

TOWN OF SHREWSBURY
FACILITIES CONDITION ASSESSMENT OF
TOWN BUILDINGS

FINAL REPORT

June 01, 2016

**Shrewsbury
Fire Station**

G | R | L | A

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Executive Summary

Gorman Richardson Lewis Architects and our consultants were retained by the Town of Shrewsbury to provide a comprehensive study of 10 Town-owned buildings with the goal to provide key information for each building outlining the condition of:

- Site and Landscape Elements
- Architectural Elements / Building Envelope Elements
- Structural Components
- Mechanical, Plumbing, Electrical and Fire Protection Systems / HAZMAT

This Final Report includes summaries of each building for the disciplines noted above, prioritization of the recommended repairs or replacement of any element or system and estimated costs for each on a 1-year, 5-year and 10-year basis to assist the town in its planning for capital improvements.

The architectural/ engineering team consists of:

- Waterman Associates – Site / Landscape
- Gorman Richardson Lewis Architects – Architecture and Building Envelope
- Structures North – Structural (as applicable)
- Weston and Sampson - Mechanical, Plumbing, Electrical and Fire Protection Systems / HAZMAT

The town-owned buildings addressed in the Report include:

	Building	Location	Size	Year	Additions	Renovations
1	Shrewsbury High School	64 Holden Street	296,000 sf	2002		
2	Oak Middle School	45 Oak Street	182,101 sf	1957	1981	2004
3	Floral Street Elem. School	57 Floral Street	94,000 sf	1997		
4	Spring Street Elem. School	123 Spring Street	37,200 sf	1967	1995 & 2000: 6 Modular Class Rooms	
5	Calvin Coolidge Elem. School	1 Florence Street	48,600 sf	1927	1940, 1969, & 1995: 4 Modular Class Rooms	1985

6	Walter J. Paton School	58 Grafton Street	39,103 sf	1950	2000: 3 Modular Class Rooms	
7	Shrewsbury Town Hall	100 Maple Avenue	36,319 sf	1966	1997	
8	Shrewsbury Senior Center	98 Maple Avenue	11,400 sf	2000		
9	Shrewsbury Fire Headquarters	11 Church Road	16,304 sf	2007		
10	Shrewsbury Police Station	106 Maple Avenue	17,485 sf	1971	1996	1996

Condition Assessment Matrix / Methodology

The objective of the Condition Assessment Matrix included in each section of the Report, is to provide a detailed summary of each condition/ deficiency observed regarding the aforementioned disciplines for each building, a level of priority as to when the condition should be addressed, a time-range relating to the remaining service life of the item, a commentary describing action (if any) to be taken, an approximate quantity and an estimate of cost to implement the recommended action:

- **Issue #:** Each observed condition is assigned an issue number relating to the floor level where it is located (*eg: 1F-17 = First Floor – Item 17*)
- **Discipline:** one of the 6 primary areas of concentration:
 - Architecture (Arch)
 - Building Envelope (Envelope)
 - Site/ Civil
 - Structural
 - Mechanical-Electrical-Plumbing-Fire Protection (MEP/FP)
 - Hazardous Materials (HazMat)
- **Location:** Specific room or area where the item is located in the building floor plan
- **System:** one of the 12 categories describing the type of building component being addressed (wall, ceiling, flooring, etc.)
- **Description:** detailed description of each observation
- **Photo #:** address of photo pertaining to the specific issue (as applicable)
- **PlanGrid Report #:** number of the PlanGrid Report included on the flash drive at the back of the binder, typically containing a photo of the item

- **Priority:** Low/ Medium/ High: a level of priority for addressing each condition
- **Service Life:** anticipated remaining service life of the component observed
- **Commentary:** Recommended action to be taken (if any)
- **Quantity:** quantity of the component/ system to be addressed and acted upon (*eg: 7,500 sf, 1 LS (Lump Sum), etc.*), used as a basis for the cost estimate
- **Cost Estimate:** estimate of anticipated construction cost to implement the recommended action within the timeframe relating to the level of priority and service life (including Contractors' General Conditions, fees, etc. and escalation factors relative to 2016 dollars).

GRLA and our consultants want to thank Bob Cox and the Town of Shrewsbury for the opportunity to work with you on this Facilities Condition Assessment. After having reviewed the information and findings herein, please contact us with any questions or follow-up information required.

Sincerely,

GORMAN RICHARDSON LEWIS ARCHITECTS, INC.



Scott Richardson, AIA, LEED AP

Principal

1. Building Summary / Narratives

a. Waterman Design Associates

i. Site & Landscape

b. Gorman Richardson Lewis Architects (GRLA)

i. Architecture - Interior

ii. Building Envelope

c. Weston & Sampson

i. MEP/FP/Hazmat

2. Cost Matrices Summary

a. Waterman Design Associates

i. Site & Landscape

b. Gorman Richardson Lewis Architects (GRLA)

i. Architecture - Interior

ii. Building Envelope

c. Weston & Sampson

i. MEP/FP/Hazmat

Appendix A: Floor Plans

Appendix B: Plan Grid Reference

Overview:

In this section of the Facilities Condition Assessment Report, Waterman Design Associates presents a summary of observations regarding the condition of Shrewsbury Fire Station site, including commentary and recommendations for action to be taken. The observations are organized according to the following “categories” in order to address the various components comprising the existing condition of the Shrewsbury Fire Station site:

1. General Site Conditions
2. Vehicular Entrances and Circulation
3. Parking Location, Arrangement, and Quantity
4. Pedestrian Circulation
5. Pedestrian Accessibility and MAAB Compliance
6. Vehicle Storage and Service Areas
7. Site Lighting For Building, Vehicular and Pedestrian Areas
8. Site Vegetation

General Site Conditions:

1. Observations:

- i. The Shrewsbury Fire Station is located on Church Road, sharing a complex with the First Congregational Church, the 1830 Schoolhouse and a Funeral Home. Beyond the site to the north exists the Mountain View Cemetery, single-family neighborhoods to the east and west, and commercial and retail buildings to the southwest. The portion of the site populated by the existing building slopes to the southwest. The site contains the Fire Station, along with the associated vehicular and pedestrian circulation systems.

Vehicular Entrances and Circulation:

B.

1. Observations:

- i. Church Road may be accessed from either Boylston Street (Route 140) or Main Street. A painted zone exists on Route 40 discouraging vehicles from obstructing Church Road in order to allow the passage of emergency vehicles to and from the site. Visitors enter the site traveling eastward off Route 140. A sign directs visitors to park along the north side of the building.

2. Commentary:

- i. The pavement condition of the vehicular entrances and interior circulation system ranges from good to fair throughout the site.

3. Recommendation:

- i. Implement a program of replacing damaged or worn pavement throughout the site.



SFS E1

Parking Location, Arrangement, and Quantity:

C.

1. Observations:

- i. There exists seventeen (17) parking spaces for visitors located on the north side of the building, flanking the existing garage bay door. There is additional parking to the northwest of the building along the stone wall, which separates the cemetery from the site. Members of the Fire Department park in the southwest portion of the site, adjacent to the garage bay doors into the building. There exists approximately eight (8) spaces for staff. There is ample room for maneuverability within the parking areas, and it is to our understanding that the parking quantity is sufficient for normal operations.

