

5-8 OUTDOOR AND SITE LIGHTING

5-8(A) PURPOSE

This § 14-16-5-8 is intended to enhance the attractiveness and livability of the city, protect the safety of its residents, reduce light trespass between private properties, minimize disruption to natural ecosystems, and prevent the increase of unnecessary sky glow that reduces the visibility of stars in the night sky.

5-8(B) APPLICABILITY

All sources of light visible from the exterior of a property shall comply with the standards of this § 14-16-5-8, unless specified otherwise in this IDO. This includes the use of outdoor lighting, hours of operation, and regulation of light trespass.

5-8(B)(1) Activities that Trigger Outdoor and Site Lighting Requirements

5-8(B)(1)(a) Maintenance and One-for-one Replacement

If an outdoor luminaire is not working or is damaged, the repair and/or replacement shall conform with the requirements of this Section.

5-8(B)(1)(b) Expansion, Renovation, and Redevelopment

The following activities shall require compliance with the requirements of this Section:

1. Expansion of the gross floor area by 25 percent or more.
2. Changes to the number of off-street parking spaces provided by 25 percent or more.
3. Changes to the number of luminaries by 25 percent or more.
4. Any change of land use to a different use category in Table 4-2-1.

5-8(B)(1)(c) New Development

Development involving the construction of a new building or new parking lot shall conform with the requirements of this Section.

5-8(B)(2) Exemptions

The following types of lighting are not subject to the requirements of this Section.

5-8(B)(2)(a) Lighting that is required by federal or state regulations that conflicts with this Section, including:

1. Air-side facilities at the airport (runway, taxiway, and other facilities located inside the security fence) as regulated by the Federal Aviation Administration (FAA) for safety.
2. Building codes and other illumination for means of emergency egress as regulated by the National Fire Protection Association (NFPA).
3. Temporary outdoor lighting necessary for worker safety at construction sites.

4. Outdoor lighting necessary for worker safety at farms, ranches, dairies, feedlots, or industrial, mining, or oil and gas facilities, as determined by the EPC in a Site Plan – EPC pursuant to § 14-16-6-6(I) with an outdoor and site lighting performance analysis pursuant to § 14-16-6-4(H)(3).

5-8(B)(2)(b) Nighttime illumination of the United States of America flag and the New Mexico State flag that complies with one of the following illumination requirements:

1. A luminaire mounted on top of the flagpole that only directs light downward.
2. A maximum of 3 in-ground uplights, or 3 shielded spotlights that are surface mounted at grade, that direct light upward. The maximum beam spread of any individual light source shall be no more than 24 degrees. The maximum output of any individual luminaire shall be no more than 100 lumens per foot of flagpole height (e.g. 2,000 lumens for a 20-foot pole).

5-8(B)(2)(c) Neon signs and all other illuminated signs that are regulated pursuant to § 14-16-5-12.

5-8(C) PROHIBITED LIGHTING

5-8(C)(1) Toxic and Energy Inefficient

5-8(C)(1)(a) Mercury vapor lights are prohibited.

5-8(C)(1)(b) Inefficient light sources (less than 45 lumens/watt) are prohibited for outdoor use, excluding seasonal and festoon lighting.

5-8(C)(2) Public Right-of-Way Interference

5-8(C)(2)(a) Any intentionally blinking, flashing, moving, revolving, or wavering lights that distract a motor vehicle operator in the public right-of-way are prohibited.

5-8(C)(2)(b) Any luminaire that may be confused as a traffic control device is prohibited unless authorized by federal, state, or city government.

5-8(C)(3) Obtrusive

5-8(C)(3)(a) No luminaire specification shall exceed a Backlight, Uplight, and Glare (BUG) rating of G2.

5-8(C)(3)(b) Shielded spotlights and floodlights within 500 feet of any boundary regulated by Division 30-VI-2 of the Bernalillo County Code of Ordinances (North Albuquerque Acres and Sandia Heights Light Pollution Ordinance) are only allowed when used to illuminate alleys, parking structures, and maintenance areas.

