



CITY OF
PITTSBURGH
PROPERTY CONDITION REPORT



B017 – DPW 5th Division
1330 Hassler Street
Pittsburgh, Pennsylvania 15212

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 Crafton Heights neighborhood at 1330 Hassler Street, Pittsburgh, PA. A walk-through survey of the subject property was conducted on June 13, 2013. The weather was pleasant, with temperatures in the mid-60'sF and partly cloudy.

The subject property consists of a 1-1/2 story commercial facility containing a high-bay maintenance garage, storage, break rooms and offices. The building was constructed in 1974 and consists of a cast-in-place concrete foundation, steel frame, concrete floors, metal panel siding and built-up roof. The interior construction includes masonry and drywall partitions, exposed and ACT drop ceilings. Minor modifications to the interior have occurred over time. The property is on a municipal lot that includes other uses (e.g. salt dome, municipal waste collection) and abuts a public park and residential neighborhood. The site area assessed was approximately 1.45 acres and included the upper site and parking lot, the area directly adjacent to the building perimeter, and the lower drive/fueling station.

1.2 General Physical Condition - POOR

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

- The site drainage at the upper level entrance appears inadequate and is not functioning properly.
- The concrete exterior stairs and adjacent storage rooms are significantly compromised.
- Many of the perimeter structural column bases are severely corroded and/or damaged.
- The metal deck at the Mezzanine floor is corroded in one area and the concrete slab is becoming compromised.
- The roofing system is beyond its useful life.
- The gas-fired air handler in the Break Room is a code violation.
- The use of the Shop for combined fuel storage and work area may present a life safety risk.
- Salt Dome - The shell is becoming structurally compromised.

1.3 Recommendations – Table 1

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

Opinion of Probable Costs

Building #B017 - DPW 5th Division. WEST END

MCMS Project No. 13-707.01

Section	Item	Quantity	Unit	Unit Cost	Cycle Replacement	Replacement %	Immediate Total	Short-Term Total
3.1	SITE							
a	Relocate (2) inlets and modify grading and paving at drive to drain away from building.	1	EA	\$75,000				\$75,000
b	Concrete landing and stair at south door.	1	EA	\$5,000			\$5,000	
c	Add vehicle protection bollards at lower level east and west drives.	8	EA	\$770				\$6,160
d	Mill and replace asphalt paving at all areas (NOT including area in Note 3.1(a) above)	17,000	SF	\$22				\$374,000
e	Salt Dome - Demo and replace. 5000 Tn	1	EA	\$375,000				\$375,000
3.2	SUBSTRUCTURE							
a	Garage slab - Remove broken slabs, replace	1500	SF	\$33				\$49,500
b	East & West exterior Storage Rooms - demo and repair adjacent surfaces.	2	EA	\$8,250			\$16,500	
c	East & West exterior stairs - Patch/repair and replace railings.	2	EA	\$5,000			\$10,000	
3.3	SHELL							
a	Perimeter curb compromised, column bases corroded: A/E to perform detailed field survey of these conditions and make specific recommendations.	1	EA	TBD				
b	Mezzanine A2 - A4: remove compromised slab and deck and replace.	1300	SF	\$66				\$85,800
c	Structural connection - install missing bolts at truss/column connection on column line C-1.	1	EA	\$1,500			\$1,500	
d	Exterior man doors - remove/ replace doors, frames, hardware	5	EA	\$3,500			\$17,500	
e	Roofing and Flashing System - Replace	13,440	SF	\$28		100	\$369,600	
3.4	INTERIORS							
a	East landing tread - secure	1	EA	\$2,000			\$2,000	
3.5	SERVICES							
	Plumbing							
a	Water Supply - Install backflow preventer	1	EA	\$3,300			\$3,300	
	HVAC							
b	Gas-Fired Furnace (Air Handler - GFAH) at offices - Remove and replace.	1	EA	\$3,000			\$3,000	
c	NFPA Hazard Classification Assessment Study at Shop Area	1	EA	TBD				
d	Replace the GFUHS	6	EA	\$3,000			\$18,000	
e	Remove existing thermostats; provide and install new programmable thermostats for all equipment.	10	EA	\$250			\$2,500	
f	Replace Wall air-conditioning units (WACU)'s at lunchroom and office.	2	EA	\$1,000			\$2,000	
	Fire Protection							
g	Replace missing fire extinguishers, inspect/test all.	1	EA				\$1,800	
h	Fire Alarm system improvements + added extinguishers	1	EA					\$8,350
	Electrical - N/A						\$0	
i	Install cover plate at service entry	1	EA				\$1,500	
3.6	Equipment and Furnishings - N/A							
3.7	Special Construction - N/A							
TOTALS							\$454,200	\$973,810

2 Team, Purpose and Scope

2.1 PCA Team

Team Lead, Site, Architectural, Accessibility, Drawings:

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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 and structural steel shop drawings dated 1974, a drawing dated 1998 that appears to reference improvements to the concrete drive, and a set of drawings documenting upgrades to the fuel facilities in 1999. 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 several acre parcel containing multiple functions. The visual inspection for the site conditions focused on the area immediately adjacent to the building, totaling approximately 1.45 acres. The salt dome was evaluated for structural concerns only. Overall the Site is in POOR condition.

1. Topography and Drainage – The main entrance to the subject building is on the upper level, and the upper site area includes asphalt drive and parking. The building is inset into the sloping site with access at both levels. The grade of the upper site is generally pitched towards the building and the storm water management system design appears inadequate. Evidence of standing water was reported and apparent along the curb. One of the two SW inlets is mostly filled with sediment.

Recommendation: Relocate (2) inlets and modify drive to drain away from building.

2. Access and Egress – Vehicle access to the subject property is available at both levels along Hassler Street. The lower level maintenance garage has drive-through access. Pedestrian access from the upper site to the lower site is available on concrete stairs at the east and west ends of the building. As they are integrated with retaining wall structure the stairs are referenced in the Substructure section of this report. Egress from the lower level occurs at grade. The egress door from the lower level to the south exits on to a steeply sloped grass-covered berm. This condition creates a safety hazard and should be remedied.

Recommendations: Build concrete landing and stairs to code at south exit door.

3. Paving, Curbing and Parking – The site paving is asphalt and is generally in poor condition. Cracked topcoat and surface ruts are evident throughout. Fourteen (14) 8'-9" wide (avg.) x 15'-0" long spaces are available on the upper site in addition to informal short-term parking that occurs across the site. Accessible parking is NOT available. Concrete curbs and walks are in good condition. The parking area is illuminated by building mounted floodlights.

Recommendation: Mill and replace asphalt at all areas. Add vehicle protection (e.g. bollards) at east and west vehicle garage doors.

