

# Lighting: Bright Ideas to Save Energy and Money



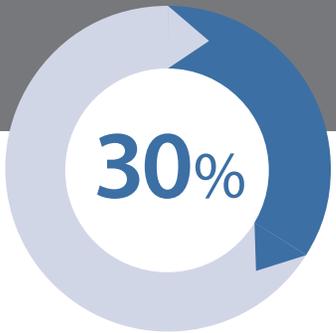
# ADVANCEMENTS IN LIGHTING

For more than 100 years, the light bulb remained relatively unchanged.

Today, advances in lighting technology can dramatically reduce energy usage and provide significant savings opportunities.

Incandescent light bulbs are being phased out (with fluorescent following close behind) in favor of more energy efficient light emitting diodes (LED). A wide variety of sizes and shapes are available depending on the application.





Lighting = 30% of the energy consumed in schools

## WHY CHOOSE LED?

Energy costs are rising and as a result, schools are forced to allocate more of their budget every year to cover this added expense. Fortunately, advancements in lighting technology have made it easier for schools to reduce their energy use.

Schools can replace outdated and inefficient heat-emitting incandescent, dim metal halide bulbs and flickering fluorescent tubes, with the greener alternative—LED.

LED's burn cool, use up to 85% less electricity than their incandescent counterparts and can last up to 50,000 hours or more before replacement is required. In addition, they are a better option when vibration, temperature and accessibility are a concern.



INCANDESCENT	LED
60 Watts	9 Watts
850 Lumen	850 Lumen
Approx \$3	Approx \$11
3000K – yellow light	4000K – white light
Dimmable	Dimmable
3,000 Hours	25,000 Hours

# BENEFITS OUTWEIGH INITIAL COSTS

LED lighting is an affordable option to save money and reduce energy consumption; however, it is not uncommon for administrators to shy away from a lighting project due to the initial investment.

It is important for schools to look past up-front expenses and focus on the total cost of ownership and benefits a lighting project can provide. In fact, a lighting project has the potential to pay for itself in less than five years, and utility provider rebates and incentives can offset a large part of initial costs.

Additionally, a lighting upgrade is a project in which students, staff and community members can actually see the difference. This sort of impact can lead to more community support, approved funding, etc.

## BENEFITS AT A GLANCE

- ✓ Reduces energy costs
- ✓ Increases brightness
- ✓ Decreases energy usage
- ✓ Improves safety
- ✓ Requires less maintenance
- ✓ Eliminates noise and flickering
- ✓ Frees up operating funds

## RETROFIT OR REPLACEMENT?

*“If your school hasn’t updated its lighting in the past five years, a lighting retrofit could present an opportunity to reduce the amount of energy you use for lighting by 30 to 50 percent and for cooling by 10 to 20 percent.”*

—U.S. Department of Education

A lighting project is one of the easiest and most cost-effective ways to reduce a school’s energy consumption and **save money**. The first step is to determine which type of project is the best option for your school—Retrofit or Replacement.

Retrofit projects consist of keeping the existing fixtures in place and simply replacing the lamps and ballasts with more efficient technology.

Replacement projects include installing new fixtures and offer more flexibility in regards to aesthetics and design, but generally are more costly due to increased labor and material.

**Things to consider when deciding on a retrofit vs. replacement lighting project:**

- **Budget**—a retrofit project may be more cost effective
- **Purpose of the space**—new fixtures may be necessary if the use of the space has changed since original design
- **Aesthetics**—new fixtures allow you to change the look
- **Project timeline**—a retrofit project might be the option if you have a tight deadline



Energy Savings

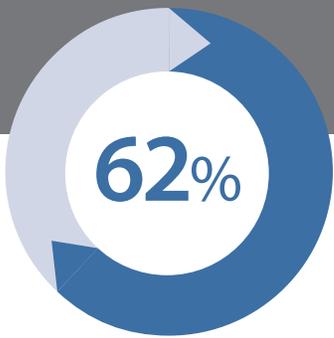
## LIGHTING CONTROLS

Installing energy efficient lamps and fixtures is just one way to save energy and maintain optimal lighting conditions. Lighting control systems provide the right amount of light when and where it is needed. Effective control systems can reduce lighting energy requirements by 40% to 60% on average. In addition, lighting controls reduce maintenance and HVAC costs while improving comfort and productivity.

Here are a few lighting control options:

- **Bi-Level Switching**—Reduce light levels by shutting off a subset of light fixtures and/or bulbs.
- **Occupancy Sensors**—Automatically turn lights on and off when occupants enter or leave a room
- **Dimming Fixtures**—Lower or raise light level across all fixtures uniformly and gradually
- **Timers**—Turn lights on and off at specific times
- **Photosensors**—Outdoor lights turn on at dusk and off at dawn





Energy Savings

## CLASSROOM QUICK-FIX

Studies have shown that classroom lighting can impact student performance. Fluorescent lighting, the most common type used in classrooms today, is linked to nausea, headaches, eye-strain, anxiety, behavior issues and reduced motivation to learn.

Fortunately, energy efficient LED lighting solves these problems and provides several additional benefits over fluorescent including:

- **Eliminating** the buzz and flicker
- **Increasing** safety by containing no mercury
- **Transferring** light with better heat dissipation
- **Providing** 70% more light
- **Requiring** less maintenance



FLUORESCENT	LED
1080 Watts/Room	414 Watts/Room
9,000 Lumens/Fixture	4,800 Lumens/Fixture
4100K – white light	4000K – white light
Most Not Dimmable	Dimmable
30,000 Hours	60,000 Hours



Energy Savings

## GYMNASIUM SOLUTION

The standard lighting system for most gymnasiums is metal halide, which are highly inefficient, costly to maintain and lose about 60% of their light output over time. In addition, metal halides must cool-down for about 10 minutes once turned off before they will re-strike. This usually results in them being left on all day, even when the gym is not in use.

Significant savings can be achieved by replacing outdated metal halide lights with new energy efficient LED.



METAL HALIDE	LED
460 Watts/Fixture	200 Watts/Fixture
12,200 Watts/Room	5,500 Watts/Room
33,000 Lumen	18,000 Lumen
3700K – white light	4000K – white light
Not Dimmable	Dimmable
20,000 Hours	50,000 Hours

## A TRUSTED PARTNER

The key to a successful lighting project is choosing the right partner.

Dynamix Energy Services can assess your current lighting and help you take advantage of new technologies to achieve greater energy efficiency, higher quality lighting and maximum savings.

Count on Dynamix to provide innovative, value-based solutions for all of your energy projects.

Dynamix can help you:

- **Improve** your building's energy consumption
- **Enhance** comfort
- **Reduce** costs
- **Resolve** your ongoing facility challenges
- **Optimize** mechanical, lighting, control and exterior systems
- **Guarantee** energy savings



**OUR CLIENTS AVERAGE 50% COST SAVINGS! HAVE ONE OF OUR EXPERTS SEE HOW MUCH WE CAN SAVE YOUR ORGANIZATION WITH A FREE ANALYSIS.**