

HOH 5422:

XXXXXXXXXX- Juvenile Detention Center Upgrades

Project Address: 3900 S California Ave., Chicago Illinois

Projected Budget-Funding Source:

Investigation – HVAC, ELECTRICAL, PLUMBING, FIRE PROTECTION & FIRE ALARM AND
TELECOMMUNICATION

OBSERVATIONS AND CONCLUSIONS OF OBSERVED

This is a condition report on the current state of the HVAC System at the Juvenile Detention Center. The building is used for temporary detention, operating at 24 hours. The existing HVAC system was installed in 2005 and the boiler has been recently replaced. The existing system requires an upgrade.

Heating, Ventilation and Airconditioning:

The Roof top unit (RTU-1), located on the roof is reaching its service life. It becomes unreliable and costly to maintain. The unit is DDC controlled. RTU was design for DX cooling coils, but is replaced with water cooled because of the code issue of using old refrigerant. The gas fired Heater of this unit is out of service for two years, due to controls connection. This unit has a return fan. The supply fans for these roof top unit is VFD driven.

The air-cooled chiller (CH-1) located within the roof level, is also reaching its service life.

The Existing boiler is new and is currently serving the building heating load, since the heating of RTU is not working. The only issue with the heating system is lack of redundancy.

Controls:

The heating, ventilation, and air-conditioning (HVAC) systems uses a DDC to controls the valve and damper actuators. Thermostats are working and connected to the existing BAS.

Building Automation System (BAS):

The exiting BAS by Environmental System Inc. has limited capability in terms of monitoring and control to the other systems in the building.

System Balancing:

Update ventilation schedule per latest code. Need to balance the system.

Existing HVAC Equipment List:

Appendix A

RECOMMENDATIONS

Upgrade the existing BAS system to a GBMS to improve building management, field devices should be replaced and modified for its compatibility.

Replace RTU-1 with a new package system with efficient cooling and gas-fired heating capabilities. Provide a walking pad around the equipment for maintenance and include safety railings. Consider improving the redundancy of hydronic heating system.

Ventilation must be updated to latest code and Ventilation Balancing is required.

PHOTOS



Existing RTU-1



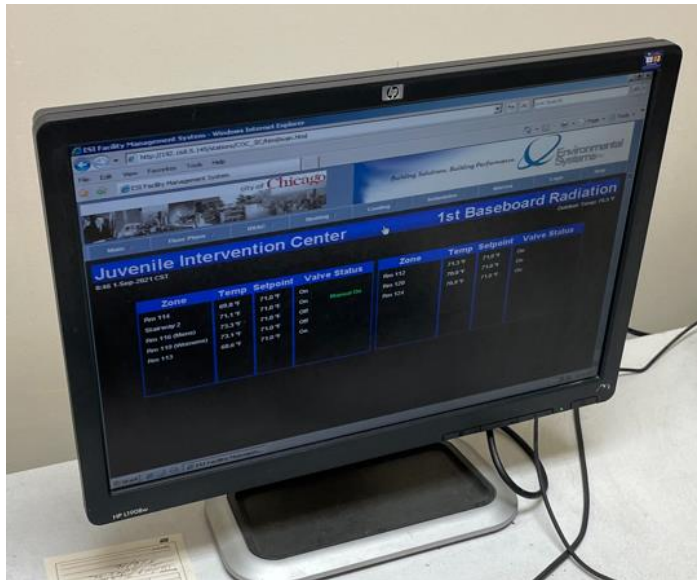
Existing RTU-1 Cooling coil leaking



Existing Air-cooled chiller system CH-1



Existing Hot water boiler B-1



Existing BAS System



Existing Thermostat

ELECTRICAL

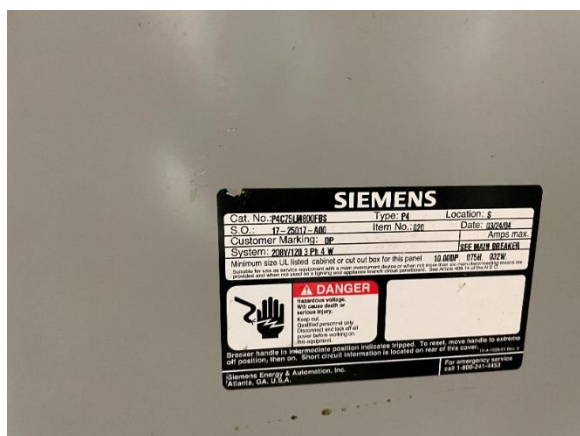
A survey of the building was conducted on September 1, 2021, to determine existing condition of the Electrical infrastructure base on the AIS Scope Sheet.










Incoming Service enters the building south of the building runs thru the electrical utility room and terminate at main distribution panel with a COM ED metering has been installed on 2005 renovations an 800Ampere has been installed.

A power panels and light panels are located in various locations serving HVAC, lightings, receptacle, emergency lighting, security system, elevator, telecommunications, Fire pump and Fire alarm system.

