

**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, pump, piping, hot water base board, and unit heaters. The boiler, pump, and main distribution piping is located in the mechanical room.
    - 1) Boiler was manufactured by Weil-McLain CO. age unknown but appears to be past its life expectancy. Boiler is natural gas fired and has a maximum capacity of 288 MBH
    - 2) Building heating 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



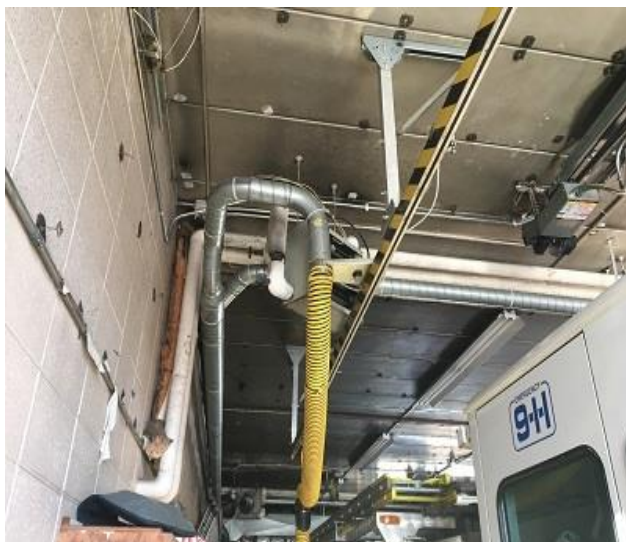
Pump and Piping

- 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. In some places additional heating elements have been added in an attempt to properly heat spaces. Zone control valves and thermostats through the building are in various stages of disrepair.

Baseboard



- 2) Building exhaust fans are in varies states of operation and disrepair.
  - a) Bathroom exhaust fans appear to be working properly.
  - b) Apparatus bay CO/NO2 emergency exhaust fan is operational and is controlled by space on/off switch.
- 3) Plymovent system is in good condition and is operational.



Plymovent

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

**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 pump with new energy efficient pumps
4. Each space heating needs shall be calculated and the proper amount of heat shall be provided by new hot water heating elements. Repair, clean and/or replace existing heating elements and covers as required.
5. Repair existing piping insulation throughout 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 in the front of the Station along Rockland Street.

Utility Pole



2. The electrical service is rated 100 amperes, 120/208 volt, 3 phase, 4 wire. The main disconnect switch, utility meter, panelboard and automatic transfer switch are located within the building's mechanical-electrical room. The electrical service conductors are routed from the utility meter and main disconnect switch via a surface mounted wireway to the downstream panelboards and automatic transfer switch.



Utility Meter and Main Disconnect

3. The building's panelboards appear to be original to the building's construction and are in fair condition.

Standby Power System

1. The building is equipped with a Kohler diesel fueled standby generator rated at 31.0kW/38.8kVA, 120/208 volt, 3 phase, 4 wire and is equipped with a single 100A output circuit breaker. The generator is pad mounted behind the building and is provided with a weatherproof enclosure and sub-base fuel tank. 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.



Automatic Transfer Switch



Standby Generator

2. 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 building's existing lighting system consists primarily of fluorescent fixtures, some of which appear to have been upgraded with new T-8 lamps/ballasts. A few incandescent fixtures were also noted. Recessed 2'x4', surface mounted 1'x4' lensed and surface mounted strip fluorescent fixtures are installed within office areas, the day room and the apparatus bay/utility spaces respectively. 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 Circuit Wiring

1. In general, there are grounding type duplex receptacles installed in all areas with GFCI type 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.

Fire Alarm System

1. The facility is not presently equipped with a fire alarm system. Local type smoke detectors are present within the office/day room areas.

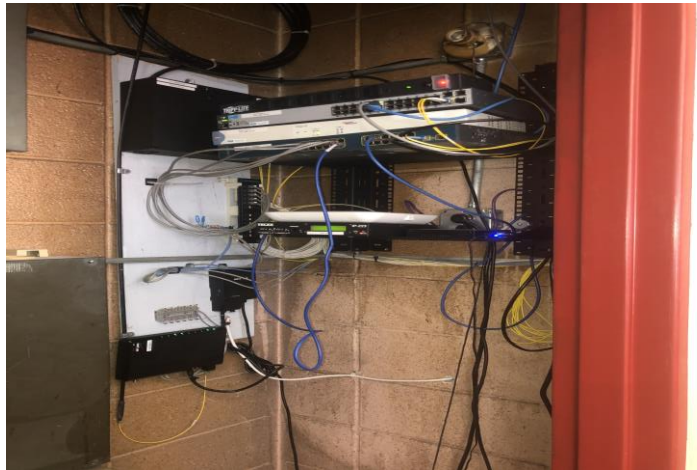
Security

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 in front of the Station along Rockland Street. Tel/Data services are routed overhead from this pole into the building's watch/dispatch room closet.
2. The building's tel/data equipment rack is located within a closet inside in the watch/dispatch room and appears to be in average condition.