2. Commentary:

- i. The pavement condition of the parking area ranges from good to fair throughout the site.
- ii. The accessible parking spaces adjacent to the main entrance do not appear to comply with current MAAB standards.

3. Recommendations:

- i. Implement a program to bring accessible parking spaces throughout the site into compliance with current MAAB standards.
- ii. Implement a program of replacing damaged or worn pavement throughout the site.



SFS E2

Pedestrian Circulation:

D.

1. Observations:

- i. A paved Portland cement concrete sidewalk runs along the north side of the building, collecting pedestrians from the parking area and leading them to the main entrance. A separate Portland cement concrete walk leads pedestrians from the garage bay doors, around to a secondary entrance in the southwest of the building.

2. Commentary:



SFS E3

- i. The condition of the Portland cement concrete pavement throughout the site ranges from good to fair.
- ii. The existing pedestrian circulation system on site is not contiguous with sidewalks on Route 140 or Main Street, forcing pedestrians to walk in vehicular travel lanes.

3. Recommendation:

- i. Implement a program of replacing damaged or worn pavement throughout the site.
- ii. Implement a program to review accessible pedestrian routes throughout the site for safety and compliance with current MAAB standards.

Pedestrian Accessibility and MAAB Compliance:

E.

1. Observations:

- i. A total of two (2) accessible parking spaces were identified within the property, located to the north of the building, directly adjacent to the main entrance.

2. Commentary:

- i. Two (2) parking spaces, signage and access aisles appear to comply with current MAAB standards, however the accessible route from the parking lot is not in compliance with current MAAB standards.

3. Recommendation:

- i. Implement a program to bring accessible parking spaces throughout the site into compliance with current MAAB standards.



SFS E4

Vehicular Storage and Service Areas:

F.

1. Observations:

- i. There are three (3) garage bay doors located on the east side of the building, and one (1) on the north to allow emergency vehicles to be stored in the building. There are 6' Portland cement concrete aprons at all vehicular entrances to the building.



SFS E5

2. Commentary:

- i. The bituminous concrete and Portland cement concrete in this area all appear to be in good condition.

3. Recommendations:

- i. Maintain condition of vehicular and service areas.

Site Lighting for Building, Vehicular and Pedestrian Areas:

G.

1. Observations:

- i. Exterior wall-mounted or overhead-mounted lighting exists at most entrance doors to the building. The parking areas are predominantly illuminated by pole mounted LED light fixtures.

2. Commentary:

- i. Exterior lighting appears to sufficiently illuminate the site and building entrances to meet minimum safety requirements.

3. Recommendations:

- i. Implement a program of continued maintenance for the site lighting.



SFS E6

Site Vegetation:

H.

1. Observations:

- i. There are several planting islands which buffer the building from the parking lot which contain ornamental trees and shrubs.

2. Commentary:

- i. The conditions of all plantings on site are good.

3. Recommendations:

- i. Implement a maintenance program for plant materials that includes regular trimming, watering, and soil testing.

Facilities Condition Assessment

Building Summary

Fire Station Headquarters

Address: 11 Church RD., Shrewsbury, MA 01545
 Constructed: 2007
 Additions:
 Renovations:
 2016 Assessed Value: \$1,698,500
 (Building Only)

Building Characteristics

Gross Floor Area:
 First Floor: 10,929 gsf
 Second Floor (Storage): 5,634 gsf
 Total Building Area: 16,563 gsf



780 CMR Mass. Building Code:

Use Group Classification: B (Business)
 Construction Type: II-B (To be verified)

Building Envelope: (see Building Envelope Section for more detailed information)
 Exterior Wall Assembly: Brick Veneer with CMU back up wall (structural steel system)
 Windows: Aluminum Insulating (operable);
 Roofing: Black Low Slope Membrane

HVAC: (see MEP/FP Section for more detailed information)
 Heating Fuel: Natural gas

Fire Protection: 100% automatic sprinkler system (assume NFPA 13)

Architecture - Interior

Overview:

In this section of the Facilities Condition Assessment Report, Gorman Richardson Lewis Architects (GRLA) presents a summary of observations regarding the condition of the interior architecture of the Fire Headquarters, including commentary and recommendations for action to be taken. The observations are organized according to the following “categories” in order to address the various components, systems and issues comprising the existing condition of the Fire Headquarters Interior:

1. Walls
2. Ceilings
3. Flooring
4. Doors
5. Windows/ Glazing
6. Casework/ Furnishings
7. Equipment
8. Mechanical Fixtures
9. Electrical/ Lighting Fixtures
10. Plumbing Fixtures
11. Code Issues
12. General

The Fire Headquarters contains two distinct levels: First Floor and Second Floor. The main public entrance on the north side of the building accesses directly to the main lobby via entry vestibule 100 which connects the large classroom and operations space. Additional entrances/egress locations are provided at the west, north and southeast sides of the building first floor. The first floor houses the administrative offices, truck garage, and building support spaces. The second floor contains additional storage, bunk room, gym, library and day room with kitchen.

Facilities Condition Assessment

Completed in 2007, Shrewsbury Fire Headquarters has been in service for 8 years and is well maintained. As a fire headquarters, the facility has five large truck bays and a central operations center with associated administrative offices including the department chief. In general, the interior of the building is functioning as intended with reasonable wear and tear of finishes appropriate to the age of the building and the type and number of occupants. However, the deterioration of the window gaskets at the large overhead doors, and finish of the day room kitchen casework did seem to be well before expected service life. Additionally, the placement of the electrical panels in the second floor storage room do not appear fully compliant with current code requirements. As noted in the Conditions Assessment Matrix included in this report, specific as well as general deficiencies are noted with recommendations for remediation (repair or replacement).

It is understood that the building permit for the Fire Headquarters was issued prior to the month of April 2007(*effective date of 780 CMR 7th Edition*), and therefore, the building design and construction reflect the requirements of the State Building Code 780 CMR 6th Edition. Nonetheless, a few deficiencies regarding the requirements of the current Massachusetts State Building Code (780 CMR-8th Edition) and Massachusetts Architectural Access Board code (521 CMR) were observed and noted in the “Code Issues” and “ADA” categories of this assessment report. Although allowed at the time the building was permitted and constructed, they are included in the assessment report for information purposes and may require corrective action triggered by future renovation projects or if deemed by the Authority Having Jurisdiction (typically the building official or fire department official) to pose a hazard to occupants or the public. In addition, any deficiencies regarding handicap accessibility and conformance with the Americans with Disabilities Act (ADA) may require immediate action.

The issues addressed in each Narrative category below are further itemized in the attached Condition Assessment Matrix with priority level, remaining service life (1 year/ 5 years/ 10 years) and associated costs for repair or replacement included for each issue. At the bottom of each matrix is a summary of the costs-- by building-- for each of the service life time periods, providing a summary of anticipated costs—by building—for capital planning purposes for the next 10 fiscal years: 2017 through 2026.

