

ARTICLE 21
Lighting Standards

§ 170-21.1. Intent

The intent of this article is to provide lighting systems that are appropriate for the task intended and to minimize the impact of offsite glare and light pollution. Standards contained herein are structured to conform to Illumination Engineering Society of North America (IESNA) guidelines for recommended illumination levels and the International Dark-Sky Association's (IDSA) goal to eliminate over-lighting while providing for vehicular, pedestrian and site safety.

§ 170-21.2. General Provisions.

- A. LED lamped luminaires are required unless an alternate type is approved by the Planning Commission. Incandescent sources may only be used for decorative lighting.
- B. Energy efficient, UL or equivalent approved LED drivers, are required for all LED lights.
- C. Illumination levels at property lines shall not exceed 1.0 foot-candles/10.8 LM/M² at grade, except where adjacent to residential property, foot-candle levels at the property line shall not exceed 0.5 foot-candles/5.4 LM/M².
- D. Building mounted or pole mounted floodlights are prohibited.
- E. Luminaires within 100' of a residential zoning district/use shall not exceed 20' in height.
- F. Searchlights, strobes, lasers or similar high intensity light used for outdoor advertisement or entertainment are prohibited.
- G. Flashing, moving or intermittent type lights are prohibited.
- H. LED luminaires must have a color temperature (Kelvin) between 3,500 and 4,100K.

§ 170-21.3. Residential Lighting.

- A. Street lighting
 - (1) Street lighting shall be provided to illuminate entrances of residential developments. A minimum output of three (3) foot-candles/32.3 LM/M² shall be provided.
 - (2) Cutoff style luminaires are required.

- (3) If HID lamps are used, lamps shall not exceed 100 watts. If another source is used, it shall not exceed the mean lumen output of the common HID source.
- (4) Mounting height shall not exceed 20' and the spacing between fixtures shall not exceed 200'.
- (5) Intersections and pedestrian crosswalks must be illuminated.
- (6) Street lighting systems provided by the applicable public electrical utility company, shall use the utility company's standard system components.
- (7) Decorative luminaires shall comply with the following standards.
 - a. The luminaires shall be mounted between 12' to 18'.
 - b. Cutoff optics are required.
 - c. The lamps must be recessed to shield the light source and prevent light above 90 degrees.
 - d. Normal HID lamp wattage shall be 100 watts (or the mean lumen equivalent).
 - e. Maximum HID wattage shall be 175 watts (or the mean lumen equivalent).
 - f. Multiple luminaires may be mounted on a common pole to achieve higher light levels where required. Decorative drop lenses are allowed on these luminaires only.

B. Building mounted lights shall be shielded and directed downward. Decorative incandescent lights may be permitted without shielding, provided they comply with lighting limits at the property line.

§ 170-21.4. Nonresidential Lighting.

A. Pole Lighting

- (1) Lighting shall be provided to illuminate roadway and pedestrian areas and the system shall comply with I.E.S. Standards RP-8.
- (2) Luminaires shall have cutoff optics and flat lenses. Optical drop lenses are not permitted. Luminaires using LED sources shall provide the equivalent means of optical control.

- (3) Pole mounted lights shall comply with the following standards.
 - a. The height of 100-250 watt metal-halide lamps (or the mean lumen equivalent) shall not exceed 20’.
 - b. The height of 400 watt metal-halide lamps (or the mean lumen equivalent) shall be mounted between 20’ and 40’.

- (4) Parking lot lights, shall comply with the following standards.
 - a. The illumination levels at grade shall average three (3) to six (6) foot-candles/32.3 to 64.6 LM/M² at entrances, intersections or pedestrian crosswalks.
 - b. The illumination levels at grade shall average one (1) to three (3) foot-candles/10.8 to 32.3 LM/M² on roadways and parking surfaces.
 - c. The illumination levels at grade shall average five (5) foot-candles/53.8 LM/M² at building entrances.
 - d. The illumination levels at grade shall not exceed ten (10) foot-candles/107.6 LM/M².
 - e. The maximum uniformity (Max-to-Min) ratio shall be 10:1.
 - f. Light fixtures shall be located within landscaped islands.

- (5) Luminaires located in landscaped areas shall be mounted on concrete foundations in accordance with the following.
 - a. Concrete foundations located 36” or less from back of curb, shall not exceed a height of 30” above finished pavement.
 - b. Concrete foundations located more than 36” from the back of curb shall not exceed a height of six (6) inches above finished grade.