5-8(C)(3)(c) Beacons and searchlights are prohibited at night, except for emergency use by authorized first responders.

5-8(D) REQUIRED LIGHTING FACING AN ALLEY

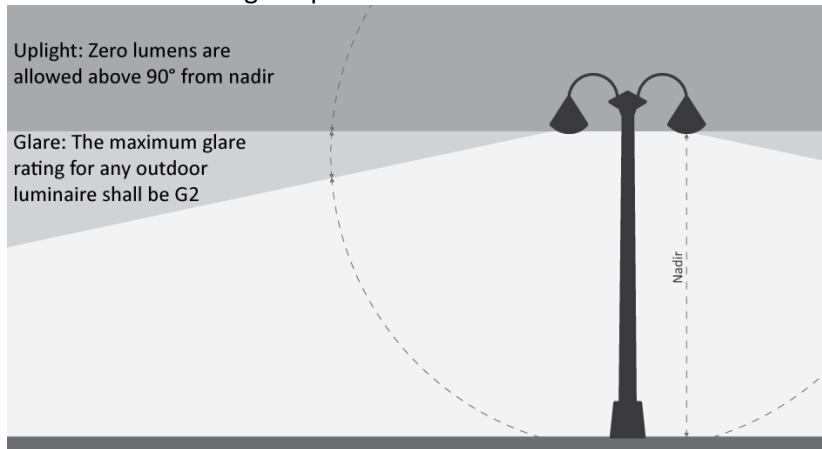
If abutting an alley, non-residential development, multi-family residential development, and mixed-use development shall illuminate the building façade facing the alley, pursuant to § 14-16-5-8(E)(4).

5-8(E) GENERAL DESIGN AND ILLUMINATION STANDARDS

All sources of light visible from the exterior of a property subject to this § 14-16-5-8 shall meet the following standards.

5-8(E)(1) Uplight Restrictions

5-8(E)(1)(a) Unless specified otherwise in this IDO, luminaires shall be fully shielded or have a U0 rating (i.e., a luminaire that emits zero lumens above 90 degrees from nadir). Unshielded floodlights with articulated mounting are prohibited.



- 5-8(E)(1)(b) Luminaires installed under canopies, porte cocheres, or beneath similar structures shall meet all of the following requirements.
1. Luminaires shall be mounted to aim downward and installed flush-mounted or recessed above the lowest edge of the canopy such that the lowest part of the luminaire is shielded from view beyond the property line.
 2. The vertical fascia shall not be internally illuminated.
 3. All light emitted shall be substantially confined to the posts, facades, and ground surface directly beneath the perimeter of the canopy or similar structure.

5-8(E)(2) Correlated Color Temperature (CCT) and Color Rendering Index (CRI)

5-8(E)(2)(a) Unless specified elsewhere in this IDO, outdoor lighting shall have a maximum CCT of 3000K. The minimum CRI for these light sources shall be 65.

5-8(E)(2)(b) Light sources below 2700K with limited spectral emission and CRI values below 65, such as low-pressure sodium or amber LED, are allowed within NDZ or Lz0 lighting designations.

5-8(E)(3) Light Poles

Table 5-8-1 specifies the maximum height of light poles, measured from the finished grade to the top of the pole.

Table 5-8-1: Maximum Height for Light Poles	
Location, Development Type, or Type of Light	Maximum Height (ft.)
Bollard and pathway luminaires	4 ft.

Residential zone districts and HPO zones	12 ft.
Within 100 feet of Residential zone districts	16 ft.
Mixed-use development or allowable uses in the Offices and Services Sub-category of Table 4-2-1	20 ft.
Allowable uses in Table 4-2-1 in the following categories: <ul style="list-style-type: none"> • Civic and Institutional Uses • Commercial Uses other than the Offices and Services Sub-category • Industrial Uses 	25 ft.

