



case study | The Energy Foundation, San Francisco, CA



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David Hecht, principal of TannerHecht Architecture

The Energy Foundation, San Francisco, CA

Green Facts

Square Feet	17,600 sq. ft.
Lighting Fixtures	323
Lighting Energy Savings	65%
LEED® Certification	Platinum

The Challenge

Transform office space in a landmark building into an international showcase for energy-efficient lighting.

The Solution

Lutron EcoSystem® lighting control maximizes the use of daylight, saves energy and enhances productivity in the workplace.



With Lutron's help, the Energy Foundation was able to combine its mission with its work environment to achieve LEED® Platinum for Commercial Interiors. The light-filled office demonstrates energy efficiency and aesthetics working hand-in-hand.

The Energy Foundation is a partnership of major donors committed to advancing new technologies for energy efficiency and renewable energy. Since 1991, the group has supported efforts to promote sustainable building through appliance standards, building codes and energy efficiency programs. So when the San Francisco-based Foundation began planning a move in 2007, its members saw a unique opportunity.

"We saw our move into new offices as a chance to unite our mission with our facilities," says Jacqui Wilson, assistant to the president of The Energy Foundation. "We wanted to make the space a showcase for intelligent energy design—a place whose layout and design supported open communication, where people would look forward to working."

The New Home

The building they chose already had a good start: the Bently Reserve, a downtown San Francisco landmark since 1924, where a recent major renovation allowed it to achieve LEED® Core and Shell Silver certification from the USGBC.

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.



In the Energy Foundation's headquarters, EcoSystem connects seamlessly to the Quantum total light management system already installed in the Bently Reserve building.



The Bently Reserve building

“We wanted the lighting to be of high quality, and we wanted our employees to be satisfied—and that’s exactly what we’ve gotten”

John Wilson, Buildings Program Director for the Energy Foundation

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.

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.

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.

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

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