



CITY OF
PITTSBURGH
PROPERTY CONDITION REPORT



B405 – Police Zone 3
830 East Warrington Avenue
Pittsburgh, Pennsylvania 15210

June 2014



Massaro
www.massarocms.com

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1 Executive Summary

1.1 General Description

The City of Pittsburgh contracted with MCMS to provide a Property Condition Assessment (PCA) in order to prepare a Property Condition Report (PCR) of the subject property, located in the Allentown neighborhood at 830 East Warrington Ave., Pittsburgh, PA. A walk-through survey of the subject property was conducted on August 15, 2013.

The subject property consists of a 4-story police station with basement; containing an apparatus room, central equipment and supply storage, break room, lockers and administrative offices. The property is on a 0.05 AC municipal corner lot.

1.2 General Physical Condition - Good

The general physical condition of properties is typically categorized as:

- **New** – Constructed within the last year.
- **Good** – Well constructed and maintained, without significant deficiencies.
- **Fair** – Apparent deferred maintenance issues and deficiencies that can be remedied at reasonable cost.
- **Poor** – Inadequately constructed and/or maintained, with substantial deficiencies that require significant cost and scope of work to remedy. Some items may require additional detailed analysis and testing to fully define the deficiency.
- **Derelict** – State of deficiencies and failure to maintain renders the property unfit for use and may pose direct hazard to occupants and/or the general public. For these properties, either major rehabilitation or demolition and replacement will be required.

Generally, the property appears to have been constructed within typical industry standards for the building type and period of construction. However, based on the findings of this PCA, the subject property is considered to be in **GOOD** overall condition. The major deficiencies and deferred maintenance issues are as follows:

- Limited masonry restoration is needed.
- HVAC equipment lacks provisions for combustion air and fresh air.

1.3 Recommendations – Table 1

See various sections of this Report for details. For the Summary of Recommendations see Table 1, Attached.

Immediate and Short Term Repairs - Table 1
Opinion of Probable Costs
Building #B405 - Police Zone 3. ALLENTOWN
MCMS Project No. 13-707.15

Section	Item	Quantity	Unit	Unit Cost	Cycle Replacement	Replacement %	Immediate Total	Short-Term Total
3.1	SITE							
3.2	SUBSTRUCTURE							
a	Foundation walls - Seal open mortar joints	1	EA	\$2,500				\$2,500
3.3	SHELL							
a	Masonry restoration - Minor Work no Brick.Paint	1	EA	\$50,000				\$50,000
b	Replace missing downspout	1	EA	\$400				\$400
3.4	INTERIORS							
3.5	SERVICES							
	Plumbing							
	HVAC							
a	Combustion air and fresh air for GFAHU's	1	EA	\$9,000			\$9,000	
	Fire Protection							
	Electrical							
3.6	EQUIPMENT AND FURNISHINGS							
3.7	SPECIAL CONSTRUCTION							
TOTALS							\$9,000	\$52,900

2 Team, Purpose and Scope

2.1 PCA Team

Team Lead, Site, Architectural, Accessibility, Drawings:

Massaro CM Services, LLC

120 Delta Drive
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(412) 963-2800
Alyssa Kuhns
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Structural:

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Craig Bollinger, PE

Enclosure (Roof and Exterior Walls):

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Mechanical, Electrical, Plumbing, Fire Protection, Energy Audit:

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2.2 PCA Purpose & Scope

Massaro Construction Management Services (MCMS) is providing Property Condition Assessment (PCA) services in general accordance with the ASTM E2018-08 *Standard Guide for Property Condition Assessments; Baseline Property Condition Assessment*. This standard is widely recognized in the real estate industry as a benchmark tool for evaluating the condition of real property. The City of Pittsburgh is undertaking a multi-year effort to complete PCA's with the following goals:

- Gain greater insight into the current scope and condition of their real property assets.
- Quantify physical deficiencies and immediate repair needs along with short and medium term capital reserve needs for preservation of those assets.
- Identify opportunities to implement Energy Efficiency Measures (ECM) to reduce energy use and hence, energy and/or demand costs.

The general scope of work in a typical PCA includes the following tasks:

- Document Review and Interviews
- Walk-Through Survey
- Opinion of Probable Costs
- Property Condition Report

2.3 Document Review and Interviews

Documents provided by the Owner include: Architectural drawings indicating comprehensive alterations dated 2008, and 2012. It is unclear when the building was originally constructed. Although formal interviews were not performed the Point of Contact (POC) Mr. Henry Cafardi, Facilities Maintenance Supervisor, was available to answer questions.

2.4 Walk-Through Survey

The scope of the walk-through survey was limited to representative visual observations of site and property improvements and should NOT be considered all-inclusive. It is conducted without protective clothing, exploratory probing, removal or relocation of materials, testing, or the use of equipment, such as ladders (except as required for roof access), stools, scaffolding, metering/testing equipment, or devices of any kind. Out-of-scope issues include but are not limited to:

- Operating, measurement and/or testing of any building systems.
- Assessment of any process-related equipment or systems.
- Assessing components of systems that are not readily observable.
- Entering limited access or confined spaces.
- Accessing pitched roof areas or any roof area that appears unsafe.
- Determining applicability of Life Safety/Fire Protection code requirements.

2.5 Opinion of Probable Costs

Replacement, repairs, and routine maintenance of various building components and systems are discussed in various sections of this report and opinions of their probable costs are summarized for the evaluation period in the attached tables. Per ASTM E2018-08; costs indicated should be considered preliminary, order of magnitude budgets. Actual costs most probably will vary from those contained within depending on such matters as type and design of suggested remedy, quality of materials and installation, manufacturer and type of equipment or system selected, field conditions, whether a physical deficiency is repaired in part or replaced in whole, phasing of the work (if applicable), quality of contractor, quality of project management exercised, market conditions, and whether competitive pricing is solicited, etc. Certain opinions of probable costs can not be developed within the scope of this assessment without further study. Where applicable, the opinion of the probable costs for further study will be included.

- **Immediate Costs** are to remedy those deficiencies that require immediate action as the result of any of the following:
 - material existing or potential unsafe condition
 - material building or fire code violations
 - conditions that if left uncorrected have the potential to result in or contribute to critical element or system failure within one year or will result most probably in a significant escalation of its remedial cost.
- **Short-Term Costs** are to remedy physical deficiencies, such as deferred maintenance, that may not warrant immediate attention, but require repairs or replacements that should be undertaken on a priority basis in addition to routine preventative maintenance. Unless noted otherwise, generally the time frame for such repairs is 1-2 years. Such opinions of probable costs may include costs for testing, exploratory probing, and further analysis; or these services may be evaluated separately.

2.6 Property Condition Report (PCR)

The Property Condition Report documents the findings of the PCA. This report is for the use of this Client only, for the stated purpose above. Specific language in the descriptions of the various PCA processes, intent, scopes of work, and/or definitions throughout Section 1-2 of this PCR are excerpted directly in whole or in part from the ASTM E2018-08 Standard (herein the 'Standard') document without specific attribution. All rights remain with the ASTM. In the event of any discrepancy between statements in this Report and the Standard, the scope and intent in the respective sections of the Standard shall govern. A complete copy of the Standard may be made available upon request.

2.7 Additional Scope Considerations

For this assessment, in addition to the baseline PCA tasks, further considerations are taken into account and additional deliverables are included as follows:

- **Schematic Floor Plans** – Produced using Autodesk Revit™ Building Information Modeling (BIM) software, and including limited field check of representative dimensions and documentation of changes to layout. These drawings and associated floor area information provide a helpful quick reference tool for General Services and Architectural Division staff. They are schematic in nature and should NOT be considered complete documentation of as-built conditions. City develop a BIM Standard and/or Computer Aided Facilities Management (CAFM) program in the future, this initial modeling effort can be further enriched and aligned with those initiatives.
- **Energy Audit** – Level 1, Walk-Through Analysis, per the *Procedures for Commercial Building Energy Audits, 2nd Ed.* Published by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE). This Audit provides an overview of building systems and their functional operation, benchmarks the Energy Use Index (EUI) of the subject property against comparables, identifies low/no-cost changes to current Operations and Maintenance (O&M) process to provide savings, and identifies potential capital improvements for further study.

3 Element Descriptions and Observations

3.1 Site

The building is located on a one-half of one-tenth acre (0.05AC) infill parcel. The site is generally level and the building occupies the entire site area. Overall the Site is in Good condition.

1. Topography and Drainage – The adjacent walks appear to be positively pitched to drain away from the building.
2. Access and Egress – No vehicle access is available to the site. Egress from the building is available at grade through two exits.
3. Paving, Curbing and Parking – N/A
4. Landscaping and Appurtenances – N/A
5. Site Amenities / Accessory Structures- N/A

3.1 Site: Photos



ST1 – Looking north along Arlington Ave., Zone 3 is just to the right of center



ST2 – View south across East Warrington Ave., Zone 3 is in the two taller buildings at left

3.2 Substructure

This visual inspection included the observation of the substructure including foundation and basement construction. Overall the Substructure is in Good condition.

1. Foundation - Constructed of Stone Masonry- No Settlement Issues, but there are voids in the masonry
2. Slab on grade: The basement floor slab has areas of cracking and minor failures but is in Fair condition overall.

Recommendation: Seal open mortar joints – \$1,500

3.2 Substructure: Photos



SS1 – Foundation wall – open mortar joints,
no evidence of water infiltration



SS2 – Typical basement slab – Fair condition

3.3 Shell

1. Overall the Shell is in Fair condition.
2. Building Frame
 - 2.1. Timber-framed floors are uneven randomly
 - 2.2. Timber framing in basement has negative camber of center beam over timber posts, floor joists have been cut randomly for utilities
 - 2.3. Visible timber floor joist and rafters are in good condition
 - 2.4. First floor concrete slab- corrugated form work in the south east of building- generally good, except random bays have light spalling with exposed rebar and full length longitudinal cracks
3. Building Façade
 - 3.1. Construction: Brick Masonry- A few open joints in brick mortar joints, generally good condition The walls on the north and east sides are coated with a Thorocoat acrylic masonry coating. The remaining walls are unfinished. A slate covered mansard is constructed on the fourth floor of the North and East sides and contains three dormers with painted wood trim. A painted wood cornice is constructed below the mansards. Wall penetrations include: 5 metal man doors with metal frames (1 is the storefront entry), 19 windows with metal frames, 4 windows that have been infilled with etched aluminum spandrel panels.
 - 3.2. An addition was added to the south with concrete masonry units - good condition
 - 3.3. Chimney – Brick Masonry- has a few open joints in mortar joints
 - 3.4. The paint is peeling on the fourth floor dormers and cornice.
4. Roof Deck

The four story, rectangular building inspected contains approximately 3,184 square feet of roof area. The building contains four delineated roof areas: Tower – 560 SF, Main – 2,004 SF, Lower Main – 200 SF, 2nd Floor – 420 SF.

 - 4.1. Construction: The roof deck is constructed with wood sheathing and wood joists. There is apparent slope to the drains.
 - 4.2. Condition: No conditions were observed that would indicate deck problems.
5. Roof Insulation
 - 5.1. Construction: No core cuts were taken.
 - 5.2. Condition: The insulation is assumed to be in fair condition.
6. Roof System
 - 6.1. Construction: The roof system on the Main, Lower Main and 2nd Floor are constructed with a single ply white TPO membrane. The roof system on the Tower and mansard is constructed with slate.
 - 6.2. Condition: The TPO roof membranes appeared in good condition. The slate roof system is in poor to fair condition. Some slates have fallen off the mansard. Numerous repairs have been done on the Tower roof. Some repairs to the Tower roof included the use of asbestos synthetic slate.
7. Flashings
 - 7.1. Construction: The perimeter and penetration flashings on the TPO areas are constructed with the same membrane as used on the roof. The flashing at the base of the tower is constructed with a painted metal flat sheet.
 - 7.2. Condition: The membrane flashing systems are in good condition. The metal flashing on the Tower is in poor condition and rusted.

8. Perimeter Terminations

- 8.1. Construction: The building walls end at the roof line on the TPO areas and are terminated with drip edge and metal bar. The interior wall and curb penetration flashings are terminated with metal bar.
- 8.2. Condition: The roof terminations are in good condition.

9. Roof Top Penetrations

- 9.1. Police Zone 3: 2 HVAC units, 2 exhaust fans, 1 gravity vent, 1 roof hatch, 4 vent pipes, 1 pipe, 2 pitch pockets, 4 roof system vents and 3 surface mounted condensers.
- 9.2. Condition: The penetrations are in fair condition. Leaks reported in the fourth floor are in direct relation to the HVAC units and the exhaust fans.

10. Drainage System

- 10.1. Construction: The East side mansard drains to a box gutter with two drops to downspouts to standpipes on the ground. The Tower roof drains to a hanging gutter system with drops and downspouts draining onto the main roof. The south end of the main roof slopes to the east side to two scuppers and downspouts that drain into the mansard gutter. The north end of the Main roof slopes to two interior roof drains on the north edge. The Lower Main roof slopes to a gutter system and downspouts that drain onto the 2nd floor roof. The 2nd Floor roof slopes to one interior roof drain.
- 10.2. Condition: The drains appear to be operating properly. The gutter systems are in fair condition. The two downspouts on the Tower roof are missing. There is some minor ponding on the SE corner of the main roof and on the 2nd Floor roof.

- 11. Access: A roof hatch provides access to the Main, Lower Main and Tower areas. A man door provides access to the 2nd Floor roof area.

CONCLUSIONS

A few leaks are reported on the fourth floor and in the stairwell. The leaks appear to be coming from the HVAC units, the Exhaust fans and masonry cracks. These leaks are active, have not been repaired and do not appear to be roof system related.