5-8(E)(4) Façade, Wall/Fence, Landscape Feature, or Sculpture Lighting

Lighting to illuminate vertical surfaces to help people navigate and detect threats at night shall follow all the following requirements.

5-8(E)(4)(a) Non-white colored lighting is allowed for lighting vertical surfaces.

5-8(E)(4)(b) Articulated lights emitting light above 90 degrees from the nadir shall be shielded to contain light to their targeted surface/object. Windows in a dwelling are not allowed to be a target.

5-8(E)(5) Steps, Stairs, and Pedestrian Walkway Lighting

Lighting to illuminate trip and fall hazards such as stairs, curbs, and raised pavement shall follow ANSI/RP-43 standards.

5-8(E)(6) Deck and Outdoor Dining Lighting

5-8(E)(6)(a) Lighting used to illuminate patios, decks, balconies, terraces, gazebos, pergolas, or any other accessory structure, including festoon lighting, is subject to an outdoor lighting curfew.

5-8(E)(6)(b) Festoon lighting is exempt from the point light source restriction in § 14-16-5-8(E)(4)(a), but still must meet total illumination limits to light trespass pursuant to § 14-16-5-8(G)(2) and total lumen allowance pursuant to § 14-16-5-8(H).

5-8(E)(7) Security

Security lighting shall not be used continuously as a general deterrent during outdoor lighting curfew. Lighting to boost illumination levels for security as the primary objective, as described in *IES G-1 Security Lighting*, shall meet all of the following requirements.

5-8(E)(7)(a) Security lighting controlled by a motion sensor shall turn off or return to a dimmed level no more than 10 minutes after motion was detected.

5-8(E)(7)(b) Security/surveillance cameras emitting infrared light are allowed.

5-8(E)(7)(c) Illumination different from ANSI/IES standards may be reviewed and decided by requesting a Site Plan – EPC pursuant to § 14-16-6-6(l) and providing an outdoor and site lighting performance analysis pursuant to § 14-16-6-4(H)(3).

5-8(F) LIGHTING DESIGNATION FOR ZONE DISTRICTS

Table 5-8-2: Lighting Designations by Zone District specifies the equivalent ANSI/IES lighting designations allowed in each zone district based on allowable land uses. Where multiple

designations are specified for a zone district, the notes in the table identify which designation shall be used depending on context.

Table 5-8-2: Lighting Designations by Zone District																		
NDZ = Natural Dark Zone		Lz0 = Light Zone 0					Lz1 = Light Zone 1				Lz2 = Light Zone 2				Lz3 = Light Zone 3			
Zone District	Residential						Mixed-Use				Non-residential							
ANSI/IES Lighting Designation	R-A	R-1	R-T	R-MC	R-ML	R-MH	MX-T	MX-L	MX-M	MX-H	NR-C	NR-BP	NR-LM	NR-GM	NR-PO			
															A	B	C	D
NDZ																X ^[1]	X ^[1]	
Lz0	X ^[3]	X ^[3]	X ^[3]	X ^[3]	X ^[3]		X ³								X ^[2]	X ^[2]	X ^[2]	X ^[2]
Lz1	X	X	X	X	X	X ^{[3], [4]}	X	X ^[4]	X ^[4]	X ^[4]	X	X	X	X	X			X
Lz2						X		X	X	X	X ^[5]			X ^[5]	X ^[6]			
Lz3									X ^[5]	X ^[5]					X ^[7]			

Notes:
 [1] NDZ is required in NR-PO zones for open space where no anthropogenic light is allowed.
 [2] Lz0 is required in NR-PO zones for open space where some anthropogenic light is needed in hours of darkness, parks with minimal amenities, and parks or open space adjacent to low-density residential uses.
 [3] A lower lighting zone is required on subject properties with sensitive lands.
 [4] A lower lighting zone is required on subject properties adjacent to low-density residential uses.
 [5] In UC-MS-PT-MT areas, a higher lighting zone is allowed, unless the subject property is adjacent to any Residential zone district.
 [6] Lz2 is allowed in parks with high pedestrian activity and many amenities.
 [7] Lz3 is allowed in parks containing nighttime stadiums or entertainment activities.

