

## **VOLT Model Lighting Ordinance**

### **Section 1: Purpose and Intent**

The purpose of this ordinance is to provide outdoor lighting standards that will improve safety, minimize glare and light trespass, and conserve energy for businesses and residents of (*County\**).

### **Section 2: Applicability**

All new commercial, industrial and residential outdoor lighting installations shall meet the requirements of this Code.

### **Section 3: Outdoor Lighting Standards**

#### 3.1 Shielding Standards

- a. All nonexempt outdoor lighting fixtures with an initial output greater than or equal to 7000 lumens shall be Full Cutoff.
- b. All nonexempt outdoor lighting fixtures with an initial output between 2000 and 7000 lumens shall be Semi-Cutoff, Cutoff, or Full Cutoff.
- c. All outdoor lighting fixtures with initial output less than 2000 lumens are exempt from the requirements of this Code.
- d. All outdoor lighting fixtures that have Semi-Cutoff, Cutoff, Full Cutoff restrictions shall be installed and maintained in such a manner as to be horizontal to the ground so that the cutoff characteristics of the fixture are maintained.
- e. Beyond the cutoff requirements of Section 3.1 a-d, all light fixtures shall be located, aimed or shielded so as to minimize light trespass across property boundaries. Where applicable, all commercial installations shall utilize house-side shielding to minimize light trespass on residential properties.

#### 3.2 Maximum maintained illuminance levels

No outdoor lighting shall be installed to exceed the maximum maintained illuminance levels as recommended by the IESNA for the designated activity. When no maximum level is defined by IESNA, no lighting shall be installed to exceed 175% of the minimum maintained illuminance levels as recommended by the Illuminating Engineering Society of North America (IESNA) for the designated activity unless otherwise permitted in this Code.

#### 3.3 Reduced Lighting Levels

Lighting levels shall be reduced to security levels within 30 minutes after the close of business or the end of the business activity.

### **Section 4: Special Uses and Exemptions**

#### 4.1 Recreational Sports Facilities Lighting

a. Shielding. Full Cutoff lighting is strongly recommended. Where Full Cutoff fixtures are not utilized, acceptable outdoor light fixtures shall include those which:

1. Are provided with internal and/or external glare control louvers and installed so as to minimize uplight and offsite light trespass, and;
2. Are installed and maintained with aiming angles that permit no greater than five percent (5%) of the light emitted by each fixture to project above the horizontal.

b. Off-Site Spill. The installation shall also limit off-site spill (off the parcel containing the sports facility) to the maximum extent possible consistent with the illumination constraints of the design. A design goal of .75 fc at any location on any non-residential property, and .25 fc at any location on any residential property, as measurable from any orientation of the measuring device, shall be sought.

#### 4.2 Service Station Canopies

(Optional): Maximum maintained illuminance levels of 35 foot candles.

#### 4.3 Outdoor Advertising Signs

- a. Internally illuminated signs shall have dark backgrounds with light lettering.
- b. Externally illuminated signs shall be lighted from the top down and lighting will be directed to minimize glare and light spill to non-sign areas.
- c. Signs using logos or graphics that are legally registered trademarks may apply for a waiver if compliance with this provision would have a commercial or legal impact on the business.

#### 4.4 Facade Lighting

The lighting of building facades is allowed and Cutoff fixtures as defined by the IESNA are not required so long as shielded and directional fixtures are used. Fixtures must be installed and aimed so as to minimize glare, sky glow and light trespass.

#### 4.5 Holiday Lighting

Holiday lighting is exempt from the provisions of this Code .

#### 4.6 Flag Lighting

The lighting of flags is allowed and Cutoff fixtures as defined by the IESNA are not required so long as shielded and directional fixtures are used. Fixtures must be installed and aimed so as to minimize glare, sky glow and light trespass.

#### 4.7 Emergency Lighting

Emergency lighting, used by police, firefighting, or medical personnel, or at their direction, is exempt from all provisions of this code for as long as the emergency exists.

