

ORDINANCE #12-2-2013A

AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF THE CITY OF MOUNT VERNON, IOWA, BY ADDING A NEW SECTION "OUTDOOR LIGHTING"

BE IT ENACTED by the City Council of the City of Mount Vernon, Iowa:

SECTION 1. NEW SECTION. The Code of Ordinances of the City of Mount Vernon, Iowa, is amended by adding a new Article in Chapter 165, numbered 11A, entitled "Outdoor Lighting", which is hereby adopted to read as follows:

ARTICLE 11A. OUTDOOR LIGHTING REGULATIONS

Title	Street Lighting
Purpose and Intent	Recreational Facilities
Definitions	Special Light Sources
General Regulations	Exemptions
Light Trespass	Grandfathering of Nonconforming
Control of Glare - Luminaire Design	Luminaires
Buildings and Vertical Structures	Development Permits
Parking Lot and Walkway Lighting	Variance
Lighting of Exterior Display & Sales	Field Verification
Areas	Penalties
Canopy Lighting	

TITLE.

This Article shall be known as the "City of Mount Vernon Outdoor Lighting Regulations," is referred to as the "Lighting Regulations" or "Lighting Ordinance" when a shortened title is necessary.

1101 PURPOSE AND INTENT.

To protect and preserve the rights, privileges and property of the City's residents, and to preserve and improve the peace, safety, health, welfare, comfort and convenience of its residents, the provisions of this chapter are intended to minimize glare, and light trespass and establish regulations for outdoor lighting in the zoning districts: Town Center, Limited Commercial, General Commercial, Business Park, Light Industrial, Agricultural, and Urban Corridor (also known as Mixed Use Corridor). All outdoor recreation facilities including the recreation facilities of the City of Mount Vernon, Cornell College and Mount Vernon Community School District are also covered by this Ordinance. This Ordinance does not include areas zoned as residential. All outdoor

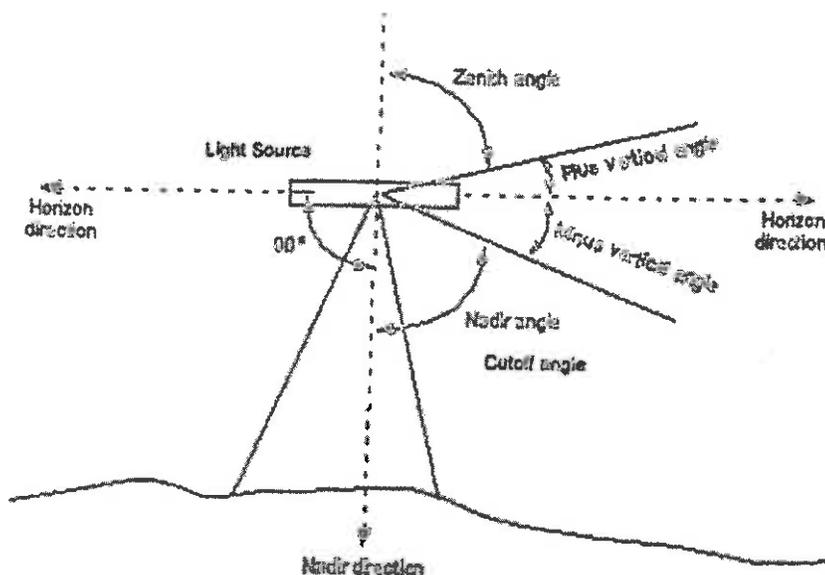
lighting shall be installed with the idea of being a "good neighbor," to keep unnecessary direct light from shining onto abutting properties or streets.

This chapter is not intended to provide a dark sky ordinance, but instead encourages lighting practices that will reduce light pollution referenced and defined as over illumination, glare, light trespass and sky glow. It also sets standards for outdoor lighting so that its use does not interfere with the reasonable use and enjoyment of property within the City. It is recognized that this Chapter might need to be revised to accommodate lighting designs and fixtures that are newly developed after the adoption of this Chapter.

