



CITY OF
PITTSBURGH
PROPERTY CONDITION REPORT



B153 – Medic Headquarters
700 Filbert Street
Pittsburgh, Pennsylvania 15232

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 Shadyside neighborhood at 700 Filbert Street, Pittsburgh, PA. A walk-through survey of the subject property was conducted on August 8, 2013.

The subject property consists of a 2-story medic station and administrative headquarters with basement; containing an apparatus room, central equipment and supply storage, break room, lockers and administrative offices. The property is on a 0.24 AC municipal corner lot.

1.2 General Physical Condition - FAIR

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 **FAIR** overall condition. The major deficiencies and deferred maintenance issues are as follows:

- Masonry at the shell requires restoration.
- Exterior painted surfaces need painting.
- Hose Tower Penthouse needs re-clad and repairs.
- Boiler lacks ductwork for combustion air.
- The fire detection/notification and protection systems are inadequate.

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 #B153 - Medic HQ. SHADYSIDE
 MCMS Project No. 13-707.13

Section	Item	Quantity	Unit	Unit Cost	Cycle Replacement	Replacement %	Immediate Total	Short-Term Total
3.1	SITE							
a	Replace asphalt at drive (5yrs)	1300	SF	\$20				\$25,740
3.2	SUBSTRUCTURE							
a	SW well - repair masonry and seal	1	EA	\$1,000			\$1,000	
b	SW Storage Room - repair slab	1	EA	\$5,000			\$5,000	
c	SW foundation - seal walls	1	EA	\$7,500			\$7,500	
3.3	SHELL							
a	Secure 2nd Flr. window lintel	1	EA	\$2,500			\$2,500	
b	Masonry restoration	1	EA	\$400,000				\$400,000
c	Hose Tower Penthouse - re-clad and reglaze, replace door and stair to roof	1	EA	\$20,000				\$20,000
d	Replace missing downspout on low addition	1	EA	\$100				\$100
e	Roof and flashing coating	1	EA	\$2,000				\$2,000
f	Paint all existing exterior painted surfaces	1	EA	\$25,000				\$25,000
3.4	INTERIORS							
a	Main stair - remove temporary supports, stabilize and repair	1	EA	\$25,000			\$25,000	
b	Evaluate second floor resilient tile for potential ACM	1	EA	TBD				
3.5	SERVICES							
	Plumbing							
	HVAC							
a	Remove combustible materials near Boiler / Boiler Safety Testing	1	EA	\$750			\$750	
b	Combustion air for boiler and water heater	1	EA	\$7,500			\$7,500	
c	Restroom exhaust fan	1	EA	\$1,200			\$1,200	
	Fire Protection							
d	Add fire extinguishers at basement	2	EA	\$1,800			\$3,600	
e	GFI receptacles	3	EA	\$1,800				\$5,400
f	CO detector in Boiler Rm.	1	EA	\$3,500				\$3,500
g	Compressed gas and fuel Storage - NFPA Hazard Classification Study	1	EA	TBD				
	Electrical							
h	Replace heat trace elements	1	EA	\$2,500			\$2,500	
3.6	EQUIPMENT AND FURNISHINGS							
3.7	SPECIAL CONSTRUCTION							
TOTALS							\$56,550	\$481,740

2 Team, Purpose and Scope

2.1 PCA Team

Team Lead, Site, Architectural, Accessibility, Drawings:

Massaro CM Services, LLC

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Enclosure (Roof and Exterior Walls):

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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: Limited scope architectural drawings indicating alterations dated 1981, 1983 and 1989. The dedication stone indicates that the building was originally constructed in 1898. 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 an approximately quarter-acre (0.24AC) parcel. Overall the Site is in Fair condition.

1. Topography and Drainage – The site is generally level along Filbert St. and slopes down several feet along Elmer St. to Culloden Way. The adjacent grade and site paving generally appears to be positively pitched to drain away from the building.
2. Access and Egress – Vehicle access to the subject property is available from three sides, with drive-in access on the two main streets. Egress from the building to grade is available from the first and lower levels.
3. Paving, Curbing and Parking – The site paving at the parking area is asphalt and in Poor condition. The ramp to the parking area along Culloden was replaced with concrete and is in Good condition. The curbs and walks are also in Fair condition. Both concrete aprons are in Good condition. Accessible parking is NOT available. Approx. eleven (11) spaces are available for on-site parking. Overall the site paving is in Fair condition.

Recommendations:

- Replace asphalt at drive
4. Landscaping and Appurtenances – Consists of a small grass lawn area bordered by low hedge, in Good condition.
 5. Site Amenities / Accessory Structures- A stone masonry retaining wall with decorative iron railing at the south side of the lot appears to be in Fair condition. Some mortar loss and corrosion at the rail is apparent.

3.1 Site: Photos



ST1 – Looking south across Elmer St.



ST2 – North façade – north apparatus bay entrance is at center, Culloden Way is at right



ST3 – West façade along Culloden Way



ST4 – Entrance to parking area from Culloden Way. Retaining wall at right, compressed gas storage room is CMU addition at left



ST5 – Egress stair from lower level



ST6 – Retaining wall at south edge of parking area

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 - Stone Masonry in Good condition with a few open mortar joints, areas of plaster spalling from walls. South West corner where water is infiltrating the wall and causing spalling of the plaster. There are open mortar joints and a window well that should be sealed off to prevent this damage.
2. Slab on grade: The basement floor slab has areas of cracking and minor failures but is in Fair condition overall. The concrete floor in the SW Storage Room has concrete failure approximately 18 sq ft near an old well, floor drainage system needs improved. The South West window well is allowing water infiltration and should be sealed

Recommendations:

- SW foundation walls – seal to prevent water infiltration – \$7,500
- SW window well- repair masonry and seal - \$1,000
- SW Storage Room - repair concrete floor slab– \$5,000

3.2 Substructure: Photos



SS1 – SW Storage Room



SS2 – Typical foundation wall and slab

3.3 Shell

1. Overall the Shell is in Fair condition.
2. Building Frame
 - 2.1. The walls are brick. There are areas of open mortar joints, and a few damaged brick. A few open mortar joints occur in the stone and terra cotta above doors
 - 2.2. The front engine bay area is precast concrete planks in good condition
 - 2.3. The laundry room has wet timber floor joists above. Recent repairs to porch deck above may have addressed the water penetration.
 - 2.4. The concrete floor has some sealed cracks in engine bay area
 - 2.5. The concrete floor in other areas has some light cracks
 - 2.6. The concrete encased steel beams are not visible in most cases; a few bottom flanges are exposed by design and are in good condition. A few spalls exist with partially exposing rusted bottom flanges.
 - 2.7. Overall the frame is in Fair condition.
3. Building Façade
 - 3.1. Construction:
 - 3.1.1. Main Building: The building walls are constructed with brick masonry. Wall penetrations include: 4 garage doors (3 wood, 1 metal) with wood frames, 5 man doors (3 wood, 2 metal) with wood frames, 34 windows with wood sashes and wood frames, 14 glass block windows, 2 closed in windows, 7 wall vent openings below the roof line. The second floor window has a timber support and brick step cracking.
 - 3.1.2. Low Addition on SW corner: The walls are constructed with corduroy style cement block. Wall penetrations include: 1 power vent and 1 grill vent opening.
 - 3.1.3. Hose Tower (Penthouse): The walls are wood frame construction covered with asphalt shingles. Wall penetrations include: 1 wood man door with wood frame, 9 windows with wood sashes and wood frames. Wooden steps are installed at the door for access to the main roof.
 - 3.2. Condition:
 - 3.2.1. Main Building: The building walls appear to be in fair condition. Some cracked and open brick joints were observed. There are a few damaged bricks. There are some open mortar joints in the stone and terra cotta features above the doors and windows. There are open mortar joints in the stone foundation walls. The paint is peeling from the wood doors and windows and the metal clad cornice. The caulking at the doors and windows is cracked and aged.
 - 3.2.2. Low Addition: The building walls appear to be in good condition.
 - 3.2.3. Hose Tower (Penthouse): The walls are in extremely poor condition. The shingles are aged, cracked, loose and missing. The underlying wood lath is exposed in some areas. The windows and door are in poor condition. The paint is peeling and some wood trim is loose and broken. The wooden steps are in poor condition. Some stair treads are broken, others are cracked.

Recommendations:

- Secure the second floor storage area window masonry lintel
- Hose Tower Penthouse – Re-clad and reglaze exterior walls. Replace exterior stair to roof. See below for re-roofing.
- Masonry restoration to repair loose/damaged brick, seal cracks, joints and lintels.

4. Roof Deck

The two-story, rectangular building inspected contains approximately 5,578 square feet of roof area. The building contains three delineated roof areas – Main Roof (5,450 SF), Low Roof (128 SF) and a Hose Tower Roof (240 SF).

- 4.1. Construction: The roof decks were not observable and are assumed to be wood sheathing supported by a

wood truss system on the main and tower areas. The deck on the low addition was not observable.

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: No conditions were observed that would indicate insulation problems on the main roof area.

6. Roof System

6.1. Construction: The roof system on the main roof is constructed of a 3-ply built up asphalt membrane with a slag surface. The roof system on the Tower roof is a dimensional asphalt shingle system. The roof system on the Low addition is a fully adhered EPDM membrane.

6.2. Condition: All roof systems appear in good condition. There are a few bare spots on the main roof area.

7. Flashings

7.1. Construction: Main Roof: The perimeter and penetration flashings are constructed with aluminum coated composition flashings. The wall flashings on the Low addition are constructed with the same materials as used on the roofs. There is no flashing on the Tower roof.

7.2. Condition: The flashings appear in good condition. There are some areas of the aluminum coating that are crazed and should be recoated.

8. Perimeter Terminations

8.1. Construction: The building walls extend above the main roof line creating a parapet on the exterior walls. The parapet walls are terminated with metal coping. The base of the Tower wall main roof flashings are terminated with metal counter flashing. The wall flashings on the Low addition are terminated with metal bar.

8.2. Condition: The roof terminations are in good condition.

9. Roof Top Penetrations

9.1. Medic HQ: 5 vent pipes and 2 chimneys on the main roof area.

9.2. Condition: The penetrations are in fair condition. The brick chimney on the south wall is in poor condition and needs repointed.

10. Drainage System

10.1. Construction: The Tower roof drains into an aluminum gutter system with aluminum downspouts and empties onto the main roof with splash block protection. The Low addition slopes to a gutter system on the south side with downspout. The main roof slopes to and drains into four throughwall scuppers with conductor heads and downspouts on the exterior walls. The downspouts empty into standpipes at the ground.

10.2. Condition: All roof drainage systems are in good condition. The downspout on the Low addition is missing.

11. Access: Access to the main roof is through a wood man door in the tower. The stairs to the roof are in poor condition and unsafe. No direct access to the Hose Tower or Low Addition roofs without providing an extension ladder.

CONCLUSIONS

No current leaks are reported in the building and evidence of roof leak staining was observed.

The building walls on the Low Addition are in good condition.

The Main building walls are in fair condition. A few defects were observed. A few brick joint cracks, open mortar joints and damaged bricks were observed. The paint is peeling from all painted surfaces (windows, doors and trim). Bare wood and metal is exposed in some areas.

The building walls on the Tower are in extremely poor condition.

The shingles are falling off the side of the tower leaving exposed wood. The windows are broken, the paint is peeling and the outside steps are in poor condition.

