



# lighting design lab®

The Lighting Design Lab is a Northwest utility funded lighting education facility promoting commercial and industrial energy conservation.

## NEWSLETTER | SPRING 2018

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### Upcoming Events

April showers bring  
May conferences...and  
webinars... and more!

With winter in full retreat, staff from the LDL are stretching their legs and stepping up external activity in the months of May and June. *See page 2 for details.*

#### LIGHTFAIR International

May 7-11 | + Post-game Webinar May 31

#### Efficiency Exchange

May 15-16

#### Postgame Webinar

May 31

#### West Coast Energy Management Congress

June 20-21

#### Lighting Controls: 5 Things to Know Webinar

May 22

#### Advanced Lighting Controls

June 7-8

### IMPORTANT ANNOUNCEMENT

## Update on the Lighting Design Lab Qualified Product Lists



In March 2017, LDL announced that the Lighting Design Lab was discontinuing its [Qualified Product Lists \(QPL\)](#). A [notification](#) was distributed laying out the following phase-out timeline:

Action	Date
Final product submissions <i>NOTE: No products will be accepted after this date &amp; timestamp</i>	April 30, 2017 (by midnight PST)
Approved products removed <i>Please refer to your records for exact expiration date of your product(s)</i>	On annual expire date
Removal of submission forms from <a href="http://www.lightingdesignlab.com">www.lightingdesignlab.com</a>	April 30, 2017 (midnight PST)
Final LED Qualified Product Lists removed from <a href="http://www.lightingdesignlab.com">www.lightingdesignlab.com</a>	July 31, 2018
"LED Product Submission Process for Manufacturers" page permanently removed from <a href="http://www.lightingdesignlab.com">www.lightingdesignlab.com</a>	July 31, 2018

In accordance with the above timeline, an updated version of both the LDL [Lamp & Tube List](#) and the LDL [Fixture List](#) are now posted on the LDL website. These lists have been updated to remove all products that are beyond their expiration, one year from their published post date.

LDL will continue updating the LDL QPL until all listed products reach their expiration date. Please refer to the current listing on [LDL's website](#) for the most up to date version.

For other QPL options, please refer to [DesignLights Consortium® \(DLC\)](#) and [ENERGY STAR](#) QPLs.

The Lighting Design Lab recognizes there are legitimate reasons for some lighting products to not be included on the DLC or ENERGY STAR QPLs. We will continue to support stakeholder utilities in making informed decisions around incentive product-program eligibility for these products.

### I fought the Code and the Code won. (Actually, we all win.)

#### What are codes? Why do we have them?

A reasonable question. Though they may seem annoying and complicated, building codes are really designed as a protection for the owner, users/workers, the public, and even the contractors who build the building.

Sometimes the easiest and cheapest way to build something is not the safest

or even the most cost-effective long term for the owner of a property. Code protections guard against unscrupulous parties cutting corners on construction techniques or materials that can compromise the performance and safety of the built environment. Of course, not all in the construction industry would do these things, but even the most honest people may be put in conflict when a





## Upcoming Events

(cont'd)

### LIGHTFAIR International

May 7-11 | [www.lightfair.com](http://www.lightfair.com)

LIGHTFAIR International (LFI) 2018 is in Chicago and LDL staff are busy packing bags and finalizing their hectic conference schedules. Light Fair is the hallmark event where everyone from huge conglomerates to small tech-firm startups come to display innovative new ideas that are changing how we illuminate and connect to the world around us.

This year, LDL will focus on issues that matter most to utility stakeholders including identifying and understanding market trends related to: advanced lighting controls, horticultural lighting, IoT, and commodity lighting products.

### Post-game Webinar

May 30 | [Watch for your invite!](#)

Not able to make it to LFI this year? Staff from LDL will be hosting a postgame event webinar to highlight their favorite products and takeaways from this penultimate luminaire event. The webinar will be on May 31st from 10:00 to 11:00 PST. Stay tuned for an invite from LDL.

### Efficiency Exchange

May 15-16 | <https://conduitnw.org>

Efficiency Exchange (EFX) is the premier energy efficiency and utility conference in the Pacific Northwest. This year's conference is in Tacoma, Washington and promises to elevate and expand active conversations utilities are having with regards to rapidly shifting power markets, conservation targets, energy policy and much more. John Wilson, LDL strategic products manager will be moderating a session: Indoor Agriculture's 2018 Breakout Year: Why the Northwest is Leading the Country on Energy and Cannabis. Irina Rasputnis, LDL executive



director will be joining industry peers to co-present, State of the Lighting Industry. The entire LDL team will be in tow and we look forward to seeing industry peers and colleagues at this time-honored tradition.

