



Lighting Terms and Concepts

ACCENT LIGHTING

Directional lighting to emphasize a particular object or draw attention to a display item.

ADAPTATION

The process by which the human eye adjusts to a change in light level.

AMBIENT LIGHTING

The general lighting present in an area --excluding task lighting and accent lighting but including general lighting and daylight streaming in.

ANSI

Acronym for American National Standards Institute. A consensus based organization which co-ordinates voluntary standards for the physical, electrical and performance standards of lamps, ballasts, luminaires and other lighting and electrical equipment.

ARC

A general term for a high intensity electrical discharge occurring between two electrodes in a gaseous medium, usually accompanied by the generation of heat and the emission of light.

ARC LAMP

A light source containing an arc (see above). Also called a discharge lamp, or an arc discharge lamp.

BALLAST

A device used to regulate the current through a discharge lamp. Ballasts can contain electronic components or can be made up of copper windings on an iron core.

BALLAST FACTOR

A multiplier indicating the actual light output of a lamp on that ballast, as compared to the light output on a standard or reference ballast (which is listed in the catalog.) Lower ballast factor generally implies that the lamp is being operated at lower wattage.

BEAM ANGLE

The angle containing the intense portion of the beam, bounded by edges where the beam intensity is 50% of the intensity at the peak in the center.

BEAM LUMENS

The total lumens present within the portion of the beam contained in the beam angle.

BIAX®

GE's trademark for its "biaxial" or "double-tube" family of high-efficiency, long life compact fluorescent lamps.

Lamps also come in Double Biax®, Triple Biax® and Quad Biax® configurations.

BLACKBODY

A hot body with an incandescent black surface at a certain temperature used as a standard for comparison. Note that a black surface is the best radiator possible. A tungsten filament will emit slightly less radiation than a blackbody at the same temperature.

BLACK LIGHT

A popular term referring to a light source emitting mostly near UV (320 to 400 nm) and very little visible light.

BOLLARD

A short, thick post with a light at its top, used for grounds and outdoor walkway lighting.

BULB

A loose way of referring to a lamp. "Bulb" refers to the outer glass bulb containing the light source.

BRIGHTNESS

See luminance

CANDELA (CD)

A unit of luminous intensity in a given direction: a "standard candle" is taken as emitting 1 candela in every direction.

CANDLEPOWER (CP)

The luminous intensity of a beam in a given direction, expressed in Candelas.

CANDLEPOWER DISTRIBUTION CURVE

A graphical presentation of the distribution of light intensity of a light source, usually a reflector lamp or luminaire.

CERAMIC METAL HALIDE (CMH) LAMPS

A new technology using metal halide discharges in a ceramic arc tube, providing greatly improved color rendering, color uniformity and color stability.

CFL

Compact Fluorescent Lamp. This general term applies to families of smaller diameter fluorescent lamps. SELF-BALLASTED LAMPS (also known as SCREW-IN lamps or INTEGRAL lamps) have built-in ballasts and medium screw bases to directly connect to the electrical line, typically as replacements for incandescent lamps. PLUG-IN lamps separate the lamp module from the ballast module, so you can replace the lamp only.

CHROMAFIT™

A GE brand name for a metal halide lamp designed to operate on HPS ballasts. This allows an end-user to switch his facility from yellow HPS to the white color of metal halide without retrofitting ballasts.

CHROMATICITY CO-ORDINATES

A system for measuring the color of the light emitted from a light source--either a primary source like a lamp or a secondary source like an illuminated object. Usually two numbers, **x** and **y** each ranging from 0 to 1 specify the chromaticity.

COEFFICIENT OF UTILIZATION (CU)

The percentage of lamp lumens that reaches the work plane. The CU depends on fixture efficiency, room surface reflectances, and room shape. Typically, CU's range from 50% to 70%.

COLOR RENDERING INDEX (CRI)

A number assigned to a light source representing how colors look under the light source as compared to a standard source of the same color temperature. CRI's usually range from 0 to 100; both daylight and tungsten filament lamps are assigned CRI's of 100.

