Community Design Standards

In accordance with the Zoning Ordinance Update

Outdoor Lighting Standards

Adopted December 15, 2015

OUTDOOR LIGHTING

Sections:

3.1 Purpose and Intent

The purpose of this Section is to minimize high intensity lighting and glare by establishing standards for lighting practices and systems that will balance lighting levels, minimize light trespass, and conserve energy in concert with state and federal requirements, while maintaining night-time safety, utility, and security consistent with prudent safety practices.

3.2 Definitions

For the purposes of this Section, the following terms shall be defined as follows:

"Design Professional" means a licensed electrical engineer or contractor, or a licensed architect.

"**Direct Light"** means light emitted directly from the lamp, off the reflector or reflector diffuser, or through the refractor or diffuser lens of a luminaire.

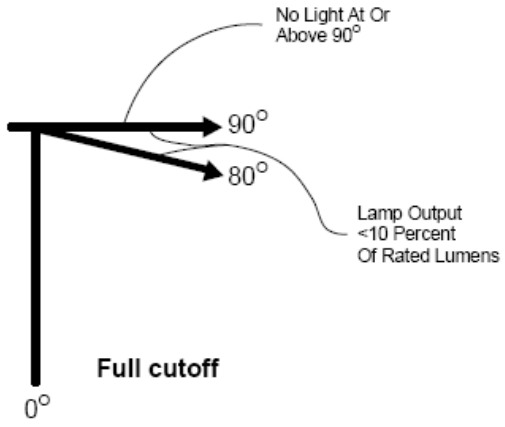
"Fixture" means the assembly that holds the lamp (bulb) in a lighting system, which can include all or some of the following elements designed to give light output control: housing, mounting bracket or pole socket, lamp holder, ballast, reflector (mirror), and/or refractor (lens).

"Flood light" or **"Spot light"** means any light fixture or lamp that incorporates a reflector or a refractor to concentrate and intensify the light output into a directed beam.

"Footcandle (horizontal or vertical)" means the amount of light striking a vertical or a horizontal plane measured as one lumen per square foot.

"Full-cutoff (fco)" means the light distribution of a luminaire where zero units of light intensity occurs at an angle of 90 degrees and greater above nadir, which is the vertical point directly below the luminaire when it is pointed down (0 degrees), and does not exceed 10 percent of lumen output at a vertical angle of 80 degrees above nadir, as demonstrated in Figure 3.2.A, below. This applies to all lateral angles around the installed luminaire to include any tilt or other non-level mounting condition. [Illuminating Engineering Society of North America (IESNA) Standards]. Full cut-off does not have the same meaning as and cannot be used interchangeably with the terms 'cut-off', 'full shielding' or 'fully shielded'.

Figure 3.2.A



"Glare" means discomfort experienced by an observer with a direct line of sight to a light source, often resulting in visual impairment.

"Indirect Light" means light resulting from direct light being reflected or scattered off of other surfaces.

"Inventory of lighting" means a complete list of all exterior lamps to be utilized on site, including illuminated signage. The inventory shall include the lamp type, number and wattage of each type, lighting plan key ID letter or number, initial lumen output rating per lamp or, in the case of luminous tube lighting, the length of the lamp measured in feet. The total project area expressed in net acreage or percentage thereof shall be required. Maximum allowable and project-related lumens per acre will be calculated based on this information.

"Lamp" means the component of a luminaire that produces the actual light, commonly referred to as the 'bulb'. Lamp types consist of light-emitting diodes (LED), high intensity discharge (HID) such as metal halide, mercury vapor, and high or low pressure sodium, and incandescent, fluorescent, and luminous tubes containing neon or argon. Certain lamps are more useful for specific uses, such as incandescent, fluorescent and metal halide where color rendition is important, or high and low pressure sodium for security lighting in such areas with little or no nighttime activity.

