STATE OF TEXAS CITY OF ALPINE

#### **ORDINANCE 2021-05-01**

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF ALPINE, TEXAS AMENDING CHAPTER 18 – BUILDINGS AND BUILDING REGULATIONS, ARTICLE VII – OUTDOOR LIGHTING TO THE ALPINE CODE OF ORDINANCES; PROVIDING REPEALING AND SEVERABILITY CLAUSES; PROVIDING A TEXAS OPEN MEETINGS ACT CLAUSE; AND PROVIDING AN EFFECTIVE DATE.

**WHEREAS,** the City Council of the City of Alpine has cause in pursuit of their legislative duties on behalf of citizens of Alpine to take steps to ensure adequate lighting standards within the city; and

**WHEREAS,** a series of outdoor lighting ordinance workshops took place between October 2020 and April 2021 where citizens could provide input to a proposed Outdoor Lighting Ordinance aimed at preserving West Texas dark skies; and

**WHEREAS,** it is deemed to be in the best interest of the City to amend the current outdoor lighting ordinance and replace it with the recommended changes received through the Outdoor Lighting Ordinance Workshops.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ALPINE, TEXAS THAT:

# SECTION I FINDINGS OF FACT

Chapter 18 – Buildings and Building Regulations, Article VII – Outdoor Lighting, is hereby amended to reflect the changes hereto attached as Exhibit "A." The premises attached as Exhibit "A" are hereby found to be true and correct legislative and factual findings of the City Council of the City of Alpine and are hereby approved and incorporated herein as findings of fact.

# SECTION II CUMULATIVE CLAUSE

This ordinance shall be cumulative of all provisions of the City of Alpine, Texas, except where the provisions of this Ordinance are in direct conflict with the provisions of such Ordinance, in which event the conflicting provisions of such Ordinance are hereby repealed.

# SECTION III SEVERABILITY CLAUSE

It is hereby declared to be the intention of the City Council of the City of Alpine that the phrases, clauses, sentences, paragraphs, and sections of this Ordinance are severable, and if any phrase, clause, sentence, paragraph or section of this Ordinance should be declared unconstitutional by the valid judgement or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences paragraphs or sections of the Ordinances, since the same would

have been enacted by the City Council without incorporation in this ordinance of any such unconstitutional phrases, clause, sentence, paragraph or section.

# SECTION IV PROPER NOTICE AND MEETING

It is hereby officially found and determined that the meeting at which this Ordinance was adopted was open to the public and that public notice of the time, place and purpose of said meeting was given as required by the Open Meetings Act, Chapter 551 of the Texas Government Code.

# SECTION V EFFECTIVE DATE

This ordinance shall be effective upon passage and publication as required by State and Local law.

PASSED AND ADOPTED THIS  $6^{TH}$  DAY OF JULY 2021 BY THE CITY COUNCIL OF THE CITY OF ALPINE, TEXAS.

CITY OF ALPINE, TEXAS.	
INTRODUCTION AND FIRST READING	SECOND AND FINAL READING
JUNE 15, 2021	JULY 6, 2021
	ATTEST:
Andres "Andy" Ramos, Mayor	Geoffrey R. Calderon, Interim City Secretary
APPROVED AS TO FORM:	

Rod Ponton, City Attorney

#### **EXHIBIT "A"**

#### ARTICLE VII. - OUTDOOR LIGHTING 6

#### Footnotes:

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**Editor's note**— Ord. No. 2010-06-01, adopted Sept. 7, 2010, deleted the former Art. VII, §§ 18-231—18-237, and enacted a new Art. VII as set out herein. The former Art. VII pertained to outdoor lighting and derived from Ord. No. 2000-4-2, §§ 1—7, adopted 5-23-00.

Sec. 18-231. - Title, purpose and scope.

- (1)(a) This article shall be known and cited as the "Outdoor Lighting Ordinance."
- (2)(b) The purpose of this article is:
  - (1) To provide safer, more efficient and attractive outdoor lighting;
  - (2) To conserve energy;
  - (3) To make our community a better place to live and work and a more inviting place to visit; and
  - (4) To preserve the darkness and clarity of the night sky, mindful of the needs of McDonald Observatory.
- (c) This article shall apply within the city, hereinafter referred to as city, and within the surrounding areas where the city asserts powers of extraterritorial jurisdiction.
  - a) To reduce glare and improve nighttime visibility which contributes to safer, more secure, and attractive outdoor living spaces.
  - b) To encourage efficient, controlled lighting that conserves energy.
  - c) To make our community a better place to live and work and a more inviting place for tourist to visit.
  - d) To protect properties from light trespass.
  - e) To preserve our heritage of a clear, dark night sky.
  - f) To be mindful of the needs of McDonald Observatory for minimal artificial light at night to conduct ongoing astronomical research; and
  - g) To position the City to apply for a designation as an International Dark Sky Community.
  - h) To encourage and demonstrate the use of best outdoor lighting practices. *Exhibit 2 of Section 18-240 provides an illustration of best outdoor lighting practices.*

## 3. Scope (what the State allows)

- i) This article shall apply within the City limits, hereinafter referred to as "City".
- j) Nothing herein shall be construed as preventing or limiting the City from applying this article within the surrounding areas where the City asserts powers of extraterritorial jurisdiction through agreements with property owners, or as a term affixed to a conditional approval (such as a variance).

(Ord. No. 2010-06-01, (exh. A), 9-7-10)

Sec. 18-232. - Definitions.

(a) The following definitions are hereby adopted for the purposes of this article:

Area lighting means light fixtures located on public or private property that are designed to light spaces including but not limited to parks, parking lots, and sales lots.

Axis of illumination means the midline of the beam emitted by a light fixture.

Beam of a light fixture means the spatial distribution of the emitted light.

Candela (cd) means the unit of measurement of the intensity of a point source of light (approximately equal to one candlepower).

Existing light fixtures means those outdoor light fixtures already installed at the time this article is adopted.

Foot candle (fc) means the illuminance measured one foot from a one candela source.

Floodlight means a light fixture having a wide beam.

Full cutoff means a shielded light fixture that emits no light above a horizontal plane touching the lowest part of the fixture.

Glare means visual discomfort or impairment caused by a bright source of light in a direction near one's line of sight.

*Horizontal and vertical foot candles* means the illuminance measured by a light meter in those positions (illuminance may also be measured in other specified positions or directions).

Illuminance means the intensity of light in a specified direction measured at a specific point.

Lamp or bulb means a source of light.

Light fixture means the assembly that holds or contains a lamp or bulb.

*Light pollution* means the sky glow caused by scattered light emitted upward from unshielded or poorly aimed light fixtures.

Light trespass means unwanted light falling on public or private property from an external location.

Lumen means the unit of luminous flux, the total amount of light falling uniformly on or passing through an area of one square foot, each point of which is one foot from a one candela source, yielding an illuminance of one foot candle at that distance (the output of lamps and bulbs is customarily measured in lumens, a common 100 watt incandescent light bulb, for example, having an output less than 1,800 lumens).

