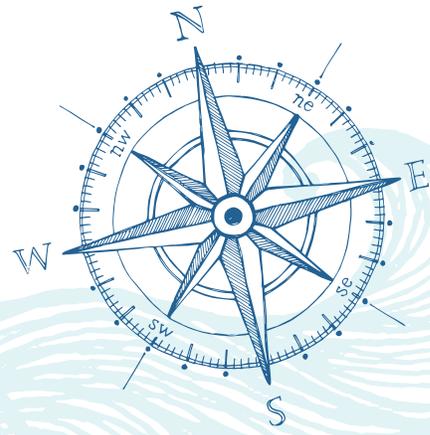


# BUILDING COLLABORATIVE COMMUNITIES

NAVIGATING CHALLENGES, CHARTING INNOVATIONS



## 2018 CSU FACILITIES MANAGEMENT CONFERENCE

### BPA WINNING CAMPUS:

California State University,  
Los Angeles

### PROJECT NAME:

Salazar Hall Lighting Retrofit  
and Monitoring Base  
Retro-Commissioning

### PROJECT COST:

\$157,200

### DELIVERY METHOD:

N/A

### SCHEDULE:

6/2015 – 6/2017

### KEY CONTRIBUTORS:

Tom Pine

Doug Frame

Dana Twedell

Manny Free

Brad Haydel

## BEST PRACTICE AWARD CATEGORY: ENERGY RETROFIT

### Project Description

This project was selected due to its whole-building approach in addressing energy efficiency. The retrofit looked holistically at the building as a system, and as a result, tackled lighting, mechanical equipment and automation improvements to generate energy savings on multiple fronts. This included upgrading light fixtures to LED, constant-volume dual duct boxes to dual-damper variable air volume boxes, and programming in the building automation systems to use DDC zone feedback to optimize air handler operations. This comprehensive approach results in projected savings of 937 MWh/year and 75,743 therms/year. With utility incentives factored in, this also results in a simple payback of less than one year, making it a highly effective project.

### Key Challenges

1. Addressing building envelope issues (e.g. leaky and open windows).
2. Adjusting building scheduling to ensure equipment wasn't operating after hours.
3. Low efficiency lighting throughout the building.

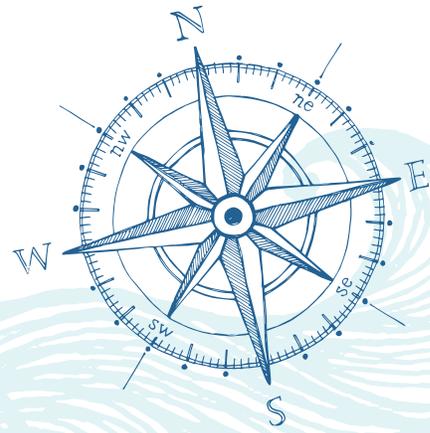
### What makes this project a Best Practice Award Winner?

1. **Innovative:** This project utilized a whole-building approach in addressing energy efficiency. The retrofit looked holistically at the building as a system, and as a result, tackled lighting, mechanical equipment, and automation improvements to generate energy savings on multiple fronts.
2. **Cost Savings:**
  - Over 937,000 kWh/year and 75,743 therms/year
  - Nearly \$168,000/year in avoided energy costs
  - Expected payback of less than 1 year
3. **Process Improvement:** Improved energy performance of building, leading to utility cost savings.



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- 4. Replicated on Other Campuses:** Yes. Most campuses utilize SkySpark analytics for automated fault detection and ongoing monitoring to maintain energy savings, as well as pursuing retro-commissioning opportunities and LED lighting upgrades.
- 5. Contribution to Success of the Campus:** Yes. This project will provide considerable savings to the campus and support user comfort in this building as a whole.
- 6. Other Important Elements:** Often campuses will focus on only one element at a time. For example, retro-commissioning only, or lighting only, etc. and in different buildings as needed. This project looked at all the upgrades together in the context of the building, allowing for greater energy savings than if these measures were looked at independently.

The project was also registered through the LADWP Energy Efficiency Technical Assistance Program (EETAP) which provided incentives of \$157,300 to support the project. Other costs included an energy assessment report and retro-commissioning by consultants, in-house costs for the VAV box retrofit, and LED lighting upgrades.