The building walls are in fair condition. A few defects were observed. A few cracked bricks were observed. The paint is peeling on the wood cornice, wood trim at the mansard and the wood dormer trim.

The roof decking appears to be in fair condition. We did not observe any signs that would suggest a serious problem with the decking systems at this time.

The single ply TPO roof membrane and flashing systems are in good condition. The slate roof systems are in fair to poor condition. Numerous repairs have been made on the Tower and some slates are missing on the Mansard.

The perimeter terminations are in good condition. The roof top units and penetrations are in fair condition. Leaks reported in the fourth floor are in direct relation to the HVAC units and the exhaust fans.

The drainage system is in fair condition. Two downspouts are missing on the Tower roof gutter.

With proper Maintenance and corrective repairs, it is our opinion that the roofing system is in a maintainable condition for the next ten years.

Estimates:

1 year: Re-point brick walls as needed (this work will have to bid out). Paint all wood on fourth floor at cornice and mansard (this work will have to bid out). Replace missing downspouts – Estimated cost: \$200. Inspect roofs and walls yearly and remove debris – Estimated cost: None (perform with in-house personnel) Inspect and repair the HVAC units and Exhaust fans for leak causes.

5 year: Maintain a pro-active maintenance program. Inspect the roof system and walls on a regular schedule – minimum twice a year (late spring and late fall). Estimated cost: none (perform in-house)

10 year: Maintain a pro-active maintenance program. Inspect the roof system and walls on a regular schedule – minimum twice a year (late spring and late fall). Estimated cost: none (perform in-house)

3.3 – Shell: Photos



SH1 – East façade detail, north end



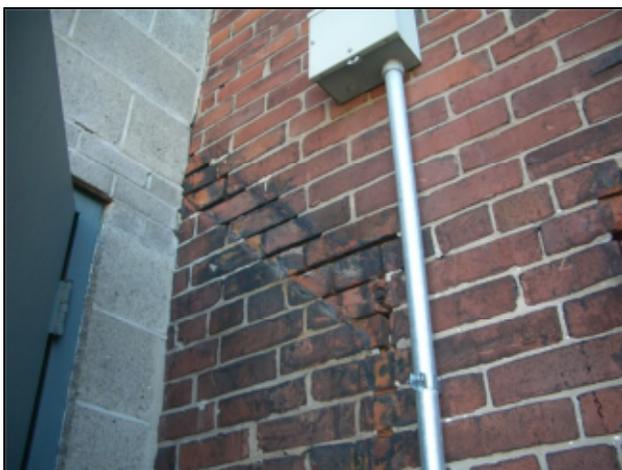
SH2 – North façade : etched aluminum window spandrel panels at grade



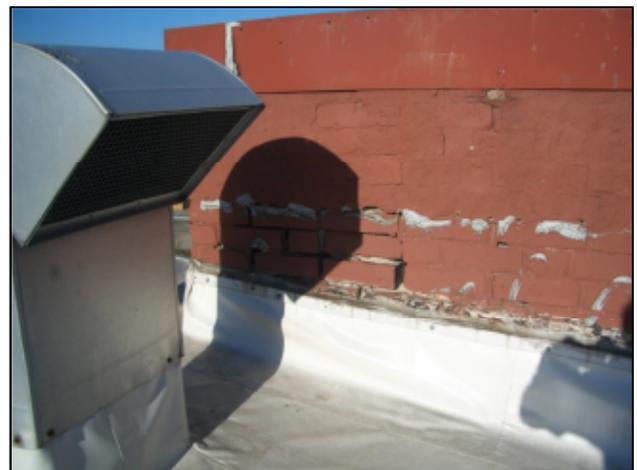
SH3 – North façade: acrylic masonry coating



SH4 – East façade

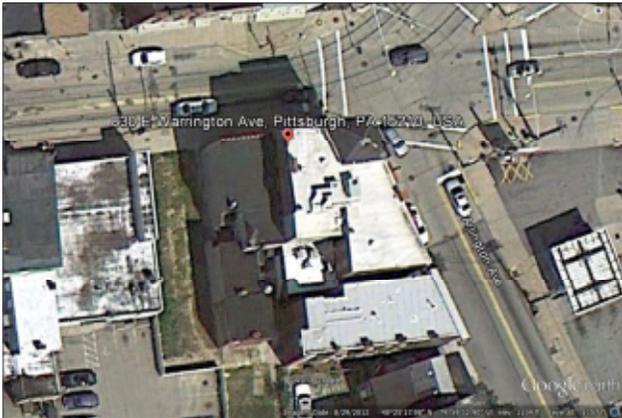


SH5 – Open joints – roof access door is at left



SH6 – Open joints at chimney in NW corner of main roof

3.3 – Shell: Photos Continued



SH7 – View from above, north is approx.. at top



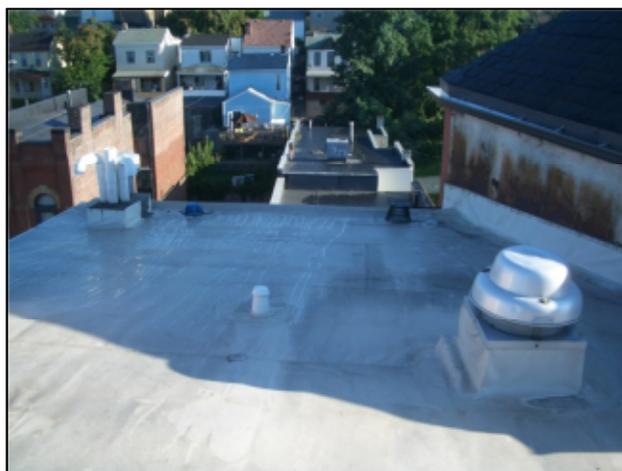
SH8 – Main roof , south wall, exhaust fan is above apparent leak at conference room



SH9 – West side of main roof, lower main roof at left



SH10 – Repairs to tower roof slates, synthetic slates



SH11 – NW corner of main roof, rusted wall panels on tower wall at right



SH12 – East wall of main roof, looking south, ponding water

3.4 Interiors

1. Interior Construction
 - 1.1. Interior partitions are primarily wood or metal framed with drywall finish and are in Good condition.
 - 1.2. Doors and frames are typically hollow metal construction with commercial grade hardware and are in Good condition.
2. Stairs - The interior stairs are in Good condition.
3. Interior Finishes – Typical flooring throughout the building is resilient tile / plank or carpet in Good condition. Bathroom flooring is ceramic tile. Ceilings are typically ACT throughout and are in Good condition.

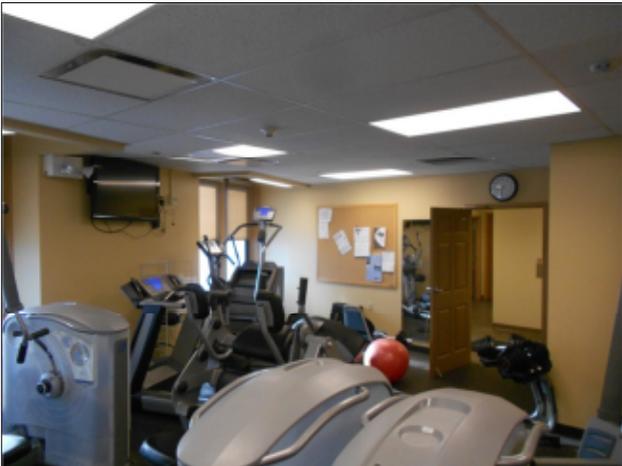
3.4 Interiors: Photos



11 – Entrance Lobby / former bank vault



12 – Work / break area



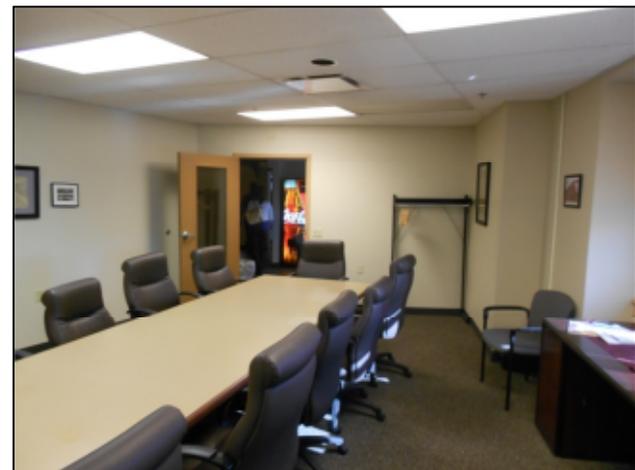
13 – Fitness Room



14 – Typ. Corridor, elevator



15 – Typical Locker Room



16 – Conference Room

Building Mechanical Systems: HVAC 4.5.1

1. HVAC System – General Description: Primary space conditioning and HVAC for Police station is supplied by zoned units and systems. It is comprised of packaged and split-system zone level equipment, distribution systems, and room level terminal units. Ventilation is provided through exhaust fans and natural infiltration. There are no outside air / fresh air connections to the HVAC units that service the first and second floors. **This is a potential code violation.**
 - 1.1. Basement HVAC: The basement space conditioning system is comprised of packaged dehumidifiers, one (1) centrifugal fan with flex-duct connections, and an electric duct heater. This fan discharges at the floor level into the basement space; inlet air for the fan is from a remote point, full access not possible at time of audit. The split system furnaces (GFAHU's) which serve floors 1 and 2 are located in the basement. There is no dedicated combustion air system for the GFAHU's. **This is a potential code violation.**
 - 1.1.1. Construction - Dehumidifiers: Commercial packaged refrigerant type, 101 pint/Hr. capacity. Integral controls, 2-speed fan, and drain pipe.
 - 1.1.2. Condition – Dehumidifiers: **Good**

1.1.2.1. Physical Deficiencies:	None reported or observed
1.1.2.2. Functional Deficiencies:	None reported or observed
1.1.2.3. Performance Deficiencies:	None reported or observed
1.1.2.4. Maintenance observations:	None reported or observed
1.1.2.5. Remaining useful life observations (RUL):	2-3 years
 - 1.1.3. Construction – Electric Unit heater: Commercial packaged Integral fan and controls.
 - 1.1.4. Condition – Electric Unit heater: **Fair**

1.1.4.1. Physical Deficiencies:	None reported or observed
1.1.4.2. Functional Deficiencies:	None reported or observed
1.1.4.3. Performance Deficiencies:	None reported or observed
1.1.4.4. Maintenance observations:	None reported or observed
1.1.4.5. Remaining useful life observations (RUL):	3-5 years
 - 1.1.5. Construction – Centrifugal Fan: Commercial package down discharge.
 - 1.1.6. Condition – Centrifugal Fan: **Poor**

1.1.6.1. Physical Deficiencies:	None reported or observed
1.1.6.2. Functional Deficiencies:	None reported or observed
1.1.6.3. Performance Concern:	Transfer air to basement
1.1.6.4. Maintenance observations:	None reported or observed
1.1.6.5. Remaining useful life observations (RUL):	5-10 years
 - 1.2. 1st Floor HVAC: The space conditioning system for the first floor is comprised of Two (2) Trane furnaces (GFAHU's); Two (2) split system Air Cooled Condensing Units (ACCU); insulated (external), galvanized, low pressure ductwork, room supply diffusers, room return grills, exhaust fan inlet grills, and a thermostat. The AHU's are located in the basement and the ACCU's are located on the low roof.
 - 1.2.1. Construction: Room terminal units – Commercial ceiling mounted multidirectional diffusers and grills. Existing and 2008 renovation.
 - 1.2.2. Condition: Room terminal units - **Fair**

1.2.2.1. Physical Deficiencies:	None reported or observed
1.2.2.2. Functional Deficiencies:	None reported or observed
1.2.2.3. Performance Deficiencies:	None reported or observed
1.2.2.4. Maintenance observations:	None reported or observed
1.2.2.5. Remaining useful life observations (RUL):	5-10 years

1.2.3. Construction: HVAC distribution system – Externally insulated galvanized. New 2008 renovation.

1.2.4. Condition: HVAC distribution system - **Fair**

1.2.4.1. Physical Deficiencies:	None reported or observed
1.2.4.2. Functional Deficiencies:	None reported or observed
1.2.4.3. Performance Deficiencies:	None reported or observed
1.2.4.4. Maintenance observations:	None reported or observed
1.2.4.5. Remaining useful life observations (RUL):	5-10 years

1.2.5. Construction: HVAC Controls – Programmable Thermostat, pre-existing 2008 renovation.

1.2.6. Condition: HVAC Controls - **Fair**

1.2.7. RUL: HVAC Controls 3-5 years

1.2.8. Construction – HVAC Unit (F1): Commercial packaged furnaces (GFAHU) and Split system ACCU.

1.2.9. Condition – HVAC Unit (F1): **Derelict**

1.2.9.1. Physical Deficiency:	No fresh air connection
1.2.9.2. Physical Deficiency:	No dedicated combination air source
1.2.9.3. Functional Deficiencies:	None reported or observed
1.2.9.4. Performance Deficiencies:	Minimum fresh air CFM
1.2.9.5. Maintenance observations:	None reported or observed
1.2.9.6. Remaining useful life observations (RUL):	3-5 years

1.2.10. Construction – HVAC Unit (F3): Commercial packaged furnaces (GFAHU) and Split system ACCU.

1.2.11. Condition – HVAC Unit (F3): **Derelict**

1.2.11.1. Physical Deficiency:	No fresh air connection
1.2.11.2. Physical Deficiency:	No dedicated combination air source
1.2.11.3. Functional Deficiencies:	None reported or observed
1.2.11.4. Performance Deficiencies:	Minimum fresh air CFM
1.2.11.5. Maintenance observations:	None reported or observed
1.2.11.6. Remaining useful life observations (RUL):	3-5 years

1.3. 2nd Floor HVAC: The space conditioning system for the first floor is comprised of One (1) Trane furnace (GFAHU); One (1) split system Air Cooled Condensing Unit (ACCU); insulated (external), galvanized, low pressure ductwork, room supply diffusers, room return grills, exhaust fan inlet grills, and a thermostat. The AHU is located in the basement and the ACCU is located on the low roof.

