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Where is my e-newsletter?

You may have requested to receive just an electronic version of this newsletter. We apologize if you also received this print version.

We are in the process of developing a new database and not all of our customer data has been moved over.

LDL Leadership

We hope to have a new permanent manager on board by late Spring. We'll post news on [Facebook](#) and send email updates. Make sure we have your current email address. Send to: anne@lightingdesignlab.com

New Tech Guides!

Check out our website for our new series of [Lighting Layout Guides](#).

Are lower Lighting Power Allowance (LPA) numbers reasonable?

by Eric Strandberg, LC

A few weeks ago, I got a call from a building operator at a regional college about retrofitting their classrooms. He wondered which Lighting Power Allowance they should use. Schools are considered Group E Occupancy which allows 1.0 w/sq ft, but Group E is for K-12 only.

A college is considered Group B and the energy code allows only 0.9 w/sq ft. He wondered if he should lobby for the higher 1.0 w/sq ft level. But after some discussion, I suggested that he could easily meet the lower 0.9 standard.

After a cursory analysis of a typical existing classroom, it was close to 1.0 w/sq ft even with 28W T8 lamps. (See chart, right.) But their light levels were calculated at 70 footcandles (FC) which is a pretty high light level.

So, I did two alternate models using the same T8 lamps but with slightly more efficient ballasts. These options used .65 w/sq ft and .54 w/sq ft respectively. Both produced a more reasonable 45 FC.

This exercise made me realize that although energy code power allowances keep getting smaller, the technology seems to be keeping up. Yes, the college was using 28W T8 lamps with electronic ballasts, and they were close to code. But by using upgraded equipment (NEMA ballasts and new luminaires) the college could cut their lighting power density by almost 50%.

We hear a lot of concern about the tightening LPA numbers from the design community, and it does make for some additional challenges. But we are finding that whatever building type you are working with, it is possible to meet or even beat the code using higher performing lighting products and more thorough design strategies.

Here are three excellent resources to help you meet the new energy codes:

- Advanced Lighting Guidelines — www.algonline.org/index.php
- Advanced Energy Design Guides — www.ashrae.org/technology/page/938
- The Lighting Handbook 10th Edition — www.iesna.org

Or course, the LDL is here to assist you as well. So whether you are involved in new construction or a retrofit, there are many cost-effective methods to capture deep energy savings while meeting current lighting codes.

3 CLASSROOM LIGHTING OPTIONS

(32' x 32' room w/ 10' high ceiling)

Option	Fixture/Ballast Description	Watts/sq ft	Avg FC
1	3-lamp 28W T8 / elec. NBF	.996	70
2	2-lamp 28W T8 / elec. NEMA NBF	.645	45
3	New 2-lamp 28W T8 / elec. NEMA LBF	.540	47

#1 -12 existing deep cell parabolic fixtures w/ standard electronic NBF ballast (NBF = normal ballast factor)

#2 -12 existing fixtures delamped w/ efficient NEMA NBF ballast

#3 -12 new high efficiency fixtures w/ NEMA low ballast factor ballast

Spring 2012 Education Series

To register, please visit www.lightingdesignlab.com. For assistance or special requests, please contact Anne Ducey at 206-325-9711, ext. 129 or anne@lightingdesignlab.com.

Morning Class, 10:00 am — 12:00 pm (See fees at bottom of page.)

Basic Lamp Technologies

Instructor: Jeff Robbins, LC, MIES

Knowledge of design principles begins with a fundamental understanding of light sources. This class will cover not only current lamp sources, (incandescent, halogen, fluorescent, HID), but the emerging technologies as well, such as induction, plasma, LED's and OLED's. Comparisons between initial and operating costs will be covered, as well as different performance characteristics between each type. This is a beginner class, intended for anyone needing an introduction to those products, their use, and the terminology specific to technologies; e.g., CCT, CRI, L/W, LLD, BF, PF, etc.

 **LUNCH, 12:00 pm — 1:00 pm** 

Afternoon Class, 1:00 pm — 3:00 pm (See fees at bottom of page.)

Basic Lighting Design Principles

Instructor: David Butler, LC, MIES

Using typical application examples, and proceeding phase by phase through the construction timeline, this class will cover the fundamental components involved in the lighting design process. Topics will include: Lighting Quality, Lighting Quantity, the Task/Ambient/Accent approach, Daylighting Controls, and Energy Code issues. The information, ideas, and techniques demonstrated in this class can be used immediately to help make informed lighting decisions. This is a beginner class, intended for those with no previous lighting design experience.

