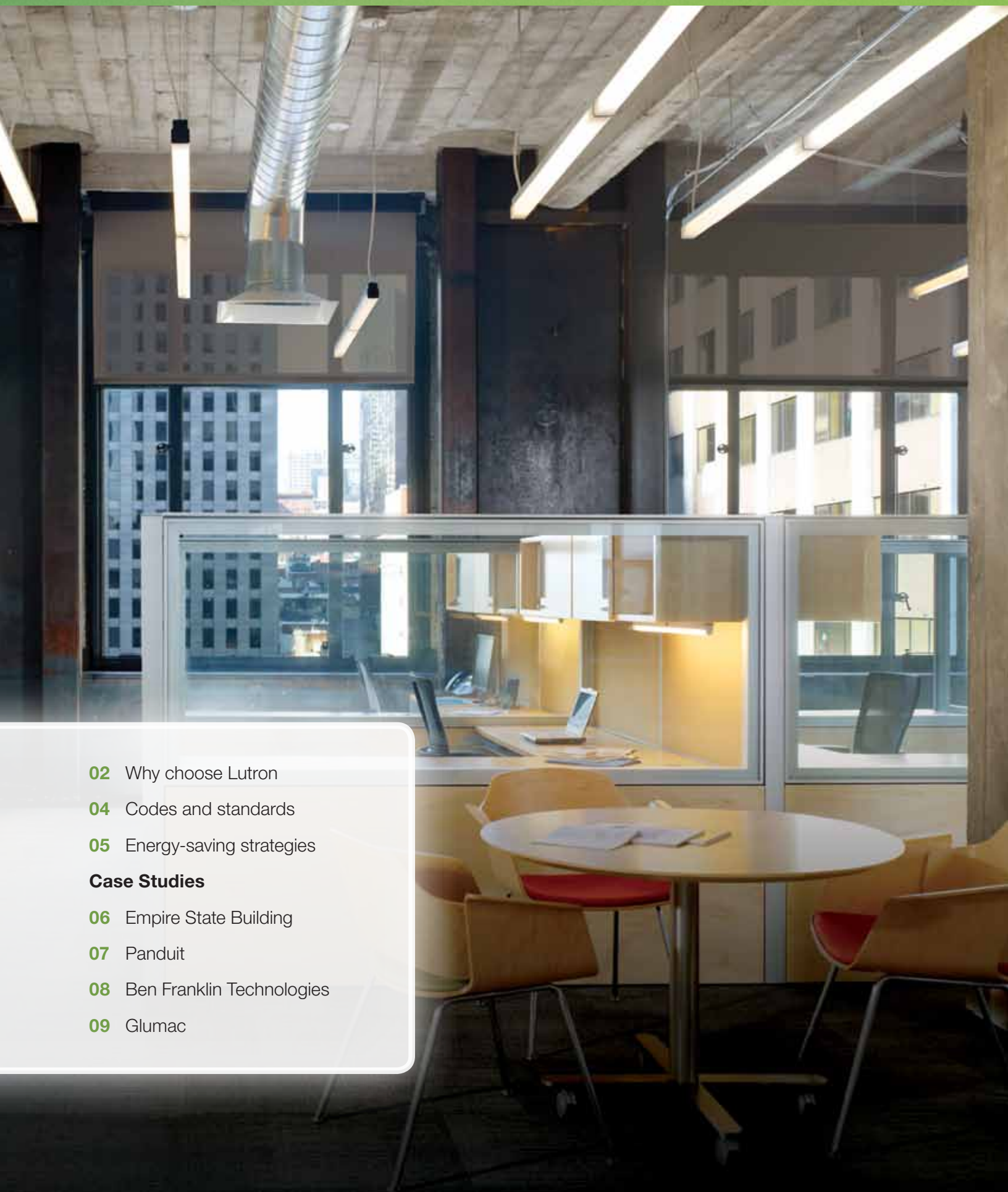
Commercial real estate solutions

LUTRON®

save energy with Lutron™ ®

Commercial real estate solutions



In today's competitive market, it is more important than ever for property owners to attract and retain long-term tenants. Lighting and shade control can play a significant role in making your space more efficient, cost-effective, and sustainable.

Let us show you how to

reduce the lighting electricity costs in your building by 60% or more.*

Lutron lighting control solutions are affordable, flexible, reliable, and backed by more than 50 years of product innovation. They can provide significant energy-savings and improve building performance, while helping to create the right atmosphere for every tenant space.

