one toilet room, which is scheduled for renovation. Garage area has trench drain(s) and a garage catch basin. Building roof is served by gutters and downspouts.

An eye wash station and thermostatic mixing valve are required to be added to the facility. Insulation on water piping is highly recommended.

## HVAC Systems

The garage is served by multiple radiant heaters, multiple circulation fans, a make-up air unit/heater and multiple exhaust fans. The 5 rooms (office, bathroom, parts, storage and tanks) are served by a residential style furnace. A through-the-wall air conditioner serves the office cooling load.

Outside air should be added to the office area and garage. A larger exhaust fan is needed at the bathroom (scheduled for renovation soon).

## Electrical Systems

The building is served by a 200 Amp, 120/240 Volt, three phase electrical service. The panels are in good to fair condition, and have some capacity for the future.

The outlets within the garage should be GFCI protected. The facility should install occupancy sensors in the toilet room, office, and storage room. Consideration should be given to replacing the building mounted HID fixtures with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition. The facility is pulling Cat 5 data and voice cabling.

## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural / Code** | | Hazardous materials room | | **$3,000** |
| | Accessible door to toilet room | | | **$4,000** |
| **Architectural/Code Subtotal** | | | | **$7,000** |
| **Structural** | | | | **None** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | Insulation | **$5,000** |
| | Thermal Mixing Valve | | | **$5,000** |
| **Plumbing Subtotal** | | | | **$10,000** |
| **HVAC Systems** | Furnace | | | **$15,000** |
| | | | Through-wall A/C unit | **$3,000** |
| | Toilet/Locker Room Exhaust | | | **$4,000** |
| | | | Exhaust Ductwork | **$1,000** |
| | Make-up Air Unit | | | **$40,000** |
| | | | Exhaust | **$20,000** |
| | | | Vehicle Exhaust | **$10,000** |
| **HVAC Subtotal** | | | | **$93,000** |
| **Electrical** | Receptacles | | | **$1,000** |
| | | | Offices | **$250** |
| | | | Toilet Rooms/ Small Storage Rooms | **$500** |
| **Electrical Subtotal** | | | | **$1,750** |
| **Building Total** | | | | **$111,750** |

**Site Plan**

**Aerial View of Site**

# ARCHITECTURAL

## Building Description

The fire department maintenance shop is a metal building with concrete block interior wall partitions. There is a storage mezzanine over the office and toilet room. This building was designed in 1970.

## Building Envelope

### Exterior Walls

The exterior wall is a combination of double-sided, insulated metal wall panel and single sided insulated metal wall panel - all on a steel frame; the latter is above the eave-line. There are a multitude of penetrations, ventilation, electrical, windows, air units, etc. most of which, appear to not be original to the building. No drip edge was installed where the wall panel meets the foundation wall and rusting/deterioration is prevalent. The metal skin, both inside and out, is dented, marred and fading.

### Doors

Overhead doors are uninsulated metal with four vision cut outs in one panel.
Swing doors are insulated hollow metal. Some have a half-light, but the pane in the office has been partially spray-painted to make it obscure. The door to the east (parking lot side) has significant rust on the exterior surface.

## Interior Finishes

Garage area walls are the inside surface of the metal panel construction with exposed steel frame. The toilet room and storage room have concrete block walls. The office has older wood paneling, which is apparently furred out from the metal building panels, as evidenced by a set-in bookshelf in the west exterior wall.

The office and bathroom floors are ceramic mosaic tile floor. The bathroom has a 2-piece sanitary cove base at both the concrete block walls and built-in wood closets. (These elements will more than likely change with the scheduled remodeling of the bathroom.) All other areas have sealed concrete floor.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Design 1970 | **Gross Area** | 4,500 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group S-1 – Storage | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

### Occupancy

Under the description for S-1 occupancy buildings in the IBC, allowable uses include "Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials listed in Table 307.1(1)." A full investigation of all the materials kept in the storage room of the shop was not done. The quantities, types and containment devices in that room would seem to indicate that it should be considered a hazardous occupancy room.

Per IBC Table 508.4, a 2 hour room should be provided to separate a hazardous occupancy room from an S-1 occupancy building. There was no label on the existing frame to confirm fire rating, but the precast plank over the top of the room would seem to indicate that it was designed as a 2-hour rated room. The room door was removed from the opening. It is recommended that the rating of the frame be confirmed, and that a rated door be installed at the opening.

**Egress and Safety**
Two legal means of egress are provided. Knob door hardware could be upgraded to lever handles for better accessibility and ease of use.

**Plumbing Fixtures**
Bathroom is scheduled for remodeling soon. A work sink in the garage area provides hand wash area. A drinking fountain in the garage provides drinking water. Its original push bar is not operational, but staff has provided an alternate method of operation that allows the water flow to be continuous.

## Summary of Accessibility/ADA Compliance

The building is on grade, with doors 36" wide or greater, which complies with requirements. Although the bathroom is slated for renovation soon, its door and frame are not part of the scope of work, and do not provide required 32" clear width access per IBC Chapter 11 and ADA.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | F | | | |
| Exterior Facade Condition | C | | | |
| Exterior Door Condition | F | | A1 | |
| **CODE ELEMENTS** | | | | |
| Hazardous Room | CP | $3,000 | A5 | |
| Egress and Safety | F | | A2 | |
| Doors | F D | $4,000 | A3 | |
| Plumbing Fixtures | NA | | A4 | Bathroom will be renovated. |

**NOTES:**

**A1.** Recommend replacing east exterior door which has significant rust. Recommend cleaning spray paint off vision window of west office entry door and applying an obscure film instead.

**A2.** Knob hardware could be upgraded to lever handles for ease of use and accessibility.

**A3.** Recommend providing a door/opening of code compliant width to the bathroom.

**A4.** Recommend cleaning and maintenance of fixtures to remain; sink and drinking fountain in the garage area.

**A5.** Recommend re-certifying the door frame as a 2-hour rated frame, installing a 2-hour rated door and code compliant hardware to establish a 2-hour rated room.

**North Elevation**

**West Elevation**

**East Elevation**

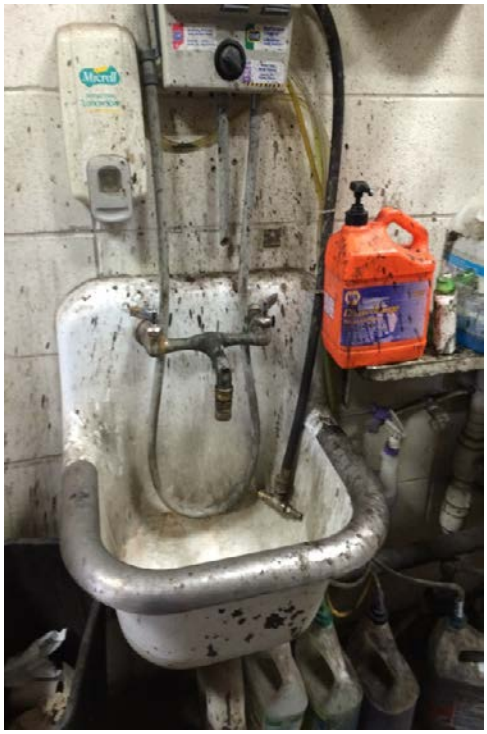
**Openings in East Elevation**

**Garage Area Looking Northwest**

**Garage Area Looking Southeast**

**Storage Mezzanine over Office**

**Storage Room**



**Sink at Garage Area**

**Drinking Fountain**

# STRUCTURAL SYSTEM

## Summary

The structure is a pre-engineered metal building consisting of structural steel rigid frames, z-purlins, and standing seam metal roof deck with cast-in-place concrete foundations.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1970 (Verne Conder) |
| **Structure type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. |
| 1st Floor | **C** | | **S1** | 6" concrete slab on grade with 6x6 – #6/#6 welded wire mesh reinforcing. |
| Mezzanine | **C** | | | 2x10's @ 16" on center with 5/8" plywood sheathing over load-bearing masonry walls. (One bay over Storage Room is 6" precast pre-stressed concrete plank.) |
| Roof | **C** | | | 26 gauge, standing seam steel deck over z-purlins, supported by structural steel rigid frames. |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams, columns, floor slabs, 0 hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There is minor shrinkage cracking in the slab on grade, but it is not impairing the structural integrity of the slab, and no remedial actions are recommended at this time.

Concrete Slab on Grade Cracking

Concrete Slab on Grade Cracking

## PLUMBING SYSTEMS

### Summary

Fire department storage garage is a metal building with minimal plumbing. Building has one toilet room. Garage area has trench drain(s) and a garage catch basin. Building roof is served by gutters and downspouts.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | Cast iron |
| Storm/Clearwater System | F | | P3 | Gutter, downspouts |
| Valves | F | | P4 | Ball and gate valves |
| Domestic Water Service | C | | P5 | 2" main |
| Insulation | HP | $5,000 | P6 | Add insulation to water piping |
| Code Issues | D | See below | P7 | Add TMV to eyewash and water heater |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | Electric, AO Smith |
| Recirculation Pump(s) | NA | | | No pump required. |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $5,000 | P9 | Add TMV's (code issue) |
| Plumbing Fixtures | F | | P10 | |
| Oxygen Storage | NA | | | |
| Backflow Prevention | C | | P11 | Hose end vacuum breaker |
| "Shop" Air Compressor | F | | P12 | Speedaire compressor |
| Maintenance Garage | F | | P13 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage, Roof Drainage | F | | P14 | Discharge to grade |
| Utilities | F | | P15 | 2" water, 4" sanitary main |

**NOTES:**

**P1.** Water piping is copper, soldered joints. Fair condition. Piping is missing insulation.

**P2.** Sanitary piping is cast iron, hub & spigot connection.

**P3.** Building roof is served by gutters and numerous downspouts. Downspouts discharge to grade.

**P4.** Older valves are gate, newer valves are ball.

**P5.** Building is served by a 2" water main. 2" water meter with 3-valved by-pass in the storage room.

**P6.** Water piping is not insulated. Insulation should be added for energy savings and to control condensation.

**P7.** Code issues: water temperature is set above 110° Fahrenheit. No thermostatic mixing valve (TMV) at the heater. Add TMV per code. Add TMV to the eyewash or replace the faucet. Eyewash requires tempered water–per code.

**P8.** Water heater is electric, 240Volt, AO Smith Energy Saver, 50 gallon. Hot/cold water connection at the heater is 1". Piping is not insulated. No TMV installed.

**P9.** Add TMV to the water heater. Set hot water temperature to 110° Fahrenheit. Install TMV for the eyewash or replace the faucet. Eyewash requires tempered water. Code issues.

**P10.** Plumbing fixtures: No ADA handicap fixtures in the building. Single toilet room in the building. Water closet is tank-type. Lavatory is vitreous wall-hung with a faucet/eyewash installed. (Non-compliant). Floor mounted urinal with elevated tank flush. Fiberglass single stall shower.

**P11.** Faucet on the garage sink has a hose connection with a threaded hose end vacuum breaker installed. Backflow prevention appears compliant.

**P12.** Speedaire "shop" air compressor with horizontal tank supplies the garage.

**P13.** Garage: trench drains which discharge to a garage catch basin.

**P14.** Roof is served by gutters on (2) sides of the building. Downspouts discharge to grade.

**P15.** Building is served from a 2" water main. Sanitary sewer is 4". Main routes west to North Henry Street. Storm discharges to grade. Parking lots have internal drainage – catch basins.

**Vent Piping - Garage**

**"Shop" Air Piping**

**Water Meter with Bypass**

**Water Heater**

**Tank-type Water Closet**

**Lavatory with Eyewash**

**Urinal and Lavatory**

**Shower**

Electric Water Cooler and Sink

Janitor's Sink

Trench Drain – Garage

Trench Drain, Garage Catch Basin

"Shop" Air Compressor

Roof Vent(s)

**Gutter/Downspout**

**Gutter/Downspout**

# HVAC SYSTEMS

## Summary

The garage is served by multiple radiant heaters, multiple circulation fans, a make-up air unit/heater and multiple exhaust fans. The 5 rooms (office, bathroom, parts, storage and tanks) are served by a residential style furnace. A through the wall air conditioner serves the offices cooling load.

A new, large circulation fan is installed in the garage. The older, small circulation fans have been left in place.

A welding hood is served by a sidewall exhaust fan located high on the side of the building.

The under slab vehicle exhaust system is served by a centrifugal fan located high with the garage area.

The garage exhaust is served by a sidewall propeller fan, ducted to 17" above the floor.

The make-up air unit's outside air duct is capped off. The unit recirculates air and heats the space.

A ceiling fan serves the bathroom exhaust requirements. Fan appears undersized. The bathroom is scheduled for renovation soon.

The residential furnace serving the offices, storage and parts room supplies air to the rooms. The air was designed to be transferred to the garage which keeps those under a positive pressure but the furnace returns air from the garage. Odors, fumes, and vapors in the garage are captured and supplied into the office/locker rooms. Office transfer is blanked off. No outside air connection is visible. Oil drums, paint, and grease are stored in the storage and parts rooms.

Controls are electric, line and low voltage. The air compressor is utilized for shop air only.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Office Unit** | | | **H1** | |
| Furnace | **D** | $15,000 | **H1** | Bryant Plus 80. Combustion air taken from space. No outside air. Return air inlet is open to the garage. Filter is minimal efficiency and extremely dirty. |
| Controls | **C** | | | Low voltage thermostat installed in office. |
| Ductwork | **F** | | **H1** | Poor supply placement at toilet room. No return duct. |
| Insulation | **NA** | | | No insulation. Duct is routed in heated garage, across mezzanine, to rooms. |
| Through-wall A/C unit | **HP** | $3,000 | **H1** | Unknown unit age. No outside air. No operable window. |
| **Exhaust Fans** | | | | |
| Toilet/Locker Room Exhaust | **D** | $4,000 | **H2** | Small ceiling fan. Appears to be a 75 or 100 CFM unit. Serves room with multiple toilet fixtures and shower. Larger unit required. Room under negative pressure from garage. |
| Exhaust Ductwork | **HP** | $1,000 | **H2** | Not visible. Grille and fan is filthy, reducing air flow. |
| **Garage Ventilation** | | | **H3** | |
| Make-up Air Unit | **D** | $40,000 | **H3** | Reznor 400MBH Input, 320 Output. Outside air is capped off. One new fan motor. Supply ducted to floor. |
| Exhaust | **HP** | $20,000 | **H3** | Propeller fan, ducted to 17" AFF. |
| Vehicle Exhaust | **HP** | $10,000 | **H3** | Under slab system. Hoses connect vehicle exhaust to floor connection. |
| Circulation Fans | **C** | | | One new fan. Older fans left in place. |
| Welding Fan | **C** | | | Appears to be in good condition. |
| Radiant Heaters | **C** | | | Appears to be in good condition. Intake and exhaust combustion air ducted to outside. |

**NOTES:**

**H1.** Residential style furnace is located on the mezzanine and ducted to the parts, storage, bathroom, and office. The return air is pulled from the garage which transfers odors and fumes into the bathroom and office. The supply air in the bathroom is located immediately adjacent to the exhaust, which does not allow the heated air to ventilate the space properly. The transfer grille between the office and the garage is blanked off which does not allow the office to be ventilated properly unless the door is open.

A project is recommended to install an electric cabinet heater and ductless split system cooling unit in the office. In addition a heat recovery ventilator should exhaust the bathroom while supplying fresh outside air to the office cooling unit.

**H2.** The ceiling fan does not appear to be large enough to serve the bathroom exhaust requirements. The recommendation as made above in H1, includes the installation of a heat recovery ventilator to increase ventilation air while providing energy recovery.

**H3.** The garage make-up air unit outside air duct is capped off. The unit now recirculates air within the garage and provides heat. The garage exhaust fan is a propeller fan which is ducted to the floor. The condition of the fan is unknown. An underground exhaust system is connected to a centrifugal fan hung high in the garage. The exhaust appears to be manually started. As this is a repair garage is was not clear if the vehicles are also stored in enclosed space, overnight.

The garage exhaust should operate continuously while the space is occupied and conditioned make-up air should be supplied to replace the exhausted air. A project is recommended to replace the exhaust fan, make-up air unit and the vehicle exhaust fan. New controls should be automated to provide ventilation when the space is occupied and reduce ventilation during the unoccupied hours when vehicles are stored in the building.

**Furnace**

**Through-Wall Air Conditioner**

**Welding Hood**

**Welding Exhaust Fan**

**Radiant Heater**

**Radiant Heater**

**Bathroom Exhaust**

**Typical Supply Grille**

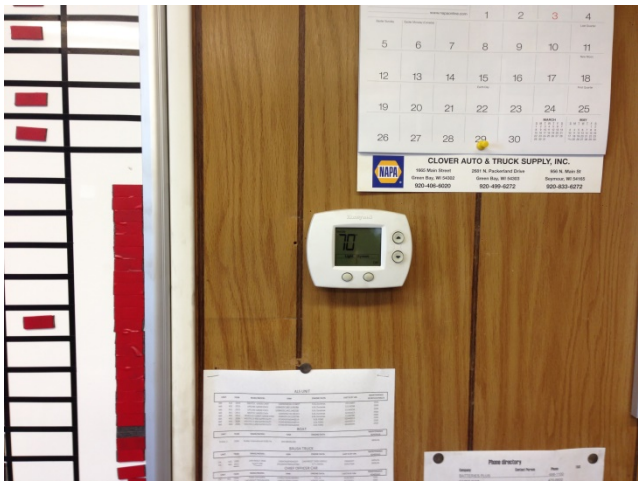
**Outside Air Louver (Abandoned)**

**Vehicle Exhaust Fan**

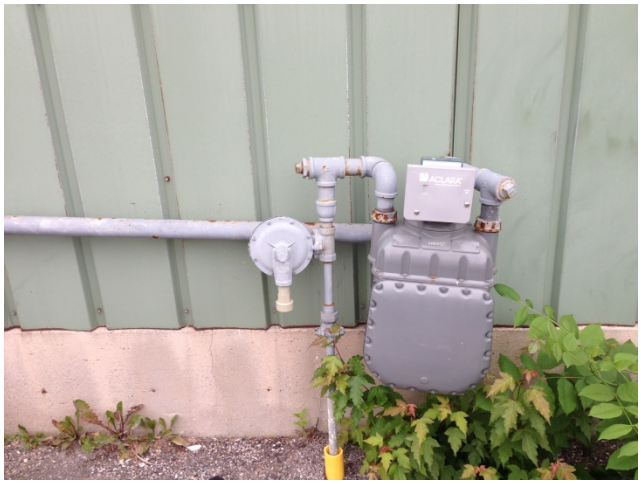
**Under Slab Vehicle Exhaust**

**Large Circulation Fan**

Typical Garage Thermostat

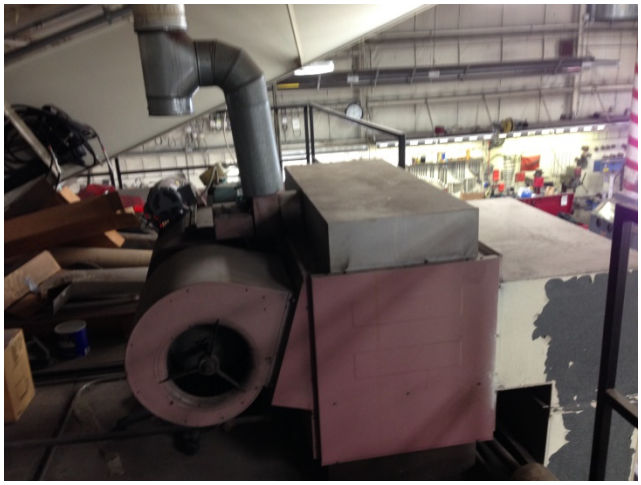



Office Thermostat

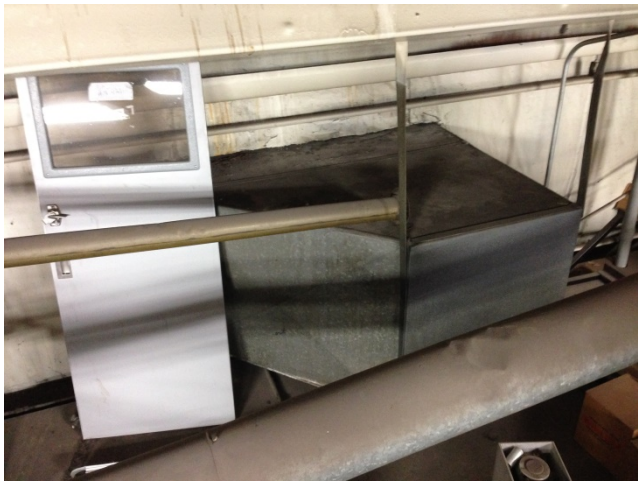


Gas Meter

Shop Air Compressor



Make-up Air Unit



Capped Outside Air Duct

**Blanked off Transfer Grille**

**Gas Pipe Supported with Wire**

**Storage Room**

**Non-Vented Cabinet**

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 200 Amp, 120/240 Volt, three phase electrical service. The panels are in good to fair condition, and have some capacity for the future.

The outlets within the garage are not GFCI protected. Lighting fixtures are in good to fair condition and utilize T8 lamps and ballasts and incandescent lamps. The facility should install occupancy sensors in the toilet room, office, and storage room. HID building mounted fixtures are in fair condition; consideration should be given to replacing the HID fixtures with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition. The facility is pulling Cat 5 data and voice cabling.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Electrical Service** | | | | |
| Utility Service Entrance | C | | | 200 Amp overhead electrical utility service enters the building in the tank room. |
| **Normal Power Distribution Equipment** | | | | |
| Main Panel | F | | | 200 Amp Square D load center panel in fair condition, mostly full |
| Branch Panels | C | | | Three Square D load center panels in good condition with some space for future. |
| **Power** | | | | |
| Receptacles | D | $1,000 | E1 | Garage outlets need to be GFCI. |
| **Lighting** | | | | |
| Garage | C | | E3 | Industrial fixtures with T-8 lamps and HID fixtures in good condition. |
| Office | C | | | Surface mounted wraps with T-8 lamps in good condition. |
| Toilet Rooms | F | $200 | E2 | Surface mounted wrap with T-8 lamps and incandescent fixture in fair condition. |
| Mechanical Spaces, Storage Rooms, Utility Areas | C | | | Industrial strips with T-8 lamps, in good condition. |
| Exterior | F | $500 | E3 | HID wall packs in fair condition. |
| **Lighting Controls** | | | | |
| Offices | HP | $250 | E4 | Add occupancy sensors. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Toilet Rooms/ Small Storage Rooms | HP | $500 | E4 | Add occupancy sensors. |
| **Exit Signs** | | | | |
| Exit Signs | F | | | LED type in fair condition. |
| **Telecommunications** | | | | |
| Data/Voice | C | | | Data rack in office, Cat 5 cable. |

**NOTES:**

**E1.** Replace all outlets located in the garage area with GFCI type device.

**E2.** Replace incandescent lamps with compact fluorescent or LED type for energy savings.

**E3.** Consider replacing all HID fixtures with more efficient LED in the future.

**E4.** Occupancy sensors should be installed in the office, storage room, and toilet room to provide additional energy savings. If areas are renovated, controls will be required to be updated to meet current energy code.

**Main Electrical Service Entrance and Meter**

**Main Electrical Panel**

**Data Equipment Rack**

**Branch Panel**

**Branch Panel**

**Branch Panel**

**Garage Lighting**

**HID Garage Fixture**

**HID Garage Fixture**

**Exterior HID Wall Pack**

**Time Clock**

**Office Lighting**

**Toilet Room Lighting**

**Exit Sign**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## PARKING UTILITY SAND STORAGE

**August, 2015**

## DEPARTMENT OF PUBLIC WORKS

# SUMMARY

***Date of Visit: July 9, 2015***
***Address: 2228 North Quincy Street***

## Building Description

The storage building is uninsulated corrugated metal wall panel on wood frame that was built in the early 1990s. It is used primarily for Parking Utility de-icing compounds for use in city parking ramps. Panels are dented in spots, but this is an aesthetic concern only. There are no windows. Sliding front door panels match the wall construction.

The roof is pitched, corrugated metal roof panel on wood frame in good condition. There is an asphalt floor. There are no gutters or downspouts.

## Code/Accessibility

The 1,000 SF building is mostly unoccupiable, due to stored material. A single egress door is provided, which meets code requirements. The step over the sill to egress is not a concern, because the building is essentially unoccupied.

## Structural System

The structure consists of standing seam steel roof deck over 2x purlins and wood trusses bearing on wood posts. The existing building is structurally sound with no significant deficiencies noted.

## Mechanical, Electrical, Plumbing Systems

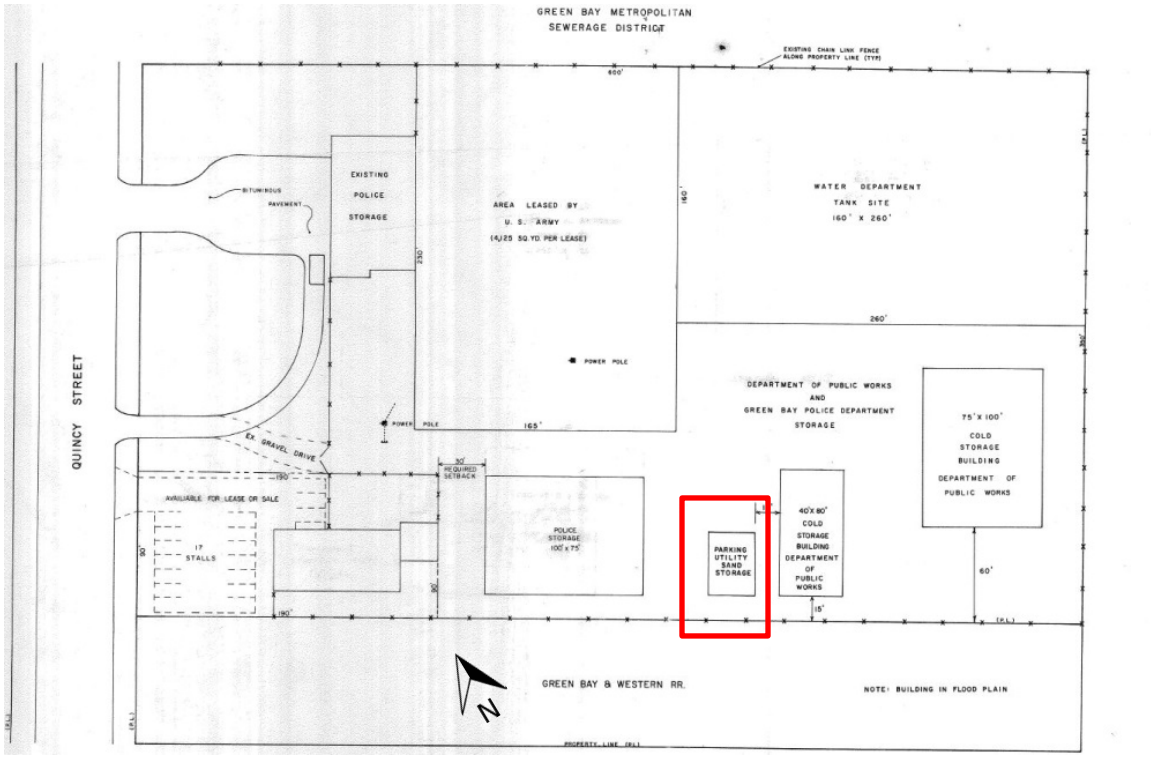
No plumbing or mechanical systems to report. Building roof pitches and discharges to grade. There are two exterior HID lighting fixtures.

## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| Architectural | | | | NA |
| Code/ADA | | | | NA |
| Structural | | | | NA |
| Fire Protection | | | | NA |
| Plumbing | | | | NA |
| HVAC Systems | | | | NA |
| Electrical | | | | NA |




**Site Plan**

**Aerial View of Site**

# ARCHITECTURAL

## Building Description

The storage building is a manufactured metal pole building, used primarily for Parking Utility de-icing compounds for use in city parking ramps. It is an unoccupied structure.

## Building Envelope

### Exterior Walls

Building structure is corrugated metal wall panel on wood frame. Panels are dented in spots, but this is an aesthetic concern only. The building is uninsulated. There are no windows.

### Exterior Doors

Sliding Door, matching wall construction, appeared in good working order. Metal trim is dented, but this is an aesthetic concern only.

### Roof

The roof is pitched, corrugated metal roof panel on wood frame. It appeared to be in good working condition. There are no gutters or downspouts installed on the building.

## Interior Finishes

The floor is asphalt. There are no interior walls.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Early 1990s | **Gross Area** | 1,000 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group U – Utility and Miscellaneous | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

One legal means of egress are provided via a side door. Since the majority of the space is unoccupiable due to stored material, this is code compliant. Knob door hardware could be upgraded to lever handles for better accessibility and ease of use. Closer has been disconnected.

## Summary of Accessibility/ADA Compliance

The building is on grade, with a door 36" wide or greater, which complies with requirements. There is a step up/over the threshold of the swing door in order to exit, but since this is an emergency exit only for an unoccupied building, the step is not a concern.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | | | |
| Exterior Facade Condition | C | | | |
| Exterior Door Condition | F | | A1 | |
| **CODE ELEMENTS** | | | | |
| Egress and Safety | C | | | |
| Plumbing Fixtures | NA | | | |

**NOTES:**

**A1.** Recommend closer be re-attached/installed. Door could be upgraded to lever hardware for ease of use and accessibility.

**North Elevation**

**Interior**

**Base of Building on Asphalt Surface**

**Egress Door**

## STRUCTURAL SYSTEM

### Summary

The structure consists of standing seam steel roof deck over 2x purlins and wood trusses bearing on wood posts.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | Early 1990s |
| **Structure type** | | | | |
| Foundations | **C** | | | Unknown. Posts appear to be embedded in the ground, presumably down to concrete footings. |
| 1st Floor | **C** | | | Asphalt. |
| Roof | **C** | | | 24 gauge standing seam steel roof deck over 2x wood purlins and wood trusses supported by wood posts. |
| **Occupancy Category** | **N/A** | | | Occupancy Category II |
| **Construction Type** | **N/A** | | | Construction Type **V-B** (0 hour beams and columns, 0 hour roof) |
| **Vertical Expandability** | **N/A** | | | None. |
| **Typical Column Spacing** | **N/A** | | | |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

## PLUMBING SYSTEMS

### Summary

This is a metal pole building.
No plumbing systems to report. Building roof pitches and discharges to grade.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | |
| Sanitary Piping/Main | NA | | | |
| Storm/Clearwater Drainage | F | | P1 | |
| Code Issues | NA | | | |

**NOTES:**

**P1.** Metal building with gable roof. Roof discharges to grade. Area around the building is gravel, pitches to the south and east into adjacent wetlands.

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## COLD STORAGE – BUILDING 3

**August, 2015**

## DEPARTMENT OF PUBLIC WORKS

## SUMMARY

***Date of Visit: July 9, 2015***
***Address: 2228 North Quincy Street***

### Building Description

The storage building is insulated corrugated metal wall panel on metal frame built in the early 1990s. The panels are dented in spots, but this is an aesthetic concern only. Closed-cell foam-in-place insulation is exposed throughout. There are no windows. Two egress doors are provided at opposite ends of the building, in addition to the overhead door.

The roof is minimally pitched, corrugated metal roof panel on steel frame in good condition. There is a sealed concrete floor. There are no gutters or downspouts.

### Code/Accessibility

In the 3,500 sq. ft. building, two legal means of egress are provided. The building is on grade, with doors 36" wide or greater, which complies with requirements.

### Structural System

The structure is a pre-engineered metal building by "Steel Ox" consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations. The existing building is structurally sound with no significant deficiencies noted.

### Plumbing Systems

No plumbing systems to report. Building roof pitches and discharges to grade.

### HVAC Systems

The building is generally naturally ventilated as the overhead doors are open when the building is occupied, but can be mechanically ventilated as well. An exhaust fan is located on one end of the building and an air intake louver is located on the other. The fan is controlled by a timer switch. A gas fired unit heater is manually adjusted through the thermostat. The unit heater uses LP gas. Ceiling fan is utilized to circulate air around the building.

The control of the building's equipment is compliant with no significant deficiencies noted.

### Electrical Systems

The building is served by a 200 Amp, 120/240 Volt, single phase electrical service. The electric service panel is in good condition. The panel in Building 3 serves the panel in Building 4.

Receptacles are not GFCI protected.

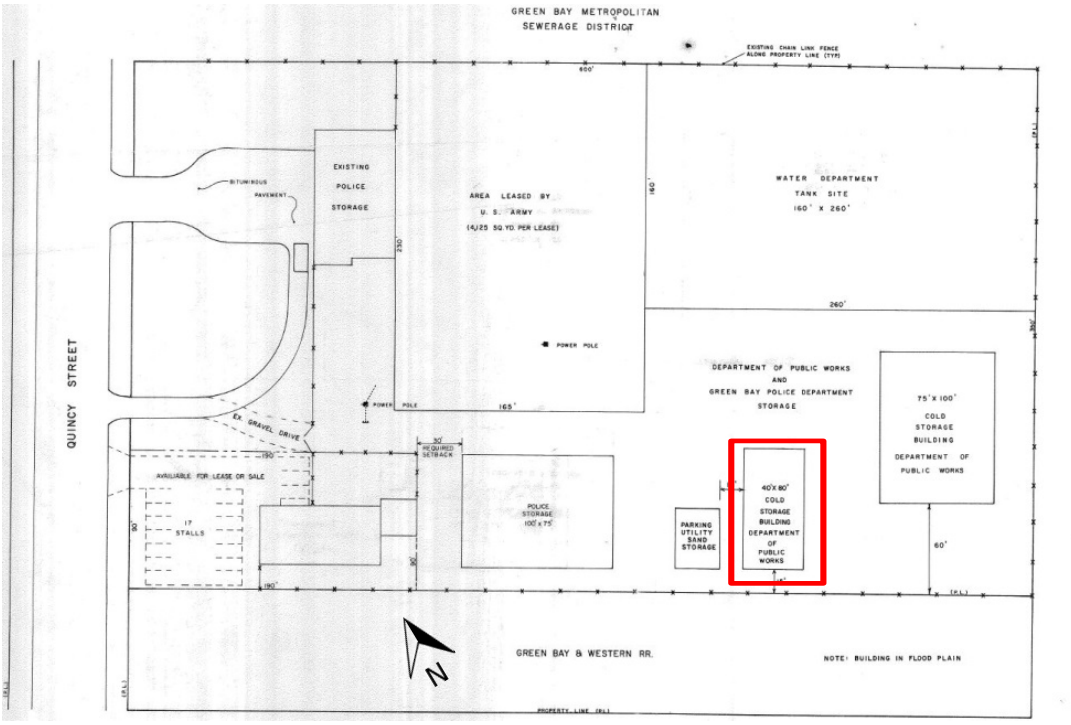
Both interior and exterior lighting fixtures are HID.

### Estimates

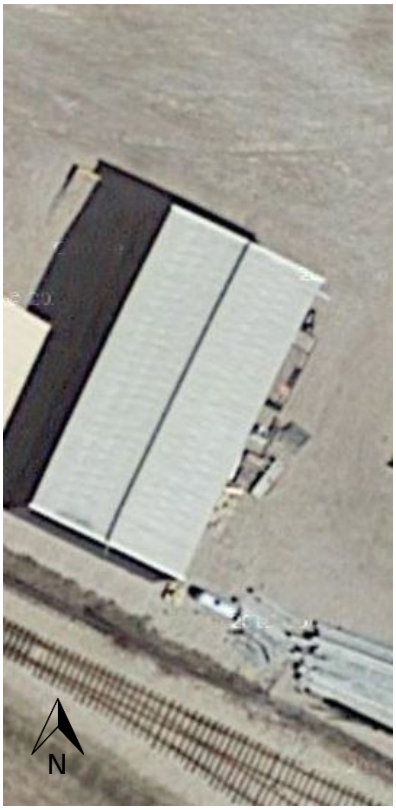
Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| Architectural | | | | NA |
| Code/ADA | | | | NA |
| Structural | | | | NA |
| Fire Protection | | | | NA |
| Plumbing | | | | NA |
| HVAC Systems | | | | NA |
| Electrical | | | Receptacles | $750 |
| Building Total | | | | $750 |




**Site Plan**




**Aerial View of Site**

# ARCHITECTURAL

## Building Description

DPW Cold Storage Building 3 is an insulated metal building with exposed structure. There are no separate interior rooms/spaces.

## Building Envelope

**Exterior Walls**

Building walls are corrugated metal wall panel on metal frame. The panels are dented in spots, but this is an aesthetic concern only. Closed-cell foam-in-place insulation is exposed throughout.

There are no windows. Two egress doors are provided at opposite ends of the building, in addition to the overhead door.

**Roof**

Minimally pitched, corrugated metal roof panel on steel frame appeared to be in good working condition. No gutter or downspouts are installed on this building.

## Interior Finishes

The floor is sealed concrete. There are no interior walls. Casework is placed at perimeter of building, some of which is set on a small concrete curb.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Early 1990s | **Gross Area** | 3,500 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group S-2 – Storage | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

Two legal means of egress are provided. Knob door hardware could be upgraded to lever handles for better accessibility and ease of use.

## Summary of Accessibility/ADA Compliance

The building is on grade, with doors 36" wide or greater, which complies with requirements.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | | | |
| Exterior Facade Condition | C | | | |
| Exterior Door Condition | C | | A1 | |
| **CODE ELEMENTS** | | | | |
| Egress and Safety | C | | A2 | |
| Plumbing Fixtures | NA | | | |

**NOTES:**

**A1.** Recommend regular maintenance on door closers to improve operation.

**A2.** Doors could be upgraded to knob hardware for ease of use and accessibility.

**Interior**

**Exterior Facing North**

**Rear Door**

**Casework**

## STRUCTURAL SYSTEM

### Summary

The structure is a pre-engineered metal building by "Steel Ox" consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | Early 1990s |
| **Structure type** | | | | |
| Foundations | C | | | Cast-in-place concrete foundations. |
| 1st Floor | C | | | 6" concrete slab on grade with 6x6 #6/#6 welded wire mesh reinforcing. |
| Roof | C | | | 24 gauge standing seam steel roof deck over z-purlins supported by structural steel rigid frames. |
| **Occupancy Category** | NA | | | Occupancy Category II |
| **Construction Type** | NA | | | Construction Type **II-B** (0 hour beams and columns, 0 hour roof) |
| **Vertical Expandability** | NA | | | None. |
| **Typical Column Spacing** | NA | | | |
| **Overall Structural Condition** | C | | | The existing building is structurally sound with no significant deficiencies noted. |

## PLUMBING SYSTEMS

### Summary

This is a metal pole building.
No plumbing systems to report. Building roof pitches and discharges to grade.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | |
| Sanitary Piping/Main | NA | | | |
| Storm/Clearwater Drainage | F | | P1 | |
| Code Issues | NA | | | |

**NOTES:**

**P1.** Metal building with gable roof. Roof discharges to grade. Area around the building is gravel, pitches to the south and east into adjacent wetlands.

**Building Roof Edge**

## HVAC SYSTEMS

### Summary

The pre-engineered building is utilized as a work shop and is temporarily occupied. The building is generally naturally ventilated as the overhead doors are open when the building is occupied. However the building can be mechanically ventilated as well. An exhaust fan is located on one end of the building and an air intake louver is located on the other. The fan is controlled by a timer switch which the occupants will manipulate based on their presence in the space. A gas fired unit heater is manually adjusted through the thermostat and is started/stopped when the occupants are in the building. The unit heater uses LP gas. Ceiling fan is utilized to circulate air around the building.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Building Ventilation** | | | **H1** | |
| Gas Fired Heat | **C** | | | LP gas, unit heater mounted high in space |
| Exhaust Fan | **C** | | | Sidewall fan connected to timer switch |
| Ceiling Fan | **C** | | | |

**NOTES:**

**H1.** The control of the buildings equipment (gas fired unit heater, ceiling fan, exhaust fan) is compliant. No recommendation for equipment replacement or upgrade at this time.

**Ceiling Fan**

**Unit Heater**

**LP Tank**

**Exhaust Fan**

**Air Intake**

**Unit Heater Exhaust**

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 200 Amp, 120/240 Volt, single phase electrical service. The electric service panel is in good condition. The panel in Building 3 serves the panel in Building 4.

Receptacles are not GFCI protected.

Both interior and exterior lighting fixtures are HID.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Disconnect Panel | C | | | Good condition |
| Branch Panels | C | | | Same as Main Service Disconnect Panel |
| **Emergency Power Distribution Equipment** | | | | |
| Branch Panels | NA | | | There are no emergency branch panels |
| **Lighting** | | | | |
| Interior | C | $3,500 | E1,E2 | Consider replacing HID lamped fixtures with LED sourced fixtures |
| Exterior | C | $500 | E2 | Consider replacing HID lamped fixtures with LED sourced fixtures |
| **Power** | | | | |
| Receptacles | HP | $750 | | Replace non-GFCI receptacles with GFCI type |

**NOTES:**

**E1.** LED fixtures provide the convenience of immediate ON while HID fixtures go through a warm-up cycle which lasts several minutes.

**E2.** Immediate reduced operational costs plus reduced future maintenance costs should be evaluated before investing in retrofitting fixtures. ROI may not warrant replacement cost due to building's limited occupied use.

**Service Entrance and Meter on Right;
Feeder to Building 4 on Left**

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## COLD STORAGE – BUILDING 4

**August, 2015**

## DEPARTMENT OF PUBLIC WORKS

## SUMMARY

***Date of Visit: July 9, 2015***
***Address: 2228 North Quincy Street***

### Building Description

The storage building is uninsulated corrugated metal wall panel on metal frame built in 1993. It is used primarily to store various equipment including motorized vehicles. Panels are dented in spots, but this is an aesthetic concern only. There are no windows. Two egress doors are provided at opposite ends of building, in addition to the overhead door.

The roof is minimally pitched, corrugated metal roof panel on steel frame in good condition. There is a sealed concrete floor. There are no gutters or downspouts.

### Code/Accessibility

In the 7,500 sq. ft. building, two legal means of egress are provided. The building is on grade, with doors 36" wide or greater, which complies with requirements.

### Structural System

The structure is a pre-engineered metal building by "Steel Ox" consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations. The existing building is structurally sound with no significant deficiencies noted.

### Plumbing Systems

No plumbing systems to report. Building roof pitches and discharges to grade.

### HVAC Systems

The pre-engineered storage building is unheated, but is ventilated. Two exhaust fans and two air intakes are utilized to ventilate the space. The systems are controlled by a timer switch, located at the entrance door. The fans are controlled by a timer switch. This alone does not meet current code.

Installing a small fan to continuously ventilate the space at the minimum flow rate and retain the timer switch or interlock the existing fans with the lights is recommended.

### Electrical Systems

The building is served by a 100 Amp, 120/240 Volt, single phase electrical service originating from the panel in Building 3. The electric service panel is in good condition.

Receptacles are not GFCI protected.

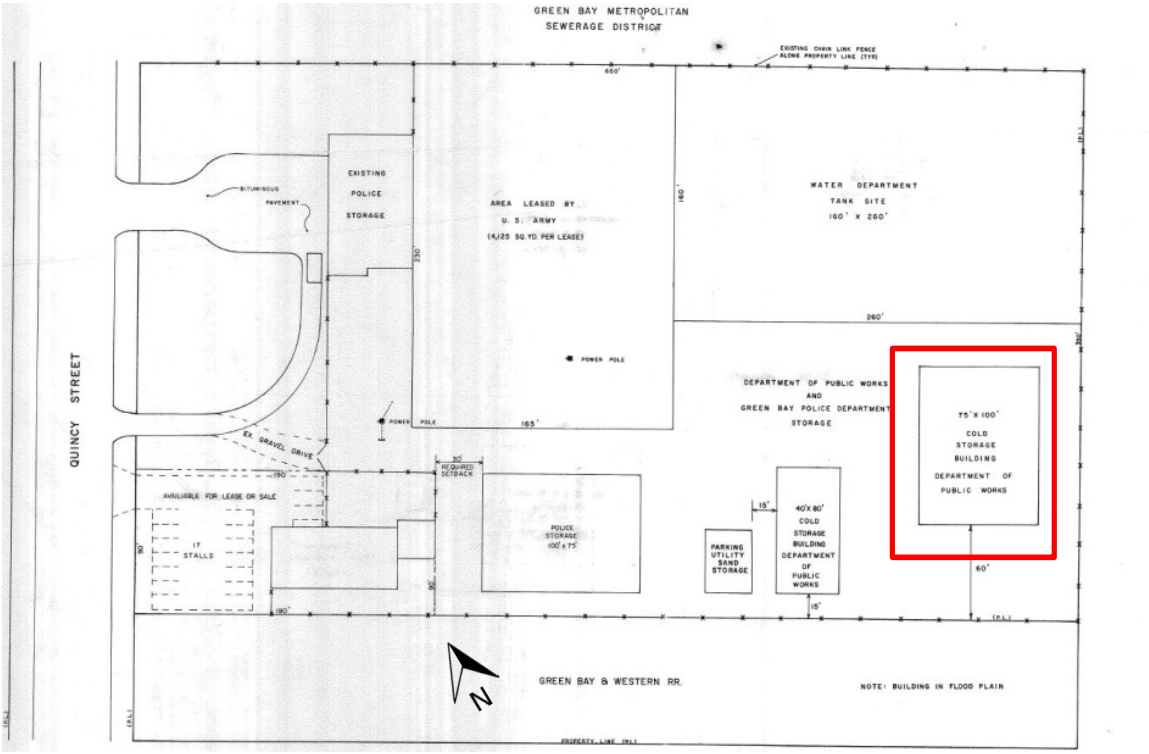
Both interior and exterior lighting fixtures are HID.

### Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | | **NA** |
| **Code/ADA** | | | | **NA** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | | **NA** |
| **HVAC Systems** | Control | | | **$5,000** |
| **Electrical** | | | Receptacles | **$750** |
| **Building Total** | | | | **$5,750** |




**Site Plan**

**Aerial View of Site**

# ARCHITECTURAL

## Building Description

DPW Cold Storage Building 4 is an uninsulated metal building with exposed structure. There are no separate interior rooms/spaces.

## Building Envelope

**Exterior Walls**

Building walls are corrugated metal wall panel on metal frame. The panels are dented in spots, but this is an aesthetic concern only. The building is uninsulated.

There are no windows. Two egress doors are provided at opposite ends of the building, in addition to the overhead door.

**Roof**

Minimally pitched, corrugated metal roof panel on steel frame appeared to be in good, working condition. No gutter or downspouts are installed on this building.

## Interior Finishes

The floor is sealed concrete. There are no interior walls. Casework is placed at perimeter of building, some of which is set on a small concrete curb.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1993 | **Gross Area** | 7,500 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group S-2 – Storage | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

Two legal means of egress are provided. Knob door hardware could be upgraded to lever handles for better accessibility and ease of use.

## Summary of Accessibility/ADA Compliance

The building is on grade, with doors 36" wide or greater, which complies with requirements.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | | | |
| Exterior Facade Condition | C | | | |
| Exterior Door Condition | F | | A1 | |
| **CODE ELEMENTS** | | | | |
| Egress and Safety | C | | A2 | |
| Plumbing Fixtures | NA | | | |

**NOTES:**

**A1.** The rear door was difficult to open, and the closer did not work. Recommend maintenance on hinges and closer.

**A2.** Doors could be upgraded to knob hardware for ease of use and accessibility.

**Rear Door**

**Exterior Facing North**

## STRUCTURAL SYSTEM

### Summary

The structure is a pre-engineered metal building by "Steel Ox" consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1993 (G.B. DPW - Engineering) |
| **Structure type** | | | | |
| Foundations | C | | | Cast-in-place concrete foundations. |
| 1st Floor | C | | | 6" concrete slab on grade with 6x6 #6/#6 welded wire mesh reinforcing. |
| Roof | C | | | 24 gauge standing seam steel roof deck over z-purlins supported by structural steel rigid frames. |
| **Occupancy Category** | NA | | | Occupancy Category II |
| **Construction Type** | NA | | | Construction Type **II-B** (0 hour beams and columns, 0 hour roof) |
| **Vertical Expandability** | NA | | | None. |
| **Typical Column Spacing** | NA | | | |
| **Overall Structural Condition** | C | | | The existing building is structurally sound with no significant deficiencies noted. |

## PLUMBING SYSTEMS

### Summary

This is a metal pole building.
No plumbing systems to report. Building roof pitches and discharges to grade.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | |
| Sanitary Piping/Main | NA | | | |
| Storm/Clearwater Drainage | F | | P1 | |
| Code Issues | NA | | | |

**NOTES:**

**P1.** Metal building with gable roof. Roof discharges to grade. Area around the building is gravel, pitches to the south and east into adjacent wetlands.

**Building Roof Edge**

## HVAC SYSTEMS

### Summary

The pre-engineered storage building is unheated, but is ventilated. The building is used to store various equipment including motorized vehicles. Two exhaust fans and two air intakes are utilized to ventilate the space. The systems are controlled by a timer switch, located at the entrance door, which workers manipulate upon entering the building to retrieve the stored vehicles.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Air intake/Make-up | C | | H1 | Two intakes, line voltage damper actuators open when lights are turned on. |
| Exhaust Fan | C | | H1 | Two cabinet fans ducted to near floor. CFM rate is unknown. |
| Control | D | $5,000 | H1 | Timer switch. |

**NOTES:**

**H1.** The building is not heated but ventilated because vehicles are stored in the building. The air intakes are compliant and the fans appear to be sized to ventilate the building adequately but the exact CFM could not be verified. The fans are controlled by a timer switch. This alone does not meet current code.

A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. A garage exhaust fan project to revise the exhaust fans and control system is necessary to improve garage ventilation and occupant safety.

Installing a small fan to continuously ventilate the space at the minimum flow rate and retain the timer switch or interlock the existing fans with the lights is recommended.

**Air Intake**

**Air Intake**

**Timer Switch**

**Exhaust Fan**

**Exhaust Opening**

**Exhaust Fan**

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 100 Amp, 120/240 Volt, single phase electrical service originating from the panel in Building 3. The electric service panel is in good condition.

Receptacles are not GFCI protected.

Both interior and exterior lighting fixtures are HID.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Disconnect Panel | C | | | Good condition |
| Branch Panels | C | | | Same as Main Service Disconnect Panel |
| **Emergency Power Distribution Equipment** | | | | |
| Branch Panels | NA | | | There are no emergency branch panels |
| **Lighting** | | | | |
| Interior | C | $5,000 | E1,E2 | Consider replacing HID lamped fixtures with LED sourced fixtures |
| Exterior | C | $500 | E2 | Consider replacing HID lamped fixtures with LED sourced fixtures |
| **Power** | | | | |
| Receptacles | HP | $750 | | Replace non-GFCI receptacles with GFCI type |

**NOTES:**

**E1.** LED fixtures provide the convenience of immediate ON while HID fixtures go through a warm-up cycle which lasts several minutes.

**E2.** Immediate reduced operational costs plus reduced future maintenance costs should be evaluated before investing in retrofitting fixtures. ROI may not warrant replacement cost due to building's limited occupied use.

**Electrical Panel**

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## WEST SIDE INCINERATOR

**August, 2015**

## DEPARTMENT OF PUBLIC WORKS

# SUMMARY

***Date of Visit: July 22, 2015***
***Location: near corner of North Military Avenue and Hurlbut Street***

## Building Description

The incinerator building was constructed in 1965 of uninsulated corrugated metal siding over steel structure with a concrete and masonry base. The building is set into a hillside, with only the front (southwest) side providing at-grade entry. The back half of the building contained compartments in which garbage was incinerated, and then removed via an overhead door at foundation level on the back west side. To the north is a large brick smoke stack, connected to the incinerator with concrete foundation wall approximately 12' to 16' in height.

The building has been abandoned for a number of years. It is kept locked to prevent entry. **It is recommended that this building be demolished, due to its advanced state of decay.** The many penetrations in its exterior leave it susceptible to entry by vandals and vagrants, and therefore a potential hazard to public safety.

## Code/Accessibility

As an unoccupied structure, accessibility is not an issue with this building.
With none of the overhead or swing/personnel doors adequately operational, and a deteriorated building shell, this building is hazardous to maintain in its current state. **It is recommended that the building be demolished.**

## Structural System

The structure consists of steel roof deck over steel purlins and structural steel trusses supported by steel columns. Raised refractory floor is a grid work of steel framing over the combustion and blower rooms below. Building bears primarily on concrete foundations with the exception of the smokestack which is supported on wood piles.

The existing building is in a significant state of disrepair. At this time, the main structural framework of the building is still functioning adequately. However, with the current lack of weather tightness of the building envelope, additional deterioration of the roof decking, followed by the other structural members will continue to advance at an accelerated rate. **Based on its unused, unmaintained state, demolition of the building is the most logical solution at this time.** If the building remains unoccupied and is monitored annually for additional significant roof deck failures, the structural frame could possibly remain intact for a number of years.

## Plumbing Systems

Incinerator building is in poor condition. Any plumbing systems have since been removed. Building roof pitches to a gutter/scupper on the perimeter of the building. Downspouts on the building have been removed.

## HVAC Systems

There are no operational HVAC systems in this building. Equipment and material has been removed. Remnants of the systems include duct and combustion vents stub through the roof and the wall of the building. The building is abandoned therefore no HVAC system is required at this time.

## Electrical Systems

The building reportedly has not been occupied for several years. It is abandoned.

The building is served by a 3-phase electrical service from a pole-mounted transformer setting located east of the building. The service enters the basement. The amperage rating of the service is unknown as the basement was not accessible for review. The electrical equipment accessible for review on the upper floor shows signs of corrosion.

There were no receptacles observed on the upper level. Lighting fixtures are for incandescent lamps but few if any had lamps installed.

## Estimates

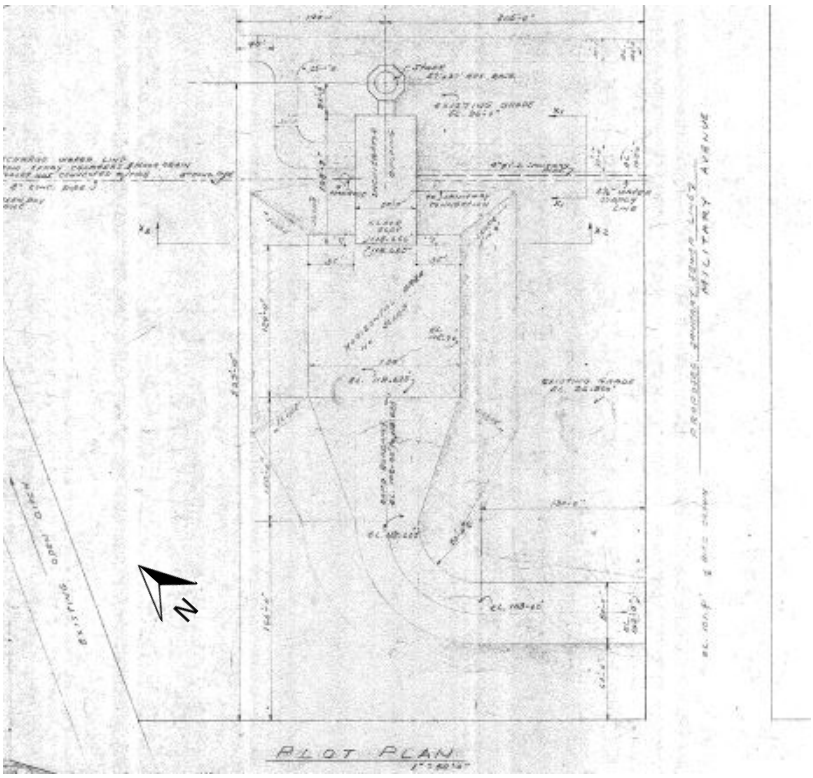
Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | Roof Condition | | | **S1** |
| | Exterior Facade Condition | | | **S1** |
| | Exterior Door Condition | | | **S1** |
| | Interior | | | **S1** |
| **Code/ADA** | Egress and Safety | | | **S1** |
| | Doors | | | **S1** |
| **Structural** | | | | **S1** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | | **NA** |
| **HVAC Systems** | | | | **NA** |
| **Electrical** | | | Electrical Equipment | **S1** |
| | | | Interior lighting | **S1** |

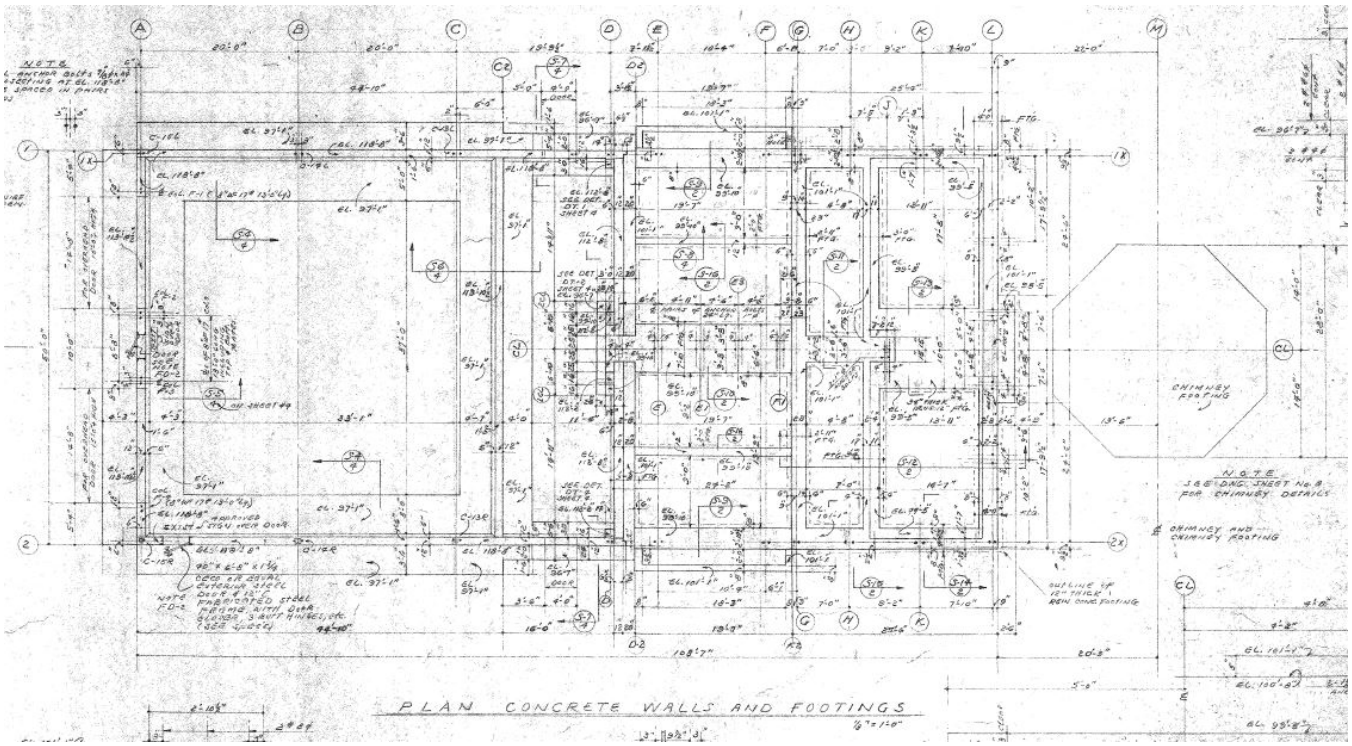
**NOTES:**

**S1.** Budget costs are not listed, since the building is recommended to be demolished.

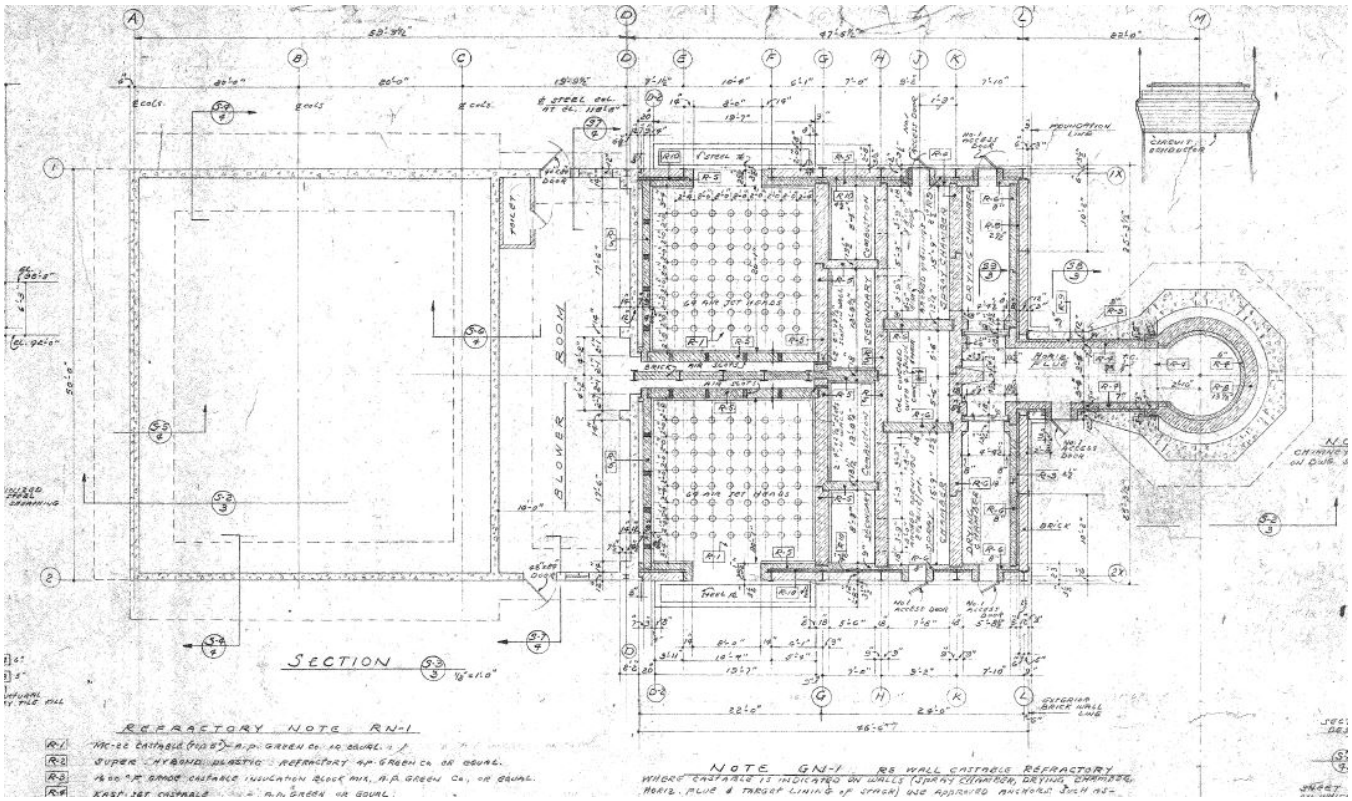



**Site Plan**

**Aerial View of Site**




**Footings/Foundation**




**Floor Plan**

# ARCHITECTURAL

## Building Description

The incinerator building has uninsulated corrugated metal siding over steel structure. The building is set into a hillside, with only the front (southwest) side providing at-grade entry.

The back half of the building contained compartments in which garbage was incinerated, and then removed via an overhead door at foundation level on the back west side. To the north is a large brick smoke stack, connected to the incinerator with concrete foundation wall approximately 12' to 16' in height.

The building has been abandoned for a number of years. **It is kept locked to prevent entry. It is recommended that this building be demolished, due to its advanced state of decay.** The many penetrations in its exterior leave it susceptible to entry by vandals and vagrants, and therefore a potential hazard to public safety.

## Building Envelope

### Exterior Walls

The foundation wall is exposed over most of the sides and all of the back of the building, with a 4' high poured concrete base forming the interior and front wall of the structure. Brick panels held in place with steel posts and horizontal bracing face the back half of the exposed foundation.

The corrugated metal wall panels and roof decking are in extremely poor condition. Rust is prevalent throughout; daylight can be seen through many openings in the panels.

### Windows

Translucent panels at the uppermost part of the wall provide the building's only light source. The panels are the same corrugated configuration as the metal wall panels.

### Doors

There are steel overhead doors for vehicle entrance and metal personnel doors. The overhead doors were not checked for operation, since there is no power to the building. One door had a written warning not to use because the cable may come off.

One personnel door was opened for access. Others were barred shut with 2x4s and metal brackets from the interior. Daylight was visible under the doors. All had areas of rust.

### Roof

Roof access was not available, but the underside of the deck was visible from the interior. It is significantly rusted, with portions of deck material separating from the deck. Some patched holes in the roof deck may have been for previous venting ducts that have been removed.

## Interior Finishes

### Floors

Floor of the main space is concrete. Cracking occurs along directional lines where trucks would have pulled into the facility via the front overhead doors.

### Walls

One small room at the center of the main space is constructed of concrete block. It provides access to a pit below. The corners of this structure are significantly damaged, and rusting reinforcing is staining the concrete base from within.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | D | | A1 | |
| Exterior Facade Condition | D | | A1 | |
| Exterior Door Condition | D | | A1 | |
| Window Condition | NA | | | Translucent panels have no frames, and are not technically windows. |
| Interior | D | | A1 | |

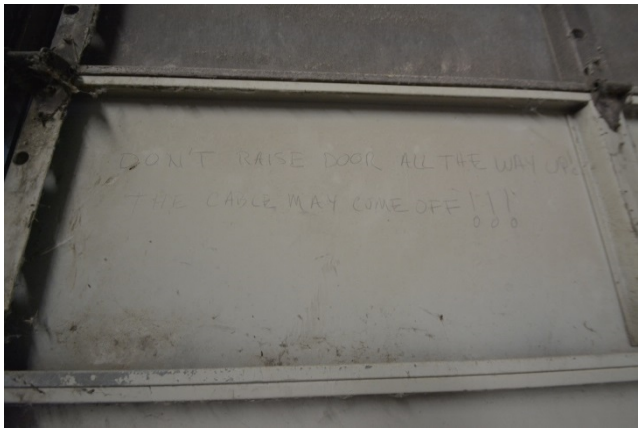
**NOTES:**

**A1.** Budget costs are not listed, since the building is recommended to be demolished.

**Front/South Elevation**

**West Elevation**

**Column/Base of Wall**




**Warning on Overhead Door**

East Elevation

Clean-out Access

Interior Looking North

Incinerator Cells

Base of Wall Condition

Roof/Ceiling and Translucent Panels

East Exterior Door

Interior Room

Exterior Overhead Door

Entry – South Elevation

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1965 | **Gross Area** | 8,000 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group U – Utility and Miscellaneous | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type II-B | | |

## Summary of Code Compliance/Life Safety

With none of the overhead or swing/personnel doors adequately operational, and a deteriorated building shell, this building is hazardous to maintain in its current state. **It is recommended that the building be demolished.** See Architectural report for additional description.

## Summary of Accessibility/ADA Compliance

As an unoccupied structure, accessibility is not an issue with this building.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **D** | Deficient – Immediate Replacement | **CP** | Critical Priority – Replace in 1-2 years | **HP** | High Priority – Replace in 3-5 years | **F** | Fair – Replace in 6-10 years | **C** | Compliant/ Adequate | **N** | New | **NA** | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Egress and Safety | **D** | | **CA1** | |
| Accessible Route | **NA** | | **CA1** | |
| Doors | **D** | | **CA1** | |

**NOTES:**

**CA1.** Budget costs are not listed, since the building is recommended to be demolished.

**Exterior**

**Interior**

# STRUCTURAL SYSTEM

## Summary

The structure consists of steel roof deck over steel purlins and structural steel trusses supported by steel columns. Raised refractory floor is a grid work of steel framing over the combustion and blower rooms below. Building bears primarily on concrete foundations with the exception of the smokestack which is supported on wood piles.

The existing building is in a significant state of disrepair. At this time, the main structural framework of the building is still functioning adequately. However, with the current lack of weather tightness of the building envelope, additional deterioration of the roof decking, followed by the other structural members will continue to advance at an accelerated rate. **Based on its unused, unmaintained state, demolition of the building is the most logical solution at this time.** If the building remains unoccupied and is monitored annually for additional significant roof deck failures, the structural frame could possibly remain intact for a number of years.

### LEGEND

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1965 (G.B. Office of City Engineer) |
| **Structure type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. 140' masonry smokestack supported on wood piling. |
| Basement (Blower Room) | **C** | | | 5" concrete slab on grade. |
| 1st Floor | **C** | | **S1.** | 6" concrete slab on grade. |
| Raised Refractory Floor | **C** | | | Steel I-beam purlins and wide flange girders. |
| Roof | **F** | | **S2.** | 1 ½" A-22 steel roof deck over 8" wide flange purlins and 5' deep steel trusses supported on wide flange columns. |
| **Occupancy Category** | **NA** | | | Occupancy Category I (Unoccupied) |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams and columns, 0 hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **HP** | | | The building framework is in fair condition, although the building shell is in a significant state of disrepair. Annual monitoring of roof deck for failures is recommended in order to maintain structural integrity for a limited number of years. |

**NOTES:**

**S1.** Minor shrinkage cracking of slab on grade. No remedial action recommended at this time.

**S2.** There is widespread corrosion of the steel roof deck and other structural members. However, (with the exception of a few localized roof deck failures) much of the corrosion is limited to the surface and to date; there has not been significant loss of section or structural integrity of the main structural members. No remedial action is recommended at this time.

**Metal Wall Panel Failure**

**Corrosion of Structural System**

**Corrosion of Steel**

**Localized Roof Deck Failure**

## PLUMBING SYSTEMS

### Summary

Incinerator building is in poor condition.
Any plumbing systems have since been removed. Building roof pitches to a gutter/scupper on the perimeter of the building. Downspouts on the building have been removed.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | NA | | | Removed/abandoned |
| Sanitary Piping Condition | NA | | | Removed/abandoned |
| Storm/Clearwater Roof System | F | | P1 | |

**NOTES:**

**P1.** Metal frame building has a pitched roof, with gutters/scuppers on the roof edge. Building downspouts have been removed.

**Building Edge/Scupper**

**Building Edge**

# HVAC SYSTEMS

## Summary

There are no operational HVAC systems in this building. Equipment and material has been removed. Remnants of the systems include duct and combustion vents stub through the roof and the wall of the building. The building is abandoned therefore no HVAC system is required at this time.

## ELECTRICAL SYSTEMS

### Summary

The building reportedly has not been occupied for several years. It is abandoned.

The building is served by a 3-phase electrical service from a pole-mounted transformer setting located east of the building. The service enters the basement. The amperage rating of the service is unknown as the basement was not accessible for review. The electrical equipment accessible for review on the upper floor shows signs of corrosion.

There were no receptacles observed on the upper level. Lighting fixtures are for incandescent lamps but few if any had lamps installed.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Electrical Equipment | **HP** | **$500/visit** | | Electrical equipment should be periodically checked to assure it is not a safety or fire hazard. |
| **Emergency Power Distribution Equipment** | | | | |
| Branch Panels | **NA** | | | There are no emergency branch panels. |
| **Lighting** | | | | |
| Interior | **HP** | **$1,500** | | Install minimal quantity of LED fixtures so inspections of abandoned building may be conducted safely. |

**Service Entrance**

**Electrical Equipment on Upper Level**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## EAST SIDE ELECTRICAL SHOP

**August, 2015**

## MUNICIPAL GARAGES

# SUMMARY

***Date of Visit: July 1, 2015***
***Address: 1820 Mills Street***

## Building Description

The electrical shop was constructed in 1988. It consists of a vehicle storage and maintenance area with three overhead doors on the east side of the building, and office/mechanical/storage areas on the west side. Exterior walls are corrugated, insulated metal panel. Interior walls are concrete masonry units. There is a storage mezzanine over the office/mechanical/storage areas, which is accessed by an open, metal grate stair.

The men's locker and bathroom is original to the building. Original plans show a "future women's locker" room. This room is currently used for storage, but it also has within it, un-partitioned from the rest of the room, a functioning toilet and lavatory with mirror.

## Code/Accessibility

Two legal means of egress are provided out of the building, in two different directions, per code. The one stair is to an open mezzanine. It is not required to be enclosed.

Recommend replacing the rusted sill at main entry for maintenance reasons and to provide better accessibility.

Recommend replacing knob hardware with lever style when updating building hardware.

Recommend investigating creating an accessible unisex toilet and shower room in the existing storage room where toilet and lavatory are located.

## Structural System

The structure is a pre-engineered metal building consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations.

## Plumbing Systems

The original piping is in fair condition, it can be replaced as needed when issues arise. Insulation has been installed for energy savings. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. These are code issues which need to be corrected.

Building is served by gutters and multiple downspouts.

Plumbing fixtures appear to be original 1988. Fixtures could be replaced with low-flow water conserving units as budget dictates. Women's toilet room is currently used for storage. Building utilities in general appear adequate.

This building is not equipped with an automatic fire sprinkler system.

## HVAC Systems

The mechanical systems are, in general, original to the building construction with the exception of a few spot heating units that have been replaced or added to the office space for additional room comfort. A unit heater has also been replaced.

The vehicle storage area is used for storage as well as electrical repair work. The space is served by a couple of gas fired unit heaters, a radiant heater, and circulation fans. There is no exhaust or make-up air system in the storage area.

## Electrical Systems

The building is served by a 400 Amp, 120/208 Volt, three phase electrical service. The panels are in good condition, and have capacity for the future.

The outlets within the garage are not all GFCI protected. Lighting fixtures are in good to fair condition and utilize T8 lamps and ballasts, and incandescent lamps. The facility should install occupancy sensors in offices, toilet rooms, and storage rooms. HID building mounted fixtures are in fair condition; consideration should be given to replacing the HID fixtures with more efficient and lower maintenance LED fixtures in the future.

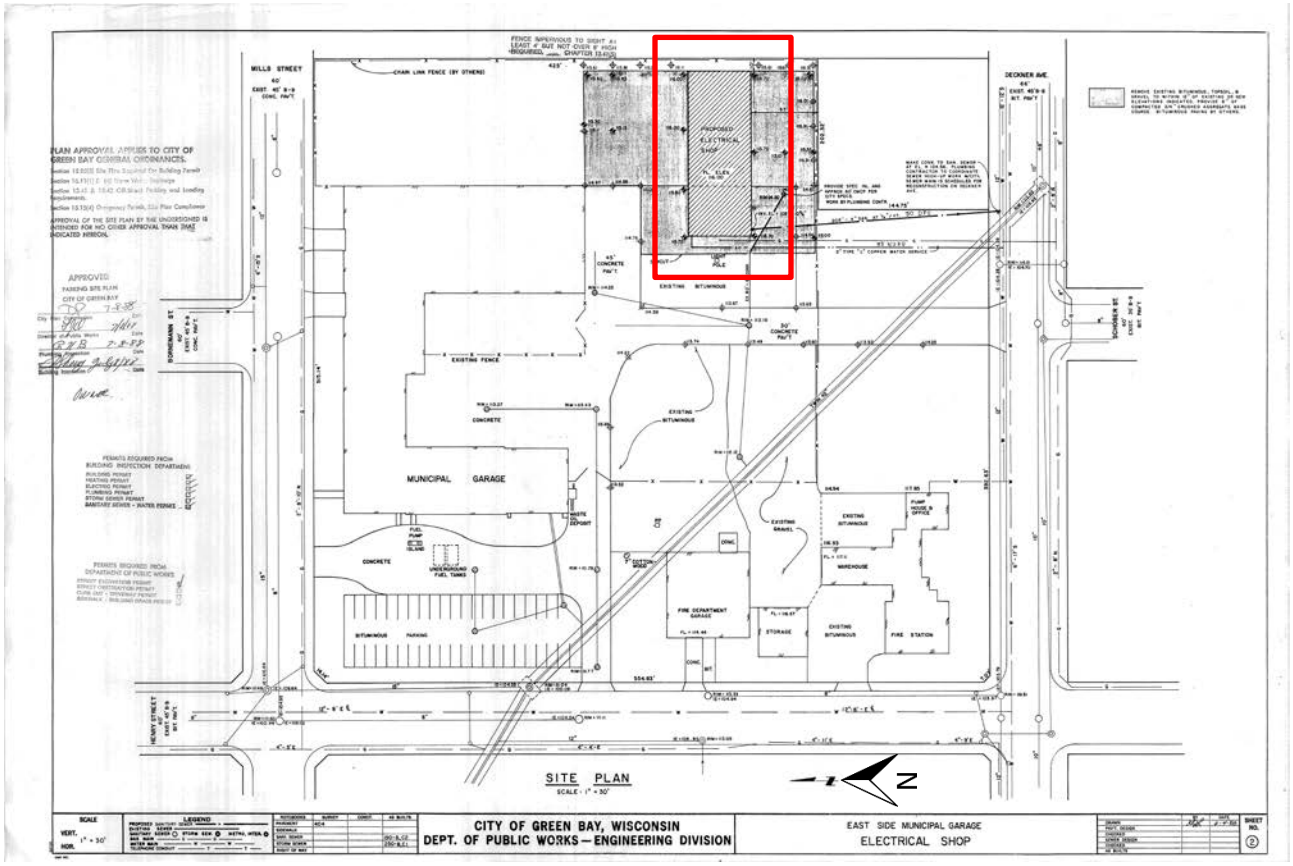
The server equipment is in good condition. The facility is pulling Cat 5 data and voice cabling.

## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

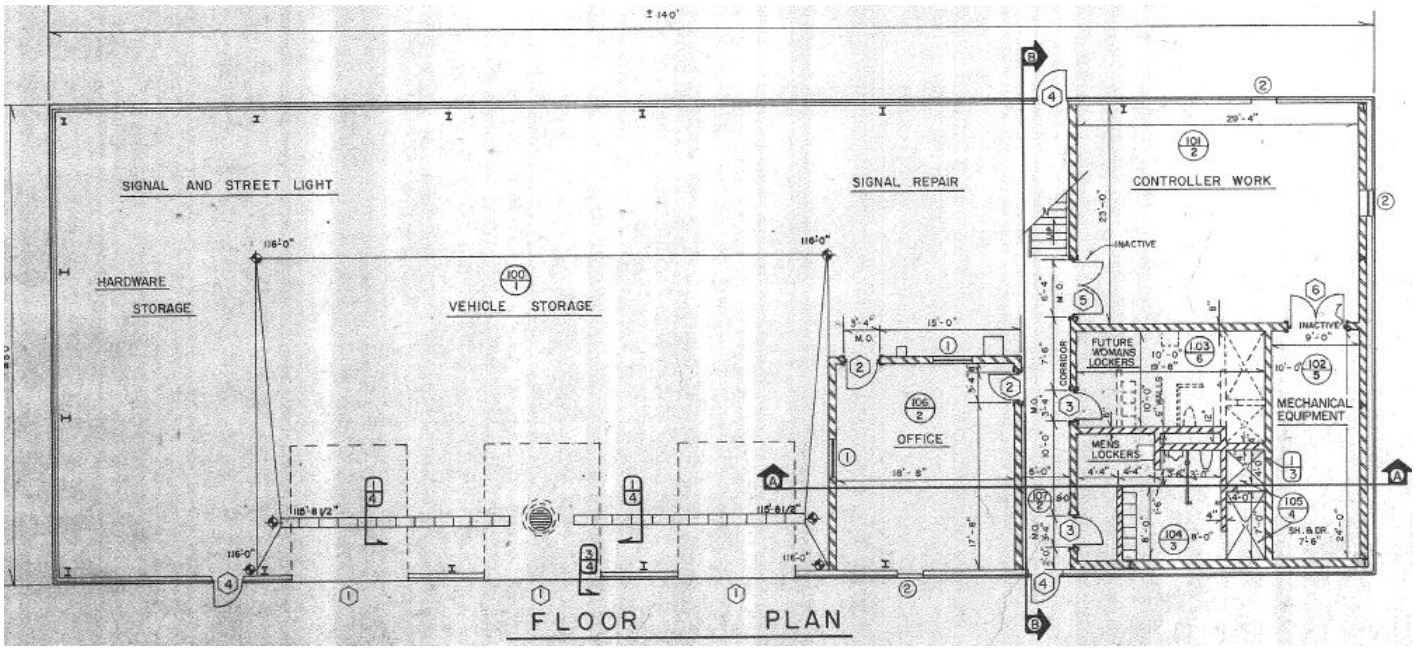
**SUMMARY OF PRIORITY ITEMS**

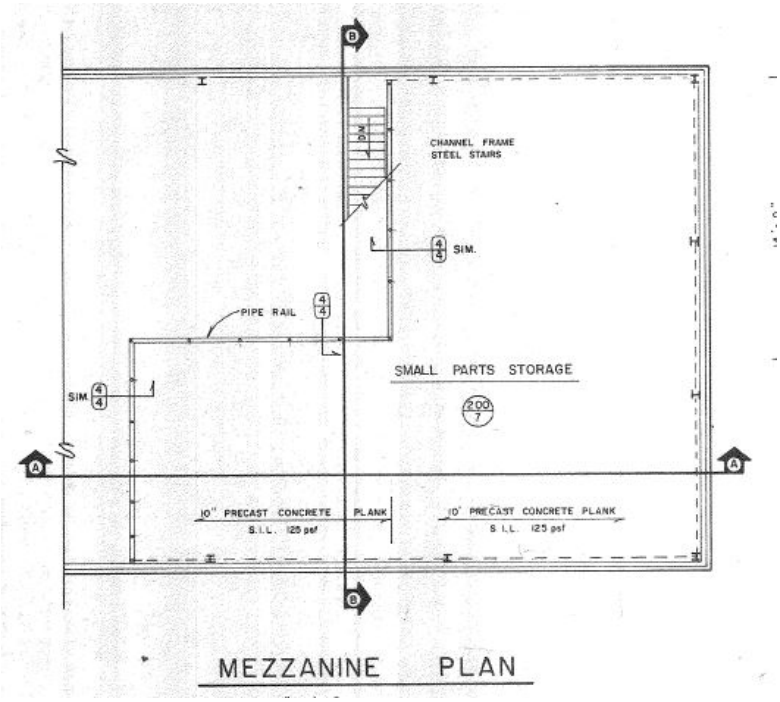
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | | **NA** |
| **Code/ADA** | | | Toilet | **$8,000 - $12,000** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | Recirculation Pump(s) | | | **$6,000** |
| | Thermal Mixing Valve (TMV) | | | **$4,000** |
| **Plumbing Subtotal** | | | | **$10,000** |
| **HVAC Systems** | | | Furnace | **$6,000** |
| | | Condensing Unit | | **$3,000** |
| | Make-up Air Unit | | | **$40,000** |
| | Exhaust Fan | | | **$25,000** |
| **HVAC Subtotal** | | | | **$74,000** |
| **Electrical** | Receptacles | | | **$1,000** |
| | | | Offices | **$500** |
| | | | Toilet Rooms/ Small Storage Rooms | **$500** |
| **Electrical Subtotal** | | | | **$2,000** |
| **Building Total** | | | | **$94,000- $98,000** |




**Site Plan**

**Aerial View of Site**


SIGNAL AND STREET LIGHT
SIGNAL REPAIR
CONTROLLER WORK
HARDWARE
STORAGE
VEHICLE STORAGE
INACTIVE
FUTURE WOMANS LOCKERS
MECHANICAL EQUIPMENT
OFFICE
MENS LOCKERS
CORRIDOR
FLOOR PLAN


CHANNEL FRAME STEEL STAIRS
SIM.
PIPE RAIL
SMALL PARTS STORAGE
10" PRECAST CONCRETE PLANK
S.I.L. 125 psf
MEZZANINE PLAN

# ARCHITECTURAL

## Building Description

The electrical shop consists of a vehicle storage and maintenance area with three overhead doors on the east side of the building, and office/mechanical/storage areas on the west side. Interior walls are concrete masonry units. There is a storage mezzanine over the office/mechanical/storage areas, which is accessed by an open, metal grate stair.

The men's locker and bathroom is original to the building. Original plans show a "future women's locker" room. This room is currently used for storage, but it also has within it, un-partitioned from the rest of the room, a functioning toilet and lavatory with mirror.

## Building Envelope

### Exterior Walls

Corrugated, insulated metal panel. Dented in spots, aesthetic concern only.

### Windows

Dark bronze anodized, fixed, aluminum windows. Sealants appeared generally in good condition. Continued maintenance and observation recommended.

Overhead sectional doors are insulated, seven panel, three-light type, appeared in good working condition, including operators.

### Roof

Pitched, corrugated metal roof panel on steel frame. Appeared in good, working condition.

## Interior Finishes

### Floors

Vehicle work areas, mechanical and storage rooms have sealed concrete floors. Office areas and a portion of the entry corridor have composite tile flooring. The men's room, including the shower has 1" ceramic mosaic tile (2 colors, mixed) with a 4" glazed ceramic sanitary base.

A portion of the mezzanine has open metal grating. The majority is poured concrete surface.

### Walls

The majority of interior walls are painted concrete masonry units. The men's shower and drying area has 4 ¼"x4 ½" glazed ceramic tile, full height.

### Doors

Exterior doors are insulated hollow metal with a narrow light. Overhead garage doors are metal with three small lights across one of the panels.

Interior doors are painted hollow metal. Office doors have a narrow light.

### Ceilings

Office rooms have 2'x2' acoustic panels on non-recessed ceiling grid. A similar ceiling is in the entry corridor. The combination storage room/toilet room has no finished ceiling. Exposed structure at vehicle bay is painted.

### Casework

Office casework is wood construction, probably original to the building. Plastic laminate tops are showing wear. Additional tables, metal file cabinets/drawers and shelving are used as well.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | F | | A1 | |
| Exterior Facade Condition | F | | | |
| Exterior Door Condition | F | | A2 | |
| Window Condition | C | | | |
| Interior Finishes | | | | |
| Floors | F | | A3 | |
| Walls | C | | | |
| Doors | C | | | |
| Ceilings | C | | | |
| Casework | F | | A4 | |

**NOTES:**

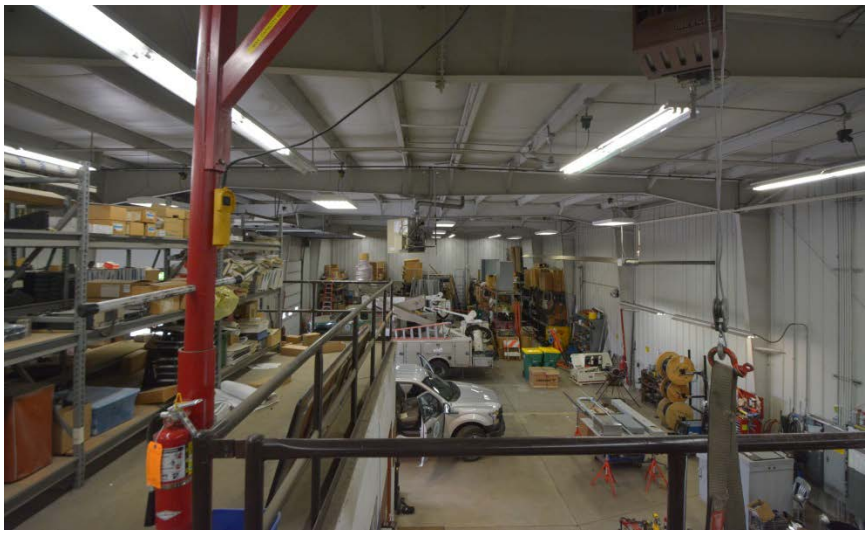
**A1.** Entry door is rusting at bottom. A different/larger threshold would provide better moisture protection to interior floor finish.

**A2.** Composite tiles at entry are cracked and damaged. Recommend selective replacement if door threshold is replaced.

**A3.** Wood casework is dated but serviceable. Plastic laminate tops are showing wear, and could be replaced sooner.

North Elevation

South Elevation



Vehicle Storage and Work Area

Exterior Wall Sill Condition

Sill at Entry

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1988 | **Gross Area** | 7,500 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | The Building Code for the State of Wisconsin at the time would have placed this building in Office, Factory, and Mercantile occupancy. The current occupancy classification would be **S-1 Storage** with **B Business** as an accessory occupancy. | | |
| **Construction Type** *(Chapter 6 IBC)* | The classes of construction at the time would have probably been Type 6, Metal Frame, Unprotected.<br>The building's materials would place it equivalent **to Type II-B** in the 2009 IBC. | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

### Egress and Safety

Two legal means of egress are provided out of the building, in two different directions, per code.

### Stair Shafts

The one stair is to an open mezzanine. It is not required to be enclosed.

### Handrails and Guardrails

Handrail at the stair is at 33" above the stair nosing, which is code compliant. The guard rail is at 42" above the mezzanine floor, which is also code compliant. Openings in guards and handrails are in compliance with IBC 1013.3, exception 4.

## Summary of Accessibility/ADA Compliance

### Accessible Route

Entry to the building is at grade. The sill sits slightly above the exterior asphalt paving, and there is no stoop, which makes the threshold higher than the ¾" allowable by accessibility codes. This was compliant at the time it was built. Since the sill is rusting, replacement of the sill for maintenance reasons could also provide better accessibility.

### Doors

The building has a combination of push/pull hardware and knob handles. Knobs are not accessible, and not as easy/fast to use as lever handles.

### Plumbing Fixtures

The shower in the Men's room has a 4" tiled lip entry, which is non-accessible. However, a shower would not be considered required for this occupancy, nor would it be considered part of the "accessible route". ADA would call for equal amenities to be provided for staff requiring accessibility.

The toilet in the Men's room is not accessible, but the urinal is, with the exception that the route to the toilet would pass through its clear floor area. The lavatory in the Men's room is compliant in height, and has lever handles for accessibility.

The lavatory in the storage room is also at compliant height with lever handles. The toilet has a single grab bar on the wall behind it, but it is neither in a toilet stall nor in a corner; thus the toilet is not considered accessible.

A drinking fountain is available, but stored items and trash containers are partially blocking access to it.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Egress and Safety | C | | | |
| Stair Shafts | C | | | |
| Handrails/Guardrails | C | | | |
| **Accessibility** | | | | |
| Accessible Route | F | | CA1 | |
| Doors | C F | $400 per door | CA2 | |
| Plumbing Fixtures | | | | |
| Shower | F | $8,000 - $12,000 | CA3 | |
| Toilet | HP | $8,000 - $12,000 | CA3 | Creating 1 accessible toilet room is recommended. |
| Lavatory | C | | CA4 | |
| Drinking Fountain | C | | CA5 | |

**NOTES:**

**CA1.** Recommend replacing the rusted sill at main entry for maintenance reasons and to provide better accessibility.

**CA2.** Recommend replacing knob hardware with lever style when updating building hardware.

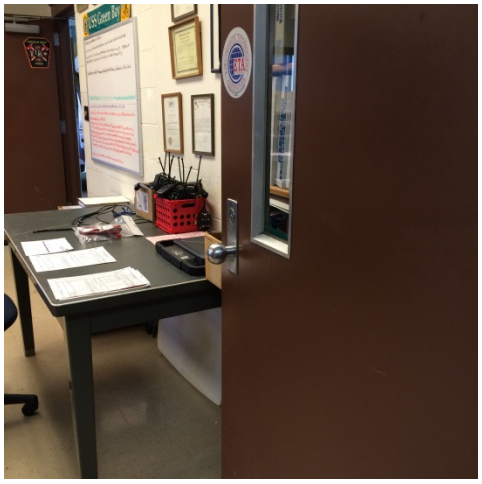
**CA3.** Recommend investigating creating an accessible unisex toilet and shower room in the existing storage room where toilet and lavatory are located.

**CA4.** Current lavatories are compliant. Relocation of fixture may be required if creating a new accessible toilet room.

**CA5.** Clear movable items away from clear floor space for drinking fountain.

Sill at Entry

Openings at Guard Rails



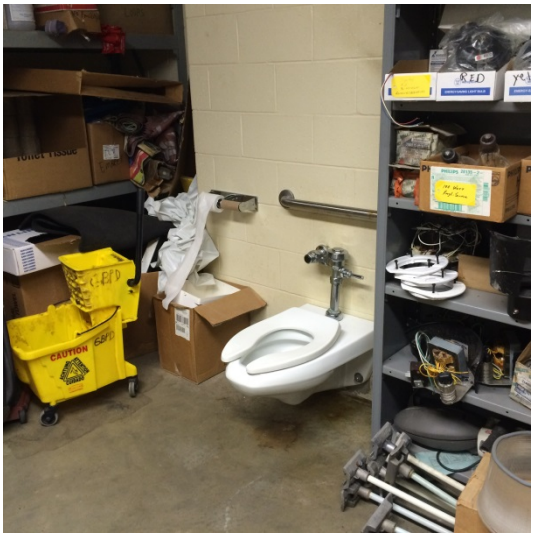
Knob Hardware, Typical at Interior

Lever Hardware at Exterior Door

Non-accessible Men's Toilet

Lavatory at Men's Room

Lavatory in Storage Room



Toilet in Storage Room

Drinking Fountain

## STRUCTURAL SYSTEM

### Summary

The structure is a pre-engineered metal building consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1988 (G.B. DPW - Engineering) |
| **Structure type** | | | | |
| Foundations | C | | | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. |
| 1st Floor | C | | S1 | 7" concrete slab on grade with 4x4 welded wire mesh reinforcing. |
| Mezzanine | C | | S2 | 10" precast prestressed concrete plank with no topping, over load-bearing masonry walls. |
| Roof | C | | | Standing seam steel roof deck over z-purlins supported by structural steel rigid frames. |
| **Occupancy Category** | NA | | | Occupancy Category II |
| **Construction Type** | NA | | | Construction Type **II-B** (0 hour beams and columns, 0 hour roof) |
| **Vertical Expandability** | NA | | | None. |
| **Typical Column Spacing** | NA | | | |
| **Overall Structural Condition** | C | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** Minor shrinkage cracking of slab on grade. No remedial action recommended at this time.

**S2.** Minor shrinkage cracking of masonry wall below mezzanine. No remedial action recommended at this time.

**Concrete Slab Crack at Door**

**Masonry Wall Crack below Mezzanine**

## PLUMBING SYSTEMS

### Summary

East Side Electrical shop was constructed in approximately 1988. The original piping is in fair condition, it can be replaced as needed when issues arise. Insulation has been installed for energy savings. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. These are code issues which need to be corrected.

Building is served by gutters and multiple downspouts.

Plumbing fixtures appear to be original 1988. Fixtures could be replaced with low-flow water conserving units as budget dictates. Women's toilet room is currently used for storage. Building utilities in general appear adequate.

This building is not equipped with an automatic fire sprinkler system.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | PVC & cast iron |
| Storm/Clearwater Piping | F | | P3 | Cast iron |
| Valves | F | | P4 | Gate & ball |
| Domestic Water Service | C | | P5 | 2" main |
| Insulation | F | | P6 | fiberglass insulation |
| Code Issues | D | See below | P7 | Add TMV, recirculation pump |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | Gas fired, installed 2005 |
| Drench Shower Station | NA | | | |
| Recirculation Pump(s) | D | $6,000 | P9 | Add pump (code issue) |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $4,000 | P10 | Add TMV (code issue) |
| Grease Interceptor | NA | | | |
| Kitchen Equipment | NA | | | |
| Plumbing Fixtures | F | | P11 | |
| Oxygen Storage | NA | | | |
| Backflow Prevention | C | | P12 | Hose end VB |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| "Shop" Air Compressor | F | | P13 | Quincy QE-5 |
| Laundry Equipment | NA | | | |
| Drain Tile Sump/Pump | NA | | | |
| Ambulance Garage | F | | P14 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage, Roof Drainage | F | | P15 | Discharge to grade |
| Lawn Irrigation | NA | | | |
| Utilities | F | | P16 | 2" Water main, 6" Sanitary |

**NOTES:**

**P1.** Water piping is mainly copper, soldered joints. Fair condition. Majority of the piping is insulated, with glass fiber.

**P2.** Original sanitary is cast iron, no-hub connection(s).

**P3.** Roof is picked up by gutter and downspout(s). Downspouts discharge to grade.

**P4.** Original valves are ball valves. There are minimal valves in the HCW system for shutdowns/isolation.

**P5.** Building is served by a 2" water main. 2" water meter with 3-valved by-pass in the mechanical equipment room.

**P6.** Water piping is insulated with glass fiber. Insulation is missing in a few areas.

**P7.** Code issues: water temperature is set higher than 110° Fahrenheit. No thermostatic mixing valve (TMV) at the heater. Add TMV per code. No recirculating pump at heater. Add recirculating pump. Hot water piping length exceeds 100'-0" per code.

**P8.** Water heater is gas fired, direct vent to exterior, State select, 50 gallon, 38,000 BTU. Hot/cold water connection at the heater is 1". Ball valves installed at heater.

**P9.** Install hot water recirculation pump and timer. Length of hot water piping exceeds 100'-0" per code.

**P10.** Add TMV to water heater. Set hot water temperature to 110° Fahrenheit. Code issue.

**P11.** Plumbing fixtures: No ADA handicap fixtures in the building. Water closets are vitreous, wall-hung with flush valve. Lavatories are vitreous, wall-hung with gooseneck faucet-wrist blade control. Urinal is wall-hung with flush valve, rim at approximately 24" aff. Men's toilet room has a built-up shower unit. Floor drain in toilet room. Service sink and electric water cooler installed in the vehicle storage area.

**P12.** Service sink in the garage has an elevated atmospheric vacuum breaker installed. Hose bib with hose connection end has a threaded vacuum breaker installed. All backflow prevention is compliant.

**P13.** Quincy QE-5, 5hp, horizontal 80 gallon tank serve the air outlets in vehicle storage/garage.

**P14.** Vehicle Storage/Garage: trench drains which discharge to a garage catch basin.

**P15.** Building has a perimeter gutter system which discharges to grade with multiple downspouts.

**P16.** Building is served from a 2" water main. The main is supplied from Deckner Avenue. Sanitary sewer is 6". Main routes south to Deckner Avenue. Grade around the building is pitched to interior parking lot catch basin(s).

**Hot/Cold Water Piping**

**CI Vent Piping**

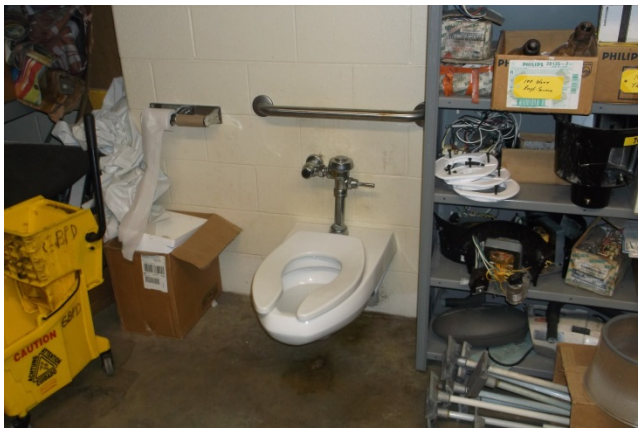
**Water, Vent Piping**

**Water Meter with Bypass**

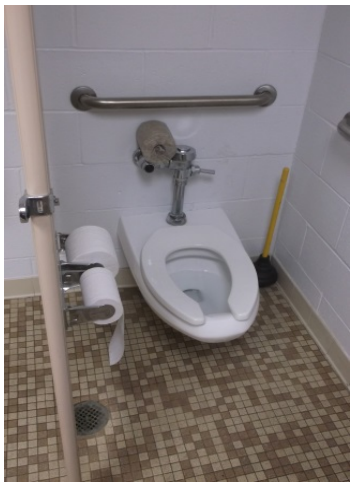
**Water Heater**

**"Shop" Air Piping**

**"Shop" Air Compressor**



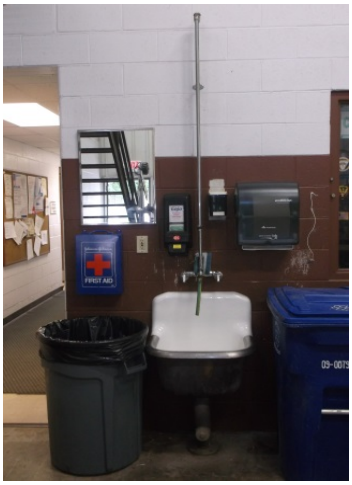
**Women's Water Closet**



**Water Closet – Men's**

**Lavatory and Urinal – Men's**

**Shower**



**Janitor's Sink**

**Electric Water Cooler**

**Hose Connection with Vacuum Breaker**

**Trench Drain, Garage Catch Basin**

**Gutter/Downspout**

# HVAC SYSTEMS

## Summary

The pre-engineered building was constructed in 1988, with vehicle storage, office, locker room and controller spaces. The systems are, in general, original to the building construction with the exception of a few spot heating units that have been replaced or added to the office space for additional room comfort. A unit heater has also been replaced.

The vehicle storage area is used for storage as well as electrical repair work. The space is served by a couple of gas fired unit heaters, a radiant heater, and circulation fans. There is no exhaust or make-up air system in the storage area.

The office, locker room and controller space is served by a residential style furnace with split system A/C unit. There is an outside air connection. The thermostat for the furnace control is located in the controller room. Thermostats located in the office and other ancillary spaces control additional radiation devices.

The locker room exhaust is served by a cabinet fan.

The controls are low and line voltage electric. The air compressor appears to be used for shop air only.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Residential Style Furnaces** | | | **H1** | Lennox Pulse, 60,000 BTUH. |
| Furnace | **HP** | $6,000 | **H1** | Exact age is unknown. HP indicated to allow future budgeting and possible replacement with condensing unit. |
| Condensing Unit | **CP** | $3,000 | **H1** | Housing is covered in rust. Exact age unknown, possibly original. |
| Air intake | **C** | | | |
| Filters | **C** | | | 1" filter |
| Controls | **C** | | | Single zone, low voltage. |
| Ductwork | **C** | | | |
| Insulation | **C** | | | |
| **Exhaust Fan** | | | | |
| Locker Rooms | **C** | | **H2** | Cabinet Fan. 800 CFM |
| Ductwork | **C** | | | |
| **Garage Ventilation** | | | **H3** | |
| Gas Fired Heat | **C** | | | (3) 60MBH heaters. One unit replaced. (1) 60 MBH radiant heater. |
| Make-up Air Unit | **D** | $40,000 | **H3** | No make-up or exhaust air. Gas fired heaters for room heat only. |
| Exhaust Fan | **D** | $25,000 | **H3** | |

**NOTES:**

**H1.** A residential, sealed combustion, style furnace serves the controller room, office, and locker rooms. The unit is controlled from a single thermostat located in the controller office. There is an outside air connection to the furnace to ventilate the occupied offices.

The unit's age could not be verified from an initial visual inspection but the furnace appeared to be in good physical condition while the condensing unit is rusted and is in modest physical condition. This type of equipment will have an expected useful life of 20 years. The HP furnace grade and CP condenser grade are based on physical condition. However, the majority of the devices that are most likely to fail on these units (fan motor, compressor, and heat exchanger) will have a failure of an internal component that cannot be easily visually inspected. Residential style equipment failure is difficult to predict. A major component such as the compressor may fail in a week or in a few years. Because these components or the entire unit can be replaced in a day or two it is not recommended to replace these units at this time, but rather replace the units upon their failure.

**H2.** A cabinet fan serving the locker room/toilet room exhaust requirements appears to be in good physical condition. No recommendations at this time.

**H3.** The vehicle storage area is utilized for equipment storage as well as vehicle electrical repair and storage. Vehicle storage areas that are smaller than 850 square feet and house less than 5 vehicles do not require

mechanical exhaust systems. Although this building typically stores less than 5 vehicles, the storage area is larger than 850 square feet. An exhaust system and make-up air system is required to properly ventilate this space.

An enclosed garage has specific exhaust code requirements and the garage is required to have a negative pressure in relation to the other occupied spaces. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. A garage exhaust fan project to install new make-up fan, exhaust fan and control systems is necessary to improve garage ventilation and occupant safety.

**Furnace**

**Condenser**

**Supply Ductwork (Insulation)**

**Gas Fired Unit Heater**

**Gas Fired Unit Heater**

**Radiant Heater**

**Return/Exhaust Grille (Typical)**

**Supply Grille (Typical)**

**Furnace Thermostat**

**Office Thermostat**

**Combustion Exhaust Vent**

**Exhaust Louver**

**Intake Louver**

**Shop Air Compressor**

**Gas Meter**

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 400 Amp, 120/208 Volt, three phase electrical service. The panels are in good condition, and have capacity for the future.

The outlets within the garage are not all GFCI protected. Lighting fixtures are in good to fair condition and utilize T8 lamps and ballasts, and incandescent lamps. The facility should install occupancy sensors in offices, toilet rooms, and storage rooms. HID building mounted fixtures are in fair condition; consideration should be given to replacing the HID fixtures with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition. The facility is pulling Cat 5 data and voice cabling.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Electrical Service** | | | | |
| Utility Service Entrance | C | | | 400 Amp underground electrical utility service enters the building in the mechanical equipment room. |
| **Normal Power Distribution Equipment** | | | | |
| Disconnect | C | | | 400 Amp Westinghouse disconnect. |
| Branch Panels | C | | | Two Westinghouse panels, in fair condition with some spare capacity. |
| **Power** | | | | |
| Receptacles | D | **$1,000** | E1 | Garage outlets need to be GFCI. |
| **Lighting** | | | | |
| Garage | C | | | Industrial fixtures with T-8 lamps and HID wall packs in good condition. |
| Office Spaces, Conference Rooms, and Corridors | C | | E2 | Recessed acrylic lens troffers with T-8 lamps and incandescent track lighting in good condition. |
| Toilet Rooms | C | | | Recessed troffers and surface mounted wraps, in good condition. |
| Mechanical Spaces, Storage Rooms, Utility Areas | C | | | Industrial strips and surface mounted wraps with T-8 lamps, in good condition. |
| Exterior | F | **$1,500** | E3 | HID wall packs in fair condition. |
| **Lighting Controls** | | | | |
| Offices | HP | **$500** | E4 | Add occupancy sensors |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Toilet Rooms/ Small Storage Rooms | **HP** | **$500** | E4 | Add occupancy sensors |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Corridors | **C** | | | Battery emergency fixtures. |
| Exit Signs | **C** | | | LED type in good condition, some with integral emergency lights. |
| **Telecommunications** | | | | |
| Data/Voice | **C** | | | Data server equipment in good condition with Cat 5 cabling. |

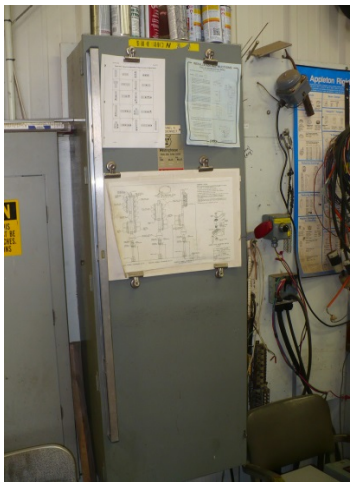
**NOTES:**

**E1.** Some of the outlets were GFCI type, the remaining outlets in the garage area should be replaced with GFCI type.

**E2.** Replace incandescent lamps with compact fluorescent or LED type for energy savings.

**E3.** Consider replacing all HID fixtures with more efficient LED in the future.

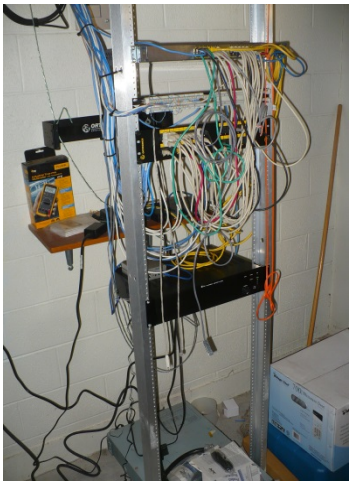
**E4.** Occupancy sensors should be installed in the offices, toilet rooms, and storage rooms to provide additional energy savings. If areas are renovated, controls will be required to be updated to meet current energy code.



**400 Amp Disconnect**

**Branch Panel**

**Branch Panel**



**Data Rack**

**Fiber Entrance**

**Toilet Room Lighting**

**Office Lighting**

**Office Lighting**

**Garage Outlets**

**Lighting Contactor Box**

**HID Garage Fixture**

**Exterior HID Wallpacks**

**Exit Sign**

**Garage Lighting**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## EAST SIDE MUNICIPAL GARAGE

**August, 2015**

## MUNICIPAL GARAGES

# SUMMARY

***Date of Visit: July 1, 2015***
***Address: 1820 Mills Street***

## Building Description

The East Side Garage was constructed in approximately 1967, with remodeling in 1977 and 1983. The building consists of a small vehicle garage and office in the L-shaped original brick building. The 1977 addition formed an open courtyard by adding a break room and shop space, along with a large vehicle storage area.

Both original building and addition are constructed of modular face brick with limestone window sills. Corrugated metal head is used over large overhead door openings of addition, and at top of wall at the original building's garage wing. Some tuck-pointing required on the mortar joints on the street-side of the original building. Steel lintels rusting at spots and need paint/cleaning.

The various roof areas are all covered with a fully adhered EPDM roofing membrane. The oldest appeared to be the garage portions of the original building. Tenting, ponding and separating seams are prevalent throughout, especially the older areas. Staff commented on leaking during rainstorms, but no obvious failure was observed. Portions of the various roofs appear to have a minimal pitch to the drainage design.

## Code/Accessibility

Two legal means of egress are available from all portions of the building. Clear egress corridors are available. The building is on-grade, with no basement or stair shafts. The only stairs are to an open mezzanine within the large vehicle storage area. A 1-hour rated room should be provided for storage of gas cylinders which are located throughout the facility.

Entry to the building is at grade. There is no accessible parking stall designated for the building.
The Men's and Women's toilet rooms are not accessible in the following ways:

- There is no accessible toilet stall
- The Women's room does not have turning space within the room.
- Showers have a 4" sill at entry.

## Structural System

The structure consists primarily of steel roof deck over open web steel joists supported by a combination of structural steel framing and load-bearing masonry, all bearing on cast-in-place foundations.

## Plumbing Systems

The original piping is in poor/fair condition. It could be replaced as needed when issues arise. Glass fiber insulation is installed on most of the water piping. Insulation from original 1967 construction probably contains asbestos and will require abatement. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. These are code issues which need to be corrected. The service faucet(s) in the garage require hose end vacuum breakers installed. Gas cylinders should be stored in a one-hour rated room per code.

Building is served by interior 4" roof drains. Roof edge serves as the secondary roof drainage.

Plumbing fixtures are older, and could be replaced with water conserving, low flow units. Eyewashes installed on the faucets are not considered compliant. Building utilities in general appear adequate.

## HVAC Systems

The make-up air units appear to be original to the 1967 original construction project. The majority of the equipment in the 1977 office/locker room/ storage garage addition is original.

The 1977 addition installed a hot water boiler system consisting of two 1,080,000 BTU boilers, which now operate only on natural gas. Maintenance staff has indicated that the boiler combustion air dampers have failed and temporary repairs are planned.

The repair garage and storage garage are served by make-up air units equipped with hot water heating coils. These systems are in general, well past their expected useful life. The maintenance staff has indicated that some of the air unit components have failed and repairs are needed to maintain space temperature prior to the 2015/2016 heating season.

The building's control system is antiquated DOS based controls which operate pneumatic actuators on the make-up air units and heating units. Staff has indicated the pneumatic air lines leak badly and the system components are beginning to fail.

## Electrical Systems

The building is served by a 400 Amp, 120/208 Volt, three phase electrical service. The panels are in good condition, and have capacity for the future.

The outlets within the garage and exterior outlets are not GFCI protected. Exterior outlets do not have weatherproof while-in-use covers. Lighting fixtures are in good to fair condition and utilize T8 lamps and ballasts. Some fixtures have broken or missing lenses and should be repaired or replaced. The facility should install occupancy sensors in offices, toilet rooms, and storage rooms. HID building mounted fixtures are in fair condition; consideration should be given to replacing the HID fixtures with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition. The facility is pulling Cat 5 data and voice cabling.

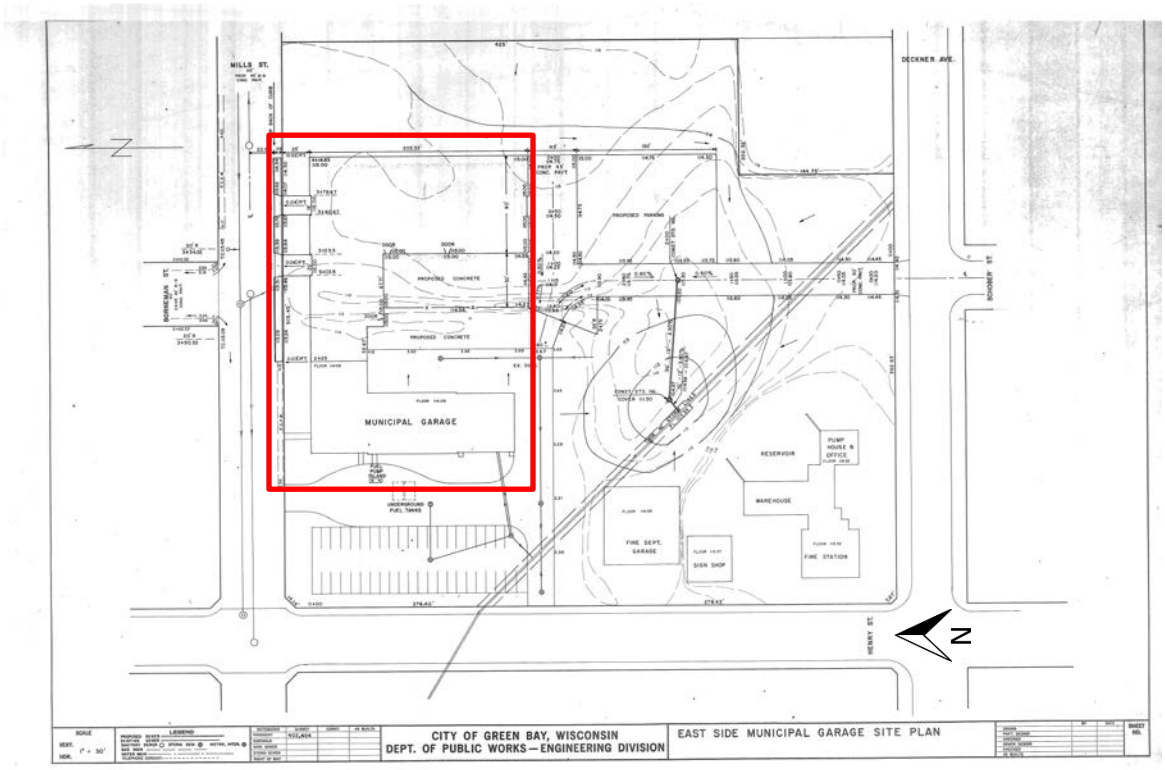
## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

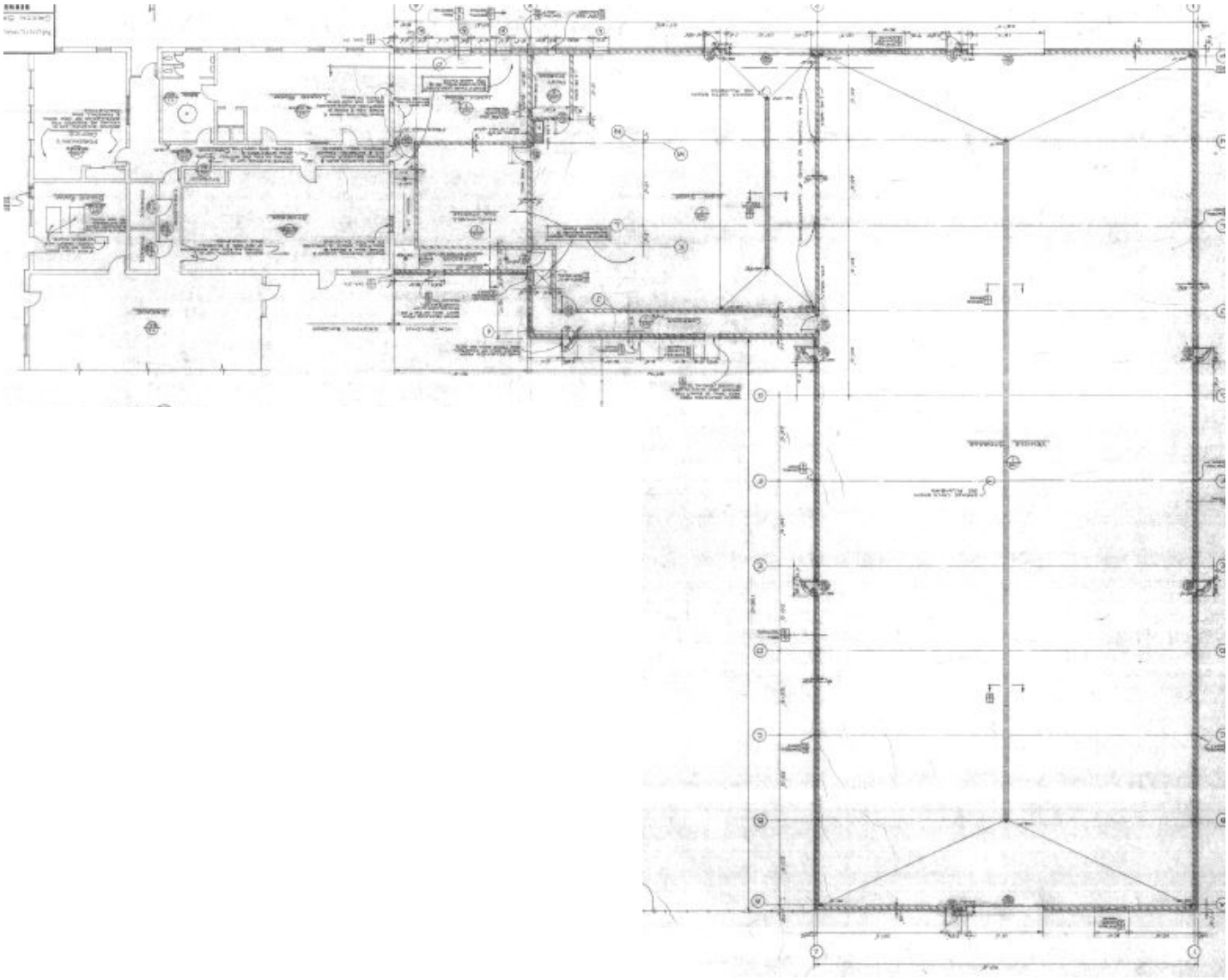
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | Roof condition | Roof condition | **$210,000** |
| **Code/ADA** | | | Gas cylinder room | **$12,000** |
| | | | Accessible toilet | **$12,000** |
| | | | Accessible shower | **$12,000** |
| **Code Subtotal** | | | | **$246,000** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | Insulation | **$15,000** |
| | Code Issues | | | |
| | Recirculation Pump(s) | | | **$6,000** |
| | Thermal Mixing Valve (TMV) | | | **$10,000** |
| | Backflow Prevention | | | **$500** |
| **Plumbing Subtotal** | | | | **$31,500** |
| **HVAC Systems** | | Unit Ventilators | | **$150,000** |

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| | | | Insulation | **$3,000** |
| | | Ductwork | | **$20,000** |
| | | Boilers | | **$180,000** |
| | | Pumps | | **$10,000** |
| | | | Pipe Insulation | **$4,000** |
| | | Room Terminal Units | | **$20,000** |
| | Mechanical Room Ventilation | | | **$8,000** |
| | | Building Management | | **$100,000** |
| | | Make-up Air Unit | | **$600,000** |
| | | Exhaust | | **$100,000** |
| | | Control | | **$50,000** |
| | | Sign Room Ventilation | | **$150,000** |
| **HVAC Subtotal** | | | | **$1,395,000** |
| **Electrical** | Receptacles | | | **$5,000** |
| | | | Offices | **$1,500** |
| | | | Toilet Rooms/ Small Storage Rooms | **$1,000** |
| **Electrical Subtotal** | | | | **$7,500** |
| **Building Total** | | | | **$1,680,000** |




**Site Plan**

**Aerial View of Site**



**Partial Floor Plan**

# ARCHITECTURAL

## Building Description

The building consists of a small vehicle garage and office in the L-shaped original brick building. An addition in 1977 formed an open courtyard by adding a break room and shop space, along with a large vehicle storage area. The north end of the vehicle storage area has mezzanines on either side of the centered overhead door; one is metal deck and concrete floor, the other is wood frame construction.

A fire rated room within the sign shop stores hazardous materials (roadway paints). Wood framing with wire mesh forms caged areas and an exit path through a storage room to one of the exterior doors.

## Building Envelope

### Exterior Walls

Both original building and addition are constructed of modular face brick with limestone window sills. Corrugated metal head is used over large overhead door openings of addition, and at top of wall at the original building's garage wing. Some tuck pointing required on the mortar joints on the street-side of the original building.

### Windows

Original, clear anodized aluminum windows are operable, showing their age. Spandrel and diffusing panels made of aging fiberglass throughout. Some openings of the original building have been replaced with operable vinyl framed windows. Sealant joints at perimeter of windows appear in good working order and continued maintenance and observations are recommended. Steel lintels rusting at spots and need paint/cleaning. Overhead sectional doors are throughout the facility in a variety of dimensions and configurations.

### Roof

The various roof areas are all covered with a fully adhered EPDM roofing membrane. The oldest appeared to be the garage portions of the original building. Tenting, ponding and separating seams are prevalent throughout, especially the older areas. Staff commented on leaking during rainstorms, but no obvious failure was observed. Portions of the various roofs appear to have a minimal pitch to the drainage design.

## Interior Finishes

### Floors

Garage and shop floors are sealed concrete. Corridor, break room and locker room/Men's room have terrazzo floors. Women's locker room/toilet room and the office area have composite tile floor. 1" ceramic mosaic tile is used at the Women's shower, Men's urinals, and drying area outside of Men's showers. The Men's showers themselves have concrete floor.

There is an office within one of the storage rooms that has a painted concrete floor. Paint is peeling off in wear areas.

### Walls

The majority of walls are painted concrete block. Toilet and shower rooms have glazed masonry units. The Women's shower, which was a later remodeling, has 4 ¼" ceramic tiles on the walls.

### Doors

Interior doors are a mix of flush wood and hollow metal doors. Doors into office and break room areas have half lights.

### Ceilings

Most occupied areas have 2'x2' flat acoustic panel ceilings. The break room has flat 2'x4' panels. The sign shop has 2'x4' panels with a tegular edge, and a recessed center line to simulate 2'x2' panels. The tegular edge panels are noticeably sagging throughout the room.

### Casework

The sign shop casework is older wood construction with plastic laminate counters. Built-in desks at the office are plastic laminate faced cases and tops.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | CP HP | $210,000 | A1 | Based on $15 per sq. ft. |
| Exterior Facade Condition | F | $5,000 | A2 | |
| Exterior Door Condition | F | | | |
| Window Condition | C | | | |
| **Interiors** | | | | |
| Floors | C F | | A3 | |
| Walls | C | | | |
| Doors | F | | | |
| Ceilings | F | | A4 | |
| Casework | F | | | |

**NOTES:**

**A1.** Budget cost for original building only. Excludes 70s addition.

**A2.** Tuck-pointing and masonry repair at north elevation of original building.

**A3.** Repaint floor of office within storage area, if still in use.

**A4.** Recommend replacing sagging ceiling panels at sign shop.

**North Elevation**

**West Elevation**

Partial East Elevation

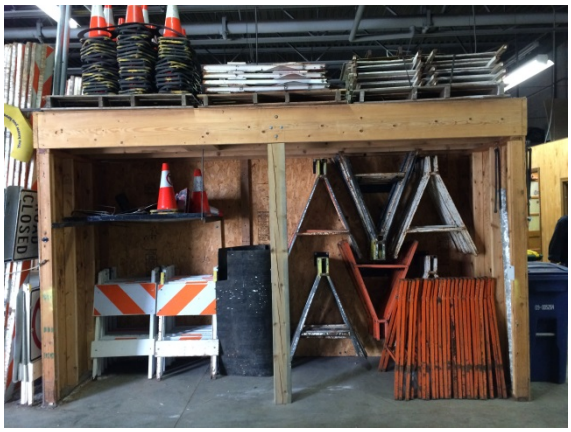
South Elevation at Open Courtyard

West Elevation Facing Courtyard

Roof Areas

Vehicle Storage Area

Mezzanine at Large Vehicle Area




**Wood Framed Storage Mezzanine**

**Sagging Ceiling Panel at Sign Shop Office**

**Men's Room**

**Wood and Wire Cage Storage**

**Office**

**Men's Locker Room**

**Painted Concrete Floor**

**Women's Shower Area**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Original 1967; addition 1977; remodeling 1983 | **Gross Area** | 25,000 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | The WI building code at the time of construction and additions would have placed the building under Factory, Office, Mercantile occupancy category.<br><br>Current code would place it under **S-2 Low Hazard Storage**.<br>Other separated occupancies within the building include:<br>**S-1 Moderate Hazard Storage**, and **B Business** | | |
| **Construction Type** *(Chapter 6 IBC)* | Class of construction when built would have probably been **Exterior Masonry, Unprotected (5B)**<br>Current construction type would be **Type II-B** in the 2009 IBC. | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

### Egress and Safety

Two legal means of egress are available from all portions of the building. Clear egress corridors are available.

### Stair Shafts

The building is on-grade, with no basement or stair shafts. The only stairs are to an open mezzanine within the large vehicle storage area.

### Handrails and Guardrails

Hand and guard rails at the stair to the mezzanine are in compliance with IBC 1013.3, exception 4. A center portion of the guard rail is movable, allowing crane/forklift access to the mezzanine.

### Miscellaneous

A 1-hour rated room should be provided for storage of gas cylinders which are located throughout the facility.

## Summary of Accessibility/ADA Compliance

### Accessible Route

Entry to the building is at grade. There is no accessible parking stall designated for the building.

### Doors

Most of the building's door hardware has been upgraded to lever style, which is accessible. A few doors have knob style hardware. All doors are of compliant clear opening width, providing accessibility to all rooms.

**Plumbing Fixtures**
The Men's and Women's toilet rooms are not accessible in the following ways:

- There is no accessible toilet stall in Men's or Women's.
- The women's room does not have turning space within the room.
- Showers have a 4" sill at entry.
- Men's toilet room does not have turning space within the room.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
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| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Egress and Safety | C | | | |
| Stair Shafts | C | | | |
| Handrails/Guardrails | F | | | |
| Miscellaneous Items | HP | $10,000-$12,000 | CA1 | |
| **Accessibility Features** | | | | |
| Accessible Route | F | $1,000-$2,000 | CA2 | |
| Doors | C F | | CA3 | Estimate of $400/door to upgrade to lever hardware |
| Plumbing Fixtures | | | | |
| Accessible Toilet | HP | $8,000 - $12,000 | CA3 | Creating 1 accessible toilet is recommended. |
| Accessible Showers | HP | $8,000 - $12,000 | CA4 | |

**NOTES:**

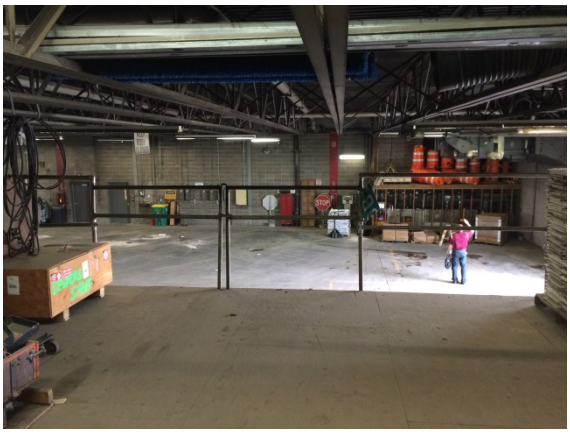
**CA1.** Gas cylinders are wall mounted throughout the facility. They are required to be stored in a 1-hour rated room. Cost is an estimate to provide one such room. (Design fee not included.)

**CA2.** Cost estimate reflects painting of designated accessible parking and post-mounted signage.

**CA3.** Lever handles would comply with accessibility codes and facilitate ease of use. Lever handles are code requirement for any new or renovated work.

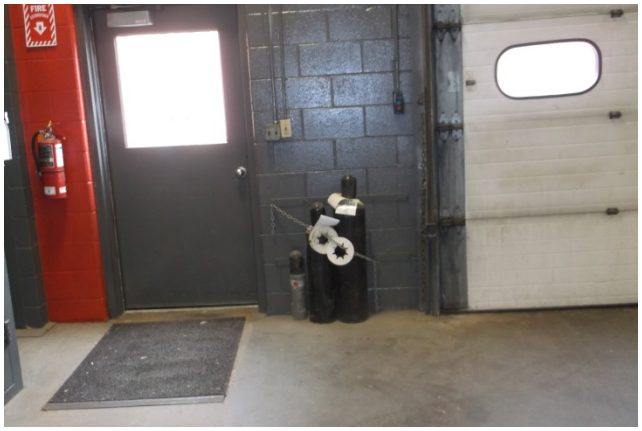
**CA4.** ADA requires equal accommodations to what is provided elsewhere in the facility, thus creation of a unisex, accessible shower is recommended.

Stair & Handrails to Mezzanine



Demountable Guard Rail at Mezzanine

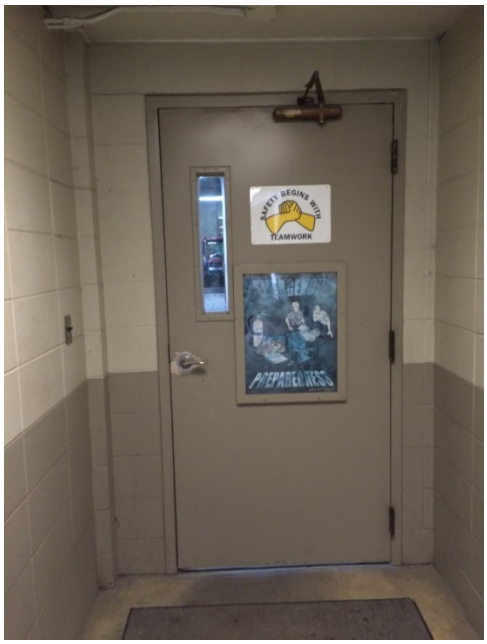
Gas Cylinders in Open Area



Gas Cylinders in Open Area

**Accessible Employee Entrance (Knob Hardware)**

**Accessible Public Entrance**




**Lever Hardware**

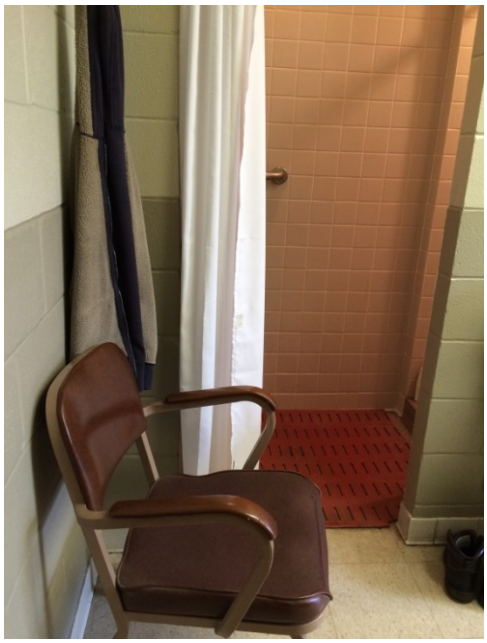
**Knob Hardware**

**Men's Shower**
**Non-accessible Sill**

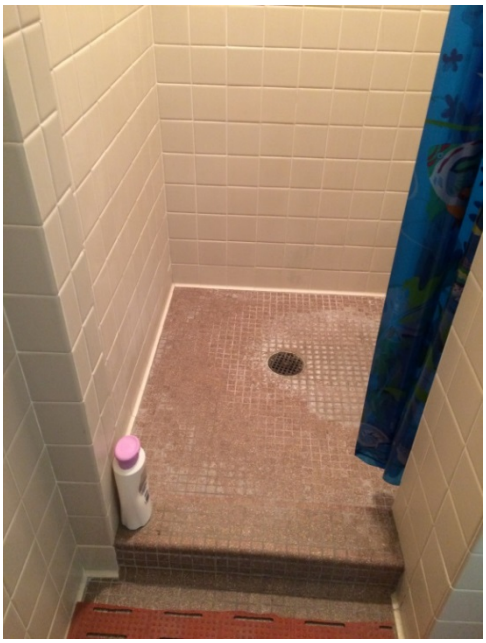
**Men's Hand Wash Sink**
**Non-accessible Operation**

**Men's Toilet Room**
**Lack of Turning Radius**

**Men's Locker Room**
**Adequate Turning Space**



**Women's Shower**
**Inadequate Space**



**Women's Shower**
**Non-accessible Sill**

**Women's Toilet**
**Non-accessible**

## STRUCTURAL SYSTEM

### Summary

The structure consists primarily of steel roof deck over open web steel joists supported by a combination of structural steel framing and load-bearing masonry, all bearing on cast-in-place foundations.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
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| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1967 Original (G.B. Engineering) – **WEST**<br>1977 Addition (Berners-Schober Project 2550) -**EAST** |
| **Structure type** | | | | |
| Foundations | C | | | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. |
| 1st Floor | C | | | A. West half (Original Building)<br>1) North Section – 5" concrete slab on grade with 6x6 #8/#8 wire mesh reinforcing.<br>2) Repair Garage (center) – 7" concrete slab on grade with 6X6 #6/#6 wire mesh reinforcing.<br>3) South Section – 7" concrete slab on grade with 6X6 #6/#6 wire mesh reinforcing.<br>B. East half (Addition) - 6" concrete slab on grade with 6X6 #6/#6 wire mesh reinforcing, sloped to trench drains. (Small area of 4" slab on grade in non-flammable sign storage) |
| Corridor and Paint Storage Ceilings | C | | | 4" precast prestressed concrete plank over Corridor, 8" precast plank over Paint Storage |
| Roof | C | | | A. West half (Original Building)<br>1) North Section – 1 ½" steel deck on 20" open web steel joists supported on exterior load-bearing masonry walls and interior structural steel frame.<br>2) Repair Garage (center) - 1 ½" steel deck on 18" open web steel joists supported on structural steel frame with interior columns.<br>3) South Section – 1 ½" steel deck on 16" open web steel joists supported on load-bearing masonry walls and structural steel frame.<br>B. East half (Addition) – Wheeling F-20 steel roof deck over open web steel joists supported by structural steel frame of wide |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| | | | | flange beams and columns. (Small northwest portion of addition immediately adjacent to original building is load-bearing masonry.) |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams, columns, walls, 0 hour roof ) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | **S1, S2** | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There are various locations of minor shrinkage cracking of concrete floor slabs, but they do not pose a structural concern and no remedial action is recommended at this time.

**S2.** There are various locations around the exterior of the building where the brick is in need of some tuck-pointing.

**Concrete Slab Shrinkage Cracking**

**Exterior Brick Needing Minor Tuck-pointing**

## PLUMBING SYSTEMS

### Summary

The East Side Storage Garage was constructed in approximately 1967, with remodeling in 1977 and 1983. The original piping is in poor/fair condition. It could be replaced as needed when issues arise. Glass fiber insulation is installed on most of the water piping. Insulation from original 1967 probably contains asbestos and will require abatement. A thermal mixing valve (TMV) and hot water recirculation pump (and piping) should be added to the system. These are code issues which need to be corrected. The service faucet(s) in the garage require hose end vacuum breakers installed. Gas cylinders should be stored in a one-hour rated room per code.

Building is served by interior 4" roof drains. Roof edge serves as the secondary roof drainage.

Plumbing fixtures are older, and could be replaced with water conserving, low flow units. Eyewashes installed on the faucets are not considered compliant. Building utilities in general appear adequate.

**LEGEND**

| | | | | | | | | | |
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| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | Cast iron |
| Storm/Clearwater Piping | F | | P3 | Cast iron –not insulated |
| Valves | F | | P4 | Gate & ball |
| Domestic Water Service | C | | P5 | 2" main with bypass |
| Insulation | HP | $15,000 | P6 | Add insulation to water piping, storm |
| Code Issues | D | See below | P7 | TMV, pump, cylinder storage, eyewash |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | (2) Gas-fired, AO Smith |
| Drench Shower Station | NA | | | |
| Recirculation Pump(s) | D | $6,000 | P9 | Add pump (code issue) |
| Water Softener | NA | | | No water softener installed |
| Thermal Mixing Valve (TMV) | D | $10,000 | P10 | Add TMV (code issue) |
| Grease Interceptor | NA | | | No grease interceptor required. |
| Kitchen Equipment | NA | | | |
| Plumbing Fixtures | F | | P11 | |
| Oxygen Storage | D | See Code | P12 | Store cylinders in 1 hour rated room |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Backflow Prevention | D | $500 | P13 | Add hose end VB's |
| "Shop" Air Compressor | F | | P14 | |
| Laundry Equipment | NA | | | |
| Drain Tile Sump/Pump | NA | | | |
| Maintenance Garage | F | | P15 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage, Roof Drains | F | | P16 | Discharge to street |
| Lawn Irrigation | NA | | | |
| Utilities | F | | P17 | 2" water main, 4" sanitary, 10" storm |

**NOTES:**

**P1.** Water piping is mainly copper, soldered joints. Fair condition.

**P2.** Original sanitary is cast iron. Some newer PVC piping in the boiler room and garage. 4" vent(s) through the roof.

**P3.** Original storm piping is galvanized pipe. Vintage 1977 pipe is cast iron no-hub. Piping is not insulated.

**P4.** Older valves are gate, newer valves are ball.

**P5.** Building is served by a 2" water main. 2" water meter with 3-valved by-pass in the boiler room.

**P6.** Majority of the water piping is insulated. Storm piping is not insulated. Insulation should be added for energy savings and to control noise issues in office areas. Urinal water piping is exposed - not insulated. Fiberglass insulation on the original piping is from 1967 and probably contains asbestos. Abatement would need to be done by the owner.

**P7.** Code issues: water temperature is set above 110° Fahrenheit. No thermostatic mixing valve (TMV) at the heaters. Add TMV's per code. No recirculating pump at heaters. Add recirculating pump. Hot water piping length exceeds 100'-0" per code. Gas cylinders are stored in the open, should be stored in a 1 hour rated room. Eyewashes on the faucet and the wall unit do not dispense tempered water–install TMV's as required by code. Service faucets in the garage need hose end vacuum breakers installed. Stainless steel sink in garage has condensate piping draining into it –not allowed per code.

**P8.** Water heaters are gas fired, direct vented to chimney, AO Smith Masterfit. Model BTR 197 100, 100 gallon, 199,000 BTU. Hot/cold water connection at the heater is 1". Piping is not insulated.

**P9.** Install hot water recirculation pump at heaters. Length of hot water piping exceeds 100'-0" per code.

**P10.** Add TMV's to water heaters. Set hot water temperature to 110° Fahrenheit. Code issue.

**P11.** Plumbing fixtures: No ADA handicap fixtures in the building. Water closets are floor mounted, flush valve handle. Lavatories are vitreous, wall-hung with gooseneck faucet, wrist blade control. Urinals are floor mounted, with flush valve. Cold water piping is exposed. Locker room has built-up showers and a single wall mounted electric water cooler. Stainless steel sink in the garage has non-compliant eyewash installed. Sink also has condensate piping discharging to it, which are not allowed per code. Numerous ¾" service faucets throughout require a hose end vacuum breaker to be installed. 1 ½" hose connections have a compliant elevated atmospheric vacuum breaker. 1 ½" hose connection on the exterior for the street sweeper fills.

**P12.** Gas cylinders are stored throughout the building, chained to wall. Cylinders should be stored in a 1 hour rated room. See code report also.

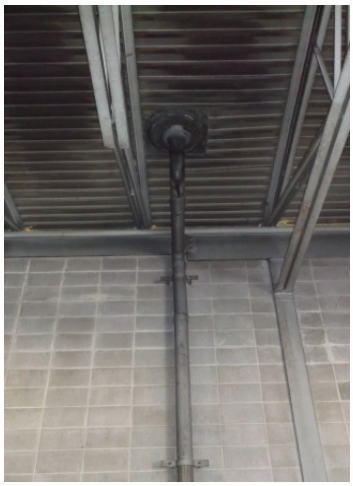
**P13.** There is a Watts 009 RPZ backflow in the boiler room for the HVAC boiler. 1 ½" hose connection in the garage has an elevated atmospheric vacuum breaker installed. These are compliant. Faucets with hose connection end need to have a threaded hose end vacuum breaker installed.

**P14.** There are (2) "shop" air compressors. One is a Curtis Challenge model E-71, 7hp; the other a Cochrane Compressor, model 325, 5 hp. Both units have a horizontal storage tank. Units serve garage air outlets and the HVAC pneumatics.

**P15.** Garage: trench drains which discharge to a garage catch basin.

**P16.** Building is served by numerous interior roof drain(s). Storm piping is not insulated. "Secondary" roof drainage is served by roof edge.

**P17.** Building is served from a 2" water main. Sanitary sewer is 4". Storm sewer is 10". These mains route to Mills Street. Original mains also route to Mills Street–verify. Parking lot is pitched to interior catch basin(s), which route to a swale south of the property. Utilities appear adequate for the building.



**Storm Piping**

**Water Meter with Bypass**

**Cylinder Storage**

**Water Heater**

**Water Closet**

**Lavatory with Eyewash**

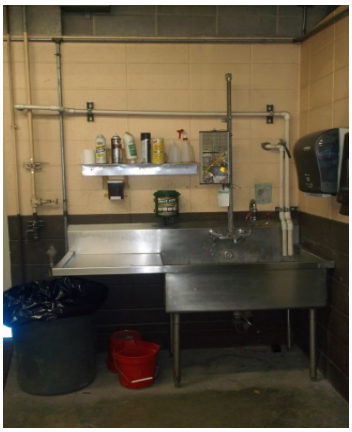
**Wash Fountain**

**Urinals**

**Electric Water Cooler**

**Hose Connection**

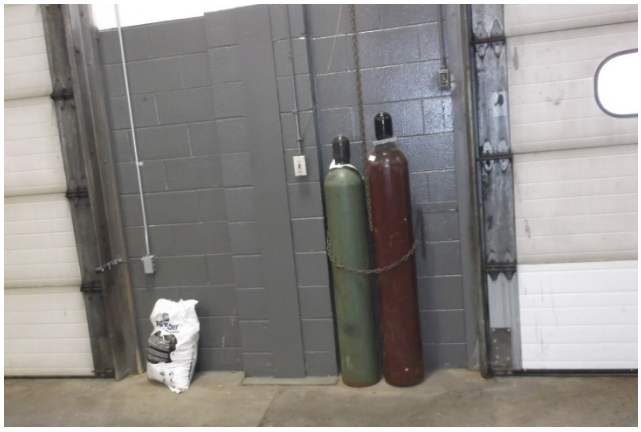
Hose Connection – Street Sweeper



Sink

Eyewash

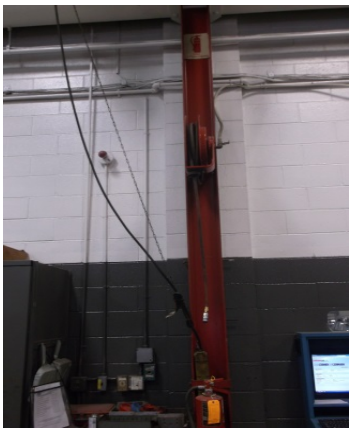
Hose Connection



Oxygen Tank Storage

RPZ Backflow Preventer

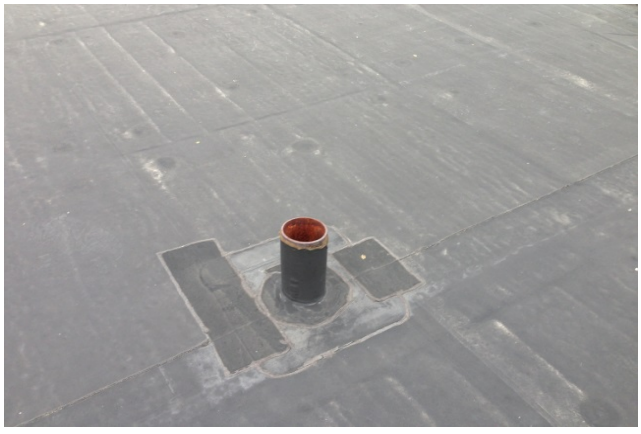
**“Shop” Air Compressor**



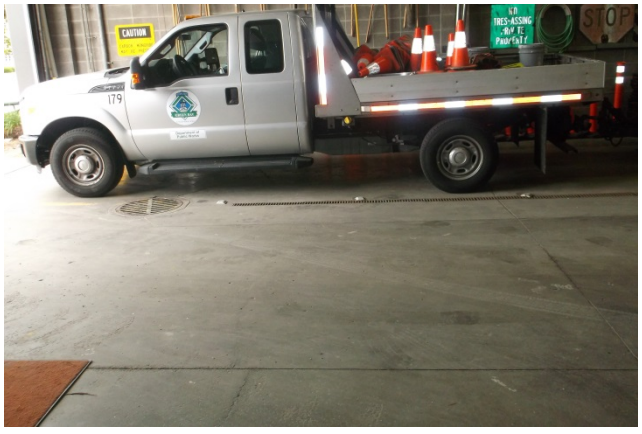
**Air Hose Reel**

**Roof Drain**

**Roof Drain**



**Sanitary Vent**




**Trench Drain, Garage Catch Basin**

**Parking Lot Catch Basin**

# HVAC SYSTEMS

## Summary

The repair garage was constructed in 1967. The make-up air units appear to be original to that construction project. The original boiler system is abandoned. A major storage garage addition and office/locker room remodeling project was constructed in 1977. The majority of the equipment in these areas is original. Multiple minor projects occurring between 1999 and 2001included the installation of air conditioning systems in the offices and locker rooms. Power roof ventilator exhaust fans serve the building's exhaust requirements. The fans vary in size, condition, and age as the units have been upgraded and replaced on an as needed basis over the last 40 years.

The locker room and office area are served by unit ventilators with hot water heat. The unit ventilators are capable of supplying fresh outside air to the spaces.

Between 1999 and 2001 multiple blower coils with split-system condensing units were added to the locker rooms and office area. The unit ventilators were left in place to continue to supply the outside air. The blower coils serve air conditioning loads only.

The 1977 addition installed a hot water boiler system consisting of two 1,080,000 BTU boilers. The boilers were originally dual fuel. The oil tanks have since been removed (per maintenance staff) and the oil piping and components within the boiler room are abandoned. The boilers now operate only on natural gas. Maintenance staff has indicated that the boiler combustion air dampers have failed and temporary repairs are planned.

The locker room exhaust requirements are served by power roof ventilators. The original construction drawings indicate the fans are sized to provide exhaust in excess of the minimum code requirements.

The repair garage and storage garage are served by make-up air units equipped with hot water heating coils. The equipment appears to be original to the building's 1967 and 1977 construction projects. These systems are in general, well past their expected useful life. The maintenance staff has indicated that some of the air unit components have failed and repairs are needed to maintain space temperature prior to the 2015/2016 heating season. The garage exhaust requirements are served by multiple power roof ventilators. These fan systems vary in size, age, and condition.

The building's control system is antiquated DOS based controls which operate pneumatic actuators on the make-up air units and heating units. Staff has indicated the pneumatic air lines leak badly and the system components are beginning to fail. The air conditioning units installed in the locker and office areas are low voltage and in good condition.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Office/Locker Rooms** | | | **H1** | |
| Unit Ventilators | **CP** | $150,000 | **H1** | Original to 1977 construction. Units deliver fresh air to spaces. |
| Blower Coils | **C** | | | Multiple Trane units between 1.5 and 3 ton. Installed 1999-2001. |
| Condensers | **C** | | | Trane 1.5-3 ton units. Installed 1999-2001 |
| Filters | **C** | | | 30% filters |
| Controls | **C** | | | Low voltage on the blower coils<br>Pneumatic on the unit ventilators |
| Ductwork | **C** | | | |
| Insulation | **HP** | $3,000 | **H1** | Insulation on outdoor refrigerant piping has failed and fallen off. |
| **Exhaust Fans** | | | **H2** | |
| Lockers, Lunch Room | **C** | | | Multiple power roof ventilators of varying sizes and ages. Ongoing maintenance has kept these devices in operating condition. |
| Ductwork | **CP** | $20,000 | **H2** | Mostly original ductwork. Dirty and leaks. Duct cleaning, sealing and balancing required. |
| **Boiler System** | | | | Installed 1977 |
| Boilers | **CP** | $180,000 | **H3** | (2) Kewaunee 1,080MBH, installed 1977 |
| Pumps | **CP** | $10,000 | **H3** | (2) 125GPM, 3 HP |
| Piping | **C** | | | Original to the buildings construction. |
| Pipe Insulation | **HP** | $4,000 | **H4** | Most of the piping is insulated. A few spots are bare or have damaged insulation. |
| Room Terminal Units | **CP** | $20,000 | **H5** | Pneumatic system has leaks. Replace with low voltage DDC during major system upgrades. |
| **Mechanical Room Ventilation** | **D** | $8,000 | **H6** | Boiler room combustion air has failed and is not ducted to meet code. |
| **Controls** | | | | |
| Air Compressor | **C** | | **H7** | 7.5 HP and 5 HP. One unit for pneumatic control, one unit for shop air. |
| Building Management | **CP** | $100,000 | **H7** | DOS based. Minimal operator interface capability. Upgrade required prior to or with equipment replacement projects. |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Garage Ventilation** | | | **H8** | |
| Make-up Air Unit | **CP** | $600,000 | **H8** | 1967: 5,000 CFM and 3,000 CFM modular air units<br>1977: (2) 10,000 CFM modular air units |
| Exhaust | **CP** | $100,000 | **H8** | Power roof ventilators of various sizes and ages. |
| Repair Garage Vehicle Exhaust | **C** | | | Dedicated capture fan connected to vehicles via hoses. |
| Control | **CP** | $50,000 | **H8** | Timer operated. Controls are antiquated and components are beginning to fail. |
| Sign Room Ventilation | **CP** | $150,000 | **H8** | Unit controls have failed. 8,000 CFM modular air unit |

**NOTES:**

**H1.** Unit ventilators with hot water coils originally provided fresh air and ventilation to the locker room and office areas. From 1999 to 2001 blower coils with split system condensing units were installed in each space as an inexpensive method to provide comfort cooling. Both systems must operate along with the exhaust fans during the summer months and the unit ventilators and exhaust fans operate in the winter months. As the fans operate to exhaust the rooms, the unit ventilators operate and introduce unconditioned air (heated only) to the space. To air condition the room, the blower coils must operate. Insulation on the exterior refrigeration piping connected to the roof top condensing units is failing which will reduce the system efficiency.

The unit ventilators have, in general, exceeded their expected useful life of 25 years while the blower coils have approximately 5-10 years of expected useful life left. The pneumatic controls on the unit ventilator system have started to fail. A project to replace the unit ventilators, blower coils, and exhaust fan systems with packaged roof top air handling units equipped with hot water coils and heat recovery is recommended.

**H2.** The locker rooms, lunch room and offices spaces are served by power roof ventilators. Make-up air is provided by the unit ventilators as indicated in item 1 above. The exhaust fans have the ability to properly ventilate the spaces. However, the spaces are dirty and the ductwork has started to collect dust and lint. In addition the majority of the ductwork is 40 plus years old and leaks. A project to clean the ductwork, tape and seal, and air balance is recommended.

**H3.** The two gas fired boilers are approximately 40 years old. These units are at their expected useful life. Their efficiency is 5-10 percent below what new units can easily achieve. There is little to no monitoring capability on these old units. The combustion ventilation is currently code deficient. A project to replace the boilers and pumps with high efficiency condensing boilers and pumps equipped with variable frequency drives is recommended.

**H4.** The majority of pipe insulation is intact. There are a few areas where the pipe insulation has started to come loose. This is mainly around equipment where maintenance takes place. Repair of the insulation during equipment replacement is recommended.