Private lighting means outdoor light fixtures located on property owned or controlled by individual persons, including but not limited to families, partnerships, corporations, and other entities engaged in the conduct of business or other non-governmental activities.

Public lighting means outdoor light fixtures located on property owned, leased, or controlled by the city or other governmental entity or entities, including but not limited to streets, highways, alleys, easements, parking lots, parks, playing fields, schools, institutions of higher learning, and meeting places, and all entities completely or partly funded by grants obtained by the city or its agents from federal, state or private sources.

Sag lens or drop-lens means a clear or prismatic refracting lens that extends below the lowest opaque portion of a light fixture.

Searchlight means a light fixture having a narrow beam intended to be seen in the sky.

Spotlight means a light fixture having a narrow beam.

Wallpack means a floodlight mounted on the wall of a building or other structure.

#### The following definitions are hereby adopted for the purposes of this article:

- 1) Adaptive controls mean mechanical or electronic devices, when used in the context of outdoor lighting systems, intended to actively regulate the switching, duration, and/or intensity of light emitted by the outdoor lighting system. Examples of adaptive controls include timers, dimmers and motion-sensing switches.
- 2) Beam of a light fixture means the spatial distribution of the emitted light.
  - a) Floodlight means a light fixture having a wide beam.
  - b) Spotlight means a light fixture having a narrow beam.
  - c) Searchlight means a light fixture with a narrow beam intended to be seen in the sky.
- 3) Correlated Color Temperature (CCT) means a measure of the color properties of light emitted by lamps, being equal to the temperature, expressed in Kelvins (K). CCT values are typically provided on lighting manufacturer packaging or data sheets.
- 4) Decorative holiday lighting means low-intensity string lights, whose luminous output does not exceed fifty (50) lumens per linear foot, and fully shielded floodlights, whose luminous output does not exceed one thousand (1,000) lumens and which are aimed and oriented in such a way as to not create light trespass onto another property nor into the night sky, operated only during prescribed periods of time during the calendar year.
- 5) Electronic Message Display means any illuminated sign of an informative or advertising nature, whether on-or off-premises, and operable at night, whose content is made visible to the viewer by means of luminous elements under active electronic control and therefore subject to alteration in order to vary the content of the message. Electronic displays may be either static or dynamic in terms of light color and intensity. *Exhibit 5 of Section 18-240 is a sample educational illustration about internally lit message displays*
- 6) Existing light fixtures means those outdoor light fixtures already installed at the time this article is adopted.
- 7) Fully Shielded means an outdoor luminaire constructed so that in its installed position, all of the light emitted from the light fixture is projected below the horizontal plane passing through the lowest light-emitting part of the fixture. *Exhibit 4 of Section 18-240 provides examples of properly shielded light fixtures*.
- 8) Glare means visual discomfort or impairment caused by a bright source of light in a direction near one's line of sight.
- 9) Greenhouse means any building that is constructed of glass, plastic, or other transparent material in which plants are grown under climate-controlled conditions and includes hoop houses and other similar structures.
- 10) Illuminance means the intensity of light in a specified direction measured at a specific point.
- 11) Light source means a light emitting portion of the luminaire and any diffusing elements and surfaces intended to reflect or refract light emitted from the lamp individually or collectively, for example, a lamp, bulb, lens, highly reflective surface, or frosted glass.

- 12) Light pollution means the unintended, adverse and /or obtrusive effect of the use of outdoor light at night.
- 13) Light trespass means light emitted from fixtures designed or installed in a manner that unreasonably causes light to fall on a property other than the one where the light is installed, in a motor vehicle drivers' eyes, or upwards toward the sky. If the light source is visible from another property or the public roadway, the light is creating light trespass. It is expected that the illumination produced by a light source may be viewed from other properties but the light source itself should not be visible from other properties. Exhibit 3 of Section 18-240 is a sample educational illustration about light trespass.
- 14) Lumen means the unit of measurement used to quantify the amount of light produced by a bulb or emitted from a light source. Lumen values are typically provided on lighting manufacturer packaging or data sheets. For the purposes of this article, unless otherwise stated, the lumen output values shall be the initial lumen output ratings as defined by the manufacturer, multiplied by the lamp efficiency. Lamp efficiency of 95% shall be used for all solid-state lamps and 80% for all other lamps, unless an alternate efficiency rating is supplied by the manufacturer.
- 15) Lumens per Net Acre means the total outdoor light output, as defined in this article, divided by the number of acres, or part of an acre with outdoor illumination. Undeveloped, non-illuminated portions of the property may not be included in the net acreage calculation.
- 16) Luminaire means a complete lighting assembly or lighting fixture, consisting of a lamp, housing, optic(s), and other structural elements, but not including any mounting pole or surface.
- 17) Luminance is a measure of light emitted by or from a surface.
- 18) Nit is the standard unit of measure of luminance used for internally illuminated signs, digital signs, or electronic message displays
- 19) Nonconforming means not conforming to the current ordinance.
- 20) Nonconforming outdoor lighting is lighting that was legally installed before the enactment of this article, that does not conform with the standards set forth in this article.
- 21) Outdoor Lighting means temporary or permanent lighting that is installed, located, or used in such a manner to cause light rays to shine outdoors.
  - a) Nonresidential fixtures that are installed indoors that cause light rays to shine outside are considered outdoor lighting for the intent of this article. See Exhibit 1 of Section 18-240 for an illustration of this type of situation.
  - b) Residential fixtures installed indoors generating more than 3,800 lumens (approximately equal to a 300-watt incandescent bulb) that cause light to shine outside are also considered outdoor lighting for the intent of this article. All of the lighting that illuminates the translucent portion of a greenhouse or solarium, including roofing material, is considered outdoor lighting for the intent of this article. Exhibit 1 of Section 18-240 illustrates an example of indoor/outdoor lighting.
- 22) Private lighting means outdoor light fixtures that are owned or leased or operated or maintained or controlled by individual persons, including but not limited to families, partnerships, corporations, and other entities engaged in the conduct of business or other non- governmental activities.
- 23) Public lighting means outdoor light fixtures that are owned or leased or operated or maintained or controlled by the City or other governmental entity or entities completely or partly funded by grants obtained by the City or its agents from federal, state or private sources. The light fixtures are normally located on, but are not limited to, streets, highways, alleys, easements, parking lots, parks, playing fields, schools, institutions of higher learning, and meeting places.