* Compared with manual (non-automated) controls, up to 60% lighting energy savings is possible on projects that utilize all of the Lutron lighting control strategies (occupancy sensing, high-end trim, daylight harvesting, and personal control). Actual energy savings may vary, depending on prior occupant usage, among other factors.

Reducing costs and enhancing the energy-saving aspects of your property can result in greater revenue, increased tenant retention, and higher profit.

Owners

Enhance both the current and future value of your building by offering value-added systems that help attract and retain long-term tenants.

Developers

Easy-to-install, cost-effective, sustainable lighting control solutions increase asset value for owners and tenants.

Property Managers

Reduce operating costs and improve your ability to maintain and update building systems. Provide tenants with financially attractive solutions that will decrease energy costs and can be easily reconfigured when tenant requirements change.

Lighting control systems work to enhance your triple bottom line – people, planet and profit[1]

People

- Improve employee comfort and health
- Provide a safe and secure work environment
- Empower employees to control their visual environment
- Reduce employee absenteeism

Planet

- Reduce your carbon footprint[2]
- Lower greenhouse gas emissions
- Protect the night skies by reducing light pollution
- Free up local energy to prevent black outs in the region
- Maximize the effective use of daylight
- Reduce landfill waste

Profits

- Cut wasted lighting energy costs by 60% or more
- Reduce labor, maintenance, and operation costs
- Lower electrical power rates and eliminate penalty charges
- Enhance employee productivity[3]

Codes and standards

Lutron lighting control solutions can help you meet current building codes and standards. Because many Lutron systems are scalable and expandable, they can also ensure that your building will meet and exceed future code requirements.

- ASHRAE Energy Code 90.1-2010
- ASHRAE Green Standard 189.1-2011
- IECC 2012 (International Energy Conservation Code)
- IgCC Public Version 2 (International Green Construction Code)
- CEC Title 24 2008 (California Energy Commission)

LEED NC 2009

The LEED Green Building Rating Systems address seven topics, and Lutron solutions can contribute to 40 or more of the 110 possible points in LEED® NC, CS, or S in six of the seven categories:

- Sustainable Sites
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality
- Innovation in Design
- Regional Priority

IT Integration

The ability to accommodate flexible IT Integration is another important aspect of new construction and major renovation in buildings. Lutron solutions can address a variety of network/integration technology configurations to suit the IT landscape in the building.

Option 1

Use a dedicated lighting control network

Lutron Quantum® lighting management hubs are connected to the Quantum server via a dedicated lighting control network. This provides the highest security.

Option 2

Integrate with the corporate network

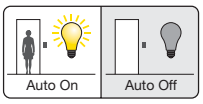
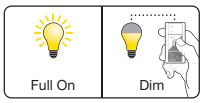
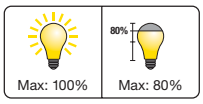
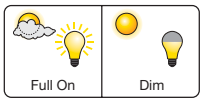
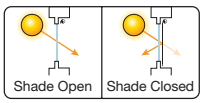
The Quantum lighting management hubs are connected to the Quantum server via the Corporate Building Network.

Energy-saving strategies

Implement a combination of basic and advanced lighting control strategies to meet established energy saving goals, and provide individual tenants with the level of control appropriate for their needs.

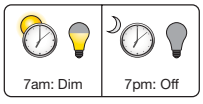
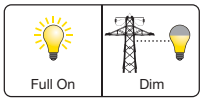
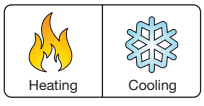
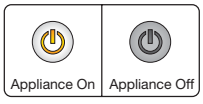
BASIC

These strategies offer the easiest, most economical options for reducing energy use and adding value to your space.

Strategy		Potential savings
	**Occupancy/vacancy sensing** turns lights on when occupants are in a space and off when they vacate the space.	20–60% Lighting[4]
	**Personal dimming control** gives occupants the ability to set the light level.	10–20% Lighting[5]
	**High-end trim** sets the maximum light level based on customer requirements in each space.	10–20% Lighting[6]
	**Daylight harvesting** dims electric lights when daylight is available to light the space.	25–60% Lighting[7]
	**Controllable window shading** adjusts shades to reduce glare and solar heat gain.	10–20% Cooling[8]

ADVANCED

Advanced strategies enable integration between lighting control and other building systems to enhance the building environment and maximize energy savings.

