

DRAFT

CITY OF MIDDLETON, WISCONSIN
CHAPTER 33: OUTDOOR LIGHTING CODE

TABLE OF CONTENTS

| | |
|--|----------|
| Chapter 33: Outdoor Lighting Code | 2 |
| Section 33.01 Purpose and Intent | 2 |
| Section 33.02: Conformance with Applicable Codes..... | 2 |
| Section 33.03: Definitions | 2 |
| Section 33.04: Applicability | 3 |
| Section 33.05: General Outdoor Lighting Standards..... | 4 |
| Section 33.06: Reserved | 7 |
| Section 33.07: Special Uses..... | 7 |
| Section 33.08: Lighting Plans | 7 |
| Section 33.09: Exemptions..... | 8 |
| Section 33.10: Prohibited Lighting..... | 9 |
| Section 33.11: Enforcement and Penalties | 9 |

CHAPTER 33: OUTDOOR LIGHTING CODE

Section 33.01 Purpose and Intent

The purpose of this Code is to enhance the attractiveness and livability of the community for its citizens, both during the day and at night without compromising the safety, security, and wellbeing of persons engaged in outdoor nighttime activities. It is the intent of this Code to define practical and effective measures by which the obtrusive aspects of excessive and careless outdoor light usage can be minimized. This Code is designed to curtail the degradation of the nighttime visual environment and preserve and enhance the area's dark sky by requiring lighting practices that direct appropriate amounts of light where and when it is needed, increasing the use of energy-efficient sources, and decreasing the wastage of light, sky glow, impact on the natural environment, and glare resulting from over-lighting and poorly shielded or inappropriately directed lighting fixtures.

Section 33.02: Conformance with Applicable Codes

All outdoor illuminating devices shall be installed and maintained in conformance with all other applicable provisions of the City of Middleton Code of Ordinances, including but not limited to the Building Code (Chapter 11), the Electrical Code (Chapter 12), the Sign Code (Chapter 22), and the Zoning Code (Chapter 10).

Section 33.03: Definitions

As used in this Code unless the context clearly indicates otherwise, certain words and phrases shall mean the following:

Decorative Building Lighting. Lighting used primarily to enhance the building's architectural appearance through the illumination of the building.

Decorative Landscape Lighting. Lighting used primarily to enhance the landscape through the illumination of trees, bushes, plants, flag poles and monuments.

Flood Lamp. A lamp designated as such by the manufacturer designed to direct its output in a specific direction but with a diffusing glass envelope to illuminate a wide area.

Footcandle. The illuminance on a one square foot surface of which there is a uniformly distributed flux of one lumen. One footcandle is equal to one lumen per square foot. Unless otherwise expressly provided, footcandle measurements in this Code shall refer to ground level measurements of luminance at full maintained output as used rather than initial luminance (the amount of luminance when new).

Cutoff Light Fixture. A lighting fixture constructed in such a manner that no light is emitted above the horizontal, and where the intensity at 80 degrees from nadir (a point directly below the light fixture) is no greater than 10% of lamp lumens.

Shielded Light Fixture. A lighting fixture constructed in such a manner that all light emitted by the fixture, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the luminaire, is projected at least 15 degrees below the horizontal plane running through the lowest point on the fixture where the light is emitted, as determined by photometric test or certified by the manufacturer. Any structural part of the light fixture providing this shielding must be permanently affixed.

Glare. The sensation produced by a bright source within the visual field that is sufficiently brighter than the ambient level to which the eyes cannot adapt to, thus causing annoyance, discomfort, or impairment of visual performance. The magnitude of glare may be affected by factors such as the size, position, brightness of the source, and on this brightness level to which the eyes are adapted.

Holiday Lighting. Any low wattage seasonal decorative lighting.

Section 33.04: Applicability

Installation. The attachment or assembly, whether or not connected to a power source, of any outdoor light fixture affixed to the ground, a building, a pole or any other supporting structure or device.

Light Pollution. Any light spilling in any direction serving no intended purpose.

Lighting Sources. Any lamp or manufactured device emitting energy that is capable of exciting the retina and producing a visual sensation. Such devices shall include, but are not limited to, incandescent, fluorescent, carbon arc, quartz-iodine/tungsten halogen, low pressure sodium, high pressure sodium, metal halide, mercury vapor, and LED lamps.

Light Trespass. Any light falling across property boundaries.

Lumen. Unit of luminous flux; used to measure the amount of light emitted by lamps.

Luminaire. The complete lighting assembly, not including the support assembly. Lighting assemblies which include multiple unshielded or partially shielded lamps on a single pole or standard shall be considered a single luminaire.

