

**B. Outdoor Lighting**

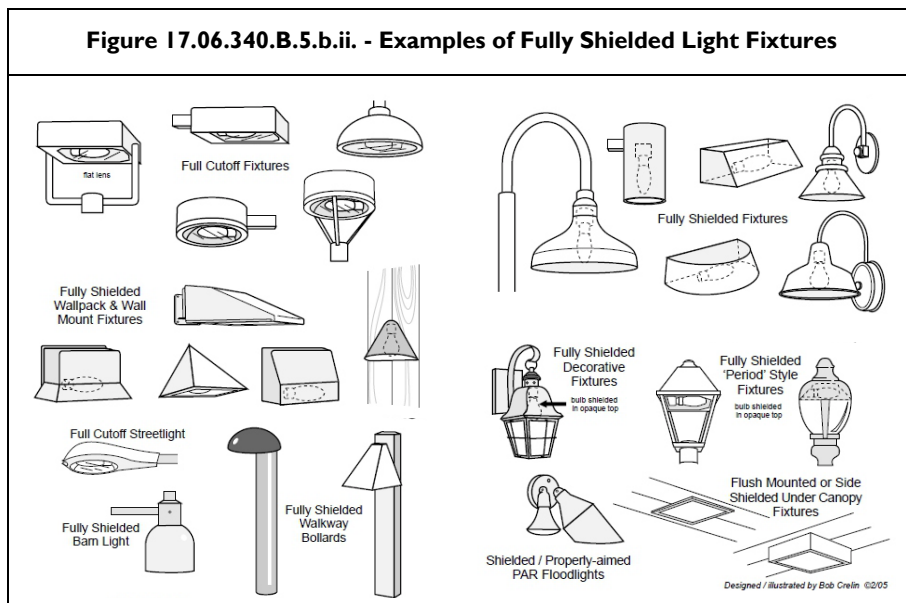
1. Purpose. This Section provides standards for both commercial and residential outdoor lighting:
  - a. To limit outdoor lighting to the minimum necessary for safety, security, utility, way-finding, enjoyment, and commerce.
  - b. To minimize offsite impacts, such as light trespass (light and glare on adjacent properties), preserve the dark skies, protect natural habitats from the damage of artificial light, and provide a more pleasant and comfortable nighttime environment, without detracting from legitimate purposes of safety, security, utility, way-finding, and enjoyment.
  - c. To encourage good lighting practices such that lighting systems are designed to conserve energy and money.
2. Applicability.
  - a. General. All outdoor artificial illuminating devices shall be installed in conformance with the provisions of this section.
    - (i) Outdoor light fixtures are defined as outdoor artificial illuminating devices, outdoor fixtures, lamps and other devices, permanent or portable, used for illumination or advertisement. Such devices shall include, but are not limited to, search, spot, or flood lights for:
      - (1) Building and structures;
      - (2) Parking lot lighting;
      - (3) Landscape lighting; and
      - (4) Recreational areas.
    - (ii) The installation of site lighting, replacement of site lighting, and changes to existing light fixture wattage, type of fixture, mounting, or fixture location must be made in compliance with this Code. Routine maintenance, including changing the lamp, ballast, starter, photo control, fixture housing, lens and other required components, is permitted for all existing fixtures.
    - (iii) This following site lighting requirements do not apply to lighting installed in the public right-of-way.
  - b. Additions and Repairs.
    - (i) When a building or site is renovated, any new or replaced outdoor light or lighting fixture must conform to the requirements of this Section.
    - (ii) When the gross improved site area is increased, the additional site area must conform to the lighting requirements of this Section.
    - (iii) When the gross improved site area is increased by more than 50%, both the existing use and the additional site area must conform to the lighting requirements of this Section.
  - c. Change in Use. A change in use does not trigger application of this Section.
  - d. Repair and Maintenance. Structural repair and maintenance resulting in the same size or shape of lighting fixture does not trigger application of this Section.
  - e. Exemptions. These regulations are not applicable to public rights-of-way and the following uses.
    - (i) Indoor lighting provided no light projects directly out a window or other opening;