- 24) Sag-lens or drop-lens fixture means a fixture, typically seen on older streetlights or parking lot lights, where the lens extends below the lowest opaque part of the fixture such that light is scattered above the horizontal plane.
- 25) Shielding is made of Opaque material through which light does not escape.
- 26) Temporary lighting means non-permanent lighting installations installed and operated for a duration not to exceed thirty (30) days.
- 27) Total outdoor light output means the total amount of light, measured in lumens, from all outdoor light fixtures within the illuminated area of a property. The lumen value to be used in the calculation is the lumen value as defined in this article. To compute the total, add the lumen outputs attributed to each light fixture together.
- 28) Warranting is the process used by the City of Alpine to determine whether lighting is required. Such warranting process shall not assume the need for any lighting nor for continuous lighting unless conditions warrant the need. Lighting shall only be installed where warranted.

(Ord. No. 2010-06-01, (exh. A), 9-7-10)

Sec. 18-233. - Existing outdoor light fixtures.

- (a) To reduce glare, safety hazards for drivers and pedestrians, light trespass, and light pollution, all existing spotlights, floodlights, and wallpacks will be adjusted in accordance with the following provisions, excepting the lights at existing sports facilities used temporarily during scheduled sporting or related events.
  - (1) For spotlights and floodlights mounted overhead on poles and used for area lighting, the axis of illumination will be adjusted to an angle not more than 20 degrees from the vertical line between the fixture and the ground (see Exhibits 1 and 2 of section 18 240).
  - (2) For spotlights and floodlights mounted at or near ground level and used to light a building, billboard, or other structure, the axis of illumination will be adjusted to minimize the amount of light escaping above, below, and to the sides of the illuminated object.
  - (3) Wallpacks will be shielded or replaced with full cut off wallpacks.
- (b) It will be the responsibility of the city to publish this article in the newspaper of record and to disseminate the ordinance [this article] by other appropriate means; to make it's best efforts, when possible, to identify those spotlights, floodlights, and wallpacks requiring adjustment; and, as time permits, to inform their owners of these provisions, including owners' right to apply for Dark Sky Fund assistance.
  - (1) Any required adjustments should be completed within six months from the date of the adoption of the lighting ordinance or as soon as possible. Any owner who fails to comply with these provisions may be issued a warning notice. Any owner who further fails to comply after 30 days from the issuance of such warning notice may be subject to a fine of \$25.00 for each day of noncompliance, unless the city council grants a waiver or variance.

It is not the intent of this article to require an additional investment in order to comply with these provisions. Persons needing assistance to purchase light fixtures to comply with this article may apply for assistance from the Dark Sky Fund.

(c) All existing exterior lighting shall comply, if possible, with this lighting ordinance [this article] on or before January 1, 2015. All new construction shall comply after the adoption of this article.

- (d) An owner of a grandfathered luminaire may replace or modify the luminaire so that it conforms to this article if requested by a designated city official. However, the replacement or modification of the luminaire must be provided at no cost to the owner including materials and labor. For example, a grandfathered mercury vapor outdoor light may be retrofitted with a light shield to make it fully shielded.
- 1) All existing outdoor lighting that was legally installed before the enactment of this article, that does not conform with the standards specified by this article shall be considered nonconforming.

  Nonconforming outdoor lighting will be required to be replaced within five (5) years pursuant to the terms of this article.
- 2) If more than fifty percent (50%) of the total appraised value of a structure (as determined from the records of the county's appraisal district), has been destroyed, the nonconforming status expires, and the structure's previously nonconforming outdoor lighting must be removed and may only be replaced in conformity with the standards of this article.
- 3) Existing outdoor light fixtures that are Nonconforming shall be brought into conformance with this article as follows:
  - a) Nonresidential Application. All existing outdoor lighting located on a subject property that is part of an application for a rezoning application, conditional use permit, subdivision approval, or a building permit for a major addition is required to be brought into conformance with this article before final inspection, issuance of a certificate of occupancy, or final plat recordation, when applicable.
    - i) For the following permits issued by the City, the applicant shall have a maximum of 90 days from date of permit issuance to bring the lighting into conformance: site development permit, sign permit for an externally or internally illuminated outdoor sign, initial alcoholic beverage permit, initial food establishment permit, and on-site sewage facility permit.
  - b) <u>Residential addition or remodel</u>. Nothing herein shall be construed to terminate a residential property's nonconforming status as a result of an addition or remodel. However, all outdoor residential lighting that is affixed to a construction project requiring a building permit is required to conform the standards established by this ordinance.
- 4) Any currently "grandfathered" or lighting allowed by a variance, will be subject to this Outdoor Lighting Ordinance in 5 years unless a trigger causes it to be subject to the ordinance at an earlier date.

#### 5) Additions, Modifications or Alterations:

- a) Major Additions.
  - i) If a major addition occurs on a property, lighting for the entire property shall comply with the requirements of this Code. For purposes of this section, the following are considered to be:
    - (1) Additions of 25 percent or more in terms of additional dwelling units, gross floor area, seating capacity, or parking spaces, either with a single addition or with cumulative additions after the effective date of this Ordinance.
- b) Single or cumulative additions, modification or replacement of 25 percent or more of installed outdoor lighting luminaires existing as of the effective date of this Ordinance.
- c) Minor Modifications or Alterations and New Lighting Fixtures for Non-residential and Multiple Dwellings:
  - i) All additions, modifications, or replacement of more than 25 percent of outdoor lighting fixtures existing as of the effective date of this Ordinance shall require the submission of a complete inventory and site plan detailing all existing and any proposed new outdoor lighting.

6) Outdoor lighting on any property that is not in conformance with this article shall be brought into conformance with this article within five (5) years from the date of adoption of this article.

## 7) New Uses or Structures or Change of Use.

- a) All new construction and/or new luminaries installed (including replacements for existing fixtures) shall comply after the adoption of this article.
- b) Whenever there is a new use of a property (zoning or variance change), or the use on the property is changed, all outdoor lighting on the property shall be brought into compliance with this Ordinance before the new or changed use commences.
- c) Any new lighting shall meet the requirements of this Ordinance

#### 8) Abandonment of nonconforming.

- a) A nonconforming structure shall be deemed abandoned if the structure remains vacant for a continuous period of six (6) months. In that instance, the nonconforming status expires, and the structure's previously nonconforming outdoor lighting must be removed and may only be replaced in conformity with the standards of this article.
- b) It is unlawful to expand, repair or replace outdoor lighting that was previously nonconforming, but for which the prior nonconforming status has expired, been forfeited, or otherwise abandoned.
- c) Outdoor lighting on any property that is not in conformance with this article shall be brought into conformance with this article within five (5) years from the date of adoption of this article.
- d) All new construction and/or new luminaires installed (including replacements for existing fixtures) shall comply after the adoption of this article.

## 9) Amortization:

- a) On or before [amortization date -phase out], all outdoor lighting shall comply with this Code
- b) Amortization Extension.
  - i) Residential property owners may make a request to the City for an amortization extension of up to a maximum of ten (10) years from the date a nonconforming fixture was installed provided that the fixture was compliant with existing City ordinances at the time it was installed, and that date of installation can be substantiated via documents, date stamped photographs, etc. or, at the prerogative of the City Manager, corroborative written statements.
- c) Amortization (phase out) extensions to the date at which outdoor lighting shall conform with this article shall be on a per fixture basis with the following requirements:
  - i) The light fixture must be documented to cost at least \$100 when originally purchased.
  - ii) The fixture cannot be brought into compliance by changing the bulb or lighting element or installing shielding.
  - iii) If the bulbs or other lighting elements of the fixture require replacement during the amortization period, the replacement bulbs or lighting elements shall not be rated in excess of 2700 Kelvin.

