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# LED C7/C9 Retrofit

## What is the difference between an LED C7/C9 retrofit bulb and an incandescent C7/C9 bulb?

### Answer:

- a. Light source: The LED bulb uses a light-emitting diode (LED) as its light source vs. the incandescent bulb whose light source is basically a superheated wire.
- b. Energy consumption: The LED bulb uses 85-90% less energy than an incandescent bulb for approximately the same amount of light output.
- c. Durability: The LED bulbs are made of durable plastic instead of glass, meaning they can withstand impact or vibration to a greater degree than incandescent.
- d. Longevity: The average lifetime of the LED retrofit bulb is 10-15 times longer than an incandescent bulb.
- e. Cool to the touch: LED bulbs generate little to no heat, making them cool to the touch and a safer alternative to incandescent when decorating plants and other objects.

## Do the LED bulbs require special wiring, sockets, or energy sources?

**Answer:** No, they work in the same sockets as incandescent C7 or C9 bulbs and don't require any special wiring or energy sources.

## Does the color of the plastic determine the LED bulb's color?

**Answer:** No. Each LED is designed and manufactured to emit light of a certain wavelength (color). Thus a red LED bulb will use an LED that emits red light (only). The colored plastic helps to determine the color of the bulb when it's not illuminated. So if an LED bulb, used over time in an outdoor environment, fades due to sunlight or other factors, the light color will remain constant.

## Since each LED bulb uses less than one watt, is there still a limit to how many I can install in a single string connected to a single power source?

**Answer:** Yes. Although LED bulbs use significantly less energy than incandescent, the number of bulbs you can install in a light string and connect to a single power source is still subject to the rating of the wire gauge of the light string. So although your string runs can be significantly longer than incandescent with LED, there is still a maximum length.

## Are these LED bulbs UL rated for permanent install and use?

**Answer:** At present, these bulbs have not been submitted to Universal Labs (UL) for a permanent install rating, however, they are safe to use as temporary seasonal or holiday lighting.



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## Why are the prices different for different colored LED bulbs?

**Answer:** As opposed to incandescent bulbs whose color is dictated by the color the glass is dipped into (painted), LED bulbs' color derives from the LED itself. Different colored LED bulbs use different LEDs, thus the pricing is derived from how difficult the LED is to manufacture and worldwide volume in that particular color of LED (red is used more often than blue, for example). White LEDs are more difficult to manufacture than red or yellow, so white tends to be more expensive.

## I've seen groups of LED bulbs, especially in white, that seem to have a slight difference in color temperature they're emitting. Is this normal?

**Answer:** Due to the LED manufacturing process, especially that for white LEDs, slight color variations occur, even in LEDs designed to be a particular color. This is a recognized factor in the LED industry and is not considered a defect. In many implementations with multiple bulbs, color variations are less noticeable or even difficult to see, especially when viewing from a normal distance (vs. up close). In most cases, the benefits of switching to a lower-energy, longer lasting light source far outweigh subtle differences in color.

