



# High Mast Lighting

E-Guide

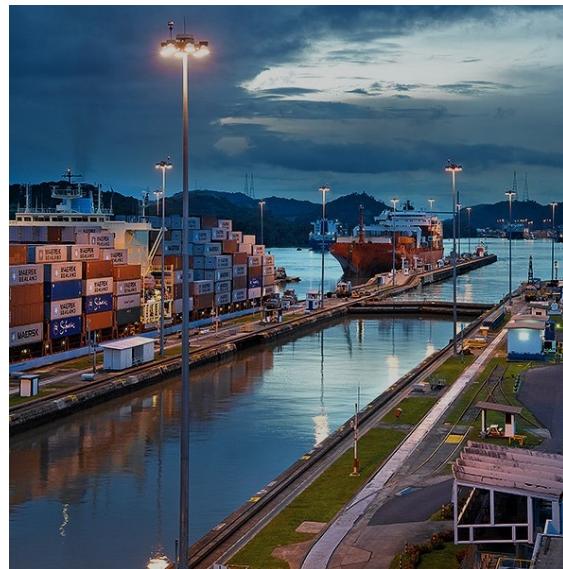


# Definition

## What is High Mast Lighting?

High-Mast Lighting is a type of site light fixture that is commonly used to illuminate large areas from a very high mounting height for storage, transportation, and pedestrian use and safety. High Mast Fixtures are typically mounted on poles 40ft to 150ft tall, with 4 to 16 fixtures mounted on each pole. This type of outdoor lighting is often used by municipalities, ports, municipal authorities, and in parking lots of large venues such as stadiums and sports facilities

*Below are a few image examples of High Mast Lighting:*



Most existing High-Mast lighting fixture utilize High Intensity Discharge (HID) lamps such as High Pressure Sodium (HPS) or Metal Halide (MH).

[Download Our Lighting Comparison E-Book](#)

# Common Issues

What are some common issues with HID High Mast Light Fixtures?

## Energy Costs

Common (HID) Lamp wattages used for conventional High Mast fixtures range from 400 Watts to 2,000 Watts. The higher the wattage the higher the light output. The function of the area being illuminated, combined with the quantity, spacing, and mounting height of the pathway light fixtures plays a role in the existing wattages that are utilized. A few 1000w or 2000w High Pressure Sodium High-Mast Lights (very common wattages for existing high-mast lighting) can cost up to **\$6,300 and \$12,500** to operate per year, in electricity alone.

## Maintenance Costs

Maintenance costs are often a big concern for industrial site lighting applications such as High-Mast Lighting. In addition to the potential lamp **lifetime concerns**, High-Mast Fixtures can easily cause interference with the day to day activities of customers or employees when changing out a lamp or a Ballast (can't forget out those ballast!). It can easily cost up to **\$2,000 in labor and material** to maintain a single exterior HID High Mast fixture over the course of 3 years

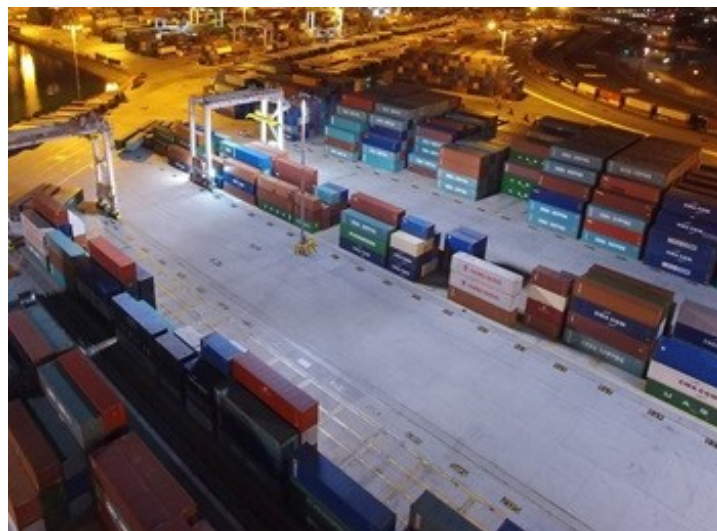
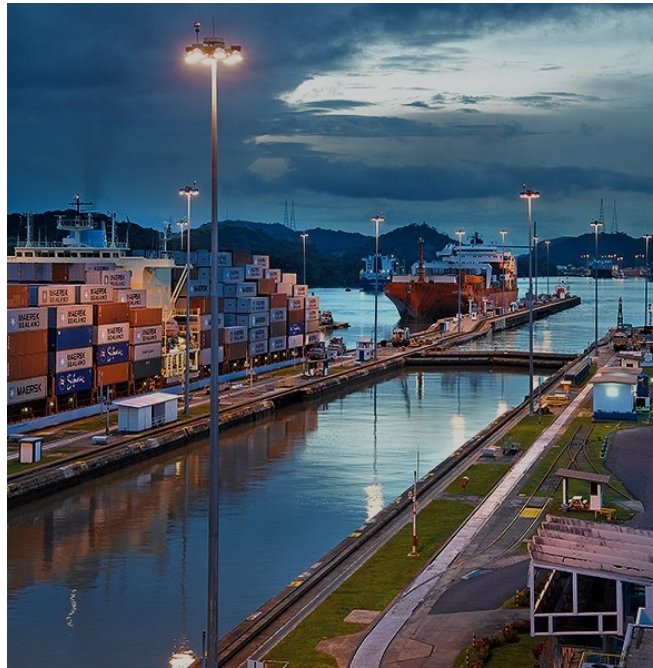
## Lighting Performance

Depending on the type of HID Lamp your facility utilizes, the performance characteristics of your existing High-Mast 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 High Mast fixtures that have "pink" lamps that are barely providing any illumination on the ground). If you are using High Pressure Sodium you may see longer "useful" life as these lamps see less lumen degradation than Metal Halide, but their fuel structure produces a very "Orange" light with a very low **Color Rendering Index**. So basically you trade a longer life for a poorer quality light, in regards to visual perspective with HPS

# Benefits of LED

What are the benefits of LED High-Mast Lights?

Outdoor LED Lighting, such as LED High Mast light fixtures, provide some excellent benefits for large areas or sites requiring illumination 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 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 given area.



# Benefits of LED

The three most common benefits of outdoor LED High Mast Lighting.

## Energy Savings

Common wattages for LED High-Mast light fixtures often range from 209 Watts to 750 Watts, often resulting in a **50%-80% reduction** in energy consumption. The reason for this can be referenced to the **GENERATION** comments above, and can result in savings of up **\$8,000 per fixture per year** in electricity cost.

## 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 fixture can be significantly longer than that of an **HID Lamp**, which in turn drastically reduces the costs for maintaining exterior high mast light fixtures over a longer period of time

## Lighting Performance

Moving on to the way LED fixtures **DISTRIBUTE** light. As a result of the Multi-Point design, LED high-mast fixtures for site and large area applications often provide a very **EVENLY** distributed light pattern. What this means is that light levels across a given surface will vary less as the distance from the pole or fixture changes. Compared to HID fixtures, which often product a "bright spot" directly underneath the fixture with light levels decreasing drastically as the distance from the pole 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 **color temperatures**, and as a result provide a range of options to increase the visual perception of "brightness."

# Next Steps

## What are the next steps to improve my High-Mast 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 for your municipal, campus, industrial and High Mast Lighting applications.

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 exterior 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.