5-8(F)(1) Planned Development Zone Districts

- 5-8(F)(1)(a) Existing PD or PC zone districts that did not establish lighting standards must come into compliance with the requirements of the lighting designation that most closely matches their current land use and surrounding contexts as established in Table 5-8-2 pursuant to § 14-16-6-8(G) (Nonconforming Site Features).
- 5-8(F)(1)(b) Any new PD or PC zone districts shall establish the lighting designation(s) that most closely matches the allowable uses of the zone districts in Table 5-8-2 and the lumen limits from § 14-16-5-8(F) in the Site Plan – EPC, pursuant to § 14-16-6-6(I), or Framework Plan, pursuant to § 14-16-6-7(H), as relevant, with an outdoor and site lighting performance analysis pursuant to § 14-16-6-4(H)(3).

5-8(F)(2) Non-residential Sensitive Use (NR-SU) Zone District

- 5-8(F)(2)(a) Existing NR-SU zone districts that did not previously establish lighting standards must come into compliance with the requirements of the lighting designation that most closely matches their current land use and surrounding context as established in Table 5-8-2 pursuant to § 14-16-6-8(G) (Nonconforming Site Features).
- 5-8(F)(2)(b) Any new NR-SU zone district shall establish the lighting designation(s) that most closely matches the allowable uses of a zone district in Table 5-8-2 and the lumen limits from § 14-16-5-8(H) in the Site Plan – EPC pursuant to § 14-16-6-6(I) with an

outdoor and site lighting performance analysis pursuant to § 14-16-6-4(H)(3).

5-8(F)(3) Non-residential Parks and Open Space (NR-PO)

- 5-8(F)(3)(a) City Parks & Recreation staff shall identify environmentally sensitive areas that need protection from anthropogenic light and design outdoor and site lighting based on the lowest possible lighting designation in Table 5-8-2.
- 5-8(F)(3)(b) City Parks & Recreation staff shall identify adjacent properties and design outdoor and site lighting based on the appropriate lighting designation in Table 5-8-2.

5-8(G) LIGHT TRESPASS

- 5-8(G)(1) Unless specified elsewhere in this IDO, all outdoor luminaires shall be located or optically shielded such that the point light source is not visible from adjacent property or public right-of-way.
- 5-8(G)(2) The total illumination from outdoor light sources and interior light escaping from windows shall not exceed light trespass limits in Table 5-8-3, as measured at any location along the property line in both of the following ways:
 - 5-8(G)(2)(a) Horizontally at finished grade with the light meter facing upward.
 - 5-8(G)(2)(b) Vertically at 5 feet (1.5 meters) above finished grade with the light meter aiming toward the subject property.

Table 5-8-3: Light Trespass Limits by Lighting Designation

	NDZ	Lz0	Lz1	Lz2	Lz3
Foot Candles (fc)	0.02	0.05	0.1	0.3	0.8
Lux (lx)	0.2	0.5	1.0	3.0	8
Luminance (cd/m ²)	0	1	20	40	80

- 5-8(G)(3) If the total illumination from outdoor light sources and interior light escaping from windows exceeds light trespass limits in Table 5-8-3 at any point along the property line, lighting must be re-aimed, removed, turned off, or dimmed until compliance is reached.

5-8(H) TOTAL LUMEN ALLOWANCE

All sources of light visible from the exterior of a property shall meet the requirements of this § 14-16-5-8(H). Only 20 percent of the total allowable site lumens in Table 5-8-4 or Table 5-8-5 is allowed to be uplight (i.e., light emitted above 90 degrees from nadir).

5-8(H)(1) Residential Uses

5-8(H)(1)(a) Total Lumen Allowance

Table 5-8-4 specifies the total exterior lumens allowed for each dwelling on a subject property.

