

*Orders for Regulation of Outdoor
Lighting in Pecos County, Texas*

A. DEFINITIONS

In these Orders:

1. "Outdoor Lighting" means:

a) temporary or permanent lighting that is installed, located, or used in such a manner to cause light rays to shine outdoors including lighting for billboards, streetlights, searchlights used for advertising purposes, externally or internally illuminated on or off-site advertising signs, and area-type lighting.

b) nonresidential fixtures that are installed indoors that cause light rays to shine outside are considered outdoor lighting for the intent of these Orders (see Exhibit 3).

2. "Installed" means the initial installation or replacement of outdoor lighting as defined herein.

3. "Fully shielded" means that those fixtures shall be shielded in such a manner that light rays emitted by the fixture, either directly from the bulb or indirectly from the fixture, are projected below the horizontal plane running through the lowest point on the fixture where light is emitted.

4. "Existing light fixtures" means those outdoor light fixtures already installed at the time these Orders is adopted.

5. "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 (see Exhibit 5).

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

7. "Spotlight" means a light fixture having a narrow beam.

8. "Floodlight" means a light fixture having a wide beam.

9. "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 source individually or collectively, for example, a lamp, bulb, lens, highly reflective surface, or frosted glass.

10. "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. (See Exhibit 6 for educational illustration about light trespass.)

11. *"Light Pollution" means the unintended, adverse and/or obtrusive effect of the use of outdoor light at night.*

12. *"Lumen" means the unit of measurement used to quantify the amount of light produced by a bulb or emitted from a light source. For the purposes of these Orders, the lumen output values shall be the initial lumen output ratings as defined by the manufacturer. Lumen values are typically provided on lighting manufacturer packaging or data sheets*

13. *"Lumens per Net Acre" means the total outdoor light output, as defined in these Orders, 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.*

14. *"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 (see Exhibit 2).*

15. *"Electronic Message Display" means any illuminated sign of an informative or advertising nature, whether on-or off-premise, 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.*

16. *"Nit" is the standard unit of measure of luminance used for internally illuminated signs, digital signs, or electronic message displays.*

17. *"Greenhouse" means any building that is constructed of glass, plastic, or other transparent or translucent material in which plants are grown under climate-controlled conditions and includes hoop houses and other similar structures.*

18. *"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.*

19. *"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.*

B. GENERAL REQUIREMENTS

1. New lighting installations:

a) Shielding: All outdoor lighting fixtures installed, replaced, or repaired after the effective date of these Orders shall be fully shielded except as otherwise specified in these Orders.

b) Color Temperature: All outdoor lighting fixtures installed, replaced, or repaired after the effective date of these Orders shall have a maximum Correlated Color Temperature (CCT) of 2700 Kelvins or less.

c) Lumens Cap: All outdoor lighting installations shall comply with the Lumens Cap as defined in Section XX under GENERAL REQUIRMENTS.

d) Adaptive Controls: All outdoor lighting is encouraged to be turned off when no one is present to use the light. Adaptive controls such as timers, motion sensors, and half night photocells can assist in this effort.

See Exhibit 1 for an illustration of best outdoor lighting practices.

2. Color Temperature:

a) The Correlated Color Temperature (CCT) of luminaries shall not exceed 2700 Kelvins.

b) Luminaries rated at or below 2200 Kelvin are encouraged for better nighttime visibility to reduce glare and light pollution.

3. Light Trespass:

a) Light trespass is prohibited.

b) No luminaire, except government streetlights, shall create conditions of light trespass. Government streetlights may only create light trespass below it within a radius of four (4) times the mounting height.

c) All outdoor lighting, except government streetlights, shall be shielded so that the light source shall not be visible from any other property.

4. Lumens Cap:

a) The Lumens per Net Acre values are an upper limit and not a design goal; design goals should be the lowest levels that meet the requirement of the task. Lumens per Net Acre values exclude government streetlights used for illumination of public rights-of-way and outdoor recreation facilities.

b) 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;

c) 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.

5. Adaptive Controls:

All outdoor lighting is encouraged to be turned off when no one is present to use the light. Adaptive controls such as timers, motion sensors, and half night photocells can assist in this effort.

6. Existing fixtures:

a) Outdoor lighting on any property that is not in compliance with these Orders shall be brought into compliance with these Orders within five (5) years from the date of adoption of these Orders.

b) All adjustable floodlights shall be shielded and/or aimed to comply with the fully shielded provision of these Orders within six (6) months from the date of adoption of these Orders. If optional shielding is not available, unshielded fixtures shall be adjusted to point straight down.

