

# Bell & TayMac Hour

Topic: DesignLights Consortium (DLC)

May 5, 2020

**NOTE:** For those who are unable to attend we will be recording this training session for future reference and review....



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# DesignLights Consortium (DLC)

## What is the DLC?

- *The DesignLights Consortium® (DLC) is a non-profit organization dedicated to accelerating the widespread adoption of high-performing commercial lighting solutions. The DLC promotes high-quality, energy-efficient lighting products in collaboration with utilities and energy efficiency program members, manufacturers, lighting designers, and federal, state, and local entities. Through these partnerships, the DLC establishes product quality specifications, facilitates thought leadership, and provides information, education, tools and technical expertise*

## Why DLC?



**Impact.**

Helping utilities create better efficiency programs



**Expertise.**

Providing technical expertise and a collaborative forum for the lighting industry



**Innovation.**

Creating new programs, tools and resources relevant to the needs of commercial lighting industry end users



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# DLC Qualified Product List (QPL)

## Objective:

- Promote high quality energy efficient LED products on the Market
- Category focus is on those product types not currently covered by ENERGY STAR
  - **NOTE:** If ENERGY STAR decides to cover a category currently covered via DLC, DLC will begin the phase out process for that particular category

## Purpose and Intent:

- Bi-national list of qualified products that meet the specifications and requirements providing the necessary information for energy efficiency program admins to use internally in determining whether a LED fixture qualifies for possible incentives and/or rebates

## Specifications:

- An advisory committee made of various constituents (contractors, governmental agencies) play important roles in the specifications
- A small technical committee shares existing data and make recommendations on spec development
- Recommendations are presented to a larger DLC QPL group
- The DLC QPL Steering Committee will then vote on approval and creation of the proposed specification
  - Product categories are prioritized according to market demand and evidence of energy-savings



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# DLC 4.0 Technical Requirements

## Exterior Lighting Systems

### 'Required' Exterior System Capabilities

- Networking of Luminaires and Devices
- Occupancy Sensing AND/OR Traffic Sensing
- Daylight Harvesting / Photocell Control
- High-End Trim
- Zoning
- Individual Addressability
- Continuous Dimming
- Scheduling
- Energy Monitoring

### 'Reported' Exterior System Capabilities

- Control Persistence
- Device Monitoring / Remote Diagnostics
- Type of User Interface
- Load Shedding (DR)
- External Systems Integration
- Emergency Lighting
- Cybersecurity
- Color Changing / Tuning
- Ease of Implementation
- Scene Control

- **Required Capabilities** – Available in ALL systems to be listed on the QPL. Systems that do not offer are NOT eligible to be listed
- **Reported Capabilities** – DLC reports on the presence/absence of, type and/or characteristic of each Reported capability for a qualified system
- Additional Capabilities and Requirement Definitions are located in the APPENDIX



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# Hubbell's DLC Compliant Outdoor LED Swivel Joint Floodlight

**Cat. #: LL1200S, LL1200W, LL1200Z**

## **Features:**

- 85% less energy consumption
- 1200 Lumens (equivalent to 75-watt incandescent), 3000K Warm White
- Commercial Grade
  - DLC 4.0 Certified
  - 120/277 VAC 50/60Hz
- Rugged Die Cast Aluminum Heads
- Tool-less Swivel Joint for Easy Light Adjustment
- Long Life – Up to 50,000 hours
- Diffused Tempered Glass Lens
- Premium Powder Coat Finish with Diffused Tempered Glass Standard 1/2" NPT threads
- Available in Gray/White/Bronze

*BELL weatherproof floodlights provide weatherproof protection for general outdoor lighting applications. The unique swivel joint knuckle allows for easy and precise positioning.*



Model# LL1200[Z, S, W]

Manufacturer: Dongguan Hubbell Electrical Products Co Ltd.

Brand: BELL

Technical Requirements Version: 4.4

Date Qualified: 03/28/2019

Product ID: P204225G

### Classification

Main: Outdoor Luminaires

General Application: Low Output

Primary Use: Architectural Flood and Spot Luminaires

System Type: AC

Classification: standard

Is Parent Product: Yes

DLC Family Code: C00G0B

Listing Status: Listed

Notes:



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# Hubbell's DLC Compliant Outdoor LED Floodlight Kit (w/ Motion Sensor)

Cat. #: 5882-5, 5882-6, 5882-7

## Features:

- Warm White LED Flood Lights (3000K) 2000 Lumens 26W
- Commercial Grade:
  - DLC 3.0
- Die Cast Aluminum Heads and Cover
- Patented Multi-Directional Swivel Joint for Easy Light Adjustment
- 180° Motion Sensor with Duration, Sensitivity and Photocell Controls
- 2 additional 1/2" threaded openings with closure plug