### West Coast Energy Management Congress

June 20-21 | [www.energyevent.com](http://www.energyevent.com)

Sponsored by the Association of Energy Engineers (AEE) the West Coast Energy Management Congress (EMC) event brings together a host of building owners, operators, facilities management firms, utilities, and many others for an action-packed conference experience. Hosted at the Washington State Convention Center, this time-honored event draws a strong regional presence and is a favorite for local participants. The Lighting Design Lab is pleased to announce that Shaun Darragh will be a speaker. Additionally, LDL will have a booth at this year's EMC so please feel free to swing by for a visit.

### Lighting Controls: 5 Things to Know Webinar

May 22 | [www.theboc.info](http://www.theboc.info)

This webinar will discuss the need for efficient lighting, advanced controls and will discuss market trends including: sophisticated controls, wireless systems, fully integrated lightings system for building solutions, and more. Shaun Darragh from LDL couples decades of progressive industry experience with his technical professional acumen to make this a potent one-hour learning experience.

## I fought the Code. . .

(cont'd)

low bid comes in that the owner doesn't know is not safe or will have long-term performance problems. So, the codes also can help level the playing field for the benefit of all involved.

Codes fall into a few basic categories:

- Building ([IBC](#), [WAC](#))
- Life safety ([NFPA](#), [NEC](#), [OSHA](#))
- Energy efficiency ([IECC](#), [ASHRAE](#))
- Public good or best practices (light trespass and [light pollution](#), [open space](#), etc.)

Some of these codes are mandatory, and some are voluntary.

The voluntary ones aren't codes, per se, but they too fall into a few different categories. [LEED](#) and [WELL](#) are examples of one type of voluntary code designed around creating a high-performing building in terms of energy use and user performance. They encourage the owner to exceed minimum Energy Code requirements while maintaining or even exceeding norms for a high-quality lit environment. Another category is utility incentive programs, where meeting certain energy benchmarks yields financial benefit for the owner from the utility. Then, there are lighting "Recommendations" that, though they aren't law, provide the basis for many required ordinances and codes ([OSHA](#), [WAC](#), etc.). If you don't follow them, there needs to be a justifiable reason.

Energy codes vary from [state to state](#), and some cities even have their own (Seattle is one). There is a Federal minimum standard that all states must use, but any state can adopt more stringent energy codes if they choose. Many do, some do not.

### Illuminating Lighting Codes

From a lighting standpoint, there are two unrelated but connected factors that influence how a building is lit. One is the recommended light levels as put forth by the [Illuminating Engineering Society](#) (IES). For almost any kind of commercial, industrial, athletic, or residential space, IES will have a recommendation about the lighting quantity. These could be average light level, minimum light level, target light levels at a given point, or uniformity ratios (usually in lux or foot-candles). They are mostly neutral as to how the lighting is achieved, in terms of light sources used and energy consumption, leaving that up to the design team. The second influence

## Coming Soon: Lighting Controls Workshop

Thursday, June 7-8, 2018 at the Lighting Design Lab

Cost: \$120 | CEUs available | [REGISTER HERE](#)

**Lighting Controls** is a 2-day, hands-on workshop about system design, specification, operational sequencing, installation, and commissioning of lighting controls systems. Students will use gained knowledge to design a demonstration system and install and commission the controls hardware from four leading manufacturers to meet the requirements of their design.

**Why learn about Lighting Controls?** Lighting controls offer the opportunity to balance a visual environment, enhance space flexibility, and improve user satisfaction while saving significant amounts of energy, and potentially improving maintenance cycles. Wide scale adoption of well-designed and implemented controls systems has been hampered by perceived complexities and concerns about call backs. Who should attend: This workshop will be suitable for lighting practitioners including designers, contractors, architects, engineers, building operators, sales people, and those seeking to update their knowledge and skills. Some working knowledge of the lighting and construction industries will be necessary to gain the most value from this class.

Thanks to generous utility sponsorships, the workshop is being offered at a significantly reduced cost of \$120 and includes lunch on both days. **Don't wait to sign up**—To optimize the learning experience, participation in this course is limited to the first 24 individuals who register and is likely to sell out.

### What are Lighting Controls?

Intelligent network-based lighting solutions that incorporate communication between various system inputs and outputs related to lighting control with the use of one or more central computing devices; also referred to as Smart Lighting.



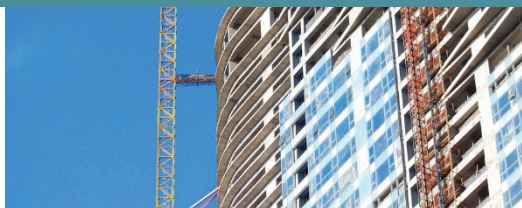


## I fought the Code. . . (cont'd)

on lighting is Energy Code. In this case, building types or space types in or around buildings are allowed a certain Lighting Power Density (LPD). This is usually in watts per square foot. For these, code officials are neutral as to how this LPD is achieved as long as the lighting power does not exceed the allowed maximum.

