



# Commercial & Industrial and New Construction Lighting Offers

## PROJECT DESCRIPTION

The Commercial and Industrial Lighting Offer (C&ILO) provides reimbursements for lighting Measures installed in non-residential facilities.

## DEFINITIONS

Technical terms used in Commercial & Industrial Lighting

**Ballast** is an electrical device used with Fluorescent or High Intensity Discharge Lamps to supply sufficient voltage to start and operate the Lamp(s) as well as to regulate the current to the Lamp(s) during operation.

**Bi-level Control** is the ability to switch from low light level to full light level via a manual switch or sensor control.

**Cold Cathode** is an electric-discharge Lamp whose mode of operation is that of a glow discharge. Neon lights are an example of a Cold Cathode Lamp.

**Color Rendering Index or CRI** is a measurement of a Lamp's ability to render colors accurately. The scale ranges from 0 to 100. A Lamp with a CRI of 80 and above is considered to be a high quality light source.

**Compact Fluorescent Lamp or CFL** is a smaller version of a Fluorescent Lamp. A CFL can screw into a regular light bulb socket or can plug into a small lighting Fixture.

**Cut Sheet** refers to the manufacturer's written technical descriptions of specific lighting equipment (Lamp, Ballast, reflector, etc.). The Cut Sheet is also referred to as a "tech sheet."

**De-Lamp or De-Lamping** refers to the removal of one or more Lamps from a Fixture or a Luminaire as part of a Retrofit.

**Efficacy** is a measure of a light source's efficiency and is described in terms of Lumens per watt.

**Fixture** refers to lighting equipment that is permanently attached or securely fixed in place. A Fixture consists of the housing but may include the Lamps and Ballasts as well. Fixtures screwed together (adjacent to each other) can be considered as separate Fixtures.

**Fluorescent** is a lighting technology that produces light by exciting organic phosphor material on the inner wall of a glass tube or bulb.

**Hard-wired Fixtures** are new Fixtures that have Plug-In Lamp sockets instead of screw-in Lamp sockets making it impossible to screw in an incandescent bulb.

**High Intensity Discharge or HID** is a light source that produces light by creating an arc of electricity across two electrodes. Types of HIDs include Mercury Vapor, High-Pressure Sodium, and Metal Halide Lamps.

**High Output Fluorescent Luminaire** is a new Fixture that includes Fluorescent Lamps that have a high Lumen output. High Output Fluorescent luminaires are most often located in a high bay, e.g., a high mounting height location.

**High Performance** is a generic term that is used to describe certain Measures offered under this C&ILO that are more energy efficient than standard lighting products.

**High Pressure Sodium** is a yellowish appearing HID light source that has a low CRI.

**Induction Lamp** is a Fluorescent technology that excites the phosphorous material with high frequency radio waves instead of using an electrical discharge. The expected life of these Lamps is 80,000 plus hours.

**Installer** is the person or company that installs the lighting Measures as allowed under this C&ILO.

**Lamp** is a generic term for an artificial light source.

**Light Emitting Diode or LED** is a semiconductor that glows when a current is passed through it. LEDs are low Lumen, low wattage devices that produce a directional light beam. LEDs can be arranged in different patterns and therefore are ideal for signage lights.

**Lumen** is the unit of measure for the total light output of a Lamp or Luminaire.

**Lumen Maintenance** refers to the decrease of the Lamp Lumen output over time. Such a decrease is caused by bulb wall blackening, phosphor exhaustion, filament depreciation, and other factors. Lumen Maintenance is also referred to as Lamp Lumen depreciation.

**Luminaire** refers to the entire lighting unit and primarily includes the housing, Lamp, the Lamp holder, the Ballast, the lens, and the reflector. Strip Fixtures where the Installer installs all new Lamps, Lamp holders, Ballast, lens, and reflector can be considered a new Luminaire.

**Mercury Vapor** is an older type of HID light source that has a low CRI and low Efficacy.

**Metal Halide** is considered the best HID light source for most applications. Metal Halides produce a neutral white light that has a relatively high CRI.

**Nominal** means "manufacturer stated." A manufacturer will stamp a value on the piece of lighting equipment or on the nameplate that is usually expressed in watts or Lumens.

**Plug-In Lamp or PL** designates a snap or plug-in Fluorescent Lamp as opposed to a screw-in type Lamp.

**Probe-Start** refers to the typical method for starting a Metal Halide bulb. Probe-Start is less efficient than the pulse-start method.

**Retrofit** means the installation of new Lamps and Ballasts in existing Fixtures. In some cases, reflectors may be added and old lenses may be replaced.

**T5s, T8s, and T12s** are Fluorescent tubes that are 5/8 inch in diameter, 1 inch in diameter, and 1-1/2 inches in diameter, respectively.

**Total Harmonic Distortion or THD** is a measure of how close the wave form of an electronic device is to a perfect sine curve. THD is expressed as a percentage. The higher the percentage of THD, the higher the distortion level. A THD percentage of 20 percent or less is considered a low distortion level. A device that creates a high distortion can reduce the expected life of such equipment, and in some instances reduce the expected life of surrounding equipment.

**Very High Output Fluorescent Lamps** are Fluorescent Lamps that are designed to have significantly higher Lumen output than standard Lamps. The Ballasts overdrive these Lamps to the point where they are inefficient and have short lives. These Lamps are targeted for Retrofit or in some cases the entire Fixture replaced.

**Underwriters Laboratory or UL** is an independent laboratory that evaluates products primarily for safety. A UL label or rating indicates a measure of safety.