Methodology:

During the summer and fall of 2015, GRLA visited the Shrewsbury Fire Headquarters on multiple occasions and made visual observations of the condition of the interior architecture of the building, including walls, ceilings, flooring, doors, windows/glazing, casework/furnishings, miscellaneous equipment, mechanical-electrical- plumbing finish components and fixtures, as well as code issues regarding building code and accessibility code. Being among the more recently constructed town-owned buildings, a full structural assessment of the Fire Headquarters was not required and was limited to any significant structural issues or deficiencies noted during the observation effort.

PlanGrid:

Facilities Condition Assessment

Information gathering, field notes and photography for this section of the Conditions Assessment Report were accomplished using PlanGrid, a web-based “punch-list” tool utilizing an iPad. Floor plans (pdf format) of each level were uploaded to the PlanGrid program. Symbols representing observations of existing conditions by each of the twelve categories noted above were located on each floor plan. A “pop-up” page associated with each symbol provided a means to describe each observation, identify its location within the floor plan and include multiple photos. The “pop-up” pages could then be retrieved and sorted by category into individual PlanGrid Reports, providing detailed information for each observation. The PlanGrid Reports for each building, by category, are included on the flash drive included in the back of the Report binder. In addition, the number of the PlanGrid Report associated with each observation is noted in the “PlanGrid” column of the Conditions Assessment Matrix.

This section addressing the condition of the Architecture Interior is followed by sections addressing:

- Building Envelope
- Site/ Civil
- Mechanical, Electrical, Plumbing and Fire Protection (MEP/FP)
- Hazardous Materials

Conclusion

The **Architecture-Interior** of the Shrewsbury Fire Headquarters building is functioning as intended. Specific deficiencies and end-of-service-life issues are addressed in detail within the Condition Assessment Matrix.

Among the more notable issues of concern are included:

- Deficiencies regarding clearances and obstructions at electrical panels
- Deficiencies regarding second story floor tile and potential water intrusion to first floor
- Deficiencies regarding conformance to requirements for handicap accessibility

Building Enclosure

Overview:

In this section of the Facilities Condition Assessment Report, GRLA Building Envelope Sciences presents a summary of observations regarding the condition of the building envelope systems at the Shrewsbury Fire Station, including commentary and recommendations for action to be taken. The observations are organized according to the following “categories” in order to address the various components, systems and issues comprising the existing condition of the structure:

1. Roofs
2. Exterior Walls
3. Windows

Methodology:

GRLA visited the Shrewsbury Fire Station on September 21, 2015, and made visual observations of the condition of the building envelope systems. GRLA made observations from the ground using binoculars and from accessible roof areas (upper roof only). GRLA also made observations of representative interior areas.

ROOFS

1. Observations:

- i. The Shrewsbury Fire Station has a low slope roof with adhered EPDM membrane over mechanically attached insulation.
- ii. There is a note on the roofing membrane indicating that there is “water coming out below window”.
- iii. There is a lightning protection system, which has penetrations through the roof with no conduit flashing.
- iv. EPDM strip flashing at the coping is blistered.

2. Commentary:

- i. Leaks can lead to damage to structural elements as well as interior finishes.
- ii. Blistered EPDM can lead to open seams and/or punctures in the roof membrane.

3. Recommendations:

- i. Investigate source(s) of leak and make necessary repairs. Implement a program of annual inspections.
- ii. Provide watertight conduit flashing.
- iii. Cut and flatten blisters. Provide EPDM patches.

EXTERIOR WALLS

1. Observations:

- i. The exterior walls are brick veneer with cast stone accent bands.
- ii. Sealants at wall transitions, penetrations, and expansion joints are failed in isolated locations.
- iii. Isolated mortar joints are deteriorated.
- iv. Isolated areas of cast stone are cracked and spalled.
- v. Isolated areas of staining on masonry.
- vi. Paint is peeling at exterior doors.

2. Commentary:

- i. Sealants require frequent replacement and should be considered an ongoing maintenance item.
- ii. Cracked and deteriorated masonry may become a falling hazard if not repaired.

3. Recommendations:

- i. Replace failed sealants; plan ongoing replacement approximately every 5-10 years.

- ii. Rout and point deteriorated mortar joints.
- iii. Investigate cracked and spalled cast stone to determine the cause of cracking and movement. Remove any loose masonry as an interim measure. Repair cracks by routing and sealing (moving cracks) or pointing (static cracks).
- iv. Investigate stained areas to determine causes of staining. Address causes and clean masonry.

WINDOWS

1. Observations:

- i. Windows are predominantly double hung aluminum frame windows.
- ii. Sealants at window perimeters are failed in many locations.

2. Commentary:

- i. Sealants require frequent replacement and should be considered an ongoing maintenance item.

3. Recommendation:

- i. Replace failed sealants; plan ongoing replacement approximately every 5-10 years.

Refer to the GRLA Building Enclosure Conditions Assessment Matrix for additional detail regarding observations and recommended repairs.

Shrewsbury Fire Station

Representative Existing Conditions Photographs



North Elevation, partial view



East Elevation, overall view



West Elevation, overall view



South Elevation, partial view

Shrewsbury Fire Station
Representative Existing Conditions Photographs



East Elevation, mortar deterioration at a lintel



North Elevation, spalled concrete



North Elevation, gaps and voids in sealant at an expansion joint



North Elevation (Northeast corner), crack in mortar joint

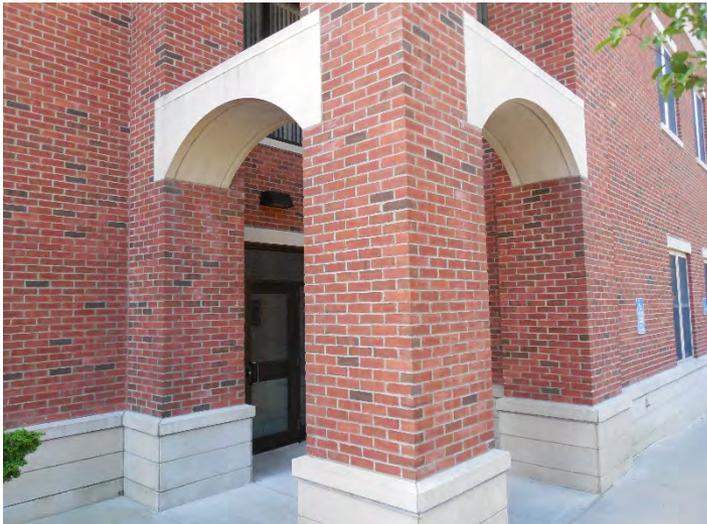
Shrewsbury Fire Station
Representative Existing Conditions Photographs



