New York Energy $mart[SM]
Commercial Lighting Program (CLP)
Glossary of Lighting Terms

This glossary lists terms commonly used in the Commercial Lighting Program (CLP) training and support materials, including the Metrics by Space included at the end of this document. It provides definitions and usage as the terms apply specifically to the Program. Because some descriptions refer to words described elsewhere in the glossary, those terms are designated in *italic.*

Accent Lighting:

Accent lighting is used to provide higher levels of light in a focused pattern to accentuate selected objects in relation to their surroundings. Accent lights count toward the *lighting power density* (LPD), but do not have to meet the CLP *spacing criteria* or *luminous intensity criteria*. In some space types, the accent lights are part of the overall LPD (such as in office spaces), while in other areas (such as retail) a separate allowance is given for accent lighting.

Ambient Light Level:

Ambient light level refers to the amount of general uniform lighting in a space. Ambient light is provided from *luminaires* that distribute the light widely, directly or indirectly. Ambient light levels are measured in *footcandles (fc)*. CLP criteria include recommendations for ambient light levels depending on the type of space and the tasks performed

Bay Luminaires (Fixtures):

The term Bay *Luminaires*, as used in CLP, refers to both High Bay and Low Bay Luminaires. Other NYSERDA end-user incentive programs may restrict the light source (see "*high intensity fluorescent*"), require minimum *fixture efficiency, or* limit *mounting height*. Contact your CLP Account Manager for more information.

Ballast:

A ballast is a device used to operate *fluorescent* and *high intensity discharge* (HID) lamps such as *metal halide (MH)* and *high pressure sodium (HPS)*. The ballast provides the necessary starting voltage, while limiting and regulating the lamp current during operation. A ballast can be magnetic, electronic**,** or a hybrid of magnetic and electronic. CLP and NYSERDA incentive programs require electronic fluorescent ballasts. See *High Performance T8* ballasts for more information.

Brightness:

Brightness is an attribute of visual perception in which a source appears to emit a given amount of light. "Brightness" is used only for non-quantitative references to physiological sensations and perceptions of light. "Brightness" was formerly used as a synonym for the photometric term "luminance." For the purpose of CLP, we refer to brightness as it relates to glare where *glare* is the effect of brightness, or differences in brightness, within the visual field sufficiently high enough to cause annoyance, discomfort, or loss of visual performance.

Candela:

The Candela (cd) is a unit of *luminous intensity*, describing the intensity of a light source in a specific direction. In CLP, qualifying *luminaires* may not exceed certain *luminous intensity* limits based on the type of fixture and/or the application. These criteria help limit excessive glare

Candlepower:

Candlepower (cp) was used to express levels of light intensity in terms of the light emitted by a candle of specific size and constituents. In modern usage Candlepower equates directly to the unit known as the *candela (cd)*.

Candela Power Summary:

The candela power summary or "candela distribution chart" is part of the *photometric report*, and provides a listing of the candela values to evaluate the *luminous intensity* of the luminaire.

Color Rendering Index (CRI):

The Color Rendering Index (CRI) uses a scale from 0 to 100 to describe the effect of a light source on the color appearance of an object in comparison with the color appearance under a reference light source, where 100 indicates no color shift. In general, a low CRI rating indicates that the colors of objects will appear unnatural under that light source. A high rating indicates that the colors of objects will appear natural under that light source.
Some common examples of CRI:

Light Source (Examples Only – check the manufacturer's lamp catalog for the source you select)	**CRI**
Incandescent	98-100
Compact Fluorescent	>80
Fluorescent	
High Performance T8	>80
Standard T8 (741)	>70 but <80
T12 Cool White	62
T5 and T5HO	>80
Metal Halide	
Standard Clear	65
Standard Coated	70
Ceramic	80-96
Mercury Vapor	20-50
High Pressure Sodium	
Standard	20-25
Color Improved	60-80
Low Pressure Sodium	0

For most applications CLP requires a CRI of 80 or higher for all light sources.