- (6) Decorative luminaires shall comply with the following standards.
 - a. The luminaires shall be mounted between 12’ to 18’.
 - b. Cutoff optics are required.
 - c. The lamp must be recessed to shield the light source and prevent light above 90 degrees.

- d. Normal HID lamp wattage shall be 100 watts (or the mean lumen equivalent).
 - e. Maximum HID wattage shall be 175 watts (or the mean lumen equivalent).
 - f. Multiple luminaires may be mounted on a common pole to achieve higher light levels where required. Decorative drop lenses are allowed on these luminaires only.
- B. Bollard style lights, 36” to 48” high, may be used to illuminate pedestrian areas and walkways and shall comply with the following standards.
- a. Ground mounted lights shall not contain an up-light component.
 - b. Step-lights with cutoff optics may be used to illuminate exterior stairways and pedestrian walkways.
- C. Building lighting shall comply with the following standards.
- (1) Lights shall be shielded and directed downward. The lamp shall not be visible from normal viewing angles.
 - (2) The illumination level shall not exceed 15 foot-candles/161.5 LM/M² at the surface and an average of five (5) foot-candle/ 53.8 LM/M² on the building.
 - (3) The illumination level at doorways shall be a minimum of three (3) foot-candles/32.3 LM/M² at grade.
 - (4) Exterior emergency lighting shall be provided at all exit doors.
 - (5) Ground or pole mounted floodlights are not permitted.
 - (6) Lighting for multiple tenant buildings must be uniform.
- D. Flagpoles may be illuminated by uplights or floodlights as required by law and shall comply with the following standards.
- (1) Beam spread shall be the minimum necessary to illuminate the flag.
 - (2) The illumination level at the flagpole shall not exceed 20 foot-candles/215.3 LM/M².
 - (3) The lamp size shall not exceed 100 watts.
- E. Landscape lighting shall comply with the following standards.
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- (1) Lighting shall be limited to the objects only.
 - (2) Lamp wattage shall be the minimum necessary to illuminate the object without causing glare on the site or neighboring properties.
 - (3) The illumination level shall not exceed five (5) foot-candles/ 53.8 LM/M².
 - (4) HID lamp wattage shall not exceed 100 watts (or the mean lumen equivalent).
- F. Canopy lighting shall comply with the following standards.
- (1) Flat lenses are required.
 - (2) Illumination levels shall comply with IESNA standards.
 - (3) Illumination shall not exceed 50 foot-candles under a canopy/ 538 LM/M².
- G. Luminous tube (neon), side emitting fiber optic and exposed tube fluorescent lighting is prohibited.

§ 170-21.5. Submittal Requirements.

- A. A Site Lighting Photometric Plan shall be submitted for all outdoor lighting. The lighting information shall be superimposed on top of the site plan.
- B. The photometric plan shall include the following information.
- (1) Location of all site lights including pole lights, pedestrian lights, building mounted lights, canopy lights, sign lights, landscape lights and floodlights.
 - (2) The designation type for each luminaire.
 - (3) A Luminaire Schedule indicating type (“A”, “B”, “C”, etc.), manufacturer, model number, lamp type, lumen output, wattage, number of heads and the I.E.S. luminaire photometric file number used for the calculations.
 - (4) Mounting height for each luminaire.
 - (5) A photometric grid indicating foot-candle levels over the entire site, including at all property lines, measured at grade level. Grid spacing shall not exceed 20’ by 20’ feet. ISO foot-candle lines may be included.

- (6) A Photometric Summary and Statistics Table indicating the maximum, minimum and average foot-candle levels, maximum-to-minimum and average-to-minimum ratios.
 - (7) Two (2) calculation area summaries: one (1) for roadways, parking lots and pedestrian areas and one (1) for the entire site.
 - (8) Cut-sheets for proposed luminaires, electronic AutoCAD site plan file and I.E.S. photometric files for use in analyzing the lighting plan. If Visual Basic as developed by Lithonia Lighting's, or equivalent photometric program, is used for calculations, a copy of the project file is required.
 - (9) If facade lighting is proposed, a photometric layout of building elevations showing lumen levels on the wall shall be provided.
- C. Any modifications to an approved photometric plan shall be submitted to the Township for approval prior to installation.

§ 170-Section 21.6. Administration.

- A. The township may require redirection of existing light fixtures when it is determined that the fixture is creating offsite glare.
- B. Illumination systems shall be installed as approved. The Township reserves the right to instruct the contractor/developer to remove or modify lighting systems that were not installed as approved and at no cost to the Township.