(Ord. No. 2010-06-01, (exh. A), 9-7-10)

Sec. 18-234. - General Provisions New light fixtures installed after the adoption of this article, including replacements for existing fixtures.

(a) Lighting at public and private outdoor sports facilities, including but not limited to playing fields, arenas, tracks, and swimming pools, will be shielded as well as is practicable to reduce glare, safety hazards, light trespass, and light pollution; will provide levels of illuminance consistent with nationally recognized Illuminating Engineering Society of North America (IESNA) standards; and will be

- operated on a schedule that coincides with scheduled events. This article does not prohibit existing public facility use.
- (b) No lighting of towers and associated facilities is allowed, except by permit, except for flagpoles and except as required by the Federal Aviation Administration or other federal or state agency. In coordination with the applicable federal or state agency, the applicant shall determine the maximum height of the tower that would not require lighting. If a proposed tower would require lighting, the applicant shall demonstrate that a tower height that requires lighting is necessary. Such justification shall include documentation showing:
  - (1) Coverage limitations;
  - (2) Type of system (e.g. cellular, radio, television);
  - (3) Technical and engineering details of the lighting to be installed; and
  - (4) Requirements of federal, state, and local agencies.

If a tower height that requires lighting is justified, the applicant shall demonstrate how the lighting will be shielded from the ground. Shielding of tower lighting onto nearby properties shall be installed as part of construction of the tower. If lighting is justified, slowly blinking red lights must be used at night. White strobe lights at night are prohibited.

- (c) All outdoor lighting fixtures shall be full cutoff fixtures (see Exhibit 3 of section 18-240).
  - (1) New streetlights shall be full cutoff fixtures of approved historical design, utilizing a minimum output consistent with the safety of drivers and pedestrians.
  - (2) Sag-lens or drop lens fixtures are prohibited.
  - (3) Streetlights and private lighting shall be allowed to shine on adjacent property in the absence of a complaint of light trespass by an owner or occupant.
  - (4) Light trespass is defined as 0.2 fc measured five feet above the ground five feet inside the property line with the detector aimed at the source. Upon receiving a complaint of light trespass from an owner or occupant, the city will evaluate the complaint. Where light trespass is found to occur, the city will take appropriate steps to eliminate or minimize the unwanted light emanating from a light on city property, or from private lighting. If a violation is found to occur the offender may switch to a lower wattage bulb or convert to FCO fixtures to become compliant.
- (d) In the interest of conserving energy and protecting the environment, mercury vapor fixtures are prohibited.
- (e) Each flag shall be lighted by one spotlight emitting no more than 1,800 lumens.

## 1) Shielding

- a) Unless exempted elsewhere in this article, all outdoor lighting shall be fully shielded.
- b) When the light source is on and is visible from a distance of four (4) times or more than the mounting height of the fixture, it is nonconforming.
- c) New streetlights shall be full cutoff fixtures (fully shielded) of approved historical design, utilizing a minimum output consistent with the safety of drivers and pedestrians.
- d) Mounting height or topography or proximity to other properties may cause public or private outdoor light fixtures to require additional shielding to prevent glare or an unsafe condition on properties other than the one on which it is installed.

- e) All of the lighting that illuminates the translucent portion of a greenhouse or solarium must be shielded so that no direct light shines outside of the structure and no more than 4% of the reflected or refracted illumination is allowed to escape outside the structure.
- f) Outdoor light fixtures with a maximum output of 200 lumens per fixture, regardless of the number of bulbs, may be left unshielded provided the source of the light is not visible from any other property and the fixture conforms to all other stipulations of this article. The output from these fixtures shall not exceed 10% of the lumens per net acre allowed by this article.
- g) See examples in Section 18-240 Exhibit 4
- 2) **Light trespass is prohibited**. No luminaire installed within City limits, except government owned streetlights, shall create conditions of light trespass.
  - a) Government owned streetlights may only create light trespass below it within one hundred (100) feet of its installed location.
  - b) All outdoor lighting except government owned street lighting shall be shielded so that the light source shall not be visible from any other property.
  - c) Light trespass means light emitted from fixtures designed or installed in a manner that unreasonably causes light to fall on a property other than the one where the light is installed, in a motor vehicle drivers' eyes, or upwards toward the sky.
  - d) If the light source is visible from another property or the public roadway, the light is creating light trespass.
  - e) It is expected that the illumination produced by a light source may be viewed from other properties but the light source itself should not be visible from other properties.
  - f) Upon receiving a complaint of light trespass from an owner or occupant, the city will evaluate the complaint. Where light trespass is found to occur, the city will take appropriate steps to eliminate or minimize the unwanted light emanating from a light on city property, or from private lighting. If a violation is found to occur the offender may switch to a lower wattage bulb or convert to FCO fixtures to become compliant.
  - g) Exhibit 3 of Section 18-240 is a sample educational illustration about light trespass.

#### 3) Outdoor Sports Facilities.

- a) Lighting at public and private outdoor sports facilities, including but not limited to playing fields, arenas, tracks, and swimming pools, will be shielded to the greatest practical extent to reduce glare, safety hazards, light trespass, and light pollution.
- b) Lighting will provide levels of illuminance that are adjustable according to task, allowing for illuminating levels not to exceed nationally recognized Illuminating Engineering Society of North America (IESNA) standards according to the appropriate class of play, as well as for lower output during other times, such as when field maintenance is being actively performed; and
- c) Lighting shall be provided exclusively for illumination of the surface of play and adjacent viewing stands, and not for any other application, such as lighting a parking lot; and
- d) Lighting must be extinguished by 11:00 p.m. or within one (1) hour of the end of active play. The outdoor sports facility lighting shall be fitted with mechanical or electronic timers to prevent lights from being left on accidentally overnight.
- e) Outdoor sports facility lighting will be exempted from the other regulations of this article if its design and installation, as certified by a professional engineer (PE) licensed in the state of Texas, adheres to the version of the International Dark-Sky Association's Criteria for Community-

Friendly Outdoor Sports Lighting operative at the time when the construction permit is submitted to the City for review.

