

LED Q&A

Q: What does LED stand for?

LED- “Light Emitting Diode.” LEDs use organic materials to produce small, light-emitting diodes, which are illuminated by the movement of electrons in a semiconductor material.

Q: How do LED bulbs compare to incandescents and CFLs?

A: In incandescent bulbs, electricity is passed through a filament that heats up until it emits light, losing most of its energy through heat. A CFL (compact fluorescent lamp) bulb works by passing a current through argon gas and mercury vapor. LEDs emit only a negligible amount of heat and do not contain any hazardous materials.

Q: What is solid-state lighting?

A: “Solid-state” refers to any technology in which the charge carriers are confined within solid material. In the case of LEDs, this means that there are no moving or vibrating parts whatsoever--LEDs use a semiconductor block that produces the light.

Q: How long do LED lights last?

A: With average usage, LED lights are rated to last up to 50k hours, which is just under 4 years if used continually. Typically, one will use LED bulbs between 3 and 8 hours per day, which results in a lifetime of between 17 and 45 years. However, brightness does begin to fade over time (usually not by a noticeable amount, and not for a number of years).

Q: How do I know what bulb is right for me?

A: Take a look at our guide “choosing the right LED bulb.” Generally, you want to keep in mind the application (kitchen, living room, indoor, outdoor), the desired temperature (cool for daytime, warm for evening), and the base type.



LED Q&A

Q: How long does it take for energy savings to cover the cost of the bulb?

A: It depends on how many hours per day your lights are on, the wattage of the lights in your home, and the current cost of electricity in your area.

Keep in mind the following scenario:

If your electricity costs around \$0.11 per kilowatt hour and you use your bulbs on average for 6 hours a day.

A traditional incandescent bulb, which costs about \$3.70 to buy, will cost you \$20.15/year in replacement and energy costs.

If you replace this with a 5W LED bulb that costs \$11.35, your energy costs go down to about \$1.20/year

Time for the LED bulb to hit the break-even point: 4 months 23 days

Total savings with the LED bulb
(After 15 years 11 months 24 days): \$295.25

Q: Do LEDs need to “warm up” like CFLs before full brightness is achieved?

A: Unlike CFLs, which can take up to 10 minutes to achieve full brightness, LEDs are an “instant on, instant off” technology. They not flicker or produce excess heat.

Q: Are LEDs are bright as other bulbs?

A: Because the technology varies so greatly, there is no easy conversion rate for brightness. However, keep this in mind--a 50W incandescent produces about 750 lumens, and a 50W equivalent LED produces 500-550 lumens. So given the amount of electricity it consumes, the LED bulb is far brighter. In terms of the actual bulb, the luminosity of LED bulbs is not quite as bright as incandescents. Many do not find the difference noticeable, and as the technology improves, the brightness increases.

