



## Davis Joint Unified School District Audit Report

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February 2016

PREPARED BY CLEAResult

Energy Audit Report

PREPARED FOR Davis Joint Unified School District

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## Executive Summary

CLEAResult performed a comprehensive energy audit of Davis Joint Unified School District's facilities on December 28<sup>th</sup>, 2015. The following sites were included in the audit:

- Emerson Junior High
- Da Vinci Charter Academy<sup>1</sup>

The results of the audit include:

- Description of the existing facility systems
- Energy use and benchmarking analysis
- List of energy efficiency projects recommended for implementation
- Engineering analysis to support savings estimates for each recommendation
- Financial characteristics of each recommendation
- **All information required to submit an energy expenditure plan for Prop 39 award funding**

A total of **7** energy saving projects were identified across all sites with the potential to save an estimated **\$28,388** in annual energy costs.

Financial Summary	
Total Project Costs	\$486,669
Estimated Utility Rebates	\$38,750
Net Project Costs	\$447,919
Annual Energy Cost Savings	\$28,388
Simple Payback Period (years)	15.8
Net Present Value	\$450,946
Savings to Investment Ratio (SIR)	1.06

Emerson Junior High School spends approximately **\$73,011** per year on energy for the sites listed above. By implementing all of the recommendations identified in this audit report, Emerson can reduce their energy costs by an estimated **39%**.

The reduction in annual emissions resulting from this energy savings would be approximately **98** tons of CO<sub>2</sub>, or the equivalent of emissions from **21** cars.

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<sup>1</sup> Recommendations for opportunities at Da Vinci Charter are contained in a separate report.

## Overview

Congratulations on your decision to take advantage of Proposition 39 (Prop 39) in order to make Davis Joint Unified School District more energy efficient! We are pleased to offer our wealth of knowledge, years of experience, and breadth of services to help you realize your energy-saving goals.

Energy efficiency is a critical element in cutting operating costs, reducing greenhouse gas emissions, and creating a cleaner, safer, and more comfortable learning environment. Our goal is to help Davis JUSD take full advantage of the Prop 39 opportunity and maximize the energy efficiency potential of the school. To achieve this, we have conducted a systematic study of your facility which includes an on-site audit and analysis of your usage data. The data we collected has allowed us to fully identify inefficiencies and provide recommendations for implementing solutions to capture energy savings. All of this information is detailed in the following report, including:

### **Benchmarking Results**

By benchmarking, we are able to determine the energy use intensity of your facility, and fulfill the requirement for the Prop 39 Energy Expenditure Plan.

### **Audit Report**

This report documents site conditions and provides an inventory of findings to identify energy savings opportunities. It also includes the Recommendation Summary that prioritizes projects that offer the greatest improvement first. The Recommendation Summary table illustrates measure priority ranked by SIR, showing the most cost-effective projects first.

### **Energy Expenditure Plan (EEP)**

We have summarized all of our audit findings, recommendations, and associated utility rebates into the LEA Project SIR Worksheet as required by the California Energy Commission (CEC). This document will be provided separately for the district's use.

## Project Summary

### EMERSON JUNIOR HIGH SCHOOL

Energy Efficiency Project	Electricity Savings (kWh)	Natural Gas Savings (therms)	Total Cost Savings	Project Cost	Estimated Utility Rebate	Net Project Cost	Project Life (yr)	SIR	NPV	Simple Payback (yr)
Ralph Waldo Emerson JH School - HVAC Controls - Enhanced Ventilation Control	15,646	361	\$3,531	\$7,588	\$3,875	\$3,713	10	10.05	\$33,495	1.1
Ralph Waldo Emerson JH School - IT/Plug - PC Power Management	4,998	-31	\$964	\$1,156	\$600	\$556	4	7.44	\$3,703	0.6
Ralph Waldo Emerson JH School - Lighting - Replace Gym Metal Halide Lamps/Fixtures	10,244	0	\$2,046	\$11,500	\$2,922	\$8,578	15	3.76	\$30,060	4.2
Ralph Waldo Emerson JH School - HVAC Controls - Global Thermostat Temperature Control	10,185	-	\$2,034	\$12,000	-	\$12,000	11	1.97	\$22,507	5.9
Ralph Waldo Emerson JH School - Lighting - Upgrade Interior T12/T8 Fluorescent Fixtures	64,498	-23	\$12,855	\$205,500	\$31,353	\$174,147	15	1.34	\$220,205	13.5
Ralph Waldo Emerson JH School - Lighting Controls - Occupancy Sensors	7,855	-	\$1,569	\$12,075	-	\$12,075	8	1.15	\$13,228	7.7
Ralph Waldo Emerson JH School - HVAC - Package Unit Replacement	28,832	-328	\$5,390	\$236,850	-	\$236,850	15	0.57	\$127,748	43.9
<b>Total</b>	<b>142,259</b>	<b>-20</b>	<b>\$28,388</b>	<b>\$486,669</b>	<b>\$38,750</b>	<b>\$447,919</b>		<b>1.06</b>	<b>\$450,946</b>	<b>15.8</b>