Compact Fluorescent Lamps (CFLs):

CFLs are small, low wattage fluorescent lamps that are often used as an alternative to *incandescent* lighting. They are also referred to as PL, DL, CFL or BIAX lamps. Lamp types include plug in socket or integral ballast and medium screw base.

Daylight Dimming:

Daylight dimming systems are controlled by *photocells* that either turn the lights on and off, or reduce the output of the lamps when daylight is present. This energy saving technology is used in areas with significant daylight contribution. Dimming *ballasts* are needed for fluorescent and HID dimming systems.

Decorative Lighting:

Decorative Lighting is allowed to be installed in addition to the general lighting for the purpose of decorative appearance, such as chandelier-type luminaires or sconces. Decorative Lighting count toward the *lighting power density* (LPD), but do not have to meet the CLP *spacing criteria* or *luminous intensity criteria*. In some space types, the lights are part of the overall LPD (such as in office spaces), while in other areas (such as retail) a separate allowance is given for Decorative Lighting.

Direct Glare:

Direct *glare* is glare produced by a direct view of a light source**.**

Direct Luminaire:

Direct *luminaires* distribute 90-100% of the emitted light in the direction of the surface to be illuminated. The term usually refers to light emitted in a downward direction.

Direct/Indirect Luminaire:

Direct/Indirect *luminaires* combine direct and *indirect lighting*. The percentage of up-light and down-light will vary for each *luminaire*.

Energy Cost:

Energy Cost of electric lighting systems refers to both the total wattage used, measured in kilowatts (kW) and the hours of usage (measured in kilowatt – hours (kWh)). Reducing the total wattage and/or the hours of usage reduces the cost of operating the electric lighting system.

Fixture:

See *luminaire*.

Fixture Efficiency:

See *luminaire efficiency*.

Fluorescent Lamps:

Fluorescent lamps produce light through fluorescence. In most fluorescent lamps, a mixture of gases contained in a glass bulb is stimulated by electric current, producing ultraviolet rays. These rays strike a fluorescent phosphor coating on the interior surface of the bulb, causing it to emit visible light. Fluorescent lamps are considered to be an “energy-efficient” source because very little energy is lost as heat as compared to incandescent lamps.

Footcandles (fc):

A footcandle is unit of measurement of the *illuminance* (or light level) on a surface. One footcandle is equal to one *lumen* per square foot.

Glare:

Glare is the effect of *brightness*, or differences in brightness, within the visual field sufficiently high enough to cause annoyance, discomfort, or loss of visual performance.

Halogen Lamps:

Halogen lamps are *incandescent lamps* with tungsten filaments sealed into an envelope filled with an inert gas and a small amount of halogen such as iodine or bromine. The halogen cycle increases the lifetime of the lamp and prevents its darkening by re-depositing tungsten from the inside of the bulb back onto the filament. The halogen lamp can operate its filament at a higher temperature than a standard gas filled lamp of similar power without loss of operating life. This gives it a higher efficacy (lumens/Watt). Some halogen lamps are able to use a smaller size envelope, and therefore can be used with optical systems that are more efficient (such as MR lamps).

High Efficiency Low Glare Luminaires (HELG):

High Efficiency Low Glare Luminaire is a relatively new term and has not been formerly defined by the IES. These luminaires have also been referred to as "Volumetric Lighting," or High Efficiency Advanced Recessed. For the purpose of CLP, HELG luminaires are defined in the NYSERDA Existing Facilities Program and require greater than 80% *fixture efficiency* and a minimum of 15% of the *zonal lumens* between 60 and 90 degrees.

High Intensity Discharge (HID):

HID is a generic term used to describe a group of light sources that includes *mercury vapor*, *metal halide*, and *high pressure sodium* and low pressure sodium.