Nuisance Lighting. Any excessive lighting causing glare, trespass, or pollution and constituting a nuisance as defined in Chapter 17 of the Middleton Code of Ordinances.

Opaque. Opaque means that a material does not transmit light from an internal illumination source. Applied to sign backgrounds, means that the area surrounding any letters or symbols on the sign either is not lighted from within, or allows no light from an internal source to shine through it.

Person. Any individual, tenant, lessee, owner, operator, or any public, private, nonprofit, or commercial entity including, but not limited to, firm, business, partnership, joint venture, association, corporation, municipality, agency, or governmental agency.

Security Lighting. Lighting for the safety of persons and property.

Sky Glow. The brightening of the night sky that results from the scattering of artificial visible radiation by the constituents of the atmosphere.

Spot Lamp. A specific type of lamp so designated by the manufacturer designed to direct its output in a specific direction and with a clear or nearly clear glass envelope.

Translucent. Permitting light to pass through but diffusing it so that persons, objects, etc., on the opposite side are not clearly visible.

Uniformity Ratio. A ratio describing the uniformity of light levels across an area expressed as the ratio of average to minimum light levels. Unless otherwise specified, uniformity ratios in this Chapter shall be average to minimum and measured according to a grid across the entire area to be lighted with each square measuring four feet by four feet.

Use, Abandonment of. The relinquishment of a property, or the cessation of a use or activity by the owner or tenant for a period of six months, excluding temporary or short term interruptions for the purpose of remodeling, maintaining, or otherwise improving or rearranging a facility. A use shall be deemed abandoned when such use is suspended as evidenced by the cessation of activities or conditions which constitute the principal use of the property.

Section 33.04: Applicability

- (1) **New Uses, Buildings, and Major Additions or Modifications.** No new land uses, developments, buildings, or structures nor any major additions or modifications to developments, buildings, or structures that require a building permit or other authorization from the City, shall be approved unless all outdoor lighting fixtures on the development parcel meet the requirements of this Chapter. A major addition or modification is any building addition or modification that increases by fifty (50) percent or

Section 33.05: General Outdoor Lighting Standards

more the number of dwelling units or gross floor area or parking spaces either with a single addition or with cumulative additions subsequent to the effective date of this Chapter.

- (2) **Minor Additions.** Additions or modifications of less than fifty (50) percent to existing uses as described in subsection (1) above, which include changes or additions to outdoor lighting and that require a permit, shall require the submission of a complete outdoor lighting inventory and site plan detailing all existing and any proposed new outdoor lighting. Any new lighting on the site shall meet the requirements of this Chapter. The site luminance as measured in footcandles after the modifications are complete shall not exceed that on the site before the modification, or that permitted by this Chapter, whichever is larger.
- (3) **Residential Fixtures.** Any new light fixtures 1,600 lumens and over, any new outdoor light fixtures above the eave, or any new light fixture attached to buildings or poles separate from the residence must comply with the provisions of this Ordinance. All new exterior lighting shall be light-emitting diode (LED) fixtures.
- (4) **Nonconforming Exterior Lighting.**
 - (a) **Abandonment of Use.** If a property or use with nonconforming lighting is abandoned as defined in Section 33.03, then all outdoor lighting shall be reviewed and brought into compliance with this Chapter before the use is resumed.
 - (b) **New Uses, Buildings, and Major Additions and Modifications.** If a property or use with nonconforming lighting is seeking a new use, building, or major addition and modification, all outdoor lighting shall be reviewed and brought into compliance with this Code, per subsection 33.04(1) above.
 - (c) **Minor Additions.** If a property or use with nonconforming lighting is seeking a minor addition, all new outdoor lighting shall be reviewed and brought into compliance with this Code, per subsection 33.04(2) above.
 1. Any existing outdoor lighting that did not meet the requirements of the ordinance at the time it was installed shall be considered nonconforming lighting and shall be brought into compliance with this Code during the Site Plan review and approval process.
 2. Any existing outdoor lighting proposed not to be altered by the minor addition shall be granted legal conforming status if the outdoor lighting met the requirements of the ordinance at the time it was installed.

