

## Decorative Luminaires, LED, Post-Top, Roadway



### 1. Scope

This standard covers the requirements for decorative, light-emitting diode (LED), post-top, roadway luminaires.

This standard applies to the following Seattle City Light (SCL) stock numbers:

| <b>Stock No.</b> | <b>Description</b> |
|------------------|--------------------|
| 014363           | Luminaire          |
| 014367           | House side shield  |
| 014368           | Slipfitter         |

### 2. Application

Decorative LED roadway luminaires are:

- Installed in City-designated areas and SCL-designated streetlight districts and neighborhoods where a wider lineal distribution of light is intended. The distribution pattern is wider in the front to accommodate wider roadways and the light pattern on the ground is 1.5 times wider than the mounting height of the fixture.
- Post-top mounted on round pedestrian streetlight poles with a 4-in pole-top outer diameter as specified in SCL 5752.05
- Equipped with a built-in slipfitter with a tool-less door to house a standard, seven-pin photocontrol.
- Controlled by 20-year design life streetlight photocontrols as specified in SCL 5693.10.

This luminaire was first purchased for the Shelby Hamlin project.



### 3. Industry Standards

Decorative LED roadway luminaires shall meet the applicable requirements of the following industry standards:

**ANSI/NEMA/ANSLG C78.377-2008**; Specifications for the Chromaticity of Solid State Lighting (SSL) Products

**ANSI C136.10-2010**; Locking-Type Photocontrol Devices and Mating Receptacles

**ANSI C136.31-2010**; American National Standard for Roadway Lighting Equipment – Luminaire Vibration

**ANSI C136.37-2011**; American National Standard for Roadway and Area Lighting Equipment – Solid State Light Sources Used in Roadway and Area Lighting

**ANSI C136.41-2013**; Dimming Control Between an External Locking Type Photocontrol and Ballast or Driver

**ASTM B117-09**; Standard Practice for Operating Salt Spray (Fog) Apparatus

**ASTM D1654-08**; Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments

**ASTM D523-08**; Standard Test Method for Specular Gloss

**ASTM G154-06**; Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials

**C136.15-2011** (or latest); American National Standard for Roadway and Area Lighting Equipment – Internal Labeling of Luminaires

**C136.22-2004 (R2009)**; American National Standard for Roadway and Area Lighting Equipment – Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures

**Federal Trade Commission (FTC)**; Green Guides, 16 CFR Part 260; Guides for the Use of Environmental Marketing

**IEC 60529**; Degrees of Protection Provided by Enclosures (IP Code), consolidated edition

**IEEE C62.41.2-2002**; IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits

**IES LM-79-08**; Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

**IES LM-80-08**; Approved Method: Measuring Lumen Maintenance of LED Lighting Sources

**IESNA TM-15-11 (revised)**; Luminaire Classification System for Outdoor Luminaires

**RoHS** (European Union Directive 2002/95/EC for Restriction of Hazardous Substance)

**Title 47 of the Code of Federal Regulations (CFR)**, Part 15; Radio Frequency Devices

**UL 1598**; Luminaires; UL

## 4. Requirements

### 4.1 Luminaire Performance

|  |             |
|--|-------------|
| Operating temperature, range   |             |
| °C   | -40 to +55  |
| °F   | -40 to +130 |
| Correlated Color Temperature (CCT), nominal, °K, per ANSI/NEMA/ANSLG C78.377 | 3000 ± 200  |
| Color rendering index (CRI), minimum   | 70          |
| L70 Lumen depreciation of LED light sources per IES LM-80, hours, minimum    | 100,000     |
| Light distribution, IES  | Type 2      |
| Luminaire efficacy, lumens/watt, minimum, per IES LM-79, Section 11.0        | 102.6       |
| Off-state power consumption, W, maximum                                      | 0.5         |

### 4.2 Power Supply/Driver

|   |            |
|---|------------|
| Input voltage, functional range, 60 Hz, Vac           | 120 to 277 |
| Dimming control signal interface operative range, Vdc | 0 to 10    |
| Power factor, minimum                                 | 90         |

### 4.3 Construction

The luminaire shall be designed and constructed to meet the requirements of ANSI C136.37.