Table 5-8-4: Total Lumens Allowed per Dwelling

Zone Districts	Lz0	Lz1	Lz2	Lz3
R-A	3,000	5,000	-	-
R-1	1,500	3,000	-	-
R-T	12,000	20,000	-	-

Zone Districts	Lz0	Lz1	Lz2	Lz3
R-MC	1,500	3,000	-	-
R-ML or MX-T	12,000	20,000	-	-
R-MH or MX-L	-	24,000	35,000	-
MX-M	-	24,000	35,000	49,000
MX-H	-	27,000	40,000	56,000

5-8(H)(1)(b) Additional Lumen Allowance

1. An additional 1,500 lumens are allowed for an accessory dwelling unit (ADU).
2. Outdoor walkways, outdoor stairs, and parking lots for multi-family dwellings, assisted living facilities, or nursing homes are allowed additional lumens pursuant to Table 5-8-5.

5-8(H)(2) Non-residential Development

Table 5-8-5 specifies the total lumens allowed from all outdoor light sources on properties with an allowable non-residential use.

lm = lumen sq. ft. = square feet N/A = Not Applicable						
Lighting Requirement	Unit	Lz0	Lz1	Lz2	Lz3	
Tree, Landscape, and Sculpture Beds	lm / sq. ft.	0.5	1	2	4	
Walkways/Stairs/Parking Lot		1.00	1.25	1.50	2.50	
Outdoor Dining		N/A	2	2.5	3	

5-8(I) ADDITIONAL STANDARDS FOR SPECIFIC TYPES OF LIGHTING

5-8(I)(1) Sport and Recreation

5-8(I)(1)(a) General

1. Lighting for recreational areas and outdoor sports, such as baseball, football, racquet sports, and similar sports, shall follow ANSI/IES RP-6 standards. Illumination shall be confined to within 150 feet (or one pole height, whichever is greater) of the play field, track, or bleacher.
2. Correct aiming, shielding, and/or internal louvers are required to prevent light trespass, glare, and light emitted above 60 degrees from nadir.
3. When allowed by permit, underwater pool, spa, and pool deck lighting shall not exceed ANSI/IES RP-6 standards.

5-8(I)(1)(b) Residential Recreational Amenity and Private Parks

1. For small courts located on property with a Residential use or located in private parks within the NR-PO-C sub-zone that serve fewer than 25 people, a performance analysis is not required for lighting that meets the requirements of § 14-16-5-8(G), including the light pole heights in Table 5-8-1.
2. Lighting on the field of play is not allowed in Lz0.

3. Up to 2 light poles are allowed. Illuminance levels on the field of play shall not exceed any of the following, as relevant:
 - a. Lz2 or Lz3: 10 fc.
 - b. Lz1: 5 fc.
4. For additional lighting, or if 3 or more light poles are desired, a performance analysis pursuant to § 14-16-6-4(H)(3) and a Site Plan – EPC pursuant to § 14-16-6-6(I) are required.

5-8(I)(1)(c) Collegiate, Professional, Stadium, or Outdoor Entertainment Sports Facility

1. These facilities require a performance analysis pursuant to § 14-16-6-4(H)(3) and a Site Plan – EPC pursuant to § 14-16-6-6(I).
2. Pole mounting heights shall be based on the playability of the sport, photometric reports, and the player’s glare zones per ANSI/IES RP-6.
3. Poles shall be anodized or otherwise coated to minimize glare from the luminaire. Wooden poles are also acceptable.
4. For sports fields where games will regularly be filmed or televised, a CCT of 4000K is allowed but not required.
5. Sports lighting luminaires shall have a CRI of at least 75.
6. Luminaires shall be extinguished 1 hour after the end of play.
7. Uplighting is allowed for aerial sports such as baseball and football. Uplighting shall be controlled separately from other sports lighting.

