

# EXHIBIT E

## 10.25.2021

HOH 5422:

2021-F326-REN CIP- Lakeview Health Center Renovations

Project Address: 2849-61 N. Clark St., Chicago Illinois

Projected Budget-Funding Source: \$1M Bond

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

### OBSERVATIONS AND CONCLUSIONS

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#### **HEATING, VENTILATION AND AIRCONDITIONING:**

This is a condition report on the current state of the HVAC System at the Lakeview Health Center. The building was constructed in phasing from 1977 to 1982 with a renovated area. The existing HVAC system is experiencing equipment failure and controls issues. Refurbishment and minor repairs are done over the years, and it causes problem to the entire system. A condition survey is documented in the following report.

The air handling unit (AHU-1) located within the basement of mechanical room in the building are over its service life. This unit is Pneumatically controlled. AHU contains DX cooling coils served by the CU-1 and Steam coils. The unit has a return fan. Supply fans for these air handling units are not VFD driven. The Supply fan motor of this AHU has been replaced twice in 5 years' time.

The air handling unit (AHU-2) located within the 2<sup>nd</sup> Floor mechanical room in the building are over its service life. This unit is Pneumatically controlled. AHU contains DX cooling coils served by CU-2 and Steam coils. This unit has a return fan. Supply fans for these air handling units are not VFD driven. The Supply fan motor of this AHU has been replaced recently. The Steam coil control valve of this unit has been replaced by a motorized actuator (Belimo).

The steam radiators on the 2<sup>nd</sup> floor are not working properly and the existing piping requires balancing.

#### **CONTROLS:**

The heating, ventilation, and air-conditioning (HVAC) systems use a pneumatic control system to operate the valve actuators. Interviewed persons on-site stated the existing pneumatic actuators are unreliable and some are not working, they open the damper manually and would like them to be replaced with electric actuators. Thermostats are working but obsolete and must be replaced and connected to the new BAS.

#### **BUILDING AUTOMATION SYSTEM (BAS):**

There is no BAS on the Building, and they need a new BAS similar to what they use in city of Chicago facilities.

#### **SYSTEM BALANCING:**

The Heating system of the building should be re-balanced by an accredited contractor following the replacement of any actuators or and adding the BAS. The ventilation system should be rebalanced by an accredited contractor following the refurbishment or replacement of any fan unit parts affecting airflow.

Existing HVAC Equipment List:

Appendix A

## RECOMMENDATIONS

The entire pneumatic control system should be replaced with a DDC and will have a new building automation system (BAS) including digital electronic actuators, thermostats, control panels, user interface, and operating system.

All equipment installed in 1977 thru 1983 should be removed and replaced. Consider adding redundancy on the heating system.

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

Ductwork needs to be checked for air leak since it's old consider partial repair if required.

