

## SECTION 30 LIGHTING STANDARDS

### 3001 Intent

To set forth lighting standards for outdoor uses that serve to create a safe and comfortable nighttime environment, while protecting the public's ability to view the night sky. These lighting standards are designed to ensure personal safety and prevent motor vehicle and pedestrian conflicts by reducing the negative effects of glare, light pollution and light trespass.

### 3002 Applicability

The outdoor lighting regulations contained herein shall apply to all exterior lighting and to interior lighting to the extent that it impacts the outdoor environment, including lighted signs but excluding public roadway lighting.

### 3003 Exceptions

- 3003.01 Lighting required by the FAA for air traffic control and warning purposes.
- 3003.02 Lighting in the public right-of-way installed by the controlling jurisdiction.
- 3003.03 Lighting required temporarily for emergency purposes or repairs in the right-of-way, which must comply with applicable State regulations.
- 3003.04 Temporary use of low-wattage lighting for public festivals or events, and the observance of holidays provided they do not create disability glare.
- 3003.05 Single-family residential lighting, except as prohibited herein.
- 3003.06 Lighting installed by a governmental entity for the benefit of public health, safety, and welfare.

### 3004 Prohibited Lighting

- 3004.01 Blinking, flashing or changing intensity lights including those proposed for signage.
- 3004.02 Lighting that could be confused with a traffic control device.
- 3004.03 Lighting of a type, style or intensity determined to interfere with the safe flow of traffic.
- 3004.04 Strobe lights, searchlights, beacons and laser light, or similar upward or outward oriented lighting.
- 3004.05 Exposed neon, exposed LED, or similar exposed lighting.

- 3004.06 Lighting creating a public hazard, including lighting that creates disability glare particularly where such disability glare has a detrimental effect on motor vehicle traffic.
- 3004.07 Lights mounted on poles for the purpose of illuminating the building facade.
- 3004.08 High-intensity floodlighting except as approved for sports facility lighting.
- 3004.09 Wall pack light fixtures that are not classified as full cutoff.

### 3005 General Requirements

Outdoor lighting shall meet the following standards:

- 3005.01 Light fixtures, except as otherwise permitted herein, are required to be full cutoff as defined by the Illuminating Engineers Society of North America (IESNA). Full cutoff light fixtures result in a light distribution pattern where no light is permitted at or above a horizontal plane at the bottom of the fixture.
- 3005.02 Light fixtures shall be installed and maintained in a manner consistent with the intended application and as approved in the Site Improvement Plan (SIP). Full cut-off fixtures may not be tilted or aimed in a manner that results in light distribution above the horizontal plane.
- 3005.03 Light fixtures associated with canopies, including but not limited to fuel islands, seasonal outdoor sales areas, shopping malls, theaters, bank drive-thrus, and hotels shall be full cutoff or mounted so that the bottom of the lens is recessed or flush with the bottom surface of the canopy. All light emitted from the canopy shall be substantially confined to the ground directly beneath the perimeter of the canopy. No lighting of any kind, except as permitted by sign regulations, shall be allowed on the top or sides of a canopy. The design of the canopy in terms of height above grade, and the spacing between the fixtures within the canopy, shall be such that the illuminance level under the canopy does not exceed 20 foot-candles.
- 3005.04 All light fixtures mounted within 15' of any residential property line of the site shall be classified as IES Type II or Type III, or a fixture demonstrated to provide similar distribution patterns and shielding properties. Fixtures shall be fitted with "house side shield" reflectors on the sides facing the residential property line. Light levels shall not exceed 0.1 foot-candles 20' from the abutting property line as a direct result of the on-site lighting.
- 3005.05 Illuminance levels shall not exceed 10 foot-candles measured as initial horizontal illuminance except as otherwise permitted herein. The initial illuminance level is measured following 100 hours of operation. The illuminance levels at building entrances and windows may exceed 10 foot-candles by 100% up to a distance of 5 feet from the building only in order to

accommodate light spillage from within the building and light from signage. At a distance of 10' from the building or use, the illuminance level must be less than or equal to 10 foot-candles.

3005.06 The use of horizontal lamps is recommended for pole mounted light fixtures in parking lots. If the lamp position within a fixture is vertical, any or all of the following may be required:

- 3005.06.1 A high socket mount
- 3005.06.2 A translucent fixture lens
- 3005.06.3 An opaque coating or shield on a portion of the lens perimeter
- 3005.06.4 Other industry accepted measures

3005.07 Poles supporting light fixtures designed to illuminate parking areas and drive entrances shall be round unless an alternative is shown to be architecturally superior. The protective pole standard may not exceed a height of 30" from grade. If the pole is otherwise protected within a parking island or an intervening curb or walkway, no standard is required. Maximum parking lot pole height shall be as follows:

- 3005.07.1 24' when fixture is located within 75' of the site's boundary; and
- 3005.07.2 40' when the fixture is located beyond 75' from the site's boundary provided that for mounting heights in excess of 24', the distance of the fixture to the site's boundary be not less than three times the mounting height.

