News

LED's - The Good, the Bad, and the Ugly.

by Eric Strandberg LC

How long has it been since someone asked me about LEDs?... Let me look at my watch. The amount of interest in this (somewhat) new technology is quite astounding. Between the general interest in the "latest thing", a desire to save energy, and a hope for a "silver bullet" to solve all of our lighting problems, everyone is talking about LEDs. So let's take a deep breath and look at some of the issues.

1- LEDs save energy? Maybe, but mainly when comparing them to applications that use incandescent light. Most of the claims for high lumens per watt (efficacy), are for the LED chips, in the lab. By the time the chip gets packaged, and then put into a luminaire, much of the efficacy has decreased so it is important to look at system efficacy. I have an LED product by a major company that clearly states 28 lumens/watt (it is 7 watts and delivers 200 lumens). This is about equal to a CFL. A ceramic metal halide is over twice that. A T8 is over 90 lumens/watt. Where is the energy savings? Some will say that the color qualities of the lamp have an influence on apparent lumen output. These arguments can only go so far as many conventional sources have similar color temperatures available.

2- LEDs dramatically reduce maintenance cycles (you will have "maintenance free" lighting). Again, primarily when comparing to short lived light sources. Most LEDs, by reputable manufacturers are rated at 50,000 hours (L-70). L-70 means that after 50,000 hrs the LEDs have lost 30% of initial lumens. A typical T8 fluorescent is rated at 24,000 hrs., and a high pressure sodium lamp (used in roadway lighting), is rated at 24,000 hrs. So, the LED does last longer, but its only one lamp change saved! Also, the new T8s are rated at much longer life (40,000 + hrs) and induction lamps are well over 60,000 hrs.

3- LEDs save money? It is a fact today, that most LED products cost significantly more than the products they replace. So, if we're not saving much energy, and the maintenance cycle hasn't been decreased much, where is the dollar savings? (Especially given that the capital costs will be very high). Most of the scenarios I have seen that "pencil out" and claim to save money use LED systems that, in my opinion will not deliver near as much light as the system they replace. Also, they assume a baseline maintenance cycle that is too frequent, or are too optimistic about the life of the LED system.

Do I like LEDs? Yes! This is an exciting time in the lighting industry. As long as LEDs are used in ways that capitalize on their strengths; small size, rugged, directional, long life, cold resistant and yes, energy efficient, and we don't over reach on the expectations, then we can find many applications for them today. LED technology is improving rapidly, so hopefully the challenges of today will be solved by developments tomorrow.

spring 2009 events.

Registration on Next Page

did you know?

Members of professional design organizations (AIA, NCQLP/LC, ALA, BOC, and others) may be able to receive continuing education credits for attending LDL events.

To self-certify your credits (sometimes called learning units) make sure you keep your Certificate of Completion that we provide at every class.

Learning unit credits are almost always issued at a rate equal to the contact hours. So a 3 hour class would be worth 3 credits.

For information about how your organization works with continuing education credits visit their website at:

AIA
aia.org

ALA
americanlightingassoc.com

ASID
asid.org

BOC
neec.net/boc.htm

BOMA
boma.org

IFMA
ifma.org

IIDA
iida.com

NCQLP
ncqlp.org

All registrations **must be in advance**.
Any cancellations must be at least 48 hours prior to the day of the event.
Late cancellations and no-shows will be charged the full cost of the event.
No registrations or fees will be accepted at the door.
Secure on-line registration is available at *https://www.lightingdesignlab.com/classform.php*

Lighting Workshops

Spokane:	Wednesday April 1st	10:00 am – 3:00 pm
Boise:	Wednesday April 15th	10:00 am – 3:00 pm
Bozeman:	Wednesday April 22nd	10:00 am – 3:00 pm
Portland:	Wednesday April 29th	10:00 am – 3:00 pm
Seattle:	Wednesday May 13th	10:00 am – 3:00 pm

10 :00 am – 12:00 pm: Energy Effective Lamp Technologies–$30
Lamp technology has progressed steadily in the last century, but most of the significant advances have occured only recently. Effective lighting design must begin with an understanding of light sources. This class will introduce students to the properties of all commonly available electric light sources including incandescent, fluorescent, and high-intensity discharge, as well as the newer emerging technologies: induction, fiber-optic, electroluminescent, and LED's. These sources and others will be discussed in terms of their color temperature, color rendering, lamp life and efficacy.
(2 credits for Continuing Education. For AIA, these are HSW)

12:00 pm – 1:00 pm: Lunch. A box lunch is included with registration and LDL answers your project lighting questions in a Q&A session.