High Performance T8 (HPT8):

High Performance T8 systems refers to 32Watt, high-lumen lamps (minimum of 3100 initial *lumens*) and ballasts meeting the minimum efficiency requirements set by the Consortium for Energy Efficiency (CEE at www.cee1.org). When using T8 lamps and ballasts, HPT8 Systems provide a more energy-efficient solution, reduce *energy costs,* and produce equivalent or higher light output than standard T8s. In order for T8 *luminaires* to qualify for NYSERDA end-user incentives, the luminaires must use HPT8 lamps and ballasts
T8 lamps also come in reduced wattages (30, 28, or 25 Watt). These lamps are typically used in retrofit applications.

High Pressure Sodium Lamps (HPS):

High pressure sodium lamps are *high intensity discharge lamps* which use sodium in an excited state to produce light. HPS lamps require HPS ballasts. While this source is very efficacious, it is not typically used in indoor applications due to its poor *color rendering* ability. However, specialty HPS lamps with higher color rendering indexes are available.

Horizontal Mean Illuminance:

Horizontal Mean Illuminance refers to the average light level (expressed in *footcandles*) on the horizontal *work plane*. CLP uses the *IES* recommended light levels for project evaluation. The recommended *footcandle* level depends on the task, and refers to the average *ambient light level* over the entire area.

IES File:

The term "IES File" refers to a raw set of data derived from photometric testing of a specific *luminaire* with a specific lamp and ballast. The numbers, and the order in which they are presented in the IES file, provide the information necessary to produce a *photometric report*.

Illuminating Engineering Society (IES):

The IES is the recognized technical authority on illumination and develops lighting recommendations and best practices for the industry and the general public. CLP follows the recommendations of the IES for appropriate light levels based on the type of space and the tasks performed within the space.

Illuminance (footcandle):

Illuminance refers to the amount of light falling on a surface. It is calculated as the number of *lumens* per unit area of surface**,** usually expressed as lumens (lm) per square foot or "footcandle." Footcandles = lm/ft^2. The 9th Edition of the IES Lighting Handbook recommends illuminance values for a variety of lighting applications, categorized according to the level of complexity of the *visual task* being performed. These recommendations are the basis of the light level target criteria of the CLP.

Illuminance Levels:

Illuminance level refers to the average light levels measured in *footcandles*.

Illuminance Uniformity:

Illuminance uniformity is achieved by not exceeding recommended maximum to minimum light levels on the *work plane* throughout the work space. CLP uses *luminaire* fixture *spacing criteria* to evaluate uniformity. Luminaires must be spaced within the fixture manufacturer's *spacing criteria* as listed on the luminaire's *photometric report*.

Incandescent Lamps:

Incandescent lamps (commonly called light bulbs) are a source of artificial light, in which an electrical current is passed through a thin filament, heating it until it produces light. The enclosing glass bulb prevents the oxygen in the air from reaching the hot filament, which otherwise would be destroyed rapidly by oxidation. Incandescent lamps come in a wide variety of shapes, sizes, and wattages, and the group includes general and directional sources. While this source has a very high *Color Rendering Index (CRI)*, it typically has the lowest efficacy (lm/W) compared to other sources. *Halogen lamps* are part of the incandescent family of lamps.

Indirect Luminaire:

An indirect *luminaire* distributes 90-100% of the emitted light upward. For indirect *luminaires*, the maximum to minimum ratio of light on the ceiling, as opposed to *spacing criteria* is the key to evaluating the uniformity. CLP uses ceiling ratio, based on *luminaire suspension* and spacing to determine uniformity. The formulas for calculation are part of the CLP *Online Project Qualification Tool*.

Initial Lumens:

See *Lumen*.

Initial System Cost:

The initial system cost refers to the total cost of purchasing a lighting system and may include the materials, labor, and other costs associated with purchasing the system. See *Life Cycle Cost* for more information.