#### 4.8 Temporary Lighting

Temporary Lighting, such as that used at construction sites or other uses of a temporary nature, is exempt from the provisions of this code. However temporary lighting shall be aimed so as to minimize glare and light trespass to adjacent properties and turned off upon the completion of the project.

#### 4.9 State Maintained Roadways

Lighting for state maintained roadways is exempt from the provisions of this Code.

#### 4.10 Waivers

Waivers may be granted if an applicant can document that meeting specific provisions of this Code would result in an unsafe condition, impede normal operations or inflict undue financial hardship. The applicant shall complete a waiver form and provide a full explanation as to what provision cannot be met, why they cannot be met and what alternative is proposed. Waivers shall be submitted to the lighting administrator and will be decided on a case by case basis. Waivers will not be denied without justification and the specific reasons for denial will be provided in writing to the applicant in a timely manner.

### **Section 5: Certification**

For installations over 100,000 total initial lumens the applicant must provide a photometric lighting plan and the installer must certify that the lighting system design and installation conforms to all applicable provisions of this Code.

### **Section 6: Measurement**

Unless otherwise stated all illuminance measurements for the purpose of this ordinance shall be made at ground level with the meter oriented horizontally.

### **Section 7: Definitions**

- 7.1 Glare: The sensation produced by a bright source within the visual field that is sufficiently brighter than the level to which the eyes are adapted to cause annoyance, discomfort, or loss in visual performance and visibility. The magnitude of glare depends on such factors as the size, position, brightness of the source, and on the brightness level to which the eyes are adapted.
- 7.2 Light Trespass: Light falling where it is not wanted or needed, typically across property boundaries. This is the most common citizen complaint associated with outdoor lighting.
- 7.3 Uplight: Light projected above the horizontal.
- 7.4 Outdoor Lighting Fixture: The complete lighting assembly, less the support assembly. Such devices shall include, but are not limited to lights used for:
  - a. Parking lot lighting
  - b. Roadway lighting
  - c. Buildings and structures

- d. Recreational areas
- e. Landscape lighting
- f. Billboards and other signs (advertising or other)
- g. Product display area lighting
- h. Building overhangs and open canopies

- 7.5 Full Cutoff: A Full Cutoff outdoor lighting fixture emits 0% of its light above 90 degrees and 10% above 80 degrees from horizontal. A standard IESNA definition.
- 7.6 Cutoff: A Cutoff outdoor lighting fixture emits no more than 2.5% of its light above 90 degrees and 10% above 80 degrees from horizontal. A standard IESNA definition.
- 7.7 Semi-Cutoff: A Semi-Cutoff outdoor lighting fixture emits no more than 5% of its light above 90 degrees and 20% above 80 degrees from horizontal. A standard IESNA definition.
- 7.8 Lumen: Unit of luminous flux; used to measure the amount of light emitted by lamps.
- 7.9 Initial Lumens: Amount of luminous flux emitted by a lighting fixture at initial installation. Initial Lumens are usually listed by the manufacturer. Ex. A 100 watt incandescent light bulb emits approximately 1800 lumens.
- 7.10 Illuminance: Illuminance is the amount of luminous flux per unit area in the Imperial system and is equal to one lumen per square foot. Illuminance is measured in footcandles. The metric system uses the lux. One footcandle equals approximately 0.1 (0.093) lux.
- 7.11 Maintained Illuminance Level: Lamps emit less luminous flux over time and therefore illuminance levels of an installation will decrease over time. The maintained illuminance level is usually determined as a percentage of the initial illuminance level. The percentage is different for the various types of lamp sources. This number is reported as a part of the photometric plan.
- 7.12 Total Initial Lumens: Derived by summing the individual initial lumens output for all the lighting fixtures of an installation. For example, six fixtures with 10,000 initial lumens output per fixture would equal 60,000 total initial lumens.