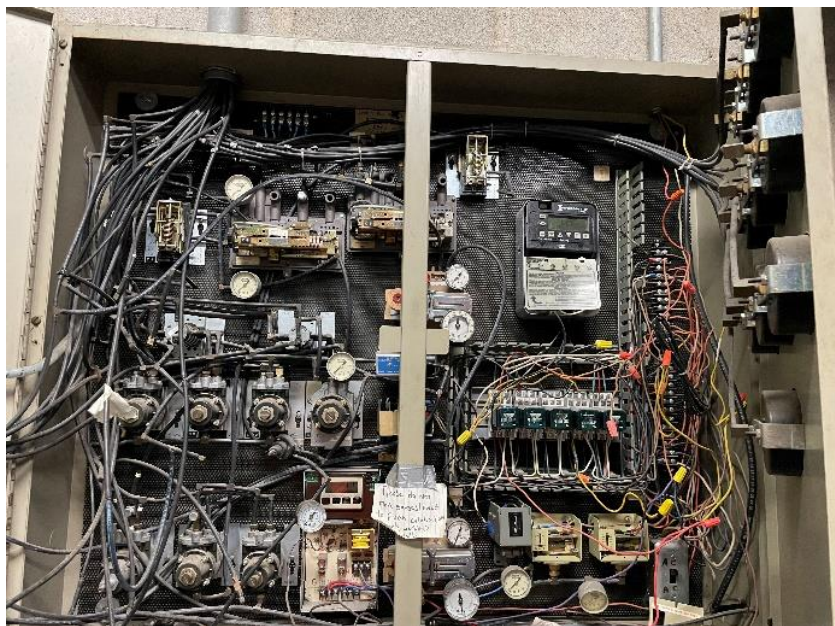
## PHOTOS



Existing AHU-1 Plenum with Damper Pneumatic actuator



Existing Return fan - 1



### Pneumatic Control Panel AHU-1

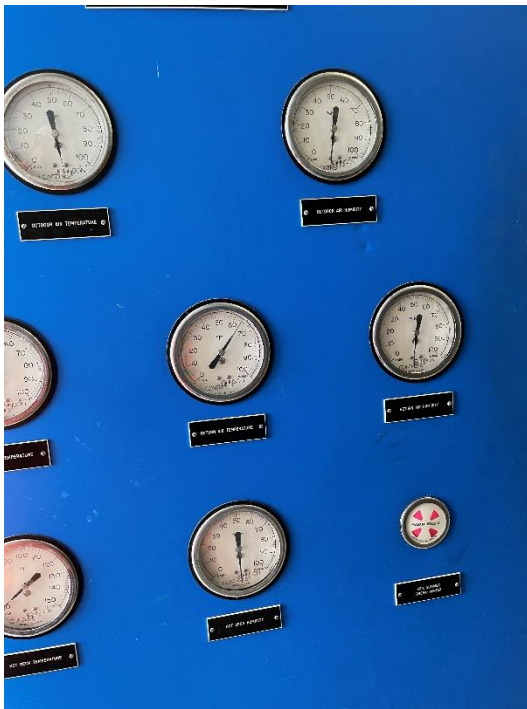


### Existing AHU-2 Fan Motor

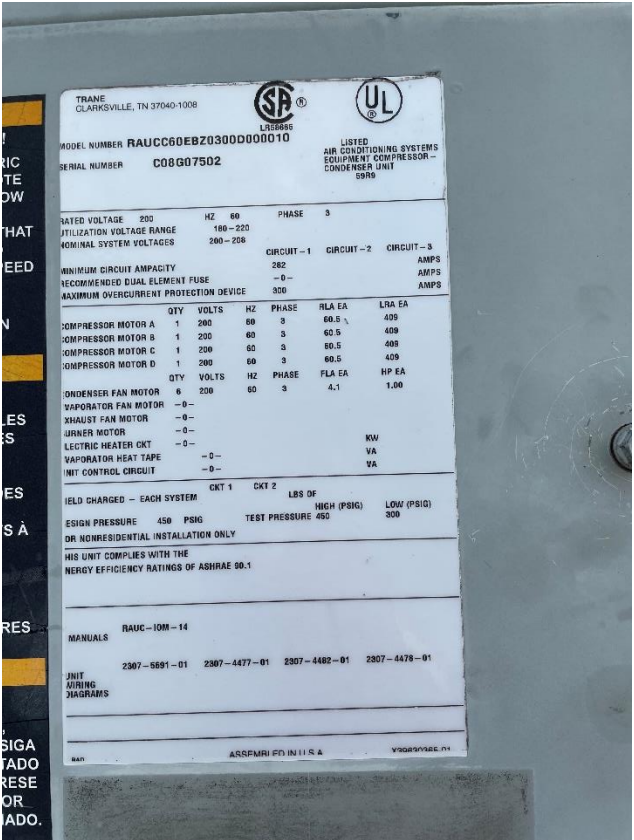




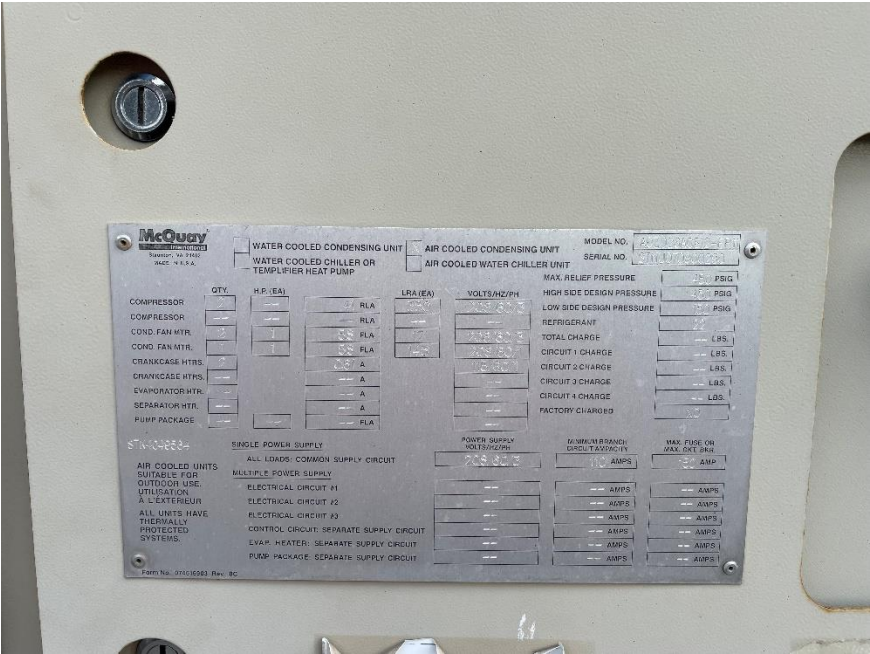