**H5.** The room terminal units appear to be in good condition. However they are served by pneumatic thermostats and control valves. The pneumatic system is beginning to fail, the airlines leak and control valves are beginning to stick. The replacement of the pneumatic devices with low voltage DDC controls is recommended.

**H6.** The boiler room ventilation dampers have failed. The facility is currently providing a patch repair to keep the system operational. The ventilation damper and ducting does not meet current code. It is recommended to upgrade the dampers and combustion air louver during a boiler replacement project.

**H7.** The building management system is a DOS based system that controls pneumatic operators. The air compressor is in good shape. However the pneumatic lines and actuators are failing. The DOS based system is antiquated technology that limits the ability of the user to interface and monitor the systems. New

equipment will require a new building management system. It is recommended to install a new building management system with the boiler upgrade project or other major equipment replacement project. The pneumatic systems are recommended to be phased out and replaced with low voltage DDC.

**H8.** The repair and storage garage exhaust and make-up air systems are original to the 1967 and 1977 construction projects. The units and fans are sized appropriately, but have exceeded their expected useful life. Staff has indicated that some of the unit components have started to fail and the units are requiring increased maintenance. In addition the timer operators which allow the ventilators to operate are beginning to fail and have required repair to keep them operational. The control of the unit in the sign-shop has failed and the unit must now be cycled on/off to maintain the space temperature. During the off period, the room's ventilation is shut-off.

An enclosed repair and storage garage has specific exhaust code requirements and the garage is required to have a negative pressure in relation to the other occupied spaces. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. A garage ventilation upgrade project to install new make-up air fans, radiant heaters, exhaust fans and control system is necessary to improve repair and storage garage ventilation and improve occupant safety.

**Garage Make-up Air Unit**

**Garage Make-up Air Unit**

**Repair Garage Make-up Air Unit**

**Repair Garage Make-up Air Unit**

**Blower Coil (Typical)**

**Boiler**

**Abandoned Boilers**

**Hot Water Pumps**

**Hot Water Pipes (Typical)**

**Boiler Room Combustion Air**

**Typical Exhaust Grille**

**Unit Ventilator (This one replaced)**

**Fin Tube Radiation (Typical)**

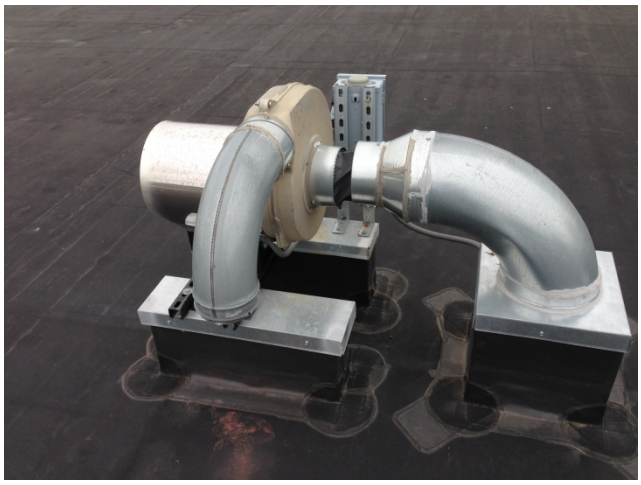
**Garage Heater**

**Garage Exhaust**

**Garage Relief**

**Garage Exhaust**

**Relief Hoods**



**Vehicle Exhaust Fan**

**Vehicle Exhaust Hoses**

**Exhaust Fan (Typical)**

**Exhaust Fan (Typical)**

**Condensing Unit**

**Poor Insulation on Refrigerant Pipes**

**Pneumatic and Electric Thermostats**

**Garage Control Panel**

**Air Compressor (Typical)**

**DDC control Panel**

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 400 Amp, 120/208 Volt, three phase electrical service. The panels are in good condition, and have capacity for the future.

The outlets within the garage and exterior outlets are not GFCI protected. Exterior outlets do not have weatherproof while-in-use covers. Lighting fixtures are in good to fair condition and utilize T8 lamps and ballasts. Some fixtures have broken or missing lenses and should be repaired or replaced. The facility should install occupancy sensors in offices, toilet rooms, and storage rooms. HID building mounted fixtures are in fair condition; consideration should be given to replacing the HID fixtures with more efficient and lower maintenance LED fixtures in the future.

The server equipment is in good condition. The facility is pulling Cat 5 data and voice cabling.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | N/A | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Electrical Service** | | | | |
| Utility Service Entrance | C | | | 400 Amp overhead electrical utility service enters the building in the boiler room. |
| **Normal Power Distribution Equipment** | | | | |
| Main Distribution Panel | C | | | 400 Amp MCB Westinghouse panel. |
| Branch Panels | C | | | Westinghouse panels, in good to fair condition with some spare capacity. |
| **Power** | | | | |
| Receptacles | D | $5,000 | E1 | Garage exterior outlets and outlets in locker room need to be GFCI. |
| Lighting | | | | |
| Garage | C | | | Industrial fixtures with T-8 lamps in good condition. |
| Office Spaces, Conference Rooms, and Corridors | C | | E2 | Recessed and surface mounted acrylic lens troffers and surface mounted strips with T-8 lamps in good condition. |
| Toilet Rooms | C | | | Recessed troffers and surface mounted wraps, in good condition. |
| Mechanical Spaces, Storage Rooms, Utility Areas | C | | | Industrial strips and surface mounted wraps with T-8 lamps, in good condition. |
| Exterior | F | $5,000 | E3 | HID wall packs in fair condition. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Lighting Controls** | | | | |
| Offices | **HP** | $1,500 | E4 | Add occupancy sensors |
| Toilet Rooms/ Small Storage Rooms | **HP** | $1,000 | E4 | Add occupancy sensors |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Corridors | **C** | | | Battery emergency fixtures. |
| Exit Signs | **C** | | | LED type in good condition, some with integral emergency lights. |
| **Fire Alarm** | | | | |
| Smoke Detectors | **C** | | | Stand-alone smoke detectors installed throughout the building. |
| **Telecommunications** | | | | |
| Data/Voice | **C** | | | Data server equipment in good condition with Cat 5 cabling. |

**NOTES:**

**E1.** Some of the outlets were GFCI, the remaining outlets in the garage area should be replaced with GFCI type. Exterior outlets should be replaced with GFCI type and provided with weatherproof while-in-use covers for safety.

**E2.** Replace or repair fixtures with broken or missing lenses.

**E3.** Consider replacing all HID fixtures with more efficient LED in the future.

**E4.** Occupancy sensors should be installed in the offices, toilet rooms, and storage rooms to provide additional energy savings. If areas are renovated, controls will be required to be updated to meet current energy code.

Utility Service Entrance

Main Distribution Panel

Branch Panel

Branch Panel

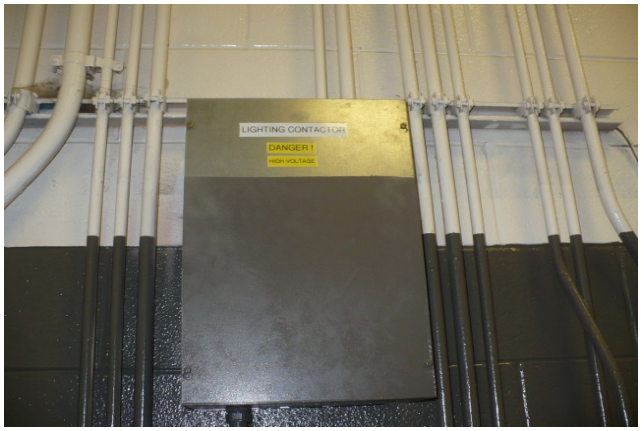
Telecom Equipment

Telecom Equipment

Telephone Service Entrance

Electrical Service Meter

Garage Outlet




Lighting Contactor Box

Exterior Receptacle

Exterior HID Wall Pack

**Exit Sign**

**Garage Lighting**

**Corridor Lighting**

**Office Lighting**

**Office Lighting**

**Smoke Detector**

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## EAST SIDE SALT STORAGE SHED

**August, 2015**

## MUNICIPAL GARAGES

# SUMMARY

***Date of Visit: July 1, 2015***
***Address: 1820 Mills Street***

## Building Description

The salt storage building was built in 1991. It is constructed of heavy, vertical wooden posts with rough-sawn lumber boards spanning horizontally between posts. Its construction year was not able to be determined. Boards are at the interior of the posts at both sides and back, but at the exterior of the posts on the front, so that the sliding barn-style doors can pass by a relatively flat surface. Standard wood trusses span the building, with open ventilation at the wall/truss juncture. Plywood sheets at the gable ends of the trusses. The building is uninsulated, and has no windows.

## Code/Accessibility

Two legal means of egress are required for most occupied buildings. This building is a storage shed, intended only for storage of road salt. The door to the shed was difficult for employees to unlock and operate from the outside. Consideration should be given to providing an egress door somewhere near the front of the building, or at a minimum, door hardware on the existing doors that could be operated from the inside.

As a typically unoccupied building, accessibility would not be a factor in the functionality of this building.

## Structural System

The structure consists of wood roof trusses over walls of creosote treated wood posts and planking, supported on precast concrete pad footings.

## Plumbing Systems

There are no plumbing systems to report. Building roof discharges to grade. Parking lot drainage is directed to interior catch basins on-site.

## Electrical Systems

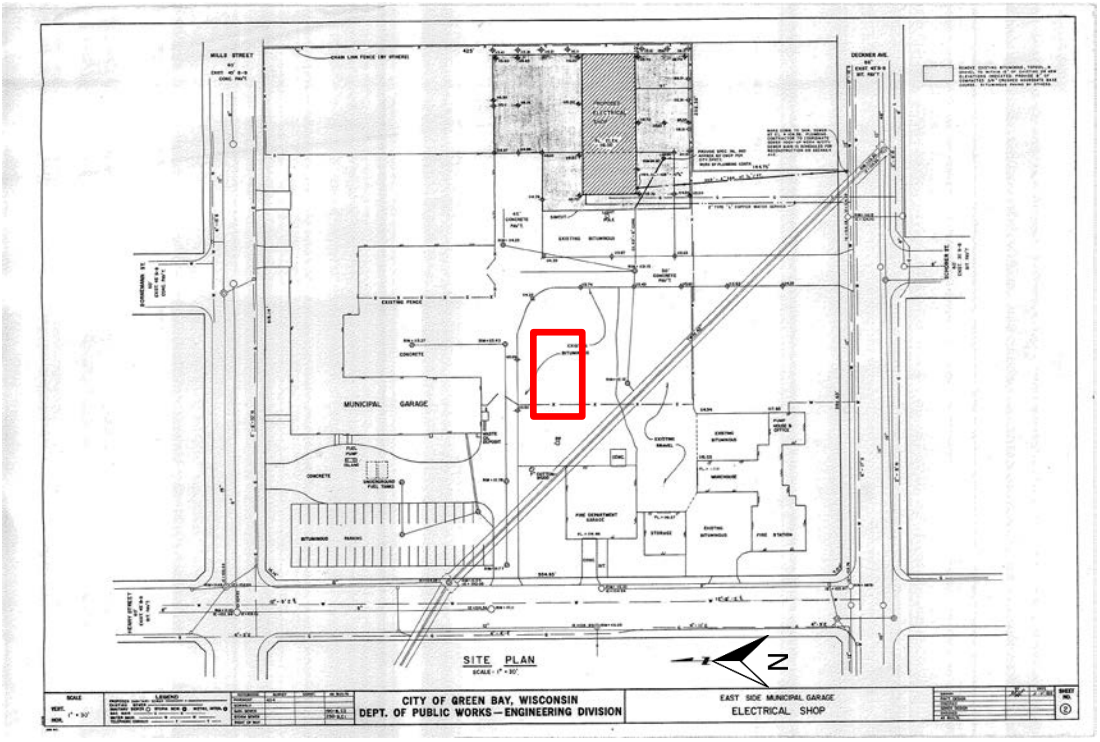
The salt shed contains some HID lamped industrial fixtures that are in fair condition. In the future it would be advantageous to replace these with LED fixtures that will operate better in the cold weather conditions of the un-heated shed building.

## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| Architectural and Code/ADA | | | | NA |
| Structural | | | | NA |
| Fire Protection | | | | NA |
| Plumbing | | | | NA |
| Electrical | | | | NA |




**Site Plan**

(Approximate location on site shown)

**Aerial View of Site**

# ARCHITECTURAL

## Building Description

The salt storage building is constructed of heavy, vertical wooden posts with rough-sawn lumber boards spanning horizontally between posts. Boards are at the interior of the posts at both sides and back, but at the exterior of the posts on the front, so that the sliding barn-style doors can pass by a relatively flat surface. Standard wood trusses span the building, with open ventilation at the wall/truss juncture. Plywood sheets at the gable ends of the trusses.

## Building Envelope

**Exterior Walls**

Rough-sawn lumber structure and 5/4 x 12 siding. The building is uninsulated, and has no windows.

**Roof**

Asphalt shingle, fair condition.

## Interior Finishes

**Floors, Walls and Ceiling**

This is an unheated building, with no finishes. Floor is asphalt paving.

**Doors**

A pair of large, plywood and wood framed door panels slide along a metal rail for building access.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1991 | **Gross Area** | 2,200 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group U – Utility and Miscellaneous | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

**Egress and Safety**

Two legal means of egress are required for most occupied buildings. This building is a storage shed, intended only of storage of road salt. The door to the shed was difficult for employees to unlock and operate from the outside. In the very unlikely event that a person was trapped inside the building, they would not be able to operate the doors from the inside. Consideration should be given to providing an egress door somewhere near the front of the building, or at a minimum, door hardware on the existing doors that could be operated from the inside.

## Summary of Accessibility/ADA Compliance

As a typically unoccupied building, accessibility would not be a factor in the functionality of this building.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | F | | | |
| Exterior Facade Condition | C | | | |
| Exterior Door Condition | F | | A1 | Doors were very difficult to open. |
| **CODE ELEMENTS** | | | | |
| Egress and Safety | F | | A2 | |
| Doors | F | | | |

**NOTES:**

**A1.** Recommend regular maintenance to door track and review hardware options to make door operation easier.

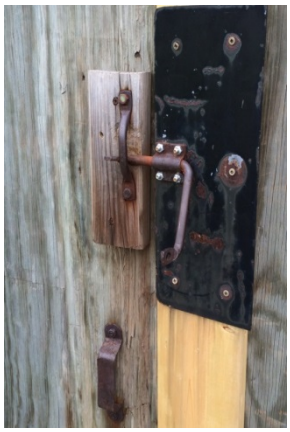
**A2.** Recommend providing a means of egress or door hardware that could be operated from the inside.

**South and East Elevations**

**North and West Elevations**

**Difficult Door Operation**

**Bi-part Sliding Doors**



**Door Hardware**

**Trusses and Open Eaves**

## STRUCTURAL SYSTEM

### Summary

The structure consists of wood roof trusses over walls of creosote treated wood posts and planking, supported on precast concrete pad footings.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1991 |
| **Structure type** | | | | |
| Foundations | **C** | | | Precast concrete spread footings at each wood post. |
| 1st Floor | **C** | | | Asphalt slab. |
| Roof | **C** | | | a. 5/8" plywood over 2x wood trusses 2'-0" on center, supported by exterior walls of 2x12 and 3x12 creosote treated wood planking inside of 6x10 creosote treated wood posts at 4'-0" on center. Posts are laterally tied together with ¾" diameter aircraft cable ties near the roof and below ground level. |
| **Occupancy Category** | **NA** | | | Occupancy Category I |
| **Construction Type** | **NA** | | | Construction Type **V-B** (0 hour walls, 0 hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | 4'-0" on center. |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**Wood Truss Bearing**

**Lateral Cable Ties**

## PLUMBING SYSTEMS

### Summary

Salt Storage building is a wood structure. There are no plumbing systems to report. Building roof discharges to grade. Parking lot drainage is directed to interior catch basins on-site.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | |
| Sanitary Piping/Main | NA | | | |
| Storm/Clearwater Drainage | F | | | Discharge to grade. |
| Code Issues | NA | | | |

**NOTES:**

**Salt Shed – Exterior**

## ELECTRICAL SYSTEMS

### Summary

The salt shed contains some HID lamped industrial fixtures that are in fair condition. In the future it would be advantageous to replace these with LED fixtures that will operate better in the cold weather conditions of the un-heated shed building.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Lighting** | | | | |
| Salt Shed | F | | E1 | HID Industrial fixtures |

**NOTES:**

**E1.** Consideration should be given to replacing HID fixtures with more energy efficient LED type in the future.

**Lighting**

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## WEST SIDE GARAGE – BUILDING G

**August, 2015**

## MUNICIPAL GARAGES

## SUMMARY

***Date of Visit: July 30, 2015***
***Address: 519 S. Oneida Street***

### Building Description

The exterior wall is comprised of an uninsulated, corrugated sheet metal on a steel frame. Exterior panels are dented, but this appeared to be an aesthetic concern only. Bi-parting sliding doors provide primary access. Emergency egress door to the east is a standard hollow metal door and frame. Arm on closer appears to have broken off the frame connection.

Minimally pitched, corrugated metal roof panel on steel frame, appeared to be in good condition. Excessive cracking was noted at concrete slab floor. Construction date of this building unknown.

### Code/Accessibility

As a typically unoccupied building, accessibility would not be a factor in the functionality of this building. The exit door has knob hardware. If door or hardware is replaced, utilize code compliant lever hardware.

### Structural System

The structure is a pre-engineered metal building consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations.

### Plumbing Systems

This is a metal pole building.
No plumbing systems to report. Building roof pitches to gutters, discharge to several downspouts.

### HVAC Systems

The pre-engineered storage building is unheated and unventilated. The building is used to store various equipment including motorized vehicles. An enclosed vehicle storage building larger than 850 Sq. Ft. or used for more than 5 vehicles is required to have mechanical exhaust ventilation.

### Electrical Systems

The building is served by a 120/240 Volt, single phase electrical service. Distribution occurs from a Square D load center panel with a 100-amp main circuit breaker.

Receptacles are not GFCI protected.

Lighting fixtures are HID and in good to fair condition. There is no emergency egress lighting other than exit signs. Exit signs have battery back-up.

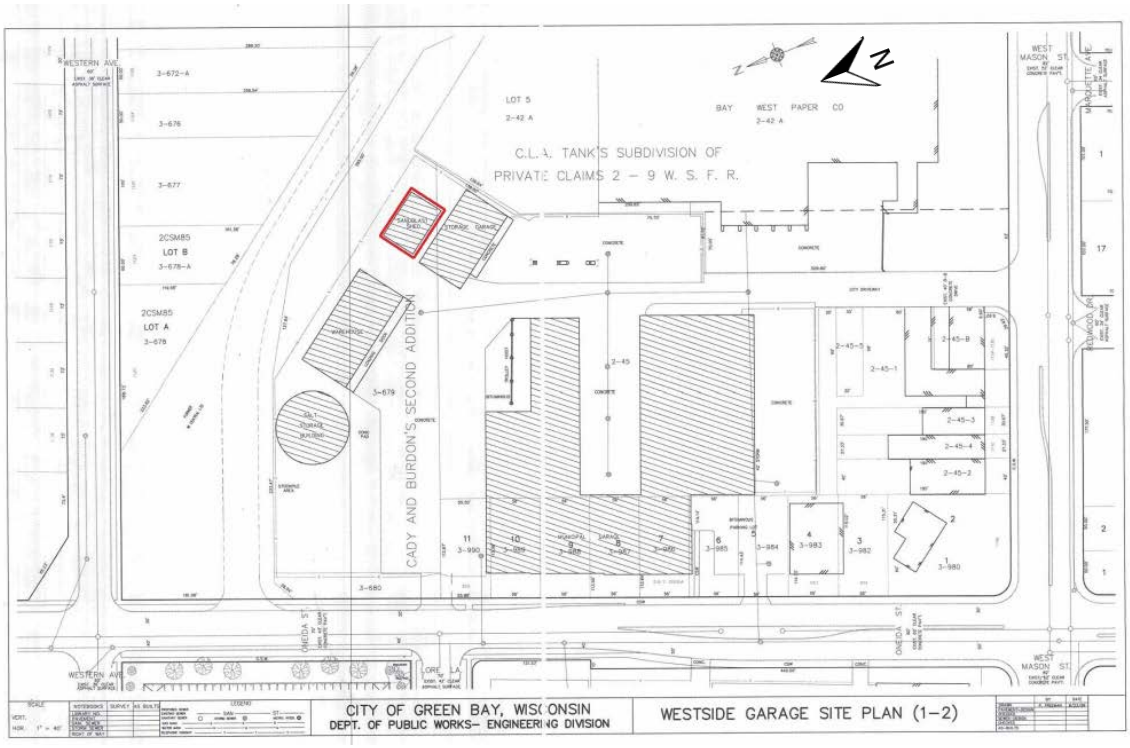
There is no fire alarm system.

### Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural and Code/ADA** | | | | **NA** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | | **NA** |
| **HVAC Systems** | Air intake/Make-up | | | **$2,000** |
| | Exhaust Fan | | | **$15,000** |
| | Control | | | **$10,000** |
| **HVAC Subtotal** | | | | **$27,000** |
| **Electrical** | Receptacles | | | **$500** |
| **Building Total** | | | | **$27,500** |




**Site Plan**

**Aerial View of Site**

# ARCHITECTURAL

## Building Envelope

### Exterior Walls

The exterior wall is comprised of an uninsulated, corrugated sheet metal on a steel frame. Dented, but appeared to be an aesthetic concern only. Construction date of this building is unknown.

### Doors

Bi-parting sliding doors provide primary access and appeared in good working condition. Emergency egress door to the east is a standard hollow metal door and frame. Arm on closer appears to have broken off the frame connection.

### Roof

Minimally pitched, corrugated metal roof panel on steel frame, appeared to be in good condition. See plumbing report for gutters and downspouts.

## Interior Finishes

### Floors

Concrete slab; excessive cracking observed.

### Walls

Building has no interior partitions. See exterior walls for commentary.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Unknown | **Gross Area** | 2,200 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group U – Utility and Miscellaneous | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

### Egress and Safety

Two legal means of egress are required for most occupied buildings. This building is a storage shed, intended only for storage of road salt. The door to the shed was difficult for employees to unlock and operate from the outside. In the very unlikely event that a person was trapped inside the building, they would not be able to operate the doors from the inside. Consideration should be given to providing an egress door somewhere near the front of the building, or at a minimum, door hardware on the existing doors that could be operated from the inside.

## Summary of Accessibility/ADA Compliance

As a typically unoccupied building, accessibility would not be a factor in the functionality of this building. The exit door has knob hardware. If door or hardware is replaced, utilize code compliant lever hardware.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | F | | | |
| Exterior Facade Condition | F | | | |
| Exterior Door Condition | F | | | |
| **CODE ELEMENTS** | | | | |
| Egress and Safety | C | | | |
| Doors | F | | | Use lever hardware when replacing exiting hardware or door. |

**Front (West) Elevation**

**North and East Elevations**

**Interior**

**Exit door**

## STRUCTURAL SYSTEM

### Summary

The structure is a pre-engineered metal building consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | |
| **Structure type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. |
| 1st Floor | **C** | | **S1.** | Concrete slab on grade |
| Roof | **C** | | | Standing seam steel roof deck over z-purlins supported by structural steel rigid frames. |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams and columns, 0 hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** Minor shrinkage cracking of slab on grade. No remedial action recommended at this time.

## PLUMBING SYSTEMS

### Summary

This is a metal pole building.
No plumbing systems to report. Building roof pitches to gutters, discharge to several downspouts.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | |
| Sanitary Piping/Main | NA | | | |
| Storm/Clearwater Drainage | F | | P1 | Gutter, downspouts |
| Code Issues | NA | | | |

**NOTES:**

**P1.** Metal building with gable roof. Roof downspout to grade. Area around the building is concrete, pitches to interior catch basins.

**Building Roof Edge with Gutter**

## HVAC SYSTEMS

### Summary

The pre-engineered storage building is unheated and unventilated. The building is used to store various equipment including motorized vehicles.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **D** | Deficient – Immediate Replacement | **CP** | Critical Priority – Replace in 1-2 years | **HP** | High Priority – Replace in 3-5 years | **F** | Fair – Replace in 6-10 years | **C** | Compliant/ Adequate | **N** | New | **NA** | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Air intake/Make-up | **D** | $2,000 | **H1** | |
| Exhaust Fan | **D** | $15,000 | **H1** | |
| Control | **D** | $10,000 | **H1** | |

**NOTES:**

**H1.** An enclosed vehicle storage building larger than 850 Sq. Ft. or used for more than 5 vehicles is required to have mechanical exhaust ventilation.

A storage building exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. A garage exhaust fan project to install mechanical exhaust ventilation is necessary to improve garage ventilation and occupant safety.

Installing a small fan to continuously ventilate the space at the minimum flow rate and interlock a larger fan to operate with the lights is recommended. Alternately a two speed fan to operate on low speed continuously and on high speed when the lights are on (indicating building occupancy) may be installed. An intake louver located on the opposite side of the building (from the fans) will provide make-up air.

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 120/240 Volt, single phase electrical service. Distribution occurs from a Square D load center panel with a 100-amp Main Circuit Breaker.

Receptacles are not GFCI protected.

Lighting fixtures HID and are in good to fair condition. There is no emergency egress lighting other than exit signs. Exit signs have battery back-up.

There is no fire alarm system.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Disconnect | C | | | |
| **Power** | | | | |
| Receptacles | D | $500 | | Receptacles installed in a garage need to be GFCI. |
| **Lighting** | | | | |
| Interior | F | $1,500 | E1 | Replace HID lighting fixtures with LED lighting fixtures. |

**NOTES:**

**E1.** Replacing HID fixtures with LED fixtures will reduce operating and maintenance costs.

**Electrical Service Panel**

**HID Lighting Fixture**

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## WEST SIDE GARAGE – BUILDING H

**August, 2015**

## MUNICIPAL GARAGES

# SUMMARY

***Date of Visit: July 30, 2015***
***Address: 519 S. Oneida Street***

## Building Description

The building is a masonry structure set approximately 4 feet above grade on a concrete base. A poured concrete deck on the southwest side provides a loading area for access to the overhead doors on one side of the building. Concrete steps with handrail and guard are at either end of the deck for access to the swing doors of the building. No vehicles are stored in the building.

Tuck-pointing and masonry repair needed through the building's entire exterior. Efflorescence and moisture drive especially noted at western most overhead sectional door on the southern side of the building. Concrete slab floor has excessive cracking.

Trim missing at spots around sectional overhead doors and sealants need maintenance. The doors do not appear to provide full closure at the bottom seal (daylight visible from the interior). The divided light, six-pane windows are showing their age. Most have missing panes of glass, trim and the perimeter sealant is all but gone. The cast stone sills are spalling and chipped. Construction date of this building is unknown.

## Code/Accessibility

Two legal means of egress are available from all portions of the building. Clear egress corridors are available. There are no interior shafts or stairs. The exit doors have lever hardware which looks to have been replaced recently. This complies with current code.

Handrail extensions do not comply with current code, nor do the openings at hand or guard rails. These would not be required to be brought into compliance unless work were to be done on the railings or stair.

As a typically unoccupied building, accessibility would not be a factor in the functionality of this building. It is not accessible.

## Structural System

The structure consists of steel roof deck over open web steel joists supported by an interior structural steel frame and exterior load-bearing masonry walls, all bearing on cast-in-place foundations.

## Plumbing Systems

This is a masonry building with metal joist roofing, EDPM roof.
No plumbing systems to report. Building roof pitches to gutter and downspouts.

## HVAC Systems

This building is unheated. A couple of roof ventilators are used in combination with a couple louvers to provide passive ventilation of the building. Based on the building type and the material stored within, there are no ventilation requirements.

## Electrical Systems

The building is served by a 120/240 Volt, single phase electrical service. Distribution occurs from an ITE load center panel. There is no main service disconnect.

Receptacles on the exterior are not GFCI protected. There are damaged receptacles and conduits on the exterior of the east wall.

Lighting fixtures utilize T8 fluorescent lamps and are in good to fair condition. There is no emergency egress lighting other than exit signs. Exit signs have battery back-up. There are HID wall pack lighting fixtures on the building's north façade. There is exposed wiring at some of these fixtures.

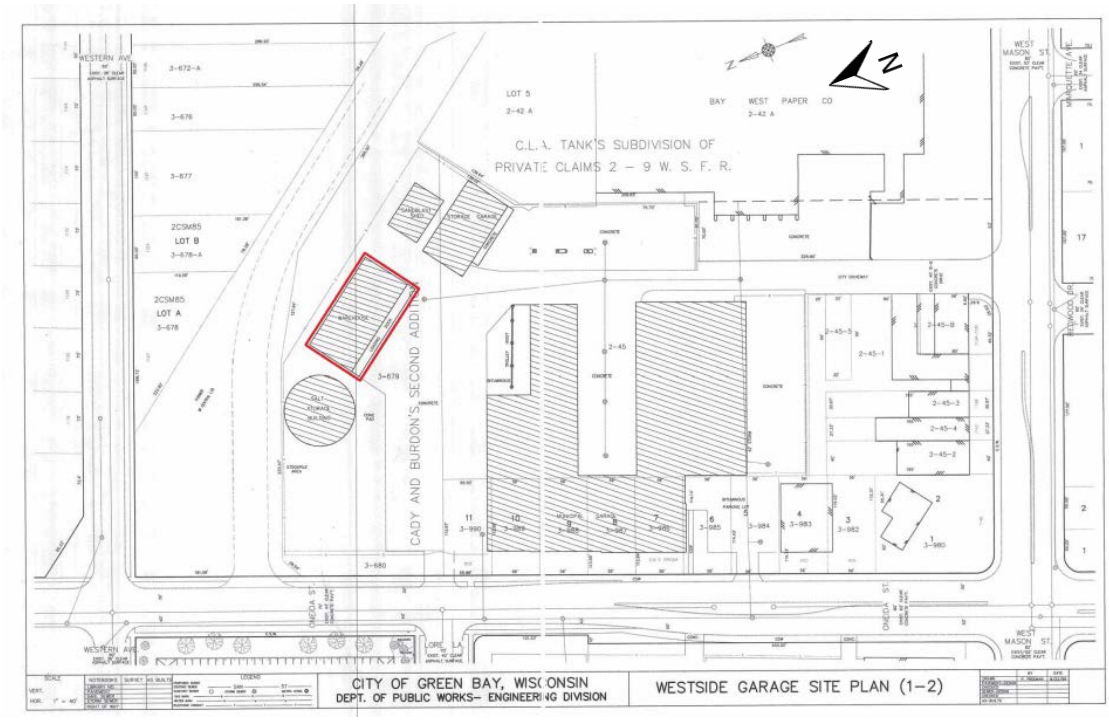
There is no fire alarm system.

## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| Architectural & Code/ADA | | Roof Condition | | $90,000 |
| | | Exterior Facade Condition | | $15,000 |
| | | Window Condition | | $10,000 |
| Architectural & Code Subtotal | | | | $115,000 |
| Structural | | 1st Floor | | $15,000 |
| Fire Protection | | | | NA |
| Plumbing | | | | NA |
| HVAC Systems | | | | NA |
| Electrical | Main Service Disconnect | | | $2,000 |
| | Receptacles | | | $1,000 |
| | Exterior | | | $1,500 |
| Electrical Subtotal | | | | $4,500 |
| Building Total | | | | $134,500 |




**Site Plan**

**Aerial View of Site**

# ARCHITECTURAL

## Building Description

The building is a masonry structure set approximately 4 feet above grade on a concrete base. A poured concrete deck on the southwest side provides a loading area for access to the overhead doors on one side of the building. Concrete steps with handrail and guard are at either end of the deck for access to the swing doors of the building.

The interior is comprised of a central steel beam on steel posts supporting metal trusses. There is no heat. No vehicles are stored in the building. Construction date of this building is unknown.

## Building Envelope

### Exterior Walls

The exterior wall is comprised of 12" masonry; 8" concrete block back up and 4" modular sized face brick.

Tuck-pointing and masonry repair needed through the building's entire exterior.
Effloresence and moisture drive especially noted at western most overhead sectional door on the southern side of the building.

See the structural portion of the report for the exposed foundation wall and raised loading dock. The concrete steps at the east end of the deck appear newer than those at the west. The steps on the west end have had minor concrete repairs done.

### Doors

Six, wooden-panel, overhead sectional doors on north side appear to be original to the building. It does not appear as though the city utilizes these doors for loading.

Six, four-panel, one-light, aluminum, uninsulated overhead sectional doors on the south side are relatively new as compared to the building and appear in good working condition. Trim missing at spots and sealants need maintenance. The doors do not appear to provide full closure at the bottom seal (daylight visible from the interior).

### Windows

The four windows on the structure appear to be original to the building. The divided light, six-pane windows are showing their age. Most have missing panes of glass, trim and the perimeter sealant is all but gone. The cast stone sills are spalling and chipped.

### Roof

The roof is a fully adhered EPDM membrane system with minimal vents and penetrations. The metal trim at the north and south faces appears to be wrapped-over the original coping stones; the gutters at the east and west sides are described in the plumbing portion of the report. Tenting and wrinkles prevalent throughout.

## Interior Finishes

### Floors

Concrete slab; excessive cracking observed.

### Walls

Building has no interior partitions. See exterior walls for commentary.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Unknown | **Gross Area** | 7,500 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group U – Utility and Miscellaneous | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

**Egress and Safety**

Two legal means of egress are available from all portions of the building. Clear egress corridors are available. There are no interior shafts or stairs. The exit doors have lever hardware which looks to have been replaced recently. This complies with current code.

**Handrails and Guardrails**

Hand and guard rails at the stairs to the exterior loading deck are assumed to have been compliant with the code under which they were built. Guardrail height of 42" complies with current code. Handrail extensions do not comply with current code, nor do the openings at hand or guard rails. These would not be required to be brought into compliance unless work were to be done on the railings or stair.

## Summary of Accessibility/ADA Compliance

As a typically unoccupied building, accessibility would not be a factor in the functionality of this building. It is not accessible.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | CP | 90,000 | | |
| Exterior Facade Condition | CP | 15,000 | | |
| Exterior Door Condition | F | | | |
| Window Condition | CP | 10,000 | | |
| | | | | |

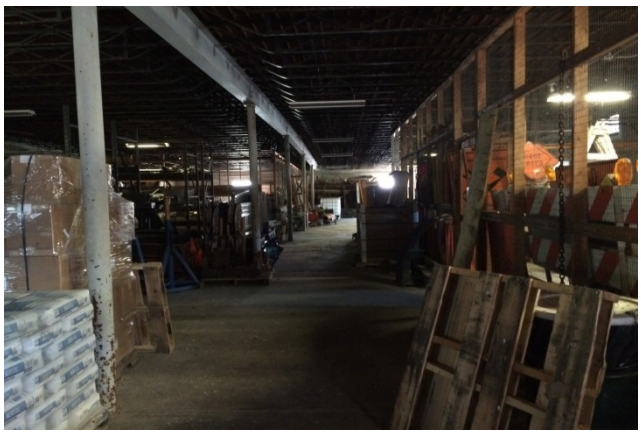
**Southeast Elevation**

**Roof and Gutter**

**Masonry Repair**

**Masonry Repair**

**Window**



**Interior**

**Lack of Closure Under Overhead Door**

**Cracking at Loading Dock**

**Hand and Guard Rails – East stair**

**Northeast Elevation**

## STRUCTURAL SYSTEM

### Summary

The structure consists of steel roof deck over open web steel joists supported by an interior structural steel frame and exterior load-bearing masonry walls, all bearing on cast-in-place foundations.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | Unknown |
| **Structure type** | | | | |
| Foundations | C | | | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. |
| 1st Floor | CP | $15,000 | **S1.** | Concrete slab on grade. Cast-in-place concrete loading dock slab, beams, and columns. |
| | | | | |
| Roof | C | | | 1 ½" steel deck on open web steel joists supported on exterior load-bearing masonry walls and interior structural steel frame of wide flange beams and pipe columns. |
| **Occupancy Category** | NA | | | Occupancy Category II |
| **Construction Type** | NA | | | Construction Type **II-B** (0 hour beams, columns, walls, 0 hour roof ) |
| **Vertical Expandability** | NA | | | None. |
| **Typical Column Spacing** | NA | | | |
| **Overall Structural Condition** | C | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There is significant cracking in the concrete columns at each end of the exterior loading dock, as well as some exposed reinforcing in the beams supporting the slab. Repair and restoration of these elements is recommended as this deterioration will continue over time.

**Concrete Column Cracking**

**Concrete Column Cracking**

## PLUMBING SYSTEMS

### Summary

This is a masonry building with metal joist roofing, EDPM roof.
No plumbing systems to report. Building roof pitches to gutter and downspouts.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | |
| Sanitary Piping/Main | NA | | | |
| Storm/Clearwater Drainage | F | | P1 | |
| Code Issues | NA | | | |

**NOTES:**

**P1.** Masonry building with pitched roof. Downspouts discharges to grade. Area around the building is concrete which pitches to interior catch basins.

**Building Roof**

**Building Roof Edge**

## HVAC SYSTEMS

### Summary

This building is unheated. A couple of roof ventilators are used in combination with a couple louvers to provide passive ventilation of the building. Based on the building type and the material stored within, there are no ventilation requirements.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Air intake/Make-up | C | | H1 | |
| Exhaust Fan | C | | H1 | |
| Control | C | | H1 | |

**NOTES:**

**H1.** There are no ventilation requirements for this building. However, should off gassing odors from the material stored become unacceptable, the roof vents could easily be replaced with powered roof ventilators to improve ventilation air flow.

**Air Intake**

**Roof Ventilator**

# ELECTRICAL SYSTEMS

## Summary

The building is served by a 120/240 Volt, single phase electrical service. Distribution occurs from an ITE load center panel. There is no main service disconnect.

Receptacles on the exterior are not GFCI protected. There are damaged receptacles and conduits on the exterior of the east wall.

Lighting fixtures utilize T8 fluorescent lamps and are in good to fair condition. There is no emergency egress lighting other than exit signs. Exit signs have battery back-up. There are HID wall pack lighting fixtures on the building's north façade. There is exposed wiring at some of these fixtures.

There is no fire alarm system.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Disconnect | D | $2,000 | | Replace existing panel with new having a main service disconnect. |
| **Power** | | | | |
| Receptacles | D | $1,000 | | Receptacles installed outdoors need to be GFCI; support conduit and receptacle. |
| **Lighting** | | | | |
| Interior | C | | | T-8 lamps; lighting in good condition. |
| Exterior | D | $1,500 | E1,E2 | Replace HID wall pack lighting fixtures with LED wall pack lighting fixtures; replace exposed wiring. |

**NOTES:**

**E1.** LED lighting fixtures will result in lower operating and maintenance costs.

**E2.** Replace exposed wiring with wiring protected in conduit suitable for the installed environment.

**Electrical Service Panel – No Main Disconnect**

**Exposed Wiring**

**Exposed Wiring**

**Unsupported Conduit and Receptacle**

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## WEST SIDE LORE LANE GARAGE

**August, 2015**

## MUNICIPAL GARAGES

# SUMMARY

***Date of Visit: July 30, 2015***
***Address: Lore Lane***

## Building Description

The construction year of the original portion of this garage is unknown. The north addition was constructed in 1997. The building is comprised of a steel structure with metal roof and wall panels placed on a poured concrete base wall. It provides storage for large city vehicles such as garbage and recycling trucks but is otherwise unoccupied.

The exterior wall is comprised of an uninsulated, corrugated sheet metal on a steel frame on a 4' high poured concrete base of wall. Cracks are evident along some of these walls. Two overhead doors provide vehicle access; three personnel doors provide entry/egress. Minimally pitched, corrugated metal roof panels on steel frame appear to be in good condition.

## Code/Accessibility

The exit doors have knob hardware. If door or hardware is replaced, utilize code compliant lever hardware. The building is minimally occupied. Doors are at grade. An equipment mezzanine appears to comply with code.

## Structural System

The structure is a "Steelox" pre-engineered metal building consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations.

## Plumbing Systems

The original piping is in fair condition. Minimal plumbing consists of hose bibs throughout the garage, cold water only.

Building has a metal pitched roof which discharges to gutters and downspouts.

## HVAC Systems

The building is served by two make-up air units and multiple exhaust fans all of which appear to be original to buildings construction. A couple of ceiling mounted destratification fans are manually operated to increase air movement.

The exhaust fans are operated by time clocks, operating for 2 hours in the morning when most vehicles are removed from the building and 2 hours in the afternoon when the vehicles are returned for nightly storage. The make-up air units heat the building and replace the air removed by the exhaust fans.

There did not appear to be a gas detection system installed to operate the exhaust fans.

## Electrical Systems

There are two electric service disconnect switches located on the south wall. One service disconnect is a fusible switch; the other is the 200-amp main circuit breaker in the south bay panel. The fusible switch feeds a second load center with a 200-amp main circuit breaker. This second load center is erroneously labeled as a "Service Disconnect". That label should be removed.

Interior lighting is accomplished with 6-lamp 4-foot T8 fluorescent industrial fixtures. Exit signs are the only emergency egress lighting; they have no battery back-up. Exterior lighting is HID.

Receptacles are not GFCI type. An approximately 20-foot long stretch of conduit along the east wall is unsupported.

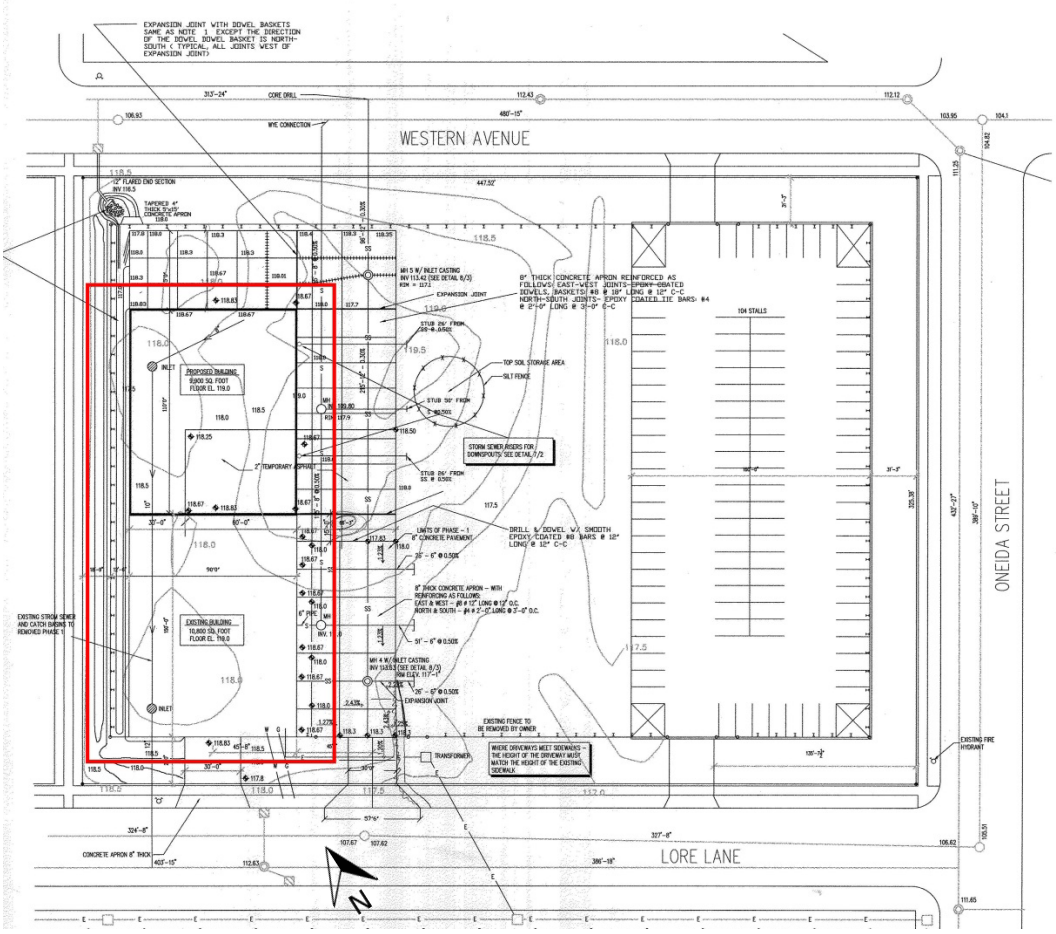
There is no fire alarm system.

## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

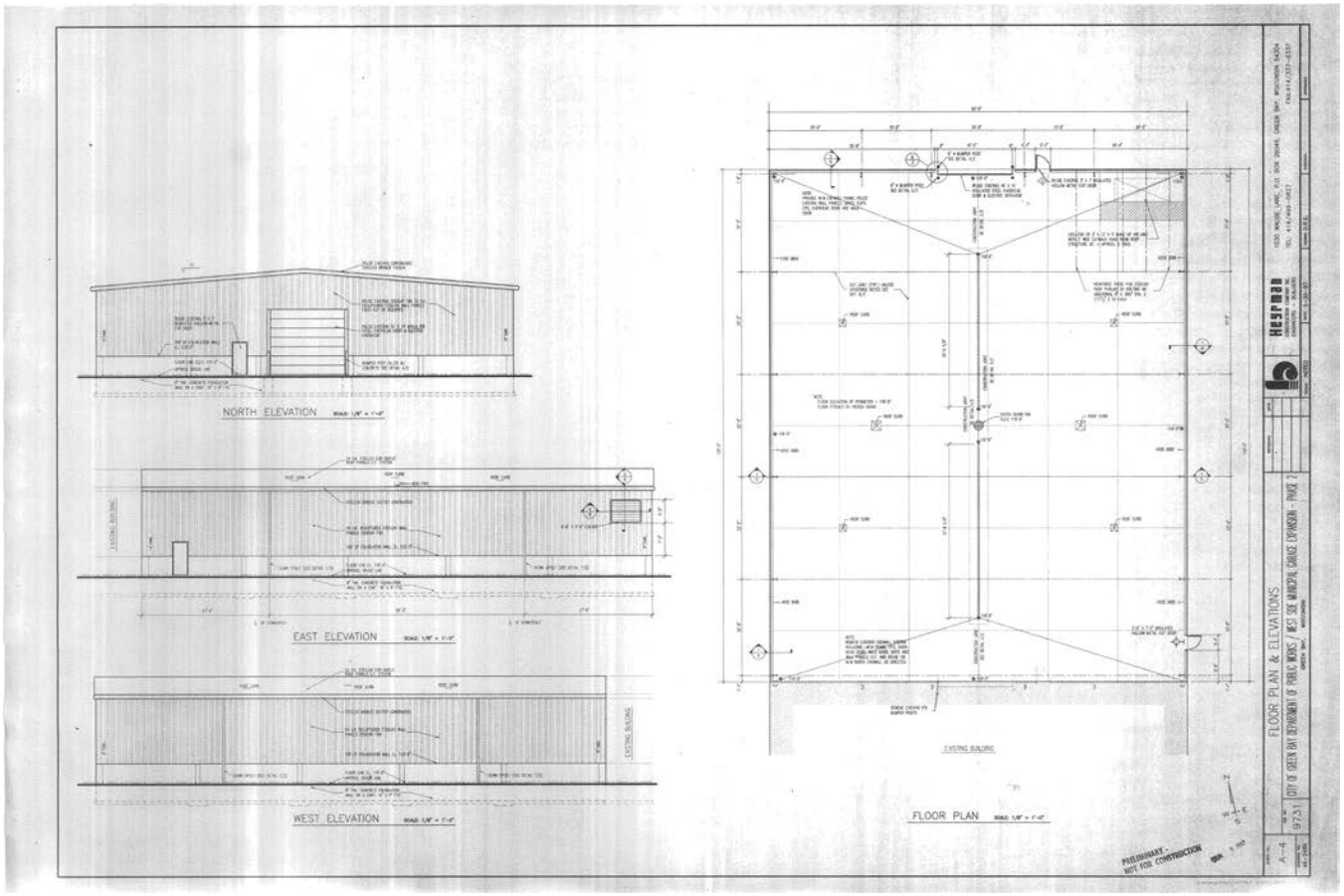
**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural & Code/ADA** | | | | **NA** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | Code Issues | | | **$100** |
| **HVAC Systems** | | | Make-up Air Unit | **$170,000** |
| | Control | | | **$15,000** |
| **HVAC Subtotal** | | | | **$185,000** |
| **Electrical** | | Branch Panels | | **$75** |
| | | Exit Signs | | **$1,200** |
| | Receptacles | | | **$1,000** |
| | | Unsupported Conduit | | **$300** |
| **Electrical Subtotal** | | | | **$2,575** |
| **Building Total** | | | | **$187,575** |




**Site Plan**

**Aerial View of Site**




**Plan of 1st phase of building**

# ARCHITECTURAL

## Building Description

**Exterior walls**

The building is comprised of a steel structure with metal roof and wall panels placed on a poured concrete base wall. It provides storage for large city vehicles such as garbage and recycling trucks but is otherwise unoccupied.

## Building Envelope

**Exterior Walls**

The exterior wall is comprised of an uninsulated, corrugated sheet metal on a steel frame on a 4' high poured concrete base of wall. Cracks are evident along some of these walls.

**Doors**

There are two 14' high (estimated) overhead doors at the north and south ends for drive-through access to the building. Personnel doors are insulated flush metal doors.

**Roof**

Minimally pitched, corrugated metal roof panel on steel frame appeared to be in good condition. See plumbing report for gutters and downspouts.

## Interior Finishes

**Floors**

Concrete slab in fair condition.

**Walls**

Building has no interior partitions. See exterior walls for commentary.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Original: Unknown<br>Addition: 1997 | **Gross Area** | 21,000 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group S-2 – Low Hazard Storage | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

**Egress and Safety**

The equipment mezzanine is located approximately 12 feet above floor level and is accessed only by an extension ladder. This appears to comply with current code (IBC Section 505.5). Guards for equipment platforms need to prevent the passage of a 21" sphere; the guards appear to comply.

There are three personnel doors; one each at the north, east and south facades.

## Summary of Accessibility/ADA Compliance

The exit doors have knob hardware. If door or hardware is replaced, utilize code compliant lever hardware. The building is minimally occupied. Doors are at grade.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | | | |
| Exterior Facade Condition | C | | | |
| Exterior Door Condition | F | | | |
| **CODE ELEMENTS** | | | | |
| Egress and Safety | C | | | |
| Doors | F | | | Use lever hardware when replacing exiting hardware or door. |

**South End of East Elevation**

**North and East Elevations**

**Door on East Elevation**

**Doors on North Elevation**

**South Elevation**

**Interior**

**Equipment Mezzanine**

**Cracking at Concrete Wall**

## STRUCTURAL SYSTEM

### Summary

The structure is a "Steelox" pre-engineered metal building consisting of structural steel rigid frames, z-purlins, and standing seam steel roof deck, supported by cast-in-place concrete foundations.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | Original south half – unknown<br>North addition - 1997 (Heyrman Construction - Job 9731) |
| **Structure type** | | | | |
| Foundations | **C** | | **S1** | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. Wall extends to 4' above grade. |
| 1st Floor | **C** | | | 7" concrete slab on grade with 6x6 #6/#6 welded wire mesh reinforcing. Slab pitches to drains. |
| Mezzanines | **C** | | | Suspended mechanical equipment platforms in northeast and southeast corners consist of steel plate floor over steel beams and angles, hanging from roof structure. |
| Roof | **C** | | | 24 gauge standing seam steel roof deck over z-purlins supported by structural steel rigid frames. |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams and columns, 0 hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** Minor shrinkage cracking of exposed foundation walls in several locations. However, locations typically coincide with tooled control joint locations on the exterior face of wall, and do not impair the structural performance of the building. No remedial action is recommended at this time.

**Cracking in Foundation Wall – Interior (Note S1)**

**Cracking in Foundation Wall – Exterior (Note S1)**

**Suspended Equipment Platform**

## PLUMBING SYSTEMS

### Summary

The vehicle storage garage is a metal building with masonry base structure constructed in approximately 1997. The original piping is in fair condition. Minimal plumbing consists of hose bibs throughout the garage, cold water only.

Building has a metal pitched roof which discharges to gutters and downspouts.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | PVC |
| Storm/Clearwater system | F | | P3 | Pitched Roof, gutter & downspouts |
| Valves | F | | P4 | Ball & butterfly valves |
| Domestic Water Service | C | | P5 | 4' main |
| Insulation | F | | P6 | Elastomeric |
| Code Issues | D | $100 | P7 | Install hose end backflow |
| **Equipment** | | | | |
| Domestic Water Heater | NA | | P8 | Cold water only |
| Recirculation Pump(s) | NA | | | No pump required |
| Thermal Mixing Valve (TMV) | NA | | | No TMV required |
| Plumbing Fixtures | F | | P9 | Hose bibs |
| "Shop" Air Compressor | NA | | | |
| Storage/Truck Garage | F | | P10 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage, Roof Drainage | F | | P11 | |
| Eyewash(es) | NA | | | |
| Utilities | F | | P12 | 4" main, 4" sanitary, 12" storm |

**NOTES:**

**P1.** Water piping is copper, soldered joints. Fair condition. Piping is insulated with elastomeric insulation.

**P2.** Sanitary vent piping is PVC.

**P3.** Building has a metal pitched roof directed to perimeter gutters. Gutters discharge to numerous downspouts. Downspouts route to underground storm sewer.

**P4.** Hose bib valves are ball, valves at the water meter are butterfly.

**P5.** Building is served by a 4" water main reduced to 3". The 3" main has a 3-valve bypass. Meter is 2". The 2" water main is routed down both sides of the garage which supplies the hose bibs.

**P6.** Water piping is insulated with elastomeric insulation. Piping at the water meter could be re-insulated.

**P7.** Install hose end vacuum breakers on all hose bibs.

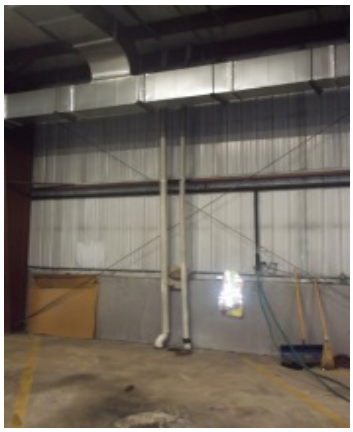
**P8.** No water heater. Building has cold water supplied to the hose bibs only.

**P9.** No plumbing fixtures or toilet rooms. Cold water hose bibs only.

**P10.** Garage area has linear trench drains, which discharge to garage catch basins.

**P11.** Roof areas discharge to perimeter gutters. Gutters discharge to downspouts. Downspouts are routed to underground storm sewer.

**P12.** 4" water main and 4" sanitary sewer are supplied from Lore Lane. 12" storm sewer is routed north to Western Avenue. Parking lot is concrete and gravel with (2) yard catch basins.



**Vent Piping**

**Water Meter Set**

**Water Meter with Bypass**

**Water Piping**

**Garage Catch Basin & Trench Drain**

**Roof Edge – Gutter**

**Gutter & Downspout**

**Building Roof Edge – Gutter**

**Parking Lot Catch Basin**

**Parking Lot Catch Basin**

# HVAC SYSTEMS

## Summary

The preengineered building was constructed in 1996 with an addition in 1997. The building is served by two make-up air units and multiple exhaust fans all of which appear to be original to buildings construction. A couple of ceiling mounted destratification fans are manually operated to increase air movement.

The exhaust fans are operated by time clocks, operating for 2 hours in the morning when most vehicles are removed from the building and 2 hours in the afternoon when the vehicles are returned for nightly storage. The make-up air units heat the building and replace the air removed by the exhaust fans.

There did not appear to be a gas detection system installed to operate the exhaust fans.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Garage Ventilation** | | | | |
| Make-up Air Unit | **HP** | $170,000 | **H1** | (1)1996 and (1)1997, Reznor 400,000 BTUh Natural gas |
| Exhaust | **F** | | **H1** | Power roof ventilators of various sizes and ages. Exhaust outlets high and low. |
| Control | **D** | $15,000 | **H1** | Timer operated. |

**NOTES:**

**H1.** The storage garage exhaust and make-up air systems are original to the 1996 and 1997 construction projects. The anticipated useful life for the make-up air units is 20-25 years and for the exhaust fans is 25-30 years, depending upon maintenance. The make-up units are nearing the end of their expected useful life.

The make-up air units and fans appear to be sized appropriately. The exhaust fans are operated by a time clock which operates them for two hours in the morning when the vehicles are removed from the building and two hours in the afternoon when the vehicles are expected to return, however some vehicles remain in the building as verified on the day of the site visit.

An enclosed vehicle storage garage has specific exhaust code requirements. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. To increase worker safety and improve the ventilation deficiency it is recommended to operate an exhaust fan continuously while the remainder of the fans remain are controlled by the time clocks. A future garage ventilation upgrade project to install new make-up air fans, radiant heaters, exhaust fans and control system is recommended to improve the storage garage ventilation and occupant safety.

**Garage Make-up Air Unit**

**Garage Make-up Air Unit Combustion Vent**

**Garage Make-up Air Unit**

**Exhaust Fan Control Panel**

**Thermostat**

**Damaged Thermostat**

**Supply Ductwork**

**Exhaust Ductwork**

**Exhaust Intake (Low)**

**Destratification Fan**

**Gas Meter**

**Exhaust Fan (Typical)**

## ELECTRICAL SYSTEMS

### Summary

There are two electric service disconnect switches located on the south wall. One service disconnect is a fusible switch; the other is the 200 amp main circuit breaker in the south bay panel. The fusible switch feeds a second load center with a 200 amp main circuit breaker. This second load center is erroneously labeled as a "Service Disconnect". That label should be removed.

Interior lighting is accomplished with 6-lamp 4-foot T8 fluorescent industrial fixtures. Exit signs are the only emergency egress lighting; they have no battery back-up. Exterior lighting is HID.

Receptacles are not GFCI type. An approximately 20-foot long stretch of conduit along the east wall is unsupported.

There is no fire alarm system.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Disconnect | C | | | There are two service disconnects. |
| Branch Panels | CP | $75 | | Remove the label "Service Disconnect" from the North Bay panel. |
| **Lighting** | | | | |
| Interior | C | | | T8 fluorescent industrial. |
| Exterior | F | $900 | E1 | Replace HID with LED. |
| **Lighting Controls** | | | | |
| Garage | F | $2,500 | | Install occupancy sensors to turn fixtures OFF when the garage is not occupied. |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Exit Signs | CP | $1,200 | | Replace existing Exit Signs with signs that have battery back-up. |
| **Power** | | | | |
| Receptacles | D | $1,000 | | Install GFCI receptacles. |
| **Raceway** | | | | |
| Unsupported Conduit | CP | $300 | | Support conduit along east wall. |

**NOTES:**

**E1.** LED lighting fixtures will result in lower operating and maintenance costs.

**Service Disconnects**

**Remove "Service Disconnect" Label from North Bay**

**Unsupported Conduit Along East Wall**

**Non-GFCI Receptacle**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## WEST SIDE SALT STORAGE SHED

**August, 2015**

## MUNICIPAL GARAGES

# SUMMARY

***Date of Visit: July 30, 2015***
***Address: 519 S. Oneida Street***

## Building Description

The salt storage building was constructed in 1981. The segmented circular plan (20 segments) is constructed of a concrete base and wood frame pointed dome structure. Plywood panels span the 2x framework. A tall gabled truck access bay occupies the space of two segments. The building is unoccupiable; it stores salt used in winter road maintenance. There are vents high in each roof segment that provide ventilation and some light, as well as a small window high on the roof, opposite the vehicle access opening.

## Code/Accessibility

This building is a storage shed, intended only of storage of road salt. There is no swing door, and the only access point for vehicles does not have an overhead door. As a typically unoccupied building, accessibility would not be a factor in the functionality of this building.

## Structural System

The structure is a pre-engineered wood-framed dome supported on cast-in-place concrete foundation walls.

## Plumbing Systems

This is a wood structure with a shingled roof.
No plumbing systems to report. Building roof pitches and discharges to grade.

## Electrical Systems

The salt shed contains HID lamped industrial fixtures that are in fair condition. Replacing these with LED fixtures will result in lower operating and maintenance costs.

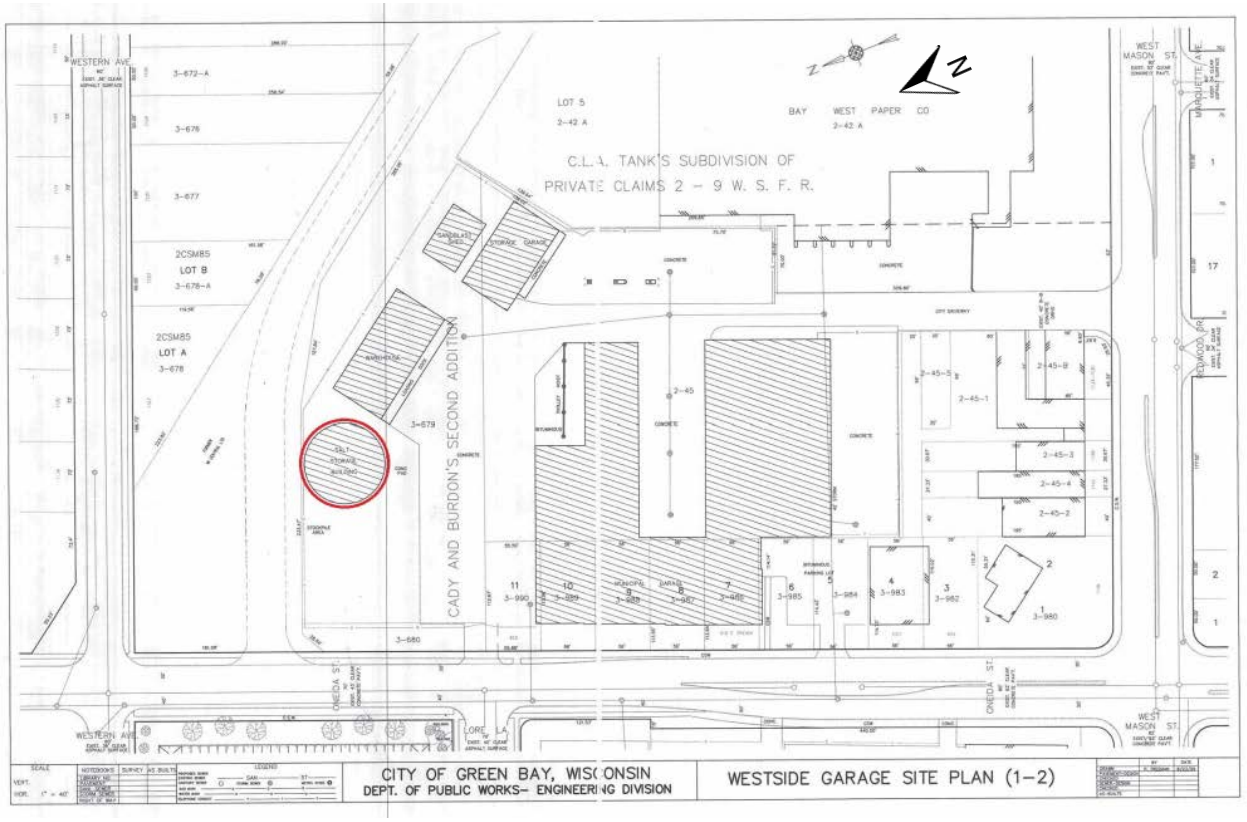
Exterior conduits and a receptacle have been damaged. Exterior receptacles must provide ground fault protection.

## Estimates

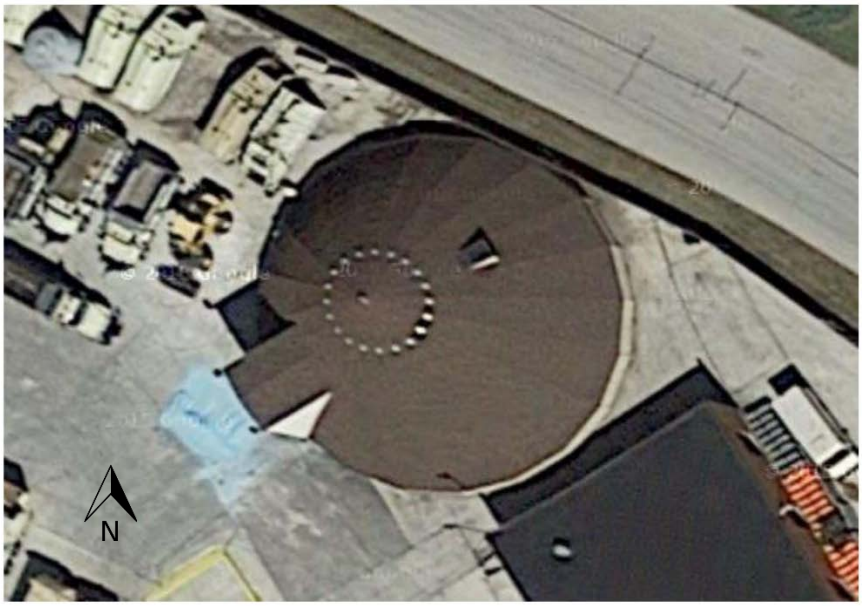
Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural and Code/ADA** | | | | **NA** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | | **NA** |
| **Electrical** | Receptacles | | | **$250** |
| | Conduit | | | **$200** |
| **Electrical Subtotal** | | | | **$450** |
| **Building Total** | | | | **$450** |




**Site Plan**




**Aerial View of Site**

# ARCHITECTURAL

## Building Description

The salt storage building is a segmented circular plan (20 segments), constructed of a concrete base and wood frame pointed dome structure. Plywood panels span the 2x framework. A tall gabled truck access bay occupies the space of two segments. The building is unoccupiable; it stores salt used in winter road maintenance. There are vents high in each roof segment that provide ventilation and some light, as well as a small window high on the roof, opposite the vehicle access opening.

## Building Envelope

### Exterior Walls

Concrete base of approximately 5 feet in height. Walls and roof are integral to the domed shape. Previous repairs prevalent, especially to the left of the opening.

### Windows

Not applicable.

### Roof

Asphalt shingle on wood frame.

## Interior Finishes

### Floors, Walls and Ceiling

This is an unheated building, with no finishes. Floor is asphalt paving.

### Doors

The truck access bay has no door on it, nor are there any swing doors.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1981 | **Gross Area** | 22,000 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group U – Utility and Miscellaneous | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

### Egress and Safety

This building is a storage shed, intended only of storage of road salt. There is no swing door, and the only access point for vehicles does not have an overhead door.

## Summary of Accessibility/ADA Compliance

As a typically unoccupied building, accessibility would not be a factor in the functionality of this building.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | F | | | |
| Exterior Facade Condition | F | | | |
| Exterior Door Condition | NA | | | |
| **CODE ELEMENTS** | | | | |
| Egress and Safety | NA | | | |
| Doors | NA | | | |

**Front Access Point Elevation**

**Side Elevation**

**Vents and Window**

**Framing of Vehicle Access**

## STRUCTURAL SYSTEM

### Summary

The structure is a pre-engineered wood-framed dome in a 20-segment circular plan, supported on cast-in-place concrete foundation walls.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1981 (Thomas E Torricelli Architect/Engineer) |
| **Structure type** | | | | |
| Foundations | C | | | Cast-in-place concrete foundation walls over asphalt pavement. |
| 1st Floor | C | | | Asphalt pavement. |
| Roof | C | | | 82' diameter pre-engineered wood-framed dome structure, a proprietary design by "Domecorp of America." |
| **Occupancy Category** | NA | | | Occupancy Category I |
| **Construction Type** | NA | | | Construction Type **V-B** (0 hour walls, 0 hour roof) |
| **Vertical Expandability** | NA | | | None. |
| **Typical Column Spacing** | NA | | | |
| **Overall Structural Condition** | C | | | The existing building is structurally sound with no significant deficiencies noted. |

**Dome Roof Framing**

## PLUMBING SYSTEMS

### Summary

This is a wood structure with a shingled roof.
No plumbing systems to report. Building roof pitches and discharges to grade.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | |
| Sanitary Piping/Main | NA | | | |
| Storm/Clearwater Drainage | F | | P1 | |
| Code Issues | NA | | | |

**NOTES:**

**P1.** Wood structure building with pitched roof. Roof discharges to grade. Area around the building is concrete, pitches to interior catch basins.

**Salt Storage Building**

## ELECTRICAL SYSTEMS

### Summary

The salt shed contains HID lamped industrial fixtures that are in fair condition. Replacing these with LED fixtures will result in lower operating and maintenance costs.

Exterior conduits and a receptacle have been damaged. Exterior receptacles must provide ground fault protection.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Lighting** | | | | |
| Salt Shed | **F** | **$3,500** | E1 | Replace HID lighting fixtures with LED lighting fixtures. |
| **Power** | | | | |
| Receptacles | **D** | **$250** | | Replace non-GFCI receptacle with GFCI receptacle; replace broken device. |
| Conduit | **D** | **$200** | | Repair broken conduit. |

**NOTES:**

**E1.** LED lighting fixtures will provide lower operating and maintenance costs.

**HID Lighting Inside Salt Shed**

**Broken Box; Non-GFCI Receptacle**

**Broken Conduit**

**HID Lighting at Exterior of Salt Shed**

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## WEST SIDE MUNICIPAL GARAGE & SHOP

**August, 2015**

## MUNICIPAL GARAGES

# SUMMARY

***Date of Visit: July 30, 2015***
***Address: 519 S. Oneida Street***

## Building Description

The main west side garage and shop was built in several stages. The original building was built in 1952. It is comprised of a two-story office area with lunch room and shower facilities, and an attached garage. A garage addition was added in 1983 and another in 1987, along with numerous mechanical upgrades, roof replacements and other modifications.

The exterior wall of the original portion of the building is comprised of a 12" masonry wall, with 4" modular face brick on the outside veneer and an 8" concrete block on the inside. The 1980s additions were built with a double-wythe construction and include a layer of rigid insulation.

The exterior walls as a whole need a considerable amount of tuck-pointing and masonry restoration. The planters on the west face show considerable deterioration and decay. Tuck-pointing, masonry restoration and replacement required.

Roof leaks have been reported throughout the building. The areas of built-up roofing well exceeded their potential lifespan for both the roofing layers and the flashing. The areas of EPDM roofing are showing significant tenting, wrinkling and separation of seams. Complete roof replacement should be considered.

Interiors are in fair to good condition. Original spline ceilings are recommended for replacement.

## Code/Accessibility

At least one of the two exit stairs from 2nd floor should have a rated door and frame to create 1-hour rated means of egress from 2nd floor, in order to replicate original construction and comply with IBC 1016.1, exception 3.

Aging pipe insulation is deteriorating and fraying. This should be investigated for possible asbestos content.

Accessible parking and entry is provided.

Areas and functions that are not accessible include the following:

- There are some doorways between the business and storage/garage areas that have steps between floor levels.
- There is no elevator to provide access to the 2nd floor, but there are also very few functions on the upper floor. Storage spaces would not need to be accessible. The owner could make accommodations for an alternate lunch/break room on the first floor if requested to do so. This would address access issues for 2nd floor, should they arise.
- The locker rooms do not have turning radius floor space within the room. Removal of or shortening of the central bench may be able to accommodate this space.

Replacement of knobs with lever handles should be done for all door and hardware replacements going forward.

The following plumbing fixtures do not provide accessibility:

- Showers in both Men's and Women's rooms have a 6" sill at entry. The stalls themselves are not ADA compliant, providing inadequate space and no grab bars or proper controls.
- There are no accessible toilet stalls, although a couple did provide side grab bars.
- Foot-activated handwashing sink.
- Drinking fountain spout is at 38". This is acceptable for standing height access. Additional low height drinking option should be provided as well.

### Structural System
The structure generally consists of steel roof deck over open web steel joists and steel girders bearing on a combination of steel columns and load-bearing masonry walls. West wing of original construction includes a second floor of cast-in-place concrete slabs, beams, and columns. All building segments are supported on a shallow concrete foundation system.

### Plumbing Systems
The original piping is in fair condition, it has been replaced as needed when issues arise. Insulation could be added to the hot water piping for energy savings. Thermostatic mixing valves (TMV) and backflow prevention should be added to the systems. These are code issues which need to be corrected.

Building is served by numerous roof drains. Some of the roof areas have relief scuppers.

Plumbing fixtures are older and could be updated to conserve water. Building utilities in general appear adequate.

### Fire Protection Systems
The West Side Municipal Garage is a partially sprinkled building. An 8" dedicated water service main enters the building through the floor on the west side of the repair garage and reduces to 6" inside the building.

The repair garage area of the building is sprinkled, while the remainder of the building is unsprinkled. The system appears to be in overall fair condition, with normal aging/corrosion on the pipes for the age of the system.

### HVAC Systems
The majority of the HVAC ventilation equipment is original to one of these three projects except for the power roof ventilators.

Some occupied spaces of the original 1952 building are not ventilated.

The 1952, 1983, and 1987 storage and repair garages are served by make-up air units equipped with steam heating coils. The equipment appears to be original to the construction projects. These systems are in general, well past their expected useful life. The maintenance staff has indicated that some of the air unit components have failed and repairs are needed to maintain space temperature prior to the 2015/2016 heating season.

Multiple valves and other components on the steam system continue to leak.

The building's control system is antiquated and multiple components have failed. Staff indicated that the system air lines in the building are plugged and/or leak severely. This restricts the ability of the pneumatic actuators on the make-up air units and heating units to operate properly and leads to space temperature fluctuations or over/under heating of the spaces.

### Electrical Systems
The building is served by an 800 Amp, 120/208 Volt, three phase electrical service originating from a pad-mount transformer. The main distribution panel (MDP) is a fusible-switch type manufactured by ITE. It is believed to be original to the building (circa 1956). ITE is no longer manufactured. The enclosure's cover has several spots that are corroding. There is one spare switch for expansion; it is rated 200 amps. MDP's main nameplate erroneously lists the equipment as 480-volt.

A 100-kW natural gas-fired generator provides standby power. It appears the generator is serving both emergency loads (life safety related) as well as non-emergency loads.

Branch panels are mostly manufactured by ITE and Westinghouse – both companies no longer manufacture panelboards. Overall the condition of the branch panels is good, but their age means replacement circuit breakers will become increasingly difficult to acquire.

Receptacles within the garage are not all GFCI protected.

Lighting fixtures in the vehicle sash bay are in need of replacement as they are literally being held together with tie wraps.

Although the ambient temperature in the network computer room did not seem too warm, this equipment is susceptible to heat, and works best in environments where temperature and ventilation is controlled specifically for electronics. The equipment would also benefit from a thorough cleaning.

There is a fire alarm system throughout most of the buildings identified as A, B, C, and D – although its application generally doesn't meet today's Code. There doesn't appear to be any fire alarm in Building E.

An overhead electric feeder to an outside crane utilizes non-metallic sheathed cable (often referred to as Romex.) Non-metallic sheathed cable is not approved for exterior applications.

