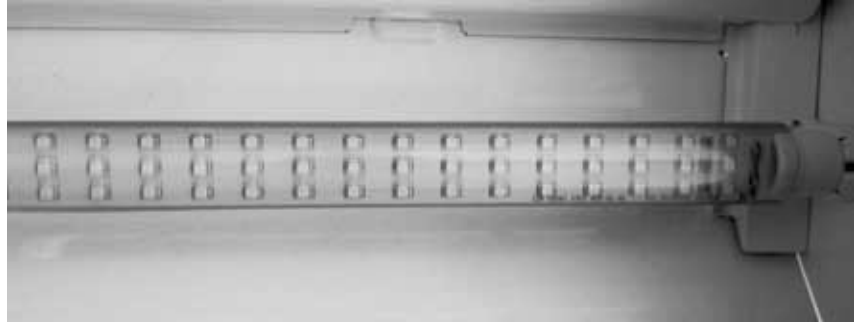




LED-“T8s” The Shocking Truth! by Eric Strandberg, LC

Have you seen the retrofit products that look a lot like a T8 lamp? They are usually 4 foot tubes, about an inch in diameter that have bi-pin end caps like a fluorescent T8 or T12. They are loaded with LED lamps and marketed as retrofits for existing fluorescent fixtures. However, one thing that most people don't realize is that all of these so called "Retrofit T8" products that I have seen (and I have looked at a lot), require the ballast of the fixture to be disconnected and the sockets ("tombstones"), to be rewired for line voltage. Manufacturers suggest in their marketing that they are "direct replacements" for T12 & T8 lamps, and can be put into "existing sockets". It seems as simple as changing a light bulb; but really this retrofit requires a degree of skill and labor to perform the change out. This labor needs to be included in the cost effectiveness equation. The manufactures may say that they state this in the literature with phrases like: "no ballast needed" or "eliminating the ballast saves additional costs". It does seem a bit misleading.



The other problem associated with using these products, is that the luminaire was never UL listed to have line voltage at the fluorescent sockets. These LED T8 products need line voltage at the sockets to operate. Besides

potentially being unsafe, you should check with your insurance company before proceeding. So, even though the LED T8 product may be UL listed, the luminaire that it is being installed into was not rated for line voltage to the sockets.

It has become apparent to me that almost all of the people I talk to from contractors to building owners haven't thought through the implications of this. Beyond the liability, what happens if an actual fluorescent lamp is put in the fixture by an under qualified maintenance staff?

Most analyses' of the LED T8s that I have read focuses on the system performance. How much light is delivered, what is the quality of light, how long do they last, and what is the cost effectiveness? These are valid questions and we will examine two of these claims. Many LED-T8s tout dramatic energy savings and high lumens per watt, but what is often ignored, is that they

are low in lumens. Most are well under half the light output of the T8s that they claim to replace. Sometimes the argument is made that "we are overlit anyway" and I would suggest that if that is the case, a conventional, aggressive retrofit might suffice; installing a low ballast factor ballast, possible de-lamping, low wattage and long life lamps, etc. Remember, to use the LED T8, you would need to rewire the fixture anyway. Speaking of long life lamps, LED T8s claim anywhere from 35,000 to 100,000 hours, in my opinion claiming more than 50,000 hours is not credible, and with long life fluorescent lamps rated at over 40,000 hours, there is not much of a maintenance savings case to be made for the LED T8s.

If the use of LEDs for the retrofit is a priority for your project, another option that may be considered is to replace the fixture with a dedicated LED luminaire. This strategy will require a cost effectiveness analysis.

tribute.

Randy Smith

Our friend and colleague, Randy Smith passed away in late February at 58 years young. For the last 22 years Randy served as the Lighting Design Lab's librarian, webmaster and soul. It is with great sadness that we mourn his passing. Randy was an unbelievable wealth of knowledge; we always called him "the knower of all things". We will miss him, his presence and his soul. God speed Randy!

Michael, Eric, Jeff, Andrew & Andrea



spring 2011 class.

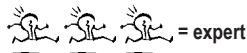
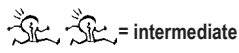
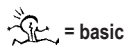
REGISTRATION NOTE: All registrations are online only. Payment can be made by either credit card or check with your registration. When classes fill up, registration will automatically stop for that class. Please visit our homepage at www.lightingdesignlab.com and click on the class registration link.

Class.

Lighting Energy Codes and Applications

Throughout the Northwest, significant changes have occurred to the lighting energy codes that affect commercial construction, both in new and retrofit applications. This class will review the code, including the latest changes in lighting power allowances (LPA) for interior spaces, and exterior spaces, including the 4-zone approach. Also included is an explanation of the daylighting zone, a review of the now mandatory control options required to comply with code, and a review of the forms used by many jurisdictions. During the class, retail, office space, and exterior examples will be used to help understand the new code language.