COLOR TEMPERATURE (Correlated Color Temperature, CCT)

The temperature of a filament or blackbody that would mimic the color balance--the degree of "warmth" of "coolness" of the source. Yellowish-white sources have lower color temperature (typically 2800 to 3000 Kelvin for filament lamps) while white and bluish white sources are higher. "Daylight" has a color temperature of around 6000 Kelvin.

COOL BEAM

See DICHROIC REFLECTOR

COOL WHITE

A term loosely used to denote a color temperature of around 4100 K. The Cool White (CW) designation is used specifically for T12 and other fluorescent lamps using halophosphors and having a CRI of 62.

COV-R-GUARD™

A special plastic shielding on the outside of tubular fluorescent lamps that effectively contains shattered glass particles if the lamp is broken. Such protection is mandated in many industries and locations, e.g. food packaging.

CONSTANTCOLOR®

A GE Registered name for lamp families which show very little color shift over life. Generally applies to GE's PRECISE MR-16 and GE's CMH (Ceramic Metal Halide) lamps.

DAYLIGHT HARVESTING

Lighting design for building interiors that makes of daylight as a way of reducing energy consumption.

DAYLIGHT LAMP

A lamp resembling the color of daylight, typically with a color temperature of 5500 K to 6500K

DICHROIC REFLECTOR (OR FILTER)

A reflector (or filter) that reflects one region of the spectrum while allowing the other region(s) to pass through. A reflector lamp with a dichroic reflector will have a "cool beam" i.e. most of the heat has been removed from the beam by allowing it to pass through the reflector while the light has been reflected.

DIMMER, DIMMING CONTROL

A device used to lower the light output of a source, usually by reducing the wattage it is being operated at. Dimming controls are increasing in popularity as energy conserving devices.

ECOLUX®

GE's designation for lamps that pass the TCLP test. (see TCLP).

EFFICACY

A measure of how effective the light source is in converting electrical energy to LUMENS of visible light. Expressed in LUMENS-PER-WATT (LPW) this measure gives more weight to the yellow region of the spectrum and less weight to the blue and red regions where the eye is not as sensitive. See LUMEN PER WATT.

EFFICIENCY

The efficiency of a light source is simply the fraction of electrical energy converted to light, i.e. watts of visible light produced for each watt of electrical power with no concern about the wavelength where the energy is being radiated. For example, a 100 watt incandescent lamp converts 7% of the electrical energy into light; discharge lamps convert 25% to 40% into light.

The efficiency of a luminaire or fixture is the percentage of the lamp lumens that actually comes out of the fixture. See LUMINAIRE EFFICIENCY

ELECTRICAL DISCHARGE

See ARC, ARC LAMPS.

ELECTRODELESS LAMPS

Light sources where the discharge occurs in a chamber with no electrodes (no metal.) The energy for the discharge is supplied by radio frequency excitation, e.g. microwaves. See GENURA.

ELECTROMAGNETIC BALLAST

A ballast used with discharge lamps that consists primarily of transformer-like copper windings on a steel or iron core. See also ELECTRONIC BALLASTS

ELECTROMAGNETIC INTERFERENCE (EMI)

High frequency electronic ballasts and other electronic devices can produce a small amount of radio waves which can interfere with radio and TV. Federal mandated requirements must be met for EMI levels before an electronic device is considered FCC compliant. (FCC is the Federal Communications Commission)

ELECTROMAGNETIC SPECTRUM

The range of wavelengths in which electromagnetic waves are encountered. Visible light comprises one small region of the electromagnetic spectrum typically from 400 nanometers (nm) to 700 nanometers. Long electromagnetic waves can have wavelengths of hundreds of meters (larger than a football field); visible light typically is such that 1000 waves can be crowded into the thickness of a 0.5mm pencil lead.

ELECTRONIC BALLAST

A ballast designed with electronic components generally operating the lamp at high frequency (20,000 Hz and above). Electronic ballasts are usually smaller, lighter and more efficient than electromagnetic ballasts.

