

## SECTION 16G. OUTDOOR LIGHTING

### A. Title

The Section shall hereafter be known and cited as the “Town of Wellesley Outdoor Lighting Bylaw” or “Outdoor Lighting Bylaw.”

### B. Purpose and Intent

The purpose of this Section is to enhance public safety by providing for adequate and appropriate outdoor lighting, protect community character, promote energy conservation, protect against Light Trespass and glare, protect the privacy of residents, and minimize sky glow.

### C. Definitions

**Cutoff Angle** - The angle formed by a line drawn from the direction of the direct light rays at the light source with respect to the vertical, beyond which no direct light is emitted. (See Figure 1 for examples of Cutoff Angle)

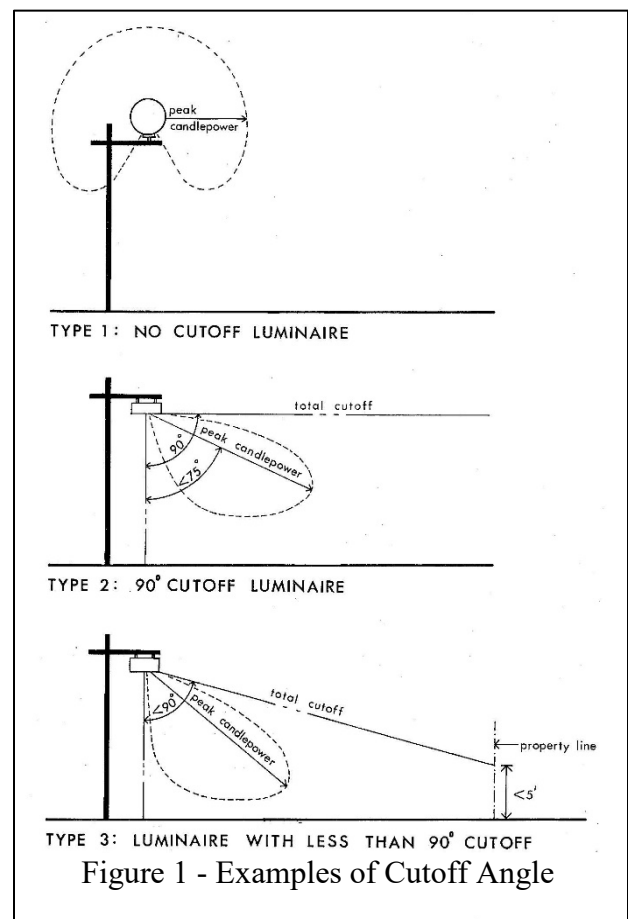
**Direct Light** - Light emitted from the Lamp, off the reflector or reflector diffuser or through the refractor or diffuser lens, of a luminaire.

**Fixture** - The assembly that houses a Lamp or Lamps and which may include a housing, a mounting bracket or pole socket, a Lamp holder, a ballast, a reflector or mirror, and/or a refractor, lens, or diffuser lens.

**Foot-candle** - A unit that measures light illumination on a surface or area that is one foot from a uniform point source.

**Fully Shielded Luminaire** - A Lamp and fixture assembly designed with a cutoff angle of 90 degrees or less so that no direct light is emitted above a horizontal plane. (See Figure 2 for examples for Fully Shielded Luminaires that would be acceptable and permitted under this Section, or would be unacceptable/discouraged and therefore prohibited under this Section)

**Glare** - Light emitted from a luminaire with an intensity great enough to produce annoyance, discomfort, or a reduction in a viewer’s ability to see.



Height of Luminaire - The vertical distance from the finished grade of the ground directly below to the lowest direct-light-emitting part of the luminaire.

Illuminance - The luminous flux per unit area at any point on a surface exposed to incident light. Measured in foot-candles or lux.

Lamp - The component of a luminaire that produces the actual light.

Light Trespass - The shining or spillage of direct light produced by a luminaire beyond the boundaries of the lot or parcel on which the luminaire it is located, or beyond the boundaries of multiple lots or parcels under common ownership.

Lumen - A unit that measures light energy generated by a light source. For the purposes of this Section, the lumen output shall be the initial lumen output of a Lamp, as rated by the manufacturer.

Luminance - The intensity of light emitted from a surface per unit area in a given direction; measured in candela per meter squared (cd/m<sup>2</sup>).

Luminaire - A complete lighting system, including a Lamp or Lamps and a fixture.