Existing AHU-2 Plenum Dampers Manually controlled Actuator are Disconnected



Pneumatic Control Panel AHU-2



Existing Condensing unit CU-1



Existing Condensing unit CU-2



Existing Boiler Recently Installed

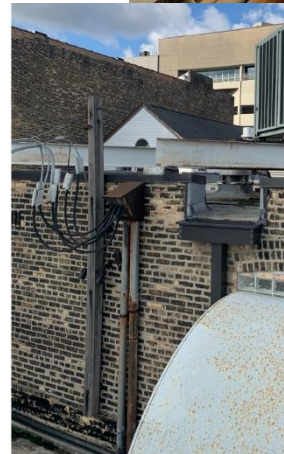


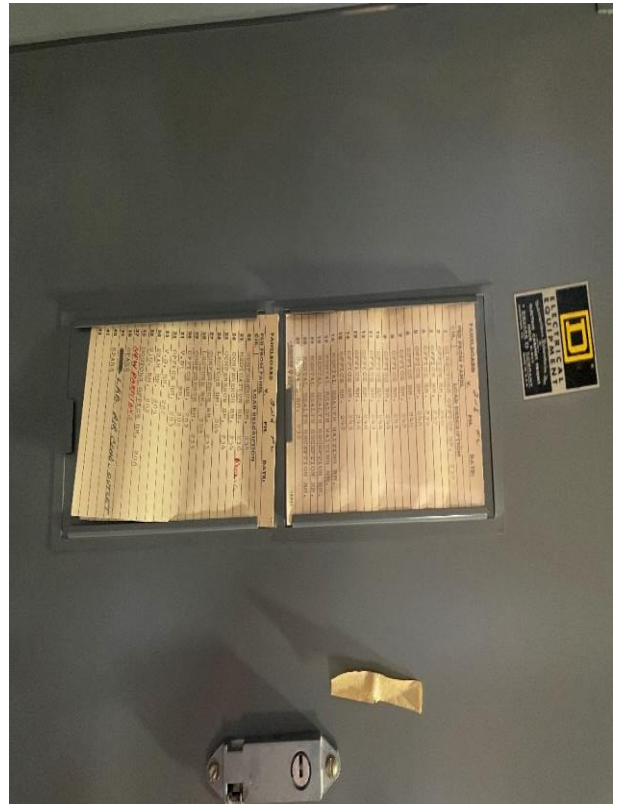
## ELECTRICAL

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.

