

Ordinance No. 2002-11

AN ORDINANCE AMENDING TITLE 15 OF THE SANDY MUNICIPAL CODE ADOPTING CHAPTER 15.04 REGULATING OUTDOOR LIGHTING ON PUBLIC AND PRIVATE PROPERTY [File 02-017 Dark Skies].

The City of Sandy finds as follows:

WHEREAS, the people who live in and near Sandy value the natural environment, including the beauty and high quality of the night sky; and,

WHEREAS, unnecessary and improperly designed light fixtures cause glare, light pollution and wasted resources; and,

WHEREAS, these regulations for exterior lighting will not sacrifice the safety of our citizens or visitors, or the security of property, but instead will result in safer, efficient and more cost-effective lighting.

WHEREAS, this proposed ordinance is to regulate outdoor lighting for the purposes of: improving night-time public safety and security; promoting energy efficiency; and mitigating lighting which is detrimental to the environment or to public use and enjoyment of public and private property; and

WHEREAS, the City Council finds night sky is an important aspect of our environment, that it is essential for the city to regulate the use of outdoor light fixtures, and that it is in the best interest of the City that a Dark Skies Ordinance be adopted.

NOW, THEREFORE, THE CITY OF SANDY DOES ORDAIN AS FOLLOWS:

Section 1: Chapter 15.04, entitled "**Outdoor Lighting on Public and Private Property**" is hereby created as part of the City of Sandy Municipal Code.

Section 2. All remaining provisions of Title 15 of the Sandy Municipal Code are reaffirmed in their entirety.

THIS ORDINANCE ADOPTED BY THE COMMON COUNCIL AND APPROVED BY THE MAYOR THIS 15th DAY OF JULY, 2002.

Linda K. Malone, Mayor

Date Signed: _____

ATTEST:

Larry Stohosky
City Recorder

Ordinance 2002- 11

AN ORDINANCE REGULATING OUTDOOR LIGHTING. THIS ORDINANCE, SHALL BE KNOWN AND MAY BE CITED AS THE SANDY DARK SKY ORDINANCE.

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15.04.000 PURPOSE

The purpose of the Sandy Dark Sky Ordinance is to regulate outdoor lighting in order to reduce or prevent light pollution. This means to the extent reasonably possible the reduction or prevention of glare and light trespass, the conservation of energy, and promotion of safety and security.

15.04.010 DEFINITIONS

The "IES" (Illuminating Engineering Society of North America) Lighting Handbook, most recent edition, the City of Sandy Development Code, and Building Code, shall be used for the definition of terms used in this ordinance but not defined herein. In the case where a definition of a term of this ordinance is found to be in conflict with a definition of a term of any other ordinance, "IES" handbook or regulation, the more restrictive definition will apply.

Area Light: Light that produces over 2050 lumens (See Table 2 for Light Output of Various Lamps). Area lights include, but are not limited to, street lights, parking lot lights and yard lights.

Automatic timing device: A device that automatically controls the operation of a light fixture or fixtures, circuit or circuits. Photocells and light and or motion sensors shall be considered automatic-timing devices

Average Footcandle: The level of light measured at an average point of illumination between the brightest and darkest areas. The measurement can be made at the ground surface or at four to five feet above the ground.

Bulb: The source of electric light. To be distinguished from the whole assembly (See Luminaire).

Candela (cd): Unit of luminous intensity.

Eighty-five (85) Degree Full Cut-Off Type Fixtures: Fixtures that do not allow light to escape above an 85-degree angle measured from a vertical line from the center of the lamp extended to the ground.

Exterior Lighting: Temporary or permanent lighting that is installed, located or used in such a manner to cause light rays to shine outside. Fixtures that are installed indoors that are intended to light something outside are considered exterior lighting for the intent of this Ordinance.

Fixture: The assembly that holds the lamp in a lighting system. It includes the elements designed to give light output control, such as a reflector (mirror) or refractor (lens), the ballast, housing, and the attachment parts.

Flood Light: Light that produces up to 1800 lumens (See Addendum 1 for Light Output of Various Lamps) and is designed to "flood" a well-defined area with light. Generally, floodlights produce from 1000 to 1800 lumens.

Foot-candle: Illuminance produced on a surface one foot from a uniform point source of one candela. Measured by a light meter.

Full cutoff fixture: A fixture which, as installed, gives no emission of light above a horizontal plane.

Glare: Intense light that results in discomfort and/or a reduction of visual performance and visibility.

Holiday Lighting: Festoon type lights, limited to small individual bulbs on a string, where the output per bulb is no greater than 15 lumens.