Section 33.05: General Outdoor Lighting Standards

Except as otherwise expressly provided elsewhere:

- (1) **Fixtures and Luminaires.** All new outdoor lighting fixtures shall be shielded as follows:
 - (a) Outdoor lighting shall be full cut-off fixtures and downward facing and no direct light shall transmit onto adjacent properties.
 1. Exempt from this requirement are decorative light fixtures with frosted glass lamps, and any fixtures using a light bulb with a factory-rated light output of 1,600 lumens or less.
 - (b) Light fixtures shall not be located within required bufferyards or required minimum setbacks.
 - (c) The color and design of fixtures shall be compatible with the building and public lighting in the area, and shall be uniform throughout the entire development site.
 - (d) All new exterior lighting shall be light-emitting diode (LED) fixtures.
 - (e) The maximum fixture mounting height by zoning district (see Article II of the City of Middleton Zoning Ordinance, Chapter 10) shall be:
 1. 8 feet in the SR-L, SR-M, SR-H, TR-D, TR-F, and CON zoning districts

Section 33.05: General Outdoor Lighting Standards

2. 12 feet in the MH-D, MR-L, MR-M, MR-U, MR-H, and MU-N zoning districts
 3. 20 feet INST, MU-A, MU-U, MU-D, and PR zoning districts
 4. 30 feet in the I-L, R-P, I-M, I-H, AGR, IOS, IOC, EXD, and AIR zoning districts
- (f) All areas designated on required site plans for vehicular parking, loading, or circulation and used for any such purpose after sunset shall provide artificial illumination in such areas at a minimum intensity of 0.4 foot-candles.

(2) Intensity of Illumination.

- (a) In no instance shall an exterior lighting fixture be oriented so that the lighting element (or a clear shield) is visible from an adjacent property or right-of-way, outside of those lighting fixtures as specified in 33.05(1)(a) above. In no instance shall the amount of illumination attributable to exterior lighting, as measured at the property line, exceed 0.5 foot-candles above ambient lighting conditions on a cloudless night. Flashing, flickering and/or other lighting which may distract motorists are prohibited.
- (b) The maximum average on-site lighting in nonresidential zoning districts (see Section 10.02.02 of the City of Middleton Zoning Code, Chapter 10) shall be 2.5 foot-candles, unless otherwise specified in this Chapter.
- (c) The maximum average on-site lighting in residential zoning districts (see Section 10.02.02 of the City of Middleton Zoning Code, Chapter 10) shall be 1.0 foot-candles, unless otherwise specified in this Chapter.
- (d) Reflected glare into the sky or onto nearby buildings, streets, or pedestrian areas is prohibited.

(3) On-Building Lighting.

- (a) Building mounted lights shall be mounted and installed so that all light is directed downward, unless the lights are decorative lighting in which case the light shall be directed toward the building.
- (b) Fixtures shall be fully shielded.
- (c) No wall packs or similar lights shall be permitted unless the cutoff angle effectively eliminates visible glare from beyond the property lines.
- (d) No lights shall be mounted above the parapet, or for pitched roofs above the eave except for motion detection security lighting, decorative building lighting.
- (e) Functional lighting shall not exceed 400 watts. Decorative building or landscape lighting shall not exceed 100 watts.
- (f) The maximum light trespass allowed on adjacent properties is one-half (0.5) footcandles.
- (g) If swivel mountings are used, lights may be raised a maximum of twenty (20) degrees from horizontal and must be full cutoff fixtures.
- (h) Each exterior building entrance shall have an exterior light per the requirements of the City of Middleton Building Code (Chapter 11) and Electrical Code (Chapter 12).
- (i) For residential uses, exterior lighting with automatic controls shall be provided so that the house numbers are visible from the adjacent street and interior drive. For units with individual exterior entrances, such lighting shall be provided so that the unit numbers are visible to pedestrians on the sidewalk.
- (j) Exterior lighting with automatic controls shall be provided for all sidewalks and parking areas to provide safe travel between the parking areas and the building.

