

Standard (incandescent bulb) lights versus LED lights

Incandescent bulbs (the basic light bulb)	Light Emitting Diodes (LEDs)
<p>Light bulbs have changed little since they were invented in 1879.</p>	<p>LEDs are new technology having been developed from the diodes used in computer circuitry.</p>
<p>A bulb consists of 2 metal contacts attached to a thin metal filament which is housed in a thin, glass bulb filled with inert gas.</p>	<p>An LED consists of a semiconductor diode chip that is mounted in a frame, connected to electrical wires and encased in protective epoxy.</p>
<p>When the bulb is connected to a power source electrical current flows through the filament. This heats the filament and when it reaches a temperature of around 4000 degrees F, the filament glows, giving off light.</p>	<p>When connected to a power source the electrical current flows through the LED giving off light and almost no heat.</p>
<p>Incandescent bulbs give off most of their energy as heat rather than light. Only about 10% of the energy they produce is in the visible light spectrum.</p>	<p>Because LEDs give off very little heat, virtually all of the energy they produce is in the form of light.</p>

What are the advantages of LED lights?

- **Batteries last much longer** in LED lights. Because almost all of their output is light, rather than heat, batteries last up to 10 times longer in LEDs than they do in standard lights.
- LED lights **don't need replacement bulbs**. An LED lasts up to 100,000 hours – a torch using incandescent bulbs would burn up thousands of bulbs in the same time that one LED lasts for!
- LED lights **are smaller** because LED technology is space saving. LED lights are easier to hold and store than incandescent bulb lights of similar power.
- LED lights **are tougher** than incandescent bulb lights because the LED's have no filaments to break and they are housed within epoxy rather than glass.
- LED torches produce **a white light that is closer to natural daylight** than incandescent bulb torch beams which are yellowish and often have dark centres.