1102 DEFINITIONS.

For the purposes of this ordinance, terms used shall be defined as follows:

- a. After Hours Lighting – Standard light levels during the hours of 10 p.m. and 6 a.m. through the means of a control system or systems for outdoor general area lighting.
- b. Average light level – the overall average of all points on the surface of the illuminated area including the brightest and dimmest points.
- c. Candlepower – luminous intensity of a light in a specified direction measured in candelas (cd) (e.g., an ordinary wax candle has a candlepower of one candela).
- d. Cut Off Angle (of a luminaire) - the angle, measured up from nadir, between the vertical axis and the first line of sight at which the light source is not visible, displayed as follows:



e. Cutoff Fixture – a luminaire, which has a light distribution where the candlepower does not exceed 2.5% of the lamps' rated initial lumen output at an angle of 90 degrees above nadir, and does not exceed 10% of the lamps' rated initial lumen output at a vertical angle of 80 degrees above nadir. This applies to all lateral angles around the luminaire.

f. Color Rendering Index (CRI) – a measurement comparing the color of an object under a light source to a reference light source of comparable temperature. CRI values generally range from 0 – 100. As the CRI approaches 100, the color of the lit object becomes truer or closer to the original color. See Appendix for chart.

g. Foot-candle (fc) – a unit of illumination when one lumen is evenly distributed on a one square foot area.

h. Forward Throw – any down light luminaire whose distribution pattern is Type IV (as defined by the IESNA). These luminaires have minimal backlight effect thereby reducing light trespass.

i. Full Cutoff Fixture – a luminaire, which has a light distribution where the candlepower does not exceed 0% of the lamps' rated initial lumen output at an angle of 90 degrees above nadir, and does not exceed 10% of the lamps' rated initial lumen output at a vertical angle of 80 degrees above nadir. This applies to all lateral angles around the luminaire.

j. Glare – An extreme contrast between bright and dark areas in the field of view.

k. Horizontal foot-candles – the amount of light being received on a horizontal surface such as roadway or parking lot pavement, measured at the target surface.

l. HID – High Intensity Discharge lamps.

m. IESNA – the Illuminating Engineering Society of North America.

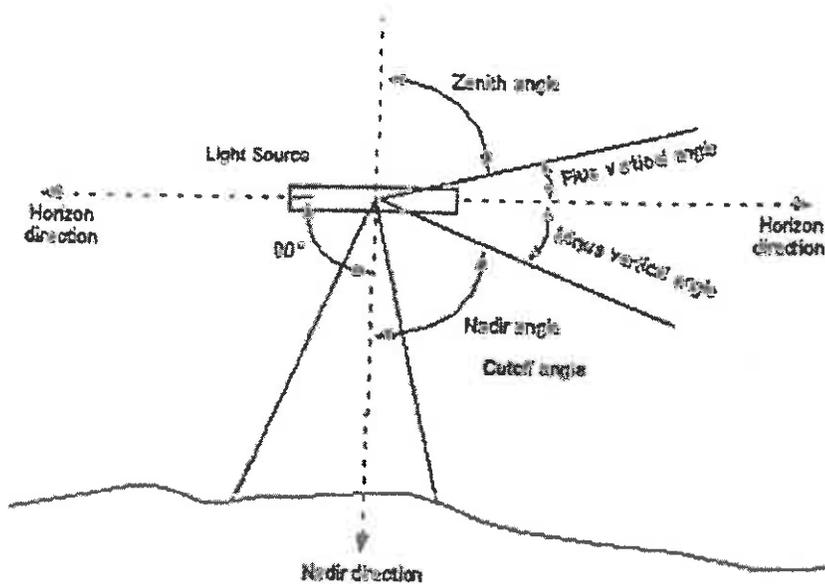
n. Illuminance – lumens per unit area of incident on a surface, measured in Foot-candles (1fc = 1 lm/sf).

o. Illumination – an alternative term for illuminance most commonly used to avoid confusion between illuminance and luminance. (e.g., it can be used in a qualitative sense to designate the act of illuminating or quantitatively by stating level of illumination).

p. Initial Lumens – Lumens rating for a brand new light bulb (light output diminishes over the life of a bulb).

q. Light Trespass – light falling beyond the intended target area where the light is not wanted or needed, including by way of illustration, but not necessarily limited to, across property boundaries.