- (ii) Temporary lighting for theatrical, television, performance areas, and civic uses not to exceed a period of 30 days.
  - (iii) Holiday and seasonal decorative lighting fixtures.
  - (iv) Underwater lighting in swimming pools and other water features.
  - (v) Lighting that is only used under emergency conditions.
  - (vi) Low voltage landscape lighting controlled by an automatic device that is set to turn the lights off at one hour after the site is closed to the public.
  - (vii) Sports/athletic field lighting;
  - (viii) Lighting specified in a conditional use permit;
  - (ix) Construction or emergency lighting provided such lighting is temporary and is discontinued immediately upon completion of the construction work or abatement of the emergency necessitating said lighting;
  - (x) Lighting for public monuments and statuary;
  - (xi) Lighting fixtures and standards required by federal, state, or county agencies;
  - (xii) Projection equipment for outdoor movie theaters and outdoor movie events;
  - (xiii) Normal low intensity residential lighting fixtures that are attached to a dwelling unit, guest cottage or accessory building. For purposes of interpreting this section, normal low intensity residential lighting fixtures do not include flood lamps, lighting fixtures intended to illuminate large areas, or lighting fixtures which project a focused light onto neighboring properties and roads (whether public or private); and
  - (xiv) Street lights for public rights-of-way and traffic control signals and devices.
3. Prohibited Sources. The following light fixtures and sources cannot be used:
- a. Cobra-head-type fixtures;
  - b. Temporary searchlights, laser lights, strobe lights, and other similar high-intensity narrow-beam fixtures or other outdoor lighting that flashes, blinks, alternates, or moves;
  - c. Light sources that lack color correction or do not allow for uniform site lighting; and
  - d. Lighting that projects directly onto neighboring properties, rights-of-way, waterways, critical areas, or the night sky, including indoor lighting that projects directly out a window or other opening.
4. Light Level Measuring
- a. Light levels are specified, calculated and measured in footcandles. All footcandles values are maintained footcandles.
  - b. Measurements are to be made at ground level, unless otherwise specified in this Section, with the light-registering portion of the meter held parallel to the ground pointing up.
5. Outdoor Lighting Design Standards. All lighting shall be designed, located, installed and directed in such a manner to prevent objectionable light at and across property lines and to prevent glare at any location on or off the property.
- a. Lamp Types
    - (i) Lamps shall be of a white light source such as metal halide, incandescent, or a lamp with a color-rendering index (CRI) greater than or equal to 70.

- (ii) Non-color corrected low pressure sodium and mercury vapor light sources are prohibited.
- (iii) Outdoor lighting shall utilize energy-efficient fixtures/lamps.
- (iv) Lighting shall be consistent with the style of the building. All lighting fixtures shall be appropriate in scale, intensity and height to the use they are serving.
- (v) Service connections for all freestanding lighting fixtures must be installed underground.

b. Fixtures and Shielding

- (i) All site perimeter lighting located within 50 feet of a single family residential property line, excluding bollards or other light fixtures of less than six feet (6-ft) in height, shall possess house-side shielding to the satisfaction of the Planning Director.
- (ii) All light fixtures must be fully shielded, except as listed in paragraph (iv) below.



**Comment [BF1]:**

A fully shielded (full cut-off) light fixture has a solid barrier or cap in which the light bulb is located. The fixture is angled so the light bulb is not visible below the barrier (no light visible below the horizontal angle).

- (iii) Special care must be taken in selecting fixtures for buildings on hillsides, as even meeting the “horizontal angle” requirement is not sufficient to protect owners of properties lower than the hillside site. Non-clear glass and lamps with the lowest wattage or mean lumens possible help prevent light trespass.
- (iv) Partially shielded or unshielded fixtures can be used in pedestrian-oriented spaces, parking, and rights-of-way when the maximum initial lumens generated by each fixture is less than 8000 initial lamp lumens. These fixtures generally feature globes or vertical glass planes and must be coated with an internal white frosting to diffuse light.

