

## 6.6. LIGHTING

- A. **Purpose and Intent.** The purpose of this section is to regulate the intensity of exterior lighting for all types of buildings, individual lots, and developments. This section intends to provide standards to prevent light from excessively illuminating other properties and street rights-of-way, minimize glare, reduce light pollution, protect the night skies, and to minimize other adverse impacts from light intensity.
- B. **Applicability.** All new development shall comply with the standards of this section. The following shall also apply in instances of repairs, renovations or additions:
1. **Minor.** When a site area is improved by ten (10) percent or less, lighting subject to the standards of this section is required only for the additional improved site area.
  2. **Major.** When a site area is improved by greater than ten (10) percent, both the additional area and existing area must conform to the lighting standards in this LDO.
- C. **Nonconforming Lighting.** Lighting that does not comply with the standards of this section that was permitted before the adoption date of this LDO shall be considered nonconforming. Any modifications or replacement of such lighting shall conform to this LDO, subject to 6.6.B.
- D. **Exemptions.** The following are exempt from the standards of this section:
1. Residential lighting that is not part of a site plan or subdivision plan, for single-family (detached and attached), two-family dwellings, or multiple family dwellings such as apartments or condos;
  2. Security lighting required for public spaces consistent with *Crime Prevention Through Environmental Design* (CPTED) or similar safety requirements;
  3. Lighting for permitted temporary uses, including grand openings, special events and celebrations;
  4. Holiday displays;
  5. FAA-required lighting on buildings and telecommunication towers;
  6. Public street lighting;

7. Temporary lighting for construction work and/or emergency personnel;
8. Lighting for flags; and
9. Underwater lighting used for swimming pools and/or fountains.

**E. Prohibited Lighting.**

1. **Awning/Canopy Lighting.** Awnings and canopies used for building accents, such as over doors and windows, shall not be internally lit, i.e., from underneath or behind the awnings and canopies. Gas stations are exempt from this standard (see Section 6.6.M: Gas Station Lighting).
2. **Flashing Lights.** Lights that flash, move, rotate, blink, flicker, vary in intensity, or color, or use intermittent electrical pulses are prohibited. Such techniques used for signs internal to a building, behind windows is exempt.
3. **Floodlights.** Floodlights, spotlights, or any other similar lighting shall not be used to illuminate buildings or other site features unless approved as an integral architectural element on the site plan or as a permitted temporary use (such as spotlights for grand openings or celebrations).
4. **Tube Lighting.** Tube lighting in the form of neon or rope lighting is prohibited on building exteriors and along façade trims where it defines a window, door, or elevation. The utilization of tube lighting behind windows is exempt.
5. **Traffic Control.** Lighting that is similar or can be confused as being a traffic control device.

- F. Review and Lighting Plan.** All development subject to the standards of this section shall require a lighting plan. Plans shall be reviewed for compliance during the site plan and/or subdivision process. Before a certificate of occupancy is issued, the applicant shall supply the town with a final letter of certification from the lighting engineer and/or manufacturer verifying that all site lighting is installed according to town standards, the approved plans, and any applicable conditions. Lighting plans, at minimum, shall comply with the following:

**1. Licensed Engineer.**

- a. The plan must be prepared by a licensed engineer;

- b. Shall be signed and sealed; and
  - c. Shall be of an engineered scale that is easily legible.
2. **Plan Requirements.** To facilitate dark-sky provisions, appropriate source light shielding is required in order to minimize glare and protect dark skies, while facilitating better vision at night. A lighting plan must show:
- a. All proposed and existing buildings on the site;
  - b. Pedestrian and vehicular areas;
  - c. Other above-ground improvements;
  - d. The horizontal location of all proposed and existing outdoor lighting fixtures, including pole and wall-mounted fixtures;
  - e. Mounting heights of each fixture;
  - f. Overall height of each pole above grade;
  - g. Fixture details;
  - h. Location of externally illuminated signs and associated fixtures; and
  - i. The location of all architectural and landscape lighting fixtures.
3. **Illumination Values.**
- a. Lighting plans shall be specified and calculated in maintained footcandles (FC), unless specified otherwise in this section. Measurements of light levels shall be taken at finished grade with an accurate and calibrated light meter.
  - b. The plan must include a footcandle plan that provides typical footcandle contours and a point photometric grid that indicates foot-candle levels measured at grade across the site. Maximum, average and minimum site foot-candles, uniformity ratio (average and minimum), and depreciation factors also are required. The plan must show initial horizontal illuminance values in foot-candles for the area to be illuminated.

