

MT. BAKER 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 Mt. Baker 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.

The existing facility is a single-story building of approximately 90,000 square feet and is laid out with a central administration and commons that is flanked to the east by three classroom wings and the west by activities and arts space. The facility was originally constructed in 1993 and had small improvements implemented through the 2010's.

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 existing building appears to be operating per its original design intent. Generally speaking, no major operating points of concern were observed. There are a few observed control system items that may need to be investigated further but this is not uncommon for a facility of this age/size.

There are a couple spaces that have been modified from their original use as noted in the observations section below.

EXISTING SYSTEM OBSERVATIONS

HVAC:

All observed equipment is original to the building construction date, with unitary repairs completed for continuous operation. System was overserved to be operation on day of site visit.

A central boiler gas fired boiler plant comprised of a dual 3,200 MBH boilers distributes heating water via central system pumps throughout the facility. There is no central mechanical cooling plant.

Heating and ventilation to typical classroom and office spaces are provided by hydronic heating unit terminal units served by central air handlers. Science classrooms, gym, aux gym, commons and locker room core have dedicated air handling units. All air handling units and associated terminal units are located in a single mezzanine that spans the school.

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

A couple observed operational considerations to be aware of include:

- The principal's office (103) is acting as both an office and a conference room. Space ventilation air appears adequate for use as a conference room.
- Band (609) relief grille is boarded off in the space maybe due to a faulty backdraft damper stuck in open position. Removing relief path does not compromise use of space.



Controls:

Building automation system controls are provided by an Alerton Envision 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.

Control system deficiencies observed at:

- CH-100, TU-204, TU-401 and AHU-602 temperature rise at 100% valve open position is negligible inferring incorrect valve position or potentially a clogged strainer limiting flow. Note 1
- CH-701 shows heating valve commanded to 0% but valve is partially open resulting in higher SAT and increased space temp setpoint. Note 2

During control system review, some space temperature deficiencies were identified. The control system appeared to be responding as desired at all of these zones, so it is unclear why the following spaces were not at setpoint; this potentially infers a door or window may have been ajar on the on the day of review when OAT was observed at 40.5F:

- TU-200 and TU-205 serving Library
- TU-201 serving Library Office
- AHU-301 serving Room 304.
- TU-304 serving Room 305
- AHU-601 serving Room 607
- AHU-701&702 serving Gym and Aux Gym

Note 3





Mount Baker Middle School
HVAC System Assessment Notes

Note	Additional Notes		Estimated Completion Date	Final Completion Date
1		Submit work request	3/18/21	3/18/21
	1.1	WO 1-358890 to 1-358893	4/5/21	4/15/21
2		Submit work request	3/18/21	3/18/21
	2.1	WO 1-358894	4/23/21	4/20/21
3		Submit work request	3/18/21	3/18/21
	3.1	WO 1-358895 to 1-358902	4/5/21	4/15/21
	3.2	1-358895-1-358897- Repair parts on order	4/23/21	4/20/21
	3.3	1-358901- Contract to ATS	4/23/21	4/20/21

Revision Date 4/21/21