
DIRECTIVE 16-6

Issue date: May 2017

LIGHTING FOR CAMPUS ROADWAYS, WALKWAYS AND PARKING AREAS

1. General
 - a. Policy: Design outdoor lighting and building façade lighting to provide for the safety, security and comfort of those persons who will be using campus roadways, walkways, and parking areas. Designs should provide adequate lighting while being energy efficient. The Directive incorporates the requirements of Public Buildings Law, Section 143(4)
 - b. Coordination: Lighting designs shall be coordinated with the Campus.
 - 1) Determine if the Campus has standard lighting fixture styles or pole styles that shall be matched to provide a similar aesthetic.
 - 2) Discuss the need for pole mounted 120V receptacles.
 - 3) Determine any areas where safety and security are a concern, where increased light levels shall be used.
 - 4) Coordinate connections to existing control systems with the Campus.
 - 5) Determine if the Campus has a preference for placement of poles to facilitate exterior maintenance, snow removal or aesthetic pole arrangement.
 - c. Light Source: All site lighting shall be LED type. Fixtures shall be specified for downlight only, low glare, and no uplight. Specify fixtures using the “BUG” (Backlight/Uplight/Glare) rating system, where the Uplight value = U0.
 - d. Photometric Plans: Submit photometric plans for review with the Design Manual Submission. Photometrics shall be calculated using computer based software. Plans shall be drawn to scale and contain the following information:
 - 1) Point by Point lighting values (in footcandles).
 - 2) Statistics Table: Listing the target design values (Average, Minimum, Maximum, Uniformity Ratios), and the actual values achieved.
 - 3) Fixture Schedule: List each fixture type, mounting height, fixture wattage, output lumens, IES distribution pattern, light loss factor, and BUG rating.

2. Campus Roadway Lighting
 - a. General guidelines in accordance with *Illuminating Engineering Society (IES) RP-8-14 "Roadway Lighting"*.
 - b. Illumination Levels: Light levels given are for horizontal footcandles (fc).
 - 1) Average = 0.9 fc
 - 2) Average Uniformity Ratio (Average:Minimum) = 3.5:1
 - 3) Maximum Uniformity Ratio (Maximum:Minimum) = 6:1
 - c. Roadway Lighting Control: Provide fixtures with integral photocell control.
3. Walkways
 - a. General guidelines in accordance with *IES RP-8-14 "Roadway Lighting"*
 - b. Illumination Levels: Light levels given are for horizontal footcandles (fc).
 - 1) Average = 1.0 fc
 - 2) Average Uniformity Ratio (Average:Minimum) = 4:1
 - c. Walkway Lighting Control: Provide fixtures with integral photocell control.
4. Parking Areas
 - a. General guidelines in accordance with *IES RP-20-14 "Lighting for Parking Facilities"*. The design requirements listed below pertain to open parking facilities. For projects involving parking garages, designs shall conform to the requirements of IES RP-20-14, Part III.
 - b. Illumination Levels: Light levels given are for horizontal footcandles (fc).
 - 1) Minimum = 0.5 fc
 - 2) Maximum Uniformity Ratio (Maximum:Minimum) = 15:1
 - c. Parking Area Lighting Control: Provide fixtures with integral photocell control.
5. Building Façade Lighting, Building Mounted Fixtures and Athletic Playing Fields:
 - a. Building façade lighting shall be shielded to the greatest extent possible.
 - b. Building mounted fixtures not intended for roadway, parking lot or façade lighting shall be fully shielded when the fixture output is greater than 3000 lumens.

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- c. Athletic playing field lighting shall be shielded to prevent uplight and direct view of the lamps to the greatest extent possible.
6. Lighting Controls: With Campus and SUCF concurrence, other advanced lighting control methods can be considered where energy consumption is reduced and/or system functionality is increased.
7. Materials and Specifications
- a. Equipment specified shall be of a type available from three (3) manufacturers with replacement parts normally stocked and readily available. Specifications shall list manufacturer's catalog number.
 - b. Provide fuses mounted in the base of the pole to protect individual fixtures.
8. Installation Details: Install wiring in non-metallic conduits with 30" minimum cover.
- a. Provide reinforced concrete structural bases for poles. Design of structural bases shall be included in the project design.
 - 1) Where structural bases are subject to physical damage, base shall extend 30" above grade (min.).
 - 2) Where structural bases are located in grass or landscaped areas, base shall extend 6" above grade.
 - 3) The pole attachment surface of the structural base shall be larger than the pole base by at least 1 inch.
 - b. 277V or 480V branch circuits are preferred.
 - 1) Prepare voltage drop calculations for site lighting circuits, limited to 5% maximum drop.
 - 2) Specify underground utility marking tape underground marker tape, buried directly above conduits.
 - 3) If pole mounted 120V receptacles are required, provide GFCI duplex receptacles with weatherproof while-in-use cover, connected to a separate 120V branch circuit.

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