"Lamp efficacy or efficiency" means the total luminance emitted by a lamp divided by the power input, expressed in lumens per watt. As an example, the efficiency of various lamps can be compared in the Table 3.2.B, as follows:

Table 3.2.B

Lamp Type					
	Incandescent	**Fluorescent**	**Metal Halide**	**High-Pressure Sodium**	**Low-Pressure Sodium**
Wattage	25-150	18-95	50-400	50-400	18-180
Output (Lumens)	210-2700	1000-7500	1900-30000	3600-46000	1800-33000
Efficiency (lumens/watt)	8-18	55-79	38-75	72-115	100-183

"Light source" means the bulb and lens, diffuser, or reflective enclosure.

"Light trespass" means direct or indirect light projected onto a property from a luminaire not located on that property.

"Lumen" means the measure of brightness of the light exiting a bulb, provided by the manufacturer. For the purposes of this Chapter, the lumen-output values shall be the initial lumen output ratings of a lamp shown on the manufacturer's specification sheet.

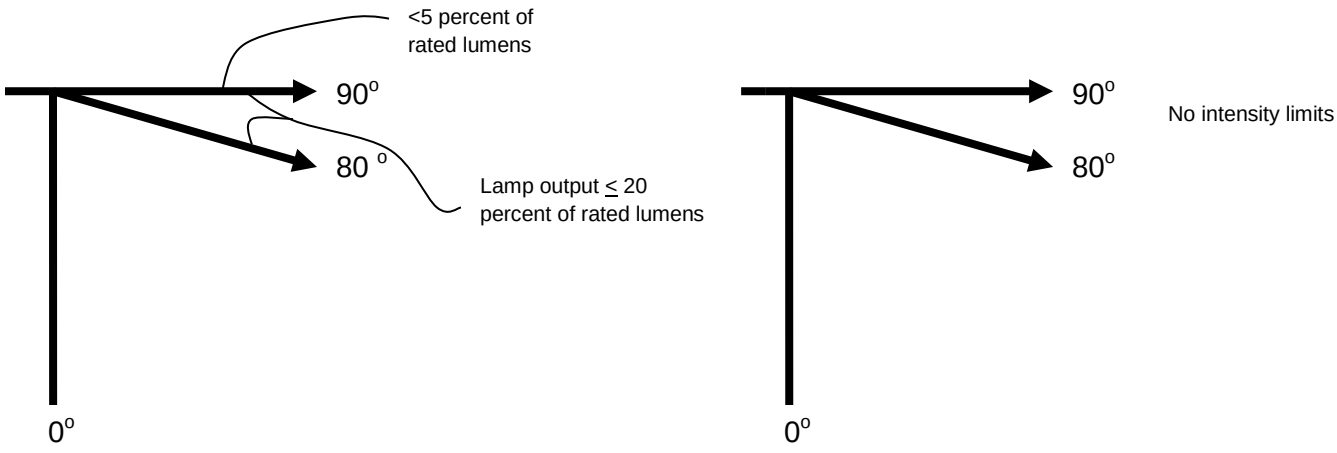
"Luminaire" means the complete lighting system to include the light source and the fixture. Luminaire types consist of bollard or post-top for walkways and ground lighting, pole mounted for roadways and parking lots, soffit and wall systems for structures, and floodlights for building facades, signage, landscaping, and sports fields.

"Net acreage" means, in addition to the definition in Article 8, lots containing those uses that are exempt from the lumens per acre caps under Paragraph 17.35.040.A.4 shall also exclude from the net acreage calculations the area devoted to the specific use, such as the vehicle sales lot, the fuel pump canopy, or the outdoor performance area.

"Outdoor Lighting" means the night-time illumination of an outside area or object, including signage, by any man-made device that produces light by any means.

"Semi-cutoff or non-cutoff" means a light fixture which does not cut off all upward transmission of light pursuant to IESNA Standards as demonstrated in Figure 3.2.C, below:

Figure 3.2.C



"Temporary outdoor lighting" means the specific illumination of an outside area or object, to include signage, by any man-made device that produces light by any means for a period of 45 days or less, with at least 180 days passing before being used again.

