



K-12 | enhancing the learning environment
Light control solutions for K-12 schools



K-12 | the power of light control



Lutron light control technology delivers powerful, integrated solutions for the design challenges facing today's schools.

Lutron solutions adapt to different learning styles and instructional methods to improve the learning environment. With light controls, schools save energy by dramatically reducing the amount of electricity required by the lights. And with the right technology, schools can support the community by serving as a flexible space that can suit a variety of needs well beyond the school day.

light control delivers:

- An improved learning environment that enhances student performance
- A 30% to 50% reduction in lighting energy usage and cost
- Intuitive technology designed to serve students, teachers, and the larger community

What can light control do for **your students**, **your budget**, and **your community**?



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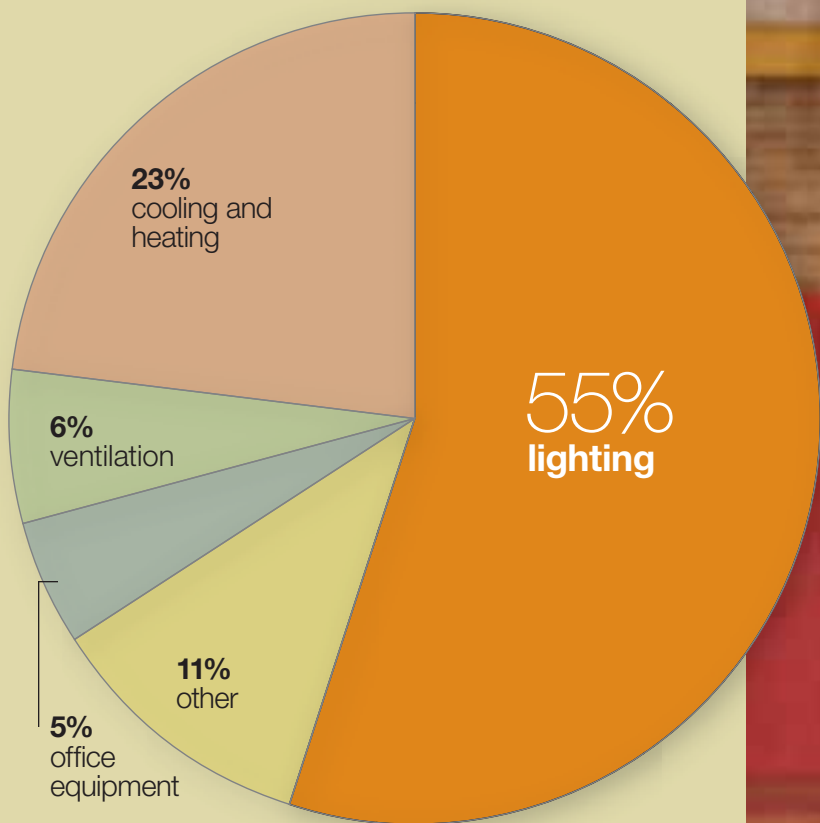
“A holistic approach to school design must incorporate proper light control for every space and function. The benefits of light control on the learning environment and the sustainability of the school make it a must-have for a successful school project.”

George M. Kacan, AIA, REFP, LEED® AP
Owner-in-Charge/Principal, Fanning/Howey Associates, Inc.

improve the learning environment

Light control is key to an effective learning environment. Numerous studies indicate the direct correlation between good lighting and student progress. Daylighting is an essential part of a lighting program and also contributes to student development. Teacher control to set precisely the right light for classroom activities is essential. Altogether, light control makes teaching more effective.

Light control can also enhance your security and safety, allowing students and teachers to focus on education. Such high-quality facilities increase the ability of the school to attract and retain exemplary teachers, who in turn continue to improve the learning environment of that school.



Electricity consumption in education

Source: "Electricity Consumption by End Use," Energy Information Administration Office, Energy Statistics for the U.S. Government.



save energy

Schools spend more on energy than on textbooks and computers combined. In fact, for many operating budgets, energy expenses are second only to payroll. Light control cuts energy usage dramatically and frees up those operating funds for something much more important: Students.