3005.08 A maximum of two light fixtures per pole is recommended for parking lots except for perimeter lighting, which should be limited to one fixture per pole. The fixtures shall not incorporate "basket" features or similar design elements that could deflect light horizontally or upward. Perimeter lighting must be classified by IES as Type II, or Type III, or a fixture demonstrated to provide similar distribution patterns and shielding properties.

3005.09 The use of semi-cutoff or cutoff (as opposed to full cutoff) fixtures shall be permitted to illuminate areas other than parking lots provided the pole or mounting point is no more than 10' in height and the maximum lumen output does not exceed 1800 lumens per lamp. The poles should be round unless an alternative is shown to be architecturally superior. A maximum of 1 lamp per fixture and 2 fixtures per pole or mounting point is strongly encouraged.

Fixtures located on poles or at mounting points more than 10' in height, or that exceed 1800 lumens per lamp, shall be full cutoff fixtures.

3005.10 Bollards, or similar light fixtures that do not exceed 4 feet in height, intended to illuminate landscape features or walkways, may be permitted as part of the overall lighting plan upon approval of the SIP. Lamps shall not exceed 900 lumens for any single lamp. A maximum of 2 fixtures per bollard and 1 lamp per fixture is recommended.

- 3005.11 All lights, except those required for security as provided herein, shall be reduced to security levels within one hour after the end of business until one hour prior to the commencement of business. Security lighting at entrances, stairways and loading docks, as well as limited parking lot lighting, is permitted. The use of motion sensors for security lighting is strongly encouraged. Security lighting shall comply with all applicable provisions contained herein and may not exceed the maximum foot-candle level permitted on the site.
- 3005.12 All stadium and all other exterior sports arena lights used for the purpose of illuminance of the playing area shall be turned off following the conclusion of the final event of the night. The remainder of the facility lighting, except for reasons of security, shall be turned off within one hour after the event, and remain extinguished until one hour prior to the commencement of the next event.
- 3005.13 All signage lighting shall be turned off within one hour of the end of business and remain turned off until one hour prior to commencement of business. Verification of the ability to control the signage lighting shall be required as part of the sign permit application.
- 3005.14 Illuminance of a building façade to enhance architectural features may be permitted provided it is approved on the SIP. Downlighting is preferred provided wall-mounted fixtures are used and illuminance is contained completely within the vertical face of the building and does not spill off the building edge. Uplighting may be permitted provided no illuminance escapes the façade. Building facades may be illuminated to a maximum of 20 foot-candles as measured on the facade. Lights mounted on poles for the purpose of illuminating the building facade are not permitted.
- 3005.15 All outdoor light fixtures should utilize one of the following lamp types: metal halide, induction lamp, compact fluorescent, incandescent (including tungsten-halogen), or high-pressure sodium. Alternatives are permitted provided they are demonstrated to be more effective for the proposed use based on IESNA recommendations.
- 3005.16 Lighting in single-family residential areas and agricultural areas should be limited to 2400 lumens per fixture unless shielded. Lighting used for security purposes should be placed on motion sensors.
- 3005.17 Illumination of a flag on a flagpole is permitted provided a narrow spread 39-watt par metal halide or 50-watt par-halogen lamp, or an equivalent lamp with a similar narrow spread, is used and aimed to only illuminate the top of the flagpole. The source of illuminance (lamp) must be shielded in a manner so as not to be visible from adjacent property.

- 3005.18 The source of illuminance (lamp) from any fixture, including interior fixtures visible through windows, shall not create disability glare on adjacent properties.

### 3006 Sign Lighting

All signage must comply with Section 29, contained herein. Signs may be internally illuminated, backlit, or illuminated by down lighting or by ground-mounted light fixtures that illuminate the sign face and base only. Once the ground-mounted light fixtures are positioned and aimed in accordance with these requirements, they shall be permanently secured to prevent inadvertent or accidental misalignment.

Illuminance of the sign face by ground mounted light fixtures shall not exceed 50 foot-candles as measured on the sign face. It is suggested that the design of internally illuminated cabinet signs consist of lighter lettering on a darker background in order to maximize visibility. Internally illuminated signs shall be limited to a maximum of 1,000 nits. No sign may be illuminated with fixtures that allow for the unshielded upward transmission of light.

