



News

Did you know that just by repainting your facility, you can increase the light levels substantially? Or if you are retrofitting your facility, you may be able to maintain your existing light levels with even more aggressive power reduction if you repaint.

Much of the light in interior spaces is reflected off of room surfaces at least once before reaching task areas. Every time light bounces it loses energy, so how reflective the surfaces are will impact your measured light levels. Following is some data that I gath-

ered while doing computer simulations of a room and varied only the surface reflectance, while keeping the lighting the same. When doing a computer model, typically three types of surface are defined; the ceiling, walls, and floor. The default reflectances are usually 70%, 50%, and 20% respectively (70/50/20). Fifty percent may seem low for walls, but by the time book shelves, doors, and artwork are factored in even a fairly light painted wall absorbs a lot of light.

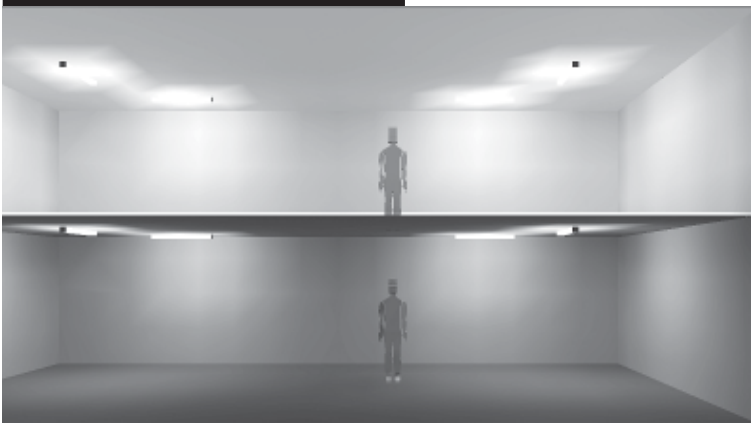
As we can see from the table below, going from a space with 40/30/10 reflectances (wood ceiling, brick or green walls, and dark carpet), to one with 80/70/30 (white painted ceiling, very pale walls, and light floor), we go from about 14 average footcandles (FC) to over 21 FC. What may be even more important though is the Maximum to Minimum ratio (Max/Min) which is from almost 9:1 to about 4:1. This impacts our perception of brightness, smoothing out the highs and lows in the work area.

Another factor is the way the luminaires distribute light. A room with direct lighting (recessed cans or highbay industrial lights) will drive more light onto the floor, so ceiling reflectance will have less impact than floor reflectance. Conversely, if the lighting is predominantly indirect, a high ceiling reflectance is critical to achieving high light levels. Also in low rooms with a large floor plate, (like a parking garage or convention hall), the walls have less impact than in a room with more normal proportions.

— Eric Strandberg LC

**free light* —
no power
needed?**

**Footnote: you may have to purchase some paint.*



Two rooms.— same lighting, different reflectances

*Top: 85/80/40—26 fc
Bottom: 35/25/10—13 fc*

Surface Reflectance	Average Footcandles	Maximum	Minimum	Max to Min Ratio
85/80/40 Lightest	26.1	45.7	13.7	3.3 : 1
80/70/30	21.6	40.8	9.6	4.25 : 1
70/50/20	17.2	35.7	6.0	5.95 : 1
40/30/10	13.9	31.2	3.8	8.2 : 1
35/25/10 Darkest	13.4	30.6	3.5	8.7 : 1

fall 2007

Registration on Next Page

events.

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
theboc.info/wa

BOMA
boma.org

IFMA
ifma.org

IIDA
iida.com

NCQLP
ncqlp.org

All Registration **must be in advance**. All cancellations must be at least 48 hours prior to the day of the event. All late cancellations and no-shows will be charged the full cost of the event. No registrations or fees will be accepted at the door.

On-line registration is available at <https://www.lightingdesignlab.com/classform.php>

Lighting Workshop.

Spokane:	Thursday Sept 13	• 10:00 am - 3 pm
Bozeman:	Wednesday Oct 3	• 10:00 am - 3 pm
Boise:	Wednesday Oct 10	• 10:00 am - 3 pm
Portland:	Thursday Nov 1	• 10:00 am - 3 pm
Seattle:	Wednesday Nov 7	• 10:00 am - 3 pm

1) 10 - Noon: The Ins and Outs Lighting Retrofits —\$25.