ENCLOSED FIXTURES

See OPEN FIXTURE RATED

FLICKER

The periodic variation in light level caused by AC operation that can lead to strobe effects.

FLOOD

Used to refer to the beam pattern of a reflector lamp, which disperses the light over a wide beam angle, typically 20 degrees or more. ("Flood" as opposed to "spot")

FLOODLIGHT

A luminaire used to light a scene or object to a level much brighter than its surroundings. Usually floodlights can be aimed at the object or area of interest.

FLUORESCENCE

A physical phenomenon whereby an atom of a material absorbs a photon of light and immediately emits a photon of longer wavelength. If there is a significant delay the phenomenon is called phosphorescence rather than fluorescence. It is interesting that "phosphors" used in lamps exhibit "fluorescence," not "phosphorescence."

FLUORESCENT LAMP

A light source providing light by the phenomenon of fluorescence. Typically, a low pressure mercury-argon discharge provides photons of UV light which are absorbed by a fluorescent coating which immediately re-emits visible light.

FOOTCANDLE

Unit of illuminance (loosely termed "illumination") equal to one lumen uniformly incident upon an area of one square foot. The original definition is: the light level 1 foot from a standard candle.

FOOTCANDLE METER

How come there is a Footcandle meter but no Metercandle foot? Anyway, see ILLUMINANCE METER.

FOOTLAMBERT

An obsolete term referring to a luminance of $1/\pi$ candelas per square foot.

FOVEA, FOVEAL VISION

A small region of the retina corresponding to what an observer is looking straight at. This region is populated almost entirely with cones, while the peripheral region has increasing numbers of rods. Cones have a sensitivity peaking in the yellow and corresponding to the eye response curve. See PHOTOPIC, SCOTOPIC.

FULL-SPECTRUM LIGHTING

A marketing term used (and misused) to denote a lamp putting out purportedly high quality light. There are no medical studies proving the benefit of any "full spectrum" designation. However, the market seems to use this term to refer to sources resembling daylight (5000K and above) and having a CRI of 90+.

GENERAL LIGHTING

See AMBIENT LIGHTING.

GENURA™

A unique GE electrodeless fluorescent lamp with extremely long life (15,000 hours) and a built-in reflector and high-frequency electronic ballast. See ELECTRODELESS LAMP.

GLARE

Visual discomfort caused by excessive brightness is called discomfort glare. If task performance is affected it is called disability glare. Glare can be direct glare or indirect (reflected) glare. See also, VEILING REFLECTIONS and VISUAL COMFORT PROBABILITY.

HALOGEN LAMP

In incandescent filament surrounded by some halogen gas (bromine, iodine.) The halogen participates in a tungsten transport cycle, returning evaporated tungsten to the filament and prolonging lamp life. Halogen lamps come in a bulb made either of quartz or special high-temperature glass.

HALOGEN-IR™ (HIR) Lamp

GE designation for a new form of high-efficiency tungsten-halogen lamp employing an infra-red reflecting (heat reflecting) coating that significantly reduces the power used by a lamp to provide a given amount of light. This technology can yield energy-saving and/or enhanced life lamps.

HIGH-BAY LIGHTING

Lighting designed for (typically) industrial locations with a ceiling height of 25 feet and above.

HIGH INTENSITY DISCHARGE (HID) LAMP

A light source encompassing a high intensity electrical discharge (arc). Common types are High Pressure Sodium lamps, Metal Halide lamps and High Pressure Mercury lamps.

HIGH PRESSURE SODIUM LAMP

The yellowish-white lamps used extensively in street lighting, with a CRI in the low 20's and LPW typically of 100-140.

I-LINE

A GE designation for a family of metal halide lamps which will operate on a mercury ballast. Designed as a simple retrofit for mercury lamp.

IGNITOR

An electronic device providing a high voltage pulse to initiate an electrical discharge. Typically, the ignitor is paired with or is a part of the ballast.

ILLUMINANCE (E)

The "quantity" of light (footcandles or lux) at a point on a surface. Loosely called "illumination."

ILLUMINANCE METER

A device that measures the illuminance at point, calibrated either in footcandles or in lux.

