

MECHANICAL

Existing Facility Evaluation

1. Mechanical (HVAC) Systems:
 - a. The HVAC system serving the building is a heating only hot water system consisting of a boiler, pumps, piping, and hot water base board. The boiler, pumps, and main distribution piping is located in the mechanical room.
 - 1) Boiler was manufactured by H. B Smith CO. in approximately May of 1989. Boiler is natural gas fired and has a maximum capacity of 480 MBH.
 - 2) Each of three (3) building heating zone has a dedicated pump. Pumps appear to be in poor condition. Manufacturer, model number and age unknown.
 - 3) Main piping distribution in the boiler room is in poor condition. Piping insulation is discolored with age and is missing in many locations.
 - 4) Distribution piping located above the ceiling throughout the building is in fair condition. Piping insulation is in disrepair and missing in many locations.



Boiler



Pump and Piping

- b. Heating elements throughout the building are in poor condition.
 - 1) Baseboard heaters throughout the building are damaged and covers are missing in several locations. Heating elements are very dirty and covered with debris. Control valves and thermostats appear to be operational but are in poor condition.



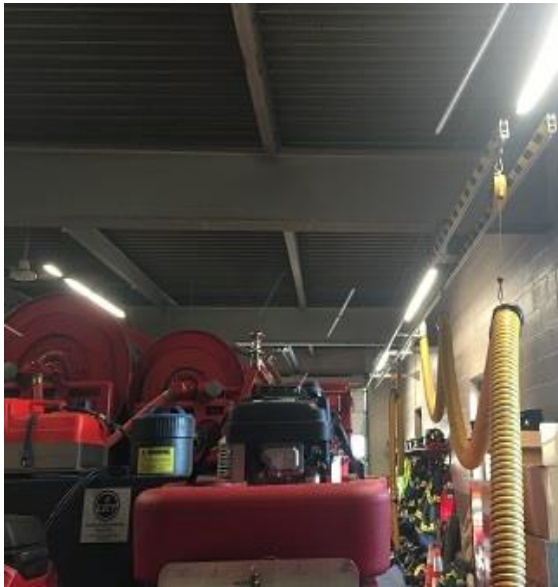
Baseboard

- 2) Building exhaust fans are in varies states of operation and disrepair.
 - a) Bathroom exhaust fans are not working.
 - b) Kitchen exhaust fan appears to be operating but at very low airflow. Fan is in poor condition.
 - c) Apparatus bay CO/NO2 emergency exhaust fan is operational and is controlled by space on/off switch.

Bathroom Exhaust Grille



- 3) Plymovent system is in good condition and is operational.



Plymovent System

- 4) Air conditioning is provided through window type units. Units are in poor condition.

- 5) It room is located in the chiefs closet and is cooled by a roll away unit. Unit is currently exhausted to the apparatus bay. Unit appears to be in poor condition.

IT Room



Recommendations:

1. Apparatus bay is unsafe and requires the following.
 - a. Installation of a gas detection system with CO/NO2 sensors and control panel.
 - b. Repair of the existing Apparatus bay exhaust system and integration into the new gas detection panel.
2. Replace existing boiler with new high efficient boiler.
3. Replace existing pumps with new energy efficient pumps
4. Repair, clean and/or replace existing heating elements and covers.
5. Repair existing piping insulation throughout the building.
6. Repair/replace existing bathroom exhaust fans and controls.
7. The IT room unit exhaust duct should be rerouted to the building exterior.
8. Existing laundry dryer shall be properly exhausted to the exterior of the building.

ELECTRICAL

Power Distribution System

1. The building is served by an underground electrical service fed via an existing utility pole which is located adjacent to the north-east end of the property.



Existing Utility Pole

2. The electrical service is rated 200 amperes, 120/240 volt, 1 phase, 3 wire. The main disconnect switch, utility meter, automatic transfer switch and several building electrical panels are located within the building's mechanical-electrical room. The electrical service conductors are routed from the main disconnect switch and utility meter through the automatic transfer switch and connects to all downstream panelboards and equipment.

Electrical Panels



3. The building is equipped with a main electrical panel and several smaller downstream branch panelboards. The panelboards are located at several locations throughout the building including the mechanical-electrical room, the apparatus bay, and the second floor corridor. Most panelboards and disconnect switches appear to be original to the building's construction and are beyond their anticipated useful life.

Standby Power System

1. The facility is equipped with a Kohler diesel fueled standby generator rated at 50kW/50kVA, 120/240 volt, 1 phase, 3 wire and is equipped with a single 200A output circuit breaker. The generator is pad mounted behind the building and is equipped with a weatherproof enclosure and a sub-base fuel tank.
2. The generator's automatic transfer switch is located in the building's mechanical-electrical room. The generator and automatic transfer switch were installed within the past year and are in excellent condition.



Standby Generator



Generator's Automatic Transfer Switch

3. The existing standby power system does not meet present code requirements with respect to fire separation of life-safety and standby systems.

Lighting

1. The existing lighting system within the building consists of a mixture of fluorescent and incandescent fixtures, most of which appear to be original to the building and have been upgraded with new T-8 lamps/ballasts or LED replacement lamps. Recessed 2'x4' and surface mounted 1'x4' lensed fluorescent fixtures serve the day room, office areas and portions of the second floor. Surface mounted 1'x1' fixtures serve remaining second floor areas and pendant/surface mounted strip fixtures are installed within the apparatus bay. Lighting controls within the building are provided by manual toggle switches.
2. Exterior lighting is provided by building mounted floodlight or wall pack fixtures controlled by time clocks or photocells.
3. Illuminated exit signs and emergency lighting fixtures were not noted within the building or at exterior egress doors.
4. In general, all lighting is in fair condition.