Strategy		Potential savings
	**Scheduling** provides pre-programmed changes in light levels based on time of day.	10–20% Lighting[9]
	**Demand response** automatically reduces lighting loads during peak electricity usage times.	30–50% Peak Lighting[10]
	**HVAC integration** controls heating, ventilation, and air conditioning systems through contact closure, or BACnet protocol.	5–15% HVAC[11]
	**Plug load control** automatically turns off loads after occupants leave a space.	15–40% Non-Electronic[12]

Empire State Building

Lutron helps the Empire State Building set a new standard for sustainable, commercial renovation

Lutron daylight sensors in perimeter private offices, conference rooms, corridors, and open-plan office spaces communicate wirelessly to EcoSystem® digital dimming ballasts to reduce or increase electric light levels based on available daylight, providing savings of up to 60%.

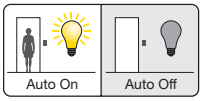
Utilizing electric light to complement daylight, rather than as the prime light source in the space, ensures that these areas are not over lit or using excess energy. Lighting is always appropriate, facilitating comfortable working conditions.

Combined, these relatively simple, easily replicable strategies help reduce lighting electricity use by up to 65%.

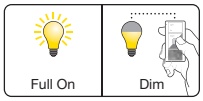
The Empire State Building design is a registered trademark and used with permission by ESBC.

Photograph © Whitney Cox 2012

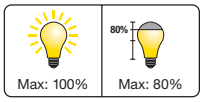
Strategies used



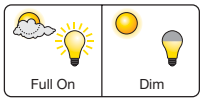
Occupancy/vacancy sensing



Personal dimming control



High-end trim



Daylight harvesting

Panduit

Lutron helps Panduit achieve optimal efficiency ... now and for the next 30 years

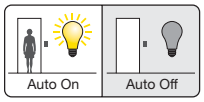
Panduit's World Headquarters is built to be a model of sustainability, and a template for environmental and societal leadership, not just for today, but for future generations.

Lutron solutions work within Panduit's Unified Physical Infrastructure (UPI) approach to save lighting energy, reduce operating costs, increase building flexibility, and contribute to LEED Gold certification.

Light control and shade strategies deliver lighting energy savings of 25%. An additional 5% savings in HVAC energy can be attributed directly to the daylighting control strategies.

In addition, maximum light levels were reduced by 15% to automatically enhance savings during building occupancy, without affecting overall light quality.

Strategies used



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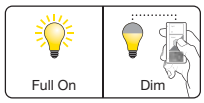
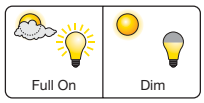
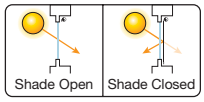


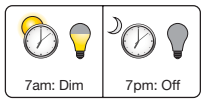
Personal dimming control



Daylight harvesting



Automated shade control



Scheduling

Ben Franklin Technologies Partners of Northeastern PA

Lutron light and shade controls save energy, enhance the workplace, and support sustainable building design.

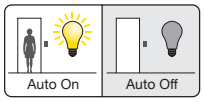
Lutron EcoSystem® digitally addressable dimming ballasts communicate with daylight sensors to automatically adjust electric lights in response to available daylight.

To further minimize glare and thermal heat gain, Lutron Sivoia® QS automated shades with Hyperion™ solar-adaptive software are installed on every window. This shading strategy can reduce HVAC demand by 10 - 30%.

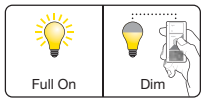
Occupancy/vacancy sensors and personal controls are installed throughout the space to ensure that lights are not left on when an area is vacant, but tenants still have control over the lights in their space.

Finally, a Lutron Quantum® Total Light Management™ system provides centralized control of all lights and shades, and utilizes GreenGlance® software to evaluate, monitor, and communicate energy use.

Strategies used



Occupancy/vacancy sensing



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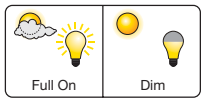
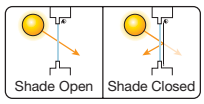