North Elevation, deteriorated mortar



North Elevation, deteriorated mortar



North Elevation, efflorescence on brick



North Elevation, deteriorated mortar and efflorescence

Shrewsbury Fire Station
Representative Existing Conditions Photographs



North Elevation, deteriorated mortar under a windowsill



West Elevation, open conduits and stained and cracked concrete



West Elevation, deteriorated mortar under a windowsill



West Elevation, peeling paint at exterior doors

Shrewsbury Fire Station
Representative Existing Conditions Photographs



West Elevation, crack in a mortar joint



South Elevation, spall at cast stone



South Elevation, open pipe penetration



South Elevation, deteriorated mortar

Shrewsbury Fire Station
Representative Existing Conditions Photographs



South Elevation, deteriorated mortar and spalled concrete



South Elevation, deteriorated mortar



South Elevation, deteriorated window perimeter sealant



South Elevation, crack at cast stone base

Shrewsbury Fire Station
Representative Existing Conditions Photographs



South Elevation, crack at foundation



South Elevation, open joint (no mortar visible)



South Elevation, staining under a hose bib



South Elevation, crack at mortar joint

Shrewsbury Fire Station

Representative Existing Conditions Photographs



Lower roof, partial view facing East



Upper roof, partial view facing North



Transition between upper and lower roof; note on roof: "WATER COMING OUT BELOW WINDOW".



Upper roof, evidence of ponding

Shrewsbury Fire Station
Representative Existing Conditions Photographs



Upper roof, open lightning protection conduit



Southeast corner of tower, deteriorated mortar

Overview:

In this section of the Facilities Condition Assessment Report, Weston & Sampson presents a summary of observations regarding the condition of Fire Headquarters Building site, including commentary and recommendations for action to be taken. The observations are organized according to the following “categories” in order to address the various components comprising the existing condition of the Fire Headquarters Building site:

1. Electrical
2. HVAC
3. Plumbing
4. Fire Protection
5. Hazardous Materials

Electrical

A.

1. Observations:

- i. Main service is 400A at 120/208V, 3-phase, 4-wire



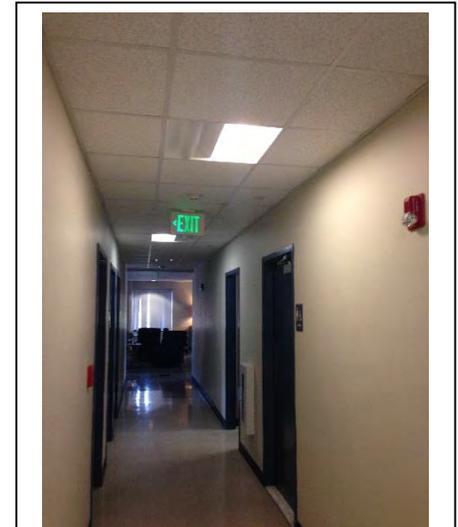
Electric Service

- ii. Emergency power is by a 225KW Diesel Generator



Exterior Emergency Generator

- iii. Lighting is predominantly fluorescent throughout the building
- iv. Lighting controls is via wall mounted switches and occupancy sensors.



Fluorescent Lighting

- v. Emergency lighting is by emergency ballasts installed in select fixtures throughout the facility.



Fluorescent Emergency Lighting

- vi. Fire alarm is a Silent Knight IFP-100 addressable system



Main Fire Alarm Control Panel

2. Commentary:

- i. Main Electrical Service

The building is served by a single electrical service rated 400 amperes, 120/208volts, 3-phase, 4-wire and is located in the Main Electrical/Storage room. The service equipment consists of utility company pad mounted transformer and an underground feed to utility meter and a 400amp main circuit breaker mounted on the outside of the building. The main distribution panel is a Square D panel and feeds 3 other Square D panels. Two of these panels are located within the existing main electrical room and the third panel is located in the garage. The electrical room is used as a storage room which is in violation of the Massachusetts Electrical Code. The electrical equipment appears to be in good condition.

- ii. Emergency System

There is an onsite 225kw Diesel standby generator manufactured by Generac. The generator feeds an 800A rated automatic transfer switch that backs-up the entire facility. The generator and transfer switch appear to be in good condition.

- iii. Lighting

The lighting consists of recessed 2x2 and 2x4 32W T8 fluorescent recessed basket fixtures, recessed triple tube compact fluorescent downlights in the stairwells and in the kitchen area, 1x4 2-lamp 32W enclosed and gasketed pendant mounted fixtures and pendant mounted compact fluorescent fixtures in the garage area. Lighting controls consist of wall mounted occupancy sensors within the toilet rooms and offices and manual wall switches for all other areas of the facility. The lighting and lighting controls throughout the facility appear to be in good condition. The light levels appear to be within recommended levels.

Life safety emergency lighting is provided via emergency battery ballasts within select fixtures throughout the facility. The emergency light fixtures appear to be in good condition.

Battery powered green Led exit signs are installed throughout the facility Exit signs appear to be in good condition.

iv. Fire Alarm

The fire alarm system is an FCI Silent night addressable system. There are manual fire alarm pull stations and horn/strobes located throughout the building. Heat and smoke detectors are present throughout the facility. The fire alarm system appears to be in good condition.

3. Recommendations:

- i. Replace all existing lighting with new LED fixtures.
- ii. Replace all manual lighting controls with new automatic controls to meet the current energy codes.
- iii. Provide a completely separate electrical room from the storage room.

HVAC

B.

1. Observations:

- i. The Fire headquarters was constructed in 2007.
- ii. The Fire Headquarters' heating and cooling systems consist of one (1) gas condensing boiler (B-1), two (2) constant volume cooling only packaged rooftop units (RTU-1 & 2), VAV boxes with hot water reheat coils, unit heaters, duct mounted reheat coils, finned tube radiation, and electric unit heaters.
- iii. Heating Hot water is circulated by two (2) hot water inline pumps (w/VFD's) to VAV reheat coils, finned tube radiation, duct mounted reheat coils and unit heaters.
- iv. Heating for the Garage is by gas fired Infrared heaters.
- v. There are exhaust fans located throughout the building and are all are located on the roof. The majority of these fans are constant volume fans serving general exhaust and toilet exhaust.
- vi. There is a vehicle exhaust system located in the garage area.



2. Commentary:

Facilities Condition Assessment Narrative

- i. All the HVAC equipment was installed in 2007 and is under 10 years old.
- ii. Heating Equipment
 - Boilers (B-1): The existing boiler is a Lochinvar Knight gas fired condensing boiler. It is direct vented to the outside. Upon visual inspection the unit appears in good condition.
 - Hot water Pumps: The existing inline hot water pumps are manufactured by Bell & Gossett. Upon visual inspection the pumps appear to be in good condition.
 - Infrared heaters: The infrared heaters appear to be in good condition.
 - The VAV boxes with hot water reheat coils appear to be in good condition.
- iii. Cooling Equipment
 - RTU-1: This existing RTU is a Trane Voyager model TCD211C30ICA. The unit is a nominal 17.5 Ton dual circuit down flow unit and has R-22 as its refrigerant. Upon visual inspection of the interior of the unit the fans, compressors and belts appeared to be in good condition. This system is a VAV by-pass system that has a by-pass duct with a motorized damper interconnected between the supply and return of RTU-1. RTU-1 serves both the 1st and 2nd floors
 - RTU-2: This existing RTU is a Trane Precedent model THC063A3R0A0R6T. The unit is a nominal 5 Ton down flow unit and has R-22 as its refrigerant. Upon visual inspection of the interior of the unit the fans, compressors and belts appeared to be in good condition. This system is a constant volume system and is dedicated to the training room.



