

CITY OF LLANO MUNICIPAL CODE

ARTICLE XII. - OUTDOOR LIGHTING

Sec. 22-700. - Purpose.

Dark night skies and the ability to view celestial objects have social, ecological, cultural, economic, aesthetic and health benefits for the citizens of Llano. A dark and visible night sky enhances the health and welfare of the citizens of Llano. Dark night skies are an asset and important element of Llano's appeal as a pleasant community in which to live and that city policy seeks to protect. The protection of dark night skies is entrusted to the City of Llano for the benefit of its current and future citizens. The potential for development negatively impacts dark night skies and requires reasonable regulations. The purpose of this article is to provide uniform outdoor lighting standards to assure public safety and health, promote efficient and more cost effective lighting, enhance the ability to view the night sky and promote a positive city image reflecting order, harmony and pride, thereby strengthening the economic stability of Llano's business, cultural, historical and residential areas. Accordingly, it is intended that this article will inspire and encourage a community-wide philosophy and adoption of these dark night sky tenets as a matter of course, beyond what is specifically set forth in this article.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-701. - Jurisdiction and scope.

This article applies within the city limits. Nothing contained in this article shall be construed to prevent or limit the city from applying this article to the ETJ through agreements with property owners, as a term affixed to a conditional approval (such as a variance), or as the provisions of this article may be applicable to the regulation of signs in the ETJ.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-702. - Definitions.

Words and phrases used in this article shall have the meanings set forth in this section. Terms that are not defined below, but are defined elsewhere in the Code of Ordinances, shall be given the meanings set forth therein. Words and phrases not defined in the Code of Ordinances shall be given their common, ordinary meaning unless the context clearly requires otherwise. When not inconsistent with the context, words used in the present tense shall include the future tense; words in the plural number shall include the singular number (and vice versa); and words in the masculine gender shall include the feminine gender (and vice versa). The word "shall" is always mandatory, while the word "may" is merely directory. Headings and captions are for reference purposes only.

Applicant means a person or entity who submits to the city an application for an approval required by the Code of Ordinances. To be qualified as an applicant under this article, the person or entity must have sufficiently documented legal authority or proprietary interests in the land to commence and maintain proceedings under the Code of Ordinances. To avoid confusion, the term will not include anyone other than the property owner(s), tenant(s), or a duly authorized agent and representative of the property owner. As to enforcement between tenant(s) and property owner(s) of a particular piece of property, the property owner(s) shall have ultimate liability for violations of this article.

City means the City of Llano, an incorporated municipality located in Llano County, Texas.

City limits means the incorporated municipal boundary of the city, as may be expanded from time to time by annexation and as reflected in the official map of the city limits of Llano.

ETJ means the extraterritorial jurisdiction of the city.

Full cut-off fixtures means fixtures, as installed, that are designed or shielded in such a manner that all light rays emitted by the fixture, either directly from the luminaires or indirectly from the fixture, are not permitted to project above a horizontal plane running through the lowest point on the fixture where light is emitted.

Holiday lighting means lighting used for a specific celebration which may be one of the following types:

- (1) Festoon type low-output lamps, limited to small individual bulbs on a string with a maximum output of 70 lumens within any square foot if the bulbs are coated in a color, or a maximum output of 20 lumens within any square foot if the bulbs are clear.
- (2) Low-output lamps with a maximum output of 210 lumens within any cubic foot used to internally illuminate yard art.
- (3) Flood or spot lights with a maximum output of 2,000 lumens each, whose light source is not visible from any other property, and which are used only as temporary lighting.

Initial lamp lumens means the product of the initial number of lumens produced by the light emitting elements of an individual luminaire, multiplied by the luminaire efficiency. If the efficiency is not known for a residential luminaire, assume 70 percent. Initial luminaire lumens for all luminaires tested with absolute photometry are approximated as 100 percent of luminaire lumens.

Light trespass means lighting emitted from fixtures designed or installed that causes light to fall on a property other than the one where the fixture is installed, motor vehicle drivers' eyes, or upwards toward the sky.

