

Access Fixtures

LED (Light Emitting Diode)

LED bulbs last up to 10 times longer than compact fluorescents and far longer than typical incandescent bulbs. The latest LED (light emitting diode) light bulbs produce about the same amount of light per watt as compact fluorescent bulbs (CFL). However, unlike incandescent bulbs and CFLs, which splash light in all directions, LED bulbs are directional.

LEDs drive their light in one direction, so that you have light exactly where you want it. This directional lighting equals savings in yet another fashion. LEDs don't waste light (energy) on areas you don't need illuminated, which is also why they are perfect task lights.

Since LEDs do not have a filament, they are not damaged under circumstances when a regular incandescent bulb would be broken. Because they are solid, LED bulbs hold up well to jarring and bumping. These bulbs do not cause heat build-up; LEDs produce 3.4 btu's/hour, compared to 85 for incandescent bulbs.

No mercury is used in the manufacturing of LEDs, and they are more efficient. LED light bulbs use only 2-10 watts of electricity (1/3rd to 1/30th of Incandescent or CFL).

Although LEDs are expensive, the cost is recouped over time and in battery savings. For the AC bulbs and large cluster arrays, the best value comes from commercial use where maintenance and replacement costs are expensive. Because of the low power requirement for LEDs, using solar panels becomes more practical and less expensive than running an electric line or using a generator for lighting.

A light-emitting diode (LED) is a semiconductor diode that radiates light (electroluminescence) when current passes through it in the forward direction. Electrons move through semiconductor medium and "fall into" other energy levels during their transit of the p-n junction. When these electrons make a transition to a lower energy level, they give off a photon of light. This photon may be in the infrared region or just about anywhere across the visible spectrum up to and into ultraviolet.

LEDs usually are made to emit one color of light, though bicolor ones and more can be fabricated. Intensity is being improved as well. That broadens the applications considerably (think vehicular tail lights). The device has a pair of leads, and a (usually) plastic body molded around the leads and the semiconductor crystal itself. That way the light can get out through the plastic. There is frequently a "round dome" at the top of the LED which serves to focus the light headed out through it. Remember that it is the material of the semiconductor crystal that determines the light given off by the device. A normal LED isn't really voltage dependent.

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