- c. These values must be calculated at grade and include contributions from all onsite fixtures.
  - d. The plan must plot foot-candles of illumination at ground level to the nearest tenth of a foot-candle, and at horizontal grid intervals of no more than ten feet.
  - e. The plan shall show illumination level at the lot line (or perimeter of a development, if applicable) to ensure maximum illumination levels are not exceeded.
4. The manufacturer's cut sheets (specifications) for each proposed fixture must be submitted.
  5. A lighting fixture schedule that presents the following information:
    - a. Fixture type, including the manufacturer's product identification catalog number.
    - b. Fixture mounting height.

**G. General Design Standards.**

1. All lighting fixtures shall be constructed and designed to prevent light from emitting upwards toward the dark night sky.
2. All fixtures, except for streetlighting fixtures, including security lighting, must be cutoff fixtures. Cutoff fixtures shall project all its light in a downward motion.
3. Canopy lighting fixtures shall be designed to be completely recessed within the canopy.
4. All fixtures must be incorporated into the building or site as an integrated design element through the use of common or complementary style, material, and color.
5. Wood light poles are prohibited in residential subdivisions.
6. Interior fixtures used to light the interior of parking garages must be shielded to prevent light spilling from the garage.
7. Light fixtures on the top deck of a parking garage may not exceed fifteen (15)

feet in height and must be shielded to prevent light spilling from the boundary of the garage deck. Rooftop lighting of parking garages must be setback a minimum fifteen (15) feet from the perimeter of the rooftop parking structure.

8. Lighting for permitted rooftop uses (such as a restaurant or lounge) shall be pedestrian in scale and not exceed twelve (12) feet in height (this does not include any FAA mandated lighting). Rooftop lighting fixtures used for permitted rooftop uses shall be located toward the center of the rooftop, away from its edges and not face outward. Safety lighting may be utilized along walls or rails. All lighting shall be designed to effectively eliminate glare, shielded to prevent light spilling over the side of the building, and shall be turned off when the rooftop area is not in use.
9. Walkways, bikeways, parks and trail lighting, and pedestrian facilities such as building connections shall be lit at a maximum 0.2 FC.
10. Wall packs on buildings may be used at entrances to a building or to light potentially unsafe areas. They should not be intended to draw attention to the building or provide general building or site lighting. Wall packs shall be fully shielded, cutoff type fixtures with concealed light sources. The lighting must be directed downward.
11. Loading/unloading docks shall only be illuminated by fixtures which feature full cutoff design and shall be affixed to an outside building wall or pole.
12. All outdoor lighting fixtures not mounted on buildings (i.e. ground based) shall be located a minimum of ten (10) feet from a property line or right-of-way line and should be no closer than two (2) feet from any required perimeter or streetscape buffer. Undergrounding service is encouraged.
13. Light fixtures shall not exceed thirty (30) feet in height in vehicle use areas (such as rights-of-way and parking areas). Additional standards for parking areas are defined in Section 6.6.J: Parking Area Lighting Standards.
14. Light fixtures shall be twelve (12) to fifteen (15) feet in height in nonvehicular pedestrian areas (such as sidewalks).
15. An illustrative example of permitted light fixture heights is provided in Figure 6.6.1.

Figure 6.6.1. Lighting Fixture Height Illustrative Example



#### H. Lighting Intensity Standards.

1. Table 6.6: Specific Lighting Standards, defines specific standards for lighting intensity based upon the use involved.
2. The table is organized by uses and permitted maximum values are presented in allowable foot-candles (FC). Maximum illumination is required to be maintained (measured horizontally) at grade and is to be averaged throughout the site to avoid hot spots and ensure illumination values at the edge of the development area.
3. Illumination shall not exceed the maximum illumination permitted at the edge of any lot line (i.e. property line), unless permitted elsewhere in this LDO.
4. Where a single development occupies multiple lots, the maximum illumination shall be required around the perimeter of the development.