7. Recreational or sports lighting:

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) 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) 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) 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 these Orders 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.

8. Sign Lighting:

All externally or internally illuminated signs shall be extinguished at 11:00 p.m. or within one (1) hour of the end of normal business hours, whichever occurs first.

a) Externally Illuminated Signs:

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.

All external sign illumination must comply with the Correlated Color Temperature (CCT) requirements of this article.

b) Internally Illuminated Signs:

Outdoor internally illuminated signs (whether free standing or building mounted) shall be subject to all the following requirements:

i) 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 7 for examples).

ii) 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.

iii) 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 50 nits.

iv) Size limit: The luminous surface area of an individual sign shall not exceed 50 square feet.

v) 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.

9. Service Station Canopies:

All luminaires mounted on or recessed into the lower surface of service station canopies shall be fully shielded and utilize only flat lenses or windows and conform to the Correlated Color Temperature (CCT) provision of these Orders.

10. Outdoor building facade or landscaping illumination:

The unshielded outdoor illumination of any building or landscaping, or sign is prohibited. Spotlights less than or equal to 500 lumens may be used, provided such fixtures are shielded and aimed to prevent light from being emitted away from the target of illumination and are rated at 2700K CCT or less.

11. Tower Lighting:

No lighting of towers and associated facilities is allowed, except as required by the Federal Aviation Administration or other federal or state agency. Towers requiring white strobe lights during the day will transition to the lowest allowed intensity pulsating red lights at night.

12. Mercury vapor: *The installation of high-pressure mercury vapor fixtures is prohibited after the effective date of the Orders.*

13. Flagpole Lighting:

a) Flagpoles with a height greater than twenty (20) feet above ground level shall be illuminated from above.

b) Flagpoles with a height equal to or less than twenty (20) feet above ground level may be illuminated from below.

c) If ground-level illumination is used, flagpoles may be illuminated with spotlight type luminaires, utilizing shields to reduce glare, whose maximum combined lumen output is 75 lumens per linear foot of pole height, measured from the level of the luminaire above grade to the top of the flagpole. Luminaires are to be mounted so that their spotlight beams point directly toward the flag(s).

d) Flagpole lighting shall conform to the Correlated Color Temperature (CCT) provision of these Orders.

14. String or Rope Lighting:

a) String, rope, 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 have a CCT at or below 2700 Kelvin.

15. Greenhouse Lighting:

b) 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 these Orders. The output from these fixtures shall not exceed 10% of the Lumens per Net Acre allowed by these Orders.

All the lighting used in a greenhouse or solarium must be shielded so that no direct light shines outside of the structure (see Exhibit 3).

C. EXEMPTIONS

Any individual may submit a written request to the County Judge for a temporary exemption from the requirements of these Orders: The request for the exemption shall contain as a minimum the following information:

- a) Proposed use of outdoor light involved.*
- b) Type of light fixture used, including manufacturer's model number.*
- c) Total lumens of lamp or lamps.*
- d) Proposed location of outdoor light.*
- e) Beginning and ending date of proposed exemption.*

D. ENFORCEMENT

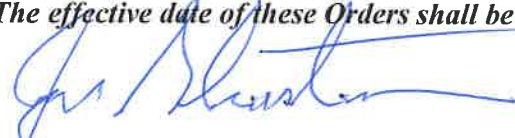
A law enforcement officer of the State of Texas, the Sheriff, or any other officer of Pecos County shall make enforcement of these Orders.

E. PENALTIES FOR VIOLATION

An individual or business adjudged guilty of violation of these Orders shall be punished by a fine not to exceed \$500.00. Prior to receiving a citation for violation of these Orders, an individual shall be given one warning and a ten (10) day period in which to comply with the Orders. A fine of \$500.00 shall be given each month thereafter for non-compliance.