4. Landscaping and Appurtenances – Landscaping and plantings consist primarily of grass lawns and several deciduous trees. Planting beds adjacent to the building are present at the upper level but appear to be poorly attended. A chain link fence in fair condition runs along Hassler Street down the hill and on part of the lower site.
5. Site Amenities / Accessory Structures- A two-pump gasoline fueling station exists on the lower site for municipal use. It was apparently updated in 1999. There is a precast concrete 'big-block' segmental retaining wall along the toe of the slope adjacent to the fueling station. It appears to be in good condition. A concrete 'salt dome' is located near the maintenance building, for municipal use. The salt dome is in POOR to DERELICT condition.

Recommendation: Demo and replace the salt dome.

3.1 Site: Photos



ST1 - Upper site – looking west, asphalt decay



ST2 - Upper site – topography pitches towards north wall



ST3 - Inadequate storm drainage along north wall



ST4 - Upper site - looking east



ST5 - Lower site – looking east



ST6 - Municipal fueling station

3.1 Site: Photos - Continued



ST7 - Looking west on Hassler St.



ST8 - Egress door – no landing



ST9 - Uncontrolled storm water flow along south side of Hassler St.



ST10 - Lower site – looking west



ST11 - Upper site – asphalt and curb decay on Magnus Way



ST12 - Upper site – asphalt and curb decay on Magnus Way

3.2 Substructure

This visual inspection included the observation of the ceilings, decking, concrete floors, concrete walls and exterior stairs, steel framing and interior stairs and all other related components of the structural frame and building envelope including building walls, the roofing material was not inspected by A&A. This rectangular shaped building is a pre-engineered structure manufactured by EPIC. The dates on the drawing indicate construction in 1974. Overall the Substructure is in POOR condition.

1. Foundation

- 1.1. Column Line A of the building rest on a 12" retaining wall on the north side. The wall rest on a spread footing. There are a few light vertical cracks in the wall that can be seen from the inside of the building.
- 1.2. The remainder of the exterior shell of the building rest on grade beams with a small topping slab / curb around the perimeter. The topping slab has cracked and spalled away in many areas allowing water infiltration beneath the metal wall panels.

Recommendation: See Shell section for proposal for additional A/E evaluation of this condition.

- 1.3. Column Lines B & C rest upon grade beams and have concrete column guards. The column guards have minor spalls.
- 1.4. Main Concrete Floor on grade has several cracks and has settled in the traffic lane between the two overhead doors. The concrete aprons at the overhead doors are heavily cracked. The floor drains do not appear to have settled but the concrete surrounding the drains is cracked and settled. See Attached Drawing Sheet 1

Recommendation: Garage Slab - Remove slab at areas indicated to nearest control joints and replace.

- 1.5. East Concrete Retaining Wall has a few light vertical cracks and spalling at the building and stair joints.
- 1.6. East Masonry Storage Room has broken masonry units adjacent to the stairs and the blocks above the door lintel have shifted. The Roof slab has a few heavy honeycombs, leaching and is wet on both sides. The steel framed door has heavy rust to frame and door.

Recommendation: Demolish east Storage Room, repair adjacent surfaces.

- 1.7. East Exterior Stair Case is in fair to poor condition with:

- 1.7.1. Top tread is undermined due to spalling approximately 6 sq. inches.
- 1.7.2. From the top down treads 3, 7, 10,11 and 18 have longitudinal cracks with efflorescence
- 1.7.3. From the top down treads 8, 10, 12, 13 and 14 have patches
- 1.7.4. Railing has heavy rust at bases and post at tread 5 has 100% section loss and is no longer connected. Entire railing has light rust and loss of paint coating system.
- 1.7.5. Concrete Wall on west side of stairs has heavy spalling and holes

Recommendation: Repair east exterior stair, remove and replace railings.

- 1.8. West Retaining wall has a few light vertical cracks and spalling at the building and stair joints.

1.8.1. West Stair Case has from the top tread down tread 3 and tread 5 have longitudinal cracks

1.8.2. Masonry Wall on East Side of West heavy masonry unit damage and voids

1.8.3. Masonry Storage shed has masonry wall under stairs shifted upper course of block

Recommendation: Repair west exterior stair, remove and replace railings.

3.2 Substructure Photos



SS1 – East Stair – Open joint between building and retaining wall



SS2 – East Stair Storage Room – Masonry shifted



SS3 – East Stair – Heavy spalling and hole



SS4 – West Stair and Storage Room – Masonry wall damage



SS5 – South wall - typical condition at column base plates



SS6 – West wall – Metal panel damage, no vehicle impact protection

3.2 Substructure Photos – Continued



SS7 – Roof trusses



SS8 – Below Mezzanine A-3 area – Heavy SIP rust and spalling with exposed rusted rebar



SS9 – Typical framing detail, interior column to roof trusses



SS10 – Typical column base protection – concrete guard



SS11 – East OH door – apron and floor cracked

3.3 Shell

1. Overall the Shell is in POOR condition.

2. Building Frame & Floors

2.1. The Exterior main columns and the grade beam columns are heavily rusted due to poor drainage.

Recommendation: A qualified Architect and Structural Engineer should perform detailed field survey of these conditions and make specific recommendations.

2.2. The structural steel trusses are in good condition.

2.2.1. Column line C-1 has two of four bolts missing from the truss to column connection.

Recommendation: Complete this connection.

2.3. The mezzanine framing is in good condition

2.4. Mezzanine Concrete Floor consists of 3 ½” of concrete with stay in place pans. The concrete in in Column Line A -2 to A-4 area appears to have heavy chloride content and the SIP are heavily rusted. There is localized area of 100% section loss to SIP exposing a large spall with exposed rusted rebar with +/- 25% section loss. The mezzanine has several longitudinal cracks varying from 0.08” to 0.03” See Attached Drawing Sheet 1 and 2.

Recommendation: Replace slab and deck at compromised area.

2.5. The metal roof decking is constructed of industry standard, 20 ga. “B” style and is installed over steel trusses and it is in good condition

3. Building Facade

3.1. Construction: The building walls are constructed with painted, insulated steel wall panels installed between load bearing tube steel columns.

3.1.1. Metal garage doors with metal man doors beside them are installed at each of the building. Overhead doors appear to be functioning properly.

3.1.2. A metal man door is located on the south side. Two metal man doors with overhead doors beside them are installed on the north side (main entry). Man doors exist on both the East & West Sides adjacent to the Overhead Doors. All doors have metal frames. The metal frames are all in poor condition and on the south side of the building does not close properly. The frames are severely rusted at the bottoms and there are rust holes in the fascia panels of several doors.

3.1.3. Two small louvers are installed in the north wall and three small louvers are installed in the south wall.

Recommendation: Replace exterior man doors & frames, (5) typical.

3.2. Condition: The building walls appear to be in poor to fair condition. The bottom of the wall panels, columns, doors and jambs are rusted in several areas and completely deteriorated in some areas. The steel grade beam is rusted throughout the perimeter. The paint is peeling on the wall panels in various areas and at both ends and the south wall. A few areas of physical damage to the wall panels were observed. The west wall has a

parking area adjacent to the wall with no bollards or curbs stops to protect it from vehicle damage; there is deformation in the wall panels. The painted surface is faded throughout the building.