### Estimates

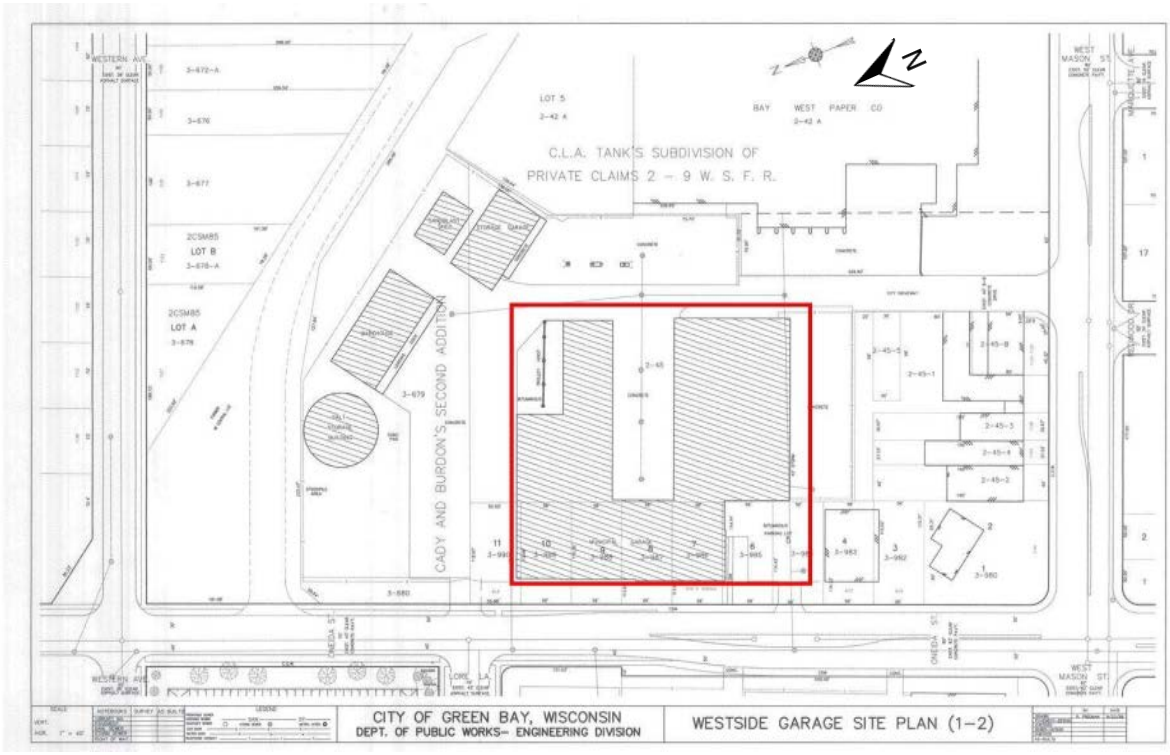
Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

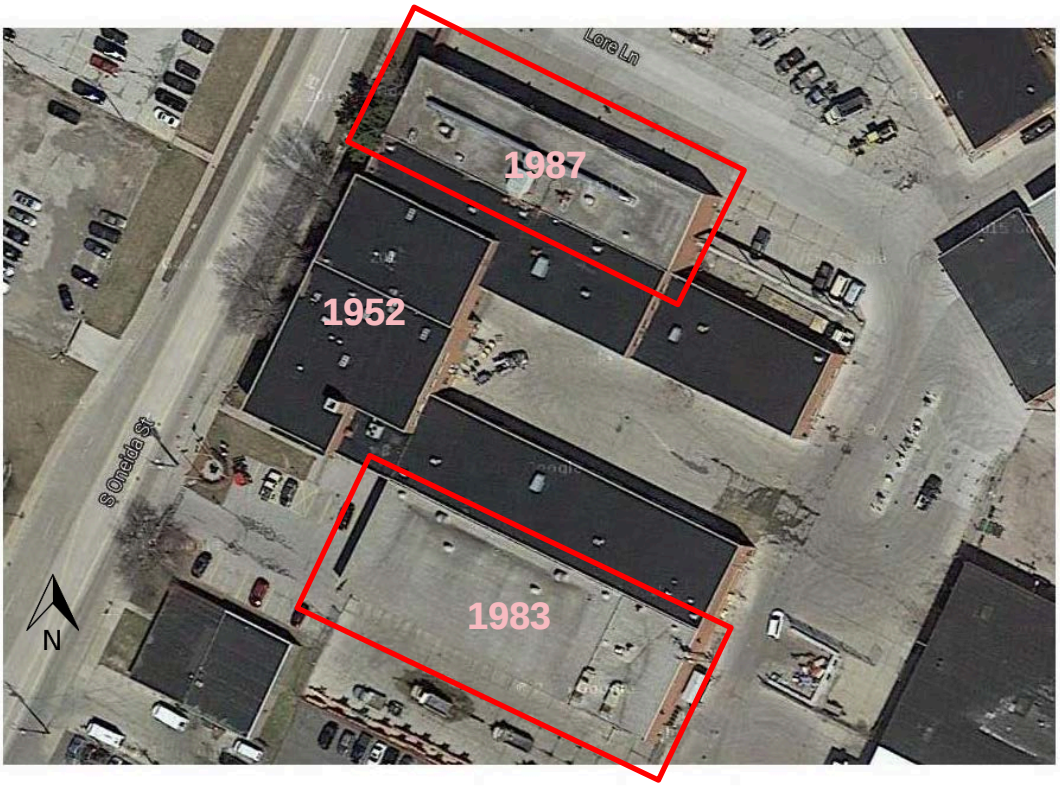
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | | |
| | | | Exterior Façade (Masonry) | **$250,000 - $350,000** |
| | | | Window Condition | **$100,000** |
| | | | Ceilings | **$8,000 - $12,000** |
| **Architectural Subtotal** | | | | **$358,000- $462,000** |
| **Code/ADA** | | | Stair Shafts | **$800** |
| | | | Miscellaneous Items | **See Report** |
| | | | Showers | **$8,000 - $12,000** |
| | | | Accessible Toilet | **$8,000 - $12,000** |
| | | | Drinking Fountain/Access | **$8,000 - $12,000** |
| **Code Subtotal** | | | | **$24,800- $36,800** |
| **Structural** | | Second Floor (Original 1952 bldg. only) | | **$20,000** |
| **Fire Protection** | Backflow Prevention | | | **$7,000** |
| | Sprinkler Heads | | | **$4,000** |
| **Fire Protection Subtotal** | | | | **$11,000** |
| **Plumbing** | | | Insulation | **$20,000** |
| | Thermal Mixing Valve (TMV) | | | **$4,000** |
| | Backflow Prevention | | | **$5,000** |
| | Eyewash(es) | | | **$3,000** |
| **Plumbing Subtotal** | | | | **$32,000** |
| **HVAC Systems** | | | | |

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Office/Locker Rooms** | | | Housing | **$150,000** |
| | Occupied Area Ventilation | | | **$150,000** |
| **Chiller** | | | Housing | **$50,000** |
| **Exhaust Fans** | | | Ductwork | **$15,000** |
| **Boiler System** | | | Boilers | **$400,000** |
| | | | Condensate Pump | **$10,000** |
| | | | Piping | **$20,000** |
| | | | Pipe Insulation | **$25,000** |
| | | Room Terminal Units | | **$30,000** |
| **Mechanical Room Ventilation** | | | | **$15,000** |
| **Controls** | | Building Management | | **$100,000** |
| **Salt Brine Room** | | | Make-up Air Unit | **$30,000** |
| | | | Piping/Insulation | **$500** |
| **1952 Garage Ventilation** | | Make-up Air Unit | | **$360,000** |
| | | | Exhaust | **$20,000** |
| | | | Heaters | **$10,000** |
| | | Piping/Insulation | | **$20,000** |
| | | Control | | **$25,000** |
| **1983 Garage Ventilation** | | Make-up Air Unit | | **$235,000** |
| | | Exhaust | | **$20,000** |
| | | Control | | **$20,000** |
| **1983 Wash Bay Ventilation** | | | Exhaust | **$10,000** |
| | | | Heaters | **$5,000** |
| | | Control | | **$5,000** |
| **1987 Garage Ventilation** | | Make-up Air Unit | | **$160,000** |
| | | Exhaust | | **$20,000** |
| | | Control | | **$20,000** |
| | | | Radiant Heaters | **$50,000** |
| **HVAC Subtotal** | | | | **$1,975,500** |

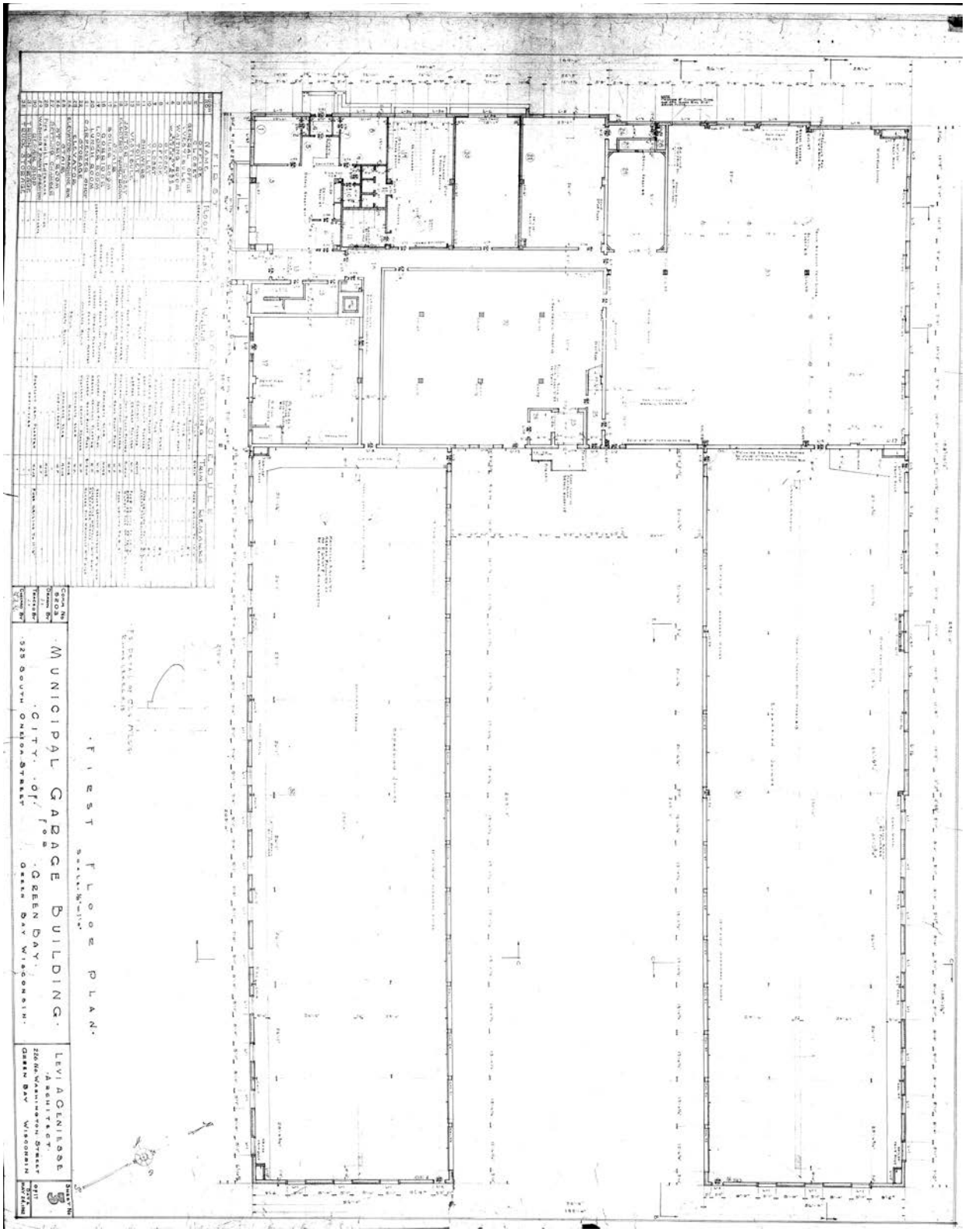
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| Electrical | Receptacles | | | $1,500 |
| | | Emergency Egress Lighting and Exit Signs | | $20,000 |
| | | | Audible and Audible/Visual Alarms | $5,000 |
| Electrical Subtotal | | | | $26,500 |
| Total | | | | $2,427,800-$2,543,800 |



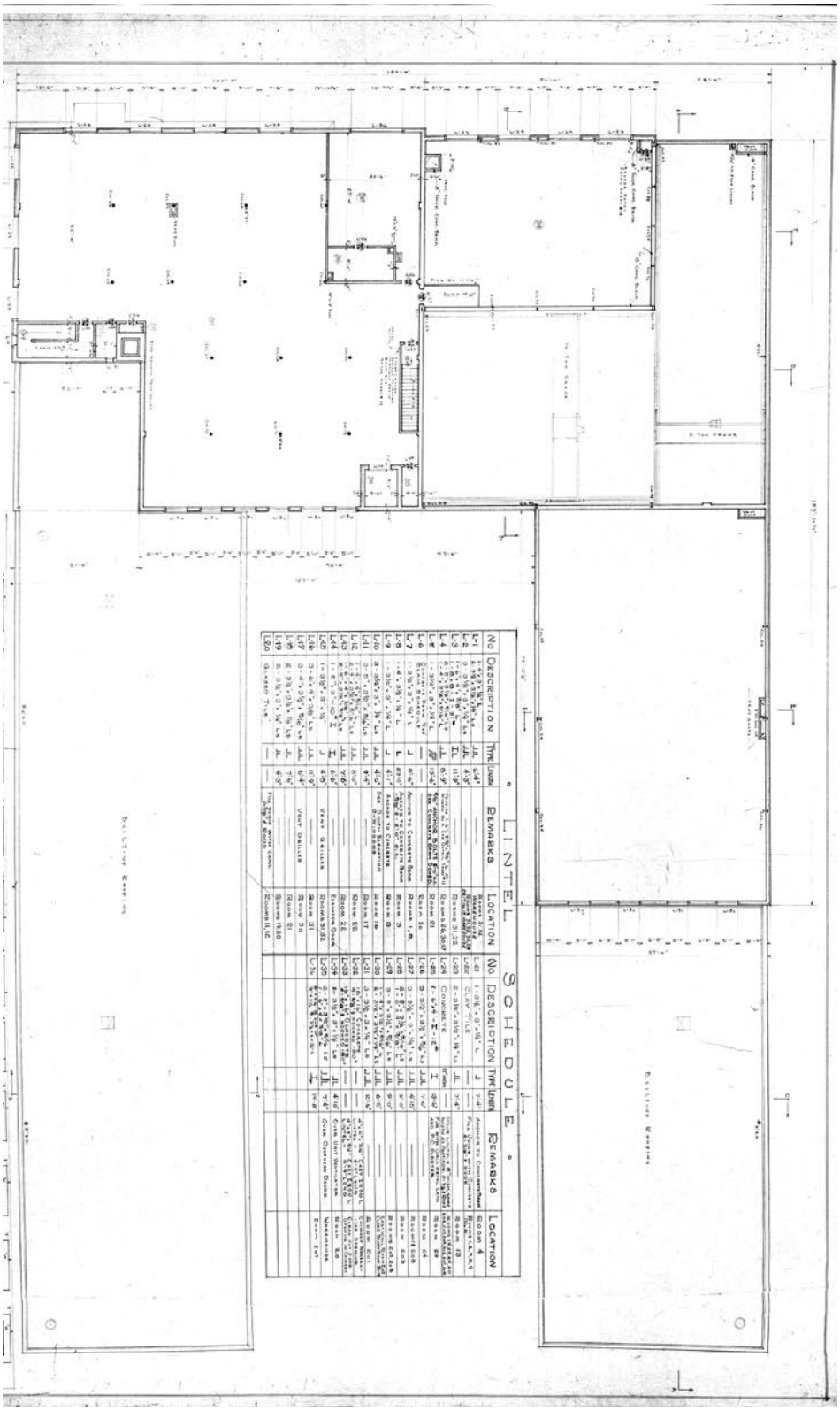

**Site Plan**




**Aerial View of Site**




**First Floor Plan**



**Second Floor Plan**

# ARCHITECTURAL

## Building Description

The main west side garage and shop was built in several stages. The original building was built in 1952. It is comprised of a two-story office area with lunch room and shower facilities, and an attached garage. A garage additional was added in the early 1980s and another in the late 1980s, along with numerous mechanical upgrades, roof replacements and other modifications.

## Building Envelope

### Exterior Walls

The exterior wall of the original portion of the building is comprised of a 12" masonry wall, with 4" modular face brick on the outside veneer and an 8" concrete block on the inside. The building entry is decorated with ornamental metals, cast stone trim and masonry planters.

The 1980s additions, primarily garage and maintenance space, were built with a double-wythe construction and include a layer of rigid insulation.

The exterior walls as a whole need a considerable amount of tuck-pointing and masonry restoration. The planters on the west face show considerable deterioration and decay. Tuck-pointing, masonry restoration and replacement required.

### Windows

All of the windows within the facility are limited to the 1950s construction. They appear to be original to the building. There is a variety of shapes, in both operable and fixed units. None appeared to have insulated glass; some were guarded with an expanded metal screen.

The windows have exceeded their life expectancy. Modern, insulated units would yield tremendous energy savings as well as prevent water infiltration. A comprehensive, window replacement project should be considered.

### Roof

Portions of the roof areas have been reroofed at different times through the building's lifespan. There are areas of fully adhered EPDM roofing and areas of built-up roofing.

Leaks have been reported throughout the building. The areas of built-up roofing well exceeded their potential lifespan for both the roofing layers and the flashing. The areas of EPDM roofing are showing significant tenting, wrinkling and separation of seams. Complete roof replacement should be considered.

## Interior Finishes

### Floors

All garage floors are concrete. The two-story office portion of the building has sealed concrete floors on the second level in both the occupied areas, such as lunch room and rest rooms, and the storage area.

First floor main corridor, toilet rooms, conference room and main offices have a pattern of multiple-sized ceramic mosaic tile. A segment of carpet is laid over the tile at one office, with a duct tape threshold to prevent excessive wear. A section of locker room that looks to have been a later addition to the Women's Lockers has terrazzo floor. A section of tile in front of the Men's urinals has been replaced with 2x2 ceramic mosaic tile. Women's shower area has 1" ceramic mosaic tile. Tile is in fair to good condition.

A group of open and private offices near to the garage/shop area has 12" composite tile floor with rubber base. It is in fair condition.

### Walls

Walls in the garage areas are typically painted concrete masonry units. A painted dark gray wainscot extends to approximately 6'-0"; light colored paint extends to structure above.

At the original building, structural glazed tile extends up to approximately 4'-8" in the main corridors and toilet/locker rooms. Elsewhere is painted gypsum board. Glazed block is used for a base in areas not receiving a wainscot. Women's shower area has full height 4 ¼" glazed tile.

The 2nd floor storage area has 2x4 framing and particle board forming various locked compartments.

**Doors**
Exit doors are typically insulated hollow metal with a light in them. Interior doors vary, but are typically older wood panel doors in the original building. Office areas have flush wood doors, some with half-lights in them. Some lockable storage areas have metal frame and metal mesh doors.

Doors to rated rooms were observed to have fire rating labels on doors and frames.

**Ceilings**
Occupied areas typically have 2x2 lay-in acoustic panel ceilings. Most of these are square edged and in fair condition. One office and a conference room in the main office area has 12"x12" spline ceiling that looks to date from the original 1950s construction. Several of the tiles in the conference room are loose and visibly separated from the ceiling.

Shower areas have plaster ceilings, but the rest of the locker and toilet rooms have the standard acoustic panels.

**Casework**
Several office areas or parts rooms throughout the building have casework items or counters. These are typically plastic laminate cases and tops in fair condition.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Exterior Facade Condition | HP | $250,000 - $350,000 | A1 | |
| Exterior Door Condition | F | | | |
| Window Condition | HP | $100,000 | A2 | Windows are in the 1950s original building. Budget based on $45/SF of window. |
| Roof Condition | F | $900,000 | | Based on $15/SF for entire roof |
| **Interior Finishes** | | | | |
| Floors | F | | A3 | |
| Walls | C | | | |
| Doors | C | | | |
| Ceilings | F / HP | $8,000 - $12,000 | A4 | Assume 2,000 SF at $4 to $6/ SF |
| Casework | F | | | |

**NOTES:**

**A1.** Tuck-pointing, masonry restoration and replacement are recommended at exterior walls and planters. Full evaluation and quote by masonry contractor is advised. Cost range is listed for budget purposes.

**A2.** A comprehensive window study is recommended in order to determine the scope and budget of a full window replacement project for the building.

**A3.** Recommend removing or replacing the loose-laid carpet at 1st floor office. Duct taped edge is a trip hazard. If replacing, provide factory finished hemmed edge and securely tape to floor.

**A4.** Recommend washable ceiling panels for all locker and toilet rooms. Recommend replacing spline ceiling in the room where tiles are loose.

**South and West Elevations**

**Inner U Court**

**West Elevation**

**Elevations at U-shaped Court**

**South Elevation at U Court**

**North East Elevation**

**North and East Elevations**

**Planter Wall**

**Typical Garage/Shop Window**

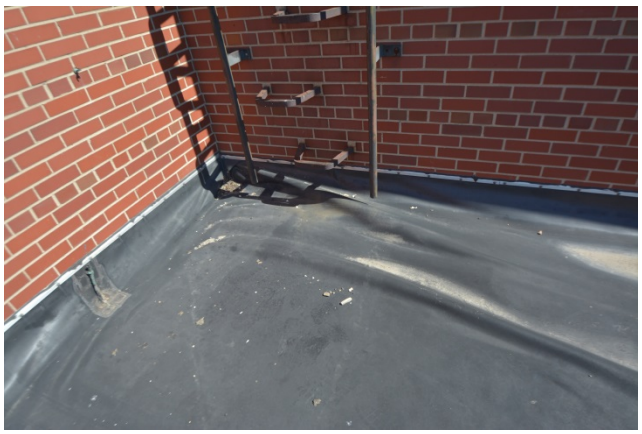
**Roof of South Garage U, Looking East**

**Evidence of Ponding**

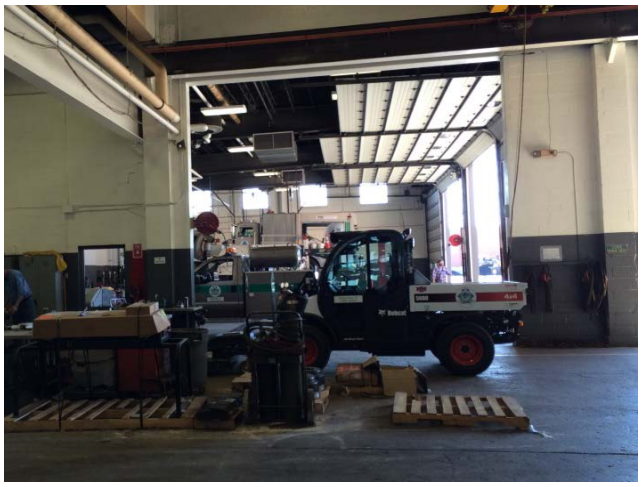
**Roof Looking Southeast**

**Separation and Tenting of EPDM Patches**

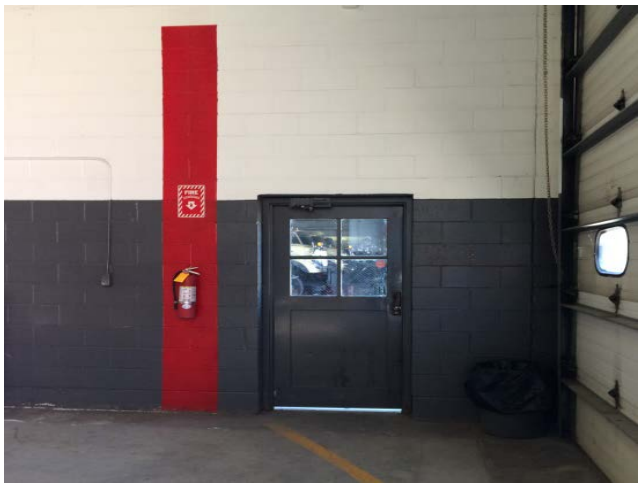
**Debris from Trees Collected on Roof**



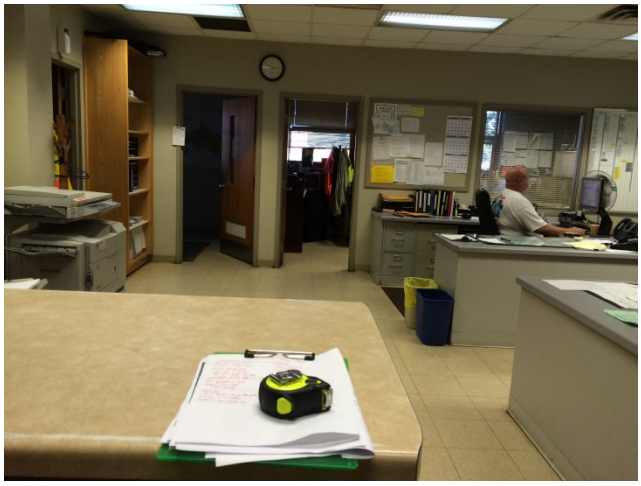
**Tented EPDM**



**Painted Wainscot at Garages**



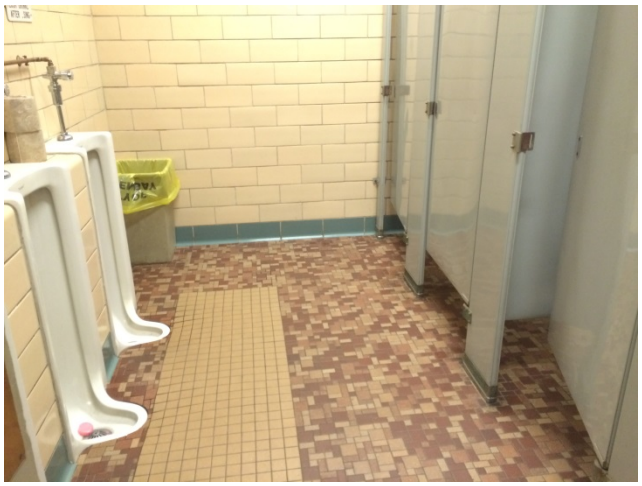
**Wood Door with Half Light**



**Office Finishes & Casework**

**Wall and Floor Finishes – Locker Room**

**Men's Locker Room – Standard Ceiling Tile**



**Men's Toilet Room**

**Main Corridor**

**Main Office Carpet Over Tile**

**Main Office**

**2nd Floor Break Room**

**2nd Floor Storage Area**

**Spline Ceiling at Meeting Room**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1.) 1952 (Levi A. Geniesse) – **ORIGINAL**<br>2.) 1983 Addition (Berners-Schober) –**SOUTH**<br>3.) 1987 Addition (Berners-Schober) -**NORTH** | **Gross Area** | 96,500 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | B- business at offices, separated from<br>S-1 Moderate Hazard Storage (due to storage of tires and motor vehicle repair) | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type II-B | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

### Egress and Safety

Two legal means of egress are provided from all areas of the building. See below for stair shaft discussion in relation to egress from 2nd floor.

### Stair Shafts

The stair shaft within the office area of the building does not have a door at the top of the shaft. The hardware indications on the door frame at the top indicate that it did have a door at its original construction. The other exit from 2nd floor is a stair shaft leading down and directly to the exterior. The door on this shaft has a half light and is unrated. At least one of the two exits should have a rated door and frame to create 1-hour rated means of egress from 2nd floor in order to replicate original construction and comply with IBC 1016.1, exception 3.

### Hand and Guard Rails

Hand rails at stairs are at 31 ½" height and have no extensions at top or bottom. This does not meet current code, but is grandfathered in as compliant for the time they were installed.

### Miscellaneous

Aging pipe insulation is deteriorating and fraying. This should be investigated for possible asbestos content.

## Summary of Accessibility/ADA Compliance

### Accessible Route

Entry to the building has been modified to include a ramp with handrails directly from an accessible parking stall. The office area itself, including corridors and door widths, is generally accessible. Doors into and between garage areas are also adequate. Several transaction counters within the facility are above accessible height (34"), but as these are not critical for service to other staff members, their accessibility is not an issue.

Areas and functions that are not accessible include the following:

- There are some doorways between the business and storage/garage areas that have steps between floor levels.
- There is no elevator to provide access to the 2nd floor, but there are also very few functions on the upper floor. Storage spaces would not need to be accessible. The owner could make accommodations for an alternate lunch/break room on the first floor if requested to do so. This would address access issues for 2nd floor, should they arise.
- The locker rooms do not have turning radius floor space within the room. Removal of or shortening of the central bench may be able to accommodate this space.

**Doors**

The building has a combination of push/pull hardware, lever and knob handles. Knobs are not accessible, and not as easy/fast to use as lever handles. Newer doors appear to have been upgraded to lever handles. This should be done for all door and hardware replacements going forward.

**Plumbing Fixtures**

The following plumbing fixtures do not provide accessibility:

- Showers in both Men's and Women's rooms have a 6" sill at entry. The stalls themselves are not ADA compliant, providing inadequate space and no grab bars or proper controls.
- There are no accessible toilet stalls, although a couple did provide side grab bars.
- Foot-activated handwashing sink.
- Drinking fountain spout is at 38". This is acceptable for standing height access. Additional low height drinking option should be provided as well.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Egress and Safety | F | | | See stair shaft notes in regard to egress from 2nd floor. |
| Stair Shafts | HP | $800 | CA1 | Cost could be more if frame requires re-certification. |
| Handrails/Guardrails | F | | | |
| Miscellaneous Items | HP | | CA2 | |
| Accessible Route | F | | | |
| Doors | C F | | CA3 | |
| Plumbing Fixtures | F | | | |
| Showers | HP | $8,000 - $12,000 | CA4 | |
| Accessible Toilet | HP | $8,000 - $12,000 | | Creating 1 accessible toilet is recommended. |
| Drinking Fountain/Access | HP | $2,000 - $5,000 | | Provide an accessible drinking fountain or cups at an accessible sink. |

**NOTES:**

**CA1.** Re-install a fire rated door at top of stair shaft in office area to create a 1-hour rated, legal means of egress. Ensure existing frame is labeled with rating.

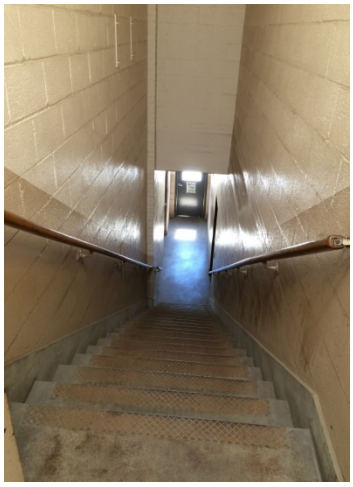
**CA2.** Recommend enlisting the services of a hazardous materials consultant to determine if asbestos is present in frayed insulation at pipes and other areas. Abatement consultant cost not estimated here as it is dependent on scope of work.

**CA3.** Lever handles would comply with accessibility codes and facilitate ease of use. Lever handles are code requirement for any new or renovated work.

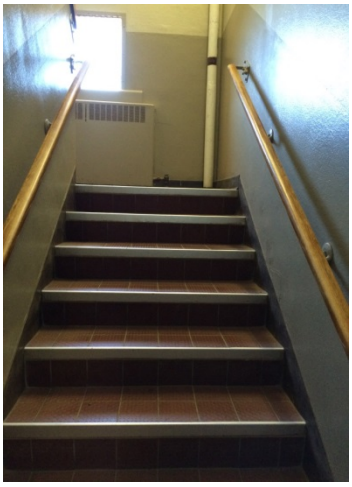
**CA4.** Under current code, showers would not be required to be provided as part of this facility. However, since showers are provided, an accessible shower should also be provided so that there are equal accommodations.

**Top of Stair/Exit from 2nd Floor Storage Area**

**Opening at Stair Shaft – Right Side**



**2nd Floor Storage Exit Stair to Exterior**
**No Extensions on Handrails**



**Stair at Office/Break Room Area**
**No Extension on Handrails**

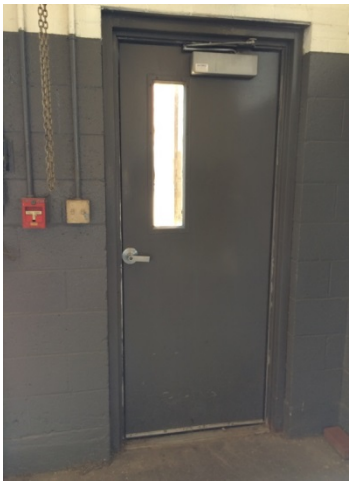
Frayed Pipe Insulation

Tire Storage Room

Exterior Accessible Parking and Route

Non-accessible Route within Building

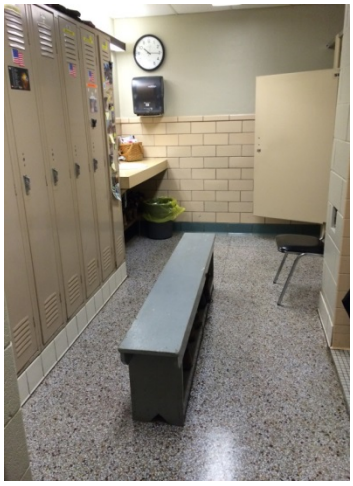
Knob Handle – Typical



Lever Handles at Newer Doors

Push/Pull Typical at Toilet Rooms

Panic Hardware at Main Entry Doors



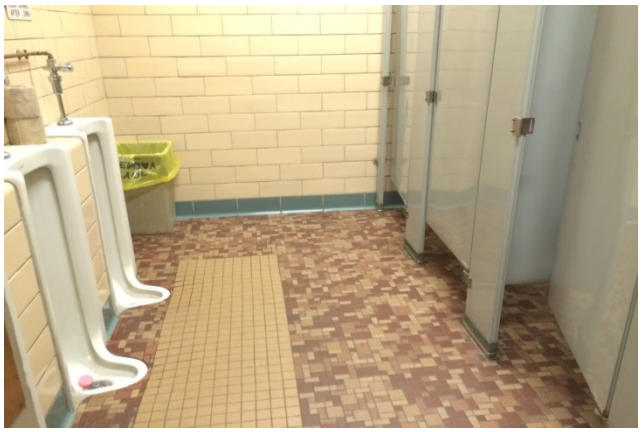
Women's Locker Room Lack of Turning Space

Women's Room Non-accessible Toilet

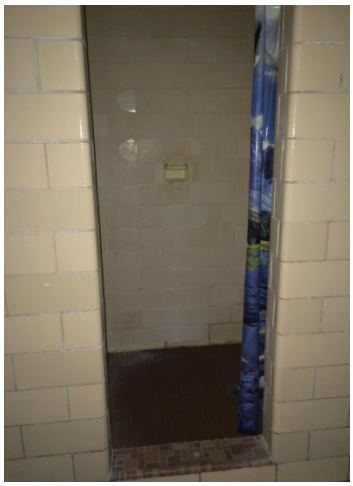
Entrance to Women's Shower

Sill at Entrance to Women's shower

**Men's Locker Room**
**Lack of Turning Space, Foot Activated Water**



**Men's Toilet Room**
**Non-accessible Toilets**

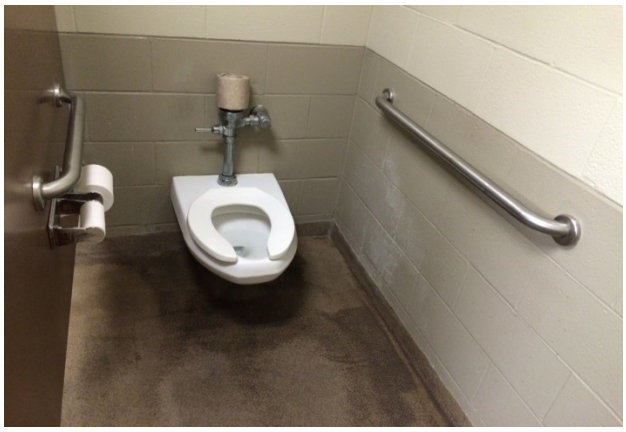


**Men's Shower**
**Sill at Entrance and Narrow Access**

**Single-user Unisex Toilet Room**
**Lack of Grab Bars & Turning Space**

**2nd floor Unisex Toilet – No Grab Bars**
**Drinking Fountain – Standing Height Access**

**Men's Toilet Room – 2nd Floor**
**Non-accessible Toilets and Urinals (Height)**



**2nd Floor Men's Room**
**Grab bars, but not Ambulatory Stall Length**

**2nd Floor Break Room**

# STRUCTURAL SYSTEM

## Summary

The structure generally consists of steel roof deck over open web steel joists and steel girders bearing on a combination of steel columns and load-bearing masonry walls. West wing of original construction includes a second floor of cast-in-place concrete slabs, beams, and columns. All building segments are supported on a shallow concrete foundation system.

### LEGEND

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1.) 1952 (Levi A. Geniesse Proj 5203) – **ORIGINAL**<br>2.) 1983 Addition (Berners-Schober Comm. 3104) – **SOUTH**<br>3.) 1987 Addition (Berners-Schober Comm 3783) - **NORTH** |
| **Structure type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. |
| 1st Floor | **C** | | **S1, S2** | 1.) Original Building<br>a. North & South Garage wings – 7" concrete slab on grade with 4x4 #4/#4 wire mesh reinforcing.<br>b. Repair Shop (NW corner) – 7" concrete slab on grade with 4x4 #4/#4 wire mesh reinforcing over 3 ½" lightweight concrete.<br>c. Offices/Lockers (SW corner) – 5" concrete slab on grade with 4x4 #4/#4 wire mesh reinforcing.<br>2.) South Addition - 7" concrete slab on grade with 4x4 #4/#4 wire mesh reinforcing, sloped to trench drains.<br>3.) North Addition - 7" concrete slab on grade with 4x4 #4/#4 wire mesh reinforcing, sloped to trench drains. |
| Second Floor (Original 1952 bldg. only) | **CP** | $20,000 | **S3.** | a. South half is 8"+2 ½" cast-in-place concrete joist-slab on concrete beams and columns.<br>b. North half is 6 ½" solid one-way slab over wide flange steel girders and columns. |
| Roof | **C** | | **S4.** | 1.) Original Building<br>a. 2-story SE corner – 1 ½" steel deck on open web steel joists supported on exterior load-bearing masonry walls |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| | | | | and interior structural steel frame of wide flange girders and pipe columns.<br>b. 2-story North half – 1 ½" steel deck on open web steel joists supported on exterior load-bearing masonry walls and interior structural steel frame of wide flange girders and columns.<br>c. Boiler Room – 6" solid one-way slab on concrete beams and load-bearing masonry walls.<br>d. North and South Garage wings – 1 ½" steel roof deck over open web steel joists, wide flange girders, and load-bearing masonry walls.<br>2.) South Addition<br>a. 1 ½" steel deck on 36" "LH" series open web steel joists supported on original exterior load-bearing masonry walls on the north, and load-bearing masonry/steel frame at the south end.<br>b. Brine Storage and Wash Bay at the far east end are 8" precast prestressed plank on load-bearing masonry walls.<br>3.) North Addition – 1 ½" B-20 steel deck over open web steel joists, wide flange girders, and wide flange or concrete filled steel tube columns. |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams, columns, walls, 0 hour roof ) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There are various locations of minor shrinkage cracking of concrete floor slabs, but they do not pose a structural concern and no remedial action is recommended at this time.

**S2.** There are several locations throughout the building where there are significant cracks in the interior concrete masonry that do not extend through the exterior brick. This is a common occurrence in bonded brick and block walls when control joints are not present, due to the fact that the brick wants to expand due to moisture and temperature changes, and concrete block wants to shrink. There is however, one location on the far east wall of the north garage wing where the crack in the block did extend through the brick and was caulked and sealed with foam insulation. Of the locations observed, the cracking is not currently impairing the load-carrying capacity of the walls, and no remedial action is recommended at this time.

**S3.** In the 2-story wing of the original construction, there is significant cracking and shifting of the upper corner of the central bearing wall, as seen from the south face of the wall in the second floor conference/storage room. The masonry in the upper corner of this wall is cracked and shifted out to the north. In relation to the exterior west wall elevation of the building, this coincides with the location where the west wall makes a 2-foot offset to the east and is tied into the taller masonry walls of the north half of the 2-story portion of the building. Within this 2-foot offset, there is a vertical control joint in the brick. However, this control joint does not appear to extend through the block backup in the conference/storage room. This indicates that brick expansion of the south half of the west wall has pushed the block to the north, causing the damage seen in that central bearing wall. This shift of the brick on the west side of the control joint is also evident when looking down the offset portion of the wall from the roof. Structurally, this damage is not currently impairing the load-carrying capacity of the wall. However, as the wall will continue to go through expansion-contraction cycles through the seasons, the risk of water infiltration and further damage will continue to increase. Further analysis and some repair work at this location are recommended in the near future.

**S4.** There are several locations of spalled brick above column locations at the south garage wing. Based on the appearance of the surfaces of these steel columns, the spalling is likely due to vehicle impact. Any brick repair at these locations would be only cosmetic in nature.

**Concrete Slab Shrinkage Cracking (Note S1)**

**Cracking of Interior Concrete Masonry (Note S2)**

**Cracking of Interior Masonry Including Exterior Brick (Note S2)**

**Exterior Brick Opposite Masonry Cracking (Note S2)**

**Brick Damage at South Garage Wing**
**(Note S4)**

**Cracking of Interior Concrete Masonry**
**(Note S2)**

**Cracking of Masonry in 2nd Floor Conference Room**
**(Note S3)**

**West Wall 2 Foot Offset and Control Joint**
**(Note S3)**

**Brick Cracking at West Wall Parapet**
**(Note S3)**

# PLUMBING SYSTEMS

## Summary

Westside garage was constructed in approximately 1952, with additions in 1983 and 1987. The original piping is in fair condition, it has been replaced as needed when issues arise. Insulation could be added to the hot water piping for energy savings. Thermostatic mixing valves (TMV) and backflow prevention should be added to the systems. These are code issues which need to be corrected.

Building is served by numerous roof drains. Some of the roof areas have relief scuppers.

Plumbing fixtures are older and could be updated to conserve water. Building utilities in general appear adequate.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | PVC & cast iron |
| Storm/Clearwater Piping | F | | P3 | Cast iron |
| Valves | F | | P4 | Gate & ball |
| Domestic Water Service | C | | P5 | 3" main |
| Insulation | HP | $20,000 | P6 | Add insulation |
| Code Issues | D | See below | P7 | TMV, Backflow Prevention |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | (2) gas-fired |
| Recirculation Pump(s) | F | $6,000 | P9 | |
| Water Softener | F | | P10 | |
| Thermal Mixing Valve (TMV) | D | $4,000 | P11 | Add TMV (code issue) |
| Kitchen Equipment | NA | | | |
| Plumbing Fixtures | F | | P12 | |
| Backflow Prevention | D | $5,000 | P13 | Add vacuum breakers |
| "Shop" Air Compressor | F | | P14 | Quincy QR370 |
| Salt Brine System | F | | P15 | |
| Ambulance/Truck Garage | F | | P16 | Trench drain, garage catch basin |
| CW Booster Pump | F | | P17 | |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Exterior** | | | | |
| Storm Drainage, Roof Drains | F | | P18 | |
| Eyewash(es) | D | $3,000 | P19 | Add TMV's to eyewash |
| Utilities | F | | P20 | 3" water main, 5" sanitary sewer |

**NOTES:**

**P1.** Water piping is mainly copper, soldered joints. Fair condition. Cold water piping main has a small booster pump installed.

**P2.** Original sanitary is cast iron, hub & spigot. Piping from the later additions is cast iron no-hub.

**P3.** Storm piping is cast iron hub & spigot. Older piping is not insulated.

**P4.** Older valves are gate, newer valves are ball.

**P5.** Building is served by a 3" water main. 3" water meter with 3-valved by-pass. Fire protection has a separate main to serve the building.

**P6.** Water and storm piping is not insulated. Insulation should be added for energy savings and to control noise issues. Existing insulation from 1952 probably contains asbestos and will require abatement.

**P7.** Code issues: water temperature is set above the maximum 110° Fahrenheit. No thermostatic mixing valve (TMV) at the heater. Add TMV per code. Eyewashes require tempered water – add TMV's to the units. Faucet or hose connections should have threaded hose end vacuum breakers installed.

**P8.** Water heater is gas fired, direct vent to exterior, AO Smith Commercial, 160,000 BTU. Vintage 1990. There are (2) AO Smith 180 gallon storage tanks – model #TJV200M. There is a separate gas-fired water heater for the truck wash.

**P9.** Hot water recirculation pump is a Bell & Gossett. Heater in the truck wash doesn't have a recirculation pump.

**P10.** Small residential Culligan water softener is installed in the truck wash.

**P11.** Add TMV to the water heater. Set hot water temperature to 110° Fahrenheit. Code issue.

**P12.** Plumbing fixtures: No compliant ADA handicap fixtures in the building. Water closets are floor mounted or wall-hung with flush valve. Vitreous china lavatories are wall-hung or counter mounted with various lever handle faucets, no safety covers installed. Men's locker room has a stainless steel wash fountain. Older urinals are floor mounted, exposed piping. Newer urinals are wall-hung at approximately 24" aff. (non-ADA height). Showers are built-up tile units with valve – poor condition. Electric water coolers are single units at various heights. Janitor sink faucet(s) and hose connection(s) should have a hose end vacuum breaker installed. Various hose connections in the truck wash.

**P13.** There is a Watts 009 RPZ backflow in the mechanical room for the HVAC equipment. Numerous hose connection in the truck wash should have an elevated atmospheric vacuum breaker installed. Faucets with hose connection ends need to have a threaded hose end vacuum breaker installed.

**P14.** Quincy QR370 air compressor with vertical receiver installed for the shop area.

**P15.** Newer salt brine system with pumps and storage tanks installed. Connection to the domestic water has an RPZ backflow preventer installed.

**P16.** Garage/Shop areas: Trench drain(s) route to garage catch basins.

**P17.** Domestic water is boosted by a small in-line booster pump. Pump could use a control panel or sensors to be more efficient.

**P18.** There are interior roof drains which route through the building. Drains are in fair condition, but have some issues with tree debris clogging the drains. Some wall sections have parapet relief drains installed. Storm piping is not insulated.

**P19.** Eyewash in the shop/garage area requires a TMV for tepid water. Eyewash on the faucet (lavatory) is also not a code compliant unit – install TMV.

**P20.** Building is served from a 3" water main. Fire protection has a separate 8" main. Sanitary sewer is 5". Utilities route from Oneida Street. Storm sewers from the buildings and parking lots/drives route to a 15" and 18" sewer east of the building. These sewers route to a 42" storm sewer south.

**Water Main**

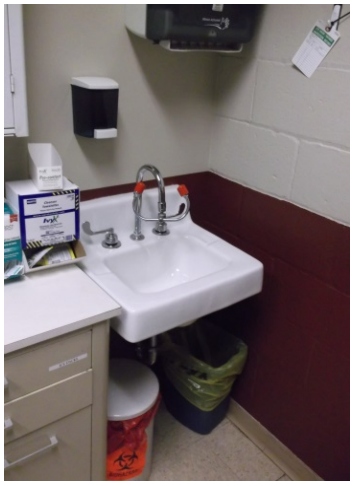
**Water Main & Meter**

**Water Piping**

**Storm Piping**

Sanitary & Vent Piping

RPZ Backflow Preventer (Serves HVAC)



(Non-compliant) Eyewash

Water Heater – Gas Fired

Hot Water Storage Tanks

Water Heater – Truck Wash

HWR Recirculation Pump

Water Softener

Clearwater Sump & Pump

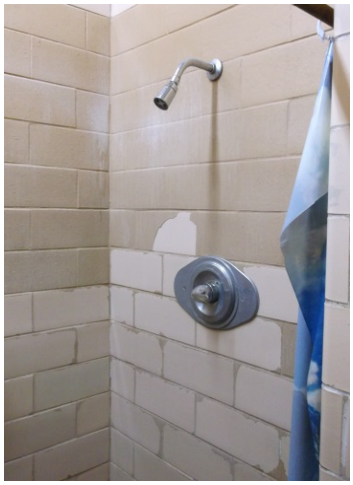
Water Closet

Water Closet & Lavatory

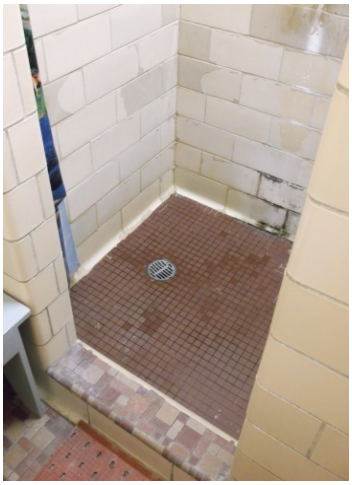
Urinals

**Wash Fountain**

**Lavatory**



**Shower**

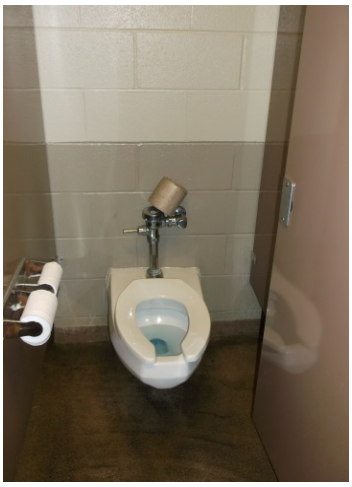


**Shower**

**Electric Water Cooler**

**Water Closet & Lavatory**

**Wall-hung Urinals**



**Wall-hung Water Closet**

**Janitor's Sink**

**EWC and Eyewash**

**Breakroom Sink**

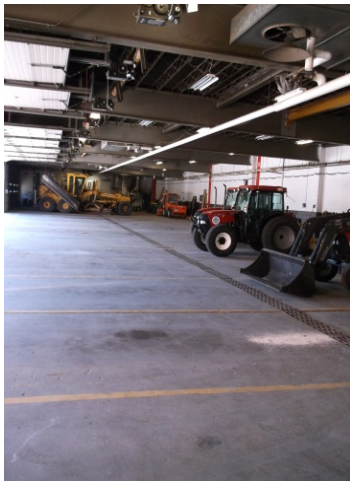
**Hose Connection**

Hose Connection

"Shop" Air Compressor

Salt Brine System

Truck Wash Bay



Trench Drain – Garage

Trench Drain

Trench Drain, Manhole

Garage catch Basin

Roof Drain

Roof Drain

Roof Drain, Sanitary Vent

Cold Water Booster Pump

# FIRE PROTECTION SYSTEMS

## Summary

The West Side Municipal Garage is a partially sprinkled building. An 8" dedicated water service main enters the building through the floor on the west side of the repair garage and reduces to 6" inside the building.

The repair garage area of the building is sprinkled, while the remainder of the building is unsprinkled. The system appears to be in overall fair condition, with normal aging/corrosion on the pipes for the age of the system.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| FIRE PROTECTION | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Water Service** | **C** | | FP1 | 8" Water Service. |
| Backflow Prevention | **D** | $7,000 | FP2 | |
| Fire Pump | **NA** | | | |
| Fire Pump Controller | **NA** | | | |
| Jockey Pump | **NA** | | | |
| Jockey Pump Controller | **NA** | | | |
| **Wet Pipe Sprinkler System** | **F** | | FP3 | |
| Valves | **F** | | | |
| Piping | **F** | | | |
| Sprinkler Heads | **D** | $4,000 | FP4 | |
| **Percent of Building Unit Sprinkled** | **30%** | | FP5 | |
| **Other Fire Protection Systems** | | | | |
| Pre-action System | **NA** | | FP6 | |
| Kitchen Hood System | **NA** | | FP6 | |

**NOTES:**

**FP1.** The 8" water service enters the building through the floor of the west side of the repair garage. The water supply is dedicated to the fire sprinkler system and is sized adequately to allow for future expansion of the sprinkler system into the remainder of the building.

**FP2.** OS&Y gate valves are installed on the system riser with a wall mount indicating valve extending through the exterior wall allowing shutoff from the exterior of the building. A check valve is installed in the system riser, but does not meet backflow prevention requirements. A double check valve backflow preventer is required to be installed between the domestic water supply and the fire sprinkler system.

**FP3.** The repair garage area and the second floor storage room are protected by the automatic fire sprinkler system. The remainder of the building is unsprinkled. The second floor storage room is home to several racks of tire storage. It is unclear whether the sprinkler system was designed to protect against this hazard, but if that was not the room's original intent it is unlikely that the room was designed to protect against tire storage.

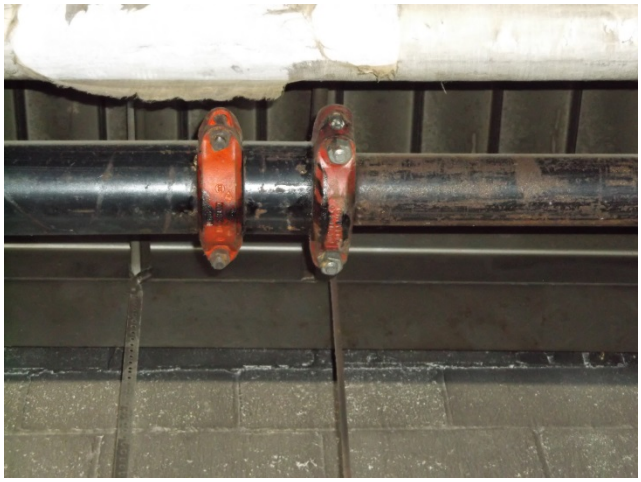
**FP4.** No sprinkler heads are installed below the garage doors in the repair garage. Sprinkler heads are required under all obstructions wider than 4'-0" including garage doors.

**FP5.** The repair garage and second floor storage room are sprinkled. The remainder of the building is unsprinkled.

**FP6.** No kitchen hood system, pre-action system, or clean agent systems are present in this building.

**No Sprinkler Heads below Overhead Doors**

**System Riser**



**Coupling Showing Signs of Leaking**

# HVAC SYSTEMS

## Summary

The original building was constructed in 1952 with addition projects constructed in 1983 and 1987. The majority of the HVAC ventilation equipment is original to one of these three projects except for the power roof ventilators. The fans vary in size, condition, and age as the units have been upgraded and replaced on an as-needed basis over the last 60 years.

A steam boiler is original to the 1952 construction. A second boiler and some ancillary equipment have been replaced with equipment that was relocated from the downtown mall just prior to the mall's demolition. A steam to water heat exchanger system originally serving an in-floor heat system under the original repair garage has been abandoned.

The ventilation system in the salt brine solution room was installed and revised. A new unit heater and ventilation louver was installed. This room was previously the paint shop. The original gas fired heating units remain, however it is believed these units are abandoned as new unit heater, fan, and ventilation louver have been installed in this room.

The 1983 addition installed an air unit and chiller to serve the offices, locker rooms, and similar ancillary spaces within the addition and original 1952 building. Steam radiators with Danfoss valves are used for local heat throughout these spaces. Some occupied spaces of the original 1952 building are not ventilated.

The 1952, 1983, and 1987 storage and repair garages are served by make-up air units equipped with steam heating coils. The equipment appears to be original to the construction projects. These systems are in general, well past their expected useful life. The maintenance staff has indicated that some of the air unit components have failed and repairs are needed to maintain space temperature prior to the 2015/2016 heating season. The garage exhaust requirements are served by multiple power roof ventilators. These fan systems vary in size, age, and condition. Radiant heaters are installed in the 1987 repair garage addition.

A recent energy efficiency project replaced all of the steam traps in the building. Multiple valves and other components on the steam system continue to leak.

The building's control system is antiquated and multiple components have failed. Staff indicated that the system air lines in the building are plugged and/or leak severely. This restricts the ability of the pneumatic actuators on the make-up air units and heating units to operate properly and leads to space temperature fluctuations or over/under heating of the spaces.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Office/Locker Rooms** | | | | |
| Housing | HP | $150,000 | H1 | Installed 1983. Trane modular unit. |
| Coils | HP | Incl. | H1 | Steam, Chilled water. |
| Fan | HP | Incl. | H1 | 6800 CFM, 5HP. |
| Filters | HP | Incl. | H1 | 30% |
| Controls | HP | Incl. | H1 | Pneumatic actuators. |
| Ductwork | F | | | Original. Some duct leakage. |
| Insulation | F | | | Repair around air unit when air unit is replaced. |
| Occupied Area Ventilation | D | $150,000 | H1 | Parts room and training room are not ventilated. Other rooms could be included if occupied as well. |
| **Chiller** | | | | Installed 1983 |
| Housing | HP | $50,000 | H2 | Nominal 30 ton. Glycol. |
| Pumps | F | | | 60 GPM @ 40 FT., 1.5 HP |
| Insulation | F | | | Some minor damage on the outside piping. |
| **Exhaust Fans** | | | | |
| Office/Locker Area | C | | H3 | Power roof ventilators of various sizes and ages. |
| Ductwork | HP | $15,000 | H3 | Mostly original ductwork. Dirty and leaks. Duct cleaning, sealing and balancing is recommended. |
| **Boiler System** | | | | |
| Boilers | HP | $400,000 | H4 | Relocated Cleaver Brooks Boiler-627,000 BTUH, Refractory repair in 2015. 1952 Kewaunee Boiler, 5,550 MBH. Inspected 2012. |
| Condensate Pump | HP | $10,000 | H4 | Condensate pump is old and in poor shape. 15,000#-3/4HP, 6,000#-1/2HP. |
| Deaerator | F | | H4 | Relocated from downtown mall? (2) 1/3 HP transfer pumps in good shape. |
| Piping | HP | $20,000 | H4 | Original to the buildings construction. Traps replaced. Original 1952 valves, unions in need of minor replacement with equipment replacement projects. |
| Pipe Insulation | HP | $25,000 | H4 | Most insulation is in fair shape for its age. A number of spots are bare or have |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| | | | | damaged insulation. |
| Room Terminal Units | CP | $30,000 | H4 | Manual control on original radiator units. Pneumatic system has leaks and is plugged in some locations. Replace with low voltage DDC during major system upgrades. |
| **Mechanical Room Ventilation** | D | $15,000 | H5 | Boiler room is not ventilated. Staff indicated this is currently a planned project. |
| **Controls** | | | | |
| Air Compressor | C | | H6 | Speed-Air 14.6 SCFM<br>Shop air unit is 15 HP |
| Air Dryer | C | | H6 | Dryer on temperature control system is in good shape but lines already leak and contain condensation causes plugs. |
| Building Management | CP | $100,000 | H7 | Minimal operator interface capability. Upgrade required prior to or with equipment replacement projects. |
| **Salt Brine Room** | | | H8 | |
| Make-up Air Unit | HP | $30,000 | H8 | Roof top gas fired units are original to 1983 project appear to be abandoned. Remove and review the room's ventilation/heat. |
| Ventilation | N | | | New dampers and control. |
| Heater | N | | | Steam. |
| Piping/Insulation | HP | $500 | H8 | Insulation is missing. |
| Control | N | | | |
| **1952 Garage Ventilation** | | | | |
| Make-up Air Unit | CP | $360,000 | H9 | Original air units with steam coils. 10,000 CFM and (4) 4,000 CFM units. |
| Exhaust | HP | $20,000 | H9 | Various sizes and ages. |
| Heaters | HP | $10,000 | H9 | Steam, Various sizes, Older units. |
| Piping/Insulation | CP | $20,000 | H9 | Piping is original and components continue to leak. Insulation is damaged in many locations, missing where previous repair work has occurred or fallen off. |
| Control | CP | $25,000 | H13 | Old pneumatic controls. Air lines are plugged/leak. |
| In-Floor Radiation | NA | | | Abandoned system |
| **1983 Garage Ventilation** | | | | |
| Make-up Air Unit | CP | $235,000 | H10 | (2) 8500 CFM, 5HP, Steam Coils |
| Exhaust | CP | $20,000 | H10 | Power roof ventilators. Too close to roof edge. |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Control | CP | $20,000 | H13 | Control components have failed. System requires some manual operation. |
| **1983 Wash Bay Ventilation** | | | | |
| Exhaust | HP | $10,000 | H11 | Multiple fans, upsize for additional air flow. |
| Heaters | HP | $5,000 | H11 | Piping insulation is deteriorating due to high humidity. |
| Control | CP | $5,000 | H11 | Pneumatic. |
| **1987 Garage Ventilation** | | | | |
| Make-up Air Unit | CP | $160,000 | H12 | Installed 1987, 18000 CFM, 15 HP, steam coil. |
| Exhaust | CP | $20,000 | H12 | Power roof ventilators of various sizes and ages. |
| Circulation Fans | F | | | Newer and Older units. |
| Control | CP | $20,000 | H13 | Timers with pneumatic operators. Fans manually operated. |
| Repair Garage Vehicle Exhaust | F | | H12 | Dedicated capture fan connected to vehicles via hoses. Above and below grade ductwork. |
| Radiant Heaters | HP | $50,000 | H12 | Some unit components replaced. |

**NOTES:**

**H1.** An air unit with glycol chiller was installed in 1983 to ventilate the office and locker room area. The unit is past its expected useful life. There are areas of the building that are occupied but are not ventilated. An air unit replacement project is recommended to replace the air unit, chiller, and extend ventilation to all occupied rooms. VAV terminals or reheat coils installed at each room will provide individual room control.

**H2.** This unit serves the 1983 air unit. Replacement of the air unit with a larger system will require the replacement of the chiller. To serve the new units cooling load a chiller or DX system is recommended to be installed with the air unit replacement project.

**H3.** The exhaust fans in the building have been replaced as they have failed. These units vary in size and age. The locker rooms appear to be properly ventilated, however these rooms are dirty and the exhaust system is quite dirty which reduces air flow. The ductwork is 32 years old and the joints leak. A project to seal and clean the ductwork is recommended.

**H4.** The original boiler is past its expected useful life. The equipment relocated from the downtown mall is in fair shape. The boiler fill pumps have newer motors and the refractory on the boiler has been repaired. The condensate pump is in poor shape and replacement is recommended. Piping is original to the three main construction projects. All steam traps have been replaced due to failure. Some original piping components and joints leak and a project to replace valves, replace and renovate piping and insulate piping components is recommended.

Replacement of the original boiler is also recommended. If the garages are switched to gas heat, then the steam boilers are no longer necessary and both boilers could be replaced with high efficiency condensing boilers. If steam is retained, a hot water boiler or a steam to water heat exchanger system is recommended to replace the existing, abandoned system. This will allow hot water to serve the office and locker area heating devices and provide reheat coils within the ductwork, which will provide individual room thermal control.

**H5.** The boiler room is not ventilated and the room temperatures easily reach 100 degrees in the winter months. Staff indicated a boiler room ventilation project is currently budgeted.

**H6.** The building temperature control air compressor and air dryer are relatively new. However, the airlines are old and previous failure of the air dryer has caused plugged airlines. In addition, the airlines leak badly which limits the ability of the system to operate the pneumatic actuators which causes thermal issues throughout the building. It is recommended to replace the pneumatic components with low voltage DDC as equipment is replaced.

**H7.** The building management system is primarily pneumatic and the system is failing. New equipment will require a new building management system and a new DDC system will allow staff to monitor the equipment from either garage site or another remote location. It is recommended to install a new building management system with a major equipment replacement project. The pneumatic systems are recommended to be phased out and replaced with low voltage DDC.

**H8.** The salt brine room was renovated when the city began using this solution in lieu of straight salt. The paint room was renovated to create this room. The make-up air units remain on the roof and these units are past their expected useful life and quite large for this space. A replacement project is recommended to replace the air units with right sized equipment. The equipment can remain gas fired or may switch to steam.

**H9.** The repair and storage garage heating and make-up air systems appear to be original with repairs and modifications made in subsequent addition and remodeling projects. The make-up air units and exhaust fans appear to be sized to meet/exceed ventilation requirements, but have exceeded their expected useful life. Staff has indicated that some of the unit components have started to fail and the units are requiring increased maintenance.

Exhaust fans are of varying sizes and conditions as they have been replaced on an as needed basis. Some units are currently past their expected useful life. Some units are located immediately adjacent to a roof edge. It is recommended to relocate the fans or install guard rails at these locations when the fans require replacement.

The air units utilize steam coils to provide heat. The piping is original to each construction project. The majority of the piping and insulation is in good shape. However there are locations where piping is missing or damaged, primarily in locations where maintenance work has been required. It is recommended to repair the insulation when the air units are replaced.

Circulation fans have been added to the repair garages through the years. In general these fans are in fair condition.

Radiant heat is installed in the 1987 addition. Staff indicated the radiant heat is desirable in the winter months when repairing vehicles and the large overhead doors are continually opening and closing. There is a desire to install radiant heat throughout the 1952 repair garage area.

A project to revise the make-up air, exhaust air, heating units and install radiant heat is recommended to improve ventilation, thermal comfort, and occupant safety.

**H10.** The storage garage heating and make-up air systems appear to be original with repairs and modifications made in subsequent addition and remodeling projects. The make-up air units and exhaust fans appear to be sized to meet/exceed ventilation requirements, but have exceeded their expected useful life. Staff has indicated that some of the unit components have started to fail and the units are requiring increased maintenance.

Exhaust fans are of varying sizes and conditions as they have been replaced on an as needed basis. Some units are currently past their expected useful life. Some units are located immediately adjacent to a roof edge. It is recommended to relocate the fans or install guard rails at these locations when the fans require replacement.

The air units utilize steam coils to provide heat. The piping is original to each construction project. The majority of the piping and insulation is in good shape. However there are locations where piping is missing or damaged, primarily in locations where maintenance work has been required. It is recommended to repair the insulation when the air units are replaced.

A project to revise the make-up air, exhaust air, heating units and install radiant heat is recommended to improve ventilation, thermal comfort, and occupant safety.

**H11.** The wash bay equipment appears to be, in general, original to the addition. The heaters, piping, and insulation are deteriorating due to the high humidity within the space. Multiple exhaust fans serve the wash bay and are located near the roof edge. Replacement projects should revise the fan location or installation of guard rails. A project to replace the heaters, increase ventilation, and repair the piping and insulation is recommended.

**H12.** The repair and storage garage heating and make-up air systems appear to be original with repairs and modifications made in subsequent addition and remodeling projects. The make-up air units and exhaust fans appear to be sized to meet/exceed ventilation requirements, but have exceeded their expected useful life. Staff has indicated that some of the unit components have started to fail and the units are requiring increased maintenance.

The air units utilize steam coils to provide heat. The piping is original to each construction project. The majority of the piping and insulation is in good shape. However there are locations where piping is missing or damaged, primarily in locations where maintenance work has been required. It is recommended to repair the insulation when the air units are replaced.

Exhaust fans are of varying sizes and conditions as they have been replaced on an as needed basis. Some units are currently past their expected useful life. Some units are located immediately adjacent to a roof edge. It is recommended to relocate the fans or install guard rails at these locations when the fans require replacement.

Circulation fans have been added to the repair garages through the years. In general these fans are in fair condition.

In the repair garage area, vehicle exhaust capture systems are installed. These are located overhead and underground. These systems appear to be in fair condition.

Radiant heaters are installed in the repair garage area. Staff indicated the radiant heat is desirable in the winter months when repairing vehicles and the large overhead doors are continually opening and closing. There is a desire to utilize more radiant heat throughout the repair garage area and plan to install during a major equipment replacement project. The currently installed units appear to be in fair condition. The HP grade allows for a budget number to appear in the executive summary.

A project to revise the make-up air, exhaust air, and heating units is recommended to improve ventilation, thermal comfort, and occupant safety.

**H13.** An enclosed repair and storage garage has specific exhaust code requirements and the garage is required to have a negative pressure in relation to the other occupied spaces. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. The existing control systems have or are failing and many of the exhaust fans are manually operated. It is recommended to revise/replace the exhaust control systems in the repair and storage garages to improve ventilation and occupant safety.

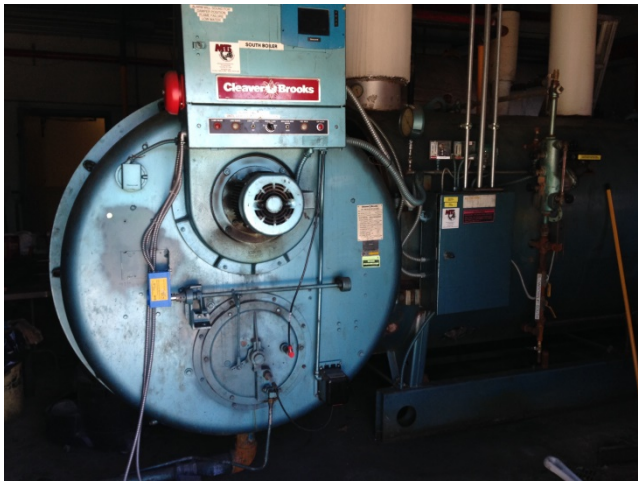
**1952 Garage Air Unit**

**Storage Garage Air Unit**

**Old Paint Shop Air Unit**

**Storage Garage Make-up Air Unit**

**1987 Garage Make-up Unit**

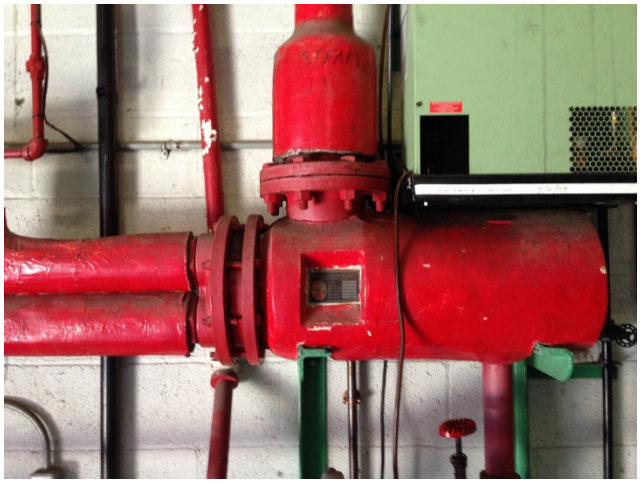



**Boiler**

**Boiler**

**Deaerator**

**Unit Heater (Typical)**



**Steam Heat Exchanger (Abandoned)**

**Return Fan**

**Office Air Unit**

**Condensate Pump**

**Salt Brine Room Heater (Uninsulated Pipe)**

**Older Garage Ventilator**

**Fan (Located Near Roof Edge)**

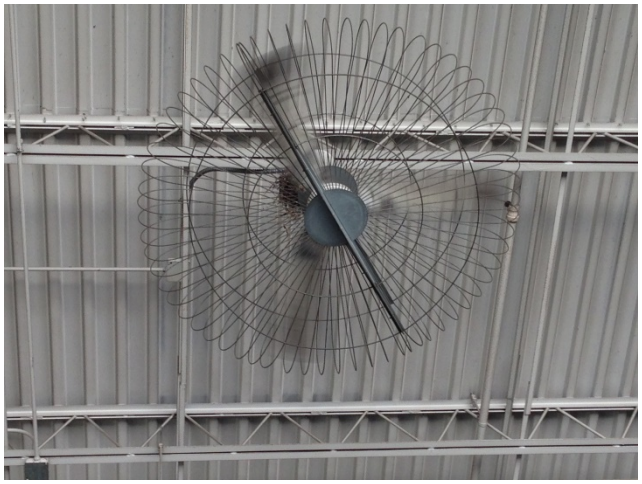
**Vehicle Exhaust Fan**

**PRV (Typical)**

**Supply Duct (on Roof)**

**Vehicle Exhaust Hoses**

**Chiller**



**Circulation Fan**

**Radiant Heater**

**Underground Vehicle Exhaust**

**Control Panel**

**Temperature Control Air Compressor**

**Gas Meter**

**Control Panel**

# ELECTRICAL SYSTEMS

## Summary

The building is served by an 800 Amp, 120/208 Volt, three phase electrical service originating from a pad-mount transformer located west of the building. The main distribution panel (MDP) is a fusible-switch type manufactured by ITE. It is believed to be original to the building (circa 1956). ITE is no longer manufactured. The enclosure's cover has several spots that are corroding. There is one spare switch for expansion; it is rated 200 amps. MDP's main nameplate erroneously lists the equipment as 480-volt.

A 100-kW natural gas-fired generator provides standby power. The generator is enclosed within a weather-housing unit despite being located inside. It feeds an automatic transfer switch (ATS) rated 300 amps. The ATS is quite dirty (inside and out) and would benefit from a thorough cleaning. It appears the generator is serving both emergency loads (life safety related) as well as non-emergency loads.

Branch panels are mostly manufactured by ITE and Westinghouse – both companies no longer manufacture panelboards. Overall the condition of the branch panels is good, but their age means replacement circuit breakers will become increasingly difficult to acquire.

Receptacles within the garage are not all GFCI protected.

Generally lighting fixtures are in good to fair condition, and utilize T8 lamps and ballasts. Lighting fixtures in the vehicle sash bay are in need of replacement as they are literally being held together with tie wraps. HID building mounted fixtures are in fair condition.

The network computer and radio equipment is located behind a hinged two-sided wood paneled enclosure in the office. Although the ambient temperature didn't seem too warm, this equipment is susceptible to heat, and works best in environments where temperature and ventilation is controlled specifically for electronics. The equipment would also benefit from a thorough cleaning.

There is a fire alarm system throughout most of the buildings identified as A, B, C, and D – although its application generally doesn't meet today's code. There doesn't appear to be any fire alarm in Building E. The Fire Alarm Control panel is a Fire Lite model MS-4.

An overhead electric feeder to an outside crane utilizes non-metallic sheathed cable (often referred to as Romex). Non-metallic sheathed cable is not approved for exterior applications.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Distribution Panel | F | $30,000 | E1,E2, E9 | Enclosure beginning to corrode; age lessens reliability; lubricate. Plan for replacement. |
| Branch Panels | F | $20,000 | E2 | Mostly a mix of Westinghouse and ITE panels. Although in fair condition their age lessens their reliability and will eventually make it difficult to find replacement parts. Plan for replacement. |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Emergency Power Distribution Equipment** | | | | |
| Automatic Transfer Switch | C | $1,000 | E3,E4 | 300-amp Onan – thorough cleaning and preventive maintenance recommended; some status lights not working |
| Branch Panels | F | $7,500 | E2 | Mostly a mix of Westinghouse and ITE panels. Although in fair condition their age lessens their reliability and will eventually make it difficult to find replacement parts. Plan for replacement. |
| **Power** | | | | |
| Receptacles | D | $1,500 | E5 | Garage receptacles need to be GFCI. |
| **Lighting** | | | | |
| Garage and Utility Areas | C | | | Industrial fixtures with T-8 lamps in good condition. |
| Interior Spaces | C | $3,000 | E6 | T-8 lamps; lighting in good condition. Suggest replacing paracube lenses with acrylic prismatic lenses |
| Exterior | F | $3,500 | E7 | Replace HID with LED. |
| **Emergency Egress Lighting** | | | | |
| Emergency Egress Lighting and Exit Signs | CP | $20,000 | E8 | Add a second ATS and panelboards or add Unit Equipment (battery equipment) dedicated to emergency egress lighting |
| | | | | |
| **Fire Alarm** | | | | |
| Audible and Audible/Visual Alarms | HP | $5,000 | | Add audible and audible/visual alarms to comply with current Code. |
| Upgrade to an addressable control panel | F | $30,000 | E10 | Plan replacement of existing zoned system with an addressable system. |
| | | | | |
| **Telecommunications** | | | | |
| Data/Voice | C | | | Data server equipment in good condition with Cat 5 cabling. |

**NOTES:**

**E1.** The corrosion evident on the enclosure's cover is likely also affecting the mechanical parts of the fusible switches. Eventually this corrosion will prevent the switch from operating correctly.

**E2.** Replacement parts and circuit breakers will eventually be unavailable due to the equipment's age and the fact that the manufacturer is no longer in business.

**E3.** Dust and dirt can be conductive; a thorough cleaning is recommended.

**E4.** Repair lights that report the generator's status.

**E5.** Code requires ground fault protection be provided for receptacles located in garage areas, outdoors, within 6-feet of a sink, and serving work benches.

**E6.** Replacing paracube lenses with acrylic prismatic lenses will brighten spaces, improve lighting uniformity, and make them more appealing.

**E7.** Replacing HID fixtures with LED fixtures will reduce operating and maintenance costs.

**E8.** A second ATS and branch panels dedicated to emergency egress lighting is the better option long term since the facility already has a standby generator. While unit equipment (battery operated emergency lighting) is the least expensive first-dollars solution, it has ongoing maintenance material and labor costs related to replacing batteries every 3 to 5 years.

**E9.** Lubricating mechanical components regularly as part of a preventative maintenance program enhances continued and reliable operation of equipment.

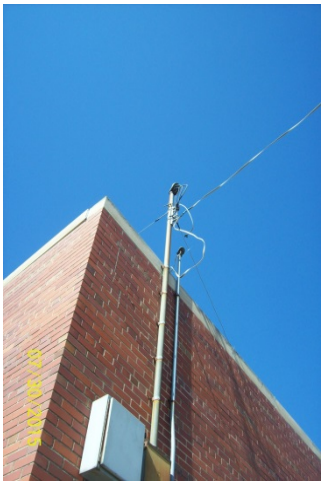
**E10.** An addressable system provides reporting on each device in the system.