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

All roof systems are in good condition. A few bare spots on the main roof should be repaired and the flashings recoated.

The roof top penetrations are in fair condition.

The drainage system is in good condition. Debris should be cleaned from the main roof and drain areas and continued to be cleaned twice yearly. The missing downspout on the Low Addition should be replaced.

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

Estimates:

1 year: Replace the missing downspout on the Low addition, coat the bare spots on the main roof and recoat (aluminum coating) the flashings on the main roof – Estimated cost: \$2,000. Paint all existing painted surfaces – Estimated cost: none (can be performed in house). Point the masonry and terra cotta areas of the building Install new caulking as doors and windows (this work will have to be bid and completed as the budget permits – This work can be spread over a few years to better fit the budget).

The wall covering, windows, door and steps on the Tower area will have to be replaced. This work will have to be bid and estimated to be in the \$20,000 range.

Inspect the roof system and walls on a regular schedule – minimum twice a year (late spring and late fall).

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 – Damaged brick at apparatus doors



SH2 – Peeling paint at main cornice



SH3 – Typical window – peeling paint and cracked or missing caulking



SH4 – Cracking and open joints at NW corner



SH5 – Numerous open joints



SH6 – Recent repair at recessed porch on east side

3.3 – Shell: Photos Continued



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



SH8 – Main roof looking north



SH9 – Main roof looking NW, hose tower penthouse is at center



SH10 – Main roof looking west, chimney at center needs repair



SH11 – Typical through-wall scupper with heat trace



SH12 – Hose tower penthouse - Poor condition

3.4 Interiors

1. Interior Construction

- 1.1. Interior partitions are primarily wood framed or masonry with cement plaster finish and are in Fair condition.
- 1.2. Doors and frames are typically wood or metal construction with some commercial grade hardware and are in Fair condition.

2. Stairs

- 2.1. The interior wood stairs to the second floor are in Poor condition. Settlement has occurred and temporary wooden support posts were previously added.
- 2.2. The concrete stairs to basement are in Fair condition. The newer metal stairs at the west side are being used as a materials handling chute but appear to be in Good condition.

Recommendation: Main wood stair - remove temporary support, stabilize and repair. Care should be taken to respect existing historic aesthetic, materials and detail.

- #### **3. Interior Finishes – Typical flooring throughout the building is resilient tile or carpet in Fair condition. Bathroom flooring is ceramic tile or slab marble. 9" x 9" tile at second floor should be evaluated for potential Asbestos Containing Materials (ACM). Ceilings are typically ACT throughout and are in Fair condition. Some tiles need replaced. Ceiling in Apparatus Room is original wood beadboard and is in Fair condition. Plaster ceilings and wood beadboard ceiling at lower level are in Fair to Poor condition.**

Recommendation: Evaluate second floor tile for potential ACM.

3.4 Interiors

1. Interior Construction

- 1.1. Interior partitions are primarily wood framed or masonry with cement plaster finish and are in Fair condition.
- 1.2. Doors and frames are typically wood or metal construction with some commercial grade hardware and are in Fair condition.

2. Stairs

- 2.1. The interior wood stairs to the second floor are in Poor condition. Settlement has occurred and temporary wooden support posts were previously added.
- 2.2. The concrete stairs to basement are in Fair condition. The newer metal stairs at the west side are being used as a materials handling chute but appear to be in Good condition.

Recommendation: Main wood stair - remove temporary support, stabilize and repair. Care should be taken to respect existing historic aesthetic, materials and detail.

- #### **3. Interior Finishes – Typical flooring throughout the building is resilient tile or carpet in Fair condition. Bathroom flooring is ceramic tile or slab marble. 9" x 9" tile at second floor should be evaluated for potential Asbestos Containing Materials (ACM). Ceilings are typically ACT throughout and are in Fair condition. Some tiles need replaced. Ceiling in Apparatus Room is original wood beadboard and is in Fair condition. Plaster ceilings and wood beadboard ceiling at lower level are in Fair to Poor condition.**

Recommendation: Evaluate second floor tile for potential ACM.

3.4 Interiors: Photos



11 – Main Apparatus Bay



12 – North Apparatus Bay



13 – Storage and workshop area



14 – Storage rooms at SW corner of Main Apparatus Bay



15 – Medic Station – door to Main Apparatus Bay is at center, door to entrance porch is at left



16 – Medic Station Kitchen / Dining

3.4 Interiors: Photos



17 – Main stair with temporary supports in foreground



18 – Second Flr. open office



19 – Second Flr. private office



110 – Second Flr. Storage / Work Area / Kitchenette



111 – Hose Tower Penthouse



112 – Lower level Storage

<u>Location</u>	<u>Boiler</u>	<u>Type</u>	<u>Fuel</u>	<u>Comb</u>	<u>Pump(s)</u>	<u>Type</u>	<u>XTank</u>	<u>CA</u>	<u>Control</u>	<u>Comments</u>
Basement M.E.R.	1	HW	NG	ND	1	ILC	1	No	Decom.	No boiler inspection certificate

Note 1: Boiler safety devices and control testing not included in project scope.

Note 2: Boiler inspection should be performed by competent official as required by L&I.

Note 3: Boiler safety devices testing should be performed by competent technician, twice during heating season.

CA = Combustion Air supply duct

Comb = Combustion Type

Decom. = De-Commissioned, Partial

HW = Hot Water

ILC = In-Line Centrifugal Pump

M.E.R. = Mechanical Equipment Room

ND = Natural Draft

NG = Natural Gas

XTank = Thermal Expansion Tank

1.1.10. Condition: Central Boiler - Poor

1.1.10.1. Safety Concerns:	Boiler clearance to combustibles
1.1.10.2. Safety Concerns:	Boiler permit, Boiler safety controls testing
1.1.10.3. Code non-compliance issues:	No Dedicated combustion air system
1.1.10.4. Functional Deficiencies:	None reported or observed
1.1.10.5. Performance Deficiencies:	OA reset
1.1.10.6. Maintenance observations:	Boiler age general condition
1.1.10.7. Remaining useful life observations (RUL):	2-3 years

Note: The field audit and PCA did not include functional testing of boiler safety devices, water heater safety devices, nor fire or smoke alarm systems.

1.2. 1st Floor HVAC: The space conditioning ventilation systems for the first floor are comprised of hot water radiators (RAD), WACU's, exhaust fans, Gravity ventilation chimney(s), and fin-tube heaters in gas storage rooms.

1.2.1. Construction: Hot water radiators (RAD): Cast iron, original to building

1.2.2. Condition: Room terminal units - Poor

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):	3-5 years

1.2.3. Construction: Hot water heating elements: Fin-tube, copper/aluminum

1.2.4. Condition: Fin-tube - Good

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: Window air conditioning units (WACU): Self-contained commercial type

1.2.6. Condition: WACU - **Poor**

1.2.6.1. Physical Deficiencies:	None reported or observed
1.2.6.2. Functional Deficiencies:	None reported or observed
1.2.6.3. Performance Deficiencies:	None reported or observed
1.2.6.4. Maintenance observations:	None reported or observed
1.2.6.5. Remaining useful life observations (RUL):	2-4 years

1.2.7. Construction: Exhaust Fan: Wall mount propeller type

1.2.8. Condition: Exhaust Fan - **Fair**

1.2.8.1. Physical Deficiencies:	None reported or observed
1.2.8.2. Functional Deficiencies:	None reported or observed
1.2.8.3. Performance Deficiencies:	None reported or observed
1.2.8.4. Maintenance observations:	None reported or observed
1.2.8.5. Remaining useful life observations (RUL):	3-5 years

1.2.9. Construction: Gravity ventilation chimney(s): Hollow tile masonry unit, original to building

1.2.10. Condition: Gravity ventilation chimney(s) – **Fair**.

1.2.10.1. Limited access

Note: See life safety section for spark resistant exhaust fan located Flammable storage rooms.

1.3. 2nd Floor HVAC: The space conditioning system for the first floor is comprised of hot water radiators (RAD) and WACU's.

1.3.1. Construction: Hot water radiators (RAD): Cast iron, original to building

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

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):	3-5 years

1.3.3. Construction: Window air conditioning units (WACU): Self-contained commercial type

1.3.4. Condition: WACU - **Poor**

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):	2-4 years

1.3.5. Construction: Exhaust Fan: Commercial propeller type

1.3.6. Condition: Exhaust Fan - **Fair**

1.3.6.1. Physical Deficiencies:	None reported or observed
1.3.6.2. Functional Deficiencies:	None reported or observed
1.3.6.3. Performance Deficiencies:	None reported or observed
1.3.6.4. Maintenance observations:	None reported or observed
1.3.6.5. Remaining useful life observations (RUL):	3-5 years

1.3.7. Construction: Gravity ventilation chimney(s): Hollow tile masonry unit, original to building

1.3.8. Condition: Gravity ventilation chimney(s) – **Fair**.

1.3.8.1. Limited access

- 1.4. Performance Observations
 - 1.4.1. Indoor Air Quality (IAQ): No provision for direct fresh / outside air.
 - 1.4.2. Energy and Sustainability: The boiler system is observed to be of lower combustion efficiency due to age, construction, and maintenance condition.
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: **Fair**
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. De Minimum Costs
 - 4.1.1. Remove combustible materials from boiler area
 - 4.1.2. Boiler Safety Testing: \$250 (Fire and Ice heating)
 - 4.1.3. Enclose bottom of hose tower.
 - 4.2. Short-Term Costs
 - 4.2.1. Specialty Consulting – Combustion air duct design: \$2,000
 - 4.2.2. Combustion air: \$7,500
 - 4.2.3. Restroom exhaust fan: \$1,200
 - 4.3. Mid-Term Costs
 - 4.3.1. Replace one (1) thermostat with programmable, wireless device: \$800
 - 4.3.2. Install new wireless, WEB based Energy Management Controller/Gateway/WEB server: \$4,000
 - 4.3.3. Replace existing boiler with two (2) high efficiency model (Triad 300SH): \$26,500

EEM Summary Table - Medic HQ

Measure Number	Measure Description	Expected energy reduction*	Estimated cost with Incentive		
			Measure Cost	Potential Utility Incentive	Net Measure Cost
EEM-1a	A: Replace old uncalibrated thermostat(s) with programmable, wireless devices. B: Replace existing manual lighting switches with motion based detectors (occupancy). C: Install pipe insulation at boiler supply and hot water supply.	9%	\$ 6,200	\$ 200	\$ 6,000
EEM-1b	D: De-lamp lighting fixtures to new ASHRAE/IES standard. E: Install LED type emergency lights.	7%	\$ 1,195	\$ 150	\$ 1,045
EEM-2	Extend motion based occupancy detectors to Window Air Conditioning Unit control (WACU).	5%	\$ 2,000	\$ 150	\$ 1,850
EEM-3	Install wireless radiator control valves	10%	\$ 6,900	\$ 100	\$ 6,800
EEM-5	A: Install OA reset controller (Tekmar 246 - BacNet). B: Actuated vent damper for boiler systems, HWS and HWR sensors. C: Domestic water temperature set-back controls.	10%	\$ 6,800	\$ 200	\$ 6,600
EEM-6	Install new wireless, WEB based Energy Management Controller/Gateway/WEB server	10%	\$ 4,000	\$ 400	\$ 3,600
TOTALS (Recommended Measures)		20%**	\$ 27,095	\$ 1,200	\$ 25,895

