



**Business
Chamber**
QUEENSLAND

FAQs

ENERGY EFFICIENT LIGHTING

WHAT IS FLUORESCENT LIGHT AND WHAT ARE CFLS

Fluorescent light tubes and bulbs are made of mercury vapor contained inside a glass tube. The inside of the tube is coated with phosphorous. When an electrical current flows through, the mercury vapour produces an ultraviolet light. This in turns causes the phosphorous to produce visible light. These lights are a lot more efficiency than incandescent lights. The first commercial fluorescent lamps were sold in the late 1930s.

Compact fluorescent lamps (CFLs) are a direct alternative to incandescent light bulbs. The glass tube in a CFL is shaped to allows its design to be compact, usually curved or folded for example as a spiral I order to use the same space as an equivalent incandescent light bulb. Traditional fluorescent lights use linear glass tubes.

WHAT IS LED LIGHTING?

LED stands for Light Emitting Diode. Diodes are semiconductor devices that will conduct electricity in only one direction. The device is made-up of layers of silicon that are seeded with atoms of phosphorus, germanium, arsenic or other rare-earth elements. The layers of the device are called the die and the junction between the materials is where the light is generated. Different materials and designs have different coloured lights and intensities. LEDs are now bright enough to be considered for applications that traditionally used incandescent bulbs.

Technical advances have dramatically improved the reliability and the performance of LEDs since they were invented in the 1960s. The lifetime for the new generation of LEDs is about 100,000 hours of use, or 30 to 40 years of normal operation. As they are a semiconductor device, they are also very rugged and are less likely to fail when dropped or vibrated as are incandescent or fluorescent lights. The original LEDs only emitted light of one frequency or colour of light. These were blues, greens, yellows, oranges or reds and they were unsuited for domestic lighting. Recent innovations in materials, doping and die structure have developed high brightness LEDs that emit light in all visible frequencies to produce white light.

WILL LED LIGHTING PROVIDE THE SAME QUALITY OF LIGHT?

An LED light will often use less power than half of a traditional light fitting and can provide a very quick return on your investment by reducing your power bills and extending the lifetime of the fitting. LEDs can be combined in any shape to produce highly efficient illumination. Individual LEDs can be dimmed for a dynamic control of light, colour, and distribution. In addition, new designs also make the LEDs comparable to the usual lighting colours, which will provide your home or business with warm but much clearer light.

WHAT IS THE LIFESPAN OF AN LED LIGHT?

Many manufacturers claim that their LEDs will last you 100,000 hours or even longer before operating at half brightness. But how valid is this claim? Quite simply, the LED industry is not yet old enough to validate this figure. LED manufacturers perform numerous accelerated degradation tests, during which they both over heat and overdrive the LEDs until they expire. From these results, they then extrapolate the figures to find the expected life span under normal conditions. From these tests, many manufacturers concluded the 100,000-hour figure. There are also many LED manufacturers who give an expected lifespan of anywhere from 60,000 to 80,000 hours.

A major factor in the longevity of LEDs is in the way that they are used – in the output. Different colours consume various amounts of energy, thus changing their total lifespan.

Furthermore, the expected lifespan also assumes that the LEDs are operating at full brightness, which, depending on the application, may or may not be true. We can see from the above that there is really no way to exactly confirm the LED lifespan of 100,000 hours. In reality, they may last much longer than this, or perhaps expire earlier. In any case, their lifespan is far longer than any other lighting technology currently available.

HOW MUCH MONEY CAN A SWITCH TO LED LIGHTING SAVE OUR BUSINESS?

LEDs can reduce the power used for lighting in your business by more than 70 per cent. Today's most efficient way of illumination and lighting, with an estimated energy efficiency of 80%-90% when compared to traditional lighting and conventional light bulbs. This means that about 80% of the electrical energy is converted to light. However, with traditional incandescent light bulbs operate at 20% efficiency only, while an 80% of the electricity is lost as heat. Their compact size and low profile allows them to be used in spaces where common light bulbs are too big

IS A LED BULB HEALTHIER THAN A FLUORESCENT LIGHT BULB?

Most conventional fluorescent lighting bulbs contain a multitude of materials like mercury that are dangerous for the environment. LED lights contain fewer hazardous chemicals and are much easier to dispose of and recycle. The long operational life time span mentioned above means also that one LED light bulb can save material and production of 25 incandescent light bulbs.

HOW LONG DOES A LED BULB TAKE TO BRIGHTEN UP?

LED lights will instantly start at full brightness and can be switched off and on frequently without affecting the LED's lifetime or light emission.

CAN LEDS BE USED OUTDOORS?

Yes, they are multifunctional due to a low-voltage power supply for LED illumination. This makes it easy to use LED lighting also in outdoor settings.