

## 17.04 | General Development Standards

*Outdoor Lighting*

### 17.04.07. Outdoor Lighting

#### A. Purpose and Applicability.

1. **Purpose.** The standards of this Section are designed to regulate the physical effects of lighting and minimize the negative impact that lighting may have on surrounding properties. It is the intent of this section to:
  - a. Minimize light pollution, such as glare and light trespass,
  - b. Conserve energy and resources,
  - c. Maintain night-time safety and utility,
  - d. Improve the night-time visual environment, and
  - e. Help protect the natural environment from the effects of night lighting.
2. **Applicability.** The standards in this section shall apply to the installation of new outdoor lighting fixtures and as detailed in Chapter 1.
3. **Permit Required.** A Development Permit shall be required prior to the installation or replacement of outdoor lighting in all nonresidential development and all residential development, except for one- and two-unit dwellings. A photometric plan and cut sheets that include fixture photometric templates and BUG ratings for all fixtures shall be required.

#### B. Prohibitions. The following lighting types shall be prohibited within the City of Eau Claire:

1. The use of laser source light or any similar high intensity light for outdoor advertising or entertainment,
2. The operation of searchlights by non-public safety personnel,
3. Site lighting that may be confused with warning, emergency, or traffic signals,
4. Lights that flash, move, revolve, rotate, scintillate, blink, flicker, vary in intensity or color, or use intermittent electrical pulsation, and
5. Colored LED rope lighting that outlines windows, doors, or other architectural features.

#### C. Exemptions. The following shall be exempt from the standards of this Section:

1. Streetlights and other fixtures installed or temporarily used for public-roadway illumination may be installed at a maximum height of 37 feet and may be positioned at that height up to the edge of any bordering property,
2. All temporary emergency lighting needed by the Police or Fire Departments or other emergency services, as well as all vehicular luminaires,

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3. All hazard warning luminaires required by Federal regulatory agencies, except that all luminaires used must be red and must be shown to be as close as possible to the federally required minimum lumen output for the specific task,
4. Lighting associated with holiday, festival or other temporary uses allowed in Chapter 3,
5. Lighting of fountains or public art that has been permitted or otherwise approved by the City,
6. Other Municipal or State lighting installed for the benefit of public health, safety, and welfare, and.
7. Lighting of US and Wisconsin State flags provided the flag standard does not exceed the maximum permitted building height for that district.

#### D. Illumination Standards.

1. **LED Fixtures.** All outdoor lighting utilizing a light-emitting diode (LED) fixture shall meet the following standards:
  - a. **Color Rendering.** Outdoor LED fixtures shall be rated at a Color Rendering Index (CRI) value of 70 or higher.
  - b. **Color Temperature.**
    - i. Outdoor LED fixtures in nonresidential development shall have a correlated color temperature (CCT) of 3,000 degrees Kelvin or lower.
    - ii. Outdoor LED fixture in residential development shall have CCT of 2,700K or lower.
    - iii. Outdoor LED fixtures with a CCT of up to 4,000K may be approved as an Administrative Adjustment (Section 17.12.04) to match existing fixtures installed prior to the effective date of this LDO if they are Design Lights Consortium (DLC) Light Utilized for Night Applications (LUNA) qualified and equipped with adjustable CCT setting capable of being adjusted down to 3,000K.

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2. **BUG Rating.** Backlight Uplight Glare (BUG) ratings are a published luminaire classification system to comprehensively address light pollution from all directions. Streetlights and lighting fixtures shall not exceed the BUG rating established per District in Table 17.04.07(D)(2).

Table 17.04.07 (D)(2) Lighting Zone per District	
District	Lighting Zone
NSR; GR; NR; MR; P[1]	LZ1
UR; NC	LZ2
UC; DT	LZ2
CC; LI; HI	LZ3
Note	
[1] For airports, the airfield side is exempt from this ordinance and the landside shall conform to LZ3 standards.	

a. **Maximum Allowable BUG Ratings.**

- i. A luminaire may be used if it is rated for the lighting zone of the site or lower in number for all ratings B, U, and G. Luminaires equipped with adjustable mounting devices permitting alteration of luminaire aiming more than 10 degrees (for leveling purposes) in the field shall not be permitted.

