

LEA HILL ELEMENTARY SCHOOL HVAC System Assessment



Completed for:



February 24, 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 Lea Hill 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 38,544 square feet, surrounding a central courtyard. The facility was originally constructed in 1964 and had a library/administration expansion completed in 1981. There are 12 additional portable buildings (hereafter referred to as portables) on site.

A site walk was conducted on February 19, 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 were some spaces that have been modified or have existing space ventilation concern as noted in the Observations section below.

EXISTING SYSTEM OBSERVATIONS

HVAC:

All observed equipment is original to the facility construction date in 1964, with the exception of the library and administration areas. In these areas, the observed equipment is original to the expansion in 1981.

The facility has a central plant consisting of two Burnham boilers at 1400 MBH each, with burners updated to utilize natural gas in 1981. This plant is located near the multipurpose room. The heating water piping extends overhead to serve all equipment. There are 2 boiler circulating pumps, and 2 central system pumps distributing the heating water. An additional pump appears to serve the gym.

Heating and ventilation to the classroom spaces and library is provided by hydronic heating unit ventilators located at the exterior wall of the zones served. The music classrooms are served by exposed fan coil units. Heating and ventilation to the gym is provided by a dedicated air handler located in a mechanical mezzanine. The administration area is served by a concealed fan coil unit located above the administration hallway, along with unit ventilators, hydronic convectors, and fan coils in specific offices.

There is no building mechanical air conditioning.

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.



The gym air handler is not connected to outdoor ventilation air ductwork and it is likely not meeting designed outdoor airflow ventilation rates. There is presently about a 3" gap between the intended outdoor ventilation air ductwork and the unit's outside air opening.

Note 1

The administration fan coil unit was not observed to have a duct connection to outside air through the roof, as originally designed. It appears that this duct has been capped prior to the connection to the outside. This suggests that the administration area is not meeting outdoor airflow ventilation rates.

Note 2

The following spaces do not have outdoor ventilation air provided as originally designed (heating is served by a convector, unit heater, or no dedicated heating units), but were observed to have desks located in the space:

- Library Office 110A, Office 104, Reception 100, Office 101.
- Storage 207, next to the boiler room.
- Storage/Office 308, Storage/Office 408, and Storage/Office 608. There is a relief grille located above these rooms, but no supply or outdoor ventilation air. Air movement through the space would be dependent on the occupancy and pressurization of nearby classrooms

Note 3

Note 4

Note 5

Music Room 500 has been split into 2 rooms with a partition wall. The northernmost classroom has a ceiling-mounted fan coil unit, and appears to meet or exceed designed airflow ventilation rates. The southernmost classroom has a ceiling-mounted fan coil unit, however appears to be a recirculating-only unit. Therefore, the room appears to have no dedicated ventilation unit.

Note 6

The Kitchen has no dedicated supply air ventilation system and relies on operation of the cooking hoods for supply of ventilation airflow to the space.

Note 7

There are 12 portables located on site. All of the portables have sidewall packaged heat pump units, and these spaces appear to be meeting or exceeding designed outdoor airflow ventilation rates.

Controls:

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, no space temperature deficiencies were identified.





Lea Hill Elementary
HVAC System Assessment Notes

Note	Additional Notes		Estimated Completion Date	Final Completion Date
1		Verify outside air pathway.	3/5/21	3/3/21
	1.1	Construct duct attachment to mixed air plenum. WO 1-358487	3/5/21	3/5/21
2		Verify outside air pathway.	3/5/21	3/3/21
	2.1	Outside air duct located and found to be connected.		3/3/21
3		Verify outside air pathway.	3/5/21	3/3/21
	3.1	Provide recommendation to occupant in 110A to open door to library and maintain single occupancy to improve air quality.	3/5/21 email to Ray	3/5/21
	3.2	Provide recommendation to occupant in 104 to open exterior door and windows to improve air quality.	3/5/21 In person Herda	3/5/21
	3.3	Provide recommendation to occupant in 101 to open exterior window to improve air quality.	3/5/21 In person Weimer	3/5/21
	3.4	Provide recommendation to occupant in 100 to open exterior window to improve air quality.	3/5/21 In person McCabe	3/5/21
4		Verify outside air pathway.	3/5/21	3/3/21
	4.1	Located exterior door louver covered with tape.		3/3/21
	4.2	Remove tape.	3/5/21	3/5/21
5		Verify outside air pathway.	3/5/21	3/3/21
	5.1	Located louvered door and exhaust fan		3/3/21
	5.2	Provide recommendation to occupant to open door to hallway and maintain single occupancy to improve air quality.	3/5/21 In person Hoggins, Lewis Email Weatherford	3/5/21
6		Verify outside air pathway.	3/5/21	3/3/21
	6.1	Outside air duct located and found to be connected.		3/3/21
7		Provide direction to space occupants to manually operate exhaust fan during periods of occupancy.	3/5/21 In person Ogelsby	3/5/21

Revision Date 3/4/21