IESNA - Illuminating Engineering Society of North America (IES or IESNA): The professional society of lighting engineers, including those from manufacturing companies, and others professionally involved in lighting.

Illuminance: Density of luminous flux incident on a surface. Unit is foot-candle or lux.

Illuminating devices:

1. Light fixture types
 - a. Full cutoff fixture types - A fixture which, as installed, gives no emission of light above a horizontal plane.
 - b. Floodlights and Spotlights - Fixtures defined as having a full beam width or beam spread of less than 110 degrees.
2. Lamp types
 - a. Incandescent lamps - Lamps which produce light via an electrically heated metallic filament.
 - b. Fluorescent lamps - Lamps that use fluorescence of a phosphor to produce visible light.

- c. High Intensity Discharge Lamps - Lamps, which produce visible light directly by the electrical heating or excitation of a gas. Examples of such lighting include, but are not limited to, Metal Halide, High Pressure Sodium, Low Pressure Sodium and Mercury Vapor. For purposes of this Ordinance, fluorescent lights are not considered HID lighting.

Lamp or Bulb: The light-producing source installed in the socket portion of a luminaire.

Light Pollution: Any adverse effect of manmade light including, but not limited to, light trespass, uplighting, the uncomfortable distraction to the eye, or any manmade light that diminishes the ability to view the night sky. Often used to denote urban sky glow.

Light trespass: Light emitted by a luminaire falls where it is not wanted or needed or shines beyond the property on which the luminaire is installed.

Lighting: Any or all parts of a luminaire that function to produce light.

Lumen: Unit of luminous flux; the flux emitted within a unit solid angle by a point source with a uniform luminous intensity of one candela. One foot-candle is one lumen per square foot. One lux is one lumen per square meter.

Luminaire: The complete lighting unit, including the lamp, the fixture, and other parts.

Luminance: At a point and in a given direction, the luminous intensity in the given direction produced by an element of the surface surrounding the point divided by the area of the projection of the element on a plane perpendicular to the given direction. Units: candelas per unit area. The luminance is the perceived brightness that we see, the visual effect of the illuminance, reflected, emitted or transmitted from a surface.

Measurement:

1. Lamp output
 - a. Total output: Measurement of total output is in lumens. This should be understood to be the initial lumen value for the lamp.
 - b. Illuminance: Measurements of illuminance are expressed in initial lumens per square foot. (A desktop illuminance of twenty (20) initial lumens per square foot is adequate for most purposes.)

In measuring illuminance, the light detector should be pointed directly at the light source or sources. The intervening light path should be free of obstruction.

Outdoor light fixture: An outdoor illuminating device, outdoor lighting or reflective surface, luminous tube, lamp or similar device, permanently installed or portable, used for illumination, decoration, or advertisement. Such devices shall include, but are not limited to lights used for:

- A. parking lot lighting;
- B. roadway lighting;
- C. buildings and structures;

- D. recreational areas;
- E. landscape lighting;
- F. billboards and other signs (advertising or other);
- G. product display area lighting;
- H. building or structure decoration;
- I. building overhangs and open canopies.

Recessed: When a light is built into a structure or portion of a structure such that the light is fully cut-off and no part of the light extends or protrudes beyond the underside of a structure or portion of a structure.

Partially Shielded: The bulb of the fixture is shielded by a translucent siding and the bulb is not visible at all. Light may be emitted at the horizontal level of the bulb.

Shielded: When the light emitted from the fixture is projected below a horizontal plane running through the lowest point of the fixture where light is emitted. The bulb is not visible with a shielded light fixture, and no light is emitted from the sides of the fixture. Also considered a full cut-off fixture.

Spotlight or Floodlight: Any lamp that incorporates a reflector or a refractor to concentrate the light output into a directed beam in a particular direction (see definition for floodlight).

Temporary Lighting: Lighting that is intended to be used for a special event for seven (7) days or less.

Uplighting: Lighting that is directed in such a manner as to shine light rays above the horizontal plane.

15.04.020 SCOPE & APPLICABILITY

- A. New Lighting. All exterior outdoor lighting installed after the effective date of this Chapter in any and all zones in the City shall conform with the requirements established by this Chapter and other applicable ordinances unless otherwise exempted. This ordinance does not apply to indoor lighting.
- B. Existing Lighting. All existing lighting located on a subject property that is part of an land use application or building permit, dependent on the value of the project, shall be brought into conformance with this Ordinance. The value of the project will determined in accordance with Chapter 15.20.040 and 15.20.050. If the value exceeds the threshold in Chapter 15.20.020 and 15.20.030, all lighting on the property must be brought into full compliance before reoccupation or reuse.
- C. Nonconforming Uses or Structures. If a nonconforming use or structure has been abandoned for more than twelve months all lighting on the property must be brought into full compliance before reoccupation or reuse.