* Percentage of contributing system, not overall energy cost

** Expected percentage of overall gas and electrical energy cost

4.5.1.1 HVAC: Roof level areas



HVAC 1 – Hose drying tower- 1a



HVAC 2 – Hose drying tower- 1b



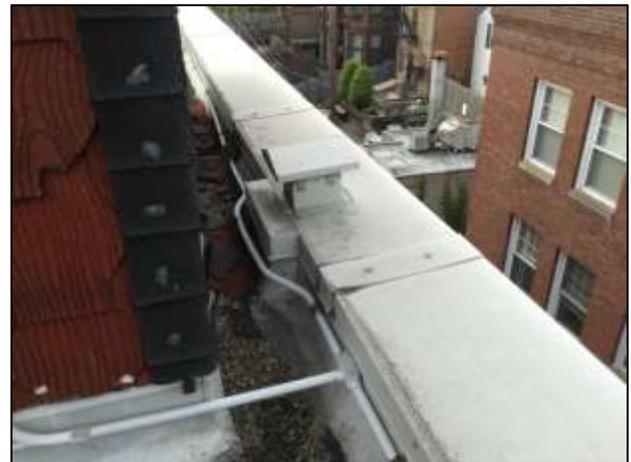
HVAC 3 – Integral gravity chimney – Vent cap



HVAC 4 – Integral gravity chimney – Vent cap



HVAC 5 – Integral gravity chimney – Vent cap



HVAC 6 – Integral gravity chimney – Vent cap

4.5.1.2 HVAC: Roof level and Perimeter



HVAC 7 – Integral gravity chimney – Vent cap



HVAC 8 – Integral gravity chimney – Vent cap



HVAC 9 – Window air conditioning unit (WACU)



HVAC 10 – Window air conditioning unit (WACU)



HVAC 11 – Flammable storage room exhaust fan and Office WACU



HVAC 12 – Natural gas meter

4.5.1.3 HVAC: Basement



HVAC 13 – Uninsulated hot water piping: Convective heat source



HVAC 14 – HVAC 13 – Uninsulated hot water piping: Convective heat source



HVAC 15 – Tube-in-tube overhead radiator



HVAC 16 – Dehumidifier



HVAC 17 – Boiler: Convective heat source



HVAC 18 – Uninsulated Boiler breaching: Convective heat source

4.5.1.4 HVAC: 1st Floor



HVAC 19 – Hot water radiator (RAD)



HVAC 20– Hot water radiator (RAD)



HVAC 21 – Hot water radiator (RAD)



HVAC 22 – Exhaust fan: Apparatus room



HVAC 23 – Hot water radiator (RAD)



HVAC 24 – Hot water radiator (RAD)

4.5.1.5 HVAC: 1st Floor



HVAC 25 – Electric baseboard



HVAC 26 – Window air conditioning unit (WACU)



HVAC 27 – Circulation fans



HVAC 28 – Hot water radiator (RAD)



HVAC 29 – Integral gravity chimney: Inlet grill

4.5.1.6 HVAC: 2nd Floor



HVAC 30 – Window air conditioning unit (WACU)



HVAC 31 – Hot water radiator (RAD)



HVAC 32 – Hot water radiator (RAD)



HVAC 33 – Hot water radiator (RAD)



HVAC 34 – RAD and Window exhaust fan



HVAC 35 – Hot water radiator (RAD)

4.5.1.7 HVAC: 2nd Floor



HVAC 36 – Window exhaust fan



HVAC 37 – Supply air grill



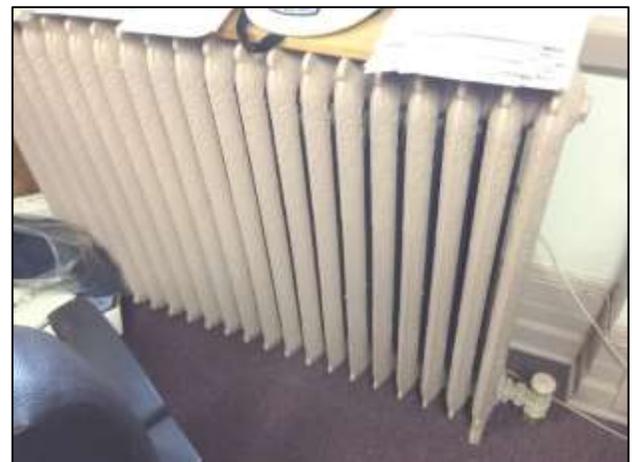
HVAC 38 – Hot water radiator (RAD) with Control valve



HVAC 39 – Window air conditioning unit (WACU)



HVAC 40 – Window air conditioning unit (WACU)



HVAC 41 – Hot water radiator (RAD)

4.5.1.8 HVAC: 2nd Floor



HVAC 42 – Window air conditioning unit (WACU)



HVAC 43 – Hot water radiator (RAD)



HVAC 44 – Hot water radiator (RAD)



HVAC 45 - Window air conditioning unit (WACU)

4.5.1.9 HVAC: Boiler System



HVAC 46 – Boiler



HVAC 47 – Boiler



HVAC 48 – Boiler control devices



HVAC 49 – Boiler gas train



HVAC 50 – Boiler breeching



HVAC 51 – Hot water system expansion tank

4.5.1.10 HVAC: Boiler System



HVAC 52 – Boiler: Clearance to combustibles – Safety and Building code concern



HVAC 53 – HVAC 35 – Boiler: Clearance to combustibles – Safety and Building code concern



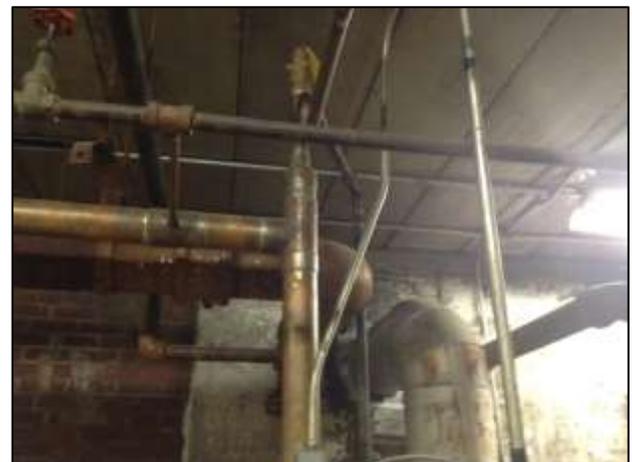
HVAC 54 – Hot water pump: Undersized, poor location and support



HVAC 55 – Hot Water system: Make-up water



HVAC 56 – HVAC 35 – Boiler: Clearance to combustibles – Safety and Building code concern



HVAC 57 – Hot Water system: Piping and Air vent

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, suspended, and surface mount florescent fixtures. Motion detector / light switches present on in several 2nd floor rooms. Larger interior spaces on all levels are observed to be over lit according to recent ASHRAE/IES standard.
- 1.2. Construction: Efficient T8 lamps and ballasts.
- 1.3. Condition Assessment: **Good**

Room	Lighting Fixtures		Lamps				W2
	Q1	Length	Type	W1	Q2	Type	
Basement (a)	38	4'	Fluor.	32	2	T8	1,946
Basement (b)	1	na	Incand.	120	1	na	120
Total: Basement							2,066
First Floor (a)	1	4'	Fluor.	32	1	T8	26
First Floor (b)	2	na	Incand.	120	1	na	240
First Floor (c)	61	4'	Fluor.	32	2	T8	3,123
Total: First Floor							3,389
Second Floor (a)	17	4'	Fluor.	32	2	T8	870
Second Floor (b)	42	4'	Fluor.	32	4	T8	4,301
Second Floor (c)	1	na	Incand.	120	1	na	120
Second Floor (d)	5	4'	Fluor.	32	1	T8	128
Total: Second Floor							5,419
Perimeter	7	na	HPS	150	na	na	1,050

AFF = Mounting Height Above Finished Floor
 Flour = Fluorescent
 Incand. = Incandescent lamp
 HPS = High Pressure sodium
 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 T8 lamps)

- 1.4. Construction: Heat trace elements (roof Top)
- 1.5. Condition Assessment: **Derelict**

- 1.5.1.1. Physical Deficiencies:
- 1.5.1.2. Functional Deficiencies:
- 1.5.1.3. Performance Deficiencies:
- 1.5.1.4. Maintenance observations:
- 1.5.1.5. Remaining useful life observations (RUL):

Deteriorated insulation – Immediate safety hazard
 None reported or observed
 None reported or observed
 None reported or observed
 0-1 years

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: Utility connection and galvanized conduit.
 - 3.2. Condition Assessment
 - 3.2.1. Condition Power Service: **Poor**
 - 3.2.2. Condition Electric Meter: **Good**

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

5. Estimates: Suggested remedies and Opinion of probable cost
 - 5.1. De-Minimus Costs
 - 5.1.1. Replace defective photo cells for perimeter light.
 - 5.2. Short-Term Costs
 - 5.2.1. Replace heat trace elements: \$2,500
 - 5.2.2. Specialty Consulting – Light meter testing: \$1,700
 - 5.2.3. De-lamping to ASHRAE/IES standard: \$800

