



## 5 Things You Need to Know about LED Lighting

### 1. LED LIGHTING IS RATED BY TEMPERATURE, NOT BRIGHTNESS.

Traditional incandescent style lighting was graded by the energy required to light the product (Watts), easy right?! If you needed to replace a 40W bulb, it was a very quick transaction. Now, finding the right bulb can feel like finding a needle in a haystack.

With the introduction of LED lighting, buying bulbs and fixtures has become much more difficult. It gets even more confusing when the labels use terms like 'Day White' and 'Warm White'.



<http://tipscepat.me/led-christmas-lights-vs-incandescent/> © E Source

#### Finding the correct LED lighting involves identifying two criteria:

- *Correlated Color Temperature (CCT)*: This is measured by the Kelvin temperature (Usually ranging from 2000K - 6500K)
- *Lumens*: A measurement of light output. The higher the number, the more light is emitted.

The difference between traditional bulbs and LED becomes abundantly clear at Christmas time. The new LED christmas lights that are flying off the shelves do not match the ones in our Christmas bins from years gone by. The colors are VERY different.



<http://tipscepat.me/led-christmas-lights-vs-incandescent/>

The Kelvin rating on LED lighting has a direct impact on how a room will make you feel when you walk in. This is why choosing the right temperature of lighting for every area is so important. It impacts your guests' first impression. Too much blue and your space can feel cold and uninviting. Too much yellow/orange and it will be too dim.

The higher the number, the bluer and brighter the light will appear to be. The lower the number, it will have a dimmer, more orange or yellow appearance.

