Quantum Vue™ software

Quantum® Total Light Management™

Architectural Lighting Control, Shading, and Energy-Saving Solutions

LUTRON®

save energy with Lutron™ ®

What is Total Light Management™?

Total Light Management is the control of electric light and daylight to improve occupant comfort and productivity, simplify building maintenance and operations, create beautiful and functional lighting environments, and save considerable amounts of money and energy.

What is Quantum®?

Quantum is a lighting control and energy management system that provides total light management by tying the most complete line of lighting controls, motorized window shades, digital ballasts and LED drivers, and sensors together under one software umbrella. Quantum is ideal for new construction or retrofit applications and can easily scale from a single area to a building, or to a campus with many buildings.

Quantum features

Quantum delivers total light management through:

Architectural lighting control

- 1% dimming and switching of all load types
- Scene and zone control
- Partitioning
- Sequencing
- Hand-held light level tuning
- Conditional programming
- A/V Integration
- DMX control and stage board integration

Intelligent shading

- Preset shade levels
- Integrated light/shade scenes
- Automatic solar-adaptive shading
- Cloudy day and shadow compensation
- Automatic glare/brightness compensation
- Timeclock control

Flexibility

- Wired and wireless controls
- Wired and wireless sensors
- Digitally addressable system devices
- Flexible IT implementation
- Emergency lighting control and UL924 compliance

Energy-saving features

- High-end trim
- Occupancy/vacancy sensing
- Daylight harvesting
- Personal dimming control
- Controllable window shades
- Scheduling
- Plug load control
- HVAC integration
- Smart metering
- SmartGrid-, AutoDR-, and OpenADR-ready
- Fully customizable loadshed

Management software

- Central control and monitoring
- Graphical floorplan view
- Web-based management tool
- Designed for mobile and desktop
- Dynamic building dashboard
- Remote access
- Reporting and trending
- Email alerts
- System health and diagnostics
- Reconfiguration and reprogramming
- User and tenant management
- iPad®-based control and scene setting
- Web-based personal control
- GreenGlance® energy dashboard
- BACnet integration

The benefits of Quantum®

Total Light Management™ can save more electricity than any other building system.

Because lighting uses more electricity than any other building system, lighting control gives building owners and facility managers the power to save more electricity than any other control technology at their disposal.[1,2]

Lighting consumes more electricity in commercial buildings than anything else—about 38%[2] a year. Lutron solutions can save up to 60%[1] or more of that lighting energy.

Annual electricity use[2]

Lighting	**38%**
HVAC	29%
Refrigeration	12%
Office Equipment	7%
Other	14%

The basics:

Dimming saves energy

For every percentage reduction in lighting levels, there is a nearly equal reduction in the energy usage of the dimmed light source.

Sensors reduce lighting electricity

Lutron occupancy/vacancy sensors use patented XCT™ sensing technology to detect fine motion. Sensors turn lights on when a space is occupied and off or dim them when it is vacant.

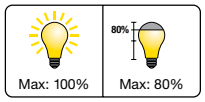
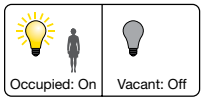
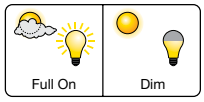
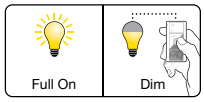
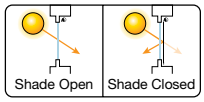
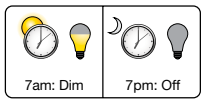
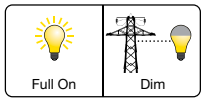
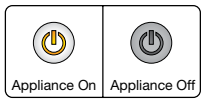
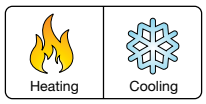
Daylight sensors continually measure ambient daylight and adjust lighting levels to reduce unnecessary electric lighting and provide even illumination throughout the space.

 Sources on back cover.

Combine light control strategies to maximize efficiency

When dimming is used in combination with Lutron sensors the system can deliver lighting energy savings up to 60%.[1] Add automated shading for a solution that enhances savings from daylight harvesting and provides additional savings from a reduction in HVAC.

Energy-saving light control strategies

		Potential savings
	**High-end trim** sets the maximum light level based on customer requirements in each space.	10–30% Lighting[3]
	**Occupancy/vacancy sensing** turns lights on when occupants are in a space and off when they vacate the space.	20–60% Lighting[4]
	**Daylight harvesting** dims electric lights when daylight is available to light the space.	25–60% Lighting[5]
	**Personal dimming control** gives occupants the ability to set the light level.	10–20% Lighting[6]
	**Controllable window shading** adjusts shades to reduce glare and solar heat gain.	10–20% Cooling[7]
	**Scheduling** provides pre-programmed changes in light levels based on time of day.	10–20% Lighting[8]
	**Demand response** automatically reduces lighting loads during peak electricity usage times.	30–50% Peak Period[9]
	**Plug load control** automatically turns off loads after occupants leave a space.	15–50% Controlled Loads[10]
	**HVAC integration** controls heating, ventilation, and air conditioning systems through contact closure, or BACnet protocol.	5–15% HVAC[11]

Sources on back cover.

The benefits of Quantum®

Increase comfort and productivity

People are more comfortable and more productive when they are working in the right light for the task at hand. Personal lighting controls allow occupants to tune the light to just the right setting while intelligent automated shading solutions help preserve views, eliminate glare, and reduce heat gain.

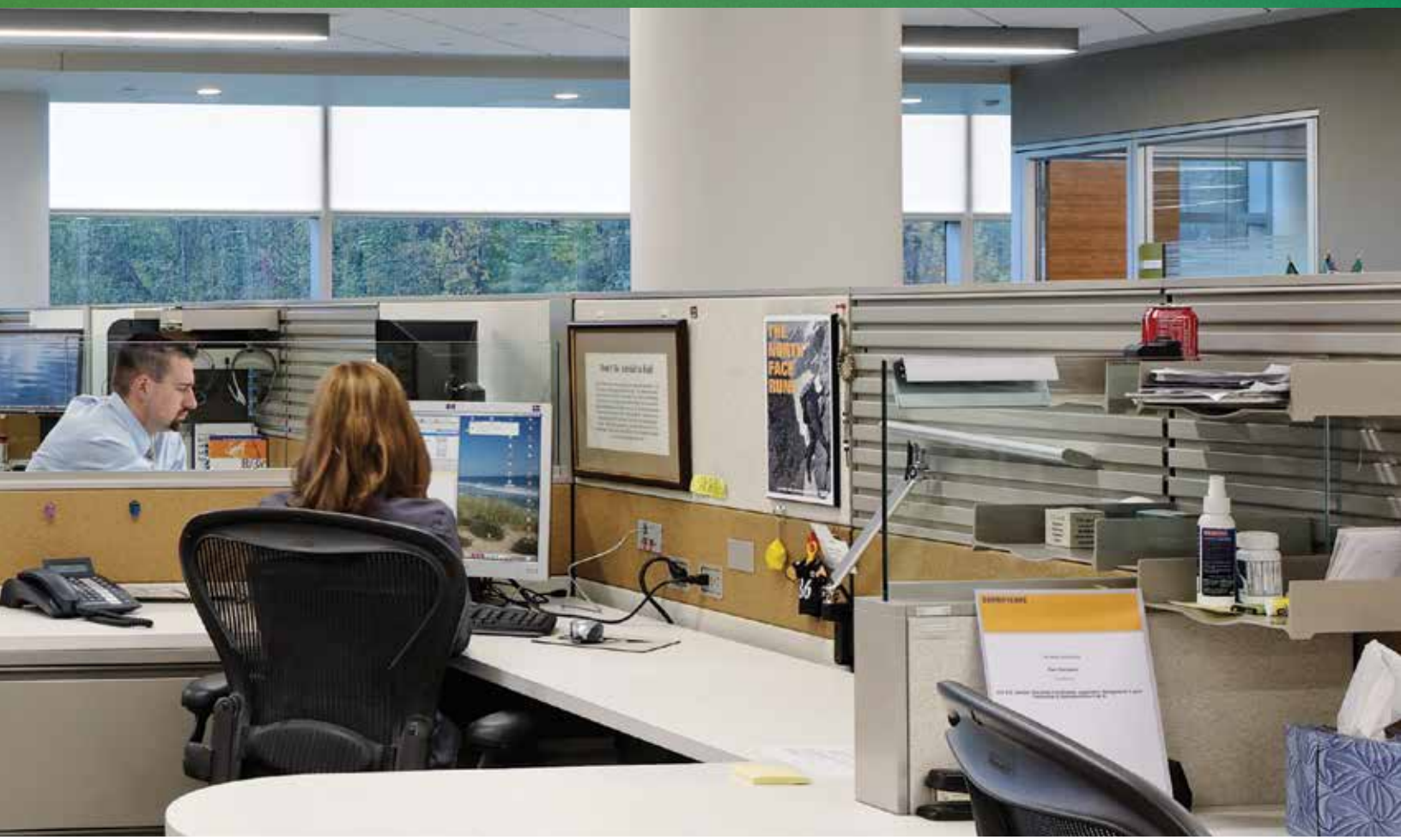
Create a more flexible space

All aspects of the system are digital, so you can easily reconfigure lighting and shading zones without rewiring, making a space adaptable to high churn rates.

As the needs of a space change, you can also easily move and reprogram wireless sensors and controls right from the software without needing to call an electrician.

Simplify operations and reduce maintenance costs

Quantum's management control software simplifies ongoing building operations and reduces maintenance costs. Reports and alerts can identify energy abnormalities and bring attention to maintenance issues or system health problems. These alerts can identify the exact location and nature of a problem, so they can be quickly addressed.



Create the right light

Create beautiful and functional lighting environments for any space with continuous, flicker-free dimming of any load type down to 1% and motorized shading.

Meet codes and standards

Quantum provides the opportunity to help meet with today's building codes and standards, including:

- LEED
- ASHRAE Energy Code 90.1
- ASHRAE Green Building Code 189.1
- IECC (International Energy Conservation Code)
- IgCC (International Green Construction Code)
- CEC Title 24 (California Energy Commission)
- CHPS (Collaborative for High Performance Schools)

Highlight your corporate commitment to sustainability

Nothing speaks to sustainability more than proven energy savings. Lutron solutions give building owners and facility managers the power to save more electricity than any other control technology at their disposal.[1] Quantum's energy dashboard helps you demonstrate those savings to employees and customers.

