

GLOSSARY TERMS FOR LIGHT THERAPY

Amperes

"Amps." A measure of electrical current. In incandescent lamps, the current is related to voltage and power: Current (Amps) = Power (Watts) / Voltage (Volts).

American National Standards Institute (ANSI)

A consensus organization which coordinates voluntary standards for the physical, electrical and performance characteristics of lamps, ballasts, luminaries and other lighting and electrical equipment.

Ballast

An auxiliary piece of equipment designed to start and to properly control the flow of power to gas discharge light sources such as fluorescent and high intensity discharge lamps.

Beam Angle

The angular dimension of the cone of light from reflectorized lamps encompassing the central part of the beam out to the angle where the intensity is 50% of maximum. The beam angle sometimes called "beam spread", is often part of the ordering code for reflectorized lamps.

Candela (cd)

The international unit (SI) of luminous intensity. The term has been retained from the early days of lighting when a standard candle of a fixed size and composition was used as a basis for evaluating the intensity of other light sources. Sometimes the term "candle power" is used to describe the relative intensity of a source.

Candlepower

Luminous intensity expressed in candelas. Plots of luminous intensity, called candlepower distribution curves, are used to indicate the intensity distribution characteristics of reflector-type lamps. Candlepower measures the intensity related to lumens of lamps that project light.

Chromaticity

Also called Color Temperature.

Color Rendering Index (CRI)

An international system used to rate a lamp's ability to render object colors. The higher the CRI (based upon a 0-100 scale), the better colors appear.

Color Temperature

Originally, a term used to describe the "whiteness" of incandescent lamp light. Color temperature is directly related to the physical temperature of the filament in incandescent lamps so the Kelvin (absolute) temperature scale is used to describe color temperature..

Compact Fluorescent Lamp (CFL)

The general term applied to families of smaller diameter fluorescent lamps, some of which have built in ballasts and medium screw bases for easy replacement of incandescent lamps.

Canadian Standards Association (CSA)

An organization that writes standards and tests lighting equipment for performance as well as electrical and fire safety. Canadian provincial laws generally require that all products sold for consumer use in Canada must have CSA or equivalent approval.

Efficacy

Efficacy is the rate at which a lamp is able to convert electrical power (Watts) into light (Lumens), expressed in terms of lumens per watt (LPW).

Electromagnetic Spectrum

A continuum of electric and magnetic radiation that can be characterized by wavelength or frequency. Visible light encompasses a small part of the electromagnetic spectrum in the region from about 380 nanometers (violet) to 770 nanometers (red) by wavelength.

Electronic Ballast

A short name for fluorescent high frequency electronic ballast. Electronic ballasts use solid state electronic components and typically operate fluorescent lamps at frequencies in the range of 25-35 kHz.

Energy Policy Act (EPACT)

Comprehensive energy legislation passed by the U.S. Congress in 1992. The lighting portion includes lamp labeling and minimum energy efficacy (lumens/watt) requirements for many commonly used incandescent and fluorescent lamp types. Similar legislation is being proposed in Canada.

Federal Communications Commission

A U.S. Federal agency which is charged with regulating emissions in the radio frequency portion of the electromagnetic spectrum. For example, a regulation entitled, "Part 18" deals with electromagnetic interference (EMI) from all lighting devices operating at frequencies higher than 9 kilohertz (kHz.). Typical electronically-ballasted compact fluorescent lamps operate in the range of 24-100 kHz.

Fluorescent Lamp

A high efficiency lamp utilizing an electric discharge through low pressure mercury vapor to produce ultraviolet (UV) energy. The UV excites phosphor materials applied as a thin layer on the inside of a glass tube which makes up the structure of the lamp. The phosphors transform the UV to visible light.

Foot-candle (fc)

A unit of illuminance, or how much total light is reach onto a surface, such as a wall or table. One lumen falling on one square foot of surface produces illumination of one foot-candle. One foot-candle is equal to 1 lumen per square foot.

Halogen Lamp

A short name for the tungsten-halogen lamp. Halogen lamps are high pressure incandescent lamps containing halogen gases such as iodine or bromine which allow the filaments to be operated at higher temperatures and higher efficacies.

High-Intensity Discharge (HID) Lamp

A general term for mercury, metal halide (GE Multi-Vapor, MXR or Arcstream) and high-pressure sodium lamps. HID lamps contain compact arc tubes which enclose various gases and metal salts operating at relatively high pressures and temperatures.

Incandescents

Incandescent lamps are the most familiar type of light source, with countless application in homes, stores and other commercial settings. Light is produced by passing electric current through a thin wire filament, usually a tungsten.

Illuminance

The "density" of light (lumens/area) incident on a surface. Illuminance is measured in foot-candles or lux.

Incandescent Lamp

A light source which generates light utilizing a thin filament wire (usually of tungsten) heated to white heat by an electric current passing through it.

Infrared Radiation

Electromagnetic energy radiated in the wavelength range of about 770 to 1106 nanometers. Energy in this range cannot be seen by the human eye, but can be sensed as heat by the skin.

Instant Start

A type of fluorescent lamp-ballast circuit designed to start fluorescent lamps as soon as the power is applied. Originally, instant-start circuits were developed to eliminate separate mechanical starter devices. Slimline fluorescent lamps operate only on instant start circuits.

Kilowatt (Kw)

A measure of electrical power equal to 1000 watts.

Kilowatt Hour (kWh)

The standard measure of electrical energy and the typical billing unit used by electrical utilities for electricity use.

Lamp

The term used to refer to the complete light source package including the inner parts as well as the outer bulb or tube. "Lamp", of course, is also commonly used to refer to a type of small light fixtures such as a table lamp.

Light

Radiant energy which can be sensed or seen by the human eye. Visible light is measured in lumens. The term generally applied to the visible energy from a source. Light is usually measured in lumens or candlepower.

Lumen

The basic unit of measurement for light. A dinner candle shines at about 12 lumens. A 60-watt Soft White bulb is much more powerful: 855 lumens. If a uniform point source of 1 candela is at the center of a sphere of 1-foot radius which has an opening of 1 square foot area at its surface, the quantity of light that passes through is called a lumen.

Lux

The SI (International System) unit of illumination: one lumen uniformly distributed over an area of one square meter.

Specification Series (SP) Colors

Energy-efficient, all-purpose tri-phosphor fluorescent lamp colors that provide good color rendering (as measured by the Color Rendering Index or CRI).

Voltage

A measurement of the electromotive force in an electrical circuit or device expressed in volts. Voltage can be thought of as being analogous to the pressure in a waterline.

Watt

A unit of electrical power. Lamps are rated in watts to indicate their power consumption. Power consumed over time equals the electrical energy used.

Underwriter Laboratories (UL)

A private organization which tests and lists electrical (and other) equipment for electrical and fire safety according to recognized UL and other standards. A UL listing is not an indication of overall performance. Lamps are not UL listed except for compact fluorescent lamp assemblies - those with screw bases and built-in ballasts.

Ultraviolet (UV) Radiation



Radiant energy in the range of about 100-380 nanometer (NM). For practical applications, the UV band is broken down further as follows: Ozone-producing 180-220nm, Bactericidal (germicidal) 220-300nm, Erythermal (skin reddening) 280-, "Black" light 320-400nm.