## 4) Towers.

- a) No lighting of towers and associated facilities is allowed, except by permit, and except as required by the Federal Aviation Administration or other federal or state agency.
- b) In coordination with the applicable federal or state agency, the applicant shall determine the maximum height of the tower that would not require lighting.
- c) If a proposed tower would require lighting, the applicant shall demonstrate that a tower height that requires lighting is necessary.
- d) Such justification shall include documentation showing:
- e) Coverage limitations.
- f) Type of system (e.g., cellular, radio, television).
- g) Technical and engineering details of the lighting to be installed; and
- h) Requirements of federal, state, and local agencies.
- i) If a tower height that requires lighting is justified, the applicant shall demonstrate how the lighting will be shielded from the ground.
- j) Shielding of tower lighting onto nearby properties shall be installed as part of construction of the tower.
- k) If lighting is justified, slowly blinking red lights must be used at night.
- I) White strobe lights at night are prohibited (this needs clarification if ok to use during the daylight hours
- m) All outdoor lighting fixtures shall be full cutoff fixtures (see Exhibit 3 of section 18-240).

## 5) Streetlighting

- a) New streetlights shall be full cutoff fixtures of approved historical design, utilizing a minimum output consistent with the safety of drivers and pedestrians.
- b) Sag-lens or drop lens fixtures are prohibited.
- c) Streetlights and private lighting shall be allowed to shine on adjacent property in the absence of a complaint of light trespass by an owner or occupant.
- d) Light trespass means light emitted from fixtures designed or installed in a manner that unreasonably causes light to fall on a property other than the one where the light is installed, in a motor vehicle drivers' eyes, or upwards toward the sky. If the light source from another property or the public roadway, the light is creating light trespass. It is expected that the illumination produced by a light source may be viewed from other properties but the light source itself should not be visible from other properties. Exhibit 3 of Section 18-240 is a sample educational illustration about light trespass.
- e) Upon receiving a complaint of light trespass from an owner or occupant, the city will evaluate the complaint. Where light trespass is found to occur, the city will take appropriate steps to eliminate or minimize the unwanted light emanating from a light on city property, or from private lighting. If a violation is found to occur the offender may switch to a lower wattage bulb or convert to FCO fixtures to become compliant.
- f) In the interest of conserving energy and protecting the environment, mercury vapor fixtures are prohibited.

## 6) Color Temperature.

- a) The correlated color temperature (CCT) of luminaries shall not exceed 2700 Kelvins.
- b) Luminaries rated below 2500 Kelvin are encouraged for better nighttime visibility.

#### 7) Service Station Canopies and other building overhangs.

- a) All luminaires mounted on or recessed into the lower surface of service station canopies or other overhangs shall be fully shielded and utilize only flat lenses or windows.
- b) Shielding must be provided by the luminaire itself, and not by surrounding structures such as canopy edges.
- c) Light directed on service station pumps may be angled to illuminate the pump to the level of federal standards and to shield the light from normal view.

#### 8) General curfew.

- a) In all nonresidential zones,
- b) All privately owned exterior lighting not adaptively controlled shall be extinguished by 11:00 p.m. or within one (1) hour of the end of normal business hours, whichever occurs later.
- c) Exterior lighting with adaptive controls shall reduce lighting to 25% or less of the total outdoor light output allowed by 11:00 p.m. or within one (1) hour of the end of normal business hours, whichever occurs later. Adaptive controls may be used to activate lights and resume normal light output when motion is detected and be reduced back to 25% or less of total outdoor light output allowed within 5 minutes after activation has ceased, and the light shall not be triggered by activity off property.
- d) Businesses whose normal operating hours are (24) twenty-four hours per day are exempt from this provision.
- e) All publicly owned lighting not adaptively controlled must be fully extinguished by 11:00 p.m., or within one (1) hour of the end of occupancy of the structure or area to be lit, whichever is later.
- f) All outdoor lighting is encouraged to be turned off when no one is present to use the light.

## 9) Lumen Caps.

- a) The lumen per net acre value is an upper limit and not a design goal; design goals should be the lowest level that meets the requirement of the task.
- b) Lumen per net acre values exclude governmental owned streetlights used for illumination of public rights-of-way and outdoor recreation facilities.
- c) Nonresidential Property. Total outdoor light output installed on any nonresidential property shall not exceed 50,000 lumens per net acre in any contiguous illuminated area.
- d) Residential Property. Total outdoor light output installed on any residential property shall not exceed 25,000 lumens per net acre in any contiguous illuminated area.

#### 10) Adaptive Controls.

a) All new publicly owned lights, including streetlights, will incorporate adaptive controls (e.g., timers, motion-sensors, and light-sensitive switches) to actively regulate the emission of light from light fixtures such that the lighting of areas is restricted to times, places and amounts required for safe occupancy.

#### 11) Flagpoles.

- a) Property owners are encouraged to not illuminate flagpoles at night, but rather to hoist flags after dawn and lower flags before sunset.
- b) If flags are illuminated at night, lighting is permitted with the following conditions:

- i) Flagpoles with a height greater than 20 feet above ground level shall be illuminated only from above. The total light output from any luminaire mounted on top of or above a flagpole shall not exceed 800 lumens.
- ii) Flagpoles with a height equal to or less than twenty (20) feet above ground level may be illuminated from below with up to two (2) spotlight type luminaires emitting no more than 1,000 lumens, utilizing shields to reduce glare and prevent excessive light from shining around the intended target of illumination (the flag).
- iii) Luminaires are to be mounted so that their lenses are perpendicular to the flagpole and the light output points directly toward the flag(s).

## 12) Prohibitions.

- a) The use of the following types of outdoor lighting are prohibited, except as specifically exempted here or elsewhere in this article.
- b) Sag-lens or drop lens fixtures are prohibited. Sag-lens or drop-lens fixture means a fixture, typically seen on older streetlights or parking lot lights, where the lens extends below the lowest opaque part of the fixture such that light is scattered above the horizontal plane.
- c) Any luminaire that uses mercury vapor lamps is prohibited.
- d) Searchlights, skybeams, and similar lighting, except as required by emergency response personnel during emergency conditions.
- e) Any light that dynamically varies its output by intermittently fading, flashing, blinking, or rotating. This type of lighting includes strobe lighting.
- f) Light Trespass is prohibited. Refer to General Provisions.

#### 13) Warranting.

a) New installations of outdoor lighting will only be installed on public properties and right-of-way upon determination by the City Manager that a public safety hazard exists in the area to be lit, and that the hazard can only be effectively mitigated through the use of outdoor lighting and not through some other passive means, such as reflectorized roadway paint or markers.

(Ord. No. 2010-06-01, (exh. A), 9-7-10)

Sec. 18-235. - Reserved-Maximum maintained levels of illuminance required or permitted at specific facilities.

- (a) Maximum, average, and minimum levels of illuminance (maintained) for different facilities are listed below in horizontal foot candles. Unless otherwise specified, minimum levels shall be the lowest consistent with safety and security.
  - (1) Parking lots and parking areas: average 2.0 fc; minimum 0.2fc.
  - (2) Entry areas near buildings: maximum 5.0 fc.
  - (3) Service stations and other fueling facilities: maximum 10 fc in the area surrounding pump islands; parking areas and entry areas shall be lighted as required in subsections (a)(1) and (a)(2) of this section; drop lens fixtures are prohibited, whether mounted under canopies or on poles.
  - (4) Sales lots where merchandise, including automobiles, is displayed at night: maximum 15 fc.
- (b) For locations and facilities not specified herein, the city council may set acceptable levels of illuminance upon request based on guideline established by the IESNA.