INCANDESCENT LAMP

A source that emits light from a hot solid object, usually a tungsten or carbon filament heated by an electrical current.

INDIRECT LIGHTING

The method of lighting a space by directing the light from luminaires upwards towards the ceiling. The light scattered off the ceiling produces a soft, diffuse illumination for the entire area.

INFRARED RADIATION

Heat radiation; for practical purposes, any radiant energy within the range 770 to 1,000,000 nanometers; this energy is sensed as heat.

INSTANT START

A method of starting a fluorescent lamp by applying a sudden pulse of high voltage to ignite the discharge without pre-heating the electrodes. See also RAPID START.

INTEGRAL

A popular term for a compact fluorescent lamp which includes a built-in ballast. See CFL.

INTENSITY

In lighting this term is an abbreviation for luminous intensity, measured in candelas. See LUMINOUS INTENSITY

INVERSE SQUARE LAW

Formula stating that if you double the distance from the light source, the light level goes down by a factor of 4, if you triple the distance, it goes down by a factor of 9, and so on.

ISOCANDELA PLOT

A plot with lines connecting points of equal luminous intensity around a source.

ISOLUX PLOT (or ISOFOOTCANDLE PLOT)

A line plotted to show points of equal illuminance (lux or footcandles) on a surface illuminated by a source or sources.

KELVIN

A unit of temperature starting from absolute zero, parallel to the Celsius (or Centigrade) scale. 0C is 273K.

KILOWATT-HOUR (kWh)

The standard measure of electrical energy used. Kilowatt (1000 Watts) is a measure of the RATE at which energy is used, multiplying that by time gives us the total energy consumed. Electric utility companies charge by the kilowatt-hour, typically 6 cents to 18 cents per kWh. A 100 watt lamp operating for 10 hours uses 1 kWh of energy.

LAMP

A generic term for a light source.

LENS

A transparent or semi-transparent element which controls the distribution of light by redirecting individual beams. Luminaires often have lenses in addition to reflectors.

LIFE

See RATED LAMP LIFE

LIGHT

Radiant energy in that portion of the electromagnetic spectrum which elicits a response on the retina of the eye. Generally referring to the range 380 nm to 770 nm, but loosely taken as 400 to 700 nm.

LED (LIGHT EMITTING DIODE)

A solid that directly converts electrical impulses into light. Some LED's today incorporate fluorescent materials to change the color characteristics of the emitted light

LIGHT LOSS FACTOR

The product of all factors that contribute to lowering the illumination level including reflector degradation, dirt, lamp depreciation over time, voltage fluctuations, etc..

LIGHT METER

See ILLUMINANCE METER

LIGHT POLLUTION

Light that is generated in excess of what is needed to reach lighting goals. Light pollution directed or reflected into the sky creates a "dome" of wasted light and makes it difficult to see stars above cities.

LIGHT TRESPASS (SPILL LIGHT)

Light that is not aimed properly or shielded effectively can spill out into areas that don't want it: it can be directed towards drivers, pedestrians or neighbors. It is distracting and annoying and can sometimes be disabling.

LOUVER

A grid of baffles --often square or rectangular--placed in a fixture to prevent light from spilling out at unwanted angles.

LOW BAY LIGHTING

Lighting designed for (typically) industrial areas with ceiling heights around 25 feet or less.

LOW PRESSURE SODIUM (LPS) LAMP

A very high efficacy light source emitting (almost) monochromatic radiation from sodium atoms, very yellow in color and, therefore, having very poor color rendition.

LPW

See LUMENS PER WATT.

LUCALOX®

The GE brand name for high pressure sodium lamps. Lucalox is also the name for the translucent ceramic material from which all high-pressure sodium arc tubes are made.

LUMEN MAINTENANCE

A measure of how well the light source maintains its light output as it ages.

LUMENS

The international unit of luminous flux or "quantity" of light emitted by a source. A "standard" candle emits 13 lumens; a 100 watt incandescent lamp emits 1600 to 1700 lumens

LUMENS PER WATT (LPW)

A ratio expressing the luminous efficacy of a light source; light output (LUMENS) divided by power input (WATTS).