Lighting means any source of light that does not include natural light emitted from celestial objects or fire. The term includes, without limitation, any type of lighting, fixed or movable, designed or used for illumination of buildings or homes, including lighting for billboards, streetlights, canopies, gasoline station islands, searchlights used for advertising purposes, externally or internally on- or off-premises advertising signs, area-type lighting and luminous elements or fixtures attached to structures, poles, the earth or any other location.

Logo means a representation or symbol adopted by a business, organization, or an individual used to promote instant public recognition.

Lumen means a unit of measurement used to quantify the amount of light produced by a bulb or emitted from a fixture (as distinct from "watt," a measure of power consumption). The lumen rating associated with a given lamp is generally indicated on its packaging or may be obtained from the manufacturer (abbreviated lm).

Lumens per net acre means the total number of initial lamp lumens (see definition above) produced by all fixtures utilized in outdoor lighting on a property divided by the number of acres, or part of an acre, of the property being illuminated.

Luminaire, or Luminous elements (of a light fixture) means individually or collectively: the lamp (light bulb), any diffusing elements and surfaces intended to reflect or refract light emitted from the lamp.

Nonresidential means property designated as nonresidential pursuant to the city's Code of Ordinances.

Outdoor lighting means temporary or permanent lighting that is installed, located or used in such a manner to cause light rays to shine outdoors. Nonresidential fixtures that are installed indoors that cause light to shine outdoors are considered outdoor lighting for the purposes of this article. (See Figure A). Residential fixtures installed indoors generating more than 6,200 lumens (approximately equal to a 300-watt incandescent bulb) that cause light rays to shine outdoors are also considered outdoor lighting for the purposes of this article.

FIGURE A:

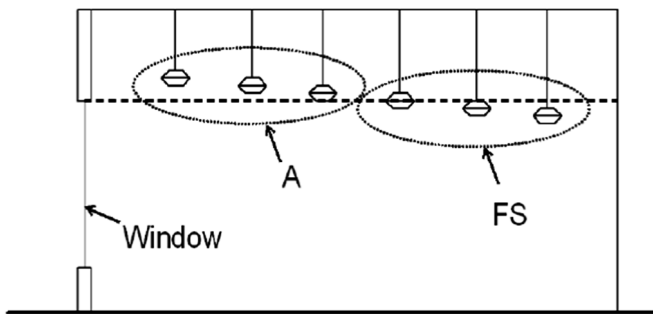


Figure A: Elevation view showing a nonresidential application of indoor lighting, labeled FS, that constitutes outdoor lighting for purposes of this article and indoor lighting, labeled A, which is installed so that it does not constitute outdoor lighting for purposes of this article.

Person means a human individual, corporation, agency unincorporated association, partnership or sale proprietorship.

Residential means property designated as residential pursuant to the city's Code of Ordinances.

Temporary lighting means lighting intended for uses which by their nature are of limited duration; for example holiday decorations, civic events or construction projects.

Total outdoor light output means the total amount of light, measured in lumens, from all outdoor lighting fixtures within the illuminated area of a property. The total lumen value is the sum of the initial lamp lumens for each fixture within the illuminated area of a property.

Uplighting means lighting that causes light rays to project above a horizontal plane running through the lowest point on the fixture where light is emitted.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-703. - Lighting.

- (a) All outdoor lighting shall be installed to comply with the standards, rules and regulations established by this article.
- (b) It is an offense to install outdoor lighting that does not comply with the standards, rules and regulations established by this article.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-704. - Nonconforming existing lighting.

All existing outdoor lighting that was legally installed before the enactment of this article, and that does not comply with the standards, rules and regulations established by this article shall be deemed nonconforming. Nonconforming existing outdoor lighting shall be brought into compliance with this article as follows:

- (1) All existing outdoor lighting located on a subject property that is part of an application for a conditional use permit, subdivision approval, or a building permit shall be brought into compliance with this article before final inspection, issuance of a certificate of occupancy, or final plat recordation, whichever is applicable. All existing outdoor lighting located on a subject property that is part of an application for other permits issued by the city, such as a site

development permit, a sign permit for an externally or internally-illuminated outdoor sign, the initial alcoholic beverage permit, the initial food establishment permit, and an on-site sewage facility permit, shall be brought into compliance with this article within 90 days from the date such permit is issued.