Luminaire features conforming to ANSI C136.37 shall include, but not be limited to:

- Mounting provisions
- Latching and hinging
- Terminal blocks
- Dimming
- Ingress protection
- Wiring and grounding
- Photocontrol receptacle
- Manual wattage selector
- Field-installable house side shields

Luminaire shall be RoHS compliant. Luminaire shall have less than the maximum concentration values of the following RoHS-restricted substances:

- Mercury (Hg)
- Cadmium (Cd)
- Chromium VI (Cr +6)
- Polybrominated biphenyl (PBB)
- Polybrominated biphenyl ether (PBDE)
- Lead (Pb)

#### 4.4 Fixture Housing

|   |      |
|---|------|
| Luminaire weight (lb) maximum                             | 60   |
| Effective projected area (EPA), ft <sup>2</sup> , maximum | 2.2  |
| External housing, ingress protection per IEC 60529        | IP65 |
| Optical chamber, ingress protection per IEC 60529         | IP66 |

Luminaire housing shall be cast aluminum and allow for tool-less entry.

Photocontrol receptacle shall be located at the base of the luminaire and allow for tool-less entry.

Luminaire cooling system shall consist of passive heat sink without fans, pumps, or liquids.

All fasteners shall be stainless steel.

Acrylic lens material shall be UV stabilized.

#### 4.5 Electrical

Power supply/driver shall be UL Recognized for dry and damp locations.

All other electrical components shall be UL Listed or UL Recognized for wet locations.

Internal wattage selector shall be capable of manually lowering lumen output; selector shall include a minimum of five adjustment settings.

Luminaire photocontrol receptacle shall be designed and constructed to accept a standard plug type, locking, three-pole, three-wire, streetlight photocontrol, and shall be located at the base of the fixture.

Photocontrol receptacle shall have a minimum of five positions as defined in ANSI C136.41-2013. Two dimming contacts shall be connected to the 0-10 Vdc control signal interface on the power supply/driver with quick-disconnect connectors.

Rotational adjustment of the photocontrol shall be tool-less.

Luminaire circuitry shall include quick connect/disconnects to allow easy separation and removal of driver and power door.

A three-pole terminal block capable of accepting #14 to #6 AWG wire shall be mounted to the housing inside the electrical compartment.

Terminal block shall be capable of operation with a standard #2 flat blade screwdriver.

Luminaire shall meet the requirements of Title 47 of the Code of Federal Regulations (CFR), Part 15 – Radio Frequency Devices.

#### 4.6 Mounting

Luminaire shall be designed for post-top mounting onto a pole with a top diameter of 4 inches.

Tenon mounting area opening shall be limited to 1/4-in over the range of tenon sizes and leveling adjustment to prevent entrance of wildlife as specified in ANSI C136.37.

#### 4.7 Lens

Lens shall be lightly diffused and resistant to ultraviolet light deterioration.

Lens shall be smooth on the exterior to discourage the unwanted growth of moss and mold.

#### 4.8 Finish and Color

Finish on housing shall be a powder coating with a minimum thickness of 100 microns.

Finish shall meet salt spray requirements of ASTM B 117 and the humidity resistance requirements of ASTM D 2247.