EFFECTIVE DATE

The effective date of these Orders shall be 6/26/23



Joe Shuster, County Judge, Pecos County, Texas

ATTEST

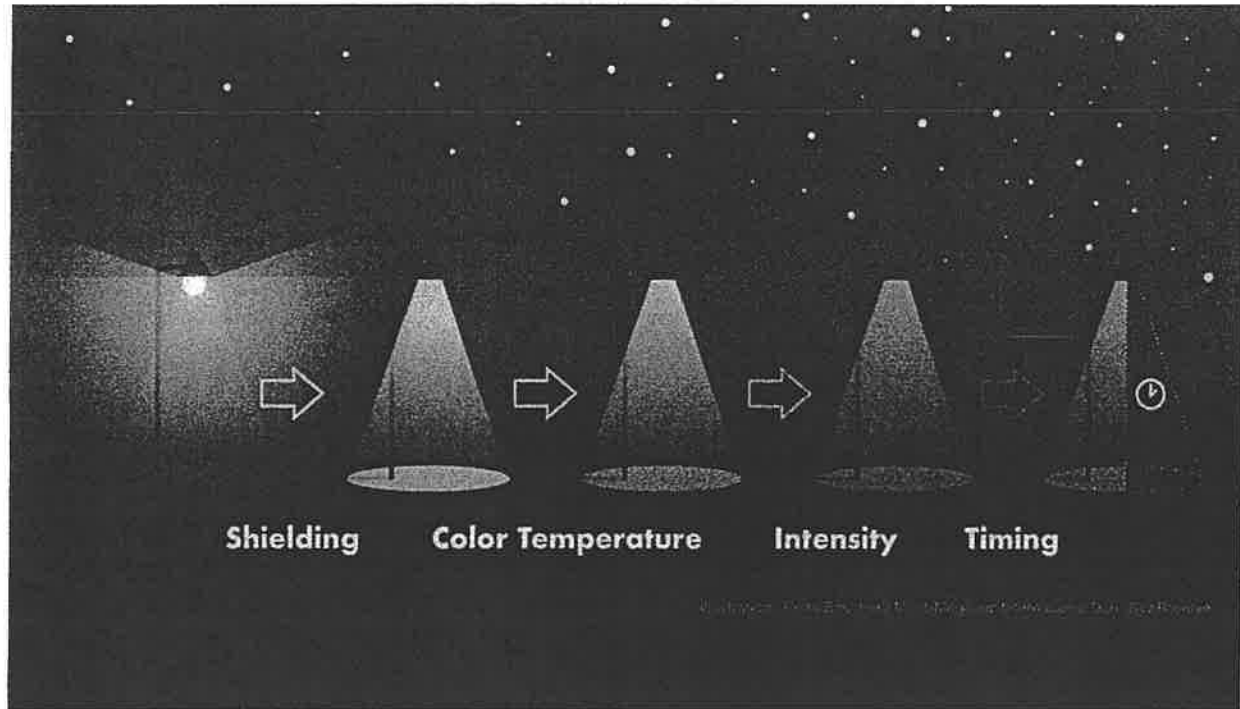


County Clerk
Pecos County, Texas



F. EXHIBITS:

Exhibit 1. An illustration of best outdoor lighting practices.



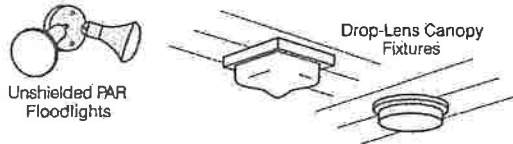
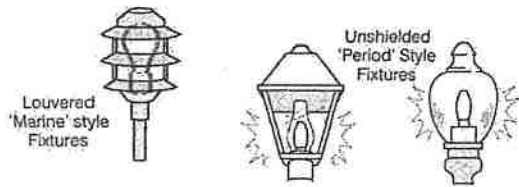
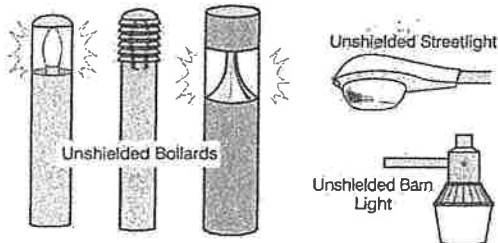
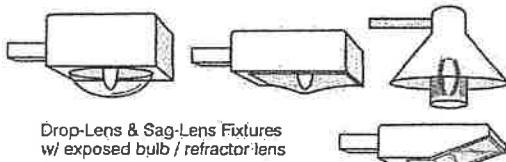
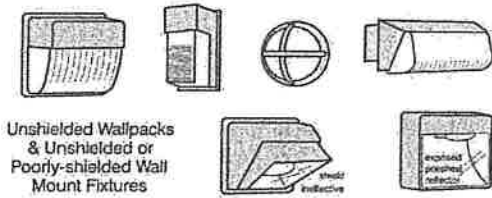
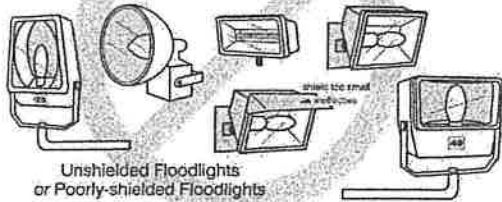
- 1) Use shielding to reclaim wasted light and direct it to the area to be lit.
- 2) Lower the correlated color temperature (CCT) from “cool” white light to “warm” white ($\leq 2700\text{K}$).
- 3) Lower the intensity to provide as much light as needed for the application, but no more.
- 4) Use adaptive controls, e.g., timers, half-night photocells, motion sensors, etc., to limit the hours the light is in use.

