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CHINOOK ELEMENTARY SCHOOL
HVAC System Assessment

Completed for:

AUBURN SCHOOL DISTRICT

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February 22, 2021

Site Visits, Analysis & Report by:
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SCOPE

Metrix Engineers was hired to perform an assessment of the existing heating, ventilation and air conditioning systems at the Chinook Elementary 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 39,780 square feet split across 4 individual buildings. The facility was originally constructed in 1962 and had a library expansion completed in 1981. There are 6 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 1962, 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 boilers, with burners updated to utilize natural gas in 1981. This plant is in the same building as the multipurpose room. The heating water piping extends overhead to serve nearby equipment, and underground to serve equipment in other buildings and classrooms. There are 2 boiler circulating pumps, and 2 central system pumps distributing the heating water.

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. Heating and ventilation to the multipurpose room is provided by a dedicated air handler located in the boiler room. The administration area is served by a concealed hydronic fan coil unit located above the administration hallway, along with unit ventilators and hydronic convectors in specific offices.

There is no facility 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 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 1

The office in between Lounge 106 and Workroom 103 appears to be repurposed from a conference room to a counseling space. Assuming the fan coil unit serving this space can provide ventilation airflow, the system is sized appropriately.

Health Room 104 was originally designed to have a unit ventilator serving the space, but has since been replaced by a heating radiator with no ventilation component. There presently appears to be no ventilation airflow serving this space. Note 2

Office 107 and Office 107A were originally designed to be one room, but have since been split. Office 107A has a unit ventilator and appears to be meeting or exceeding designed outdoor airflow ventilation rates. Office 107 has a convector unit only, and has no ventilation airflow serving the space. Note 3

The following spaces do not have outdoor ventilation air provided, as was originally designed (heating is served by a convector only), but were observed to have a desk located in the space: Note 4

- Library Office 111A.
- PE Office. However, space exhaust and transfer air appear adequate for single occupancy use.

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 5

There are 6 portables located on site. 4 of the portables have sidewall packaged heat pump units.

The Music/Art Portable contains unit heaters and glazing with integral operable dampers, but no dedicated mechanical ventilation units. The OT/PT portable contains convectors, and no dedicated mechanical ventilation units. The openable area to the outdoors through the doorway or operable glazing must be at least 4 percent of the floor area in order to meet required ventilation rates as defined by the International Mechanical Code, and this area is to remain open whenever the space is occupied. Note 6

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.

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Chinook 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	Outside air duct located and found to be connected.		3/3/21
2		Verify outside air pathway.	3/5/21	3/3/21
	2.1	Located transfer grille from hallway		3/3/21
	2.2	Provide recommendation to space occupant to open exterior door to improve air quality.	3/5/21 in person Mason and Forte (RT)	3/5/21
3		Verify outside air pathway.	3/5/21	3/3/21
	3.1	Located transfer grille from hallway		3/3/21
4		Verify outside air pathway.	3/5/21	3/3/21
	4.1	Provide recommendation to space occupant to open door to library and limit space to single occupancy to improve air quality.	3/5/21 in person Galiti (RT)	3/5/21
5		Provide direction to space occupant to manually operate exhaust fan during periods of occupancy.	3/5/21 In person Lehto (RT)	3/5/21
6		Provide direction to space occupants to open window.	3/5/21 IN person Davidson (RT)	3/5/21

Revision Date 3/5/21