

## 5.12 - Exterior lighting.

**5.12.1 Purpose.** The intent of this section is to protect and promote the public health, safety and welfare, the quality of life and the ability to view the night sky by providing standards to minimize the actual physical effects of lighting, as well as the effect that lighting may have on the surrounding neighborhood. The goal is to ensure that exterior lighting meets the functional and security needs of the subject development in a way that does not adversely affect the adjacent properties or neighborhood. The degree to which exterior night lighting affects a property owner or neighborhood should be examined considering the light source, level of illumination, hours of illumination, and the need for illumination in relation to its effects on adjacent property owners and the neighborhood.

### 5.12.2 Applicability.

- A) *Residential and Non-residential Development.* All development shall comply with the standards set forth in this section, as well as the IBC and the State of New Mexico Electrical Code. For residential developments with more than four lots and non-residential developments, the developer shall submit a proposed exterior lighting plan. This plan must be submitted concurrently with the subdivision application or the site plan. The exterior lighting plan shall include plans and specifications for street luminaires, parking lot luminaires, and exterior building luminaires. The specifications shall include details of all proposed luminaires including the pole, fixture height and design, lamp type, wattage, lumen output, degrees of Kelvin (color of the light) and spacing of luminaires. The applicant shall provide enough information to verify that lighting conforms to the provisions of this section. The Community Development Director, Planning and Zoning Commission and/or building inspector shall have the authority to request additional information in order to achieve the purposes of this section.
- B) *Definitions.* Unless specifically defined below, words or phrases used in this section shall be interpreted so as to give them the meaning they have in common usage and to give this section its most reasonable application.

*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.

*Ballast.* A device used with a discharge lamp to obtain the necessary voltage, current, and/or wave form for starting and operating the lamp.

*Building Inspector.* The Town of Silver City Building Inspector.

*Bulb.* The source of electric light. To be distinguished from the whole assembly (see luminaire).

*Candela (cd).* Unit of luminous intensity.

*Ninety (90) Degree Full Cut-off Type Fixtures.* Fixtures that do not allow light to escape above a 90 degree angle measured from a vertical line from the center of the lamp extended to the ground,

*Existing Lighting.* Any and all lighting installed prior to the effective date of this section.

*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 section.

*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 1,800 lumens and is designed to "flood" a well defined area with light. Generally, flood lights produce from 1,000 to 1,800 lumens and are typically mercury vapor, metal halide or low- or high-pressure sodium.

*Flux (radiant flux).* Unit is erg/sec or watts.

*Footcandle.* One footcandle is the amount of illumination the inside surface of a one-foot radius sphere would be receiving if there were a uniform point source of one candela in the exact center of the sphere. One footcandle is equal to one lumen per square foot. Footcandle is abbreviated ftc.

*Full Cut-off Fixtures.* Fixtures, as installed, that are designed or shielded in such a manner that all light rays emitted by the fixture, either directly from the lamps or indirectly from the fixtures, are projected below a horizontal plane running through the lowest point on the fixture where light is emitted and no light is emitted on the sides.

*Glare.* 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 spacing of bulbs is not closer than three inches and where the output per bulb is no greater than 15 lumens.

*Illuminance.* Density of luminous flux incident on a surface. Unit is footcandle or lux.

*Lamp.* The source of electric light; the bulb and its housing. To be distinguished from the whole assembly (See "Luminaire").

*Light.* The form of radiant energy acting on the retina of the eye to make sight possible; brightness; illumination; a lamp as defined above.

*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 falling where it is not wanted or needed, generally caused by a light on a property that shines onto the property of others.

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

*Lumen.* A 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 footcandle is one lumen per square foot. One lux is one lumen per square meter. Traditional incandescent lamps produce between 17 and 20 lumens per watt. Fluorescent lamps produce approximately 90 lumens per watt.

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

*Mercury Vapor Lights.* Mercury vapor lights are a type of high density lamp and are prohibited.

*Non-essential.* Lighting that is not necessary for an intended purpose after the purpose has been served. Does not include any lighting used for safety and/or public circulation purposes Example: for purposes of this section, lighting for a business sign is considered essential during business hours, however, it is considered non-essential once the business is closed.

*Partially Shielded.* The bulb of the fixture is shielded and the bulb is not visible at all. The top must be completely opaque to prevent uplighting above a 120 degree angle measured from a vertical line from the center of the map extended to the ground. The bulb or bulbs may produce a maximum of 1,000 lumens, measured as if the bulb were exposed, not measured through the glass or siding.

*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.

*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 side of the fixture. Also considered a full cut-off fixture.

*Temporary Lighting.* Lighting that is intended to be used for a special event for seven days or less.

*Unshielded.* The bulb of the fixture is shielded by a clear or translucent siding and the bulb may be visible. The top must be completely opaque to prevent uplighting above a 120 degree angle measured from a vertical line from the center of the lamp extended to the ground. The bulb or bulbs may produce a maximum of 330 lumens, measured as if the bulb were exposed not measured through the glass or siding.