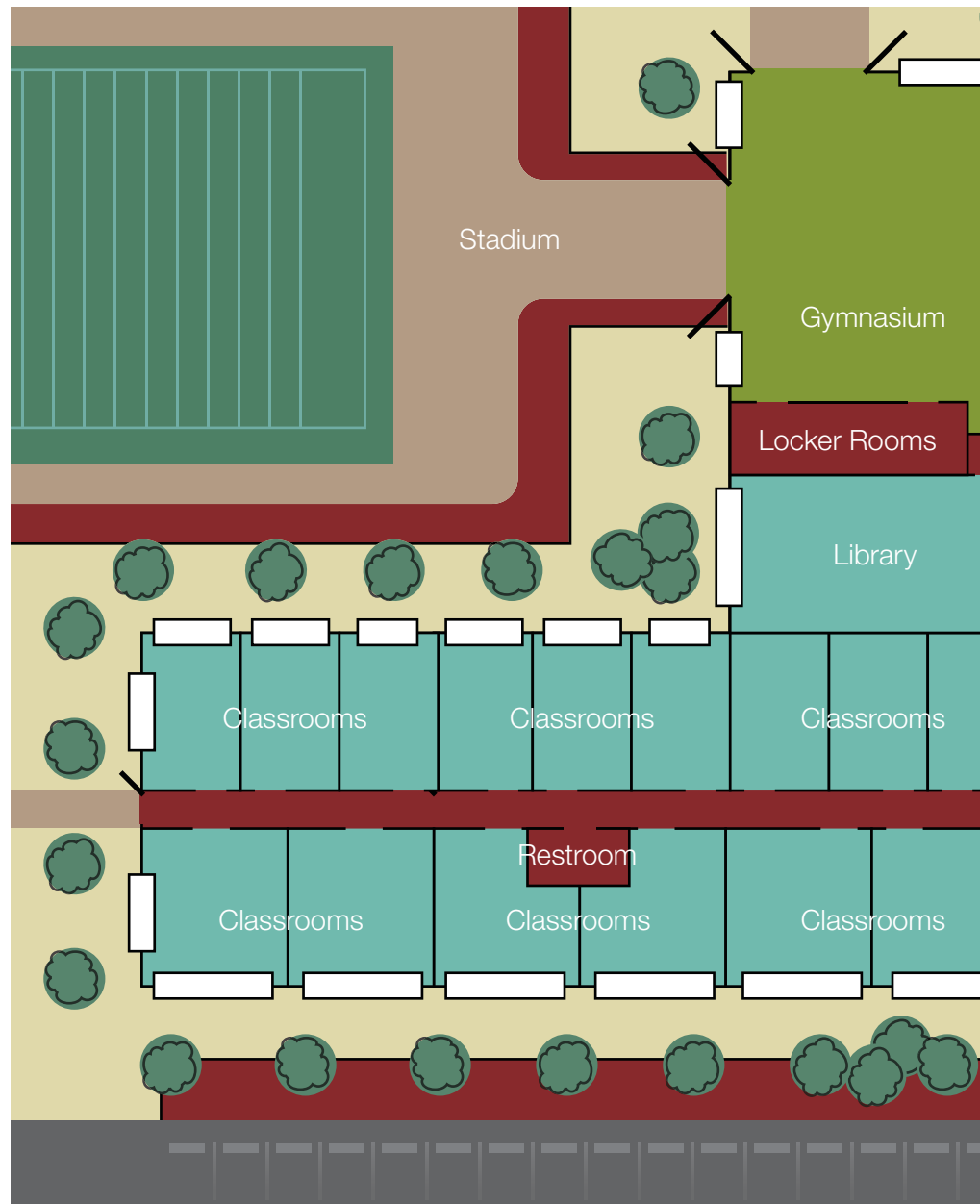
support the community

Schools are an integral part of their communities. They serve as venues for community groups, Scout troops, non-profit organizations, and adult education programs. Such varied uses mean schools need intuitive controls and lighting that presents the school in exactly the right light for any situation. Moreover, schools should be sustainable facilities with minimal impact on the environment. Light control increases the sustainability of the school building, making the school a good neighbor within the community.

K-12 | the spaces within a school

To better understand how light control in a school contributes to creating the fully functional building, it is helpful to view the building as a combination of four types of spaces: classrooms, multi-purpose, administrative, and public.

Lutron has developed technologies that serve to enhance light control in all of these spaces. These technologies combine automated control, daylight harvesting, and manual control to provide maximum energy savings while providing an unprecedented level of control to teachers and administrators alike. Here is a look at the benefits Lutron light control can provide for a K-12 school.

