

## School Campus | Northern California

### Energy Management Strategies and Results | Case Study



#### LOCATION

Private School, Northern California

#### PROJECT SPACE

Campus of (6) Buildings, including: (25) Classrooms, Administrative Offices, Gymnasium, Library, Exterior Lighting

#### CONTROL STRATEGIES

- Dynamic Scheduling
- Task Tuning
- Occupancy Control
- Context Defined Setbacks
- Demand Response

#### SYSTEM FEATURES

- Per circuit wireless lighting control
- Per room HVAC Control
- PC power management
- Baseline and event schedules
- Energy monitoring & reporting
- Secure, remote access
- Configurable email alerts
- No annual fees

#### The Challenge

On a school campus with 6 buildings in Northern California, the administration decided to fight rising energy costs by reducing waste and increasing energy efficiency. They were looking for an energy management solution they could easily deploy, manage, and maintain. Of course, it also had to fit a modest budget.

The multi-building layout of the School, and the inventory of existing equipment, posed numerous challenges. The offices, classrooms, library, and gymnasium were each equipped with independent, stand-alone heating and cooling systems. There were no lighting controls at all. 190 computers hummed along 24/7...quietly consuming energy long after the students had gone home for the day. All of the classrooms had exterior doors, as did the gymnasium. More often than anyone wanted to admit, HVAC was running when exterior doors were propped open.



**“Our energy savings to date are impressive, with an overall average savings of 71%. Thanks to the Autani system, we are able to monitor and control our energy use, while providing a comfortable and non-disruptive environment for our students, faculty, and staff.”**

**School Headmaster**

The School needed an energy management system that could tie 6 buildings, 35 stand-alone HVAC systems, 108 distributed lighting circuits, and more than 175 computers together. The solution had to be simple enough that administrators could run it without special training, but sophisticated enough to show what was being saved and how it was being saved. The energy management system would need to operate differently on school days, work-days, and days when the School is closed. The solution needed to be easy to install, easy to manage, and easy to own.

That’s where Autani’s EnergyCenter comes in. With secure, reliable wireless networking EnergyCenter quickly transformed the existing equipment into a centralized, managed system.

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### The Solution

#### DYNAMIC SCHEDULING

Occupancy sensors were installed throughout the facility. In EnergyCenter, rules were scheduled defining how the lighting, HVAC, and plug loads in each space were to respond to occupied and unoccupied states at different times of day (morning, afternoon, evening, overnight), and on different types of days (school day, work day, closed day).

#### OCCUPANCY RULES AND SETBACKS

HVAC units on school days, during school hours were set with long delays before setting back, even if no one was in the room. After hours, delays were dramatically shortened, with larger setbacks. Lighting circuits in the classrooms were set to switch off after being unoccupied for 20 minutes on school days and 5 minutes in the evening. PCs in the classrooms were set to run continuously during school hours, while gracefully switching off in the evenings when unoccupied and not in use for 30 minutes.

#### CONTACT SENSORS

Rules were put in place to setback the HVAC and send an email alert if doors to the gym or classrooms were propped open for more than 60 seconds. Once the door was closed, the rooms were programmed to return to their normal schedules and setpoints.

#### EVENT SCHEDULES

Holidays, vacations, and special events were programmed using EnergyCenter’s familiar calendar interface. Lighting and HVAC rules for the gymnasium were scheduled to match planned sporting events, practices, and presentations.

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### The Results

#### MEASURABLE SAVINGS

Autani’s EnergyCenter delivered measurable savings during each type of operating day, significantly reducing energy costs. On average, energy consumption was reduced 48% for lighting, 31% for HVAC, and 85% for PCs and plug loads. The School reported overall average savings of more than 70%. Because EnergyCenter tracks consumption and savings information in real time, the School was able to see their savings as it happened and look at historical data to identify additional opportunities for savings.

#### A SOLUTION THAT GROWS WITH YOU

EnergyCenter is a scalable solution, designed to grow as your facility grows. In subsequent years, exterior lighting controls for parking lots and walkways were added. Thermal destratification fans were installed to further reduce heating costs in the gym, and HVAC control for another building was added.