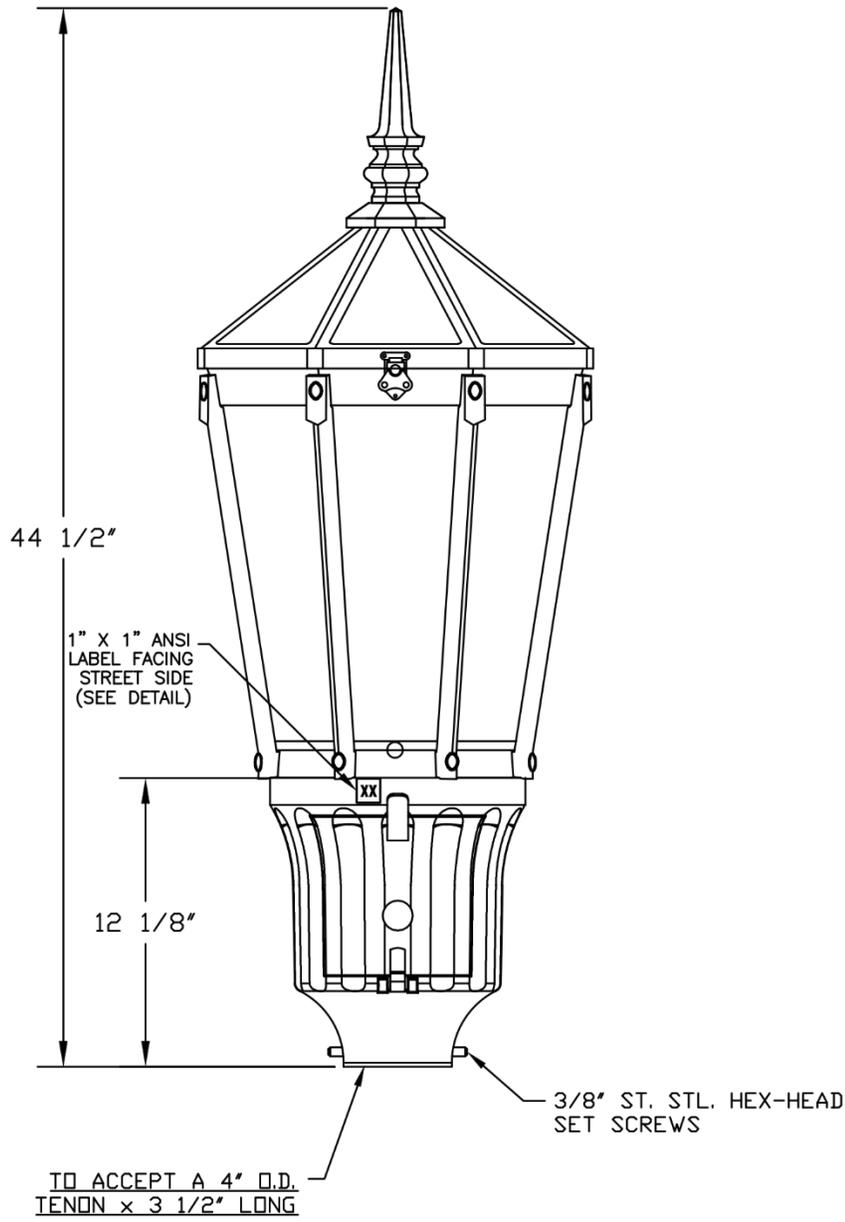
#### 4.9 Luminaire Requirements

Physical and electrical details for specific luminaires are provided below.

##### **Stock Number 014363 – K56 Cleveland**

|  |             |
|--|-------------|
| System power consumption (W)                                 | 40          |
| Weight (lb)  | 50          |
| EPA, (ft <sup>2</sup> )                                      | 3.5         |
| Tenon mounting requirements, outside diameter by length (in) | 4"Ø x 3.5"  |
| Dimensions, height by width (in)                             | 44.5" x 17" |

**Figure 4.9. Cleveland Luminaire Dimensions**



## 5. Testing

Manufacturers shall provide test data that establishes compliance with the requirements of this material standard upon request.

Certificate of RoHS compliance shall be provided upon request.

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## 6. Design Changes

Manufacturer shall inform Seattle City Light in writing of all design changes that could affect the product's understood or published capabilities.

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## 7. Marking

### 7.1 Internal Labeling

A readily visible label shall be permanently affixed to the inside surface of each luminaire housing.

Internal label shall meet the requirements of ANSI C136.22.