Recommendation: Repair, patch and paint metal panels where rust damaged.

4. Roof Deck

4.1. Construction: The metal roof decking is constructed of industry standard, 20 ga. "B" style installed over steel trusses.

4.2. Condition: No conditions were observed that would indicate deck problems.

5. Roof Insulation

5.1. Construction: No core cuts were taken. The insulation on the construction drawings is indicated to be 1" rigid.

5.2. Condition: The insulation is assumed to be in fair condition.

6. Roof Membrane

6.1. Construction: The roof system is constructed of a four ply coal tar built up membrane with a slag surface. This appears to be the original roof.

6.2. Condition: The roof membrane appeared in poor condition. Bare felts were observed throughout the roof surface. Patches and repairs were observed in some areas. Ponding water was observed around the west end roof drain.

7. Membrane flashings

7.1. Construction: The perimeter and curb flashings are constructed with composition flashings.

7.2. Condition: The membrane flashing system is in poor condition. The flashing is aged and cracked. The flashing appears to contain asbestos.

8. Perimeter Terminations

8.1. Construction: The building walls end at the roof line. The perimeters are terminated with a painted metal, gravel stop/fascia.

8.2. Condition: The gravel stop is in poor condition. Numerous areas are rusty, some rust holes were observed. The paint is peeling in some areas.

9. Roof Top Penetrations

9.1. One roof hatch, 5 skylights, 6 hot flue stacks, 5 power roof vents and 5 pipes penetrate the roof.

9.2. Condition: The penetrations are in fair condition. The flue stacks are rusty.

10. Drainage System

10.1. Construction: The roof slopes to and drain into three interior roof drains. There is apparent slope to the drains. The slope is provided by the building construction.

10.2. Condition: Two drains appear to be in good condition and operating properly. The west drain is clogged and ponds water.

11. Access

11.1. A roof hatch and ladder provides access to the roof.

CONCLUSIONS

No leaks are reported in the building.

The metal panel walls are in poor condition. Numerous areas are rusty and some areas are deteriorated. The painted surface is faded.

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

The roof membrane and flashing systems are in poor condition. The system should be monitored and repaired until the roof is replaced.

The gravel stop is in poor condition. Some areas are rusty and the painted surface is faded.

The roof top units and penetrations are in good condition except for the rusty flue stacks.

The drainage system is in fair condition. Two drains appear to be operating properly. One drain is clogged.

It is our opinion the roofing system should be replaced as soon as possible or the budget permits.

Estimates:

Recommendation- 1 year: Replace roofing and flashing system – Estimated cost: \$201,600 (13,440 SF x \$15/SF) NOTE: The building walls and roofing systems should be addressed in order to maintain the structural integrity.

5 year: Maintain a pro-active maintenance program. Inspect the roof systems 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 – Aerial View



SH2 – View to NW



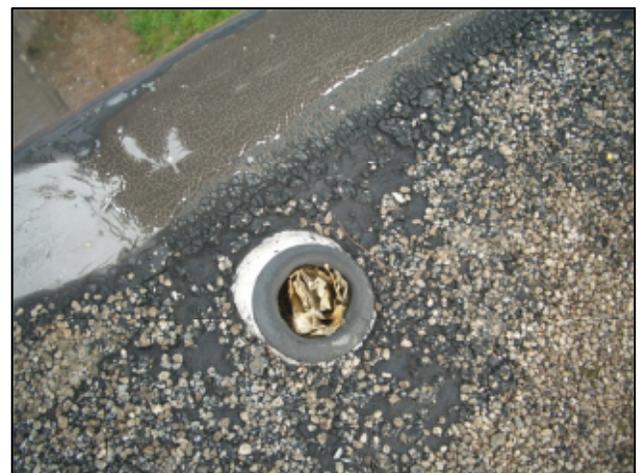
SH3 – View to SW



SH4 – Clogged roof drain



SH5 – Bare felts and flashing repairs



SH6 – Abandoned pipe

3.3 – Shell: Photos Continued



SH7 – Cracked flashing



SH8 – Flashing at curb



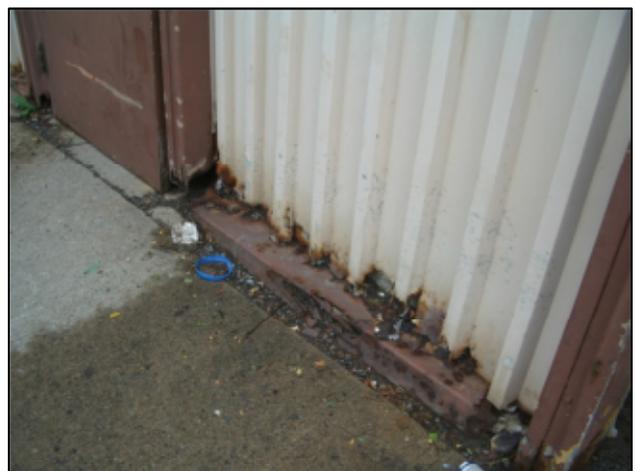
SH9 – Roof hatch



SH10 – Peeling paint



SH11 – Rusty wall panels and column base



SH12 – Rust wall panels and door

3.4 Interiors

Introduction

1. Interior Construction - Interior partitions are primarily concrete masonry construction. Additional gypsum drywall partitions enclose the offices, lounges and some storage spaces. Doors and frames are typically hollow metal with commercial grade hardware. There are several interior tool/storage rooms built with wood studs and plywood sheathing. Chain-link fences and gates separate and help secure the main storage areas. Overall the Interiors are in FAIR condition.
2. Stairs – There are two sets of steel stairs, both unenclosed with steel pipe railings. The West is in good condition. The East is in good condition with the exception of the lower landing tread which is loose and bounces under load.

Recommendation: Secure the loose tread at the east stair.

3. Interior Finishes – Most flooring in the building is exposed concrete. The office areas and restrooms have resilient tile flooring (Vinyl Composition Tile, or similar). Partitions are painted throughout. Ceilings in the office areas are suspended type Acoustic Ceiling Tile (ACT).

3.4 Interiors: Photos



11 – View towards main entrance and stair down



12 – View towards storage / recreation area



13 – Temporary storage room inside structure



14 – View from entrance area to high-bay garage, protruding air conditioners, inadequate guardrail.



15 – Administrative office



16 – Staff office

3.4 Interiors: Photos Continued



17 - View towards Staff office



18 – View into storage area



19 – View towards lower level staff offices



110 – View of staff offices from maintenance garage



111 – Maintenance garage – high-bay



112 – Maintenance Shop

3.5 Services

1. Overall the condition of the building Services is Poor.

Building Plumbing Systems

1. Fixtures

1.1. General Description: The plumbing system is served by a combination of sanitary fixtures, supply and drain piping, water coolers, and supply water meter service.

1.2. Construction: Mezzanine Level

1.2.1. Main office Elkay floor mounted self-contained water cooler/fountain. The main office also has an original, closet wall mounted janitor's sink.