- D. Conformity shall occur prior to issuance of Certificate of Occupancy, Final Inspection, or Final Plat Recordation, when applicable. For other permits, the applicant shall have a maximum of thirty days from date of permit issuance to bring the lighting into conformance.
- E. Preferred Source - Low-pressure Sodium (LPS) lamps are the preferred illumination source throughout the city and their use is encouraged.
- F. When an existing fixture is replaced, the replacement fixture shall meet the requirements of this chapter.
- G. Architectural design, site planning, landscaping and lighting may be further restricted elsewhere in the Sandy Municipal Code.
- H. All governmental agencies, federal, state or county, which operate within the city limits of Sandy - should experience no difficulty meeting the requirements of this ordinance and are encouraged by the city to comply with its provisions.
- I. In the event of a conflict with any other chapter of the Sandy Municipal Code, the more stringent requirement shall apply.

15.04.030 EXEMPTIONS AND EXCEPTIONS

- A. Residential fixtures consisting of lamp types of 2050 lumens and below (the acceptability of a particular light is decided by its lumen output, not wattage. Check manufacturer's specifications). Examples include:
 - 1. 100 Watt Standard Incandescent and less
 - 2. 100 Watt Midbreak Tungsten-Halogen (quartz) and less
 - 3. 25 Watt T-12 Cool White Fluorescent and less
 - 4. 18 Watt Low Pressure Sodium and less
- B. Federally funded and state funded roadway construction projects, are exempted from the requirements of this division only to the extent it is necessary to comply with federal and state requirements.
- C. Fossil Fuel Light. Fossil fuel light produced directly or indirectly by the combustion of natural gas or other utility-type fossil fuels is exempt from the provisions of this article.
- D. Full cutoff street lighting, which is part of a federal, state, or municipal installation.
- E. Holiday lighting.
- F. Lighting of sports facilities or stadiums prior to 11:00 p.m. Illumination after 11:00 p.m. is also permitted if it is necessary in order to conclude a recreational, sporting or other scheduled activity, which is in progress prior to that time.

G. Specialized lighting necessary for safety, such as navigated or runway lighting of airports, or temporary lighting associated with emergency operations, road hazard warnings, etc.

H. Traffic control signals and devices.

15.04.040 APPROVED MATERIALS AND METHODS OF INSTALLATION

The provisions of this chapter are not intended to prevent the use of any design, material or method of installation or operation not specifically prohibited by this chapter, provided such alternative design, material or method conforms with the intent of this division and has been approved by the building official.

The Building Official administrator may approve an alternative design provided he finds that:

A. It complies with the applicable specific requirements of this division; or

B. It has been designed or approved by a registered professional engineer and complies with the purpose of this division.

15.04.050 SUBMITTALS

All applications for building permits or land use planning review which include installation of outdoor lighting fixtures shall include lighting plans conforming to the provisions of this Ordinance. The Planning Director and/or Building Official shall have the authority to request additional information in order to achieve the purposes of this Ordinance.

A. The submittal shall contain the following information and submitted as part of the site plan to the Planning and Building departments for approval.

1. Plans indicating the location, type, intensity, and height of luminaries including both building and ground-mounted fixtures;
2. A description of the luminaries, including lamps, poles or other supports and shielding devices, which may be provided as catalogue illustrations from the manufacturer;
3. Photometric data, such as that furnished by the manufacturer, showing the angle of light emission and the foot-candles on the ground; and
4. Additional information as may be required by the city in order to determine compliance with this Ordinance.

B. Applications for single/multi-family residential or other projects where any single outdoor light fixture exceeds (2050 lumens output) shall be required to comply with paragraph A above.

15.04.060 GENERAL STANDARDS

The following general standards shall apply to all outdoor lighting installed after the effective date of this ordinance, which is not exempted above:

- A. Area Lights: All area lights, including street lights and parking area lighting, shall be full cut-off fixtures and are encouraged to be eighty-five (85) degree full cut-off type fixtures. Street lights shall be high-pressure sodium, low-pressure sodium, or metal halide, unless otherwise determined by the city that another type is more efficient. Street lights along residential streets shall be limited to a 70-watt high-pressure sodium (hps) light. Street lights along nonresidential streets or at intersections shall be limited to 100 watts hps, except that lights at major intersections on state highways shall be limited to 200 watts hps. If the city permits a light type other than high-pressure sodium, then the equivalent output shall be the limit for the other light type.
- B. Canopy Lights: All lighting shall be recessed sufficiently so as to ensure that no light source is visible from or causes glare on public rights-of-way or adjacent property.
- C. Illumination Levels: Illumination levels and uniformity shall be in accordance with current recommended practices of the Illuminating Engineering Society. Recommended standards of the illuminating engineering society shall not be exceeded.
- D. All outdoor lighting systems shall be designed and operated so that the area 10 feet beyond the property line of the premises receives no more than .25 (one quarter) of a foot-candle of light from the premises lighting system.
- E. Temporary Lighting: Temporary lighting that conforms to the requirements of this Ordinance shall be allowed. Nonconforming temporary exterior lighting may be permitted by the Building Official only after considering 1) the public and/or private benefits which will result from the temporary lighting; 2) any annoyance or safety problems that may result from the use of the temporary lighting; and, 3) the duration of the temporary nonconforming lighting. The applicant shall submit a detailed description of the proposed temporary nonconforming lighting to the Building Official.
- F. Towers: All radio, communication, and navigation towers that require lights shall have dual lighting capabilities. For daytime, the white strobe light may be used, and for nighttime, only red lights shall be used.

15.04.070 NON-PERMITTED LIGHTING

- A. Newly installed fixtures, which are not full-cutoff fixtures.
- B. Lighting which presents a clear hazard to motorists, cyclists, or pedestrians.
- C. Laser Source Light. The use of laser source light or any similar high intensity light for outdoor advertising or entertainment is prohibited.

15.04.080 APPEALS

If an application is denied, an individual shall have the right of appeal to the City Council. The fee for an appeal shall be the same as a Type III review (Section 2-Master Fee Resolution).

15.04.090 VIOLATIONS

This section may be enforced on the basis of a formal complaint filed in writing with the city.

15.04.100 PENALTIES

See Section 1.16.010 of the Sandy Municipal Code.

15.04.110 SEVERABILITY

The provisions of this ordinance are severable and if any paragraph, section, subsection, or part of this ordinance is held to be invalid, unenforceable, unconstitutional, or inapplicable to any person or circumstance, such illegality, invalidity, unconstitutionality, or inapplicability shall not affect or impair the remainder of this ordinance.

TABLE 1: CODE REQUIREMENTS TABLES FOR SHIELDING

WATTAGE - SEE SECTION 1 BELOW

Lamp Type	25	30	35	40	50	60	75	100	110 OR MORE
LOW PRESSURE SODIUM	UNSHIELDED	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD
HIGH PRESSURE SODIUM	UNSHIELDED	UNSHIELDED	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD
METAL HALIDE	UNSHIELDED	UNSHIELDED	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD
FLUORESCENT	UNSHIELDED	UNSHIELDED	UNSHIELDED	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD
QUARTZ	UNSHIELDED	UNSHIELDED	UNSHIELDED	UNSHIELDED	UNSHIELDED	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD
TUNGSTEN HALOGEN	UNSHIELDED	UNSHIELDED	UNSHIELDED	UNSHIELDED	UNSHIELDED	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD
MERCURY VAPOR	UNSHIELDED	UNSHIELDED	UNSHIELDED	UNSHIELDED	UNSHIELDED	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD	DIRECTED SHIELD
INCANDESCENT	UNSHIELDED	UNSHIELDED	UNSHIELDED	UNSHIELDED	UNSHIELDED	UNSHIELDED	UNSHIELDED	UNSHIELDED	DIRECTED SHIELD

1. For the purpose of this section wattage ratings for lamp types will be for either a single lamp source or multiple lamp sources when installed in a cluster.
2. Lamp types not listed in the table may be approved for use by the building official providing installation of these lamps conforms to the lumen limits established in this section.
3. Glass tubes filled with argon, neon or krypton do not require shielding.

Table 2: TYPICAL LUMEN VALUES FOR VARIOUS LAMP WATTAGE **

WATTAGE	LOW PRESSURE SODIUM	HIGH PRESSURE SODIUM	METAL HALIDE	FLUORESCENT	QUARTZ	MERCURY VAPO	INCANDESCENT
9				600			
18	1,800						
35	4,725	2,250					
40		4,000		2,250			480
50					1,400	1,140	480
55	7,925						
60							870
70		5,800	5,500				
75						2,800	1,190
90	14,400						
100		9,500	8,000			4,300	1,750
110				6,600			
150		16,000					2,850
175			14,000			8,600	
200		22,000					4,010
250		27,500	20,500			12,100	
300							6,360
400		50,000	36,000			22,500	
500							10,850

** Taken from data supplied by Portland General Electric - Energy Resource Center