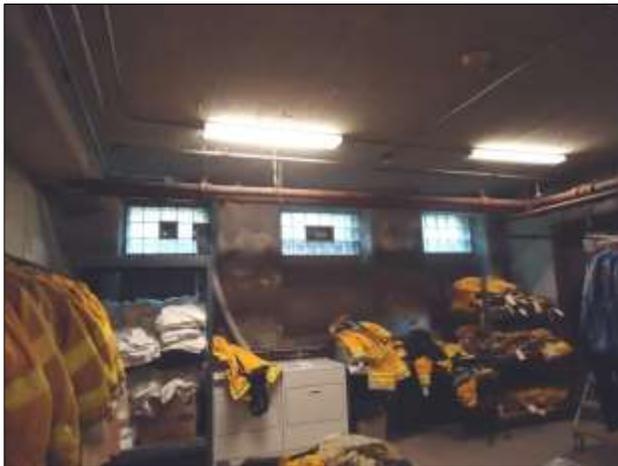
4.5.2.1 Interior Lighting: Basement



E1 – Surface mount fixture



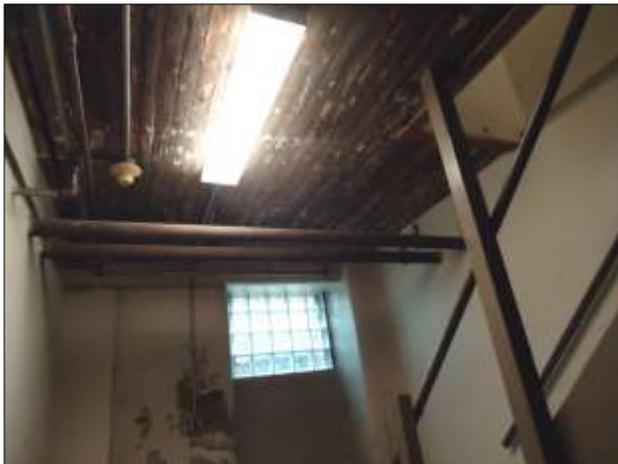
E2 – Surface mount fixture



E3 – Surface mount fixture



E4 – Surface mount fixture



E5 – Surface mount fixture



E6 – Surface mount fixture

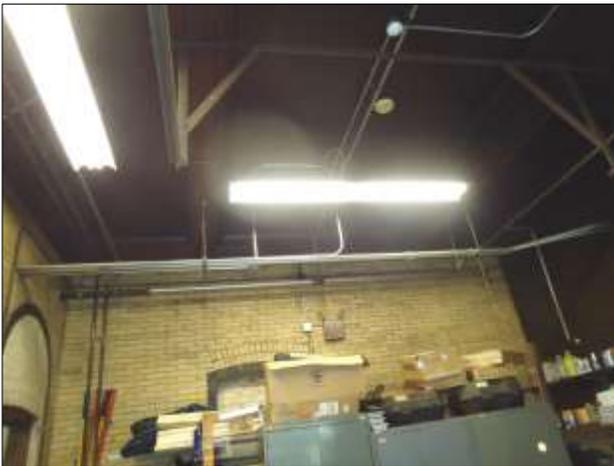
4.5.2.2 Interior Lighting: 1st Floor



E7 – Suspended fixtures and Natural lighting



E8 – Suspended fixtures



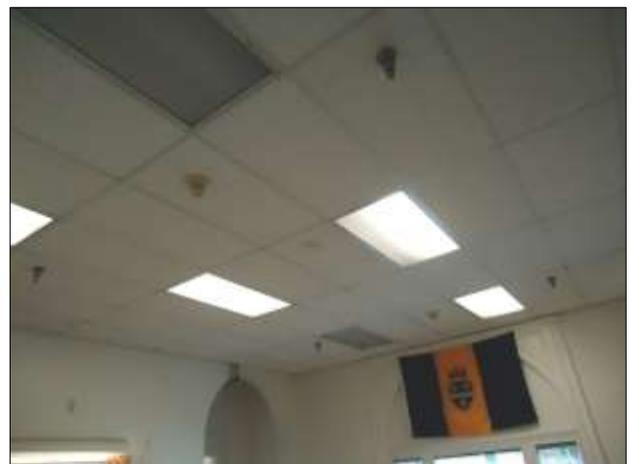
E9 – Suspended fixtures



E10 – Suspended fixtures



E11 – Suspended fixtures



E12 – Recessed fixtures and Natural lighting

4.5.2.3 Interior Lighting: 1st Floor



E13 – Task/Map light



E14 – Recessed fixtures



E15 – Suspended fixtures and Natural lighting



E16 – Suspended fixtures



E17 – Suspended fixture

4.5.2.4 Interior Lighting: 2nd Floor



E18 - Suspended fixture and Natural lighting



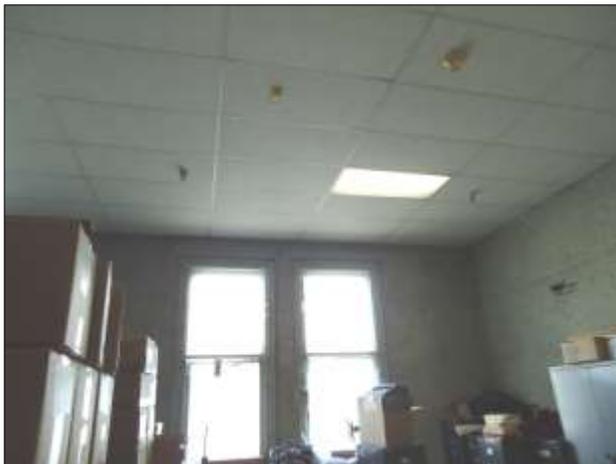
E19 – Suspended fixture



E20 – Suspended fixture



E21 – Recessed fixtures



E22 – Recessed fixtures and Natural lighting



E23 – Recessed fixtures

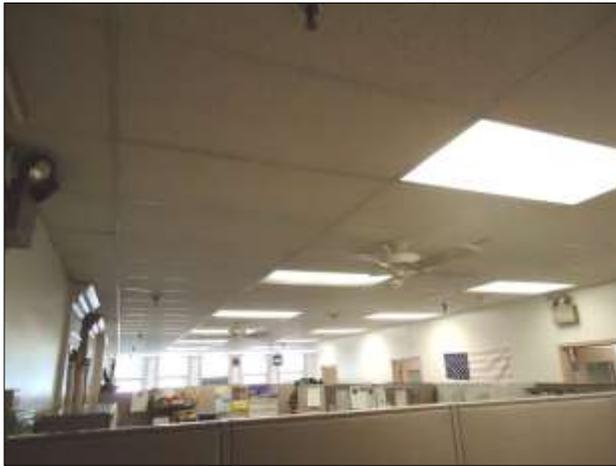
4.5.2.5 Interior Lighting: 2nd Floor



E24 – Recessed fixtures



E25 – Recessed fixtures



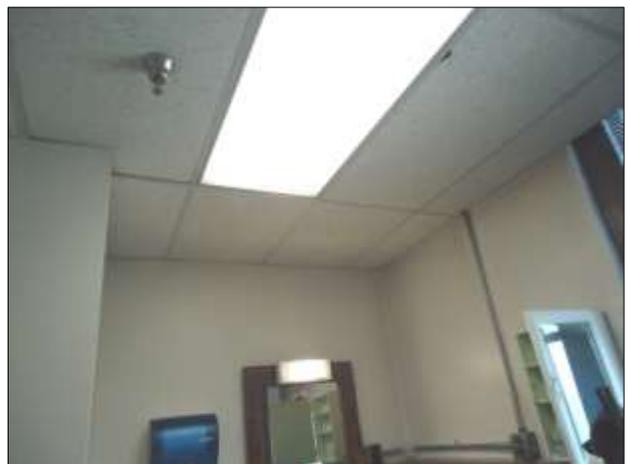
E26 – Recessed fixtures



E27 – Recessed fixtures and Natural lighting



E28 – Recessed fixtures and Natural lighting



E29 – Recessed fixture

4.5.2.6 Interior Lighting: 2nd Floor



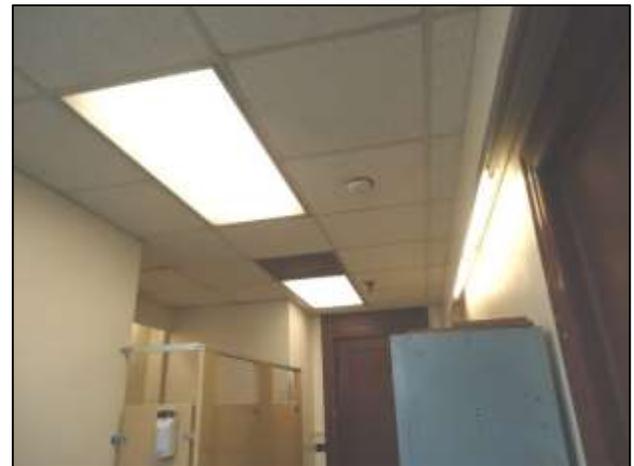
E30 – Suspended fixtures



E31 – Suspended fixtures and Natural lighting



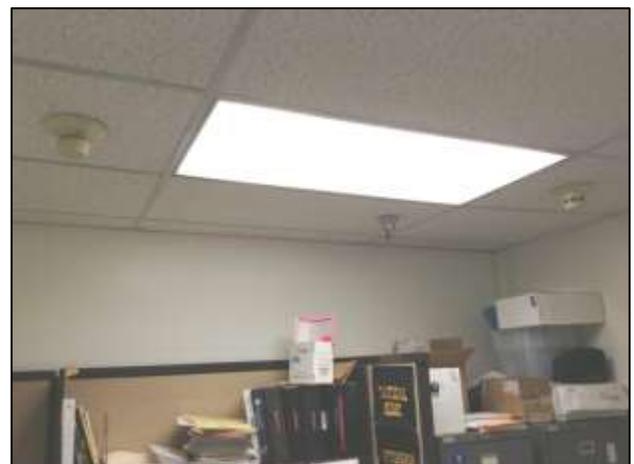
E32 – Recessed and linear fixtures



E33 – Recessed fixtures



E34 – Rest room fixtures



E35 – Recessed fixture

4.5.2.7 – Electrical Service, Panels, and Perimeter lighting



E36 – Service - 1a



E37 – Service – 1b



E38 – Service – 1c



E39 – Meter panel



E40 – Meter



E41 – Perimeter lighting: Photo cell malfunction

4.5.2.8 – Electrical panels and misc.



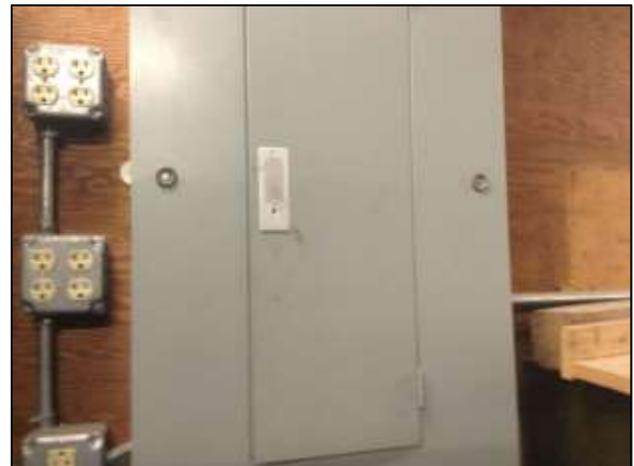
E42 – Power panel 1a



E43 – Power panel 1b



E44 – Power panel 1c



E45 – Power panel 1d



E46 – Power panel 1e



E47 – Receptacle and switch (typical)

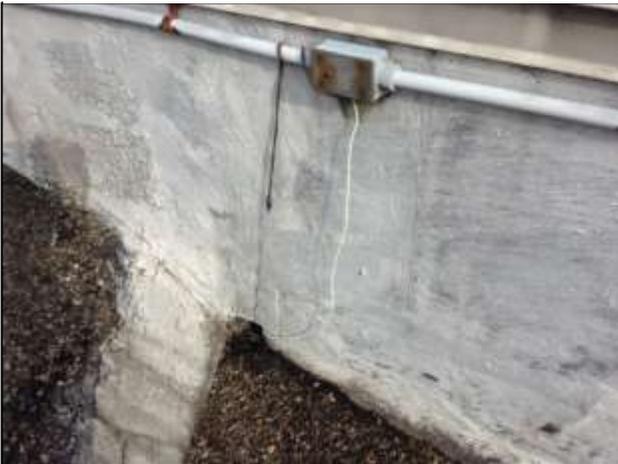
4.5.2.9 – Electrical: Freeze Protection



E48 – Heat trace cable: Insulation deterioration – Safety hazard (Typical of 4)



E49 – Heat trace cable: Insulation deterioration – Safety hazard



E50 – Heat trace cable: Insulation deterioration – Safety hazard



E51 – Heat trace cable: Insulation deterioration – Safety hazard

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. Seven (7) toilets
 - 1.2.2. One (1) urinal
 - 1.2.3. Five (5) lavatory sinks
 - 1.2.4. One (1) kitchen sinks
 - 1.2.5. Three (3) janitor's sinks
 - 1.2.6. Four (4) showers
- 1.3. Condition Assessment
 - 1.3.1. Condition: **Poor**

2. Domestic Water Production

- 2.1 Construction: The domestic water heating system is served by one A.O. Smith (1) 80 gallon, commercial water heater and supply piping.

