STOUCHLIGHTING®
LED LIGHTING SOLUTIONS

High Bay Lighting

E-Guide

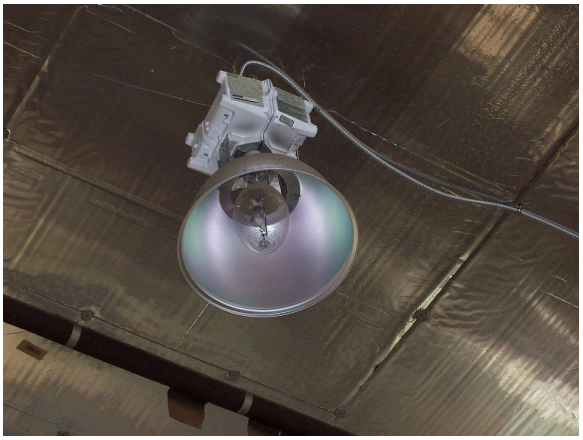
www.stouchlighting.com

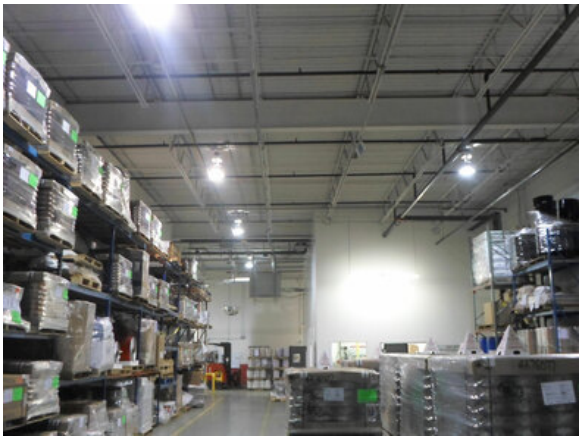
Definition

What is a “High Bay Lighting" application?

High Bay Lighting and Low Bay Lighting are terms used to describe the indoor lighting that is commonly mounted via a pendant, chain, or directly to a ceiling or ceiling girder. Often mounted higher than recessed troffer or fluorescent surface lighting applications, High Bay fixtures and Low Bay fixtures are used in building with higher ceilings to provide warehouse lighting, industrial lighting, commercial lighting, retail lighting, and gym lighting.

Below are a few image examples of conventional Highbay and Lowbay Lighting applications.





Common Issues

All HID lamps have some inherent characteristics that can lead to issues for those managing the industrial lighting fixtures, commercial lighting fixtures, warehouse lighting fixtures, retail lighting fixture, and gym light fixtures.

Energy Costs

Common (HID) Lamp wattages used for High Bay Lights and Low Bay Lights range from 175 Watts to 1000 Watts. The higher the wattage the higher the light output. The function of the area being illuminated, combined with the quantity, spacing, and height of the ceiling and fixture mounting plays a role in the existing wattages that are utilized. A 400w or 1000w HID Fixture (very common wattages for High Bay Lighting and Low Bay Lighting Fixtures) can **cost up to $209 and $525 to operate per lamp**, per year, in electricity alone.

Maintenance Costs

Maintenance costs are often a big concern for those managing Industrial Lighting fixtures, commercial light fixtures, warehouse lighting, and gym light fixtures. In additional to the potential lamp lifetime concerns, High Bay Lighting, being commonly mounted on ceilings in excess of 15ft, often require the use of a lift to change out a lamp or a Ballast (can't forget about those ballast!). Many buildings and facilities do not own a lift and thus have to hire an outside contractor to maintain these of types fixtures. These are expenses that can really add up over the course of a few years. It can easily cost up to $1,200 in labor and material to maintain a single High Bay Light fixture over the course of 3 years.