Equipment Rack



3. It was noted that the dispatch system console located in the watch/dispatch room is mostly disassembled and non-functional.

Dispatch System Console



4. In general, tel/data system wiring adequately serves the station'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 facility's present and future needs. Estimated electric service size is 200 amps, 120/208V, 3 phase, 4 wire.
2. Remove and replace existing electrical panelboards with new equipment to provide capacity for all existing and future equipment loads with spare capacity.
3. Install self-contained emergency battery unit light fixtures throughout all common areas and bathrooms to comply with code requirements. Exterior life safety emergency lighting shall include remote emergency fixtures located 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 new 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 to improve performance, reduce fixture maintenance and to reduce energy costs.
6. Provide new occupancy/vacancy sensor, lighting controls and/or time-based lighting controls to comply with present energy code requirements and maximize energy efficiency.
7. Upgrade the existing standby generator and associated automatic transfer switch with new equipment sized and rated to support the building's new electrical service. The new generator is recommended to be a pad mounted, diesel fueled unit 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 2” domestic water service that enters the Utility Room at the rear of the building off of Louds Ct. There is insulation on the service entrance so the size of the service is an approximation.

Water Serving Entrance & Water Meter



- b. The building is served by a 1-1/2” gas main that also enters the building adjacent to the water service entrance.
- c. There is a 40 gallon gas water heater located in the Utility Room. There is no hot water return back to this water heater, and the water heater is approximately 100’ away from the buildings restroom and kitchen.



Water Heater Tag



- d. There is a vertical reciprocating compressor in the mechanical room. The compressor appears to be in good working order.
- e. There is a floor drain located in the hose tower, this floor drain is packed full of sediment.



Floor Drain in Hose Tower

- f. There is a Gear Washer located in the Apparatus Bay. There was not any reduced pressure backflow preventers observed on water connections to the Gear Washer.

Gear Washer Water Connections



- g. There is a trench drain in the Apparatus Bay. The trench drain appears to be discharging to a sand and gas trap located in the rear parking lot. The sand and gas trap appears to discharge to Louds Ct. Personnel were unaware of the sand and gas trap.



Trench Drain

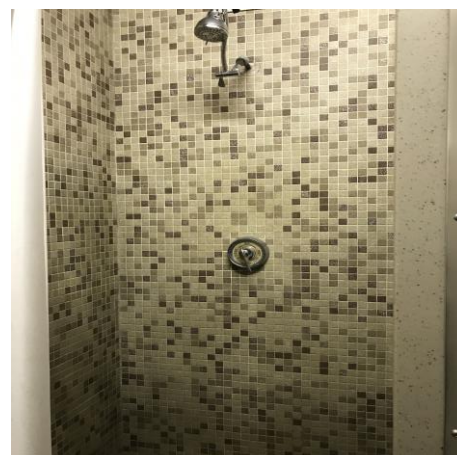


Sand and Grease Trap

- h. The kitchen has a large sink and residential dishwasher.
- i. The restroom consists of two (2) wall mounted lavatories, one (1) wall mounted flush valve water closet, (1) shower, and one (1) floor drain. All fixtures in the restroom appear to be dated and are not low flow. There were not any thermostatic tempering valves observed at lavatories.
- j. There was not a hose bibb observed in the restroom, which is not code compliant.
- k. There is a 40 gallon 208 volt, single phase, 4.5 kw electric water heater located in the restroom. This water heater is fed from the gas water heater located in the Utility Room, and is used to boost the hot water to the kitchen and the restroom.



Water Heater & Lavatories



Shower

- l. There is a garden hose located in the Apparatus Bay.
- m. There is a 1-1/2" truck fill valve located in the Apparatus Bay that is fed from a 1-1/4" cold water feed.



Truck Fill Valve

- n. There is a wall mounted utility sink in the apparatus bay. The utility sink appears dated and worn.



Utility Sink

**Recommendations:**

1. Remove existing water heaters. Provide new gas water heater and hot water return piping.
2. Provide all new low flow plumbing fixtures in restroom, per code.
3. Provide hose bibb in restroom, per code.
4. Verify sand and gas trap is in good working condition.
5. Provide new utility sink and reconnect to existing plumbing systems.
6. Provide reduced pressure backflow preventers on water service lines to the Gear Washer.
7. Provide thermostatic tempering valves for lavatories in the restroom.
8. Provide new public restroom with low flow fixtures. Provide 0.5 gpm faucet, and insulation on plumbing under the lavatory.