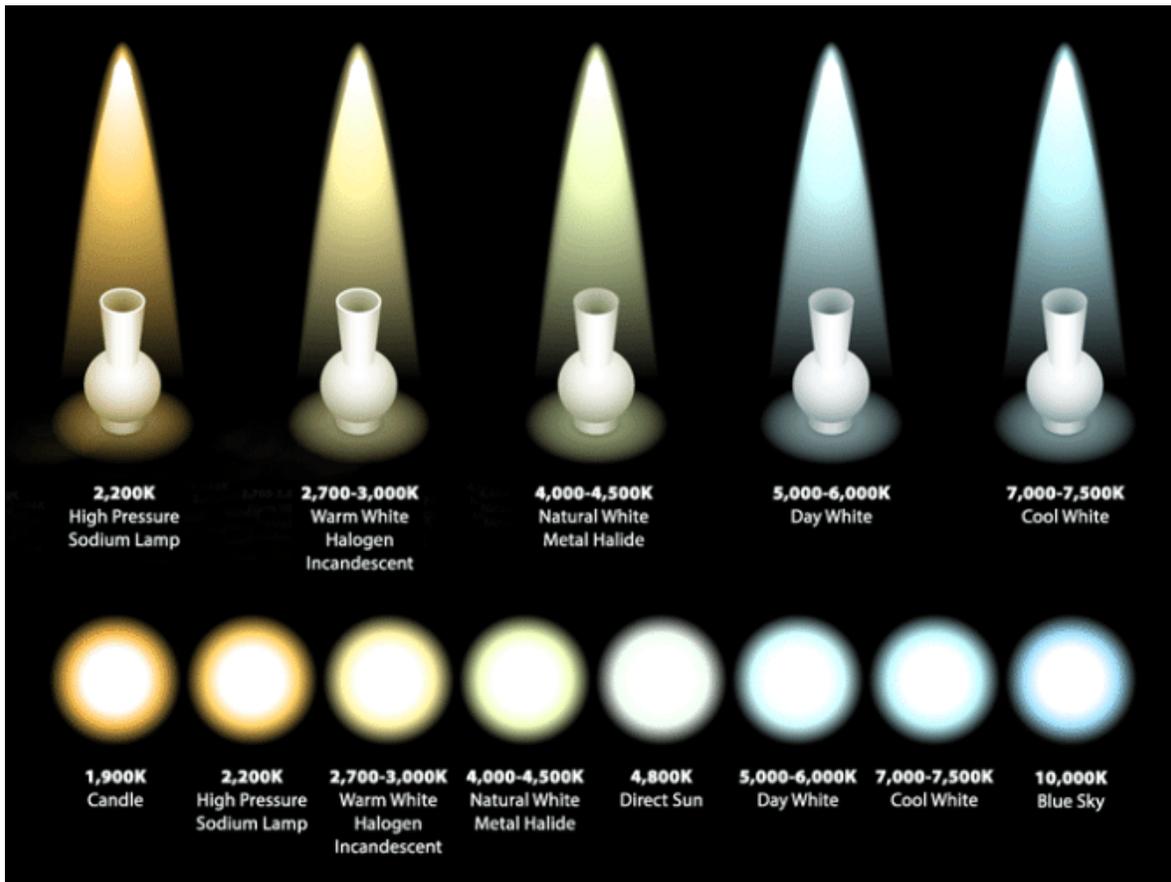


Image: <https://solutions.borderstates.com/color-temperature-and-led-understanding-how-to-choose-led-lamps-for-warm-and-cool-applications/>

## The old incandescent bulbs to the new LEDs: Equivalent brightness

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40 WATTS	=	450 LUMENS
60 WATTS	=	800 LUMENS
75 WATTS	=	1100 LUMENS
100 WATTS	=	1600 LUMENS
150 WATTS	=	2600 LUMENS

If you are trying to replace an incandescent bulb check the lumens output.

Remember, Watts will not be helpful here as LED bulbs use far less energy than a traditional bulb.

Use this handy chart for equivalent brightness levels.

## *So, how do you know what color to use?*

**Here are some simple tips:**

**Don't mix manufacturers.** Even if both bulbs/fixtures are labeled similarly, they may appear to be different colors.

**2400 - 2700K** is for areas where task lighting is not required and a cozier feel would be desired. (Gathering Spaces)

**3000 - 3500K** is perfect for co-working spaces, large multi-offices and areas that may need to be a bit brighter/productive. (Classrooms, Offices, Workrooms)

**4000 - 5000K** provides a very bright, daylight effect. This should only be used in industrial spaces where a lot of lighting is required. (Warehouses, Factories, Garages)

## 2. THERE ARE MANY ADVANTAGES THAT LED LIGHTING PROVIDES

- Energy Savings- ENERGY STAR-qualified LED bulbs use 75% less energy than conventional incandescent lamps.
- LEDs emit less heat, saving on cooling costs.
- LEDs last 35-50 times longer than traditional bulbs
- LEDs contain no mercury and are better for the environment.
- They offer long-term savings on maintenance and replacement costs. This is especially helpful with those hard to reach lights that require lift rentals for replacement.

## 3. YOUR ENERGY COMPANY MAY HELP YOU BUY YOUR NEW LED LIGHTING WITH REBATES AND INCENTIVES.

### WHO DOESN'T WANT FREE MONEY?

Whether you are building a new facility or switching to LED bulbs or fixtures in your current facility, there could be financial incentives or rebates available from your local energy company. We have had great success with getting our clients thousands of dollars to help offset the expense of changing to LED.

We encourage churches to contact their local energy provider to see what programs are available. There are usually two types of incentives:

1. Incentives per bulb or fixture installed. Some also pay for motion-sensor switches, exterior photocells and timers.
2. Incentives per kWh of annual energy consumption reduced.

