

ISSUED: 2017-01-06

REVISED: 2017-01-05



LIGHTING STANDARDS GLOSSARY

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ISSUED BY: COUNTY-WIDE LIGHTING TEAM

TABLE OF CONTENTS

GLOSSARY OF TERMS	5
A	5
Accent lighting.....	5
Adaptive Controls.....	5
Ambient light.....	5
B	5
Ballast.....	5
Beam spread	5
Brightness.....	5
Bulb or lamp.....	5
C	5
CIE	5
Color rendering	5
Color Rendering Index (CRI)	5
Cones and rods.....	5
Correlated Color Temperature (CCT).....	6
Cut off angle, of a luminaire.....	6
Cutoff fixture	6
D	6
Diffuser.....	6
Dimmer	6
Disability glare.....	6
Discomfort glare.....	6
E	6
Efficacy	6
Efficiency	6
Electromagnetic (EM) spectrum	6
Energy (radiant energy).....	6
F.....	7
Façade lighting	7
Fixture	7
Fixture Lumens.....	7

Fixture Watts	7
Floodlight	7
Full-cutoff fixture.....	7
Fully Shielded fixture.....	7
G.....	7
Glare.....	7
H.....	7
HID lamp.....	7
High-Pressure Sodium (HPS) lamp	7
House-side Shield.....	7
I	8
Illuminating Engineering Society of North America (IES or IESNA)	8
Incandescent lamp	8
Infrared radiation	8
Intensity	8
International Dark-Sky Association (IDA, Inc.).....	8
Inverse-square law	8
J.....	8
K	8
kWh	8
L.....	8
Lamp Life	8
LED	8
Light Pollution	8
Light Quality	8
Light Spill	9
Light Trespass	9
Lighting Controls	9
Photocells.....	9
Lumen depreciation factor.....	9
Luminaire	9
Luminaire Efficiency	9
Luminance.....	9

LZ0.....	9
LZ1.....	9
LZ2.....	10
LZ3.....	10
LZ4.....	10
M.....	10
Mercury lamp.....	10
Metal-halide lamp.....	10
Mounting height	10
N.....	10
Nanometer (nm)	10
O.....	10
Occupancy Sensors	10
Optic.....	11
P.....	11
Photometry	11
Photocell	11
Q.....	11
Quality of light.....	11
R.....	11
Reflector	11
S.....	11
Semi-cutoff fixture	11
Shielding.....	11
Skyglow	11
Source Intensity.....	11
Spotlight	11
Stray light	11
T.....	12
Task Lighting	12
U.....	12
Ultraviolet light	12
V.....	12

Visibility.....	12
W.....	12
X.....	12
Y.....	12
Z.....	12

GLOSSARY OF TERMS

A

ACCENT LIGHTING: Lighting used to emphasize or draw attention to a special object or building.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

ADAPTIVE CONTROLS: Devices such as motion sensors, timers and dimmers used in concert with outdoor lighting equipment to vary the intensity or duration of operation of lighting.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

AMBIENT LIGHT: The general overall level of lighting in an area.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

B

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

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

BEAM SPREAD: The angle between the two directions in the plane in which the intensity is equal to a given percentage (usually 10 percent) of the maximum beam intensity.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

BRIGHTNESS: Strength of the sensation that results from viewing surfaces from which the light comes to the eye.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

BULB OR LAMP: The source of electric light. To be distinguished from the whole assembly (see luminaire). Lamp often is used to denote the bulb and its housing.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

C

CIE: Commission Internationale de l'Eclairage. The international light commission. Sets most lighting standards.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

COLOR RENDERING: Effect of a light source on the color appearance of objects in comparison with their color appearance under normal daylighting.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

COLOR RENDERING INDEX (CRI) A measure of the accuracy with which a light source of a particular CCT renders different colors in comparison to a reference light source with the same CCT. A high CRI provides better illumination with the same or lower lighting levels. It is important not to mix lamps with different CCTs and CRIs. Specify both the CCT and CRI when purchasing lamps.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

CONES AND RODS: Groups of light-sensitive cells in the retinas of animal eyes. Cones dominate the response when the luminance level is high, and provide color perception. Rods dominate at low luminance levels, but give no significant color perception.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

CORRELATED COLOR TEMPERATURE (CCT): A measure in degrees Kelvin (°K) of light’s warmth or coolness. Lamps with a CCT of less than 3,200 °K are pinkish and considered warm. Lamps with a CCT greater than 4,000 °K are bluish–white and considered cool.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

CUT OFF ANGLE, OF A LUMINAIRE: The angle, measured up from the nadir (i.e. straight down), between the vertical axis and the first line of sight at which the bare source (the bulb or lamp) is not visible.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