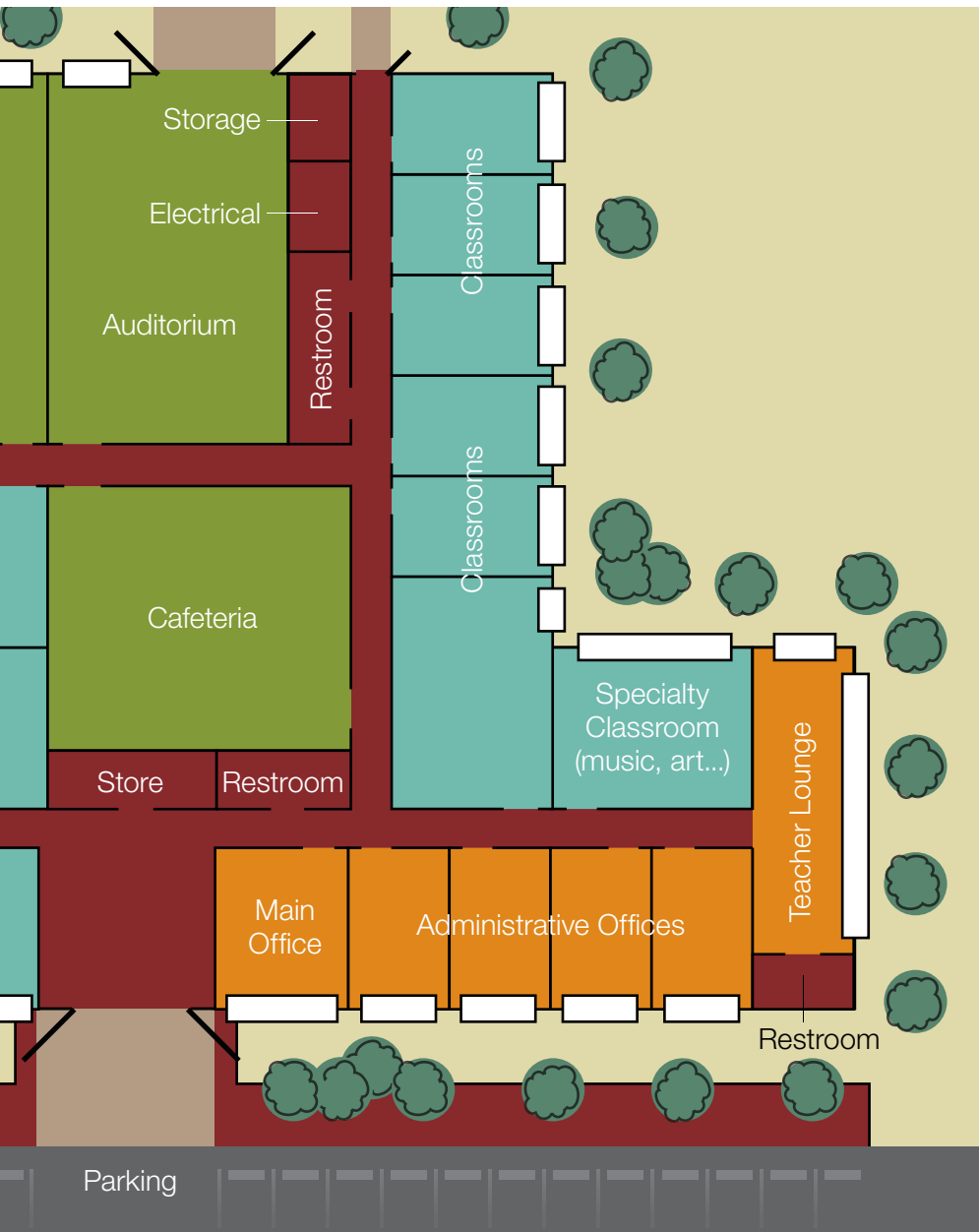


classrooms

The primary purpose of a classroom is to provide the best educational environment possible. Teachers have unique and creative strategies for inspiring their students, and they require a light control system that is flexible enough to support any lesson or classroom activity.

multi-purpose

Multi-purpose spaces—the cafeteria, auditorium, gymnasium, and combinations of the three—change over the day. For instance, a combined gym and cafeteria might be called upon to host a prom, a sporting event, or a performance. The light control system must be robust enough to handle whatever is required of the space.



administrative

Administrative spaces are where the behind-the-scenes work of a school takes place. Like any office space, the lighting should ensure that employees are comfortable and able to be productive. Light control should adequately address issues like glare, hot spots, and individual preference for lighting levels.

public and support

In public spaces, the light control is chiefly concerned with safety and security, as well as with highlighting architectural detail. The importance of safety and security goes without saying. And properly designed lighting in public spaces inspires pride in the school, which in turn contributes to better student performance and support within the community.

K–12 | light control in classrooms

Studies show proper lighting improves student attention spans, motivation, behavior, and test scores. In addition to improving student development, lighting is key to enhancing various activities within the classroom, such as general instruction, computer work, and video-media presentations. And that means today's classrooms have many diverse lighting needs.

Classrooms require:

- A balanced environment that takes advantage of daylight, but evenly illuminates the space
- Control of the lighting to enhance the environment and meet the needs of different visual tasks
- Energy-efficient control that dims or turns off lighting when the space is vacant
- Simple, easy-to-use control





Lutron Teacher Control Station gives teachers the ability to choose the best light level for the task at hand.



Balance LC™

A classroom solution that improves the learning environment and reduces energy costs.

Improve the learning environment

- Teachers have the control they need to adjust the light level for various tasks from the manual wall control.
- Daylight sensors evenly illuminate the space, eliminating spots that are too bright or too dim.

Save energy

- Daylight sensors dim the lights in the presence of sunlight, saving energy without disrupting the learning environment.
- Occupancy sensors turn off or dim the lights when a room is vacant, eliminating energy waste.
- The Teacher Control Station provides manual control of the lighting, saving energy every time the lights are dimmed.
- Digitally addressable ballasts can be adjusted at the high end, generating savings every time the lights are on.

Support the community

- Intuitive wall controls allow the space to be used beyond the school day.
- Substantial energy savings in the classroom translate to a school building with minimal impact on the surrounding environment.

To learn more about BalanceLC and other products for your classroom, please contact your Lutron representative.

K-12 | light control in multi-purpose spaces

Multi-purpose spaces, such as the auditorium, gymnasium, and cafeteria, need light control systems that accommodate a variety of activities from assemblies, concerts, and school plays to extracurricular activities within the community. The challenge here is that the same space that serves one purpose throughout the day may have very different needs during special events.