Sources on back cover.

Applications

Quantum® systems have been installed in thousands of customer sites — and the installed base is continuing to expand. Here are a few of the major market segments currently taking advantage of Quantum solutions.

Commercial office buildings

In a commercial office building, light control can contribute enormously to saving energy. In addition, light control can help contribute to occupant productivity. Hyperion® solar-adaptive shading automatically adjusts Lutron Sivoia® QS shades throughout the day in response to the changing position of the sun. This eliminates glare and reduces heat gain while maintaining external views and saving energy.

College campus and K–12 schools

Central control and BMS integration are important for college campuses to simplify operations and maintenance. Quantum provides centralized management software with reporting and alerting capabilities to identify energy anomalies and maintenance issues. Quantum also has native BACnet for seamless integration with BMS systems.

In addition, the GreenGlance® dashboard provides students, staff, and visitors with real-time energy savings, which helps promote the school's commitment to sustainability.

Hospitality public areas

Being able to create the right light in public areas such as lobbies, ballrooms, and meeting rooms is key to an outstanding guest experience. With Quantum, it's easy to customize the light in individual areas for specific events or times of day. Features such as partitioning and zone reconfiguration also come in handy to automatically update the lighting controls based on how rooms are set up.

Healthcare buildings

How comfortable a patient feels in his hospital room can help ease his stress while he's recovering. A room designed with customized light and shade control provides patients with a soothing place to heal.

Intuitive light controls also contribute to staff productivity. From full light for reading charts and dispensing medications, to dimmed light for working on computers, proper lighting can relieve job stress, improve performance, and reduce medical errors.

Stadiums and convention centers

In large venues such as stadiums and convention centers, which often host multiple events at one time or throughout a day, central control is extremely important. Having remotely accessible central management software allows you to log in to the system from anywhere in the world to control lights and shades and troubleshoot problems quickly.

Restaurants and retail spaces

A tailored light control solution allows a restaurant to skillfully execute the combination of food, service, décor, and atmosphere into an unforgettable dining experience.

In order to deliver that experience, a restaurant's manager needs to be able to conveniently adjust lights and shades. With the Quantum iPad® app, he can control, monitor, and adjust lights and shades with a simple interface, to seamlessly alter the atmosphere any time, from anywhere.

Quantum® components

Quantum provides total light management™ by tying the most complete line of lighting controls, window shades, digital ballasts and LED drivers, and sensors together under one system and software umbrella. Many of the system components are available in both wired and wireless options. Here are some of the key components.

LED Drivers & Fluorescent Ballasts

Hi-lume® A-Series LED drivers

EcoSystem® H-Series fluorescent ballasts

Sensors

Wireless

Radio Powr Savr™ occupancy/vacancy sensor

Radio Powr Savr daylight sensor

Radio Shadow sensor

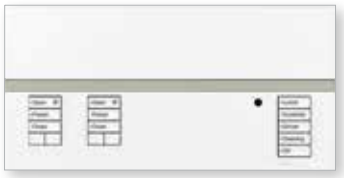
Wired

Occupancy/vacancy sensor

Daylight sensor

Controls

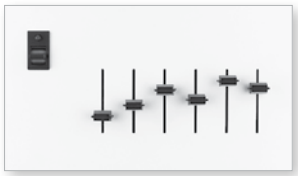
Wired



GRAFIK Eye® QS

seeTouch® QS keypad

Wired Pico®



QS slider controls

QS Signature Series™

QS Architrave™

Wireless

Pico wireless controls

Shades

Sivoia® QS roller shades

Sivoia QS skylight shades

Sivoia QS drapery

Quantum Hubs/Power Panels

Quantum hubs

QS smart panel power supply

Energi Savr Node™ (EcoSystem, 0–10V Switching)

Architectural dimming and switching panels (GP, XP, LP)

Quantum Vue™

Management software

Quantum Software

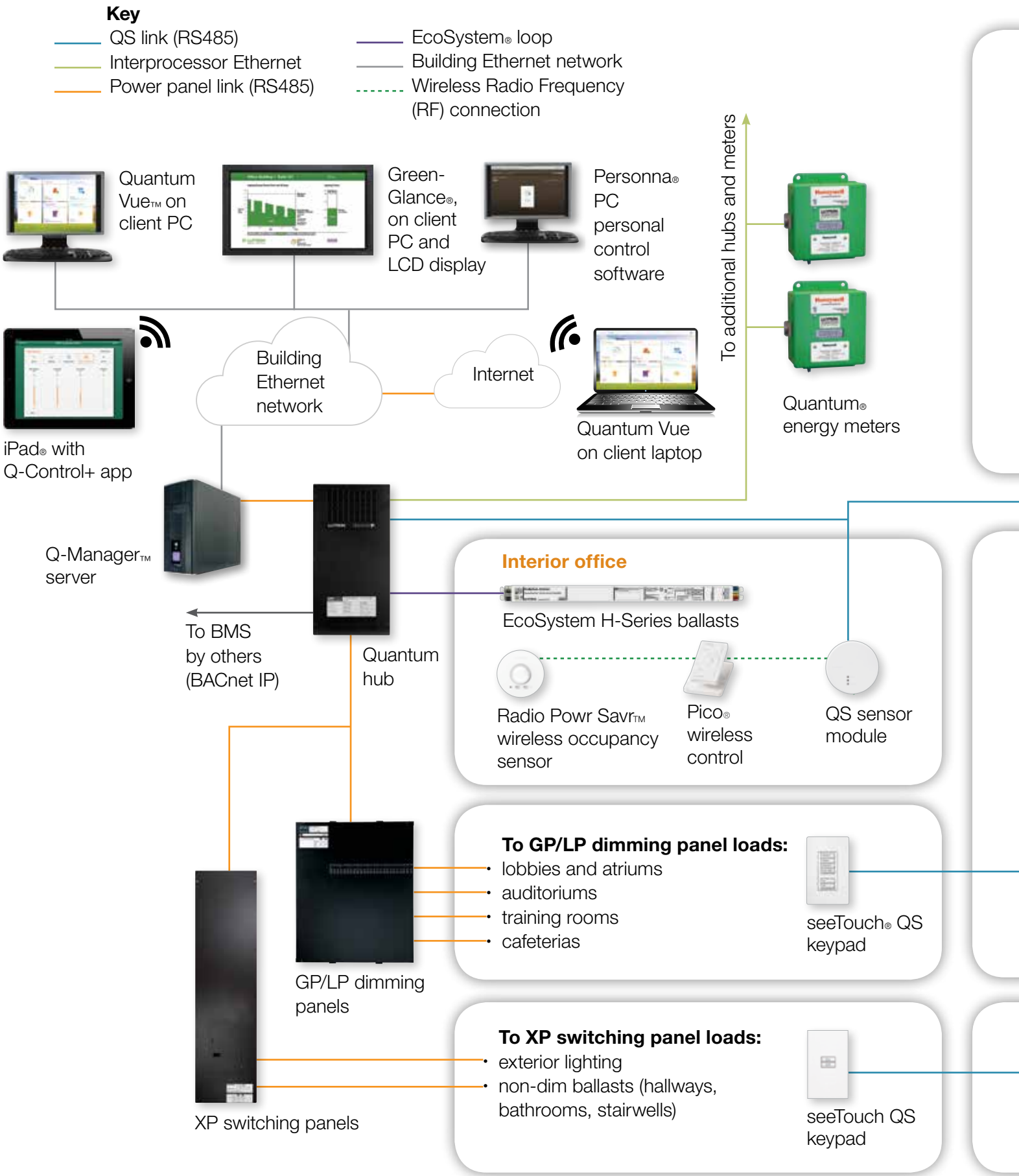
GreenGlance® energy dashboard

Q-Control+ app

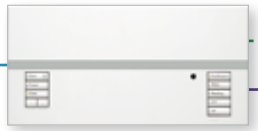
Personna® PC web-based personal control software

iPad® is a trademark of Apple® Inc., registered in the U.S. and other countries.

How the components connect together



Conference room



GRAFIK Eye® QS Wireless with EcoSystem

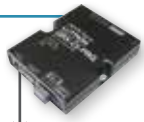
Pico wireless control

Radio Powr Savr wireless occupancy sensor

Radio Powr Savr wireless daylight sensor

QS smart panel power supply

Sivoia® QS shades



RS232/Ethernet interface

To non-Lutron devices:

- touchscreens
- A/V equipment
- HVAC equipment

EcoSystem H-Series ballasts

Hi-lume® A-Series LED Driver

Open office area

EcoSystem H-Series ballasts

Energi Savr Node™ with EcoSystem

QS sensor module

Radio Powr Savr wireless occupancy sensor

Radio Shadow sensor

PowPak® CCO

To non-Lutron devices:

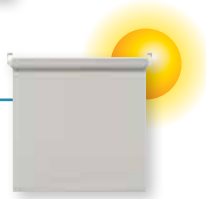
- HVAC equipment

seeTouch QS keypad

Pico wireless control

Radio Powr Savr wireless daylight sensor

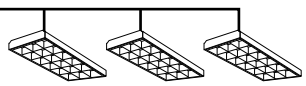
QS smart panel power supply



Sivoia QS shades with Hyperion® solar adaptive shading

Hallways, Restrooms, Stairwells, Exterior Lighting

Energi Savr Node with Softswitch®



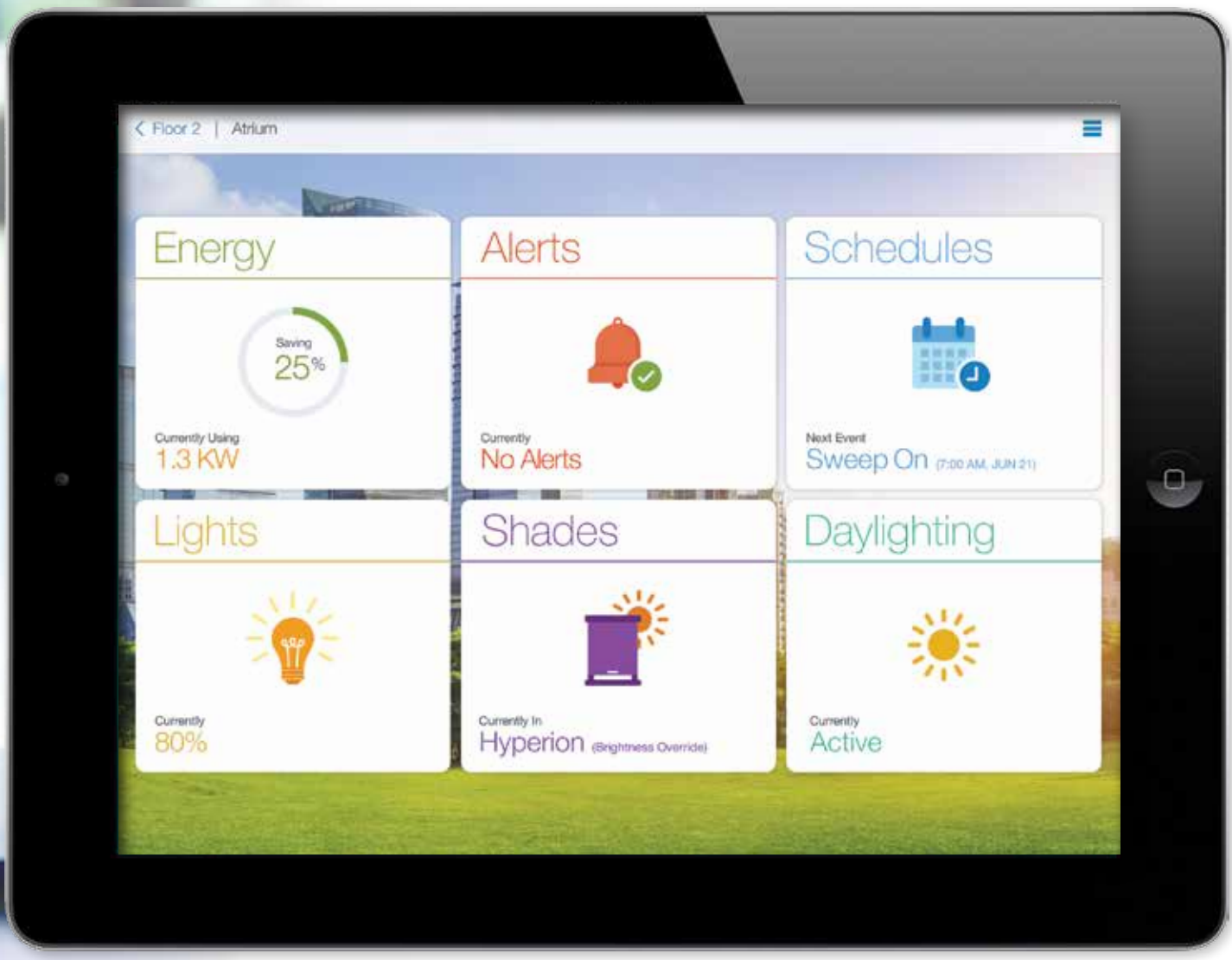
Switched lighting loads

Facility Management Software

Beyond light control to light management

The heart of the Quantum® solution is Quantum Vue™—Quantum's powerful software that allows facility managers to manage their electric light and daylight for maximum energy efficiency, comfort, and productivity.

Quantum Vue is web based, was designed for both mobile devices and desktops, and delivers the same user experience on all platforms. Because Quantum Vue works on mobile devices, a facility manager can control electric lights and shades, as well as configure, monitor, analyze, and report on a building's light system, from anywhere.



Quantum Vue Dashboard

Time-based control of facility lighting

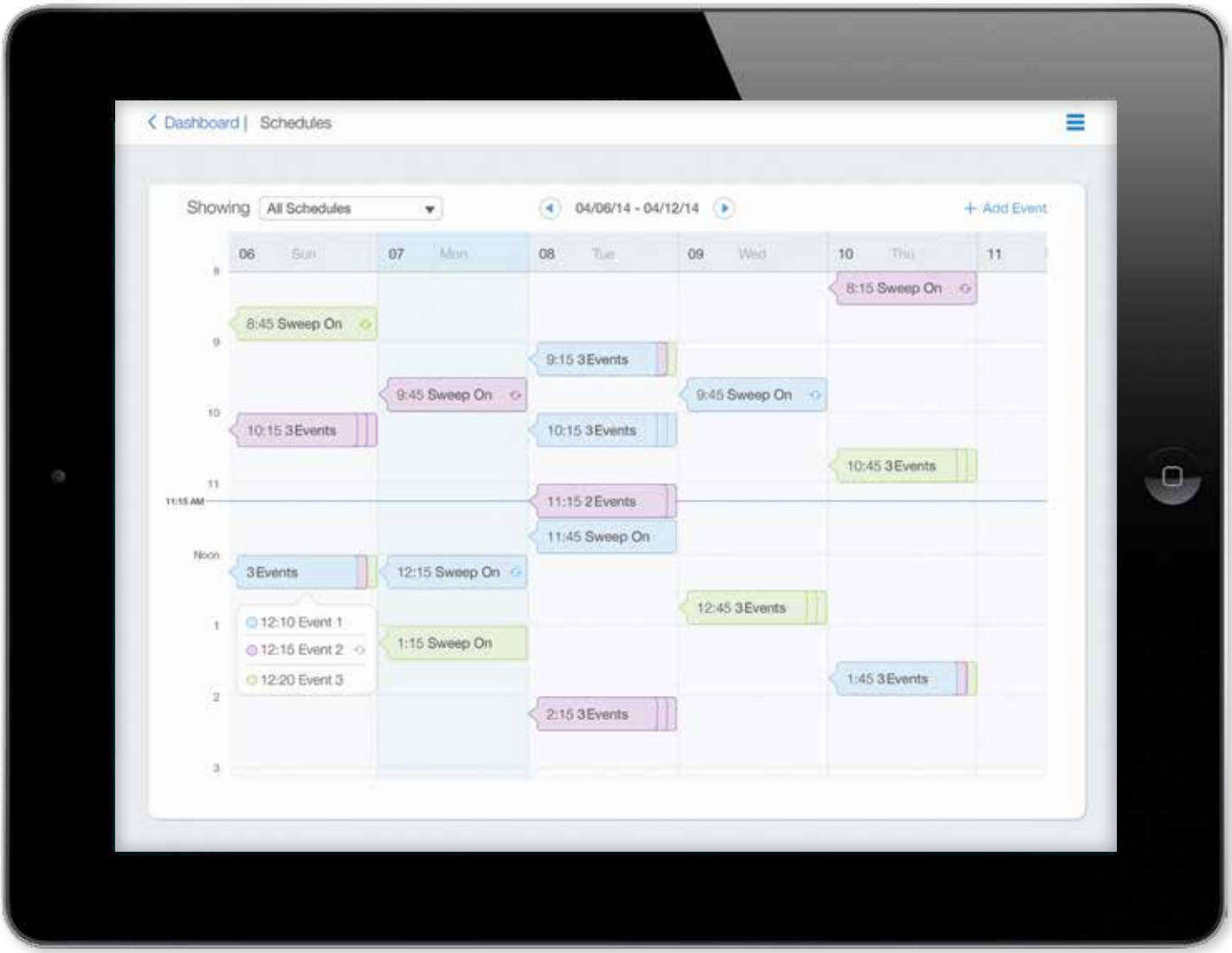
Quantum Vue™ software includes two types of time clocks:

- a time-of-day clock (e.g. 8 p.m. weeknights)
- an astronomic clock (e.g. sunrise and sunset)

Lights can automatically be set to a preset level or to turn on or off in certain spaces based on the time of day. Shades can automatically raise or lower in certain spaces at specific times.

Conditional programming can also allow controls to operate differently based on the time of the day. For example, occupancy sensors can be disabled during working hours, but re-enabled in non-working hours.

Quantum allows for time-based control of all lighting and shades



Display today's schedule of events

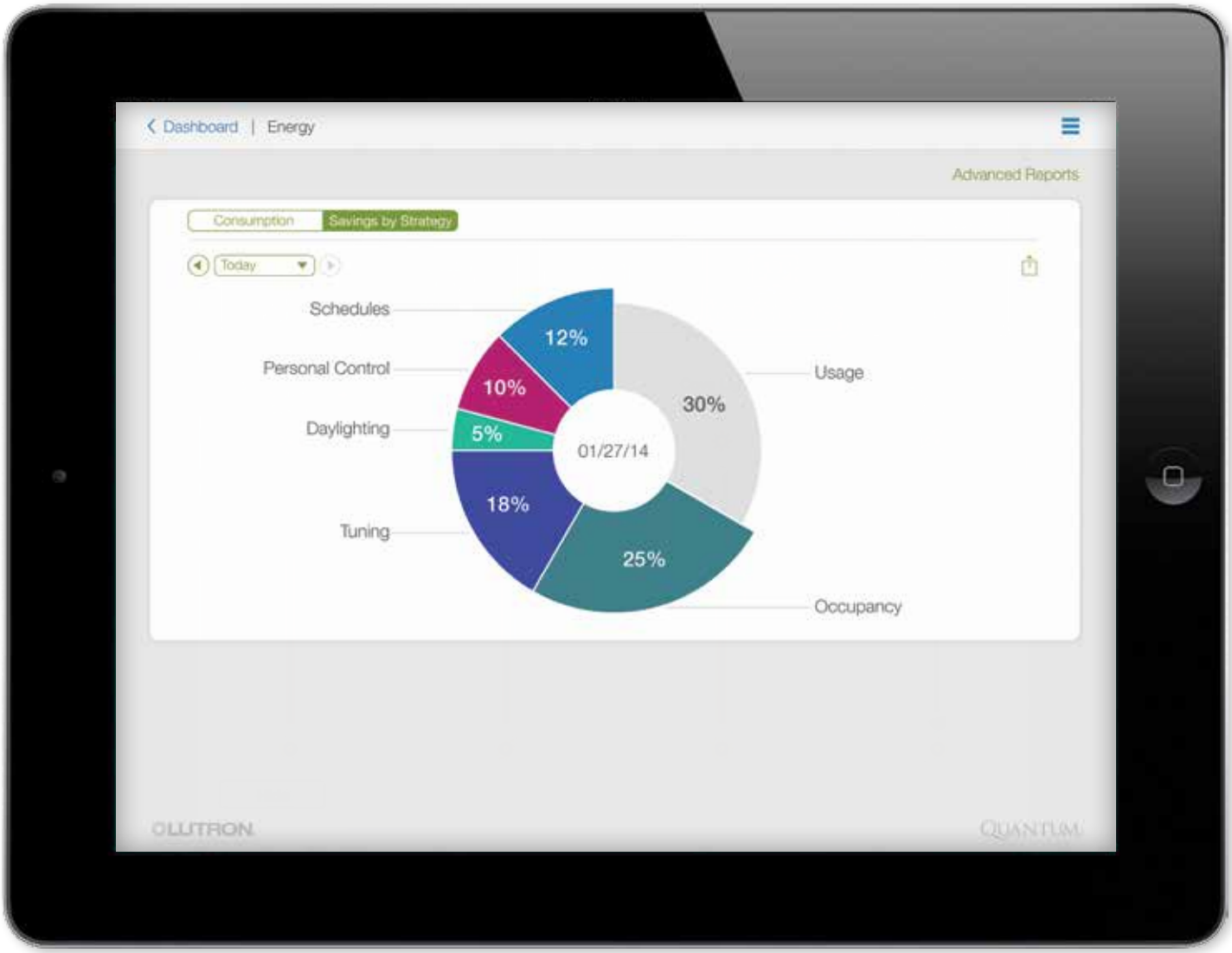
Energy analysis, maintenance, and system health reports