1.3.1. Construction: Room terminal units – Commercial ceiling mounted multidirectional diffusers and grills. Existing and 2008 renovation.

1.3.2. Condition: Room terminal units - **Fair**

1.3.2.1. Physical Deficiencies:	None reported or observed
1.3.2.2. Functional Deficiencies:	None reported or observed
1.3.2.3. Performance Deficiencies:	None reported or observed
1.3.2.4. Maintenance observations:	None reported or observed
1.3.2.5. Remaining useful life observations (RUL):	5-10 years

1.3.3. Construction: HVAC distribution system – Externally insulated galvanized. New 2008 renovation.

1.3.4. Condition: HVAC distribution system - **Fair**

1.3.4.1. Physical Deficiencies:	None reported or observed
1.3.4.2. Functional Deficiencies:	None reported or observed
1.3.4.3. Performance Deficiencies:	None reported or observed
1.3.4.4. Maintenance observations:	None reported or observed
1.3.4.5. Remaining useful life observations (RUL):	5-10 years

1.3.5. Construction: HVAC Controls – Programmable Thermostat, pre-existing 2008 renovation.

1.3.6. Condition: HVAC Controls - **Fair**

1.3.7. RUL: HVAC Controls 3-5 years

1.3.8. Construction – HVAC Unit (F2): Commercial packaged furnace (GFAHU) and Split system ACCU.

1.3.9. Condition – HVAC Unit: **Derelict**

1.3.9.1. Physical Deficiency:	No fresh air connection
1.3.9.2. Physical Deficiency:	No dedicated combination air source
1.3.9.3. Functional Deficiencies:	None reported or observed
1.3.9.4. Performance Deficiencies:	Minimum fresh air CFM
1.3.9.5. Maintenance observations:	None reported or observed
1.3.9.6. Remaining useful life observations (RUL):	3-5 years

1.4. 3rd Floor HVAC: The space conditioning system for the first floor is comprised of One (1) Trane packaged roof-top unit (RTU-1); One (1) split system Air Cooled Condensing Unit (ACCU); insulated (external), galvanized, low pressure ductwork, room supply diffusers, room return grills, exhaust fan inlet grills, and a thermostat. The RTU is located on the upper roof.

1.4.1. Construction: Room terminal units – Commercial ceiling mounted multidirectional diffusers and grills. Existing and 2008 renovation.

1.4.2. Condition: Room terminal units - **Fair**

1.4.2.1. Physical Deficiencies:	None reported or observed
1.4.2.2. Functional Deficiencies:	None reported or observed
1.4.2.3. Performance Deficiencies:	None reported or observed
1.4.2.4. Maintenance observations:	None reported or observed
1.4.2.5. Remaining useful life observations (RUL):	5-10 years

1.4.3. Construction: HVAC distribution system – Externally insulated galvanized. New 2008 renovation.

1.4.4. Condition: HVAC distribution system - **Good**

1.4.4.1. Physical Deficiencies:	None reported or observed
1.4.4.2. Functional Deficiencies:	None reported or observed
1.4.4.3. Performance Deficiencies:	None reported or observed
1.4.4.4. Maintenance observations:	None reported or observed
1.4.4.5. Remaining useful life observations (RUL):	10-15 years

1.4.5. Construction: HVAC Controls – Programmable Thermostat new 2008 renovation.

1.4.6. Condition: HVAC Controls - **Poor**

1.4.7. RUL: HVAC Controls 3-5 years

1.4.8. Construction – HVAC Unit (RTU-1): Commercial packaged unit. New 2008 renovation.

1.4.9. Condition – HVAC Unit: **Good**

1.4.9.1. Physical Deficiencies:	Inadequate condensate piping trap
1.4.9.2. Functional Deficiencies:	Freezing problem at RTU at lower set-point
1.4.9.3. Performance Deficiencies:	None reported or observed
1.4.9.4. Maintenance observations:	None reported or observed
1.4.9.5. Remaining useful life observations (RUL):	5-7 years

1.5. 4th Floor HVAC: The space conditioning system for the first floor is comprised of One (1) Trane packaged roof-top unit (RTU-2); One (1) split system Air Cooled Condensing Unit (ACCU); insulated (external), galvanized, low pressure ductwork, room supply diffusers, room return grills, exhaust fan inlet grills, and a thermostat. The RTU is located on the upper roof.

1.5.1. Construction: Room terminal units – Commercial ceiling mounted multidirectional diffusers and grills. Existing and 2008 renovation.

1.5.2. Condition: Room terminal units - **Fair**

1.5.2.1. Physical Deficiencies:	None reported or observed
1.5.2.2. Functional Deficiencies:	None reported or observed
1.5.2.3. Performance Deficiencies:	None reported or observed
1.5.2.4. Maintenance observations:	None reported or observed
1.5.2.5. Remaining useful life observations (RUL):	5-10 years

1.5.3. Construction: HVAC distribution system – Externally insulated galvanized. New 2008 renovation.

1.5.4. Condition: HVAC distribution system - **Poor**

1.5.4.1. Physical Deficiencies:	Inadequate condensate piping trap
1.5.4.2. Functional Deficiencies:	None reported or observed
1.5.4.3. Performance Deficiencies:	Leaking condensate from RTU-2
1.5.4.4. Maintenance observations:	None reported or observed
1.5.4.5. Remaining useful life observations (RUL):	10-15 years

1.5.5. Construction: HVAC Controls – Programmable Thermostat new 2008 renovation.

1.5.6. Condition: HVAC Controls - **Good**

1.5.7. RUL: HVAC Controls 3-5 years

1.5.8. Construction – HVAC Unit (RTU-2): Commercial packaged unit. New 2008 renovation.

1.5.9. Condition – HVAC Unit: **Poor**

1.5.9.1. Physical Deficiencies:	Inadequate condensate piping trap
1.5.9.2. Functional Deficiencies:	None reported or observed
1.5.9.3. Performance Deficiencies:	Leaking condensate
1.5.9.4. Maintenance observations:	None reported or observed
1.5.9.5. Remaining useful life observations (RUL):	5-7 years

1.6. Performance Observations

1.6.1. Indoor Air Quality (IAQ): No provision for fresh / outside air.

1.6.2. Energy and Sustainability: High efficiency HVAC systems and controls resulting in minimum energy costs.

2. Utilities

2.1. General Description: Natural gas.

2.2. Construction

2.2.1. Low pressure natural gas meter and associated threaded, black steel piping.

2.3. Condition Assessment: **New**

3. Conclusion:

3.1. The HVAC system as a whole is new and/or in fair condition.

4. Estimates: Suggested remedies and opinions of probable Cost

4.1. Short-Term Costs

4.1.1. Specialty Consulting – Basic IAQ testing: \$2,500

4.1.2. Specialty Consulting – Combustion and fresh's air duct design: \$2,500

4.1.3. Replace condensate lines on RTU-1 and RTU-2: \$500

4.1.4. Replace Armaflex insulation on low roof refrigerant piping: \$1,200

4.1.5. Combustion air and fresh air GFAHU's: \$7,500

4.2. Mid-Term Costs

4.2.1. Replace Three (3) thermostat with programmable, wireless device: \$2,400

4.2.2. Install new wireless, WEB based Energy Management Controller/Gateway/WEB server: \$4,000

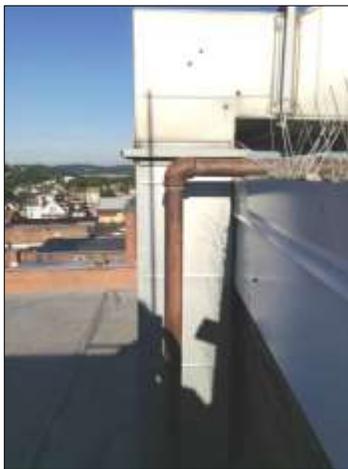
4.5.1.1 – HVAC: Roof levels



HVAC 1 – Roof top HVAC unit (RTU) - 1



HVAC 2 – Roof top unit (RTU) and ductwork -1



HVAC 3 – Roof top unit (RTU) and ductwork -2



HVAC 4 – Roof top HVAC unit (RTU) - 2



HVAC 5 – Ductwork



HVAC 6 – Exhaust fan (typical - 2)

4.5.1.2 – HVAC: Roof levels



HVAC 7 – Air cooled condensing unit (ACCU) lower roof-1



HVAC 8 – Air cooled condensing unit (ACCU) lower roof-2



HVAC 9 – Air cooled condensing unit (ACCU) lower roof-3



HVAC 10 - Refrigerant piping-1



HVAC 11 – Refrigerant piping (deterioration)-2



HVAC 12 – Refrigerant piping (reverse pitch)-3

4.5.1.3 – HVAC: Basement



HVAC 13 – Electric Cabinet heater



HVAC 14 – Dehumidifier and drain piping



HVAC 15 – Electric unit heater



HVAC 16 – Centrifugal fan and flex-duct



HVAC 17 – Furnace (GFAHU) – typical of 3



HVAC 18 – Natural gas meter

4.5.1.4 – HVAC: 1st Floor



HVAC 19 – Programmable thermostat (set point problem)



HVAC 20– Supply diffuser



HVAC 21 – Return air grille



HVAC 22 – Electronic thermostat



HVAC 23 – Ceiling mount Cabinet heater (vestibule)

4.5.1.5 – HVAC: 2nd Floor



HVAC 24 – Return air grille



HVAC 25 – Return air grille



HVAC 26 – Supply diffuser



HVAC 27 – Supply diffuser (new)



HVAC 28 – Supply diffuser



HVAC 29 – Programmable thermostat

4.5.1.6 – HVAC: 2nd Floor



HVAC 30 – Supply and Return air grille (server room)



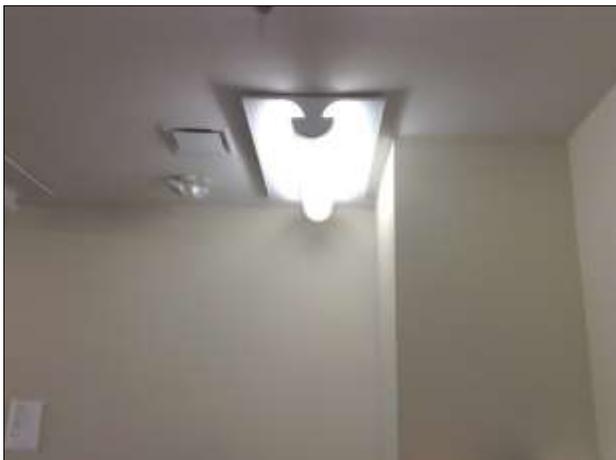
HVAC 31 – Return air grille



HVAC 32 – Supply diffuser



HVAC 33 – Supply diffuser



HVAC 34 – Supply diffuser

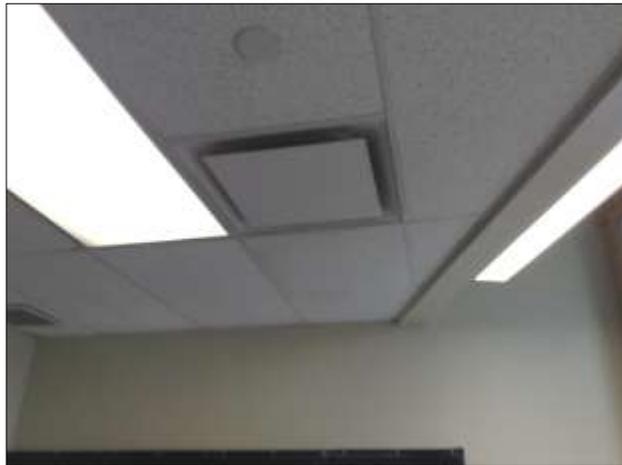
4.5.1.7 – HVAC: 3rd Floor



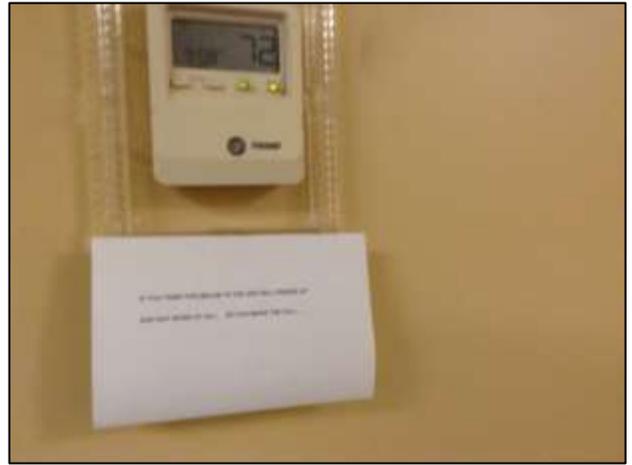
HVAC 35 – Supply diffuser



HVAC 36 – Return air grille



HVAC 37 – Supply diffuser



HVAC 38 – Programmable thermostat (set point problem)