So, we have recommended light levels from the IES, and maximum LPDs from the code officials, and this is where they are unrelated but connected. The LPDs vary depending on the space type (a classroom has a different allowed LPD than a parking garage), and these values are based on modeling. For each space type, a lighting model is done using conventional modern light fixtures that achieve the IES recommended light levels for that space. Then, an LPD is calculated based on those actual (modeled), fixtures. This gives a real-world basis for the maximum allowed power density for a given space type. There may be many ways to hit your target light levels while not exceeding allowed LPDs, but modeling shows that at least one works.

*Where this relationship becomes unconnected is when there are energy goals (either mandatory or voluntary) that take the LPDs and lower them to a threshold that is not based on modeling. We see goals that are stated as say, "30% below code," or some other percentage of what code allows. These goals may be achievable using modern lighting equipment and careful lighting design techniques both of which are admirable, but there can be costs associated with these practices. If it is voluntary as in a LEED project, that is one thing, but when code officials decide to lower LPDs by say 15%, then it may be burdensome, or even unachievable with current technology to meet the IES recommended light levels.*



## Why is the lighting energy code so complicated?

The lighting code really addresses two major areas: Lighting power density (watts per square foot) and controls for the lighting. Much of the complexity of the code centers around controlling the lights, determining which lights need to be controlled and how. Tuning the lighting to recommended levels, turning off lights, or lowering the light level when not needed can yield a lot of savings. The type of control used (occupancy sensor, daylight sensor, timeclock, etc.), will vary depending on the building or space type and square footage. Often, these controls are used together to achieve a range of results depending on the conditions. Adding to the challenge is calculating LPD—not all lights are included in the calculation and not all are required to be controlled.

This leads to another major aspect of both LPD and Controls compliance, and that is Exceptions. We never want an energy-saving measure to compromise safety. Whether it is industrial applications, pedestrian vehicle conflict zones, or emergency egress, the lighting controls must be an aid and not a hinderance. Determining which controls are exempted and under what conditions can add to the complications of code compliance.

As mentioned above, different building or space types have different LPD allowances, so how the spaces are classified can have an impact on the lighting design as well. An "Exercise Center," a "Gymnasium," and a "Sports Arena" all have different LPDs, but there could be a lot of overlap of function. There are also three different "Dining" categories, each with different LPDs listed in the space types. In addition, calculating the exact square footage can be done in different ways. Is it from the exterior wall to exterior wall, interior wall, or center of the wall? There are also utility chases and occasional voids in the floor plan that can make the calculation tricky.

All these factors combine to make code compliance not only complicated, but fraught with what appears to be convoluted legalese. However, bear in mind that the purpose of the codes and their goal is to give us better, safer, and more sustainable buildings.

## At Last!

## Utility Incentives for Advanced Lighting Controls Have Finally Arrived!

When Etta James sang that most classic of love ballads, she may have been talking about a special someone in her life – but trade allies and the lighting industry are saying At Last to the news that a handful of utilities in the Pacific Northwest have recently added premium incentives for qualifying advanced lighting controls. Everyone seems to agree that advanced lighting controls offer the potential for greater energy savings and increased customer value, but the wide range in potential energy savings and performance made it hard for utilities to offer the sort of deemed or prescriptive incentives necessary to really move the market.

That has all started to change in the last few months with at least four major utility programs across the Pacific Northwest introducing new premium incentives for advanced lighting controls. Trade Allies and business owners working with [Snohomish PUD](#), [Puget Sound Energy](#), [Seattle City Light](#), or the [BPA Lighting Calculator](#) will all find premium incentives when qualifying controls systems are included in the project. For example, a project that may have received \$40 for a standard LED troffer would receive an additional \$50 if the product qualified as an advanced lighting control. (for a total incentive of \$90)

According to Joe Fernandi at Seattle City Light, "The incentive bonus is intended to cover the incremental cost between a standard fixture and one with integrated controls." With several neighboring utilities adopting this incentive tactic which eliminates the disparity in upfront cost, energy efficiency professionals hope to see market share increase. While advanced lighting controls continue to proliferate, the primary applications utilities will be looking to incentivize include: open offices, closed offices, classrooms, and high-bay.

To support utility programs in their foray into advanced lighting controls, LDL will be hosting a series of one-day and two-day workshops aimed at trade allies, architects, lighting designers, engineers, building





## At Last!

(cont'd)

facilities staff and others. Participants will enjoy interactive hands-on elements and will learn more about control concepts, devices, system design, specification, sequence of operations, installation, and the programming of lighting control systems. For more information on the availability of these classes please visit the [Lighting Design Lab website](#).

**Please Remember:** C+I lighting programs are unique to each utility and incentive levels and the availability to funding are subject to change. LDL encourages everyone to work upfront with their local utilities to ensure specific program requirements are met.

Interested parties can click the hyperlinks below for full details and program requirements:

- [BPA Lighting Calculator 4.0](#)
  - [Snohomish PUD](#)
  - [Puget Sound Energy](#)
  - [Seattle City Light](#)
- New incentives effective August 1, 2018*

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