# 4. YOU DON'T ALWAYS HAVE TO REPLACE YOUR LIGHTING FIXTURES TO SAVE ON ENERGY COSTS.

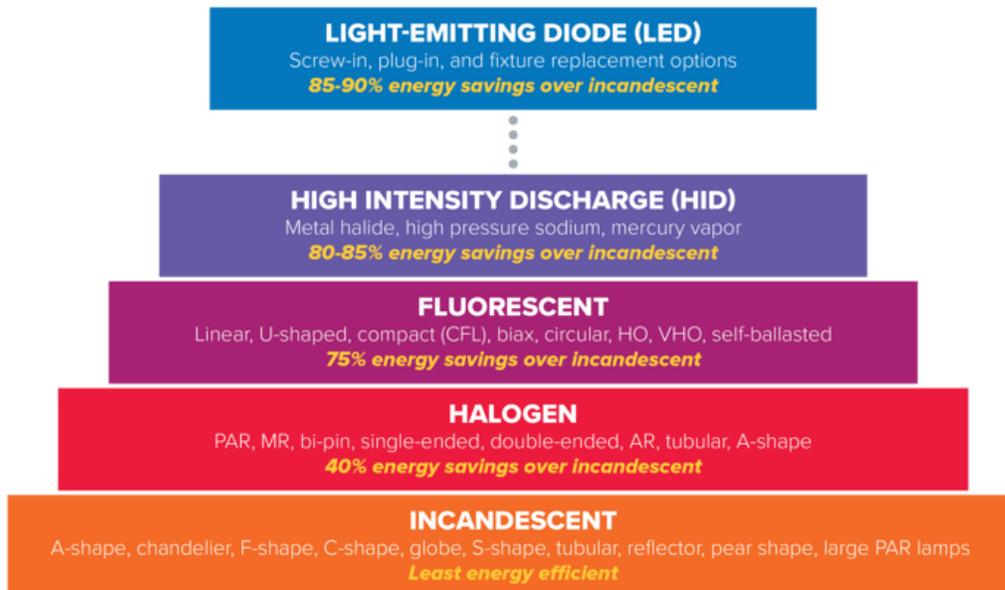
You can see significant cost savings just by changing to LED bulbs in your current fixtures. However, in some cases you may be better off changing the fixture if the new LED bulb would be obtrusive or unattractive. Changing the entire fixture will have more upfront fixture and installation costs, but your options for dimming and total energy savings will be greater.

For new construction, you will want to specify LED fixtures. You will realize more savings and longevity with these fixtures. It might be a little more costly up front, but you will quickly make up the difference with incentives and long term energy savings.

Use this chart to prioritize which lights you change to LED first. You may not be able to do your whole facility at one time, but start with your most expensive lights and work your way up the pyramid.

## THE LIGHTING PYRAMID

As you move up the Lighting Pyramid, you increase energy efficiency and lamp life, reducing energy and maintenance costs.



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Source: <https://insights.regencylighting.com/lighting-pyramid-prioritizing-led-retrofit-opportunities>



# 5. NOT ALL LED'S ARE CREATED EQUAL.

There are several ways to make sure that you are getting a quality bulb or fixture. Foreign manufacturers are flooding the market with unreliable, low-quality lighting. To ensure you are getting a quality product that has a valid warranty and will stand the test of time follow these steps:

1. Look for the Energy Star certification. This label lets you know that this bulb is independently certified and has undergone extensive testing to ensure energy savings and performance promises.
2. Look at the Lighting Facts carefully. LED Lighting Facts is a program that showcases LED products for general illumination from manufacturers who commit to testing products and reporting performance results according to industry standards.

## Anatomy of the LED Lighting Facts Label

The diagram shows a sample LED Lighting Facts label for 'Brand X'. The label is divided into several sections:

- Light Output/Lumens:** Measures light output. The higher the number, the more light is emitted. Reported as "Total Integrated Flux (Lumens)" on LM-79 test report. Value: 840.
- Watts:** Measures energy required to light the product. The lower the wattage, the less energy used. Reported as "Input Power (Watts)" on LM-79 report. Value: 9.
- Lumens per Watt (Efficacy):** Measures efficiency. The higher the number, the more efficient the product. Reported as "Efficacy" on LM-79 test report. Value: 93.
- Color Accuracy (CRI):** Measures color accuracy. Color rendition is the effect of the lamp's light spectrum on the color appearance of objects. Value: 87.
- Light Color (CCT):** Measures light color. Value: 2900 (Warm White).
- IES LM-79-2008:** Industry standardized test procedure that measures performance qualities of LED luminaires and integral lamps. It allows for a true comparison of luminaires regardless of the light source.
- Registration Number, Model Number, Type:** Registration Number: ABC4321-H732323; Model Number: 18756CHT36428604RGH11234H3; Type: 18756CHT36428604RGH11234H3.

Additional information on the label includes: "All results are independently verified according to IESNA LM-79-2008. Approved Method for the Electrical and Photometric Testing of Solid-State Lighting." and "Visit [www.lightingfacts.com/products](http://www.lightingfacts.com/products) for a complete listing of this and other products approved to use this label."

Source: <https://www.lightingfacts.com/Library/Content/Label>

By taking a few minutes to carefully select your new LED lighting you can save energy and maintenance costs for years to come.

If you found this information helpful, let us know what other topics you'd like us to cover.

Email us at [info@mychurchpro.com](mailto:info@mychurchpro.com)  
and let us know your ideas!

Take a look at our website for more information!

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