Multi-purpose spaces require:

- Flexibility to meet the needs of different functions
- Control of architectural and theatrical lighting through one system
- Intuitive controls for the system's many users



The seeTouch® wallstation with customizable engraving provides intuitive control for spaces with many users and various functions.



Multi-channel theatrical console provides control over the stage and theatrical light during a performance.



LCP128™ SpecGrade

A robust, adaptable solution for the large spaces in your school.

Improve the learning environment

- Program a large number of events and zones, so faculty and staff can choose the right light for an activity with ease.
- With partitioning controls, any large space can be sectioned into classrooms, and the lighting can be controlled individually in each new environment.
- A space is ready for any event because LCP128 easily integrates house lighting with theatrical lighting consoles.

Save energy

- LCP128 integrates with occupancy sensors to turn lights off in vacant spaces, saving energy and increasing efficiency.
- Universal dimming cards control any lighting load type, reducing design time and simplifying installation.

Support the community

- Deliver an easy-to-use space with backlit, engravable keypads.
- Whether the space is serving as a polling place, sports venue, or theater, the system adapts to serve any purpose.

To learn more about LCP128 SpecGrade and other products for multi-purpose spaces, please contact your Lutron representative.

K-12 | light control in administrative spaces

Like many office spaces, school administrative spaces require light control that offers comfort and convenience—increasing employee productivity—while saving energy. Lighting flexibility is also important in these spaces, as office arrangements may change or employees may work after hours.

Administrative spaces require:

- Proper task lighting and glare reduction
- Lighting that dims automatically to take advantage of available daylight
- Lighting that turns off when a space is unoccupied
- Lighting that can be integrated with a security system





1-button wallstation gives occupants the ability to choose light levels that meet their needs throughout the day.



Daylight sensor measures the amount of daylight entering the space and gradually dims the lights appropriately.



EcoSystem™

A flexible, efficient solution for office spaces.

Improve the work environment

- Personal control of the lights allows each employee to set a preferred individual environment.
- Spaces can be reconfigured or renovated without rewiring, eliminating downtime and reducing contracting costs dramatically.

Save energy

- Daylight sensors gradually dim or brighten the light to take advantage of sunlight and provide even illumination throughout the space.
- Tuning, daylight sensing, and occupancy sensing combine to cut energy usage substantially.

Support the community

- With EcoSystem, administrative spaces become energy-efficient examples of sound design and respect for the surrounding environment.

To learn more about EcoSystem and other products for administrative spaces, please contact your Lutron representative.

K–12 | light control in public spaces

Public spaces in a school have a unique set of aesthetic and security needs that require support from the light system. These spaces include corridors, lobbies, restrooms, parking areas, athletic fields, and stadiums. Lighting enhances a school's appearance, which is a source of pride for students and the community. Lighting should also integrate with the security system to increase safety.

Public spaces require:

- Event and scene lighting that is programmable and manually adjustable
- Lights that operate only when they are needed in order to save energy
- Lights that turn off in unoccupied spaces
- Illumination of exit routes during emergencies
- Adequate lighting during power outages





Softswitch128 can integrate with your building management system to provide centralized control over the facility or campus.

Softswitch128™

A complete solution for your school building and grounds.

Improve the learning environment

- Control of individual lighting zone and groups can highlight architectural details to present the school in its best light, supporting school spirit and achievement.
- Event scheduling based on time of day or sunrise and sunset creates a safe and secure environment during or after hours.
- Integration with security and life safety systems enhances the school's security and safety.

Save energy

- Patented Softswitch128 relays, tested and rated to last 1,000,000 cycles, will significantly reduce maintenance time and costs.
- Time clock control allows for scheduled turn-off, eliminating energy waste overnight and when the lights are not required.
- Zones can be controlled individually or in groups for optimal flexibility and energy savings.

Support the community

- Automated system control and simple programming give you the flexibility to meet the needs of the community, whether it is a community basketball league tournament or election day.
- Easy-to-use controls make it simple for different users to operate the system, freeing up maintenance staff to focus on other tasks.

To learn more about Softswitch128 and other products for public spaces, please contact your Lutron representative.



Sivoia QED™ roller 64, roller 100, and roller 225

Solar shading can also contribute to proper lighting, as it eliminates glare on desks, chalkboards, and screens from direct, reflected, and diffused light. In addition, solar shades preserve outdoor views and exposure to light, which improve student and employee health, comfort, and satisfaction throughout the school.

The Lutron solar shading solution is Sivoia QED (Quiet Electronic Drive). With Sivoia QED, occupants can easily control the shades from anywhere in the room using a keypad or infrared remote. Sivoia QED shades are available in a range of solar fabrics, including PVC-free and halogen-free.