Quantum Vue™ provides reports and diagnostics that allow facility managers to improve maintenance and operations, identify issues before they become problems, and monitor lighting energy consumption in the whole building or any part of the building.

Digital vs. actual measured energy usage

The Lutron Quantum® solution generates energy savings calculations based on system settings, an approach to energy monitoring that represents a significant cost savings over the installation of billable-grade energy monitoring equipment. The system is also able to integrate energy meters for higher accuracy measurement. In addition, metering provides the ability to monitor and report on all loads (not just lighting).

Reports include power or energy usage, system activity, and lamp failures



Energy usage reporting

Raising awareness

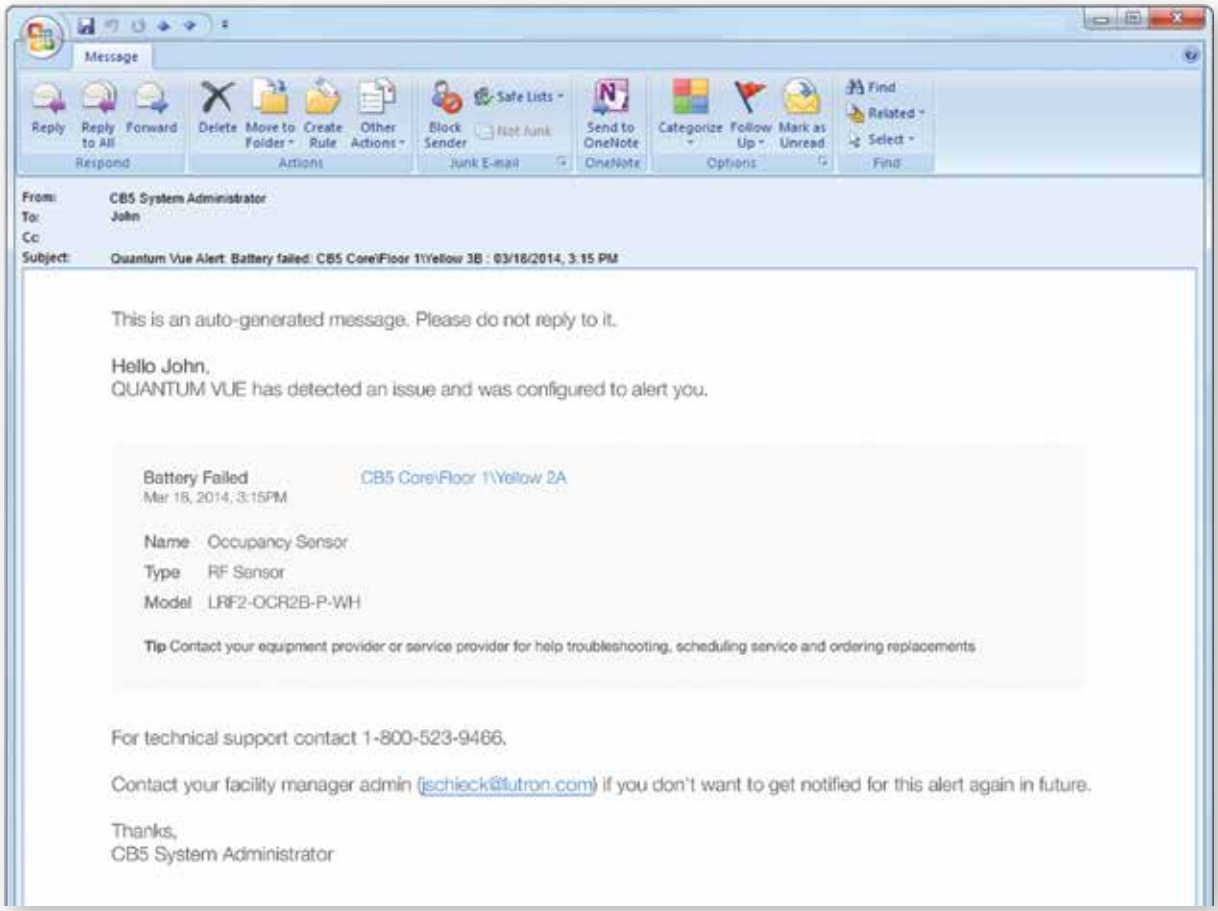
Quantum® can monitor the system for certain events/triggers and raise awareness through on-screen alerts or through email messages. Emails can be used to integrate into more sophisticated work order management systems for acknowledgements or assignment to individuals.

Types of alerts

Alerts can cover a range of issues, one of the most important being issues with equipment. Improperly functioning equipment, such as a ballast, control, or sensor, as well as lamp outages in Lutron dimming ballasts, can all be set for an alert.

Alerts can also be triggered for low batteries in wireless sensors or controls. Lamp hour counters can trigger alerts for lamps nearing their end of life and the start of a loadshed event.

Quantum alert interface



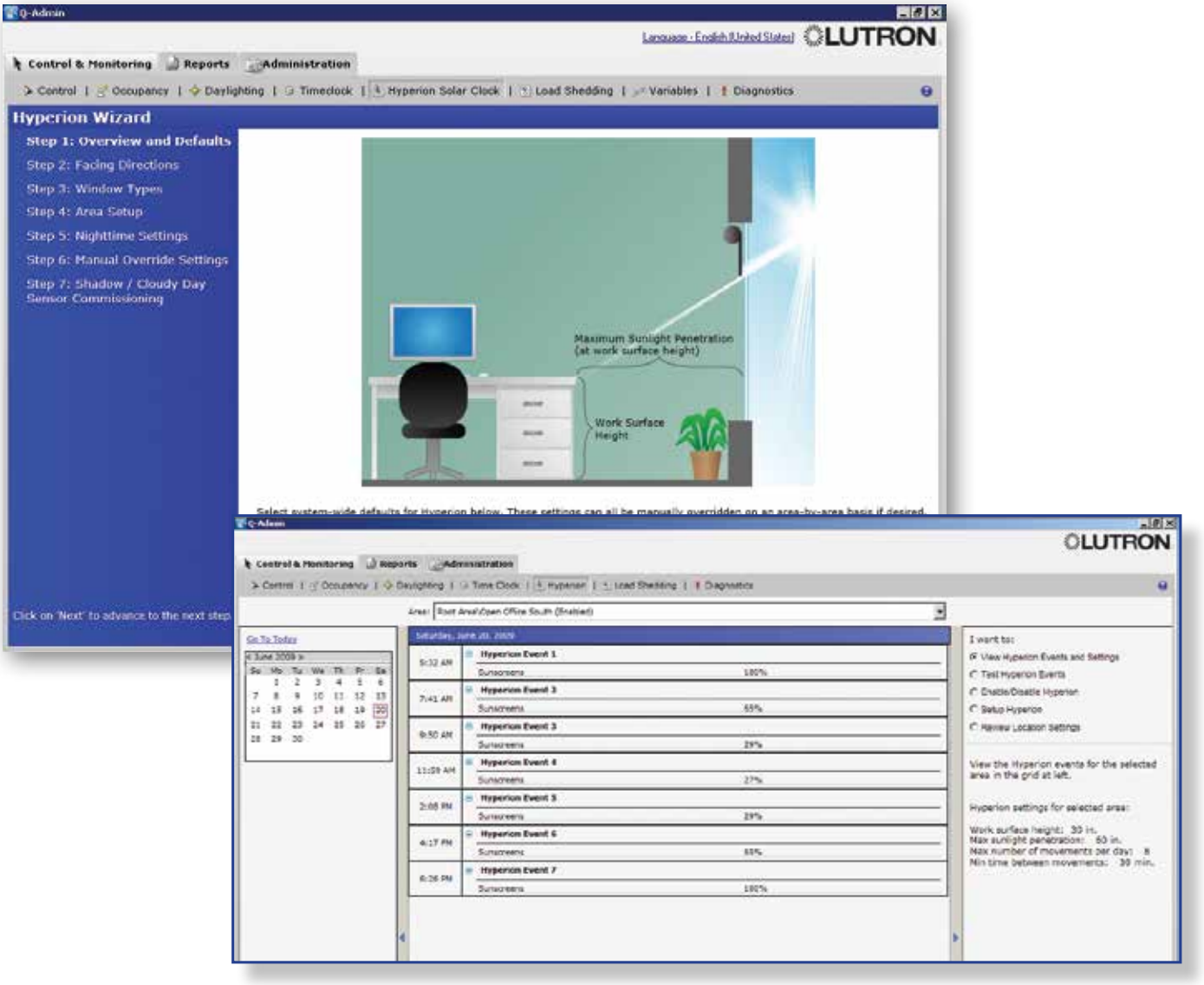
Hyperion® solar-adaptive shading

Automatic shade control

Hyperion solar-adaptive shading is a feature that automatically adjusts Lutron Sivoia® QS shades to reduce glare and heat gain throughout the day in response to the changing position of the sun. Customized shade schedules are developed to limit how far the direct sunlight can penetrate into the space by combining information about building location and façade orientation.