**Existing Main Service Equipment**

**Typical Branch Panels**

**Network and Radio Equipment**

**Non-GFCI Receptacle in Garage**



**Non-compliant Use of Non-metallic Sheathed Cable**

**Lighting Fixture in Wash Bay (Tie-wrapped)**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## VEHICLE STORAGE – BUILDING F

**August, 2015**

## MUNICIPAL GARAGES

# SUMMARY

***Date of Visit: July 30, 2015***
***Address: 519 S. Oneida Street***

## Building Description

Existing Building is a 12" solid masonry wall with brick veneer and concrete block bearing wall, back-up.

There are (7) overhead sectional doors on the south face of the building. They are six-panel doors with no lights. They appear in good working condition.

Minor tuck-pointing and masonry restoration required throughout.

## Code/Accessibility

Two legal means of egress are available from all portions of the building. Clear egress corridors are available. There are no interior shafts or stairs. The doors have knob hardware. In the future, these should be upgraded to lever hardware to comply with current code.

As a typically unoccupied building, accessibility would not be a factor in the functionality of this building. The building is at grade.

## Structural System

The structure consists of steel roof deck over open web steel joists and steel girders supported by exterior load-bearing masonry walls, all bearing on cast-in-place foundations.

## Plumbing Systems

No plumbing systems to report. Building roof pitches to gutters and downspouts. Interior manhole and trench drain have been plugged with debris – possibly capped/removed.

## HVAC Systems

This building ventilation and heating system is abandoned. A gas fired make-up ventilation unit previously provided heated ventilation and make-up air for the building. Two roof ventilators previously provided exhaust/relief ventilation. The ventilators are located in opposite corners of the building, immediately adjacent to the roof edge. A warning sign is posted at the entrance to the building indicating "Carbon Monoxide May Be Present."

## Electrical Systems

The building is served by a 120/240 Volt, single phase electrical service originating from a pole-mount transformer located on the eastside of the building. The main service disconnect is a fusible switch rated 200-amps. The building has two branch panels – one adjacent to the main service disconnect; one located on the building's west wall. Both panels are Square D load centers; both in good condition. Working clearance (unobstructed access) is an issue at both panels.

Receptacles both on the interior and exterior are not GFCI protected.

Lighting fixtures utilize T8 fluorescent lamps and are in good to fair condition. There is no emergency egress lighting other than exit signs. Exit signs have battery back-up.

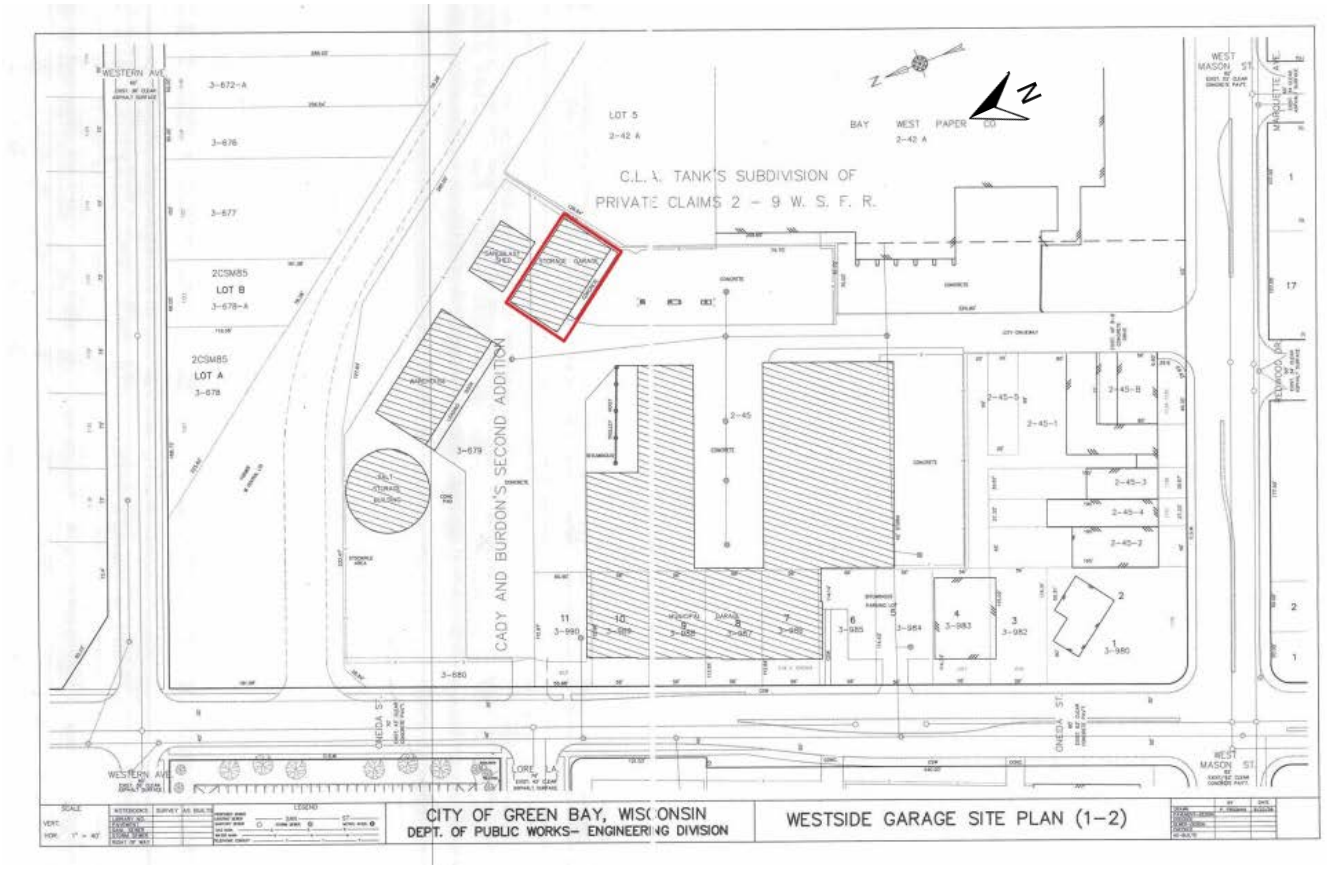
There is a no fire alarm system.

## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural and Code/ADA** | | | Exterior Facade Condition | **$7,000** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | | **NA** |
| **HVAC Systems** | Air Intake/Make-up | | | **$1,000** |
| | Replace Abandoned Heating Equipment | | | **$50,000** |
| | Exhaust Fan | | | **$20,000** |
| | Control | | | **$2,000** |
| **HVAC Subtotal** | | | | **$73,000** |
| **Electrical** | | | Main Service Disconnect | **$250** |
| | Receptacles | | | **$500** |
| | Exterior | | | **$200** |
| | | Exit Signs | | **$150** |
| **Electrical Subtotal** | | | | **$1,100** |
| **Building Total** | | | | **$81,100** |




**Site Plan**

**Aerial View of Site**

# ARCHITECTURAL

## Building Description

Building F is a masonry structure with overhead doors for vehicle storage and two personnel doors for egress/access. All doors except one of the personnel doors are on the south elevation.

## Building Envelope

### Exterior Walls

Existing building is a 12" solid masonry wall with brick veneer and concrete block bearing wall, back-up.

There are (7) overhead sectional doors on the south face of the building. They are six-panel doors with no lights. They appear in good working condition.

Minor tuck-pointing and masonry restoration required throughout.

### Windows

All original windows previously infilled with concrete block and face brick. Ventilation louvers appear in good working condition; perimeter needs sealant.

### Roof

The roofing system is a fully adhered EPDM membrane on tapered insulation, sloping to a gutter and downspout on the back side. The trims, flashings gutters and open faced downspouts are matching break metal. The roofing was installed circa 2005.

## Interior Finishes

### Floors

Concrete slab floors have some cracking. A former drain running the length of the building was removed and filled in with gravel.

### Walls

Building has no interior partitions. See exterior walls for commentary.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Unknown | **Gross Area** | 6,000 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group U – Utility and Miscellaneous | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

### Egress and Safety

Two legal means of egress are available from all portions of the building. Clear egress corridors are available. There are no interior shafts or stairs. The doors have knob hardware. In the future, these should be upgraded to lever hardware to comply with current code.

## Summary of Accessibility/ADA Compliance

As a typically unoccupied building, accessibility would not be a factor in the functionality of this building. The building is at grade.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | | | |
| Exterior Facade Condition | HP | $7,000 | | |
| Exterior Door Condition | F | | A1 | |
| Window Condition | NA | | | |
| Floor | F | | | |

**NOTES:**

**A1.** Lever handles would comply with accessibility codes and facilitate ease of use. Lever handles are code requirement for any new or renovated work.

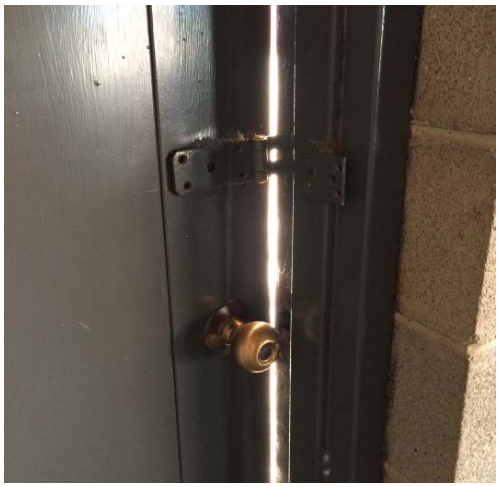
**Southwest Elevation**

**Roofing**

**West End of Interior**

**East End of Interior**

**South Personnel Door**



**East Personnel Door**

## STRUCTURAL SYSTEM

### Summary

The structure consists of steel roof deck over open web steel joists and steel girders supported by exterior load-bearing masonry walls, all bearing on cast-in-place foundations.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | Unknown |
| **Structure type** | | | | |
| Foundations | **C** | | **S1** | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. |
| 1st Floor | **C** | | | 7" concrete slab on grade with 6X6 #6/#6 wire mesh reinforcing. |
| Roof | **C** | | | 1 ½" A-20 steel deck on open web steel joists and wide flange steel girders supported on exterior load-bearing masonry walls |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams, columns, walls, 0 hour roof ) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | **S1** | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There are various locations of minor shrinkage cracking in the concrete slab on grade. No remedial action recommended at this time.

**Concrete Slab Shrinkage Cracking**

**Concrete Slab Cracking**

## PLUMBING SYSTEMS

### Summary

This is a masonry building.
No plumbing systems to report. Building roof pitches to gutters and downspouts. Interior manhole and trench drain have been plugged with debris –possibly capped/removed.

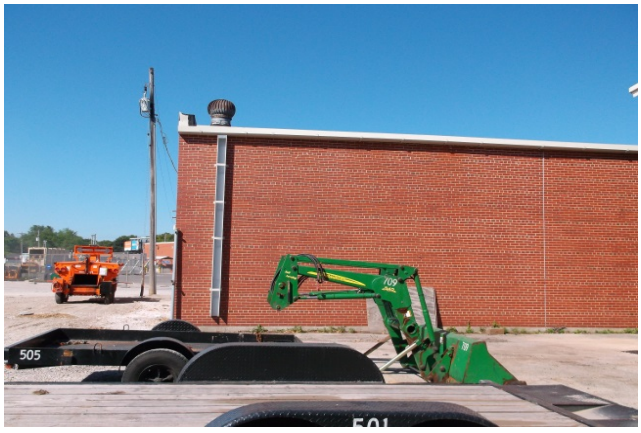
**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | |
| Sanitary Piping/Main | NA | | | |
| Storm/Clearwater Drainage | F | | P1 | |
| Code Issues | NA | | | |

**NOTES:**

**P1.** Masonry building with pitched roof. Roof discharges to gutter and downspouts. Area around the building is concrete, pitches to interior catch basins.




**Building Roof Edge**

**Manhole and Trench Drain**

## HVAC SYSTEMS

### Summary

This building ventilation and heating system is abandoned. A gas fired make-up ventilation unit previously provided heated ventilation and make-up air for the building. Two roof ventilators previously provided exhaust/relief ventilation. The ventilators are located in opposite corners of the building, immediately adjacent to the roof edge. A warning sign is posted at the entrance to the building indicating "Carbon Monoxide May Be Present."

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | N/A | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Air Intake/Make-up | D | $1,000 | H1 | Abandoned |
| Replace Abandoned Heating Equipment | D | $50,000 | H1 | Abandoned |
| Exhaust Fan | D | $20,000 | H1 | Abandoned |
| Control | D | $2,000 | H1 | Abandoned |

**NOTES:**

**H1.** The building is utilized for vehicle storage. The building is not required to be heated and does not need to be replaced. However an exhaust system is required.

A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. A garage exhaust fan project to install exhaust fans and control system is necessary to improve garage ventilation and occupant safety.

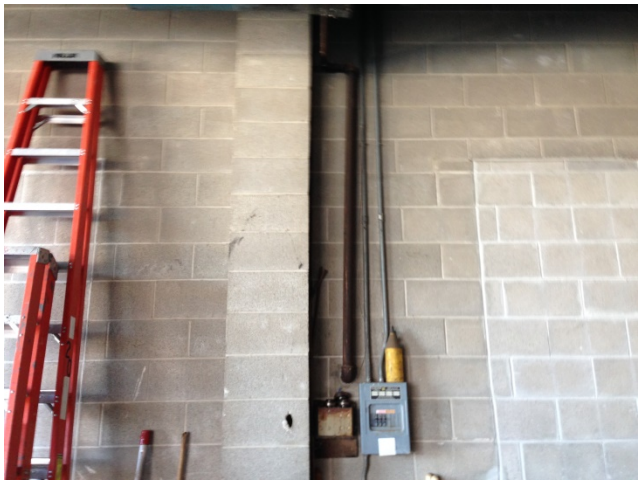
Installing a small fan to continuously ventilate the space at the minimum flow rate, and a larger fan interlocked to the lights (indicating building occupancy) is recommended.

The existing position of the exhaust fans, immediately adjacent to the roof edge, is not compliant. Fans located on the roof are required to be installed 10 feet from the building edge or a safety rail is required.

Heat is not required for this building. Because the existing building was previously heated, a grade and budget cost is included for consideration only.

**Intake Louver**

**Gas Service (Abandoned?)**



**Equipment Power and Control**

**Make-up Air Unit (Gas Fired)**

**Exhaust Intake (Behind Storage)**

**Exhaust Intake (Behind Storage)**

**Warning Sign**

**Roof Ventilator**

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 120/240 Volt, single phase electrical service originating from a pole-mount transformer located on the eastside of the building. The main service disconnect is a fusible switch rated 200-amps. The building has two branch panels – one adjacent to the main service disconnect; one located on the building's west wall. Both panels are Square D load centers; both in good condition. Working clearance (unobstructed access) is an issue at both panels.

Receptacles both on the interior and exterior are not GFCI protected.

Lighting fixtures utilize T8 fluorescent lamps and are in good to fair condition. There is no emergency egress lighting other than exit signs. Exit signs have battery back-up.

There is a no fire alarm system.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Disconnect | HP | $250 | E1 | Lubricate mechanical components |
| Branch Panels | D | $0 | | Remove obstructions in front of panels (maintain working clearance). |
| **Power** | | | | |
| Receptacles | D | $500 | | Receptacles installed in the garage and outdoors need to be GFCI. |
| **Lighting** | | | | |
| Interior | C | | | T-8 lamps; lighting in good condition. |
| Exterior | D | $200 | E2 | Replace failed photocell on easternmost LED wall pack lighting fixture. |
| **Emergency Egress Lighting** | | | | |
| Exit Signs | CP | $150 | | Support conduit serving Exit Sign |

**NOTES:**

**E1.** Lubricating mechanical components regularly as part of a preventative maintenance program enhances continued and reliable operation of equipment.

**E2.** A failed photocell keeps the fixture always ON.

**Access to Main Service Disconnect Obstructed**

**Failed Photocell Keeps Fixture Always ON**

**Conduit Serving Exit Sign Improperly Supported**

**Service Pole and Transformer**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## CITY HALL

**August, 2015**

## PARKS DEPARTMENT

# SUMMARY

***Date of Visit: August 20, 2015***
***Address: 100 North Jefferson Street***

## Building Description

City Hall is a simple rectangular building constructed in 1955. It is clad in polished granite panels on the first floor, with cream colored brick slightly stepped out past the panels covering the remaining 6 story façade and mechanical penthouse. Floor-to-floor heights range from 12'-0" on 3rd through 5th floors, to over 14'-2" on 2nd floor, where City Council Chambers are located.

Two main entrances facing west toward Jefferson Street have a flat-roofed canopy supported on granite-clad columns. A third entrance opening toward the parking lot and alley to the east has a smaller canopy supported by painted metal columns.

Areas of the exterior shell are in need of minor masonry and mortar repair. Most of these areas are concentrated on the upper penthouse brick exterior wall. Cracked granite panel outside of the mayor's office observed and previously discussed with the City.

Typical interior finishes and condition:

- Terrazzo floors .....good condition
- Carpeting .....varied condition, some older and showing wear
- Composite tile .....varied, some recommended to be replaced
- Marble wall wainscot .....good condition
- Gypsum board or plaster walls ..fair to good condition
- Ceilings .....spline ceilings in fair condition: some stained
- Ceilings .....lay-in acoustic panel: good condition
- Casework .....fair to good condition; some recommended to be remodeled (see code section)

No leaks have been reported on the roofing system, but it does appear to be past its expected lifespan. Recommend reroofing within the next 3-5 years, and addressing any flashing issues at the parapet condition at that time.

## Code/Accessibility

Two legal means of egress are available from all occupied areas. Corridor widths are all a minimum of 36" wide. Additional routes of egress are provided from the basement mechanical room, transformer vault, and boiler room.

The building has two primary stair shafts, both on the west side of the building, one toward the north and one toward the south. Although current code would require shafts of this height to be 2 hour rated, as an existing building, the shafts are presumed to comply with the code at the time they were constructed.

The space between guards on the sides of the stairs is over 12" at its narrowest dimension. This does not comply with IBC 1013.3, but would be grandfathered in as compliant. Due to the very public nature of this building, providing some protection to supplement the original handrails and guards should be considered.

The desk at the Parks Department is recommended to be modified for improved accessibility.

Grab bars in the accessible toilet room on 2nd floor are not positioned at the same height. The higher one is mounted with its top at 36 5/8", which is above the maximum allowable height of 36" per ADA 609.4 and ANSI A117.1 section 609.4.

## Structural System

The structure consists of cast-in-place concrete floor slabs, beams, and columns bearing on a concrete foundation system.

## Plumbing Systems

The original piping is in fair condition and can be replaced as needed. Insulation could be added to the hot water piping for energy savings. Thermostatic mixing valves (TMV's) should be added to correct code issues. Eyewashes require tempered water – add TMV's.

Building is served by interior roof drains – main roof and Penthouse. There is no secondary drainage for the building.

Plumbing fixtures are older, flush valve(s) could be updated to conserve water. Each floor has a dedicated ADA compliant toilet room. Building utilities in general appear adequate.

## Fire Protection Systems

City hall was built in 1955 and had a standpipe system and fire pump installed at that time. The fire pump serves only the standpipe system; no sprinkler system is installed in the building.

Based on its condition the fire pump appears to be the original pump. The fire pump is showing signs of severe corrosion and leaking and is not located within a rated enclosure as required by the current edition of NFPA 20. If the fire pump is replaced it will require that it be brought up to the currently adopted standards.

The standpipe system is a Class II System, which includes 1 ½" hose valves. The 2009 Edition of the IFC requires that a Class III Standpipe System, which includes both 1 ½" and 2 ½" hose valves be installed in all buildings with a floor height higher than 30' above the level of access. It also requires that the valves be located within exit stairways, which is not the case with the currently installed valves. The existing valves are located in the corridor on each floor.

## HVAC Systems

The boilers are original to the building's construction. The boiler controls and burners have been upgraded and/or replaced. The units are expected to last another 5 years. The steam system serves air unit heating coils and steam to water heat exchangers that provide hot water to the building's heating units. The penthouse heating system has been replaced. The pumps appear to be in good condition. The basement heating system pump has been replaced. There is no insulation on this system.

The main building ventilation system is a built-up high pressure induction air unit located in the mechanical penthouse. The unit is original to the building's construction but the major components have been replaced. The coils are beginning to show signs of deterioration and will require increased maintenance until such time they fail. The induction units' drain pans are deteriorating and plug on occasion, causing overflows into the building's envelope cavity. There are no filters on these units.

There are three additional air units serving specific use areas of the building. These units are original to the building's construction but the major components have been replaced. The cooling coils are deteriorating and will require increased maintenance until such time they fail.

A water cooled air unit is located in a closet on first floor requires replacement. Occupant dissatisfaction with the unit's operation has led the staff to simply turn the unit off.

The chiller was replaced in 2008 and the cooling tower in 2011. The pumps have also been replaced. The piping is in fair condition. However, pipe insulation is missing or has deteriorated around the air unit coils and this is causing rust and deterioration of the piping. The lack of insulation at the induction unit coils allows condensation to form and drip into the building's envelope cavity.

Four main exhaust ventilation fans are in fair condition, however the original ductwork is dirty and leaks. There are rooms in the lower level that are occupied and not ventilated.

The building controls are primarily pneumatic with some DDC control added to the air units, chiller, and boiler systems to provide some central monitoring. Air compressors are located in the boiler room.

## Electrical Systems

City Hall is served by a 2000 Amp, 120/208 Volt, three phase electrical service. The Main Switchboard (MSB) is a Square D model Saflex fusible-switch type which is original to the building. Although the equipment appears in

good condition, Square D no longer supports this style of switchboard. The switch providing the normal power feed to the automatic transfer switch (ATS) is labeled "Emergency Circuits Disconnect". It is recommended this label be changed to "Normal Power to ATS" since "emergency" circuits are fed from the generator and are not disconnected by this switch when utility power is lost.

Understanding how power is distributed in the penthouse could be improved by installing a Motor Control Center (MCC). Currently the feeder serving the penthouse is tapped several times to serve numerous disconnect switches.

A 60-kW diesel-fueled generator provides standby power. It feeds an automatic transfer switch (ATS) rated 225-amps. Although the generator serves both lighting and non-lighting loads, it's not relied upon for emergency egress.

The main emergency power panel (EPP) is located adjacent to the ATS. EPP is a Square D Load Center with a 200A main circuit breaker. The panel has 24 1-pole spaces available.

A manual transfer switch with a pin-and-sleeve receptacle for connecting a temporary generator was installed in the basement recently by the communications provider whose transmitting equipment is installed on the building's rooftop. The normal feed to the manual transfer switch is tapped from the bus of the MSB despite there being a spare 200A switch available in the distribution section of MSB.

Branch panels for both normal and emergency power are manufactured by Square D. It would be very difficult and costly to relocate the panels, but it is possible to improve a poor situation by replacing the interiors and panel covers to improve reliability and ease of access.

Battery-operated emergency egress lighting fixtures occur sporadically throughout the building. The quantity of the fixtures, fixture placement, and overall performance do not comply with current standards.

Generally lighting fixtures throughout the buildings are in good to fair condition, and utilize T8 fluorescent lamps and electronic ballasts. An exception is lighting fixtures in the Printing Room of the basement – which are suspended fixtures with louvers using T12 fluorescent lamps. T12 lamps are no longer manufactured.

Areas with the original concealed grid ceilings are using the original 1x4 flush-mounted fluorescent lighting fixtures that have been retrofit with T8 fluorescent lamps and electronic ballasts. The quantity of original 1x4 lighting fixtures is greater than a modern lighting design would call for. Prismatic lenses are yellowing in many of the original 1x4 flush-mounted lighting fixtures.

Where concealed grid ceilings have been replaced with lay-in acoustical tile ceilings, lighting fixtures have also been replaced. Replacement fixtures use T8 fluorescent lamps with electronic ballasts.

The building is protected by a zoned Faraday fire alarm system. Coverage with visual and audible/visual alarms is inconsistent – some areas are compliant, some are not. Use of smoke and/or heat detectors is also inconsistent.

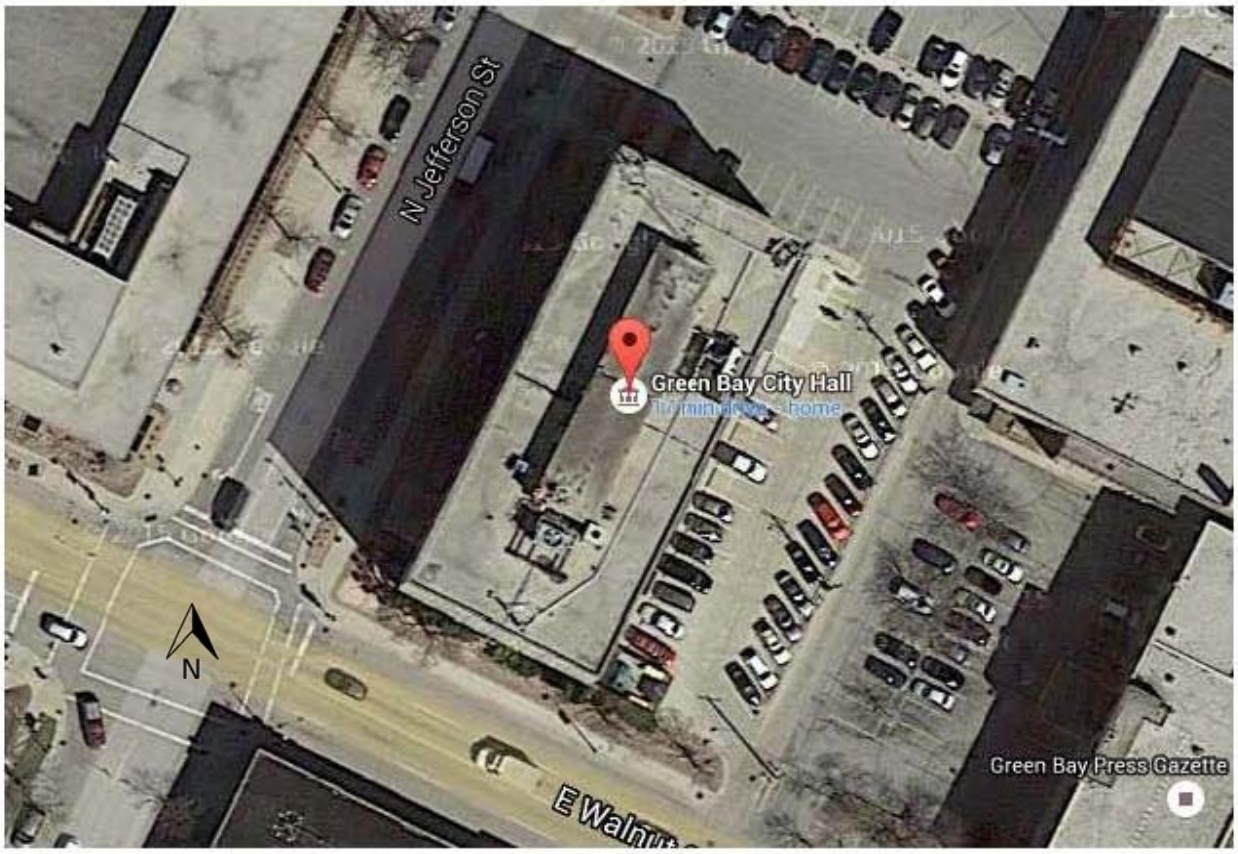
## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

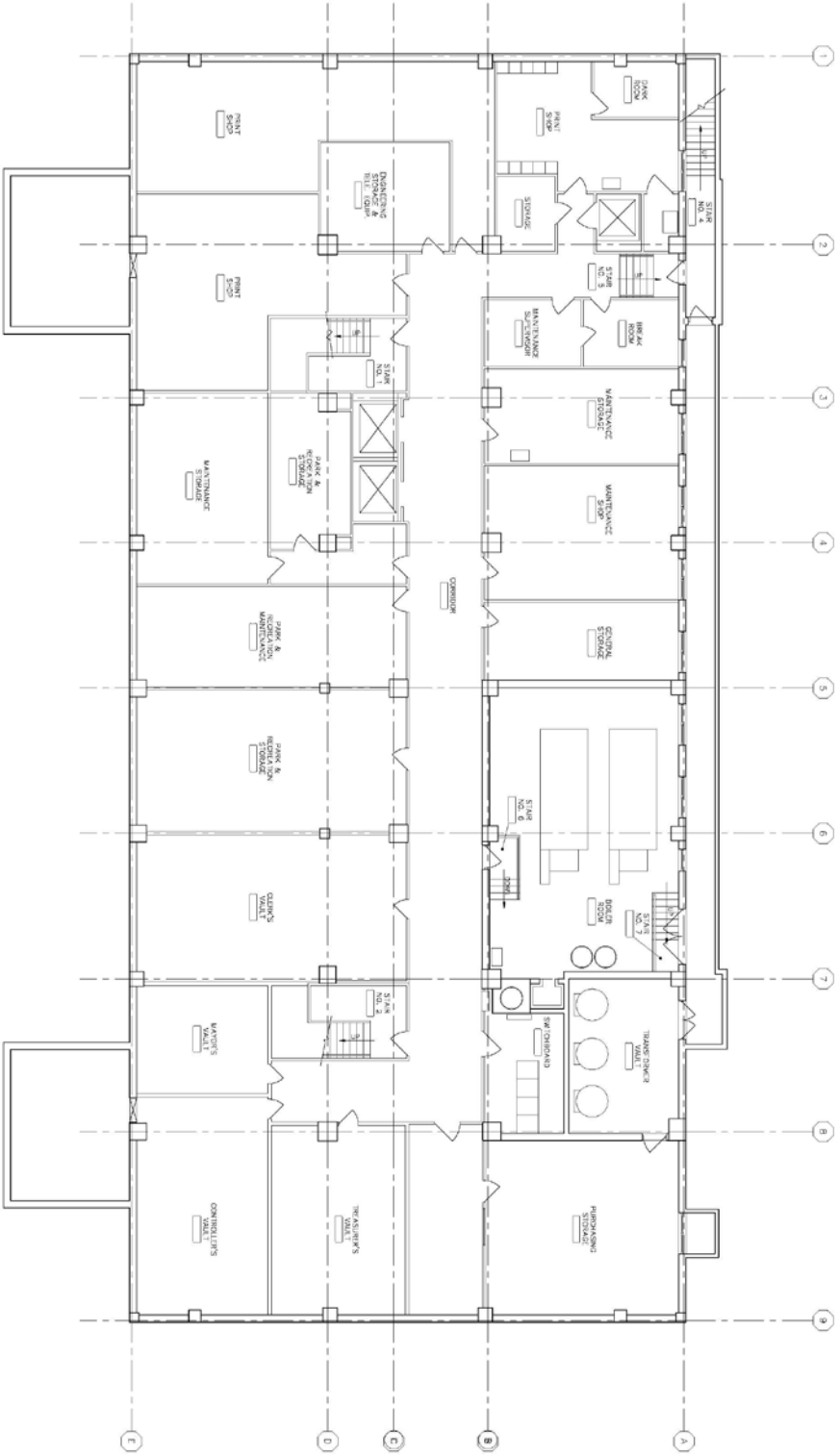
**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | Roof Condition | **$200,000** |
| | | | 6th floor repairs in Parks | **$1,000** |
| **Architectural Subtotal** | | | | **$201,000** |
| **Code/ADA** | | | Accessible Toilets | **$400** |
| | | | Casework | **$7,000** |
| **Code Subtotal** | | | | **$7,400** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | Fire Pump | **$150,000** |
| | | | Fire Pump Controller | **See above** |
| | Standpipe System | | | **$20,000** |
| **Fire Protection Subtotal** | | | | **$170,000** |
| **Plumbing** | | | Insulation | **$15,000** |
| | Eyewash(es) | | | **$6,000** |
| | Thermal Mixing Valve (TMV) | | | **$4,000** |
| | Backflow Prevention | | | **$500** |
| | Elevator Sump Pit | | | **$10,000** |
| **Plumbing Subtotal** | | | | **$35,500** |
| **HVAC Systems** | | | | |
| **AHU-1** | | | Housing | **$370,000** |
| | | | Distribution Ductwork | **$960,000** |
| **Exterior Room Comfort** | | | Induction Terminals | **$2,600,000** |
| **AHU-2** | | | Housing | **$150,000** |
| **AHU-3** | | | Housing | **$150,000** |
| **AHU-4** | | | Housing | **$150,000** |
| **AHU-5** | | | Housing | **$9,000** |
| **Exhaust Fans** | | | General Exhaust | **$30,000** |
| | | | Exhaust Ductwork | **$40,000** |

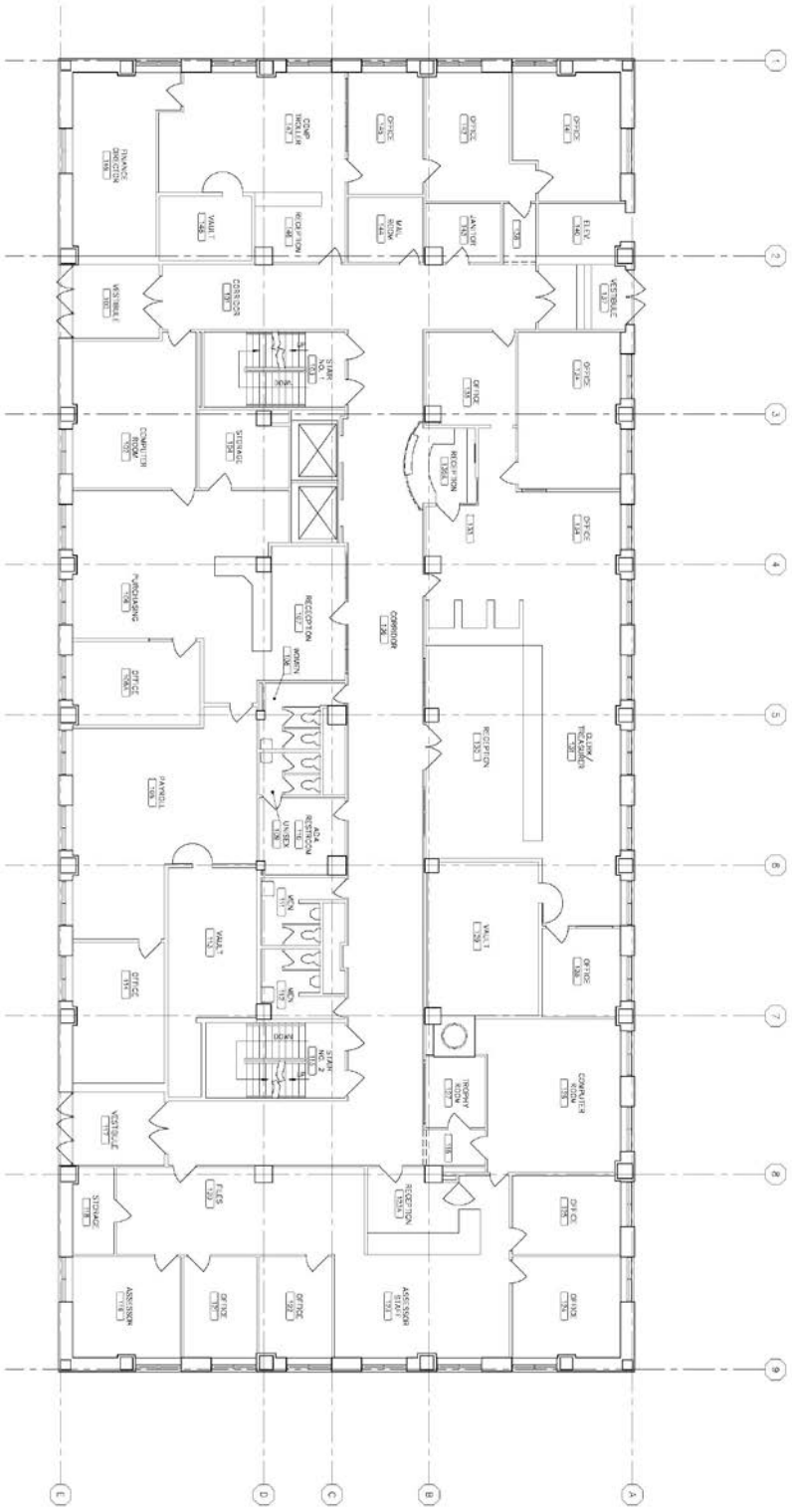
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Heating System** | | | Boilers | **$210,000** |
| | | Pipe Insulation | | **$20,000** |
| | | | Room Terminal Units | **$50,000** |
| **Mechanical Room Ventilation** | | | Mechanical Room | **$8,000** |
| | Boiler Room | | | **$10,000** |
| **Controls** | | | DDC Control | **$35,000** |
| **HVAC Subtotal** | | | | **$4,792,000** |
| **Electrical** | | Seal Penetrations | | **$1,200** |
| | | | Emergency Egress Lighting and Exit Signs | **$50,000** |
| | | Upgrade to an Addressable Control Panel | | **$40,000** |
| **Electrical Subtotal** | | | | **$91,200** |
| **Building Total** | | | | **$5,297,100** |



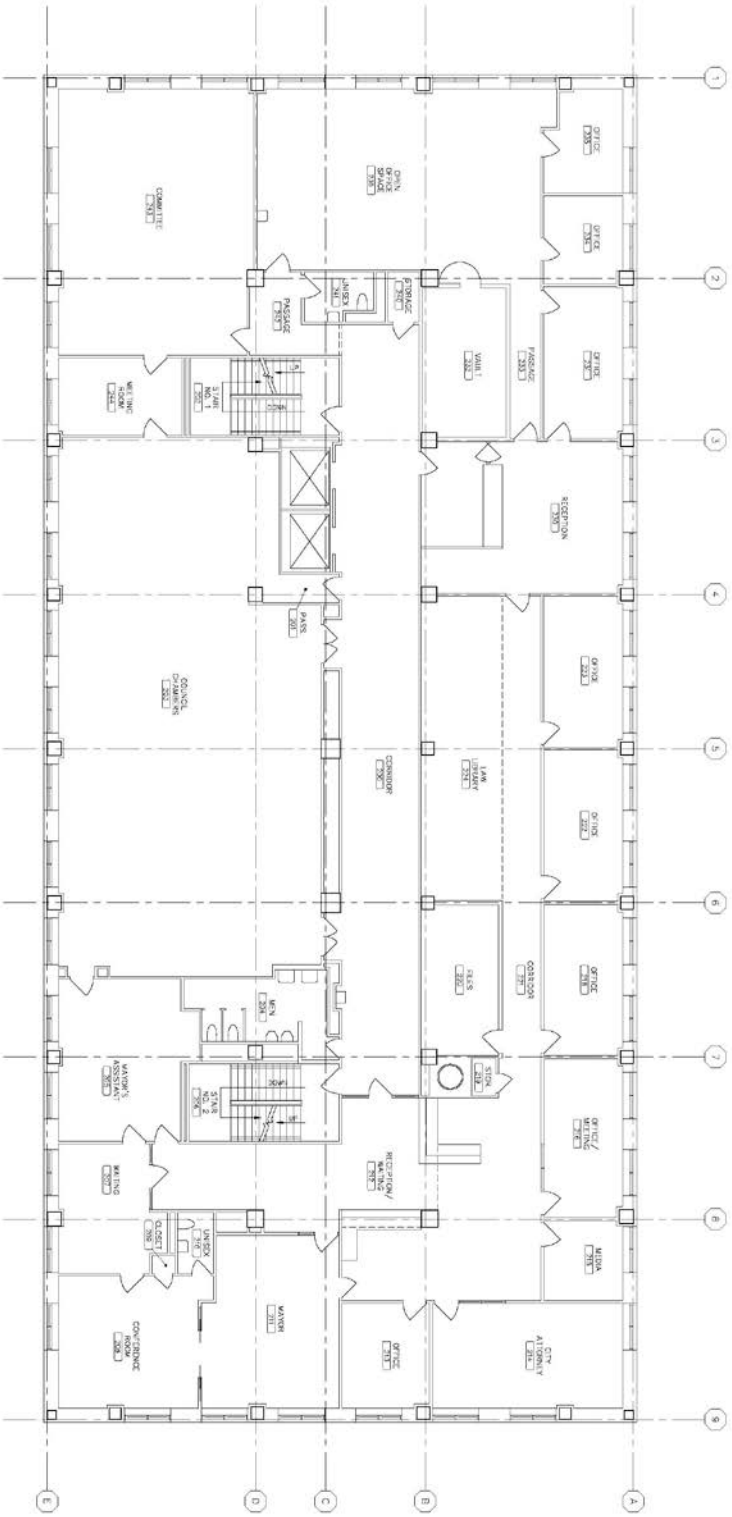

**Aerial View of Site**



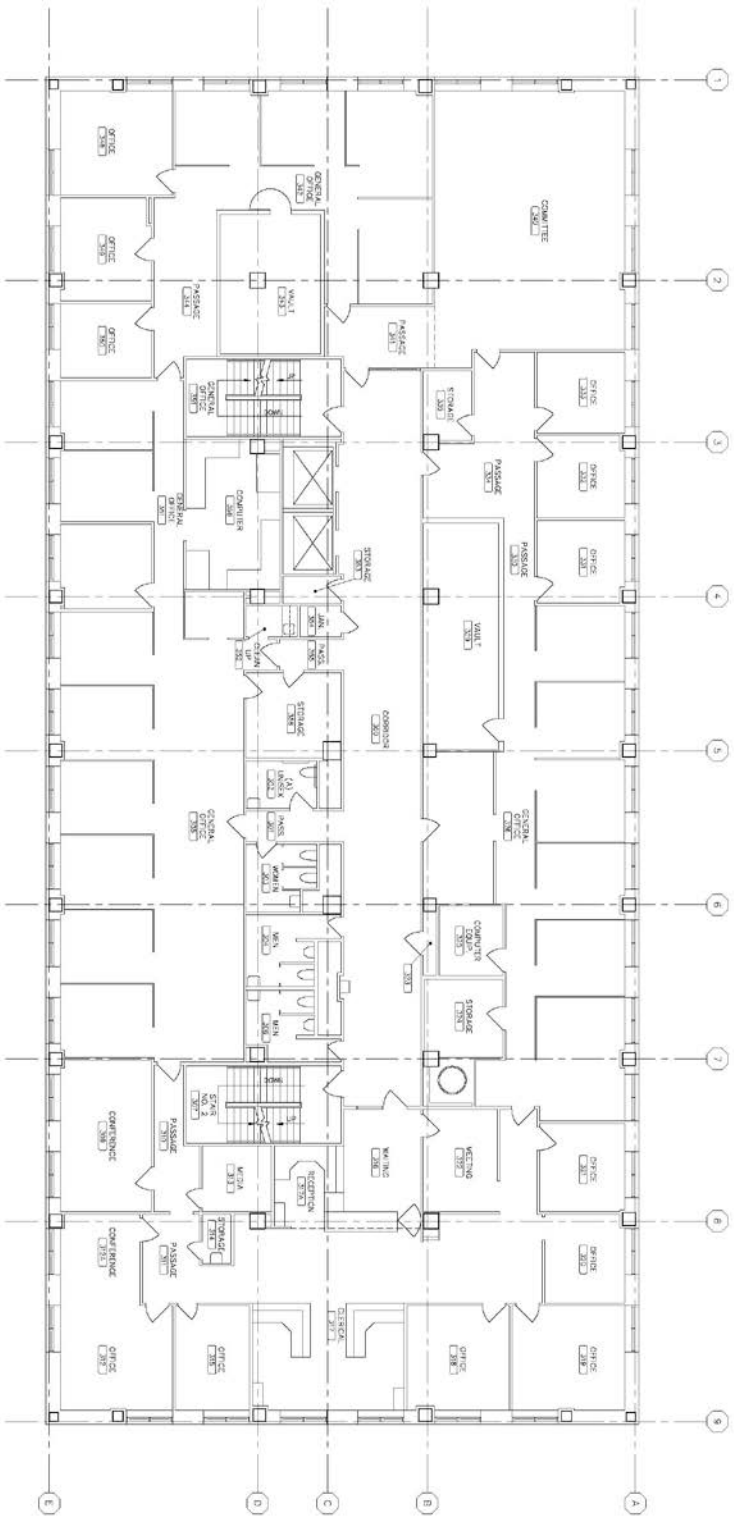

**Basement Floor Plan**



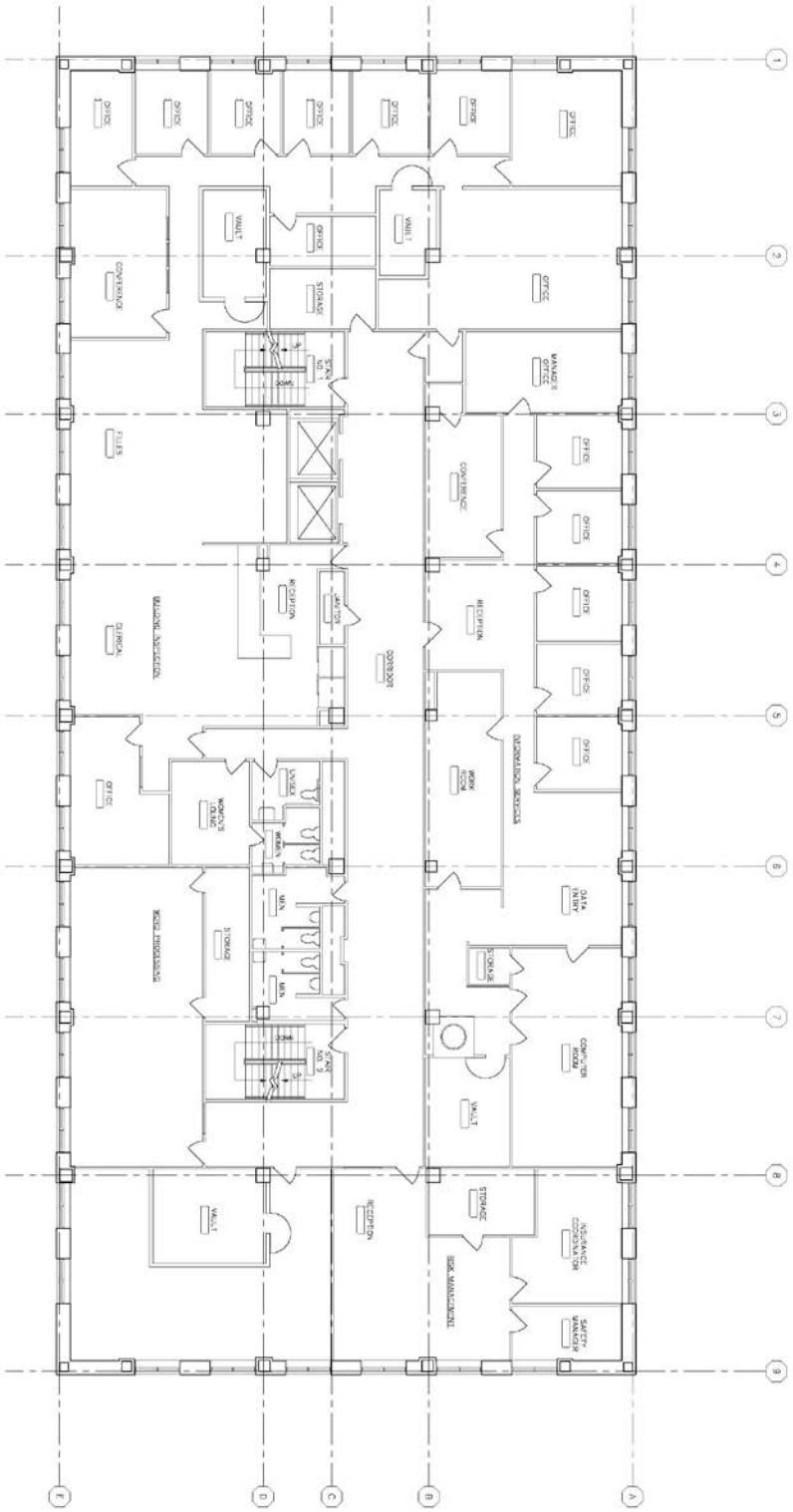
**First Floor Plan**



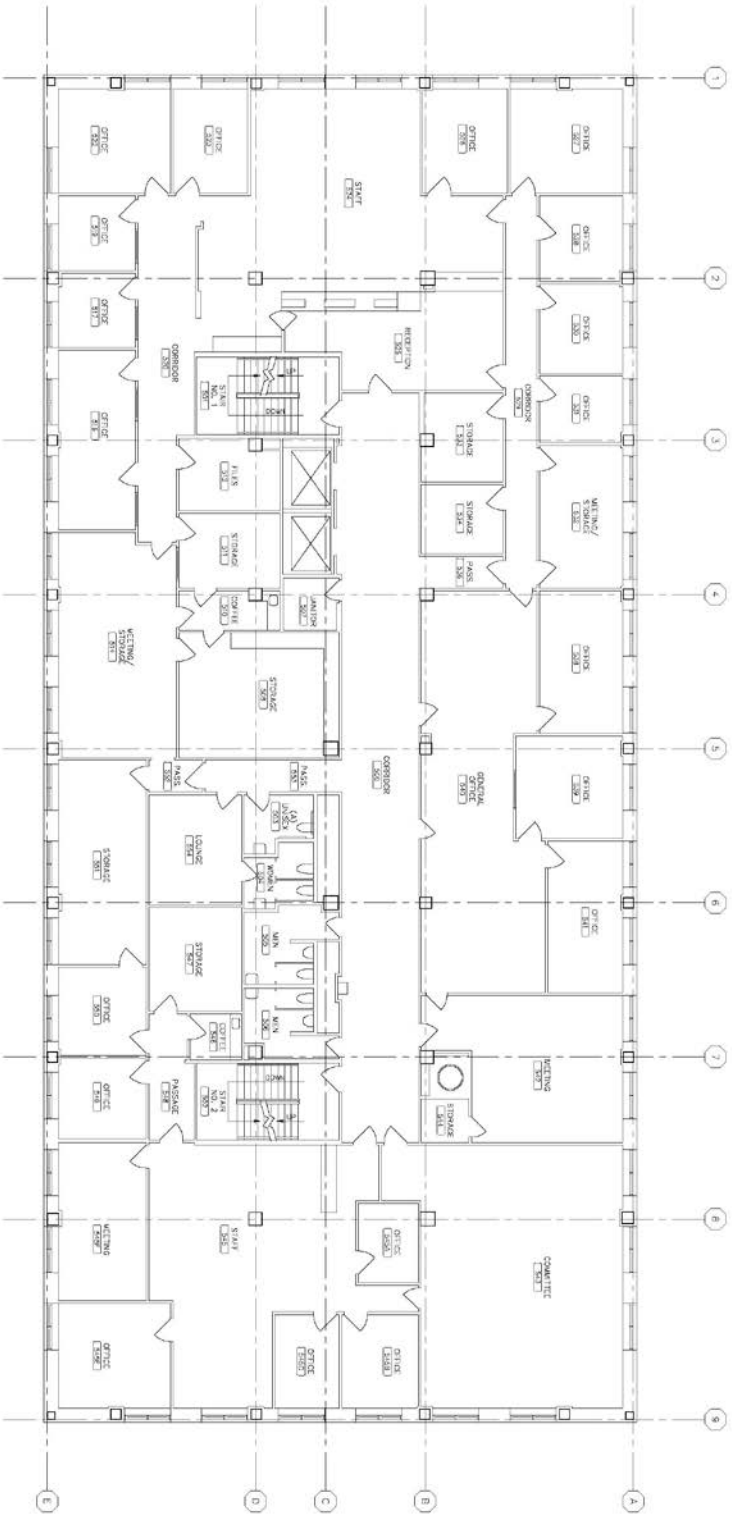
**Second Floor Plan**



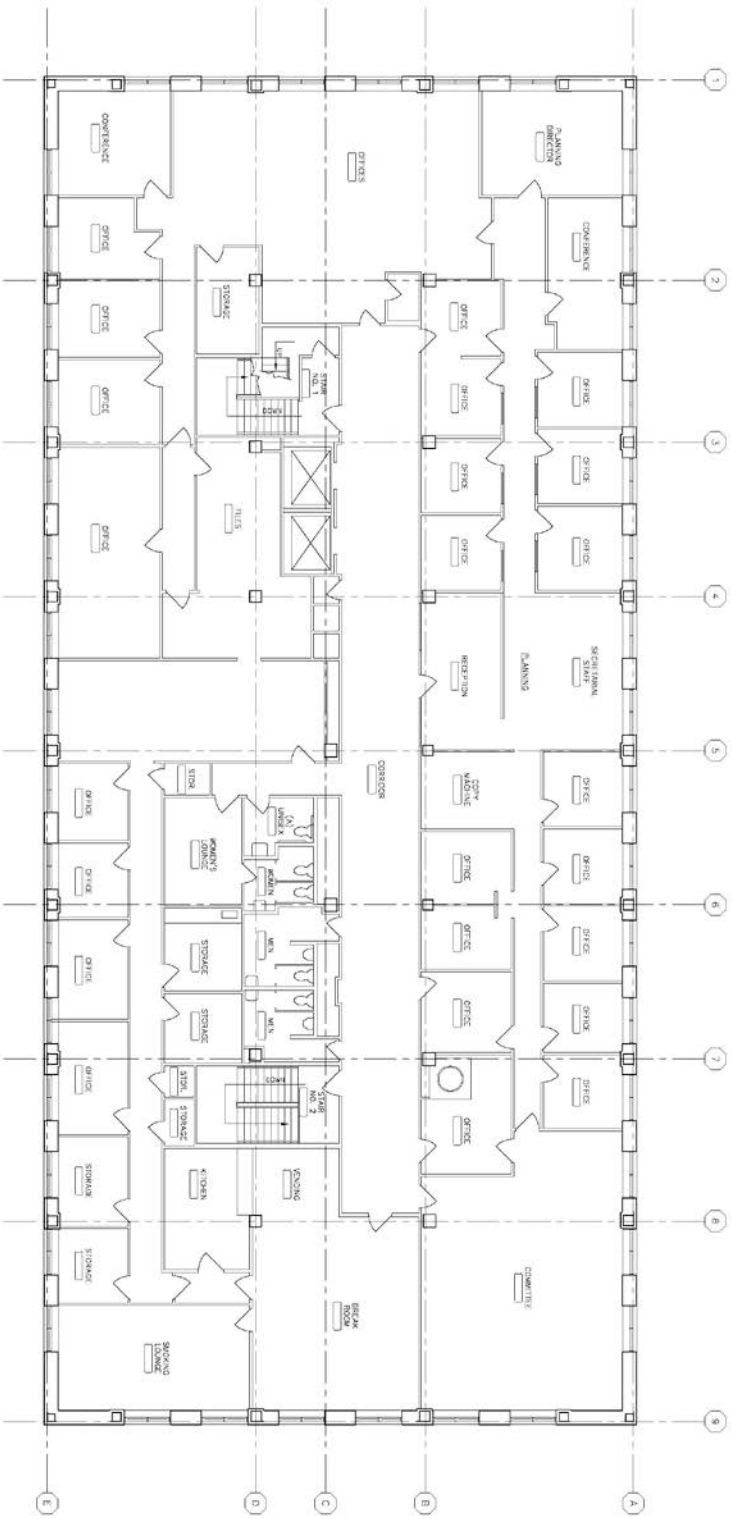
**Third Floor Plan**



**Fourth Floor Plan**



**Fifth Floor Plan**



**Sixth Floor Plan**

# ARCHITECTURAL

## Building Description

City Hall is a simple rectangular building constructed in 1955. It is clad in polished granite panels on the first floor, with cream colored brick slightly stepped out past the panels covering the remaining 6 story façade and mechanical penthouse. Floor-to-floor heights range from 12'-0" on 3rd through 5th floors, to over 14'-2" on 2nd floor, where City Council Chambers
are located.

Two main entrances facing west toward Jefferson Street have a flat-roofed canopy supported on granite-clad columns. A third entrance opening toward the parking lot and alley to the east has a smaller canopy supported by painted metal columns.

## Building Envelope

### Exterior Walls

Window sills and jamb returns on 1st floor are polished granite, matching the exterior skin. The granite panels are attached to poured concrete frame. Brick above is three wythes thick, with the inner two wythes supported by concrete floor structure, and outer course supported by a metal brick ledge encircling each floor. Walls are furred out with metal studs and insulation on the interior.

Areas of the exterior shell are in need of minor masonry and mortar repair. Most of these areas are concentrated on the upper penthouse brick exterior wall.

Cracked granite panel outside of the mayor's office observed and previously discussed with the City.

### Windows and Doors

Aluminum framed casement windows with single-pane glass appear to be original to the building. They are not thermally broken. Within the jamb space on the interior is a second set of sliding glazed panels, creating an air lock between inner and outer window panes.

Some basement windows in window wells are aluminum frame with operable hoppers in the lowest section. There is no secondary interior glazing at basement.

Entry doors are wide style aluminum frame with glazed transoms above.

### Roof

The existing roof level houses several mechanical and communication systems. The surface is covered with a built-up roofing system, and a gravel coat. The flashings are copper and held short of the parapet wall. The parapet is capped with stone trim. The boiler venting is through the original chimney, clad with a surface applied, metal wall panel.

No leaks have been reported on the roofing system, but it does appear to be past its expected lifespan. Recommend reroofing within the next 3-5 years, and addressing any flashing issues at the parapet condition at that time.

## Interior Finishes

### Stairwells

#### Floors

- Terrazzo at landings and stair treads. Basement floor is sealed concrete. Both are in good condition.

#### Walls

- Structural glazed tile; good condition.

#### Doors

- Metal door and frame with narrow light at landings. "Class B" label on doors indicated 1 ½ hour rating.

**Ceilings**
- Painted exposed structure.

**Handrails**
- Aluminum, wide horizontal profile.

## Basement

**Floors**
- Sealed concrete in corridors and mechanical rooms is in good condition. Minor cracking in boiler room.
- Offices have newer carpet, which may be over older 9" composite tile.
- 9" composite tile in print shop area has cracked and missing tile at thresholds of rooms. Staff reports that a previous asbestos survey found asbestos in the adhesive for the tiles, but not the tiles themselves. Areas of missing or damaged tile should be addressed in order to prevent old adhesive from becoming airborne.
- Storage area of print room has painted concrete floor in good condition.
- Steps to rear direct entry from exterior stairwell has painted concrete steps on the interior.

**Walls**
- Painted poured concrete and painted concrete block walls. Base course of CMU is painted a darker color.

**Doors**
- Original wood, 5-panel, solid doors in metal frames at offices. Some have missing/removed hardware.
- Safes and mechanical rooms and vaults have steel vault doors with locking mechanisms.

**Ceilings**
- Exposed structure at corridors and mechanical rooms.

**Casework**
- Print room casework is older, probably 50s era, painted wood cabinetry with plastic laminate tops. Condition is serviceable; none are accessible height (see Code/Accessibility report.)

## First Floor

**Floors**
- Terrazzo in main corridor and vestibules.
- Luxury vinyl tile at corridor to toilet rooms and in accessible and Women's toilet rooms.
- Men's room has multi-toned 1" ceramic mosaic tile floor.

**Walls**
- Marble at main corridor and vestibules.
- Painted concrete block at Women's room and accessible toilet room.
- Men's room has mottled surface structural glazed tile.
- Painted gypsum board or plaster walls in office areas. Rubber base at gypsum board walls.

**Doors**
- Medium style aluminum doors with clear anodized finish at public office entrances and borrowed lights on main corridor.
- Flush wood doors at other locations.

**Ceilings**
- Mix of 1x1 original spline ceilings and 2x2 acoustic panels in offices. Corridors and vestibules have 2x2 acoustic panels.
- Plaster ceiling at toilet rooms.

**Casework**
- Most office casework is comprised of system furniture components.

- The front reception desk is wood faced with solid surface top, installed within the last 5 years.

## Second Floor

### Floors

- Terrazzo in main corridor.
- Multi-toned 1" ceramic mosaic tile at Men's room. Women's room and unisex/accessible toilet has 2" ceramic mosaic tile.
- The majority of office area has carpet in fair to good condition. Mayor's office has cut-pile carpet in good condition.
- At the north end of the floor are two sections of passage with 12" VCT in good condition. One northeast room has part exposed concrete slab and part original 9" composite tile. Per staff reports from other areas of the building, the 9" tile may have asbestos in the adhesive.

### Walls

- Central corridor has 4' high wainscot of marble with painted gypsum board above.
- Women's room has painted gypsum board walls. Men's room has mottled surface structural glazed tile in good condition.
- Painted gypsum board or plaster walls in office areas; rubber base at gypsum board walls.
- Council Chambers has two species of wood paneling in good condition.
- One wall in the northeast part of the floor (former open office space) looks to have been recently constructed and is unfinished on the east side of the wall.

### Doors

- Entrances to office areas have wood doors with half-light. The half-light is divided in 3 panes horizontally by a wood mullion. At Council Chambers, the three lights are separated by a wider wood section/mullion.
- Flush wood doors at other locations. Brass kick plates are on many of the public use wood doors and in good condition.

### Ceilings

- Mix of 1x1 original spline ceilings and 2x2 acoustic panels in offices.
- Corridors and vestibules have 2x2 acoustic panels.
- Plaster ceiling at toilet rooms.

### Casework

- Most office casework is comprised of system furniture components.
- Mayor's office reception area has wood casework with solid surface tops.

## Third Floor

### Floors

- Terrazzo in main corridor.
- Multi-toned 1" ceramic mosaic tile at Men's room. Women's room and unisex/accessible toilet has luxury vinyl tile. Both are in good condition.
- The reception areas of offices have carpet in fair to good condition. Back open office areas have 12" VCT, most of which is in good condition.
- Some private offices in the southwest corner of the floor have older carpet in fair condition.
- One area of general office at north end of floor has 9" composite tile, which likely has asbestos in its adhesive.

### Walls

- Central corridor has 4' high wainscot of marble with painted gypsum board above. Niche at drinking fountain is full height marble wall panel.
- Accessible toilet room has painted gypsum board walls.
- Men's room has mottled surface structural glazed tile in good condition.
- Women's room has structural glazed tile which has been painted.
- Painted gypsum board or plaster walls in office areas; rubber base at gypsum board walls.

**Doors**

- Department of Public Works entry door at the end of the hall has an aluminum entrance door with full side lights for the entire width of the corridor. Good condition.
- Flush wood doors at other locations, some of which have narrow lights. Brass kick plates are on many of the public use wood doors and in good condition.

**Ceilings**

- 2x2 acoustic panels are in main corridor, committee room, and public area of DPW. Back office area has 12" spline ceiling.
- Plaster ceiling at toilet rooms.

**Casework**

- Most office casework is comprised of system furniture components.
- Reception at DPW and the work island in open office area are plastic laminate case with plastic laminate tops.

**Fourth Floor**

**Floors**

- Terrazzo in main corridor.
- Multi-toned 1" ceramic mosaic tile at Men's and Women's rooms accessed from central corridor is in good condition. Women's room accessed via lounge has multi-toned pink 1" ceramic mosaic tile.
- Unisex/accessible toilet has luxury vinyl tile.
- The rooms on the east side of the corridor, including the IT department are mainly 12" VCT in fair to good condition.
- Rooms in southeast corner (Storage, Insurance) and most on the west side of the corridor (unoccupied rooms and Women's lounge) have 9" VCT, which is likely to contain asbestos in its adhesive.

**Walls**

- Central corridor has 4' high wainscot of marble with painted gypsum board above.
- Accessible toilet room has painted structural glazed tile. One wall appears to have had repair or modification in the past, but is currently stable.
- Men's room has mottled surface structural glazed tile in good condition.
- Women's room off main corridor has mottled surface structural glazed tile. Women's room accessed via lounge has pink structural glazed tile.
- Painted gypsum board or plaster walls in office areas; rubber base at gypsum board walls.

**Doors**

- Public entrances to office areas have wood doors with half-light. The half-light is divided in 3 panes horizontally by a wood mullion.
- Flush wood doors at other locations, some of which have narrow lights.

**Ceilings**

- 2x2 acoustic panels are in main corridor and computer department.
- Other office areas have 12" spline ceiling. Meeting room at southeast corner has metal trim in ceiling in location of former wall.
- Plaster ceiling at toilet rooms.

**Casework**

- Reception counter at computer department is plastic laminate case with plastic laminate tops.

**Fifth Floor**

**Floors**

- Main corridor has 9" VCT, which is likely to contain asbestos in its adhesive. The corridor tile is in good condition, and not a threat for fraying or other exposure of adhesive.
- Multi-toned 1" ceramic mosaic tile at public Women's room is in good condition.
- Women's room accessed via lounge has multi-toned pink 1" ceramic mosaic tile.
- Men's room has newer 2" ceramic tile.
- Unisex/accessible toilet has luxury vinyl tile.

- Office areas are a mix of 12" VCT and carpet.

**Walls**

- Central corridor has 4' high wainscot of marble with painted gypsum board above.
- Unisex/accessible toilet room has painted structural glazed tile.
- Men's and Women's rooms have mottled surface structural glazed tile in good condition.
- Women's room accessed via lounge has pink structural glazed tile.
- Painted gypsum board or plaster walls in office areas; rubber base at gypsum board walls.

**Doors**

- Department office areas have aluminum entrance framing and doors. (Champagne color.)
- Flush wood doors at other locations, some of which have narrow lights.

**Ceilings**

- 2x2 acoustic panels are in main corridor and most office areas.
- Other office areas have 12" spline ceiling. Meeting room at southeast corner has metal trim in ceiling in location of former wall.
- Plaster ceiling at toilet rooms.
- Women's Lounge has perforated spline ceiling.

**Casework**

- Original wood casework in small coffee room in west office area is in fair to good condition. Plastic laminate top looks newer and in good condition.

**Sixth Floor**

**Floors**

- Main corridor has 9" VCT, which is likely to contain asbestos in its adhesive. The corridor tile is in good condition, and not a threat for fraying or other exposure of adhesive.
- Multi-toned 1" ceramic mosaic tile at Men's and Women's rooms accessed from central corridor is in good condition.
- Women's room accessed via lounge has multi-toned pink 1" ceramic mosaic tile, as does a single-user toilet room in the west office area.
- Unisex/accessible toilet has luxury vinyl tile.
- Office areas have a wide variety of colors of VCT, including 9" and 12" tiles. Most of the flooring is in good condition.
- Entry/reception/staff area of the Planning Department has carpet, as does the committee room. Both carpets are in fair to good condition.

**Walls**

- Central corridor has 4' high wainscot of marble with painted gypsum board above.
- Men's and Women's rooms have mottled surface structural glazed tile in good condition.
- Women's room accessed via lounge has pink structural glazed tile.
- Painted gypsum board walls (plaster at exterior walls) in remaining areas. Minor chipping of paint at old air units. Non-standard paint colors are in several offices.
- Rubber base is at gypsum board walls. Some base is separating from walls at exterior wall conditions.

**Doors**

- Department office areas have aluminum entrance framing and doors. (Champagne color.)
- Public entrances to office areas have wood doors with half-light. The half-light is divided in 3 panes horizontally by a wood mullion.
- Flush wood doors at other locations, some of which have narrow lights.

**Ceilings**

- 2x2 acoustic panels are in main corridor and some office areas. A few tiles are damaged, but in place.
- Most office areas have 12" spline ceiling. Much of it is stained/discolored.
- Plaster ceiling at toilet rooms
- Women's Lounge has perforated spline ceiling.
- Storage rooms and other ancillary rooms have an assortment of spline ceiling panels and perforated spline panels.

**Casework**

- Wood casework with laminate tops in the west portion of the planning department is not original, and is in good condition.
- Wood-look laminate casework at break area is in fair to good condition.
- Casework at public reception for planning is systems furniture.
- Laminate casework at Park and Rec office is plastic laminate cases and tops in fair to good condition. Repairs needed at lower top.
- Small coffee room has original wood casework lower with older laminate top. Uppers are wood frame of a different stain color and different hardware.
- Other miscellaneous upper casework is also original wood frame in fair condition.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | HP | $200,000 | A8 | Budget based on $15/sf |
| Exterior Facade Condition | F | | A1 | |
| Exterior Door Condition | C | | | |
| Window Condition | F | | A2 | |
| ***Floors:*** | | | | |
| Composite tile | HP | | A3 | |
| Ceramic/mosaic tile | C | | A4 | Original ceramic mosaic is in good condition. |
| Luxury vinyl tile | C | | | |
| Carpet | F | | A5 | |
| ***Walls:*** | | | | |
| Marble wainscot | C | | | |
| Painted gypsum board | C F | | A6 | |
| Structural glazed tile | C | | | |
| Wood paneling at council chambers | C | | | |
| ***Ceilings:*** | | | | |
| 12" x 12" spline ceiling | F | | | Spline tiles are stained in some areas. |
| 2' x 2' lay-in acoustic | C | | | |
| ***Casework:*** | | | | |
| Print room in basement | F | | A7 | See ADA report. |
| 6th floor repairs in Parks | HP | $1,000 | A7 | |

**NOTES:**

**A1.** Several brick condition issues are concentrated on the penthouse and upper portion of the building:

a. Several courses are protruding from the wall and have loose mortar in the area over the roof access door.
b. Significant staining and lateral crack along mortar joint between roof access door and connections for metal communications tower.
c. Cracking extending laterally and down from lintel over plywood enclosure attached to brick wall.

**A2.** New, thermally broken windows would provide energy savings for the building.

**A3.** The original 9" composite tiles have been found by previous investigations to have asbestos in their adhesive. Areas of the building where theses tiles are cracking and chipping off should be scheduled for abatement, to prevent asbestos fibers from becoming friable and airborne. Later installation 12" composite tiles are in good condition, but some areas have non-matching color patches within rooms.

**A4.** The restrooms with variegated pink tile are dated in color, but in keeping with the vintage of the building, and still serviceable in condition.

**A5.** Carpet conditions vary throughout the building. While some are newer and in good condition, there are also areas of the building with significantly older carpet that is showing wear. Typical carpet warranties cover 10 years.

**A6.** There are isolated cases of paint chipping off interior faces of exterior walls, especially in the proximity of the in-wall ventilation units. In other cases, particularly on 6$^{th}$ floor, paint colors are visually inconsistent with the rest of the department and building.

**A7.** Casework:

- Address minor repair issues with laminate tops.
- Solid surface tops are in good condition.
- See accessibility report for areas recommended to be addressed.
- Original wood casework in office/storage locations appears to be serviceable.
- The basement print room has casework sections from different eras, which gives a visually inconsistent look to the department. See ADA section for cost estimate related to accessibility.