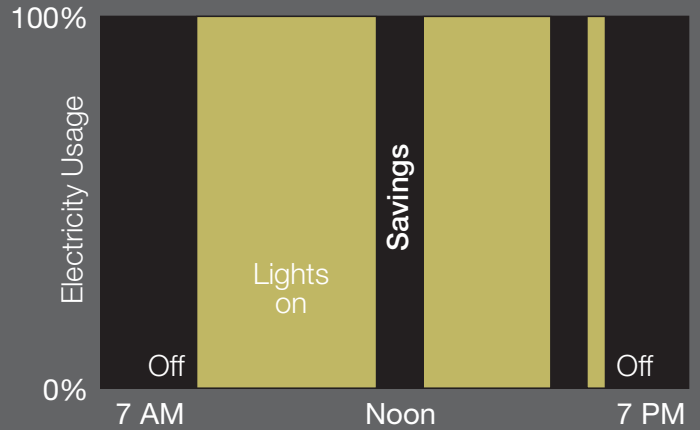
Benefits of Sivoia QED include:

- Precision control of shades at a near silent level, so teachers can control shades without distracting students from normal activities.
- Integration with Lutron light control systems, providing total control of both daylight and electric light for optimum productivity and flexibility.
- Ability to integrate with the building management system, so the facility manager has control over positioning the shades first thing in the morning and at the end of the day.

To learn more about Sivoia QED and other products for your school, please contact your Lutron representative.



Energy usage/savings using a Lutron occupancy sensor



occupancy sensors

Many spaces within a school remain unoccupied with the lights on for 40% to 70% of daily operating hours, wasting energy and money. Lutron occupancy sensors are the solution. Lutron has a full line of occupancy sensors that automate the switching or dimming of the lights, reducing the energy wasted in unoccupied spaces.

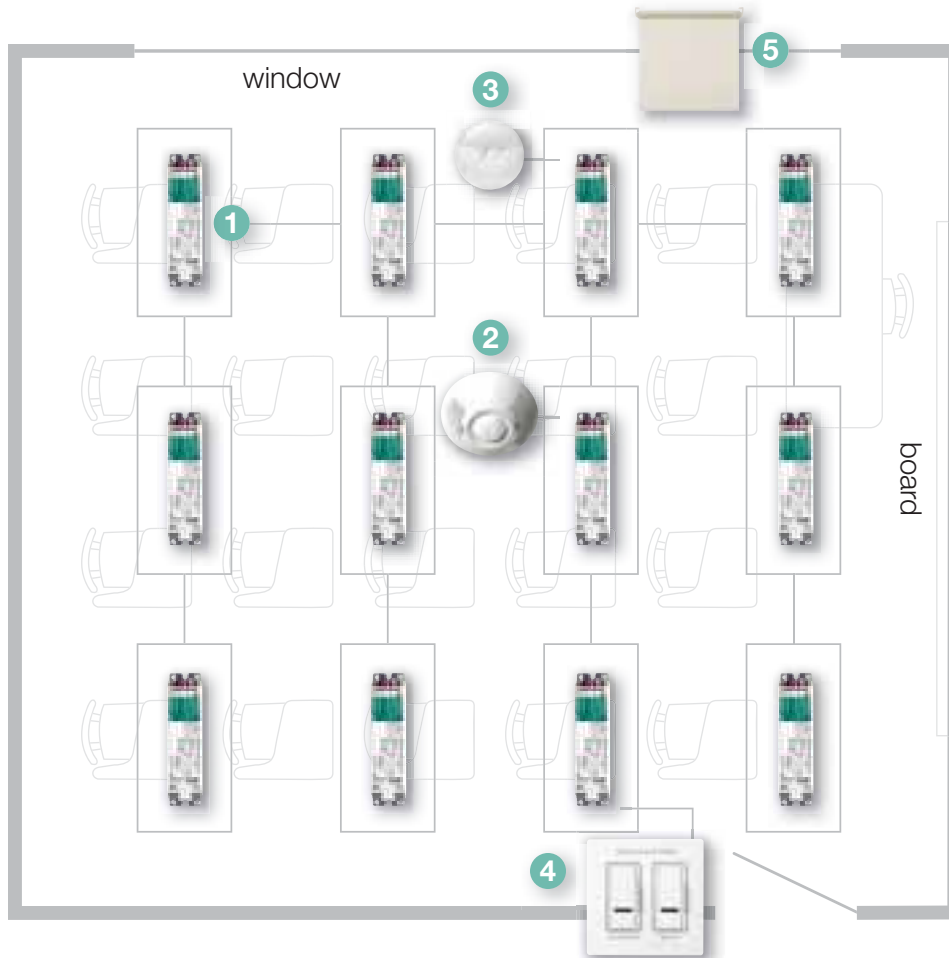
Typical occupancy sensors require manual adjustment of time and sensitivity settings to avoid false triggering. By analyzing occupancy patterns, Lutron self-adaptive occupancy sensors constantly update their time and sensitivity settings to ensure that the sensors have the greatest accuracy. Therefore, no manual sensitivity or timer adjustments are necessary – providing maintenance free “install and forget” operation.

Benefits of Lutron occupancy sensors include:

- Reduced electricity consumption by 20 – 30% by automatically shutting off the lights in unoccupied spaces.
- Efficient lighting controls contribute to obtaining points in several LEED® credit categories. Lutron occupancy sensors help you meet the requirements for these certification points.
- Compliant with building energy codes. Most commercial energy codes have mandatory requirements that can be cost-effectively and conveniently met with the use of Lutron occupancy sensors.