LAMP	LPW
Edison's first lamp	1.4
Fluorescent lamps	35-105
Infrared lamps	6-9
Incandescent lamps	10-40
Mercury lamps	50-60
Metal-Halide lamps	60-125
High Pressure Sodium lamps	100-140
Low Pressure Sodium lamps	140-200
Theoretical max. for white light	220
Theoretical max. for yellow light	683

LUMINAIRE

A complete lighting unit consisting of a lamp (or lamps) together with the parts designed to distribute the light, to position and protect lamps and connect them to the power

supply. This is a more sophisticated and technically correct term for "lighting fixture."

LUMINAIRE EFFICIENCY

The ratio of lumens emitted by a luminaire to those emitted by the lamp or lamps used

LUMINANCE (L)

Practically speaking, the brightness of the surface of an object as perceived by an eye looking at it. Formerly called photometric brightness, it is measured in candelas per sq. meter.

LUMINOUS EFFICACY

See lumens per watt.

LUX

SI (International System) unit of illumination; one lumen uniformly distributed over an area of one square meter. In other words, a surface 1 meter away from a standard candle is illuminated to 1 lux, a surface 1 foot away is illuminated to 1 footcandle. 10.74 lux = 1 footcandle.

MEDIUM BASE

Usually refers to the screw base typically used in household incandescent lamps. There is also the medium bipin base commonly used in T12 and T8 fluorescent lamps.

METAL HALIDE LAMP

A high pressure mercury discharge lamp to which special chemicals (metal halides) have been added, thereby doubling the light output and improving color rendering.

MERCURY LAMP

Technically, a High Pressure Mercury lamp, it is the HID source emitting bluish-white light that is still used in lighting some roadways, barns and backyards.

MESOPIC

Typically referring to nighttime outdoor lighting conditions, the region between PHOTOPIC and SCOTOPIC vision.

MOD-U-LINE®

A GE registered name for a family of U-shaped fluorescent lamps, both T8 and T12.

MOGUL BASE

A screw base used on larger lamps, e.g. many HID lamps,

MONOCHROMATIC LIGHT

Light with only one wavelength (i.e. color) present.

MOUNTING HEIGHT

Distance from the bottom of the fixture to either the floor or work plane, depending on usage.

MR-16 and MR-11

A line of low voltage compact reflector lamps used for accent and spot lighting. The 16 and 11 refer to 16 eighths of an inch diameter and 11 eighths.

MULTIVAPOR®

The GE brand name for metal halide lamps.

NANOMETER

A unit of wavelength equal to one billionth (10^{-9}) of a meter.

OPEN FIXTURE RATED

Lamps that are approved for burning in open fixtures (as opposed to enclosed fixtures which have an acrylic lens or plate glass enclosure).

PAR LAMP

A light source housed in a pressed reflector; PAR originally stood for Parabolic Aluminized Reflector, although dichroic reflectors are also available now. PAR 38 indicates that the diameter of the reflector is 38 eighths of an inch.

PHOSPHOR

A chemical coating on fluorescent lamps that absorbs UV and emits visible light. Older lamps used the "Halophosphor," modern lamps use a "Tri-phosphor." See also FLUORESCENCE.

PLUG-IN

See CFL

PHOTOMETRY

The measurement of light and related quantities.

PHOTOPIC

Vision for which the cones in the eye are responsible; typically at high brightness and in the foveal or central region. See SCOTOPIC

POWER FACTOR

A measure of phase difference between voltage and current. Power factor close to 1.0 is good; the farther it strays from 1 (e.g. 0.7) the more inconvenient it is for the power company to supply power to the end-user, and they may penalize users by charging a higher rate.

POWER-GROOVE®

A GE name for its line of "highest output fluorescent lamps," featuring a grooved bulb that increases effective arc length by 10%.

PRECISE™

A GE trade name for low voltage, compact MR16 and MR11 lamps reflector lamps

PULSE START

An HID ballast with a high voltage ignitor to start the lamp.

