

# ALPAC ELEMENTARY SCHOOL HVAC System Assessment



Completed for:



March 3, 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 Alpac Elementary 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 49,000 square feet and is laid out with the admin and gym in the front of the school, followed by the Library and classroom wings, with the addition off the back. The facility was originally constructed in 1973, had a renovation and addition in 1987, and a small renovation in 2012.

A site walk was conducted on February 17, 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 were some spaces that have been modified and have space ventilation concern as noted in the Observations section below.

## **EXISTING SYSTEM OBSERVATIONS**

### **HVAC:**

Heating, ventilation and air conditioning to spaces are provided by rooftop air handling units and unit ventilators. Classrooms in the original building and library are served by the three multi-zone rooftop air handling units with gas heat and DX cooling. The admin is also served by a multi-zone unit with electric duct coils located above the ceiling for individual room temperature control. The Gym is served by a single-zone rooftop unit with gas heat. The addition classrooms are served by horizontal hot-water unit ventilators and a small boiler plant. The gym rooftop unit was installed in 2010 and the multi-zone rooftop units were replaced in 2011. Central toilet rooms are served by rooftop exhaust fans, and single toilet rooms are served by ceiling mounted exhaust fans. Portables are served by exterior wall-mounted heat pumps.

A spot check of the internals of various HVAC system components was completed during the site visit. Systems scheduled on at the time of the site visit were verified operational and all equipment appeared well maintained.

All classroom systems and spaces appeared to be meeting or exceeding designed outdoor airflow ventilation rates. There are a couple small storage spaces from the original design that appear to be converted to office spaces.

- Office 204 was converted from a storage room and does not have a supply source for ventilation.
- Office 209 was converted from a storage room and does not have a supply source for ventilation.

Note 1

Note 2



- Custodial closets with mop sinks are typically provided with exhaust, but it was observed that Custodial storage closet 116 (room # from '87 modernization) does not have exhaust. It was confirmed that exhaust was not shown in the original design.
- There is a large lobby space connecting the new addition, which appears could be used as a shared learning or other occupied events but has no dedicated ventilation source.
- It was observed that there are no relief systems as part of the existing new addition design.

Note 3

**Controls:**

Building automation system controls consist of a Barber Colman Network 8000 system.

Building automation system controls are provided by an Alerton Envision direct digital control system. No major points of concern 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, a few space temperature and potential equipment deficiencies were identified as follows:

- EF-201A was commanded on but control signal status was showing fan is off. Note 4
- EF-206 for the Comm room appears it may be running 24/7 and not via commanded reverse thermostat setpoint. Note 5
- Gym space was calling for heating but the supply air temperature off RTU-01 was maintaining 62F which infers the gas heating was not operating. Note 6
- AHU-01 calling for heating and signaling that electric heat was enabled but supply air temperature was maintaining 61F. Note 7





Alpac Elementary  
HVAC System Assessment Notes

Note	Additional Notes		Estimated Completion Date	Final Completion Date
1		Verify outside air pathway.	3/11/21	3/11/21
	1.1	Provide recommendation to space occupant to open door to hallway and limit space to single occupancy to improve air quality.	3/11/21	3/11/21 in person Riley
2		Verify outside air pathway.	3/11/21	3/11/21
	2.1	Provide recommendation to space occupant to open door to hallway and limit space to single occupancy to improve air quality.	3/11/21	3/11/21 in person Riley
3		Verify outside air pathway.	3/11/21	3/11/21
	3.1	Provide recommendation to open exterior door when occupied to improve air quality.	3/11/21	3/11/21 in person Riley
4		Submit work order	3/15/21	3/15/21
	4.1	WO 1-358744	3/22/21	3/26/21
5		Submit work order	3/15/21	3/15/21
	5.1	WO 1-358745	3/22/21	3/26/21
6		Submit work order	3/15/21	3/15/21
	6.1	WO 1-358746	3/22/21	3/26/21
7		Submit work order	3/15/21	3/15/21
	7.1	WO 1-358747	3/22/21	3/30/21

Revision Date 3/30/21