

DRAFT – For Discussion Purposes Only

Chapter 19.77

OUTDOOR LIGHTING

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19.77.010 Purpose

Adequate nighttime lighting is important to allow human activity to safely continue after the sun goes down, but inappropriate lighting practices can result in light trespass, glare, poor lighting color, poor energy conservation, impact wildlife and natural ecosystems, and skyglow. These issues can reduce full enjoyment of private property rights, human health and safety, wasted energy, and poor nighttime ambiance. This ordinance provides regulations that seek to mitigate the above note issues. The means required by these regulations will:

- Improve the enjoyment of personal property,
- Increase the health and safety and residents and others,
- Improve nighttime ambiance and aesthetics,
- Lessen impacts on natural wildlife and ecosystems, and
- Conserve natural resources.

19.77.020 Definitions

The following definitions shall apply to this chapter:

Accent architectural or landscaping lighting. Lighting of building surfaces, landscape features, statues and similar items for decoration or ornamentation.

Activity Area. Walkways and open spaces where people walk or congregate.

Correlated color temperature (CCT). A metric characterizing the color content of the light output of a lamp expressed in units of kelvins (K). CCT information is available on data sheets and product packaging for all lighting sold in the United States.

Flood Light. A fixture or lamp designed to "flood" an area with light.

Foot-candle. A unit of measurement for the total amount of light cast on a surface (illumination). One foot-candle is equivalent to the illumination produced by a source of one candle at a distance of one-foot.

Full Cutoff Light Fixture. A light fixture that restricts a lamp from radiating any illumination above a horizontal plane running through the lowest point on the fixture where light is emitted.

Glare. The sensation produced by a bright source within the visual field that is sufficiently brighter than the level to which eyes are adapted to cause annoyance, discomfort, or loss in visual performance and visibility; blinding light. The magnitude of glare depends on such factors as size, position, brightness of the source, and on the brightness level to which the eyes are adapted.

Hotspot. Hotspot is an isolated pool of bright downlight that creates unneeded contrast resulting in dark areas immediately outside the hotspot area and may also increase glare.

Incandescent lamp or light bulb. An electric light with a wire filament heated to such a high temperature that it glows with visible light (incandescence).

Hot spot. An area of light that exceeds allowed illumination thresholds or produces conditions related to glare.

Illumination or illuminated: A measurement of light expressed in foot-candles (fc) on a given surface resulting from light emitted from a lamp.

Kelvin. Kelvin is a unit of measurement used to measure the correlated color temperature (hue) of a specific light source. Some typical color temperatures are:

1500 K	Candlelight
2680 K	40 W incandescent lamp
3000 K	200 W incandescent lamp
3200 K	Sunrise/sunset
3400 K	Tungsten lamp
3400 K	1 hour from dusk/dawn
5000-4500 K	Xenon lamp/light arc
5500 K	Sunny daylight around noon
5500-5600 K	Electronic photo flash
6500-7500 K	Overcast sky
9000-12000 K	Blue sky

Lamp: Any light source in a self-contained package composed of an envelope (containing gas, filaments, etc.), filament or electrodes, base, contacts, gas and any support structures. The source can be of the incandescent, fluorescent, quartz halogen, LED or arc type. Quite often this term is used interchangeably with light source and is sometimes commonly referred to as the light bulb.

Light Fixture. The assembly that holds a lamp, or lamps. 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.

Light trespass. A nuisance condition created when a lamp provides illumination beyond that allowed by this chapter on any property other than the property on which the light is installed.

Lumen. A unit of measurement used to describe the actual amount of visible light which is produced by a lamp as specified by its manufacturer.

Qualified lighting professional. Qualified lighting professionals have a professional certification from a legitimate professional organization that requires recertification, current industry involvement and demonstrated knowledge in specific aspects of lighting.

Skyglow. The overhead glow from light emitted sideways and upwards.

Spectrum. See Correlated Color Temperature.

Visual acuity: Sharpness of vision, measured by the ability to discern letters or numbers at a given distance according to a fixed standard.

19.77.030 Applicability

A. **Conformance Required.** Any new outdoor lighting shall be installed in conformance with the provisions of this chapter. In any situation where there is a conflict with Federal or State regulations, and/or applicable sections of adopted building code, the more restrictive provisions shall apply.

B. **Modifications to Existing Structures and Approved Land Uses.** All outdoor lighting fixtures shall be replaced or modified to meet the requirements of this chapter for an entire building and/or site if the cumulative gross floor area or land use increase by 25% or more,

C. **Routine maintenance.** Repairing any component of a light fixture, except the lamp, is permitted for all existing outdoor lighting fixtures. When a lamp needs repair, it shall be replaced in accordance with the provisions of this chapter.