Lunch is included and we answer your project lighting questions in a Q&A session.



Class Dates.

Tacoma, WA	•	Wednesday, March 30th	•	10:00 am - 3:00 pm
Bellevue, WA	•	Wednesday, April 6th	•	10:00 am - 3:00 pm
Boise, ID	•	Tuesday, April 19th	•	10:00 am - 3:00 pm
Everett, WA	•	Wednesday, April 20th	•	10:00 am - 3:00 pm
Portland, OR	•	Wednesday, April 27th	•	10:00 am - 3:00 pm
Seattle, WA	•	Wednesday, May 11th	•	10:00 am - 3:00 pm

Class Locations.

Tacoma: Courtyard by Marriott, 1515 Commerce Street, Tacoma, WA 98402 (Mt. Saint Helens Room)

Bellevue: Puget Sound Energy, 10885 NE 4th St, Bellevue, WA 98009 (Auditorium)

Boise: Idaho AGC, 1649 West Shoreline Drive, Boise, ID 83702 (Training Center)

Everett: Snohomish County PUD, 2320 California St, Everett, WA 98201 (Commissioners Room)

Portland: Center for Architecture (AIA Portland), 403 NW 11th Avenue, Portland, OR 97209

Seattle: Lighting Design Lab 2915 4th Ave S, Seattle WA 98134

article.

Evaluating LEDs

by Andrew Pultorak, LC, MIES

There are a tremendous amount of LED products in the marketplace today and it probably has your head spinning. Well, hopefully the following should provide a glimmer of hope to help you evaluate if an LED is viable to specify, purchase or offer for a rebate.

First, I would like to clarify that anytime I write or speak about LEDs, I am typically referring to white LEDs as this is the color that has created the most interest, discussion and controversy within the architectural lighting community.

Other than price and return on investment, how do you begin to determine if an LED is worthwhile? Rather than reading the marketing pieces developed by manufacturers I recommend doing the following to begin your evaluation:

1. Research if the lamp or luminaire has been reviewed and qualified by EnergyStar www.energystar.gov. Three separate lists have been created for integral lamps, commercial products and residential products.
2. If the product is not listed on Energy Star, visit the DesignLights Consortium (DLC) website www.designlights.org and check if it is listed there. This website publishes and updates a list every two weeks of LED products that meet minimum performance levels and other requirements http://www.designlights.org/solidstate.about.QualifiedProductsList_Publicv2.php
Only products not listed on Energy Star will be evaluated by DLC.
3. Visit our website www.lightingdesignlab.com and click on the link "LED product list" to see if the product has been evaluated by us.

If a product is currently on an Energy Star list or on a DesignLights Consortium list, then we consider the product already qualified and it will not be re-evaluated by the Lighting Design Lab (LDL).



If an LED product is NOT listed in any of the above lists, and you would like for the LDL to evaluate it, then send the following complete information to YXlgt@lightingdesignlab.com.

Products will be rejected and not evaluated if incomplete or missing information is sent.

1. LM-79 report (must include lamp current, input wattage, power factor, lumen output, efficacy, CRI, R9 value, CCT, DUV value, and off state power)
2. Manufacturer Warranty
3. Product Spec Sheet
4. Certification by a NRTL (nationally recognized testing laboratory ie: such as Underwriters Laboratories).
5. LM80 report
6. Working sample (applies to integral products only)

When submitting a product for evaluation to the LDL, also submit to Energy Star. The reason being is that your goal should be to get listed nationally with Energy Star; not just LDL. Energy Star may take upwards of 12 months to evaluate your product and by also submitting to the LDL, the evaluation process is shortened to 2-4 weeks. Additionally, products on the LDL list will roll off after 9 months. The LDL list is an interim one until products are Energy Star or DLC certified.

Here are some final things to consider before specifying, purchasing or rebating an LED:

1. Get a sample and do your own side-by-side comparison. If the LED manufacturer is claiming their product is a direct replacement of a PAR38 or MR16 for instance, then get that lamp and visually compare it to the LED for the amount of light it produces, its color temperature, or rendering properties.
2. If you visually like the LED, take it a step further and compare how many lumens the lamp produces compared to your current lamp or luminaire. If it is a directional lamp, you can also shine both lamps on a wall and take footcandle measurements with a light meter.
3. Consider also the cost difference between the products; life, ROI, maintenance costs (a T8 lamp is probably easier and cheaper to replace than an LED module or driver) etc.

These steps may take a little time but in the end, may make you the hero to your clients or customers by making an educated decision.

The LDL would like to thank Valari Uhl of PSE, Jerry Wright of SCL, Rick Allen of SnoPUD and Roger Peery of TPU for developing the LED evaluation process and the sponsoring organizations of the list: Seattle City Light, Puget Sound Energy, Snohomish PUD, Tacoma Power, Energy Trust of Oregon, Bonneville Power Administration and Idaho Power.

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