**Comment [BF2]:**



- (v) Light trespass and glare onto neighboring Low Density or Medium Density zoned properties shall be minimized through shielding of the light fixtures, use of frosted bulbs, peripheral landscaping or fencing, building placement, or another effective method or combination of methods.
  - (vi) Lighting of critical areas and buffers shall not be permitted. Light trespass and glare onto waterways and critical areas shall be minimized through shielding of the light fixtures, use of frosted bulbs, peripheral landscaping or fencing, or another effective method.
  - (viii) Vegetation and landscaping shall be maintained in a manner that does not obstruct lighting.
  - (ix) Illumination of landscaping shall utilize diffused or muted lighting, avoid glare, and minimize light trespass beyond landscaping onto neighboring properties, streets, or the night sky.
  - (vii) Fixtures and lighting systems shall be maintained in good working order.
- c. **Maximum Light Levels**
- (i) Lighting must be oriented to the interior of the property and not onto adjacent properties, streets or sidewalks.
  - (ii) The average illumination level shall not exceed 1.5 foot-candles for the illuminated area.
  - (iii) The maximum light level of any light fixture cannot exceed 1.0 footcandles measured at the property line, except that where adjact to Low Density or Medium Density zoning districts, the maximum light level of any light fixture cannot exceed 0.5 footcandles measured at that property line.
  - (iv) The Maximum light level shall not exceed 0.2 foot-candle as a direct result of the on-site lighting measured 5 feet beyond the property line.
  - (v) Exterior lighting installations shall be designed to avoid harsh contrasts in lighting levels.
- d. **Maximum Fixture Height**

**Comment [BF3]:**

OPTION: Allow pathway lighting for trails

**Comment [BF4]:** Add definition

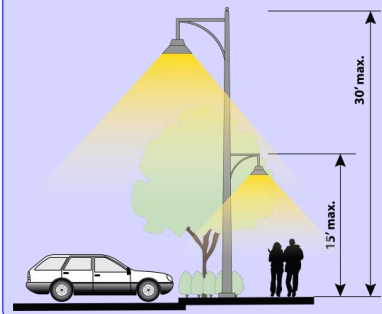
Footcandle – a unit of measurement that shows the quantity of light received on a surface. Footcandles shall be measured by a photometer.

“Footcandle (FC or VFC)” is a unit of the illumination being produced on a surface, and defined as one lumen per square foot of area illuminated. Footcandle or FC is a general term for all types of illumination, while vertical footcandles (VFC) refers only to illumination being produced on a vertical surface (facade of a building) or passing over a property line (spill light/light trespass).

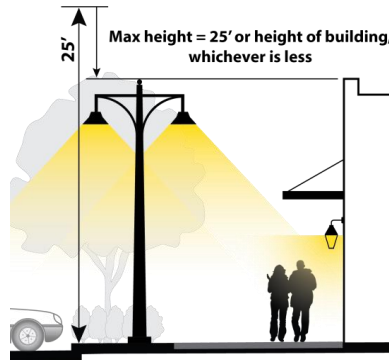
“Lumen” is the unit used to measure the total amount of light that is produced by a light source/lamp. All light sources reduce in lumen output the longer that they are operated. “Initial lumens” is a term defined as the amount of light output from a lamp when it is new. “Mean lumens” is a term defined as the average lumen output of a lamp over its life, and is the lumen value utilized in the proper design of lighting systems. A lumen is a unit of standard measurement used to describe how much light is contained in a certain area.