1.2.2. Main office ladies room has one (1) toilet, and one (1) lavatory sink.

1.2.3. Restroom and locker area plumbing system has original fixtures: five (5) urinals, four (4) toilets, four (4) lavatory sinks, shut-off valves, water supply piping, drain piping, and vent piping. Existing showers are not used.

1.3. Construction: First floor mechanical room

1.3.1. The first floor mechanical room has the original water meter and shut-off valve. No meaning of back-flow prevention is present.

1.4. Condition Assessment: Fixtures

1.4.1. Condition: Fair. One (1) leaking lavatory sink in main restroom and lockers.

2. Domestic Water Production

2.1 General Description: The domestic water heating system is served by one (1) A.O. Smith commercial water heater installed in 2010.

2.2 Construction

2.2.1 The A.O. Smith water heater is connected via copper piping to the building fixtures. It has a pressure relief valve that is piped to the floor level. Additionally, the area is supplied with ducted combustion air.

2.3 Condition Assessment

2.3.1.1 Condition: Fair.

3. Utilities

3.1 General Description: Potable water supply

3.2 Construction

3.2.1 Original meter, shut-off valve, and piping.

3.2.2 No back-flow prevention.

3.3 Condition Assessment: Poor

4. Conclusions:

4.1 The plumbing systems are beyond their expected useful life and are in Poor condition. Routine maintenance should continue to extend serviceability.

5. Estimates: Suggested remedies and Opinion of probable cost

5.1 Immediate Costs

5.1.1 Install back-flow preventer: \$1,200.

3.5 Services Photos - Plumbing: Mezzanine Level



P1 – Water cooler/fountain



P2 – Restroom and locker area



P4 – Restroom and locker area (typical)



P3 – Restroom and locker area



P5 – Janitors closet (main office area)

3.5 Services Photos – Plumbing Continued



P6 – Water heater



P7 – Water meter and piping



P8 – Water meter and piping



P9 – Water meter and piping

HVAC

1. Heating

- a. General Description: Heating is provided to the building by a combination of a central gas furnace (GFAH), gas fired forced air unit heaters (GFUH), gas fired radiant tube heaters (GFRH), various floor mounted spot heating appliances, and an electric unit heater (EUH). There have been no upgrades or replacements of the GFAH, GFUH's, or EUH. The GFRH units are reported to be replacements for original equipment.
- b. Construction
 - i. The central natural gas furnace (GFAH) is heating only a Bryant unit serving the common mezzanine office area. The GFAH is part of the forced air heating system that is connected by ductwork to floor mounted discharge registers in each office room and hallway. The GFAH includes a small, integral inlet filter section and is controlled by the original wall mounted thermostat.
 - ii. Four (4) Bryant GFUH's serve the mezzanine storage, mezzanine exercise area, shop area lunchroom, and shop area drum and chemical storage areas. Four original thermostats control the GFUH's.
 - iii. Four (4) Vantage GFRH units serve the main vehicle shop and are controlled by zone thermostats.
 - iv. One (1) wall mounted electric unit heater (EUH) is located in the first floor vending room and is controlled by a direct mount bulb type thermostat.
- c. Condition Assessment
 - i. The central natural gas furnace (GFAH) is original to the building – 1974. It is beyond its expected useful life. Condition: Poor.

Recommendation: Remove and replace the GFAH.
 - ii. Four (4) Bryant GFUH's are original to the building – 1974. They are beyond their expected useful life. Condition: Poor.

Recommendation: Replace the GFUH's, (4) typical.
 - iii. The GFUH in the shop area lunchroom is a miss-application of a gas fired unit heater. It is a code violation due to the close mounted, partial, enclosure framing. This enclosure is made of combustible building products and does not provide the required minimum dimensional clearance to combustible materials. Also, the shop area lunchroom has no provision for combustion air. Additionally, the duct work is improperly connected to the unit discharge causing combustion chamber integrity problems through heat exchanger overheating as observed through pitting and discoloration. The lack of combustion and heat exchanger overheating and degradation are conditions often associated with Carbon Monoxide exposure. Carbon Monoxide exposure testing is beyond the scope of this work. As the GFUH the proximity and type of framing represents a code violation, the unit should be disconnected and removed immediately.

Recommendation: Disconnect and remove. Perform Hazard Assessment prior to replacement, see below.

- iv. The GFUH in the shop area drum and chemical storage areas may be a code violation due the application of an open flame heater and open contact thermostat in what may be a hazard classified space. NFPA classification assessment is beyond the scope of this work. However, extreme caution in work process review and careful examination and diligence related to the space usage is recommended. Problem issues relate the dispensing of motor oil, hydraulic oil, and chemicals in the presence of an open flame heater, and open contact thermostat, and open frame bench grinding equipment. Further, the clearance to wood storage cabinets, and to the combustible wall of the vending area is a problems. Also, the drum leakage and related containment are inadequate. A specialty consulting effort for classification assessment is strongly recommended.

Recommendation: Perform NFPA classification assessment study.

- v. The gas radiant tube heaters are reported to be approximately 5-10 years old. Apparent Level of Maintenance that heating equipment has received is inadequate. Condition: Fair
- vi. The electric unit heater (EUH) is original to the building. It is beyond its expected useful life. Condition: Fair.

Recommendation: Replace the EUH.

- vii. Controls: All heating units are controlled by original, out-of-calibration thermostats. Condition: Poor.

Recommendation: Provide new programmable thermostats.

d. Performance Notes

- i. Energy & Sustainability: The forced air heating system is likely consuming excess natural gas and electrical energy due to (1) leaking ductwork, old – out of calibration thermostats, and constant set point controls. Such waste may be 10-15% of the related utility bills.
- ii. Thermal Effectiveness: The heating units are reported to effectively maintain room conditions as required.
- iii. Indoor Air Quality (IAQ): There are no direct or indirect indications of IAQ problems, in the mezzanine or the general shop support space.

2. Cooling

- a. General Description: Cooling is provided to the building by room level, unitary wall or window air conditioners (WACU). There have been no upgrades or replacements of the central system.

b. Construction

- i. Wall mounted WACUs provide cooling for the mezzanine level base station office, main office, superintendent's office, and storage rooms.
- ii. Wall mounted WACUs provide cooling for the shop level lunch room, break area, and vending area.

c. Condition Assessment

- i. The wall mounted WACUs for the mezzanine base station office is beyond its expected useful life.
Condition: Poor.
- ii. The condition of the WACUs for the mezzanine level main office and storage rooms is Fair.
- iii. The wall mounted WACU for the shop level lunch room is beyond its expected useful life.
Condition: Derelict.
- iv. The condition of the WACUs for the break and vending areas is Fair.

