

LED

an innovative light, NOW available



There is a vast shift in the lighting industry not seen since the invention of the Edison light bulb; those of us promoting and using LED technology are part of lighting history in the making.

Consumers today have a viable option with LED lighting products. LED is a sustainable, environmentally friendly and, money saving technology.

The 'Green' nature of the LED Low Bay SSL technology combined with the reduction of traditional maintenance costs creates a win-win for both the environment and the consumer.

■ What is an LED Light?

An LED light is a luminaire that uses a Light Emitting Diode as the light source. There can be a cluster of individual LEDs (Light Emitting Diodes) or a few high powered LEDs in a finished product. All LEDs are white light and can be modified with phosphor coatings to alter the look of the light to provide a warmer appearance. Accomplishing colour temperature, also known as Kelvin, can be different from one manufacturer to another, so it is important to make sure when selecting LED products that you know which process is used to avoid colour shifting over time.

LED lighting technology is solid state (SSL) lighting. In simple terms this means that the light is emitted from a solid object, rather than a vacuum or a gas, which is similar to commonly used incandescent and fluorescent bulbs.

The efficacy (light output per unit) of LEDs has increased exponentially since the first practical application of visible-spectrum LEDs in the early 1960's. Recent information published on the Infinilux web site states the CREE XRE LED allows up to 100 lumens per watt.

■ Not all LEDs are created equal

There are many different grades of LEDs. You can look at LED's like diamonds: the quality of the LED is reflected in the pricing, performance, lumen out put and life span. It is important to know what type and size of LEDs are used in the finished product, and that the manufacturer is reputable.

The variety of LEDs also offer different levels of light output or efficacy; the efficacy or the amount of usable light has increased dramatically since conception and continues to advance.

■ The size of an LED does make a difference

Power LEDs are much larger chips than those used in TVs, signs, etc. A power LED typically uses a 1000um chip vs. only about 200-250um in the smaller devices; the square area of the power LED chip is 16x larger in size.

A power LED does not use a wire lead frame like a 5mm LED. Power LEDs have special thermal platforms designed to take heat away from the chip.

The power LED uses a soft encapsulate vs. the hard plastic used in 5mm LED.

This hard encapsulate is one of the chief failure points for older LEDs when they heat up, as the encapsulate pulls away from the chip.... ultimately, causing degradation and failure. The soft encapsulates do not have this issue.

■ What type of LED is used in a LED Low Bay?

LED technology continues to advance, and with that comes the high-power LEDs. Manufacturers like CREE (www.cree.com) have designed the XRE LED commonly used in commercial luminaires such as the LB36 Low Bay by Infinilux (www.infinilux.com). These high powered LEDs, coupled with proper thermal management, quality drivers and optics, equates to a quality product; it will replace the standard HPS High Pressure Sodium and MH Metal Halide and wins out over the T8 for quality and durability.

■ A better quality of light promotes safety

LEDs provide a whiter, cleaner light which enhances visibility of signage and concrete pillars that can often be a hazard in dim parkades. A properly lit parkade provides a sense of security and safety and enhances the ability of security cameras. The colour rendering index for LEDs should be at least 75, which provides a natural day light experience. When comparing LEDs to High Pressure Sodium luminaires, LEDs are clean light, whereas HPS luminaires, with their low CRI, can appear yellow and dingy, making it more difficult to see - an effect that would not promote the sense of safety.

■ Low power consumption and dimming SAVES big BUCKS

The LB36 LED Low Bay uses only 50 watts to run the luminaire - a low amount of power - saving more than 50% of energy compared to the standard lighting technology.

Dimming capability is a true energy saving factor with LED Low Bays. Often, parkade lights are left on 24 hours a day, 7 days a week, even when empty. With the option of dimming, a great deal can be saved on energy consumption. Dimming LED Low

The utility companies and government believe in the LED technology and are providing a variety of incentive programs for projects, both large and small.