1:00 – 3:00 pm: Efficient Lighting Techniques and Applications –$30
All lighting projects begin with the same basic principles whether you are just learning or are an expert in the field. Building on the foundational knowledge of lamps, this class will teach the fundamental lighting techniques that all lighting professionals consider when working on a project. Elements of this class will include how to choice a light source, reading and understanding layering and learning the elements of developing a lighting plan. The student will also see how these design issues are applied in the real world.
(2 credits for Continuing Education. For AIA, these are HSW)

Lighting Fundamentals Tour: Explore the Lighting Design Lab (by appointment only)

The Lighting Design Lab is designed to be a large walking classroom for teaching the fundamentals of lighting. All the pieces of lighting are on display: light sources; luminaires, and controls. Touring the LDL is the perfect way to attend this class and get hands-on exposure to new technology. A Fundamentals Tour lasts about and hour and a half—more if there are lots of questions. If your tour group has a particular interest such as glare, energy issues, or controls, the tour can be tailored to your interests. A comprehensive tour of the LDL addresses energy effective lighting, integrating daylight and electric light using controls, color characteristics of light, lamps and ballasts, luminaires and more. In addition, the tour provides more details into LDL services.

CURRENTLY ALL TOURS ARE POSTPONED

Since moving last December, we are beginning to feel settled into our new home in the SODO district. However, it will take some time to re-create our lighting demonstrations, classroom and mock-up areas. We are hoping to have a new and improved space for touring sometime early summer. For the latest construction updates and progress on the new space, please visit our website at ***www.lightingdesignlab.com***.

 = basic  = intermediate  = expert

registration form.

Spring 2009 Classes

PAYMENT POLICY: All registrations **must be in advance**. Any cancellations must be at least 48 hours prior to the day of the event. Late cancellations and no-shows will be charged the full cost of the event. Secure on-line registration is available at ***https://www.lightingdesignlab.com/classform.php*** OR complete and fax this form to 206-329-9532. Class fees are waived for university students and employees of sponsoring organizations.
No Payment or Registration Will Be Accepted At The Door

registration fee paid by (circle one)
credit card enclosed check sponsor fee waiver university student fee waiver

registration information

Name _____

Company _____

Profession _____

I Pay My Electric Bill To _____

billing information (must be complete to process card transactions)

Phone _____ Fax _____

E-Mail _____

Address _____

City, State, Zip _____

Credit Card Number (VISA & MasterCard <u>ONLY</u> NO AMEX OR DISCOVER) Please include your CVV Code - last 3 digits of the number on the back of your card near your signature

_____

Expiration Date _____

Please circle the class/es you wish to attend(on-line registration available at www.lightingdesignlab.com)Lunch is included with registration.

Energy Effective Lamp Technologies **$30**

Spokane:	Wednesday April 1st	10:00 am - 12:00pm
Boise:	Wednesday April 15th	10:00 am - 12:00pm
Bozeman	Wednesday April 22nd	10:00 am - 12:00pm
Portland:	Wednesday April 29th	10:00 am - 12:00pm
Seattle:	Wednesday May 13th	10:00 am - 12:00pm

Efficicient Lighting Techniques and Applications **$30**

Spokane:	Wednesday April 1st	1:00 pm - 3:00 pm
Boise:	Wednesday April 15th	1:00 pm - 3:00 pm
Bozeman	Wednesday April 22nd	1:00 pm - 3:00 pm
Portland:	Wednesday April 29th	1:00 pm - 3:00 pm
Seattle:	Wednesday May 13th	1:00 pm - 3:00 pm

Class Locations
Spokane: WSU South Campus Facility, Bookie Building, Room 255, Spokane, WA 99210
Boise: AGC Training Center, 1649 West Shoreline Drive, Suite 100, Boise, ID 83702
Bozeman: Holiday Inn, University Room, 5 East Baxter Lane, Bozeman, MT 59715
Portland: AIA Portland Office, 403 NW 11th Avenue, Portland, OR 97209
Seattle: Lighting Design Lab, 2915 - 4th Avenue South, Seattle WA 98134

You can register securely on-line. Payment accepted by credit card or check.
https://www.lightingdesignlab.com/classform.php

lighting design lab

2915 - 4th Avenue South, Seattle, WA 98134
www.lightingdesignlab.com

PRSRT
FIRST CLASS
U.S. POSTAGE
PAID
SEATTLE, WA
PERMIT #5130

lighting design lab news
is published by the lighting design lab
2915 - 4th Avenue South, Seattle, WA 98134

to contact us.

General Phones	206.325.9711 800.354.3864
Fax	206.329.9532
Project Manager	Michael Lane - ext 126 michael@lightingdesignlab.com
Senior Lighting Specialist	Eric Strandberg - ext 128 eric@lightingdesignlab.com
Lighting Specialist	Jeff Robbins - ext 122 jeff@lightingdesignlab.com
Lighting Specialist	Andrew Pultorak - ext 127 andrew@lightingdesignlab.com
Adminstrative Coordinator	Jesse Tabisula - ext 0 jesse@lightingdesignlab.com
Librarian, Webmaster & Editor	Randy Smith - ext 129 randy@lightingdesignlab.com
Mock-Up Technician	Andrea Dahlman - ext 125 andrea@lightingdesignlab.com
NOTE:	NEW ADDRESS AND PHONE EXTENSIONS

our sponsors.

- Seattle City Light
- BetterBricks
- Bonneville Power Administration
- Northwest Building Efficiency Center
- Puget Sound Energy
- Snohomish PUD
- Tacoma Power
- Idaho Power
- Energy Trust of Oregon
- Northwest Trade Ally Network
- British Columbia Hydro
- Portland General Electric
- Alaska Energy Authority