3.3 Lighting Plans Required

All public and private outdoor lighting installed in the County shall be in conformance with the requirements established by this Chapter, subject to the following:

A. Any applicant of a commercial, industrial, multi-unit residential, civic, or utility project that proposes to install outdoor lighting shall submit plans for such lighting, to be reviewed and approved by the Director as a part of an Administrative Permit.

B. If the project requires a Design Review, Conditional/Minor Use Permit, or Development Plan Permit, said lighting plan shall be included as a part of that application, and shall be subject to approval by the review authority.

C. Lighting plan shall be subject to the submittal requirements provided in the application form prepared by the Department and shall include, at a minimum, lighting specifications, a site plan, photometric plan, and Lighting Inventory (Appendix A).

D. The Lighting Inventory shall be completed and certified by the design professional prior to building permit issuance (Section B.1 and 2 of Appendix A) and by the licensed contractor prior to final occupancy (Section C of Appendix A).

3.4 Outdoor Lighting Limits

Lumens per acre limits shall be applied toward outdoor lighting based on the specified zone and its location within a General Plan designated Community Region, Rural Center, or Rural Region, subject to Table 3.4.A below:

Table 3.4.A Outdoor Lighting Limits

	LUMENS / ACRE		
Zones	**Community Regions (CR)**	**Rural Centers (RC)**	**Rural Regions (RR)**
C, CPO, CG, I, R&D, RFH	100,000	50,000	25,000
RM, NS, RFL, OS, TC	50,000	25,000	

A. In mixed-use zones, lighting limits shall be based on the sum of each percentage of the site dedicated for commercial and residential uses. For example, a lot in a Community Region developed as mixed-use, with 60 percent commercial and 40 percent multi-unit residential, would be calculated, as follows:

(Commercial use)	100,000 x 0.60 = 60,000 lumens/acre
(Multi-unit residential use)	+ 50,000 x 0.40 = 20,000 lumens/acre
lumens/acre Total Site Limit	**80,000**

B. The following uses are exempt from the lighting limits of this section:

1. Automobile sales/rental lots for the outdoor vehicle display area, only;

2. Canopied fuel station dispensing areas; and

3. Performance areas in compliance with Section 17.34.050.C.

Full-cutoff fixture design, light trespass requirements, and certification from Building Services regarding energy efficiency standards shall still apply to these areas. The remaining net acreage shall be subject to applicable lumens per acre limits.

3.5 Outdoor Lighting Standards

A. The following standards shall apply to all development in commercial, industrial, research and development, and multi-unit residential zones, as well as civic and utility lighting in all zones:

1. Pole mounted fixtures shall be limited to a maximum height of 20 feet, as measured from the highest point of the luminaire to the finished grade directly below it.

2. Top-mounted luminaires to illuminate parapet signs shall be limited to a maximum height of 25 feet, as measured at the highest point of the fixture to the finished grade directly below it. Illuminated signs shall also comply with Chapter 17.37 (Signs).

3. Roof-mounted luminaires are prohibited.

4. Security lighting shall be activated by motion sensors and remain in the "on" mode for a maximum of 10 minutes.

5. Light fixtures mounted under gas station or convenience store pump area canopies shall meet full cut-off requirements. Light fixtures shall not be mounted on the roof or sides (fascias) of the canopy and the fascias of the canopy shall not be illuminated in compliance with Chapter 17.36 (Signs).

6. Lots within the Historic District (-DH) Combining Zone may be exempt from full cut-off requirements in order to maintain a certain visual character in keeping with the historic period.

7. Outdoor display lighting, such as vehicle sales and rental lots, and building material sales display areas, shall be turned down to 25 percent or less of the existing illumination level or switched to security lighting, in compliance with Paragraph 4 above, by the following curfew times or within 30 minutes after the close of business, whichever comes later, in accordance with Table 3.4.B:

Table 3.4.B Curfew Times for Authorized Outdoor Display Lighting

Lighting Zone		
Community Region	Rural Center	Rural Region
11:00 pm	10:00 pm	9:00 pm

Under eave or canopy soffit lighting on buildings will be allowed to remain on until dawn in Community Regions and Rural Centers.

