

# RAINIER MIDDLE SCHOOL HVAC System Assessment



Completed for:



March 8, 2021

Site Visits, Analysis & Report by:  
Metrix Engineers  
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## **SCOPE**

Metrix Engineers was hired to perform an assessment of the existing heating, ventilation and air conditioning systems at the Rainier Middle 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.

Rainier Middle School is a single-story building, approximately 92,000 square feet with three classroom wings, with a central admin, library, commons, shop, gym, aux gym, and corridor connecting the wings. The facility was originally constructed in 1992, had a small renovation and controls replacement in 2011.

A site walk was conducted on February 24, 2021 to review the existing mechanical systems. This report summarizes Metrix observations based on that visit.

## **EXECUTIVE SUMMARY**

The building appears to be operating per its original design intent. There were no operating points of concern were observed nor any spaces modified beyond the original design intent that would pose cause for concern.

## **EXISTING SYSTEM OBSERVATIONS**

### **HVAC:**

The central plant consists of three Airstack air-to-water heat pumps located in the service yard, and an electric boiler and two hydronic pumps located in the boiler room. The hydronic plant is a change-over system, so it supplies hot water when in heating mode and chilled water when in cooling mode. The hydronic loop appeared to contain ethylene glycol for freeze protection of the heat pumps.

Classroom and admin heating, ventilation and air conditioning are provided by variable speed central air handling units that supply air to VAV boxes and duct mounted heating and cooling changeover coils that serve each zone via overhead diffusers. Each wing has its own central air handling unit located in the mechanical mezzanine. VAV boxes and zone coils are also located in the mezzanine. Science classrooms are served by individual fan coil units and exhaust fans located in the ceiling space of each zone. The gym, aux gym and commons/kitchen are each served by mixing air handling unit with change-over hydronic coil. Portables are served by exterior wall-mounted heat pumps.

A spot check of various HVAC system components was completed during the site visit, including the internals of various air handling units. All heating and ventilation systems checked were verified operational with no major issues noted.

All classroom systems and spaces appeared to be meeting or exceeding designed outdoor airflow ventilation rates. Room 300 appeared to be a storage room that has a desk located in it. There appears to be adequate ventilation for an office.

### **Controls:**

Building automation system controls are KMC controls. No operational points of concern were observed. KMC Controls and Barber Coleman thermostats were observed.



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.

During control system review, no space temperature deficiencies were identified, however, the following potential control concerns were noted:

- EF-14 was commanded off but the fan status signal appeared to be showing operation.

Note 1





Rainier Middle School  
HVAC System Assessment Notes

Note	Additional Notes		Estimated Completion Date	Final Completion Date
1		Submit work request	3/10/21	3/10/21
	1.1	WO 1-358673	3/19/21	3/30/21

Revision Date 3/30/21