- (2) All nonconforming existing outdoor lighting that becomes damaged or inoperable and is subsequently repaired, replaced or improved, as the case may be, shall be repaired, replaced or improved in a manner to comply with this article as if new lighting.
- (3) All other nonconforming existing outdoor lighting on property used for nonresidential purposes, not otherwise in compliance with subsection 22-703(a), shall be brought into compliance with this article within five years from the date of adoption of this article.
- (4) All other nonconforming existing outdoor lighting on property used for residential purposes, not otherwise in compliance with subsection 22-703(a) shall be brought into compliance with this article within five years from the date of adoption of this article.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-705. - Outdoor lighting in the extra territorial jurisdiction (ETJ) of the city.

Compliance with the standards, rules and regulations of this article in the ETJ is strongly encouraged. All outdoor lighting in the ETJ brought into the city limits as a result of annexation shall be brought into compliance with this article as follows:

- (1) All nonresidential outdoor lighting that is installed, repaired, renovated or moved after the date of adoption of this article shall be brought into compliance with this article within six months from the date of annexation.
- (2) All nonresidential outdoor lighting that is installed, repaired, renovated or moved on or prior to the date of adoption of this article shall be brought into compliance with this article within five years from the date of annexation.
- (3) All residential outdoor lighting that is installed, repaired, renovated or moved on or prior to the date of annexation shall be brought into compliance with this article within five years from the date of annexation.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-706. - Full cut-off, shielding and total outdoor light output standards.

- (a) Governmental owned streetlights shall be full cut-off fixtures in order to limit light trespass (see Figure B). To the extent government owned streetlights are replaced or repaired with a light emitting diode (LED) luminaire, the LED luminaire shall have a correlated color temperature not to exceed 3,000 Kelvin.

FIGURE B:

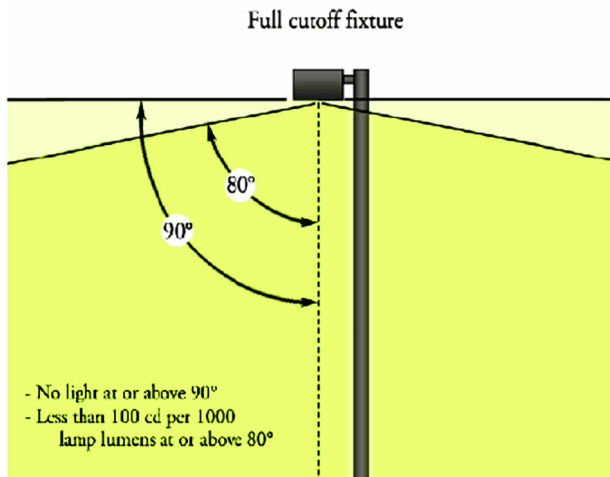


Figure B: A full cutoff fixture has a zero uplight component.

- (b) All outdoor lighting, except governmental owned streetlights, shall be shielded so that the luminous elements of the fixture are not visible from any other property (see Figures C and D).

FIGURE C:

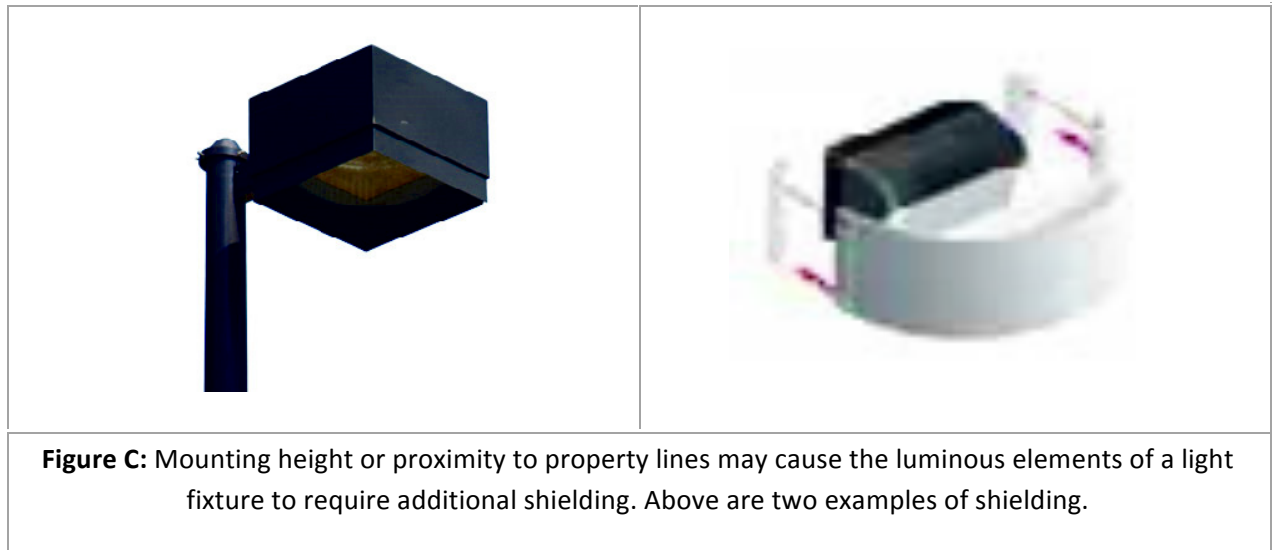


FIGURE D:

Examples of Acceptable / Unacceptable Lighting Fixtures



Figure D: The lights on the left are nonconforming due to inadequate shielding. Those on the right can be used in most cases; however, the mounting height and proximity to the property line may require additional shielding to prevent the luminous elements from being visible from any other property.

- (c) Outdoor uplighting is prohibited, except in cases where the fixture is shielded by a roof overhang or similar structural shield and a licensed architect or engineer has certified and stamped a prepared lighting plan that ensures that the light fixtures will not cause light to extend beyond the structural shield, except as otherwise specifically permitted by this article.
- (d) All outdoor lighting fixtures shall be full cut-off fixtures, except as otherwise specifically permitted by this article (see Figures E and F).

FIGURE E:

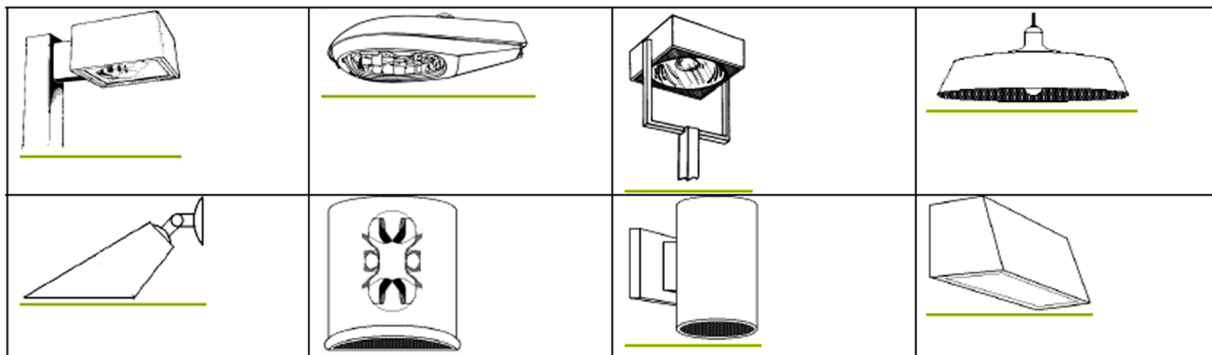


Figure E: This figure shows examples of full cut-off fixtures because they are closed on top and mounted such that the bottom opening is horizontal. Note that the mounting height and proximity to

the property line may require additional shielding to prevent the luminous elements from being visible from any other property. A practical way to determine if a light fixture is a full cut-off fixture is that the lamp or tube, any reflective surface or lens cover (clear or prismatic) must NOT be visible when viewed from above or the side.