The Radio Shadow™ sensor works in conjunction with Hyperion to compensate for cloudy conditions and shadows from neighboring buildings. The sensor detects levels of daylight and overrides the Hyperion default, ensuring that shades only close when conditions are appropriate.

Hyperion set up wizard and daily shade schedules

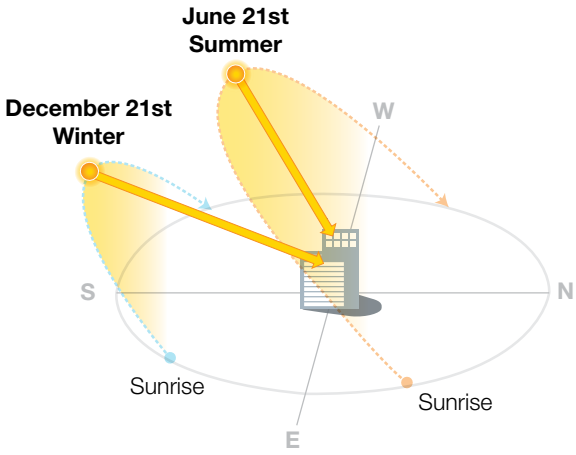


Hyperion automatically generates shade schedules by area. The schedule for each area can be viewed for each day of the year.

Hyperion solar-adaptive shading

Seasonal solar variation

The angle and intensity of daylight changes throughout the year. Hyperion manages these variations by incrementally altering the shade adjustment schedule of each façade on a daily basis.



June 21st, 11:00 a.m.

Hyperion software automatically positions shades to let useful daylight into the space. Lights near windows dim to save energy.

December 21st, 11:00 a.m.

Shades lower to block harsh low-angled winter sun. Lights near windows remain bright, maintaining preferred light levels.

Hyperion offers a variety of benefits

Increases comfort and productivity
Glare from windows can reduce productivity by up to 25%.[12] By controlling shades, Hyperion helps reduce glare, as well as heat gain, making a space more comfortable for its occupants.

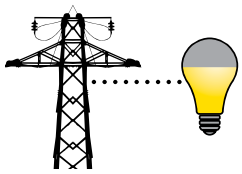
Preserves external views
Studies have shown that employees are more productive when they have views of the outside. Hyperion and the Radio Shadow sensor ensure shades are open when the sun's glare won't adversely affect occupants.

Maximizes effective daylighting
Hyperion works with the Quantum daylight harvesting system to significantly lower electric light usage.

Lowers HVAC costs
Shades can save 10–20% of cooling loads by blocking and reflecting solar heat.[7]

Sources on back cover.

IntelliDemand™ load shed



Feature of Quantum®

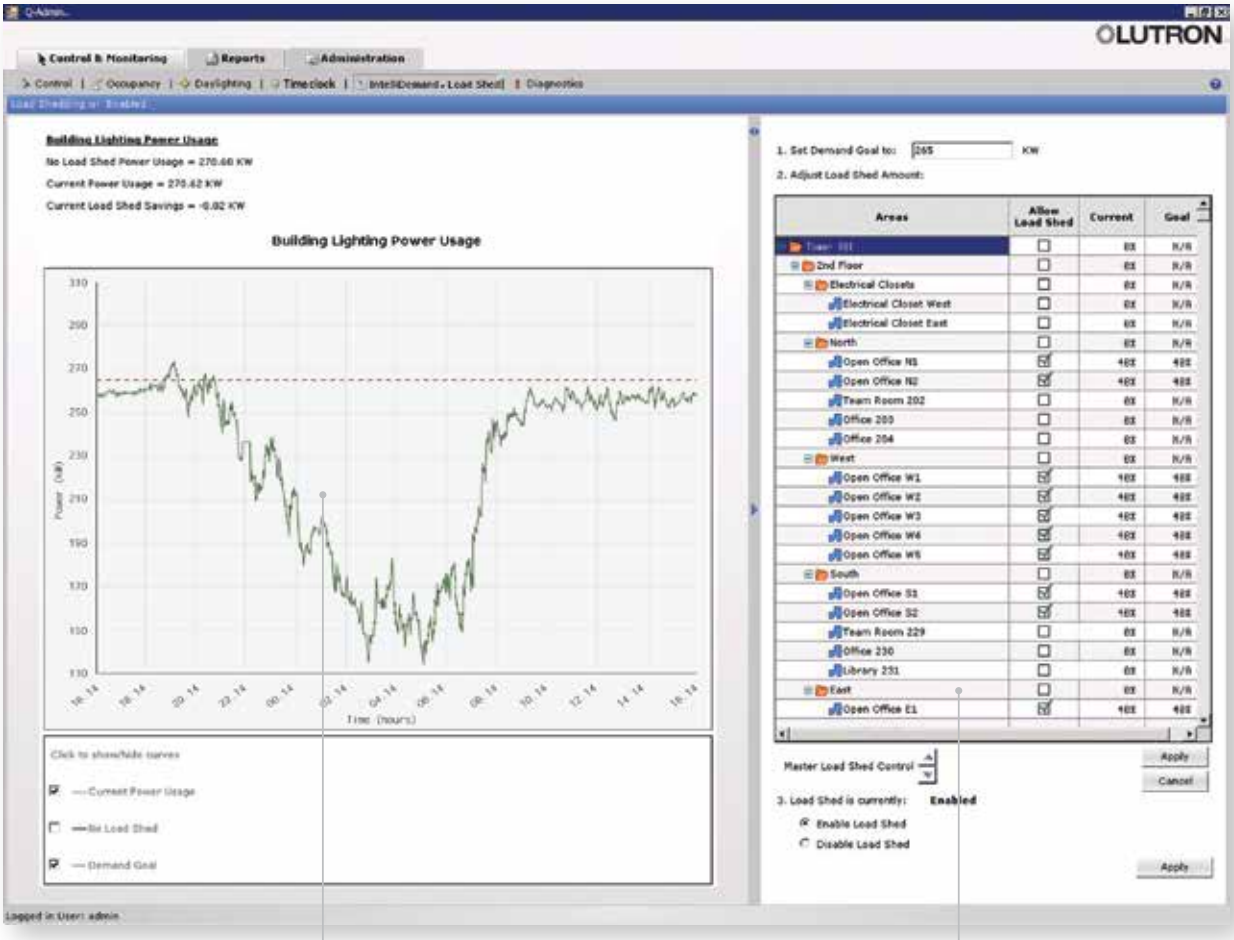
Smart load shed

This feature allows facility managers to shed a percentage of the system's lighting output to reduce energy costs for their facility. This can result in lower electricity rates or rebates from utility companies and energy aggregators, who offer demand response programs. The ability to eliminate or smooth out energy peaks can also have a significant impact on reducing peak demand charges from the utility company.

Smart Grid and Open Automatic Demand Response (ADR) interoperability

Demand response is a critical part of participating in the Smart Grid. The Quantum® system is Open ADR compliant, and by receiving signals from a utility company or energy aggregator, Quantum software can automatically respond by lowering light levels unobtrusively throughout the facility.

IntelliDemand load shed interface

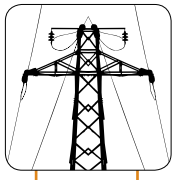


Power usage

Load shed settings for individual areas

Load shedding steps

Quantum's IntelliDemand load shed capability allows a facility to respond to load shed requests automatically, or at the touch of a button.



Utility company sends out demand response signal.

Automatic signal

OR

Manual signal

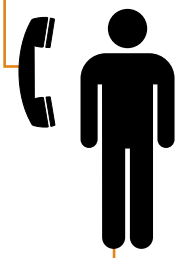
Demand Response Automation Server (DRAS)

OR

Energy Management System (EMS) receives demand response signal from utility company over Ethernet and sends loadshed commands using BACnet to the Quantum hubs.

Open ADR

Quantum server



Customer receives demand response notification by way of telephone, email, text message, or pager and manually adjusts load via PC.

BACnet/IP

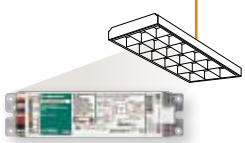
Quantum hub receives demand response signal and lowers lighting, turns off pre-programmed loads, increases HVAC set point, and adjusts shades to save energy.

Q-Manager™ with IntelliDemand™ allows user to pre-program loadshed strategies.

Shades

HVAC

Non-lighting loads



Ballasts and lamps

Personna® PC and Q-Control+

Personal web-based control software for Quantum

Personna PC gives occupants control of their lights and shades from any device than can run a web browser. After logging in with a user name and password, the user can control lights and shades in his area using a virtual keypad, so there's no remote control to lose.

Users can also save preferred light levels and shade positions, which they can easily recall with the "favorite" button.

Personna PC software on networked computer or other internet device

Virtual seeTouch® keypad controls for lights (shown) or shades

Control lights by clicking on buttons

Wireless hand-held control and programming

The Q-Control+ app provides a simple user interface for end-users, facility managers, and lighting designers to control and monitor the lights and shades from anywhere in the building using a mobile iPad® platform.

Users can also quickly reprogram area scenes, zone levels, and shade presets while in a space.

Administrators can manage user accounts and restrict user access to only certain areas or functions depending on their specific roles.

GreenGlance®

Show the world what you have achieved

GreenGlance display software provides a quick snapshot of your building's energy savings from using the Quantum® Total Light Management™ system.