To learn more about occupancy sensors and other products for your school, please contact your Lutron representative.

light control in classrooms



1

EcoSystem™ digitally addressable ballasts connect together to create a lighting network within the classroom.



2

The **occupancy sensor** automatically turns lights to occupied or unoccupied levels based on the occupancy of the space.



3

The **daylight sensor** measures the amount of daylight entering the space and gradually dims the lights appropriately.



4

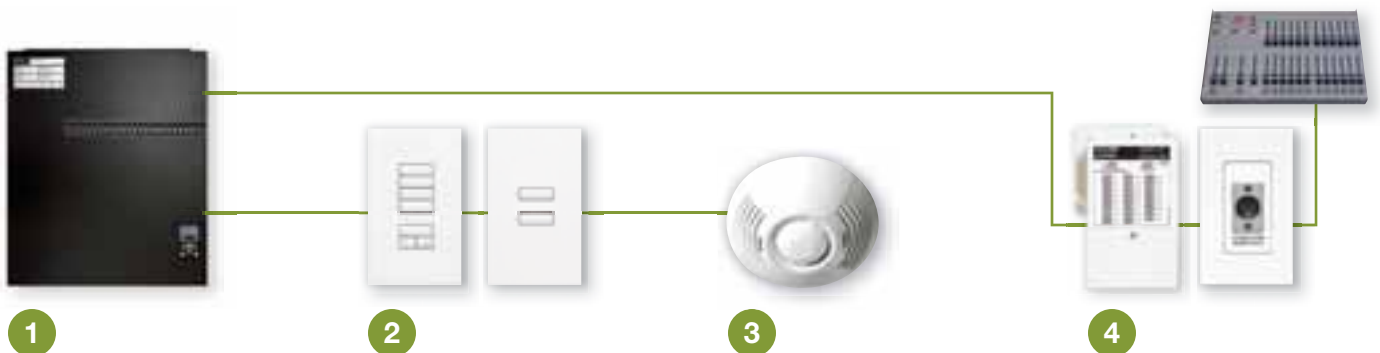
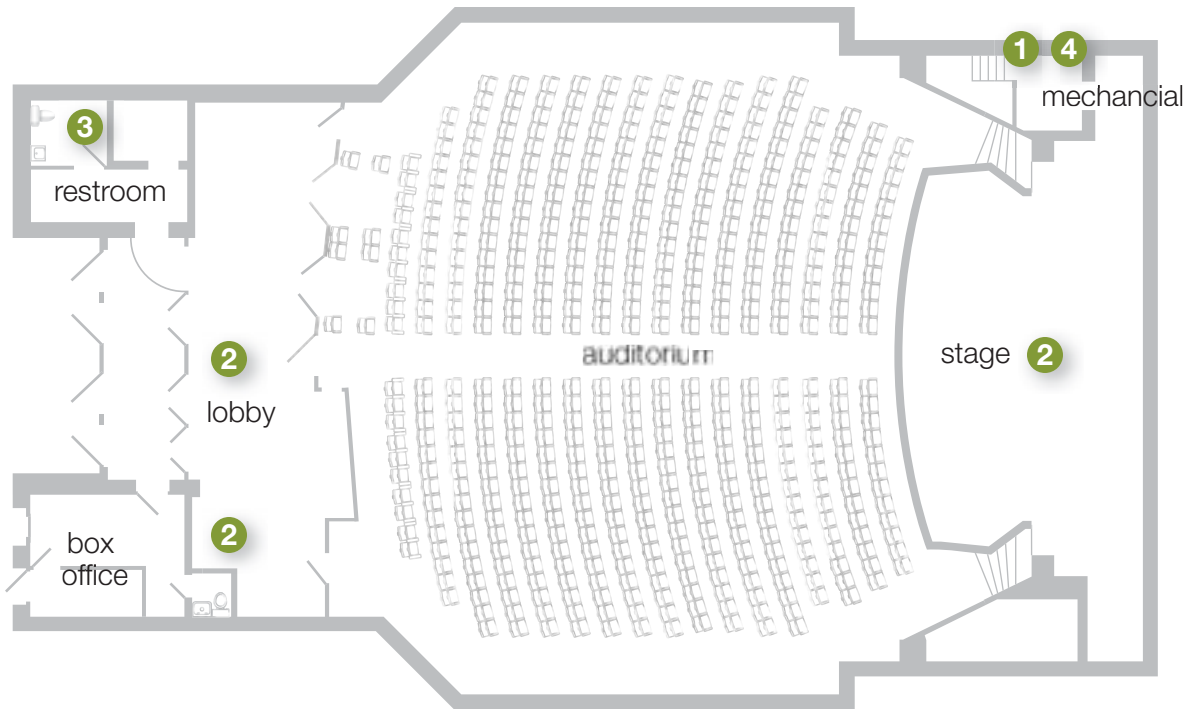
The **Teacher Control Station** provides dimming control of 2 zones of light.