## 180° Motion Sensor Field 3 CONTROL SETTINGS:

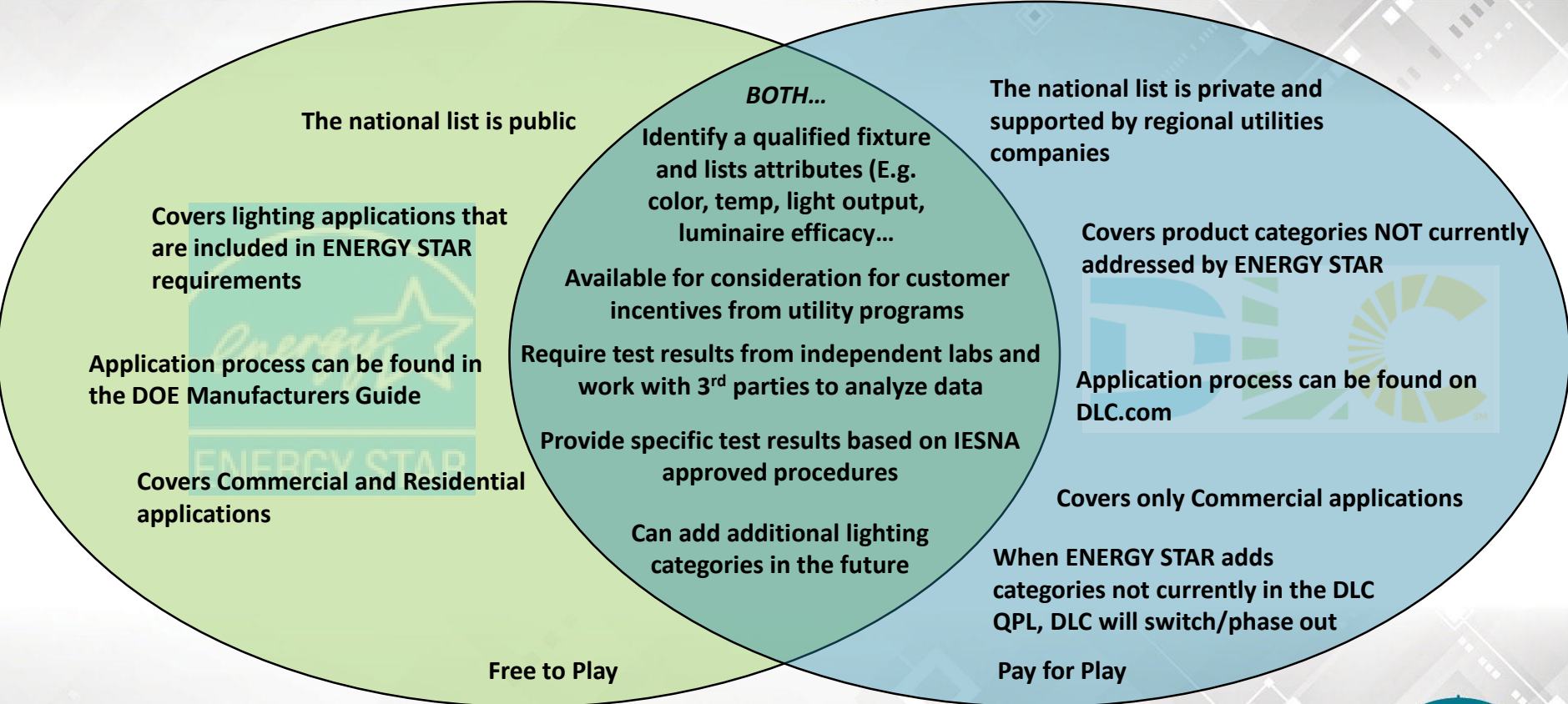
- 1) Duration - 2 seconds to 1.5 hrs.
- 2) Light Sensitivity
- 3) Motion Detection Range from 0 to 20 meters (0 - 65 ft)



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# Differences between Energy Star and DLC?



