

### 10/31/2023 - Summary

Initially the AHU was found running at 30Hz and 2300 CFM. The operations director indicated that they run at a lower airflow otherwise they get a low discharge air temperature.

Increased the frequency to 60Hz and airflow was balanced to 5282 CFM with the outside air damper set to 10% open at the front end. From 25% to 10% there was little change in the outside air flow. At 10% the outside air was measured as 1213 CFM which is 12% above design of 1000 CFM.

The chilled water was turned off and only hot water was tested. The flow measured at the balance valve was 0 GPM with the valve full open. Closing the valve did not change pressures but did not change flow. However the discharge air temperature and change in change in temperature between the entering and leaving water indicated a flow of approximately 10.9 GPM.

#### Remarks / Recommendations:

1. Flow at the balance valve was measured as 0 GPM. Appears that the valve is installed in correct orientation. Visible shut off valves are full open. Possibly there is an issue with the balance valve.
2. Recommend verifying that the strainers have been cleaned recently. If not recommend cleaning all strainers in the system. Also ensure that the water quality is good.
3. There was no port to measure water temperature, however a rough pipe surface temperature indicates temperature of around 132 F. The schedule shows EWT as 180 F. The leaving water temperature was measured as 111 F and schedule shows 160 F. Further analysis of the building hot water system required. Recommend that the leaving water temperatures from the boiler be provided from the BMS.
4. The hot and chilled water piping is shown as 1-1/2" on the drawings but is 1-1/4".
5. Room temperature sensor is showing actual temp of 64 F. The logger located directly above the sensor is showing 63.4 F. However the actual temperature in the room was measured as 70.7 F. The sensor is on an interior wall that connects to an exterior wall. The wall feels cool to the touch and may not have adequate insulation.
6. A small return in the workout room is blanked off with cardboard. The larger return is full open. Recommend opening up this blanked off return.