HVAC 39 – Supply diffuser



HVAC 40 – Supply diffuser and Return air grille

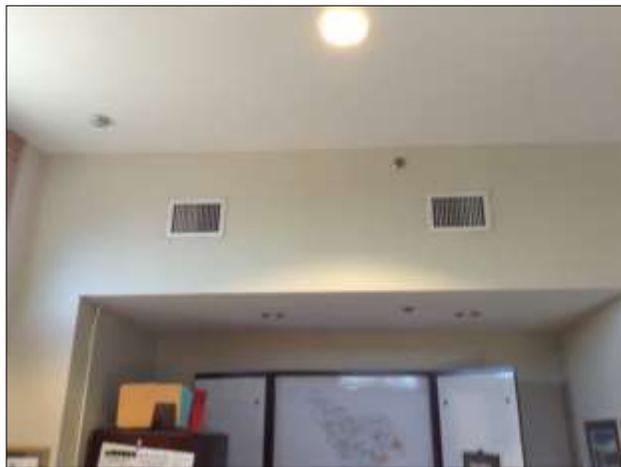
4.5.1.8 – HVAC: 4th Floor



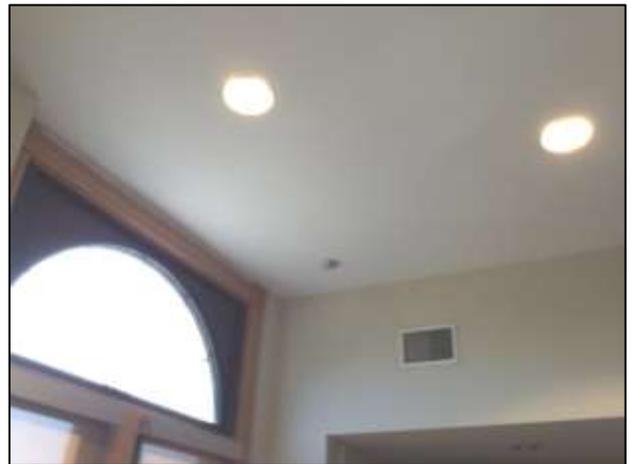
HVAC 41 – RTU condensate leak



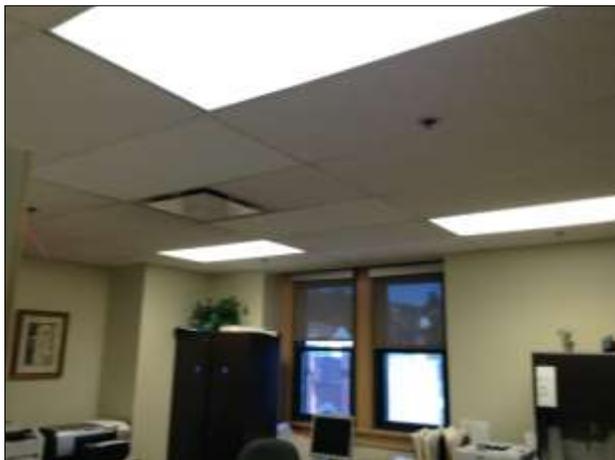
HVAC 42 – Return air grille



HVAC 43 – Supply air grille



HVAC 44 - Supply air grille



HVAC 45 – Supply diffuser



HVAC 46 – Electric Cabinet heater

Building Electrical Systems 4.5.2

1. Interior Lighting

- 1.1. General Description: interior lighting is provided to the building by a combination of windows, and recessed mount and surface mount florescent fixtures. Motion detector / light switches present on floors 1-4. Energy efficient fixture lens used in multiple locations. Most perimeter spaces some interior spaces are observed to be over lit according to recent ASHRAE/IES standard.
- 1.2. Construction: Efficient T8 lamps and magnetic ballasts.
- 1.3. Condition Assessment: **Good**

Room	Lighting Fixtures		Type	Lamps			W2
	Q1	Length		W1	Q2	Type	
Basement (a)	2	4'	Fluor.	32	2	T8	102
Basement (b)	4	na	Down Lt	25	2	CFL	200
Total: Basement							302
First Floor (a)	15	4'	Fluor.	32	3	T8	1,152
First Floor (b)	1	2'	Fluor.	25	2	T8	40
First Floor (c)	18	na	Down Lt	25	2	CFL	900
First Floor (d)	3	2'	Fluor.	13	2	T5	62
First Floor (e)	3	4'	Fluor.	32	2	T8	154
First Floor (f)	6	4'	Fluor.	32	3	T8	461
First Floor (g)	1	na	LED	100	1	na	100
Total: First Floor							2,869
Second Floor (a)	9	4'	Fluor.	32	2	T8	461
Second Floor (b)	16	4'	Fluor.	32	3	T8	1,229
Second Floor (c)	10	na	Down Lt	25	2	CFL	500
Second Floor (d)	6	4'	Fluor.	32	2	T8	307
Total: Second Floor							2,497
Third Floor (a)	3	2'	Fluor.	25	2	T8	120
Third Floor (b)	8	4'	Fluor.	32	2	T8	410
Third Floor (c)	14	4'	Fluor.	32	3	T8	1,075
Third Floor (d)	11	na	Down Lt	25	2	CFL	550
Third Floor (e)	7	4'	Fluor.	32	2	T8	358
Total: Third Floor							2,513
Fourth Floor (a)	2	4'	Fluor.	32	2	T8	102
Fourth Floor (b)	5	4'	Fluor.	32	3	T8	384
Fourth Floor (c)	14	4'	Fluor.	32	3	T8	1,075
Fourth Floor (d)	17	na	Down Lt	25	2	CFL	850
Total: Fourth Floor							2,412

AFF = Mounting Height Above Finished Floor

Flour = Fluorescent

Length = Standard Fixture Length

Mag Bal = Magnetic Ballast

Man Sw = Manual Wall Switch

NL = Natural Light

Q1 = Fixture Quantity

Q2 = Lamp Quantity per Fixture

W1 = Watts per Lamp

W2 = Watts/room (Net: 0.80 BF applied)

2. Power Distribution
 - 2.1. Construction and condition
 - 2.1.1. Distribution panels: Condition-**Good**
 - 2.1.2. General Receptacles: Condition-**Good**

3. Utilities Service
 - 3.1. Construction (PUC power)
 - 3.1.1. One (1) electric service systems lines and panels.
 - 3.2. Condition Assessment
 - 3.2.1. Condition Power Service: **Good**
 - 3.2.2. Condition Electric Meter: **No access**

 - 3.3. Construction - Central Emergency Generator and system: Emergency Generator located in basement, natural gas type.
 - 3.3.1. Condition Central Emergency Generator: **Good**

 - 3.4. Construction - Small Emergency Generator: Small Emergency Generator located on lower roof. Gasoline type.
 - 3.4.1. Condition Central Emergency Generator: **Good**

4. Conclusions:
 - 4.1. The electrical system as a whole is in good condition.

5. Estimates: Suggested remedies and Opinion of probable cost
 - 5.1. De-Minimus Costs
 - 5.1.1. Disconnect perimeter window well lighting.
 - 5.2. Short-Term Costs
 - 5.2.1. Specialty Consulting – Light meter testing: \$1,700
 - 5.2.2. De-lamping to ASHRAE/IES standard: \$800

4.5.2.1 –Interior Lighting: 1st floor and Basement



E1 – Recessed fixtures



E2 – Recessed fixture



E3 – Suspended fixtures: Basement

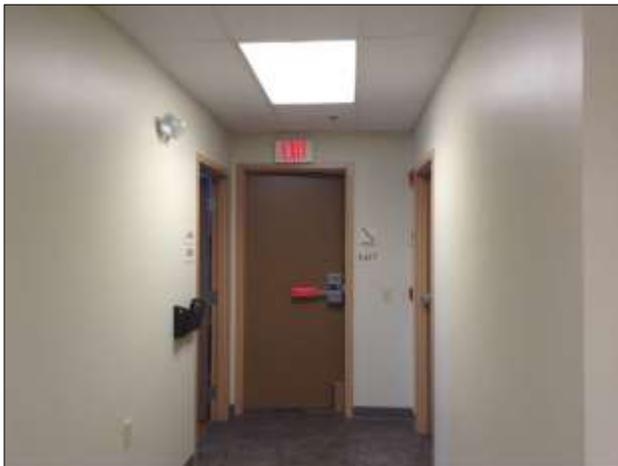
4.5.2.2 –Interior Lighting: 2nd Floor



E4 – Recessed fixture



E5 – Recessed fixtures



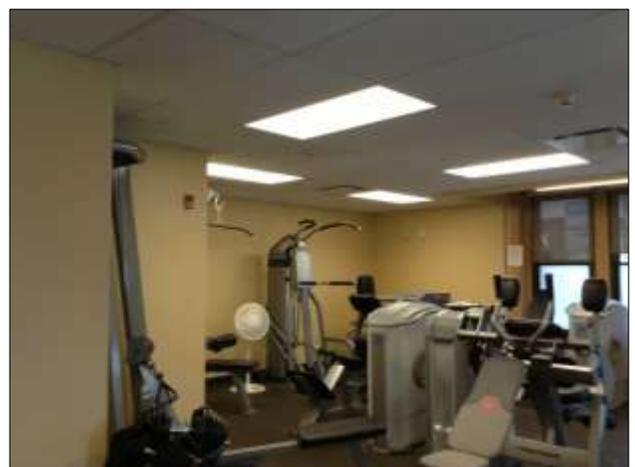
E6 – Recessed fixture



E7 – Surface mount fixture



E8 – Recessed fixtures



E9 – Recessed fixtures

4.5.2.3 –Interior Lighting: 2nd Floor



E10 – Recessed fixtures

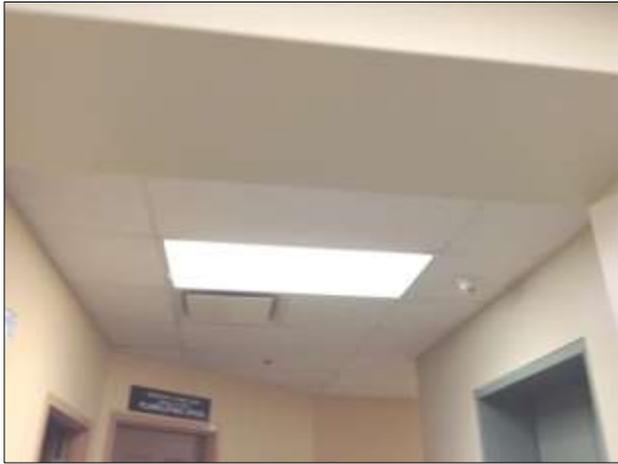


E12 – Surface mount fixture: Direct / Indirect lens



E13 – Surface mount fixture: Direct / Indirect lens

4.5.2.4 –Interior Lighting: 3rd Floor



E14 - Recessed fixture



E15 – Recessed down light fixture: CFL lamp(s)



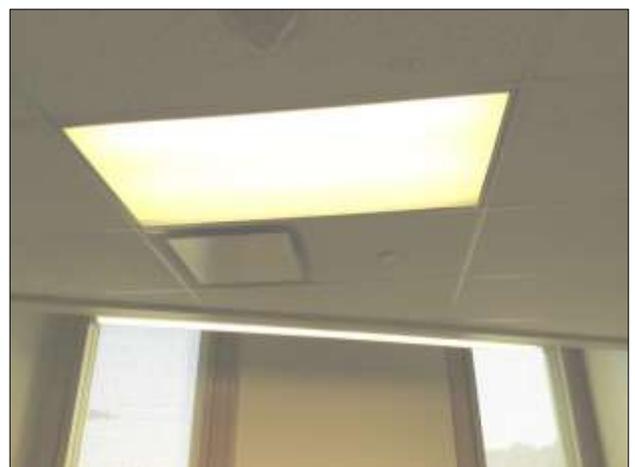
E16 – Perimeter fixture and natural lighting



E17 – Recessed down light fixture: CFL lamp(s)