8. Search lights, laser source, or similar high intensity lighting shall not be permitted except in emergencies by police, fire, or other emergency personnel.

9. Mercury vapor lamps shall be prohibited.

B. Residential lighting, including single- and multi-unit development, shall conform to the following standards:

1. Lighting installation shall be limited to those areas adjacent to buildings, walkways, driveways, or activity areas (swimming pools, spas, outdoor dining areas, barns, and other similar uses) in close proximity to the residence or activity area.

2. An outdoor luminaire shall be full-cutoff if rated greater than 1,000 initial lumens, which is equivalent to one 60 watt incandescent lamp.

3. Security lighting shall be in compliance with Paragraph A.4, above.

4. Mercury vapor lamps shall be prohibited.

C. **Outdoor Sports and Performance Facilities** have unique lighting needs. Illumination levels vary, depending on the nature of the event. The regulations in this Subsection are intended to allow adequate lighting for such events while minimizing light pollution or sky glow, reducing glare and unwanted light trespass onto surrounding streets and properties, and maintaining energy efficiency. Outdoor sports and performance facility lighting shall conform to the following standards:

1. A lighting plan, prepared by a design professional, shall be submitted with the proposed lighting installation. The lighting plan shall be based on a dual system separating the performance area, such as the playing field, track, stage, or arena from the remainder area of the site, as defined in Paragraph C.2 below. The design plan shall include a discussion of the lighting requirements for the performance area and how those requirements will be met based on the following:

   a. The performance area shall not be subject to pole height or lumens per acre limitations;

   b. Floodlights in the performance area should not be aimed above 62 degrees from the vertical plane, and should use internal louvers and external shields to focus light on the performance area in order to eliminate light trespass in compliance with IESNA recommendations, as amended from time to time.

2. The remainder area, including but not limited to grandstand, public seating, concession areas, pedestrian walkways, and parking lots shall be subject to the lighting plan requirements under Section 3.3 above.

3. The main lighting of the performance area shall be turned off no later than 30 minutes after the end of the event.

4. The remainder of the site shall be subject to the lighting curfews under Table 3.4.B (outdoor display lighting).

APPENDIX A

EL DORADO COUNTY
Lighting Inventory

Section A Project Information:

Project Name & File No: _____

Site Address or Location: _____

_____

APN: _____ **Building Permit #**_____

Section B.1 Lighting Allowance

As a reference source, please review the Outdoor Lighting Ordinance, Chapter 130.34 (Outdoor Lighting) of Title 130 of the County Code of Ordinances.

_____ Maximum lumens (CR, RC, or RR)

x _____ Total project area (Acres or net acres)

= _____ **Maximum Lumen Output Allowed**

Section B.2 Preliminary Lighting Use

(A) Lamp Type	(B) Watts per lamp	(C) Lighting Plan Key (ID#)	(D) Number of lamps/ Length in feet (Neon only)	(E) Initial Lumen Output	(D x E) Total Unit Lumen Output
				Total Lumen Output	

APPENDIX A

Design Certification:
This form must be completed and signed by the design professional, as defined under Subsection 3.2 (Definitions) of the Community Design Standards (Outdoor Lighting).

"I/we certify that the design and technical specifications are compliant with the requirements in Community Design Standards (Outdoor Lighting)."

Signature	Date
Name (Print)	Title
Telephone No.	E-mail Address
License or Certification No.	
Company	Street Address
City	State and Zip Code

Section C Construction and Installation Certificate of Completion

This form must be completed and signed by the design professional or the licensed contractor who installed the system.

"I/we certify that based upon periodic site observations, the work has been completed in accordance with the Community Design Standards (Outdoor Lighting) and that the lighting system was built and installed according to the design specifications certified above."

Signature	Date
Name (Print)	Title
Telephone No.	E-mail Address
License or Certification No.	
Company	Street Address
City	State and Zip Code