PULSEARC™

A GE line of metal halide lamps operating on pulse-start ballasts and providing improved lumen maintenance.

QUAD

Generally refers to a compact fluorescent lamp containing 4 U-shaped tubes, i.e. Quad Biax®, as opposed to Triple Biax® (3 tubes) and Double Biax® (2-tubes).

QUARTZ

A name for fused silica or melted sand from which many high-temperature containers are fashioned in the lighting industry. Quartz looks like glass but can withstand the high temperatures needed to contain high intensity arc discharges.

QUARTZ-HALOGEN LAMPS

See HALOGEN LAMPS.

QUARTZLINE®

A GE registered trademark term for some types of tungsten-halogen lamps.

RADIATION

A general term for the release of energy in a "wave" or "ray" form. All light is radiant energy or radiation, as is heat, UV, microwaves, radio waves, etc..

RAPID START

A method of starting fluorescent lamps by applying a voltage while simultaneously heating the cathodes. Starting occurs in a fraction of a second, as opposed to instantly (see INSTANT START.)

RATED LAMP LIFE

A statistical figure estimating when 50% of lamps from an initial sample will have died. Although technically it is "median" life it is often referred to as "average" life.

REFLECTANCE

The ratio of light reflected from a surface to that incident upon it

REFLECTOR LAMP

A lamp containing a light source (filament or discharge) housed in a built-in reflector, typically formed by coating a portion of the bulb with a reflective coating

ROOM CAVITY RATIO (RCR)

A shape factor (for a room, etc.) used in lighting calculations.

$RCR = 5H (L+W) / L \times W$, or, alternately,

$RCR = (2.5) \text{ Total Wall Area} / \text{Floor Area}$.

SAF-T-GARD®

A GE registered trademark for a line of HID lamps (Mercury or Metal Halide) which will self-extinguish shortly after the outer bulb is broken or ruptured. This prevents the possibility of the arc tube continuing to operate and causing sunburns in people sitting under the lamps.

SCOTOPIC

Vision where the rods of the retina are exclusively responsible for seeing, typically like the light levels in the countryside on a moonless, starlit night. See also PHOTOPIC, MESOPIC.

SCREW-IN

See CFL.

SELF-BALLASTED LAMPS

A discharge lamp with an integral ballasting device allowing the lamp to be directly connected to a socket providing line voltage. See also CFL.

SP and SPX

SP/SPX stand for "Specification Series," a GE designation for fluorescent lamps with high CRI indicating whether the CRI is in the 70's (SP) or 80's (SPX). Typically SP lamps have a CRI of 78, SPX 86. SP35 refers to a lamp with 3500K color temperature and CRI of 76; SPX 50 refers to a lamp with color temperature of 5000K and CRI of 86.

SPACING TO MOUNTING HEIGHT RATIO

Ratio of fixture spacing (distance apart) to mounting height above the work plane; sometimes called spacing criterion. It is OK to have fixture spaced closer than the spacing criterion suggested by the manufacturer but not farther, or you will get dark spots in-between fixtures.

SPECTRUM

A graphical representation of energy emission as a function of wavelength. Examining the spectrum or "spectral distribution curve" of a lamp tells you the relative emission in different parts (colors) of the visible region.

SPECULAR REFLECTION

Reflection from a smooth, shiny surface, as opposed to diffuse reflection.

SPOT

A colloquial term referring to a reflector lamp with a tight beam of light, typically around 10 degrees or less. It comes from the fact that such a lamp produces a narrow spot of light as opposed to a wide flood of light.

SPXX

A Color Designation for GE Ceramic Metal Halide Lamps with superior Color Rendering ~ 90.

STARCOAT™

A special barrier coating on the inside of all GE T8 fluorescent lamps (and some other lamps) that enhances lamp life and provides superior lumen maintenance.

STARTER

An electronic module or device used to assist in starting a discharge lamp, typically by providing a high-voltage surge. See also IGNITOR.

SUNBURN

Skin reddening and inflammation caused by overexposure to sources containing UV-B and/or UV-C.