Facilities Condition Assessment Narrative

- iv. Exhaust Fans
 - The existing roof mounted and inline exhaust fans are in good condition.

- v. Building Management System
 - The existing control system Johnson Controls Metasys system. The system is original to the 2007 construction.

3. Recommendations:

- i. None

Plumbing

1. Observations:

- i. Domestic Water Service: The building is served by a 3" domestic water service.
- ii. Domestic Hot Water Service: The building's domestic hot water service is generated by (1) one 80 gallon condensing gas fired hot water heater.
- iii. Natural Gas: The building has a 2-1/2" natural gas service.
- iv. Sanitary: the building is served with a 6" sanitary water line that has a gas/oil separator for the garage. There is a 6", 4" and 8" rain water line.
- v. Fixtures:
 - Water closets are wall mounted; automatic flush valve, vitreous china.
 - Urinals are wall mounted vitreous china with manual valves.
 - Lavatories are wall hung vitreous china, single level style faucets.

2. Commentary:

- i. All the plumbing equipment was installed in 2007 and is under 10 years old. All the plumbing fixtures (urinals, water closets etc.) appear to be in good condition.
- ii. The existing gas fired Domestic Hot water heater is a Bradford White Hydrojet model PDV80 with an input of 250,000 BTU's. The units appears to be in good condition.

3. Recommendations:

- i. None



Typical Water closet



Typical Lavatory

Fire Protection

C.

1. Observations:

- i. There is full fire protection coverage for the building. The dedicated 8” FP service enters the building in the mechanical room and includes a double check valve assembly. The building is divided into two systems wet for the building and dry for the garage.

2. Commentary:

- i. The building is fully sprinkled. No issues were noted

3. Recommendations:

- i. None

Hazardous Materials

D.

1. Observations:

i. Asbestos-Containing Materials

- Numerous suspect asbestos-containing materials were observed within the building, including but not limited to: carpet mastic, roofing materials, gypsum board, floor tile, resilient flooring, acoustical ceiling tile, molded cove base, duct sealant, caulk, etc. All materials were observed to be in generally good condition.

ii. Other Hazardous Materials

- Fluorescent light fixtures are present throughout the building. Other materials present include hydraulic door closers and exit lights. All materials were observed to be in generally good condition.

2. Commentary:

i. Asbestos-Containing Materials

- The building was constructed in 2007, well past the date for asbestos-containing materials to typically be utilized during construction.

ii. Other Hazardous Materials

- Fluorescent light fixtures contain small amounts of mercury. Fluorescent light ballasts often contain polychlorinated biphenyls (PCBs) or Diethylhexyl Phthalate or Di (2-ethylhexyl) phthalate (DEHP). Hydraulic door closers often contain oils. Exit lights historically contained batteries. None of these materials typically present hazards unless they are damaged.

3. Recommendations:

i. Asbestos-Containing Materials

Despite the age of the building, the Massachusetts Department of Environmental Protection (DEP) revised asbestos regulation, effective June 20, 2014, requires that any Suspect Asbestos-Containing Material be sampled by a Massachusetts Department of Labor Standards (DLS)-certified asbestos inspector prior such materials being impacted by renovation or demolition. Alternatively, materials may be assumed to contain asbestos. We recommend that any suspect asbestos-containing materials expected to be impacted by renovation or demolition be sampled prior to disturbance. The following is a list of potential or confirmed asbestos-containing materials found at the building.

Facilities Condition Assessment Narrative

Material	Location	Approximate Quantity	Condition
Carpet mastic	Entryways	300 SF	Good
Roofing materials	Roof	4,000 SF	Good
Gypsum board and associated joint compound	Throughout	6,000 SF	Good
Floor tile	Throughout	4,800 SF	Good
Resilient flooring	Bathrooms	400 SF	Good
Ceiling tile	Throughout	3,000 SF	Good
Cove base molding	Throughout	1,200 LF	Good
Duct sealant	Throughout	500 SF	Good
Door caulk	Exterior	400 LF	Good
Roof caulk	Exterior – roof at penetrations/transitions	200 LF	Good
Window caulk	Exterior	550 LF	Good

ii. Other Hazardous Materials

- The fluorescent light fixtures and ballasts, door closers and exit lights may require special handling and disposal should they require removal from the building. The following is a summary of such materials found at the building.

Material	Approximate Quantity
Fluorescent light bulbs	350
Fluorescent light ballasts	175
Hydraulic door closers	40
Exit light batteries	20

Shrewsbury Fire Station - Total Estimated Costs

Consultant	Discipline		Cost Estimate		
			1 yr	5 yr	10 yr
Waterman Design Associates	Site & Landscape			\$207,613	\$415,454
Gorman Richardson Lewis Architects	Architecture		\$104,395	\$31,710	\$264,676
Gorman Richardson Lewis Architects	Building Envelope		\$14,204	\$65,217	\$914,109
Weston & Sampson	MEP/FP/Hazmat				\$287,472
		Totals	\$118,599	\$304,540	\$1,881,711

Condition Assessment Matrix

BUILDING:		SHREWSBURY FIRE STATION															
AREA:		Site/Landscape															
Issue #	Discipline	Loc	System	Description	Photo #	PlanGrid Report #	Priority			Service Life			Commentary	Quantity	Cost Estimate		
							Low	Med	High	2017	2018 to 2021	2022 to 2026			1 yr	5 yr	10 yr
SL-1	Site/Landscape	Varies	Vehicular Entrances and Circulation	The pavement condition of the vehicular entrances and interior circulation system ranges from good to fair throughout the site.			X					X Phased	Implement a program of replacing damaged or worn pavement throughout the site. (assumes 2500 sf for each period)	5,000 S.F.		\$ 32,585	\$ 38,570
SL-2	Site/Landscape	Varies	Parking Location, Arrangement, and Quantity	The pavement condition of the parking areas mirrors that of the vehicular entrances, ranging from good to fair throughout the site.			X					X Phased	Implement a program of replacing damaged or worn pavement throughout the site. (assumes 1500 sf for each period)	3,000 S.F.		\$ 19,551	\$ 192,850
SL-3	Site/Landscape	Varies	Pedestrian Circulation	The condition of the Portland cement concrete pavement throughout the site ranges from good to fair throughout.			X					X Phased	Implement a program of replacing damaged or worn pavement throughout the site. (assumes 500 sf for each period)	1,000 S.F.		\$ 6,517	\$ 7,714
SL-4	Site/Landscape	Varies	Pedestrian Circulation	The existing pedestrian circulation system on site is not contiguous with sidewalks on Route 140 or Main Street, forcing pedestrians to walk in vehicular travel lanes.			X					X Phased	Implement a program to review accessible pedestrian routes throughout the site for safety and compliance with current MAAB standards. (assumes 2500 sf for each period)	1 L.S.		\$ 69,825	\$ 82,650
SL-5	Site/Landscape	Varies	Pedestrian Accessibility and MAAB Compliance	The accessible route from the parking area is not compliant with current MAAB standards.			X					X Phased	Implement a program to bring accessible parking spaces throughout the site into compliance with current MAAB standards. (assumes 4 spaces per phase)	1 L.S.		\$ 55,860	\$ 66,120
SL-6	Site/Landscape	Varies	Site Lighting for Building, Vehicular and Pedestrian Areas	Exterior lighting appears to sufficiently illuminate the site and building entrances to meet minimum safety requirements.			X					X Phased	Implement a program of continued maintenance for the site lighting. (assumes 10 lights per phase)	1 L.S.		\$ 9,310	\$ 11,020
SL-7	Site/Landscape	Varies	Site Vegetation	There are several planting islands which buffer the building from the parking lot which contain ornamental trees and shrubs.			X					X Phased	Implement a maintenance program for plant materials that includes regular trimming, watering, and soil testing	1 L.S.		\$ 13,965	\$ 16,530
														1 yr	5 yr	10 yr	

