

## ZONING TEXT AMENDMENT – OUTDOOR LIGHTING STANDARDS

### Article VI. - General Provisions

#### **Section 6-19. Lighting.**

Intent. The purpose of these standards is as follows:

- a) Minimize adverse offsite impacts of lighting such as light trespass and obtrusive light.
- b) Curtail light pollution, reduce skyglow and improve the nighttime environment.
- c) Help protect the natural environment from the adverse effects of artificial lighting at night.
- d) Conserve energy and resources to the greatest extent possible.

**6-19.1. General Standards of Applicability.** The lighting standards of this section shall be applicable as follows:

- a) Non-residential uses shall be subject to these standards. For the purposes of these standards non-residential shall include, but not be limited to, commercial, institutional, educational, industrial, etc.
- b) Multi-family residential uses shall be subject to these standards. For the purposes of these standards multi-family residential shall include all residential uses with three or more attached dwelling units.
- c) Residential uses shall be exempted from these standards. For the purposes of these standards, residential uses shall include all single family & two-family residences.
- d) Street and roadway lighting shall be exempt from these standards. Street and roadway lighting are subject to the standards of the City of Hendersonville Code of Ordinances (Chapter 46, Article VI).
- e) For the purposes of these standards the term “stream buffer” shall refer to the term as defined in Section 17-3 of this ordinance.

#### **6-19.2. Standards**

All new exterior lighting installed, after the effective date of this Ordinance and within the zoning jurisdiction of the City of Hendersonville, shall comply with the following standards:

- a) Lighting levels and placement shall be designed in accordance with applicable Illuminating Engineering Society (IES) recommended practices.
- b) Lighting shall be designed to an Uplight ratio of zero (0) and designed to limit Backlight trespass.
  - a. Exceptions. Lighting for flagpoles, sports facilities, temporary construction sites, correctional facilities, lighting used solely for signage (see sign regulations),

lighting as needed under emergency conditions, low voltage landscape lighting, temporary seasonal lighting, and ornamental and architectural lighting of bridges, public monuments, statuary and public buildings.

- c) The nominal CCT limit shall be  $\leq 4,000\text{K}$
- d) The CRI limit shall be 70.
- e) New floodlights shall be prohibited. Replacement area lighting shall be shielded to prevent uplight and to prevent front, side, and/or back light depending on the implications on surrounding properties.
- f) All wall pack lights shall be full cutoff and shielded.
- g) The maximum light level using maintained lumens shall be no more than 0.5 foot candles for a non-residential to residential/multi-family residential use interface.
- h) The maximum light level using maintained lumens shall be no more than 0.25 foot candles for a multi-family residential-to-residential interface.
- i) The maximum light level using maintained lumens shall be no more than 0.0 foot candles for a non-residential/multifamily residential to Stream Buffer interface.
- j) No lights shall be installed within a Stream Buffer except as described below. Lighting may be permitted within a Stream Buffer only where facilities exempted under Section 17-3-5 are located and shall be oriented to minimize light intrusion within the Stream Buffer.

### **6-19-3. Existing Exterior Lighting.**

Non-compliant lighting installed prior to the effective date of this ordinance shall be considered non-conforming and may continue to be used in accordance with the non-conforming standards found in Section 6-2-5 with the following exception:

- a) Amortization. On or before [INSERT 10 YEARS FROM EFFECTIVE DATE], all exterior lighting shall comply with this Code.

## **Section 6-2. - Nonconformities**

### **6-2-5 Nonconforming Exterior Lighting.**

The following applies to existing non-compliant lighting installed prior to [adoption date of ordinance].

#### **6-2-5.1 Thresholds for compliance.**

Full compliance with the lighting requirements in Section 6-19 shall be required under the following circumstances:

- a) When repairing 50% or more of total existing exterior lighting fixtures on a site within any 12-month period.
- b) When expanding, moving, or altering 50% or more of an existing parking or lighted area.

- c) When structures on a site with non-conforming lighting are renovated and the total cost of renovations exceeds 50% of the assessed value of the building according to Henderson County tax records

## **Section 6-13. - Nuisances**

### **6-13-4 Lighting.**

Lighting facilities, if provided, shall be aimed, directed, shielded or arranged so ~~the light sources for such facilities do not cause undue glare on neighboring properties or interfere with the safe use of public rights-of-way~~ to mitigate off-site lighting trespass to surrounding properties.

