WT Group
Engineering • Design • Consulting

September 8, 2021

Mechanical & Plumbing
Existing Conditions Assessment

For

Coral Cove Pool Mechanical Rooms
849 W Lies Rd
Carol Stream, IL 60188

CAROL STREAM Park District

2675 Pratum Avenue
Hoffman Estates, IL 60192

224.293.6333
wtengineering.com

Engineering with Precision, Pace & Passion.

MECHANICAL

Main Pool Mechanical Room

The main Pool Mechanical room is heated by a 'Carrier' heating-only air handler located in the adjacent boiler room. This air handler also serves several adjacent spaces such as the locker rooms and concessions area. Hot water is provided by two (2) boilers in the boiler room. Hot air is supplied by ductwork located within the mechanical room. In addition, there is a hot water unit heater within the mechanical room. Exhaust is via an exhaust fan on the roof with ducted intake in the room

Hot water unit heater

Supply and exhaust vents

Air handler in Boiler Room

Boiler (1 of 2)

Condition of System

The exhaust fan on the roof was inaccessible during the inspection, so the condition of the fan is unknown at this time. Hot water unit heater unit heater appeared to be over 20 years old and is showing some exterior corrosion. The air handler is over 30 years old, and appeared in fair condition. The boilers are in good condition.

Code Violations

None observed.

Recommendations

Verify proper operation of exhaust fan on roof. The hot water unit heater is nearing the end of its useful life. Replacement should be considered.

Secondary Pools Mechanical Room

The building is heated by a gas-fired unit heater. Exhaust is provided by a roof-mounted exhaust fan. Intake via an exterior louver with and ducted down low into the pit. There is also a utility fan in the room exhausting the adjacent chemical storage room.

Gas-fired unit heater

Vents and Exhaust fan on roof

Utility fan for Chemical room

Condition of System

The unit heater and exhaust fans appeared to be in good condition. It was reported that the exhaust fan seems undersized as there are corners of the room with piping experiencing higher rates of corrosion.

Code Violations

None observed.

Recommendations

Consider adding additional exhaust in area that is experiencing higher corrosion.

PLUMBING

Main Pool Mechanical Room

The pool mechanical room has a floor drain, a hub drain, a hot/cold hose connection, an emergency shower and a backwash pit with sump pumps. One sump pump is abandoned. The hub drain serves the backwash pit sump pump discharge.


Floor Drain


Hose Connection


Emergency Shower


Hub Drain

Condition of Fixtures and Equipment

The fixtures and equipment are in fair condition.

Code Violations

The emergency shower does not have a hot water connection. It does not utilize an ASSE 1071 emergency mixing valve to provide tepid water.

The hose connection does not have backflow protection.

Recommendations

Add hot water to emergency shower with ASSE 1071 mixing valve.

Provide screw-on vacuum breaker for hose connection.

Remove abandoned sump pump.

Main Pool Mechanical Room Water Distribution Systems

The building is served by separate domestic and fire protection water services. The domestic service has a 3” water meter, valves and RPZ. There is a 1-1/2” pool fill with air gap and water meter.

Domestic water service & meter

Domestic RPZ

1-1/2” pool fill & meter

Condition of Fixtures and Equipment

The RPZ is in poor condition

Code Violations

IDPH requires combined fire protection and domestic water services. Separate water services for fire suppression and domestic use and no longer permitted.

Recommendations

Provide new RPZ for domestic water service

If the building undergoes a renovation, the domestic water should be fed from the existing fire suppression service. The domestic service shall be removed. If the 4” service is not adequate to support the demand of FP and domestic, provide a new combined 6” water service.

Main Pool Mechanical Room Water Heating

The mechanical room is served by a 200 MBH atmospheric gas water heater in the adjacent boiler room.

Domestic WH

Condition of Fixtures and Equipment

The water heater is in good condition.

Code Violations

The water heater does not have a thermal expansion tank or vacuum relief valve

Recommendations

Provide thermal expansion tank and vacuum relief valve for water heater

If the emergency shower is provided with the required tepid water, a second 200 MBH water heater will need to be added to meet OSHA requirements (20 GPM of tepid water for 30 minutes)

Main Pool Mechanical Room Drain Waste & Vent System

The only portion of exposed waste and vent piping is the 4” hub drain. It is constructed of Schedule 40 PVC. Based on the age of the building, it is likely that original piping is service weight cast iron.

