

UZO 532 OUTDOOR LIGHTING All areas containing outdoor lighting, including but not limited to floodlighting, security lighting, area lighting, or parking lot lighting shall comply with the requirements of this chapter. Luminaires shall not be located closer to the property line than a distance equal to three times the fixture's mounting height above grade at the property line.

532.01 Definitions

- Axis of illumination, or centerline beam** - the midline of the primary beam of light emitted by a spotlight, floodlight or other fixture.
- Constant lighting** - a light fixture meant to operate continually, and not meant to operate only briefly upon activation by a motion sensor or other device. A motion detector activated light would be a non-constant light.
- Fixture** - The bulb and the assembly that holds the bulb (or lamp), in a lighting system, including the elements that provide light output control such as a reflector (mirror) or refractor (lens) and the ballast, photosensor, and housing.
- Flood light** - a luminaire or bulb which projects light in a specific direction in a wide beam, typically 100 degrees or more.
- Footcandle** - a measure of illumination striking a surface. Measured by a light meter.
- Full-cutoff (fco)** - a light fixture which cuts off all upward transmission of light
- Fully shielded** - a fixture with housing or attachment thereto which prevents a line of sight to the bulb when viewed from another property and which prevents a line of sight to any part of the light source at or above a horizontal plane running through the lowest portion of the fixture
- Gas discharge lamp** - family of bulb type that produces illumination by passing an electric current through gas. Includes low and high-pressure sodium, mercury vapor, metal halide and florescent.
- Glare** - discomfort experienced by an observer with a direct line of sight to a light source which often results in annoyance, discomfort or loss of visual performance causing visual impairment.
- HID lighting** - a family of bulb type known as high intensity discharge, including high-pressure sodium, mercury vapor, and metal halide.
- Horizontal (or vertical) foot-candles** - the amount of light striking a vertical or horizontal plane
- Inventory of lighting** - a list of fixtures relative to a parcel, indicating fixture cutoff design, location, and bulb type, wattage, and bulb manufacturer from which a lumen rating can be determined.
- IESNA** - Illuminating Engineering Society of North America
- Lamp** - the bulb.
- Light source** - source from which light emanates either directly from the bulb, or indirectly from a reflective enclosure, lens, or diffuser.
- Light trespass, or spillage** - light projected onto property or onto a right of way from another property.
- Lumen** - the unit used to measure the actual amount of light that is produced by a bulb as provided by the manufacturer. A 60-watt incandescent household bulb is usually 890 lumens. For the purposes of this ordinance, for HID lighting lumens means initial lumens.
- Lumen cap** - the specified maximum number of lumens allowed for an application of outdoor lighting.
- Luminaire** - the complete lighting unit, including the lamp, fixture, and other parts.
- Outdoor light** - a fixture which illuminates an exterior area. Includes lighting at locations such as under canopies, pavilions, or drive-through bays not fully enclosed such that the fixture or the illuminated area is visible from beyond the property line.
- Spotlight** - a fixture or bulb which projects light in a specific direction in a narrow beam, typically 45 degrees or less
- Floodlight** - a fixture or bulb which is intended to project light primarily in a broad directed beam, typically 100 degrees wide.

532.02 Light Trespass: All areas containing outdoor lighting shall limit light spillage onto adjacent property, when measured at any point along a property line to the requirements set forth below. Compliance shall be achieved by utilizing fixture shielding, directional control designed into fixtures, fixture location, height, or aim, or a combination of these or other factors.

| Adjoining Districts | Light Spillage Measured in Foot-Candles |
|--|---|
| R-1, R-2, R-3, R-4, B-1 Public right-of-way | 0.10 |
| B-2, B-3 | 0.20 |
| A-1, B-4, B-5, I-1, I-2 | 0.50 |
| | |

532.03 Illumination of Buildings and Other Vertical Structures: When buildings or other structures are illuminated, the design for the illumination must be in accordance with the following:

- A) The maximum illumination on any vertical surface or angular roof surface shall not exceed 1.0 foot-candle;
- B) Lighting fixtures shall be located and/or aimed such that light is directed only onto the building surface. All fixtures used to illuminate buildings shall be fully shielded;
- C) For statues, monuments, fountains, or other objects for which it may not be possible to reliably and consistently illuminate with downward lighting, upward lighting may be used only in the form of spotlights which confine the illumination to the object of interest; and
- D) If upward lighting is used to illuminate flags, only spotlights (1500 lumen maximum) shall be used; floodlights directed above the horizontal shall not be used to illuminate a flag.