- r. Lumen – (lm) a measure of light energy generated by a light source. (e.g., 1800 lumens is the approximate equivalent to a 100 watt incandescent bulb).
- s. Luminaire – a complete lighting unit consisting of a lamp or lamps together with the components designed to distribute the light, such as reflectors, refractors, lenses, etc.
- t. Luminance – the luminous intensity of a surface in a given direction per unit of projected area. (e.g., candela/SF). This is not to be confused with ILLUMINANCE. See candlepower definition.
- u. Maximum light levels – the brightest point on the surface of the illuminated area.
- v. Minimum light levels – the dimmest point on the surface of the illuminated area.
- w. Mounting Height – the vertical distance from the face of the luminaire to the surface area intended to be lit.
- x. Nadir – the vertical line projecting downward to the ground from the center of the lens of a luminaire, displayed as follows:



- y. Over Illumination: The light level in excess of the standard light set forth in this Ordinance.
- z. Sky Glow: The “glow” effect that is visible above highly illuminated areas.
- aa. Standard Light Levels – maximum light level approved for the property.
- bb. Uniformity ratio – the ratio of average illumination to minimum illumination within a given area.
- cc. Vertical foot-candles – the amount of light being received on a vertical surface such as a billboard or building facade, measured at the target surface.

1103 GENERAL REGULATIONS.

- a. After Hours Lighting. The standard light levels between the hours of 10:00 p.m. and 6:00 a.m. shall be reduced by 60%. Businesses open between 10:00 p.m. and 6:00 a.m. are exempt, however they must comply with the requirements of this chapter within one hour after closing. For the purposes of security, businesses may install motion detectors to allow the temporary increase of illumination to the before 10:00 p.m. level.
- b. Mounting Heights. The luminaire mounting height shall be limited to a maximum of fifteen (15) feet in Town Center and Urban Corridor or when placed within 50 feet of a residential zoning district. In all other zoning districts, luminaire mounting height shall not be more than thirty (30) feet with the exception of sports lighting which shall follow IESNA guidelines.
- c. Light Sources. The use of incandescent lamps or low pressure sodium mercury vapor HID lamps shall not be permitted for outdoor lighting.

1104 LIGHT TRESPASS.

- a. When a light source originating on a legally described parcel of land with one of the following zoning designations (TC, LC, GC, BP, LI, AG) is adjoining a legally described parcel of land with one of the following zoning designations (RR, SR, TR, or UC), the illumination at adjoining property lines shall not exceed 0.5 horizontal foot-candles and 2.0 vertical foot-candles.
- b. When a light source originating on a legally described parcel of land with one of the following zoning designations (TC, LC, GC, BP, LI, AG, or HR) is adjoining a legally described parcel of land with one of those same zoning designations (TC, LC, GC, BP, LI, AG, or HR), the illumination at adjoining property lines shall not exceed 1.0 horizontal foot-candles and 4.0 vertical foot-candles.
- c. When a light source originating on a legally described parcel of land with the following zoning designations (UC) is adjoining a legally described parcel of land with that same zoning designation (UC), the illumination at adjoining property lines shall not exceed 0.5 horizontal foot-candles and 1.0 vertical foot-candles.

d. Compliance Methods: Methods of complying with the requirements include, by way of illustration, but are not necessarily limited to, fixture shielding, directional control designed into the fixture, fixture location, fixture height, and fixture aim.

1105 CONTROL OF GLARE - LUMINAIRE DESIGN. Any luminaire rated at more than 1800 lumens, shall be a full cut-off fixture with the exception of those used for lighting recreational facilities.

1106 BUILDINGS AND VERTICAL STRUCTURES. Luminaires intended to illuminate buildings and other vertical structures, excluding signs (see Mount Vernon Sign Ordinance) shall:

- a. Be located within five (5) feet of the building or vertical structure that is being illuminated and be aimed in any direction;
- b. Not allow illumination to extend beyond the intended building or vertical structure;
- c. Not exceed an average maintained vertical foot candle measurement of ten (10); and
- d. Not have a vertical foot candle measurement that exceeds thirty (30).

