case study | Lisa J. Mails Elementary School

Murrieta, CA

The Lutron Balance LC™ lighting control solution takes center stage at a forward-thinking California elementary school to meet the tandem goals of energy efficiency and an improved learning environment. The school district is also specifying Balance LC for two other schools to be constructed.

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– Bill Olien, Assistant Superintendent of Facilities
Murrieta Valley Unified School District

Even by California's standards, the population growth for the city of Murrieta, in Riverside County, situated between Los Angeles and San Diego, has been phenomenal.

In 1980, Murrieta had 2,200 residents. By 1991, the figure had climbed to 24,000, and in 2007, the city's population was estimated to be more than 97,250, making it one of the fastest-growing cities in the state.

The Murrieta Valley Unified School District is on a fast-track building plan to keep up, and includes among its strategic goals the kind of forward-thinking values expected in California: "Design and/or expand technology systems and facilities to effectively meet student and staff needs in a 21st century environment."

Against this backdrop, the school district recently installed cutting-edge Lutron Balance LC™ lighting control solution in its new Lisa J. Mails Elementary School campus, which opened in August 2007—and it has specified Balance LC for an adjacent middle school, set to be complete at the end of 2008, and for another elementary school, still in the design stages.

What's at the heart of these decisions? "It's simple," said Assistant Superintendent of Facilities Bill Olien. "In selecting Lutron's advanced lighting system, we wanted our facilities to be energy efficient and we wanted to improve the learning environment for the students."

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Olien's comment underscores two significant benefits of the Balance LC lighting technology. First, Balance LC typically can reduce the lighting energy usage of a building or campus up to 60 percent or more. And, second, a growing portfolio of global research is making a cause-and-effect connection between the effectiveness of the learning environment and the quality of the indoor setting, particularly the quality of the lighting (especially when daylight is incorporated into the mix).

Balance LC benefits even caught the attention of California's State Superintendent of Public Instruction, Jack O'Connell, who issued a statement recognizing the school's "energy-efficient innovations." The Superintendent's statement also said, "Research has shown natural daylight to have a powerful effect on student achievement. As we build new schools and improve existing facilities, we must remain mindful that smart choices in construction and design can help students reach their full potential."

The $30-million Lisa J. Mails ES campus encompasses 70,030 square feet of space in eight buildings on 16.66 acres, with a current enrollment of 776 students K-6. Lisa J. Mails ES is now the district's 11th elementary school.

"The school district made it clear they wanted this school to allow as much natural light in as possible to benefit the students and to save energy," said Natalie Riley, the Project Manager for WLC Architects, Inc. of Rancho Cucamonga, CA. WLC Architects specializes in K-12 education projects and often works with Lighting Designer/Electrical Engineer Irwan Yowanto, PE, LC, of CWA & Associates, Inc., also of Rancho Cucamonga.

Yowanto said when he learned what the school district had set as its design objectives for the Lisa Mails school, he quickly decided to recommend Lutron Balance LC to achieve those goals.

"Each classroom has five circular skylights, which transition to a 2 x 2 lens at the ceiling, to let in natural light whenever possible," said Yowanto. "But to fully take advantage of this situation, you need the Balance LC lighting control system, which can sense how much natural daylight is pouring into each space and then adjusts the electric light levels accordingly—all the while maintaining an overall consistent light level. It was an easy decision, especially for an energy efficient school with educational options."

Yowanto is referring to the fact that Lisa J. Mails Elementary is a School of Choice, with an emphasis on the Visual and Performing Arts. Visual art, music, drama, and dance are a part of the students' everyday activities, with the dual intention of enriching students' lives through the arts and of providing different gateways for learning. The school is wireless throughout, and projectors are installed in each classroom. A lighting system that could meet the varied demands that each of these learning avenues presents was crucial—and the excitement that this intersection of innovative technology and education brings to the school is palpably felt throughout the building.

Sue Ackley, a fourth-grade teacher at Mails Elementary, with 18 years of classroom experience, said, "I hope I never have to teach in another room without the lighting system used at Mails. The lighting system makes each day brighter in more ways than one. It not only fills the rooms with natural light that is much better on the children's eyes while working, but it makes

the room seem more cheerful because it brings the sunshine in. It just feels better."

"Teachers are very excited about having the natural lighting in their classrooms and seeing how the more natural environment will be conducive to learning," said Principal Faythe Mutchnick, whose background includes a stint as Assistant Principal at a K-8 Visual and Performing Arts school in the Chicago area.

The principal said the advanced lighting technology fits with her personal goals for the school. "My priorities are to create a vision for Lisa J. Mails Elementary that will uphold the model of academic excellence that has been established in the district and develop a legacy that will honor the memory of Lisa J. Mails," Mutchnick said.

The school is named after Lisa J. Mails, described as a much admired and beloved teacher who worked at another elementary school in the district for ten years before her passing in 2005.

The Lutron Balance LC lighting controls can offer school districts a panoply of energy-saving strategies that also contribute to an improved learning environment—chief among these are daylight sensing, occupant sensing, precise tuning, and personal control. At the heart of the Balance LC technology is the revolutionary Balance LC dimming ballast, which is digitally addressable, thereby enhancing its energy-saving capabilities, a crucial consideration for a state with some of the most stringent energy codes on the books.