FIGURE F:

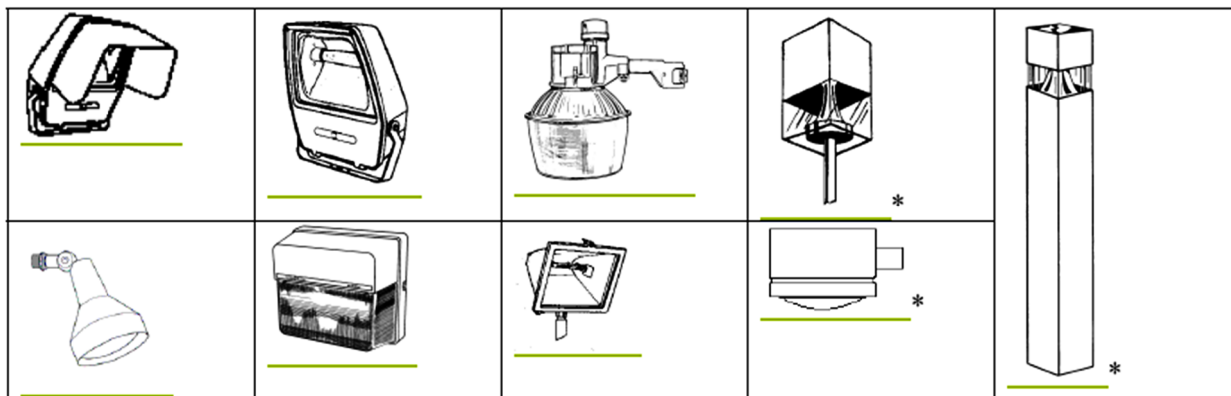


Figure F: This figure illustrates examples of fixtures that are NOT full cut-off fixtures.

*Note: Even though the lamps in these fixtures are shielded from direct view when viewed from the side or above, reflective surfaces within the fixtures and or lens covers are directly visible from the side.

- (e) Total outdoor light output (excluding governmental owned street lights used for illumination of public rights-of-way and outdoor recreation facilities) of any nonresidential property shall not exceed 100,000 lumens per net acre in any contiguous illuminated area. This lumen per net acre limitation is an upper limit and not a design goal; design goals should be the lowest levels that meet the requirement of the task.
- (f) Total outdoor light output (excluding governmental owned street lights used for illumination of public rights-of-way and outdoor recreation facilities) of any residential property shall not exceed 25,000 lumens per net acre in any contiguous illuminated area.
- (g) Outdoor recreation facilities are not subject to the lumens per net acre limit. However, outdoor recreational facilities are subject to the shielding requirement (subsection 22-706(b) above). Where fully shielded fixtures are not available, lighting fixtures using external louvers or shields that, in the final installed configuration, extend to within three inches on the lowest portion of the light fixture opening are required (see Figure G). The fixtures shall be installed and maintained with aiming angles that permit no greater than one percent of the light emitted by each fixture to project above the horizontal. It is recommended that the lumens per net acre for multi-directional aerial sports (e.g., baseball, basketball, football, soccer) not exceed 1,000,000 lumens per net acre. It is recommended that the lumens per net acre for uni-directional aerial sports (e.g., golf at a driving range, skeet shooting) and all ground level sports (e.g., field hockey, swimming, archery, target shooting) not exceed 800,000 lumens per net acre.

FIGURE G:

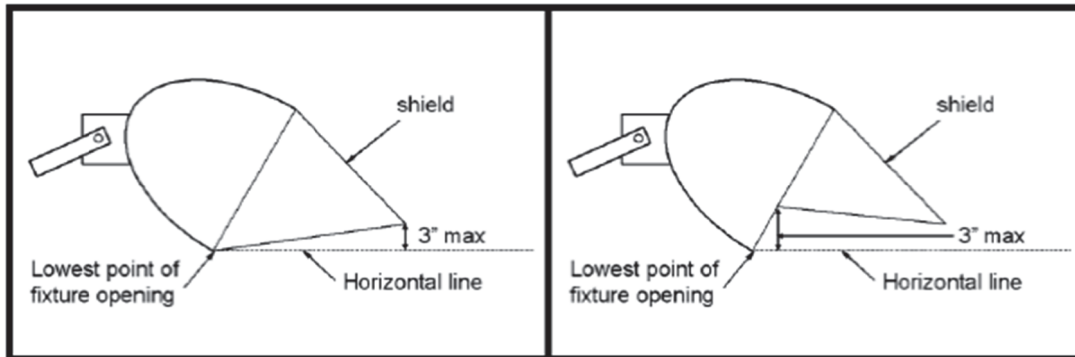


Figure G: Sports lighting where fully shielded fixtures are not available.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-707. - Lighting for outdoor signs and panels.