Main Pool Mechanical Room Pumps

The backwash pit is served by two submersible pumps. According to staff, one pump is not functional. The pumps lift the backwash water to the hub drain located within the room.

Backwash Pit Grate and pumps below

Hub Drain

Condition of Fixtures and Equipment

The condition of the hydrants is fair.

Code Violations

Air gap is not 6” per IDPH requirements.

Recommendations

Remove abandoned sump pump.

Provide 6” air gap for backwash discharge.

Main Pool Mechanical Room Exterior

The building's exterior has a shower and wall hydrant on the pool deck.


Deck shower


Wall hydrant

Condition of Fixtures and Equipment

The condition of the fixtures appears to be good.

Code Violations

The shower is technically an emergency shower employed for pool deck usage. This would eliminate the temporary metal gate that is used to prevent access to the emergency eyewash.

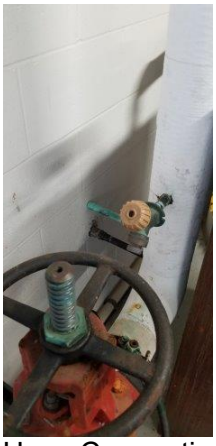
Recommendations

Consider a metering shower valve and showerhead for use on the pool deck. Also provide hot water and a mixing valve to provide tempered water to the shower, if desired.

Secondary Pools Mechanical Room

The pool mechanical room has several floor drains, a large hub drain, hose connections, an emergency eyewash and a backwash pit. The hub drain receives discharge from pool equipment (Schedule 80 PVC) and the sump pump.


Backwash Pit


Hose Connection


Emergency Shower


Hub Drain

Condition of Fixtures and Equipment

The fixtures and equipment are in fair condition.

Code Violations

The emergency eyewash does not have a hot water connection. It does not utilize a mixing valve to provide tepid water.

Recommendations

Provide hot water to emergency eyewash and add mixing valve.

Secondary Pools Mechanical Room Water Distribution Systems

The building is served by separate domestic and fire protection water services. The domestic service has a 3” water meter, valves and RPZ. The domestic water service also provides water to two pool fills and an irrigation RPZ.

Domestic & FP water services

Pool Fill

Pool Fill

Irrigation water & drain down (RPZ not in pic)

Condition of Fixtures and Equipment

The meter and RPZ appear to be in good condition.

Code Violations

IDPH requires combined fire protection and domestic water services.

Water connections on pool deck do not have backflow protection.

Recommendations

If the building undergoes a renovation, the domestic water should be fed from the existing fire suppression service.

Provide RPZ for hose connections on pool deck.

Provide sub-meters for pool fills per operator’s request.

Secondary Pools Mechanical Room Water Heating

The mechanical room houses an abandoned 200 MBH direct vent water heater and mixing valve.

Domestic WH

Mixing Valve

Condition of Fixtures and Equipment

The water heater is not functional. The mixing valve is abandoned.

Code Violations

Emergency eyewash is not provided with tepid water.

Recommendations

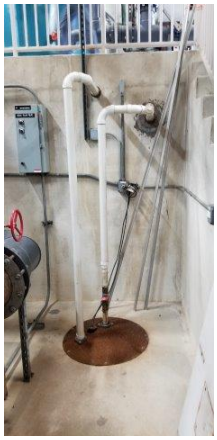
Provide water heater and mixing valve to serve emergency eyewash. The heater size may be reduced significantly.

Main Pool Mechanical Room Drain Waste & Vent System

The waste and vent system is a combination of service weight cast iron and Schedule 40 PVC. The backwash pit is served by cast iron piping. All other observed piping was Schedule 40 PVC.

Secondary Pools Mechanical Room Pumps

The recessed well is served by a sewage ejector pump and a sump pump. The sewage ejector serves the floor drain in the well. The sump pump likely serves drain-tile around the well's footings. The sump pump drains to the hub drain. The sewage ejector is force main to the underground sanitary sewer.


Sewage Ejector


Sump Pump

Condition of Fixtures and Equipment

The condition of equipment appears to be fair to good.

Code Violations

None observed.

Recommendations

None

Secondary Pools Mechanical Room Exterior

The exterior has several hose connections and irrigation water.


Hose Connection


Hose Connection


Irrigation & Hose Connection

Condition of Fixtures and Equipment

The condition of the equipment is fair to good.

Code Violations

None observed

Recommendations

None

Should you have any question please call.

Respectfully Submitted,

WT GROUP

Joe Hainaut
Principal-In-Charge