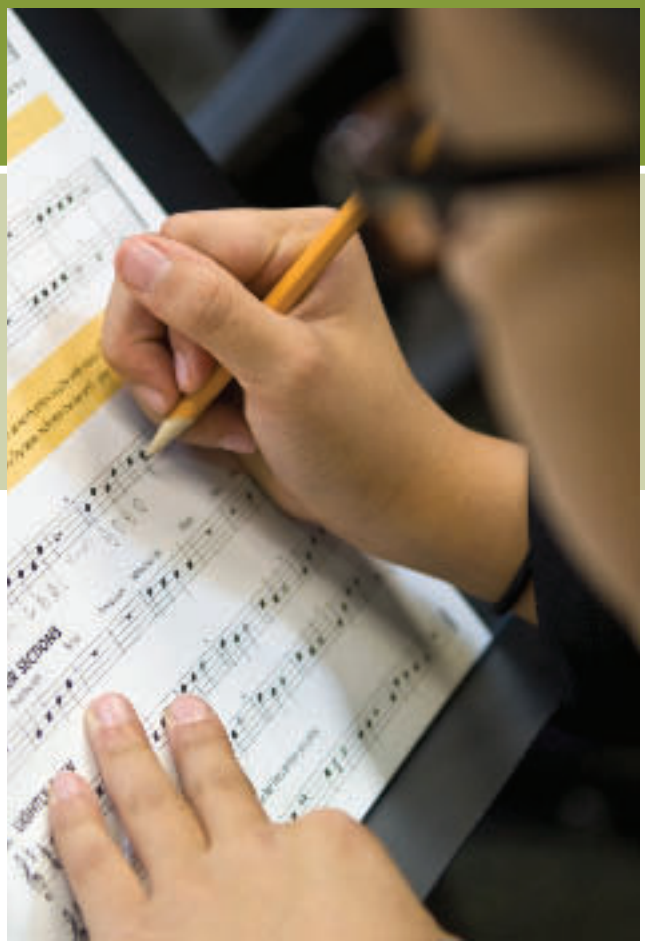
But the fact that Balance LC works imperceptibly to the human eye is an additional reason for schools to install it. "Another important factor as to why Balance LC improves the learning environment is that it's not disruptive to the students and teachers as it adjusts the electric light levels all day as compared to traditional dual-level switching that you find in many school facilities," said Olien, the Assistant Superintendent.

The electrical contracting firm that installed Balance LC for this project, Gould Electric Inc. of Poway, CA in San Diego County, specializes in California school projects. Gould's Project Manager, Sandy Lefever, says his firm will be recommending Balance LC to its customers.

"We see Balance LC as the wave of the future," Lefever said, "because of the easy energy management it provides, and it is way easier to install than the typical dimming system because it requires far less wiring. Lutron also was thorough in the training they provided our guys by holding a training session here at our offices and then again at the project site."

The Lutron Balance LC lighting control solution is also turning up at quite a number of other schools across the country. It was recently installed at the prestigious Sidwell Friends School in Washington, DC and played a critical role in allowing Sidwell to attain the LEED® Platinum certification, the highest possible rating. LEED is an acronym for Leadership in Energy and Environmental Design, a rating system established in 1993 by the United States Green Building Council (USGBC), which sets industry standards for high-performance green buildings.

The Lutron Balance LC lighting control package also was recently installed in two classrooms of the Grover Cleveland Elementary School, built in 1883 in Allentown, PA. The principal, Robert Wheeler, decided



to give the technology a try since it promised to improve the learning environment and deliver substantial energy savings.

"It really has made a difference in student achievement and behavior," Wheeler said. His school has a high population of English-as-a-Second-Language (ESL) students for whom visual learning cues are especially important. "We're getting more participation from the students, more on-task behavior, and our curriculum benchmarks for these kids are improved."

In the meantime, data from monitoring equipment installed to measure one of the classroom's lighting electricity usage before and after the installation of the Lutron technology indicates the room is now using 53.23 percent less lighting electricity.

Yowanto, the lighting designer and electrical engineer for the Lisa J. Mails ES project, said he plans to make power consumption comparisons of the largest of the school's eight buildings with a virtually identical building in a different school district about 40 miles away. Both buildings were designed by WLC Architects, with one serving as the prototype for the other. They are the same size and share the same usage profile and climate. The only difference is the daylight harvesting, which Balance LC provides for Lisa J. Mails Elementary.

Yowanto said he will make other apple-to-apple comparisons between other similarly-designed buildings—and in each case he fully expects to see the kind of difference in power consumption that "probably would get the attention of more school boards."

Balance LC provided Lisa J. Mails ES a cost savings in another important manner: because its digitally-addressable ballasts remove the necessity of laying separate power and control lines, Yowanto said the school district realized a 30 percent savings for the overall installation costs for the lighting.

Even before Yowanto is able to make his energy-efficiency comparisons, he said the school district has already told him it is "very happy with Balance LC." In the land of explosive growth and trend-setting standards, only the most advanced of lighting systems would do.

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The Balance LC system uses a combination of daylight sensing and precise dimming to provide even illumination across every work surface, improving the learning environment while saving energy.

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