(c) The use of searchlights is prohibited for advertising, attracting attention to any event, and for any other use except for emergency purposes.

(Ord. No. 2010-06-01, (exh. A), 9-7-10)

## Sec. 18-236. – Plan Submission and Compliance Review Large outdoor lighting projects.

- (a) Any outdoor lighting project that will produce a luminous power of 100,000 lumens or more in the aggregate shall file a lighting plan with the city. A lighting plan shall be filed at the same time as any other plans required by the city and shall specify the following:
  - (1) Number and types of light fixtures to be used,
  - (2) Their output in lumens; and
  - (3) Photometric data from the manufacturer(s) showing the spatial distribution of the light output from the proposed fixtures, both on the ground and as a function of angle from the vertical (nadir).
- (b) The lighting plan shall be reviewed by the city building official, taking into account factors, including but not limited to, levels of illuminance, luminance, glare, safety hazards, light trespass, and light pollution. The building official may seek input from community members knowledgeable about outdoor lighting during the review process. The building official shall approve or reject the plan within 30 days of submission, returning it to the applicant with an explanation. The applicant shall not move forward with the outdoor lighting project until the lighting plan is approved.
- 1) Any individual applying for a compliance review or building permit under this article intending to install new outdoor lighting or update existing outdoor lighting shall file a lighting plan with the City.
- 2) A lighting plan shall be filed at the same time as any other plans required by the City. The individual may obtain from City staff a document that lists all of the items that comprise a proper and complete outdoor lighting submittal.
- 3) The submittal shall contain, but not necessarily be limited to the following:
  - a) Plans must indicate
    - i) the number and location on the premises of proposed and existing light fixtures, the type of light fixture (the manufacturer's order number), the lamp type, Kelvin rating, initial lumens produced, the mounting height for each fixture, adaptive controls, building elevations for any structure whose interior lighting is defined as outdoor lighting per this article and the manufacturer's specification sheet for each light fixture.
    - ii) The number of acres or part of an acre that is to be illuminated contiguously, the square footage of the footprint for each structure within the area to be illuminated; and
    - iii) Any other evidence that the proposed installation will comply with this ordinance.
  - b) Compliance Review.
    - i) The lighting plan shall be reviewed by the City building official to determine compliance with this article, taking into account all factors, including but not limited to, levels of illuminance, luminance, glare, safety hazards, light trespass, and light pollution.
    - ii) The building official may seek input from community members knowledgeable about outdoor lighting during the review process.
    - iii) The building official shall approve or reject the plan within 30 days of submission, returning it to the applicant with an explanation.
    - iv) The applicant shall not move forward with the outdoor lighting project until the lighting plan is approved.
    - v) After the lighting plan is approved, no substitutions may be made for approved light fixtures without re- submitting the plan for review with the substitutions.

(Ord. No. 2010-06-01, (exh. A), 9-7-10)

Sec. 18-237. - Exemptions, temporary permitting, amendments, enforcement, civil remedies and public nuisance. Exemptions, amendments, and variances.

- (a) This article shall not apply to the following:
  - (1) Decorative holiday lighting from November 15 through the next January 15;
  - (2) Lighting required by the law to be installed on surface vehicles and aircraft;
  - (3) Airport lighting required by law;
  - (4) Temporary emergency lighting;
  - (5) Temporary lighting other than security lighting at construction projects; and
  - (6) Governmental facilities where compelling needs for safety and security are demonstrated, or government sports facilities.
- (b) This article may be amended from time to time as local conditions change, and as changes occur in the recommendations of nationally recognized organizations such as the Illuminating Engineering Society of North America and the International Dark Sky Association, if the council wishes to do so.
- (c) Nothing in this article shall be construed as limiting the right of any person or entity to pursue legal action against any other person or entity under any applicable law, including the doctrine of light trespass.
- (d) The city council may grant variances in the application of the provisions of this article.
- 1) This article shall not apply to the following:
  - a) Decorative holiday lighting from November 15 through the next January 15 during the hours of 6:00 a.m. to 11:00 p.m. each day, except that flashing holiday lights are prohibited on nonresidential properties. Holiday lights may be illuminated one additional seven (7) day period per calendar year.
  - b) String, festoon, bistro, and similar lighting, provided that the emission of no individual lamp exceeds fifty (50) lumens, and no installation of such lighting exceeds, in the aggregate, six thousand (6,000) lumens. These lights must be rated at or below 2700 Kelvin.
  - c) Underwater lighting of swimming pools and similar water features.
  - d) Lighting required by law to be installed on surface vehicles and aircraft.
  - e) Airport lighting required by law.
  - f) Lighting required by federal or state laws or regulations.
  - g) Temporary emergency lighting needed by law enforcement, fire and other emergency services as well as building egress lighting whose electric power is provided by either battery or generator.
  - h) Lighting employed during emergency repairs of roads and utilities provided such lighting is deployed, positioned and aimed such that the resulting glare is not directed toward any roadway or highway or residence.
  - i) Temporary lighting, other than security lighting, at construction projects provided such lighting is deployed, positioned and aimed such that the resulting glare is not directed toward any roadway or highway or residence.
  - j) Governmental facilities where compelling needs are demonstrated.

k) Temporary lighting, permitted in this article, for theatrical, television, performance areas, or events provided such lighting is deployed, positioned and aimed such that the resulting glare is not directed toward any roadway or highway or residence.

## 2) Temporary Permitting.

- a) Lighting such as that needed for theatrical, television, performance areas, or events may be allowed by temporary exemption.
- b) Temporary lighting that does not conform to the provisions of this article may be approved at the discretion City Council or the City Manager subject to submission of an acceptable Temporary Outdoor Lighting Permit.
- c) Permit term and renewal.
  - i) Permits issued shall be valid for no more than seven (7) calendar days and subject to no more than one renewal, at the discretion of City Manager, for an additional seven (7) calendar days.
- d) Conversion to a permanent status.
  - i) Any lighting allowed by Temporary Outdoor Lighting Permit that remains installed after fourteen (14) calendar days from the issue date of the permit is declared permanent and is immediately subject to all of the provisions of this article.
- e) Permit contents.
  - i) A request for a Temporary Outdoor Lighting Permit for a temporary exemption to any provision of this article must list the specific exemption requested and the start and end date of the exemption. Search lights, skybeams and similar lighting will not be allowed. The City may ask for any additional information which would enable a reasonable evaluation of the request for temporary exemption.

#### 3) Amendment.

a) This article may be amended from time to time as local conditions change, and as changes occur in the recommendations of nationally recognized organizations such as the Illuminating Engineering Society of North America and the International Dark-Sky Association, if the council wishes to do so.