5-8(I)(2) Seasonal

- 5-8(I)(2)(a) Seasonal lighting is not allowed in lighting designation NDZ.
- 5-8(I)(2)(b) Seasonal lighting is allowed for up to 45 consecutive days up to 2 times per year.
- 5-8(I)(2)(c) Seasonal lighting is exempt from the uplight, CCT, CRI, and point light source restrictions in § 14-16-5-8(D) and § 14-16-5-8(E)(4)(a).

5-8(I)(3) Historic Landmarks and HPO Zones

Outdoor or site lighting on a historic landmark or in HPO zones that does not comply with the requirements in this Section but that are consistent with the time period and character of the historic structure may be allowed by the Landmarks Commission pursuant to a Historic Certificate of Appropriateness – Major pursuant to § 14-16-6-6(D).

➔ **Lighting Definitions**

ANSI/IES Standards

Standards developed by the American National Standards Institute (ANSI) and the Illuminating Engineering Society (IES), a professional organization of designers, architects, engineers, sales professionals, and researchers. For the purposes of this IDO, ANSI/IES standards are referenced in § 14-16-5-8 (Outdoor and Site Lighting).

BUG (Backlight, Uplight, Glare) Rating

A rating system for the quantity of light within specific beam angles, consisting of all of the following:

Backlight

A rating based on zonal lumens distributed behind a luminaire between 0 and 90 degrees from the vertical of nadir.

Uplight

A rating based on zonal lumens emitted above 90 degrees from the vertical of nadir.

Glare

A rating based on the zonal lumens distributed between 60 and 90 degrees from the vertical of nadir.

Color Rendering Index (CRI)

A measurement on a scale of 0 to 100 to describe the ability of a light source to render an object's colors as if it were being exposed to natural daylight. A score close to 100 indicates that an anthropogenic light source is a close match for natural light.

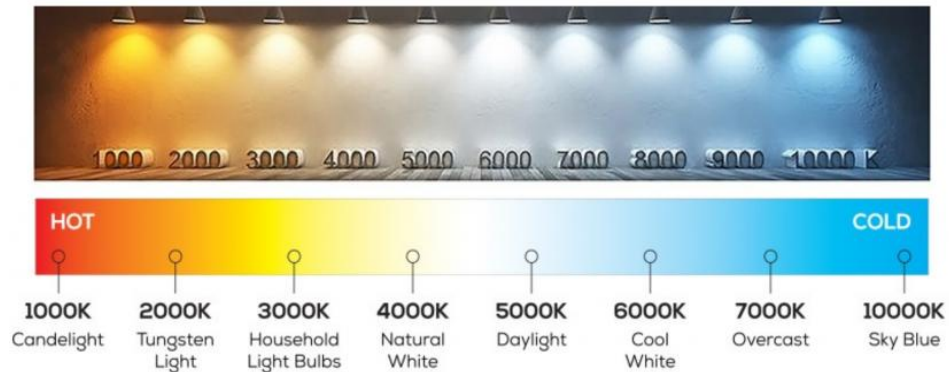
Correlated Color Temperature (CCT)

The color appearance of light emitted by a lamp. The CCT rating for a lamp is a measure of the "warmth" or "coolness" of its appearance and is measured in Kelvin (K). Lower CCT (2200K)

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appears very warm or amber. Medium CCT (2700K – 3000K) appears “warm white.” High CCT (4000K+) appears “cool white” or “blue.”



Festoon Lighting

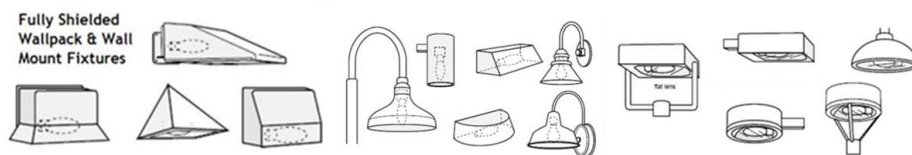
String lighting with individual bulbs suspended between 2 or more points and capable of providing usable illuminance, subject to curfew. For the purposes of this IDO, festoon lighting is not considered seasonal lighting. See also *Outdoor Lighting Curfew* and *Seasonal Lighting*.