1107 PARKING LOT AND WALKWAY LIGHTING. Full-cutoff luminaires must be used in parking areas, along internal streets, and along pedestrian ways. To promote a unified development theme, historic luminaires (also referred to as period lighting) may be used as an alternate if they have built-in reflectors that effectively eliminate upright. Except as provided in this ordinance, all other luminaires must be directed downward and the light source must be shielded so that it is not visible from any adjacent property.

a. Maximum average lighting levels. Average lighting levels must not exceed the standards provided for in Table 1. Standards for Foot-Candles (below). For those areas not specified, the Planning and Zoning Commission must work with the applicant to set an appropriate level on a case-by-case basis in keeping with the intent of this ordinance.

Table 1. Standards for Horizontal Foot-Candles

Land Use	Minimum Average Foot Candles	Maximum Average Foot Candles
Pedestrian areas/sidewalks	0.2	5.0
Building Entries	1.0	10.0
Parking areas w/ high nighttime activity	2.0	4.0
Parking areas w/ low nighttime activity	0.2	2.0

b. Maximum uniformity ratio. In all parking areas and along sidewalks and other pedestrian walkways, a uniformity ratio of 6:1 or lower (i.e. 4:1) must be maintained. The intention is to remove extreme light or dark areas.

c. Color or light – Kelvin Range. In all parking areas and along sidewalks and other pedestrian walkways, lighting must measure between 3500-4500 Kelvin.

d. Lighting along walkways should be mounted no more than 12 feet above the walkway. Parking lot lighting in town center and urban corridor must be mounted no more than 15 feet above the surface of the parking lot.

1108 LIGHTING OF EXTERIOR DISPLAY/SALES AREAS. Lighting levels on exterior display/sales areas shall be adequate to facilitate the activities taking place in such locations. The applicant shall designate areas to be considered display/sales areas and areas to be used as parking or passive vehicle storage areas. This designation must be approved by the Zoning Administrator.

a. Areas designated as parking or passive vehicle storage areas shall be illuminated in accordance with the requirements for parking areas in parking lot and walkway lighting #2.

b. Areas designated as exterior display/sales shall be illuminated so that the average horizontal illuminance at grade level is no more than thirty (30) foot-candles.

1109 CANOPY LIGHTING. Lighting associated with a canopy used for a vehicular shelter must meet the following standards:

a. Luminaires beneath a canopy must be either a full-cutoff luminaire or mounted so the luminaire or lens, whichever is lower, does not project below the bottom of the canopy surface.

b. The sides or top of the canopy must not be illuminated, except as permitted by the Mount Vernon Sign Ordinance.

c. Lighting installed beneath a canopy must be pointed downward and substantially confined to the ground surface directly beneath the perimeter of the canopy.

d. Areas around the pump islands and under canopies shall be illuminated so that the minimum horizontal illuminance at grade level is at least 1.0 foot-candle and no more than 5.5 foot candles. The uniformity ratio shall be no greater than 4:1, which yields an average illumination level of no more than 22.0 foot candles.

e. Lighting beyond the perimeter of the canopy must be consistent with the lighting standards for parking areas.

1110 STREET LIGHTING. Street lighting owned, operated, maintained or leased by the City of Mount Vernon shall be exempt. The City Council may establish via resolution guidelines for public lighting.

1111 RECREATIONAL FACILITIES.

a. Lighted recreational facilities shall satisfy the requirements set forth in the most current editions of the Illuminating Engineering Society of North America (IESNA) RP-6 Recommended Practice for Sports and Recreational Area Lighting and the IESNA

1112 SPECIAL LIGHT SOURCES.

- a. Laser Source Light. The use of laser source light or any similar high intensity light is prohibited.
- b. Towers. Lighting on towers is prohibited except as required by regulations of the Federal Aviation Administration.
- c. Searchlights. The operation of searchlights for advertising is prohibited.

1113 EXEMPTIONS.

- a. All temporary emergency lighting needed by the Police or Fire Departments or other emergency services, as well as all vehicular luminaires, shall be exempt from the requirements of this chapter.
- b. All hazard-warning luminaires required by Federal regulatory agencies are exempt from the requirements of this chapter.
- c. A building or structure that has been designated for historic preservation by the City of Mount Vernon, the State of Iowa, or the Federal Government shall be exempt from the full cutoff fixture requirements.
- d. Any federal, state or local laws that conflict with this Ordinance shall take precedence over the conflicting provisions of this Ordinance.