#### 4) Enforcement.

- a) It will be the responsibility of the City to publish this article in the newspaper of record and to disseminate the ordinance [this article] by other appropriate means; to publish information about the ordinance on the City website; and, as time permits, to inform owners of noncompliant lighting of these provisions.
- b) The City Manager is authorized to promulgate one or more interpretive documents to aid in the administration of, and compliance with, this article. Such interpretive documents, with examples such as Exhibits 1, 2, 3 and 4 of Section 18-240, shall be educational only and shall not constitute regulations, amendments, or exceptions.

#### 5) Violations.

- a) It shall be unlawful to install or operate any outdoor lighting luminaire in violation of any provision of this article.
- b) Any person violating any provision of this article shall be guilty of a class A misdemeanor and may also be subject to suit for injunctive relief.
- c) Each and every day during which the illegal erection, maintenance and use of such nonconforming lighting continues shall be considered to constitute a separate offense.
- d) Any owner who fails to comply with these provisions may be issued a warning notice.

- e) The owner of the noncompliant lighting must, within 30 days from the issuance of such warning notice, submit a lighting plan as defined in Sec. 18-236 to come into compliance with this article.
- f) Any owner who further fails to comply after 60 days from the issuance of such warning notice may be subject to criminal and civil penalties including a fine of \$50.00 for each day of noncompliance, unless the City Council grants a waiver of the fine.

#### 6) Civil remedies.

a) Nothing in this article shall be construed as limiting the right of any person or entity to pursue legal action against any other person or entity under any applicable law, including the doctrine of light trespass.

#### 7) 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.

(Ord. No. 2010-06-01, (exh. A), 9-7-10)

**Cross reference**— Streets, sidewalks, and other public places, ch. 86.

Sec. 18-238. - Notification.

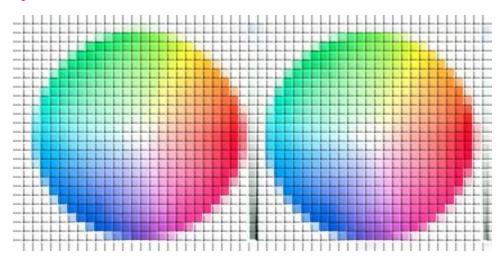
All building permit applicants will be notified of the city lighting ordinance [this article].

(Ord. No. 2010-06-01, (exh. A), 9-7-10)

Sec. 18-239. Sign illumination.

- (a) All permanent signs may be non-illuminated, illuminated by internal, internal indirect (halo), or lit by external indirect illumination, unless otherwise specified. All illuminated signs shall be extinguished at 11:00 p.m. or when the use or activity closes, whichever is later.
- (b) Internal illumination. Outdoor, internally illuminated signs, including but not limited to awning/canopy signs, cabinet signs (whether freestanding or building mounted), changeable copy panels or service island signs, shall be constructed with an opaque background and translucent letters and symbols, or with a colored background and lighter letters and symbols. Where white or other night bright colors are part of a logo, such colors are permitted in the logo only, provided that such logo shall represent not more than 50 percent of the total sign area permitted. Colors considered to be "night bright", as used in this provision, are defined with reference to the color wheel below. Existing signs may be grandfathered in, or not subject to change as determined by the city council. If existing signs are damaged more than 50 percent, they will need to comply with the standards in this article.

Figure 1 - DELETE



Color Wheel "A" Sign Background - Color Wheel "B" Logo Color

#### Sec. 18-239. - Sign illumination.

- 1) All permanent signs may be non-illuminated, illuminated by internal, internal indirect (halo), or lit by external indirect illumination, unless otherwise specified. All illuminated signs shall be extinguished at 11:00 p.m. or within one (1) hour of the end of normal business hours, whichever occurs later. All sign illumination must comply with the correlated color temperature (CCT) requirements of this article.
- 2) Top-down lighting. Externally illuminated signs shall be lit only from the top of the sign, with fully shielded luminaires designed and installed to prevent light from spilling beyond the physical edges of the sign.
- 3) Outdoor internally illuminated signs (whether free standing or building mounted) shall be subject to all the following requirements:
  - a) The sign must be constructed with an opaque background and translucent letters and symbols or with a colored background and lighter letters and symbols. *See Exhibit 5 of Section 18-240 for examples.*
  - b) The internally illuminated portion of the sign **cannot** be white, cream, off-white, light tan, yellow or any light color unless it is part of a registered logo that does not have an alternate version with dark tones. Light tone colors such as white, cream, off-white, light tan, yellow or any light color are permitted in the logo only, provided that such colors in the logo shall represent not more than 33% of the total sign area permitted.
  - c) The internal illumination, between sunset and sunrise, is to be the lowest intensity needed to allow the sign to be visible for up to 1/2 mile from its installation and shall not exceed 100 nits.
- 4) Size limit. The luminous surface area of an individual sign shall not exceed 200 square feet.
- 5) Electronic message displays.
  - a) Electronic message displays are discouraged and shall comply with outdoor lighting curfews stipulated in this ordinance. Messages appearing on electronic displays shall not be displayed for less than (30) seconds and shall require no longer than 0.25 seconds to transition from one message to another. Moving and/or flashing text or images are prohibited.
- 6) Permitted location.

- a) Off-premises signs shall not be placed within one thousand (1,000) feet of another off-premises sign on the same side of an arterial street or highway, regardless of face orientation, or within one thousand (1,000) feet of a residential area.
- 7) Refer to Exhibit 5. Internally Illuminated Signs.

(Ord. No. 2010-06-01, (exh. A), 9-7-10)

Sec. 18-240. - Exhibits.

Figure 2- DELETE

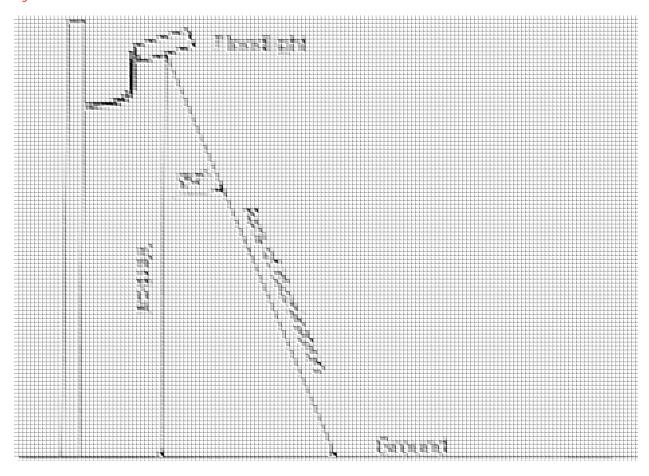


Exhibit 1. See [subsection 18-233(a)(1) of this article]: For spotlights and floodlights mounted overhead on poles and used for area lighting the axis of illumination shall be adjusted to an angle not more than 20 degrees from the vertical line between the fixture and the ground.