Table 6.6. Specific Lighting Standards

Use	Maximum Illumination at Property Line
Multiple Family Residential	1.5 FC
Mixed-Use Developments	2.5 FC
Civic Uses (See Permitted Principal Use Table)	6.0 FC
Commercial Uses (See Permitted Principal Use Table)	5.0 FC
Office Uses (See Permitted Principal Use Table)	5.0 FC
Industrial Uses (See Permitted Principal Use Table)	2.0 FC
Infrastructure Uses (See Permitted Principal Use Table)	2.0 FC
Residential Sidewalks	0.3 FC
Non-Residential Sidewalks	0.8 FC
Vehicle Use Areas	1.0 FC
Primary Entrances	5.0 FC at entrance
Secondary Entrances	1.0 FC at entrance
Loading Docks	15.0 FC at loading dock
Storage Areas (Active)	5.0 FC
Storage Areas (Inactive)	1.0 FC

- I. **External Building Lighting Standards.** External building lighting shall comply with the following standards:
  1. Fixtures that decoratively light a building or wall may not light above the parapet of the building or the top of the wall.
  2. Landscape and decorative lights are hereby made exempt from this subsection.
  3. Floodlights, spotlights, or any other similar lighting shall not be used to illuminate buildings or other site features unless approved as an integral architectural element on the development plan.

4. On-site lighting may be used to accent architectural elements but not used to illuminate entire portions of building(s) or sign(s).
  5. Where accent lighting is used, the maximum illumination on any vertical surface or angular roof surface shall not exceed 5.0 FC.
  6. Building façade and accent lighting will not be approved unless the light fixtures are carefully selected, located, aimed, and shielded so that light is directed only onto the building façade and spillover light is negligible.
- J. **Parking Area Lighting Standards.** Lighting is required within parking areas. The height of light fixtures within a parking area shall comply with the following standards:
1. Parking area lighting fixtures shall be required to stagger the heights of light fixtures so that the tallest fixtures are in the center of the parking lot, and the lowest heights are at the perimeter of the parking lot.
  2. Light fixtures height shall not exceed thirty (30) feet within the center of a parking area and shall decrease height to twelve (12) to fifteen (15) feet at the boundary of the parking area.
  3. To avoid conflict in layout, parking lot lighting must be coordinated with parking area landscaping.
  4. Lighting design shall be coordinated with the landscape plan to ensure that vegetation growth will not substantially impair the intended illumination.

Figure 6.6.2 Parking Area Lighting Standards Illustrative Example





- K. **Sign Lighting Standards.** All external lighting for signs shall be designed and located to assure there is no spillover light. Sign lighting, including ground mounted stop lights, shall not exceed 5.0 FC. Signs shall be in compliance with Section 6.2: Signs.
- L. **Athletic Field Lighting Standards.** Lighting for athletic fields may be in excess of permitted fixture heights and illumination levels. Recreation lighting levels established by *Illuminating Engineering Society of North America (IESNA)* are to be used as the standard for all athletic field lighting. Higher lighting levels for tournament or high league play are sometimes required and must be approved by the Land Development Administrator or their designee. All sports fields, areas, or courts must meet the following minimum standards:
1. Fixtures must be fitted with manufacturer's glare control package.
  2. Lighting shall be turned off no later than one (1) hour after any event ends.
  3. Fixtures must be designed with a sharp cutoff and aimed so that their beams fall within the primary playing area and the immediate surroundings, so that off-site direct illumination is significantly restricted.
  4. Sports fields may have lighting fixtures a maximum eighty (80) feet in height.
  5. Spillover levels at the field property lines shall not exceed 0.3 foot-candles.
- M. **Gas Station Lighting.**
1. All light fixtures for gas stations that are mounted on the lower surface of canopies must be fully shielded in and of themselves (canopy edges do not qualify as shielding).
  2. Light fixtures mounted on canopies shall be recessed so that lens cover is recessed or flush with the bottom surface (ceiling) of the canopy or shielded by the fixture or the edge of the canopy so that light is restrained to seventy (70) degrees or less from vertical.
  3. Lighting levels shall be no greater than 12.0 FC at the edge of the canopy.
  4. Areas outside service station pump island canopy shall be illuminated so that the maximum horizontal luminance at grade level is no more than 10.0 FC.