Despite adding 18,000 square feet, the Victor Elementary School District consumes less energy by deploying the Redwood® Intelligent Sensor Network

After retrofitting fluorescent lights with LED bulbs across all of its 18 locations, the Victor Elementary School District (VESD) decided it was time to build an exceptionally sustainable, state-of-the-art office — highlighted by the Redwood® Intelligent Sensor Network.

VESD serves 11,800 children in grades K–6 enrolled in 18 elementary schools across Victorville, California. One of the factors contributing to the district's academic success is its focus on cost-efficient operations. In keeping with this pursuit, VESD recently completed a $2 million classroom retrofit. After their schools were taken care of, district leaders decided to integrate the same energy-saving technologies at their new 30,000-square-foot central office.

"Redwood Systems® intelligent sensor network is proof that VESD embraces the idea of investing today to equip our students for a brighter tomorrow," explained Dale Etter, Facilities Director. Etter has become increasingly passionate about energy management, which was the driving force behind VESD's recent lighting renovations and their search for a solution at the district level.

Etter and Doug Lindbergh—a long-time friend, President of Pacific Western Communications and a CommScope PartnerPRO™ Network provider—were considering the viability of intelligent lighting when they received a call from Anixter wanting to discuss Redwood. Etter and Lindbergh explained, "The next morning we're all meeting to seriously explore Redwood solutions from CommScope. The opportunity and the solution couldn't have been better timed."

"VESD needed an easy-to-use platform that supported multiple systems, could be accessed via mobile control and offered long-term, cost-saving efficiencies," explained Kirk Roller, Vice President of Sales and Business Development for CommScope's Intelligent Sensor Network. Etter was close to a decision, but wanted to see Redwood in action. It took one visit to a nearby working site in Irvine, CA, to convince him.

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>
> Dale Etter, Facilities Director, VESD

Previous upgrades had replaced fluorescent tubes with LED retrofit tubes, leaving the existing line voltage cabling and standard light switches in place. Since the new project required a wall-to-wall wreck-out and remodel, VESD chose the Redwood Intelligent Lighting Network solution for several important reasons:

- Reduced installation costs via twisted-pair structured cabling
- A high-density sensor network for to better monitor space utilization, temperature and power consumption
- Smart backend software with specialized operations like fine-grain dimming, light harvesting and policy-driven timeouts
- "Lights off" data centers to provide motion-tracked illumination directly around the occupants
- An open-architecture framework that integrates with other automated building systems
- Compliance with UL, cUL and CE standards

The concept of ownership was also important to VESD. Etter explained, "If I'm spending a lot of money, I don't want a license. I don't want limited access. I want to own what I purchase. With Redwood solutions, I can do that—I can put my stamp on it."

Controlled by a director, a single Redwood engine provides centralized power, communications and control for up to 48 light fixtures. Each director is managed by an intuitive Web-based interface that offers insights on resource utilization. A network of sensors and switches monitor light, temperature and motion to control the dimming and on/off settings of low-voltage DC LED lights.

This enabled the district to:

- Increase energy efficiency and reduce costs by decreasing PUE, noncomputing electrical overhead and maintenance expenses
- Optimize space-saving designs through sensors that aggregate data on motion patterns, room occupancy and heavy traffic routes
- Make changes on the fly without any rewiring
- Tailor the solution and fully leverage all available efficiencies using the open API and BACNet to code custom applications.

Pacific Western Communications installed the solution using a dedicated team of six personnel. From May through November 2013, the team invested 1,320 hours to run 1,014 Category 5e cables a total of 140,000 feet, connecting a single director to 18 engines, 83 dimmers and 508 fixtures.

"I'm proud of what our guys accomplished," Lindbergh explained. "Redwood sent out an expert to commission the system. He said our setup was the second best he'd ever seen—and all we had to go by was the manual. That's how simple this platform is to install."

VESD is already achieving an energy savings of more than 75 percent over the fluorescent system at their prior location. Etter explained, "Even though our new location is 18,000 square feet larger, houses our entire districtwide network and is home to many additional employees, we're still using less energy than we did at our old location."

Lindbergh couldn't agree more. "Redwood is still miles ahead of everyone else in this space. You don't need to run conduit. There are no high-gauge wires. No subpanels dotting the structure. Then there's the added value of low-voltage LEDs. Couple all of this with flexible, intelligent software, and you have a cutting-edge energy management solution."

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