5

Sivoia QED™ shades manage natural light by reducing glare, eliminating excess light, and preserving outside views.

light control in multi-purpose spaces



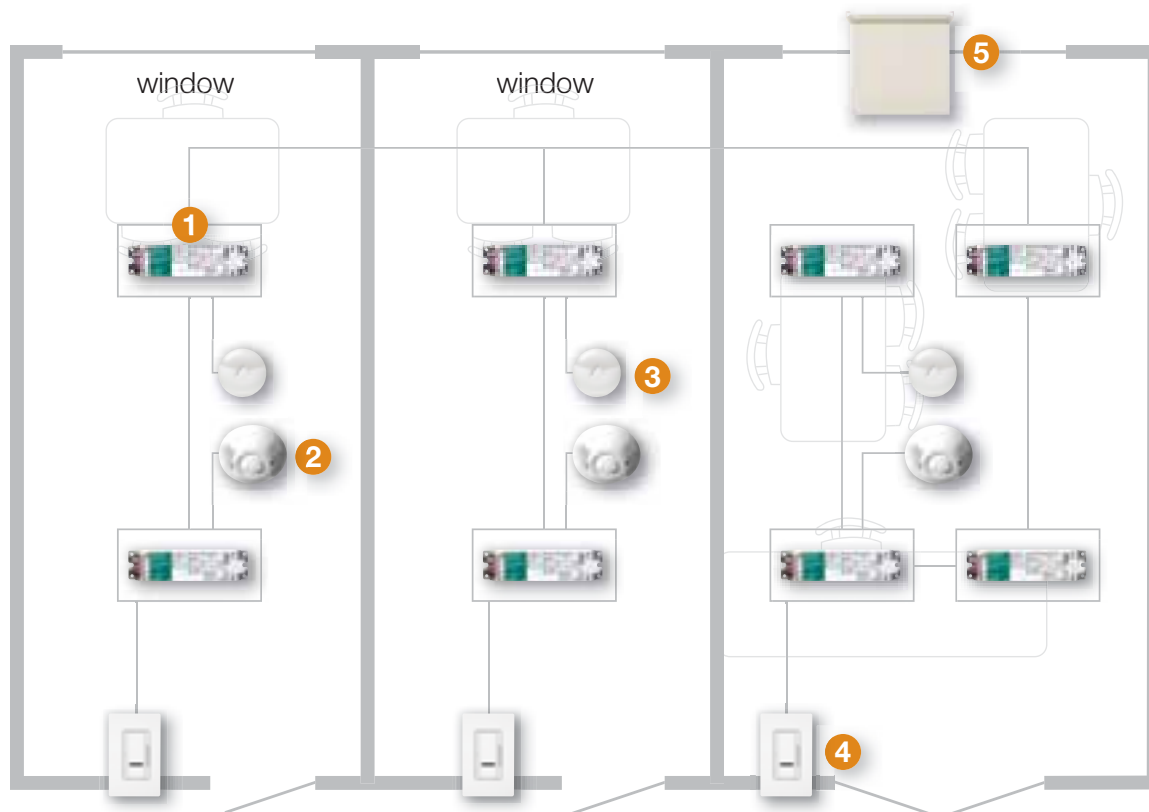
1
LCP128 SpecGrade panels and integral programmer provide architectural dimming control and programming capability for up to 500 events and up to 128 fully-rated 16A lighting zones.

2
Lutron seeTouch® wallstations can provide multiple levels of control, including scene control, zone control, on/off and keyswitch control to meet the needs of a study hall environment or a school-wide assembly.

3
Occupancy sensors can be integrated with the system to provide automated control over restroom and closet lights.

4
The **DMX controller** and **stageboard receptacle** allow a **theatrical console** to take control of the lighting as necessary for a student or community performance.

light control in administrative spaces



1

EcoSystem digitally addressable ballasts connect together to create a lighting network throughout the offices.



2

The **occupancy sensor** automatically turns lights to occupied or unoccupied levels based on the occupancy of the space.



3

The **daylight sensor** measures the amount of daylight entering the space and gradually dims the lights appropriately.