Bays reduces the lumen output by 50% and reduces the power consumption by 70%!

Switching on and off, or dimming does not have an adverse affect on LEDs; dimming actually promotes a longer life. LEDs have an instant-on capability, allowing great compatibility with sensor control systems. Depending on the protocol, the unit can power up to 100% if a patron or vehicle is within the set parameters, then dim to 50% when no movement is sensed by the security control unit.

■ Durability

The absence of a filament or tube allows LED luminaires to last longer than the commonly used Metal Halide, High Pressure Sodium or Fluorescent luminaire. An LED luminaire does not require a ballast, and since costly maintenance and replacement schedules are necessary for ballast and bulb replacement (which typically don't happen at the same time) the need for intervention is alleviated. LED luminaires also resist the effects of heat and cold better than the widely used HPS, MH and T8 bulbs.

■ The components of a luminaire determines the performance

An LED lighting system consists of an LED light source, driver and housing. The LED light source is either a high output LED or an array of LEDs. The driver is the circuitry necessary to power the light source safely with the necessary drive current, and the lens is the optics that direct and the light. Optics plays a major factor in quality light distribution. The proprietary 'No-Glare TM',

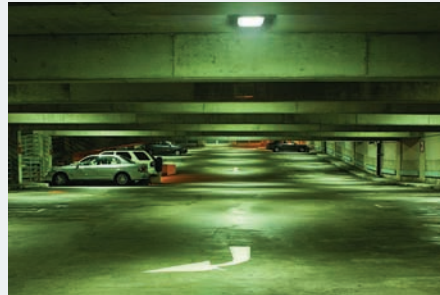
patent-pending optics designed by Infilux is constructed from polycarbonate polymers, the same used in bullet resistant glass, to assure years of trouble free use.

The housing of a luminaire is a valuable asset. While there are different designs available, some are one solid unit, powered-coated inside and out to provide corrosion resistance and cosmetic integrity.

To ensure the LED lighting system can provide the life span it suggests thermal management is a key factor for the overall performance of the luminaire. Heat is the enemy of semiconductors, and protecting the junction from excessive heat is critical to maintain the LED light sources. Overall durability of the unit should be a consideration. The design, components and materials used enhances a long life for the luminaire. All components affect the overall performance with the optics providing consistency of non-glare light formation. A minimum of a 5 year warranty is typical with most manufacturers; some offer the option to extend the warranty up to 16 years.

■ A true return on your investment

As consumers, we are looking for a return on our investment. A realistic ROI is between 3-5 years when purchasing an LED Low Bay. There are formulas available to calculate your return based on the cost of the unit



compared to the replacement of the current technology, factoring in the maintenance, replacement and power consumption cost. Leasing is new to the lighting market;

Yes, you can lease your LED luminaires! It can be a sound investment as the savings from your decreased power consumption can be put towards your lease payment. Once the lease is paid you have many more years to reap the financial benefits from your energy efficient product.

■ Rebates and grants

The utility companies and government believe in the LED technology and are providing a variety of incentive programs for projects, both large and small. BC Hydro for example, offers a \$30.00 rebate per unit when purchasing energy efficient LED lights that replaces a 50-100 watt incandescent bulb. For more information visit or ask your local utility company, or visit www.bchydro.com/ecatalog, select all PIP incentives to review their rebate program.

■ Why LED lights for Parkades?

The sense of security and visibility in a parking garage is one of the most important factors for your patrons. LED Low Bays provide a cleaner light which improves visibility, and produces less dark spots or glare, thus reducing the risk of incidents and collisions.

Ultimately it's the overall performance and the feeling of safety that's important when selecting a luminaire for a parkade. Product review and

installing a test section will provide true real life experiences to ensure your needs are being met by the LED technology. Clearly a leader on the energy efficient front, LED technology is poised to revolutionize how lighting systems are designed and installed across North America and the world. LED...a bright choice. ■

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