### 3007 Lighting Plan Requirements

Any use or change in use requiring SIP or Use By Special Review (USR) approval shall comply with the provisions contained herein. If there is an aspect of the proposed use that may warrant an adjustment to the lighting levels specified herein, the Review Board Manager shall determine the maximum illuminance levels based on IESNA recommendations and project location. The County may seek assistance from a professional lighting engineer to evaluate lighting plans and proposed equivalents. The applicant shall pay costs associated with such a review. Compliance with the approved lighting plan shall be determined following a site inspection that includes field verification of light levels. A lighting plan shall include the following:

- 3007.01 A narrative describing how the design of the proposed lighting including the fixture types, mounting heights, lamp types, locations, illuminance levels, controls, and sign lighting complies with the intent of the context and the regulations contained herein.
- 3007.02 Identification of all light fixture locations including whether they are pole-, ground- or building-mounted. The location of the light fixtures shall also be shown on the Landscape Plan in accordance with Section 27 contained herein.
- 3007.03 Description of the type of each light fixture along with the initial lamp lumen rating and wattage of each lamp, and any associated or required shielding. A copy of the manufacturers catalog sheet, product number and IESNA type description shall be required along with an elevation of the poles and fixtures, and position of the lamp within the fixture.

- 3007.04 Description of light-level-reduction controls for each fixture or grouping of fixtures, and resulting after-hours light levels.
- 3007.05 Maximum outdoor illuminance levels shall include signage lighting and light spillage from within a building; the impact of this illuminance shall be described in the lighting plan narrative.
- 3007.06 A photometric plan shall be required unless waived at the presubmittal meeting. The photometric plan shall exhibit the initial illuminance level calculated at 100 hours of operation and shall be shown on a maximum of a 10' grid.

### 3008 Definitions

- 3008.01 Bollards: Light fixtures (luminaries) having the appearance of a short, thick post, used for walkway and grounds lighting. The optical components are usually top mounted.
- 3008.02 Cutoff: A luminaire light distribution where the candela does not exceed 10% at a vertical angle of 80 degrees above nadir.
- 3008.03 Disability Glare: The effect of stray light in the eye whereby visibility and visual performance are reduced. For purposes of this Resolution, glare exceeding 2,500 nits is considered to be disability glare.
- 3008.04 Foot-Candle: A quantitative unit of measure for luminance equal to one lumen per square foot measured at ground level.
- 3008.05 Full Cutoff: A luminaire light distribution where zero candela intensity occurs at an angle of 90 degrees above nadir, and at all greater angles from nadir.
- 3008.06 Glare: The effect produced by a light source within the visual field that is sufficiently brighter than the level to which the eyes are adapted, to cause annoyance, discomfort or loss of visual performance and ability.
- 3008.07 Horizontal Illuminance: The measurement of brightness from a light source, usually measured in foot-candles or lumens, which is taken through a light meter's sensor at a horizontal position at grade in outdoor applications.
- 3008.08 IESNA: The Illuminating Engineering Society of North America, a non-profit professional organization of lighting specialists that has established recommended design standards for various lighting applications.
- 3008.09 Illuminance: The area density of the luminous flux incident at a point on the surface. It is a measure of light incident on a surface, expressed in lux or foot-candles.

- 3008.10 Light Fixture (luminaire): A complete lighting unit consisting of a lamp or lamps and ballasting (when applicable) together with the parts designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply.
- 3008.11 Light Trespass: Light from an artificial light source that is intruding into an area where it is not wanted or does not belong.
- 3008.12 Lumen: A quantitative unit measuring the amount of light emitted by a light source.
- 3008.13 Luminance: The quotient of the luminous flux at an element of the surface surrounding the point and propagated in directions defined by an elementary cone containing the given direction. It is a measure of light emission.
- 3008.14 Maintained Foot-Candles: Illuminance of lighting fixtures adjusted for a maintenance factor accounting for loss of efficiency, dirt build-up and lamp output depreciation.
- 3008.15 Non-cutoff: A luminaire light distribution where there is no limitation on candela intensity above nadir.
- 3008.16 Nits: A unit of measure used for lighting expressed as candelas per square meter.
- 3008.17 Semi-cutoff: A luminaire light distribution where the candela does not exceed 20% at a vertical angle of 80 degrees above nadir.
- 3008.18 Uplighting: Any light source that distributes illumination above a 90-degree horizontal plane.
- 3008.19 Wall pack: A type of light fixture typically flush-mounted on a vertical wall surface.