Daylight harvesting



Automated shade control

Glumac

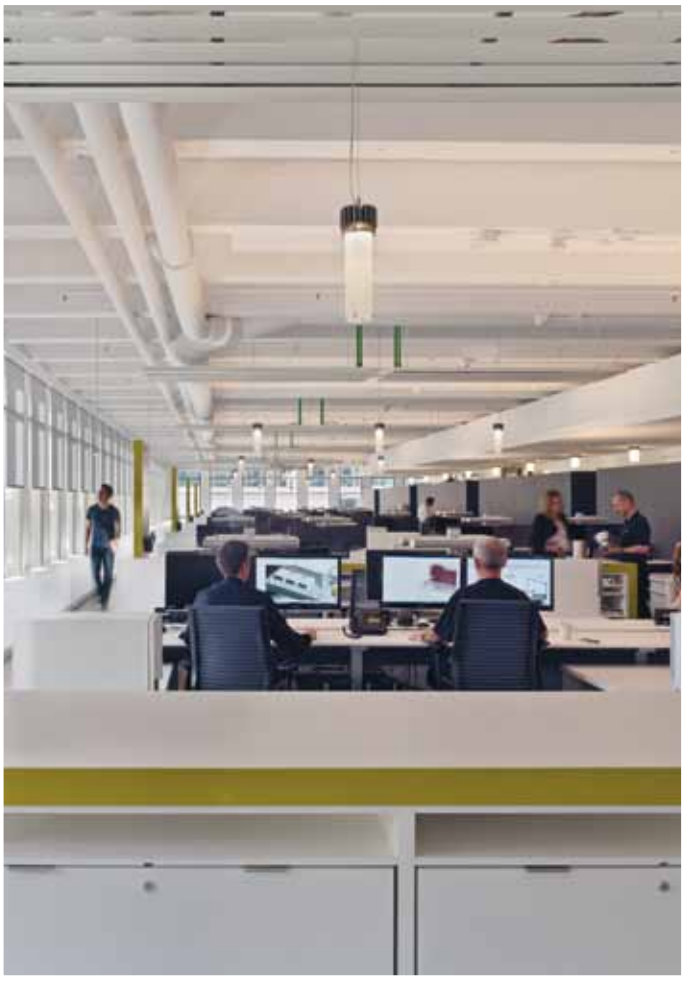
Lutron helps Glumac engineer for sustainability

After installing Lutron lighting controls, Glumac reported initial average lighting energy use of 0.32 Watts per square foot — well below the designed connected load of 0.68 Watts per square foot.

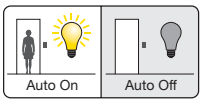
During the first 2 months of occupancy, this has been reduced to 0.24 Watts per square foot, attributable largely to the ease with which changes and modifications can be made to the control system. The system aims to reduce lighting power density by 47% compared to state of Oregon allowances.

Additional savings are expected as a result of the automated shading systems, which reduce glare and heat gain, and lower the demand on HVAC systems.

Due to the wireless nature of the Lutron system, and the fact that every fixture in the space is dimmable, Glumac is able to continually adjust lighting energy consumption to achieve their stated design goal of 0.25 Watts per square foot.



Strategies used



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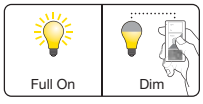

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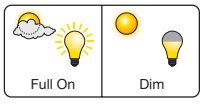
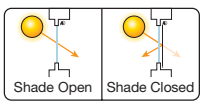


Daylight harvesting



Automated shade control

Learn about projects that have utilized Lutron solutions:

www.HonestBuildings.com/Lutron

Sources

1 John Elkington, founder of SustainAbility, coined the phrase “triple bottom line” (TBL) in 1994

2 By up to 1 metric ton for every 4,000 kWh saved according to the U.S. Department of Energy

3 Determinants of Lighting Quality II by Newsham, G. and Veitch, J., 1996.
For more information see www.lutron/casestudyPDF/productivity%20story.pdf

4 VonNieda B, Maniccia D, & Tweed A. 2000. An analysis of the energy and cost savings potential of occupancy sensors for commercial lighting systems. Proceedings of the Illuminating Engineering Society. Paper #43.

5 Galasiu AD, et al. 2007. Energy saving lighting control systems for open-plan offices: A field study. Leukos. 4(1) pg 7–29.

6 Williams A, et al. 2012. Lighting Controls in Commercial Buildings. Leukos. 8(3) pg 161–180.

7 Brambley MR, et al. 2005. Advanced sensors and controls for building applications: Market assessment and potential R&D pathways. Pacific Northwest National Laboratory: prepared for U.S. Department of Energy.

8 Lutron commissioned study by Herrick Laboratories. University of Purdue. 2011.

9 Energy savings estimated based on 50% reduction of after-hours lighting energy waste (Source 7).

10 Newsham GR & Birt B. 2010. Demand-responsive lighting: a field study. Leukos. 6(3) pg 203–225.

11 Lutron study based on reduction in heating (base 60°F) and cooling (base 55°F) degree days with a 2°F thermostat setback and 60% space un-occupancy. EnergyPlus modeling simulations were conducted and predicted similar savings.

12 Energy savings estimated based on daytime lighting energy savings from occupancy sensing and does not include loads that have automatic shut off or sleep modes (Source 7).

www.lutron.com

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LUTRON®

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