1114 NONCONFORMING LUMINAIRES.

- a. A luminaire which was lawful before the passage or amendment of this Ordinance, but which is not in conformity with the provisions of this Ordinance, may be continued subject to the following conditions:

There shall be no change in use or lamp type, or any replacement (except for same type and same-output lamp replacement) or structural alteration made, without conforming to all applicable requirements of this Ordinance. If more than fifty percent (50%) of the luminaires on a parcel of property are being replaced within a twelve (12) month period of time, such replaced luminaires must comply with the provisions of this Ordinance even if the replacements are of the same type and same output. Further, if the use of the property is discontinued for six consecutive months, or if there is a change in use of the property, the provisions of the Ordinance will apply.

- b. Expansion and redevelopment. The provisions of this ordinance apply to the entire building/structure, parking area, or use, under the following conditions:
 - 1. When a building or structure is expanded in size by 25 percent or more;
 - 2. When the area of a parking area is expanded by 25 percent or more;
 - 3. When an outdoor use (e.g., outdoor storage, vehicle sales) is expanded by 25 percent or more; or
 - 4. Any other activity subject to site plan or subdivision review.

All lighting fixtures in zoning districts, other than residential, that are capable of being aimed, must be aimed in a manner that complies with this ordinance within one year of enactment of this ordinance.

1115 OUTDOOR LIGHTING PERMITS.

a. Submission Contents. The applicant for any permit or site plan required by any provision of the ordinances of the City of Mount Vernon involving non-residential outdoor lighting shall submit one outdoor lighting plan for operating hours, and one outdoor lighting plan for after-hours lighting (as part of the application for site plan or permit). Each outdoor lighting plan must provide evidence the proposed work or activity will comply with this chapter. The outdoor lighting plans shall be submitted to the Zoning Administrator for approval and issuance of an outdoor lighting permit. The outdoor lighting plans shall include:

1. Plans indicating the location, and the type of illuminating devices, fixtures, lamps, supports, reflectors, and other devices;
2. A detailed description of the illuminating devices, fixtures, lamps, supports, reflectors, and other devices. The description shall include manufacturer's catalog cuts and drawings, including sections when requested; and
3. A point-by-point foot-candle array, photometric data, such as that furnished by manufacturers, showing the angle of the designed full cutoff, aiming angle and light emissions.

b. Additional Submission. The above required plans, descriptions and data shall be sufficiently complete to enable the Zoning Administrator to readily determine whether compliance with the requirements of this chapter will be satisfied. If such plans, descriptions and data do not enable the Zoning Administrator to make this determination, the applicant shall additionally submit certified reports of tests proving compliance. Such tests shall have been performed and certified by a recognized testing laboratory.

c. Luminaire Substitution. Should any outdoor light fixture, or the type of light source therein, be changed after an outdoor lighting permit has been issued, a change request must be submitted to the Zoning Administrator for approval, together with adequate information to assure compliance with this chapter, which must be received prior to substitution.

1116 FIELD VERIFICATION.

If access to private property is not possible or practical, light level measurements may be made at the boundary of the public street right-of-way that adjoins the property or at any other location on the property. All measurements shall be made at ground level. Horizontal measurements shall be taken with the meter held parallel to the ground pointing up. Vertical measurements shall be taken with the meter oriented towards the

brightest light bank. The meter shall have cosine and color correction and have an accuracy tolerance of no greater than plus or minus five percent (5%). Light levels are specified, calculated and measured in foot candles (FC). All FC values are initial foot candles.

SECTION 2. REPEALER. All ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

SECTION 3. SEVERABILITY CLAUSE. If any section, provision or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

SECTION 4. WHEN EFFECTIVE. This ordinance shall be in effect from and after its final passage, approval and publication as provided by law.

First reading on the 2nd day of December, 2013.

Second reading on the 9th day of December, 2013.

Third and final passage on the _____ day of _____, 2013.

SCOTT C. PETERSON, MAYOR

ATTEST:

SUE RIPKE, ASSISTANT CITY ADMINISTRATOR/CLERK

I certify that the foregoing was published as Ordinance No. _____ in the Mount Vernon Sun on the _____ day of _____, 2013.

SUE RIPKE, ASSISTANT CITY ADMINISTRATOR/CLERK