- (a) Outdoor internally-illuminated signs (whether freestanding or building-mounted) shall be constructed with an opaque background and translucent letters and symbols or with a colored background and lighter letters and symbols (see Figure H). The internally-illuminated portion of the sign cannot be white, cream, off-white, or yellow unless it is part of a registered logo. White, cream, off-white or yellow are permitted in the logo only, provided that such colors in the logo shall represent not more than 33 percent of the total sign area permitted. Lamps used for internal illumination shall not be included in the total outdoor light output calculation.

FIGURE H:

Light Background <input checked="" type="checkbox"/>	Colored Background <input checked="" type="checkbox"/>	Opaque Background <input checked="" type="checkbox"/>

Figure H: Internally-illuminated Signs.

- (b) Outdoor internally-illuminated panels (such as illuminated canopy margins or building faces), shall be included in the total outdoor light output calculation.
- (c) Outdoor externally-illuminated signs shall conform to all provisions of this article and the sign ordinance, chapter 22 of the City of Llano's Code of Ordinances.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-708. - Lighting under canopies, building overhangs or roof eaves.

- (a) All outdoor lighting fixtures located under canopies, under building overhangs, or under roof eaves shall conform to all provisions of this article.
- (b) Outdoor lighting fixtures located under canopies, under building overhangs, or under roof eaves where the center of the lamp or luminaire is located at five feet, but less than ten feet from the nearest edge of the canopy or overhang are to be included in the total outdoor light output as though they produced only one-quarter of the lamp's rated lumen output (see Figures I and J).

FIGURE I:

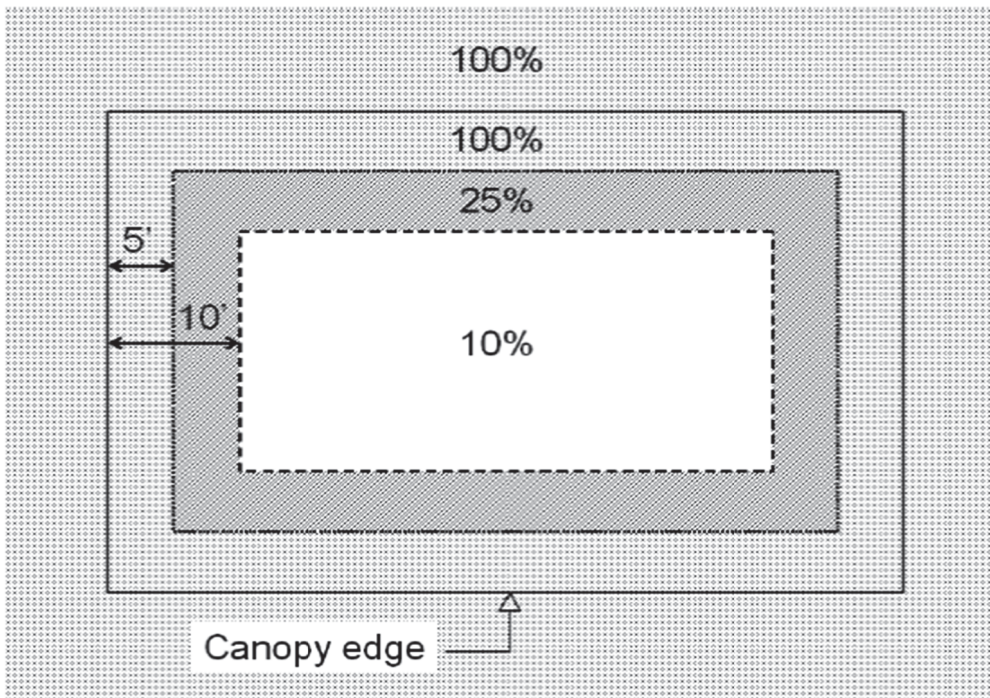


Figure I: Plan view of a canopy, showing fixture location and lumen lamp output percentage counted toward total lumens.