Condition Assessment Matrix

BUILDING:		SHREWSBURY FIRE STATION																	
AREA:		Site/Landscape																	
Issue #	Discipline	Loc	System	Description	Photo #	PlanGrid Report #	Priority			Service Life			Commentary	Quantity	Cost Estimate				
							Low	Med	High	2017	2018 to 2021	2022 to 2026			1 yr	5 yr	10 yr		
														Site / Landscape Building Cost Total			\$ -	\$ 207,613	\$ 415,454

Condition Assessment Matrix

BUILDING: Fire Station																	
AREA: First Floor																	
Issue #	Discipline	Loc	System	Description	Photo #	PlanGrid Report #	Priority			Service Life			Commentary	Quantity	Cost Estimate		
							Low	Med	High	2017	2018 to 2021	2022 to 2026			1 yr.	5 yr.	10 yr.
FF-1	Arch	First Floor	Ceilings	ACT ceiling is stained at various locations.		311	X				X Phased	Implement a program of replacing soiled and damaged ceiling tiles to maintain high quality appearance of spaces.	841sf (1/6 of overall ceiling area)		\$3,128	\$3,703	
FF-2	Arch	First Floor	Flooring	Slab cracked near door.		311	X			X		Patch and level crack with Ardex CP or sim product. See concrete surface.	12sf		\$782		
FF-3	Arch	First Floor	Doors	Large overhead doors have worn and deteriorated gaskets at vision panels.		313		X		X		Remove and replace compromised I.G.U.s	16 vision panels	\$55,936			
FF-4	Arch	First Floor	Doors	Side man door missing threshold/undercut weather seal.		313	X			X		Install a threshold or door sweep to prevent wind driven precipitation intrusion and create tighter seal.	3lf	\$798			
FF-5	Arch	First Floor	Doors	Some doors have scuffed and chipped finishes.		313	X				X Phased	Implement a phased program for repainting doors and frames on a 7-10 year basis so finishes and surfaces are refreshed for lasting	41 doors			\$13,555	

Condition Assessment Matrix

BUILDING:		Fire Station															
AREA:		First Floor															
Issue #	Discipline	Loc	System	Description	Photo #	PlanGrid Report #	Priority			Service Life			Commentary	Quantity	Cost Estimate		
							Low	Med	High	2017	2018 to 2021	2022 to 2026			1 yr.	5 yr.	10 yr.
FF-6	Arch	First Floor	ADA	No closer installed on accessible toilet room door.		314			X	X				1	\$418		
FF-7	Arch	First Floor	ADA	Hand dryer mounted beyond reach range of sink. ADAAG compliance requires device to be within reach range of sink.		314			X	X			Relocate electric hand dryer within reach range of sink or install alternative hand drying provisions within sink reach range.	1	\$760		
FF-8	Arch	First Floor	ADA	Accessible restroom lav sink appears to be installed at 34 1/2" high. At time of design/construction 34" was max. height.		314							It is recommended that sink remain as it is within tolerance of applicable ADAAG requirements. No further action required.				
FF-9	Arch	First Floor	ADA	Sink in common use kitchenette is too high at 36" A.F.F. for compliance with ADAAG.		314			X	X			Sink is allowed to have side approach access, but must be lowered to 34" A.F.F. for compliance.	8lf counter	\$912		
FF-10	Arch	First Floor	Paint	General condition of GWB walls and GWB ceilings is good. Some areas show signs of use and chipping at corners.	Refer to Photos		X					X Phased	Implement a program of refinishing and repairing painted wall surfaces on a 7-10 year basis so finishers are refreshed.	10,014.46sf (overall sq foot)			\$88,283

Condition Assessment Matrix

BUILDING:		Fire Station																		
AREA:		First Floor																		
Issue #	Discipline	Loc	System	Description	Photo #	PlanGrid Report #	Priority			Service Life			Commentary	Quantity	Cost Estimate					
							Low	Med	High	2017	2018 to 2021	2022 to 2026			1 yr.	5 yr.	10 yr.			
FF-11	Arch	First Floor	General	Some GWB walls do have nicks and scrapes at corners.		Refer to Photos	X				X		It is recommended that at areas that currently have signs of wear to install corner guards so to avoid further damage and costlier wall repairs in the	(12) 4' long metal corner guards		\$2,793				
FF-12	Arch	First Floor	Mech	Various grills and diffusers appear soiled.		Refer to Photos	X				X		Implement scheduled cleaning of supply and return grills/diffusers.	36 devices		\$8,379				
FF-13	Arch	First	Flooring	General condition of flooring is good. Some minor signs of wear in high traffic areas.		Refer to Photos	X				X Phased		Implement program to clean, reseal and maintain flooring to prolong life of material. Expect floor material to start to require	5048.60 sf			\$133,510			
FF-14	Arch	108	Code Issue	Misc. stored items in the Mech. Room with fire sprinkler system.		Refer to Photos			X	X			Evaluate fire separation requirements of mechanical and fire protection equipment with Fire Dept and AHJ. Storage of items may	239.90sf	\$7,296					
															1 yr.	5 yr.	10 yr.			
															Architectural Building Cost Total			\$ 66,120	\$ 15,082	\$ 239,050