<u>Location</u>	<u>DWH</u>	<u>Type</u>	<u>CAP</u>	<u>Fuel</u>	<u>Pump</u>	<u>SSw</u>	<u>XTank</u>	<u>PRV*</u>	<u>CA</u>	<u>Control</u>	<u>Comments</u>
Basement M.E.R.	1	Tank	80	NG	No	Yes	No	Yes	No	Unit	Installation Date: 7/12/02

Note 1: Water heater safety devices and control testing not included in project scope.

Note 2: Water heater safety devices testing should be performed by competent technician.

CA = Combustion air source: dedicated

CAP = Storage Capacity: Gallons

DWH = Domestic Water Heater

M.E.R. = Mechanical Equipment Room

NG = Natural Gas

PRV = Pressure relief valve with extension piping

SSw = Spill Switch: Draft safety

XTank = Thermal Expansion Tank

2.1.1 Water Heater Condition: **Fair**

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 overall plumbing system is in poor 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 Floor



P1 – Janitor sink



P2 – Janitor sink and Sprinkler system drain pipe



P3 – Toilet



P4 – Lavatory sink



P5 – Shower



P6 – Kitchen sink

4.5.2.2 Plumbing fixtures: 2nd Floor



P7 – Lavatory sink



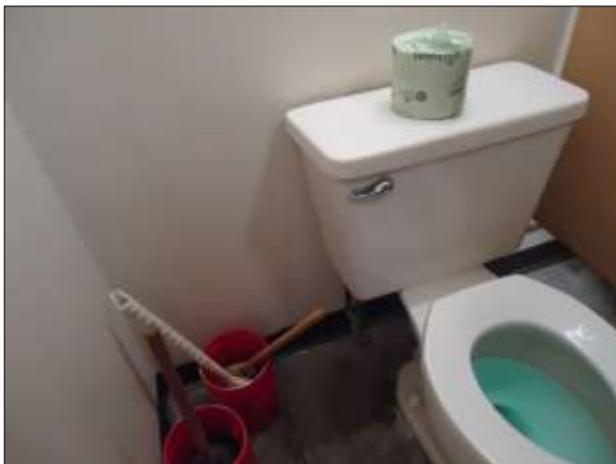
P8 – Restroom



P9 – Shower



P10 – Lavatory sink



P11 – Toilet



P12 – Shower

4.5.2.3 Plumbing fixtures: 2nd Floor



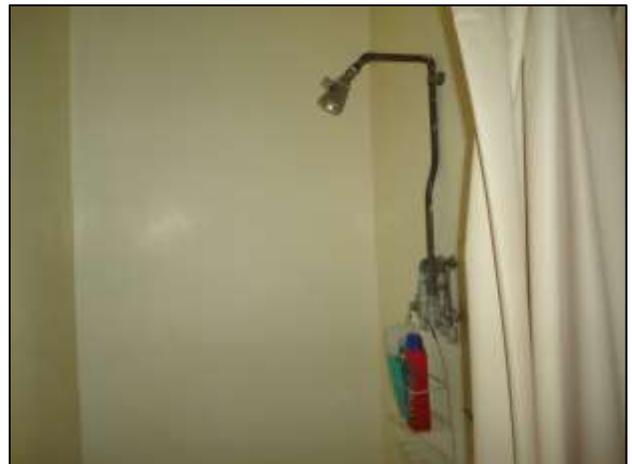
P13 – Toilet



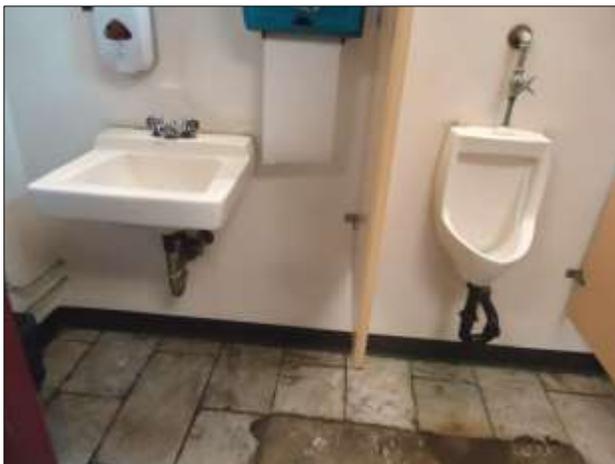
P14 – Janitor sink



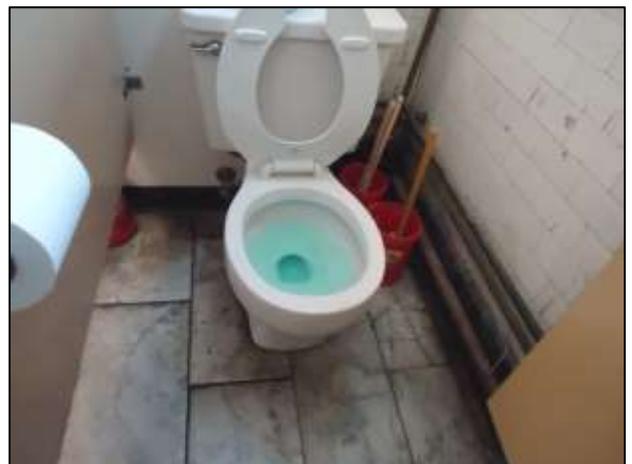
P15 – Janitor sink and Sprinkler system drain pipe



P16 – Shower



P17 – Men's restroom



P18 – Toilet

4.5.2.4 Plumbing fixtures: Basement



P19 – Work sink



P20 – Small restroom



P21 – Laundry sink



P22 – Work sink

4.5.2.5 Domestic water service



P23 – Domestic water heater 1a



P24 – Domestic water heater 1b



P25 – Domestic water heater 1c



P26 – Domestic water heater controls



P27 – Domestic water heater PRV



P28 – Domestic water heater gas train

4.5.2.6 Domestic water service



P29 – Domestic water service



P30 – Domestic water service and back flow preventer



P31 – Domestic water meter

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: **Fair**
 - 1.2.1.1. Physical Deficiencies: None.

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

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: **Fair**
5. Emergency Lighting
 - 5.1. Construction: Emergency lighting present at required exists and stairwells.
 - 5.2. Condition Assessment: **Fair**
6. Ground Fault Interruption (GFI)
 - 6.1. Construction GFI's: Present in most locations.
 - 6.2. Condition Assessment GFI's: **Fair**
7. Fuel, Industrial Gas, and Medical Gas storage – General Description: The Medic Headquarters building stores flammable gases, liquid fuels, industrial gas, medical gas, and oxygen cylinders. Included are Liquid propane (LP), gasoline, diesel fuel, acetylene, oxygen, nitrous oxide, and lubricating oils. The majority of the flammable gases and liquids are stored in the designated, special purpose rooms. The exceptions are partially empty cylinders in the work room, and nitrous oxide cylinders stored in the apparatus room.
 - 7.1. Construction: The Flammable Storage room is equipped with a single spark resistant exhaust fan. The room designated as Medical gas storage, which contains the oxygen, has no exhaust system. Room designation signage may not be fully correct. There are many observed physical and operational deficiencies. Both rooms have open connection EMT type electrical tubing. Both rooms have open connection fixtures for lighting and smoke detectors. Neither room has gas monitoring and alarming. Neither room has any provision for Make-up air for ventilation purposes. As a result, the exhaust fan in the Flammable Storage room is incapable of ventilating the room properly with the door closed. Neither room has automatic exhaust fan activation, and can only be activated by a manual switch. It is reported and observed that the storage rooms and contiguous section of the apparatus room are often unoccupied. The rooms therefore have the potential for fume or gas concentration build-up without alarming, without adequate venation/dilution air, and without automatic fan control. It is reported and observed that Oxygen cylinder inventory levels exceed the storage capacity of the Medical gas room for both cylinders and large tanks. Overstock cylinders are staged in portable carts in the apparatus room in close proximity to vehicle exhaust points. Cylinders are not properly stored or restrained. The nitrous oxide storage in the apparatus room is also in close proximity to vehicle exhaust pipe points. **There are multiple (1) safety concerns and multiple potential (2) code violations, (3) EPA violations, and (4) NFPA violations.** Both the rooms are equipped with fin-tube heating elements.
 - 7.2. Condition Gas and fuel storage: **Derelict**

8. Conclusions:
 - 8.1. The building fire protection and general life safety systems are in fair condition. The hazardous and flammable storage rooms and systems is derelict.
9. Estimates: Suggested remedies and Opinions of probable cost
 - 9.1. Short term costs
 - 9.1.1. Add a minimum of two (2) fire extinguishers for the basement areas: \$500
 - 9.1.2. Add a minimum of three (3) GFI receptacles for laundry area and kitchen: \$1,800
 - 9.1.3. Add Carbon Monoxide Detector-Alarm in Boiler Room: \$3,500
 - 9.1.4. Specialty Consulting – Hazardous storage: (1) Engineering study, (2) Remediation plan, (3) Renovation design diagrams, and (4) Cost estimating including the following items. Hazardous classification assessments, make-up air system, exhaust system, storage cabinets, electrical conduit, lighting, leak detection, and alarming. \$14,500 (see detailed proposal)