E18 – Surface mount fixture



E19 – Recessed fixture

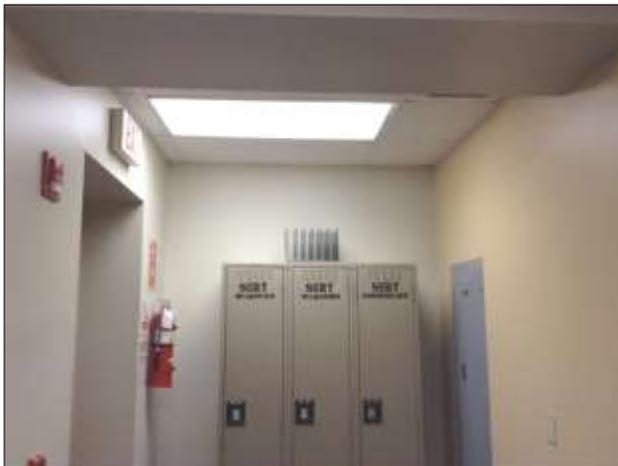
4.5.2.5 – Interior Lighting: 3rd Floor



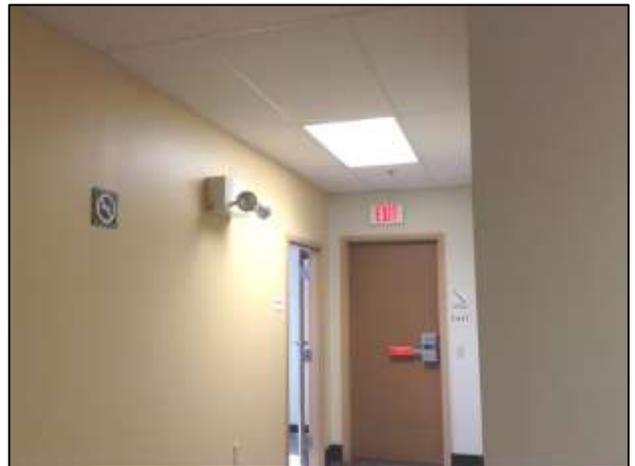
E20 – Natural lighting



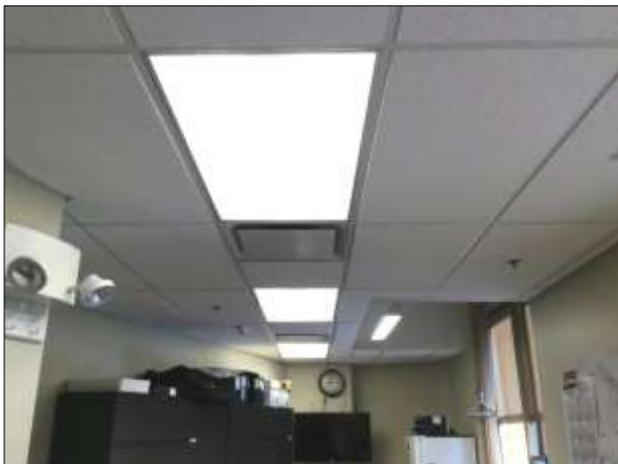
E21 – Recessed fixtures



E22 – Recessed fixture



E23 – Recessed fixture



E24 – Recessed fixtures



E25 – Recessed fixtures

4.5.2.6 – Interior Lighting: 4th Floor



E26 – Recessed fixtures



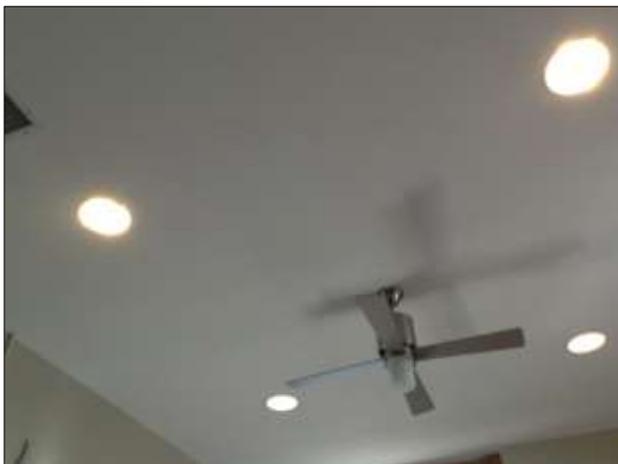
E27 – Recessed fixtures



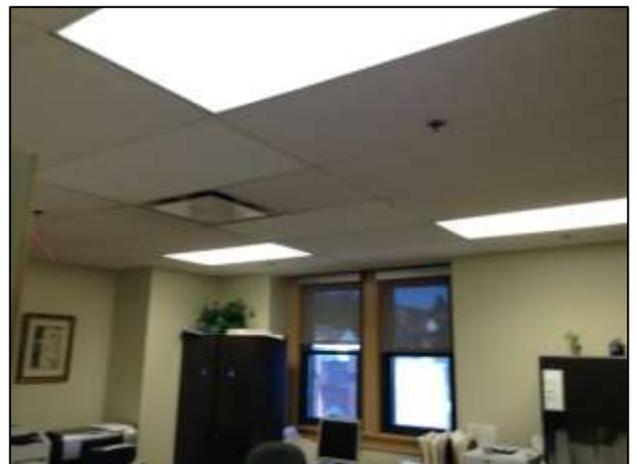
E28 – Surface mount fixture



E29 – Natural lighting



E30 – Recessed down light fixture: CFL lamp(s)



E31 – Recessed fixtures

4.5.2.7 – Electrical Service and panels



E32 – Breaker panel - 1a



E33 – Breaker panel – 1b



E34 – Breaker panel - 2a



E35 – Breaker panel – 2b



E36 – Breaker panel - 3a



E37 – Breaker panel – 3b

4.5.2.8 – Electrical Service and panels



E38 – Power and breaker panels



E39 – Electric panel



E40 – Power panel



E41 – Power panel



E42 – Power panels - a



E43 – Power panels - b

4.5.2.9 – Electrical Service and panels



E44 – Breaker panel



E45 – Conduit



E46 – Electric panel



E47 – Emergency generator: Basement



E48 – Emergency generator panel



E49 – Emergency generator: Lower roof

Building Plumbing Systems 4.5.3

1. Fixtures

- 1.1. General Description: The plumbing system is served by a combination of sanitary fixtures, supply and drain piping, and supply water meter service. Serving the men's and ladies' rooms, lunch room/kitchen areas, and laundry.
- 1.2. Construction
 - 1.2.1. Eight (8) toilets
 - 1.2.2. Two (2) urinals
 - 1.2.3. Ten (10) lavatory sinks
 - 1.2.4. Two (2) SS kitchen sinks
 - 1.2.5. Two (2) janitor's sinks
 - 1.2.6. Four (4) water fountains
 - 1.2.7. Six (6) showers
- 1.3. Condition Assessment
 - 1.3.1. Condition: **Good**

2. Domestic Water Production

- 2.1 Construction: Insufficient access.

3. Utilities

- 3.1 General Description: Potable water supply
- 3.2 Construction
 - 3.2.1 Meter, shut-off valve, back-flow preventer, and piping.
- 3.3 Condition Assessment: **Poor**

4. Conclusions:

- 4.1 The plumbing system is a combination of new and existing components. The overall system is in good condition.

5. Estimates: Suggested remedies and Opinion of probable cost

- 5.1 De minimus conditions
 - 5.1.1 Insulate supply pipes from water heaters.

4.5.2.1 Plumbing fixtures: 1st and 2nd Floors



P1 – Water fountain (typical)



P2 – Large Rest room (typical)



P3 – Showers (typical)



P4 – Toilet (typical)



P5 – Double lavatory sink

4.5.2.2 Plumbing fixtures: 3rd Floor



P6 – Triple lavatory sink



P7 – Urinals



P8 – Showers (typical)



P9 – Toilet (typical)



P10 – Janitor stall



P11 – Small Rest room (typical)

4.5.2.3 Plumbing fixtures: 4th Floor and Domestic Water Service



P12 – Small lavatory sink



P13 – ADA Toilet



P14 – Domestic water service, back-flow preventer, utility meter, and piping

Building Fire Protection and Life Safety Systems 4.5.4

1. Fire Extinguishers
 - 1.1. Construction: Fire extinguishers present and located as required.
 - 1.2. Condition Assessment: **Good**
 - 1.2.1.1. Physical Deficiencies: None.
 - 1.2.1.2. Maintenance observations: One (1) expired testing date

2. Alarm Systems
 - 2.1. Construction Smoke Alarm: Present and located as required.
 - 2.2. Condition Assessment Smoke Alarm: **Good**

Note: The field audit and PCA did not include functional testing of fire or smoke alarm systems.

3. Smoke Evacuation System and Stairwell Pressurization
 - 3.1. No Smoke Evacuation System or Stairwell Pressurization.
4. Sprinklers and Standpipes
 - 4.1. Construction Sprinklers and Standpipes: Present and located as required.
 - 4.2. Condition Assessment Sprinklers and Standpipes: **Good**
5. Emergency Lighting
 - 5.1. Construction: Emergency lighting present at required exists and stairwells.
 - 5.2. Condition Assessment: **Good**
6. Ground Fault Interruption (GFI)
 - 6.1. Construction GFI's: Present and located as required.
 - 6.2. Condition Assessment GFI's: **Good**
7. Conclusions:
 - 7.1. The building fire protection and life safety systems are in good condition.
8. Estimates: Suggested remedies and Opinions of probable cost
 - 8.1. De Minimus Conditions
 - 8.1.1. Test fire extinguisher(s).

4.5.4.1 – Fire Protection: 1st Floor



FP 1 – Extinguisher – 1a



FP 2 – Extinguisher – 1b



FP 3 – Strobe alarm



FP 4 – Sprinkler head (typical)



FP 5 – Emergency light (typical)



FP 6 – Fire alarm system interface

4.5.4.2 – Fire Protection: 2nd Floor



FP 7 – Extinguisher – 2a



FP 8 – Extinguisher – 2b



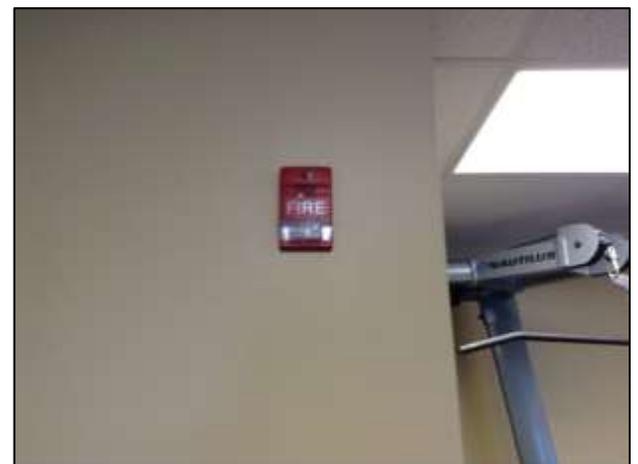
FP 9 – Sprinkler (typical)



FP 10 – Smoke/Fire detector (typical)



FP 11 – Smoke/Fire detector (typical)



FP 12 – Strobe alarm

4.5.4.3 – Fire Protection: 2nd Floor



FP 13 – Fire alarm system – 1a



FP 14 – Fire alarm system – 1b



FP 15 – Fire alarm system – 1c



FP 16 – Strobe alarm and Pull station



FP 17 – Extinguisher – 3a



FP 18 – Extinguisher – 3b

4.5.4.4 – Fire Protection: 3rd Floor



FP 19 – Extinguisher – 4



FP 20 – Strobe alarm and protective cage



FP 21 – Sprinkler head (typical)



FP 22 – Smoke/Fire detector (typical)



FP 23 – Strobe alarm



FP 24 – Smoke/Fire detector

4.5.4.5 – Fire Protection: 3rd Floor



FP 25 – Exit

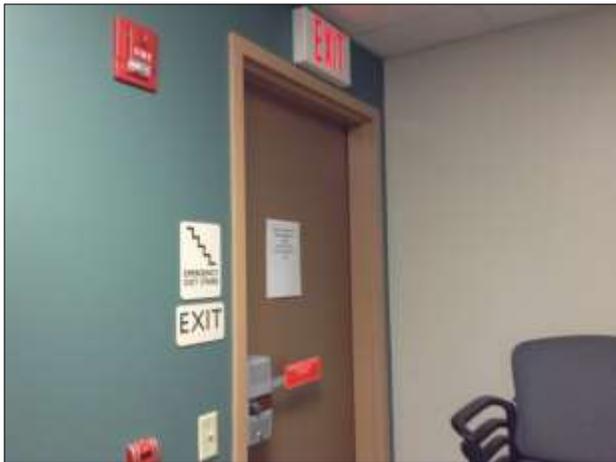


FP 26 – Pull station



FP 27 – Strobe alarm

4.5.4.6 – Fire Protection: 4th Floor



FP 28 – Exit area



FP 29 – Exit area



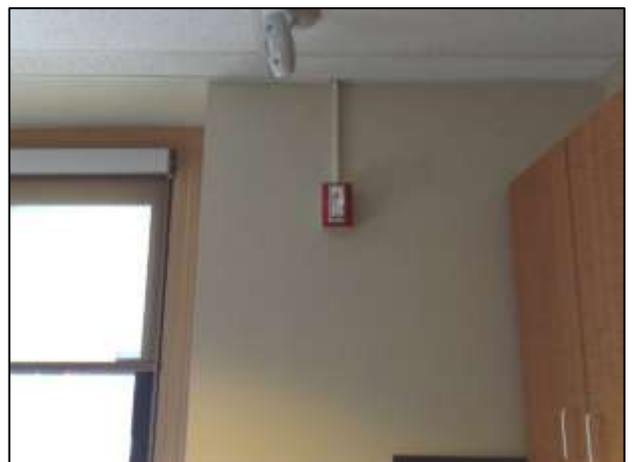
FP 30 – Pull station



FP 31 – Strobe alarm



FP 32 – Sprinkler head (typical)



FP 33 – Strobe alarm

4.5.4.7 – Fire Protection: 4th Floor



FP 34 – Strobe alarm



FP 35 – Strobe alarm



FP 36 – Extinguisher

4.5.4.8 – Fire Protection: Basement



FP 37 – Strobe alarm



FP 38 – Extinguisher



FP 39 – Pull station



FP 40 – Sprinkler head and piping



FP 41 – Strobe alarm



FP 42 – Fire alarm system – 1d

4.5.4.9 – Fire Protection: Basement and lower level roof



FP 43 – Strobe alarm (basement)



FP 44 – Strobe alarm (weather proof)



FP 45 – Pull station (weather proof)



FP 46 – Sprinkler system manifold and valves (basement)

4.5.4.10 – Life Safety: 1st and 2nd Floors



LS 1 – Emergency light fixture (1st Floor)