LED Luminaries:

LED Luminaries are allowed on CLP projects if listed by Energy Star, or the Design Lights Consortium™. Integral LED lamps do not qualify for lower wattage rating of the fixture. See last page for more information.

Life Cycle Cost (LCC):

LCC is a method of comparing the cost of a lighting system over a period of time, usually the number of years the system is expected to be in use. It includes the *initial system cost*, lamp replacement costs, and *energy costs/savings*. CLP provides a LCC tool on the website to help calculate the life cycle cost.

Lighting Power Allowance (LPA):

LPA refers to the *watts per square foot* allowed for a lighting system based on a standard, code, or energy-efficiency program. The required LPA for CLP is 10%, more stringent (less) than listed by the ASHRAE/IES 90.1 – 2007.

Lighting Power Density (LPD):

LPD is a measurement of the *watts per square foot* consumed by the lighting system. The total watts of the lighting system (including ballast watts) divided by the square footage of the space equals LPD. The LPD for CLP must be at least 10% less than listed by the ASHRAE/IES 90.1 – 2007.

Lumen (lm):

The Lumen is the unit of luminous flux. The lumen rating of a lamp is a measure of the total light output of the lamp. Lumen ratings are listed in the lamp manufacturer's specification guide. Because lumens depreciate over time for *fluorescent* and *HID* lamps, lumens are listed two ways. *Initial lumens* refer to the light output of the lamp after 100 hours of operations under laboratory conditions. *Mean lumens* (sometime referred to as design lumens) refer to the light output of the lamp at 40% of its rated life under laboratory conditions. Comparing lumens of a similar light source (same size and shape) is one method of determining which lamp will provide more light in the same *luminaire*.

Luminaire:

A luminaire is a complete lighting unit consisting of a lamp or lamps and *ballast* (when applicable) together with the parts designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply. Luminaires are often referred to as "fixtures."

Luminaire Efficiency:

Luminaire Efficiency refers to the ratio between the *luminous flux* emitted by the *luminaire* to the luminous flux of the lamp (or lamps) installed in the luminaire. Luminaire efficiency is an important criterion in gauging the energy efficiency of a luminaire compared to other luminaires of the same classification. For certain luminaire types, *luminaire efficiency ratings* (LER) have been established.

Luminaire Efficiency Rating (LER):

LER is part of a voluntary national testing and information program for "widely used *luminaires* with the potential for significant energy savings." LER is a single figure that expresses luminaire efficacy that is derived by dividing the luminaire's light output by the input power. The formula is:
LER = [luminaire efficiency (EFF) x total rated lamp lumens (TLL) x ballast factor (BF)] divided by [luminaire watts input]. Note that the effects of all components of the luminaire system are included in the LER.

It is important to note that the LER is only published for certain luminaire categories and changes based on the lamp type and the ballast factor. Only luminaires within a product category should be compared. As an example, by the nature of their different applications, a lensed fixture and a strip fixture would fall into different LER ranges.

Luminaire Suspension:

For CLP, *luminaire* suspension refers to the distance from the ceiling to the bottom of the luminaire, measured in inches. Luminaire suspension is part of the formula used to determine light levels and compliance with the recommended *spacing criteria* as it affects the distance to the *workplane*.

Luminance (Candelas per square meter):

Luminance is the photometric quantity most closely associated with one's perception of *brightness*. It usually refers to the amount of light that reaches the eye of the observer measured as *luminous intensity* in candelas per meter^2.

Luminous Flux (light output or lumen output):

The Luminous Flux is the total light output (or lumen output) of a light source expressed in lumens. Whereas a lamp will have many *candela* values, depending upon the direction of interest, it will have only one *lumen* output rating. The lumen rating can be considered as the measure of the summation of light output of a lamp. Ratings are determined and published by the lamp manufacturer. *Initial lumen* rating of the lamp is required for each lamp used on a CLP project in order to evaluate the amount of light in the space on the *work plane*.

