

## BENEFITS OF LED LIGHTING

The benefits of LED Lighting are endless. LED Lights are energy efficient, cost effective, ecofriendly, durable and more. They are the latest technology in lighting and offer a great alternative in replacing your current halogen or incandescent lights. Below is a detailed list of some of the many benefits of LED Lighting.

### **1. Long Life Span**

Long life span stands out as the number one benefit of LED lights. LED bulbs and diodes have an outstanding operational life time expectation of up to 50,000 hours. This is almost 6 years of continuous operation, or 12 years of 50% operation. If you leave on the LED fixture for 8hrs per day it would take around 15 years before you'd have to replace the LED bulb.

LED's are different to standard lighting: They don't really burn out and stop working like a standard light, the lighting diodes just emit lower output levels over a very long period of time and become less bright.

Technology	Life (hours)	Multiplier	Multiplier
Incandescents	1,000	X	
CFLs	10,000	10 X	Y
<b>LEDs</b>	<b>50,000</b>	<b>50 X</b>	<b>5 Y</b>

Long life span means you can cut maintenance costs as the lamps last up to 10-50 times longer than standard lamps making them an ideal replacement.

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### **2. Energy Efficient**

LEDs are today's most efficient way of illumination and lighting.

A traditional incandescent light bulb turns 90% of electricity used into heat with only 10% into light. In comparison, LED lights turn almost 70% of electricity into light with a loss of only 30% which is converted into other forms of energy such as heat.

<b>Technology</b>	<b>Electricity conversion into</b>	
	<b>Light</b>	<b>Heat / Loss / Etc.</b>
Incandescents	10%	90%
CFLs	40%	60%
<b>LEDs</b>	<b>70%</b>	<b>30%</b>

In today's time, where air conditioning is almost becoming a necessity, the reduced heat output of LED indoor lights leads to substantial savings in air conditioning cost.

JUST IMAGINE, if you are currently using traditional incandescent lights, you are first consuming electricity to light your room, which is also heating your room (80% is turned to heat). You are then using further electricity to run air conditioners to take away this heat generated by the traditional lights.

Some LED Lights can be operated by mains power, but when used with a Low Voltage LED Driver, LED Lights will produce more light output per watt.

The long life span along with high energy efficiency acts as a multiplicator and helps achieve even more energy efficiency, especially when thinking in terms of bigger projects such as big factories, commercial/residential complexes, malls, urban infrastructure projects, railroads and airports.

JUST IMAGINE, an airport using energy efficient LED lighting exclusively and achieving a 50% power consumption in comparison with an airport using conventional lighting technology. Multiply it with the benefits of long life span of LED lights, it reduces the maintenance and replacement costs. Multiply it further with the benefit of less heat generation, substantial savings in air conditioning costs.

## **BENEFITS OF LED LIGHTING**

### **3. Ecologically Friendly**

LED lights are free of toxic chemicals. Most conventional fluorescent lighting bulbs contain a multitude of materials like eg. mercury that are dangerous for the environment.

LED lights contain no toxic materials and are 100% recyclable, and will help you to reduce your carbon footprint by up to a third. The long operational life time span mentioned above means also that one LED light bulb can save material and production of 50 incandescent light bulbs. A big step towards a greener future! For example, a 13w LED light emits 68% less CO<sub>2</sub> than a standard 40w incandescent bulb running 10 hours per day.

### **4. Improved Durability**

LED's have no filaments so can withstand a greater intensity of vibration and shock than standard lights making them durable with less risk of breaking and need to replace.

### **5. Zero UV Emissions**

LED illumination produces little infrared light and close to no UV emissions.

Because of this, LED lighting is highly suitable not only for goods and materials that are sensitive to heat due to the benefit of little radiated heat emission, but also for illumination of UV sensitive objects or materials such as in biodegradable (food/meat/etc.) counters, museums, art galleries, archeological sites, etc.

### **6. Design Flexibility**

LEDs can be combined in any shape to produce highly efficient illumination. Individual LEDs can be dimmed, resulting in a dynamic control of light, color and distribution. Well-designed LED illumination systems can achieve fantastic lighting effects, not only for the eye but also for the mood and the mind.

LED mood illumination is already being used in airplanes, classrooms and many more locations and we can expect to see a lot more LED mood illumination in our daily lives within the next few years.

### **7. Operational in Extremely Cold or Hot Temperatures**

LED are ideal for operation under cold and low outdoor temperature settings. For fluorescent lamps, low temperatures may affect operation and present a challenge, but LED illumination operates well also in cold settings, such as for outdoor winter settings, freezer rooms, etc.

### **8. Directional Light**

LED is designed to focus its light and can be directed to a specific location without the use of an external reflector, achieving higher application efficiency than conventional lighting. Well-designed LED illumination systems are able to deliver light more efficiently to the desired location.

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### **9. Instant Lighting & Frequent Switching**

LED Lights will start at full brightness, instantly, every time; therefore there is no need for backup lighting. LED Lights are a benefit because they switch on and off instantly making them ideal for flashing signs, traffic signaling and automotive lights, compared to standard compact fluorescent lights which fade in and out or flicker.

### **10. Low-Voltage**

LED lighting is essentially low-voltage. This makes it easy to use LED lighting also in outdoor settings, by connecting an external solar-energy source. This is a big advantage when it comes to using LED technology in remote or rural areas.

### **11. Safety**

Improved safety is also LED's very important benefit. LED lights generate virtually no heat therefore they are cool to the touch and can be left on for hours without incident or consequence if touched. Incandescent lighting expels 90% of the energy it consumes via heat, making the bulbs hot to the touch. LEDs reduce the potential for safety risks such as burns and fires. LEDs are much safer to handle during installation and maintenance and can be exposed to rain and snow.

### **12. Future**

LEDs are poised to replace traditional incandescent light bulbs. LEDs are rapidly becoming the preferred lighting solution of both professionals and residential users. LED technology is continually advancing - producing brighter LED bulbs. WE hope to reduce the electricity used for lighting by 50% by converting to LED based light sources.