

Article VI Outdoor Lighting

§ 275-17 Outdoor Lighting Requirements

- A. Purpose and Intent. The purpose of these regulations is to provide clear guidelines for the installation of outdoor lighting on commercial, industrial and multi-family residential sites. These requirements are intended to encourage outdoor lighting that will enhance safety while minimizing energy consumption, reducing glare, controlling light pollution, enhancing the character and appearance of the town, and fostering enjoyment of the nighttime sky.
- B. Terms Used. The following words and terms related to outdoor lighting are defined as follows:
1. Disability Glare - The eye's Line-of-Sight contact with a direct light source, which causes a partial blindness
 2. Footcandle - A unit of measure for illuminance. A unit of illuminance on a surface that is everywhere one foot from a uniform point source of light of one candle and equal to one lumen per square foot
 3. Full cut off type fixture - A luminaire or light fixture that; by design of the housing, does not allow any light dispersion or direct glare to shine above 90 degree, horizontal plane from the base of the fixture. Full cut-off fixtures must be installed in a horizontal position as designed, or the purpose of the design is defeated, and disability glare will result.
 4. Horizontal Illuminance - The measurement of brightness from a light source, usually measured in footcandles or lumens, which is taken through a light meter's sensor at a horizontal position.
 5. Light Trespass - Light from an artificial light source that is intruding into an area where it is not wanted or does not belong.
 6. Uplighting - Any light source that distributes illumination above a 90 degree horizontal plane.
 7. Uniformity Ratio (U. Ratio) - Describes the average level of illumination in relation to the lowest level of illumination for a given area. Example: U. Ratio =4:1 for the given area, the lowest level of illumination (1) should be no less than 25% or "4 times less" than the average (4) level of illumination.
- C. Illumination Plan. When outdoor lighting is part of a proposed project, an illumination plan shall be submitted along with the Site Plan application and shall be prepared in sufficient detail to demonstrate illumination levels throughout the subject property. The plan shall provide details of all fixtures, including accent lighting. The color and height of all light poles to the top of the fixture shall be noted on a detail of the poles.

D. General Lighting Requirements.

1. All new lighting sources, appurtenances, and construction thereof shall be in accordance with all local utility company standards and acceptable to the Town. Light emitting diode (LED) fixtures, or similarly efficient lighting, shall be used wherever possible.
 2. The use of motion detectors, timers, remote controls, and photocells to reduce waste and conserve energy is encouraged.
 3. Pole-mount or wall-pack luminaries should be consistent with the architectural theme of the building/development or be decorative in nature.
 4. All site and parking area lighting shall be full cut-off type fixtures (International Dark Sky Association Seal of Approval or equivalent) that provide a reasonably uniform level of illuminance (generally defined as a maximum ratio of 4:1 of average to minimum level of illuminance) and do not direct light beyond the boundaries of the area other than as detailed in subsections D.6 and D.7 below.
 5. All exterior lights shall be designed, located, installed, and directed in such a manner as to prevent objectionable light and glare across property lines and disability glare at any location on or off the property. The “maintained horizontal illuminance recommendation” set by the Illuminating Engineers Society of North America (IES), latest edition, shall be observed.
 6. Light shall not trespass beyond 0.2 footcandles onto residential properties or beyond .5 footcandles onto non-residential properties. Light shall not trespass onto adjacent streets beyond 1.0 footcandles at the nearest edge of pavement.
 7. Externally lit signs, display, building and aesthetic lighting must be shielded to prevent direct glare and/or light trespass over property lines in excess of 0.2 footcandles, except at driveway intersections with streets or at interconnections with adjacent parking lots.
 8. Bare light bulbs shall not be visible from any street or abutting property.
 9. Internal pedestrian walkways and a minimum of 30% of required parking shall be illuminated to a minimum of 0.4 footcandles.
- E. All non-essential lighting will be required to be turned off after business hours, leaving only the necessary lighting for security. (“Non-essential” can apply to: display, aesthetic, parking and sign lighting).
- F. Height Requirements. For the purposes of these regulations, the mounting height of a lighting fixture shall be the vertical distance from the grade elevation of the surface being illuminated to the bottom of the light fixture. The height of poles and luminaire mounts should emulate the architecture and scale of the area within and surrounding the site.

1. Light Pole Bases. The exposed height of concrete bases used to anchor pole mounted fixtures shall conform to the following:
 - a. A maximum of 2'-6" when the pole is within a parking field
 - b. A maximum of 0'-6" when the pole is in landscaped or lawn areas
 - c. A maximum of 0'-4" when the pole is within the limits of hard- surfaced sidewalks and pedestrian walkways.
 - d. The use of ornamental bases shall be encouraged with all new light-pole installations.
 2. Lighting of areas used exclusively or primarily for outdoor recreation may be mounted at any height with approval of the Planning Board.
 3. Lighting used for public street illumination may be installed at a maximum height of 25 feet and may be positioned at that height up to the edge of any bordering property.
- G. Flood Lighting. Flood lighting is discouraged but, if used, must be shielded to prevent: glares for drivers or pedestrians, light trespass beyond the property line, and light above the horizontal plane (90 degrees). Wall-pack fixtures shall be shielded.
- H. Gas Station Island/Canopy Lighting. It is the purpose of this Subsection to provide standards that allow for lighting that will create security while avoiding light trespass, skyglow and glare.
1. Light fixtures mounted under the canopy shall be recessed and flush with the underside so as to not direct the light anywhere but the ground below.
 2. No lighting fixtures shall be mounted on the sides or on the top of the canopy.
- I. Uplighting. Lights that face upward are discouraged, unless used to highlight specific architectural features of a building or signage and are shielded so that their light does not spill outward.
- J. Proposed lighting installations that are not covered in this section may be approved if the Planning Board finds that they are designed to minimize glare, do not direct light beyond the boundaries in excess of 0.2 footcandles of the area being illuminated or onto adjacent properties or streets, and do not result in excessive lighting levels. The U-Ratio for any site may not be greater than 4:1.
- K. Exemptions
1. Single and two-family dwellings.
 2. Temporary lighting required for construction projects, related to road construction and repair, installation of sewer and water facilities, and other public infrastructure.

3. Temporary (3 months) Holiday lighting during the months of November, December and January shall be exempt for the provisions of this section, provided that such lighting does not create dangerous glare or adjacent streets or properties.
4. Temporary festivals and fairs (seven days or less in duration) provided that associated lighting does not create dangerous glare or adjacent streets or properties.

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6. Light shall not trespass onto abutting properties beyond 0.5 footcandles for multi-family residential properties or beyond 1.0 footcandles for non-residential properties. Light shall not trespass onto adjacent streets beyond 1.0 footcandles at the nearest edge of pavement.
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E - this is good, a lot of towns don't have this in their Regs

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6. 0.5 and 1.0 footcandles are high in comparison to some other communities: Ex. Merrimack = 0.2 fc; Goffstown = 0.2 fc; Consider lower values when abutting to a residential use

6. kind of unclear - does this mean multi family residential properties can't have trespass onto abutting properties greater than 0.5 fc, or adjacent properties can't trespass onto multi family properties greater than 0.5 fc? Same for non-residential

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