Table 17.04.07(D)(2)(a)-1 Allowed Backlight Rating [1]				
Location	Lighting Zone			
	Lighting Zone 0	Lighting Zone 1	Lighting Zone 2	Lighting Zone 3
Greater than 2 mounting heights from property line	B1	B3	B4	B5
1 to less than 2 mounting heights from property line and ideally oriented [2]	B1	B2	B3	B4
0.5 to 1 mounting height from property line and ideally oriented [2]	B0	B1	B2	B3
Less than 0.6 mounting height to property line and properly oriented [2]	B0	B0	B0	B1
Notes				
[1] For property lines that abut public walkways, bikeways, plazas, and parking lots, the property line may be considered to be five feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the center-line of the public roadway or public transit corridor for the purpose of determining compliance with this section. NOTE: This adjustment is relative to this Table only and shall not be used to increase the lighting area of the site.				
[2] To be considered 'ideally oriented', the luminaire must be mounted with the backlight portion of the light output oriented perpendicular and towards the property line of concern.				

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**Table 17.04.07(D)(2)(a)-2 Allowed Uplight Rating [1]**

Lighting Zone 0	Lighting Zone 1	Lighting Zone 2	Lighting Zone 3
U0	U1	U1	U1
[1] All U1 fixtures must be qualified under the Design Lights Consortium (DLC) Light Utilized for Night Applications (LUNA) standards.			

**Table 17.04.07(D)(2)(a)-3 Allowed Glare Rating**

Location	Lighting Zone			
	Lighting Zone 0	Lighting Zone 1	Lighting Zone 2	Lighting Zone 3
Ideally oriented luminaires [1]	G0	G1	G2	G3
Any luminaire not ideally oriented [2] with 1 to less than 2 mounting heights to any property line of concern	G0	G0	G1	G1
Any luminaire not ideally oriented with 0.5 to 1 mounting heights to any property line of concern [2]	G0	G0	G0	G1
0.5 to 1 mounting heights from property line and ideally oriented [1]	G0	G0	G0	G0
<b>Notes</b>				
[1] To be considered "ideally oriented", the luminaire must be mounted with the backlight portion of the light output oriented perpendicular and towards the property line of concern.				
[2] Any luminaire that cannot be mounted with its backlight perpendicular to any property line within 2X the mounting heights of the luminaire location shall meet the reduced Allowed Glare Rating in Table 17.04.07(D)(2)(a)-3				

3. **Light Trespass.** Unless otherwise specified in this ordinance, light trespass shall meet the following:
  - a. Luminaire light sources shall not be visible from federal or state designated wilderness, natural area, habitat, or reserves, and light trespass shall measure no greater than 0.01 footcandles.
  - b. Light trespass onto waters of the United States shall measure no greater than 0.1 footcandles.
  - c. Light trespass onto residential use property shall measure no greater than 0.1 footcandles.
4. **Footcandles.** Unless otherwise specified in this ordinance, lighting installed for an outdoor use shall not exceed 25 percent more than the Light Level recommended by the applicable ANSI/IES Lighting Standard, or a state approved alternate, as published.

**E. Luminaire Design Standards.**

**1. Fixture Classification.**

- a. All outdoor lighting fixtures shall meet electrical code and the Wisconsin adopted version of the International Energy Conservation Code (IECC) and may include light emitting diode (LED) luminaires or another equally or more energy efficient fixture approved by the Zoning Administrator, per Section 17.12.04 Administrative Adjustments.
- b. All outdoor lighting fixtures shall either have a fixture cutoff classification of "Full Cutoff" and be fully shielded with a BUG rating of U0 or U1 based on Lighting Zone, unless otherwise expressly permitted in this LDO.

**2. Mounting Height.**

- a. The maximum mounting height of all outdoor lighting shall be 30 feet unless otherwise permitted in this ordinance or approved as an Administrative Adjustment (Section 17.12.04) if all footcandle and light trespass standards are met.

**F. Specific Lighting Type Standards.**

**1. Landscape Lighting.**

- a. Landscape and decorative lighting with a light output of 500 lumens or less are permitted, provided that the light is installed, aimed, and shielded to prevent view from the property line.
- b. Fixture shall follow all footcandle and light trespass standards in this LDO and shall be controlled in accordance with the requirements for landscaping lighting in the Wisconsin adopted version of the International Energy Conservation Code (IECC).