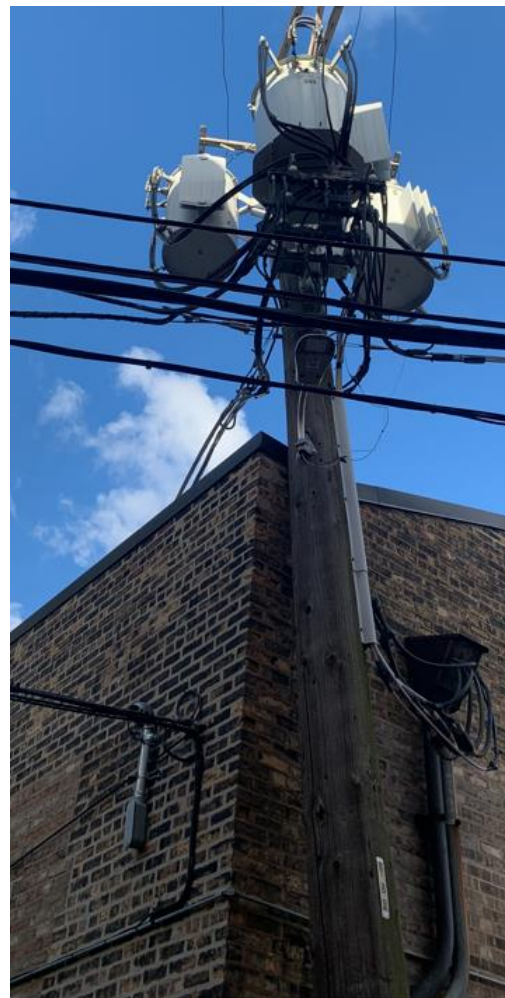
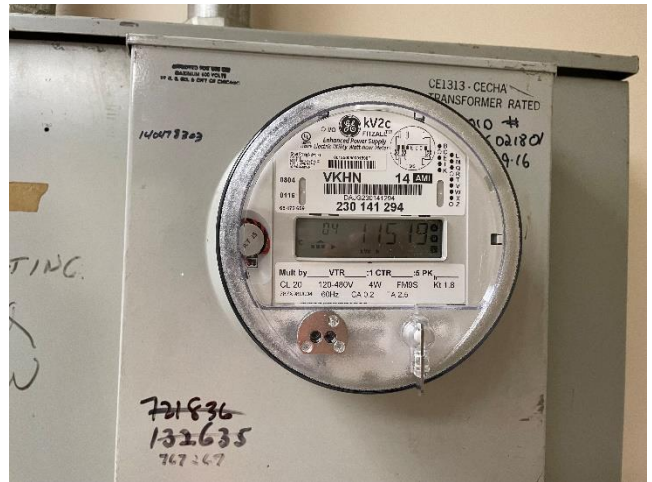
Incoming Service enters the building thru the electrical utility room east of the building distribution panels are old serve by a main 800Ampere and 600Ampere

A power panels and light panels are located in various rooms serving HVAC, compressors, lightings, receptacle, emergency lighting, telecommunications and various medical equipment in the building.







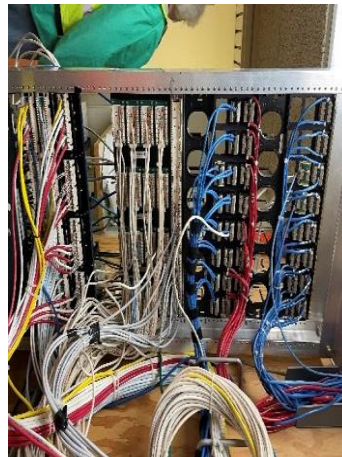
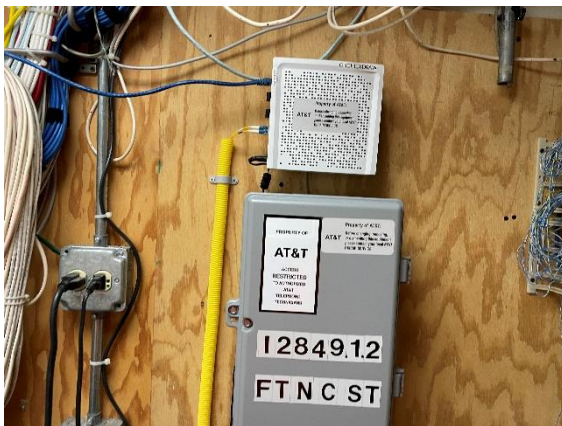


## CONCLUSIONS:

1. Due to the uncertainty surrounding the power distribution panels, it is recommended that a power distribution study be performed in order to gauge the usability of the existing system, and to determine which breakers should be replaced, if any. In addition, it is also recommended that a maintenance test be performed in accordance with National Electrical Testing Association standards by means of MTS guidelines.
2. Adding a new elevator will result to upgrade the service entrance panel and the meters should also be replaced.
3. A new power and controls wiring will be provided for the HVAC equipment that will be replace.
4. If determine required a new fire alarm system will be powered.
5. Areas (restrooms) that will be part of the renovations a new light fixture will be required.
6. 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 working condition.