Building owners and facility managers can use GreenGlance to:

- motivate employees to save energy
- support their organization's reputation for being green and socially responsible
- serve as an educational tool to display their facilities' economic and environmental benefits from using Quantum, such as dollars saved, CO_2 not emitted, or tons of coal preserved
- display other green facts about their building (waste reduction programs or water efficiency systems)

Maximum potential savings

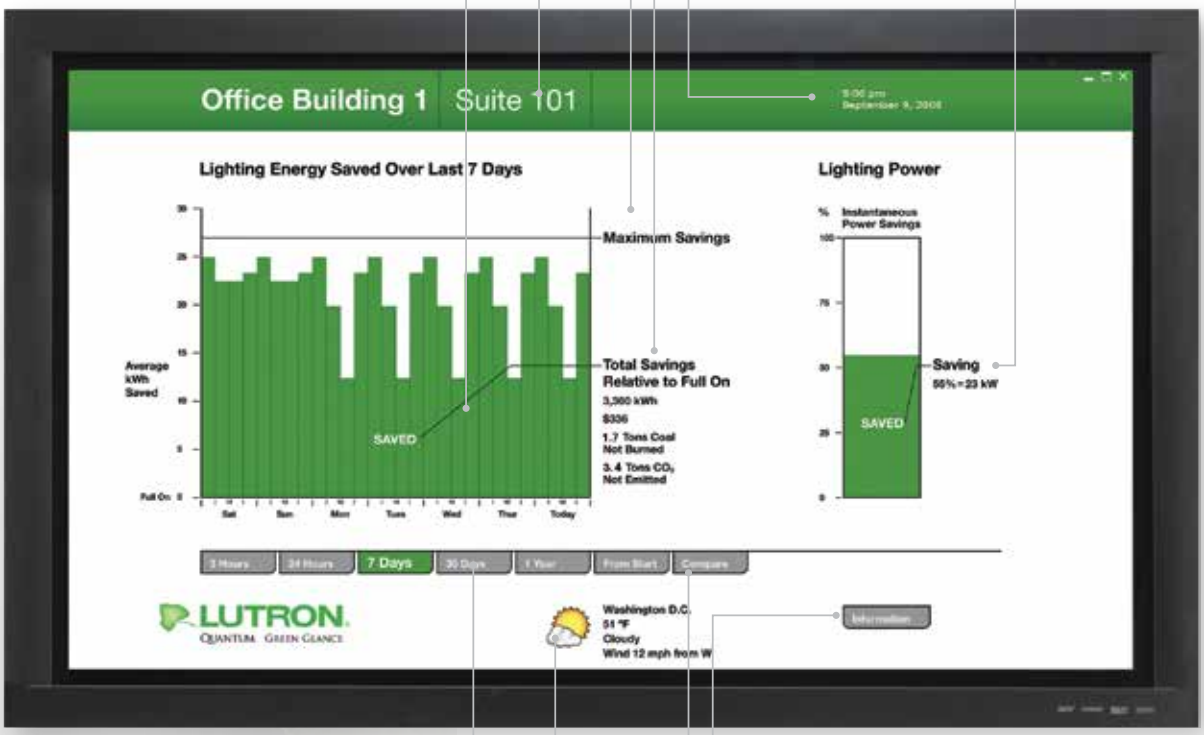
User can select pre-defined spaces

Average lighting energy saved over user-selected period

Displays lighting energy and environmental savings

Building local time and date

Real-time lighting power saved by using Quantum



User-selectable time periods for lighting energy displays

Displays local conditions (requires internet access)

Displays project details and lighting energy calculation information

Compares lighting energy savings of different time periods

Seamless Interoperability

Quantum® can seamlessly and reliably integrate with many different building systems, including building management systems (BMS), security systems, and maintenance systems.

The BACnet/IP protocol is the primary means of integration. BACnet is embedded or native in the Quantum processors, which means no external interfaces or gateways are required in order to communicate with other systems. Only a single point of connection is needed on the Quantum network for total and complete communication to the entire system.

Additionally, the Quantum system has been tested by BACnet Testing Laboratories (BTL) and certified to comply with all of their necessary interoperability requirements.

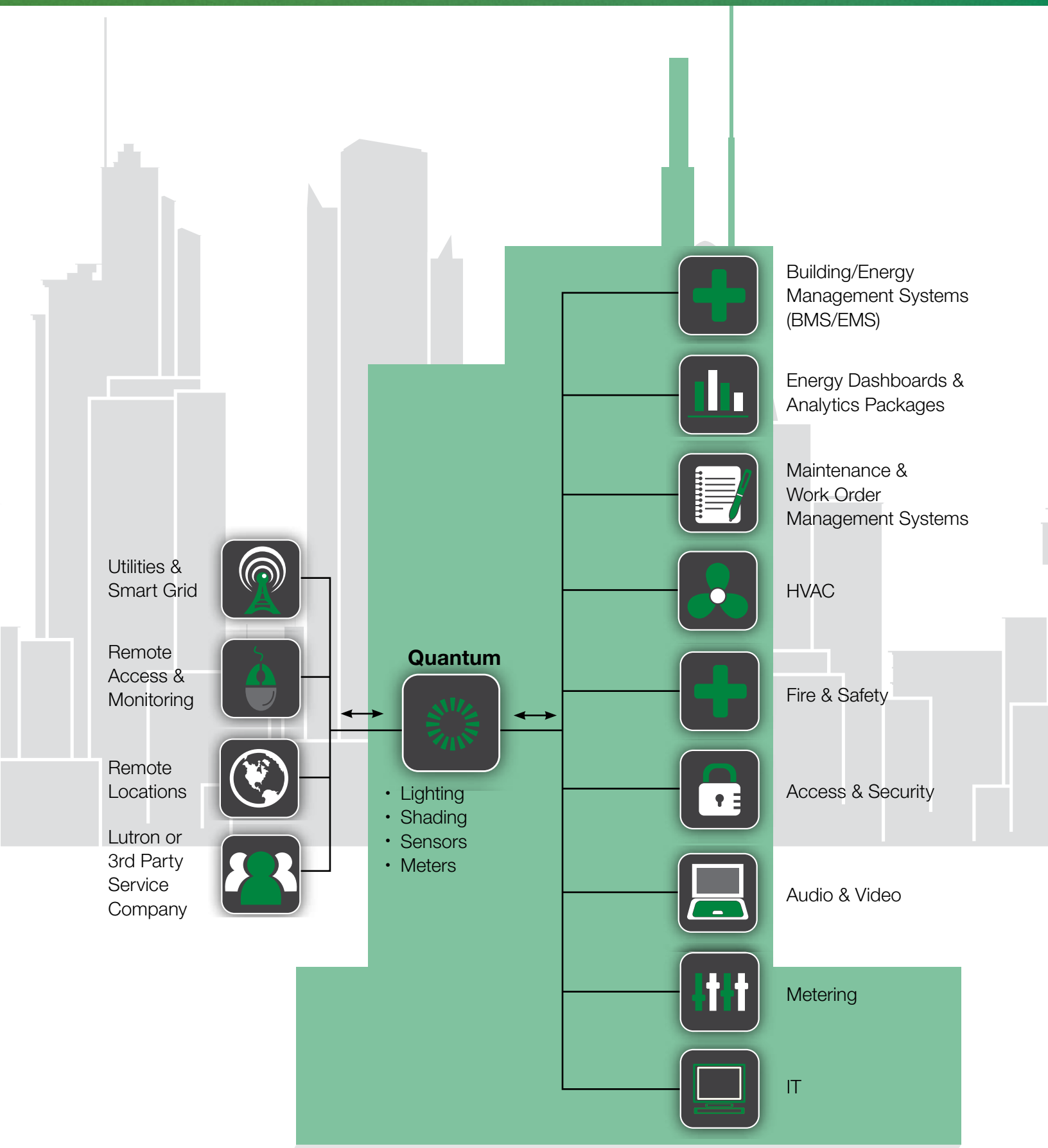
Common integration examples:

- A BMS system can trigger loadshed events in the Quantum system
- Occupancy sensor status can be shared with the HVAC system to set back temperatures when areas become unoccupied
- Quantum's energy usage information can be shared with building dashboards to eliminate the need to add costly energy meters

The end goal is to increase the energy efficiency of buildings and simplify the lives of facility managers. Seamless interoperability between major building systems goes a long way to helping achieve this goal.

In addition to BACnet, Quantum also provides a variety of other means to communicate with different buildings systems including RS232, Ethernet TCP/IP, contact closures, Modbus TCP/IP, Open ADR, and XML Webservices.

For detailed information on the capabilities of each communication protocol contact your local Lutron representative or our technical support team at **systemsupport@lutron.com**.