## Facility Observations

Davis Joint Unified School District is located in Northern California, in the Yolo County. The district includes two high schools, three junior high schools, nine elementary schools and three other institutions which educated a student body of 8,626 according to the California Department of Education during the 2014-15 school year. The following facilities are included in this report:

- Emerson Junior High School, 2121 Calaveras Avenue, Davis, CA 95616

A general facility description of the school followed by brief energy end use equipment descriptions is provided below.

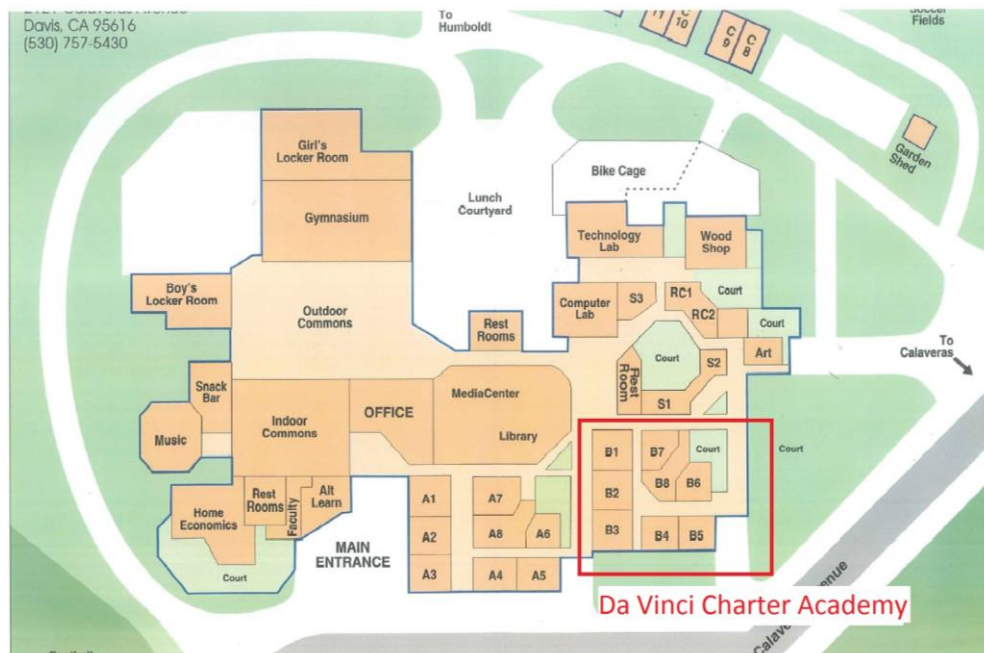
## GENERAL FACILITY DESCRIPTIONS

### EMERSON JUNIOR HIGH

Emerson Junior High is one of three junior high schools in Davis JUSD located in Davis, CA 95616. The school accommodates roughly 482 students in the elementary grades from 7<sup>th</sup> through 9<sup>th</sup> grade. The school is co-located with the Da Vinci Charter Academy and together the joint facilities have a conditioned area of approximately 105,260 square feet. Of this, 92,960 sq. ft. is considered to be allocated to Emerson Junior High. The audit addressed all areas of the facility. The facility was originally built in 1977. The school consists of a number of single-story buildings connected by unconditioned hallways. These buildings contain classrooms and office spaces, a library, gymnasium and an indoor commons which serves as a lunch or assembly room. Additionally, there are seven portable classroom buildings.

- Building A: Classrooms A1-A8
- Building C: Tech lab, computer lab, resource centers 1&2, wood shop, art room, science 1-3
- Building D: Gymnasium, boys and girls locker rooms
- Building E: Administration offices, media center and library
- Building F: Indoor commons 1&2, music room
- Other: Portables C8-C14

According to the bell schedule, regular school hours are from 8:05 a.m. to 3:15 p.m., Monday through Friday. However, employees might extend the facility operating hours earlier in the morning and later in the afternoon.



Emerson Junior High and Da Vinci Charter Academy