Luminous Intensity (Candela):

Luminous intensity (L.I.) refers to the intensity of a light source in a specific direction, expressed in *candelas* (cd). Any given light source will have many different intensities depending upon the direction considered. Since intensity is a property of the light source itself, the *candlepower* (luminous intensity expressed in candelas) for a specified direction remains the same, regardless of distance from the source. To help avoid excessive glare, CLP has criteria for the maximum luminous intensity measured in candelas based on the *candle power summary* chart on the luminaire *photometric report*. The L.I. criteria vary depending on the application Glare control criteria can also be met by using *High Efficiency Low Glare luminaires*, as defined in some NYSERDA end user incentive Programs.

Mean Lumens:

See *Lumens*.

Mercury Vapor Lamps:

Mercury vapor lamps are *high intensity discharge* (HID) lamps which use mercury in an excited state to produce light. The arc discharge is generally confined to a small fused quartz arc tube mounted within a larger borosilicate glass bulb. The outer bulb may be clear or coated with a phosphor; in either case, the outer bulb provides thermal insulation, protection from ultraviolet radiation, and a convenient mounting for the fused quartz arc tube. Mercury vapor is considered an inefficient light source when compared to other available HID sources such as *metal halide*, and is being phased out under federal legislation.

Metal Halide Lamps:

The Metal Halide lamp, a member of the *high intensity discharge* (HID) family of lamps, is available in numerous sizes and configurations. Like most HID lamps, metal halide lamps operate under high pressure and temperature, and require the appropriate ballast. While older versions of metal halide lamps had poor *color rendering*, many of these lamps, especially those with ceramic arc tubes, now offer improved color rendering suitable for retail applications. Standard metal halide lamps (known as probe start) are being phased out under federal legislation to be replaced with more-efficient pulse-start lamps. All MH Fixtures must be pulse - start to qualify for CLP Incentives.

Mounting Height:

For determining CLP qualification, the mounting height refers to the distance from the floor to the bottom of the *luminaire*. For NYSERDA end-user incentives, some luminaire types have minimum mounting heights for eligibility.

MR16 Lamps:

MR 16 low-voltage quartz reflector lamps are two inches in diameter. Typically the lamp and reflector is one complete unit. These lamps are able to direct light in a sharp, precise beam of light, and are often used for *accent lighting*. MR16 lamps typically use *halogen* sources, although other sources may be used.

Occupancy Sensors:

Occupancy sensors are devices that sense occupancy of people within a space. *Luminaires* are dimmed or turned off when movement is not present, indicating that the space is not occupied. Three main types of sensor technologies exist: passive infrared, ultrasonic, and high frequency (microwave). These energy saving devices may be wall mounted, ceiling mounted, or built into the *luminaire*. Occupancy sensors are required in some spaces in new construction or major renovation to meet Code. CLP offers additional incentives for the use of occupancy sensors.

Online Project Qualification Tool:

CLP provides an online application tool for the purpose of determining project qualification. CLP allows for alternative documentation for project submittal provided light levels, glare control, uniformity, and energy efficiency (W/sf) can be derived from the alternative documentation.

Open Office Space:

CLP distinguishes between open office spaces and *private offices*. An open office is defined as any office area greater than 300 square feet where general office tasks are performed. The *luminous intensity* criteria for open offices are different than other areas because of increased concern for *glare control* in these spaces. Both open offices and private offices can meet the glare control requirements by using *High Efficiency Low Glare luminaires* or by meeting the individual *luminous intensity* criteria as listed in the CLP Metrics by Space.

Overhead Glare:

Overhead glare is a form of *glare* caused by excessive brightness directly above the user.

Parabolic Aluminized Reflector Lamp (PAR):

PAR Lamps are lamps used to redirect light from the source, using a parabolic reflector. *Halogen* PAR lamps are available with very precise beam control, from very narrow spots to very wide floods. An energy-efficient alternative is the Halogen Infrared (IR) lamp which uses a burner with a special coating to optimize lumen output so you can use a lower wattage lamp to achieve energy savings.