4.5.4.1 Fire Protection: 1st Floor



FP 1 – Extinguisher – 1a



FP 2 – Extinguisher – 1b



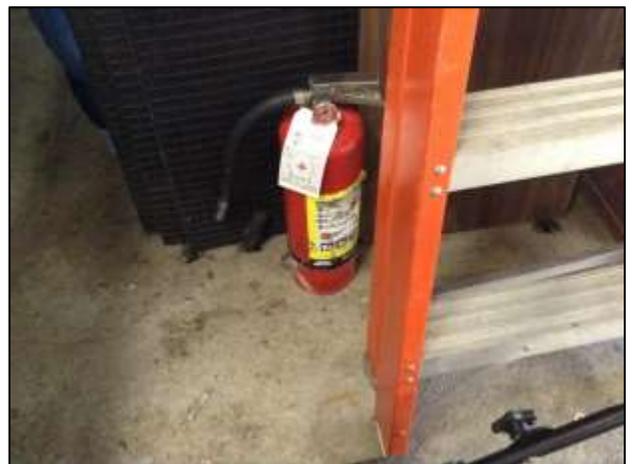
FP 3 – Extinguisher – 2a



FP 4 - Extinguisher – 2b



FP 5 – Extinguisher staging



FP 6 – Extinguisher

4.5.4.2 Fire Protection: 1st Floor



FP 7 – Fire alarm system panel 1a



FP 8 – Fire alarm system panel 1a



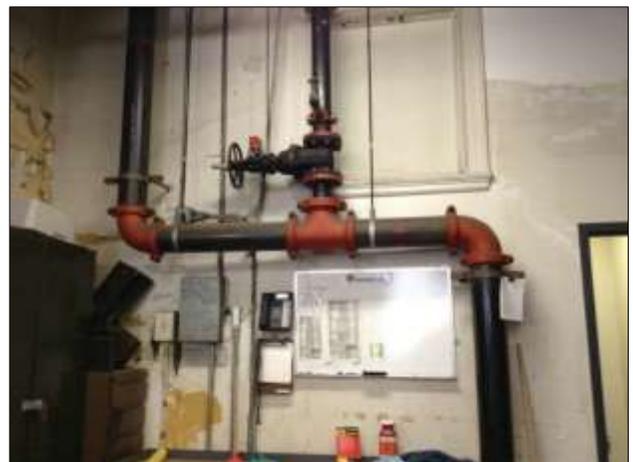
FP 9 – Alarm horn



FP 10 – Alarm bell



FP 11 – Extinguisher



FP 12 – Sprinkler piping

4.5.4.3 Fire Protection: 1st Floor



FP 13 – Sprinkler system – 1a



FP 14 – Sprinkler system – 1b



FP 15 – Sprinkler system – 1c

4.5.4.4 Fire Protection: 2nd Floor



FP 16 – Sprinkler head



FP 17 – Smoke/Fire detector



FP 18 – Sprinkler head and Smoke/Fire detector



FP 19 – Sprinkler head and Smoke/Fire detector



FP 20 – Sprinkler head



FP 21 – Sprinkler head and Smoke/Fire detector

4.5.4.5 Fire Protection: 2nd Floor



FP 22 – Extinguisher – 3a



FP 23 – Extinguisher – 3b



FP 24 – Extinguisher – 4a



FP 25 – Extinguisher – 4b



FP 26 – Extinguisher

4.5.4.6 Fire Protection: Basement



FP 27 – Sprinkler system



FP 28 – Sprinkler system



FP 29 – Sprinkler system



FP 30 – Sprinkler system



FP 31 – Sprinkler system manifold and valves - 1a



FP 32 – Sprinkler system manifold and valves – 1b

4.5.4.7 Life Safety: 1st Floor



LS 1 – Emergency light fixture



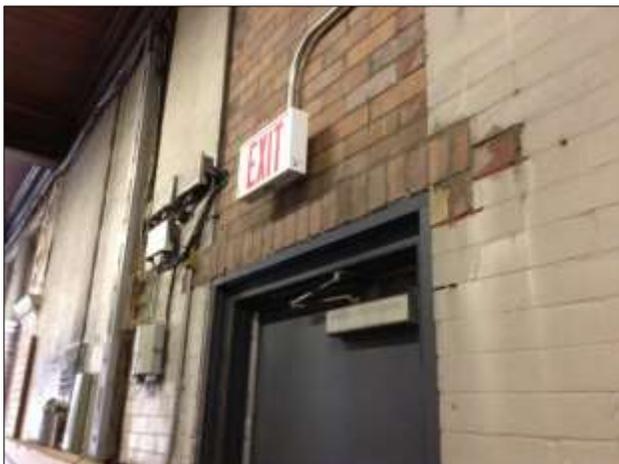
LS 2 – Emergency light / sign fixture



LS 3 – Emergency light fixture



LS 4 – Emergency light fixture



LS 5 – Emergency light / sign fixture



LS 6 – Emergency light fixture

4.5.4.8 Life Safety: 1st Floor



LS 7 – Emergency light / sign fixture



LS 8 – Kitchen receptacle



LS 9 – Kitchen receptacle

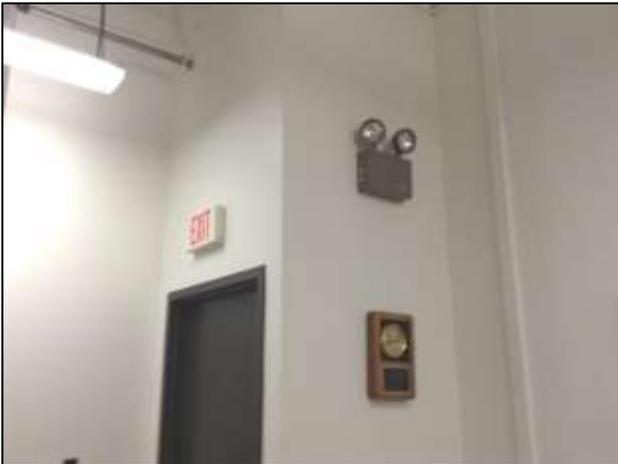
4.5.4.9 Life Safety: 2nd Floor



LS 10 – Emergency light / sign fixture



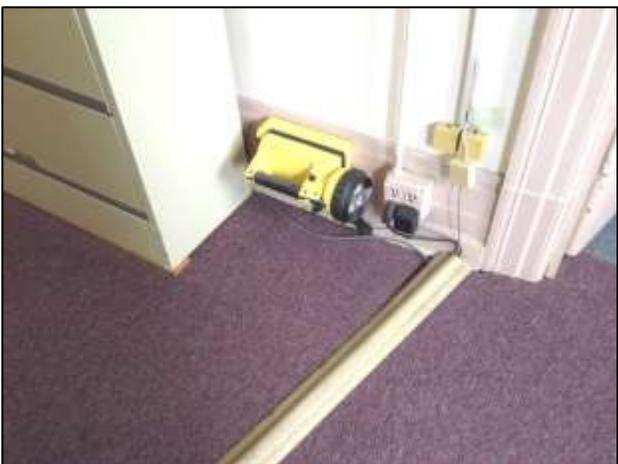
LS 11 – Kitchen receptacle



LS 12 – Emergency light / sign fixture and Emergency light



LS 13 – Defibrillator



LS 14 – Emergency lantern

4.5.4.10 Life Safety: Basement



LS 15 – Emergency light / sign fixture



LS 16 – Emergency light / sign fixture

4.5.4.11 Life Safety: Flammable Storage room – Fuels and Gases



LS 17 – Flammable Storage safety sign



LS 18 – Flammable Storage room: Solid door no Make-up air



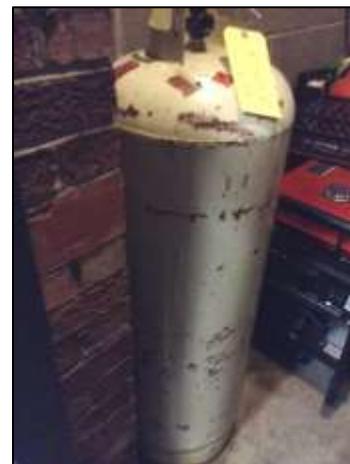
LS 19 – Flammable Storage room and vehicle exhaust point



LS 20 – Flammable Storage room



LS 21 – Gasoline generators: Integral tanks



LS 22 – Large propane cylinder: Unrestrained

4.5.4.12 Life Safety: Flammable Storage room – Fuels and Gases



LS 23 – Flammable Storage room: Gasoline can



LS 24 – Flammable Storage room: Gasoline container



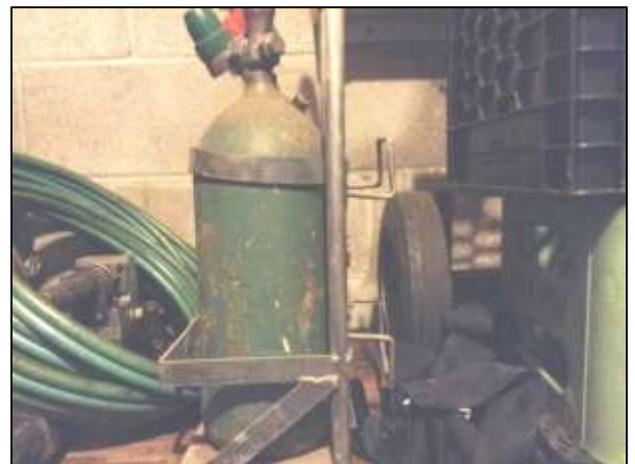
LS 25 – Flammable Storage room: Diesel Fuel containers



LS 26 – Flammable Storage room: Gasoline container



LS 27 – Flammable Storage room: Gasoline container



LS 28 – Acetylene cylinder

4.5.4.13 Life Safety: Flammable Storage room – Fuels and Gases



LS 29 – Oil and solvents



LS 30 – Exhaust fan inlet damper



LS 31 – Sprinkler head, fire/smoke detector, EMT conduit (open), non-rate light fixture



LS 32 – Exhaust fan discharge

4.5.4.14 Life Safety: Medical Gas Storage room



LS 33 – Medical Gas Storage room



LS 34 – Medical Gas Storage room and vehicle exhaust point



LS 35 – Temporary oxygen storage rack



LS 36 – Temporary oxygen storage cart



LS 37 – O2 cylinders: Unrestrained



LS 38 – O2 cylinders: Horizontal storage

4.5.4.15 Life Safety: Open Area Gas Cylinder Storage



LS 39 – Temporary oxygen storage cart



LS 40 – Nitrous Oxide storage: Non-classified area: Apparatus room



LS 41 – Work room cylinder storage



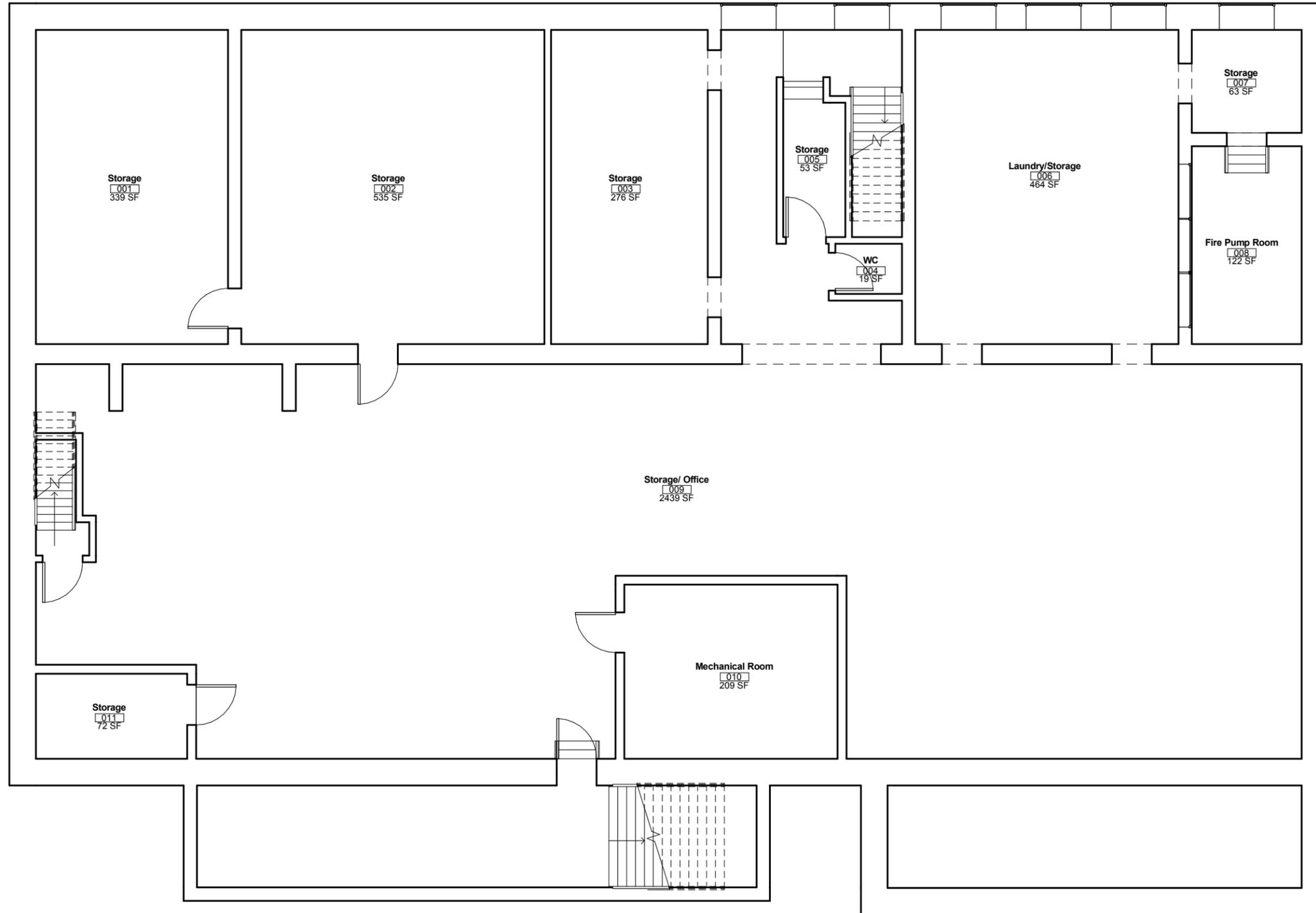
LS 42 – Work room cylinder storage



LS 43 – Work room cylinder storage



LS 44 – Work room bench grinder: Sparking concern



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.