CUTOFF FIXTURE: An IES definition “Intensity at or above 90° (horizontal) no more than 2.5% of lamp lumens, and no more than 10% of lamp lumens at or above 80”.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

D

DIFFUSER: A device used to distribute light from a source.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

DIMMER: Dimmers can reduce the input power requirements and the rated lumen output levels of incandescent and fluorescent lights. Fluorescent lights need special dimming ballasts. Dimming incandescent lights reduces their efficiency.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

DISABILITY GLARE: Glare resulting in reduced visual performance and visibility. It is often accompanied by discomfort.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

DISCOMFORT GLARE: Glare that produces discomfort, but does not necessarily diminish visual performance.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

E

EFFICACY: The ratio of light output to its consumption of power, measured in lumens per watt (lm/W), or the ability of a lighting system to produce the desired result.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

EFFICIENCY: A measure of the effective or useful output of a system compared to the input of the system.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

ELECTROMAGNETIC (EM) SPECTRUM: The distribution of energy emitted by a radiant source, arranged in order of wavelength or frequency. Includes gamma-ray, X-ray, ultraviolet, visual, infrared, and radio regions.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

ENERGY (RADIANT ENERGY): Unit is erg, or joule, or kWh.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

F

FAÇADE LIGHTING: The illumination of the exterior of a building

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

FIXTURE: The assembly that holds the lamp in a lighting system. It includes the elements designed to give light output control, such as a reflector (mirror) or refractor (lens), the ballast, housing, and the attachment parts.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

FIXTURE LUMENS: A light fixture's light output after processing of emitted light by optics in that fixture.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

FIXTURE WATTS: The total power consumed by a fixture. This includes the power consumed by the lamp(s) and ballast(s).

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

FLOODLIGHT: A fixture designed to "flood" a well-defined area with light.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

FULL-CUTOFF FIXTURE: An IES definition; "Zero intensity at or above horizontal (90° above nadir) and limited to a value not exceeding 10% of lamp lumens at or above 80°".

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

FULLY SHIELDED FIXTURE: A fixture that allows no emission above a horizontal plane through the fixture.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

G

GLARE: Intense and blinding light that reduces visibility. A light within the field of vision that is brighter than the brightness to which the eyes are adapted.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

H

HID LAMP: In a discharge lamp, the emitted energy (light) is produced by the passage of an electric current through a gas. High-intensity discharge (HID) include mercury, metal halide, and high pressure sodium lamps. Other discharge lamps are LPS and fluorescent. Some such lamps have internal coatings to convert some of the ultraviolet energy emitted by the gas discharge into visual output.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

HIGH-PRESSURE SODIUM (HPS) LAMP: HID lamp where radiation is produced from sodium vapor at relatively high partial pressures (100 torr). HPS is essentially a "point source".

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

HOUSE-SIDE SHIELD: Opaque material applied to a fixture to block the light from illuminating a residence or other structure being protected from light trespass.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

I

ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IES OR IESNA): The professional society of lighting engineers, including those from manufacturing companies, and others professionally involved in lighting.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

INCANDESCENT LAMP: Light is produced by a filament heated to a high temperature by electric current.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

INFRARED RADIATION: Electromagnetic radiation with longer wavelengths than those of visible light, extending from the nominal red edge of the visible spectrum at 700 nanometers to 1 mm.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

INTENSITY: The degree or amount of energy or light.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

INTERNATIONAL DARK-SKY ASSOCIATION (IDA, INC.): A non-profit organization whose goals are to build awareness of the value of dark skies, and of the need for quality outdoor lighting.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

INVERSE-SQUARE LAW: Illuminance at a point varies directly with the intensity, I , of a point source and inversely as the square of the distance, d , to the source. $E = I / d^2$

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

J

K

KWH: Kilowatt-hour: A unit of energy equal to the work done by one kilowatt (1000 watts) of power acting for one hour.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

L

LAMP LIFE: The average life span for a specific type of lamp. Half of lamps will perform longer than the average; the others will fail before the average.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

LED: Light emitting diode.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

LIGHT POLLUTION: Any adverse effect of artificial light.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

LIGHT QUALITY: A measurement of a person's comfort and perception based on the lighting.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

LIGHT SPILL: Unwanted spillage of light onto adjacent areas and may affect sensitive receptors particularly residential properties and ecological sites.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

LIGHT TRESPASS: Light falling where it is not wanted or needed. Spill light. Obtrusive light.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

LIGHTING CONTROLS: Devices used for either turning lights on and off or for dimming.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

PHOTOCELLS: Sensors that turn lights on and off in response to natural light levels. Some advanced mode can slowly dim or increase the lighting. See also: Adaptive Controls.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

LUMEN DEPRECIATION FACTOR: Light loss of a luminaire with time due to the lamp decreasing in efficiency, dirt accumulation, and any other factors that lower the effective output with time.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