**A8.** New EPDM roof is recommended.

**See Code/Accessibility report for photos of restrooms.**

**City Hall – Exterior**

**West (Front) Facade**

**North and West Facades**

**City Hall – Exterior**

**Main (NW) Entry**

**1st Floor West Facade**

**East Facade**

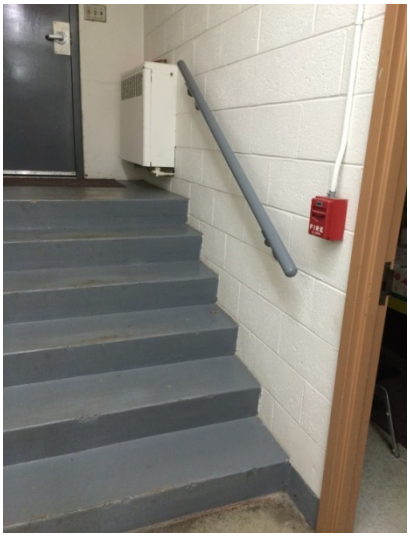
**Basement Access – East Facade**

**Parking Lot Entry – East Facade**

**Basement Access – East Facade**

**City Hall – Stair Towers**

**Basement at South Stair**



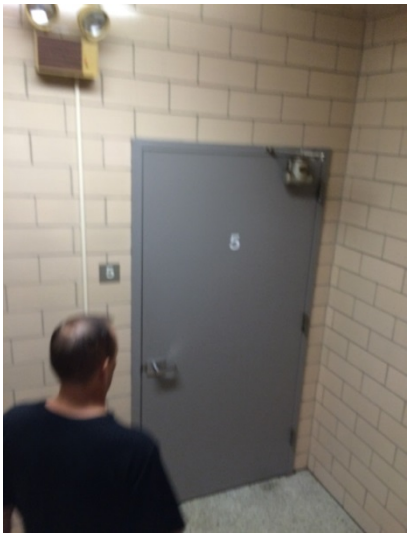
**Basement Direct Egress, NW Side**

**Direct Egress from Boiler Room**

**Stairs Down into Boiler Room**

**City Hall – Stair Towers**

**Typical Stair Tower Door**



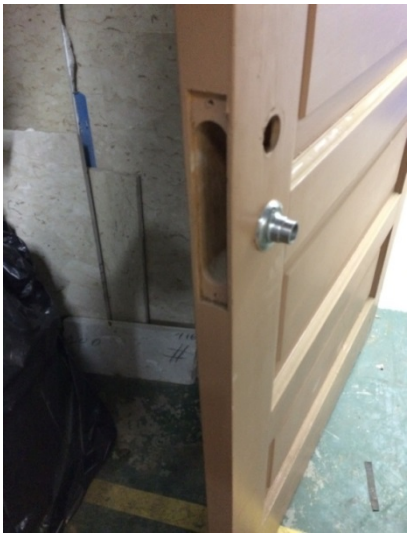
**Typical Finishes in Stair Tower**

**Stair from 5th Floor to 6th Floor**

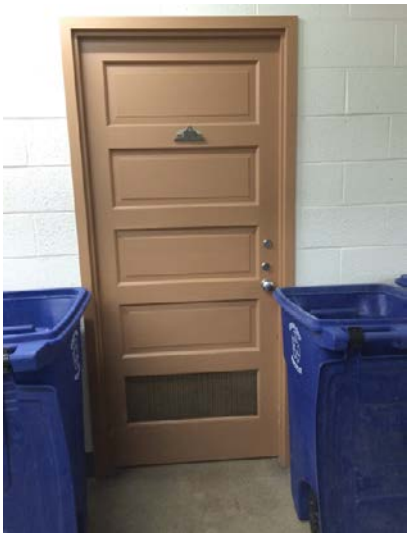
**Stair to Penthouse**

**City Hall – Basement**

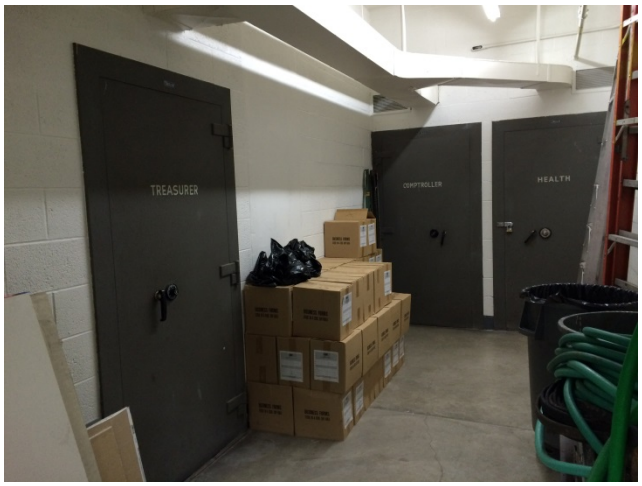
**Central Corridor**



**Storage/Mechanical Room Door**



**Typical Door Style**




**Vault Doors**

**City Hall – Basement Continued**

**Printing Department**

**Window to Exterior Stair Well at Office**

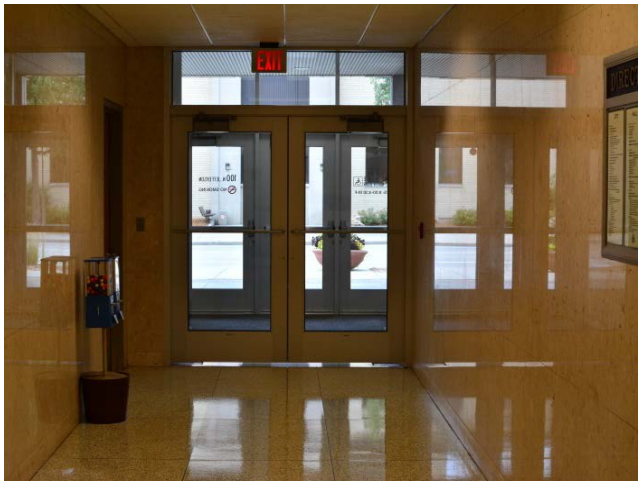
**Printing Department**

**Rubber Base at Print Department**

**Damaged 9” Tile – Print Department**

**Damaged 9” Tile – Print Department**

**City Hall – 1st Floor**

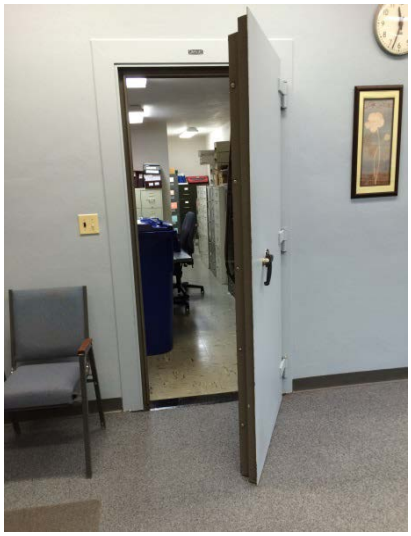


**Vestibule from Jefferson Street**

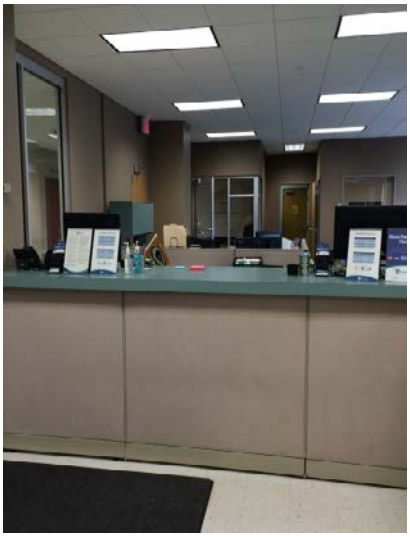
**Vestibule from Parking Lot/Alley**

**1st Floor Central Corridor**

**System Furniture – Office**



**Vault Door within Office**



**Systems Furniture Reception Area**

**City Hall – 2nd Floor**

**2nd Floor Main Corridor**

**Reception at Mayor's Office**

**Mayor's Office**

**Typical Interior Office Corridor**

**Council Chambers**

**Exposed Concrete & 9" VCT**

**City Hall – 3rd Floor**

**Committee Room 310**

**South End of Main 3rd Floor Corridor**

**General Office Area**

**Access to General Office from Main Corridor**

**Drinking Fountain on Main Corridor**

**City Hall – 4th Floor**

**Typical Office Door this Floor**
**(Coded Locking at IT Department Only)**

**Unoccupied Office Space**

**Central 4th Floor Corridor**

**Reconfigured Ceiling – South End of 4th Floor**

**City Hall – 5th Floor**

**Central 5th Floor Corridor**

**Office Entrance at South End of Corridor**

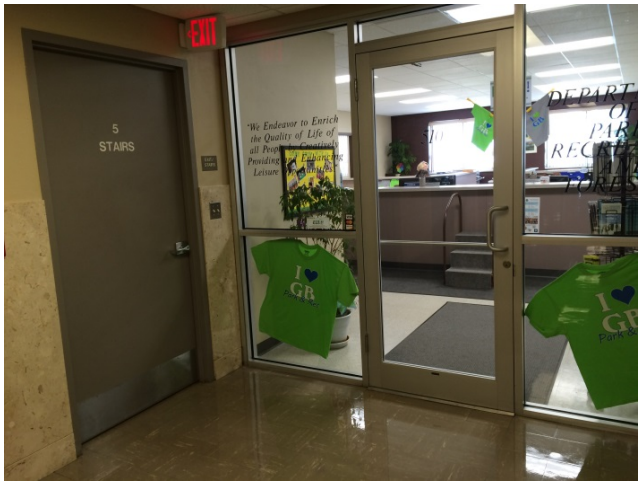
**Various Carpet and Vinyl Floor Finishes**

**Original Wood Casework in Coffee Room**

**Women's Room Accessed from Lounge**

**Women's Room Accessed from Lounge**

**City Hall – 6th Floor**




**North End of Main 6th Floor Corridor**

**Reception Casework of Parks & Recreation**

**Separated Laminate at Parks & Recreation Reception**

**Typical Office Finishes**

**Wood Casework at Coffee Room**

**Casework at Storage Room**

**City Hall – 6th Floor Continued**

**Interior Office Corridor**

**Various Ceiling Tiles at Office Corridor**

**Floor & Various Ceilings at Planning**

**Flooring at Planning**

**City Hall – 6th Floor Continued**

**Stained Spline Ceiling – Planning**

**Newer Wood Casework – Planning**

**Flooring and Casework at Kitchen**

**Damaged Ceiling Tile at Kitchen**

**City Hall – 6th Floor – Continued**

**Spline Ceiling Typical at Offices/Conference**

**Non-standardized Wall Paint**

**Women's Lounge**

**City Hall – Penthouse**

**Stair Access to Penthouse**

**Elevator Platform in Penthouse**

**Penthouse – Displaced Brick Courses**

**Penthouse – Cracking Along Joint Lines**

**Roof Coping – Original Copper Flashing**

**Roof – Looking North**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1955 (date on building 1956) | **Gross Area** | Basement: 14,021 SF<br>1st Floor: 13,349 SF<br>Floors 2 - 6: 13,433 SF<br>Penthouse: 2,346 SF<br>Total: 96,881 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | The WI building code at the time of construction and additions would have placed the building under Chapter 54 Factory, Office, Mercantile occupancy category.<br><br>Current code would place it under **B Business**. | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type II-B (2-hour concrete beams, columns & floor slabs, 1-hour roof) | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

### Egress and Safety

Two legal means of egress are available from all occupied areas. Corridor widths are all a minimum of 36" wide. Additional routes of egress are provided from the basement mechanical room, transformer vault, and boiler room. The central basement corridor also has access directly to an exterior stairwell.

### Stair and Elevator Shafts

The building has two primary stair shafts, both on the west side of the building, one toward the north and one toward the south. The shaft to the north shares a portion of its south wall with the shaft for the two elevators serving the building. Original plans call out the shaft walls as either light weight concrete block or structural glazed tile. The exact rating of the walls is not clear. Although current code would require shafts of this height to be 2 hour rated, as an existing building, the shafts are presumed to comply with the code at the time they were constructed.

An Underwriters' Laboratories (UL) label is visible on the door frame to the penthouse, and a similar label has been painted over on the door itself. The hourly rating of door and frame are not clear from these labels.

### Handrails and Guardrails

Hand and guard rails at the two main stairs are wide horizontal aluminum sections. The size and shape of these bars does not comply with current IBC section 1012.3 for handrails, but would be grandfathered in as compliant. The space between guards on the sides of the stairs is over 12" at its narrowest dimension. This does not comply with IBC 1013.3, but again, would be grandfathered in as compliant. Due to the very public nature of this building, providing some protection to supplement the original handrails and guards should be considered.

Stairs in the basement areas have standard circular handrails. Openings at guards do not meet code at the mechanical rooms, but there is no public access to these rooms, so it is not considered a high priority to modify.

**Miscellaneous Items**
The boiler room and transformer vault both have 8" to 12" poured concrete walls with metal doors, indicating that they were intended to have a higher hourly rating than other spaces, such as the stair shafts.

## Summary of Accessibility/ADA Compliance

**Accessible Route**
An accessible parking stall is located with signage at the northwest corner of the building. Entry to the building via the primary building entrances from Jefferson Street has a door operator for accessible entry.

Within the building, elevators provide access to all floors/areas of function within the building. The main corridor of each floor is ample width for passing of users going both directions. Back office corridors are a minimum of 36" in width, with occasional intervening rooms for passing space.

**Doors**
The building has a combination of push/pull hardware, lever and knob handles. Knobs are not accessible, and not as easy/fast to use as lever handles. Rooms that have been remodeled/updated, such as the accessible restrooms, typically have been updated to have lever handles on the doors. Many of the aluminum entrances to office areas have push/pull hardware, which is also accessible.

**Casework**
The reception areas of all departments have been modified to include a portion of counter that is at accessible height.

In the case of the Parks Department, a small portion of counter to the side is accessible. In addition, a carpeted portable set of steps with handrails is provided for access to the main high counter. Although these two measures address the situation, in terms of adults with mobility issues and children, it would be preferable to provide an accessible area of counter nearer to the middle of the service area to address both needs.

**Plumbing Fixtures**
Restrooms have been modified or added on floors 1 through 6 to provide accessibility. The basement does not have any restrooms, but access is provided via the elevator to other floors. Within the accessible toilet rooms there are elements that were not installed in compliance with code or ADA guidelines.

Grab bars in the accessible toilet room on 2nd floor are not positioned at the same height. The lower one is compliant at 34 ¾". The higher one is mounted with its top at 36 5/8", which is above the maximum allowable height of 36" per ADA 609.4 and ANSI A117.1 section 609.4.

Several of the toilet seats in the accessible restrooms have been altered with lifts to raise the seat height. Contradictory codes complicate the situation. ADA 604.4 calls for seat height to be between 17" and 19", while ANSI A117.1 calls for seat heights to be between 11" and 17"above finish floor. Seat heights in the 5th and 6th floor accessible rest rooms were measured to be below 17", and the seat height in the 2nd floor room was 20". While it is acknowledged that only 17" will comply with both codes, the seat on 2nd floor does not comply with either code and should be lowered accordingly.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| *Code items:* | | | | |
| Egress and Safety | C | | | |
| Stair Shafts | C | | | |
| Handrails/Guardrails | F | $5,000 - $8,000 | CA1 | |
| *Accessibility features:* | | | | |
| Accessible Route | C | | | |
| Doors | C F | | CA2 | |
| Casework | F HP | $5,000 - $7,000 | CA3 | |
| *Plumbing fixtures:* | F | | | |
| Accessible Toilets | HP | $400 | CA4 | |

**NOTES:**

**CA1.** Recommend providing additional guards at sides of stairs in main two stair shafts for opening protection.

**CA2.** The majority of doors have been upgraded to accessible hardware. Recommend a continued program of upgrading to lever hardware with ongoing building maintenance.

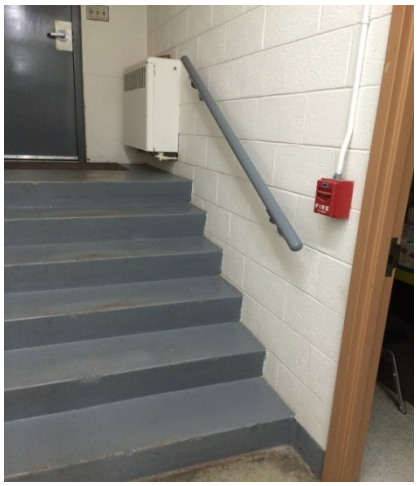
**CA3.** Recommend improvement/alteration to the reception counter at the Parks Department. Accessible portion of the counter is not immediately evident. It would be preferable to eliminate the need for the carpeted steps positioned at the middle of the counter, in front of the entrance doors.

**CA4.** The following items should be adjusted or changed in the accessible toilet rooms:

- Height of grab bars in 2nd floor accessible toilet room is 36 5/8". Top of grab bar should be between 33" and 36" above finish floor.
- Height of toilet seats in all accessible restrooms should be verified. Those on 5th and 6th floors were observed to be low (16 ¾"or less), and the one on 2nd floor was observed to be too high (20".)

**City Hall – Stair Towers**

**Basement at South Stair**



**Basement Direct Egress, Northwest Side**

**Typical Upper Floor Stair & Handrail**

**Stairs Down Egress from Boiler Room**

**Direct Egress from Boiler Room**

**Stairs Down into Boiler Room**

**Accessible Parking Stall**

**At-grade Entry**

**City Hall – 1st Floor Restrooms**

**Unisex/Accessible Restroom**

**Unisex/Accessible Restroom**

**Women's Room**

**Corridor to Accessible Restroom**

**Men's Restroom**

**City Hall – 2nd Floor Restrooms**

**Women's Room**

**Accessible Women's Room**

**Men's Room**

**Men's Room**

**City Hall – 3rd Floor Restrooms**

**Accessible Restroom**

**Women's Room**

**Men's Room**

**Men's Room**

**City Hall – 4th Floor Restrooms**

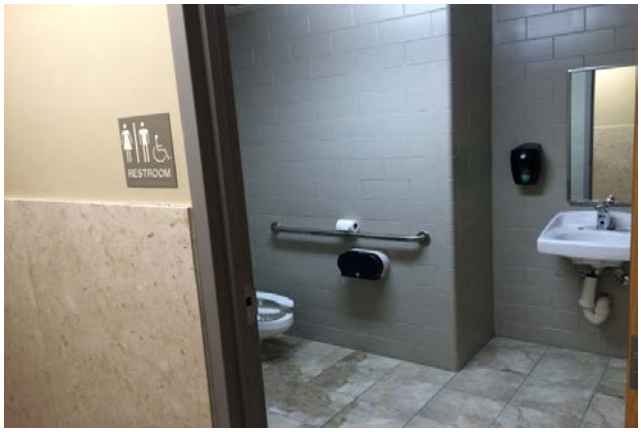
**Signage for Accessible Restroom**

**Accessible Restroom**

**Women's Room**

**Cover over Former Urinal, now in Women's Room**

**City Hall – 5th Floor Restrooms**

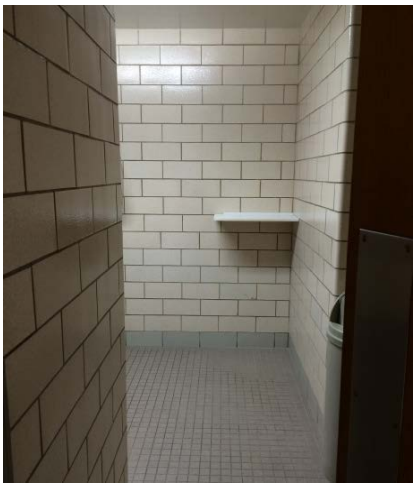



**Accessible Restroom**

**Accessible Restroom**

**Women's Room Signage on Main Corridor**

**Main Women's Room**



**Men's Room Entrance**

**Men's Room**

**City Hall – 5th Floor Restrooms Continued**

**Women's Room Accessed from Lounge**

**Women's Room Accessed from Lounge**

**City Hall – 6th Floor Restrooms**

**Women's Room**

**Cover over Urinal in Women's Room**

**Women's Room Accessed from Lounge**

## STRUCTURAL SYSTEM

### Summary

The structure consists of cast-in-place concrete floor slabs, beams, and columns bearing on a concrete foundation system.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1955 (Berners-Schober Comm. No. 2020) |
| **Structure type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation/basement walls bearing on individual spread or continuous strip footings. |
| Basement | **C** | | **S1** | Floor is typically a 4" concrete slab on grade with 6x6 - 10/10 welded wire mesh reinforcing. 5" slab in boiler room. |
| 1st Floor | **C** | | | 3" concrete/terrazzo topping over a combination of 4" solid one-way slabs and 4"+2", 6"+2", and 10"+2" tile & joist slabs supported by cast-in-place concrete beams and columns. |
| 2nd Floor | **C** | | **S2** | 3" concrete/terrazzo topping over a combination of 4" solid one-way slabs and 4"+2"and 6"+2" tile & joist slabs supported by cast-in-place concrete beams and columns. |
| 3rd, 4th, 5th, and 6th Floors | **C** | | | 3" concrete/terrazzo topping over a combination of 4" solid one-way slabs and 4"+2" tile & joist slabs supported by cast-in-place concrete beams and columns. |
| Roof/Penthouse Floor | **C** | | **S3** | Combination of 4" or 5" solid one-way slabs and 4"+2" tile & joist slabs supported by cast-in-place concrete beams and columns. 3" concrete topping in penthouse. |
| Penthouse Roof | **C** | | | 6"+2" tile & joist slabs supported on load-bearing masonry walls. |
| **Occupancy Category** | **NA** | | | Occupancy Category II. |
| **Construction Type** | **NA** | | | Construction Type **II-B** (2-hour concrete beams, columns & floor slabs, 1-hour roof) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | N/A |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There is minor shrinkage cracking in the concrete slab on grade in the basement at various locations. The cracking is not a cause for structural concern at this time.

**S2.** There is some minor settlement cracking in the glazed tile walls near the corners of the stairwells. However, the tile is non-load-bearing, and no remedial action is recommended at this time.

**S3.** In addition to the recommended masonry repairs identified in the Architectural Section, there is some expansion cracking in the face brick near the outside corners of the penthouse. It is not impairing the structural function of the walls, so no remedial action is immediately necessary. However, these cracks should be routed and sealed whenever the recommended repairs are performed.

**Shrinkage Cracks in Basement Slab (Note S1)**

**Settlement Cracks in Glazed Tile Walls of Stairs (Note S2)**

**Expansion Cracking of Brick Penthouse (Note S3)**

# PLUMBING SYSTEMS

## Summary

City Hall was constructed in 1956. The original piping is in fair condition and can be replaced as needed. Insulation could be added to the hot water piping for energy savings. Thermostatic mixing valves (TMV's) should be added to correct code issues. Eyewashes require tempered water – add TMV's.

Building is served by interior roof drains – main roof and Penthouse. No secondary drainage for the building.

Plumbing fixtures are older, flush valve(s) could be updated to conserve water. Each floor has a dedicated ADA compliant toilet room. Building utilities in general appear adequate.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | PVC & cast iron |
| Storm/Clearwater System | F | | P3 | Cast iron, roof drains |
| Valves | F | | P4 | Gate & ball |
| Domestic Water Service | C | | P5 | 4" main –combined w./ FP. |
| Insulation | HP | $15,000 | P6 | Add insulation |
| Code Issues | D | See below | P7 | TMV, Backflow Prevention |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | gas-fired |
| Recirculation Pump(s) | F | | P9 | Grundfos |
| Water Softener | F | | P10 | (2) Diamond units |
| Eyewash(es) | D | $6,000 | P11 | Add TMV's |
| Thermal Mixing Valve (TMV) | D | $4,000 | P12 | Add TMV (code issue) |
| Drain Tile, Sanitary Sump/Pump(s) | F | | P13 | Submersible, Simplex |
| Plumbing Fixtures | F | | P14 | |
| Backflow Prevention | D | $500 | P15 | Add vacuum breaker(s) on hose conn. |
| "Shop" Air Compressor | NA | | | |
| Elevator Sump Pit | D | $10,000 | P16 | No pit or pump installed. |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Exterior** | | | | |
| Storm Drainage, Roof Drains | **F** | | P17 | No secondary drainage |
| Utilities | **F** | | P18 | 4" water main, 4" sanitary sewer |

**NOTES:**

**P1.** Water piping is copper, soldered joints. Original main is galvanized piping. Fair condition. Piping is missing insulation in some areas.

**P2.** Original sanitary is cast iron, hub & spigot and threaded galvanized. Piping from the later remodeling(s) is cast iron no-hub or PVC.

**P3.** Storm system is interior roof drains on the main roof and upper Penthouse. No secondary overflow roof system installed. Storm piping is not insulated.

**P4.** Older valves are gate, newer valves are ball and butterfly.

**P5.** Building is served by a 4" water main. Domestic main is 3" with a 2" meter set and 3-valve bypass. There is also a separate 3" water main with booster pump that serves the building's standpipe system.

**P6.** Water piping is insulated with glass fiber and/or elastomeric insulation. Insulation is missing in some areas. Insulation could be added for energy savings and to prevent condensation.

**P7.** Code issues: No thermostatic mixing valve (TMV) at the water heater. Add TMV per code. Eyewashes require tempered water – install TMV's. Add hose end vacuum breakers to all faucets with hose connections.

**P8.** Water heater(s) are gas fired, direct vent, GE model #GG75T6A, 75,000 BTU, 75 gallon. Add TMV to the water heater piping. Set temperature to 110° Fahrenheit.

**P9.** Recirculation pump is Grundfos model #UP26-99, ¾" connection.

**P10.** Water softener is a Diamond residential (2) units with brine tank. Units serve the boiler.

**P11.** Eyewashes require tempered water. Install TMV's to each unit.

**P12.** Add TMV at water heater. Set temperature to 110° Fahrenheit (maximum temperature allowed per code.)

**P13.** Draintile sump/pump is simplex submersible. Sanitary sump pump is now simplex – one pump has been removed. Pump serves basement fixtures only. Piping is galvanized and PVC. Sumps should have a high water alarm installed.

**P14.** Each floor has a dedicated ADA compliant toilet room with a wall-hung WC, sensor control flush valve. Lavatory is wall-hung with electronic sensor faucet. Lavatory should have safety covers installed per ADA requirements. Men's/Women's public toilet rooms have wall-hung WC's with concealed flush valves. Lavatory is wall-hung with sensor faucet, urinal is floor mounted with electronic flush valve. Piping is concealed in pipe chase behind fixtures. Each floor has a new electric water cooler-ADA with bottle filler. Chiller in the basement could be removed, since it was set-up for the original vitreous drinking fountains. Some floors have breakroom stainless steel sink(s) with lever control faucet. Basement had a few janitors' sinks and a prefab shower stall. Exterior: several non-freeze sill faucets.

**P15.** Basement: Watts 909, ¾" RPZ backflow preventer for the boilers. Penthouse: Watts 9d for the AHU's. Install hose end vacuum breakers on all hose threaded connections. Vending machine water connection should have a Watts SD3 in-line vacuum breaker installed per code.

**P16.** No sump pit/pump installed in the elevator shaft. Pump would be required by today's code but is grandfathered in as compliant since the building was constructed in 1956.

**P17.** Upper penthouse has cast iron roof drain(s). Main building also has interior cast iron roof drains. No secondary overflow roof drainage system installed. Areaways have a drain(s) installed, which connects to the draintile.

**P18.** Building is served by a 4" water main, 3" for domestic water and 3" boosted main for the fire protection standpipe system. Sanitary sewer is 6" routed to Walnut Street. Several 6" storm sewers routes to Walnut and Jefferson Streets. Parking lots have interior catch basin(s).

**Cast Iron Sanitary Piping**

**Cast Iron Vent Piping**

**Storm, Water Piping in Penthouse**

**Expansion Joint (4th Floor) Toilet Chase**

**Flush Valve in Toilet Chase**

**Piping in Toilet Chase – Typical**

2” Water Meter Set

4” Water Main

Sanitary Piping – Basement (Insulated)

Storm Piping – Penthouse

Gas fired Water Heater

Water Softeners

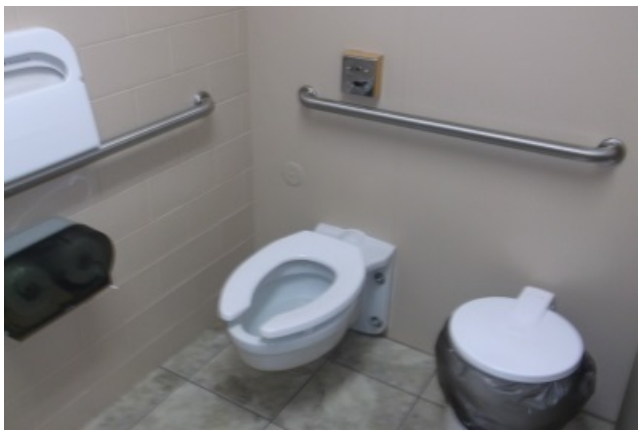
HWR Recirculation Pump

Eyewash – Boiler Room

Eyewash – Penthouse

Drain Tile, Sanitary Sump/Pump

Pump Discharge Piping



Water Closet – ADA (Typical per Floor)

**Lavatory – ADA (Typical per Floor)**

**WC – Public Toilet Room**

**Lavatory – Public Toilet Room**

**Urinal – Men's Public**

**Electric Water Cooler – Typical Corridor**

**Shower – Basement**

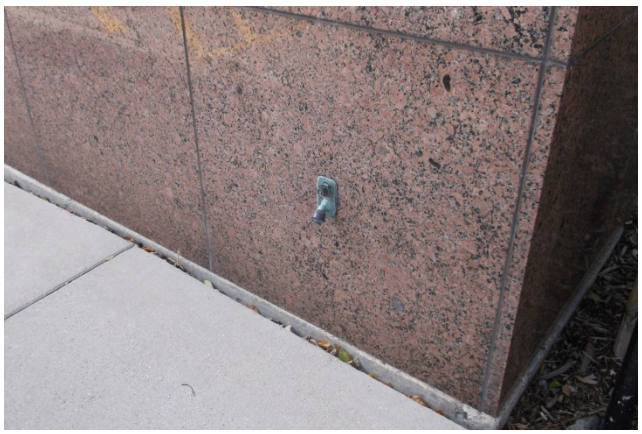
Toilet Room – 2nd Floor

Breakroom Sink

Janitors' Sink – Boiler Room

Watts RPZ BFP for Boilers

Watts 9D BFP – Penthouse



Non-freeze Sill Faucet

**Roof Drain**

**Areaway Drain**

**Parking Lot Catch Basin**

## FIRE PROTECTION SYSTEMS

### Summary

City hall was built in 1955 and had a standpipe system and fire pump installed at that time. The fire pump serves only the standpipe system, no sprinkler system is installed in the building.

Based on its condition the fire pump appears to be the original pump. The fire pump is showing signs of severe corrosion and leaking and is not located within its own rated enclosure as required by the current edition of NFPA 20. If the fire pump is replaced it will require that it be brought up to the currently adopted standards.

The standpipe system is a Class II System, which includes 1 ½" hose valves. The 2009 Edition of the IFC requires that a Class III Standpipe System, which includes both 1 ½" and 2 ½" hose valves be installed in all buildings with a floor height higher than 30' above the level of access. It also requires that the valves be located within exit stairways, which is not the case with the currently installed valves. The existing valves are located in the corridor on each floor.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| FIRE PROTECTION | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Water Service** | **C** | | FP1 | 6" Water Service. |
| Backflow Prevention | **C** | | FP2 | 3" Watts Double Check Valve |
| Fire Pump | **HP** | $150,000 | FP3 | Fairbanks Morse |
| Fire Pump Controller | **HP** | SEE PUMP | FP3 | |
| Jockey Pump | **NA** | | | |
| Jockey Pump Controller | **NA** | | | |
| **Wet Pipe Sprinkler System** | **NA** | | FP4 | |
| Sprinkler Heads | **NA** | | | |
| **Percent of Building Unit Sprinkled** | **0%** | | | |
| **Standpipe System** | **D** | $20,000 | FP5 | 1 ½" hose valves |

**NOTES:**

**FP1.** A 6" water main enters the building in the basement Mechanical Room on the south side of the building. The main is reduced to a 3" main before passing through the backflow preventer.

**FP2.** A 3" Watts Model 709 double check valve backflow preventer protects the domestic water supply from contamination by the standpipe system. The isolation valves on the backflow preventer are locked in the open position, but are not electronically monitored.

**FP3.** Based on its condition the fire pump is believed to be the original fire pump installed in 1955 although it appears to have been relocated at some point in time. No nameplate was found on the fire pump but the test card attached to the piping indicates that it is a 200 GPM 40 PSI fire pump.

The fire pump is in poor condition; it is leaking, and shows signs of severe corrosion. The pump, located in the mechanical room, is not located in a dedicated two hour enclosure. The current installation meets the installation standards when the pump was installed, but any changes or updates to the fire pump system will be required to meet the currently adopted standards. NFPA 20 2007 Edition requires that fire pumps in a non-sprinkled building shall be separated from the rest of the building by two hour construction. However, NFPA 14 allows for the installation of Manual Wet Standpipe Systems in non-high rise buildings if the local AHJ finds that installation acceptable. This means that an upgrade of the standpipe system to meet today's codes could result in the removal of the fire pump pending the AHJ's approval.

**FP4.** IFC 2009 Edition requires that in buildings, where the floor level of the highest story is higher than 30 feet above the level of access, a Class III Standpipe System be installed in the building. A Class III Standpipe consists of both 1 ½" hose valve and a 2 ½" hose valve. This building is equipped only with a Class II system consisting of 1 ½" hose valves. IFC 2009 Edition also requires that hose valves on a Class III system be located within every required stairway. The existing hose valves are located in the corridor, not within the stairway. As stated in FP3, an upgrade of the standpipe system to a Class III system would allow for the installation of a semi-automatic system.

In the penthouse cables and wires are zip tied to the standpipe piping, nothing is allowed to be attached to the fire protection piping.

**FP5.** The existing standpipe system is a 1 ½" system. The current standard require 2 ½" hose valves on the system. IFC2009 also requires that hose valves on the standpipe system be installed in every required exit stairway. The valves are currently installed in the corridor on each floor. Upgrading the standpipe system would involve installing new risers in each stairway and new hose valves on each intermediate landings.

**Backflow Preventer**

**Fire Pump**

**Fire Pump**

**Cable Attached to Standpipe**

**Hose Valve Cabinet**

**Fire Department Connection**

# HVAC SYSTEMS

## Summary

The building was constructed in 1956 and has undergone numerous renovation projects affecting the HVAC systems. The boilers are original to the building's construction. The refractory is inspected and maintained each year. The boiler controls and burners have been upgraded and/or replaced. The units are expected to last another 5 years. The steam system serves air unit heating coils and steam-to-water heat exchangers that provide hot water to the building's heating units. The penthouse heating system has been replaced. The pumps appear to be in good condition. The basement heating system pump has been replaced. There is no insulation on this system.

The main building ventilation system is a built-up high pressure induction air unit located in the mechanical penthouse. The unit is original to the building's construction but the major components have been replaced. The coils are beginning to show signs of deterioration and will require increased maintenance until such time they fail. This air unit serves induction units located under each window. These induction units are original to the building's construction. The unit's drain pans are deteriorating and on occasion become plugged, causing overflows into the building's envelope cavity. There are no filters on these units. The units are served by a two-pipe system which allows either heating or cooling of the entire building. A two-pipe system was a cost effective way of providing heating and cooling at the time, however it leads to temperature fluctuations on opposite sides of the building in the spring and fall. The occupants are typically more uncomfortable than with a four-pipe system.

There are three additional air units. One air unit is dedicated to the basement, one dedicated to the council chambers and one dedicated to interior spaces on the upper floor. These units are original to the building's construction but the major components have been replaced. The cooling coils are deteriorating and will require increased maintenance until such time they fail.

A water cooled air unit is located in a closet on first floor and serves the reception desk and a room on second floor. The unit requires replacement. Occupant dissatisfaction with the unit's operation has led the staff to simply turn the unit off.

The chiller was replaced in 2008 and the cooling tower in 2011. The pumps have also been replaced. The piping, in general, is in fair condition. However, pipe insulation is missing or has deteriorated around the air unit coils and this is causing rust and deterioration of the piping. The lack of insulation at the induction unit coils allows condensation to form and drip into the building's envelope cavity.

Four main exhaust fans serve the building's exhaust ventilation requirements. The fans are in fair condition, however the ducts, mostly original to the building, are dirty and leak. Exhaust ventilation is reduced significantly at the lower levels. A fan that previously served a blue print machine is abandoned in the area way. The fan is still powered with the manual on/off/auto switch located in a break room.

There are rooms in the lower level that are occupied and not ventilated. The corridors throughout the building are used as plenums to transfer the air from the outer offices to the return grilles located in the corridors or to the interior toilet rooms.

The IT department cooling unit was installed approximately 7 years ago (per staff) to provide additional air conditioning to this department. No issues with the unit's operation were noted.

The building controls are primarily pneumatic with some DDC control added to the air units, chiller, and boiler systems to provide some central monitoring. Air compressors are located in the boiler room.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **AHU-1** | | | | Original 1956. |
| Housing | **HP** | $370,000 | **H1** | Upstream of coils in good condition. |
| Air intake | **D** | (incl.) | **H1** | Outside air dampers are shut. |
| Coils | **HP** | (incl.) | **H1** | Steam, Chilled water. Chilled water coil casing is deteriorating. |
| Fan | **F** | | | 20000 CFM, 50HP |
| Filters | **F** | | | 30% |
| Controls | **F** | | | Pneumatic actuators, some DDC interface. |
| Insulation | **HP** | (incl.) | **H1** | Insulation missing at some ductwork. Minor damage to insulation throughout penthouse. Cooling coil piping is in poor condition. |
| Mechanical Room Ductwork | **D** | (incl.) | **H1** | Original except where replaced during projects. The main exit corridor is used as a return plenum on each floor. No economizer. |
| Distribution Ductwork | **HP** | $960,000 | **H1** | No fire dampers at the floor penetrations. Shafts are not fire rated/protected. |
| **Exterior Room Comfort** | | | | |
| Induction Terminals | **HP** | 2,600,000 | **H2** | Most units original to building. Two-pipe system. Thermal issues throughout building. No filters on unit. Deteriorating drain pans. |
| **AHU-2** | | | | Original 1956 |
| Housing | **HP** | $150,000 | **H3** | Rusting around the coils. |
| Air Intake | **C** | | | From AHU-1 |
| Coils | **HP** | (incl.) | **H3** | Chilled water coil casing is deteriorating. |
| Fan | **F** | | | 4800 CFM, 3 HP |
| Filters | **F** | | | 30% (From AHU-1) |
| Controls | **F** | | | Pneumatic actuators, some DDC interface. |
| Ductwork | **D** | (incl.) | **H3** | Original except where replaced during projects. The corridor is used as a return plenum. No economizer. |

| | | | | |
|---|---|---|---|---|
| Insulation | **HP** | (incl.) | **H3** | Insulation missing at some ductwork. Chilled water insulation is in poor condition. |
| **AHU-3** | | | | Original 1956 |
| Housing | **HP** | $150,000 | **H4** | Rusting around the coils. |
| Air Intake | **C** | | | From AHU-1 |
| Coils | **HP** | (incl.) | **H4** | Chilled water coil casing is deteriorating. |
| Fan | **F** | | | 2000 CFM, 1 HP |
| Filters | **F** | | | 30% (From AHU-1) |
| Controls | **F** | | | Pneumatic actuators, some DDC interface. |
| Ductwork | **D** | (incl.) | | Original except where replaced during projects. The corridor is used as a plenum. No economizer. |
| Insulation | **HP** | (incl.) | **H4** | Insulation missing at some ductwork. Chilled water insulation is in poor condition. |
| **AHU-4** | | | | Original 1956 |
| Housing | **HP** | $150,000 | **H5** | Upsize the replacement unit to serve the entire basement. |
| Air Intake | **HP** | (incl.) | **H5** | |
| Coils | **HP** | (incl.) | **H5** | Steam and chilled water. Chilled water coil added later, downstream of unit. |
| Fan | **HP** | (incl.) | **H5** | 1700 CFM, 1/2 HP |
| Filters | **C** | | | 30% |
| Controls | **HP** | (incl.) | **H5** | Pneumatic actuators, some DDC interface. |
| Ductwork | **D** | (incl.) | **H5** | Ductwork has been revised and extended to serve mainly the copy room and some office area. The corridor is used as a return plenum. No economizer. |
| Insulation | **HP** | (incl.) | **H5** | Exposed duct. Outside air duct did not appear to be insulated. |
| **AHU-5** | | | | |
| Housing | **HP** | $9,000 | **H6** | Unit is turned off due to staff dissatisfaction. |
| Coils | **HP** | (incl.) | **H6** | City water cooled. Recommend 1.5 ton air cooled condensing unit. |
| Filter | **HP** | (incl.) | **H6** | 20% |
| **Chiller/Cooling Tower** | | | **H7** | |
| Chiller | **C** | | | Installed 2008, 160 tons, R134A |
| Cooling Tower | **C** | | | Installed 2011 |

| | | | | |
|---|---|---|---|---|
| Pumps | C | | | 320 GPM, 10 HP(CT) and 480 GPM, 10 HP(CWS) |
| Insulation | C | | | |
| **Data Room Cooling Units** | | | **H7** | |
| Housing | C | | | Approximately 7 years old. No issues indicated by staff. |
| Condensing Units | C | | | |
| **Exhaust Fans** | | | | |
| General Exhaust | HP | $30,000 | **H8** | Four centrifugal fans. Consider replacement with a single unit. Exhaust fan and ductwork is needed in basement. |
| Exhaust Ductwork | HP | $40,000 | **H8** | Mostly original. Minimal replacement during renovation projects. Lint/dust is coating the grilles and ductwork. Recommend cleaning, sealing, and rebalance. |
| **Heating System** | | | **H9** | |
| Boilers | HP | $210,000 | **H9** | Original boilers. Controls and Burners are upgraded. Refractory ok (per staff). 15,180 EDR, 15 PSI steam. |
| Pumps | C | | | (2) 0.5 HP boiler feed pumps.<br>(2) 10 HP secondary pumps (330 GPM)<br>Fractional HP basement Pump (16 GPM) |
| Converters | F | | | |
| Piping | F | | | |
| Pipe Insulation | CP | $20,000 | **H9** | Penthouse seasonal water pumps are not insulated for pumping cold water. No insulation on basement steam to water converter. Original insulation is deteriorating. |
| Room Terminal Units | HP | $50,000 | **H10** | Older Units. Zone thermostat controls units in multiple rooms. Thermal issues. |
| **Mechanical Room Ventilation** | | | | |
| Mechanical Room | HP | $8,000 | **H11** | Refrigerant leak sensor installed. Fan appears to be adequately sized. Recommend control improvement for ventilation to control space temperature. |
| Boiler Room | D | $10,000 | **H11** | Combustion intake at high louver, not ducted to structure above or to floor. |
| **Controls** | | | **H12** | |
| Air Compressor | C | | | Two Simplex 2 HP units with extra tank. Newer air dryer |
| Room Control | F | | | Original pneumatics. Replace with low voltage DDC during mechanical improvement projects |
| DDC Control | HP | $35,000 | **H12** | Upgrade required with major mechanical replacement project. Installed 2002. |

**NOTES:**

**H1.** AHU-1 is a built-up unit. The intake and filters also serve AHU-2 and AHU-3. The intake dampers are closed. A contractor told staff that the leakage through the damper provides 5% outside air which is approximately 1,250 CFM. The building exhaust is approximately 4 times greater which indicates the building is under a constant negative pressure. It is recommended to balance the system to provide the additional outside air, achieve a positively pressurized building, and improve the indoor air quality.

The air unit housing is in fair condition except at the coils where it is more deteriorated. The major components have been maintained and upgraded to keep the unit operational well beyond the unit's expected useful life. The unit's coils will require increased maintenance until such time they fail. There is no return fan or relief air damper on this unit to allow the unit to economize and take advantage of moderate weather conditions. This unit utilizes the buildings exit corridors as plenums which is no longer allowed by code as it creates a safety hazard in a fire emergency. The ductwork floor penetrations did not appear to be protected at each floor. It is recommended to replace this air unit and reconfigure the duct systems to provide an economizer and protect penetrations between floors.

The distribution supply ductwork is located in the outer walls between sets of induction terminals. The return ductwork is located in a centralized shaft. The high priority (HP) grade is given to allow this item's estimated cost to be grouped into the building cost summary. New building codes would require fire dampers at each floor and the duct shafts to be 2-hr rated. Although installation of fire dampers and rated shafts will improve building and occupant safety, the existing building code does not require it for an equipment replacement project. Renovation projects which modify the shaft, ductwork, or equipment will require the shafts to be upgraded.

**H2.** The building's exterior rooms are served by induction units under each window. These units are served by a two pipe system which provides either hot or chilled water. The inability to heat and cool rooms individually leads to overheating and overcooling of rooms in the spring and fall. To aid in manually manipulating the units, staff has provided adjustable deflector panels on the window sills to allow the occupants to deflect the air into the room or to cover the sill outlet and minimize the amount of air coming from the unit.

The unit's drain pans are deteriorating and on occasion plug, which then overflows into the building's envelope. There is no filter on these units which allows lint to plug the unit's coil. Staff cleans the coils when a unit's cover plate is removed for maintenance. The induction unit is poorly ducted to the sill grille which allows air to be immediately recirculated into the induction unit. In addition, the induction unit's intake is extremely small compared to new units and this restricts its ability to induce more air and allow greater air exchanges within the rooms. Pipe insulation has, in general, been removed to maintain the induction units and control valves. Condensation forms on the bare pipe and it drips into the envelope wall.

The recommendation is to replace and upgrade the induction unit system. The budget offered in the legend above will replace the induction units with a four pipe system. Alternates to this type of system include variable refrigerant flow and a ducted VAV system. These systems budgets increase to 3.6 million. Each system type has advantages and disadvantages in regards to energy efficiency, ceiling type, occupant disruption, and thermal comfort. It is recommended to review each system type and how it affects the building occupants prior to budgeting for this project.

**H3.** AHU-2 is original to the building and serves the interior spaces on the upper two floors. The unit has been maintained and the major components have been replaced to keep the unit operational well past its expected useful life. The unit housing is deteriorating around the coils. Pipe insulation is missing and condensation is deteriorating the piping and valve components. This unit utilizes the buildings exit corridors as plenums which is no longer allowed by code as it creates a safety hazard in a fire emergency. It is recommended to replace this air unit, add an economizer, and revise the ductwork serving the floors. It is recommended to replace this air unit simultaneously with the other penthouse units.

**H4.** AHU-3 is original to the building. The unit has been maintained and the major components have been replaced to keep the unit operational well past its expected useful life. The unit housing is deteriorating around the coils. Pipe insulation is missing and condensation is deteriorating the piping and valve components. This unit utilizes the buildings exit corridors as plenums which is no longer allowed by code as it creates a safety hazard in a fire emergency. It is recommended to replace this air unit. It is recommended to replace this air unit simultaneously with the other penthouse units and consider omitting this unit if a variable refrigerant flow system is utilized as indicated in H1 above.

**H5.** AHU-4 is located in the basement and primarily is meant to serve the copy room although the duct main has been tapped to serve some office space. The unit was originally heating only but a cooling coil has been added downstream of the unit to provide air conditioning. The ductwork did not appear to be insulated. The unit uses the main basement corridor as a plenum to return the air. There are multiple spaces that are occupied that are not ventilated. This unit is in fair condition but is well past its expected useful life. It is too small to serve the entire basement area. A project to replace the air unit, revise the duct system, and properly ventilate the basement rooms is recommended.

**H6.** AHU-5 is a water cooled unit serving the welcome desk on first floor and a room on second floor. The staff has this unit turned off due to the occupants' dissatisfaction with its operation. A project to replace this unit with a blower coil and a 1.5 ton condensing unit is recommended. To provide additional room comfort reheat coils could be added in subsequent projects to allow individual room control. A variable refrigerant flow system as indicated above would allow this unit to be omitted.

**H7.** The chiller, cooling tower, and IT department cooling unit have all been replaced within the last 7 years. Staff did not indicate issues with any of the units operations.

**H8.** The office building exhaust system is served by multiple centrifugal fans. Dust and lint build-up is prevalent at toilet room grilles and in the ductwork. Air flow within the lower level rooms is diminished and can be attributed to older ductwork combined with the dirtying of the systems. Fire dampers at the floor penetrations were not readily visible and may not exist. Duct cleaning, taping and sealing, and air balancing are recommended. The multiple exhaust fans can be replaced with a single exhaust fan as these fans primarily serve toilet rooms which are required to be ventilated when the building is occupied.

A side wall propeller fan installed in the basement recirculates air between the room and the corridor. This fan is recommended to be removed and/or ducted to meet code. A project to improve the basement ventilation is recommended to include the expansion/renovation of the existing exhaust system.

**H9.** The boilers are original to the buildings construction. The refractory is inspected annually and is repaired as needed. The boiler burners and controls have been replaced and upgraded over the years. The boilers are expected to last another 5 years. These are steam boilers that serve three air unit steam coils and two steam to water heat exchangers. Originally, the boilers served an absorption chiller, which has since been removed. The air units have very little steam load. The current steam load is primarily the steam to water converter serving the hot water used in the induction terminals. It is recommended to replace the steam boilers with hi-efficiency condensing hot water boilers. Replacement of the boilers with steam boilers will escalate the construction estimate offered in the legend above. It is recommended to pipe the boiler relief valves to the floor in the interim.

One steam to water heat exchanger is located in the basement and serves the basement and some first floor heating units. There is no insulation on the unit or the piping through most of the basement. The pump appears to have been replaced recently. It is recommended to remove this converter system when the boilers are replaced with water boilers.

The steam to water heat exchanger system in the penthouse mechanical room has been replaced. This unit serves the induction terminals. The pumps appear to be new and are used for both hot and chilled water. The pumps are not insulated and condensation forms on the pumps and the adjacent piping. This condensation will damage insulation and advance the corrosion of the piping and pump. It is recommended to remove this converter system when the boilers are replaced. It is recommended to insulate the pumps to prevent condensation.

**H10.** The basement heating units are combined together and are controlled by zone thermostats. The zoning creates uneven heating and thermal discomfort throughout the basement. It is recommended to revise the control by adding a thermostat at each occupied room and a control valve at each heating unit.

Steam unit heaters are located sporadically around the building and appear to be original to the building. These units will require replacement (or removal) when the boilers are replaced.

**H11.** The penthouse mechanical room has an exhaust fan that is operated by a refrigerant leak detector. Electrical and data equipment is installed in the mechanical room and the room is quite warm. It is recommended to revise the exhaust fan control to ventilate the room based on room temperature as well as refrigerant leak detection.

The boiler room combustion air is served by a couple of dampered louvers. These intakes terminate at the louver about mid-height on the wall. Current code requires the combustion duct to terminate at high and low points in the room. It is recommended to correct the combustion ductwork when the boiler system is replaced.

**H12.** The air compressor serving the buildings pneumatic controls appears to operate sufficiently. One of the units appears to be new. As systems are replaced, low voltage DDC controls are recommended for installation as this will allow greater monitoring of the system. A DDC front end computer is located in an office in the basement. The DDC controls were installed in 2002 and will require an upgrade as the mechanical systems are replaced.

**AHU-1 Steam Coil**

**AHU-2 and 3 Coils**

**AHU-2 and AHU-3**

**AHU-4**

**Water Cooled Blower Coil (AHU-5)**

**AHU-1 Intake**

**Typical Exhaust Fan**

**Mechanical Room Fan**

**Basement Room Ventilation Fan**

**Typical Unit Heater**

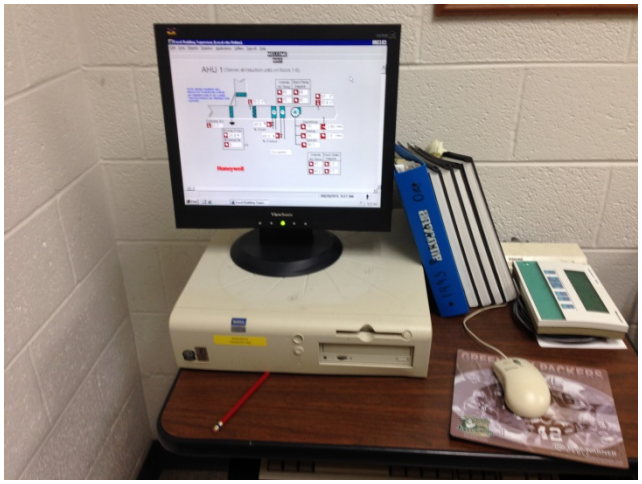
**Boiler (1 of 2)**

**Boiler Chemical Feeder**

**Condensate Receiver**

**Air Dryer**

**Air Compressors**



**Temperature Control Computer**

**Induction Unit Water Pumps**

**Basement Hot water System**

**Building Steam to Water Converters**

**Chiller**

**Condenser Pump**

**Chilled Water Pump**

**Cooling Tower**

**IT Department Condenser**

Typical Induction Unit Piping

Condensation Below Induction Unit (in wall)

Exhaust Grille (Typical)

Vestibule Heater (Typical)

Gas Meter

Exhaust Fan Discharge (Abandoned)

# ELECTRICAL SYSTEMS

## Summary

City Hall is served by a 2000 Amp, 120/208 Volt, three phase electrical service. The Main Switchboard (MSB) is a Square D model Saflex fusible-switch type; it is located in the basement. The MSB is original to the building (circa 1956). Although the equipment appears in good condition, Square D no longer supports this style of switchboard. Often the mechanical component of a switch (the action of OPENING and CLOSING) becomes difficult to operate or simply fails to operate. Eventually replacement parts become difficult to find. The MSB consists of three service disconnect switches, and a distribution section. Each of the service disconnects is labeled – although more prominent labels and labels identifying each disconnect by number (e.g. – Service Disconnect No. 1, Service Disconnect No. 2, etc.) is recommended. Portions of the electrical room are being used for storage. Ideally this room should be kept storage-free , assuring easy access to equipment in case of emergency or maintenance. The switch providing the normal power feed to the automatic transfer switch (ATS) is labeled "Emergency Circuits Disconnect". It is recommended this label be changed to "Normal Power to ATS" since "emergency" circuits are fed from the generator and are not disconnected by this switch when utility power is lost.

Understanding how power is distributed in the penthouse could be improved by installing a motor control center. Currently the feeder serving the penthouse is tapped several times to serve numerous disconnect switches.

A 60-kW diesel-fueled generator provides standby power. The generator is enclosed within a weather-housing and is located on-grade near the southeast corner of the building. It feeds an automatic transfer switch (ATS) rated 225-amps. The ATS is located in the basement across from the MSB. Although the generator serves both lighting and non-lighting loads the presence of battery-operated emergency lighting throughout the building, plus the absence of a second ATS, indicates the generator is not relied upon for emergency egress. The generator is reportedly exercised under load each week. The diesel fuel tank is double-walled and situated in the generator's support structure.

The main emergency power panel (EPP) is located adjacent to the ATS. EPP is a Square D Load Center with a 200A main circuit breaker. The panel has 24 1-pole spaces available.

A manual transfer switch with a pin-and-sleeve receptacle for connecting a temporary generator was installed in the basement recently by the communications provider whose transmitting equipment is installed on the building's rooftop. The normal feed to the manual transfer switch is tapped from the bus of the MSB despite there being a spare 200A switch available in the distribution section of MSB.

Branch panels for both normal and emergency power are manufactured by Square D. The majority of these panels are Square D model QO, and are recessed (flush-mounted) in walls in the stairwells. One panel is located in the Men's room on the first floor. Although the condition of these panels is good, Square D no longer manufactures the model QO, and replacement parts are becoming more difficult to acquire. Having them located in the stairwells is unusual, and the fact they are flush-mounted makes it difficult to access if a new conduit is needed for a new circuit. In some instances proper working access (standing on a level surface) is not provided. Overall the condition of the branch panels is good, but their age means replacement circuit breakers will become increasingly difficult to acquire. It would be very difficult and costly to relocate the panels, but it is possible to improve a poor situation by replacing the interiors and panel covers to improve reliability and ease of access.

Battery-operated emergency egress lighting fixtures occur sporadically throughout the building. Each one that was tested worked, however, the quantity of the fixtures, fixture placement, and overall performance do not comply with current standards.

Generally lighting fixtures throughout the buildings are in good to fair condition, and utilize T8 fluorescent lamps and electronic ballasts. An exception is lighting fixtures in the Printing Room of the basement – which are suspended fixtures with louvers using T12 fluorescent lamps. T12 lamps are no longer manufactured.

Areas with the original concealed grid ceilings are using the original 1x4 flush-mounted fluorescent lighting fixtures that have been retrofit with T8 fluorescent lamps and electronic ballasts. The quantity of original 1x4 lighting fixtures is greater than a modern lighting design would call for. The fact that many of the original lighting fixtures either have burned-out lamps or lamps have purposely been removed may indicate an effort to reduce lighting levels and/or conserve energy. Prismatic lenses are yellowing in many of the original 1x4 flush-mounted lighting fixtures. Some original 1x4 fixtures have been retrofit with paracube lens.

Where concealed grid ceilings have been replaced with lay-in acoustical tile ceilings lighting fixtures have also been replaced. Replacement fixtures use T8 fluorescent lamps with electronic ballasts. Fixtures either utilize a prismatic lens or a parabolic louver.

The building is protected by a Faraday fire alarm system. It is a zoned system. Both the control panel and annunciator are located in a small room on the north end of the first floor. Coverage with visual and audible/visual alarms is inconsistent – some areas are compliant, some are not. Use of smoke and/or heat detectors is also inconsistent.

Various unsealed corridor wall penetrations were observed throughout the building. The majority of these penetrations appear to be due to distribution of fiber optic cabling or other communications cabling.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Switchboard (MSB) | F | $60,000 | E1,E2, E4,E5 | Age lessens reliability of switches opening and closing; switches should be lubricated periodically. Plan for eventual replacement. |
| Branch Panels | F | $35,000 | E3 | Replace obsolete panel interiors; replace panel covers. |
| Motor Control Center (MCC) | F | $6,500 | | Consolidate equipment in Penthouse in MCC |
| **Emergency Power Distribution Equipment** | | | | |
| Automatic Transfer Switch | C | | | 225-amp Onan appears in good condition |
| Branch Panels | F | $15,000 | E3 | Replace obsolete panel interiors; replace panel covers. |
| **Lighting** | | | | |
| Throughout entire building but majority on Floors 3, 4, and 6 | F | $10,000 | E6 | Replace yellowed lenses and paracube lenses of original 1x4 lighting fixtures. |
| Throughout entire building but majority on Floors 3, 4, and 6 | F | $35,000 | E7 | Replace remaining original 1x4 lighting fixtures |
| Exterior | F | $3,500 | E9 | Replace HID with LED. |

| | | | | |
|---|---|---|---|---|
| **Seal Penetrations** | | | | |
| Seal Penetrations | **CP** | **$1,200** | | Fire seal penetrations through corridor walls |
| **Emergency Egress Lighting** | | | | |
| Emergency Egress Lighting and Exit Signs | **HP** | **$30,000** | E8 | Add a second ATS and panelboards dedicated to emergency egress lighting |
| Emergency Egress Lighting and Exit Signs | **HP** | **$20,000** | E8 | New Unit Equipment (battery equipment) as needed to comply with current Code |
| **Fire Alarm** | | | | |
| Upgrade to an Addressable Control Panel | **CP** | **$40,000** | E10 | Plan replacement of existing zoned system with an addressable system and increase coverage of audible and audible/visual alarms for compliance. |

**NOTES:**

**E1.** Change label of switch protecting "normal" feed to the ATS from "Emergency Circuits Disconnect" to "Normal Power to ATS".

**E2.** Replacement parts and circuit breakers will eventually be unavailable due to the equipment's age and the fact the OEM no longer supports the equipment.

**E3.** Existing panel interiors can be replaced with new interiors (bus and circuit breakers) to improve reliability; existing covers with spring-loaded 1/4-turn fasteners are difficult to remove and reinstall and have a history of pinching wiring. New covers can be provided with the new interiors that will allow much easier and safer access for maintenance.

**E4.** Change services disconnect labels to read "Service Disconnect No. 1", "Service Disconnect No. 2", and "Service Disconnect No. 3".

**E5.** Lubricating mechanical components regularly as part of a preventative maintenance program enhances continued and reliable operation of equipment.

**E6.** Replacing paracube lenses and yellowed prismatic lenses with acrylic prismatic lenses will brighten spaces, improve lighting uniformity, and make them more appealing.

**E7.** Replace existing fixtures if ceilings are replaced.

**E8.** A second ATS and branch panels dedicated to emergency egress lighting is the better option long term since the facility already has a standby generator. While unit equipment (battery operated emergency lighting) is the least expensive first-dollars solution, it has ongoing maintenance material and labor costs related to replacing batteries every 3 to 5 years.

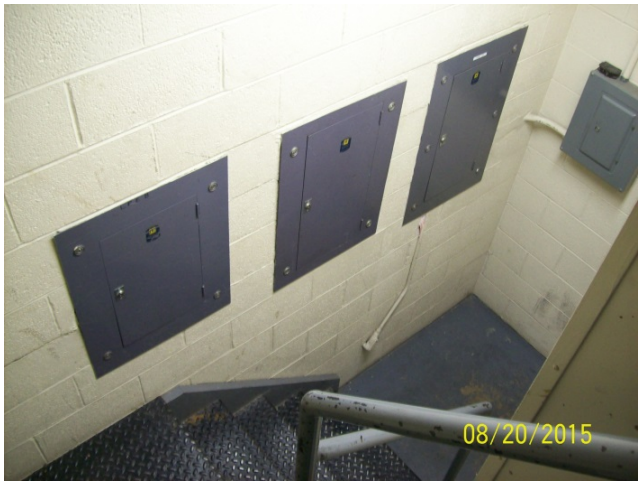
**E9.** Replacing HID-lamped fixtures with LED fixtures will result in lower operating and maintenance costs.

**E10.** An addressable system provides reporting on each device in the system.

**Main Switchboard – Service Equipment**

**Main Emergency Panel**

**Electric Panels in Stairwells**




**Electric Panels in Stairwell to Penthouse**

**Distribution of Power in Penthouse**

**Fire Alarm Control Panel and Annunciator**

**Basement – U sealed Penetration at Corridor Wall**

**Basement – Unsealed Penetration at Corridor Wall**

**4th Floor – Unsealed Penetration of Corridor Wall**

**Original Lighting in Concealed Spline Ceiling**

**Power Panel Mounted too High**

**Battery-operated Emergency Egress Lighting**

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# EVALUATION

# OF

# CITY-OWNED FACILITITES

## PARKS SHOP & MAINTENANCE

**August, 2015**

## PARKS DEPARTMENT

## SUMMARY

***Date of Visit: August 6, 2015***
***Address: 919 Crocker Street***

### Building Description

The Parks Shop & Maintenance building was built for the department in 1989 and has not been added onto since its original construction. It consists of a one-story concrete block office component joined with a tall masonry and metal building shop and maintenance structure. The shop area includes several mezzanines for storage, and large overhead doors on three of its four sides.

There is no secondary drainage for the lower roof over the office area.

### Code/Accessibility

Two legal means of egress are available from all areas of the building, including the storage mezzanine within the repair/shop area. Yellow floor markings in the shop support this by indicating exit routes. Stored items should be moved off the yellow indicated pathways.

A fire rated separation between the Business and Storage occupancies of the building is recommended to be maintained. Gas/air tanks not in use should be stored in a rated room. Those in use should be placed in areas not near vehicular traffic.

Building is at-grade, and one entrance to the business area is accessible. The following accessibility features/upgrades are recommended:

- Designated accessible parking spot and signage
- Pipe protection at some drinking fountains
- Accessible height counter and sink in lunchroom
- Single-user, unisex, accessible toilet and shower room with lockers

### Structural System

The structure is primarily an "Armco" pre-engineered metal building with standing seam roof deck, z-purlins, and structural steel rigid frames, as well as a combination of load-bearing and non-load-bearing masonry walls, all bearing on cast-in-place foundations.

### Plumbing Systems

The original piping is in fair condition and can be replaced as needed. Insulation could be added to the hot water piping for energy savings. Thermostatic mixing valves (TMV's) and recirculation pump(s) should be added to correct code issues. Lack of hot water is an issue – needs recirculation pump installed and system balanced. Eyewashes require tempered water – add TMV's.

Building is served by gutters/downspouts in the shop area, discharge to grade. Interior roof drains/exterior downspouts on the office roof, no secondary drainage on the lower roof.

Plumbing fixtures are older, flush valve(s) could be updated to conserve water. Building utilities in general appear adequate.

### Fire Protection

The Parks Shop and Maintenance building has not had any renovations since the completion of the building. The fire sprinkler system is original to the building.

The shop/storage area of the building is fully sprinkled with a wet pipe sprinkler system. The system piping, valves, and sprinkler heads appear to be in fair to good condition with only light corrosion and no signs of leaking.

## HVAC Systems

The equipment, in general, is original to the buildings construction except a condensing unit serving the shop air unit has been replaced.

An air unit with split system air conditioning serves the shop rooms. The air system provides minimal ventilation, fresh air, and air conditioning to these rooms as a single zone, constant volume air unit system.

An air unit serving the offices, locker rooms, and break area is a multi-zone, VAV air unit system with split system DX condensing unit.

A direct fired make-up air unit serves the paint shop and another unit serves the storage/repair garage.

Three hot water boilers provide hot water to the VAV and air unit heating coils. These boilers are standard efficiency units. A boiler room combustion air fan is required on the small combustion air duct. Although the boilers and pumps are redundant this fan does not have redundancy and upon its failure the boilers will not operate properly.

The locker room exhaust requirements are served by power roof ventilators.

The storage and repair garage exhaust requirements are served by multiple side wall exhaust fans. An under slab vehicle exhaust system and welding exhaust capture system are installed in the repair area.

The office area temperature control system is pneumatic. Low and line voltage controls are utilized on the remaining air unit and fan systems. The temperature control air compressor system appears to be in good condition.

## Electrical Systems

The building's electric service is rated 1200-amps at 120/208-volts, 3-Phase. The main service disconnect and distribution feeders are protected by fusible switches. There is space for one new 400-amp fusible switch.

An automatic transfer switch (ATS) feeds a 400A emergency power distribution panel. There is space for two additional 60-amp switches in the emergency power distribution panel. Branch panels connected to the emergency power system are not labeled in a manner that readily identifies them as connected to emergency power.

Exit signs incorporate battery back-up. There are no other battery supplied emergency egress lighting fixtures. Lighting controls (occupancy sensors) are present in smaller rooms but lacking in larger spaces.

Receptacles are not GFCI type. The plug openings of some receptacles in the painting area are filled with paint.

Coverage with audible and visual fire alarm devices is not code compliant.

The building's communications are delivered through a 12-strand fiber optic cable. Only 2 of the 12 strands are being used. The fiber optic cable is terminated in an equipment rack located in the boiler room. The electronic equipment (network switch/router) installed in this rack, and a nearby 150-VA UPS, would benefit from a space with cooler temperatures and better ventilation. The stacking and storing of supplies immediately next to the equipment contributes to the poor ventilation condition.

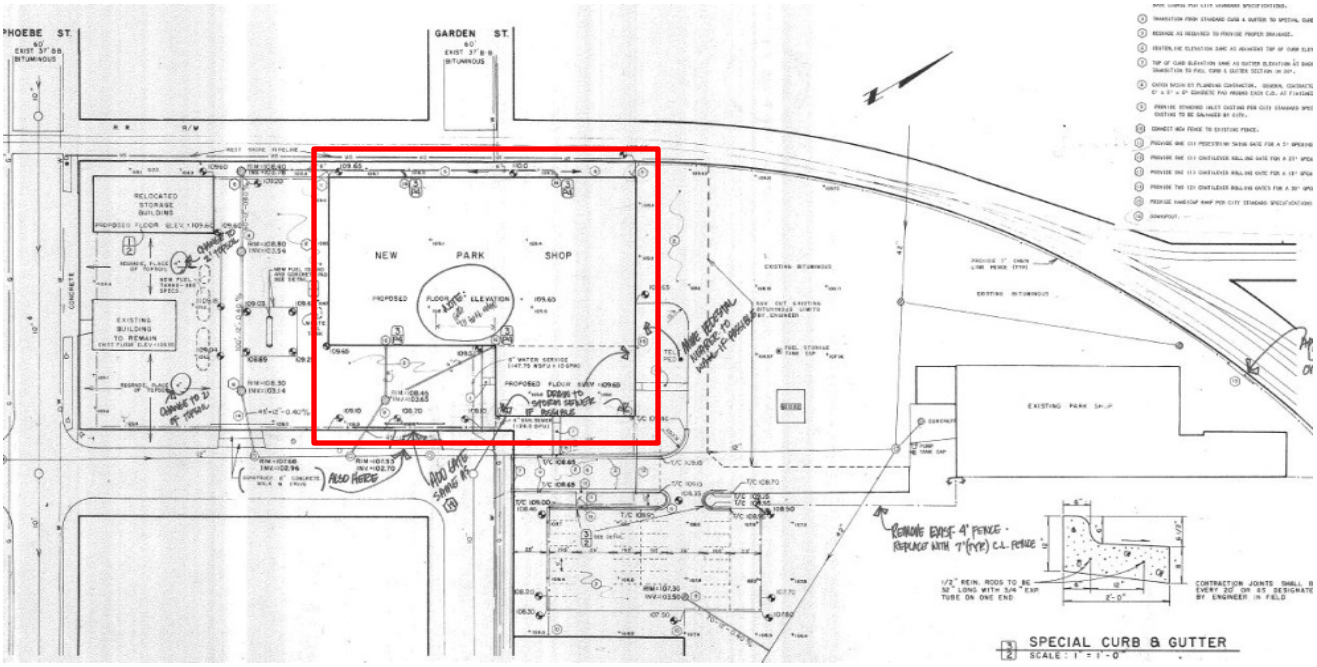
## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

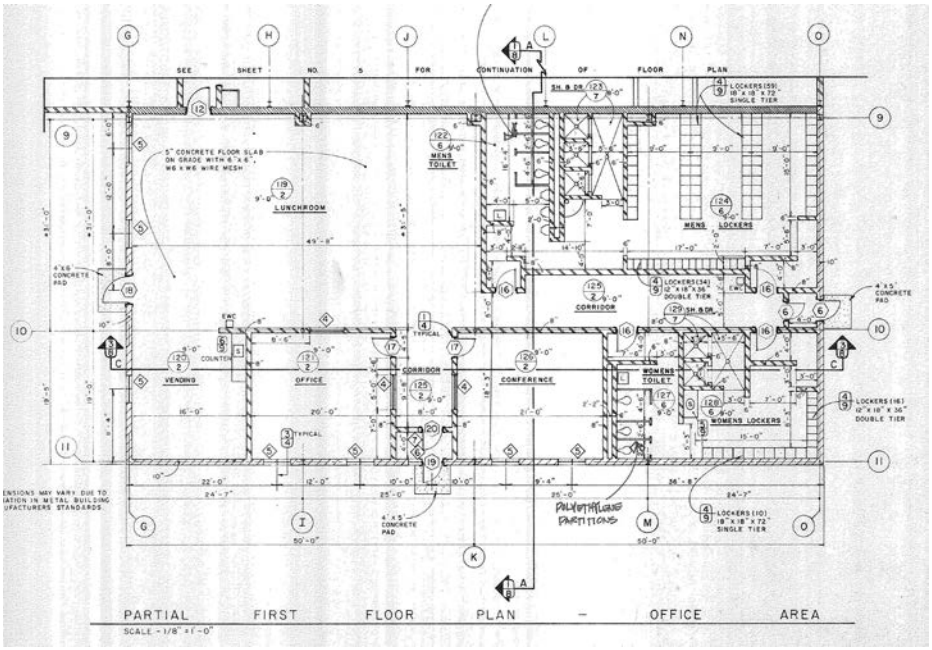
| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | | **NA** |
| **Code/ADA** | | | Sink | **$2,000-$3,000** |
| | | | Accessible Toilet | **$12,000-$15,000** |
| | | | Accessible Shower | **See above** |
| **Code Subtotal** | | | | **$14,000-$18,000** |
| **Structural** | | | | **NA** |
| **Fire Protection** | Backflow Prevention | | | **$7,000** |
| **Plumbing** | | | Insulation | **$20,000** |
| | Eyewash(es) | | | **$8,000** |
| | Thermal Mixing Valve (TMV) | | | **$8,000** |
| | Backflow Prevention | | | **$1,000** |
| **Plumbing Subtotal** | | | | **$37,000** |
| **HVAC Systems** | | | | |
| **Air Unit-Office Area** | | | Housing (incl. fan, filters) | **$80,000** |
| | | | Condenser | **$20,000** |
| | | | Insulation | **$1,000** |
| | | | Room Terminal Units | **$20,000** |
| **Air Unit-Shop Area** | | | Housing (incl. fan, filters) | **$60,000** |
| **Exhaust Fans** | | | Ductwork | **$10,000** |
| **Boiler System** | | | Boilers | **$85,000** |
| **Mechanical Room Ventilation** | Mechanical Room Ventilation | | | **$12,000** |
| **Controls** | | | Building Management | **$25,000** |
| **Garage and Shop Ventilation** | | | Make-up Air Unit for Garage and Paint Booth | **$200,000** |
| | | | Exhaust | **$15,000** |

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| | | | Control | **$20,000** |
| | | | Radiant Heaters | **$60,000** |
| | | | Repair Garage Vehicle Exhaust | **$10,000** |
| | | | Paint Booth | **$8,000** |
| | | | Paint Storage | **$2,000** |
| | Pesticide Storage | | | **$5,000** |
| **HVAC Subtotal** | | | | **$633,000** |
| **Electrical** | | | Branch Panels | **$500** |
| | Garage | | | **$1,500** |
| | | Emergency Egress Lighting and Exit Signs | | **$20,000** |
| | | | Audible and Audible/Visual Alarms | **$5,000** |
| **Electrical Subtotal** | | | | **$27,000** |
| **Building Total** | | | | **$711,000-$715,000** |

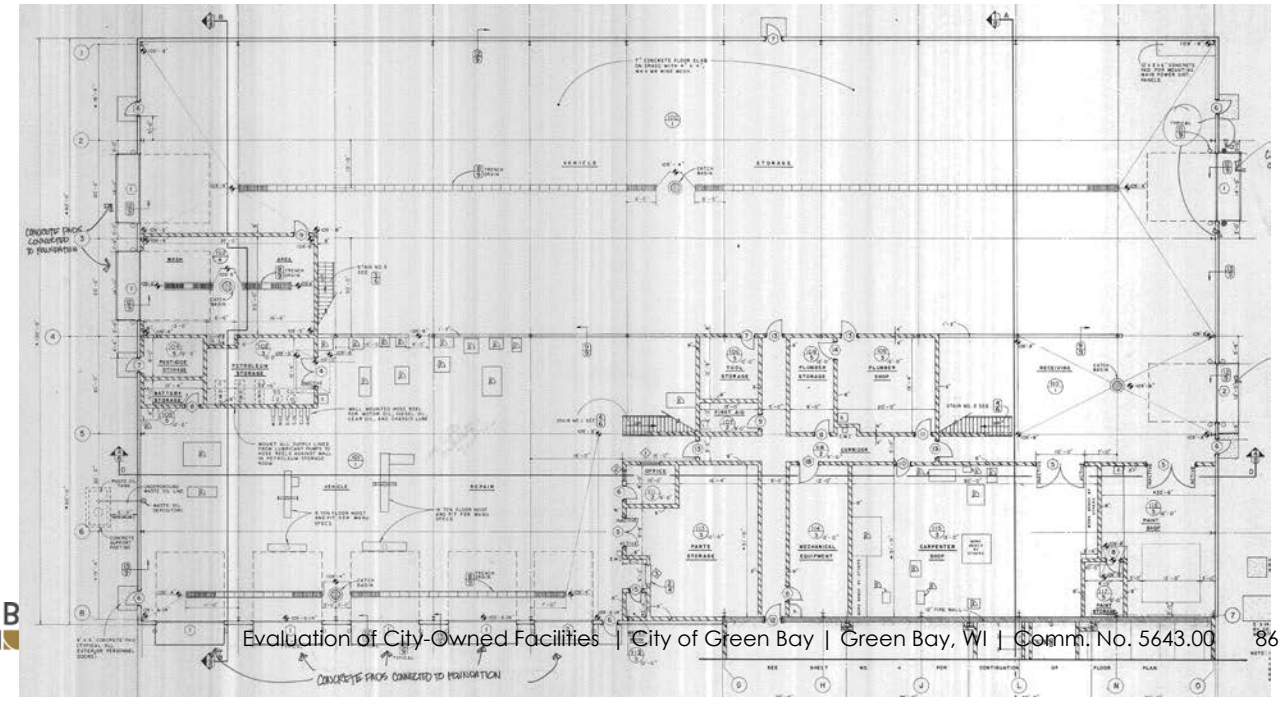



**Site Plan**

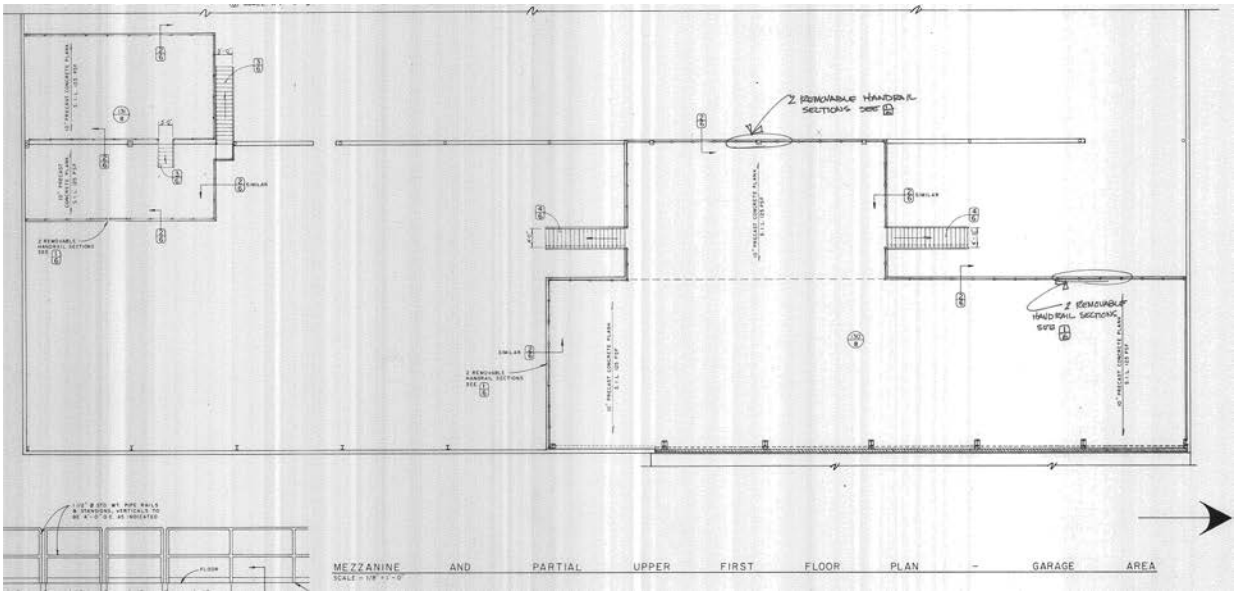
**Aerial View of Site**




**Office area of 1st Floor**



**Shop/Maintenance area of 1st Floor**




**Shop mezzanine plan**

# ARCHITECTURAL

## Building Description

The Parks Shop & Maintenance building was built for the department in 1989 and has not been added onto since its original construction. It consists of a one-story concrete block office component joined with a tall masonry and metal building shop and maintenance structure. The shop area includes several mezzanines for storage, and large overhead doors on three of its four sides.

## Building Envelope

### Exterior Walls

There are two different wall types for the two areas of the building. The shop/maintenance area has a concrete base of approximately 12" high, with 4' of concrete block cavity wall above. Over this base are insulated, corrugated metal wall panels. Both components are in good condition.

### Windows

Fixed aluminum frame casement windows are used in the office area. There are no windows in the shop section of the building.

### Roof

The shop area of the building has a low-slope metal roof served by exterior gutters and downspouts which discharge to grade.

The lower office area has low-slope metal roof with interior drains. Its corrugated metal soffit and parapet wall do not provide any scuppers for secondary drainage.

## Interior Finishes

### Floors

The shop and maintenance floor and the wood shop floor are sealed concrete.
Floors in the break room, corridors and offices of the office wing are large format porcelain tile. Toilet and locker room floors are a 3 or 4 color brown/oatmeal mix of 1" ceramic mosaic tile.

### Walls

Walls in the shop and maintenance area are exposed structure of either the masonry base course (painted) or the metal building component.
Walls in the office wing are primarily painted concrete block. The shower areas have full-height 4 ¼" glazed ceramic tile.

### Doors

Main entry doors to the office wing are full-light aluminum door and sidelight at both sides of a vestibule. Other exterior doors are insulated FRP with a narrow light. The FRP doors are replacements of the original doors, and have lever handles.
Door from office directly to shop area, and doors within the shop are flush metal, some with, some without vision light in the door.

### Ceilings

The office area ceilings are 2x2 flat acoustic panels. There is water staining of the panels over a door leading from the break room to a corridor adjacent to the wood shop, indicating past roof leakage. Shower areas have painted solid substrate ceilings. Shop areas, including those work areas adjacent to the office, have exposed structure at ceiling.