FIGURE J:

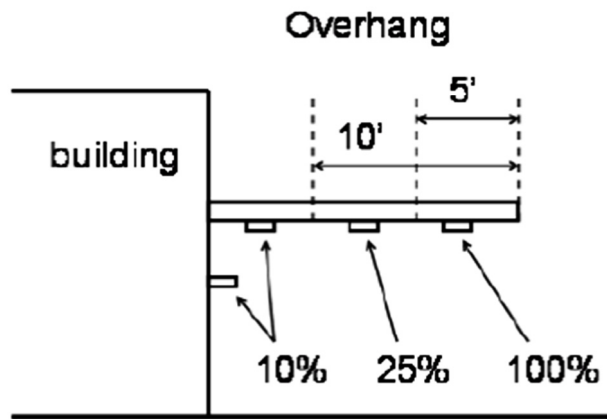


Figure J: Elevation view of a canopy or overhang attached to a building, showing location of shielded fixtures and initial lamp output percentage counted toward total lumens.

- (c) Outdoor lighting fixtures located under canopies, under building overhangs, or under roof eaves where the center of the lamp or luminaire is located ten or more feet from the nearest edge of a canopy, building overhang, or eave are to be included in the total outdoor light output as though they produced only one-tenth of the lamp's rated lumen output (see Figures I and J).
- (d) The total light output used for illuminating under canopies or building overhangs, defined as the sum of all under canopy initial lamp lumen outputs, shall not exceed 20 lumens per square foot under the canopy area. All lighting mounted under the canopy, including but not limited to, lighting fixtures mounted on the lower surface of the canopy and auxiliary lighting within signage or illuminated panels under the canopy, is to be included in the total.

FIGURE K:



Figure K: Options for flag pole lighting.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-709. - Neon lighting.

Neon lighting is permitted, so long as lumen calculations from such lighting are included in the total outdoor light output calculations for the site. Lumens are calculated on a per foot basis, rather than per "fixture". Such lighting shall also be subject to the shielding requirements of this article, unless exempted under section 22-713.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-710. - Lighting curfews.

All outdoor lighting is encouraged to be turned off when no one is present to use the light.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-711. - Prohibitions.

- (a) The installation of any mercury vapor fixture or lamp for use as outdoor lighting is prohibited.
- (b) The installation of any wall pack style fixture for use as outdoor lighting is prohibited unless the fixture is rated by the manufacturer as full cut-off and otherwise complies with the shielding requirements of this article. Examples of acceptable wall packs, when mounted with light directed downward only are shown in Figure L.

FIGURE L:



Figure L: Samples of acceptable wall packs.

- (c) The installation of any barn-light style fixture for use as outdoor lighting is prohibited unless the fixture includes a full opaque reflector instead of the standard translucent lens and otherwise complies with the shielding requirements of this article. An example of barn-light style with and without the required opaque reflector is shown in Figure M.

FIGURE M:



Figure M: Acceptable shielding of barn-style light fixtures.

- (d) The operation of searchlights for advertising purposes is prohibited.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-712. - Submission of plans and evidence of compliance.

- (a) All commercial building permit applications must include an outdoor lighting plan which includes the following information:

- (1) The location of all existing and proposed light fixtures (may be included on site plan) including those indoor fixtures defined as outdoor lighting for the purposes of this article.
 - (2) A lumen calculation sheet to determine lumens per net acre. It must include the total area to be illuminated, the fixture descriptions, lamp types (i.e., incandescent, low pressure sodium, compact fluorescent, LED, etc.), wattages, number of lamps, initial lamp lumens, and the light loss factor (LLF) for all existing and proposed lamps.
 - (3) Specification sheets for all existing and proposed light fixtures.
 - (4) Acknowledgement that the applicant has received notification of the provisions of this article.
- (b) Upon receipt of residential building permit applications, city staff shall provide the home builder and/or applicant with either a summary of or a copy of this article. The city's submission of the foregoing shall be prima facie evidence that the applicant has received notification of the provisions of this article.
- (c) Verification that a residential or commercial construction project requiring a building permit application has complied with the provisions of this article shall occur during the final electrical inspection by the city building inspector.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-713. - Exemptions.