LS 2 – Emergency light / sign fixture



LS 3 – Exit area



LS 4 – Emergency light / sign fixture



LS 5 – Emergency light fixture



LS 6 – Emergency light fixture

4.5.4.11 – Life Safety: 3rd Floor



LS 7 – Emergency light / sign fixture



LS 8 – Exit area



LS 9 – Emergency light



LS 10 – Emergency light / sign fixture



LS 11 – Emergency exit door hardware



LS 12 – Emergency light

4.5.4.12 – Life Safety: 4th Floor



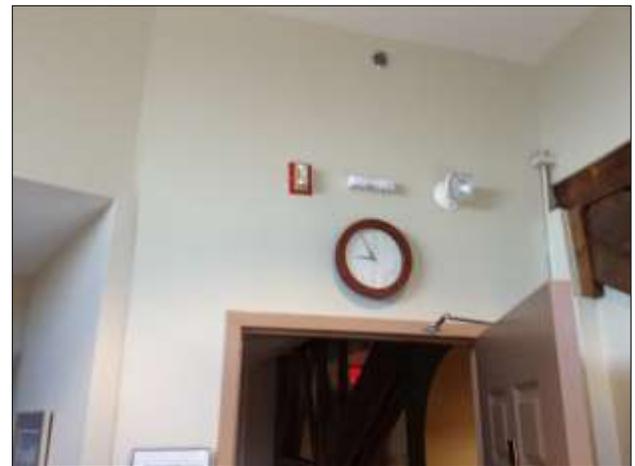
LS 13 – Emergency light / sign fixture



LS 14 – Emergency exit: 2nd floor



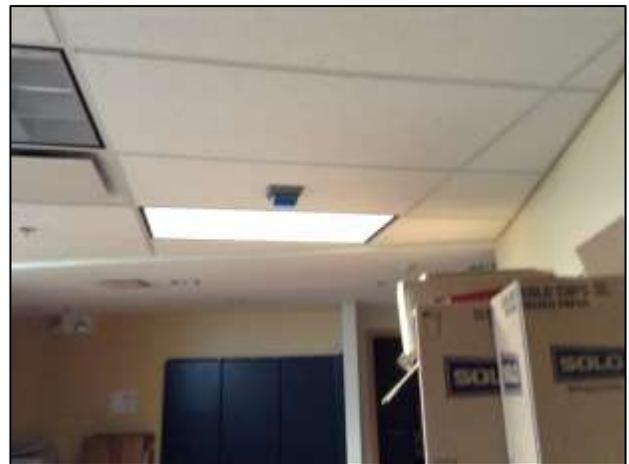
LS 15 – Emergency exit door hardware



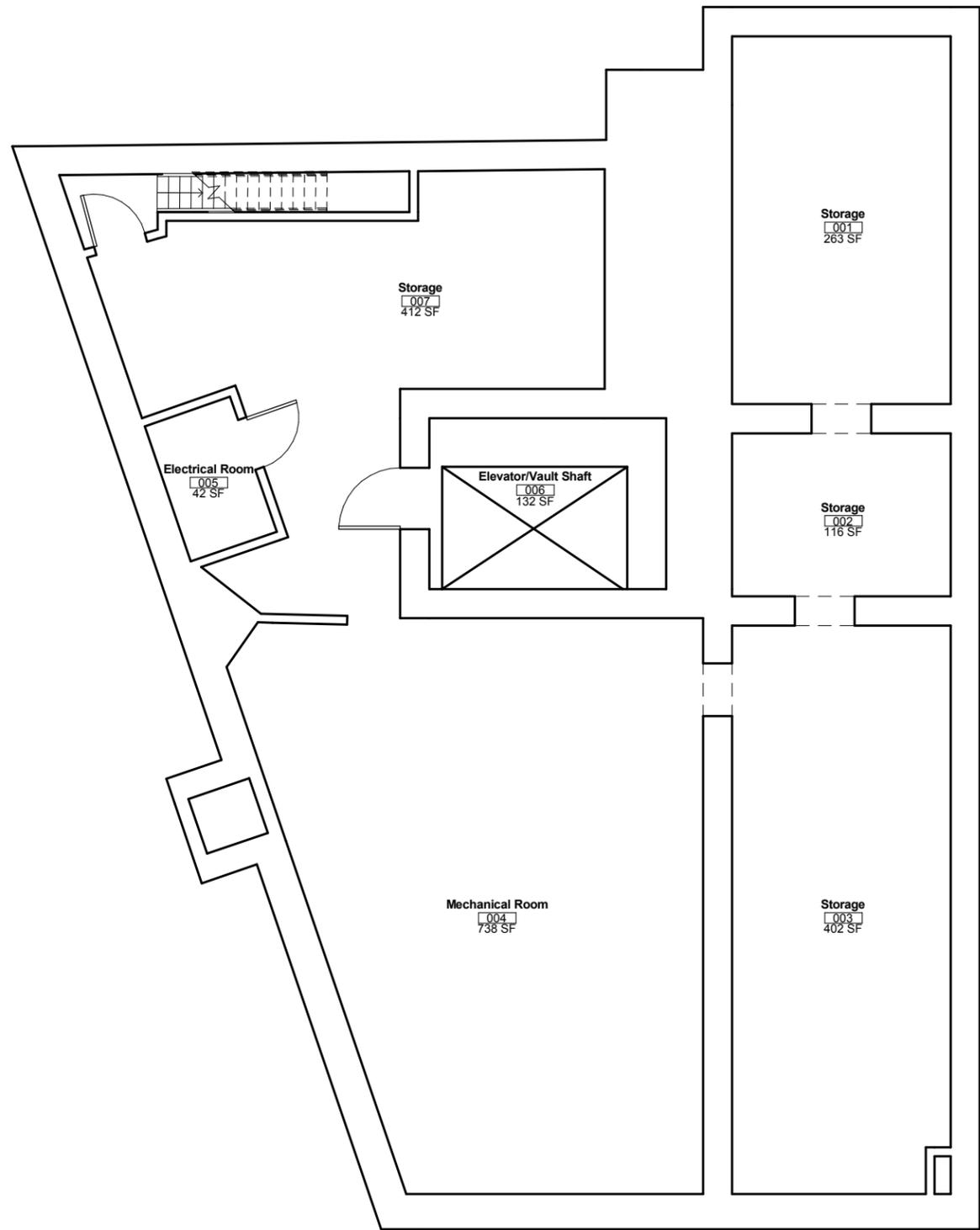
LS 16 – Emergency light (typical)



LS 17 – Basement emergency existing sign/light (typical)



LS 18 – Blue Strobe and Horn: Fire alarm and Emergency activation



① Ground Floor Plan
1/8" = 1'-0"

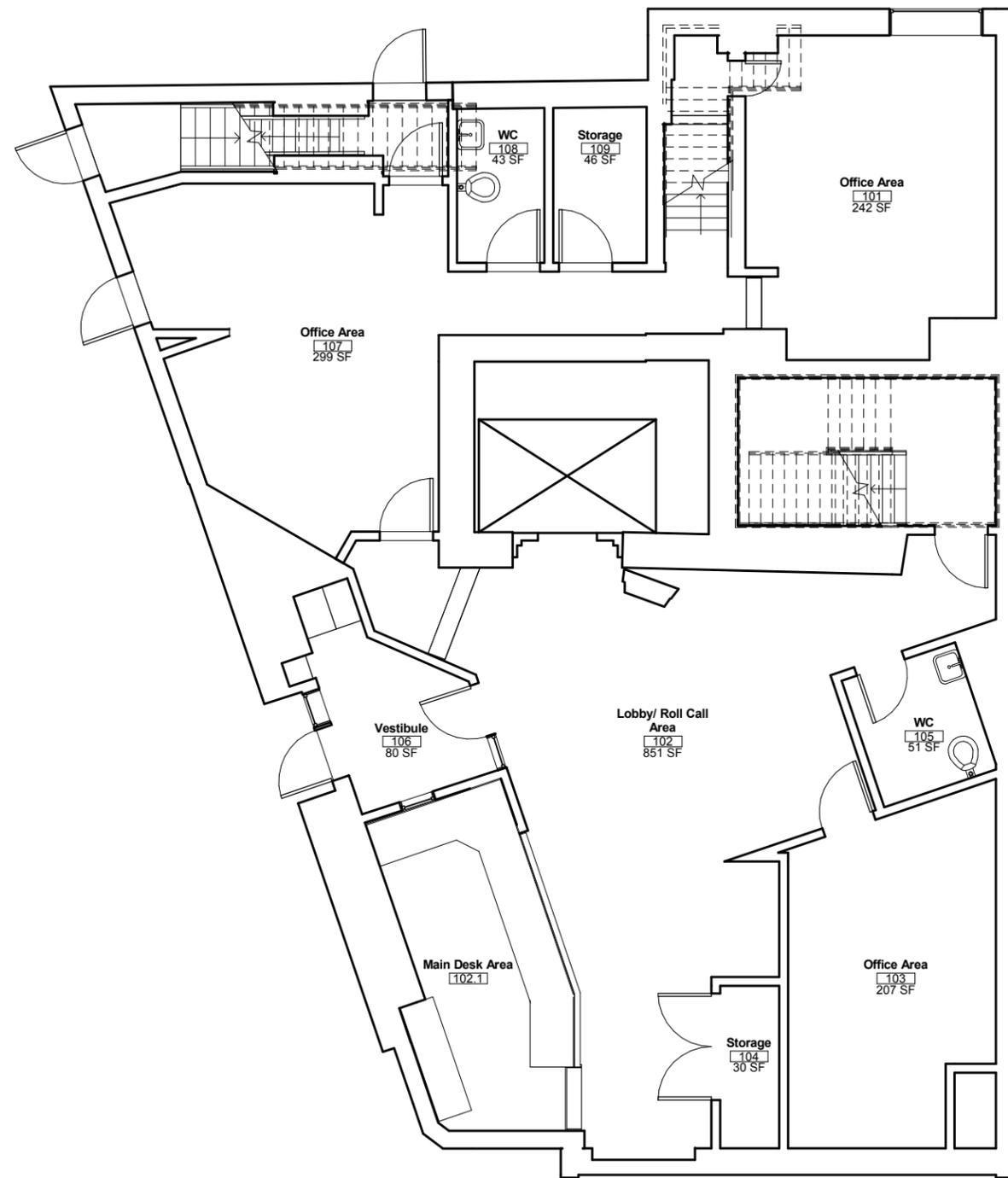


The drawings and related digital files are a schematic rendition of the existing conditions of the facility only. Please verify exact field conditions before using these for further construction and renovation work.



Police Zone 3
City of Pittsburgh

Ground Floor Plan		A1.00
Date	08/22/13	
Drawn by	AS	Scale 1/8" = 1'-0"



1 L1 Floor Plan
1/8" = 1'-0"

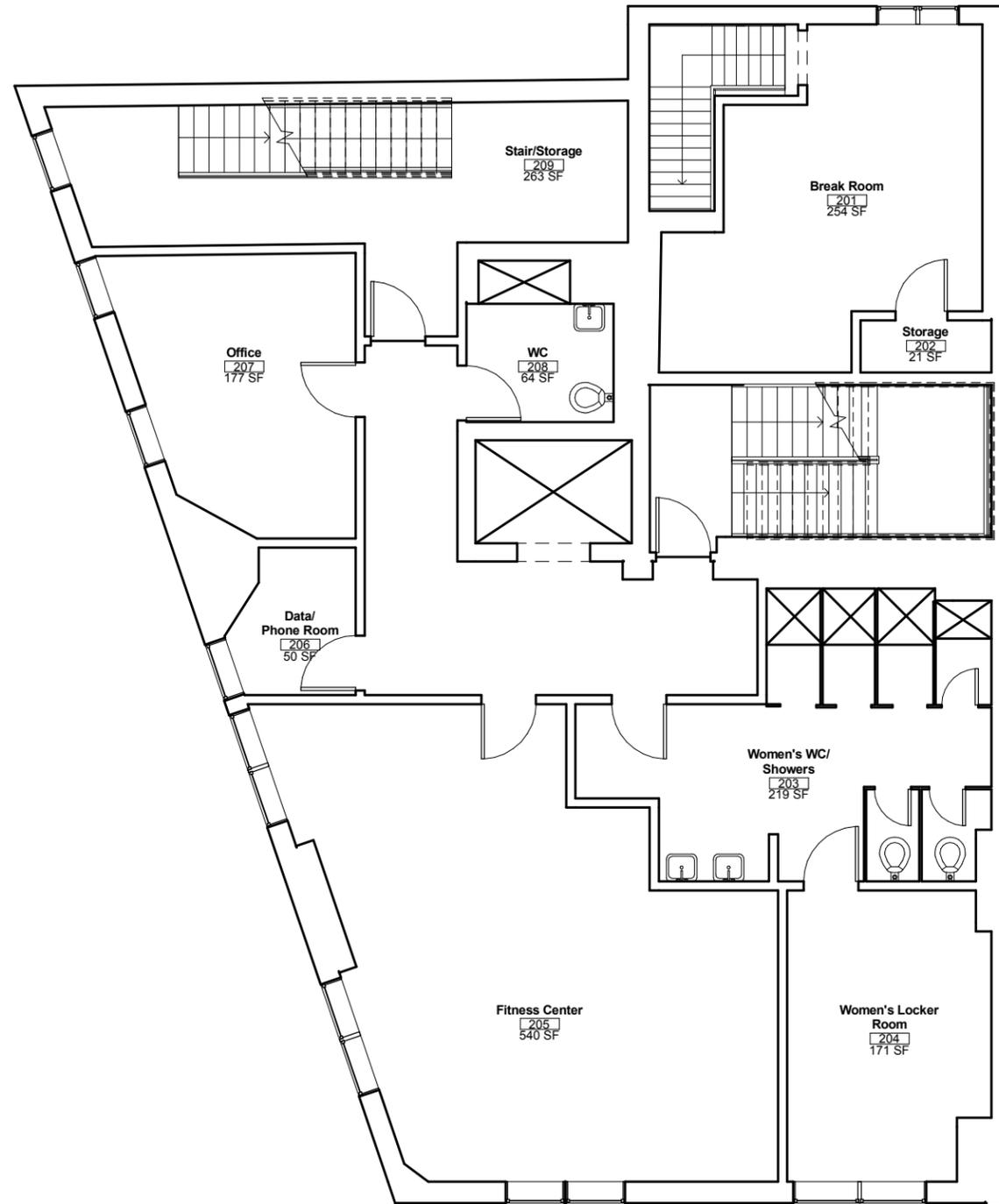


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Police Zone 3
City of Pittsburgh

L1 Floor Plan		A1.10
Date	08/22/13	
Drawn by	AS	Scale 1/8" = 1'-0"



① L2 Floor Plan
1/8" = 1'-0"



