

INTERIM SITE (OLD OLYMPIC MIDDLE SCHOOL) HVAC System Assessment



Completed for:



February 23, 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 Interim 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 campus is comprised of six single-story buildings referenced as Buildings 100, 200, 300, 400, 600/700 and 900. The facility was originally constructed in 1957 with additions and modernizations completed in 1960, 1967, 1974, 1980, 1981, 1952 and 1982.

A site walk was conducted on February 16, 2021 to review the existing mechanical systems. This report summarizes Metrix observations based on that visit.

EXECUTIVE SUMMARY

The existing building generally appears to be operating per its original design intent.

There are some spaces that have been modified from their original use and other potentially occupied spaces lacking ventilation as noted in the observations section below.

EXISTING HVAC SYSTEM OBSERVATIONS

Most observed equipment is original to the respective building construction date, with the exception of a building automation system controls upgrade in 2000 and a boiler plant replacement in 2013. Various levels of unitary repair have been completed for continuous operation. System was observed to be operational on day of site visit and is in fair condition.

Building 100 is served by rooftop heat pump units. The remaining Buildings 200-900 heating, ventilation and air conditioning to spaces is provided by hydronic heating unit ventilators, hung overhead or at the exterior wall of the zone served. Larger spaces such as Gym and Cafeteria are served by air handling units located in the zone served.

A central boiler gas fired boiler plant comprised two 1750 MBH boilers distributes heating water via central system pumps throughout the facility.

There is no building mechanical air conditioning.

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

- The unit ventilator located in the south side of the Cafeteria was disabled during the site visit but appeared to have hydronic flow through the coil potentially indicating a failed or partially open control valve. Note 1
- Exhaust fan in added Custodial Storage of Building 700 appears to have failed. Note 2

A few additional observed operational considerations to be aware of include:



- The main custodial room office adjacent the boiler room in Building 900 did not appear to have a ventilation air supply source. Note 3
- The Dark Room originally part of Building 200 has been converted to an ADA toilet room and ventilation was verified to be adequate.
- Various Storage rooms in the 300 building have been converted to offices and ventilation was verified to be adequate in these spaces.
- The designed conference room adjacent the Library has been converted to an Office use. This is acceptable as ventilation rates for the conference room are in excess of that required for office use.
- Toilet rooms were added to classrooms located in Building 400. Dedicated exhaust for each new space was verified to be adequate.
- In the Administration at Building 100 area the originally designed Principal office was converted to a conference room. Existing unit ventilator is acceptable for space use provided minimum ventilation rate of 15-20cfm per person is verified.
- Foods Lab in Building 700 has been converted to general Sciences room classroom and HVAC remains adequate.
- Some of the Band and Choir practice rooms at Building 700 do not appear to have ventilation air. Note 4
- There appears to be no ventilation air in the storage space being used as a temporary Band teacher office space. Note 5

Controls:

Building automation system controls are provided by an Alerton 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.

During control system review the following system deficiencies were identified:

- CH-020, UH-410, UH-607 and UH-611 had heating coils commanded to 100% but no increase in supply air temperature inferring control valve is in a failed closed position. Note 6
- CH-023, UV-409, UV-601 and UV-610 are reporting fan failure Note 7
- UV-610 and UV-601A are reporting incorrect SAT values Note 8
- AHU-608 had heating coils commanded to 100% but no increase in supply air temperature inferring control valve is in a failed closed position. Note 9
- EF-208, 407, 603B, 603C, 604, 608B, 609, 610A and 711 were reporting alarm with operation stopped Note 10

During control system review, a couple of space temperature deficiencies were identified. The control system appeared to be responding as desired, 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 42F:

- UV-316, UV-211, and UV-610A. Note 11





Interim Elementary School
HVAC System Assessment Notes

Note	Additional Notes		Estimated Completion Date	Final Completion Date
1		Submit work request	3/16/21	3/16/21
	1.1	WO 1-358769	3/26/21	
2		Submit work request	3/16/21	3/16/21
	2.1	WO 1-358768	3/26/21	
3		Confirm outside air pathway	3/16/21	3/16/21
	3.1	Provide recommendation to space occupant to open exterior door to improve air quality.		3/17/21 in person Couch
4		Confirm outside air pathway	3/16/21	3/16/21
		Provide recommendation to space occupant to open door to ECE office and limit space to single occupancy to improve air quality.		3/17/21 in person Luisa/ McKenzie
5		Confirm outside air pathway	3/16/21	3/16/21
		Space is unoccupied- Provided recommendation to open door to classroom and limit space to single occupancy to improve air quality.		3/17/21 in person McKenzie
6		Submit work request	3/16/21	3/16/21
	6.1	WO 1-358770 to 1-358772	3/26/21	
7		Submit work request	3/16/21	3/16/21
	7.1	WO 1-358773 to 1-358776	3/26/21	
8		Submit work request	3/16/21	3/16/21
	8.1	WO 1-358777 to 1-358778	3/26/21	
9		Submit work request	3/16/21	3/16/21
	9.1	WO 1-358779	3/26/21	
10		Submit work request	3/16/21	3/16/21
	10.1	WO 1-358780 to 1-358787	3/26/21	
11		Submit work request	3/16/21	3/16/21
	11.1	WO 1-358788 to 1-358790	3/26/21	

Revision Date 3/17/21