



case study | Lewiston Public Schools, Lewiston, ME

Ecosystem® lighting control solution and Quantum® total light management





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—Paul Caron, Director of Facilities and Projects,
Lewiston Public Schools





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—*Efficiency Maine, Report dated April 11, 2008*

An independent statewide report¹ says Lutron® lighting controls are delivering “considerable energy efficiency” as the school district in Lewiston, Maine aims to cut high energy costs and improve the learning environment with Quantum® total light management and the EcoSystem® lighting control solution.

A close look at the official city seal for Lewiston, Maine, incorporated as a town in 1795, reveals the Latin word *Industria*, a recognition of Lewiston’s industrial heritage.

Following an economic renaissance in the 1980s, Lewiston’s economy and cultural life became more diverse, helping to earn a 2007 All-America City Award designation by the National Civic League. One of the criteria for the award is that a city must document ways in which the lives of children and youth have been tangibly improved. Lewiston schools are significant contributors to meeting this standard.

The town’s school district sets high academic standards for its students, recognizing that excellent schools are crucial to the community’s vitality, growth and cultural development.

Lewiston Public Schools, which serve more than 4,900 students in nine community schools, grades K-12, began with a vision, articulated in a plan for 2008-2011: “Lewiston Public Schools comprise a school system of excellence, where all learners succeed at high levels and where learning is standards-based, collaborative, rigorous, interactive, and responsive to the needs of diverse learners and our community.”²

¹ “Montello Elementary School Classroom Lighting Control System Measurement and Verification of Energy Savings,” *Data Collection, Analysis, and Reporting* by Richard G. Doughty, PE, published by Efficiency Maine www.energymaine.com, April 11, 2008.

² *Technology Plan, Lewiston School Department 2008 - 2011*, see www.lewiston.k12.me.us.

The Challenge

When the district recently experienced a building boom and a need to expand its schools, it wanted to incorporate the latest technologies into its buildings, noting, “technology is a tool that, when integrated, enhances learning, communication, and work.”

A major part of this technology initiative included incorporating the most advanced lighting control solutions available to save energy, cut costs and improve the learning environment at four elementary schools:

- **Montello Elementary School**
Renovation for a total of 120,208 square feet
- **Thomas J. McMahon Elementary School**
Renovation of 56,704 square feet
- **Farwell Elementary School**
A new, high-performance school comprising 75,000 square feet (opened in August 2007)
- **Raymond A. Geiger Elementary School**
Another new, high-performance building comprising 93,940 square feet

The Solution

The schools employ a combination of two signature lighting control solutions from Lutron: the revolutionary EcoSystem® lighting control solution and Quantum® total light management for whole buildings and campuses.

“We reviewed a number of different daylight harvesting technologies over a span of three years,” says Paul Caron, Director of Facilities and Projects for Lewiston Public Schools. “We chose Lutron.”

Caron notes that the standards for the Farwell and Geiger buildings were ambitious. Given that two of the schools were new construction, the district had the freedom to be creative in the design and the desire for “the best technology available.”

Caron says he likes the fact that Quantum’s automation is centralized, which makes life easier for him and his staff. He also says the Green Glance monitoring software brings energy-efficiency “awareness and ownership” to the students.

Some of the students gained even more awareness and ownership than others. A number of high school students, who are enrolled in the school district’s two-year Electricity Program at the Lewiston Regional Technical Center (LRTC), helped with the installation of the lighting control products providing a “real-world” opportunity.



The Results

Since the Montello Elementary School project began before the others, the district contacted Efficiency Maine to provide measurement and verification of energy savings at the building. Efficiency Maine, an independent organization promoting a statewide effort to achieve more efficient use of electricity, helps Maine residents and businesses reduce energy costs and improve the environment. The organization is funded by electricity consumers and administered by the Maine Public Utilities Commission.