3. Ventilation

- a. General Description: Ventilation is provided to the main shop and general building area via five (5) roof mounted, in-line, domed exhaust fans.
- b. Construction: The roof fans are reported to be in operating condition and adequate to provide exhaust service for the main shop area.
- c. Condition Assessment: Visual inspection of the exhaust fan housings and roof curbs are consistent with proper operation. Neither unit technical data nor interior fan examination were available nor possible during the audit. Unit name tags are illegible. Actual condition: indeterminate.

4. Utilities

- a. General Description: Natural gas.
- b. Construction: Low pressure natural gas meter and associated threaded, black steel piping.
- c. Condition Assessment: Fair.

3.5 Services Photos – HVAC Heating



H 1 – Main office furnace GFAH



H 2 – Mezzanine storage area heater GFUH



H 3 – Mezzanine exercise area heater GFUH



H 4 – Oil drum storage area heater GFUH



H 5 – Shop area lunchroom heater GFUH



H 6 – Shop area GFRH (typical of 4)

3.5 Services Photos - HVAC Cooling



C 1 - Base station office WACU



C 2 - Main mezzanine office WACU



C 3 - Superintendent's office WACU



C 4 - Mezzanine storage room WACU



C 5 – Shop area lunchroom WACU



C 6 – Shop area break room WACU

3.5 Services Photos - HVAC Ventilation



V1 – Domed roof exhaust fan-1



V2 – Domed roof exhaust fan-2



V3 – Domed roof exhaust fan-3



V4 – Domed roof exhaust fan-4



V5 – Domed roof exhaust fan-5

3.5 Services Photos – HVAC Recommendations



SR – 1 Clean/replace leaking condensate line super's office



SR – 2 Remove gas stove in the shop area lunchroom



SR – 3 Replace existing thermostats (typical)



SR – 4 Remove GFUH in the shop area lunchroom

3.5 Services Photos – HVAC Recommendations



SR – 5 NFPA Classification Drum storage and dispensing



SR – 6 NFPA Classification: Bench Grinder



SR – 7 NFPA Classification: Leak containment



SR – 8 NFPA Classification: Wooden cabinet



SR – 9 NFPA Classification: Wall clearance vending area



SR – 10 NFPA: Open flame heater w/ open contact T-stat

Fire Protection

- 1) Fire Extinguishers
 - i) Construction
 - (1) Fire extinguishers are present outside the mezzanine level main office, outside the mezzanine level general, storage room, and the main shop floor (three).
 - (2) Fire extinguisher is missing from the mezzanine level main office interior.
 - (3) Fire extinguisher is missing from the first floor mechanical (furnace) room.
 - ii) Condition Assessment
 - (1) All fire extinguisher testing and service tags are out of date as of 2012. Condition: Poor.
- 2) Alarm Systems
 - i) No fire or smoke alarm system. No fire or smoke detectors. No fire pull-stations.
- 3) Smoke Evacuation System and Stairwell Pressurization
 - i) No Smoke Evacuation System or Stairwell Pressurization.
- 4) Emergency Lighting
 - i) Construction: Included at each man door.
 - ii) Condition Assessment: Good
- 5) Sprinklers and Standpipes
 - i) No sprinkler system.
- 6) Fire Hydrant
 - i) Construction: Located at driveway perimeter.
 - ii) Condition Assessment: Poor
- 7) Emergency Eye Wash
 - i) Construction: One (1) wash station mounted at exterior of mezzanine level main office.
 - ii) Condition Assessment: Fair
- 8) Conclusions: The fire and smoke protection system is poorly maintained and is physically deficient relating to detection, alarming, reporting, and smoke evacuation.
- 9) Estimates: Suggested remedies and Opinions of probable cost
 - i) Immediate Costs

- (1) Inspect/test all fire extinguishers
 - (2) Replace missing extinguishers
 - (a) Main mezzanine office: \$250
 - (b) 1st floor MER: \$250
- ii) Short-Term Costs
- (1) Add fire extinguishers:
 - (a) Mezzanine shop: \$250 (*Issue: gasoline can storage and mower filling*)
 - (b) Lunch room: \$250 (*Issue: gas heater code violation and gas stove unsecure gas line and flex connector*)
 - (c) Center shop office: \$250 (*Issue: portable, old floor mount electric spot heater*)
 - (2) Add fire and smoke alarms:
 - (a) Mezzanine level main office: \$200
 - (b) Mezzanine shop: \$300
 - (c) Main shop: \$600
 - (d) Lunch room: \$200
 - (e) Drum Storage: \$300
 - (3) Add fire alarm pull stations:
 - (a) Mezzanine level: \$3,000
 - (b) Shop level: \$3,000

3.5 Services Photos – Fire Protection



FP1 – Main office, mezzanine (typical)



FP2 – Main office, mezzanine (missing)



FP3 – General storage room, mezzanine



FP4 – Furnace Room (missing)



FP5 – Main Shop



FP6 – Mezzanine man-door (typical)

3.5 Services Photos – Fire Protection and Life Safety



FP7 – Hydrant



LS1 – Eye Wash

Electrical

1. Interior Lighting

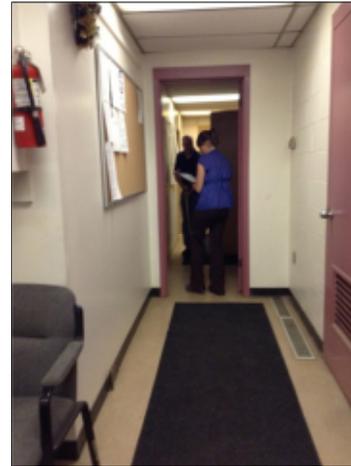
- a. General Description: interior lighting is provided to the building by a combination of skylight(s), plus recessed mount, surface mount, and suspended florescent fixtures.
- b. Construction: Mezzanine Level
 - i. Area lighting for main storage/work: Eight (8) recessed florescent fixtures with (2) T8 lamps-80w each, at 8' lamp length. Including magnetic ballasts and manual switch. Total area watts = 1,280.
 - ii. Base-Station office: Two (2) recessed florescent fixtures with (4) T8 lamps-32w each, at 4' lamp length. Including magnetic ballasts and manual switch. Total room watts = 257.
 - iii. Area lighting for main office area
 1. Main office: Two (2) recessed florescent fixtures with (2) T8 lamps-32w each, at 4' lamp length. Including magnetic ballasts and manual switch. Total room watts = 128.
 2. Women's RR: One (1) surface mounted florescent fixture with (2) T12 lamps-80w each, at 8' lamp length. Including magnetic ballasts and manual switch. Total room watts = 160.
 3. Hallway: Three (3) recessed florescent fixtures with (2) T8 lamps-32w each, at 4' lamp length. Including magnetic ballasts and manual switch. Total room watts = 192.
 4. Copy room: One (1) recessed florescent fixture with two (2) T8 lamps-32w each, at 4' lamp length and one (1) recessed florescent fixture with four (4) T8 lamps-32w each, at 4' lamp length. Including magnetic ballasts and manual switch. Total room watts = 192.
 5. Superintendent's office: Two (2) recessed florescent fixtures with two (2) T8 lamps-32w each, at 4' lamp length. Including magnetic ballasts and manual switch. Total room watts = 128.
 - iv. Weight room area: Five (5) suspended florescent fixtures with (2) T8 lamps-80w each, at 8' lamp length. Including magnetic ballasts and manual switch. One (1) skylight. Total area watts = 800.
 - v. Weight room storage: One (1) suspended florescent fixture with (2) T8 lamps-80w each, at 8' lamp length. Including magnetic ballast and manual switch. Total room watts = 160.
 - vi. General storage room: Four (4) surface mounted florescent fixtures with (2) T8 lamps-40w each, at 8' lamp length. Including magnetic ballasts and manual switch. Total room watts = 320.
 - vii. Mezzanine Locker and RR: Seven (7) surface mounted florescent fixtures with (2) T8 lamps-40w each, at 8' lamp length. Including magnetic ballasts and manual switch. Total room watts = 560.
 - viii. Two (2) stair wells: Two (2) suspended florescent fixtures with (2) T8 lamps-40w each, at 4' lamp length. Including magnetic ballasts and manual switch. Total watts = 160.
- c. Construction: First floor
 - i. Main shop floor: Twenty Three (23) suspended florescent fixtures with (2) T12 lamps-80w each, at 8' lamp length, and three (3) skylights. Including magnetic ballasts and manual switches. Total watts = 3,680.