**Comment [BF5]:**

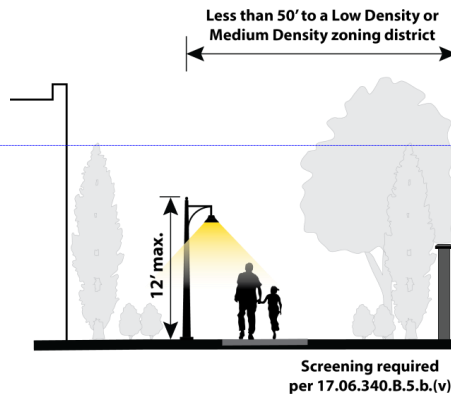
OPTION: 15/30 vs 12/25



- (i) Light fixtures 50 feet or greater from a Low Density or Medium Density zoning district may be no higher than 25 feet or the height of the nearest building, whichever is less.

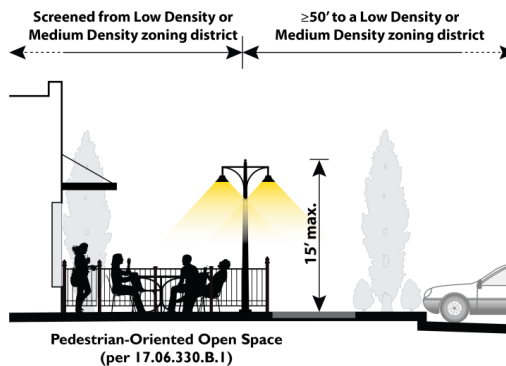


- (ii) Light fixtures located within 50 feet of a Low Density or Medium Density zoning district may be no higher than 12 feet and must be screened as per Section 17.06.340.B.5.b(v).



- (iii) Light fixtures within pedestrian-oriented open space (per 17.06.330.B.1) are subject to the following height restrictions.

- (1) Fixtures less than 50 ft from Low Density or Medium Density zoning district may be no higher than 12 feet.
- (2) Fixtures 50 ft or greater from Low Density or Medium Density zoning district, or blocked from view by a building (i.e. interior open space or blocked by building placement), may be no higher than 15 feet. ≥



**Comment [BF6]:**

OPTION: Allow parking areas for multi-family to be 20 ft if screened (since screening is required in (b)(v) above) to allow for moving trucks. The largest U-Haul needs a clearance of 24 ft, but most are less than 20 ft (down to 10 ft for the smallest).

- e. Lighting fixtures, whether attached to a building or pole, must meet the setback requirements of the applicable zone.

**Comment [BF7]:** This is in the ICC, do we need this in an urban setting? What would the implications of this be if we didn't have this?

5. Hours of Lighting.

- a. Except as otherwise stated in this Section, all exterior lighting shall be required to be turned off within one hour after close of business or 10:00 p.m., whichever is later, leaving only the necessary lighting for site and building security.
  - (i) For purposes of this section, non-essential lighting shall include display lighting, aesthetic and sign lighting, lighting of landscape and architectural features, and may include parking lot lighting.
  - (ii) Multi-family housing is only required to reduce the lighting located at common areas such as clubhouses, pool areas and playgrounds.
- b. To reduce overall energy consumption and eliminate unneeded lighting, exterior lighting installations shall include timers, dimmers, sensors, and/or photocell controllers that turn the lights off during daylight hours.
- c. Non-full-cutoff and nonfully shielded incandescent lights of greater than 150 watts, and all other lights types of greater than 70 watts, that were installed prior to the adoption of the chapter are considered to be nonconforming, and shall possess an automatic control device that turns the lights off between 10:00 p.m. and 6:00 a.m.