## **Article VII Development Review**

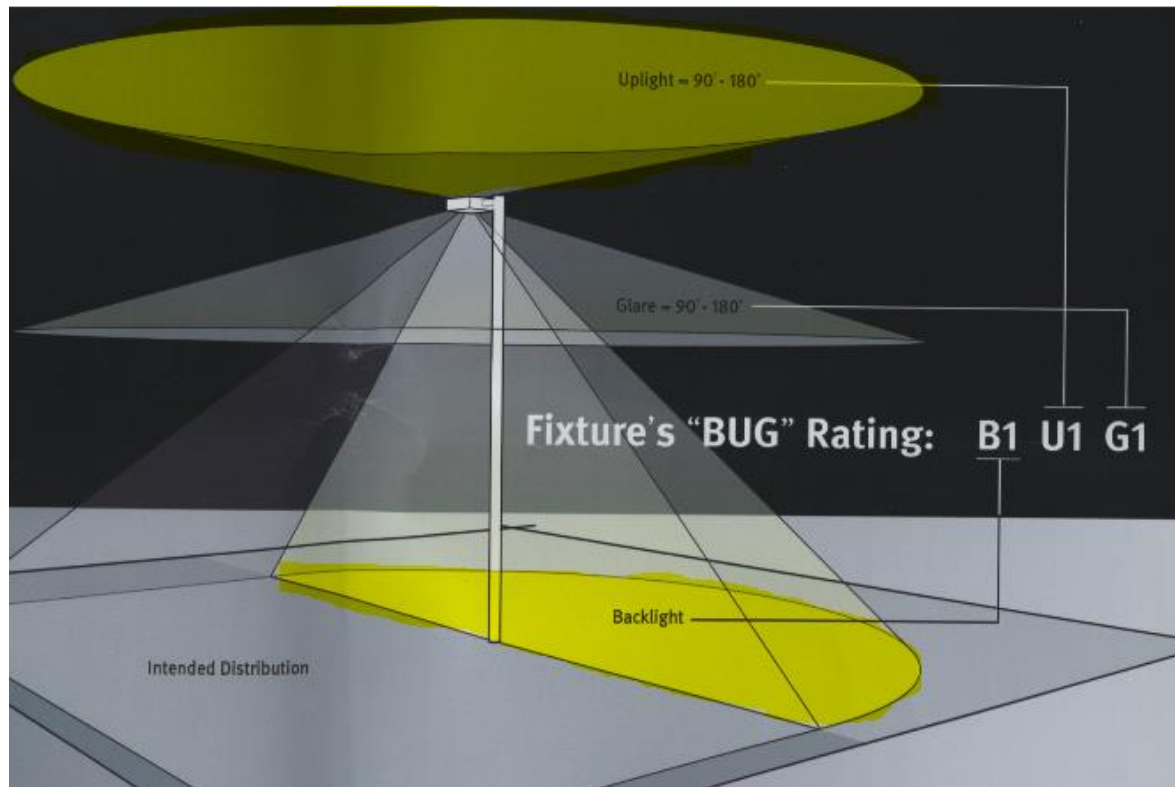
### **7-3-4.3 Contents of Final Site Plan.**

- r) Site Lighting Plan conforming with the standards established in Section 6-19 and Section 6-2-5. Such plan shall include proposed fixture list, location and orientation of fixtures, footcandle map, property lines and stream buffers at a minimum.

## **Article XII. – Definition of Terms**

Uplight – For an exterior light fixture, light output emitted into the hemisphere above the horizontal plane of the light emitting light opening (i.e. above 90 from straight down) (see Figure 1)

Backlight – For an exterior light fixture, light output emitted into the lower rear quarter sphere behind the fixture and opposite the intended aiming direction of the fixture. For a light fixture with a symmetric light output pattern, the backlight is the same as the forward light. (see Figure 1)



*Figure 1 (provided by International Dark Sky Association & Illuminating Engineering Society)*

Lumen - The unit of measure used to quantify the amount of light produced by a lamp or emitted from a luminaire (as distinct from “watt,” a measure of power consumption).

Footcandle (FC) - A unit of measure of the intensity of light falling on a surface, equal to one lumen per square foot

Correlated Color Temperature (CCT) - A description of the color appearance of a light source in terms of warmth (lower temperatures) or coolness (higher temperatures), as measured on the Kelvin (K) scale (i.e. High Pressure Sodium 2200K, Metal Halide 3000-4200K, moonlight 4100K)

Color Rendering Index (CRI) - A method to describe the effect a light source (from 0 poor to 100 best) has on the observer's ability to differentiate the true color of objects being illuminated (High Pressure Sodium 27, Metal Halide 65-80, LED 70-90, sunlight 100)

## **PUBLIC LIGHTING**

### Code of Ordinances

## **Chapter 46 – Streets, Sidewalks, and Other Public Places**

### Article VI – Street Lights

#### **Sec. 46-184. – Definitions**

Whenever and wherever used in this article the following words and names shall have the following meanings:

Roadway or Highway Lighting shall mean lighting provided for freeways, expressways, limited access roadways, and roads on which pedestrians, cyclists, and parked vehicles are generally not present. The primary purpose of roadway or highway lighting is to help the motorist remain on the roadway and help with the detection of obstacles within and beyond the range of the vehicle's headlights.

Street Lighting shall mean lighting provided for boulevards, major & minor thoroughfares, and local roads where pedestrians and cyclists are generally present. The primary purpose of street lighting is to help the motorist identify obstacles, provide adequate visibility of pedestrians and cyclists, and assist in visual search tasks, both on and adjacent to the roadway.

Ornamental Street Lighting shall mean a luminaire intended for illuminating streets that serves a decorative function in addition to providing optics that effectively deliver street lighting. It has a historical period appearance or decorative appearance, and has the following design characteristics:

- Designed to mount on a pole using an arm, pendant, or vertical tenon;
- Opaque or translucent top and/or sides;
- An optical aperture that is either open or enclosed with a flat, sag or drop lens;
- Mounted in a fixed position.

#### **Sec. 46-185. – Applicability**

All street lighting not governed by regulations of federal, state or other superseding jurisdiction.

#### **Sec. 46-186. - Light Shielding and Distribution**

All street lighting shall have no light emitted above 90 degrees with the following exception:

- a) Ornamental street lighting for specific districts or projects shall be permitted.