- ii. Main shop floor support spaces (combined): Nineteen (19) florescent fixtures with (2) T8 lamps-40w each, at 8' lamp length and four (4) florescent fixtures with (2) T8 lamps-32w each, at 4' lamp length. Total area watts = 3,360.
 - d. Condition Assessment
 - i. Condition: Fair. Nine (9) fixture lamps unlit in main repair shop floor.
- 2. Exterior Lighting
 - a. Construction
 - i. Four (4) perimeter roof line mounted high pressure sodium HPS fixtures, reported to be 150w lamps.
 - b. Condition Assessment
 - i. Condition: Poor. Old lenses and photo cell failures. All exterior lights energized during audit, 8:12am through 11:30am.
- 3. Power Distribution Panels
 - a. Construction: Original to building. They are beyond their expected useful life. Condition: Poor.
 - b. Condition: Poor.
- 4. Utilities Service
 - a. Construction
 - i. One (1) 200 amp, 3-phase, 120-208 volt service. 240VAC present for gasoline filling system.
 - ii. Power service entry conduit missing weather cover. This is a significant safety issue.
 - b. Condition Assessment
 - i. Condition Power Service: Fair.
 - ii. Condition Electric Meter: Fair.
 - iii. Condition Power distribution panels: Poor.
- 5. Conclusions:
 - a. The electrical power system is presently beyond it Expected Useful Life (EUL). Overall the Electrical system is in Poor condition.
- 6. Estimates: Suggested remedies and Opinion of probable cost
 - a. Immediate Cost - Install weather cover plate at power service entry conduit.
 - b. Shot-Term Cost - Replace exterior photo cells: \$1,500

3.5 Services Photos – Electrical: Mezzanine Level



E 1 – Main storage area



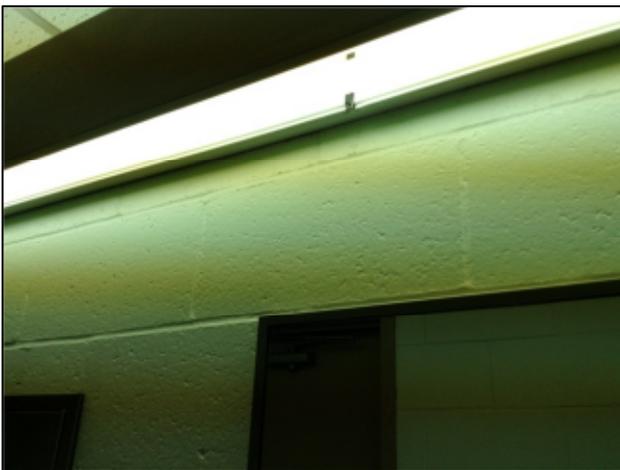
E 2 – Main office hallway



E 3 – Storage room



E 4 – Weight area storage room



E 5 – Women's RR



E 6 – Stair well (typical)