LUMINAIRE: A complete lighting unit that usually includes the fixture, ballasts, and lamps.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

LUMINAIRE EFFICIENCY: The ratio of the light emitted by the luminaire compared to the light emitted by the enclosed lamps.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

LUMINANCE: At a point and in a given direction, the luminous intensity in the given direction produced by an element of the surface surrounding the point divided by the area of the projection of the element on a plane perpendicular to the given direction. Units: candelas per unit area.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

LZ0: No ambient lighting

- Areas where the natural environment will be seriously and adversely affected by lighting. Impacts include disturbing the biological cycles of flora and fauna and/or detracting from human enjoyment and appreciation of the natural environment. Human activity is subordinate in importance to nature. The vision of human residents and users is adapted to the darkness, and they expect to see little or no lighting. When not needed, lighting should be extinguished. Definition courtesy of the International Dark-Sky Association: <http://darksky.org/our-work/public-policy/mlo/>

LZ1: Low ambient lighting

- Areas where lighting might adversely affect flora and fauna or disturb the character of the area. The vision of human residents and users is adapted to low light levels. Lighting may be used for safety and convenience but it is not necessarily uniform or continuous. After Reduction, most lighting should be extinguished or reduced as activity levels decline. Definition courtesy of the International Dark-Sky Association: <http://darksky.org/our-work/public-policy/mlo/>

LZ2: Moderate ambient lighting

- Areas of human activity where the vision of human residents and users is adapted to moderate light levels. Lighting may typically be used for safety and convenience but it is not necessarily uniform or continuous. After Reduction, lighting may be extinguished or reduced as activity levels decline.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/our-work/public-policy/mlo/>

LZ3: Moderately high ambient lighting

- Areas of human activity where the vision of human residents and users is adapted to moderately high light levels. Lighting is generally desired for safety, security and/or convenience and it is often uniform and/or continuous. After Reduction, lighting may be extinguished or reduced in most areas as activity levels decline.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/our-work/public-policy/mlo/>

LZ4: High ambient lighting

- Areas of human activity where the vision of human residents and users is adapted to high light levels. Lighting is generally considered necessary for safety, security and/or convenience and it is mostly uniform and/or continuous. After Reduction, lighting may be extinguished or reduced in some areas as activity levels decline.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/our-work/public-policy/mlo/>

M

MERCURY LAMP: An HID lamp where the light is produced by radiation from mercury vapor.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

METAL-HALIDE LAMP: An HID lamp where the light is produced by radiation from metal-halide vapors.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

MOUNTING HEIGHT: The height of the fixture or lamp above the ground.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

N

NANOMETER (NM): 10⁻⁹ meter. Often used as the unit for wavelength in the EM spectrum.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

O

OCCUPANCY SENSORS

- **Passive Infrared:** A lighting control system that uses infrared beams to sense motion. When beams of infrared light are interrupted by movement, the sensor turns on the lighting system. If no movement is sensed after a predetermined period, the system turns the lights off.
- **Ultrasonic:** A lighting control system using high-frequency sound waves pulsed through a space to detect movement by depth perception. When the frequency of the sound waves change,

the sensor turns on the lighting system. After a predetermined time with no movement, the system turns the lights off.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

OPTIC: The components of a luminaire such as reflectors, refractors, protectors which make up the light emitting section.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

P

PHOTOMETRY: The quantitative measurement of light level and distribution.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

PHOTOCELL: An electronic device that changes the light output of a luminaire dynamically in response to the ambient light level around the luminaire.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

Q

QUALITY OF LIGHT: A subjective ratio of the pluses to the minuses of any lighting installation.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

R

REFLECTOR: An optic that achieves control of light by means of reflection (using mirrors).

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

S

SEMI-CUTOFF FIXTURE: An IES definition; “Intensity at or above 90° (horizontal) no more than 5% of lamp lumens and no more than 20% at or above 80°”.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

SHIELDING: An opaque material that blocks the transmission of light.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

SKYGLOW: Diffuse, scattered sky light attributable to scattered light from sources on the ground.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

SOURCE INTENSITY: This applies to each source in the potentially obtrusive direction, outside of the area being lit.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

SPOTLIGHT: A fixture designed to light only a small, well-defined area.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

STRAY LIGHT: Emitted light that falls away from the area where it is needed or wanted. Light trespass.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

T

TASK LIGHTING: Task lighting is used to provide direct light for specific activities without illuminating the entire area.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

U

ULTRAVIOLET LIGHT: Electromagnetic radiation with wavelengths from 400 nm to 100 nm, shorter than that of visible light but longer than X-rays.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

V

VISIBILITY: Being perceived by the eye. Seeing effectively. The goal of night lighting.

Definition courtesy of the International Dark-Sky Association: <http://darksky.org/resources/glossary/>

W**X****Y****Z**