Devices and Branch Cricuit Wiring

1. In general, there are grounding type duplex receptacles installed in all areas with GFCI receptacles located as required by code. The devices appears to be in average condition.
2. Branch circuit wiring observed consists of conductors installed in conduit or type MC cable. A length of type SO cord is being used to serve a fire department support trailer located in the rear parking lot which is a code violation as the cord is being used as a substitute for fixed wiring.



SO Cord

Fire Alarm System

1. The facility is not presently equipped with a fire alarm system. Local type smoke detectors are present within the office areas and the second floor living areas.

Security

1. The building does not have security cameras or a security system

Telecommunications

1. The telephone and data services to the building originate at the utility pole located at the north-east corner of the property. Tel/Data services are routed overhead from this pole into the building's watch/dispatch room and is distributed from this location to rack mounted equipment in the Chief's office closet.
2. The building's tel/data equipment rack is located at the south-west corner of the building with a closet inside the Chief's office. The central fire alarm monitoring/receiving equipment for the Town's master boxes is located within the control room.

Tel/Data Equipment Rack



3. A large communications antenna is located behind the building and serves the station's radio and emergency communications systems.
4. In general, tel/data and radio communications systems wiring adequately serves the facility's needs. Much of this wiring has been installed surface mounted.

Recommendations:

1. Upgrade the existing electrical service with new equipment sized to accommodate the Station's present and future needs. Estimated electric service size is 400 amps, 120/208V, 3 phase, 4 wire.
2. Remove and replace existing electrical panelboards with new equipment to provide capacity for all present and anticipated future equipment loads plus additional spare capacity.
3. Install self-contained emergency battery light fixtures throughout all common areas and bathrooms to comply with code requirements. Exterior life safety emergency lighting shall include remote emergency fixtures adjacent to each egress door. Install exit signs with integral battery back-up to mark each egress path.
4. Provide a new addressable fire alarm system throughout the building per code requirements. The system shall include CO detection and low frequency notification appliances at all sleeping areas.
5. Remove all existing fluorescent/incandescent light fixtures and replace with new LED fixtures for better performance, to reduce maintenance and energy costs.
6. Provide occupancy/vacancy room lighting controls and/or time-based lighting controls to comply with present energy code requirements and further enhance energy savings.
7. Remove exterior type SO cord serving trailer in rear parking lot and install permanent power by a code approved method (conduit and wire).
8. Remove the existing standby generator and associated transfer switch and replace with new equipment sized and rated to support the facilities upgraded electrical service (amperage and voltage). New generator is recommended to be diesel fueled and be pad mounted with weatherproof enclosure and sub-base fuel tank. Fuel tank capacity recommended to be sized for 72 hours of run time.

PLUMBING

Existing Conditions

1. Plumbing:

- a. The building is served by a 1-1/4" cold water service that enters at the rear of the building in the mechanical room.

Water Main Entrance



- b. The building is served by a 2-1/2" gas main that enters the building adjacent to the water main. This gas main currently only serves the boiler.
- c. There is a 50 gallon, 240 volt, single phase, 6kw electric water heater within the mechanical room. All fixtures were adequately receiving hot water.



Electric Water Heater

- d. There is a vertical reciprocating compressor in the mechanical room. The compressor appears to be in good working order.

Vertical Reciprocating Compressor



- e. There are two (2) 1-1/2” truck fill valves located in the apparatus bay.



Truck Fill Valve and Drinking Fountain

- f. There are not any floor drains in the Apparatus Bay.
- g. There is a clothes washer in the Apparatus Bay.
- h. There is a utility sink in the Apparatus Bay. This sink is worn, but still functioning.

Utility Sink



- i. There is a drinking fountain in the Apparatus Bay. The drain for this sink is no longer connected to the sanitary waste system.
- j. The public restroom on the first floor consists of a floor mounted flush valve water closet, a wall mounted lavatory, and a floor drain. There is not any insulation on plumbing under lavatory.



Public Restroom Water Closet

- k. The second floor restroom consists of a floor drain, two (2) hose bibbs, three (3) wall mounted lavatories, two (2) urinals, two (2) showers, and two (2) wall mounted water closets with flush valves. The Fire Department reports leaking from the urinals and the floor drain. One (1) of the hose bibbs with in the bathroom does not work.

- l. No thermostatic mixing valves were observed at any lavatories.

Second Floor Lavatories



- m. There are two (2) roof drains for the building. There are no overflow drains. Fire Department reports previous leaks from roof drains.
- n. The kitchen has a sink, garbage disposal, and a residential dish washer. All fixtures appear to be in working order.

Recommendations:

1. Provide trench drains in Apparatus bay to meet current code. Provide sand and gas trap for new trench drains, and connect to the sanitary main exiting the building.
2. Remove the existing plumbing fixtures in the second floor restroom, and provide new low flow fixtures.
3. Remove the existing plumbing fixtures in the first floor restroom, and provide new low flow fixtures.
4. Provide thermostatic mixing valves on all lavatories.
5. Remove existing utility sink in Apparatus Bay, and provide new utility sink and reconnect to existing plumbing systems.
6. Remove existing drinking fountain, and provide new drinking fountain and reconnect to existing plumbing systems.
7. Provide two (2) new roof drains with integral overflow drains in place of existing roof drains. Provide new overflow piping to daylight, and reconnect new roof drains to existing rain water piping.