Foot Candle

A unit of illumination measurement equal to 1 lumen per square foot (lm/sq. ft.) of surface area.

Fully Shielded Luminaire

Luminaires constructed and properly installed so that no light rays are directly emitted at angles above the horizontal plane as certified by a photometric test report and all light is effectively directed downward.



Glare

The sensation produced by luminance within the visual field that is sufficiently greater than the luminance to which the eyes are adapted to, causing annoyance, discomfort, or loss of visual performance.

Illuminance

A measurement for the amount of light falling onto a surface, commonly measured in the horizontal and/or vertical planes in foot candles (Fc) or lux.

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Light Source

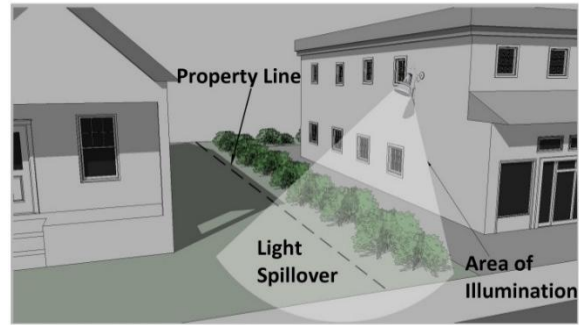
The element of a lighting fixture that is the point of origin of the lumens emitted by the fixture.

Light Trespass

Light traveling past property lines and illuminating properties without approval (i.e., “light spillover”).

Lighting Designations

Lighting designations align with the ANSI/IES lighting zone definitions, which serve as the basis for ANSI/IES lighting standards. For the purposes of this IDO, the lighting zones are summarized below.



Natural Dark Zone (NDZ)

Natural areas where no anthropogenic lighting is allowed at night.

Light Zone 0 (Lz0)

Predominantly dark areas with limited built environment. Responsible lighting techniques offer some environmental protection.

Light Zone 1 (Lz1)

Developed areas with quiet and dark character, commonly used for residential and lower-volume areas.

Light Zone 2 (Lz2)

Developed areas for commerce and recreation with moderate volume. Lighting and minimal signage inform people.

Light Zone 3 (Lz3)

Commercial signage and lighting are continuous as they compete to attract and entertain people.

Lumen

A unit of measure to rate the quantity of light provided by a light source.

Luminance

The light source or surface brightness as it is perceived by the human eye, measured in candela per meter squared (cd/m^2).

Luminaire

The complete electrical light unit, including the light source, housing, optics, and driver.

Lux

A unit used to measure illuminance. One (1) lux is equal to 1 lumen per square meter (lm/m^2).

Outdoor Lighting Curfew

For the purposes of this IDO, the time between 10 P.M. and 7 A.M. when outdoor lighting and interior light escaping through windows must be reduced by at least 50 percent of the normal illuminance. For establishments with business hours later than 10 P.M., outdoor lighting curfew begins one hour after closing. For establishments with business hours earlier than 7 A.M., outdoor lighting curfew ends one hour before opening.

Pedestrian-scale Lighting

Lighting in pedestrian areas not to exceed 16 feet in height that allows people to see and be seen from a distance of 40 to 60 feet.

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Point Light Source

The exact place where illumination is produced (e.g. a light bulb filament or LED package) even when behind a clear lens.

Seasonal Lighting

Outdoor or site lighting that is portable, temporary, and decorative. This includes but is not limited to string lighting, icicle lighting, outline lighting, and lighted holiday inflatables that are not intended for general illumination. See also *Festoon Lighting*.

Security Lighting

Distinct from outdoor lighting installed for safe passage during hours of darkness, security lighting is installed to provide bright illumination for security to protect people, property, and infrastructure from physical or criminal threats.

Shielded Lighting

A floodlight with an accessory intended to block obtrusive light through either an optical intervention and/or a physical shield or louver.