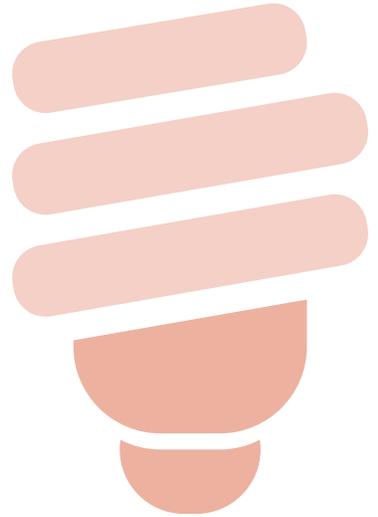


# Implementing LED Lighting in Your Facility: What to Consider

For many buildings, switching to more efficient lighting is one of the “low hanging fruit” for improving energy efficiency. Facility managers are increasingly turning to LED lighting technology to meet their energy efficiency goals.



LED bulbs top the lighting charts in energy efficiency and longevity, and frequently represent a payback of three years or less. However, LEDs may not be the best choice for every application. When considering whether to implement LEDs in your facility, you’ll need to take many factors into account.

**Let’s take a look at the most important things to consider:  
How much electricity are you currently burning?**

*As a rule of thumb, the more energy you are burning to light your facility, the more likely you are to save by*

*implementing LED technology. Ask yourself the following questions to determine whether LEDs make sense for you.*

- **What types of fixtures are currently installed in your facility?**

LEDs will pay back sooner when used to replace less efficient types of lighting. For example, LEDs burn about 87 percent less energy than halogen bulbs, and 90 percent less than incandescents, but only marginally less than some of the better compact fluorescents or high performance T8 bulbs.

*It's also important to consider whether LED bulbs are compatible with your current fixtures. Would you have to remove the ballasts and retrofit the fixtures, or purchase all new fixtures? In that case you may be better off purchasing high-efficiency T8 or T5 fluorescent bulbs.*

- **What wattage fixtures are you currently using?**

Replacing high-wattage bulbs will save you more than low-wattage ones.

Implementing LEDs in high-intensity applications such as security lights and parking lot lighting is often a very smart move.

- **How many hours per day will your bulbs be on?**

Even lower-wattage bulbs burn a lot of electricity when they are left on for extended periods. Think about the places in your facility where lights are on 10 hours or more a day, such as parking garages, elevators and entryways. These may be good candidates for LED bulbs.

## **What are your lighting maintenance costs?**

Do you have bulbs in hard-to-reach places that require significant time and expense to change? If so, LED bulbs may save you enough in labor and related expenses to be the most economical choice for those applications, even at a higher upfront cost.

LED bulbs last significantly longer than most other types of lighting – typically about 20 times longer than incandescent bulbs, twice as long as CFLs, and three times longer than standard fluorescents. However, some of the high-performance T8 bulbs can be nearly as long-lived as LEDs, so do your homework before settling on your final choice.

Don't be fooled by manufacturers' longevity ratings, though. You may read that bulbs last 20 years or even longer, but these ratings are based on laboratory trials and are typically based on an estimated usage of three hours per day. In real conditions in your facility, actual lifespans are likely to be much shorter – but so will those of other types of bulbs. Comparing bulbs by relative life expectancies will give you a better idea how much you will save in maintenance by switching to LEDs.

## Temperature and LEDs

Temperature may play a role in your decision whether to implement LED lighting in your facility. LEDs lose efficiency at higher temperatures. If you are replacing bulbs in areas that often reach high temperatures – such as near furnaces or ovens – you might not realize ideal performance from these bulbs. On the other hand, LEDs are an excellent choice where

temperatures dip well below freezing. In fact, they are the lighting of choice for Antarctic research stations. So if you need to replace lighting in your coolers or other low-temperature areas of your facility, consider LEDs.

Another temperature-related feature of LEDs is the fact that they generate very little heat. They are so cool that many LED bulbs are made of shatterproof plastic rather than glass. This makes them an excellent choice for schools, athletic halls and other facilities where children are present or where bulbs are in danger of being hit.

## What are your lighting quality needs?

Finally, you will want to consider the quality of the light in your facility. Light color is rated according to the Correlated Color Temperature (CCT) scale, which assigns bulbs a color temperature rating from about 2,000 to 7,000 Kelvin. For areas where visibility is important, such as warehouses, offices and classrooms, it's best to choose bulbs with a relatively high CCT rating (5,500-6,000K.) Unlike some other bulb types, LEDs are available in a wide range of color temperatures, so you should be able to find bulbs to suit your preferences. Also, LED bulbs do not flicker. If your employees are complaining of headaches and eyestrain when working under fluorescent lighting, you might want to consider switching to LEDs.

Before choosing any lighting replacement, it is best to do a thorough assessment of your current energy needs, your energy efficiency goals, overall acquisition and maintenance costs, and performance priorities. This will help you select the best lighting choices for your facility. You may find that LED bulbs are ideal for some areas of your facility even if they are not the best choice for others. Keep in mind, too, that lighting implementation is rarely an all-or-nothing proposition. Phasing in new bulbs or fixtures as the old ones wear out is perfectly acceptable and may be the best option for you.

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