

# ELS FACT SHEET

## How Long Do LEDs Last?

LEDs do not burn out like other light bulbs (although sudden failure can occur, it's extremely rare). Instead, their brightness slowly fades.

So, if the lifespan of an LED is 50,000 hours, that is the point when the bulb will most likely be shining at around 70% capacity (the industry assumes people notice a decrease in brightness at that point).

**In actuality, LEDs NEVER burn out!** LEDs have no filaments, no metal fatigue, no oxidation, and no evaporation of electrical components. Compare that to both incandescent and fluorescents, which are fragile and have to be handled like eggs. On the other hand LEDs are robust, very rugged, solid state devices with no glass to break.

LEDs are made on substrate semiconductor materials. There are two doped regions, P – positive and N – negative. When current passes through the PN junction it causes electrons to jump to higher atomic energy states. When the electrons return to the ground state, light in the form of photons is emitted. This phenomenon is called electroluminescence and it consumes very little energy since very little heat is generated.

LEDs have no problematic filaments, no wear or tear, nothing is changed or altered, hence they keep on working for extraordinary long lengths of time.

**WARNING:** Cheap LEDs will fail much more often and will dim much more quickly than quality LEDs. As with most things, you get what you pay for with LEDs. Be careful when purchasing from big box stores or online retailers. Often, the highest-quality LEDs are only available through reputable energy service companies (ESCOs). Even lighting distributors and electrical contractors do not usually have the same access to high-quality LEDs like ESCOs do.