### Casework

Banks of casework in the break area are all wood bases with plastic laminate tops, but appear to be from two separate time frames. The bank by the sink has surface mounted hinges, door and drawer pulls, flat panel construction with a routed-in detail on each face. The counters by the snack area and garbage area flat panel with no pulls and off-set hinges. One laminate counter top is chipped and damaged, otherwise the casework is in fair condition.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | $8,000 | A1 | |
| Exterior Facade Condition | C | | | |
| Exterior Door Condition | C | | | |
| Window Condition | C | | | |
| Interior walls | C | | A2 | |
| Floors | C | | | |
| Ceilings | F | | | Replace stained ceiling tile. |

**NOTES:**

**A1.** Relief scuppers are recommended for the lower office roof as secondary drainage. Condition of roof itself is not a concern at this time.

**A2.** Fill holes and paint in areas where equipment was previously mounted.

**Southeast Corner of Shop and Office**

**Office Wing**

**Northwest End of Shop**

**Side Entry to Office**

**East Elevation on Crocker Street**

**South and East Elevations**

Roof of Office, Upper East Elevation of Shop

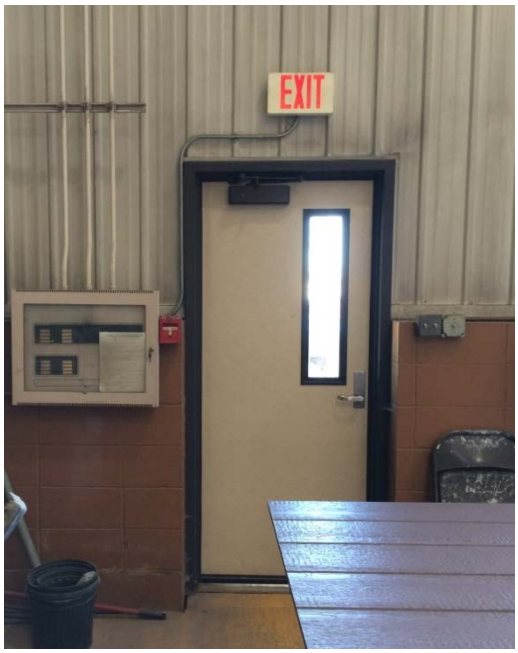
Roof of Office

Fascia and Soffit of Office

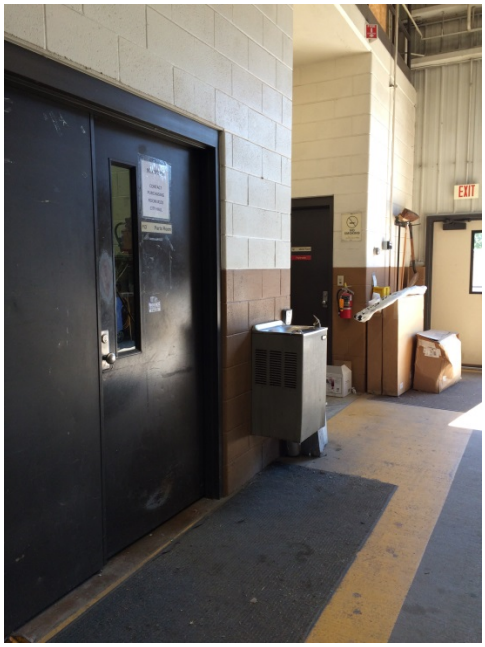
South Entry to Office Area

Shop, Looking South

Shop, from Mezzanine




**Exterior FRP Door**




**Interior HM Doors**

**Office Adjacent to Entry**

**Corridor and Break Room**

**Damaged Countertop**

**Stained Ceiling Panels**

**Men's Locker Room**

**Women's Bathroom/Locker Room**

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | 1989 | **Gross Area** | 31,500 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | The WI building code at the time of construction and additions would have placed the building under Chapter 54 Factory, Office, Mercantile occupancy category for the Business area, and Chapter 59 Hazardous Occupancies for the shop/maintenance area.<br><br>Current code would place it under **S-1 Moderate Hazard Storage**, separated from **B Business**. | | |
| **Construction Type** *(Chapter 6 IBC)* | The classes of construction at the time would have probably been Type 6, Metal Frame, Unprotected.<br>The building's materials would place it equivalent **to Type II-B** in the 2009 IBC. | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

### Egress and Safety

Two legal means of egress are available from all areas of the building, including the storage mezzanine within the repair/shop area. Yellow floor markings in the shop support this by indicating exit routes. Stored items should be moved off the yellow indicated pathways.

### Stairs, Handrails and Guardrails

There are no stair shafts, but two open stairs within the main repair/shop area. Openings in guards and handrails are in compliance with IBC 1013.3, exception 4.

### Separations

There is a fire rated separation between the office/locker room section of the building and the shop/maintenance areas. Exact rating of the door opening was not determined, but code at the time it was built would have required a 2-hour separation between Chapter 54 Factory, Office & Mercantile and Chapter 59 Hazardous Occupancy. The mechanical equipment room is also rated.

Although the current code does not call for a separation of Business and S-1 Storage occupancies, it is recommended that this separation be maintained, due to the quantity of the building that would fit the description of S-2 Low Hazard Storage, which does require a 2 hour rated separation for an unsprinkered building.

Gas/air tanks were observed in numerous locations throughout the shop, including adjacent to the overhead door for vehicle access to the south. Typically these would be required to be kept in a 1-hour rated storage room, but it is understood that they are used as part of the maintenance operations in the shop. It is recommended that the tanks not being used are stored in a separate room, and that those in use be place in areas not subject to vehicular traffic.

## Summary of Accessibility/ADA Compliance

**Accessible Route**

Entry to the building is at grade, and parking is available near the accessible entrances, but there was no signage indicating a designated accessible spot.

Within the building, corridors provide an accessible route to all areas of primary use in the Business section; unobstructed paths are available in the Storage section of the building. Mazed door entrances to the locker and toilet rooms do not provide maneuvering clearances per ADA, as they were built prior to its enactment. Compliant configuration would be possible with remodeling, but this would involve relocating concrete block walls and removal of some lockers for both Men's and Women's Locker Rooms. There does not appear to be enough room to also reconfigure the toilet room entrances, but these are accessible through the locker rooms.

The front vestibule does not provide enough distance between the two doors to be accessible. Direct entry is available through the side door.

**Doors**

The building has a combination of push/pull hardware and knob handles. Knobs are not accessible. Doors all provide the minimum clear width for passage. See discussion of accessible route for maneuvering clearances. The door between shop area and business area does not provide the required 18" of clearance on the latch side of the door to be considered accessible.

**Plumbing Fixtures**

- Sink:
  - Sink in lunchroom counter is not at accessible height (34" is accessible).
- Drinking fountains:
  - One in lunchroom has spout at 32", which complies with the lower accessible height.
  - A standing height drinking option, with spout height at 42", is available in the shop area and in the corridor of the Business section.
- Lavatories:
  - Men's toilet room has one lavatory at 33" rim height, which is ADA compliant. Pipes underneath are not protected per guidelines.
  - Women's toilet room has one lavatory at 33" rim height. Pipes underneath are not protected.
- Toilets:
  - Neither Men's nor Women's rooms provide a toilet stall that complies with ADA guidelines.
- Showers:
  - Neither Men's nor Women's rooms provide an accessible shower.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Egress and Safety | C | | | |
| Stair Shafts | NA | | CA1 | |
| Handrails/Guardrails | C | | | |
| Separations | C / HP | | CA2 | |
| Accessible Route | F | | CA3 & CA4 | |
| Doors | C / F | | CA6 | |
| Plumbing Fixtures | | | | |
| Sink | HP | $2,000 - $3,000 | CA8 | |
| Drinking Fountain | F | | CA7 | |
| Accessible Toilet | HP | $12,000 - $15,000 | CA5 & CA7 | Cost estimate is for one room, per note CA5 below. |
| Accessible Shower | HP | | CA5 | Cost included in note above. |

**NOTES:**

**CA1.** Move stored items off the yellow marked egress routes within the building.

**CA2.** Gas/air tanks should be stored in a 1-hour rated room. Those in use during the work day should be stored/placed in areas away from vehicular traffic.

**CA3.** Provide signage and pavement marking for accessible parking stall near side (accessible) entry door.

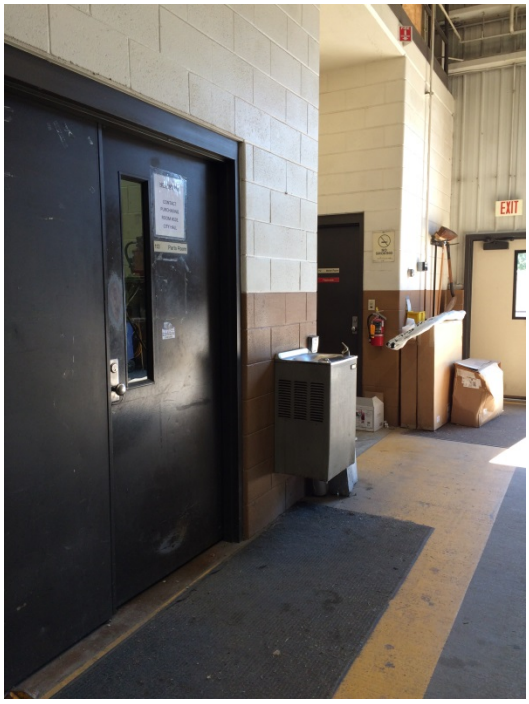
**CA4.** In lieu of reconfiguring mazed entrances to locker rooms, see note CA5.

**CA5.** To address accessibility issues with locker and toilet rooms, recommend providing a single-user, unisex, accessible toilet and shower room with two lockers.

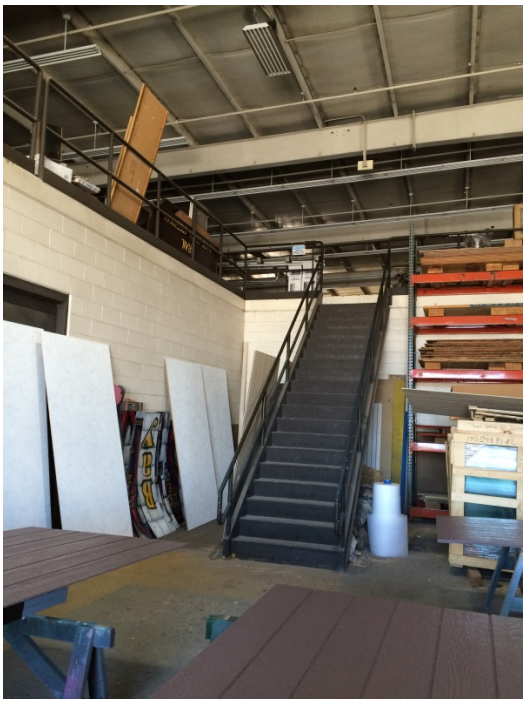
**CA6.** Lever handles would comply with accessibility codes and facilitate ease of use. Lever handles are code requirement for any new or renovated work.

**CA7.** Provide pipe protection at accessible drinking fountains and lavatories.

**CA8.** Lunchroom sink and counter should be at 34" rim height maximum.




**Clear Items from Yellow Egress Path**



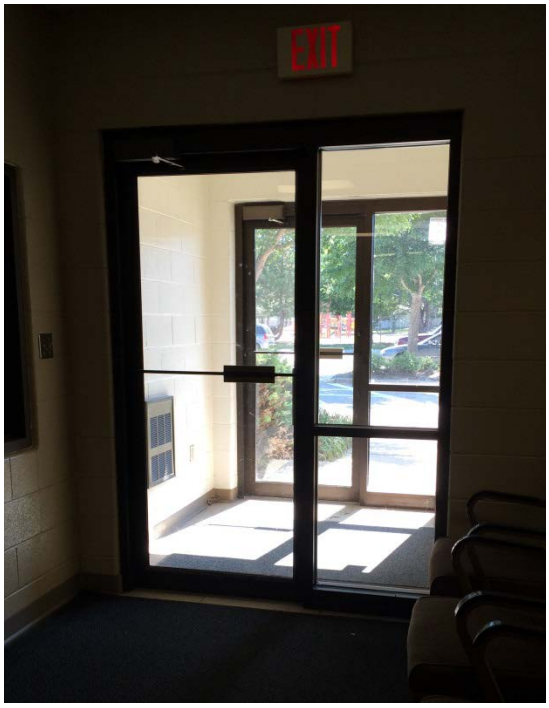
**Mezzanine Access**

**Rated Separation to Shop**

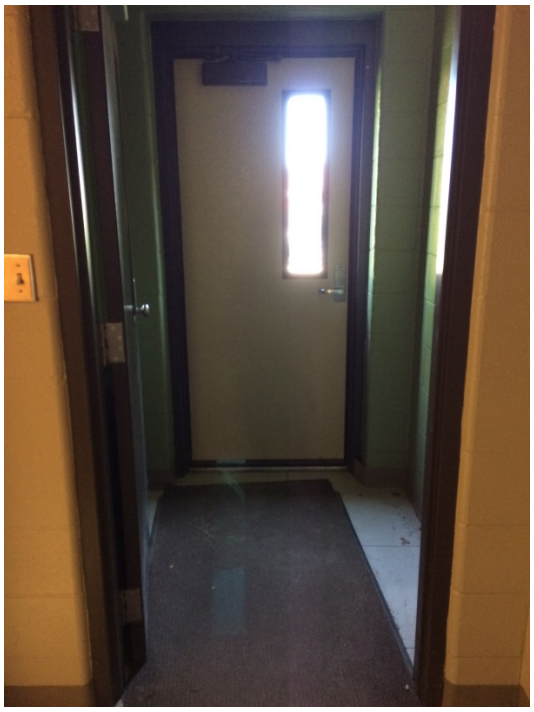
**Label at Mechanical Room Door/Frame**

**Tanks Adjacent to Vehicle Access**

**Shop Operations**




**Front (East) Vestibule**
**Non-accessible**



**North Vestibule**
**Non-accessible**

**Recommended Location for Accessible Parking Stall**

**Accessible Height Drinking Fountain**

**Accessible Urinals**

**Existing Stall in Men's Room Size not ADA Compliant**

**Sills at Men's Showers**

**Interior of Men's Locker Room**

**Women's Locker Room**
**Lavatory Shown is not Accessible**

**Sill at Women's Showers**

**Accessible Lavatory**
**Pipes Require Protection**

**Existing Stall in Women's Room**
**Size not ADA Compliant**

**Drinking Fountain and Sink at Lunchroom**

## STRUCTURAL SYSTEM

### Summary

The structure is primarily an "Armco" pre-engineered metal building with standing seam roof deck, z-purlins, and structural steel rigid frames, as well as a combination of load-bearing and non-load-bearing masonry walls, all bearing on cast-in-place foundations.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | 1989 (G.B. DPW – Engineering Division) |
| **Structure Type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. |
| 1st Floor | **C** | | | A. Vehicle Storage/Repair Shop - 7" concrete slab on grade with 4x4 #4/#4 wire mesh reinforcing.<br>B. Offices/Lockers - 5" concrete slab on grade with 6x6 W6xW6 wire mesh reinforcing. |
| Garage Mezzanines | **C** | | | 10" precast prestressed concrete plank over 8" load-bearing masonry walls. |
| Roof | **C** | | | Standing seam steel roof deck over z-purlins supported by structural steel rigid frames. |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams, columns, walls, 0 hour roof ) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | **S1.** | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There are various locations of minor shrinkage cracking of concrete floor slabs, but they do not pose a structural concern and no remedial action is recommended at this time.

# PLUMBING SYSTEMS

## Summary

The Parks and Shop Maintenance building was constructed in approximately 1989. The original piping is in fair condition and can be replaced as needed. Insulation could be added to the hot water piping for energy savings. Thermostatic mixing valves (TMV's) and recirculation pump(s) should be added to correct code issues. Lack of hot water is an issue – needs recirculation pump installed and system balanced. Eyewashes require tempered water – add TMV's.

Building is served by gutters/downspouts in the shop area, discharge to grade. Interior roof drains/exterior downspouts on the office roof, no secondary drainage on the lower roof.

Plumbing fixtures are older, flush valve(s) could be updated to conserve water. Building utilities in general appear adequate.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | N/A | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | PVC & cast iron |
| Storm/Clearwater System | F | | P3 | Gutter, downspouts |
| Valves | F | | P4 | Gate & ball |
| Domestic Water Service | C | | P5 | 8" main –combined w./ FP. |
| Insulation | HP | $20,000 | P6 | Add insulation |
| Code Issues | D | See below | P7 | TMV, Backflow Prevention, Recirculation Pump |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | (3) gas-fired |
| Recirculation Pump(s) | F | $4,000 | P9 | |
| Water Softener | N/A | | | |
| Eyewash(es) | D | $8,000 | P10 | Add TMV's |
| Thermal Mixing Valve (TMV) | D | $8,000 | P11 | Add TMV (code issue) |
| Plumbing Fixtures | F | | P12 | |
| Backflow Prevention | D | $1,000 | P13 | Add vacuum breaker on hose conn. |
| "Shop" Air Compressor | F | | P14 | Industrial Air, Sullair |
| Truck Wash | F | | P15 | |
| Shop/Truck Garage | F | | P16 | Trench drain, garage catch basin |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Exterior** | | | | |
| Storm Drainage, Roof Drains | **F** | | P17 | |
| Utilities | **F** | | P18 | 8" water main, 4" sanitary sewer |

**NOTES:**

**P1.** Water piping is copper, soldered joints. Fair condition. Piping is missing insulation in areas.

**P2.** Original sanitary is cast iron, no-hub. Piping from the later additions is cast iron no-hub.

**P3.** Storm system is gutters and downspouts. Roof area over the office area is a pitched metal roof to interior roof drain(s) which connect to downspouts below. Freezing could be an issue with the exterior downspout connected to a roof drain above.

**P4.** Older valves are gate, newer valves are ball.

**P5.** Building is served by an 8" water main. Domestic main is 2" with a meter set and 3-valve bypass. There is also a separate meter installed for the exterior hose fill.

**P6.** Water piping is insulated with glass fiber but insulation is missing in some areas. Piping in the shop areas are exposed - no insulation. Insulation could be added for energy savings and to prevent condensation.

**P7.** Code issues: Water temperature only got to approximately 100° Fahrenheit after several minutes. No thermostatic mixing valve (TMV) at the heaters. Add TMV per code. Add HWR recirculation pump – pump has been removed in the office area/showers. Eyewashes require tempered water – add TMV's to the units. Faucet or hose connections should have threaded hose end vacuum breakers installed. Washing machine and eyewash discharge to a janitor's curb which is technically not allowed per code.

**P8.** Water heater(s) are gas fired, direct vent, AO Smith ProMax, 40,000 BTU, 50 gallon. There is a separate gas-fired Hotsy high pressure water heater for the truck wash.

**P9.** Water heaters do not have a recirculation pump installed. Heater for the office/locker rooms had a recirculation pump installed but is now removed. System needs to have recirculation pump installed and system balanced. Hot water temperature barely reached 100° Fahrenheit.

**P10.** Eyewashes require tempered water. Install TMV's at the (3) eyewashes.

**P11.** Add TMV's to the water heaters. Set hot water temperature to 110° Fahrenheit. Code issue.

**P12.** Plumbing fixtures: Water closets are wall-hung with flush valve(s). There is an ADA stall in each locker room. Lavatories are wall-hung in Men's and in-counter in Women's locker room, metering faucets. Lavatories should have safety covers installed to be ADA compliant. Men's locker room also has a terrazzo wash fountain. Showers are built-up with Symmons-Temptrol shower valve. Electric water cooler by the breakroom has a bottle filler installed. Urinals are wall-hung with battery operated sensor flush valve – non ADA compliant height. Janitors' sinks have elevated vacuum breakers installed. High pressure wash wand also has a backflow preventer installed. 1 ½" exterior hose fill by the shop has an elevated atmospheric vacuum breaker installed.

**P13.** Install a hose end vacuum breaker on all hose bibs.

**P14.** Industrial air compressor on the mezzanine for the Shop Area. Sullair 20hp, 208 Volt air compressors with Zeks dryer in the shop area.

**P15.** Truck wash area has a garage catch basin with trench drains. Area is served by separate water heater and a high pressure unit with spray wands and janitors sink.

**P16.** Garage/Shop areas: Trench drain(s) route to garage catch basins.

**P17.** Upper shop roof is pitched to gutters and downspouts which discharge to grade. Lower roof area is pitched to interior roof drains which discharge to downspouts below, then to underground storm piping.

**P18.** Building is served by an 8" water main, 2" for domestic water and 6" main for the fire protection. Sanitary sewer is 4" routed to Crocker Street. 6" storm routes to Crocker Street and 8" routes to Phoebe Street. Parking lots have interior catch basin(s).

**Cast Iron Vent Piping**

**Water Main & Meter**

**Water Meter for Hose Fill**

**Vent Piping**

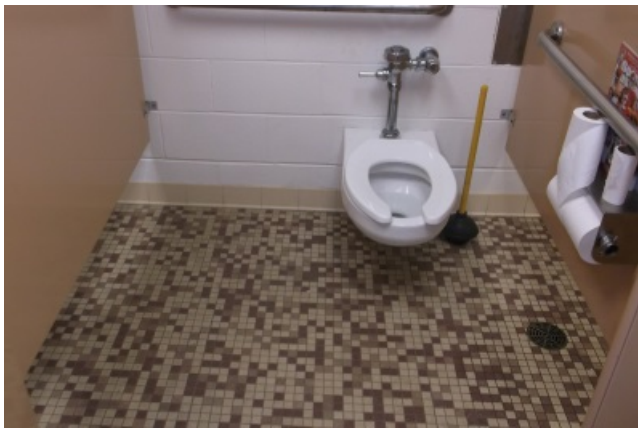
**Water Piping**

**Water Heater – Locker Rooms**

**Water Heater Venting**

**Water Heater – Mezzanine**

**Hot Water Heaters – Mezzanine**



**Water Closet – Men's**

**Urinal's – Men's**

**Lavatory – Men's**

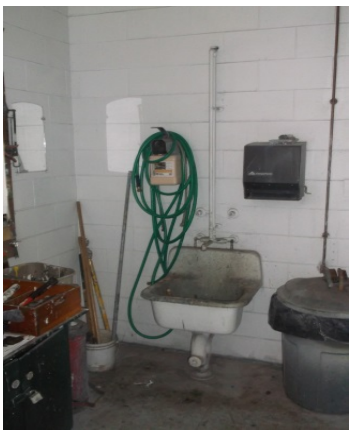
**Shower – Men's**

**Wash Fountain – Men's**

**Water Closet – Women's**

**Lavatory – Women's**

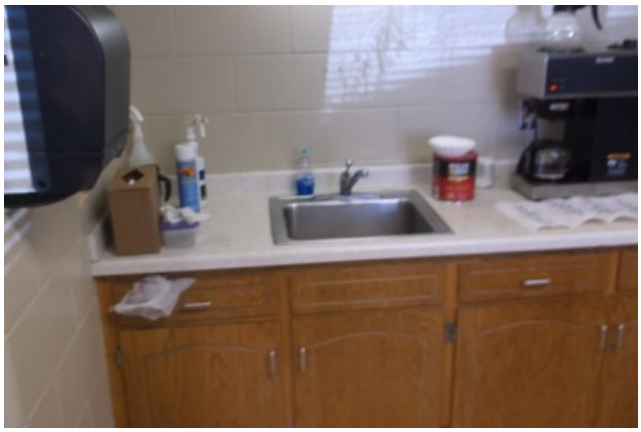
**Lavatory – First Aid Room**



**Janitor's Sink**

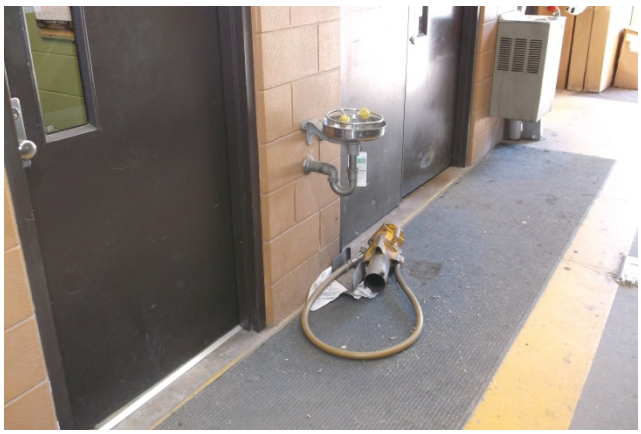
Janitor's Sink in Truck Wash

EWC at Breakroom

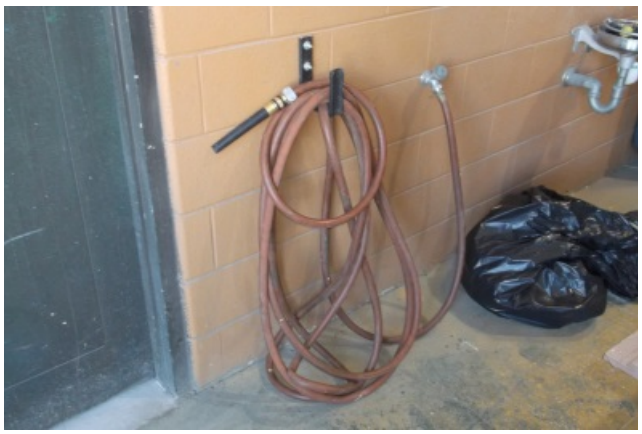


Breakroom Sink

EWC in Shop



"Non-compliant" Eyewash



Hose Connection

**Hose Connection**

**“Shop” Air Compressor with Dryer**

**“Shop” Air Compressor – Mezzanine**

**Air Reel in Shops**

**Air Connection at Paint Booth**

**Washer Connection**

**Gutter & Downspouts**

**Downspout Connection**

**Downspout to Underground**

**Office Roof**

**Roof Edge**

**Garage Catch Basin with Trench Drains**

Trench Drain

Yard Catch Basin

# FIRE PROTECTION SYSTEMS

## Summary

The Parks Shop and Maintenance building was constructed in 1989 and has not had any renovations since the completion of the building. The fire sprinkler system is original to the building.

The shop/storage area of the building is fully sprinkled with a wet pipe sprinkler system. The system piping, valves, and sprinkler heads appear to be in fair to good condition with only light corrosion and no signs of leaking.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| FIRE PROTECTION | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Water Service** | **C** | | FP1 | 6" Water Service |
| Backflow Prevention | **D** | **$7,000** | FP2 | 4" Check Valve |
| Fire Pump | **NA** | | FP3 | |
| Fire Pump Controller | **NA** | | FP3 | |
| Jockey Pump | **NA** | | FP3 | |
| Jockey Pump Controller | **NA** | | FP3 | |
| **Wet Pipe Sprinkler System** | **F** | | FP4 | |
| Valves | **F** | | | |
| Piping | **F** | | | |
| Sprinkler Heads | **F** | | | |
| **Percent of Building Unit Sprinkled** | **85%** | | FP5 | |
| **Other Fire Protection Systems** | | | | |
| Antifreeze System | **F** | | FP6 | |

**NOTES:**

**FP1.** The water service is a 6" main that enters the building through the floor of the Meter Room 112. The main then tees off to the domestic water service and reduces to a 4" Fire Protection riser. In the riser is a 4" check valve. There is no isolation valve on the upstream side of the check valve to allow removal for repair or replacement.

**FP2.** The 4" check valve serves as the backflow prevention between the fire sprinkler system and the domestic water supply. The single check valve is not an acceptable means of backflow prevention. As a minimum a double check valve backflow prevention assembly is required between the fire sprinkler system and the domestic system to prevent contamination of the domestic water system.

**FP3.** The fire sprinkler system is supplied by the city water pressure, no fire pump, pump controller, or jockey pump are installed on the fire sprinkler system.

**FP4.** The sprinkler system piping, valves, and sprinkler heads appear to be in overall fair to good condition. The piping in the shop appears to have light corrosion but are in overall good shape. The sprinkler heads and piping in the Wash Area 102 are heavily corroded. The sprinkler heads in the Carpenter Shop 115 appear to be well maintained are free from dust, while the heads in the Paint Shop 116 are poorly covered with plastic bags. The plastic bags should meet the requirements of NFPA 13 and should completely cover the sprinkler head to prevent paint build up on the sprinkler heads.

**FP5.** The shop/storage area of the building is fully sprinkled. The lunchroom/office area is not sprinkled and is separated from the shop area by a fire wall according to the original building plans.

**FP6.** An antifreeze loop is located on the south end of the building which serves the Wash Area 102.

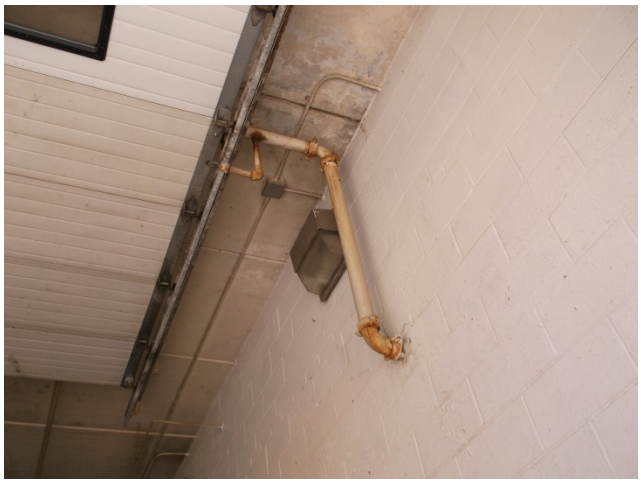
Sprinkler Head under Overhead Door

Sprinkler Head covered with bag in Paint Booth

Fire Sprinkler System Riser

PIV Control Valve and Fire Department Connection

Antifreeze Loop



Corroded Pipe in the Wash Bay

# HVAC SYSTEMS

## Summary

The new shop was constructed in 1989-1990. The equipment, in general, is original to the buildings construction except a condensing unit serving the shop air unit has been replaced.

An air unit with split system air conditioning serves the shop rooms. The air system provides minimal ventilation, fresh air, and air conditioning to these rooms as a single zone, constant volume air unit system.

An air unit serving the offices, locker rooms, and break area is a multi-zone, VAV air unit system with split system DX condensing unit.

A direct fired make-up air unit serves the paint shop and another unit serves the storage/repair garage.

Three hot water boilers provide hot water to the VAV and air unit heating coils. These boilers are standard efficiency units. A boiler room combustion air fan is required on the small combustion air duct. Although the boilers and pumps are redundant this fan does not have redundancy and upon its failure the boilers will not operate properly.

The locker room exhaust requirements are served by power roof ventilators.

The storage and repair garage exhaust requirements are served by multiple side wall exhaust fans. An under slab vehicle exhaust system and welding exhaust capture system are installed in the repair area.

The office area temperature control system is pneumatic. Low and line voltage controls are utilized on the remaining air unit and fan systems. The temperature control air compressor system appears to be in good condition.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Air Unit-Office Area** | | | | |
| Housing | HP | $80,000 | H1 | Unit is 25 years old. Expected useful life is 30 years. |
| Air intake | C | | | |
| Fan | HP | (incl.) | H1 | 5500 CFM, 3HP |
| Filters | HP | (incl.) | H1 | 30% filters |
| Controls | C | | | Pneumatic, replace with unit upgrade project. |
| Ductwork | C | | | Appears to be in good shape. |
| Condenser | HP | $20,000 | H1 | Unit tag is unreadable. Unit is original. |
| Insulation | HP | $1,000 | H1 | Refrigerant insulation is deteriorated outside of the building. Ductwork insulation is intact. |
| Room Terminal Units | HP | $20,000 | H1 | Units are 25 years old. Expected useful life is 25 years or less. |
| **Air Unit-Shop Area** | | | | |
| Housing | HP | $60,000 | H2 | Unit is 25 years old. Expected useful life is 30 years. |
| Air intake | C | | | |
| Fan | HP | (incl.) | H2 | 1800 CFM, 1.5HP |
| Filters | HP | (incl.) | H2 | 30% filters |
| Controls | C | | | Pneumatic, replace with unit upgrade project. |
| Ductwork | C | | | Appears to be in good shape. |
| Condenser | N | | H2 | Trane, 6 Ton |
| Insulation | C | | | |
| Room Terminal Units | C | | H2 | No units. Unit is designed for single zone temperature control to provide minimum ventilation |
| **Exhaust Fans** | | | | |
| Lockers, Lunch Room | C | | H3 | 1800 CFM, 1/3HP. |
| Ductwork | HP | $10,000 | H3 | Duct connections to grilles are poor, ductwork is dirty and original. |
| **Boiler System** | | | | |
| Boilers | HP | $85,000 | H4 | (3) Burnham Boilers, 133MBH. Units are approaching their expected useful life. |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| | | | | Inspected 2012. |
| Pumps | C | | | (2) 30 GPM, 1/4HP |
| Piping | C | | | |
| Pipe Insulation | C | | | |
| **Mechanical Room Ventilation** | D | $12,000 | H4 | Boiler room combustion fan is required as duct is small. Fan failure could stop boilers. Room is hot and contains electronics. |
| **Controls** | | | | |
| Air Compressor | C | | H5 | 5 HP-Simplex unit. |
| Building Management | HP | $25,000 | H5 | Install with air unit replacement projects. |
| **Garage and Shop Ventilation** | | | | |
| Make-up Air Unit for Garage and Paint Booth | HP | $200,000 | H6 | 10000 and 12000 CFM, direct fired. |
| Exhaust | HP | $15,000 | H6 | 4500 CFM-1/4HP and 6500 CFM-½ HP. |
| Control | HP | $20,000 | H6 | Timer operated. |
| Radiant Heaters | HP | $60,000 | H6 | Multiple units between 60 and 130 MBH. Units are original and at their expected useful life. |
| Repair Garage Vehicle Exhaust | HP | $10,000 | H6 | Dedicated capture fan connected to vehicles via hoses. 2000 CFM-1HP |
| Welding Exhaust | C | | | 500 CFM-1/2HP |
| Dust Collector | C | | | 2500 CFM-7.5HP |
| Paint Booth | HP | $8,000 | H6 | 12000 CFM-2HP |
| Paint Storage | HP | $2,000 | H6 | 160 CFM-1/4HP |
| Circulation Fans | C | | | |
| Pesticide Storage | D | $5,000 | H6 | 460 CFM-1/4HP Staff indicated this unit is not operating automatically and pesticide odor is overwhelming. |

**NOTES:**

**H1.** The air unit is approximately 25 years old with an expected life of 25-30 years depending on maintenance and operation of the unit. This is a VAV system with hot water coil and refrigerant cooling coil with a split system DX condensing unit. The condensing unit is original and at its expected useful life. The insulation on the outdoor piping has failed and has fallen away in multiple locations, which will reduce system efficiency. The VAV air terminals serving the individual rooms are at their expected useful life as well. It is recommended to replace the air unit, condensing unit, and the VAV terminals with similar equipment.

**H2.** The air unit is approximately 25 years old with an expected life of 25-30 years depending on maintenance and operation of the unit. The unit is constant volume with hot water coil and refrigerant coil with a split system DX condensing unit. The condensing unit has already been replaced. Staff did not indicate an issue with the single zone concept and this unit providing minimal ventilation and air conditioning to the shop spaces. It is recommended to replace the air unit with a similarly sized unit.

**H3.** The exhaust fan appears to be in good condition. The ductwork is original and 25 year old ductwork will typically be dirty and leak. In addition, the duct connections to the system's grilles are poor. A project to clean, seal, reconfigure duct connections, and balance the system is recommended.

**H4.** The three natural gas, hot water boilers are 25 years old and approaching their expected useful life. Their efficiency is 5-10 percent below what new units can easily achieve. There is little to no monitoring capability on these old units. The combustion ventilation is minimal at best. A fan is required as the combustion duct is small. If this fan fails the boilers may not operate properly. In addition this room is hot and contains electronic gear. A project to replace the boilers and pumps with high efficiency condensing boilers and improve the room's combustion ventilation is recommended.

**H5.** The temperature control air compressor is in good condition. The existing equipment is standalone. New air units and exhaust fan replacement projects will include low voltage DDC control. A building management system will allow monitoring of all of the buildings equipment from a remote location or from a computer terminal within the building. It is recommended that major equipment replacement projects such as air unit or boiler replacement project, include a building management system.

**H6.** The paint booth and vehicle storage repair garage are served by direct fired make-up air units. These units are approaching the end of their useful life. It is recommended to replace this equipment with indirect fired units. Indirect fired units will duct combustion gases directly to the outdoors in lieu of supplying them into the occupied spaces.

The storage and repair garage is served by two side wall exhaust fans. These fans are approaching the end of their useful life. In addition, these fans appear to be slightly undersized to meet current code requirements. It is recommended to replace these fans with similar equipment, but upsize the units to meet current code.

An enclosed repair and storage garage has specific exhaust code requirements and the garage is required to have a negative pressure in relation to the other occupied spaces. A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. The current system is time clock operated and the new system is recommended to operate continuously when unoccupied and continuously when occupied.

Staff indicated the equipment is original to the buildings construction. It is assumed the radiant heaters are also original. These units would be nearing the end of their useful life.

The fans serving the paint booth, paint storage, and pesticide room are nearing the end of their useful life. These fans serve hazardous areas and the fans failure will lead to odor and fume build up within the served rooms. The odors in the pesticide room are overwhelming. The fan is not capable of properly ventilating this room as it is undersized and there is no transfer air opening into the room. It is recommended to replace these fans and right size them to adequately ventilate the rooms they serve. It is recommended to install guardrails at the paint booth fan or relocate the fan away from the roof edge.

**Radiant Heater in Garage**

**Office AHU**

**Shop Air Unit**

**Office Condensing Unit**

**Shop Condensing Unit**

**Refrigerant Pipes with Poor Insulation**

**Poor Duct Connection to Grille**

**Office Exhaust Fan**

**Boiler (Typical)**

**Boiler Room Combustion Vent**

**Paint Storage Exhaust Fan**

**Dust Collector**

**Direct Fired Air Unit (Typical)**

**Paint Booth**

**Gas Meter**

**Under Slab Vehicle Exhaust**

**Garage Exhaust Fan**

**Wash Bay Radiant Heater**

**Welding Hood System**

**Vehicle Exhaust Fan**

**Air Compressor**

**Air Dryer**

**Pesticide Room Fan**

**Paint Booth Fan**

## ELECTRICAL SYSTEMS

### Summary

The building's electric service is rated 1200-amps at 120/208-volts, 3-Phase. It is fed from a pad-mounted transformer located north of the building. The main service disconnect and distribution feeders are protected by fusible switches. The equipment is manufactured by General Electric. There is space for one new 400-amp fusible switch.

A 100-kW Onan natural gas-fired standby generator supplies emergency power. An automatic transfer switch (ATS) feeds a 400-amp emergency power distribution panel. There is space for two additional 60-amp switches in the emergency power distribution panel. Branch panels connected to the emergency power system are not labeled in a manner that readily identifies them as connected to emergency power.

Interior lighting utilizes T8 fluorescent lamps and ballasts. Office lighting primarily uses recessed troffers with prismatic lens; garage areas are lit with high-bay fluorescent fixtures. Exit signs incorporate battery back-up. There are no other battery supplied emergency egress lighting fixtures. Lighting in the vehicle wash bay and on the building's exterior is HID. Lighting controls (occupancy sensors) are present in smaller rooms but lacking in larger spaces.

Receptacles are not GFCI type. The plug openings of some receptacles in the painting area are filled with paint.

There is a Simplex model 4002 zoned fire alarm system. Coverage with audible and visual alarm devices is not code compliant.

The building's communications are delivered through a 12-strand fiber optic cable. Only 2 of the 12 strands are being used. The fiber optic cable is terminated in an equipment rack located in the boiler room. The electronic equipment (network switch/router) installed in this rack, and a nearby 150-VA UPS, would benefit from a space with cooler temperatures and better ventilation. The stacking and storing of supplies immediately next to the equipment contributes to the poor ventilation condition.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Disconnect | C | $1,000 | E1 | Lubricate mechanical components; maintain working clearance (unobstructed access) |
| Branch Panels | C | | | Maintain working clearance. |
| **Emergency Power Distribution Equipment** | | | | |
| Emergency Power Distribution Panel | C | $500 | E1 | Lubricate mechanical components; maintain working clearance (unobstructed access). |
| Branch Panels | HP | $500 | E2 | Provide RED laminated labels identifying the main emergency distribution panel and branch panels E, F, G, and H as connected to emergency power. |

| | | | | |
|---|---|---|---|---|
| **Receptacles** | | | | |
| Garage | **D** | **$1,500** | | Install GFCI type receptacles. |
| **Lighting** | | | | |
| Wash Bay and Exterior | **C** | **$4,500** | E4 | Replace HID with LED. |
| **Lighting Controls** | | | | |
| Garage | **C** | **$3,000** | | Occupancy sensors installed to turn fixtures OFF when the garage is not occupied. |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Emergency Egress Lighting and Exit Signs | **CP** | **$20,000** | E3 | Add a second ATS and panelboards or add Unit Equipment (battery equipment) dedicated to emergency egress lighting |
| **Fire Alarm** | | | | |
| Audible and Audible/Visual Alarms | **HP** | **$5,000** | | Add audible and audible/visual alarms to comply with current Code. |
| Upgrade to addressable control panel | **F** | **$25,000** | E5 | Plan replacement of existing zoned system with an addressable system. |
| **Telecommunications** | | | | |
| Data/Voice | **C** | | | Data server equipment in good condition with CAT5 cabling. |

**NOTES:**

**E1.** Lubricating mechanical components regularly as part of a preventative maintenance program enhances continued and reliable operation of equipment.

**E2.** Panel connected to emergency power are usually Identified with RED labels.

**E3.** A second ATS and branch panels dedicated to emergency egress lighting is the better option long term since the facility already has a standby generator. While Unit Equipment (battery operated emergency lighting) is the least expensive first-dollars solution, it has ongoing maintenance material and labor costs related to replacing batteries every 3 to 5 years.

**E4.** LED lighting fixtures will result in lower operating and maintenance costs.

**E5.** An addressable system provides reporting on each device in the system.

**Service Equipment – Access Obstructed**

**Automatic Transfer Switch**

**Standby Generator**

**Access to Panels Obstructed**

**HID Lighting Fixtures in Wash Bay**

**Fire Alarm Control Panel**

**Network Equipment**

**UPS – Ventilation Impaired by Storage**

**Occupancy Sensor**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## PARKS SHOP STORAGE

**August, 2015**

## PARKS DEPARTMENT

## SUMMARY

***Date of Visit: August 6, 2015***
***Address: 824 Phoebe Street***

### Building Description

The shop storage building is an uninsulated metal building with exposed steel structure internally. It has three large overhead doors at the front (northeast) and back (southwest) sides, allowing for drive-through of vehicles. A layer of insulation under the roof deck has water damage along the ridge inside the building. Insulation at peak in the rear 1/3 of building is damaged and steel frame has rust, indicating possible water infiltration.

There are two swing doors, both on the east side of the building. The construction date of the storage building is unknown.

### Code/Accessibility

Two legal means of egress are provided. Knob door hardware could be upgraded to lever handles for better accessibility and ease of use. The back door was difficult to operate. Recommend general cleaning and maintenance of hardware.

There is a step at the exterior of each swing door, but this could be easily addressed with exterior parking lot grading if accessibility were required. The building is typically unoccupied, and entry through the overhead doors is at grade with no step.

### Structural System

The structure is a "Stran" pre-engineered metal building with standing seam roof deck, z-purlins, and structural steel rigid frames bearing on cast-in-place foundations.

### Plumbing Systems

This is a metal building with metal roofing.
No plumbing systems to report. Building roof pitches edge and discharges to grade.

### HVAC Systems

The pre-engineered storage building is unheated and unventilated. The building is used to store various equipment including motorized vehicles.

### Electrical Systems

The building is served by a 120/240 Volt, single phase 200-amp electrical service. The main service disconnect is a main circuit breaker in a Square D load center panel. A branch breaker in this panel protects the electrical feeder serving an adjacent building located immediately to the east.

Receptacles are not GFCI protected.

Lighting fixtures utilize T8 fluorescent lamps and are in good condition. There is no emergency egress lighting other than exit signs. Exit signs have battery back-up. An exterior lighting fixture is a HID with integral photocell.

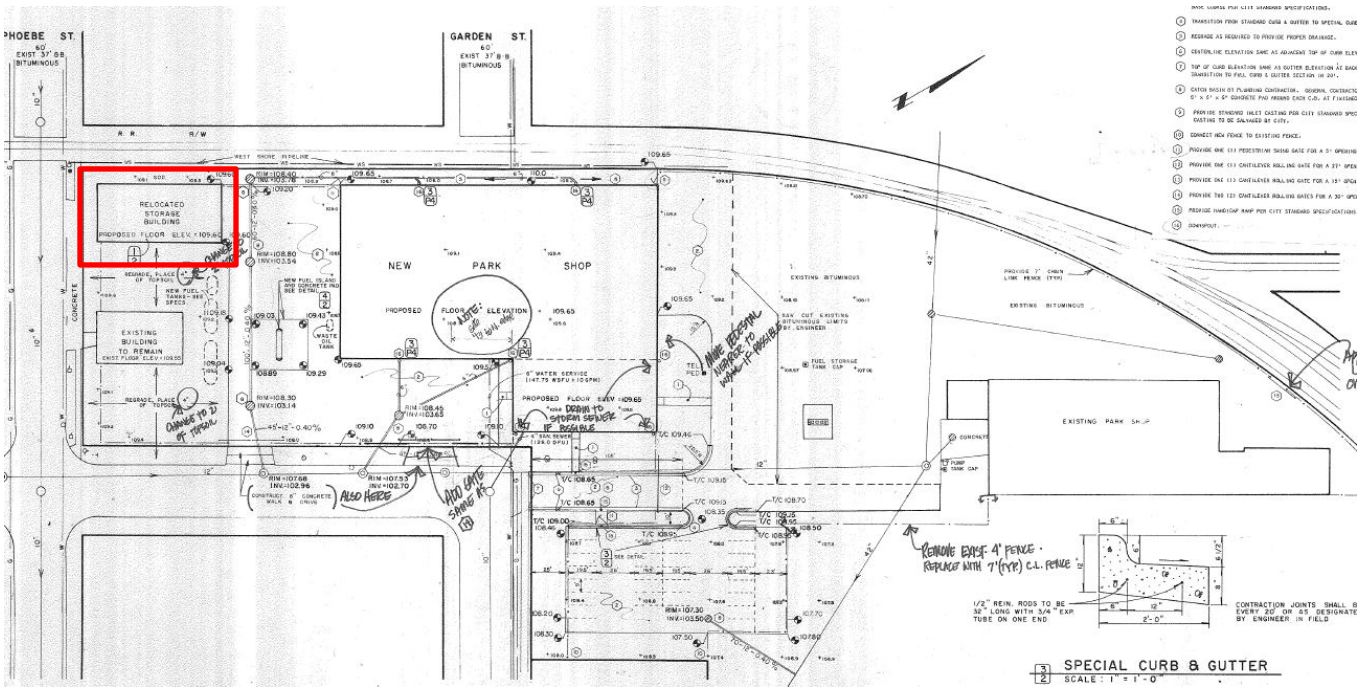
There is no fire alarm system.

### Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | | **NA** |
| **Code/ADA** | | | | **NA** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | | **NA** |
| **HVAC Systems** | Air intake/Make-up | | | **$2,000** |
| | Exhaust Fan | | | **$15,000** |
| | Control | | | **$10,000** |
| **HVAC Subtotal** | | | | **$27,000** |
| **Electrical** | Receptacles | | | **$250** |
| **Building Total** | | | | **$27,250** |




**Site Plan**

**Aerial View of Site**

# ARCHITECTURAL

## Building Description

The shop storage building is an uninsulated metal building with exposed steel structure internally. It has three large overhead doors at the front (northeast) and back (southwest) sides, allowing for drive-through of vehicles. A layer of insulation under the roof deck has water damage along the ridge inside the building.

There are two swing doors, both on the east side of the building.

## Building Envelope

### Exterior Walls

Building walls are uninsulated corrugated metal wall panel on steel frame. There is some denting of panels, but this appears to be mainly an aesthetic concern.

### Doors

The six large overhead doors (3 front, 3 back) and two swing doors are all painted metal. Rear swing door is in need of oiling for better operation.

### Roof

Minimally pitched, corrugated metal roof panel on steel frame. Underside of roof is insulated at interior. Insulation at peak in the rear 1/3 of building is damaged and steel frame has rust, indicating possible water infiltration.

## Interior Finishes

The floor is sealed concrete. There are no interior walls.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Unknown | **Gross Area** | 4,500 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group S-2 – Storage | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

Two legal means of egress are provided. Knob door hardware could be upgraded to lever handles for better accessibility and ease of use. The back door was difficult to operate. Recommend general cleaning and maintenance of hardware.

## Summary of Accessibility/ADA Compliance

The building is on grade, with doors 36" wide or greater, which complies with requirements. There is a step at the exterior of each swing door, but this could be easily addressed with exterior parking lot grading if accessibility were required. The building is typically unoccupied, and entry through the overhead doors is at grade with no step.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | F | $2,000-$4,000 | A2 | |
| Exterior Facade Condition | C | | | |
| Exterior Door Condition | F | | A1 | |
| Window Condition | NA | | | |

**NOTES:**

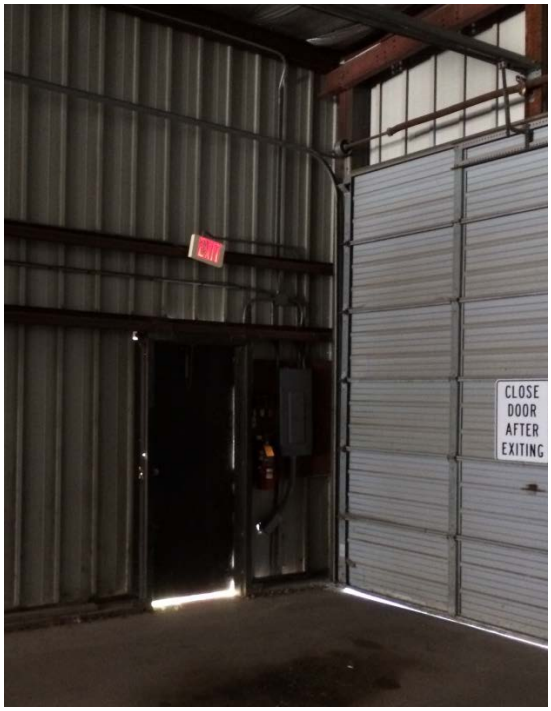
**A1.** Recommend general cleaning and oiling of hardware elements for better functionality. Plan for lever hardware in the future for easier use.

**A2.** Investigate water infiltration before repairing insulation at interior.

**Exterior**

**Interior**

**Front Egress Door**
**(Step up, and Dented Panel)**




**Rear Egress Door**

**Damaged Insulation at Ridge**

## STRUCTURAL SYSTEM

### Summary

The structure is a "Stran" pre-engineered metal building with standing seam roof deck, z-purlins, and structural steel rigid frames bearing on cast-in-place foundations.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **D** | Deficient – Immediate Replacement | **CP** | Critical Priority – Replace in 1-2 years | **HP** | High Priority – Replace in 3-5 years | **F** | Fair – Replace in 6-10 years | **C** | Compliant/ Adequate | **N** | New | **NA** | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | Unknown |
| **Structure Type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. |
| 1st Floor | **C** | | **S1.** | Concrete slab on grade |
| | | | | |
| Roof | **C** | | | Standing seam steel roof deck over z-purlins supported by structural steel rigid frames. |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams, columns, walls, 0 hour roof ) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**NOTES:**

**S1.** There are various locations of minor shrinkage cracking of concrete floor slabs, but they do not pose a structural concern and no remedial action is recommended at this time.

**Concrete Slab Shrinkage Cracking (Note S1)**

**Typical Steel Rigid Frame**

## PLUMBING SYSTEMS

### Summary

This is a metal building with metal roofing.
No plumbing systems to report. Building roof pitches edge and discharges to grade.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | |
| Sanitary Piping/Main | NA | | | |
| Storm/Clearwater Drainage | F | | P1 | |
| Code Issues | NA | | | |

**NOTES:**

**P1.** Metal building with pitched roof. Roof discharges to grade. Area around the building is gravel and concrete which pitches to interior catch basins.

**Building Roof Edge**

**Parking Lot Catch Basin**

## HVAC SYSTEMS

### Summary

The pre-engineered storage building is unheated and unventilated. The building is used to store various equipment including motorized vehicles.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **D** | Deficient – Immediate Replacement | **CP** | Critical Priority – Replace in 1-2 years | **HP** | High Priority – Replace in 3-5 years | **F** | Fair – Replace in 6-10 years | **C** | Compliant/ Adequate | **N** | New | **NA** | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Air intake/Make-up | **D** | $2,000 | **H1** | |
| Exhaust Fan | **D** | $15,000 | **H1** | |
| Control | **D** | $10,000 | **H1** | |

**NOTES:**

**H1.** An enclosed vehicle storage building larger than 850 Sq. Ft. or used for more than 5 vehicles is required to have mechanical exhaust ventilation.

A storage building exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. A garage exhaust fan project to install mechanical exhaust ventilation is necessary to improve garage ventilation and occupant safety.

Installing a small fan to continuously ventilate the space at the minimum flow rate and interlock a larger fan to operate with the lights is recommended. Alternately a two speed fan to operate on low speed continuously and on high speed when the lights are on (indicating building occupancy) may be installed. An intake louver located on the opposite side of the building (from the fans) will provide make-up air.

## ELECTRICAL SYSTEMS

### Summary

The building is served by a 120/240 Volt, single phase 200-amp electrical service. The main service disconnect is a main circuit breaker in a Square D load center panel. A branch breaker in this panel protects the electrical feeder serving an adjacent building located immediately to the east.

Receptacles are not GFCI protected.

Lighting fixtures utilize T8 fluorescent lamps and are in good condition. There is no emergency egress lighting other than exit signs. Exit signs have battery back-up. An exterior lighting fixture is a HID with integral photocell.

There is no fire alarm system.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Panel | C | | | |
| **Power** | | | | |
| Receptacles | D | $250 | | Receptacles installed in the garage and outdoors need to be GFCI. |
| **Lighting** | | | | |
| Interior | C | | | T-8 lamps; lighting in good condition. |
| Exterior | D | $300 | | Replace the HID dusk-to-dawn with a LED lighting fixture. |

**Existing HID Dusk-to-Dawn Lighting Fixture**

**Service Equipment**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## PARKS REC STORAGE

**August, 2015**

## PARKS DEPARTMENT

## SUMMARY

***Date of Visit: August 6, 2015***
***Address: 838 Phoebe Street***

### Building Description

The Recreation storage building is an uninsulated metal building with exposed steel structure internally. It has two overhead doors at the northeast (front) and southwest (rear) sides, with a personnel door adjacent to the northeast opening. An additional personnel door is on the northwest side of the building.

There is an area of the floor sectioned off by a partial height wood wall, faced on one side with painted plywood panels. Construction date of the building is unknown.

### Code/Accessibility

Two legal means of egress are provided. The storage mezzanine has one means of egress, which is acceptable for this occupancy and occupant quantity.

The building is on grade, with doors 36" wide or greater, which complies with requirements. Knob door hardware could be upgraded to lever handles for better accessibility and ease of use. There is a step at the exterior of the northwest (side) personnel door, but this could be easily addressed with exterior grading if accessibility were required.

### Structural System

The structure is an "Armco" pre-engineered metal building with standing seam roof deck, z-purlins, and structural steel rigid frames bearing on cast-in-place foundations.

### Plumbing Systems

This is a metal building with metal roofing. Roof edge gutters above the overhead doors.
Building has a ¾" cold water connection –no meter.

### HVAC Systems

This building is unheated. A sidewall exhaust fan is utilized to provide air movement when the occupants store and organize material in the building. The fan is operated in the summer and doors to the building are open when occupied.

### Electrical Systems

The building is served by a 120/240 Volt, single phase 60-amp electrical service originating from the building immediately to the west.

Receptacles are not GFCI protected. There is no fire alarm system.

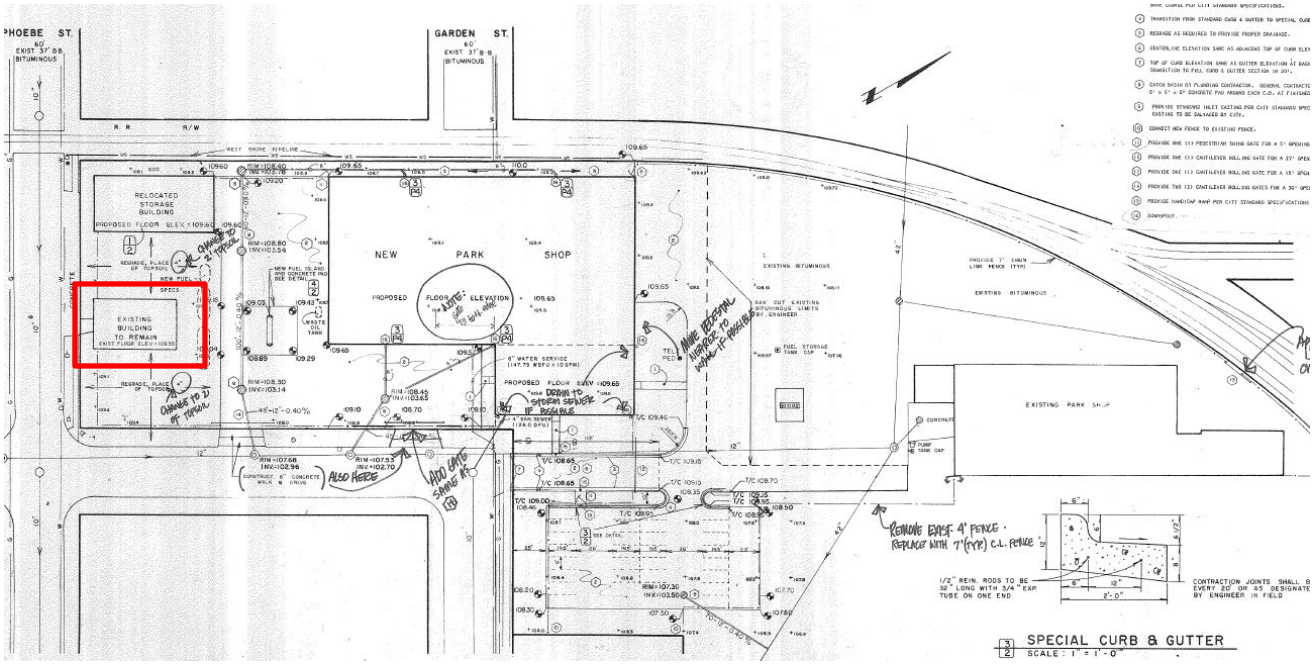
Lighting fixtures utilize T8 fluorescent lamps and are in good condition. There is no emergency egress lighting other than exit signs. Exit signs have battery back-up. There are no exterior lighting fixtures on this building.

### Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | | **NA** |
| **Code/ADA** | | | | **NA** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | Backflow Prevention | | | **$100** |
| **HVAC Systems** | | | | **NA** |
| **Electrical** | Receptacles | | | **$250** |
| **Building Total** | | | | **$350** |




**Site Plan**

(Note: building is rotated 90° from orientation shown on original site plan.)

**Aerial View of Site**

# ARCHITECTURAL

## Building Description

The Recreation storage building is an uninsulated metal building with exposed steel structure internally. It has two overhead doors at the northeast (front) and southwest (rear) sides, with a personnel door adjacent to the northeast opening. An additional personnel door is on the northwest side of the building.

There is an area of the floor sectioned off by a partial height wood wall, faced on one side with painted plywood panels.

## Building Envelope

### Exterior Walls

Building walls are uninsulated corrugated metal wall panel on steel frame.

### Doors

A large overhead door is centered on the northeast (front) and southwest (rear) sides façade, with a swing door adjacent on the northeast, and another on the northwest sides. Both overheads and the side (northeast) swing doors are painted metal in fair to good condition. The northeast (front) swing door is FRP in good condition.

### Roof

Minimally pitched, corrugated metal roof panel on steel frame appeared to be in good condition.

## Interior Finishes

The floor is sealed concrete. There are no interior walls. The mezzanine has a painted 4x8 board floor.

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Unknown | **Gross Area** | 2,500 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group S-2 – Storage | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

Two legal means of egress are provided. The storage mezzanine has one means of egress, which is acceptable for this occupancy and occupant quantity.

Handrails on the mezzanine stairs are at 34", which is compliant with current codes. Openings in rails are larger than currently allowed, but are presumed to have complied with code at the time of installation. In this occupancy, there is not a perceived safety hazard to these openings.

## Summary of Accessibility/ADA Compliance

The building is on grade, with doors 36" wide or greater, which complies with requirements. Knob door hardware could be upgraded to lever handles for better accessibility and ease of use. There is a step at the exterior of the northwest (side) personnel door, but this could be easily addressed with exterior grading if accessibility were required.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | | | |
| Exterior Facade Condition | C | | | |
| Exterior Door Condition | F | | A1 | |
| Handrails | F | | | Grandfathered in as compliant |

**NOTES:**

**A1.** Recommend lever hardware in the future for easier use.

**Exterior**

**Exterior**

**Interior**

**Interior**

**Front Egress Door**

**Side Egress Door**

**Mezzanine**

**Mezzanine**

## STRUCTURAL SYSTEM

### Summary

The structure is an "Armco" pre-engineered metal building with standing seam roof deck, z-purlins, and structural steel rigid frames bearing on cast-in-place foundations.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | Unknown |
| **Structure Type** | | | | |
| Foundations | **C** | | | Cast-in-place concrete foundation walls bearing on individual spread or continuous strip footings. |
| 1st Floor | **C** | | | Concrete slab on grade |
| Mezzanine | **C** | | | Plywood floor over steel deck, cold-formed channel purlins and structural steel tube frame. |
| Roof | **C** | | | Standing seam steel roof deck over z-purlins supported by structural steel rigid frames. |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams, columns, walls, 0 hour roof ) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

## PLUMBING SYSTEMS

### Summary

This is a metal building with metal roofing. Roof edge gutters above the overhead doors.
Building has a ¾" cold water connection –no meter.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | F | | P1 | ¾" connection – no water meter |
| Sanitary Piping/Main | N/A | | | |
| Storm/Clearwater Drainage | F | | P2 | Partial Gutter(s) |
| Code Issues | D | $100 | P3 | Backflow Prevention |

**NOTES:**

**P1.** Building has a ¾" water connection, copper piping. No insulation on the piping. Building is not heated, so piping has the potential to freeze. No water meter, fed from the Shop garage.

**P2.** Metal building with pitched roof. Gutters discharges to grade. Area around the building is gravel and concrete which pitches to interior catch basins.

**P3.** There are (3) hose connections – install threaded hose connection vacuum breakers.

**Building Roof with Gutter**

**Building Hose Connection**

**Water Connection**

**Building Edge with Gutter**

## HVAC SYSTEMS

### Summary

This building is unheated. A sidewall exhaust fan is utilized to provide air movement when the occupants store and organize material in the building. The fan is operated in the summer and doors to the building are open when occupied.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Exhaust Fan | C | | H1 | |
| Control | C | | H1 | |

**NOTES:**

**H1.** There are no ventilation requirements for this building. The fan is utilized to aid in air movement as this building is not conditioned and the building gets warm in the summer months.

**Sidewall Exhaust Fan**

# ELECTRICAL SYSTEMS

## Summary

The building is served by a 120/240 Volt, single phase 60-amp electrical service originating from the building immediately to the west.

Receptacles are not GFCI protected.

Lighting fixtures utilize T8 fluorescent lamps and are in good condition. There is no emergency egress lighting other than exit signs. Exit signs have battery back-up. There are no exterior lighting fixtures on this building.

There is no fire alarm system.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Panel | C | | | |
| **Power** | | | | |
| Receptacles | D | $250 | | Receptacles installed in the garage and outdoors need to be GFCI. |
| **Lighting** | | | | |
| Interior | C | | | T-8 lamps; lighting in good condition. |

T8 Fluorescent Lighting

Non-GFCI Receptacle

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## BACK STORAGE

**August, 2015**

## PARKS DEPARTMENT

## SUMMARY

***Date of Visit: August 6, 2015***
***Address: 919 Crocker Street***

### Building Description

The back storage building is an uninsulated metal building with exposed wood structure internally. It has a dirt and gravel floor. It has large overhead doors at the front (west) and back (east) sides, allowing for drive-through of vehicles. Translucent wall panels at the top of the wall and a translucent cover over the ridgeline provide daylighting within the building. There is no general lighting other than exit signs and one light near the front exit.

There are two personnel doors, one on the east and one on the west sides of the building. A concrete stoop is provided outside of the front (west) personnel door. Construction date of this building is unknown.

### Code/Accessibility

Two legal means of egress are provided. Knob door hardware could be upgraded to lever handles for better accessibility and ease of use. The back door was partially obstructed by stored material. Recommend keeping pathways clear to the exits.

### Structural System

The structure consists of standing seam roof deck, standard 2 wood framing purlins and trusses supported on wood columns embedded in shallow drilled concrete footings.

### Plumbing Systems

This is a metal building with wood structure.
No plumbing systems to report. Building roof pitches to edge and discharges to grade.

### HVAC Systems

The storage building is unheated and unventilated. The building is used to store various equipment including motorized vehicles.

### Electrical Systems

The building's electric service is rated 100-amps at 120/208-volts, 1-Phase. A Square D load center panel houses the main circuit breaker.

The only interior lighting fixture is an incandescent lamp holder mounted above the west entrance door. There is one Exit Sign – also located above the west entrance door. It has battery back-up. Pole-mounted lighting in the yard south of the building is HID.

There are only two receptacles and they are both GFCI type. There is no fire alarm system.

### Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | | **NA** |
| **Code/ADA** | | | | **NA** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | | **NA** |
| **HVAC Systems** | Air intake/Make-up | | | **$2,000** |
| | Exhaust Fan | | | **$15,000** |
| | Control | | | **$10,000** |
| **HVAC Subtotal** | | | | **$27,000** |
| **Electrical** | | | Exterior | **$1,000** |
| **Building Total** | | | | **$28,000** |

**Aerial View of Site**

# ARCHITECTURAL

## Building Description

The back storage building is an uninsulated metal building with exposed wood structure internally. It has a dirt and gravel floor. Large overhead doors at the front (west) and back (east) sides allow for drive-through of vehicles. Translucent wall panels at the top of the wall and a translucent cover over the ridgeline provide daylighting within the building. There is no general lighting other than exit signs and one light near the front exit.

There are two personnel doors, one on the east and one on the west sides of the building. A concrete stoop is provided outside of the front (west) personnel door. Construction date of this building is unknown.

## Building Envelope

### Exterior Walls

Uninsulated, corrugated metal panels and translucent panels on wood posts and girts. Most areas are sheethed in plywood to a height of approximately 8'. Plywood and posts are painted in these areas. Exterior metal panels are in good condition.

Parks staff constructed the building. Staff reports that the posts are set in metal drums filled with concrete for stability in the filled soil of the site.

Translucent panels span between the top two wood girts of the walls on the north and south sides; approximately 30" of panel exposed.

### Roof

Moderately sloped metal roof panels. Translucent ridge vent over 80% of ridge provides a small amount of additional daylighting. There are no gutters or downspouts.

## Interior Finishes

The floor is dirt and gravel. There are no interior walls. Wood posts are painted gray up to a height of approximately 8'-0".

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Unknown | **Gross Area** | 5,500 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Group S-2 – Storage | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type V-B | | |

## Summary of Code Compliance/Life Safety

Two legal means of egress are provided. Knob door hardware could be upgraded to lever handles for better accessibility and ease of use. The back door was partially obstructed by stored material. Recommend keeping pathways clear to the exits. See electrical report for recommendation of additional egress lighting.

## Summary of Accessibility/ADA Compliance

The building is on grade, with doors 36" wide or greater, which complies with requirements. There is no threshold at doorways, since there is no floor. The building is typically unoccupied.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | C | | | |
| Exterior Facade Condition | C | | | |
| Exterior Door Condition | C | | A1 | |
| Window Condition | NA | | | |

**NOTES:**

**A1.** Recommend general cleaning and oiling of hardware elements for better functionality. Plan for lever hardware in the future for easier use.

**West and South Elevations**

**East and South Elevations**

**Interior Structure**

**Interior Storage Racking**

**Front Egress Door**

**Rear Egress Door**

**Rear Personnel Door**

## STRUCTURAL SYSTEM

### Summary

The structure consists of standing seam roof deck, standard 2" normal wood framing supported on wood columns embedded in shallow drilled concrete footings.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| STRUCTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Year** | | | | Unknown |
| **Structure Type** | | | | |
| Foundations | **C** | | | Buried 55-gallon steel drums filled with concrete. |
| 1st Floor | **C** | | | Gravel |
| Roof | **C** | | | Standing seam steel roof deck over 2x wood purlins and 2x plated wood trusses at 8'-0" on center supported by 3-ply built-up wood columns. |
| **Occupancy Category** | **NA** | | | Occupancy Category II |
| **Construction Type** | **NA** | | | Construction Type **II-B** (0 hour beams, columns, walls, 0 hour roof ) |
| **Vertical Expandability** | **NA** | | | None. |
| **Typical Column Spacing** | **NA** | | | |
| **Overall Structural Condition** | **C** | | | The existing building is structurally sound with no significant deficiencies noted. |

**Typical Wood Truss Framing**

## PLUMBING SYSTEMS

### Summary

This is a metal building with wood structure.
No plumbing systems to report. Building roof pitches to edge and discharges to grade.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping/Service | NA | | | |
| Sanitary Piping/Main | NA | | | |
| Storm/Clearwater Drainage | F | | P1 | |
| Code Issues | NA | | | |

**NOTES:**

**P1.** Metal building with pitched roof. Roof discharges to grade. Area around the building is gravel which pitches to nearby catch basin(s).

**Building Roof Edge**

## HVAC SYSTEMS

### Summary

The storage building is unheated and unventilated. The building is used to store various equipment including motorized vehicles.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Air intake/Make-up | D | $2,000 | H1 | |
| Exhaust Fan | D | $15,000 | H1 | |
| Control | D | $10,000 | H1 | |

**NOTES:**

**H1.** An enclosed vehicle storage building larger than 850 Sq. Ft. or used for more than 5 vehicles is required to have mechanical exhaust ventilation.

A storage building exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets four specific code provisions including the installation of a gas detection system. A garage exhaust fan project to install mechanical exhaust ventilation is necessary to improve garage ventilation and occupant safety.

Installing a small fan to continuously ventilate the space at the minimum flow rate and interlock a larger fan to operate with the lights is recommended. Alternately a two speed fan to operate on low speed continuously and on high speed when the lights are on (indicating building occupancy) may be installed. An intake louver located on the opposite side of the building (from the fans) will provide make-up air.

## ELECTRICAL SYSTEMS

### Summary

The building's electric service is rated 100-amps at 120/208-volts, 1-Phase. A Square D load center panel houses the Main Circuit Breaker.

The only interior lighting fixture is an incandescent lamp holder mounted above the west entrance door. There is one Exit Sign – also located above the west entrance door. It has battery back-up. Pole-mounted lighting in the yard south of the building is HID.

There are only two receptacles and they are both GFCI type.

There is no fire alarm system.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Panel | C | | | |
| **Lighting** | | | | |
| Interior | C | | | Incandescent lamp holder with compact fluorescent lamp . |
| Exterior | HP | $1,000 | E1 | Replace HID with LED. |

**NOTES:**

**E1.** LED lighting fixtures will result in lower operating and maintenance costs.

**Service Panel**

**Exit Sign and Lamp Holder**

**Pole-mounted HID Lighting**

# EVALUATION

# OF

# CITY-OWNED FACILITITES

## OLD PARKS SHOP

**August, 2015**

## PARKS DEPARTMENT

## SUMMARY

***Date of Visit: August 6, 2015***
***Address: 1000 Crocker Street***

### Building Description

The old shop consists of a wide, barrel-vaulted concrete and masonry structure with concrete buttresses. To the front/southwest is the flat-roofed, rectangular former office, and to the rear/northeast is a flat-roofed, rectangular concrete masonry unit and brick addition which is not accessible from the main interior space. Insulation has been added to the underside of the barrel vault structure. The office is accessed from the main space via a concrete ramp with broken front edge.

Areas of the north end wall have been repaired and tuck-pointed. The west wall has areas filled with concrete or parged over. Remaining brick could use minor tuck-pointing. Wood fascia on barrel vault is in need of paint.

Windows on the shop area have metal frames, some of which are significantly rusting, staining the sills and concrete below. Window replacement is recommended in the shop/storage areas to maintain weather-tightness and provide daylighting. Construction date of this building is unknown.

### Code/Accessibility

Two legal means of egress are provided from all areas of the old shop. The old office has one direct egress door and one door into the shop area that looks to have been a rated opening.

The office area and north additions appear to be small enough to qualify for legally providing a single egress point. Access to the personnel door at the north addition is obstructed from the interior. Recommend maintaining a clear path. If egress doors are replaced in the future, upgrading to lever handles is recommended for code compliance and ease of use.

This building is typically unoccupied during the day, thus accessibility to plumbing facilities is not an issue.

Entry to the building is at grade in the main shop and north additions. A small concrete ramp provides access to the former office main door, although it does not provide an ADA compliant level landing at the top. The ramp at the door from the office leading into the shop is significantly damaged and steep, with no handrails. As the office is currently locked and unoccupied, access to the rest of the facility and the one restroom does not appear to be an issue.

Any replacements of hardware or doors should include an upgrade from knob to lever handles. The only toilet room in the facility is not ADA compliant.

### Structural System

The main structure is a Quonset-hut building with wood sheathing, wood purlins, and laminated wood arches clear-spanning between cast-in-place concrete buttresses and footings. Main structure also includes a wood-framed mezzanine. Additions on the south end and immediately to the north are wood framed roofs on load-bearing masonry walls, and far north addition is steel deck and joists on load-bearing masonry walls.

### Plumbing Systems

The old shop garage is now mainly used for storage. The original piping is in poor condition. There is minimal water piping to the single toilet room. Water piping is copper, not insulated.

Main building is masonry with a portion of curved roof and a later addition has a pitched roof to an east gutter.

Plumbing fixtures are older and are not being used.

## HVAC Systems

The old shop building is used for vehicle storage. Attached to the building is an old office area which is now used for storage, an area used for an office and another small area used for vehicle storage. Within the garage building there is an area used for an office and miscellaneous storage.

A toilet room is located in the back of the shop building. This room is not ventilated.

The storage garage is served by multiple radiant heaters, multiple circulation fans, and an exhaust fan. The exhaust ventilation system is abandoned and the make-up louvers are blanked off.

A gas fired unit heater provides heat to a storage room in the back of the storage garage.

Three residential style furnaces are used to heat the storage rooms, offices, and small vehicle storage area. Two units are older and their replacement is planned. The unit heating the small vehicle storage area has already been replaced with a high efficiency condensing furnace unit.

Controls are electric, line and low voltage.

## Electrical Systems

The building's electric service is rated 400-amps at 120/208-volts, 3-Phase. There are 5 service disconnects grouped in a Square D I-Line panel. The maximum quantity of service disconnects allowed on a building is 6. None of the service disconnects are labeled "Service Disconnect." The service originates from pole-mounted transformers located on the property line west of the building.

Interior lighting utilizes T8 fluorescent lamps and ballasts. Exit signs incorporate battery back-up. There are no other battery supplied emergency egress lighting fixtures. Lighting on the building's exterior is HID with integral photocell.

Receptacles are not GFCI type. A stretch of conduit along the west wall is not properly supported.

