STOUCHLIGHTING®
LED LIGHTING SOLUTIONS

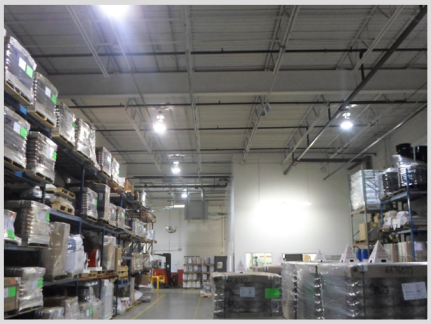
High Bay Lighting and Low Bay Lighting

Definition

What is a "High Bay Lighting and Low 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 buildings 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.



Most existing High Bay Lighting and Low Bay Lighting applications utilize High Intensity Discharge (HID) lamps such as Metal Halide, High Pressure Sodium, and if they are very hold, Mercury Vapor Lamps.

Below is some information on the types of HID Lamps:

- Lighting Comparison: LED versus HID
- LED versus Metal Halide Lights
- LED Versus High Pressure Sodium and Low Pressure Sodium

Common Issues

What are some common issues with conventional High Bay Lighting and Low Bay Lighting fixtures and lamps?

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 out 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

Depending on the type of HID Lamp your facility utilizes, the performance 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 and Low Bay LED Lighting?

Industrial 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 LED's 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.

The three most common benefits of LED High Bay Lighting:

Energy Savings

Common wattages for high bay LED 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.

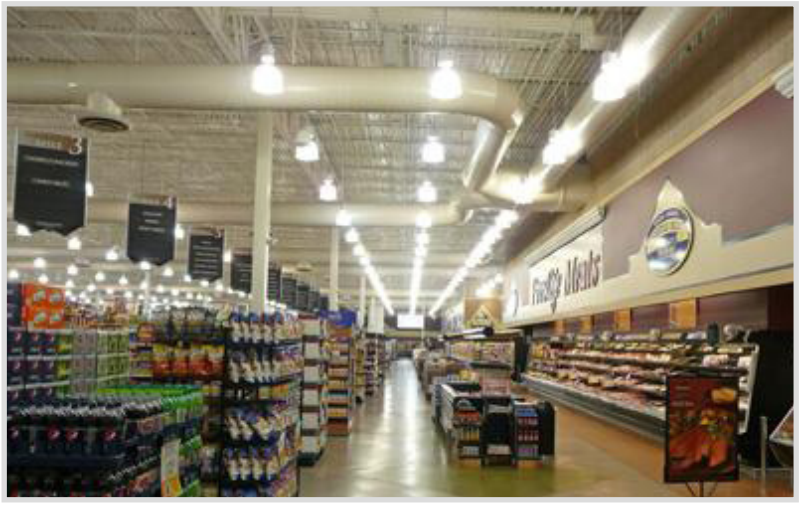
Maintenance Cost Reduction

Again, due to the way LED's 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 maintenance costs alone.

Benefits of LED

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 foot candles 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 what the next step is to improve my High Bay Lighting and Low Bay Lighting applications?

The first step is to speak with a LED lighting solutions provider or LED Lighting Company 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 Light Fixtures and Lamps, it is unlikely that it will have the performance focused mentality that is required to obtain the desired results of a LED retrofit project for your Highbay Lighting applications. A crucial Step in any LED project is understanding that LED is NOT a commodity. Prior decades consisted of building facility managers and owners evaluating HID fixture options purely on cost, assuming that all of the industrial LED, commercial LED, LED warehouse lighting, and LED gym light fixture options in consideration were equal in quality. This is not case with today's LED Light Fixture options.

A solution focused supplier should ask you about your project objectives. Are there budget constraints, energy reduction targets, lighting performance requirements, etc? The appropriate partner will want to get an understanding of your desired OUTCOME, NOT just what specific products they can sell you. Not all High Bay LED fixtures 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.

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866-964-8559 | Info@StouchLighting.com | 525 Turner Industrial Way Aston, PA 19014