## CONCLUSIONS:

No hardware and software upgrade required, unless instructed.



## **PLUMBING:**

1<sup>st</sup> Floor Toilet rooms will be renovated to improve accessibility. Plumbing fixtures will be upgraded for this work. This will include the water closet, urinals, lavatory and floor drain. Pipe leaks will be address on this project. There are 8 total toilet rooms on the 1<sup>st</sup> floor.

2<sup>nd</sup> Floor toilets No work required since its recently renovated 2 years ago unless renovated due for ADA compliance new plumbing fixtures will be replace.

## **PHOTOS (1<sup>st</sup> floor Toilets)**





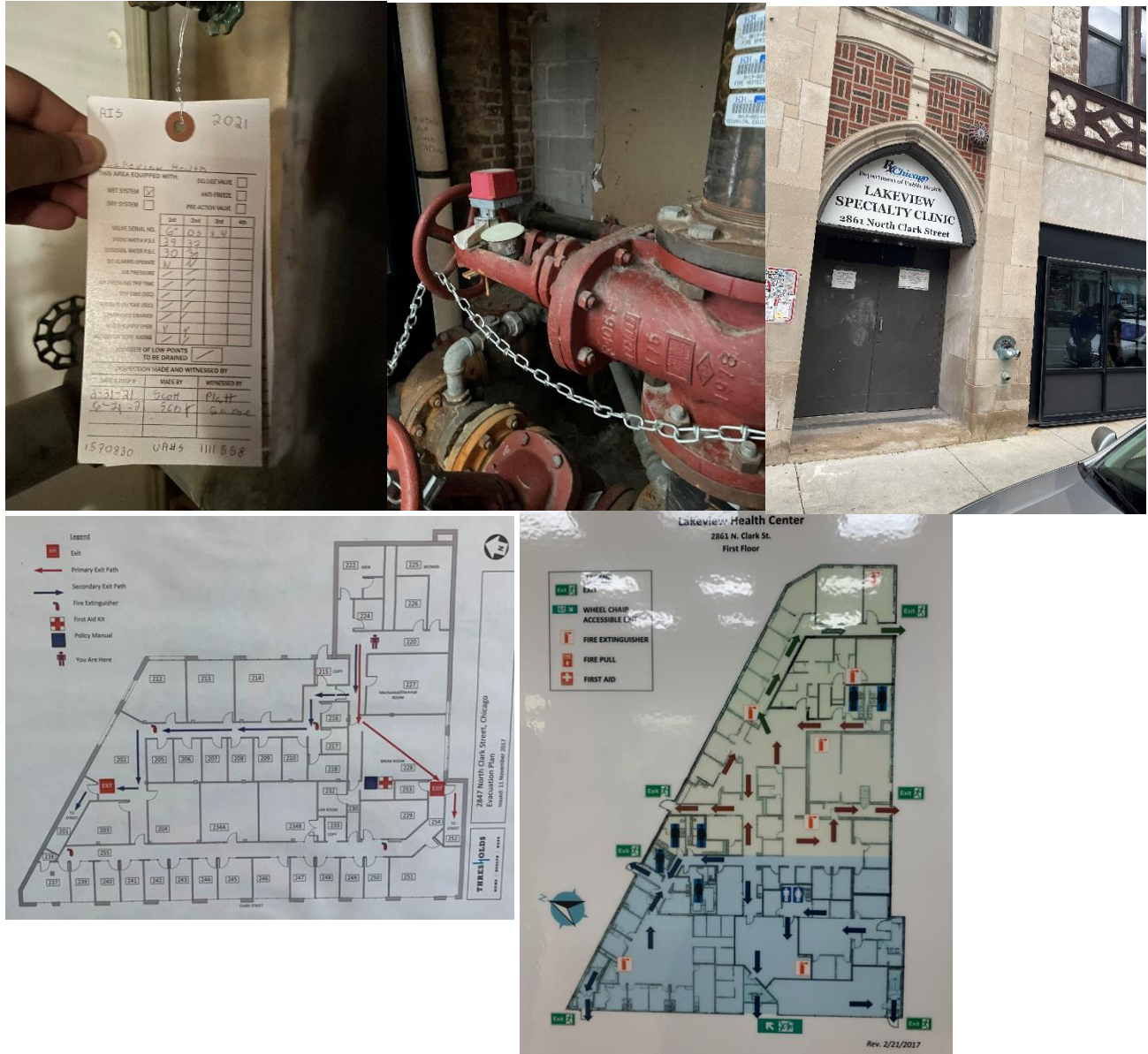
PHOTOS (2<sup>nd</sup> floor Toilets)