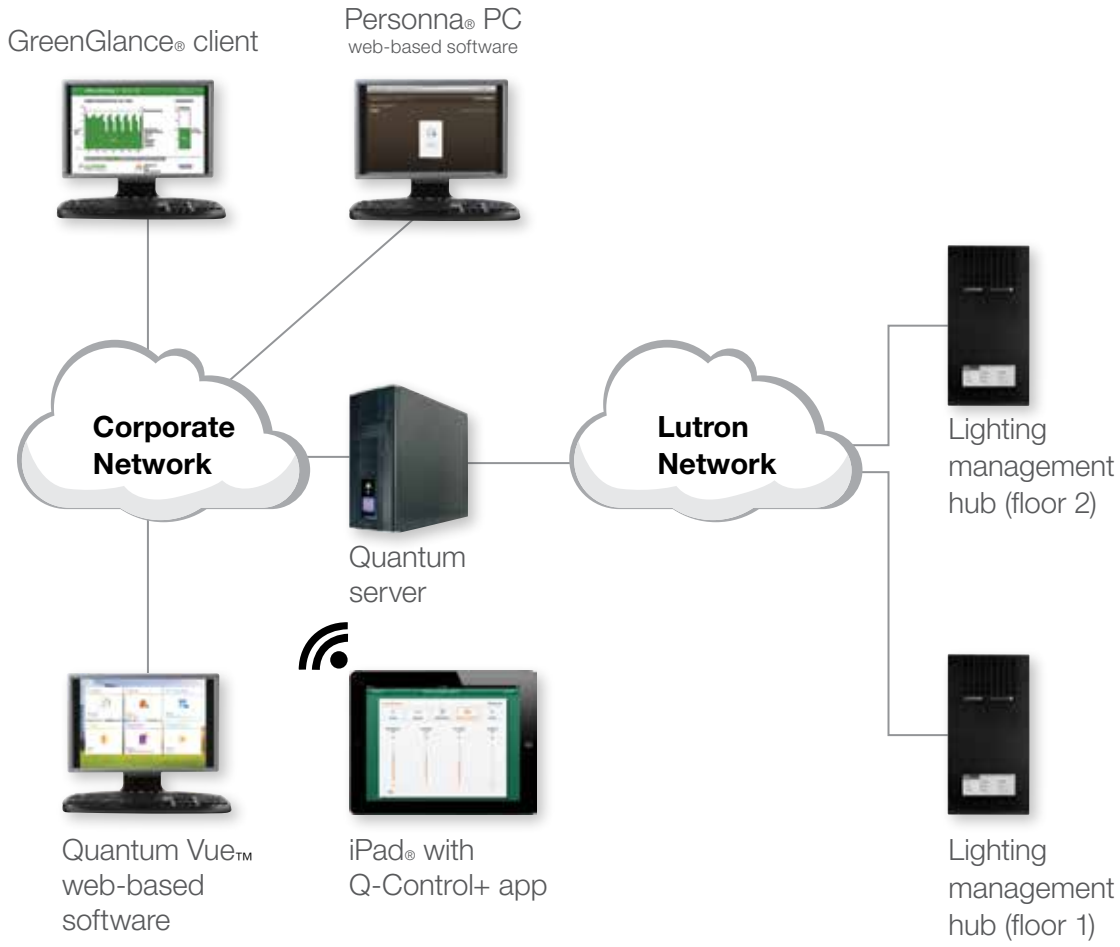

Utilities &
Smart Grid
Remote
Access &
Monitoring
Remote
Locations
Lutron or
3rd Party
Service
Company
Quantum
• Lighting
• Shading
• Sensors
• Meters
Building/Energy
Management Systems
(BMS/EMS)
Energy Dashboards &
Analytics Packages
Maintenance &
Work Order
Management Systems
HVAC
Fire & Safety
Access & Security
Audio & Video
Metering
IT

Flexible IT Implementation

Quantum® can be implemented flexibly to address a variety of network configurations to suit the IT landscape in the building.

Option 1: Using a dedicated lighting control network

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

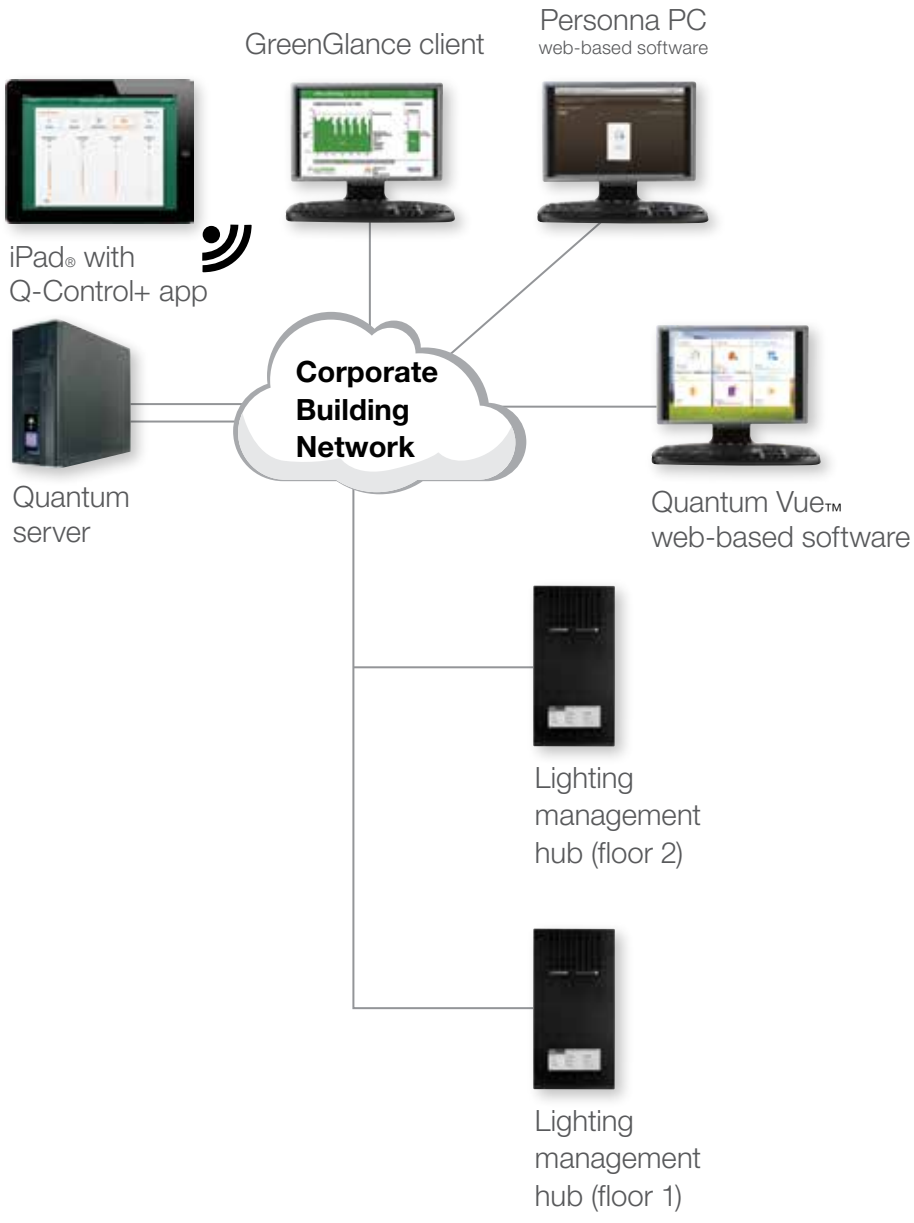


For detailed network configuration information, have your IT administrator contact Lutron at techapps@lutron.com.

iPad® is a trademark of Apple® Inc., registered in the U.S. and other countries.

Option 2: Integrating with the Corporate Network

The Quantum lighting management hubs are connected to the Quantum server via the Corporate Building Network. When using this option, all routers/switches connecting the Quantum lighting management hubs and the Quantum server must be properly configured to allow messages to be passed between the hubs and the server.



Proven Success—The New York Times Building

The New York Times Building, New York, NY, USA saves over $600,000 each year by managing light with Quantum®[13].

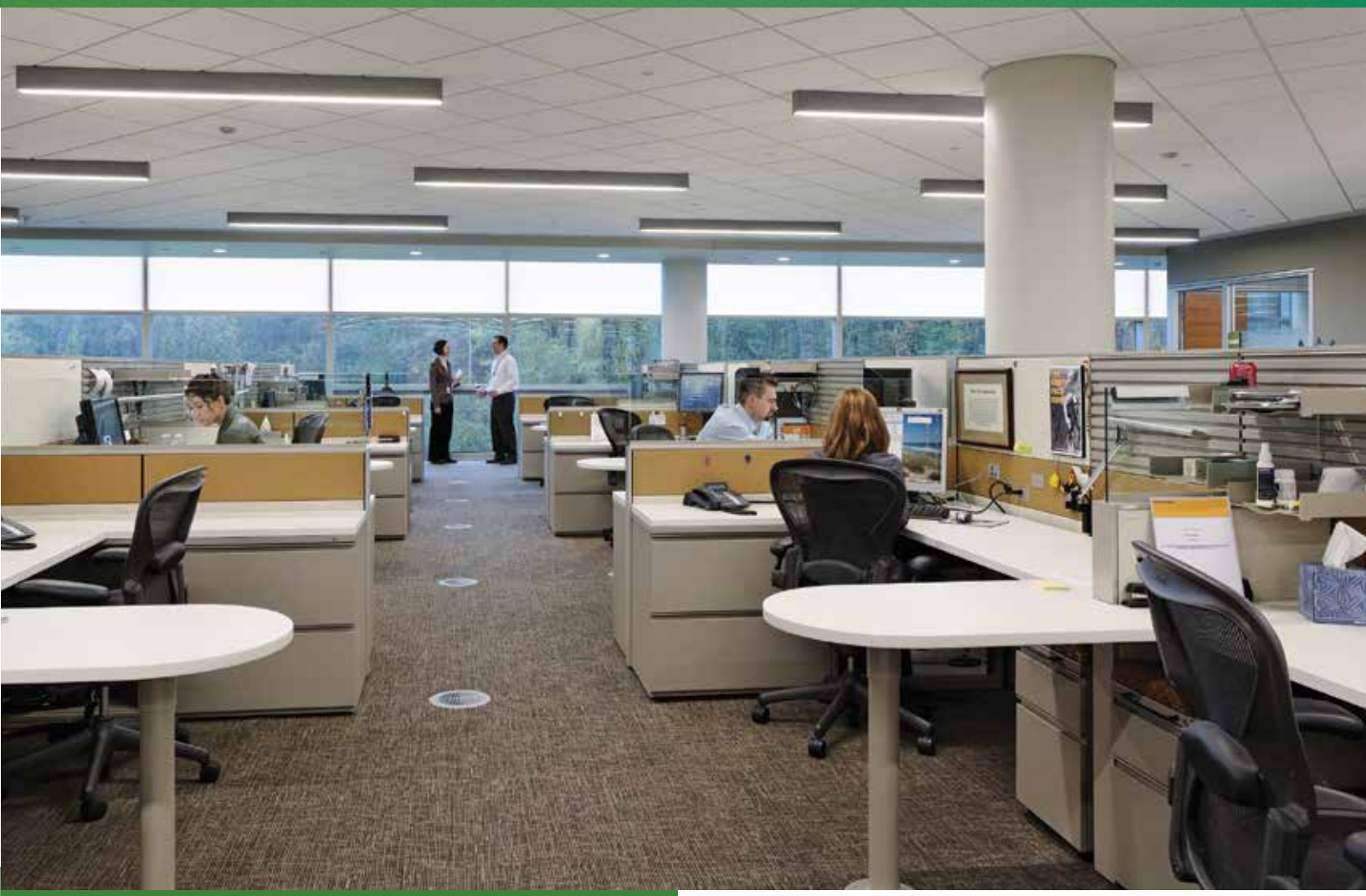
"We designed our building to use 1.28 watts per square foot of lighting power. With Quantum®, it's only using 0.396 — that's about 70% less."