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# Rebate Resources

## Links:

- Available rebates through state by state utilities:  
<https://hyliteledlighting.com/resources/rebates/>
- National database for local and federal rebates and incentives: [Database of State Incentives for Renewable & Efficiency](#)
- Link to catalog of products that carry certifications that qualify for most rebates (Design Light Consortium and Energy Star): [View LED Products](#)
- Information on the 179D Federal Tax Deduction for Lighting: [179D Commercial Buildings Energy-Efficiency Tax Deduction](#)



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# DLC Conclusion/Take Away

- Common standardized minimum limited warranty period of five (5) years
- Standardization of performance levels
- Qualified products requiring the designs and qualifications of DLC exceed the LED LM80 requirements
  - *LM80 is an efficient method for measuring the depreciation of lumen life to understand A) useful lifetime of the component based on application B) how the LED's light output degrades under various conditions and C) shift of the color point under similar conditions*
- Equipped with effective light distribution patterns optimized for the specific application
- Exceeding the LM80 standards also means the product will exceed the L70 criteria
  - *L70 is a lifetime measurement developed by IESNA (Illuminating Engineering Society of N.A.) and evaluates the useful lifetime of an LED luminaire in terms of the expected number of operating hours until the light output has diminished to 70% of initial levels or when the lumen output is 70% of its initial output*
- Rebates/incentives and contributions towards jobs/projects



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# Q & A Session

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# *APPENDIX*



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# DLC 4.0 Capabilities & Requirements Definitions

Row	Capability	Definition
1	<b>Networking of Luminaires and Devices</b>	The capability of individual luminaires/lamps and control devices to exchange digital data with other luminaires/lamps and control devices on the system. This capability is required at the room, space, or area level, but not at the whole building level or beyond (e.g. non-lighting systems, or the internet).
2	<b>Occupancy Sensing</b>	The capability to affect the operation of lighting equipment based upon detecting the presence or absence of people in a space or exterior environment. Exterior systems must include either occupancy sensing or traffic sensing. They may include both, but that is not required.
3	<b>Traffic Sensing</b>	The capability to affect the operation of lighting or other equipment based upon detecting the presence or absence of moving vehicles in an area. Systems may satisfy this requirement through external systems integration as described below in lieu of in-system sensors if another source of data is used for presence or absence detection. Exterior systems must include either occupancy sensing or traffic sensing. They may include both, but that is not required.
4	<b>Daylight Harvesting / Photocell Control</b>	The capability to automatically affect the operation of lighting or other equipment based on the amount of daylight and/or ambient light that is present in a space, area, or exterior environment. This capability is typically called daylight harvesting for interior systems, and photocell control for exterior systems.
5	<b>High-End Trim*</b>	The capability to set the maximum light output to a less-than-maximum state of an individual or group of luminaires/lamps at the time of installation or commissioning. High-end trim must be field reconfigurable. This capability is distinct from automatic compensation for lumen depreciation, which automatically increases output as a system operates over time.  *While the DLC specifically requires "High-end trim", some manufacturers refer to this capability as "task tuning" or "tuning" within their system interfaces. Refer to <a href="#">NEMA LSD 64-2014</a> for definitions of lighting controls terminology.

6	<b>Zoning</b>	The capability to group luminaires/lamps and form unique lighting control zones for a control strategy via software-defined means, and not via physical configuration of mechanical or electrical installation details (e.g. wiring). Interior: Zoning is required for occupancy sensing, high-end trim, and daylight harvesting control strategies except for systems that feature luminaire level lighting control (LLLC) capabilities as defined in these requirements under "Reported Capabilities", in which case zoning is only required for occupancy sensing and high-end trim control strategies. Exterior: Zoning is required for high-end trim.
7	<b>Individual Addressability</b>	The ability to uniquely identify and/or address each individual luminaire/lamp, sensor, controller, and user interface device in the lighting system, allowing for configuration and re-configuration of devices and control zones independent of electrical circuiting.
8	<b>Continuous Dimming</b>	The capability of a control system to provide control with sufficient resolution in output (100+ steps) to support light level changes perceived as smooth (as opposed to step dimming with a small number of discrete light levels).
9	<b>Control Persistence</b>	The capability of a networked lighting control system's lowest-level ("edge device") luminaire/lamp controllers to execute three energy saving strategies (occupancy sensing, daylight harvesting, and high-end trim) at a room-level, or finer, resolution in the absence of communications with the next higher networked element in the system's topology.
10	<b>Scheduling</b>	The capability to automatically affect the operation of lighting equipment based on time of day. Scheduling capability is reported for interior systems and required for exterior systems. Exterior systems are required to have time-based scheduling, and "astronomical" scheduling functionality for sunrise and sunset programming, based on geographical location and time of year.
11	<b>Energy Monitoring</b>	The capability of a system to report the energy consumption of a luminaire/lamp and/or a group of luminaires/lamps. <ul style="list-style-type: none"> <li>Individual luminaire/lamp monitoring as well as energy monitoring on dedicated lighting circuits is acceptable.</li> <li>The method by which the system implements this capability must be clearly described, including whether the system provides automated energy measurement or relies on numerical manual input during system setup for accurate measurement (such as inputting the wattage of each luminaire/lamp in a project).</li> <li>Reference consists of one or both of: <ul style="list-style-type: none"> <li>Sample .CSV file with documentation</li> <li>API documentation</li> </ul> </li> <li>Energy monitoring is not required for room based systems.</li> <li>In order for a system to qualify for this exemption, the DLC review process will confirm that the product claims only "Room or Zone" for interior scope as listed on the DLC QPL.</li> </ul>
12	<b>Device Monitoring / Remote Diagnostics</b>	The capability to monitor, diagnose, and report operational performance including system and/or component failures.