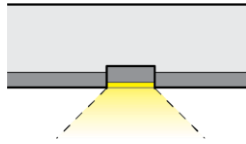
**Comment [BF8]:**

Option: reduced by at least 50%

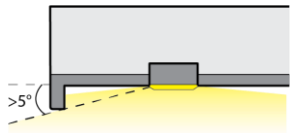
6. Specific Standards by Lighting Type

- a. Building Lighting.
  - (i) Lighting fixtures must be selected, located, aimed, and shielded so that direct illumination is focused exclusively on the building facade, plantings, and other intended site features and away from adjoining properties and the street right-of-way.
  - (ii) Lighting used to accent architectural features, materials, colors, style of buildings, or art shall be located, aimed, and/or shielded so that light is directed only on those features.
    - (1) Lighting fixtures used to accent architectural features, materials, colors, style of buildings, or art shall not generate excessive light levels, cause glare, or direct light beyond the facade onto neighboring properties, streets or the night sky.
    - (2) The maximum illumination of any vertical surface or angular roof surface shall not exceed five foot-candles.
  - (iii) Exterior building lighting should be used to accentuate the building design and pedestrian-oriented features. Highlight architectural details and features with lighting integrated into the building design.
- b. Canopy Lighting. Lighting fixtures mounted on canopies shall be installed such that the bottom of the light fixture or its lens, whichever is lower, is recessed or mounted flush with the bottom surface of the canopy and parallel to the ground. A full cut off light fixture may project below the underside of a canopy. All light emitted by an under canopy fixture shall be substantially confined to the ground surface beneath the perimeter of the canopy. No lighting except that permitted by Section 17.06. (Signs) shall be permitted on the top or sides of a canopy.

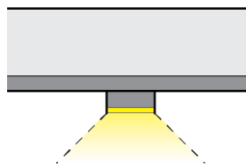
- (i) Lighting under canopies must be less than 24 maintained footcandles, and be designed to prevent glare off-site. Acceptable lighting designs include the following:



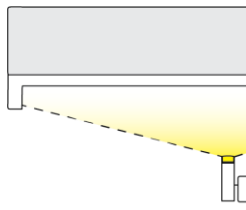
1. Recessed fixture incorporating a lens cover that is either recessed or flush with the bottom surface of the canopy;



2. Light fixture incorporating shields, or is shielded by the edge of the canopy itself, so that light is restrained to 5 degrees or more below the horizontal plane;



3. Surface mounted fixture incorporating a flat glass that provides a full cutoff design or fully shielded light distribution; or



4. Indirect lighting where light is beamed upward and then reflected down from the underside of the canopy, provided the fixture is shielded so that direct illumination is focused exclusively on the underside of the canopy.

- (ii) Lights shall not be mounted on the top or sides of the canopy. The sides shall not be illuminated in any manner.
- c. Flag Pole Lighting. A flagpole may be illuminated by one upward aimed fully shielded and self contained spotlight light fixture which shall not exceed **3,000 lumens (150 watts)**. The light fixture shall be placed as close to the base of the flagpole as reasonably possible.
- d. Flood Lights and Flood Lamps. All flood lamps must be shielded so that the main beam is not visible from adjacent properties or the street right-of-way.
- e. Outdoor performance, sport and recreation facilities.
- (i) Lighting levels and pole heights for outdoor performance, sports, and recreation facilities shall not exceed by more than five percent of the Illuminating Engineering Society of North America published standards for the proposed activity.
- (ii) Where playing fields or other special activity areas are to be illuminated, lighting fixtures shall be specified, mounted, aimed, and shielded so that their beams fall within the primary playing area and immediate surroundings, and so that no direct illumination is directed off the site.
- (iii) The main lighting shall be turned off as soon as possible following the end of the event. The main lighting shall not remain on longer than 30 minutes following the end of the event. Where feasible, a low level lighting system shall be used to facilitate patrons leaving the facility, cleanup, nighttime maintenance and other closing activities. The

low level lighting system shall provide a horizontal illumination level at grade of no more than four foot-candles.

f. Parking and Pedestrian Areas.