Exhibit 2, Examples

Examples of Acceptable / Unacceptable Lighting Fixtures

Unacceptable / Discouraged

Fixtures that produce glare and light trespass



Acceptable

Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night

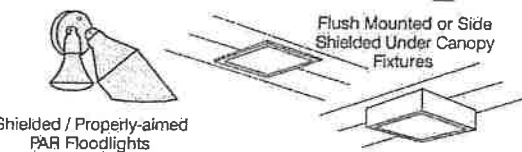
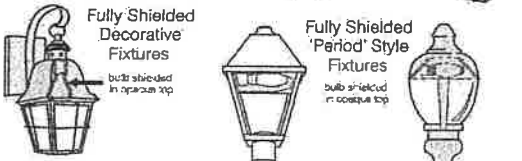
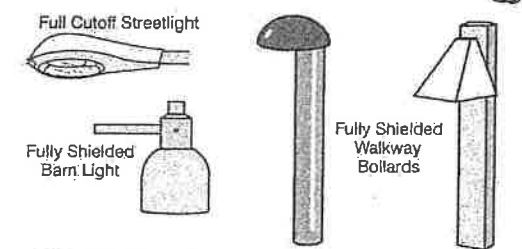
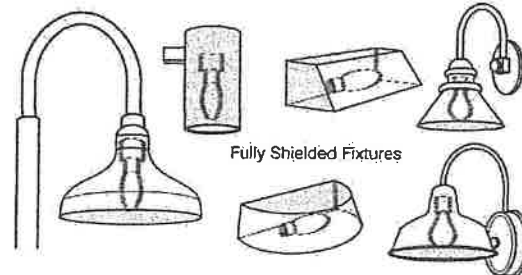
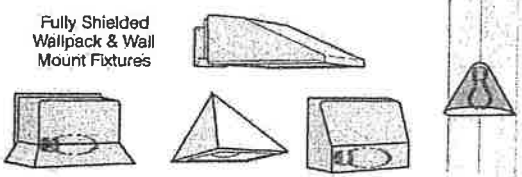
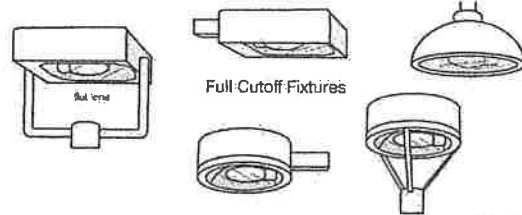
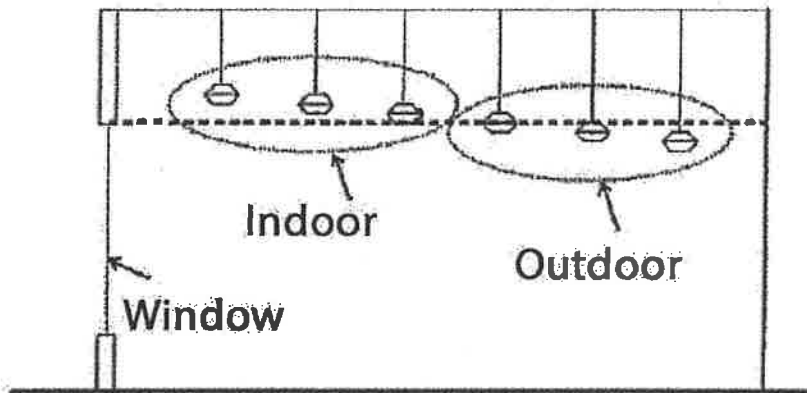
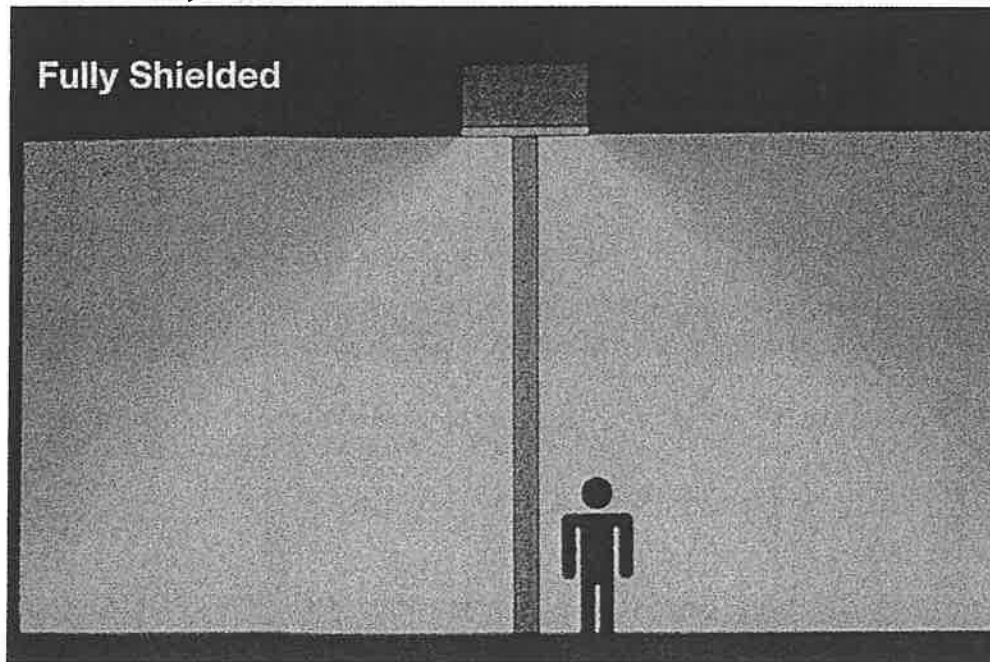