Glenn Hughes, Director of Construction for The New York Times Company during design, installation, and commissioning of The New York Times Building

Green Facts

Buildings	1
Square Feet	over 600,000
Lighting Fixtures	over 15,000
Lighting Energy Savings	approximately 70%
Annual CO_2 Reduction metric tons	over 3,200

Proven Success—SAP America, Inc.



SAP America, Inc., Newtown Square, PA combined Quantum with Lutron shades and has seen a dramatic reduction in energy use, and as a result, huge cost savings.

"SAP is about providing our staff with the best possible working conditions. We need to control the interior light with a system that would not block views, be distracting, or affect productivity. That's what Lutron delivered."

Brian Barrett, Project Manager for SAP

Green Facts

Buildings	1
Square Feet	218,000 sq. ft.
Certification	LEED Platinum standard

Proven Success—Lewiston Public Schools

Lewiston Public Schools, Lewiston, ME
An independent statewide report says Lutron lighting controls are delivering "considerable energy efficiency."

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® technology lighting control solution.

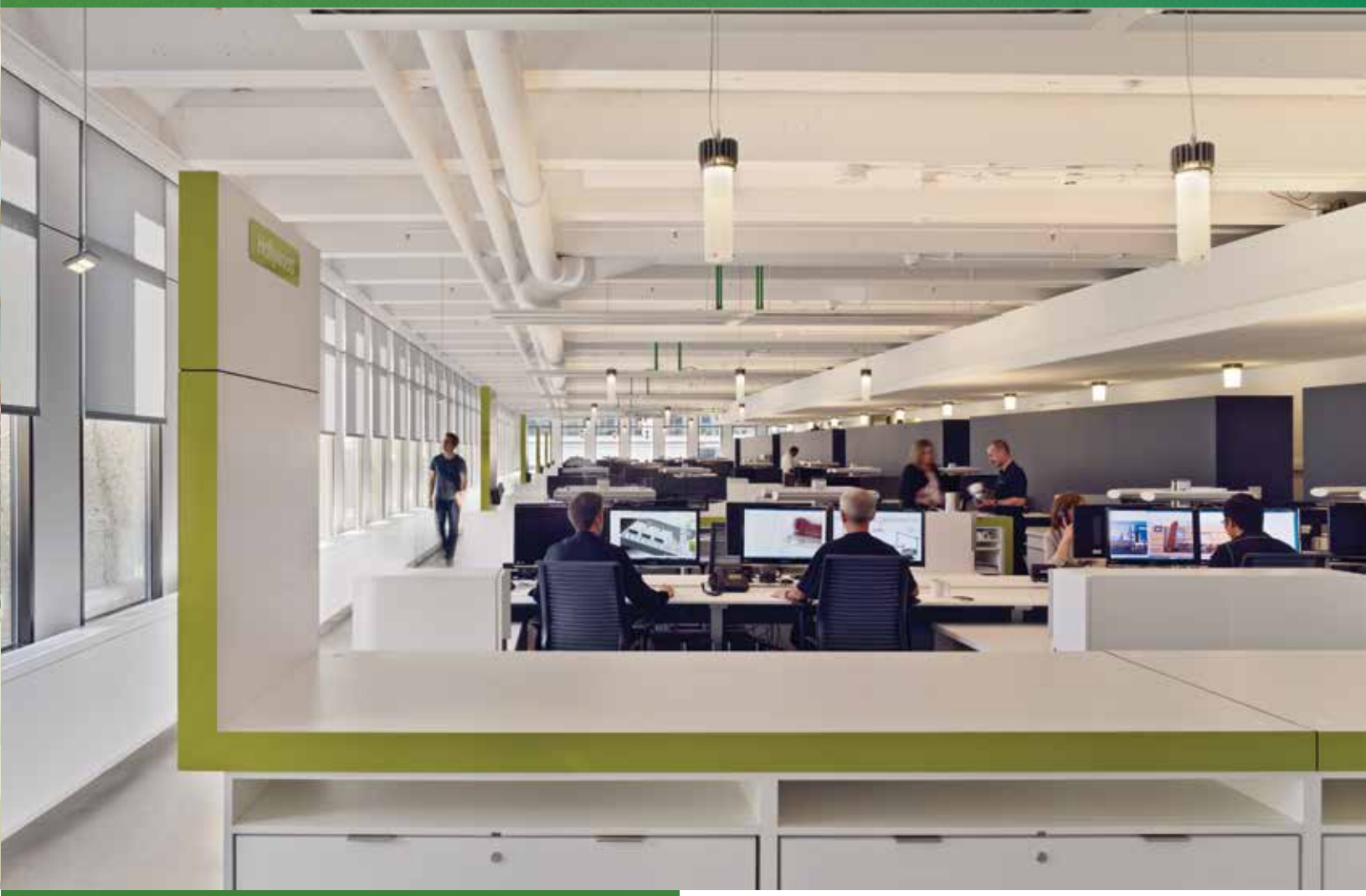
"The installation is an exceptional example of the level of savings that can be achieved by properly installing lighting controls."

Efficiency Maine, Report, April 11, 2008

Green Facts

Buildings	4
Raymond A. Geiger Elementary School	
New, high-performance	93,940 sq. ft.
Lighting energy savings	64,123 kWh/yr Approx. 61.6% reduction
Montello Elementary School	
Renovation	120,208 sq. ft.
Thomas J. McMahon Elementary School	
Renovation	56,704 sq. ft.
Farwell Elementary School	
New, high-performance	75,000 sq. ft.

Proven Success—Glumac



Glumac, Portland, OR

The light control system in Glumac's new office space had to manage both daylight and electric light to achieve three goals:

- Create an aesthetically pleasing design space
- Deliver adequate and proper lighting for the employees
- Set the standard for energy efficiency in building renovations

Glumac relied on Lutron retrofit solutions to ensure a cost effective, efficient light control system that would meet those goals and contribute to LEED certification.

Green Facts

Floors	1
Square Feet	15,160 sq. ft. renovation
Certification	LEED Platinum pending

"My goal is to deliver comfort first, and make sure that the system saves energy too. Lutron helps me do both."

Carlos Inclan, Lighting Designer, Glumac

Lutron Services

Lutron offers a wide variety of services for all projects — whether they are new construction, renovation, or retrofit.

	Description
Pre-start-up Services	
Integration Meeting	Ensures seamless integration with on-site building management system or BACnet
Sensor Design and Tuning	Confirms accurate sensor placement and configuration
Start-up Services	
On-site Start-up	Three-visit service to ensure proper system installation and set up
Telephone Start-up	Assist facility representative via telephone on how to set up the lighting control system
After-hours Start-up	Start-up is performed outside of normal business hours to avoid space disruption
Post Start-up Services	
LEED Documentation	Details the start-up procedure to ensure LEED guidelines are met
Aim and Focus Meeting	Discuss, adapt, or change any lighting per the direction of a lighting designer
Building Walkthrough	Perform tasks per the request of the facility representative
Maintenance Services	
Training Visit	One day, on-site personnel training
Software Maintenance Agreements	Ensures Quantum® system compatibility with Microsoft® patches
Remote Diagnostics	Enables Lutron to diagnose system issues without an on-site visit
Remote Programming	Allows for programming and tuning of your Lutron system without an on-site visit
Spare Parts Package	Fix small problems quickly with a stock of extra parts
System Optimization Visit	Evaluate system usage and discuss opportunities to increase efficiency and functionality
Software Upgrade Service	Upgrade select parts or your entire light control system for maximum efficiency
Lutron HQ Training	Two-day training by lighting experts in Coopersburg, PA
On-site Moves/Adds/Changes	Implement changes per the direction of the facility manager
Warranty Services	
Enhanced Warranties	Include an initial 2-year full warranty, plus pro-rated parts coverage for years 2-8 of your warranty
Technology Support Plans	Extend initial 2-year full warranty for up to 10 years after system purchase

The Lutron Difference

A history of sustainability, innovation, and quality

At Lutron, sustainability is not a new concept. Since 1961, we have been designing industry-leading technologies that save energy and reduce green house gas emissions, and we are a proud member of the U.S. Green Building Council.

Lutron owns over 250 patents and manufactures more than 15,000 products. For over 50 years, we have met and exceeded the highest standards of quality and service. Every one of our products is quality-tested before it leaves the factory.

We innovate in advance of emerging market needs and continually improve our quality, our delivery, and our value.

Global Service and Support

You can count on a level of support unequaled anywhere in the industry and anywhere in the world. Lutron provides 24/7 technical phone support. Lutron Field Service, made up of a global network of customer-focused field service engineers, provides world-class service that begins before commissioning and continues throughout the life of your building.

For help saving energy on your next project

Call Lutron today at 1.888.588.7661 to speak to a Lutron representative who will be able to provide you with a plan of action for your application.

Sources

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

2 Energy Information Administration, 2003 Commercial Buildings Energy Consumption Survey, released September 2008.

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

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 Reinhart CF. 2002. Effects of interior design on the daylight availability in open plan offices. Study of the American Commission for an Energy Efficient Environment (ACE) Conference Proceedings. To achieve maximum lighting savings, automated shades are utilized.

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

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

8 Energy savings estimated based on 50% reduction of after-hours lighting energy waste. Source: 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.

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

10 Eces. 2011 Commercial office plug load assessment. California Energy Commission PIER Program.

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 Heschong Mahone Group, Inc., 2003. Windows and offices: A study of office workers performance and the indoor environment prepared for California Energy Commission.

13 The savings are based on actual lighting usage for the full year of 2009 (annual average lighting power of 0.396 watts per square foot) compared to the installed code-compliant lighting power of 1.28 watts per square foot. The dollars are calculated using a New York City commercial electricity rate of $0.18 per kWh (source: ConEdison). CO2 reduction is based on 1.9 pounds of CO2 prevented per kWh saved (source: Weighted average of fossil fuel energy sources from page 2 of a U.S. Department of Energy carbon dioxide emissions report in July 2000).

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