## FIRE PROTECTION & FIRE ALARM SYSTEM:

The building both floors is protected by sprinkler systems using city pressure with local audible interior alarm bell. There is no fire alarm or detection present on this building.



## CONCLUSIONS:

If required by code a full fire alarms systems must be provided. A fire panel, tamper switch panel will be install this will send output to new BAS system for monitoring.



# Lakeview Health Center

## HVAC Equipment Evaluation Report

| HVAC Equipment                   | Quantity | Location                         | Age                                      | Life Expectancy | Equipment Condition | Notes   |
|----------------------------------|----------|----------------------------------|--|-----------------|---------------------|---|
| Boiler (Steam)                   | 1        | Basement Floor - Mechanical room | New                                      | 30 - 40 years   | Operational         | Need's controls upgrade to interface to a new BAS   |
| Condensing Unit (CU-1)- 60T      | 1        | Roof                             | Original (1977 to 83)<br>Over 40 yrs old | 25- 35 years    | Operational         | Past service life recommended to replace. Having Breakdowns, tripping contactors replace.   |
| AHU-1 -25hp@18000cfm             | 1        | Basement Floor - Mechanical room | Original (1977 to 83)<br>Over 40 yrs old | 15 - 20 years   | Operational         | the motor has been replace twice in 5 years;Provide VFD recommend to replace entire unit  |
| Return fan 1 -10HP@13500cfm      | 1        | Basement Floor - Mechanical room | Original (1977 to 83)<br>Over 40 yrs old |                 | Operational         | Past service life recommended to replace  |
| Fin tube radiators               | multiple | 1st floor office area perimeter  | Original (1983) 39 yrs old               | 30 - 40 years   | Operational         | Past service life recommended to replace, need balancing on the heating system  |
| Thermostat/sensor/               | multiple | Various locations                |  | NA              | REPLACE             | Pneumatic controls mus t be replace with DDC  |
| HVAC Control panels              | 1        | Basement Floor - Mechanical room | Original (1977 to 83)<br>Over 40 yrs old | NA              | REPLACE             | Pneumatic controls mus t be replace with DDC controllers  |
| Building Automation System (BAS) | None     |                                  |  | NA              | NA                  | Provide New preferably use GBMS   |
| AHU-2 -10HP @ 12690cfm           | 1        | 2nd Floor - Mechanical room      | Original (1977 to 83)<br>Over 40 yrs old | 15 - 20 years   | Operational         | VFDs on AHUs. Fan Motor recently been replace, recomend to replace. Heating Control valve is replace with Electric motor actuator.causes unbalnce to the heating system |
| Condensing Unit (CU-2) -30T      | 1        | Roof                             | Original (1977 to 83)<br>Over 40 yrs old | 25- 35 years    | Operational         | Past service life recommended to replace  |
| Return fan 2- 5 hp               | 1        | 2nd Floor - Mechanical room      | Original (1977 to 83)<br>Over 40 yrs old | 15 - 20 years   | Operational         | Past service life recommended to replace  |
| Radiators                        | multiple | 2nd Floor office area perimeter  | Original (1977 to 83)<br>Over 40 yrs old | 30 - 40 years   | Operational         | Past service life recommended to replace, Heating system is unbalance causing insuficient on some area  |