“The Lutron systems are ideal for reducing energy while maintaining a high quality of light and helping to meet a budget.”

David Hecht, principal of TannerHecht Architecture
One of the major energy-saving systems installed during the renovation was a Lutron Quantum® total light management system. Quantum monitors, controls, manages, and reports on all the lights and shades in a commercial building.

“The building was a good fit for The Energy Foundation because they’re all about promoting conservation, and that’s what the Lutron systems offer,” says David Hecht, principal of TannerHecht Architecture, who was in charge of designing The Energy Foundation’s new workspace, “and from an architect’s perspective, the Lutron systems are ideal for reducing energy while maintaining a high quality of light and helping to meet a budget.”

Meeting Design Goals with EcoSystem®

The Energy Foundation set several design goals for the renovation of its fifth-floor, 17,600-square-foot space. First, the office had to epitomize energy-efficient design, and pursue the highest possible LEED® rating for commercial interiors. Second, the design had to complement the existing structure, which included 15-foot windows and 18-foot ceilings. Finally, the space had to foster open communication among Foundation staff.
Overall, we were looking to balance aesthetics, comfort, affordability, energy savings and productivity,” says Hecht, “and key to doing all that was harvesting the daylight through the use of EcoSystem.”

EcoSystem is a fluorescent lighting control system that combines digitally addressable dimming ballasts with environmental sensors and wall controls. The system is designed to save energy and create a more productive and comfortable work environment.

“Every light tied into EcoSystem® is addressable by the system, which gives a building engineer the opportunity to individually adjust every single light,” says Hecht, who mapped out each light source on a spreadsheet and a floor plan, to create a “light control intent” for the entire Energy Foundation space. His goal was a 45% reduction in overall lighting energy use.

To maximize energy savings, EcoSystem can also integrate with the Quantum total light management system. In this application, the Ecosystem lighting control system used by a tenant (The Energy Foundation) integrates seamlessly with the Quantum light management system operated by the lessor (The Bently Reserve Building).

“How it Works
EcoSystem executes a number of lighting control strategies to cut energy use throughout the space.

The system harvests daylight by using daylight sensors to automatically and gradually adjust the level of electric lights in response to changes in available daylight. Hecht used this strategy to ensure appropriate levels of light without human intervention, and to minimize energy costs related to lighting.

Using a lighting control strategy called high-end trim, Hecht also set limits on the total power usage of each fixture based on the optimal light level for each space. For example, walkway lighting was set at a maximum of 50%. Private office lighting ranged from 10% (for offices with windows) to 90% (for interior offices far from windows).

Occupancy/vacancy sensors are used in conference rooms to ensure lights are off when the room is unoccupied. At the end of the day, the system sweeps the space and turns off all remaining lights. Wall controls allow occupants to turn the lights on manually if they return to the office or have to work late.
The Results
A calculation by CB Engineers shows the Foundation uses 65% less lighting energy than an equally-sized traditionally lit space—surpassing Hecht’s original 45% lighting savings goal. However, to the staff, energy savings are just part of the story. The aesthetics, quality of light, and intuitive wall controls make the office a more attractive and comfortable place to work.

“One of the nicest things about the workspace is the light here,” says John Wilson, the Foundation’s buildings program director. “We get a tremendous amount of daylight, and that could be a problem if the accompanying overhead and task lighting wasn’t handled properly—but a great deal of thought has gone into the light design. And because people can easily control their own lighting, they are very satisfied with their individual spaces.”

Thanks in part to EcoSystem, The Energy Foundation earned a LEED Platinum certification for Commercial Interiors.

Products

**Bently Reserve building (Lessor): Quantum® total light management system**

**Energy Foundation (Tenant): Components of a Quantum system**

**EcoSystem® fluorescent dimming solutions** is a modular lighting control system that includes digitally addressable ballasts, occupancy/vacancy sensors, daylight sensors, and wall controls.

**GRAFIK Eye® QS Wireless with EcoSystem** includes wired and wireless connections to control lights, shades, and energy usage automatically or with the touch of a button.

**Sivoia® QS shades** reduce glare and solar heat gain for increased comfort, productivity, and energy savings, while preserving exterior views.

Shading Solutions
Daylight is essential to the lighting design at The Energy Foundation—the design team controlled the daylight pouring through 15-foot windows to create a more attractive space and to reduce demand on electric lighting.

The team had to control glare on monitors and projection screens, and meet building code requirements for task and ambient light.

In the conference room area, Lutron Sivoia QS shades provide control of daylight and integrate with electric lights to create an ideal environment for any activity.

“We couldn’t have harvested the daylight properly, and made the space a productive energy-saving one without the Lutron system,” says Hecht.
Project Credits:

**Architect:**
TannerHecht Architecture, San Francisco, CA

**Interior Design:**
Gail Gordon Design, San Francisco, CA

**Equipment Provider:**
Lutron Electronics Co., Inc, Coopersburg, PA

**Green Building Consultant:**
Simon & Associates, San Francisco, CA

**Mechanical Engineer:**
CB Engineers, Bellevue, WA

**Lighting Designer:**
Revolver Design, Berkeley, CA

**Controls Specialists:**
Associated Lighting Representatives, Oakland, CA

**Electrical Contractor:**
McMillan Electric, San Francisco, CA

For more information about the Bently Reserve building, see P/N 367-1492.

www.lutron.com/quantum
www.lutron.com/ecosystem

Lutron is a national member of the United States Green Building Council.