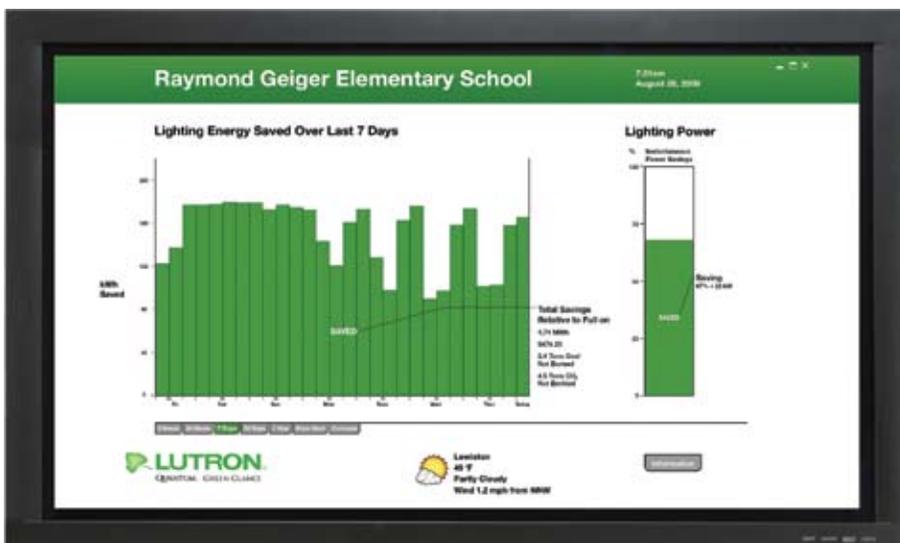
After a 20-day monitoring period, Lutron scored what can only be described as an A+ according to the report, “The installed classroom lighting control system will produce annual savings of 64,123 kWh, or 61.6% of the projected baseline energy consumption, easily exceeding the 50% savings originally projected by the vendor. At the reported current average cost for electric energy, this savings has a value of \$8,913 per year.”

The report goes on to state, “In the opinion of this evaluator, the higher than anticipated level of savings achieved by this project are directly attributable to the extraordinary level of commissioning and tuning provided for this project. The installation is an exceptional example of the level of savings that can be achieved with properly installed lighting controls.”¹

In conclusion, the Lutron system produced “considerable energy savings” and the project could be deemed “cost effective.”

Taylor Belanger, a teacher at Montello Elementary, was delegated the responsibility of testing the lighting controls for the school district, and notes the integration of daylighting with dimmable electric lighting has improved both the learning and teaching environment, “I like a work environment that is natural,” she says. “With EcoSystem, I like the color of the lights. They’re not as harsh as before. It’s a natural, clear light that is more conducive to learning and better student behavior.”

Belanger adds that she likes the fact that the EcoSystem controls allow for only a section of the classroom to be fully lighted (such as directly over her desk) while the rest of the room can be dimmed when appropriate. She also says having the lighting controls means that students never have to be troubled by glare on computer screens, “The students know how to use the lighting controls and, even at this young age, they have the capacity to understand we are saving energy.”



Quantum snapshot reflecting savings over seven days of energy tracking (2 full school days) at Raymond A. Geiger Elementary School.

Project Credits:

Client:

Lewiston Public Schools
Superintendent, Leon Levesque

Montello Elementary School
Principal, Deborah Goding

Project managed by Paul A. J. Caron
& Raymond Gilliam, CED

Phase I – Installation by Electrical
Systems of Maine

Phase II – Installation by Gerald
Castonguay and LRTC students

McMahon Elementary School
Principal, Althea Walker

Project managed by Paul A. J. Caron
& Raymond Gilliam, CED

Phase I – Installation by Electrical
Systems of Maine

Phase II – Installation by Gerald
Castonguay and LRTC students

Farwell Elementary School
Principal, Linda St. Andre

Designed by Semple & Drane

Architects and Allied Engineering

Project managed by Paul A. J. Caron

Installed by Leech Electric

Raymond A. Geiger Elementary School
Principal, David Bartlett

Designed by Harriman Associates &

Paul A. J. Caron

Installed by Mancini Electric

Equipment Provider:

Lutron Electronics Co., Inc.

www.lutron.com

*Simulation commission by Lutron and
conducted by T. C. Chan Center for Building
Simulation and Energy Studies, University
of Pennsylvania, September 2008.*

www.lutron.com/quantum

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