The following lighting instances are exempt from this article:

- (1) Outdoor lighting fixtures, including landscape lighting with a maximum output of 300 lumens per fixture, regardless of the number of bulbs, (equals approximately one 25 watt incandescent light), may be left unshielded, provided however, the source of the light is not visible from any other property. The collective output from these fixtures shall be included in the total outdoor light calculation.
- (2) Outdoor lighting fixtures, including landscape lighting with a maximum output of 600 lumens per fixture, regardless of the number of bulbs, (equals approximately one 45 watt incandescent light), that are shielded with a colored lens provided such lens reduces the lumen output approximately in half, provided however, the source of the light is not visible from any other property. The output from these fixtures shall be included in the total outdoor light calculation.
- (3) Outdoor lighting for which light is produced directly by the combustion of fossil fuels.
- (4) Holiday lighting is exempt from complying with this article.
- (5) Lighting required by law to be installed on motor vehicles.
- (6) Lighting needed during activities of law enforcement, fire and other emergency services.
- (7) Lighting employed during emergency repairs of roads and utilities and such lighting may be unshielded provided the lights are positioned so they do not shine in the eyes of passing drivers.
- (8) Lighting required for the safe operation of aircraft.
- (9) Temporary lighting for theatrical, television, performance areas, or construction areas provided the lights are positioned so they do not shine in the eyes of passing drivers and the source of the illumination is shielded from any other property.
- (10) Temporary lighting required to save life, limb or property from imminent peril, provided the lighting is positioned so that it does not shine in the eyes of passing drivers.
- (11) Flag pole lighting is exempt from complying with this article.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-714. - Materials and methods of installation.

This article is not intended to prohibit the use of any design, material or method of prescribed installation not specifically proscribed by this article, provided such alternative meets the legislative intent of this article.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-715. - Compliance with building code.

All lighting installations commenced in accordance with this article must be in compliance with chapter 22, Buildings and Building Regulations of the City of Llano's Code of Ordinances.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-716. - Civil and criminal penalties.

The city shall have the power to administer and enforce the provisions of this article as may be required by governing law. Any person violating any provision of this article is subject to suit for injunctive relief as well as prosecution for criminal violations.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-717. - Civil remedies.

Nothing in this article shall be construed as a waiver of the city's right to bring a civil action to enforce the provisions of this article and to seek remedies as allowed by law, including, but not limited to the following:

- (1) Injunctive relief;
- (2) Monetary damages; and
- (3) Other relief as directed by a court with jurisdiction over the matter.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-718. - Public nuisance.

- (a) Any violation of this article that results in light trespass or an unreasonable interference with the common and usual use of neighboring property is hereby declared to be a public nuisance which is prohibited by this article.
- (b) It is an offense under this article for a person to emit light onto the property of another unreasonably interfering with the neighboring property owner's use and enjoyment of the property.

(Ord. No. [1312](#), 1-19-2016)

Sec. 22-719. - Administrative guidance.

- (a) The city is authorized to promulgate one or more interpretive documents to aid in the administration of, and compliance with, this article. Such interpretive documents shall be educational only and shall not constitute regulations, amendments or exceptions.
- (b) The provisions of this article shall be cumulative of all other ordinances or parts of ordinances governing or regulating the same subject matter as that covered herein; provided, however, that all prior ordinances or parts of ordinances inconsistent or in conflict with any of the provisions of this article are hereby expressly repealed to the extent that such inconsistency is apparent.
- (c) If any section, subsection, sentence, clause, or phrase of this article is, for any reason, held to be unconstitutional or invalid, such holding shall not affect the validity of the remaining portions of the ordinance codified in this article. The City Council of the City of Llano hereby declares that it would have passed this article and each section, subsection, sentence, clause, or phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared unconstitutional or invalid.
- (d) The ordinance codified in this article shall take effect immediately from and after its passage and publication as may be required by governing law.
- (e) It is hereby officially found and determined that the meeting at which the ordinance codified in this article was passed was open to the public as required and that public notice of the time, place and purpose of said meeting was given as required by the Open Meetings Act, V.T.C.A., Government Code ch. 551.

(Ord. No. [1312](#), 1-19-2016)

Secs. 22-720—22-750. - Reserved.