

The Fabulous
Lighting Maven
Unexpectedly Illuminating

ACTION-ORIENTED PEARLS OF WISDOM FOR INDUSTRIAL MANAGERS AND CONTRACTORS
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Dear Reader:

Facilities Managers won't be surprised when learning there is sometimes a surprise around what he/she thought they were reading from a specification sheet, and what they see in terms of performance in their plant.

The science of lumens is susceptible to that, as manufacturers and Facilities Managers have no choice but to talk in two different languages.

DELIVERED LUMENS

A manufacturer expresses the performance of its fixture in terms of lumen output – the number of lumens of light emitted at the source, the surface or lens of the fixture. Once the lumens leave the fixture, obviously the manufacturer doesn't control anything, including the height of the room, reflectivity of walls, process machinery locations that may cause shadowing, etc.

The Facilities Manager, however, is concerned with the amount of those lumens that actually reach the task area. By and large, what leaves the fixture is meaningless to him/her; all that matters are the questions around whether, and to what extent the employees in the plant have enough light to do their jobs.

Think about how much light (lumens) is lost inside the old fluorescent systems. Only about 14% of the lamps output is directly emitted from the fixture. The rest, a whopping 86%, must bounce off the fixture's reflective material above and beside the lamp before leaving the fixture, and once it does, more than 70% of the output is lost forever. Clearly, while retrofitting with LED tubes is cheap, it makes no sense in terms of return on investment.

One of the great beauties of LED fixtures is in the very small difference between lumen output and delivered lumens. 94% of the fixture's lumen output is delivered. Premier Lighting has put out a nice piece with illustrations that tells this story well, and you can find it here: [Total Lumens vs. Delivered Lumens](#).

The best course of action during the due diligence around a new or retrofitted lighting system is to do a Point by Point simulation. Our lighting contracting company, U.S. Power Vision, always does this in preparation for a project, utilizing computer software known as AGI32. It's a simulation tool used for designing lighting projects, and it calculates the amount of light that will be delivered, expressed in footcandles, throughout the plant.

AGI32 can calculate the amount of light that will be delivered in any kind of design, interior or exterior, and incorporate surrounding objects, obstructions, and varying shapes like vaulted ceilings or rooms in non-linear shapes.



U.S. Power is an industrial energy services company that specializes in the reduction of energy consumption across a broad array of manufacturing and food processing facilities located in Michigan, Ohio, Indiana, Illinois and Wisconsin. In addition, the company publishes a useful curation of lighting-oriented information from the marketplace, and consolidates it into this concise, twice per month letter known as The Fabulous Lighting Maven, distributed to Facilities Managers throughout the nation.

While the company prides itself in its diversity, it owns and operates a niche lighting contracting firm as well, known as U.S. Power Vision, LLC. With a core business in and around industrial LED lighting, it keeps itself and its clients at the cutting edge of illuminating technologies, all aimed at providing – from the eyes to the fingertips – exceptional illumination, superb control and intuitive simplicity.

YOUR MORNING GRIN

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Ron Motsch
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