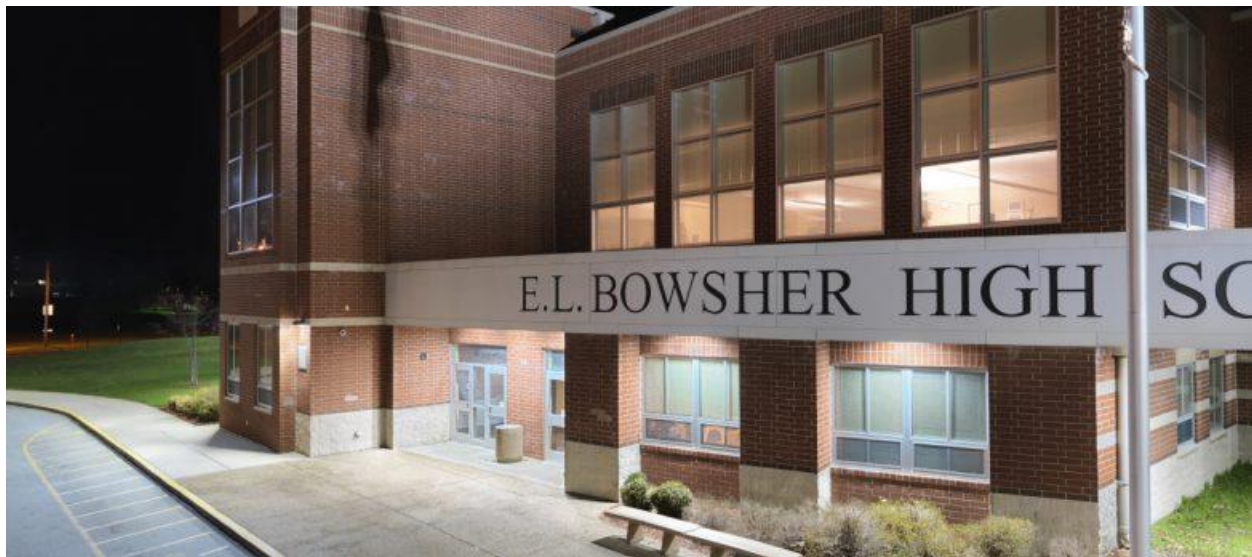


# How LED Lighting Helps Reach the Sustainable Commitment for Educational Facilities

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As a facility manager of a healthcare or education facility, you understand the objective of optimal operation at a minimal cost. You spend a tremendous amount of time keeping up with requests to either fix or improve the critical assets in your facilities. Your responsibilities require you to do this in addition to focusing on bottom line needs such as budget, meeting building code requirements or certifications and still perform regular daily tasks. You look for products with high quality, long life, low energy consumption and minimal maintenance. When it comes to lighting, LEDs can deliver all these benefits without compromise. Let us take a look at three reasons why adding LED lighting to your next project will net you significant savings and an abundance of functional benefits for occupants.

## Seeing the Savings

LED lighting technology has come a long way, and recent advances are making LED lighting cost-comparative to traditional sources, such as metal halide fixtures, while improving the lighting application. LED lighting with higher efficacy and visual performance offers a broader range of products to accommodate the various requirements to meet or exceed energy efficiency targets. Additionally, advanced lighting options such as luminaire controls, occupancy sensors, dimmable features, and daylight sensing are available to reduce even more operational expenses.

Lighting accounts for 40 percent of energy consumption in most buildings, typically greater than one-third of the total electric bill. In 2013, the nation's education institutions spent almost \$14 billion annually on energy. LED lighting can immediately reduce energy consumption and continues to help lower energy bills over its lifetime.

Beyond high efficiency, LED lighting is also designed to easily replace existing fixtures or lamps. The replacement of lamps and fixtures that have expired requires a significant amount of resources and time. Switching to LED lighting eliminates costly relamping and maintenance of traditional light fixtures since LED luminaires have longer lifetimes, in most cases extending well beyond 50,000 hours, and can offer long warranties. This means fewer instances of facility managers disrupting the flow of the building occupants, especially in classrooms. Students are no longer distracted by maintenance personnel changing bulbs or flickering fluorescent lights.

## Getting Up to Code

Building standards and energy requirements are becoming more prevalent, requiring greater attention to detail when retrofitting or installing new lighting. States often differ, but generally follow the ASHRAE standards which have been an important factor in encouraging energy efficiency and environmentally friendly practices throughout the U.S. California's Energy Efficiency Standards, for example, have saved Californians more than \$74 billion in reduced electricity bills since 1977.