Exhibit 3. Indoor/outdoor lighting.



Elevation view showing an example of a nonresidential application of indoor lighting, labeled "Outdoor", which will be subject to these Orders. 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. 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 these Orders. All luminaires under skylights or other translucent roofing materials are subject to these Orders just as the fixtures behind the window in this example.

Exhibit 4. Fully Shielded.



"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 5. Color Temperature.

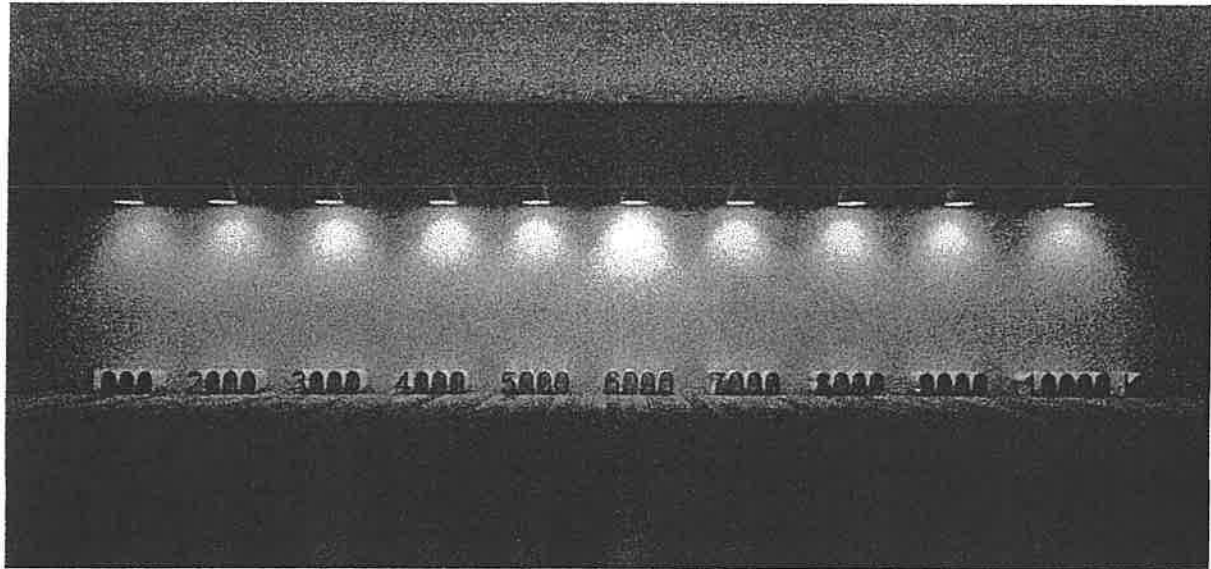


Exhibit 6. Light Trespass.

