l i g h t i n g d e s i g n l a b

NEWSLETTER

www.lightingdesignlab.com

Fall 2012

In this issue…

New Website

Same URL, different look. We recently re-designed our website to make it easier to find the information you are looking for. Let us know what you think!
Send suggestions to:
anne@lightingdesignlab.com

You can also "like" us on Facebook to keep up with the latest in efficient lighting.

More Lighting Guides!

Check out our website for more in our series of Lighting Layout Guides.

LED Successes - Are You Sitting Down?

by Eric Strandberg, LC

Anyone associated with the lighting industry can't help but notice that white light LEDs have been dominating the conversation for the last five plus years. A visit to LightFair International (a major lighting conference and tradeshow), has shown a steady increase in LED lighting products in every facet of lighting. This is not news.

However, what I have been noticing is how good the LED products are becoming. The better manufacturers can deliver the light quality and quantity one expects from a modern lighting system.

I like to think of effective lighting as a three legged stool —

Primarily: Does it perform well? The lighting product must deliver light that is as good as, or better than what I had been using.

Second: Does the product save energy over incumbent products? It is not strategic to install "quality lighting" that is not sustainable.

Third: Does the product save any money? Cost effectiveness - either first cost or over time - is always a consideration.

We've been seeing the second leg of the stool for a while with very low wattage fixtures, but they didn't quite deliver the quality of light that we were used to with fluorescent, halogen, or ceramic metal halide. Lately, I have been seeing quality light across the entire spectrum of LED products; from track and recessed products, integral lamps (PARs and A type), and task lights to exterior fixtures. These products are saving energy and delivering high quality light that we expect. This is particularly the case when the conventional product is inherently inefficient like a recessed can or an incandescent lamp. There is lots of savings potential with no loss in light quality.

So now we have two legs of the stool. As to the third leg — saving money, that is a moving target. LEDs still have a high first cost, but that is coming down as improvements are made. And with their very long life, maintenance savings will be significant.

Same fixture, 3 different lamps; incandescent, fluorescent and LED…which one is which? Email us at info@lightingdesignlab.com and give us your answer.

Fall 2012 Education Series

Morning Class: 10:00 am — 12:00 pm (See fees below.)

The Basics of LEDs

Instructor: Jeff Robbins, LC, MIES

Solid state lighting has found its way into every niche of the commercial/industrial lighting trade. But before attempting to design a lighting system using LEDs, a fundamental knowledge of their history, forms, functions, and appropriate applications is needed. This is a beginner's class, intended for those wanting an introduction to LED products, their use, and terminology specific to the technology.

Jeff Robbins is a Commercial Lighting Specialist at The Lighting Design Lab. Before joining the Lab in 2008, he owned and operated his own lighting design firm completing jobs domestically and internationally. He is also the Chair of the Testing Committee for the National Council on Qualifications for the Lighting Professions, (NCQLP) where he earned his LC (Lighting Certified) credentials.

LUNCH: 12:00 pm — 1:00 pm (included in registration)

Afternoon Class: 1:00 pm — 3:00 pm (See fees below.)

What's New in Lighting for 2012

Instructor: Andrew Pultorak, LC, MIES

The fall tradition continues as we present this year's lighting innovations in commercial and industrial lighting luminaires, lamps, ballasts, publications, controls, and components for exterior and interior uses. Also included in this class will be a summary of some award winning products recognized throughout the industry. This class is intended for those already familiar with basic lighting terminology (i.e. CRI, CCT, L/W, LED, OLED, etc.) but can be of interest to those just entering the lighting industry.

Andrew Pultorak is the Interim Manager for the Lighting Design Lab and has been active in the lighting industry since 1987. He has taught classes on energy efficiency, lighting design principles, lighting energy codes, federal legislation impacts on lighting as well as designed lighting systems for private residences, restaurants, casinos, retail spaces, offices and houses of worship. He currently holds his certification from NCQLP, is a member of the IES (Illuminating Engineering Society) Seattle Section Board of Managers, is past President of the IES Seattle Section and is a member of the IES National Progress Report Committee.

Class Locations and Dates

Everett, WA .....Mon., Sept. 24th.....Snohomish Co. PUD; 2320 California St; Everett, WA 98201
Bellevue, WA ....Wed., Oct. 3rd .....Residence Inn; 605 114th Ave SE; Bellevue, WA 98004
Tacoma, WA.....Tues., Oct. 9th .....Courtyard by Marriot; 1515 Commerce St; Tacoma WA 98402
Boise, ID .....Tues., Oct. 23rd .....Idaho AGC; 1649 West Shoreline Drive; Boise, ID 83702
Seattle, WA .....Tues., Oct. 30th .....Lighting Design Lab; 2915 4th Ave South; Seattle, WA 98134

