

GILDO REY ELEMENTARY SCHOOL HVAC System Assessment



Completed for:



February 26, 2021

Site Visits, Analysis & Report by:

Metrix Engineers

Kyle Koon, EIT



SCOPE

Metrix Engineers was hired to perform an assessment of the existing heating, ventilation and air conditioning systems at the Gildo Rey Elementary site in the 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 approximately 44,539 square feet and consists of five single-story buildings. Building 100 contains the administrative offices and support spaces, as well as the library, and two kindergarten classrooms. Building 200 contains the gymnasium, stage, kitchen, and boiler room. Buildings 300, 400, and 500 are nearly identical and each consist of 7 classrooms, a shared learning space, restrooms, and various support spaces. All buildings have mechanical basements which house air handling equipment and below grade duct and piping systems. The facility was originally constructed in 1968, with minor renovations and revisions in 1988 and 2012. The building also had controls system upgrades implemented during 1998 improvements.

A site walk was conducted on February 22, 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 a few spaces that have been modified from their original use as noted in the observation's sections below; these modifications appear to maintain HVAC design best practices.

Additionally, there were a couple of conditions observed that may require maintenance or repair.

EXISTING SYSTEM OBSERVATIONS

HVAC:

Equipment serving the majority of spaces is original equipment from the 1968 construction. The building's primary hydronic circulation pump was replaced during 1998 improvements, during which all building equipment was connected to a new BAS system and new control valves and actuators were installed. New kitchen exhaust/makeup fans, and a new single-zone hydronic air-handling unit were installed in 2012.

The facility has a central plant consisting of a single gas fired boiler with heating water distributed via a central system pump. There is no mechanical air conditions in the building.

Heating and ventilation to most areas of the facility, including classrooms, offices, library, gymnasium, and various support spaces, are provided by constant air volume (CAV) air handlers with ducted supply and return to each space. Individual hydronic heating coils provide zone heating control. Exhaust fans with direct makeup air connections serve the kitchen and a variable air volume (VAV) single zone, hydronic air handling unit provides ventilation air and heating to the space.

A spot check of the internals of various HVAC system components was completed during the site visit. The majority of systems scheduled on at the time of the site visit were verified operational and all equipment appeared well maintained. The only deficiencies identified include:



- The hydronic control valve actuator serving the library appeared to be failed with the actuator disconnected from the control valve assembly. Note 1
- Building 400 return fan has a belt which has failed and is in need of replacement. Note 2

In general, all spaces in the facility appeared to be meeting or exceeding designed outdoor airflow ventilation rates including classrooms, offices, gymnasium, stage, kitchen, and various support spaces. A few additional observed operational considerations to be aware of include:

- Floor supply air diffusers in Offices 106 and 107 have been covered by materials stored in the space. Note 3
- Custodial 109 appears to be being used as an office space. There is no ventilation air source for this space, though it does contain a ducted return to RF-501 with makeup air from the adjacent corridor. Note 4
- Storage 115 appears to have been converted to an office space. Outdoor airflow ventilation rates appear to meet or exceed the needs of this space as an office or storage room.
- Storage 209 and Storage 207 appear to have been converted to an office space. This zone appears to have once been a practice room, and as such, outdoor airflow ventilation rates appear to meet or exceed the needs of this space as an office or storage room.

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.





Gildo Rey Elementary
HVAC System Assessment Notes

Note	Additional Notes		Estimated Completion Date	Final Completion Date
1		Submit work order to restore valve actuator control.	3/4/21	3/4/21
	1.1	WO 1-358482	3/10/21	3/26/21
2		Submit work order to replace fan belt	3/4/21	3/4/21
	2.1	WO 1-358481	3/10/21	3/8/21
3		Provide recommendation for space occupant to maintain unobstructed supply diffusers.	3/8/21 in person Williams	3/8/21
4		This space is a custodial closet. It is not intended to be occupied	3/8/21 in person Holloman	3/8/21

Revision Date 3/26/21