T-12, T-8, T-5

A designation for the diameter of a tubular bulb in eighths of an inch; T-12 is 12 eighths of an inch, or 1 1/2 inches; T-8 is 1 inch, and so on.

TASK LIGHTING

Supplemental lighting provided to assist in performing a localized task, e.g. a table lamp for reading or an inspection lamp for fabric inspection.

TCLP Test

Toxicity Characteristic Leaching Procedure (TCLP) test is used to characterize lamps as hazardous or non-hazardous waste; it measures the amount of mercury and heavy metals that can leach from a lamp disposed in a landfill. TCLP is a Federal standard; local governments may have additional criteria to classify lamps as hazardous or non-hazardous waste. See ECOLUX.

THD (Total Harmonic Distortion)

Ballasts can cause a slight distortion of the sine wave on the building AC supply. This can become an issue where sensitive electrical equipment is used. THD is a measure of this distortion, expressed as a percentage. ANSI recommends <32%, and it is possible to get fluorescent ballasts at <20% or <10% THD.

TROFFER

A long, recessed lighting unit, usually installed in an opening in the ceiling.

TUNGSTEN-HALOGEN LAMP

See HALOGEN LAMP

ULTRAVIOLET RADIATION

For practical purposes, any radiant energy within the range of 100-380 nanometers. It is beyond the blue or violet region of the spectrum, and is invisible to the eye just like the silent "ultrasound" dog whistle is inaudible to the ear. UV is divided into 3 regions:

UV-A	100 to 280 nm
UV-B	280 to 315 nm
UV-C	315 to 400 nm

some wavelengths (180-220) produce ozone, some (220-300) are bactericidal, some (280-320) erythematous (redden human skin); others (320-400) cause secondary luminance (blacklight).

UL (Underwriter's Laboratories)

A private organization which tests and lists electrical and other equipment for electrical and fire safety standards. Generally luminaires are UL listed, not lamps (except for CFL lamps with built-in ballasts.)

ULTRA

A common way of referring to high efficiency GE T8 Wattmiser lamps.

ULTRAMAX

A line of high efficiency GE instant start linear fluorescent ballasts designed to match the T8 Wattmiser lamps and provide enhanced system savings

VALANCE LIGHTING

Lighting from light sources on a wall typically above eye level, shielded by horizontal panels. The light may be upward or downward directed.

VEILING REFLECTIONS

Effective reduction in contrast between task and its background caused by the reflection of light rays; sometimes called "reflected glare." You might have dealt with veiling reflections when you have to tilt a shiny magazine to avoid glare so as to read it, or struggled with reading a computer monitor because of the reflection of a window or a light fixture.

VISUAL COMFORT PROBABILITY (VCP)

For a given lighting scheme, VCP is a ratio expressed as a percent of people who, when viewing from a specific location and in a specified direction, find the system acceptable in terms of glare.

VISUAL TASK

The task associated with seeing; objects and details that must be seen to perform an activity.

VOLT

A measure of "electrical pressure" between two points. The higher the voltage, the more current will be pushed through a resistor connected across the points. The volt specification of an incandescent lamp is the electrical "pressure" required to drive it at its designed point. The "voltage" of a ballast (e.g. 277 V) refers to the line voltage it must be connected to.

WARM WHITE

Refers to a color temperature around 3000K, providing a yellowish-white light.

WATT

A measure of the rate at which energy is being consumed by a device. A 400 watt lamp will consume energy at a rate 4 times higher than a 100 watt lamp. A kilo-watt is 1000 watts.

WATTMISER®

A GE name referring to lamps that operate at reduced wattage and save energy. In most cases wattmiser lamps will go
in the same socket and on the same ballast as regular lamps.

WAVELENGTH

The distance between two neighboring crests of a traveling wave. The wavelength of light is between 400 and 700 nanometers.

WORK PLANE

Plane at which work is done and at which illumination is specified and measured; unless otherwise indicated, it is assumed to be a horizontal plane 30 inches above the floor (table-top height) having the same area as the floor.