Police Zone 3
City of Pittsburgh

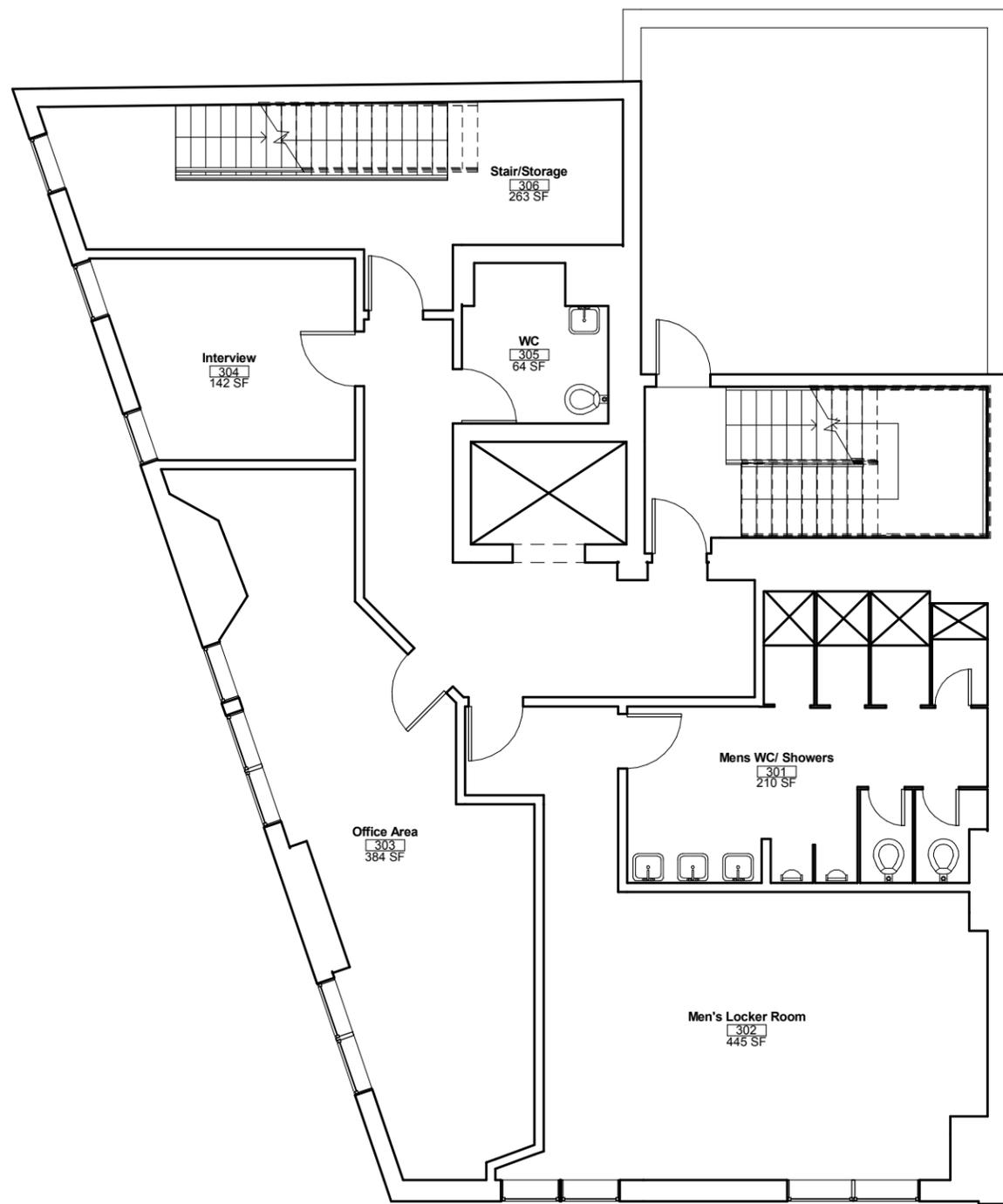
L2 Floor Plan

Date 08/22/13

Drawn by Author

A1.20

Scale 1/8" = 1'-0"

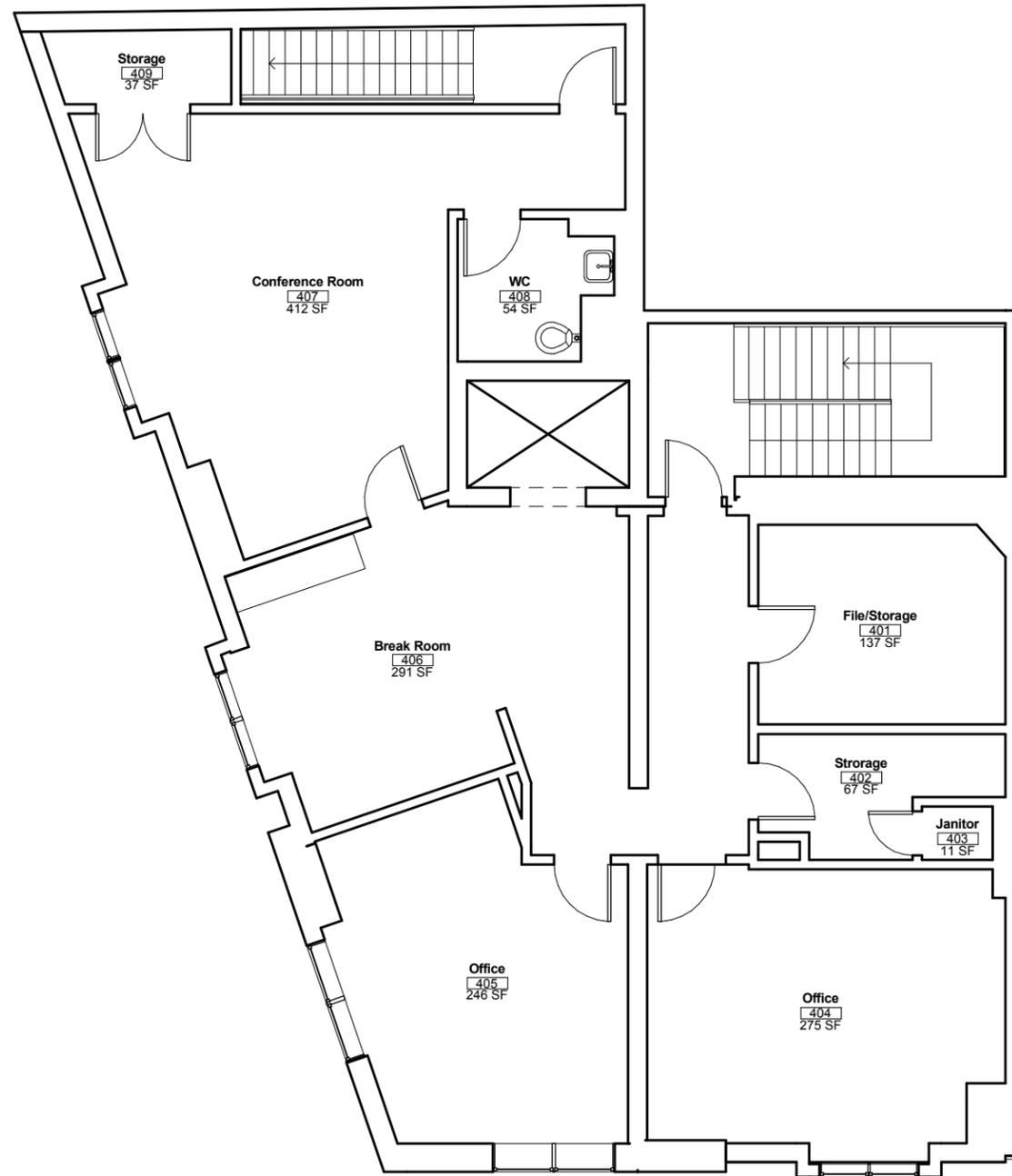


① L3 Floor Plan
1/8" = 1'-0"



Police Zone 3
City of Pittsburgh

L3 Floor Plan		A1.30
Date	08/22/13	
Drawn by	Author	Scale 1/8" = 1'-0"



② L4 Floor Plan
1/8" = 1'-0"



Police Zone 3
City of Pittsburgh

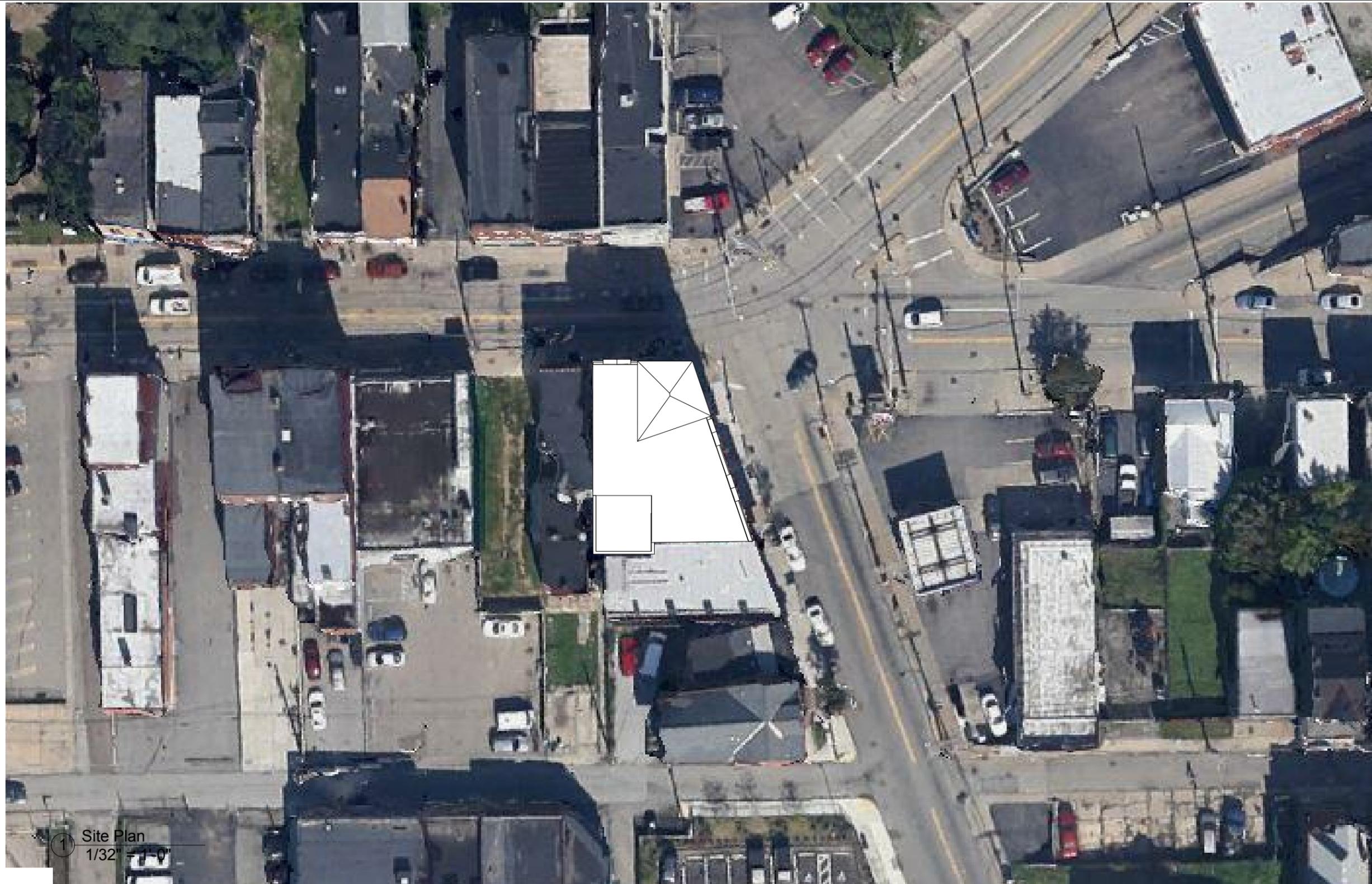
L4 Floor Plan

Date 08/22/13

Drawn by AS

A1.40

Scale 1/8" = 1'-0"



1 Site Plan
1/32" = 1'-0"



The drawings and related digital files are a schematic rendition of the existing conditions of the facility only. Please verify exact field conditions before using these for further construction and renovation work.