Medic Headquarters
City of Pittsburgh

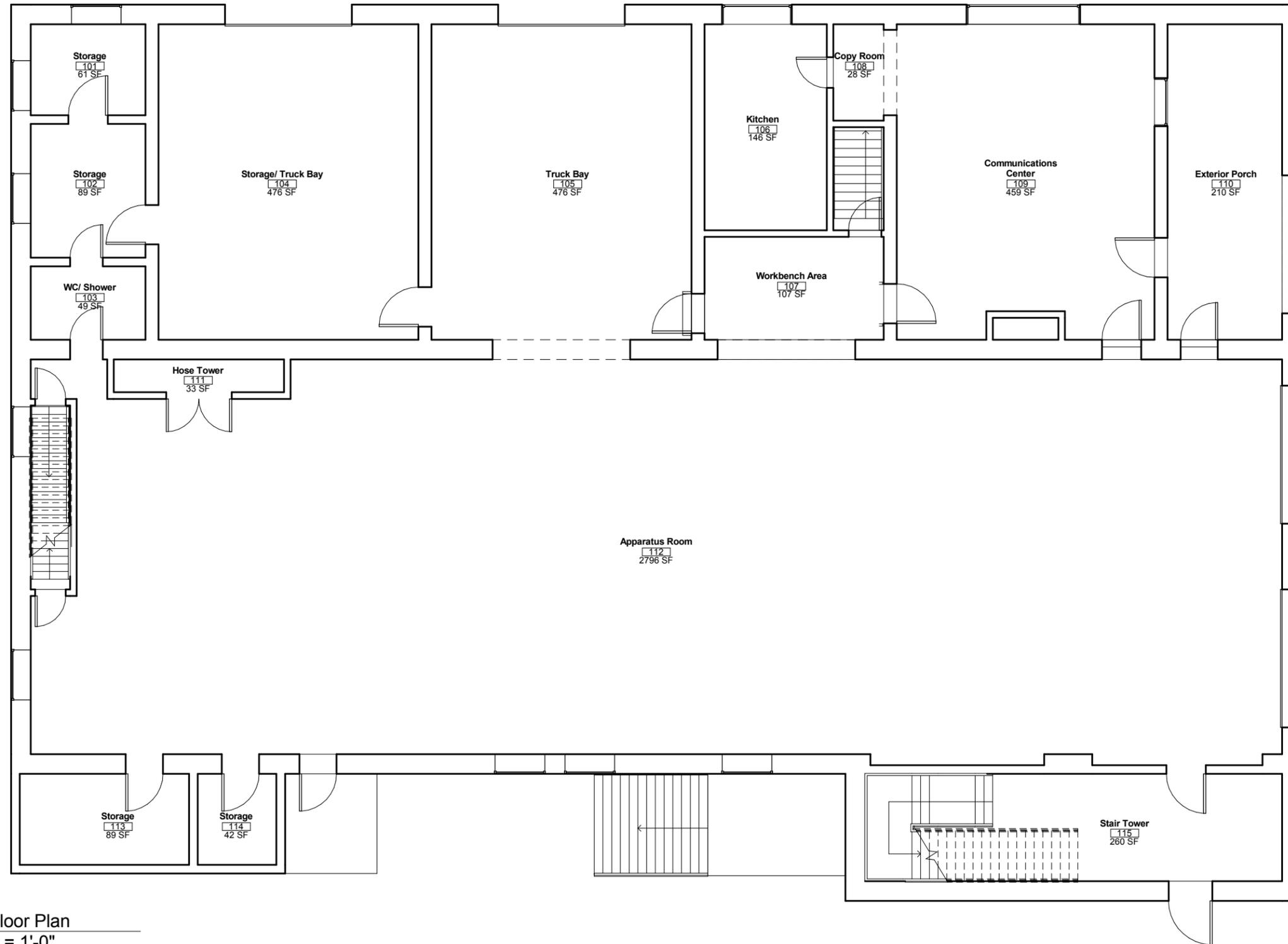
Ground Floor Plan

Date 08/19/13

Drawn by AS

A1.00

Scale 1/8" = 1'-0"



① L1 Floor Plan
1/8" = 1'-0"

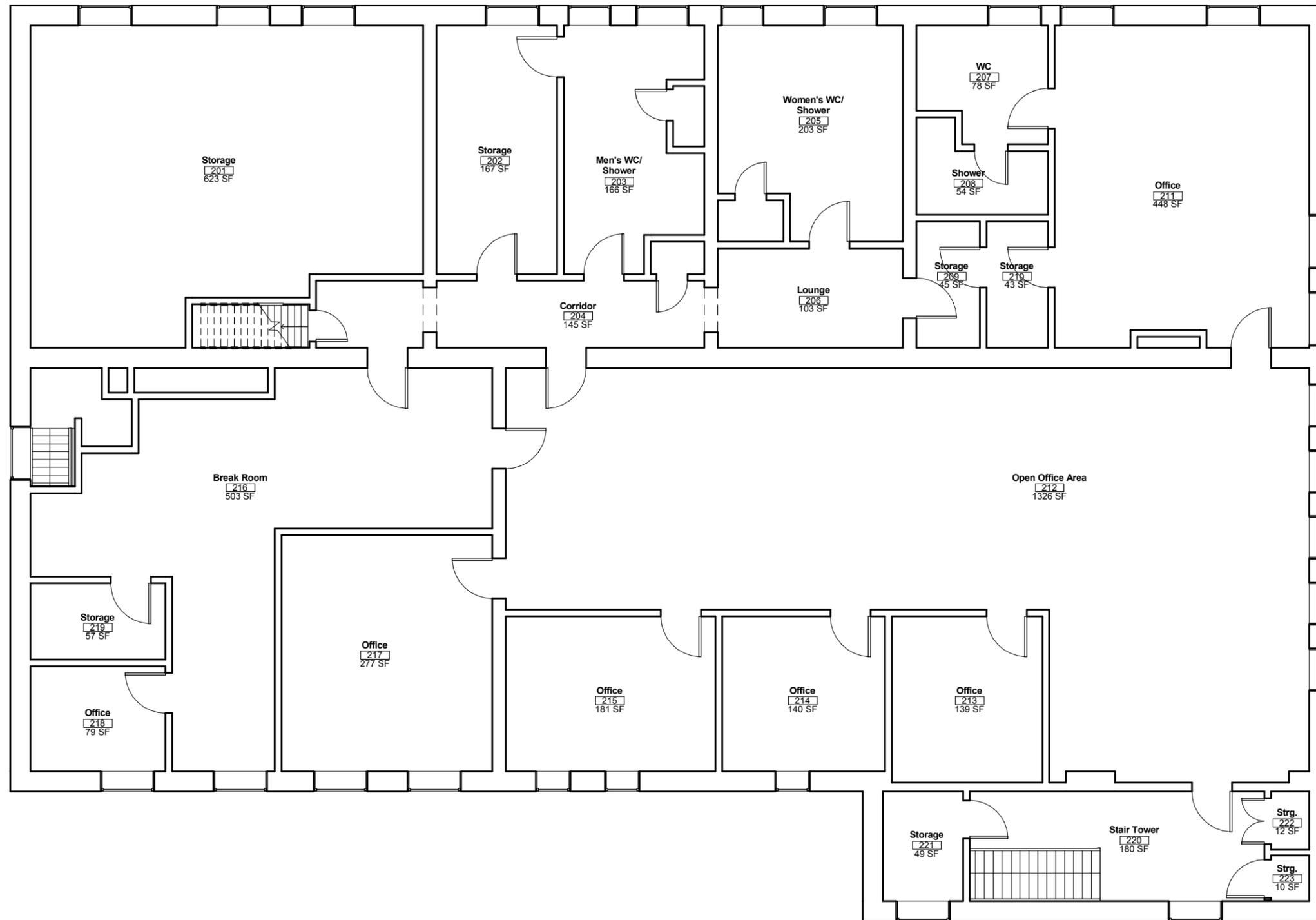


The drawings and related digital files are a schematic rendition of the existing conditions of the facility only. Please verify exact field conditions before using these for further construction and renovation work.



Medic Headquarters
City of Pittsburgh

L1 Floor Plan		A1.10
Date	08/19/13	
Drawn by	AS	Scale 1/8" = 1'-0"



① L2 Floor Plan
1/8" = 1'-0"