532.04 Parking Areas: All lighting fixtures serving parking lots shall be full cutoff fixtures. The minimum illumination level for a parking lot shall be no more than 0.4 horizontal foot-candles at grade level and the ratio of the average illumination to the minimum illumination shall not exceed 4:1. Parking lot light fixtures shall be fully shielded from off site. Such shielding shall obstruct a line of sight to the bulb with an opaque material when viewed from the property line. Light poles used in lots designed to contain 100 vehicles or less shall not exceed twenty (20) feet in height.

532.05 Lighting of Exterior Display or Open Sales Areas: Areas designated as exterior display or open sales areas shall be illuminated so that the average horizontal illumination at grade level does not exceed 4.0 foot-candles, and the ratio of average to minimum illumination shall not exceed 4:1. The average and minimum shall be computed for only that area designated as exterior display or open sales area. Light fixtures shall be fully shielded from off site. Such shielding shall obstruct a line of sight to the bulb with an opaque material when viewed from the property line.

532.06 Lighting of Walkways, Bikeways, Parks and Playgrounds: Where special lighting is to be provided for walkways, bikeways, or parks, the following requirements shall apply:

- A) The walkway, pathway, or ground area shall be illuminated to a level of no more than 0.5 average horizontal foot-candles;

B) The vertical illumination levels at a height of five (5) feet above grade shall be no more than 0.5 average vertical foot-candles; and

C) Lighting fixtures shall be designed to direct light downward, and the initial output of light sources shall not exceed one thousand (1,000) lumens.

532.07 Lighting of Canopies, Bays, and Loading and Unloading Spaces:

A) The minimum horizontal illumination under canopies shall not exceed 5.0 foot-candles at grade level, and the average maintained horizontal illumination shall not exceed fifteen (15) foot-candles. The ratio of average to minimum illumination shall not exceed 4:1.

B) Areas used for parking or vehicle storage shall be illuminated in accordance with the requirements for Parking Lot Lighting.

C) Light fixtures mounted on or under canopy ceilings, in bays, and in loading and unloading spaces shall be full cutoff and fully shielded, unless indirect lighting is used whereby light is directed upward and then reflected down from the ceiling of the structure. In this case, light fixtures must be shielded so that direct illumination is focused exclusively on the ceiling of the structure.

D) Lights shall not be mounted on the top or sides of a canopy, and the sides of a canopy shall not be illuminated.

E) Lighting for drive-through bays must be fully shielded as if located outside

532.08 Outdoor Activity Facilities

A) Outdoor activity facilities may have unique lighting needs pertaining to the performing or playing area. A design plan for such a facility shall detail the lighting requirements of the performing or playing area and how unwanted glare, illumination of surrounding streets and properties, and nighttime atmospheric light pollution will be minimized.

B) Limits on light trespass appearing in 531.01 of this Chapter apply to such outdoor facilities. If floodlighting is used in place of full cutoff fixtures, the center beam shall be aimed below the horizontal plane at an angle not less than ½ the angular beam spread of the fixture. Glare shall be controlled by fixture design, location, and shielding, natural or positioned obstructions on the parcel where the facilities are located. Every such lighting system design and installation shall be certified by a registered engineer as conforming to all applicable restrictions of this Ordinance.

C) Except for professional or amateur events covered by televised broadcast, thirty (30) foot-candle horizontal illumination of the playing field or performing area shall not be exceeded. Parking facilities, walkways, and other lighting applications associated with venues for the outdoor activities covered herein shall conform to the requirements specified in the sections of this Ordinance applicable to those lighting applications.