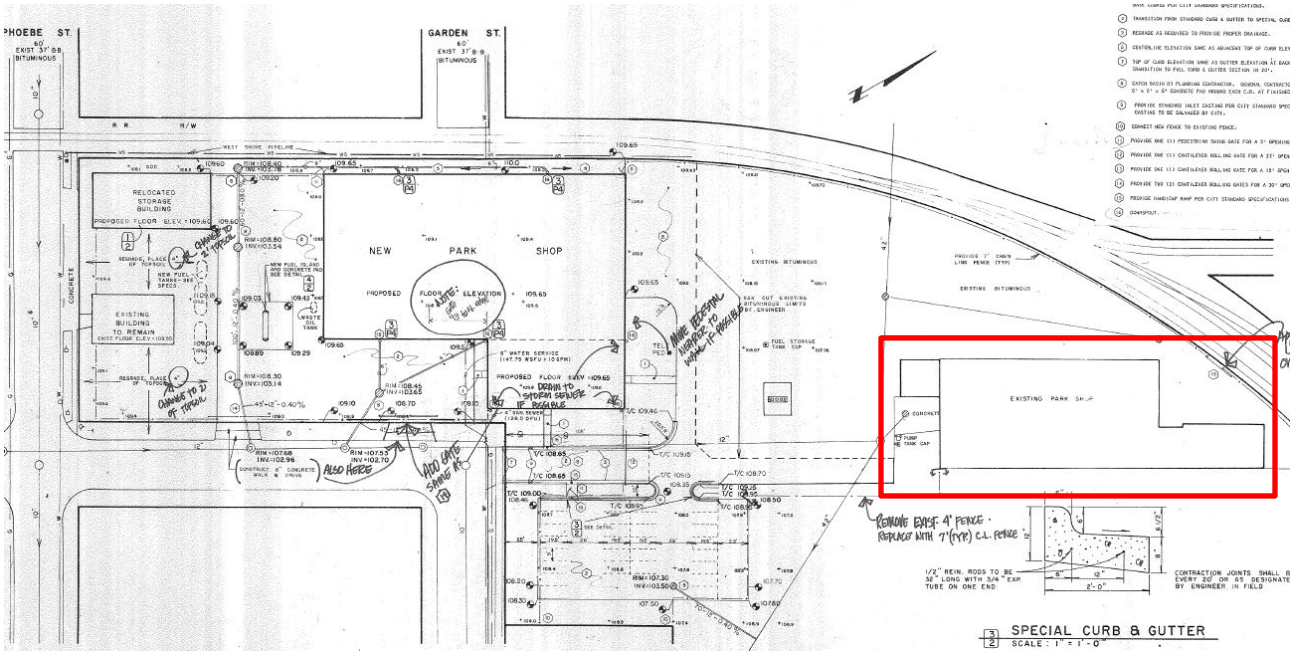
There is no fire alarm system.

## Estimates

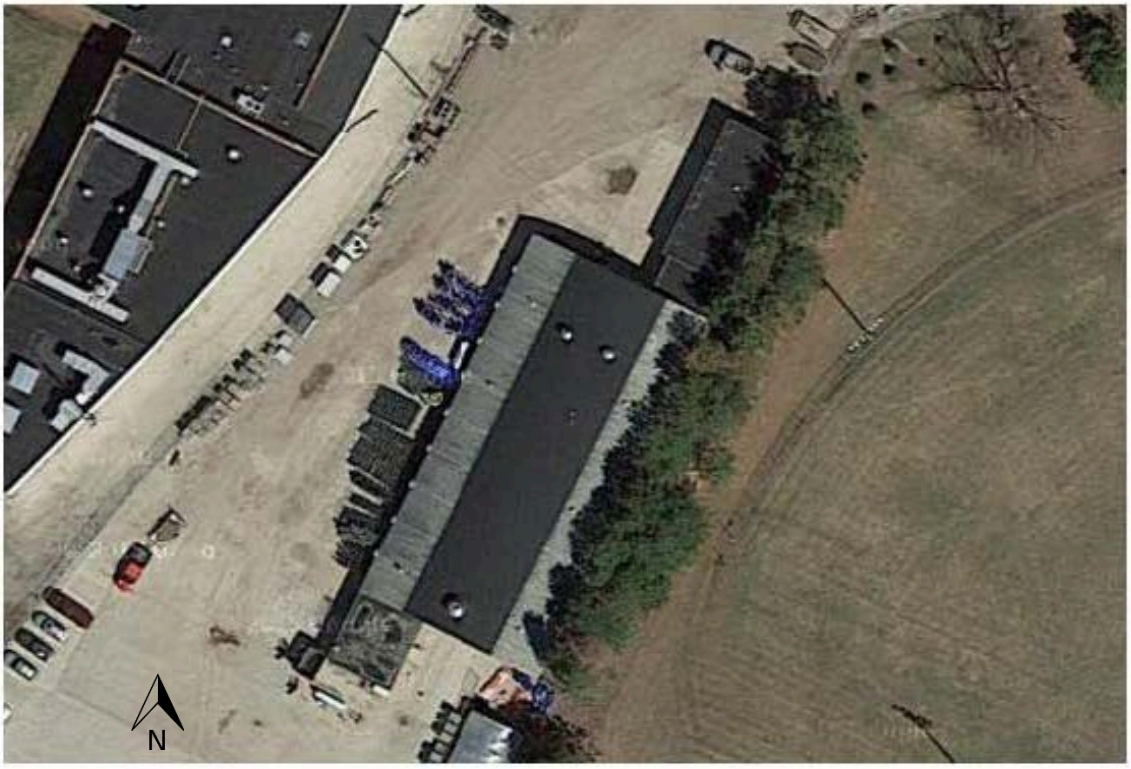
Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | Window Condition | **$32,000** |
| **Code/ADA** | | | Accessible Toilet | **$8,000-$12,000** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | | **NA** |
| **Plumbing** | | | Insulation | **$1,500** |
| | Thermal Mixing Valve (TMV) | | | **$500** |
| **Plumbing Subtotal** | | | | **$2,000** |
| **HVAC Systems** | | | Old Office Area | **$5,000** |
| | | | Back Storage Area | **$5,000** |
| | | | Ductwork | **$7,000** |
| | Toilet/Locker Room Exhaust | | | **$2,000** |
| | Make-up Air Unit | | | **$110,000** |
| | Exhaust | | | **$30,000** |
| **HVAC Subtotal** | | | | **$159,000** |
| **Electrical** | Main Service Panel | | | **$350** |
| | Receptacles | | | **$1,000** |
| | | | Exterior | **$1,000** |
| | | Unsupported conduit | | **$300** |
| **Electrical Subtotal** | | | | **$2,650** |
| **Building Total** | | | | **$203,650-$207,650** |




**Site Plan**




**Aerial View of Site**

# ARCHITECTURAL

## Building Description

The old shop consists of a wide, barrel-vaulted concrete and masonry structure with concrete buttresses. To the front/southwest is the flat-roofed, rectangular former office, and to the rear/northeast is a flat-roofed, rectangular concrete masonry unit and brick addition which is not accessible from the main interior space. Insulation has been added to the underside of the barrel vault structure. The office is accessed from the main space via a concrete ramp with broken front edge.

A portion of the main space is divided into separate storage, toilet and maintenance rooms with brick wall construction. A mezzanine above these rooms is supported by wood posts, 2x floor construction, and painted plywood flooring. Construction of this building is unknown.

## Building Envelope

### Exterior Walls

The main barrel vaulted space of the original building is constructed of a poured concrete base wall (height varies between south wall and north wall), and modular face brick. Concrete buttresses support the barrel along the exterior of the east and west sides. Some windows in main space have been filled in with concrete block. Areas of the north end wall have been repaired and tuck-pointed. The west wall has areas filled with concrete or parged over.

The front office wing is constructed of modular face brick with limestone sills. The rear storage additions are painted concrete block. Remaining brick could use minor tuck-pointing.

Wood fascia on barrel vault is in need of paint.

### Windows

Original windows are in place. Windows on the shop area have steel frames, some of which are significantly rusting, staining the sills and concrete below. Window replacement is recommended in the shop/storage areas to maintain weather-tightness and provide daylighting.

### Roof

The barrel vaulted main portion of the building is covered with an adhered EPDM membrane. Multiple vents and penetrations in the roof were observed. The interior side of roof is draped with poly and insulated. The exterior fascia trim on the barrel vault is painted wood, which is in need of re-painting and/or replacement.

The office and shop sections of the building have low-slope roofs. The shop drains to a gutter and downspout on the east side. Its fascia panel is comprised of corrugated metal and a straight metal parapet cap. There is no access to the flat roof tops, thus they were not evaluated on this tour.

## Interior Finishes

### Floors

Concrete floor is in most spaces. The office area was locked and thus not evaluated.
Mezzanine has painted plywood floor. Steps to the mezzanine are painted wood construction with 2x4 hand rail on one side.

### Walls

Some walls of storage rooms are unpainted brick. The brick walls facing the main space are typically painted.

One toilet room has a tile wainscot approximately 3'-4" high. A wood trim and painted gypsum board are above the wainscot.

### Doors

Exterior doors are insulated hollow metal. Door between main shop and office is metal with a small central/upper light of wired glass, indicating that this was probably intended as a fire door at the time of its installation.

Original doors at interior spaces are wood 5-panel construction with the top three panels glazed in some cases. A door to an apparent furnace room is unpainted metal with strap hinges. This door had a sliding lock and padlock, as well as a metal pull. This too was probably intended as a fire door, although penetrations through a side wall of this space indicate it is no longer a fire-rated room.

**Ceilings**
Exposed structure, or insulation encapsulated with white plastic membrane.

**Casework**
The only casework in the reviewed areas was utilitarian wood shelving and counters. Old office was locked and not available for review.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Roof Condition | F | | | |
| Exterior Facade Condition | F | | A1 | |
| Exterior Door Condition | F | | | |
| Window Condition | HP | $32,000 | A2 | Estimate $4,000 per opening for 8 openings in the shop/storage areas |

**NOTES:**

**A1.** Northwest corner of barrel vaulted space appears to have required the most maintenance. Minor tuck-pointing and attention to masonry base recommended. Wood fascia boards are in need of paint.

**A2.** Original building window on the north end of barrel vault is in the worst condition and should be replaced. Water infiltration indicated by the staining of the concrete below could cause further deterioration of the concrete wall below. Other windows are recommended to be replaced for weather tightness and to provide daylighting to the spaces.

**Office and Main Shop Exterior**

**Exterior from the Southwest**

**Exterior Buttress**

**Main Shop and Additions from the North**

**Office Abutting Main Shop**

**Northeast Elevation of Main Shop**

**Main Shop Interior**

**Main Shop Interior**

**Door to Old Office**

**Storage & Mezzanine at North end of Shop**

**Structure under Mezzanine**

**Typical Interior Door**

**Mezzanine**

**Steel Door and Penetration of Former Rated Room**

North Addition to Shop

North Addition to Shop

Northeast Elevation of Addition to Shop

# CODE COMPLIANCE AND ACCESSIBILITY

## Building Data

*Code references based on 2009 IBC*

| | | | |
|---|---|---|---|
| **Year(s) Constructed** | Unknown | **Gross Area** | 13,000 SF |
| **Occupancy Classification** *(Chapter 3 of IBC)* | Current usage is S-2 Low Hazard Storage | | |
| **Construction Type** *(Chapter 6 IBC)* | Construction Type II-B | | |

## Summary of Code Compliance/Life Safety

Items have been noted that do not meet current code, however the building is presumed to have complied with the code at the time it was built or remodeled. If any items are modified or updated, they will need to be brought into compliance with the current code, based on the extent of project being done. Since upgrades would be dependent on circumstances of the project, a code analysis would need to be done on a per-project basis.

It should also be noted that any remodeling to the facility that met the criteria for Level 1 Alteration (the reconfiguration of space) in the International Existing Building Code (IEBC) would bring with it the requirement for accessibility. Extensive renovation that met the criteria of Level 3 Alteration may require all functional levels of the facility be accessible, that is, via an elevator or lift. **Careful review of code should be done prior to any renovation project to identify other mandated upgrades**.

### Egress and Safety

Two legal means of egress are provided from all areas of the old shop. The old office has one direct egress door and one door into the shop area that looks to have been a rated opening. This is currently locked.

The office area and north additions appear to be small enough to qualify for legally providing a single egress point. Access to the personnel door at the north addition is obstructed from the interior. Recommend maintaining a clear path. If egress doors are replaced in the future, upgrading to lever handles is recommended for code compliance and ease of use.

### Stairs, Handrails and Guardrails

There are no stair shafts in the building. The one stair to the mezzanine is wood construction with wood 2x4 handrails at one side. Guardrails and handrails have large openings at open sides. Both aspects are presumed to have been compliant at the time of original construction. With the limited use the space gets from maintenance personnel, this is not considered a safety hazard.

### Miscellaneous Items

The mezzanine complies with current codes in terms of size (no more than 1/3 of the space of which it is a part). As a storage mezzanine, one route of egress is sufficient for its area.

## Summary of Accessibility/ADA Compliance

This building, similar to the other Parks storage buildings on the site, is typically unoccupied during the day. Staff utilizes the facilities in the main Parks Shop and Office, thus access to plumbing facilities is not an issue. Access to various areas of the building has been reviewed, as well as safe egress from the building.

### Accessible Route

Entry to the building is at grade in the main shop and north additions. A small concrete ramp provides access to the former office main door, although it does not provide an ADA compliant level landing at the top. The ramp at the door from the office leading into the shop is significantly damaged and steep, with no handrails. As the office is currently locked and unoccupied, access to the rest of the facility and the one restroom does not appear to be an issue.

**Doors**
The building has a combination of push/pull hardware and knob handles. Knobs are not accessible, and not as easy/fast to use as lever handles. Any replacements of hardware or doors should include an upgrade from knob to lever handles.

**Plumbing Fixtures**
The main shop has a single-user bathroom that appears to have been remodeled at some time in its history. The room does not have adequate floor space to be accessible. This was the only restroom evident in the facility.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ARCHITECTURAL ELEMENTS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Egress and Safety | F | | CA1 | |
| Stair Shafts | NA | | | |
| Handrails/Guardrails | F | | | |
| Miscellaneous Items | F | | | |
| Accessible Route | F | | CA1 | |
| Doors | C F | | CA2 | |
| Plumbing Fixtures | | | | |
| Accessible Toilet | HP | $8,000-$12,000 | CA3 | Creating 1 accessible toilet is recommended. |

**NOTES:**

**CA1.** If office is utilized for staff, access would need to be improved, as well as accessible toilet facilities.

**CA2.** Lever handles would comply with accessibility codes and facilitate ease of use. Lever handles are code requirement for any new or renovated work.

**CA3.** If staff are located in the building (not the current situation), then accessible toilet facilities would be required.

**Ramp to Former Office from Shop**

**Ramp to Former Office Entry**

**Guardrails at Mezzanine**

**Stair to Mezzanine and Handrails**

**Toilet Room at Shop (Non-accessible)**

**Access to Personnel Door is Obstructed**

## PLUMBING SYSTEMS

### Summary

The old shop garage is now mainly used for storage. The original piping is in poor condition. There is minimal water piping to the single toilet room. Water piping is copper, not insulated.

Main building is masonry with a portion of curved roof and a later addition has a pitched roof to an east gutter.

Plumbing fixtures are older and are not being used.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| PLUMBING SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| Water Piping Condition | F | | P1 | Copper piping |
| Sanitary Piping Condition | F | | P2 | PVC & cast iron |
| Storm/Clearwater Piping | NA | | P3 | Pitched Roof |
| Valves | F | | P4 | Gate valves |
| Domestic Water Service | C | | P5 | 1 ¼" main |
| Insulation | HP | $1500 | P6 | No insulation |
| Code Issues | NA | | P7 | No apparent code issues |
| **Equipment** | | | | |
| Domestic Water Heater | F | | P8 | Electric, AO Smith |
| Recirculation Pump(s) | NA | | | No pump required |
| Thermal Mixing Valve (TMV) | D | $500 | P9 | Add TMV (code issue) |
| Plumbing Fixtures | F | | P10 | |
| "Shop" Air Compressor | NA | | | |
| Storage/Truck Garage | F | | P11 | Trench drain, garage catch basin |
| **Exterior** | | | | |
| Storm Drainage, Roof Drainage | F | | P12 | |
| Eyewash(es) | NA | | | |
| Utilities | F | | P13 | 1 ¼" main |

**NOTES:**

**P1.** Water piping is mainly copper, soldered joints. Fair condition. Piping is not insulated. Toilet room piping is exposed, installed on the wall.

**P2.** Original sanitary is cast iron, hub & spigot. Piping from the later modifications is PVC.

**P3.** Main portion of the building has a curved roof which discharges to grade. Additional building in the back has a pitched roof to an eastern gutter system.

**P4.** Older valves are gate, newer valves are ball.

**P5.** Building is served by a 1 1/4" water main, with a 1" valve by-pass.

**P6.** Water piping is not insulated. Insulation could be added for energy savings but it's probably not worth the cost since the building plumbing fixtures are not being utilized.

**P7.** No apparent code issues.

**P8.** Water heater is a 15 gallon electric, AO Smith Energy saver.

**P9.** If the building is going to be used, an in-line TMV could be added to the lavatory and sink.

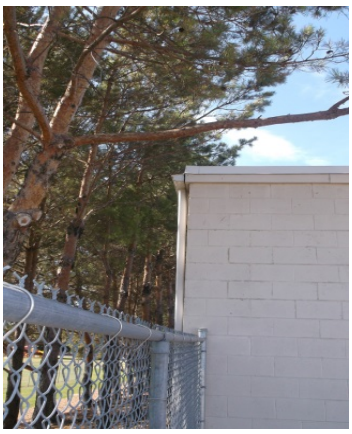
**P10.** Plumbing fixtures: No compliant ADA handicap fixtures in the building. Fixtures are rarely used. Water closet is tank-type, urinal is floor mounted, lavatory is wall-hung. All fixtures are vitreous china.

**P11.** Garage area has a trench drain, discharges to a garage catch basin.

**P12.** Roof areas discharge to grade, gravel parking lot with yard catch basins.

**P13.** 1 ¼" water main. 42" storm sewer routes through the property, discharges to the west. Utilities are supplied from Crocker Street.

**Roof Edge**



**Roof Edge with Gutter**

**Water Meter**

**Vent Piping**

**Water Closet & Lavatory**

**Lavatory**

**Sink & Drinking Fountain**

**Water Heater – Electric**

**Garage Catch Basin**

**Non-freeze Sill Faucet**

**Catch Basin – Parking Lot**

# HVAC SYSTEMS

## Summary

The old shop building is used for vehicle storage. Attached to the building is an old office area which is now used for storage, an area used for an office and another small area used for vehicle storage. Within the garage building there is an area used for an office and miscellaneous storage.

A toilet room is located in the back of the shop building. This room is not ventilated.

The storage garage is served by multiple radiant heaters, multiple circulation fans, and an exhaust fan. The exhaust ventilation system is abandoned and the make-up louvers are blanked off.

A gas fired unit heater provides heat to a storage room in the back of the storage garage.

Three residential style furnaces are used to heat the storage rooms, offices, and small vehicle storage area. Two units are older and their replacement is planned. The unit heating the small vehicle storage area has already been replaced with a high efficiency condensing furnace unit.

Controls are electric, line and low voltage.

**LEGEND**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| HVAC SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Office/Storage Area** | | | | |
| Old Office Area | **HP** | $5,000 | **H1** | Janitrol 110,000 BTU |
| Back Storage Area | **HP** | $5,000 | **H1** | Amana – Approximately 100,000 BTU |
| Small Vehicle Storage | **C** | | **H1** | 120,000 BTU – Manufacturer is unknown. |
| Controls | **C** | | | Low voltage thermostats |
| Ductwork | **HP** | $7,000 | **H1** | Minimal ductwork, some abandoned, poor grille placements. New units require fresh air connection. Old office area supply duct is underground. |
| **Exhaust Fans** | | | | |
| Toilet/Locker Room Exhaust | **D** | $2,000 | **H2** | No Ventilation for toilet room. |
| **Garage Ventilation** | | | | |
| Make-up Air Unit | **D** | $110,000 | **H3** | No Unit. |
| Exhaust | **D** | $30,000 | **H3** | Abandoned Fans-No control |
| Radiant Heaters | **C** | | | Appear to be in good condition. Staff indicated these units are operable. |

**NOTES:**

**H1.** Residential style furnaces are located in storage rooms. Two units serve office areas and there is no fresh air connection to the return intake. The units appear to be oversized for the area's they serve. Staff indicated that they have plans to replace the two older units.

A project is to replace the two older furnaces with furnaces right sized for the area they serve. Fresh air connections are recommended for the units serving occupied spaces. Revising the supply return ductwork is also recommended to more evenly distribute the air throughout the spaces.

**H2.** There is no exhaust ventilation or window for natural ventilation. An exhaust fan is recommended to be installed to ventilate the room.

**H3.** The vehicle storage area is heated with a gas fired unit heater and radiant heaters. The exhaust system is abandoned and the make-up air louvers are blanked off. An enclosed storage garage has specific exhaust code requirements. To retain this as a heated garage an exhaust system and heated make-up air unit is required. A garage ventilation upgrade project is recommended to install a make-up air unit, exhaust fan, and control system to improve garage ventilation and occupant safety.

A garage exhaust system may operate continuously, operating at a minimum level when the garage is unoccupied and operating at a maximum level when the garage is occupied or a vehicle is started. Alternately a garage exhaust system may operate intermittently if it meets 4 specific code provisions including the installation of a gas detection system. It is recommended to operate a small exhaust fan continuously and interlock a larger fan to operate with the building lights (which indicates building occupancy).

**Abandoned Exhaust Vent**

**Exhaust Ductwork**

**Gas Fired Unit Heater**

**Old Office Area Furnace**

**Small Vehicle Storage Furnace**

**Office Furnace**

**Gas Meter**

**Condensate Pump**

**Exhaust Duct Drop**

**Make-up Air (Abandoned)**

**Old Furnace Combustion Vent**

**Abandoned Vent**

**Typical Grille (Office)**

**Supply Grille (Back Office)**

**Underground Duct Supply Grille**

## ELECTRICAL SYSTEMS

### Summary

The building's electric service is rated 400-amps at 120/208-volts, 3-Phase. There are 5 service disconnects grouped in a Square D I-Line panel. The maximum quantity of service disconnects allowed on a building is 6. None of the service disconnects is labeled "Service Disconnect". The service originates from pole-mounted transformers located on the property line west of the building.

Interior lighting utilizes T8 fluorescent lamps and ballasts. Exit signs incorporate battery back-up. There are no other battery supplied emergency egress lighting fixtures. Lighting on the building's exterior is HID with integral photocell.

Receptacles are not GFCI type. A stretch of conduit along the west wall is not properly supported.

There is no fire alarm system.

**LEGEND**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| D | Deficient – Immediate Replacement | CP | Critical Priority – Replace in 1-2 years | HP | High Priority – Replace in 3-5 years | F | Fair – Replace in 6-10 years | C | Compliant/ Adequate | N | New | NA | Not Applicable |

| ELECTRICAL SYSTEMS | GRADE | BUDGET COST | NOTES | COMMENTS |
|---|---|---|---|---|
| **Normal Power Distribution Equipment** | | | | |
| Main Service Panel | D | $350 | | Label each of the 5 service disconnects. |
| **Lighting** | | | | |
| Interior | C | | | T8 fluorescent industrial. |
| Exterior | HP | $1,000 | E1 | Replace HID with LED. |
| **Lighting Controls** | | | | |
| Garage | F | $2,000 | | Install occupancy sensors to turn fixtures OFF when the garage is not occupied. |
| **Emergency Egress Lighting and Exit Signs** | | | | |
| Exit Signs | C | | | |
| **Power** | | | | |
| Receptacles | D | $1,000 | | Install GFCI receptacles. |
| **Raceway** | | | | |
| Unsupported conduit | CP | $300 | | Support conduit along west wall. |

**NOTES:**

**E1.** LED lighting fixtures will result in lower operating and maintenance costs.

**Service Disconnect – 5 Circuit Breakers**

**Pole-mounted Service Transformers**

**Unsupported Conduit**

**HID with Integral Photocell**

Report to the
# Ad Hoc Facilities Committee of the City of Green Bay

## MEETING DATE

February 21, 2022

## AGENDA ITEM # D.5

Overview of the current status of City Hall by Parks Director.

## BACKGROUND

## RECOMMENDATION

## FISCAL IMPACT

## ATTACHMENTS

1. City Hall Project List 2015 Summary - BSA
2. City Hall Project List - Phasing Plan 2-17-22

# SUMMARY

***Date of Visit: August 20, 2015***
***Address: 100 North Jefferson Street***

## Building Description

City Hall is a simple rectangular building constructed in 1955. It is clad in polished granite panels on the first floor, with cream colored brick slightly stepped out past the panels covering the remaining 6 story façade and mechanical penthouse. Floor-to-floor heights range from 12'-0" on 3rd through 5th floors, to over 14'-2" on 2nd floor, where City Council Chambers are located.

Two main entrances facing west toward Jefferson Street have a flat-roofed canopy supported on granite-clad columns. A third entrance opening toward the parking lot and alley to the east has a smaller canopy supported by painted metal columns.

Areas of the exterior shell are in need of minor masonry and mortar repair. Most of these areas are concentrated on the upper penthouse brick exterior wall. Cracked granite panel outside of the mayor's office observed and previously discussed with the City.

Typical interior finishes and condition:

- Terrazzo floors .....good condition
- Carpeting .....varied condition, some older and showing wear
- Composite tile .....varied, some recommended to be replaced
- Marble wall wainscot .....good condition
- Gypsum board or plaster walls ..fair to good condition
- Ceilings .....spline ceilings in fair condition: some stained
- Ceilings .....lay-in acoustic panel: good condition
- Casework .....fair to good condition; some recommended to be remodeled (see code section)

No leaks have been reported on the roofing system, but it does appear to be past its expected lifespan. Recommend reroofing within the next 3-5 years, and addressing any flashing issues at the parapet condition at that time.

## Code/Accessibility

Two legal means of egress are available from all occupied areas. Corridor widths are all a minimum of 36" wide. Additional routes of egress are provided from the basement mechanical room, transformer vault, and boiler room.

The building has two primary stair shafts, both on the west side of the building, one toward the north and one toward the south. Although current code would require shafts of this height to be 2 hour rated, as an existing building, the shafts are presumed to comply with the code at the time they were constructed.

The space between guards on the sides of the stairs is over 12" at its narrowest dimension. This does not comply with IBC 1013.3, but would be grandfathered in as compliant. Due to the very public nature of this building, providing some protection to supplement the original handrails and guards should be considered.

The desk at the Parks Department is recommended to be modified for improved accessibility.

Grab bars in the accessible toilet room on 2nd floor are not positioned at the same height. The higher one is mounted with its top at 36 5/8", which is above the maximum allowable height of 36" per ADA 609.4 and ANSI A117.1 section 609.4.

## Structural System

The structure consists of cast-in-place concrete floor slabs, beams, and columns bearing on a concrete foundation system.

## Plumbing Systems

The original piping is in fair condition and can be replaced as needed. Insulation could be added to the hot water piping for energy savings. Thermostatic mixing valves (TMV's) should be added to correct code issues. Eyewashes require tempered water – add TMV's.

Building is served by interior roof drains – main roof and Penthouse. There is no secondary drainage for the building.

Plumbing fixtures are older, flush valve(s) could be updated to conserve water. Each floor has a dedicated ADA compliant toilet room. Building utilities in general appear adequate.

## Fire Protection Systems

City hall was built in 1955 and had a standpipe system and fire pump installed at that time. The fire pump serves only the standpipe system; no sprinkler system is installed in the building.

Based on its condition the fire pump appears to be the original pump. The fire pump is showing signs of severe corrosion and leaking and is not located within a rated enclosure as required by the current edition of NFPA 20. If the fire pump is replaced it will require that it be brought up to the currently adopted standards.

The standpipe system is a Class II System, which includes 1 ½" hose valves. The 2009 Edition of the IFC requires that a Class III Standpipe System, which includes both 1 ½" and 2 ½" hose valves be installed in all buildings with a floor height higher than 30' above the level of access. It also requires that the valves be located within exit stairways, which is not the case with the currently installed valves. The existing valves are located in the corridor on each floor.

## HVAC Systems

The boilers are original to the building's construction. The boiler controls and burners have been upgraded and/or replaced. The units are expected to last another 5 years. The steam system serves air unit heating coils and steam to water heat exchangers that provide hot water to the building's heating units. The penthouse heating system has been replaced. The pumps appear to be in good condition. The basement heating system pump has been replaced. There is no insulation on this system.

The main building ventilation system is a built-up high pressure induction air unit located in the mechanical penthouse. The unit is original to the building's construction but the major components have been replaced. The coils are beginning to show signs of deterioration and will require increased maintenance until such time they fail. The induction units' drain pans are deteriorating and plug on occasion, causing overflows into the building's envelope cavity. There are no filters on these units.

There are three additional air units serving specific use areas of the building. These units are original to the building's construction but the major components have been replaced. The cooling coils are deteriorating and will require increased maintenance until such time they fail.

A water cooled air unit is located in a closet on first floor requires replacement. Occupant dissatisfaction with the unit's operation has led the staff to simply turn the unit off.

The chiller was replaced in 2008 and the cooling tower in 2011. The pumps have also been replaced. The piping is in fair condition. However, pipe insulation is missing or has deteriorated around the air unit coils and this is causing rust and deterioration of the piping. The lack of insulation at the induction unit coils allows condensation to form and drip into the building's envelope cavity.

Four main exhaust ventilation fans are in fair condition, however the original ductwork is dirty and leaks. There are rooms in the lower level that are occupied and not ventilated.

The building controls are primarily pneumatic with some DDC control added to the air units, chiller, and boiler systems to provide some central monitoring. Air compressors are located in the boiler room.

## Electrical Systems

City Hall is served by a 2000 Amp, 120/208 Volt, three phase electrical service. The Main Switchboard (MSB) is a Square D model Saflex fusible-switch type which is original to the building. Although the equipment appears in

good condition, Square D no longer supports this style of switchboard. The switch providing the normal power feed to the automatic transfer switch (ATS) is labeled "Emergency Circuits Disconnect". It is recommended this label be changed to "Normal Power to ATS" since "emergency" circuits are fed from the generator and are not disconnected by this switch when utility power is lost.

Understanding how power is distributed in the penthouse could be improved by installing a Motor Control Center (MCC). Currently the feeder serving the penthouse is tapped several times to serve numerous disconnect switches.

A 60-kW diesel-fueled generator provides standby power. It feeds an automatic transfer switch (ATS) rated 225-amps. Although the generator serves both lighting and non-lighting loads, it's not relied upon for emergency egress.

The main emergency power panel (EPP) is located adjacent to the ATS. EPP is a Square D Load Center with a 200A main circuit breaker. The panel has 24 1-pole spaces available.

A manual transfer switch with a pin-and-sleeve receptacle for connecting a temporary generator was installed in the basement recently by the communications provider whose transmitting equipment is installed on the building's rooftop. The normal feed to the manual transfer switch is tapped from the bus of the MSB despite there being a spare 200A switch available in the distribution section of MSB.

Branch panels for both normal and emergency power are manufactured by Square D. It would be very difficult and costly to relocate the panels, but it is possible to improve a poor situation by replacing the interiors and panel covers to improve reliability and ease of access.

Battery-operated emergency egress lighting fixtures occur sporadically throughout the building. The quantity of the fixtures, fixture placement, and overall performance do not comply with current standards.

Generally lighting fixtures throughout the buildings are in good to fair condition, and utilize T8 fluorescent lamps and electronic ballasts. An exception is lighting fixtures in the Printing Room of the basement – which are suspended fixtures with louvers using T12 fluorescent lamps. T12 lamps are no longer manufactured.

Areas with the original concealed grid ceilings are using the original 1x4 flush-mounted fluorescent lighting fixtures that have been retrofit with T8 fluorescent lamps and electronic ballasts. The quantity of original 1x4 lighting fixtures is greater than a modern lighting design would call for. Prismatic lenses are yellowing in many of the original 1x4 flush-mounted lighting fixtures.

Where concealed grid ceilings have been replaced with lay-in acoustical tile ceilings, lighting fixtures have also been replaced. Replacement fixtures use T8 fluorescent lamps with electronic ballasts.

The building is protected by a zoned Faraday fire alarm system. Coverage with visual and audible/visual alarms is inconsistent – some areas are compliant, some are not. Use of smoke and/or heat detectors is also inconsistent.

## Estimates

Cost estimates provided are ball-park range, and based on 2015 prices. Increases for inflation, project size and other factors should be taken into consideration when referencing. Estimates are for project costs only. Consultant design fees are not included unless noted.

**SUMMARY OF PRIORITY ITEMS**

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Architectural** | | | Roof Condition | **$200,000** |
| | | | 6th floor repairs in Parks | **$1,000** |
| **Architectural Subtotal** | | | | **$201,000** |
| **Code/ADA** | | | Accessible Toilets | **$400** |
| | | | Casework | **$7,000** |
| **Code Subtotal** | | | | **$7,400** |
| **Structural** | | | | **NA** |
| **Fire Protection** | | | Fire Pump | **$150,000** |
| | | | Fire Pump Controller | **See above** |
| | Standpipe System | | | **$20,000** |
| **Fire Protection Subtotal** | | | | **$170,000** |
| **Plumbing** | | | Insulation | **$15,000** |
| | Eyewash(es) | | | **$6,000** |
| | Thermal Mixing Valve (TMV) | | | **$4,000** |
| | Backflow Prevention | | | **$500** |
| | Elevator Sump Pit | | | **$10,000** |
| **Plumbing Subtotal** | | | | **$35,500** |
| **HVAC Systems** | | | | |
| **AHU-1** | | | Housing | **$370,000** |
| | | | Distribution Ductwork | **$960,000** |
| **Exterior Room Comfort** | | | Induction Terminals | **$2,600,000** |
| **AHU-2** | | | Housing | **$150,000** |
| **AHU-3** | | | Housing | **$150,000** |
| **AHU-4** | | | Housing | **$150,000** |
| **AHU-5** | | | Housing | **$9,000** |
| **Exhaust Fans** | | | General Exhaust | **$30,000** |
| | | | Exhaust Ductwork | **$40,000** |

| ITEM | DEFICIENT (D) Immediate Replacement | CRITICAL PRIORITY (CP) Replace in 1-2 years | HIGH PRIORITY (HP) Replace in 3-5 years | COST ESTIMATE |
|---|---|---|---|---|
| **Heating System** | | | Boilers | **$210,000** |
| | | Pipe Insulation | | **$20,000** |
| | | | Room Terminal Units | **$50,000** |
| **Mechanical Room Ventilation** | | | Mechanical Room | **$8,000** |
| | Boiler Room | | | **$10,000** |
| **Controls** | | | DDC Control | **$35,000** |
| **HVAC Subtotal** | | | | **$4,792,000** |
| **Electrical** | | Seal Penetrations | | **$1,200** |
| | | | Emergency Egress Lighting and Exit Signs | **$50,000** |
| | | Upgrade to an Addressable Control Panel | | **$40,000** |
| **Electrical Subtotal** | | | | **$91,200** |
| **Building Total** | | | | **$5,297,100** |

# City Hall - Electric Service and Mechanical System Replacement (Last Updated 2/17/22)

| Description | | Estimated Cost | Year Funded |
|---|---|---|---|
| Electrical Upgrades | | $1,500,000 | 2023 |
| Mechanical HVAC Design/Engineering | | $500,000 | |
| **Total Cost:** | | **$2,000,000** | |
| Notes | Life safety issues with transformers currently in basement | | |
| | Equipment obsolete, parts not available | | |
| | Hard to maintain current equipment | | |

| Description | | Estimated Cost | Year Funded |
|---|---|---|---|
| East only Mechanical Penthouse Expansion with New Roof | | $810,000 | 2024 |
| Water boilers | | $290,000 | |
| **Total Cost:** | | **$1,100,000** | |
| Notes | Phase 1 Mechanical Replacement consists of constructing a penthouse addition to accommodate the future mechanical replacements, replace the roof and replace the water boilers. An architectural consultant recommended the roof to be replaced in 2018. It has been patched on numerous occasions and is need of total replacement. The water boilers are original to the building and have exceeded their anticipated lifespan. The new water boilers are larger and will not fit in the existing space so they will be placed in the new penthouse addition. | | |

| Description | | Estimated Cost | Year Funded |
|---|---|---|---|
| Shafts/Duct risers | | $1,000,000 | 2025 |
| Air Unit 004 | | $320,000 | |
| **Total Cost:** | | **$1,320,000** | |
| Notes | Phase 2 of the mechanical replacement will consist of installing new vertical duct work from the basement to the roof penthouse. This will provide the mechanical infrastructure necessary to support the equipment replacements and accommodate expanded ventilation. This also would provide adequate fire stopping and dampers as required by code. Air Unit 4 will also be replaced in this phase. This air unit is original to the building and serves the basement, first floor and council chambers. | | |

| Description | | Estimated Cost | Year Funded |
|---|---|---|---|
| Air Units 001 & 002 | | $650,000 | 2026 |
| DDC Upgrade | | $61,000 | |
| Exhaust Fans | | $44,500 | |
| **Total Cost:** | | **$755,500** | |
| Notes | Phase 3 of the mechanical replacement will provide correct air flows to each floor and will replace Air Units 1 and 2. Air Unit 1 is the main air unit that serves all of the window inductions units throughout the building. Air unit 2 serves portions of the 5th and 6th floors. Several exhaust fans will also be replaced in this phase. | | |

| Description | | Estimated Cost | Year Funded |
|---|---|---|---|
| Induction units, 2 pipe 1 for 1 replacement | | $1,350,000 | 2027 |
| **Total Cost:** | | **$1,350,000** | |
| Notes | Phase 4 of the mechanical replacement will be to replace the Induction Unit, which is original to the building. This is the large central air handler that delivers the primary air to the smaller system. This unit also controls the heating/cooling switchover. | | |

| | |
|---|---|
| **Total Cost for Electrical and Mechanical Upgrades:** | **$6,525,500** |

**There are many additional small and large City Hall renovations that have been proposed by staff. This partial list of projects below only highlights the larger renovations that have been proposed for consideration. These projects have not been prioritized and there are no current cost estimates for this work. The renovations for the 3rd Floor will likely have to be considered at some point in the near future.**

3rd Floor Renovations: Replace all of the computer cabling, renovate Meeting Room 310 into additional staff work space.
2nd Floor Renovations: Install a dedicated women's restroom.
4th Floor Renovations: Move the Assessors office, Finance Department and Purchasing Department to the 4th floor.
1st Floor Renovations: Renovate new empty space from 4th floor renovation into Municipal Court and a large meeting room.

Report to the
# Ad Hoc Facilities Committee of the City of Green Bay

## MEETING DATE

February 21, 2022

## AGENDA ITEM # D.6

Overview of Bray Architects presentations.

## BACKGROUND

## RECOMMENDATION

## FISCAL IMPACT

## ATTACHMENTS

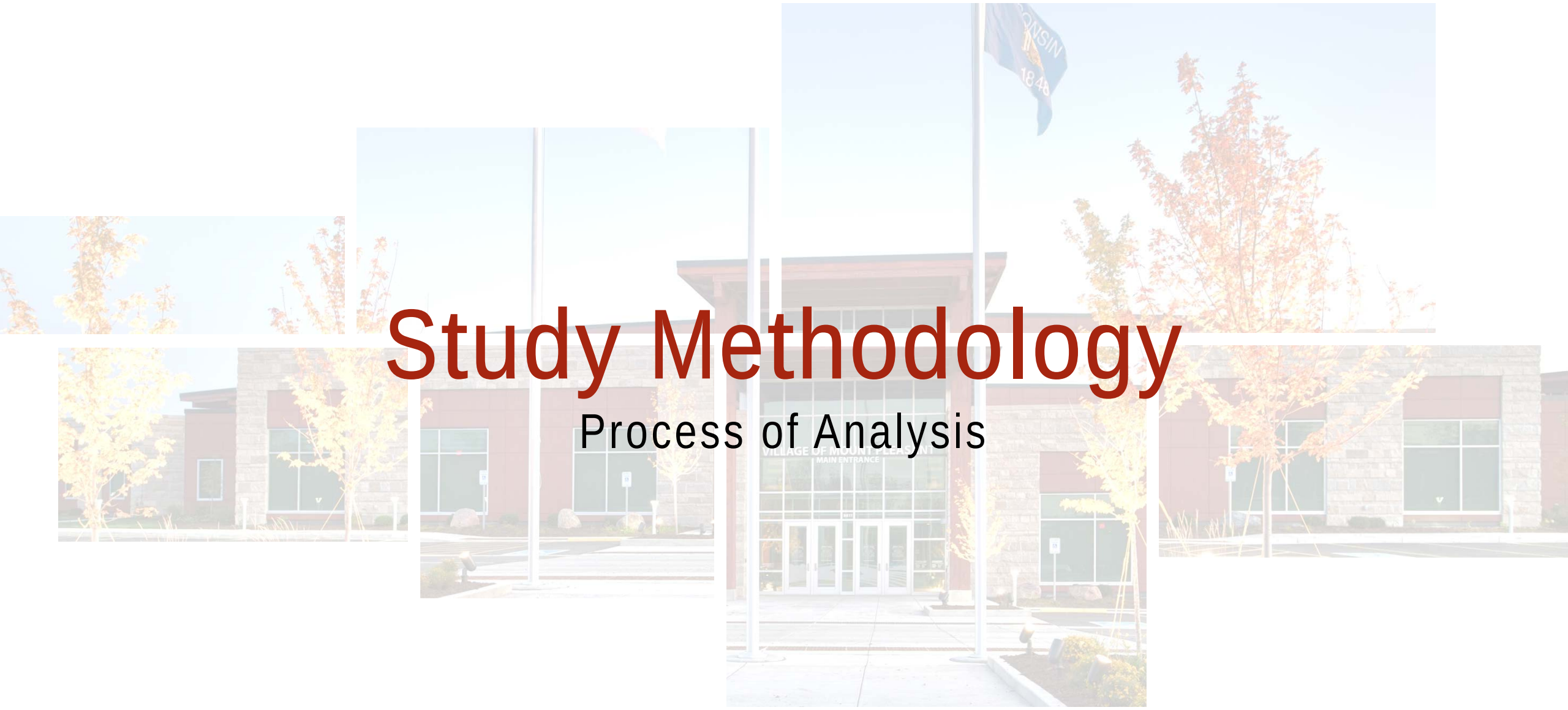
1. 2016-12-13 Green Bay Public Safety Needs Summary
2. 2017-03-28 Green Bay Public Safety - Additional Services Summary

bray
architects
solid foundation. forward thinking.

CITY OF
GREEN BAY
1854
Titletown, USA

# City of Green Bay | Public Safety Building - Spatial Needs Assessment

## Finance Committee Presentation 12.13.2016




# Study Methodology

## Process of Analysis

# Study Methodology | Process of Analysis

- Study Commenced July 2016
- Steering Committee
  - Mayor's Office
    - Celestine Jeffreys, Mayor's Chief of Staff
  - Police Department
    - Captain John Laux, District C Captain
    - Commander Paul Ebel, Operations Division
  - Fire Department
    - Assistant Chief Robert Goplin
  - Municipal Court
    - Judge Jerry Hanson

# Study Methodology | Process of Analysis

- Understanding Existing Conditions
  - Conducted existing building tours
  - Reviewed department staffing and organizational charts
- Space Need Determination
  - Completed staff interviews / surveying
  - Developed existing vs. new space programs
  - Future Projection: 15 years (2031)
  - Completed vehicle / equipment inventories
  - Discussed critical adjacencies
  - Reviewed consolidation efficiencies in staffing and public service

# Existing Conditions

## Police Department | Fire Department | Municipal Court

# Existing Conditions | Green Bay Police Department

- Existing Building
  - Original Construction: 1968 (Renovation 1992)
  - Approximately 55,500 sq.ft. (2 stories + basement)
- Existing Site
  - 2 Acres – approximately 140 surface parking stalls
  - Immediate adjacency to GB Municipal Court
    - Some shared space use (basement fitness)
  - Downtown location with urban characteristics

# Existing Conditions | Green Bay Police Department

- Existing Space Analysis / Observations
  - Existing building lacks public presence / civic stature
  - Lack of secure site control (public and private)
  - Limited community / public space
  - Staffing workflow inefficiencies
  - Inadequate space for emerging policing services
    - Investigations, computer forensics, professional standards and training, event / game day dispatch
  - Improvements in chain of evidence processing
    - Fragmented evidence storage spaces
  - Limited vehicle / equipment storage / maintenance space

# Existing Conditions | GBMFD - Fire Station #1

- Existing Building
  - Original Construction: 1929 (Renovation 1983)
  - Approximately 5,000 sq.ft. (2 stories)
- Existing Site
  - .33 Acres - 3 Surface parking stalls
  - Isolated triangular site surrounded by streets
    - One-way streets north / south
  - Downtown location with urban characteristics

# Existing Conditions | GBMFD - Fire Station #1

- Existing Space Analysis / Observations
  - Existing building maintains unique historic fire station architectural characteristics
  - Lack of intuitive main public entry
  - Combination of apparatus and equipment storage and professional office space
    - Staffing workflow inefficiencies
    - Lack of ADA compliance
  - Limited vehicle / equipment storage / maintenance space

# Existing Conditions | Green Bay Municipal Court

- Existing Building
  - Original Construction: 1967 (Renovation 2000)
  - Approximately 6,500 sq.ft. (1 story + basement)
- Existing Site
  - .4 Acres – 18 Surface parking stalls
  - Immediate adjacency to GB Police Department
    - Some shared space use (basement fitness)
  - Downtown location with urban characteristics

# Existing Conditions | Green Bay Municipal Court

- Existing Space Analysis / Observations
  - Existing building has strong street presence, intuitive main public entry with adequate signage
  - Public space seems to be in good condition
    - Court day sequencing, waiting and circulation is adequate
    - Courtroom in appropriately sized and supports current recording / AV needs
  - Staffing space is adequate with appropriate amount of public transaction windows
  - Municipal Court underutilizes entire building – shared use of basement with Police Department

# Executive Summary

## Recommendations

# Executive Summary | Space Need Summary

- Results of detailed architectural space programs:

- Municipal Court 4,630 sq.ft.
- Police Department 81,435 sq.ft.
- Fire Department – Station #1 17,565 sq.ft.
- PD / FD Remote Storage 16,920 sq.ft.
- Total Net Program Area: 120,550 sq.ft.

| No. | Program Area | Space Need: | Notes |
|---|---|---|---|
| **1.00** | **Municipal Court** | 4,630 | |
| **2.00** | **Police Department** | | |
| 2.01 | Public Lobby / Reception | 4,130 | |
| 2.02 | Front Desk | 545 | |
| 2.03 | Command Administration | 1,350 | |
| 2.04 | Support Services | 2,815 | |
| 2.05 | Professional Standards / Training | 1,000 | |
| 2.06 | Investigations | 5,375 | |
| 2.07 | Forensics | 1,490 | |
| 2.08 | Evidence Processing | 2,845 | |
| 2.09 | Operations | 6,195 | |
| 2.10 | Training & Shared Spaces | 12,245 | |
| 2.11 | Locker Rooms | 5,390 | |
| 2.12 | Firing Range | 4,700 | |
| 2.13 | Intake & Interview | 2,275 | |
| 2.14 | Garage | 31,080 | |
| 2.15 | Police Department Total: | 81,435 | |
| **3.00** | **Fire Department Administration** | | |
| 3.01 | Garage / Vehicle Storage | 4,900 | |
| 3.02 | Storage / Garage Support | 4,155 | |
| 3.03 | Fire Department Administration | 5,005 | |
| 3.04 | Dormitory | 640 | |
| 3.05 | Shared / Public | 2,865 | |
| 3.06 | Fire Department Administration Total: | 17,565 | |
| **4.00** | **Police and Fire Remote Storage** | | |
| 4.01 | Shared Lobby | 320 | |
| 4.02 | Police Department | 6,600 | |
| 4.03 | Fire Department | 10,000 | |
| 4.04 | Police and Fire Remote Storage Total: | 16,920 | |
| **5.00** | **Total Net Program Area** | **120,550** | |

# Executive Summary | Green Bay Municipal Court

- Continue to function out of existing building
  - Existing building is adequate to support current and projected future space need
  - Limited gain of space / operational efficiency in consolidation
  - Continue ongoing operational and preventative maintenance

# Executive Summary | Police / Fire Department

- Consider consolidating PD and FD into a consolidated Public Safety Building
  - Significant space need within both departments
  - Public safety services improvement
  - Staff professional standards training / post-event debriefing
  - Total Gross Building Area: 134,685 sq.ft.
  - Total Parking Need (public + private): 328 stalls
- Construct shared annex remote storage building
  - Total Gross Building Area: 21,120 sq.ft.

| No. | Program Area | Space Need: | Notes |
|---|---|---|---|
| **1.00** | **Public Space** | 4,010 | |
| 1.01 | Public Space Total: | 4,010 | |
| **2.00** | **Police Department** | | |
| 2.01 | Front Desk | 665 | |
| 2.02 | Command Administration | 1,350 | |
| 2.03 | Support Services | 2,815 | |
| 2.04 | Professional Standards / Training | 1,000 | |
| 2.05 | Investigations | 5,375 | |
| 2.06 | Forensics | 1,490 | |
| 2.07 | Evidence Processing | 2,845 | |
| 2.08 | Operations | 6,195 | |
| 2.09 | Training & Shared Spaces | 12,245 | |
| 2.10 | Locker Rooms | 5,390 | |
| 2.11 | Firing Range | 4,700 | |
| 2.12 | Intake & Interview | 2,275 | |
| 2.13 | Garage | 31,080 | |
| 2.14 | Police Department Total: | 77,425 | |
| **3.00** | **Fire Department Administration** | | |
| 3.01 | Garage / Vehicle Storage | 4,900 | |
| 3.02 | Storage / Garage Support | 4,155 | |
| 3.03 | Fire Department Administration | 5,005 | |
| 3.04 | Dormitory | 1,390 | |
| 3.05 | Fire Department Administration Total: | 15,450 | |
| | **Total Net Program Area:** | **96,885** | |
| **4.00** | **Project Grossing Factors** | | |
| 4.01 | Circulation Grossing Factor | 14,500 | |
| 4.02 | Mechanical Grossing Factor | 11,100 | |
| 4.03 | Misc. Grossing Factor (walls, JC, data) | 12,200 | |
| 4.04 | Project Grossing Factor Total: | 37,800 | |
| | **Total Gross Project Area:** | **134,685** | |

# Executive Summary | Estimated Project Cost

- New Construction | Public Safety Building
  - New Construction $24,841,900
  - Fixed Equipment $175,700
  - Specialty Equipment $402,500
  - General Construction $2,760,700
  - Soft Costs, Contingency FFE, Inflation $8,017,600
  - Total Project Cost Estimate: $36,198,400

**Estimated Cost Range: $34,400,000 - $38,000,000**

- Assumptions:
  - Construction commencement: Spring 2018
  - Construction duration: 10-12 months
  - Conventional footings / foundations
- Not Included:
  - Site Acquisition
  - Existing improvements demolition
  - Communications / radio tower(s)
  - Moving and/or relocation fees
    - Temporary facility costs
  - Loose technology

# Executive Summary | Estimated Project Cost

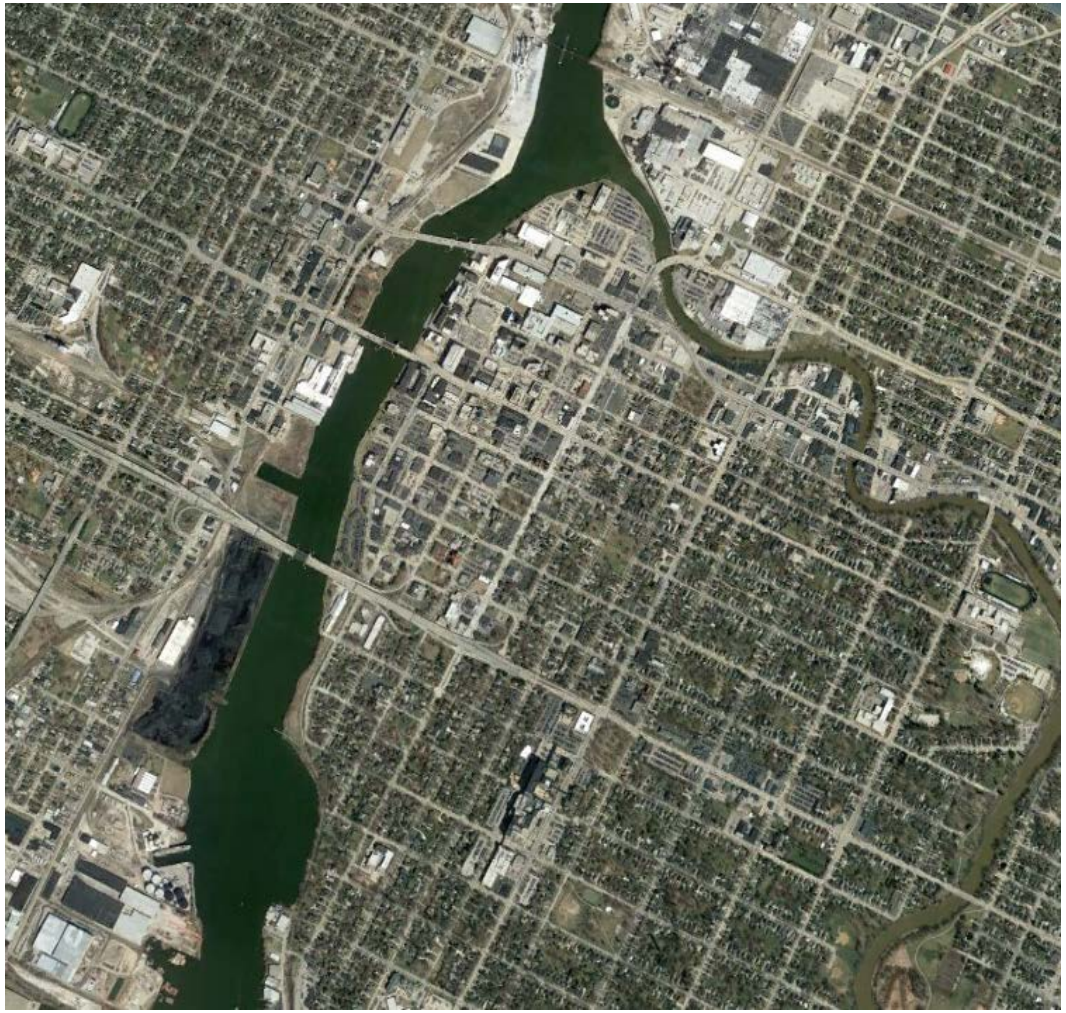
- New Construction | Public Safety Remote Storage Building
  - New Construction $3,882,000
  - Fixed Equipment $27,000
  - Specialty Equipment $125,000
  - General Construction $792,900
  - Soft Costs, Contingency FFE, Inflation $1,278,900
  - Total Project Cost Estimate: $6,105,800

**Estimated Cost Range: $5,800,000 - $6,400,000**

- Assumptions:
  - Construction commencement: Spring 2018
  - Construction duration: 7-9 months
  - Conventional footings / foundations
- Not Included:
  - Site Acquisition
  - Existing improvements demolition
  - Communications / radio tower(s)
  - Moving and/or relocation fees
    - Temporary facility costs
  - Loose technology

# Executive Summary | Site Considerations

- Improvements:
  - Structure: 2 story building with approximate 73,080 sq.ft. footprint
  - Parking: 328 public and private/secured stalls
- Acreage: Approx. 5 acres
- Public presence downtown
  - Maintaining community policing and school liaison presence
- Proximity within the community
- Response impact



# Next Steps

# Questions

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# Finance Committee Presentation
# Additional Services Summary
# 3.28.2017

City of Green Bay | Public Safety Building - Spatial Needs Assessment

# Additional Services

To conduct a search of buildings w/parcels which could be renovated, and meet the space needs assessment (within a 2 mile radius of downtown).

# Existing Property Search | Summary

- Create **criteria for viability** and identify buildings / sites within boundary meeting characteristics
- Combination of **site and building size** - large enough to accommodate identified program square footage need
- Create **building / site profile**
  - Site boundary (utilizing GIS data) and estimated acreage
  - Architectural characteristics description
  - Estimated building area and number of stories
  - Analysis of neighboring / adjacent properties related to program impact
  - Exterior building imagery / photography

# Existing Property Search | Summary

- Create **criteria for viability** and identify buildings/ sites within boundary meeting characteristics
  - Location: 2 mile radius around downtown
  - Property Size: 5 acres
  - Building Area: 135,000 sq.ft. estimated building

    (80,000 sq.ft. footprint)
  - Site Accessibility: Ingress / egress, response routes, neighboring uses, etc.

# Existing Property Search | Summary

- Create criteria for viability and identify buildings/ sites within boundary meeting characteristics

Tools:

- City assessment records
- GIS database research
- Aerial imagery analysis

Searches: 100 + properties

- 1. Commercial properties > 80,000 sq.ft.
- 2. Vacant / available properties
- 3. Manufacturing properties

# Existing Property Search | Summary

- Create criteria for viability and identify buildings/ sites within boundary meeting characteristics

Tools:

- City assessment records
- GIS database research
- Aerial imagery analysis

Searches: 100 + properties

- 1. Commercial properties > 80,000 sq.ft.
- 2. Vacant / available properties
- 3. Manufacturing properties

| AboveGradeSF | A - Location | AA - Owner Mail 1 | AA - Owner Mail 4 | W- Location N |
|---|---|---|---|---|
| 714,191 | 2845 GREENBRIER RD | AURORA HEALTH CARE INC | MILWAUKEE WI 53234-3910 | 2845 |
| 219,981 | 2851 UNIVERSITY AV | GREEN BAY WI VA 2011 LLC | FOND DU LAC WI 54935 | 2851 |
| 211,201 | 2440 W MASON ST | ONEIDA TRIBE OF INDIANS | ONEIDA WI 54155-0365 | 2440 |
| 205,726 | 400 N WASHINGTON ST | SCHREIBER FOODS INC | GREEN BAY WI 54307-9010 | 400 |
| 203,726 | 333-335 MAIN ST | HYATT EQUITIES LLC | CHICAGO IL 60690-1450 | 333-335 |
| 188,390 | 2929 ST ANTHONY DR | MORAINE RIDGE REAL ESTATE LLC | SKOKIE IL 60076 | 2929 |
| 172,080 | 1500 DONALD ST | RGL REAL ESTATE INC | GREEN BAY WI 54304-3534 | 1500 |
| 166,294 | 304 N ADAMS ST | HOTEL NORTHLAND LLC | MILWAUKEE WI 53204 | 304 |
| 162,731 | 2350 E MASON ST | LSREF2 OREO 2 LLC | DALLAS TX 75204 | 2350 |
| 150,586 | 865 LOMBARDI AV | BAYS TUNDRA HOSPITALITY CORP | GREEN BAY WI 54304-3732 | 865 |
| 150,292 | 1505 W MASON ST | JPMCC 2006 CIBC14 1481 1535 WEST MASON ST LLC | IRVING TX 75039 | 1505 |
| 144,372 | 111 W WALNUT ST | GREEN BAY ACQUISITION CO | MENOMINEE MI 49858-0395 | 111 |
| 142,642 | 115 E WALNUT ST | GB METREAU LLC | MILWAUKEE WI 53202 | 115 |
| 125,979 | 817 MC DONALD ST | KENDALL BUILDING LLC | MENOMINEE MI 49858-0395 | 817 |
| 119,864 | 2970 MOSSY OAK CI | WE PHEASANT RUN LLC | MILWAUKEE WI 53211 | 2970 |
| 119,640 | 800 BLOCK S TAYLOR ST | ONEIDA TRIBE OF INDIANS | ONEIDA WI 54155-0365 | 800 BLOCK |
| 116,254 | 1710-1750 MORROW ST | PURPLE ROSE GB LP | CANADA 00000 | 1710-1750 |
| 115,858 | 433 MAIN ST | ASSOCIATED BANK LEASING REAL EST MS 8227 | GREEN BAY WI 54301-5114 | 433 |
| 113,804 | 1300 BLOCK THRUSH ST | RGL REAL ESTATE INC | GREEN BAY WI 54304-3534 | 1300 BLOCK |
| 110,354 | 520 N BROADWAY | REDEVELOPMENT AUTHORITY OF CITY OF GREEN BAY | GREEN BAY WI 54301 | 520 |
| 110,093 | 808 PACKERLAND DR | PACKERLAND COLD STORAGE LLC | GREEN BAY WI 54303 | 808 |
| 107,188 | 216 S MILITARY AV | SHOPKO STORES INC | GREEN BAY WI 54307-9060 | 216 |
| 105,579 | 2430 E MASON ST | SPIRIT SPE PORTFOLIO 2006-1 LLC | GREEN BAY WI 54304-5263 | 2430 |
| 105,322 | 1160 KEPLER DR | BAYCARE AURORA LLC | MILWAUKEE WI 53234-3910 | 1160 |
| 104,865 | 1555 W MASON ST | GREEN BAY MASON CO | SIMI VALLEY CA 93065-5364 | 1555 |
| 103,496 | 2060 VAN DEUREN ST | MEADOWS NORTH | ENCINO CA 91436-2832 | 2060 |
| 103,000 | 1609 WESTERN AV | H J MARTIN & SON | GREEN BAY WI 54307-1387 | 1609 |
| 100,160 | 2455 CENTURY RD | AMERHART ASSOC | GREEN BAY WI 54303-4801 | 2455 |
| 99,889 | 409-433 S WEBSTER AV | WP HART PROPERTIES LLC | COLUMBUS WI 53925 | 409-433 |
| 99,690 | 401 N WASHINGTON ST | CITYDECK LANDING LLC T WALL ENTERPRISES MNG | MIDDLETON WI 53562 | 401 |
| 95,379 | 321 S WASHINGTON ST | DOWNTOWNER MOTEL INC | GREEN BAY WI 54301-4214 | 321 |

# Existing Property Search | Summary

- Property Profile Analysis
  - WPS Properties
  - West Mason Street Properties
  - 810 Victoria Street
  - 817 McDonald Street (Kendall Building LLC)
  - 704 – 710 Lombardi Ave
  - 419 S. Maple Ave / 420 S. Broadway
  - 130 9th Street
  - 1100 Columbia Avenue

1. Wisconsin Public Service (WPS)
2. West Mason Street
3. 810 Victoria Street
4. 817 McDonald Street (Kendall Building LLC)
5. 704 - 710 Lombardi Avenue
6. 419 South Maple Avenue / 420 South Broadway
7. 130 9th Street
8. 1100 Columbia Avenue

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## Green Bay Site Locations

SCALE: Not to Scale

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Green Bay, WI
March 28, 2017

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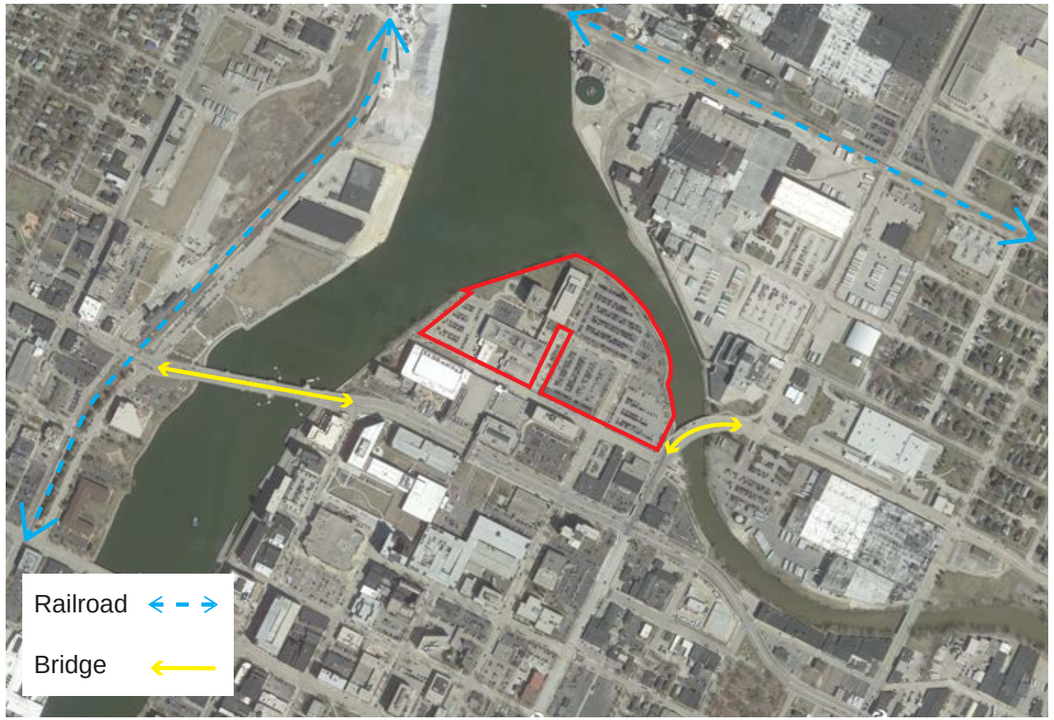

Acreage: 19.293

Existing Building: 35,000 sq. ft. (3-story)
12,451 sq. ft.
(4-story)

Architectural Characteristics: Brick Building, 3 & 4 stories, Commercial

Pros: Location - within 2 mile radius
Site Accessibility - multiple connections to street
Property Size - over 5 acres
Existing Building - over footprint needed

Cons: N/A

Recommendation: Recommended. Multiple possibilities for renovation of existing building and new construction. Significant amount of existing property for program. Site accessibility includes waterfront access, multiple street access, and close proximity to bridges.

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## Wisconsin Public Service (WPS)

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| | | | |
|---|---|---|---|
| Acreage: | 8.563 | Pros: | Location - within 2 mile radius<br>Site Accessibility - multiple connections to street<br>Property Size - over 5 acres<br>Existing Building - correct size for footprint needed |
| Existing Building: | 87,000 sq. ft.<br>(manufacturing building) | | |
| Architectural Characteristics: | Brick Building,<br>Manufacturing,<br>1 - story | Cons: | N/A |

Recommendation: Recommended. Existing building type (brick) provides a public presence on W. Mason St. Adequate vehicular site access with multiple entries into existing building and streets. Existing property is significant in acreage for program.

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## West Mason Street Properties

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| | |
|---|---|
| Acreage: | 7.755 |
| Existing Building: | 9,800 sq. ft. |
| Architectural Characteristics: | Wood and Stone Building, 1 - story, Radio Station |

Pros: Location - within 2 mile radius
Property Size - over 5 acres
Site Accessibility - multiple connections to street

Cons: Existing Building - undersized for needed footprint

Recommendation: Consider further analysis, due to existing property size and community access. Public presence would be significantly ehanced with frontage on E. Mason St., consider northern adjacent property acquisition. Existing building lacks adequate size and construction type provides limited expandability. Consider relocation of existing radio tower.

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## 810 Victoria Street

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# Green Bay, WI

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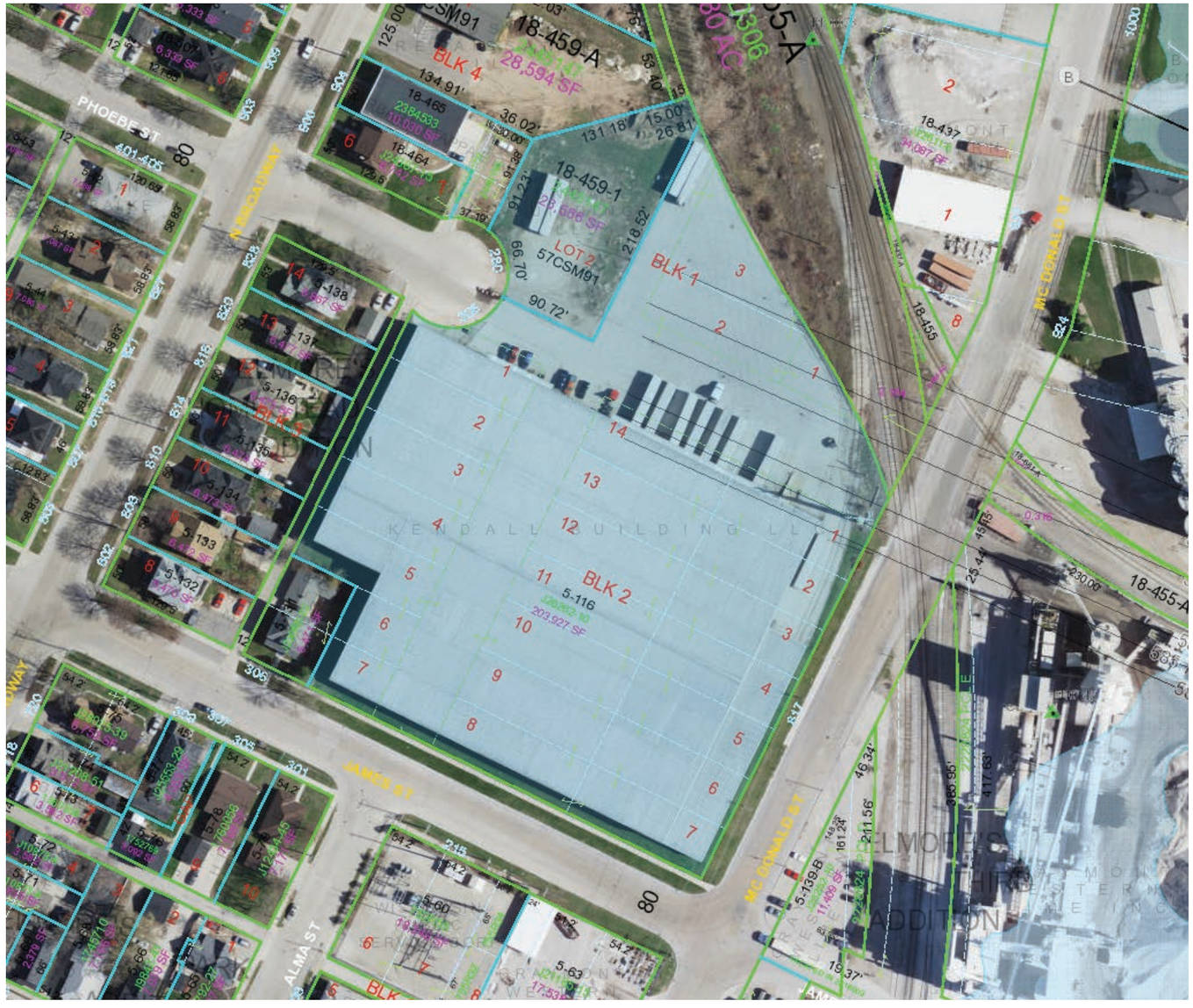

Acreage: 5.224

Existing Building: 133,300 sq. ft.

Architectural Chararcteristics: 1 - story,
Metal Building,
Flat Roof

Pros: Location - within 2 mile radius
Property Size - over 5 acres
Existing Building Size - correct size for program area
Site Accessibility - multiple connections to street

Cons: Site Accessibility - adjacent to railroad tracks and large chemical storage facilities

Recommendation: Consider further analysis, due to existing property size and significant existing footprint. Site lacks public presence, consider purchase of adjacent western properties. Existing building lacks civic architectural characteristics, consider modifications to enhance. Existing building type (metal warehouse) may function for vehicle storage, but would require significant envelope and systems renovations.

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## 817 McDonald Street (Kendall Building LLC)

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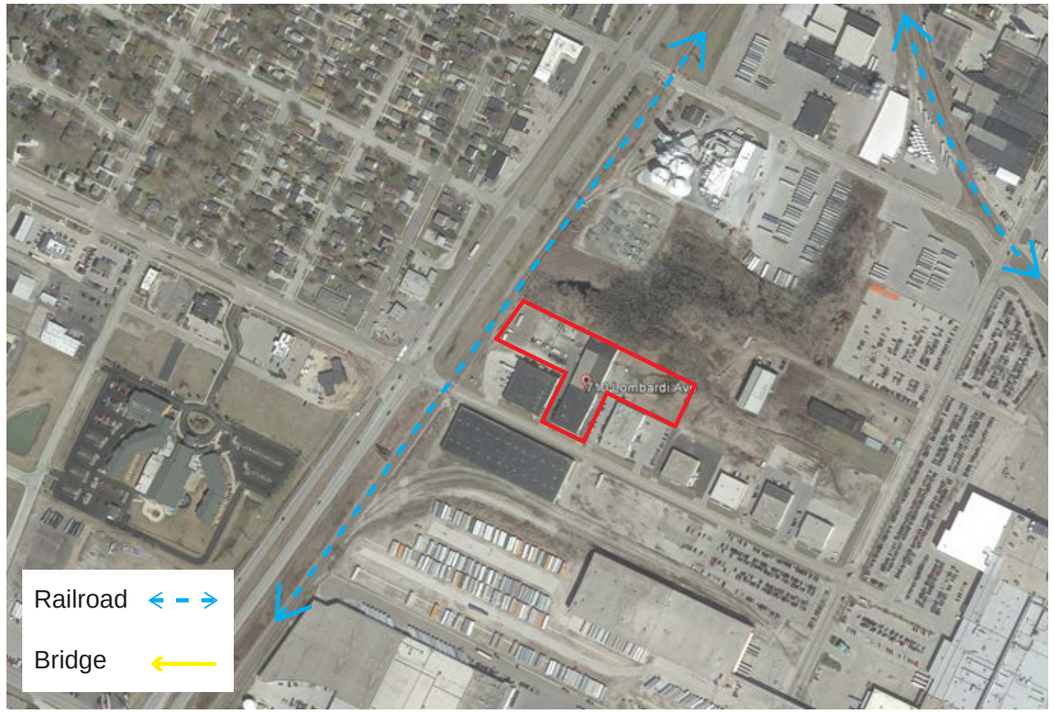

| | |
|---|---|
| Acreage: | 3.408 |
| Existing Building: | 36,000 sq. ft. |
| Architectural Characteristics: | Concrete Building, Flat Roof, 1 - story, Business |

Pros: Location - within 2 mile radius
Existing Building Size - garage footprint correct size

Cons: Property Size - under 5 acres, awkward shape (consider adjacent property acquisition)
Site Accessibility - one entry from street, adjacent to railroad tracks

Recommendation: Not Recommended. Undersized, mis-proportioned existing property will require additional acquisition to accommodate targeted need. A significant new construction addition would be required to accommodate recommended program area. Vehicular site access is limited due to existing street grid, river, and railroad track.

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## 704 - 710 Lombardi Avenue

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| | |
|---|---|
| Acreage: | 4.42 |
| Existing Building: | 50,100 sq. ft. |
| Architectural Characteristics: | Brick Front Office, Metal Building, Manufacturing, 1 - story |

Pros: Location - within 2 mile radius
Site Accessibility - multiple connections to street

Cons: Property Size - under 5 acres (consider adjacent property acquisition)
Site Accessibility - proximity to railroad tracks
Existing Building Size - consider addition / renovation

Recommendation: Not Recommended. Undersized, mis-proportioned existing property will require additional acquisition to accommodate targeted need. A significant new construction addition would be required to accommodate recommended program area. Vehicular site access is limited due to existing street grid, river, and railroad track. Consideration of impact on future master planned neighborhood development.

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## 419 S Maple Avenue / 420 S Broadway

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| | |
|---|---|
| Acreage: | 2.694 |
| Existing Building: | 28,600 sq. ft. |
| Architectural Characteristic: | Concrete Building,<br>Metal Pitched Roof,<br>1 story - Manufacturing |

Pro: Location - within 2 mile radius
Site Accessibility - riverfront access and access to State St

Cons: Property Size - under 5 acres (consider adjacent property acquisition)
Existing Building Size - consider addition / renovation

Recommendation: Not Recommended. Undersized, mis-proportioned existing property will require additional acquisition to accommodate targeted need. A significant new construction addition would be required to accommodate recommended program area. Vehicular site access is limited due to existing street grid, river, and railroad track.

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## 130 9th Street

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| | |
|---|---|
| Acreage: | 3.795 |
| Existing Building: | 5,500 sq. ft. |
| Architectural Characteristics: | Metal Building, Pitched Roof, 1 story, Office / Garage |

Pros: Location - within 2 mile radius
Site Accessibiltiy - multiple connections to streets

Cons: Property Size - under 5 acres (consider adjacent property acquisition)
Existing Building Size - consider addition / renovation (storage units currently on site)
Site Accessibiltiy - proximity to railroad tracks

Recommendation: Not Recommended. Undersized existing property will require additional acquisition in addition to significant building new construction to accommodate recommended program area.

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## 1100 Columbia Avenue

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# Additional Services Summary
# 3.28.2017

City of Green Bay | Public Safety Building - Spatial Needs Assessment