Figure 3- DELETE

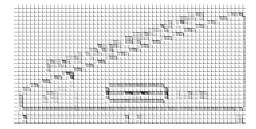


Exhibit 2. A tool for aiming lights as in Exhibit 1, above. Place the upper edge of the tool against the lens, and adjust the fixture so the bubble shows level.

#### Exhibit 3. Unacceptable Fixtures and Acceptable Fixtures

#### AN ORDINANCE TO IMPROVE OUTDOOR LIGHTING

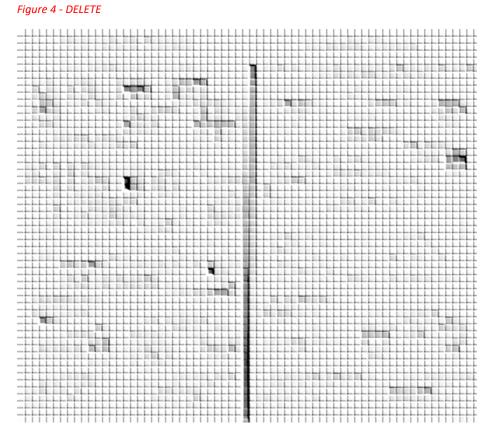
## City of Alpine, Texas

Proposed changes to the City of Alpine lighting ordinance adopted in 2000 are designed to benefit residents and businesses in Alpine by constituting better nighttime visibility, public safety, energy efficiency, and preservation of the natural night environment. Please refer to [this article] for the complete Outdoor Lighting Ordinance. To reduce the economic impact to the community a Dark Sky Fund that is funded by private and public donations has been created.

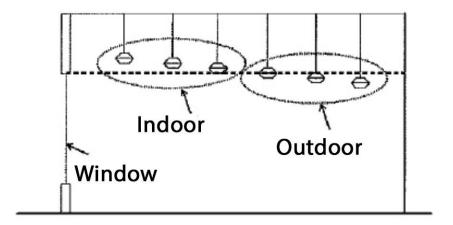
The goal is not to turn off lights at night but direct it to where it is wanted and prevent it from being wasted into the night sky.

\*Note: Recommended illumination levels established by Illuminating Engineering Society of North America shall be observed. When taking out an electrical permit, provide an isofootcandle plot and fixture 'cut sheet' for proposed lighting along with permit application.



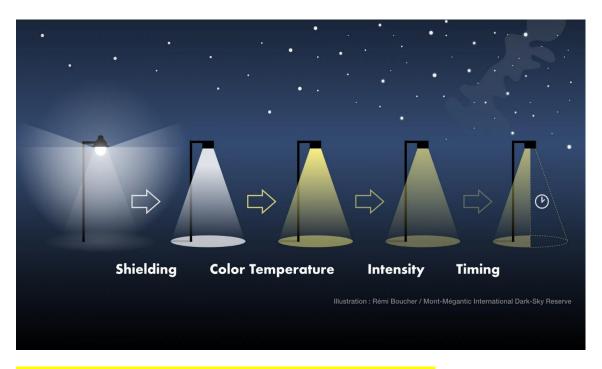


# Exhibit 1. Indoor/outdoor lighting.



- 1) Elevation view showing an example of a nonresidential application of indoor lighting, labeled "Outdoor", which will be subject to this article.
- 2) The example presumes the structure in question is not elevated such that any of the luminaires labeled "Indoor" may be seen from any other property.
- 3) If the structure is elevated such that the luminaires labeled "Indoor" are visible from another property then, they are actually "outdoor lighting" and subject to this article.
- 4) All luminaries under skylights or other translucent roofing materials are subject to this article just as the fixtures behind the window are in this example.

Exhibit 2. An illustration of best outdoor lighting practices.



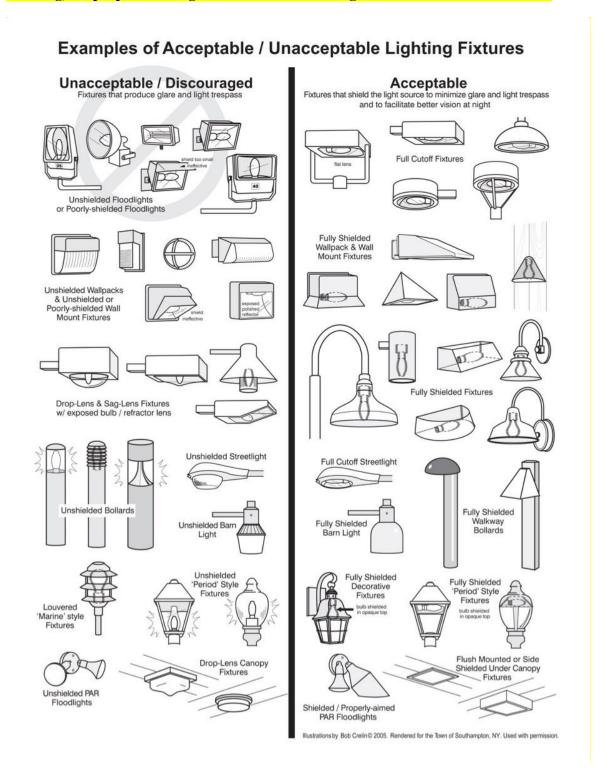
- 1) Light fixtures/luminaires with no shielding waste light into the sky.
- 2) Use shielding to reclaim wasted light and direct it to the area to be lit.
- 3) Lower the correlated color temperature (CCT) from "cool" white light to "warm" white.
- 4) Lower the intensity to provide as much light as needed for the application, but no more.
- 5) Use adaptive controls, e.g., timers, half-night photocells, motion sensors, etc., to limit the hours the light is in use.

## Exhibit 3. Light Trespass



- 1) Light trespass means light emitted from fixtures designed or installed in a manner that unreasonably causes light to fall on a property other than the one where the light is installed, in a motor vehicle drivers' eyes, or upwards toward the sky.
- 2) If the light source is visible from another property or the public roadway, the light is creating light trespass.
- 3) It is expected that the illumination produced by a light source may be viewed from other properties but the light source itself should not be visible from other properties.
- 4) Upon receiving a complaint of light trespass from an owner or occupant, the city will evaluate the complaint.
- 5) Where light trespass is found to occur, the city will take appropriate steps to eliminate or minimize the unwanted light emanating from a light on city property, or from private lighting.
- 6) If a violation is found to occur the offender may switch to a lower wattage bulb or convert to FCO fixtures to become compliant.

Exhibit 4. Unacceptable Fixtures and Acceptable Fixtures - Note the presence or absence of shielding, the purposeful design and the direction the light is intended to shine towards.



**Exhibit 5. Internally Illuminated Signs.** 



(Ord. No. 2010-06-01, (exh. A), 9-7-10)

Secs. 18-241—18-250. - Reserved.