Section 33.05: General Outdoor Lighting Standards

- (k) Motion sensor lights shall be permitted, provided they comply with this Code, the City of Middleton Building Code (Chapter 11), and Electrical Code (Chapter 12).
- (4) **Public and Private Street Lighting.**
- (a) All public street lighting shall comply with this Chapter to the extent possible consistent with professionally acceptable traffic engineering standards.
 - (b) All new street lamps on public and private streets shall be fully shielded. This requirement shall not be construed to apply to the repair or replacement of an existing lamp unless part of a larger project including replacement of all street lamps in the project area.
 - (c) Public street lighting shall be approved by the Director of Public Works.
- (5) **Security Lighting.** Security lighting is a minimum amount of lighting required for all principal land uses in Article III of the Zoning Ordinance, except for Single-Family Dwelling Units, Mobile Homes, Duplexes, Twin Homes, and Two Flats in Section 10.03.06 (see the City of Middleton Zoning Code, Chapter 10). The purpose of security lighting is for the safety of persons and property.
- (a) Security lighting is required in all exterior/interior parking areas, service walk areas, and entrance/exits.
 - (b) All security lighting fixtures shall be shielded and aimed so that illumination is directed only to the designated area. In no case shall security lighting be directed above a horizontal plane through the top of the lighting fixture, and the fixture shall include shields that prevent the light source or lens from being visible from adjacent properties and roadways.
 - (c) Security lighting fixtures may be mounted on poles no higher than permitted in Section 33.05(1)(e) above and located no more than five (5) feet from the perimeter of the designated secure area.
 - (d) Security lights intended to illuminate a perimeter (such as a fence line) shall include motion sensors and be designed to be off unless triggered by an intruder located within five (5) feet of the perimeter.
 - (e) The maximum footcandles allowed on adjacent property is one-half (0.5).
 - (f) The minimum footcandles required for security lighting shall conform to the Illuminating Engineering Society of North America's (IESNA) recommendations and standards. Current IESNA standards shall be kept on file with the Zoning Administrator.
 - (g) Commercial and multi-family dwelling construction sites whether new, additions or remodeling shall install the minimum security lighting in accordance with IESNA recommendations and standards to safeguard the site and materials.
- (6) **Flag Illumination.** Flag lighting shall be shielded and down-directed.
- (7) All outdoor lighting fixtures, unless expressly exempted from the terms of this Code must be installed and maintained according to approved plans.
- (8) **Lighting Public Nuisance.** Nothing in this Chapter shall be construed to permit lighting that otherwise constitutes a public nuisance. Any lighting producing excessive glare, pollution, or trespass may be deemed a public nuisance under Chapter 17 of the Middleton Code of Ordinances or Wis. Stats. Chap. 823 subject to the remedies provided therein.

Section 33.06: Reserved**Section 33.07: Special Uses**

- (1) **Active Outdoor Recreation (Section 10.03.12(1)) and Intensive Outdoor Activity (Section 10.03.10(15)) Land Uses (see the City of Middleton Zoning Code, Chapter 10).**
 - (a) Lighting shall be set to automatically shut off when there is no scheduled play and shall be extinguished no later than permitted by the Zoning Administrator through the Site Plan review and approval process. Lower light levels for off the field lighting may be provided for an additional 1 hour for safe egress.
 - (b) The mounting height for light fixtures shall be no greater than one-fourth the distance to the nearest property line from where the light fixture is located and comply with the Airport Height Limit Overlay Zoning District (see Section 10.02.83 of the City of Middleton Zoning Code, Chapter 10).
 - (c) The maximum average allowable on-site lighting of outdoor recreation facilities and assembly areas is 4.0 foot-candles.
 - (d) Fully shielded lighting is required.
 - (e) Certification. Every such lighting system design and installation shall be certified by a qualified registered engineer as conforming to all applicable restrictions of this Code.
- (2) **Vehicle Sales (Section 10.03.10(23)) and Drive-Through and In-Vehicle Sales or Service (Section 10.03.10(9)) Land Uses (see the City of Middleton Zoning Code, Chapter 10).**
 - (a) Shielding. All display lot lighting shall utilize fully shielded luminaires that are installed in a fashion that maintains the fully shielded characteristics.
 - (b) Luminance. The display lot shall be designed to achieve no greater than the minimal luminance levels for the activity as recommended by the Illuminating Engineering Society of North America (IESNA). Current IESNA standards shall be kept on file with the Zoning Administrator.
 1. The maximum average on-site lighting of outdoor vehicle sales and gas station pump islands is 20.0 foot-candles, provided that lighting is dimmed to 3.0 foot-candles within 60 minutes after the business has closed. All under-the-canopy fixtures shall be fully recessed.
 - (c) Certification. Every display lot lighting system design and installation shall be certified by a qualified registered engineer as conforming to all applicable restrictions of this Ordinance.

Section 33.08: Lighting Plans

- (1) **Submittal Required.** Any application for site plan review pursuant to Section 10.10.43 of the Zoning Ordinance shall include evidence that the proposed work will comply with this Code. Any and all exterior lighting shall be depicted as to its location, orientation, and configuration on the site plan required for the development of the subject property. The installation or modification of any exterior lighting except for routine servicing and same-type lamp replacement shall require submission of the information described below. The evidence shall include but shall not necessarily be limited to the following:
 - (a) A catalog page, cut sheet or photograph of the lighting fixtures, including the mounting method.
 - (b) A photometric data test report of the proposed lighting fixture graphically showing the lighting distribution in all angles vertically and horizontally around the fixture.
 - (c) A plot plan showing the location of all outdoor lighting fixtures proposed, the mounting or installation height, the overall maintained illumination levels and uniformities, and the point

Section 33.09: Exemptions

where 0.5 horizontal footcandles occurs on the property or adjacent property at ground level. This may be accomplished by means of an isolux curve or computer printout projecting the illumination levels.