**2. Building Façade Lighting.**

- a. Floodlights, spotlights, or any other similar lighting shall not be used to illuminate buildings or other site features.
- b. On-site lighting, that otherwise complies with all requirements of this LDO, may be used to accent architectural elements but not used to illuminate entire building(s).
- c. Where accent lighting is used, the maximum illumination on any vertical surface or angular roof surface shall not exceed 5.0 average maintained footcandles.
- d. Building facade and accent lighting will not be approved unless the light fixtures are selected, located, aimed, and shielded at or below a 90-degree angle as measured from vertical down to ensure that light is directed only onto the intended target and otherwise complies with all requirements of this LDO.
- e. Shall be controlled in accordance with the requirements for facade lighting in the Wisconsin adopted version of the International Energy Conservation Code (IECC),

**3. Other Building Mounted Lighting.**

- a. Wall mounted fixtures on buildings may be used and shall:
  - i. Be consistent or complementary in color with the color of the building materials,
  - ii. Have BUG ratings per the lighting zones and tables found in this LDO,
  - iii. Direct the light downward and shall otherwise comply with the light trespass requirements, and
  - iv. Be controlled in accordance with the requirements for other site lighting in the Wisconsin adopted version of the International Energy Conservation Code (IECC),

**4. Bollard Lighting.**

- a. Bollard lights shall comply with all BUG ratings and be installed to comply with light trespass standards.
- b. Bollard lights shall be controlled in accordance with the requirements for other site lighting in the Wisconsin adopted version of the International Energy Conservation Code (IECC).

**5. Outdoor Display Areas.**

- a. The mounting height of outdoor display area fixtures shall not exceed 30 feet above finished grade.
- b. Timers or motion sensors shall be utilized to minimize unnecessary illumination during non-operational hours. Security lighting, as approved via the photometric plan, may be permitted to remain on during non-operational hours.
- c. A photometric plan, including all lighting, shall be required to be approved by the Administrator to ensure compliance with the standards of this Section prior to the installation of outdoor display area lighting.
- d. Outdoor display area lighting shall be controlled in accordance with the requirements for other site lighting in the Wisconsin adopted version of the International Energy Conservation Code (IECC).

**6. Parking Lots.** A photometric plan shall be required to be approved by the Administrator to ensure compliance with the standards of this LDO prior to the installation of any fixture. Whether using either building or pole mounted fixtures for parking lots.

**7. Parking lot lighting** shall be controlled in accordance with the requirements for other site lighting in the Wisconsin adopted version of the International Energy Conservation Code (IECC).

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### 8. Vehicular Canopies.

- a. Lighting under vehicular canopies shall be fully recessed into the lower surface of the canopy and shall be fully shielded utilizing flat lenses. No part of the lens shall extend below the surface of the canopy ceiling.
- b. A photometric plan shall be required to be approved by the Administrator to ensure compliance with the standards of this Section prior to the installation of vehicular canopy lighting.

### 9. Outdoor Recreation Areas.

Ball fields, basketball courts, tennis courts, outdoor performance areas and similar outdoor recreational uses are exempt from otherwise applicable outdoor lighting standards and shall instead adhere to the requirements below.

- a. The maximum mounting height of outdoor recreation area lighting shall not exceed 80 feet.
- b. Lights shall be shielded and positioned so as not to shine onto adjacent right-of-way or properties.
- c. Fixtures shall be designed 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.
- d. The maximum permitted illumination at the property or right-of-way line shall not exceed 2 foot-candles and all event task lighting shall be turned off within one hour of event ending.
- e. A photometric plan shall be required to be approved by the Administrator to ensure compliance with the standards of this Section prior to the installation of outdoor recreation area lighting.

### 10. Multi-Level Above Ground Parking Structures.

- a. Parking structures shall meet IES standards.
- b. A photometric plan shall be required to be approved by the Administrator to ensure compliance with the standards of this Section prior to the installation of parking structure lighting.

### 11. Commercial and Industrial Uses Abutting Residential.

A photometric plan shall be required to be approved by the Administrator when commercial and industrial uses directly abut residential.

### 12. Private Lighting Impacting Public Roadways and Trails.

- a. A photometric plan shall be required to be approved by the Administrator in instances where light trespass may impact public rights of way and trails, as determined by the City Engineer.

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- b. Locations where light trespass is identified on a public right-of-way and trails shall be subjected to evaluation, including the request for photometric measurements and documentation of system justification. Light trespass which creates significant glare on public rights-of-way and trails shall be evaluated with respect to the safety of the users.