Interior Lighting are fluorescents. recent lighting standards would mandate replacement with energy efficient LED lighting.

During the site visit the Elevator is in working condition, problems with controls will be address with manufacturer to provide the correct spare parts needed.



LUMINAIRE SCHEDULE									
SYMBOL	LABEL	MFG. CAT. NO.	DESCRIPTION	BASEMENT	1ST FLOOR	2ND FLOOR NON-SECURE	2ND FLOOR SECURE	3RD FLOOR	TOTALS
	A	LITHONIA PM3 2 32 18LD TUB	3" PARAMAX 1'x4' 3L.P. T8 18 CELL SEMISPEC LWR		32	18		12	62
	B	LITHONIA 30PM3 2 32 18LD	3" PARAMAX 20"x4' 3L.P. T8 18 CELL SEMISPEC LWR		20	6		12	38
	C	LITHONIA CS 2 32 TUB	CORRIDOR SQUARE BRADPAROUND 4'-2" 2 LAMP T8 PRISM LENSE		5	4		6	15
	D	LITHONIA HMC 2 32 TUB	CORRIDOR SQUARE BRADPAROUND 4'-2" 2 LAMP T8 PRISM LENSE HIGH ABUSE		11		8	12	31
	E	LITHONIA ZWR3 3 32 PC12125 TUB	HIGH ABUSE MOD COMB. 2'x4' 3L.P. T8 BA12125 POLYCARB				23		23
	F	LITHONIA ZWR3 4 32 PC12125 TUB	MODEL COMB. 2'x4' 4L.P. T8 BA12125 POLYCARB HIGH ABUSE				19	2	21
	G	DAY-BRITE F09-400-W-MF-SF-PDR	400W METAL HALIDE OUTDOOR FLOODLIGHT					3	3
	H	DAY-BRITE F09-250-W-MF-SF-PDR	250W METAL HALIDE OUTDOOR FLOODLIGHT					1	1
	J	CHOLUSE-HINDS WHIT2250P	WIPON TOUT WALL MOUNT WITH GLOBE & GUARD FOR 2 FLUO LAMPS	1					1

CONCLUSIONS:

1. Existing Electrical infrastructure are in good condition, And sufficient for the electrical load served.
2. A new power and controls wiring will be provided for the HVAC equipment that will be replace. Replace circuit breaker
3. Areas (restrooms) that will be part of the renovations a new light fixture will be required.
4. Existing lightings are fluorescent current code will require energy efficient LED lighting to meet the energy standards.

TELECOMMUNICATIONS

The telecommunication infrastructure is provided by AT&T. electrical devices and connections are in good condition.



CONCLUSIONS:

No hardware and software upgrade required, unless instructed.

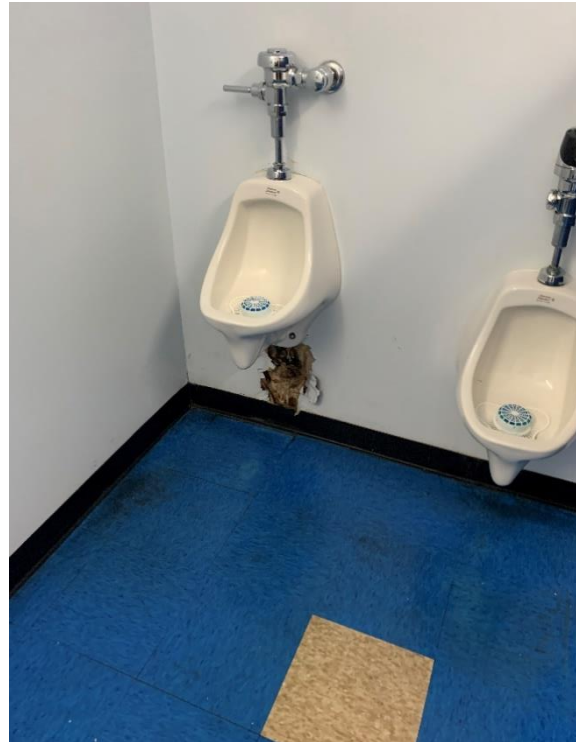
PLUMBING:

No Plumbing scope required on this project. But during the meeting they bring to attention the leaked on the plumbing fixtures. It damages the baseboard heaters and walls. An in-house repair resolved this problem. No engineering design work required.

Water closets are not properly secured this requires proper installation detail. Resulting plumbing work will be required.

RM 206 TELEPHONE SERVICE- a janitor closet is directly above this room; this could be a source of potential water damage to electronic devices. A proper ceiling would be needed on this room and drip tray will be install on the floor drains to add some protection in case of water leak.

PHOTOS(Damages on Bathrooms)







FIRE PROTECTION & FIRE ALARM:

The facility is equipped with Fire protection system and fire alarm systems. That are inspected and tested periodically. It is in good condition and working properly, no work required.

PHOTOS(Fire alarm)



PHOTOS(Fire Protection)