Parabolic Luminaires:

A Parabolic Luminaire is a type of *luminaire* which has a louver composed of aluminum baffles that are curved in a parabolic shape. In the proper application, the distribution can provide reduced glare based on *luminous intensity* and better light control (distribution). The parabolic louvers can be different sizes and different depths to accommodate different applications.

Pendant Mount:

Pendant Mount refers to *luminaires* that are suspended from the ceiling (by chain, cable or rods). This can refer to *direct, indirect*, or *indirect/direct luminaires.*

Photometric Report:

Photometric Report refers to a set of data describing the light distribution, efficiency, and *zonal lumen output* of a specific luminaire based on laboratory testing. The actual data is contained in a set of raw numbers known as the *IES file*. The raw data can then be entered into various software tools to create the photometric report. The photometric report for each luminaire used on CLP projects must be submitted with the application and work sheet.

Photocells (aka Photo Sensors):

A photocell is a type of resistor that decreases in resistance when it is exposed to light. In interior lighting applications, photocells are used to dim or turn-off electric light sources in the space when sufficient light levels are produced by day-lighting or other sources. Because these devices can reduce the electrical load, they are considered energy-saving devices. CLP provides additional credit for the use of "daylight dimming." Note that appropriate ballasts and other controls may be needed in addition to the photocell to allow for dimming.

Plenum (Ceiling Plenum):

Ceiling plenum is an architectural term that refers to the space between the "finished" ceiling (such as ceiling tiles) and the actual foundation ceiling. When selecting *luminaires*, the height of the plenum can limit the luminaire selection. In some buildings, the heating, ventilating, and air-conditioning system lies within the ceiling plenum requiring special fixtures.

Prismatic Lens:

A Prismatic Lens is a type of *luminaire* lens that incorporates a series of small prisms. The lens scatters the light passing through it. The efficiency depends on the specific lens, but typically the lens reduces the percentage of *lamp lumens* reaching the surface to be lighted.

Private Office Space:

CLP distinguishes between *open office* spaces and private offices. An open office is any office area where general office tasks are performed that is greater than 300 square feet. A private office is any space less than 300 square feet where general office tasks are performed.

Pulse Start Metal Halide:

Pulse Start Metal Halide (MH) is a type of *HID* source that requires different *ballasts* than probe start (standard) MH lamps. The combined ballast/lamp system provides superior performance. Specifically, they typically provide better energy-efficiency, better color uniformity, faster warm-up and re-strike, and longer life. It is important to compare the specific lamp ballast combination as performance varies by manufacturer. Recent federal legislation sets standards for MH system energy-efficiency that can be met by pulse start MH systems.

RP-1:

The American National Standard for Office Lighting ANSI/IES (Recommended Practice) RP-1-04 sets standards for office lighting to limit distracting reflections in the visual display terminal (VDT), and to limit the potential for eye adaptation problems. CLP has glare criteria for luminaires based on the general guidelines in RP-1. This requirement can also be met by using *High Efficiency Low Glare Luminaires.* NOTE: RP-1-04 is currently being revised and future CLP criteria may be changed to comply with the new RP-1 recommendations.

Recessed:

Recessed refers to *luminaires* that are mounted up in the *plenum* (the space above the ceiling).

Reflected Ceiling Plan (RCP):

The Reflected Ceiling Plan is an architectural drawing that shows a view of the room as if looking from above, through the ceiling, at a mirror installed at some distance below the ceiling level, which shows the *reflected* image of the ceiling above. The RCP is often used by designers and architects to demonstrate lighting, by showing the layout of the *luminaires* recessed into, mounted on, and hanging from the ceiling.

Reflected Glare:

Reflected Glare is a form of *glare* resulting from reflections of light on polished or glossy surfaces. A common example of reflective glare is the reflection of light on computer screens or shiny desk surfaces.