Class Fees

Standard registration ..... $30 per class (lunch included)
Employees of sponsoring organizations..... $10 per class (lunch included)
Students (with valid university/college ID) ..... $10 per class (lunch included)

Register at **www.lightingdesignlab.com**. Registration and payment are required in advance. For assistance, contact Anne Ducey at 206-325-9711, x129 or **anne@lightingdesignlab.com**

Articles

Power Factor: the Straight Shot

by Jeff Robbins, LC, MIES

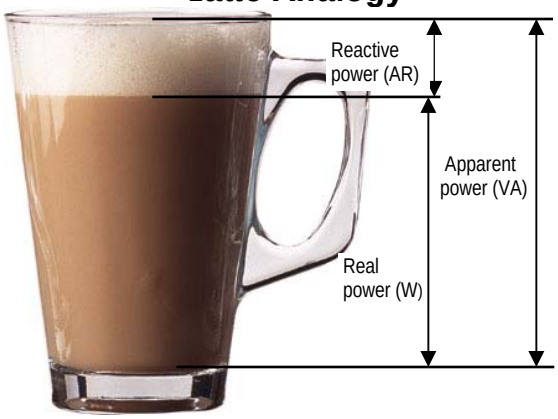
Power Factor is just one of the many criteria utilities use when evaluating lighting products, and is one of the more misunderstood. For instance, a minimum power factor of .9 is required for luminaires to qualify for the LDL LED List. Power factor is defined by the industry as the power input in watts divided by the product of the ballast/driver input voltage and ballast/driver input current (measured in amps). The power factor of an electrical system is a number between 0 and 1 -- the ratio of the real power flowing to the load to the apparent power in the circuit.

$$\frac{\text{Real Power (Watts)}}{\text{Apparent Power (Volt-Amps)}}$$

The power factor of a load, (such as a fluorescent ballast or LED driver) determines how effectively the input power of the circuit is converted into usable power by that load. Any load with a low power factor uses more current than a load with a high power factor. Since electrical bills are based on metered watts, not volt-amps, the closer the system comes to a power factor of 1.0, the more the bill will reflect true billable electrical usage.

High current content also increases the energy lost in the distribution system, requiring heavier gauge wires, larger conduit, etc. Because of the higher equipment costs and the wasted energy, utilities may elect to penalize customers whose electric load has a low power factor — typically anything less than 0.9.

Latte Analogy



We are grateful to PowerStudies.com for the use of the beverage analogy.

Power Factor is the ratio of coffee (W) to coffee + foam (VA). As the foam increases and coffee decreases, the PF is reduced. This latte looks like it has a Power Factor of .8.

EXAMPLE 1: An LED PAR38 lamp rated at 18 watts (real power), when measured actually draws 20 volt-amps, (apparent power). The power factor for that lamp and driver combination is 18W/20VA, which equals 0.9, and is considered to be high.

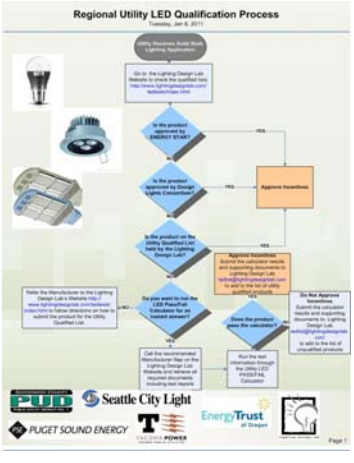
EXAMPLE 2: A CFL lamp rated at 18 watts (real power), when measured, actually draws 30 volt-amps, (apparent power). The power factor for that lamp and ballast combination is 18W/30VA, which equals 0.6, and is considered to be low.

NOTE: Power factor is often confused with Ballast Factor, which compares the lumen output of a lamp and ballast combination to that of a reference ballast rated at 1.0.

LDL Revises Specs for LED Luminaires & Tubes

by Anne Ducey

On August 1st, 2012, luminaire and tube specifications for LDL's LED Qualifying Products List were revised at the recommendation of the LDL LED Spec Committee (representatives from the LDL LED List sponsors). Since the LDL LED List is an interim list while manufacturers are waiting for review by ENERGY STAR and the DesignLights™ Consortium (DLC), it made sense to align our luminaire and tube specs more closely with both these organizations.



The biggest changes are in luminaire and tube LPW and CRI requirements. (Note: there were no changes to lamp specs.) We also eliminated separate specs for residential and commercial products. These changes affect **all luminaires and tubes regardless of use**:

- R9 values are no longer required
- THD of 20% or less is now required
- Power Factor of .9 or greater is now required
- Warranty period is now 5 years

Visit **www.lightingdesignlab.com** to see a complete list of the changes.

lighting design lab

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The Lighting Design Lab Newsletter is published by the Lighting Design Lab. Send any comments or requests to be removed from our mailing list to Anne Ducey, editor at anne@lightingdesignlab.com

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