- (2) **Additional Submission.** The above required plans, descriptions and data shall be sufficiently complete to permit a determination that compliance with the requirements of this Code will be secured. If such plans, descriptions and data are insufficient to make the required determination, the applicant shall submit such additional evidence as necessary to enable such determination.
- (3) **Subdivision Plats.** If any subdivision proposes to have installed street or other common or public area outdoor lighting, submission of the information as described herein shall be required for all such lighting.
- (4) **Lamp or Fixture Substitution.** Should any outdoor light fixture or the type of light source therein be changed to a fixture or light source not substantially equal to the type of fixtures or light sources in the approved plan after the permit has been issued, a change request must be submitted to the Zoning Administrator or designee for approval, together with adequate information to assure compliance with this Code, which must be received prior to the change.
- (5) **Plan Review.** If the Zoning Administrator or designee determines that the proposed lighting does not comply with this Code, the permit shall not be issued, or the plan approved.
- (6) **Certification.** For all projects where the total initial output of the proposed lighting equals or exceeds 200,000 lamp lumens, certification that the lighting, as installed, conforms to the approved plans shall be provided by a certified lighting engineer, or other similarly qualified professional acceptable to the City, before the certificate of occupancy is issued. Until this certification is submitted, approval for use of a Certificate of Occupancy shall not be issued for the project.
- (7) **Fee.** All submittals for approval of lighting plans shall be accompanied by a fee per the City of Middleton's adopted fee schedule to cover costs of processing the application. In addition to this fee, the applicant shall be required to pay all City costs relating to staff or outside consultant review of the lighting plan. The scope of review and related cost may vary depending upon the size and complexity of the plan. An itemized invoice shall be sent to the applicant for all such costs which shall be paid within thirty (30) days. If not paid, such costs shall be placed on the tax roll against the applicable property as a special charge pursuant to Wis. Stats. § 66.0627.

Section 33.09: Exemptions

- (1) **Emergency Lighting.** Emergency lighting, used by police, firefighting, or medical personnel, or at their direction, is exempt from all requirements of this Code for as long as the emergency exists.
- (2) **Swimming Pool and Fountain Lighting.** Underwater lighting used for the illumination of swimming pools and fountains is exempt from the lamp type and shielding standards provided herein, though it must conform to all other provisions of this Code.
- (3) **Holiday Lighting.** See Section 33.03.
- (4) **Communication Towers.** Legally required safety lighting for communication towers per Section 10.03.20 of the City of Middleton Zoning Code, Chapter 10.
- (5) **Airfields and Airports.** Exemptions from this Code only apply to facilities required for aircraft landing and takeoff under Chapter 33 of the City of Middleton Municipal Code and as required by the Federal Aviation Administration (FAA) or State of Wisconsin. All other outdoor lighting on-site shall comply with the provisions of this Code.

Section 33.10: Prohibited Lighting

Section 33.10: Prohibited Lighting

- (1) Unless specifically authorized by the City as part of an approved special event permit (see Section 7.17 of the City of Middleton Municipal Code, Chapter 7), the following lighting shall not be permitted within the City of Middleton:
 - (a) Mobile or ground mounted searchlights, except those used for governmental or emergency purposes.
 - (b) Strobe lights and laser lights, including laser light shows and aerial laser lights.
 - (c) Neon lights.
 - (d) Flashing, blinking, flickering, scrolling, rotating, pulsating, tracing lights or revolving lighting, unless temporarily triggered by a security system and extinguished within 30 minutes after the time of security response.
 - (e) Lighting which is used to outline a building, structure, or window, including but not limited to rope, neon, and fluorescent tube lighting.
 - (f) Any light fixture that may be construed as or confused with a traffic signal, traffic control device or maritime navigational markers.
 - (g) Lighting that is determined by the City of Middleton Police Department to contribute to a condition of disabling or distracting glare into a public roadway.
 - (h) Lighting used to illuminate property other than that on which the fixture is located and which constitutes light trespass.

Section 33.11: Enforcement and Penalties

- (1) **Violations.** Any person found to have violated or caused a violation of this Code may be subject to enforcement action as provided in this section. Each day during which the violation continues shall constitute a separate offense. The City may institute appropriate action or proceedings to enjoin violations of this Code.
- (2) **Penalties.** Any person who fails to comply with the provisions of this Code shall, upon conviction thereof, forfeit no less than the fee required in the City of Middleton's adopted fee schedule.