Condition Assessment Matrix

BUILDING:		Fire Station															
AREA:		Second Floor															
Issue #	Discipline	Loc	System	Description	Photo #	PlanGrid Report #	Priority			Service Life			Commentary	Quantity	Cost Estimate		
							Low	Med	High	2017	2018 to 2021	2022 to 2026			1 yr.	5 yr.	10 yr.
SF-1	Arch	Second Floor	Walls	Some GWB and painted CMU walls have nicks and scrapes, especially at corners.		315	X					X	It is recommended that at GWB corners that currently have signs of wear to install corner guards so to avoid further damage and costlier wall repairs in the future. Implement a program of repainting of painted wall and interior door frame surfaces, doors, CMU walls and vinyl wall base. Repainting program may be divided into primary areas of the building spread over a 7- 10 7-year period such that finish surfaces are refreshed every 7 to 10 years.	4533.32sf / (12) 4' long metal corner guards			\$ 21,438
SF-2	Arch	Second Floor	Ceilings	ACT ceiling has water stains at some locations.		316	X				X Phased	Implement a program of replacing soiled, worn and damaged ceiling tiles to maintain high quality appearance of spaces. (assume 50% SF each phase)	700sf (1/6 of overall ceiling area)		\$ 2,607	\$ 3,086	
SF-3	Arch	Second Floor	Flooring	Floor tile and grout has signs of water staining. Water may be leaking through to floor below. Existing slope of floor may not be enough for adequate drainage outside shower stalls.		317		X			X	Evaluate potential leak at floor through to level below. Remove tile as needed at area of standing water and floor drain and along shower stall base. Confirm if waterproof membrane was installed and is intact. Repair and replace membrane as required. Reinstall tile over thinset and grout as required. Reseal all edges of tile terminations with applicable sealant.	70sf		\$ 4,562		
SF-4	Arch	127	Window	Exterior window screen punctured.		318	X				X	Remove and replace screen material within existing frame.	12sf		\$ 335		
SF-5	Arch	126	Casework	Faded and worn finish on various door and drawer faces in kitchen area.		319	X				X	Refinish or replace drawers has materials exceed serviceable life. Wipe down cabinets and hardware when wet to avoid continued level of wear.	7lf of cabinetry (1/3 of overall length)		\$ 3,910		

Condition Assessment Matrix

BUILDING:		Fire Station																
AREA:		Second Floor																
Issue #	Discipline	Loc	System	Description	Photo #	PlanGrid Report #	Priority			Service Life			Commentary	Quantity	Cost Estimate			
							Low	Med	High	2017	2018 to 2021	2022 to 2026			1 yr.	5 yr.	10 yr.	
SF-6	Arch	126	Casework	Dishwasher does not appear to be fully installed correctly. There is a large gap at top of unit between dishwasher and counter. Dishwasher gasket may be worn as adjacent cabinetry shows signs of premature fading, possibly from steam.		319	X				X			Consult with dishwasher installation instructions and verify if unit is properly installed within casework opening. Inspect and replace dishwasher door gasket or unit as necessary.	1	\$ 1,368		
SF-7	Arch	Second Floor	Mech	Various grills and diffusers appear soiled.		Refer to Photos	X				X		Implement scheduled cleaning of supply and return grills/diffusers.	26 devices		\$ 2,421		
SF-8	Arch	130C	Plumbing	Flush valve finish heavily corroded.		321	X					X	Cosmetic issue for now, minimize use of harsh cleaning chemicals. Anticipate replacing valve in 7-10 years.	1			\$ 1,102	
SF-9	Arch	130	Wall Repair	CMU wall has vertical crack at window opening sill.		Refer to Photos		X			X		Evaluate if crack is active with monitoring equipment. Verify wall tile in area is secure. If crack is stable, patch with applicable sealant and refinish to match existing wall.	3lf		\$ 2,793		
SF-10	Arch	Second Floor	Lighting Fixture	Inoperable light fixture in elevator cab. Some lamps inoperable through floor.		Refer to Photos	X			X			Replace lamp or fixture as required. Anticipate replacing inoperable lamps in the next 7-10 years.	approx. 56 fixtures	\$ 25,536			
SF-11	Arch	132	Doors	Painted metal door at corridor missing closer. Due to door location of main egress corridor it is recommended that the closer be installed as soon as possible for life safety.		Refer to Photos		X		X			Install closer on door.	1	\$ 1,035			
SF-12	Arch	129	Code	Large electrical panels located in Storage 129. Code requirement for fire separation of electrical from storage.		Refer to Photos			X	X			Evaluate fire separation requirements of electrical equipment with Fire Dept and AHJ. Storage of combustible items within area of electrical service panels poses potential hazard.	340.47sf	\$ 10,336			
															1 yr.	5 yr.	10 yr.	
Architectural Building Cost Total															\$ 38,275	\$ 16,628	\$ 25,626	

Condition Assessment Matrix

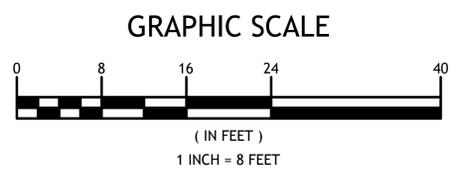
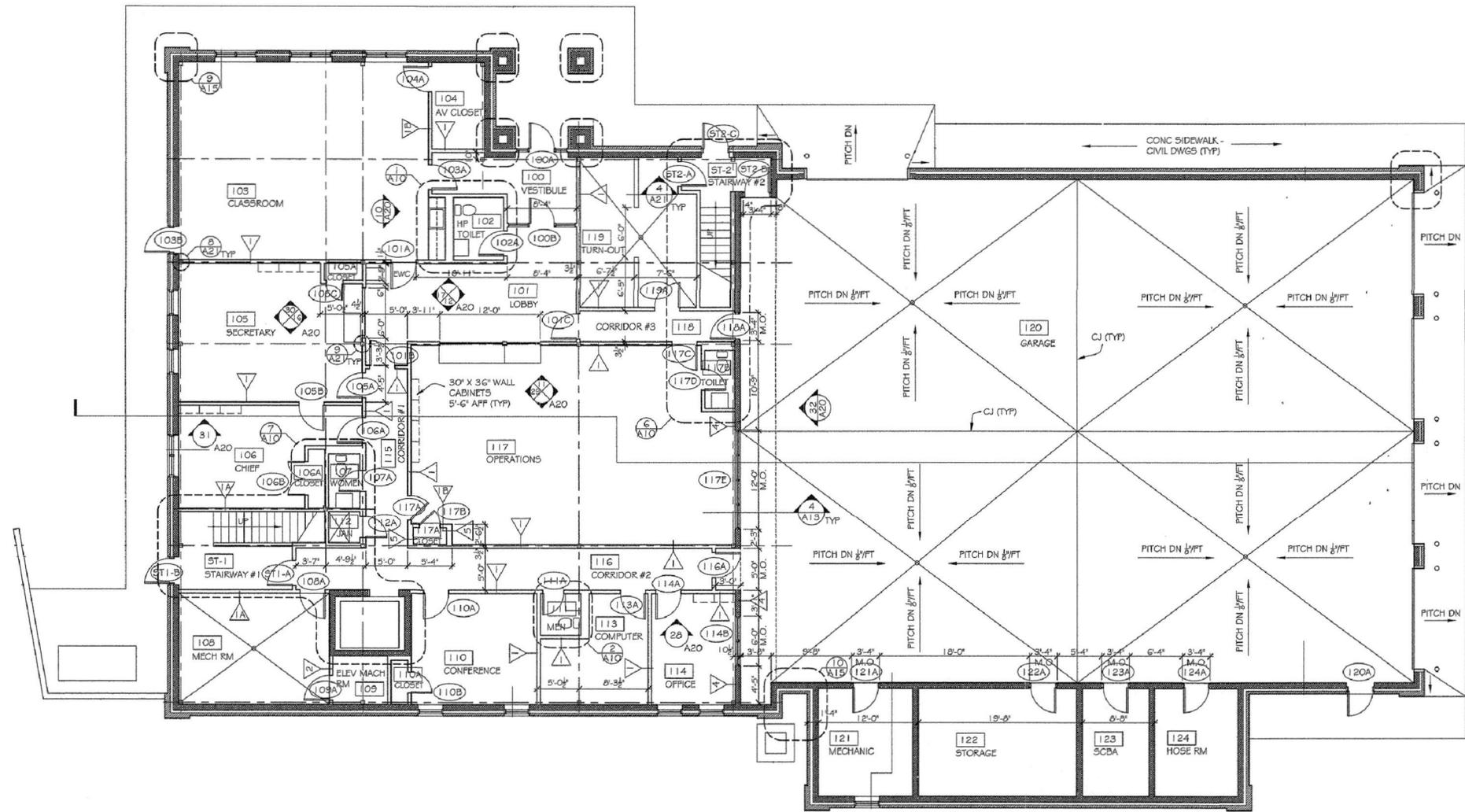
BUILDING:				FIRE HEADQUARTERS															
AREA: 16,304 sf																			
Issue #	Discipline	Location	System	Description	Photo #	Priority			Service Life			Commentary	Quantity	Cost Estimate					
						Low	Med	High	2017	2018 to 2021	2022 to 2026			1 yr	5 yr	10 yr			
E1	Electrical		Lighting	Provide all new LED lighting throughout	SFH E1	X						X	See Electrical Narrative	16,304 Square Feet			\$287,472		
H1	HVAC			No Action Required									See HVAC Narrative						
P1	Plumbing			No Action Required									See Plumbing Narrative						
FP1	Fire Protection			No Action Required									See Fire Protection Narrative						
HZ1	HAZMAT			No action required									See Hazardous Material Narrative						
														1 yr	5 yr	10 yr			
														MEP/FP Building Cost Total			\$0	\$0	\$287,472