Lux - A unit that measures light illumination on a surface or area that is one meter from a uniform point source. On a photometric plan, the lux measurement is often converted from meters to feet and referred to in terms of foot-candles.

Sky Glow - The diffuse luminance of the night sky derived from artificial lighting, apart from discrete natural light sources such as the Moon and stars. It is the most commonly noticed aspect of light pollution.

#### D. Applicability

The provisions of this Section shall apply to the following project types which include the proposed installation of one or more outdoor luminaires for exterior lighting:

1. Major Construction Projects and Minor Construction Projects; and
2. Externally Illuminated Signs requiring Design Review and/or a Special Permit, as required and defined by Section 22A.

Where these regulations are more specific and/or more restrictive with respect to lighting associated with an applicable project type for which other standards may exist within the Zoning Bylaw, the regulations contained in this Section shall take precedence.

The provisions of this Section shall not apply to One-Unit or Two-Unit Dwellings, or structures and uses accessory to such dwellings.

The provisions of this Section shall not apply to the ordinary maintenance, repair, and/or

replacement of luminaires not approved as part of and/or associated with one or more of the aforementioned project types; furthermore, the provisions of this Section shall not apply to the installation of new luminaires on properties not subject to one or more of the aforementioned project types following the effective date of this Section.

E. Administration

For the project types subject to the provisions of this Section, the following information shall be submitted, except to the extent as such information may be waived by the Design Review Board or Zoning Board of Appeals, as applicable:

1. Information identifying the location, orientation, height, and type of outdoor luminaires to be installed;
2. The luminaire manufacturer's specification data, including, at a minimum, Lamp type (light emitting diode, metal halide, compact fluorescent, high pressure sodium), lumen output, correlated color temperature ("CCT"), and photometric data showing light distribution and polar plots;
3. A photometric plan showing the intensity of illumination expressed in foot-candles and/or lux at ground level within the interior of the property and at the property boundaries, except that such plans shall not be required for Externally Illuminated Signs; and
4. Sufficient evidence to confirm that all proposed outdoor luminaires and lighting conditions comply with Section 16G.F.

F. General Regulations

All exterior luminaires and/or the outdoor lighting conditions associated with the project types subject to the provisions of this Section, shall comply with the following regulations, unless otherwise specified:

1. All luminaires shall be fully shielded. *(See Figure 2 for examples for Fully Shielded Luminaires that would be Acceptable and permitted under this Section, or would be unacceptable and therefore prohibited under this Section)*
2. For residential uses, the correlated color temperature ("CCT") of any Lamp shall not exceed 2,700K; for all other uses, the CCT of any Lamp shall not exceed 3,000K.
3. Building-Mounted Fixtures: Luminaires attached to the exterior of a building or structure, including those to light signs, shall be mounted no higher than fifteen (15) feet above grade.
4. Ground-Mounted Fixtures: Luminaires mounted on the ground, including on poles or attached to Ground Signs, shall have a height no greater than twenty (20) feet.

5. Illuminance Levels and Light Trespass Limitations: Exterior lighting shall not exceed the illuminance levels (measured horizontally on the ground) or exceed the Light Trespass limits specified below in Table 16G.1; Table 16G.1 shall not apply to Externally Illuminated Signs; however, luminaires associated with such signs shall not have Lamps which produce more than 60 watts and/or 800-900 lumens.