532.09 Street Lighting: Unless street light fixtures of a particular period or architectural style are used, all new, repaired or replaced street lighting, whether public or private, shall utilize full cutoff fixtures. If street light fixtures of a particular period or architectural style are used then the maximum lumens generated by each fixture not designed or installed as full cutoff shall not exceed 2,000. In no case shall the resulting illumination exceed levels contained in the Recommended Practices published by the Illuminating Engineering Society of North America.

532.10 Neon Lighting: Light sources consisting of glass tubes filled with neon, argon, krypton, or other similar gas (hereafter referred to as “neon lighting”) are excluded from shielding and line-of-sight requirements, however such lighting shall be included in the light trespass requirements of UZO 531.01. For the purposes of this Ordinance, signs using neon lighting shall be considered internally illuminated signs and shall be subject to the requirements specified for internally illuminated signs in UZO 531.10 (C). Neon lighting shall not be considered as security lighting.

532.11 Sign Illumination

A) Whenever an external artificial light source is used to illuminate a sign, such source shall be fully shielded. A receptacle or device housing a permitted light source shall be top mounted and directed below the horizontal, except for ground-mounted signs no higher than six (6) feet which may be illuminated with ground-mounted or bottom-mounted lighting fixtures.

B) The average level of illumination on the vertical surface of an externally illuminated sign shall not exceed three (3) foot-candles, unless permitted ground-mounted or bottom-mounted lighting fixtures are used in which case the average level of illumination on the vertical surface of the sign shall not exceed two (2) foot-candles. No exposed bulb or lamp shall be used on the exterior surface of any sign so as to expose the face of the bulb, light or lamp to any public right-of-way or adjacent property.

C) Internally illuminated signs constructed with an opaque or colored background and lighter contrasting text or symbols are preferred; such construction shall be required for internally illuminated signs within six hundred (600) feet of a Residential District; the average level of illumination on the vertical surface shall not exceed three (3) foot-candles.

532.12 Other Outdoor Lighting

A) Outdoor lighting not otherwise specified in this Ordinance emitting more than 1200 lumens (except motion detector activated lighting) shall be full cutoff and fully shielded. Bulbs in outdoor light fixtures emitting from 600 to 1200 lumens may be installed in fixtures that are not full cutoff and may be visible from the property line, provided, however, such bulbs shall be frosted glass or covered by frosted glass or other similarly translucent material.

B) A spotlight or floodlight of less than 1800 lumens need not be full cutoff or fully shielded if its center beam is aimed at a point not beyond any property lines and no less than forty five (45) degrees below horizontal, is used for security lighting purposes only, and is motion detector activated and cycles off within five minutes after the cessation of motion within its field of view. Such security lighting shall not be activated by normal business or resident activity.

C) Tower or antenna lighting shall not be permitted unless required by the Federal Aviation Administration. Required lighting shall be of the lowest allowed intensity and red unless specifically forbidden under FAA requirements.

D) The use of search lights, laser lighting, or lights that pulse, flash, rotate or simulate motion for advertising or promotions is prohibited with the exception of grand openings that have obtained a permit.

532.13 Lighting Plan: Wherever a lighting plan is called for, such plan shall include the following:

- A) Lighting plan showing buildings, landscaping, parking areas, and the locations of all proposed exterior lighting fixtures, with designation of cutoff and/or shielded fixtures;
- B) A description of the outdoor light fixtures which may include but is not limited to manufacturer's catalog cuts, photometric report with candela distribution, drawings, and shielding information;
- C) Proposed mounting height of all exterior lighting fixtures;
- D) Analysis and illuminance level diagrams showing that the proposed installation conforms to the lighting level standards in this Ordinance; and
- E) For buildings to be illuminated in accordance with the requirements of this Ordinance, the applicant shall include drawings of all relevant building elevations showing the fixtures, the portions of the walls to be illuminated, the illuminance levels of the walls, and the aiming points for any remote light fixtures.