

# AUBURN MOUNTAINVIEW HIGH SCHOOL HVAC System Assessment



Completed for:



March 10, 2021

Site Visits, Analysis & Report by:  
Metrix Engineers  
Geoff Grembowski, EIT



## **SCOPE**

Metrix Engineers was hired to perform an assessment of the existing heating, ventilation and air conditioning systems at the Auburn Mountainview High School site in Auburn School District. The goal of the assessment was to provide an executive summary level of detail regarding the type and condition of the existing mechanical systems, determine if the systems are operating in compliance with their original design intent, and identify any areas of improvement based on site observations.

The existing facility is a two-story building of approximately 190,875 square feet with mechanical catwalks on a third story. The facility was originally constructed in 2007. There is an additional locker room/stadium concession building on site.

A site walk was conducted on March 8, 2021 to review the existing mechanical systems. This report summarizes Metrix observations based on that visit.

## **EXECUTIVE SUMMARY**

The existing facility appears to be operating per its original design intent. Generally speaking, no major operating points of concern were observed.

There are few spaces that have been modified such that the original design intent isn't still appropriate, as noted below.

## **EXISTING SYSTEM OBSERVATIONS**

### **HVAC:**

All observed equipment is original to the facility construction date in 2007, with the exception of a new single boiler installed this year.

The facility has a central plant consisting of 2 boilers and 2 chillers. There are 2 boiler circulating pumps, and 2 heating pumps distributing the heating water. There are 2 chilled water pumps distributing the chilled water.

Mechanical units are located in an extensive network of mechanical catwalks above the second floor. Variable volume air handlers provide ventilation air for most of the classrooms, the gyms, theater, commons, library, and admin. The air handlers can provide cooling where required, and have heating capacity. Terminal units control the airflow for a majority of classrooms, and have additional heating capacity. Fan coil units provide ventilation air, heating and cooling for some of the larger classrooms. Relief fans prevent the catwalk (which doubles as a return air path) from over-pressurization.

A spot check of the internals of various HVAC system components was completed during the site visit. Most systems appeared to be in good operational condition and well maintained. FCU-203 had a belt on the motor that appeared to be fatigued and nearing failure, however this appeared to be an isolated case as all other belts appeared in good condition. All filters appeared in good condition, and it was observed that several boxes of filters were available for use.

Note 1

There were a number of spaces where desks were observed to be located that differed from the original design, and they are listed below, however the design ventilation has been verified to be sufficient for the current use of the space:



- All science prep rooms.
- Telecom 402.

It was noted that any 100% OSA override switches in science, art, and shop classrooms were not labelled as such, but instead were just a blank switch.

There is a conference table and chairs located in the storage room of the stadium building, where it appears the football coaches meet. The space in particular is located underneath UH-703B. There are no mechanically provided sources of outdoor ventilation air into this space.

Note 2

#### **Controls:**

Building automation system controls are provided by an Alerton for IBEX direct digital control system.

A review of the Building Automation System and outside air damper setpoints was conducted and all systems and spaces appear to be meeting or exceeding design outdoor airflow ventilation rates. It was noted by the School District that since the facility is largely unoccupied on the day of site visit that not all OSA dampers positions may have been in their staff/student occupancy position.

During control system review, the following control deficiencies were observed during our temperature control and equipment spot checks:

- FCU-622 and 600A were having difficulty reaching setpoint. Temperature rise across heating coil did not appear to match design inferring a potential valve actuator issue or clogged strainer. Note 3
- FCU-051 was showing a return air temp of 44F, heating coil valve position of 0% open and supply air temperature of 105F. Space setpoint was satisfied so it appears graphic may be referencing a number of incorrect/failed points. Note 4
- FCU-423 low limit alarm had disabled fan off. Note 5
- FCU-404 was in failed off position. Note 6
- HC-622C was having difficulty reaching setpoint. Note 7
- EF-409A was observed to be in failed alarm mode. Note 8
- VAH-01 RA sensor reading incorrect negative value Note 9
- HRU-504 is nuisance alarming the EF as failed but it was verified to be running Note 10
- The OSA temperature sensors at the site are reading varying results of 41.6F and 63.2F. The higher temp sensor is inaccurate and may be falsely sensing based on being in direct solar exposure.

All generally occupied classroom spaces and office spaces appeared to be maintaining setpoint and ventilation airflow rate control.





Auburn Mountainview High School  
HVAC System Assessment Notes

Note	Additional Notes		Estimated Completion Date	Final Completion Date
1		Submit work request	3/17/21	3/17/21
	1.1	WO 1-358855	4/5/21	4/15/21
2		Verify outside air pathway	3/18/21	3/18/21
	2.1	Provide recommendation to open exterior door to improve air quality when occupied.	3/18/21	3/18/21 in person Herren
3		Submit work request	3/17/21	3/17/21
	3.1	WO 1-358856 to 1-358857	4/5/21	3/30/21
4		Submit work request	3/17/21	3/17/21
	4.1	WO 1-358858	4/5/21	3/30/21
5		Submit work request	3/17/21	3/17/21
	5.1	WO 1-358859	4/5/21	4/15/21
6		Submit work request	3/17/21	3/17/21
	6.1	WO 1-358860	4/5/21	4/15/21
7		Submit work request	3/17/21	3/17/21
	7.1	WO 1-358861	4/5/21	4/21/21
8		Submit work request	3/17/21	3/17/21
	8.1	WO 1-358862	4/5/21	4/19/21
9		Submit work request	3/17/21	3/17/21
	9.1	WO 1-858863	4/5/21	4/19/21
10		Submit work request	3/17/21	3/17/21
	10.1	WO 1-858864	4/5/21	3/30/21

Revision Date 4/21/21