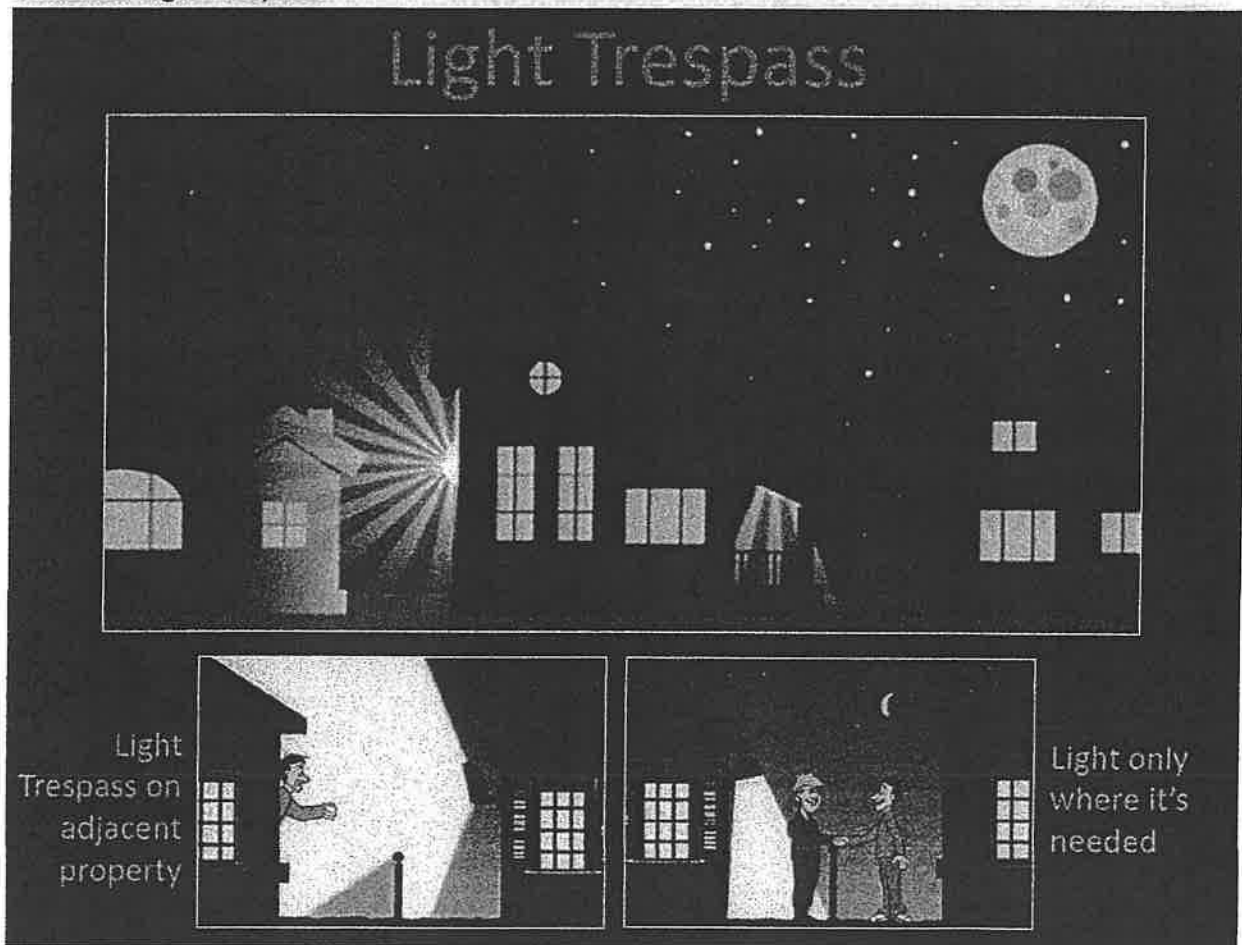


Exhibit 7. Internally Illuminated Signs.

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