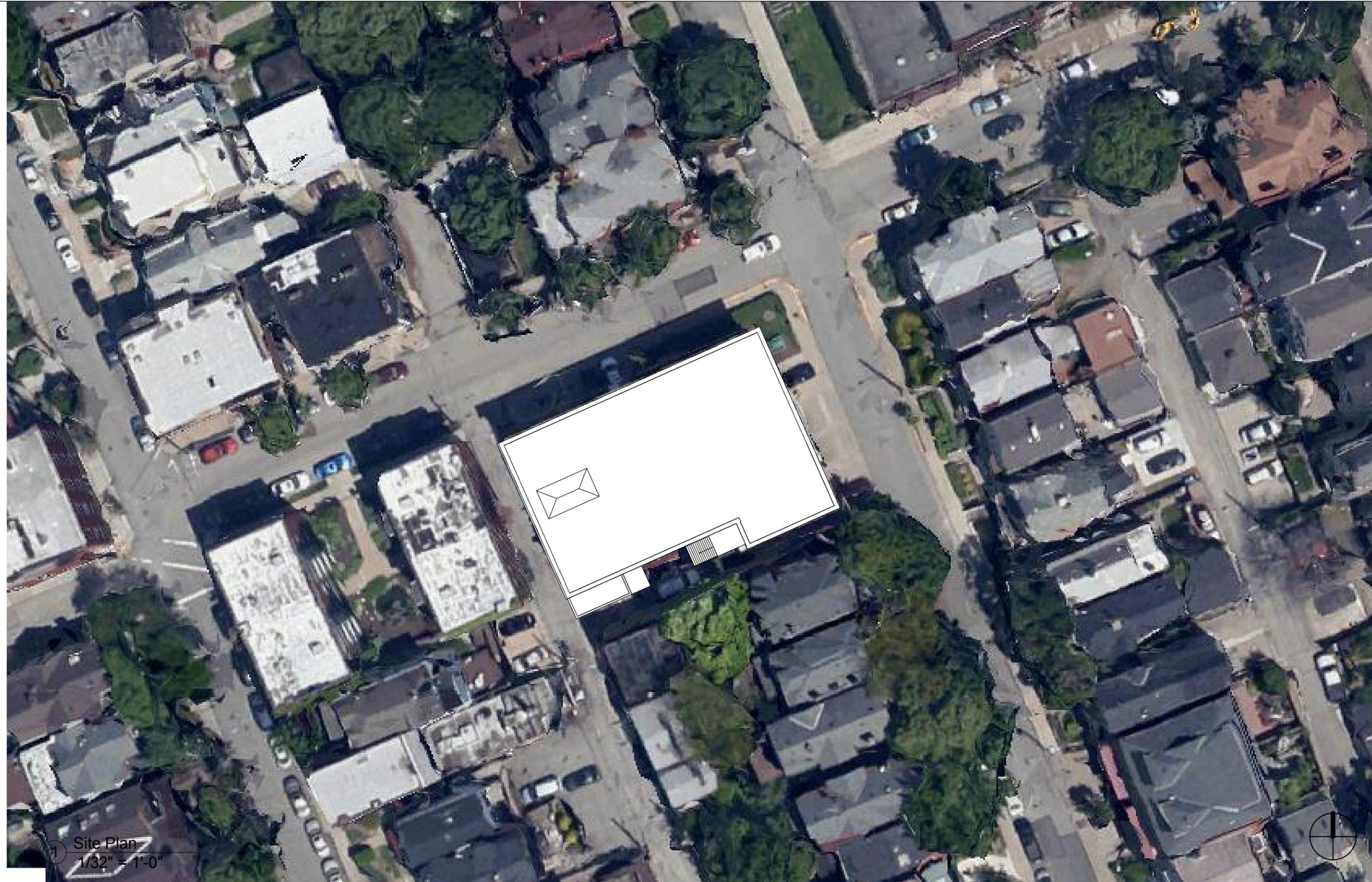
Medic Headquarters
City of Pittsburgh

L2 Floor Plan

Date 08/19/13
Drawn by AS

A1.20

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.



Medic Headquarters

City of Pittsburgh

Site Plan		C1.01
Date	08/19/13	
Drawn by	AS	Scale 1/32" = 1'-0"

B153 - MEDIC HQ

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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	
2.	Are there sufficient van-accessible parking spaces available (96 in. wide by 60 in. aisle)? (See Table X2.1)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	
6.	Does signage exist directing you to accessible parking and an accessible building entrance?	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	NOT ACCESSIBLE
2.	If the main entrance is inaccessible, are there alternate accessible entrances?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.	Is there a path of travel that does not require the use of stairs?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
F. Elevators → N/A					
1.	Do the call buttons have visual signals to indicate when a call is registered and answered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.	Is the "UP" button above the "DOWN" button?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.	Are there visual and audible signals inside cars indicating floor change?	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.	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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.	Do elevator lobbies have visual and audible indicators of car arrival?	<input type="checkbox"/>	<input 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 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 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
G. Toilet Rooms					
1.	Are common-area public toilet rooms located on an accessible route?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2.	Are door handles push/pull or lever types?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.	Are there audible and visual fire alarm devices in the toilet rooms?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4.	Are corridor access doors wheelchair-accessible (at least 32 in. wide)?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.	Are public toilet rooms large enough to accommodate a wheelchair turnaround (60 in. turning diameter)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6.	In unisex toilet rooms, are there safety alarms with pull cords?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7.	Are toilet stall doors wheelchair-accessible (at least 32 in. wide)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8.	Are grab bars provided in toilet stalls?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9.	Are sinks provided with clearance for a wheelchair to roll under (29 in. clearance)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10.	Are sink handles operable with one hand without grasping, pinching, or twisting?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11.	Are exposed pipes under sinks sufficiently insulated against contact?	<input type="checkbox"/>	<input checked="" 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 the Medic Headquarters 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.

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	21.2	7120	-	\$637
February	0	21.6	7640	-	\$678
March	0	21.2	7440	-	\$661
April	21	18	6480	-	\$591
May	94	24	7720	-	\$742
June	182	24.4	10080	-	\$932
July	397	26.8	11360	-	\$1,046
August	206	25.6	9600	-	\$902
September	78	25.6	8480	-	\$814
October	0	19.6	6760	-	\$644
November	0	21.6	7320	-	\$699
December	0	24.8	7520	-	\$735
Annual Totals			97,520	\$0	\$9,080

2011 - Natural Gas

YEAR: 2011

Month	Heating Degree Days	MCF	Therms	Total Bill (\$)
January	1240	192.3	1923	\$2,287
February	917	144.3	1443	\$1,727
March	781	71.7	717	\$862
April	350	66.6	666	\$811
May	138	11	110	\$158
June	12	4.6	46	\$82
July	0	4.8	48	\$85
August	1	4.4	44	\$80
September	87	4.4	44	\$79
October	401	9.6	96	\$139
November	532	70.5	705	\$842
December	849	94.9	949	\$1,075
Annual Totals			6,791	\$8,227

2012 - Electricity

YEAR: 2012

Month	Cooling Degree Days	Billed Demand (kW)	Electric Use (kWh)	Demand Cost (\$)	Total Bill (\$)
January	0	24.8	7120	-	\$681
February	0	24	7600	-	\$713
March	4	23.2	7120	-	\$673
April	7	22	7160	-	\$670
May	114	24	9440	-	\$652
June	181	25.2	9720	-	\$889
July	347	26.8	11080	-	\$1,001
August	226	25.2	10320	-	\$936
September	110	22.8	7640	-	\$723
October	24	22	7320	-	\$693
November	0	20.4	7160	-	\$672
December	0	23.2	7120	-	\$683
Annual Totals			98,800	\$0	\$9,185

2012 - Natural Gas

YEAR: 2012

Month	Heating Degree Days	MCF	Therms	Total Bill (\$)
January	993	173.8	1738	\$1,946
February	860	122.8	1228	\$1,319
March	430	57.7	577	\$631
April	456	31.4	314	\$354
May	60	15.5	155	\$188
June	29	4.7	47	\$77
July	0	4.5	45	\$78
August	1	4.1	41	\$73
September	107	4.1	41	\$73
October	343	14	140	\$181
November	719	70.7	707	\$791
December	795	87.5	875	\$870
Annual Totals			5,908	\$6,581

2013 - Electricity

YEAR: 2013

Month	Cooling Degree Days	Billed Demand (kW)	Electric Use (kWh)	Demand Cost (\$)	Total Bill (\$)
January	0	21.2	7280	-	\$687
February	0	22.4	7240	-	\$690
March	0	23.6	7680	-	\$730
April	22	24.4	7560	-	\$725
May	92	24.4	9000	-	\$763
June	-	0	-	-	-
July	-	-	-	-	-
August	-	-	-	-	-
September	-	-	-	-	-
October	-	-	-	-	-
November	-	-	-	-	-
December	-	-	-	-	-
Annual Sub-Totals			38,760	\$0	\$3,595

2013 - Natural Gas

YEAR: 2013

Month	Heating Degree Days	MCF	Therms	Total Bill (\$)
January	988	183	1830	\$1,789
February	998	207.9	2079	\$2,029
March	911	147.3	1473	\$1,446
April	360	45.3	453	\$464
May	151	9.2	92	\$117
June	-	5.1	-	\$77
July	-	-	-	-
August	-	-	-	-
September	-	-	-	-
October	-	-	-	-
November	-	-	-	-
December	-	-	-	-
Annual Sub-Totals			5,927	\$5,921

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 sections that follow will establish more a realistic target value in the context of a phased energy reduction program. The significant differences in these EUI rating will be treated in terms of potential opportunity.

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	98,607	kWh	3.412142	336,460	\$9,181.44
Natural Gas	6,872	Therms	100	687,217	\$7,676.69
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				1,023,677	\$ 16,858.13

Gross Conditioned Area	14940.00
EUI (kBtu/ft ²)	68.52
Target Finder Score*	145
CBECs EUI (for comparable , kBtu/ft ²)	88.3
ECI (\$/ft ²)	\$ 3.20

Notes: The CBECS sampling pool for Public Order and Safety facilities is limited for buildings in the North East sectors and must be interpreted accordingly.

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.

Heating System

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

Boiler System Deficiencies

- Combustion Efficiency: **Poor**
- 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**

Cooling System

Energy System Condition: Room Cooling Units (WACU) - **Derelict**

WACU Deficiencies

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

Control System Deficiencies

- Space Set-Point Control: **Poor**. Uncalibrated integral thermostat, excessive set-point temperatures, and open occupant adjustment
- 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

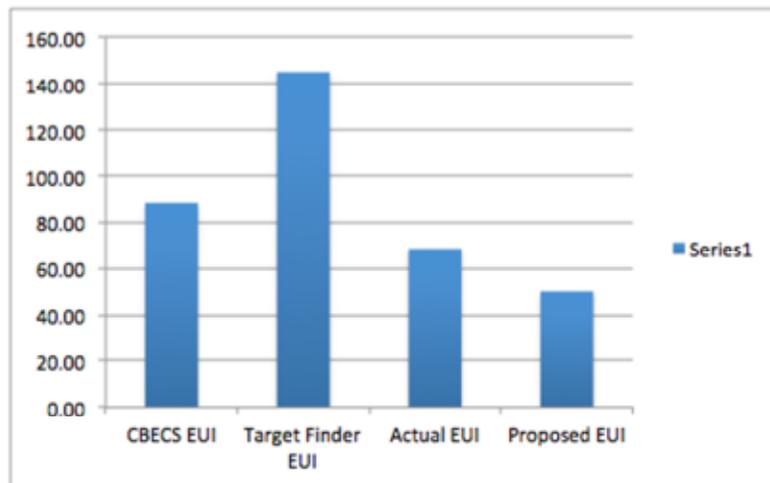
The EUI for the EMS Headquarters is calculated at 68.52 kBtu/Ft².

The CBECs (Commercial Building Energy Consumption Survey) and 'Target Finder' scores, calculated in the above ASHRAE Energy Performance Summary section, conflict with empirical evidence provided by utility consumption data, Degree-day weather patterns, and the energy systems condition assessment. However, these EUI ratings are useful as bracketing limits.

Basement areas are occasionally occupied, and without extensive terminal heating units, and are not treated formally as conditioned spaces.

An EUI of 50 is proposed as an initial working target pending level-2 modeling or future on-site system sub-metering and data logging efforts.

CBECs EUI	88.30
Target Finder EUI	145.00
Actual EUI	68.52
Proposed EUI	50.00



Potential savings from achieving proposed EUI target

Energy Type	Total Annual Use (EUI=100)	Units	Conversion Multiplier	kBtu	Total Annual Cost (\$)
Electricity	71,850	kWh	3.412142	245,163	\$6,690.06
Natural Gas	5,007	therms	100	500,729	\$5,593.63
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				745,891	\$ 12,283.69

Gross Conditioned Area*	14940.00
Actual EUI (kBtu/ft ²)	68.62
Proposed EUI (kBtu/ft ²)	50.00
Proposed ECI (\$/ft ²)	\$ 0.82

*Gross Conditioned Area includes basement level.

Proposed action plan: Phase #1

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

- One (1) Boiler Control
- Ten (10) Room level heating radiator controls
- Three (3) Lighting controls
- Six (6) Cooling controls
- Set-point, set-back, and scheduling controls
- Insulate basement level hot water supply and return piping
- Insulate basement level domestic water piping