Condition Assessment Matrix

BUILDING:				FIRE HEADQUARTERS												
AREA: 16,304 sf																
Issue #	Discipline	Location	System	Description	Photo #	Priority			Service Life			Commentary	Quantity	Cost Estimate		
						Low	Med	High	2017	2018 to 2021	2022 to 2026			1 yr	5 yr	10 yr
E1	Electrical		Lighting	Provide all new LED lighting throughout	SFH E1	X					X	See Electrical Narrative	16,304 Square Feet			\$287,472
H1	HVAC			No Action Required								See HVAC Narrative				
P1	Plumbing			No Action Required								See Plumbing Narrative				
FP1	Fire Protection			No Action Required								See Fire Protection Narrative				
HZ1	HAZMAT			No action required								See Hazardous Material Narrative				
													1 yr	5 yr	10 yr	
												MEP/FP Building Cost Total	\$0	\$0	\$287,472	

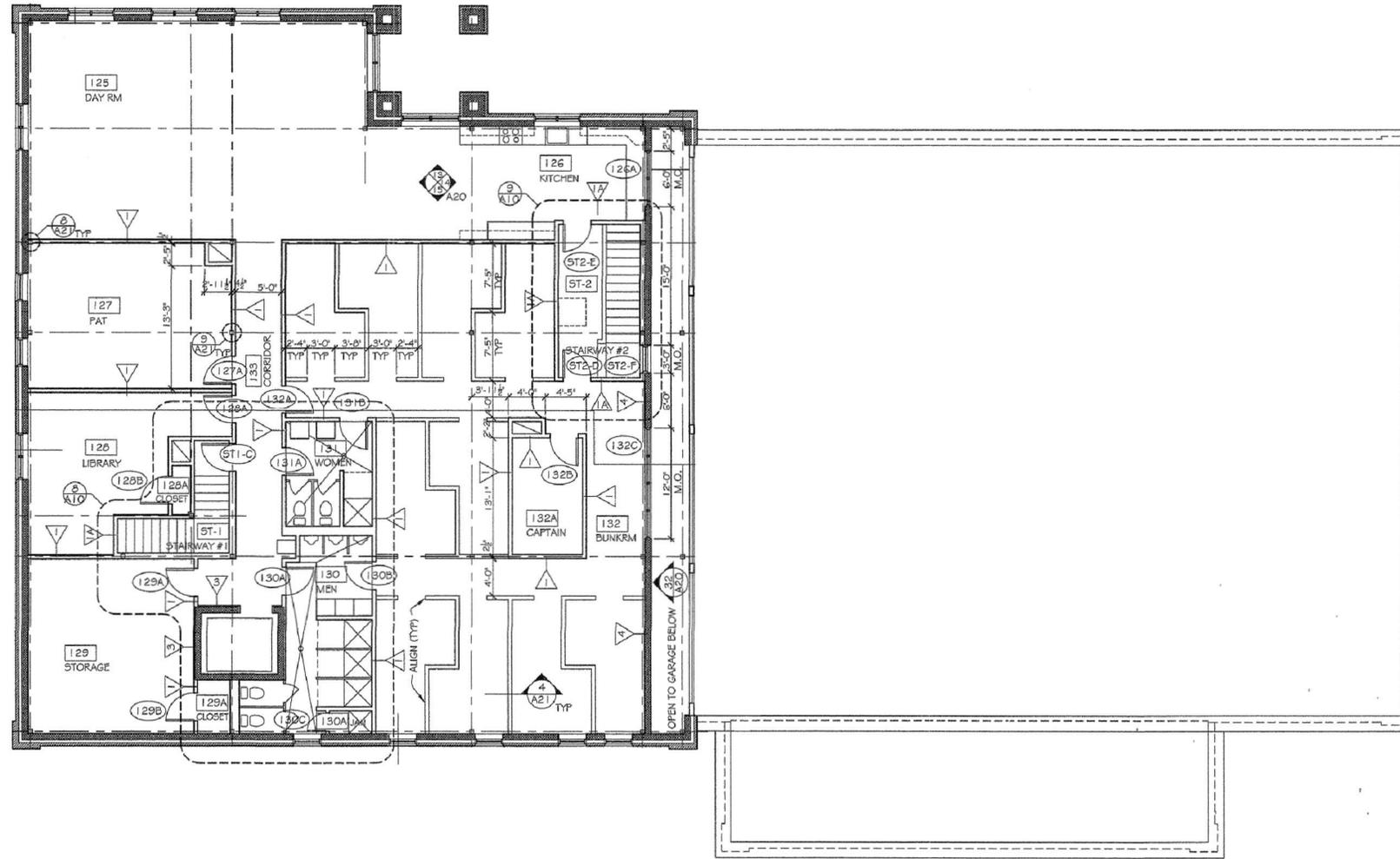


Project North





Project North



GRAPHIC SCALE



(IN FEET)

1 INCH = 8 FEET