

Floodlights, LED



1. Scope

This standard covers the requirements for light-emitting diode (LED) floodlights.

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

Stock No.	Color	Description
014454	Bronze	LED floodlight
014458	Bronze	Optional top and side visors

2. Application

LED floodlights are:

- Suitable for replacement of 250- or 400-watt high-pressure sodium (HPS) floodlights.
- Installed by trunnion mounting onto a floodlight bracket.
- Controlled by a 20-year design life streetlight photocontrol Stock No. 013129 (item ordered separately).

3. Industry Standards

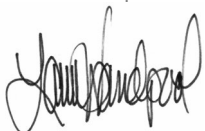
LED floodlights shall meet the applicable requirements of the following industry standards:

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

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ANSI 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

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

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

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 Floodlight Performance

Operating temperature, range	
°C	-40 to +40
°F	-40 to +104
Correlated Color Temperature (CCT), nominal, °K, per ANSI/NEMA/ANSI C78.377	2700 ± 200
Color rendering index (CRI), minimum	70
L70 Lumen depreciation of LED light sources per IES LM-80, hours, minimum	100,000
Light distribution, NEMA beam spread	6x6
Efficacy, lumens/watt, minimum, per IES LM-79, Section 11.0	122
Off-state power consumption, W, maximum	0.5
Light output, lumens, minimum	9944
Vibration withstand, minimum, per ANSI C136.31	Level 1 (normal application)

4.2 Power Supply/Driver

Consumption, maximum, W	80
Input voltage, functional range, 60 Hz, Vac	120 to 277
Dimming control signal interference operative range, Vdc	0 to 10
Power factor, minimum	> 0.9
Total harmonic distortion	< 20%
Ambient temperature, minimum	-40°C
Ambient temperature, maximum	+40°C

4.3 Construction

4.3.1. General

LED floodlights shall be designed and constructed to meet the requirements of ANSI C136.37.

LED floodlight features conforming to ANSI C136.37 shall include but not be limited to the following:

- Mounting provisions
- Latching and hinging
- Terminal blocks
- Dimming
- Ingress protection
- Wiring and grounding
- Photocontrol receptacle

LED floodlights shall be RoHS (European Union Directive 2002/95/ED for Restriction of Hazardous Substance) 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 diphenyl ether (PBDE)
- Lead (Pb)

4.3.2. Fixture Housing

Weight, lb, maximum	20
Effective projected area (EPA), ft ² , maximum	1.25
External housing, ingress protection per IEC 60529	IP66
Optical chamber, ingress protection per IEC 60529	IP66

LED floodlight housing shall be cast aluminum.

Fasteners and latches shall be stainless steel.

Photocontrol mounting shall accommodate all SCL-approved photocontrols in SCL 5693.10.

LED floodlight cooling system shall consist of a passive heat sink without fans, pumps, or liquids.

All polycarbonate components shall be UV stabilized.

4.3.3. 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.

LED floodlight 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.

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

Pigtail shall be a 16/3 cord, type STW-A, with a minimum length of 6 ft.

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

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

Floodlights shall include a 10kV/10kA rated surge protective device in accordance with UL 1449.

4.3.4. Mounting

LED floodlights shall be designed for trunnion mounting.

4.3.5. Finish and Color

Finish on housing shall be a powder coating with a minimum thickness of 100 microns and shall meet the salt spray requirements of ASTM B117 and the humidity resistance requirements of ASTM D2247.

5. Testing

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

Certificate of RoHS (European Union Directive 2002/95/EC for Restriction of Hazardous Substances) compliance shall be provided upon request.

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.

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 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 Component Identification

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

8. Packaging

Luminaires shall be individually packaged to prevent damage during shipping, inside storage, and casual handling before installation.

Each package shall be legibly marked with:

- Manufacturer name
- Manufacturer catalog number
- Product description
- Date of manufacture (month and year)
- SCL stock number
- SCL purchase order number

Accessories shall be individually packaged to prevent damage during shipping, inside storage, and casual handling before installation.

Each package shall be legibly marked with:

- Product description
- SCL stock number

9. Issuance

Stock unit: EA

10. Approved Manufacturers

10.1 Stock No. 014454

Manufacturer:	Cooper Lighting Solutions
Catalog Number:	UFLD-CA2-80-727-U-66-T-BZ-10K-PR7-U130363
<i>where:</i>	
UFLD =	product, UFLD, utility LED floodlight
CA2 =	light engine, 9944 lumens
80 =	power consumption, 80 watts
727 =	70 CRI / 2700K CCT
U =	voltage, 120-277 Vac
66 =	distribution, NEMA 6' x 6' wide
T =	mounting, trunnion
BZ =	color, bronze
10K =	surge protector
PR7 =	options, NEMA 7-pin twistlock photocontrol receptacle
U130363 =	options, pigtail, 6 ft long, 16 AWG, 3-connector

10.2 Stock No. 014458, Top and Side Visors

Manufacturer:	Cooper Lighting Solutions
Catalog Number:	TS2/UFLD-BZ
<i>where:</i>	
TS2/UFLD =	top and side visors for utility LED floodlight
BZ =	color, bronze

11. Sources

Chao, Yaochiem; SCL Standards Engineer and originator of 5719.20

Cooper Lighting Solutions; drawing number PS506063EN; revised December 13, 2021