19.77.040 Single-Family Residential Zone Lighting Standards

The following regulations shall apply to all single family residential structures:

- A. **Permitted Light Fixture Types.** All outdoor light fixtures that house lamps radiating more than 760 lumens* shall be full cutoff and oriented as intended per manufacturing instructions. *(760 lumens create the equivalent radiance of a 60-watt incandescent light bulb).
- B. **Height.** Light fixtures shall not exceed 12 feet in height.
- C. **Illumination.**
 - 1. **Total site illumination shall not exceed:**
 - a. **5,000 lumens per net acre in the F-20 zone.**
 - b. **15,000 lumens per net acre for any single-family residential property east of Wasatch Boulevard.**
 - c. **25,000 lumens per net acre for any residential property, regardless of zoning, or property within the RO zone.**
- D. **Spectrum.** All lamps shall not exceed 3,000 kelvins in the lighting spectrum.
- E. **Automatic Switching Controls.** Outdoor lighting shall have controls that automatically extinguish all outdoor lighting when daylight is available and by 11:00 pm, except for essential security lighting which shall be to a maximum of 25% of the total luminaries used. Security lighting is encouraged to utilize motion activated sensors and be extinguished within two-minutes after motion has ceased.
 - a. **Exceptions.** Automatic lighting controls are not required for the lighting for steps, stairs, walkways, and building entrances when required by the building code.

19.77.050 Lighting Standards for All Other Zones

The following regulations shall apply to all zones, except single-family residential zones.

- A. Permitted Light Fixture Types.** All outdoor light fixtures that house lamps radiating more than 760 lumens* shall be full cutoff and oriented as intended per manufacturing instructions. *(760 lumens create the equivalent radiance of a 60-watt incandescent light bulb).
- B. Height.** Light fixtures shall not exceed 18 feet in height and shall not exceed 12 feet in activity areas.
- C. Illumination.**
 - 1. The average illumination at finished grade level shall be between 0.5 and 1.5 foot-candles. No point on the property shall be illuminated greater than 10.0 foot-candles.
 - 2. At the property boundary, the illumination at grade level not exceed 0.5 foot-candle.
 - 3. Lighting shall increase its illumination by an even gradient toward activity and driveway entrances to the site. Lighting shall be designed to avoid hotspots that reduce visual acuity.
 - 4. To avoid light trespass, illumination shall not exceed 0.25 foot-candle at five-feet beyond the property boundary measured five-feet above grade level.
 - 5. Total site illumination shall not exceed:
 - a. 25,000 lumens per net acre for any residential zone, or within the RO zone.
 - b. 50,000 lumens per net acre for any property in the NC zones.
 - c. 100,000 lumens per net acre for all other properties in any other zone.
- D. Spectrum.** All lamps shall not exceed 3,000 kelvins in the lighting spectrum.
- E. Walkways.** Pedestrian walkways shall be lighted with bollards or light fixtures at a maximum height of 12 feet.
- F. Automatic Switching Controls.** Outdoor lighting shall have controls that automatically extinguish all outdoor lighting when daylight is available and within one hour after business hours or by 11:00 pm, whichever is sooner, except for essential security lighting which shall be to a maximum of 25% of the total luminaries used, unless the planning commission approves a higher percentage. Security

lighting is encouraged to utilize motion activated sensors and be extinguished within two-minutes after motion has ceased.

1. **Exceptions.** Automatic lighting controls are not required for the following:
 - a. Lighting for tunnels, parking garages, garage entrances, and similar conditions.
 - b. Lighting for steps, stairs, walkways, and building entrances required by the building code.
 - c. When the Community and Economic Development Director determines that a specific public safety hazard exists that can only be mitigated using outdoor light.

19.77.050 Exceptions

Exceptions to the lighting standards outlined in section 19.77.030 are permitted for land uses and light fixtures as identified in this section.

A. **Signs:** Signs are regulated by Chapter 19.82 – Signs.

B. **Outdoor Athletic and Recreational Facilities:** Upon time of application, applicant shall submit a plan by a qualified lighting engineer that certifies by written statement that every reasonable effort has been undertaken to mitigate the effects of light on surrounding properties; and

C. **Gasoline Station and Convenience Store Canopies:** Gasoline station and convenience store canopies shall provide adequate lighting for customers, but lighting shall not be so intense as to be an attention device for the business, as provided in this section.