Spacing Criteria (SC):

Spacing Criteria refers to the maximum recommended distance according to the luminaire manufacturer's testing report that interior *luminaires* should be spaced from each other in order to ensure uniform illumination on the *workplane*. The luminaire height above the workplane, multiplied by the spacing criteria listed on the *photometric report* is equal to the recommended maximum center-to-center luminaire spacing. The CLP criteria require luminaires to be spaced within the recommended spacing criteria.

Spacing to Mounting Height Ratio (S/MH):

S/MH ratio is the actual distance between *luminaire* centers to the *mounting height* above the *workplane* of the installed luminaires. The actual distance must be entered on the CLP project application work sheet to verify that the actual spacing does not exceed the *spacing criteria*.

Specular:

A Specular finish on *luminaire* louvers or reflectors resembles a mirrored or polished surface. This can often create excessive *glare*.

Surface Mount:

Surface Mount refers to *luminaires* that are mounted directly to the ceiling, as opposed to *recessed* luminaires or *pendant mount* luminaries.

T5 Lamps:

T5 refers to linear fluorescent lamps with a diameter of 5/8". This is typically used to refer to high-efficiency lamps requiring T5 electronic *ballasts*. T5 lamps are currently only available in metric lengths, thus making them only appropriate for new luminaires. T5 lamps are available in both standard and high-output. T5 is also the dimension for many of the twin-tube *compact fluorescent lamps (TT5),* but those are not typically referred to as T5 lamps.

T8 Lamps:

T8 refers to linear fluorescent lamps with a diameter of 8/8" (1 inch). The first generation of T8 systems, commonly run on electronic *ballasts* were more efficient than the older T12 (12/8") systems. These lamps use a tri-phosphorous coating, which improved the color rendering when compared to standard T12 cool white lamps. The next generation of T8 systems is known as *High Performance T8* (HPT8). HPT8 systems feature improved *color rendering*, lamps with a higher lumen output (3,100 initial *lumens*), higher maintained *lumens*, 20% longer life, and are 6-8% more energy-efficient than standard T8 systems.
T8 lamps also come in reduced wattages (30, 28, or 25 Watt). These lamps are typically used in retrofit applications.

Task Lighting:

Task lighting is the lighting, or amount of light, that falls on a given task. For the purpose of CLP, Task Lighting refers to lighting that is in addition to the general lighting system, such as portable lighting (desk, floor, and table lamps), as well as lighting that is part of modular systems. Also see Accent Lighting and Decorative Lighting, which is not the same as Task Lighting. Task Lighting is supplemental to the general ambient lighting. If a fixture is the only lighting for the space, it is not considered Task Lighting. Task lighting is not counted as part of the *Lighting Power Density* to meet CLP energy use criteria.

Troffer:

A Troffer is a *recessed* fluorescent luminaire that is typically square or rectangular in shape**,** and is installed with the opening flush with the ceiling.

Visual Task:

The visual task designates those details and objects that must be seen for the performance of given activity, and includes the immediate background of the details or objects. According to the *Illuminating Engineering Society* (IES), because it is uncommon for spaces to contain a single visual task, the determination of the optimum light level must begin by evaluating each visual task in terms of variables including size, contrast, and time. For CLP project qualification, light levels assigned to spaces are based on the most common tasks usually associated with the space type. Variances are allowed for specific space uses. As an example, the light levels required in a computer chip manufacturing facility, would be different than those required in a manufacturing space for large industrial components.

Wall Wash:

Wall Wash is a term used to describe *luminaires* designed to illuminate vertical surfaces. In CLP projects, wall washers must be mounted within three feet of the wall they are illuminating.

Watts per Square Foot (W/sf)

W/sf is the measurement used for establishing the *lighting power allowance* (LPA). It is also the measurement used for determining the actual lighting load based on the *lighting power density* (LPD).

The formula to determine the W/sf is: Total System Watts within the space (including lamps and ballasts) / Total Square Footage of the space.