LED lighting plays an important role in energy efficiency, in many settings, due to its innovative technology which can easily integrate into sustainable design and construction, helping facility managers meet energy requirements. In response to the updated energy code demands, and in concert with progressive efficiency programs, LED lighting manufacturers continue to push the boundaries of technology in order to maximize potential benefits for building managers and occupants nationwide. For example, the Illinois Energy Program, a portfolio of electric and natural gas efficiency programs administered by the state of Illinois, offers public sector incentives for lighting upgrades. As a result, local, state, and federal government facilities, and public schools, ranging from K-12 to college, were able to install LED lighting among other efficiency updates, demonstrating savings of 7.8 billion kilowatt hours and \$585 million in associated energy costs.

Assessing and managing building codes and complying with state guidelines can be challenging and often becomes a full-time job. However, implementing long-lasting and energy-efficient LED lighting can help reduce this workload and add significant value to your facility's bottom line – giving much needed peace of mind with the flip of a switch.



## **Incorporating intelligent light**

Educational facilities can benefit greatly from lighting control solutions. What's more, solid-state LED lighting solutions eliminate the complexity associated with the installation of incumbent technologies. Today's advanced LED lighting provides easy setup and pre-installed programming that removes the need for added design, components, and labor.

Next-generation LED lighting products often embed occupancy and daylighting sensors, thereby eliminating the concern about the best place to locate the sensor, adding to energy savings. LED technology is inherently smarter than conventional light sources, offering options such as selectable color temperatures. This offers flexibility to adjust the lighting environment for the comfort of students, staff and administration. Advanced lighting controls, for example, can adjust the light output depending on the amount of natural light in the room. As a natural complement to LED lighting systems, daylighting has been associated with improved mood, enhanced morale, lower fatigue, and reduced eyestrain. Additionally LED technology has enabled incredible flexibility in offering in-field color temperature changes (cool to warm) that can be selected by user preference or space requirements.

Compared to traditional lighting technologies, LEDs achieve an expected 50 to 70 percent energy savings, and can reach up to 80 percent savings when coupled with smart controls. For

example, North Carolina State University realized the advantage of intelligent lighting systems in illuminating the first floor of North Hall, located on its main campus. North Hall, including its lobby, recreation area, and computer lab, is one of the many locations at NC State that is open around the clock, and in need of light 24 hours a day, seven days a week. As a result, NC State installed LED lighting equipped with lighting control technology with motion sensing to turn lights out when spaces are empty and daylight harvesting to allow North Hall to only use the light needed, when it's needed.

## **Lighting the Way to a Better Facility**

Indoors and outdoors, well-lit spaces help visitors travel around campus with confidence. LED light is ideal for outdoor campus settings such as parking lots and structures, main pedestrian walkways, and bike paths, where high-quality illumination is essential. Most campus building exteriors and parking areas are lit 24-7, 365 days a year, offering an even greater need for optimal lighting, particularly as campus security is top priority for administrators, students, and staff. A well-designed, high-quality LED solution can provide superior light coverage, minimizing shadows and dark spots to improve visibility and sense of safety. LED lighting can also improve the performance of other safety systems, such as video cameras, by enabling clearer images, creating a better experience for occupants.

LED lighting is becoming more prevalent in educational facilities' athletic stadiums. For example, the Milwaukee School of Engineering, installed LED lighting in its new in-ground 780-car-capacity parking deck to improve illumination and reduce energy costs and consumption. As a result, the university anticipates seeing energy usage savings of 200,000 kW-h annually, while also saving time and money earmarked for maintenance needs. Bowling Green University also retrofitted its 100-x-60-yard indoor turf field with LED lighting, delivering better light quality over the previous installations, while enabling more than \$200,000 in energy and maintenance savings with payback in less than two years. The LEDs help showcase the school's brand new million-dollar artificial turf, while eliminating excess costs and potential field damage associated with maintenance and replacement.

## **Accomplishing More with Better Light**

While assessing the business solution or building needs of a new or existing facility, you will notice that better light will play an important role. LED lighting is transforming the educational environment by creating a better on-campus experience for students and staff, making alternative lighting technologies like fluorescents a thing of the past. High-quality, energy-efficient LED lighting delivers cost-effective and vibrant environments campus-wide, while addressing bottom-line concerns, helping invest in the future of universities.

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