- (i) Parking lot lighting shall be designed to provide for uniform lighting throughout the facility with no dark patches or pockets.
- (ii) All sidewalks and other pedestrian walkways shall have appropriate lighting.
- (iii) Light fixtures within 25 feet of a street right-of-way (not including an alley) must be forward throw fixtures.
- (iv) The table below establishes open-air parking lot lighting standards:

Measurement Location	Basic
Minimum foot-candles on pavement <sup>1</sup>	0.2 foot-candles
Maximum foot-candles on pavement	4.0 foot-candles
Minimum foot-candles at five feet above pavement <sup>2</sup>	0.1 foot-candles
<sup>1.</sup> Measured on the parking surface, without any shadowing effect from parked vehicles or trees at points of measurement. <sup>2.</sup> Measured at five feet above parking surface at the point of the lowest illumination.	

g. Security Lighting.

- (i) Lighting that operates dusk-to-dawn in order to provide for protection of property and safety for individuals shall conform to the following:
  - (1) Shall use the lowest possible illumination to effectively allow surveillance and not to exceed 0.5 foot-candles;
  - (2) Light shall be shielded and aimed so that illumination is directed to the designated areas; and
  - (3) Shall generate less than 50 percent of the lighting power density or lumen density utilized by the facility/site during normal business hours.
- (ii) Use of motion sensing devices for security lighting is encouraged.

5. Design Alternatives.

- a. The provisions of this section are not intended to prevent the use of any material or method of installation not specifically mentioned by this section. As new lighting technology develops which is useful in reducing light above the horizontal, consideration shall be given to use of state of the art technology in keeping with the intent of the this section.
- b. The Planning Director may permit the use of designs, materials, methods of installation or operation as alternative to those otherwise required by this Section upon proof that the alternative meets the standards set by the Illuminating Engineering Society of North America (IES) for outdoor lighting OR a written certification by a qualified lighting professional stating that the alternative meets or exceeds the standards set forth in this Section and further its purpose and intent.



6. Lighting Plan Submission Requirements.

- a. A lighting plan shall be required for projects as follows.
  - (i) When an exterior lighting installation is part of a new development proposal requiring site plan review, a conditional use permit, or other multi-family, commercial, or mixed-use development application that requires outside lighting; and
  - (ii) For projects undergoing redevelopment, expansion, or remodel when the redevelopment requires site plan approval, or for tenant improvements or other minor building improvements when exterior lighting is proposed to be installed or modified; and
  - (iii) Subdivisions or individual dwelling units common areas. Examples of common areas include, but are not limited to, pathways, clubhouses, parking lots, and play areas.
- b. The exterior lighting plan shall include, at a minimum, the following information:
  - (i) The exterior lighting plan shall include the proposed location, mounting height, and type of light fixtures, and aiming point of all exterior lighting fixtures, both building and ground mounted lighting, as well as the illuminance levels shown on a 10' maximum grid.
    - (1) If building elevations are proposed for illumination, drawings shall be provided for all relevant building elevations showing the fixtures, the portions of the elevations to be illuminated, the luminance levels of the elevations, and the aiming point for any remote light fixture.
    - (2) For exterior lighting installations within 50 feet of upper level living units, horizontal and vertical projection of photometric data is required.
    - (3) If only architectural lighting below five foot-candles is proposed, this section or any portion of it may be waived by the director.
  - (ii) Certification that the angle of total light cutoff is no more than 90 degrees; this certification can be in the form of Photometric data supplied by the manufacturer or a letter from a certified lighting professional stating that the proposed lighting meets the regulations of this Section;
  - (iii) Descriptions of light fixtures, including lamps, poles, or other supports and shielding devices which may be provided as catalogue cut sheets from the manufacturer.
  - (iv) Color Rendering Index (CRI) of all lamps (bulbs).
  - (v) Additional information as may be required by the Planning Director in order to determine compliance with this Section, including but not limited to:
    - (1) Landscaping information that indicates mature tree size;
    - (2) Shrubbery and other vegetation in order to evaluate the long-term and seasonal effectiveness of lighting or screening of lighting.