Workplane:

The Workplane refers to the level at which tasks are performed and for which the appropriate *illuminance (light level)* is specified. In a hallway the workplane would be at the floor, while in an office it would be a horizontal plane 30 inches above the floor (desk height).

Zonal Lumens:

As part of photometric testing of indoor *luminaires*, the quantity of light distribution at various vertical angles is measured. A "zonal constant," a factor that, when multiplied by the average candlepower emitted by a light source in a specified angular zone, reveals the *lumens* in the zone, known as the zonal lumens. Various luminaire categories (such as strip light, downlights, parabolic, and lensed recessed luminaire) will typically have very different percentages of zonal lumens at different angles. Understanding "where" the lumens go helps lighting practitioners select the appropriate luminaire for the application.

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NYSERDA Existing Facilities Program Solid-State Lighting (SSL) Policy:

Effective June 1, 2010: NYSERDA will only accept SSL products listed by either ENERGY STAR® or DesignLights™ Consortium's Qualified Products List (DLC QPL). The list of qualified SSL products will be accessible through NYSERDA's The Right Light℠ website. (A link will be available soon.)

Background: With the wide variety of products and claims in the rapidly emerging SSL market, NYSERDA seeks to ensure that the products we support will deliver promised light levels and energy savings throughout their product lives. Testing through the DOE Commercially Available LED Product Evaluation and Reporting Program (CALiPER) is finding a significant number of products with inaccurate or misleading performance claims. To support NYSERDA needs, address the uncertainty of the product claims, and continue to support the emerging SSL market, the Existing Facilities Program is requiring LM-79 test data (for the entire luminaire) and LM-80 test data (for the LED device or module package) for all SSL products that are included as part of a Performance-Based project. Currently, NYSERDA does not provide any incentives for SSL products under Pre-Qualified other than Exit Signs. Overall, NYSERDA will not provide incentives for SSL products that have not been subject to LM-79 and LM-80 testing protocols. Finally, all SSL products must be accompanied by an unconditional 3-year manufacturer's warranty. See the details that follow for how this affects project applications for the Existing Facilities Program.

Effective June 1, 2010 (Details): If and when an Applicant, supplier, and/or manufacturer brings a project (assuming eligibility based on published program guidelines) with SSL products (i.e. LEDs) to NYSERDA's Existing Facilities Program seeking incentives, they shall validate the proposed SSL products first through ENERGY STAR® and then the DesignLights™ Consortium (DLC), in that order. Payment will not be issued until the conditions outlined in this announcement are met. Follow these steps:

1. **Product is covered by ENERGY STAR® categories. (If not skip to #2)**. If the SSL products included in the project are covered by ENERGY STAR® SSL categories then those SSL products must be listed by ENERGY STAR® (http://www.energystar.gov/index.cfm?c=ssl.pr_commercial), before an incentive is granted. If they are not covered by ENERGY STAR® categories, go to step #2.

2. **Product is covered by DLC QPL categories. (If not skip to #3)**. If the SSL products are covered by DesignLights™ Consortium's Qualified Products List (DLC QPL) categories (http://designlights.org/solidstate.manufacturer.requirements.php), then those SSL products must be listed on the DLC QPL before an incentive is granted. If they are not covered by DLC QPL categories, go to step #3.

3. **Product is not covered by ENERGY STAR® or DLC QPL categories (*Also in effect for unlisted products in covered categories until June 1, 2010.*)** SSL products not covered by either *ENERGY STAR®* or the *DesignLights™ Consortium's QPL* will be accepted into NYSERDA's Existing Facilities Program with the following protocol in effect until further notice:
   - LM79 test results for the product from a certified independent test laboratory
   - LM80 test results for the SSL product or LED module package. (If these test results are not available at time of application, it will be required before incentive money is paid).
   - Unconditional three **(3)** year warranty on product (from either manufacturer or installer)

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