Police Zone 3

City of Pittsburgh

Site Plan		C1.01
Date	08/22/13	
Drawn by	AS	Scale 1/32" = 1'-0"

BA05 - POLICE ZONE 3

Tier II: Abbreviated Accessibility Survey					
	Item	Yes	No	N/A	Comments
A. Building History					
1.	Has an ADA survey previously been completed for this property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2.	Have any ADA improvements been made to the property?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Does a Barrier Removal Plan exist for the property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.	Has the Barrier Removal Plan been reviewed/approved by an arms-length third party such as an engineering firm, architectural firm, building department, or other agency, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5.	Has building ownership or building management reported receiving any ADA related complaints that have not been resolved?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6.	Is any litigation pending related to ADA issues?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
B. Parking					
1.	Are there sufficient accessible parking spaces with respect to the total number of reported spaces? (See Table X2.1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SOME PARKING ON ADJACENT SITE
2.	Are there sufficient van-accessible parking spaces available (96 in. wide by 60 in. aisle)? (See Table X2.1)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.	Are accessible spaces marked with the International Symbol of Accessibility? Are there signs reading "Van Accessible" at van spaces?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.	Is there at least one accessible route provided within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading zones, if provided, and public streets and sidewalks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Do curbs on the accessible route have depressed, ramped curb cuts at drives, paths and drop-offs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6.	Does signage exist directing you to accessible parking and an accessible building entrance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
C. Ramps -- N/A					
1.	If there is a ramp from parking to an accessible building entrance, does it meet slope requirements? (1:12 slope or less)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Are ramps longer than 6 ft complete with railings on both sides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Is the width between railings at least 36 in.?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Is there a level landing for every 30 ft horizontal length of ramp, at the top and at the bottom of ramps and switchbacks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
D. Entrances/Exits					
1.	Is the main accessible entrance doorway at least 32 in. wide?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	If the main entrance is inaccessible, are there alternate accessible entrances?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.	Can the alternate accessible entrance be used independently?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4.	Is the door hardware easy to operate (lever/push type hardware, no twisting required, and not higher than 48 in. above floor)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Are main entry doors other than revolving doors available?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	If there are two main doors in series, is the minimum space between the doors 48 in. plus the width of any door swinging into the space?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

FIG. X2.1 Abbreviated Accessibility Survey

Tier II: Abbreviated Accessibility Survey					
	Item	Yes	No	N/A	Comments
E. Paths of Travel					
1.	Is the main path of travel free of obstruction and wide enough for a wheelchair (at least 36 in. wide)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Does a visual scan of the main path of travel reveal any obstacles (phones, fountains, etc.) that protrude more than 4 in. into walkways or corridors?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Is at least one wheelchair-accessible public telephone available?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.	Are wheelchair-accessible facilities (toilet rooms, exits, etc.) identified with signage?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Is there a path of travel that does not require the use of stairs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
F. Elevators					
1.	Do the call buttons have visual signals to indicate when a call is registered and answered?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Is the "UP" button above the "DOWN" button?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Are there visual and audible signals inside cars indicating floor change?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Are there standard raised and Braille markings on both jambs of each hoist way entrance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Do elevator doors have a reopening device that will stop and reopen a car door if an object or a person obstructs the door?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Do elevator lobbies have visual and audible indicators of car arrival?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7.	Are elevator controls low enough to be reached from a wheelchair (48 in. front approach/54 in. side approach)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Are elevator control buttons designated by Braille and by raised standard alphabet characters (mounted to the left of the button)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	If a two-way emergency communication system is provided within the elevator cab, is it usable without voice communication?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
G. Toilet Rooms					
1.	Are common-area public toilet rooms located on an accessible route?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Are door handles push/pull or lever types?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Are there audible and visual fire alarm devices in the toilet rooms?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.	Are corridor access doors wheelchair-accessible (at least 32 in. wide)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	Are public toilet rooms large enough to accommodate a wheelchair turnaround (60 in. turning diameter)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	In unisex toilet rooms, are there safety alarms with pull cords?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
7.	Are toilet stall doors wheelchair-accessible (at least 32 in. wide)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.	Are grab bars provided in toilet stalls?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9.	Are sinks provided with clearance for a wheelchair to roll under (29 in. clearance)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.	Are sink handles operable with one hand without grasping, pinching, or twisting?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11.	Are exposed pipes under sinks sufficiently insulated against contact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
H. Guestrooms – N/A					
1.	Are there sufficient reported accessible sleeping rooms with respect to the total number of reported guestrooms? (See Table X2.2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Are there sufficient reported accessible rooms with roll-in showers with respect to the total number of reported accessible guestrooms? (See Table X2.2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

FIG. X2.1 Abbreviated Accessibility Survey (continued)

4.3 ASHRAE Level-1 Energy Audit

Executive Summary

The building systems for Police Zone 3 have been analyzed and evaluated according to ASHRAE Level-1 methodology and reporting requirements.

The following sections are complimentary to the PCR with additional focus on energy costing, benchmarking, and remediation planning. The detailed information as provided is of an initial nature according to the level-1 structure.

The resulting EUI for this facility is uncharacteristically low. A more detailed analysis is required including client provided, disaggregated utility bills, and a level-2 analysis and/or a field data logging effort. (Utility bill tabulation as received from client combine consumption and cost data from Firehouse 24, Medic 8, and Police Zone 3.)

Methodology, calculations, standards, and reference material are drawn from these industry publications:

1. ASHRAE Procedures for Commercial Building Energy Audits -2011 Second Edition
2. ANSI/ASHRAE Standard 105-2007: Standard Methods of Measuring, Expressing, and Comparing Building Energy Performance
3. DOE/EIA US Energy Information Administration: U.S. Commercial Building Energy Intensity -2003 Table 7b.
4. Energy Star Target Finder tool
5. "Commercial Energy Auditing Reference Handbook", Steven Doty, PE, CEM

Scope of Work

The scope-of-work associated with the ASHRAE Level-1 includes the following items.

- Conduct walk-through survey: Completed see - PCR
- Identify low-cost/no-cost recommendations: Completed see - PCR
- Identify capital improvements and potential EEM's: Completed - see PCR
- PEA analysis
- Energy Systems Condition Assessment
- Utility rate structure commodity programs
- EUI target and comparative evaluation
- Potential savings from new EUI target
- Proposed Action Plan: Phase #1

Preliminary Energy Analysis (PEA)

Historical Energy Consumption by Year and Type:

2011 - Electricity

YEAR: 2011

Month	Cooling Degree Days	Billed Demand (kW)	Electric Use (kWh)	Demand Cost (\$)	Total Bill (\$)
January	0	6.49	3,050.91	-	\$269
February	0	6.60	2,493.10	-	\$233
March	0	6.83	2,379.26	-	\$226
April	21	9.33	2,310.95	-	\$240
May	94	10.13	3,369.66	-	\$329
June	182	10.93	3,973.02	-	\$378
July	397	11.61	5,077.26	-	\$466
August	206	11.73	4,678.82	-	\$436
September	78	8.65	3,255.82	-	\$308
October	0	8.31	2,606.94	-	\$257
November	0	5.58	2,128.81	-	\$202
December	0	6.72	2,732.16	-	\$251
Annual Totals			38,056.71	\$0	\$3,594

2011 - Natural Gas

YEAR: 2011

Month	Heating Degree Days	MCF	Therms	Total Bill (\$)
January	1240	42.69	426.90	\$368
February	917	27.61	276.06	\$243
March	781	18.50	184.99	\$154
April	350	42.12	421.21	\$366
May	138	5.69	56.92	\$55
June	12	2.56	25.61	\$27
July	0	2.28	22.77	\$25
August	1	1.99	19.92	\$22
September	87	2.85	28.46	\$28
October	401	4.84	48.38	\$44
November	532	13.38	133.76	\$111
December	849	20.78	207.76	\$166
Annual Totals			1,852.75	\$1,609

2012 - Electricity

YEAR: 2012

Month	Cooling Degree Days	Billed Demand (kW)	Electric Use (kWh)	Demand Cost (\$)	Total Bill (\$)
January	0	6.43	2,618.32	-	\$241
February	0	6.03	2,527.25	-	\$231
March	4	7.97	2,322.34	-	\$228
April	7	9.79	2,641.09	-	\$263
May	114	10.13	3,346.90	-	\$312
June	181	11.16	4,314.54	-	\$361
July	347	11.84	4,838.20	-	\$400
August	226	10.36	4,007.17	-	\$336
September	110	10.13	2,458.94	-	\$234
October	24	6.60	2,333.72	-	\$202
November	0	5.35	2,060.50	-	\$175
December	0	7.40	3,529.04	-	\$273
Annual Totals			36,998.00	\$0	\$3,257

2012 - Natural Gas

YEAR: 2012

Month	Heating Degree Days	MCF	Therms	Total Bill (\$)
January	993	33.30	332.98	\$251
February	860	25.40	253.98	\$169
March	430	15.46	154.59	\$101
April	456	7.45	74.54	\$50
May	60	4.42	44.17	\$31
June	29	2.21	22.08	\$19
July	0	2.76	27.61	\$24
August	1	1.93	19.32	\$19
September	107	2.21	22.08	\$20
October	343	5.25	52.45	\$41
November	719	17.39	173.92	\$132
December	795	19.88	198.76	\$154
Annual Totals			1,376.50	\$1,010

2013 - Electricity

YEAR: 2013

Month	Cooling Degree Days	Billed Demand (kW)	Electric Use (kWh)	Demand Cost (\$)	Total Bill (\$)
January	0	27.60	3,392.43	-	\$268
February	0	25.20	3,472.12	-	\$269
March	0	25.60	3,551.81	-	\$275
April	22	30.80	2,891.54	-	\$243
May	92	36.40	3,529.04	-	\$296
June	-	0.00	-	-	-
July	-	-	-	-	-
August	-	-	-	-	-
September	-	-	-	-	-
October	-	-	-	-	-
November	-	-	-	-	-
December	-	-	-	-	-
Annual Sub-Totals			16,836.94	\$0	\$1,350

2013 - Natural Gas

YEAR: 2013

Month	Heating Degree Days	MCF	Therms	Total Bill (\$)
January	988	36.72	367.16	\$265
February	998	32.85	328.51	\$234
March	911	28.71	287.10	\$211
April	360	13.25	132.51	\$109
May	151	0.00	0.00	\$20
June	-	3.04	-	\$13
July	-	-	-	-
August	-	-	-	-
September	-	-	-	-
October	-	-	-	-
November	-	-	-	-
December	-	-	-	-
Annual Sub-Totals			1,115.29	\$852

Energy Performance Summary

The EUI values include in the performance summary below have been calculated using ASHRAE forms and formulas. Due to the low sampling response for Public order and Safety facilities in the northeast sector, the direct and literal application of these calculations is not advisable. The total annual cost information data source is the client provided utility bill spread sheet.

ENERGY PERFORMANCE SUMMARY
 Commercial Building Energy Audit Sample Forms

Energy Type	Total Annual Use	Units	Conversion Multiplier	kBtu	Total Annual Cost (\$)
Electricity	48,026	kWh	3.412142	163,873	\$4,299.95
Natural Gas	1,984	Therms	100	198,443	\$1,586.16
Purchased Steam			0	-	
Purchased Hot Water			0	-	
Purchased Chilled Water			0	-	
Oil #:			0	-	
Propane			0	-	
Coal			0	-	
Thermal—On-Site Generated			0	-	
Other			0	-	
Electricity—On-Site Generated			0	-	
Thermal or Electricity—Exported			0	-	
			0	-	
Total				362,316	\$ 5,886.11

Gross Conditioned Area	8751.00
EUI (kBtu/ft ²)	41.40
Target Finder Score*	-
CBECS EUI (for comparable , kBtu/ft ²)	-
ECI (\$/ft ²)	-

Energy Systems Condition Assessment

The energy systems condition assessment is an additional effort beyond the scope of the ASTM PCA standard and the typical ASHRAE Level-1 requirements. It is a basis for a targeted audit as referred to in ASHRAE standard. This approach supplements the PCR and formal Level-1 to develop a credible EUI target and an actionable remediation program.

This section also provides an initial performance assessment of energy consuming systems and devices as part of the targeted audit effort.

HVAC System

Energy System Condition: Boiler system including pump(s), piping, and room radiators - **Fair**

Boiler System Deficiencies

- Combustion Efficiency: **Good**
- Cooling ACCU EER: **Good**
- Age: Near EUL see PCR
- Maintenance Condition: **Poor** see PCR
- Piping System Insulation: **None**

Control System Deficiencies

- Space Set-Point Control: **Poor**. Uncalibrated thermostat, excessive set-point temperatures, and open occupant adjustment
- Boiler Water Set-Point Control: **Poor**. Decommissioned controls, see PCR.
- Set-Back Controls: **None**
- Weekly Scheduling Controls: **None**

Energy Management System Deficiencies

- Active Energy Monitoring and Management System: **None**

Lighting System

Energy System Condition: Interior Lighting - **Fair**

Fixture Deficiencies

- Lamp Efficiency: **Good**
- Ballast Efficiency: **Poor**
- Age: Near EUL see PCR
- Maintenance Condition: **Poor** see PCR

Control System Deficiencies

- Occupancy Controls: **Good**
- Weekly Scheduling Controls: **None**

Energy Management System Deficiencies

- Active Energy Monitoring and Management System: **None**

Potable Water System

Energy System Condition: Water heating and piping - **Derelict**

Heater System Deficiencies

- Combustion Efficiency: **Poor**
- Age: Near EUL see PCR
- Maintenance Condition: **Poor** see PCR
- Piping System Insulation: **None**

Control System Deficiencies

- Set-Back Controls: **None**

- Weekly Scheduling Controls: **None**
- Energy Management System Deficiencies
- Active Energy Monitoring and Management System: **None**

Utility rate structure commodity programs

The energy billing and cost data received to date are understood to be directly from local, single source utility companies. Energy rate structures may be reduced through a commodity sourcing approach. Such an approach could include natural gas and electrical energy brokering services. While such services have been successful in reducing cost per kWh and MCF, additional risk of such approach must be carefully considered. It would be expected that energy rate costs could be reduced from 10-15% in a city wide contract. However, such saving would typically require Smart Metering and potential interruption in service, which may not be compatible or acceptable for emergency services facilities. However, full consideration should be given to 'bidding' Natural Gas supply as contractual arrangement may be more acceptable. Further, alternative energy supply opportunities should be explored as peak season interruption obligations are in a state of change, which often favors the consumer.

EUI target and comparative evaluation

See energy analysis summary section for portfolio based comparisons and Police Zone 3 provisional EUI ranking.

Provisional energy cost savings

Energy Type	Total Annual Use	Units	Conversion Multiplier	kBtu ⁺	Total Annual Cost (\$)
Electricity	34,802	kWh	3.412142	118,749	\$3,115.91
Natural Gas	1,438	therms	100	143,799	\$1,149.39
Purchased Steam			0	-	
Purchased Hot Water			0	-	
Purchased Chilled Water			0	-	
Oil #:			0	-	
Propane			0	-	
Coal			0	-	
Thermal—On-Site Generated			0	-	
Other			0	-	
Electricity—On-Site Generated			0	-	
Thermal or Electricity—Exported			0	-	
			0	-	
Total				262,548	\$ 4,265.30

Proposed action plan: Phase #1

Scope: Wireless, WEB based energy management system with wireless instruments including:

- Three (3) HVAC controls
- Set-point, set-back, and scheduling controls
- Insulate basement level domestic water piping
- De-Lamping