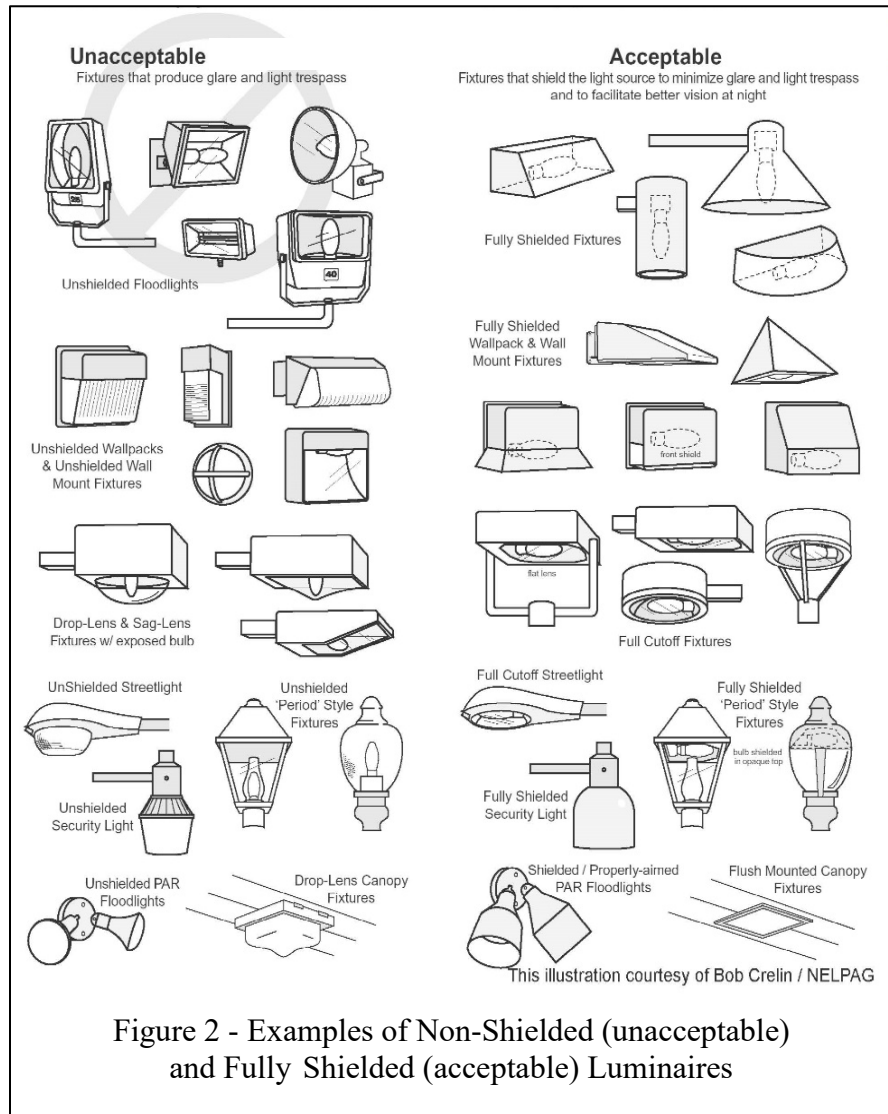


Figure 2 - Examples of Non-Shielded (unacceptable) and Fully Shielded (acceptable) Luminaires

<b>TABLE 16G.1, LIGHTING LEVELS AND LIGHT TRESPASS LIMITATIONS</b>		
<b>Use</b>	<b>Maximum Illuminance (foot-candles/lux)</b>	<b>Maximum Light Trespass* (foot-candles/lux)</b>
Residential Uses	5/50	0.5/5
Outdoor Recreation and Sports Facilities**	75/800	1.0/10
All Other Uses	10/100	
<p>*The maximum foot-candles/lux allowable at all property lines, including property lines along a public or private street or way, except property lines between lots under common ownership.</p> <p>**To include fields and venues for sporting events, games, and matches, such as tennis courts, and fields for baseball and soccer; not applicable to passive recreation areas, such as walking paths, or natural areas that may be used for recreation, such as skating ponds.</p>		

G. Exempt and Prohibited

1. Exempt: The following luminaires or lighting conditions shall be exempt from regulation under this Section:
  - a. Luminaires associated with emergency call boxes;
  - b. Luminaires located greater than 1,000 feet from a property line not in common ownership; and
  - c. Seasonal lighting of a temporary nature.
2. Prohibited: Unless exempt above, the following luminaires or lighting conditions shall be prohibited in conjunction with the project types identified in subsection D. of this Section:
  - a. Luminaires mounted to or otherwise attached to any trees or similar vegetation; and
  - b. Searchlights for commercial purposes.

H. Special Permits

1. Special Permits, Generally: In the case of such projects which incorporate one more

outdoor luminaires not meeting the requirements of Section 16G.F. or not otherwise exempt, the Zoning Board of Appeals may grant a Special Permit, per Section 25.

2. Standards: In addition to those standards specified in Section 25, in considering the issuance of a Special Permit from the requirements of this Section, the applicable Special Permit Granting Authority shall make a finding that one or more of the following conditions are met:
  - a. The proposed lighting is necessary to enhance public safety;
  - b. The proposed lighting enhances, or does not negatively impact, community ambiance and character;
  - c. The proposed lighting does not produce unacceptable Light Trespass, glare, sky glow, or compromise the privacy of abutting property owners; or
  - d. The proposed lighting is necessary for recreational or athletic activities conducted on land used for municipal or educational uses.

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