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

C) *Design Standards.* All exterior lighting, including public street lighting as applicable, shall comply with Illumination Engineering Standards and meet the following design standards:

- 1) All exterior luminaires, including street luminaires and parking area luminaires, shall be full cut-off fixtures of at least 90 degree full cut-off type fixtures. Street luminaires shall be high pressure sodium, low pressure sodium, or metal halide, unless otherwise determined by the Town Council that another type is more efficient. Street luminaires along residential streets and parking lots shall be limited to a 100 watt high pressure sodium (hps) light, an equivalent of 8,000 lumens. Street luminaires along nonresidential streets or at intersections shall be limited to 200 watts hps, and equivalent of 22,000 lumens. Street luminaires along state highways shall be limited to a 400 watt hps, and equivalent of 50,000 lumens. If the Town Council permits a light type other than high pressure sodium, then the equivalent output shall be the limit for the other light type (See table). For example: a 100 watt high pressure sodium lamp has a roughly equivalent output as a 55 watt low pressure sodium lamp, or a 100 watt metal halide lamp.
- 2) No flickering or flashing lights shall be permitted, except for temporary holiday decorations.
- 3) No exterior luminaires shall emit blue-white color in excess of 3,000 Kelvin.
- 4) Parking lots and other background spaces shall be illuminated as unobtrusively as possible to meet the functional needs of safe circulation and of protecting people, property and public health. Parking area luminaires are encouraged to be greater in number, lower in height and lower in light level, as opposed to fewer in number, higher in height and higher in light level. Foreground spaces, such as

building entrances and outside seating areas, shall utilize local lighting that defines the space without glare. Floodlights shall not be used to light all or any portion of a building facade between 10:00 p.m. and 6:00 a.m.

- 5) All exterior luminaires must have an on/off switch controlled by the property owner.
  - 6) All non-essential exterior commercial and residential lighting shall be turned off after business hours and/or when not in use. Lights on a timer are encouraged. Sensor-activated lights are encouraged to replace existing lighting that is desired for security purposes.
  - 7) Light sources shall be concealed or shielded to the maximum extent feasible to minimize the potential for glare and unnecessary diffusion on adjacent property or into roadway.
  - 8) The style of light standards and fixtures shall be consistent with the style and character of architecture proposed on the site and with the historical character of the site, if located within a historic district.
  - 9) Light fixtures used to illuminate flags, statues, or any other objects mounted on a pole, pedestal, or platform shall use a narrow cone beam or light that will not extend beyond the illuminated object.
  - 10) Street lighting shall be installed by the developer with nominal spacing of one light fixture every 300 linear feet, unless an alternative lighting plan is approved.
- D) *Height Standards for Lighting.*
- 1) In the Ru, RA, RB-1, RB-2, RC, MU and C-HD zone districts, where power lines are buried, light fixtures or luminaires shall be mounted on concrete or painted metal poles no higher than 15 feet above the ground.
  - 2) In the C-Lt, C-Hwy, I, and PUD zone districts, light fixtures shall be mounted on concrete or painted metal poles or on buildings, and shall be mounted no higher than 25 feet above the ground.
- E) *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.
- F) *Flag Poles.* Upward flagpole lighting is permitted for governmental flags only, and provided that the maximum lumen output is 1,300 lumens. Flags should be taken down at sunset to avoid the need for lighting.
- G) *Glare onto Surrounding Residential Properties.* Residential luminaires must be mounted such that any backlight glare or uplight glare points inward to the property at the property line. The amount of nuisance glare (light trespass) projected onto a residential use from another property shall not exceed 0.1 vertical footcandles at the residential property line.
- H) *Landscape Lighting.* Lighting of vegetation shall be in conformance with this section. Uplighting is prohibited. All landscape lights shall be shielded.
- I) *Service Stations.* The average footcandle lighting level for new and existing service stations is required to be no greater than 30 footcandles.
- J) *Temporary Lighting.* Temporary lighting that conforms to the requirements of this section shall be allowed. Non-conforming temporary exterior lighting may be permitted by the Community Development Director 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 non-conforming lighting. The applicant shall submit a detailed

description of the proposed temporary non-conforming lighting to the Community Development Director. The Director shall provide written notice of said request to owners of property immediately adjacent to the subject property. Said notice shall inform adjacent property owners they may comment on the request during a period of not less than ten days after mailing of the notice and prior to final action on said request.