Lighting still remains one of the easiest and most cost effective ways to make buildings more efficient. Even if you have done a retrofit as recently as 10 years ago, there are new products and strategies that can work for you. With all the new and exciting advances in lighting today, many contractors and building operators may wonder what is available for existing buildings. The answer is almost all options can be adapted for retrofit. Whether it is modern ballasts or premium lamps, more efficient luminaires or control strategies energy can be saved and quality can be improved. New LED technologies are finding their way into many applications and it is important to identify where it is appropriate today. We will also examine methods on how to approach a retrofit for maximum results.



(2 credits for Continuing Education. For AIA, these are HSW)

Noon - 1 pm. Box lunch included and LDL answers your project lighting questions in a Q&A session.

2) 1 - 3 pm: Emerging lighting technology and trends for today and tomorrow —\$25.

In recent years there has been an explosion in the number and variety of T8 and T5 fluorescent lamps, Pulse Start and Ceramic Metal Halide lamps, LED's, and High-performance electronic ballasts. Occupancy and daylight controls have evolved and are often required by code and the codes are becoming more stringent. This class will address the pro's and con's of these technologies and trends, focusing on what works, what is now a must have and what you should hold off on.



(2 credits for Continuing Education. For AIA, these are HSW)

Lighting Fundamentals Tour - Explore the Lighting Design Lab. no charge by appointment.

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, controls; and daylighting. Touring the LDL is the perfect way to attend this class and get hands-on exposure to new technology. A Fundamentals Tour lasts about an hour and a half—more if there are lots of questions. If your tour group has a particular interest such as glare, power quality 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.


To schedule a Lighting Fundamentals Tour:



- call 800-354-3864 (206-325-9711) ext 29 and set it up with Randy
- email at randy@lightingdesignlab.com
- fax your request to 206-329-9532

We will need to know what date(s) you would like for the tour, and possible times. It would work best if the tours start no later than 2:00 PM. Please limit your tour group size to 20. Let us know if you have a specific area of interest.



BETTERBRICKS

 = basic

  = intermediate

   = expert

registration form.

FALL 2007 CLASSES

PAYMENT POLICY: All Registration **must be in advance**. All cancellations must be at least 48 hours prior to the day of the event. All late cancellations and no-shows will be charged the full cost of the event. Complete and fax this form to 206-329-9532 or **Secure On-line registration is available at <https://www.lightingdesignlab.com/classform.php>**. 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.

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Address • _____

City, State, Zip • _____

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

Expiration Date • _____

Please check the circles of the class you wish to attend (on-line registration available at www.lightingdesignlab.com). event locations on website.

Lighting Retrofits \$25

- Spokane: Thursday Sept 13 • 10:00 am - Noon
- Bozeman: Wednesday Oct 3 • 10:00 am - Noon
- Boise: Wednesday Oct 10 • 10:00 am - Noon
- Portland: Thursday Nov 1 • 10:00 am - Noon
- Seattle: Wednesday Nov 7 • 10:00 am - Noon

Emerging lighting technology \$25

- Spokane: Thursday Sept 13 • 1:00 pm - 3:00 pm
- Bozeman: Wednesday Oct 3 • 1:00 pm - 3:00 pm
- Boise: Wednesday Oct 10 • 1:00 pm - 3:00 pm
- Portland: Thursday Nov 1 • 1:00 pm - 3:00 pm
- Seattle: Wednesday Nov 7 • 1:00 pm - 3:00 pm

Class Locations

Boise: Integrated Design Lab, 108 N 6th St, Boise ID 83702

Portland: World Trade Center, 121 SW Salmon St, Portland OR 97204

Seattle: Lighting Design Lab, 400 E Pine St, Ste 100, Seattle WA 98122

Bozeman: Northwestern Energy Offices, 121 E Griffin Dr, Bozeman MT 59715

Spokane: WSU Spokane, The "Bookie" Bldg on Riverpoint Campus, Spokane WA 99210

You can register instantly and securely on-line. Payment accepted by credit card, check.
<https://www.lightingdesignlab.com/classform.php>



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