Class Cities, Dates and Locations

Portland, OR Wed., April 4th Center for Architecture; 403 NE 11th Av; Portland OR 97209

Boise, ID Thurs., April 12th Idaho AGC; 1649 W. Shoreline Drive; Boise, ID 83702

Tacoma, WA..... Tues., April 17th Courtyard by Marriot; 1515 Commerce St; Tacoma WA 98402

Bellevue, WA Tues., April 24th Residence Inn; 605 114th Av SE; Bellevue, WA 98004

Everett, WA Thurs., April 26th Snohomish Co. PUD; 2320 California St; Everett, WA 98201

Seattle, WA Wed., May 2nd Lighting Design Lab; 2915 4th Av; 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. Please have a credit card ready. For assistance or questions, please contact Anne Ducey at 206-325-9711, ext. 129 or anne@lightingdesignlab.com

New Color Terminology — R9 Value

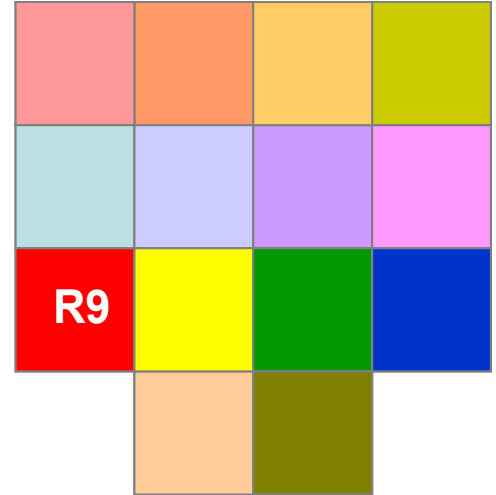
by Jeff Robbins, LC, MIES

The 'Color Rendering Index', (CRI), is proving to be inadequate when applied to LED's.

Using the Universal Coordinate System, a lamp source's place on the CRI scale involves plotting its color output against that of a black body radiator of the same Correlated Color Temperature (CCT) when tested against 14 represented pigment color samples. (See box, right.)

The first 8, R1-R8, are pastels which are used to establish the 'general' CRI number. The other 6 color samples consist of 4 saturated solids (R9-R12) and 2 which represent earth tones, R13 and R14.

The result for each sample is a number between 0 and 100. Traditionally, lamp manufacturers only test their product against the R1-R8 pastel samples. The trouble is, even though LED's are achieving higher 'general' CRI ratings, they still do not perform well in the pastel range. Their color performance is best demonstrated using the R9-R12 saturated color samples. LED's in the higher color temperatures, 4000°K and above, test especially well in R11 (saturated green) and R12 (saturated blue).



CRI Pigment Color Samples, R1—R14

But if trying to achieve a quality interior lighting environment, the critical color is R9, saturated red, where LED performance is at its weakest. A positive R9 value becomes an important consideration, especially for interior applications where lamps of warmer color temperatures are preferred.

Utilities in the Pacific Northwest have established a minimum R9 value of zero (yes it is possible to achieve a negative value), as part of the criteria to be listed on the region's **Qualified LED Product List** (www.lightingdesignlab.com/LEDlists.php). Once on that list, projects using these products become eligible for rebates from the sponsoring utilities.

Are utilities still rebating fluorescent retrofits?

As many of us have been hearing, the T12 fluorescent lamp is going away. Between EISA regulations, and a technology shift to better, more efficient lamps (T8 and T5), there is no doubt that the T12 will be harder to find and hence, will be more costly.

But a related question that comes up is: will the utilities still offer incentives for T12 retrofits? The logic is, why rebate something that is going away?

After conducting an informal poll of utilities throughout the region, the answer is basically "yes". Specifically:

- Incentives for T12 to T8 retrofits will continue in 2012.
- Some utilities may reduce incentives on simple T12 retrofits in 2013.
- Baseline values may increase in some areas, which could reduce the savings percentage and lead to smaller rebates.

If you are considering a retrofit in the region, this year would be the best time to maximize the incentive potential. As always, call your local utility early to ensure a smooth and easy process. A great resource if you are not sure who to call is Northwest Trade Ally Network at www.northwest-lighting.org. And of course, the staff at the Lighting Design Lab is always happy to help.





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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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