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# DLC 4.0 Capabilities & Requirements Definitions

13	Type of User Interface	The type of interface provided by the control system for users to read and adjust control system settings during system start-up, commissioning, and/or ongoing operation.
14	Luminaire Level Lighting Control (LLLC, integrated)	The capability to have a networked occupancy sensor and ambient light sensor installed for each luminaire <b>or kit</b> , and directly integrated or embedded into the form factor during the luminaire <b>or kit</b> manufacturing process. In addition to these required integrated components, LLLC systems must have control persistence capability as described in this document. To demonstrate commercial availability of the integrated component options, at least one family, luminaire or kit with integrated control must be verified by the DLC. Manufacturers may choose whether or not to list this information publicly on the QPL.
15	Personal Control	The capability for individual users to adjust to their personal preferences, via networked means, the illuminated environment of a light fixture or group on of light fixtures in a specific task area. The publicly available information must clearly describe a control interface for use by a single individual who does not have access to system-wide settings. A wireless dimmer switch may only be considered a personal control interface if product documentation: a) shows that the physical configuration is suitable for workstation use (i.e. a small, self-contained unit without any external wiring, suitable for use as a handheld remote control), and b) describes configuration for personal control within a larger area. A software-based interface may only be considered personal control if product documentation: a) shows it provides a specific interface intended for personal control by an individual user within a subsection of a larger space, and that b) the interface only allows access to personal control functions for the light fixtures in the specific areas being controlled (i.e. each occupant can control their own area, but not their neighbors' areas).
16	Load Shedding (Demand Response)	The capability to reduce the energy consumption of a lighting system, in a pre-defined way, on a temporary basis, in response to a demand response signal. The method by which the system implements this capability must be clearly described in the publicly available reference(s).
17	Plug Load Control	The capability to control the power delivered to receptacles through scheduling or occupancy sensing. The method by which the system implements this capability must be clearly described in the publicly available reference(s).
18	External Systems Integration (e.g. BMS, EMS, HVAC, Lighting, API, Cloud)	The capability to exchange data with other networked systems such as building or energy management systems (BMS/EMS), heating ventilation and air conditioning (HVAC) systems, or other lighting and building systems via BACnet, application program interface (API) or other methods. The method, including formats and languages, by which the system implements this capability must be clearly described in the publicly available reference(s).

19	Emergency Lighting	Publicly available documentation illustrating how a system's luminaires connect with an emergency power source. The QPL will provide the URL(s) for online documentation provided by manufacturers for system designers to refer to. This documentation will identify wiring diagrams, required components, and/or application guides needed to understand design considerations for integrating the system into an emergency lighting system.
20	Cybersecurity	The compliance with a cybersecurity standard that meets the DLC criteria. The current standards are shown in Table CS-1 and listed here: <ul style="list-style-type: none"> <li>ANSI/UL 2900-1</li> <li>IEC 62443</li> <li>SOC 2</li> <li>ISO 27001</li> <li>ISO 27017 (with 27001)</li> <li>FedRAMP</li> <li>CSA STAR</li> </ul>
21	Color Changing / Tuning	The capability to alter the output and color of tunable white and/or variable color output luminaires via a dedicated control interface(s). To demonstrate compliance with this capability, the interface(s) must be clearly described in the product literature and allow for at least two CCT settings. These settings may be described in terms of CCT, such as 3000K or 5000K, or simple descriptive terms for the desired setting such as 'Night' or 'Day'. The product literature must also specify installation and configuration requirements to implement this functionality.
22	Ease of Implementation	The QPL will identify the most typical responsible party and their required level of training to start-up and configure the system to the extent that all required capabilities are functioning. Documentation is not required.
23	Scenes	The capability of a system to provide two or more pre-programmed light level settings for a group or multiple groups of luminaires to suit multiple activities in a space, and allow for recall of these settings via a switch, control device, or signal from a BMS or API.



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