4

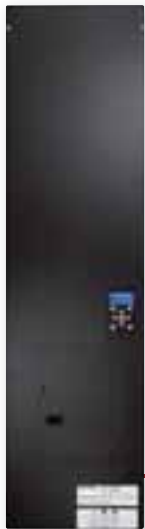
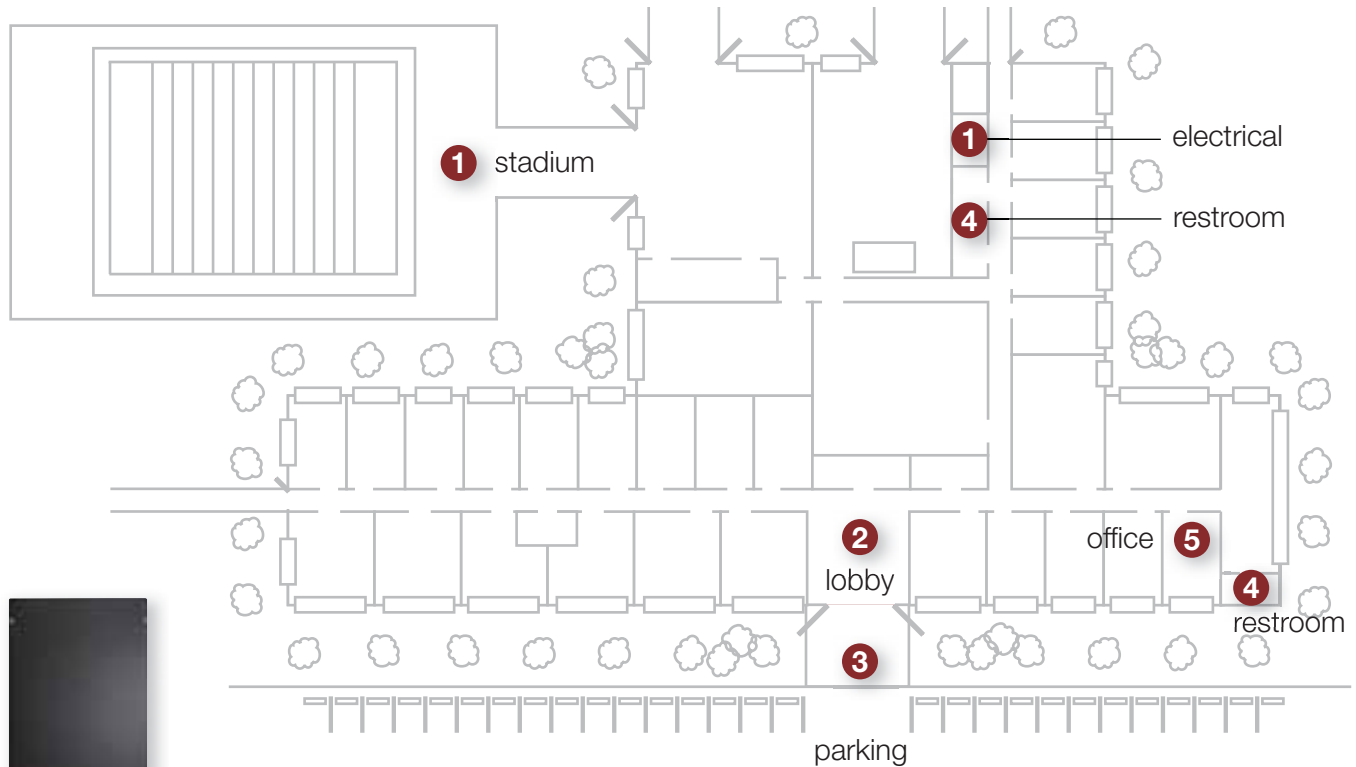
The **1-button wallstation** allows the occupant to manually adjust the lighting as necessary for their work.



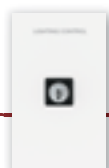
5

Sivoia QED™ shades manage natural light by reducing glare, eliminating excess light, and preserving outside views.

light control in public spaces



1
Lutron Softswitch128 panels and integral programmer provide switching control and programming capability for up to 500 events and up to 512 fully-rated 16A lighting zones.



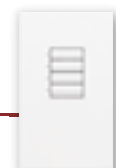
2
Lutron keyswitches provide restricted access to light control in public spaces.



3
Exterior daylight sensors measure available daylight and control exterior and site lighting to create a safe, secure campus.



4
Occupancy sensors integrate with the system to provide control over low-occupancy, low-traffic areas.



5
Conveniently located **SeeTouch® wallstations** provide zone or scene-based control, from individual zones through campus-wide scenes.



“When everything is said and done a building needs a mixture of daylight and electric light, and good control devices.”

Heinz Rudolf, FAIA

Principal, BOORA Architects, and designer of projects for more than 80 school districts and communities.

Efficient light control offers a significant energy-saving opportunity. Despite the fact that most lighting in schools is energy-efficient fluorescent, the number-one source of energy consumption in any building or school is still lighting.

Energy efficiency is rapidly becoming the design requirement of the new millennium. Many states and cities have already adopted specific energy-saving guidelines. More will soon follow suit.

LEED®

Leadership in Energy and Environmental Design (LEED) is a rating system administered by the United States Green Building Council (USGBC) that provides a national standard for what constitutes a green building. A minimum of 26 points is required for LEED certification. Efficient light controls may contribute to obtaining up to 20 points in 4 of 6 LEED-NC credit categories.

Reliability

The average school building is 42 years old. School facilities teams are required to fix more problems with fewer people. They need a system they don't have to worry about. Lutron light controls increase the longevity of lighting fixtures, are easy to maintain, and if service is ever needed, it's just a phone call away. In short, Lutron provides a system that will be around as long as the school.

Our commitment

Lutron is committed to bringing its customers products and solutions that offer the best performance at a competitive cost, on time, on budget, and sure to work.

Expert service

The Lutron commitment to service and reliability continues for as long as you own your system.

- Global Lutron field service engineers, not third-party service providers, handle factory commissioning and support.
- 24/7 multilingual technical phone support
- Assured performance plans include annual warranty extension, annual comprehensive preventative maintenance, and customized training.

Lutron owns 250 patents and manufactures more than 15,000 products. For over 45 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, and we are available to help, on the phone or in the field, whenever we are needed.





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