Lighting Performance

The characteristics of your High Bay Lighting and Low Bay Lighting can vary significantly. For example, if you are using Metal Halide lamps you may see light that is "Whiter", but these types of lamps tend to have accelerated lumen degradation, meaning the light output of the lamps decrease quickly after initial install, and as a result the overall lifetime of the lamp decreases (we have all seen those Highbay Light fixtures that have "pink" lamps that are barely providing any lighting on the ground). If you are using High Pressure Sodium you may see longer "useful" life as these lamps see less lumen degradation then Metal Halide, but their fuel structure produces a very "Orange" light with a very low CRI (Color Rendering Index). So basically you trade a longer life for a poorer quality light, in regards to visual perspective.

Benefits of LED

What are the benefits of LED High Bay Lighting?

IIndustrial LED Lighting, Commercial LED Lighting, LED Warehouse Lighting, or any other applications using LED High Bay Lighting are able to realize significant benefits because of how they **GENERATE** light and how they **DISTRIBUTE** light. Light Emitting Diodes generate light via a semi-conductor , as opposed to the consumption of a "fuel source" like in HID lamps. In regards to "distributing" light, LED fixtures commonly utilize "Multi-Point" sources, meaning the light fixtures have Multiple Diodes with individual optics. When you compare this to the way most HID fixtures distribute light (with a single bulb and reflectors within the fixture), the result is light that is more **EVENLY** "distributed' across a surface.

Benefits of LED

The three most common benefits of LED High Bay Lights

Energy Savings

Common wattages for LED high bay fixtures can range from 95 Watts to 495 Watts, often resulting in a **40%-60% reduction in energy consumption**. The reason for this can be referenced to the "**GENERATION**" comments above, and can result in savings of up $300 per fixture per year in electricity costs.

Maintenance Cost Reduction

Again, due to the way LEDs generate light, the way they progress through their functional life is much different. Instead of ceasing to function properly once a fuel source is significantly reduced, LED generated light output degrades **VERY SLOWLY** over time. As a result the functional life (often in excess of 100,000 hours) of an LED product can be significantly longer than that of an HID Lamp. For example, by converting conventional 400w HID High Bay Lighting to LED, a typical building with industrial light fixtures can **save up to $5,341 over the course of 3 years in** maintenance costs alone.

Lighting Performance

Moving on to the way LED fixtures "**DISTRIBUTE**" light. As a result of the Multi-Point design, LED High Bay Lighting applications often provide very **EVENLY** distributed light. What this means is that light levels across a given surface will vary less between fixture mounting locations. Compared to HID fixtures, which often product a "bright spot" directly underneath the fixture with light levels decreasing drastically as the distance between fixtures increases. The result, in regards to LED vs HID, is a more even foot candle distribution from the LED conversion. In addition to the even distribution of light, LEDs are available in a range of CCT's (Correlated Color Temperatures), and as a result provide a range of options to increase the visual perception of "brightness".

Next Steps

How do I determine the next steps to improve my High Bay Lighting application?

The first step is to speak with a LED lighting solutions provider that is manufacturer neutral. Why this approach as opposed to the company you may have used for the past several years? Unless that company has a focus on providing LED solutions, it is unlikely that will have the performance focused mentality that is required to obtain the desired results of an LED Lighting project.

A crucial step in any LED project is understanding that **LED Lighting is NOT a commodity**.

Prior decades consisted of building facility managers and building owners evaluating product options purely on cost, assuming that all of the options in consideration were equal in quality. **This is not case with LED Lighting.**

A solution focused supplier should ask you about your project objectives.

Do you have...

- **Budget constraints?**
- **Return On Investment Criteria?**
- **Energy reduction targets?**
- **Lighting performance requirements?**

The appropriate partner will want to get an understanding of your desired outcome, not just what specific products they can sell you. **Not all LED products are created equal**. There are different levels of value from different manufacturers for different applications, and by working with a company that has the product expertise to recommend a solution that meets your project priorities, you will ultimately achieve the best results. We'd love to know more about your **upcoming lighting project**, or **contact us** and we'll get in touch with you.