3.5 Services Photos – Electrical: First Floor and Meter Set



E 7 – Lunch Room



E 8 – Repair Bay



E 9 – Main Shop



E 10 – Drum Storage area



E 11 – Meter Set



E 12 – Meter

3.5 Services Photos – Electrical: Service and Distribution Panels



E13 – Power Service



E14 – Power Service



E15 – Power Service



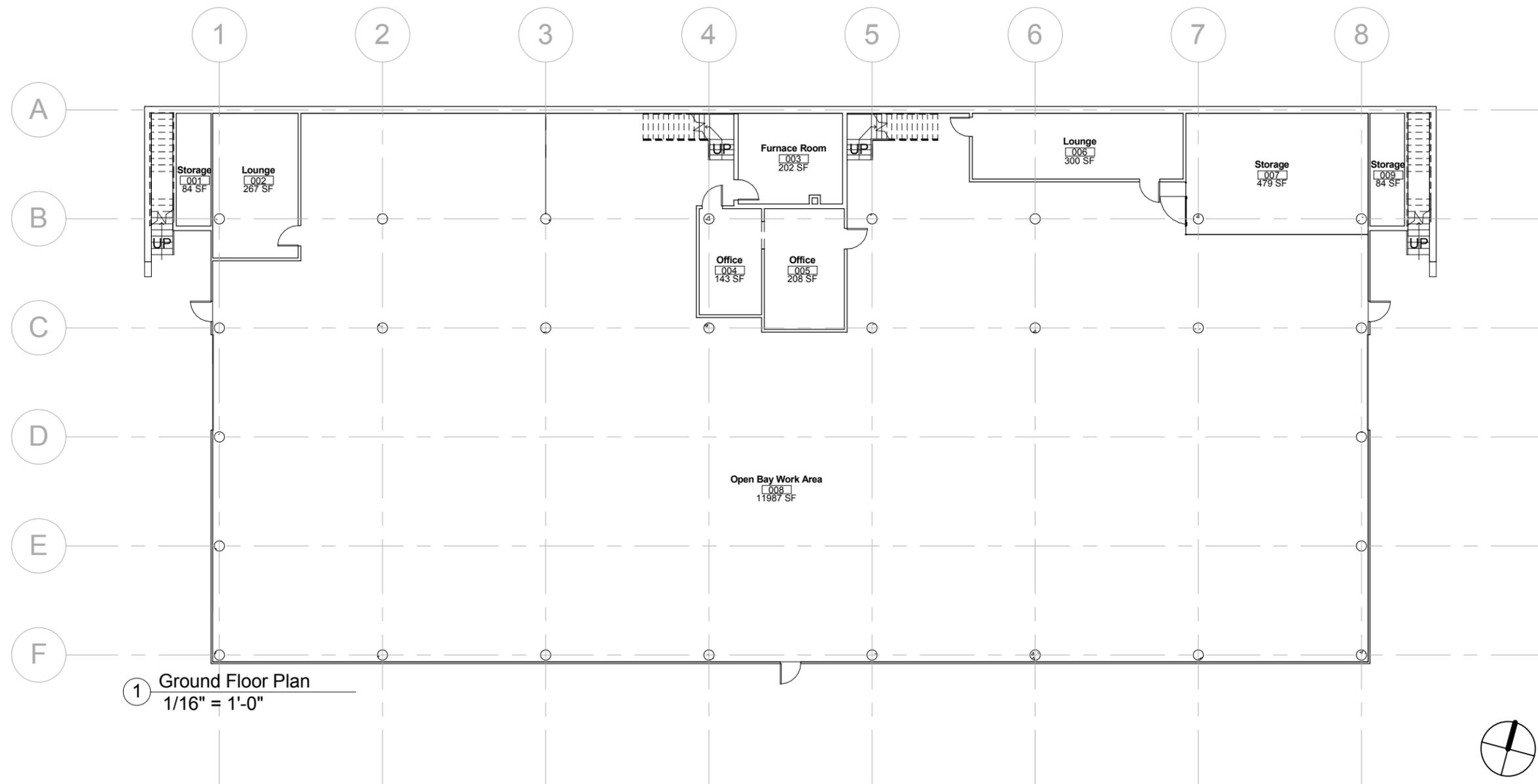
E16 – Power distribution/breaker panel



E17 – Power distribution/breaker panel



E18 – Power distribution/breaker panel:
multi-phase with 240vac



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.



Department of Public Works District 5
City of Pittsburgh

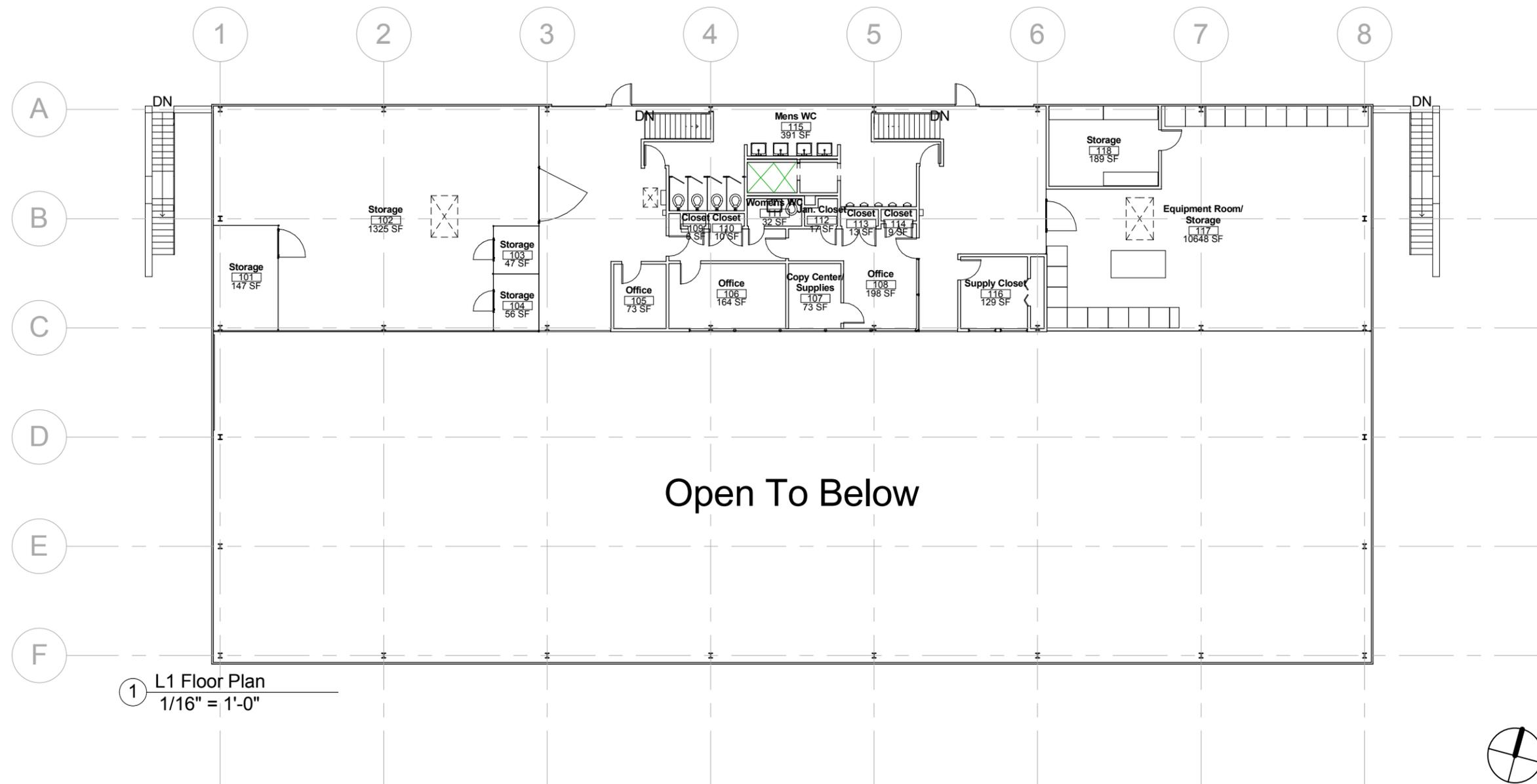
Ground Floor Plan

Date 06/19/13

Drawn by AS

A1.00

Scale 1/16" = 1'-0"



① L1 Floor Plan
1/16" = 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.



Department of Public Works District 5
City of Pittsburgh

L1 Floor Plan

Date 06/19/13

Drawn by AS

A1.10

Scale 1/16" = 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.

① Site Plan
1/32" = 1'-0"



Department of Public Works District 5
City of Pittsburgh

Site Plan		C1.01
Date	06/19/13	
Drawn by	AS	Scale 1/32" = 1'-0"

BO17 - DPW 5TH DIVISION

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					
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 checked="" type="checkbox"/>	
2.	Are ramps longer than 6 ft complete with railings on both sides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3.	Is the width between railings at least 36 in.?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	
D. Entrances/Exits					
1.	Is the main accessible entrance doorway at least 32 in. wide?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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 checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" 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"/>	SOME, NOT ALL
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 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 DPW 5th Division vehicle facility 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	24.4	10640	-	\$914
February	0	23.2	8920	-	\$780
March	0	22.4	7680	-	\$684
April	21	18.4	8160	-	\$732
May	94	20.4	9200	-	\$834
June	182	19.6	9080	-	\$824
July	397	21.6	10680	-	\$961
August	206	21	9180	-	\$839
September	78	20	7680	-	\$717
October	0	21.6	8760	-	\$810
November	0	21.6	8760	-	\$810
December	0	25.2	10320	-	\$952
Annual Totals			109,060	\$0	\$9,857

