

LIGHTING STANDARDS

Amendments to Article 6 of Durham Site Plan Regulations to create nature-friendly lighting

Adopted by the Planning Board on July 8, 2026

~~*Proposed additions to current regulations are shown like this.*~~

Proposed deletions from current regulations are shown like this.

Section 6.1 Purpose

The purpose of this article is to:

- 1) Permit the use of outdoor lighting that does not exceed the minimum levels specified in IES recommended practices for night-time safety, utility, security, productivity, enjoyment, and commerce;
- 2) Minimize adverse offsite impacts of lighting such as light trespass and obtrusive light;
- 3) Curtail light pollution, reduce skyglow and improve the nighttime environment for astronomy;
- 4) Promote use of high-efficiency lighting sources; and
- 5) Conserve energy and resources to the greatest extent possible.

Section 6.2 Definitions

The following words and terms are oriented specifically toward lighting. However, these words and terms may be found elsewhere in the Site Plan Regulations, and may appear in more than one place (in which case, the same definition is given in both places). Wherever these words and terms are found, they shall have the meanings given below.

Cone of illumination. A regular conical shaped volume situated directly below, and centered upon, a light fixture. The sides of the cone radiate out from the fixture at an angle of 80 degrees from the vertical. For wall-mounted fixtures, the cone of illumination is a half cone.

Correlated Color Temperature. *The measured color appearance of white light using units of kelvin (K). Lower CTs (1800K to 2200K) appear very warm or amber. Medium CCTs (2700 K to 3000 K) appear warm white, similar to standard incandescent bulbs. High CCTs (4000 K and higher) appear cool white or daylight blue.*

Floodlight. A light fixture that is positioned or designed to concentrate substantial light, often in a single beam, in a direction other than directly downward.

Footcandle. The measure of light falling on a surface, usually the ground. One footcandle equals the amount of light generated by one candle shining on a one square foot surface one foot away.

Full cut-off fixture. A type of fixture as defined by the Illuminating Engineering Society of North America (IESNA). The standards are incorporated under Shielding, below.

Glare. Light emitted from a fixture, where the light source is not shielded, with sufficient intensity and in a direction such that it impairs a viewer's ability to see. In extreme cases it causes momentary blindness.

Light trespass. The shining of light beyond the subject property boundary *or beyond the area intended for illumination*.

Section 6.3 Standards

- 6.3.1 **Design.** Lighting plans shall be designed to enhance the attractiveness, usability, comfort, and security of a site. Plans, including the design of mounting structures and fixtures, shall be designed with due consideration of setting, use, architecture, landscaping, existing trees, neighboring properties, and the character of the adjacent roadway.
- 6.3.2 **Glare.** All exterior lights shall be designed, located, installed, and directed in such a manner as to not cause glare and objectionable light trespass onto neighboring roads and properties.
- 6.3.3 **Shielding.** All lights, including those placed on building walls (e.g., wall-packs), shall be fully shielded such that the light source cannot be seen directly from any point on the same horizontal plane as the light source (i.e., a "full cut-off" fixtures). No more than ~~10%~~ 5% of the total light output (as measured in lumens) from any fixture may be directed above the cone of illumination and none of the total output may be directed above the horizontal plane that is at the same height as the fixture. At its reasonable discretion, the Planning Board may require additional shielding for lights, beyond what is described herein, to protect neighboring residential properties *and the environment*.
- 6.3.4 **Maximum illuminance.** Horizontal illuminance on the ground shall not exceed the following: 4 footcandles in the Residential zoning districts (RA, RB, RC and Rural), 8 footcandles in the Core Commercial Districts, (C, CB, CH, CC, and PO) and 12 footcandles in the Office Districts (DBP, OR, ORLI, and MUDOR), (except for gasoline station canopies, below).
- 6.3.5 **Property line.** Horizontal illuminance at the property line may not exceed one half ($\frac{1}{2}$) footcandle adjacent to a residential property nor 1 footcandle adjacent to a nonresidential property. This limitation does not apply in the vicinity of driveway entrances and exits.

- 6.3.6 Mounting heights. Light fixtures mounted on buildings shall not be placed higher than 20 feet above the ground. Light poles shall not exceed the following heights, measured from the ground to the bottom of the light fixture:
- (a) 15 feet in the Residential Zoning districts;
 - (b) 20 feet in the Retail/Commercial Zoning Districts;
 - (c) 25 feet in the Research/Industry Zoning Districts
- 6.3.7 Gas station canopies. Light levels directly under a gas station canopy shall not exceed 20 footcandles. Light fixtures mounted under canopies shall be recessed so that the lens cover is recessed or flush with the bottom surface (ceiling) of the canopy. There shall be no lighting attached to the sides or top of the canopy, nor may the sides or top of the canopy be illuminated.
- 6.3.8 Vertical lighting. Exterior lighting of buildings is allowed only with express approval of the Planning Board, with the exception of low-level, fully shielded, downcast wall pack lights. Illumination of any vertical surface, including building walls, shall not exceed 3 footcandles.
- 6.3.9 Floodlighting. Floodlighting is prohibited, unless a): lights are directed toward the rear of a lot and away from the road and neighboring properties, and b) the Planning Board determines that there will be no negative impact upon ~~motorists and neighboring properties~~ *motorists, neighboring properties and the environment. Floodlighting must be shielded in accordance with the requirements in Section 6.3.3.*
- 6.3.10 Flashing lights. Flashing, blinking, and moving lights are prohibited.
- 6.3.11 Timing of lights. ~~The Planning Board may stipulate that all unnecessary lighting (i.e., lighting not used for security) be turned off outside of business hours. Use of timers, sensors, and other energy saving devices is strongly encouraged.~~ *All lighting not essential for safety and security must be turned off outside of business hours. Use of timers, sensors, dimmers, and other energy saving devices is strongly encouraged and may be required by the Planning Board at its discretion.*
- 6.3.12 Wiring. Wiring for all lighting fixtures must be placed underground.
- 6.3.13 Visibility for pedestrians. Appropriate lighting shall be provided to ensure visibility and safety for people walking to or within the site in the evening.
- 6.3.14 Natural areas. Lighting shall be directed away from stands of trees and habitat areas in order to not to disrupt animal behavior. *Light sources shall not be visible from stands of trees and habitat areas in order to not disrupt animal behavior.*
- 6.3.15 Abutting residential districts. Lighting on nonresidential properties that abut residential properties or residential zoning districts shall be turned off when the business is not open except for minimal necessary security lighting. As part of site plan review, the

Planning Board may impose stricter standards than those included in this article for such nonresidential properties, as appropriate.

6.3.16 Lamp specifications

- (a) ~~Lamp types shall be selected for optimum color rendering as measured by their color rendering index (CRI), as listed by the lamp manufacturer.~~ *The Correlated Color Temperature of lamps shall not exceed 3000° kelvin except where focused, neutral white light is necessary for safety, navigation, or the performance of a specific outdoor task.*
- (b) Lamps with a color-rendering index lower than 50 are not permitted. This requirement shall not apply to decorative lighting, which may include colored lamps, such as holiday lighting.
- (c) Commercial lighting shall meet minimum IESNA illumination levels while not exceeding IESNA uniformity ratios and average illuminance recommendations.
- (a) Should any outdoor light fixture, or the type of light source therein, be changed significantly or the intensity of light be increased significantly after the building permit has been issued, a modification to the site plan approval shall be required.