More Usable Light with Fewer Lumens

How LEDs Provide the Same or More Light with Fewer Total Lumens

LEDs brilliantly light up this basketball court.

More Footcandles with Fewer Lumens?

Organizations that are beginning to explore LED lighting solutions for their facilities often notice a significant difference in the total light output (measured in lumens) when comparing conventional lighting products with the LED lighting products available today. In nearly every application, an LED lamp, retrofit kit, or fixture generates fewer total lumens than conventional lamp technologies; yet even with less total light output, a properly designed LED product usually delivers the same or more light to the task area, which is measured in footcandles. This is due to the unique directional nature of LED lighting.

Conventional Lighting Wastes Light

In a conventional HID shoebox light fixture, for example, a large glass lamp with a gas discharge produces a large total lumen output in all directions (omnidirectional). The light must then be controlled and reflected within the fixture housing in order to deliver it to the intended task area. The larger the lamp, the less efficient the reflector is when redirecting the light because the light is emitted over a broader surface area and more light must reflect off of the fixture's internal painted surfaces and back through the lamp. This introduces significant losses and yields less useful light. About 40% of the light from a conventional fixture is lost in this way. Additionally, reflectors in conventional fixtures will collect dust and other particles over time, further decreasing their efficacy.

LED Lighting Focuses Light on the Task

LED lighting is directional, in which all of the light is emitted in one general direction instead of in all directions. Most LED chips also utilize beam-shaping optics to further control light distribution. Because LEDs direct virtually all of the generated lumens in the desired direction and in an intended pattern, LED solutions deliver the same or better foot-candle readings at the target area, even with lower total light output. This inherent advantage of LED lighting not only boosts efficiency considerably, it also enhances security, especially in parking lots and along roadways.

Copyright 2017 Tri-State LED, Inc. All rights reserved.

Moreover, lumen depreciation is substantially less over time with LED lighting than with other conventional technologies such as fluorescent or HID. Metal halide, for example, can experience up to 35% lumen degradation within the first 18 months. Facilities personnel are all too familiar with this fact, and oftentimes they need to plan for re-lamping and re-ballasting fixtures every two years or so to maintain proper lighting levels. LED lighting, with its significantly longer rated life, will typically take over ten years to experience a 30% reduction in lumen output in a typical exterior application (based on an L70 rating of 50,000 hours and usage of 12 hours per day).

Conclusion

It is essential, therefore, that those who are looking to deploy LED lighting focus their attention on useable footcandle levels, rather than on the total lumen output of a given LED product, because a lower total light output from an LED does not translate into less light to the task area. Though not entirely necessary, photometric plans can also be developed that will provide a more accurate representation of footcandle levels for a given project. Any reputable LED lighting manufacturer or distributor should be able to provide such services at no cost to the customer.

About Revolution Lighting, Inc.

Revolution Lighting Technologies, Inc. is a leader in the design, manufacture, marketing, and sale of LED lighting solutions focusing on the industrial, commercial and government markets in the United States, Canada, and internationally. Through advanced LED technologies, Revolution Lighting has created an innovative lighting company that offers a comprehensive advanced product platform of high-quality interior and exterior LED lamps and fixtures, including signage and control systems. Revolution Lighting is uniquely positioned to act as an expert partner, offering full service lighting solutions through our operating divisions including Energy Source, Value Lighting, Tri-State LED, E-Lighting, All-Around Lighting and TNT Energy to transform lighting into a source of superior energy savings, quality light and well-being. Revolution Lighting Technologies markets and distributes its products through a network of regional and national independent sales representatives and distributors, as well as through energy savings companies and national accounts. Revolution Lighting Technologies trades on the NASDAQ under the ticker RVLT. For more information, please visit http://www.rvlti.com/ and connect with the Company on Twitter, LinkedIn and Facebook.

Copyright 2017 Tri-State LED, Inc. All rights reserved.