2011 - Natural Gas

YEAR: 2011

Month	Heating Degree Days	MCF	Therms	Total Bill (\$)
January	1240	274.3	2743	\$3,341
February	917	260.1	2601	\$3,184
March	781	200.1	2001	\$2,456
April	350	144.7	1447	\$1,835
May	138	28	280	\$255
June	12	100	1000	\$1,317
July	0	27.3	273	\$469
August	1	25.3	253	\$445
September	87	34.1	341	\$543
October	401	60.8	608	\$849
November	532	142.1	1421	\$1,774
December	849	204.5	2045	\$2,384
Annual Totals			15,013	\$18,853

2012 - Electricity

YEAR: 2012

Month	Cooling Degree Days	Billed Demand (kW)	Electric Use (kWh)	Demand Cost (\$)	Total Bill (\$)
January	0	24.8	10280	-	\$947
February	0	22.8	9280	-	\$857
March	4	22	9000	-	\$830
April	7	17.6	8880	-	\$794
May	114	19.2	9200	-	\$829
June	181	20	9520	-	\$865
July	347	20	10080	-	\$909
August	226	19.6	8680	-	\$800
September	110	15.2	7240	-	\$662
October	24	22.4	8080	-	\$772
November	0	20.8	8640	-	\$806
December	0	23.6	10160	-	\$944
Annual Totals			109,040	\$0	\$10,013

2012 - Natural Gas

YEAR: 2012

Month	Heating Degree Days	MCF	Therms	Total Bill (\$)
January	993	266.5	2665	\$3,062
February	860	226.5	2265	\$2,506
March	430	196	1960	\$2,176
April	456	168.1	1681	\$1,875
May	60	36.5	365	\$523
June	29	6	60	\$212
July	0	4.3	43	\$197
August	1	5.2	52	\$207
September	107	6.7	67	\$223
October	343	43.3	433	\$618
November	719	110.1	1101	\$1,326
December	795	145.8	1458	\$1,537
Annual Totals			12,150	\$14,461

2013 - Electricity

YEAR: 2013

Month	Cooling Degree Days	Billed Demand (kW)	Electric Use (kWh)	Demand Cost (\$)	Total Bill (\$)
January	0	23.6	9920	-	\$900
February	0	23.2	9800	-	\$888
March	0	23.2	8520	-	\$790
April	22	20	6560	-	\$623
May	92	16.8	7320	-	\$611
June	-	0	0	-	0
July	-	-	-	-	-
August	-	-	-	-	-
September	-	-	-	-	-
October	-	-	-	-	-
November	-	-	-	-	-
December	-	-	-	-	-
Annual Sub-Totals			42,120	\$0	\$3,811

2013 - Natural Gas

YEAR: 2013

Month	Heating Degree Days	MCF	Therms	Total Bill (\$)
January	988	268.3	2683	\$2,702
February	998	308.4	3084	\$3,084
March	911	268	2680	\$2,699
April	360	121.6	1216	\$1,307
May	151	13.1	131	\$275
June	-	6.7	-	\$214
July	-	-	-	-
August	-	-	-	-
September	-	-	-	-
October	-	-	-	-
November	-	-	-	-
December	-	-	-	-
Annual Sub-Totals			9,794	\$10,280

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	107,883	kWh	3.412142	368,113	\$9,838.67
Natural Gas	13,878	Therms	100	1,387,800	\$16,583.87
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				1,755,913	\$ 26,422.54

Gross Conditioned Area	17697.00
EUI (kBtu/ft ²)	99.22
Target Finder Score*	na
CBECs EUI (for comparable , kBtu/ft ²)	na
ECI (\$/ft ²)	\$ 5.01

Notes: Energy Star/Target finder does not have a category for public vehicle repair facilities.

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: Radiant Tube Heaters, and Gas Fired Heating Units (GFUH) - **Poor**

Heating System Deficiencies

- Combustion Efficiency (radiant): **Very Good**
- Age: **Fair**
- Maintenance Condition: **Poor** see PCR
- Combustion Efficiency (GFUH): **Poor**
- Age: **Beyond EUL**
- Maintenance Condition: **Derelict**

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**

HVAC System

Energy System Condition: Central Furnaces - **Derelict**

HVAC System Deficiencies

- Combustion Efficiency: **Poor**
- Age: Near EUL see PCR
- Cooling ACCU EER: **Poor**
- Maintenance Condition: **Poor** see PCR
- Duct System Insulation: **Poor**

Control System Deficiencies

- Space Set-Point Control: **Poor**. Uncalibrated 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 - **Poor**

Fixture Deficiencies

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

Control System Deficiencies

- Occupancy Controls: **None**
- 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

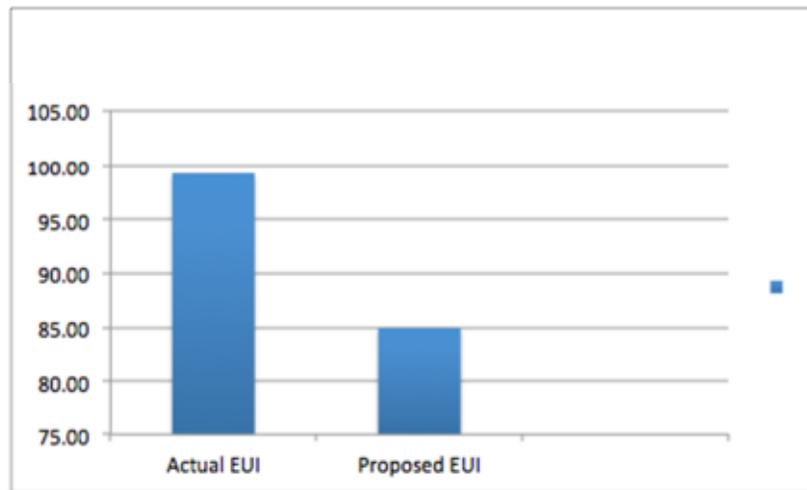
The EUI for the DPW 5th Division vehicle facility is calculated at 99.2 kBtu/Ft2.

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

Actual EUI 99.22
Proposed EUI 85.00



Potential savings from achieving proposed EUI target

Energy Type	Total Annual Use (EUI=100)	Units	Conversion Multiplier	kBtu	Total Annual Cost (\$)
Electricity	92,421	kWh	3.412142	315,355	\$8,428.61
Natural Gas	11,889	therms	100	1,188,903	\$14,207.11
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				1,504,259	\$ 22,635.72

Gross Conditioned Area*	17697.00
Actual EUI (kBtu/ft ²)	99.22
Proposed EUI (kBtu/ft ²)	85.00
Proposed ECI (\$/ft ²)	\$ 1.28

Proposed action plan: Phase #1

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

- One (1) HVAC Control
- Six (6) Lighting controls
- Six (6) Heating controls
- Set-point, set-back, and scheduling controls
- Insulate basement level domestic water piping