

CLEARresult



Da Vinci Charter Academy Audit Report

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PREPARED BY CLEARresult

PREPARED FOR Da Vinci Charter Academy

Energy Audit Report

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Executive Summary

CLEARresult performed a comprehensive energy audit of Da Vinci Charter Academy's facilities on December 28, 2015. The following sites were included in the audit:

- Da Vinci Charter Academy
- Emerson Junior High¹

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 **\$10,043** in annual energy costs.

Financial Summary	
Total Project Costs	\$159,298
Estimated Utility Rebates	\$9,146
Net Project Costs	\$150,152
Annual Energy Cost Savings	\$10,043
Simple Payback Period (years)	15.0
Net Present Value	\$160,965
Savings to Investment Ratio (SIR)	1.13

Da Vinci Charter Academy spends approximately **\$44,654** per year on energy for the sites listed above. By implementing all of the recommendations identified in this audit report, Da Vinci can reduce their energy costs by an estimated **22%**.

The reduction in annual emissions resulting from this energy savings would be approximately **35** tons of CO₂, or the equivalent of emissions from **7** cars.

¹ Recommendations for opportunities at Emerson Junior High are contained in a separate report.

Overview

Congratulations on your decision to take advantage of Proposition 39 (Prop 39) in order to make Da Vinci Charter Academy (“Da Vinci”) 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 Da Vinci 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 facilities 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 facilities, 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 Project Summary that prioritizes projects that offer the greatest improvement first. The Project 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

DA VINCI CHARTER ACADEMY

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)
Da Vinci Charter Academy School - IT/Plug - PC Power Management	2,499	-15	\$482	\$578	\$300	\$278	4	7.44	\$1,852	0.6
Da Vinci Charter Academy - Lighting - Replace Exterior Lighting Lamps/Fixtures	22,118	-	\$4,417	\$35,970	\$2,720	\$33,250	15	2.15	\$67,522	7.5
Da Vinci Charter Academy - Lighting Controls - Occupancy Sensors	1,387	-	\$277	\$1,400	-	\$1,400	8	1.68	\$2,234	5.1
Da Vinci Charter Academy School - HVAC Controls - Global Thermostat Temperature Control	2,101	-	\$420	\$3,200	-	\$3,200	11	1.57	\$4,775	7.6
Da Vinci Charter Academy - Lighting - Upgrade Interior T12/T8 Fluorescent Fixtures	12,383	-7	\$2,465	\$43,750	\$6,126	\$37,624	15	1.22	\$43,245	15.3
Da Vinci Charter Academy - Lighting Controls - Exterior Photocells/Time clocks	1,930	-	\$385	\$3,600	-	\$3,600	8	0.98	\$3,337	9.3
Da Vinci Charter Academy - HVAC - Package Unit Replacement	8,543	-97	\$1,597	\$70,800	-	\$70,800	15	0.56	\$37,999	44.3
Total	50,961	-120	\$10,043	\$159,298	\$9,146	\$150,152		1.13	\$160,965	15.0

Facility Observations

Da Vinci Charter Academy is located in Northern California, in Yolo County. The district includes one (1) Junior High School, and one (1) high school, with average daily attendance of 570 in the 2014-2015 academic year. The following facilities are included in this report:

- Da Vinci Charter Academy, 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 DESCRIPTION

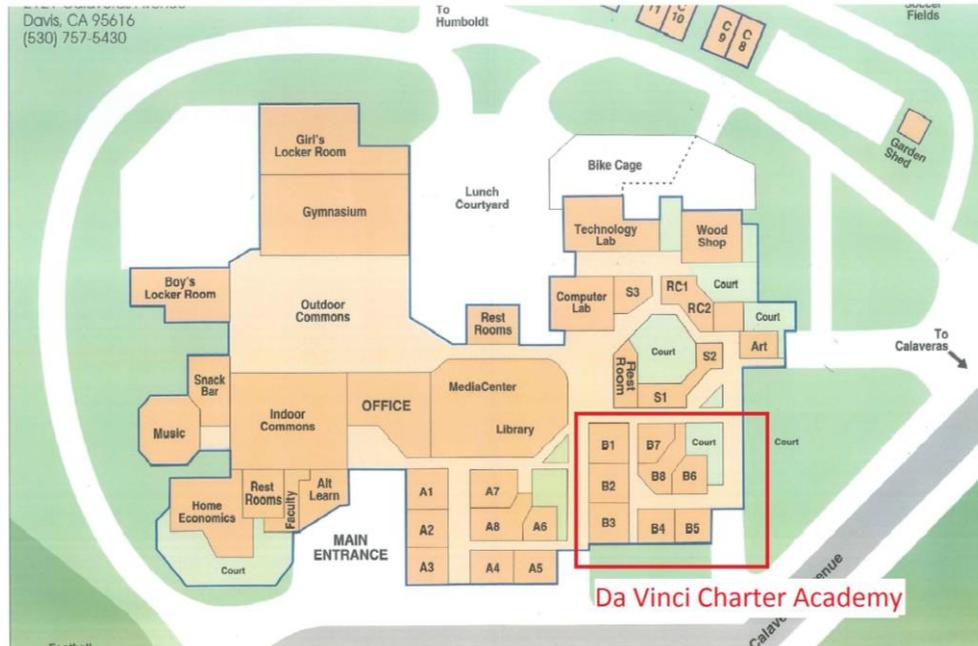
DA VINCI CHARTER ACADEMY

Da Vinci Charter Academy has its junior high school located at the same site as Emerson Junior High, located in Davis, CA 95616. The school is co-located with the Emerson Junior High School and together the joint facilities have a conditioned area of approximately 105,260 square feet. Of this, 12,300 sq. ft. is considered to be allocated to Da Vinci.

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