Internal label shall include, but not be limited to, the following information:

- Manufacturer's name and catalog number
- Month and year of manufacture
- Line input voltage
- Frequency if other than 60 Hz
- Driver type, if applicable (may be on driver if readily visible)
- Photocontrol voltage if different from line input voltage
- Lamp type, wattage, and voltage (if applicable; may be on driver if readily visible)
- Descriptive wiring diagram showing input terminals, ballast, capacitors, starting aid, photocontrol receptacle, lamp, and the like, as necessary
- Plant location
- Input power consumption
- Driver output current
- Driver output adjustment
- IEC IP rating
- Correlated color temperature (CCT)
- IES light distribution type
- IESNA TM-15 BUG ratings
- Serial number

### 7.2 Barcode

A barcode label shall be provided as specified in the purchase order.

### 7.3 Compliant Identification

All UL Listed or UL Recognized components shall be labeled as such.

## 8. Packaging

Luminaires and accessories shall be separately packaged to prevent damage during shipping, inside storage, and casual handling prior to installation.

Each luminaire package shall be legibly marked with:

- Manufacturer's name
- Manufacturer's catalog number
- Product description
- Date of manufacture (month and year)
- Seattle City Light stock number
- Seattle City Light purchase order number

Each package of accessories shall be legibly marked with:

- Product description
  - Seattle City Light stock number
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## 9. Issuance

EA

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## 10. Approved Manufacturers

### 10.1 Luminaire, Stock No. 014363

|                      |  |
|----------------------|--|
| <b>Manufacturer:</b> | <b>King Luminaire</b>  |
| Catalog Number:      | <b>K56-C-K24-P4AR-II-40(SSL)-7030-120:277-PR7-#6-BK-WS-ANSI-3K</b> |
| <i>where:</i>        |  |
| K56 =                | model, K56   |
| C =                  | style, Cleveland   |
| K24 =                | pole adaptor, K24 capital  |
| P4AR =               | optical system, P4 flat array acrylic rippled                      |
| II =                 | light distribution, type 2   |
| 40(SSL) =            | wattage, 40 W, solid state   |
| 7030 =               | LED series, 7030   |
| 120:277 =            | voltage, 120-277 Vac   |
| PR7 =                | options, 7-pin twist-lock photo receptacle                         |
| #6 =                 | finial   |
| BK =                 | finish, textured black   |
| WS =                 | wattage selector   |
| ANSI =               | ANSA wattage label   |
| 3K =                 | correlated color temperature, 3000 K, warm white                   |

### 10.2 House Side Shield, Stock No. 014367

|                      |  |
|----------------------|--|
| <b>Manufacturer:</b> | King Luminaire   |
| <b>Catalog No.:</b>  | 02-03455   |
| Description:         | Field-installable house-side shield  |
| Application:         | To be installed on luminaires upon request to cut light off at 1/2 mounting height behind luminaire. One shield per luminaire. Streetlight Engineering must pre-approve all installations of luminaire shields. Contact Streetlight Engineering for details. |

### 10.3 Slipfitter, Stock No. 014368

|                      |   |
|----------------------|---|
| <b>Manufacturer:</b> | King Luminaire  |
| <b>Catalog No.:</b>  | 3OD   |
| Description:         | Optional slipfitter   |
| Application:         | For installation in cases where existing streetlight has a 3-in tenon instead of standard 4-in. |

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## 11. Sources

**Aristo, Ed;** King Luminaire Lighting Manufacturer Representative with Sea-Tac Lighting and Controls, LLC, and subject matter expert for 5725.15

**Bourget, Helene;** SCL Streetlight Supervisor and subject matter expert for 5725.15 (helene.bourget@seattle.gov)

**King Luminaire;** Drawing No. SCL K56C – Type II BK-1, February 2, 2018

**King Luminaire;** Drawing No. SCL K56 3OD-1, February 13, 2018

**Vanderpool, Laura;** SCL Technical Writer and originator of 5725.15 (laura.vanderpool@seattle.gov)