- K) *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.
- L) *Uplighting.* Uplighting is prohibited in all zoning districts, except in cases where the fixture is shielded by a roof overhang or similar structural shield from the sky and a New Mexico licensed architect or engineer has stamped a prepared lighting plan that ensures that the light fixture(s) will not cause light to extend beyond the structural shield, and except as specifically permitted in this section.
- M) *Exemptions.*
  - 1) *Outdoor recreational uses.* Because of their unique requirements for nighttime visibility and their limited hours of operation, ball diamonds, playing fields, tennis courts, and other similar outdoor recreational uses are exempt from the exterior lighting standards set forth in subsections (A) and (C) above and shall only be required to meet the standards set forth in this subsection (M):
    - a) Maximum permitted light post height: 80 feet.
    - b) Limits on cutoff angle: Cutoff from a lighting source that illuminates an outdoor recreational use may exceed an angle of 90 degrees, provided that the luminaries are shielded to prevent light and glare spill over to adjacent residential properties.
    - c) Maximum permitted illumination at the property line: two footcandles.
    - d) Limits on hours of illumination: exterior lighting for an outdoor recreational use shall be extinguished no later than 11:00 p.m. unless otherwise permitted.
  - 2) *Common household yard lights.*
    - a) Exterior luminaires that have a maximum output of 330 lumens, regardless of type or number of bulbs, may be unshielded provided the fixture has an opaque top to keep light from shining directly up or cause light trespass onto the property of another. Lumen amount is measured from the exposed bulb, not through any glass or siding; or the lumen amount is garnered from the bulb specifications or packaging. See Table for acceptable bulbs and wattages.
    - b) Exterior luminaires that have a maximum output of 1,000 lumens, regardless of type or number of bulbs, shall be partially shielded, provided the bulb is not visible, and the fixture has a top to keep light from shining directly up. Lumens are measured from the exposed bulb, not through any glass or siding; or, the lumen amount is garnered from the bulb specifications or packaging See Table for acceptable bulbs and wattages.
    - c) Exterior flood or high density lamps with an output in excess of 1,000 lumens shall have external shielding and may be angled such that no light escapes above a 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. Photocells with timers that allow a floodlight to go on at dusk and off by 11:00 p.m. shall be used for any flood or high density yard lamp that may emit upright or side light that trespasses onto another's property.

- d) Holiday lights only as defined in this section are exempt from the requirements of this section for the two and one-half month period from November 1 to January 15, except that flashing holiday lights are prohibited on commercial properties. Flashing holiday lights on residential properties are discouraged. Holiday lights are encouraged to be turned off after bedtime and after close of businesses.
- e) Sensor activated lighting may be unshielded provided it is located in such a manner as to prevent glare and lighting into properties of others or into a public right-of-way, and provided the light is set to only go on when activated and to go off within five minutes after activation has ceased, and the light shall not be triggered by activity off the property.
- f) Vehicular lights and all temporary emergency lighting needed by the fire and police departments, or other emergency services shall be exempt from the requirements of this chapter.

N) *Alternative Lighting Plans.* Alternative lighting plans must demonstrate due diligence with respect to public safety, public health, lighting saturation, shaded areas, dark sky and horizon, etc.

*Table 5.12*

Outdoor Luminaires			
Light Bulb Type	Watts	Lumens	Shielding Requirement
Incandescent	0—15	1—110	Unshielded, up to 3 bulbs
	16—25	110—150	Unshielded, up to 2 bulbs
	26—45	150—450	Partially shielded, up to 2 bulbs
	46—65	450—750	Partially shielded, only 1 bulb
	66+	750+	Fully shielded
CFL	0—9	0—500	Partially shielded, up to 2 bulbs
	10—14	500—900	Partially shielded, only 1 bulb
	15+	900+	Fully shielded
Halogen	0—25	0—300	Unshielded, only 1 bulb
	26—35	300—450	Partially shielded, up to 2 bulbs

	36—60	450—950	Partially shielded, only one bulb
	61+	950+	Fully shielded
Fluorescent	0—8	0—475	Partially shielded, up to 2 bulbs
	9—13	475—1,000	Partially shielded, only 1 bulb
	14+	1,000+	Fully shielded
LED	0—4	0—120	Unshielded, up to 3 bulbs
	5—16	120—500	Partially shielded, up to 2 bulbs
	16+	500+	Fully shielded
HID: HPS, LPS, Metal Halide	All	All	All fully shielded

#### Street and Parking Luminaires

Light Bulb Type	Watts	Lumens	Location Restrictions (All Luminaires Shall be Fully Shielded)
Low Pressure Sodium	0—18	0—1,800	Allowed along all streets
	19—35	1,800—4,725	Allowed along all streets
	36—585	4,725—7,925	Allowed along nonresidential streets or intersections
	56—90	7,925—14,400	Allowed along state highways and major intersections
	91+	14,400+	Not allowed
High Pressure	0—35	0—2,250	Fully shielded, allowed along all streets

Sodium	36—40	2,250—4,000	Fully shielded, allowed along all streets
	41—70	4,000—5,800	Fully shielded, allowed along all streets
	71—100	5,800—8,000	Allowed along nonresidential streets or intersections
	101—150	8,000—16,000	Allowed along state highways and major intersections
	151—200	16,000—22,000	Allowed along state highways and major intersections
	201—250	22,000—27,500	Allowed along state highways and major intersections
	251—400	27,500—50,000	Not allowed
	400—750	50,000—110,000	Not allowed
	751+	110,000+	Not allowed

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