1. Lighting fixtures in the ceiling of canopies shall be fully recessed in the canopy.
2. Light fixtures shall not be mounted on the top or fascia of such canopies.
3. The fascia of such canopies shall not be illuminated, except for approved signage.
4. Areas around gasoline pump islands and under canopies shall have a minimum illumination at grade level between one (1) and five and one-half (5 1/2) foot-candles. The ratio of average illumination to the minimum illumination at grade in the areas around the gasoline pumps shall not exceed four to one (4:1).

D. **Car-wash Lighting.** See Section 19.76.040.H.

E. **Accent Architectural or Landscaping Lighting.** Buildings light fixtures may illuminate a structure's vertical surfaces and shall be directed downward. Uplighting of vertical surfaces of a building is prohibited. Illumination of vertical surfaces shall not exceed an illumination of five (5) foot-candles. Government and civic buildings, church buildings, public art, and flag poles for national, state and local government flags shall be exempt from this requirement.

F. **Flood Lights.** Full cutoff flood lights shall be angled provided that no light escapes above a twenty-five (25) degree angle measured from the vertical line from the center of the light extended to the ground, and only if the light does not cause glare or light to shine on adjacent property or public rights-of-way. All wall pack light fixtures shall be full cutoff light fixtures.

G. **Swimming Pool Lighting.** Underwater light fixtures are not regulated by this chapter.

H. **Seasonal Lighting.** Temporary exterior lighting intended as holiday/seasonal decorations may be displayed between November 15 and the following January 15, provided that individual lamps do not cause unreasonable light trespass or glare as determined by the Community and Economic Development Director.

I. **Public safety.** Illumination and kelvin thresholds may be exceeded in situations where the Community and Economic Development Director finds that an increased level is crucial to public safety or the activities of law enforcement. In no case shall kelvin levels exceed 5,000.

19.77.060 Prohibited Lighting

The following lighting shall be prohibited:

- A. Blinking, flashing, moving, revolving, flickering, changing intensity of illumination, and changing color lights;
- B. Uplighting of building and illumination of roofs and internal illumination of awnings;
- C. Mercury vapor lights;

D. Search lights, laser source lights, or any similar high-intensity light except in emergencies by police, fire, and other emergency service personnel or at their direction.

19.77.070 Street Lighting

Street lighting shall be governed by Section 12.24.190.

19.77.080 Lighting Plan Requirements

A. **Lighting Plans.** Lighting plans shall be required whenever the applicability provisions apply as described in Section 19.77.20, and shall include the following:

1. A site plan indicating the location of all light fixtures, both proposed and any already existing on the site.
2. A description of each light fixture, lamp, support and shield, both proposed and existing. The description shall include, but is not limited to, manufacturer's catalog cuts and illustrations; lighting fixture lamp types, wattages and initial lumen outputs.
3. Except for single-family residential properties, a photometric plan prepared by a qualified lighting professional.

B. **Lamp or Light Fixture Alteration.** Should any lamp or light fixture be altered after the permit has been issued, a change request must be submitted to the Community and Economic Development Director or designee for approval, together with adequate information to assure compliance with this code, which must be received prior to alteration.

C. **Certification of Installation.** For all projects where the total initial output of the proposed lighting equals or exceeds 75,000 lumens per net acre, certification that the lighting, as installed, conforms to the approved plans shall be provided by a qualified lighting professional before any certificate of occupancy or business license is issued. Until this certification is submitted, approval for use of a certificate of occupancy shall not be issued for the project.

12.24.190 Street lighting.

A. The subdivider shall install street lights. The street lighting shall be 5600 lumens equivalent light-emitting diode (LED) or induction lighting as approved by the city engineer. A 9500 lumens equivalent light-emitting diode (LED) or induction lighting shall be used at intersections as approved by the city engineer. Lighting shall not exceed 3500 kelvins.

B. Street lights shall be on an average no more than 275 feet apart. Placement shall alternate from one side of the street to the other and shall be placed on side property lines. At intersections the street light shall be located near the intersection.

C. ~~The street light fixtures shall be "town and country" or similar lighting fixture with power underground.~~ All lighting fixtures shall be designed and installed in accordance with the city's official street light policy with power underground (see Appendix ##).

D. The lights shall be installed in the space between the curb and sidewalks. In situations where the sidewalk is integral, the street light shall be placed within two feet of the sidewalk.

E. Final placement of street lights shall be approved in writing by the City Engineer or its designee.