# PARKING LOT LIGHTING AUDIT GUIDE

FSG

# LIGHTING AUDIT

## The first step in any parking lot lighting project is to conduct a Lighting Audit.

From this Lighting Audit, we will determine what type of lighting you currently have, how many of each type of light you have, and what the energy savings can be when you retrofit your parking lot to LED lighting.

In addition to this guide, we've provided a Lighting Audit Worksheet for you to inventory your own parking lot lighting.

We're always here to help. FSG has trained professional lighting auditors on staff. We can help you audit your parking lot and provide turnkey retrofit services to your business.

## What types of lighting do you have?

For you to love your new lights, the upgrade process needs to be easy. To ensure your project runs smoothly and that your new lights perform well, we need to discover exactly which lights and fixtures you currently have.

The lighting industry has been around since the early 1900s, and as with any industry the technical description of products has grown in complexity as new products and innovations have made their way into the marketplace.

In this guide, we'll briefly describe some of the ways we describe lamps so that upgrading your lighting is easy to understand.  Although the majority of your lights will fit into a few categories, we'll identify your current lights by Environment, Look, Shape, Wattage, Color, & Base.

## Environment

There is a big difference between a lamp designed for a parking lot and one designed for an office. Parking lot lighting needs to illuminate a large area from high up on a pole or building without any glare on neighboring properties. There are many types of parking lot fixtures.  On every job, we factor in the size of the fixture head, the pole or building height, and the lamp style when determining which lamp is best for the fixture.

## Look

The overwhelming majority of lamps that you will need will either be frosted or clear. Currently, most parking lot lighting is some form of High-Intensity Discharge (HID) lighting. You will normally find either metal halide or high-pressure sodium lamps. (You can identify them by the color of the lamp when lit.) These types of lamps are extremely inefficient and perform poorly compared to modern LED lighting.

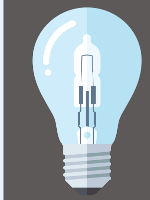
## Shape, Wattage, & Base

Consider the height of the fixtures when determining what type of HID lamps are currently in your parking lot fixtures. The higher the fixture, the higher the wattage of the lamp. **Note:** Most HID lamps have a medium (E26) or mogul (E39) base. If you plan to use a screw-in LED lamp replacement, you will need to be sure you have the correct base.

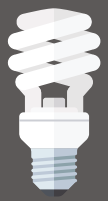
## TIMELINE OF TECHNOLOGY

**Over the decades, lighting has improved dramatically as we invent more efficient ways to turn electricity into light.**

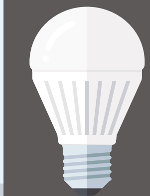
**INCANDESCENT**
Energy: ***100w**
Lifespan: **750 hrs**



**HALOGEN**
Energy: ***77w**
Lifespan: **1000 hrs**



**CFL** (Compact fluorescent)
Energy: ***23w**
Lifespan: **10,000 hrs**



**LED** (Light-emitting diode)
Energy: ***20w**
Lifespan: **20,000 hrs**

** energy required to produce 1,600 lumens*

## Color Temperature

In simple terms, “color temperature” refers to the color characteristics of light. In the past, when we created light by heating a filament, the light color would change at different temperatures, shifting in color from deep red to yellow, and then to blue. The character of the light was described according to the temperature at which it was produced.

The color temperature scale references degrees Kelvin (K), and goes from 10,000K (a bright blue sky) to 1,000K (glowing embers). **Color temperature above 5,000K is considered "cool", while light below 5,000K is described as "warm".**

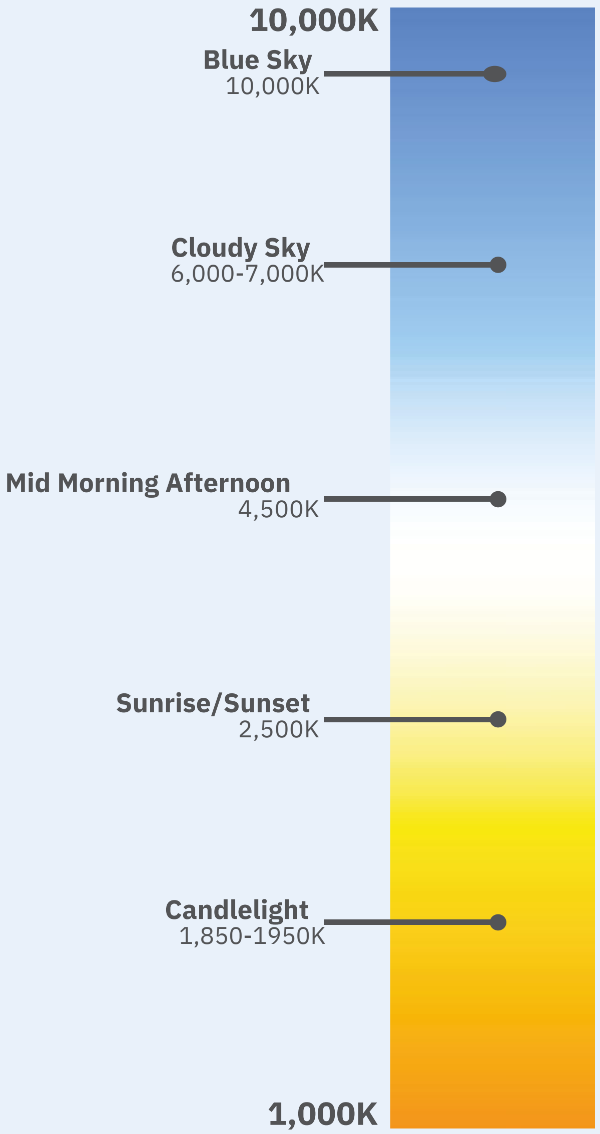
Your current lights may or may not have a color temperature designation on the lamp. They may just say “cool white”, “daylight” or “warm white.” LED lamps are offered in a variety of color temperatures based on the Kelvin scale.

When you upgrade to LED, you will need to pay attention to the "temperature" of the new light if you want to match the feel and aesthetic of your current lights. Generally speaking, a cooler temperature is recommended for parking lots.

Another color term that you might see is **CRI (Color Rendering Index)**. A light’s CRI rating describes how accurately it displays color. A higher CRI signifies that the light displays color more accurately and a lower CRI signifies that the light will shift the way it illuminates some hues.

When comparing lamps and fixtures, a higher CRI will provide light which is easier on your eyes, and aid accuracy in environments where distinguishing between subtle changes in color is important.

Have you ever had difficulty distinguishing between dark shades of blue and black? If you have, then you’ve seen the impact of a lamp’s CRI in action.



# THE TEMPERATURE OF THE LIGHT EFFECTS HOW WE SEE AND FEEL

# CREATE YOUR LIGHTING AUDIT

Now that you understand some basics of lighting, you can use this knowledge to perform a lighting audit of your parking lot.

On the following page, we have provided a blank audit sheet to help you inventory your existing parking lot lighting.

An accurate lighting audit will save time and hassle when it's time to perform an upgrade to the lighting in your lot. Once the audit is complete, electrical contractors like FSG will be able to determine the right LED fixtures for your application.

Not only will an accurate lighting audit ensure that your new lighting installation is fast and easy, but if you speak with FSG we can use this information to calculate the energy savings you can expect with energy efficient LED lighting. Depending on the size of your lot, and your current lighting setup, your energy savings could offset the entire cost of your project in just a few months.

For more information on how upgrading your parking lot lighting to LED can benefit your business, call FSG at 855-574-0353.

# LIGHTING AUDIT WORKSHEET

## LOCATION:

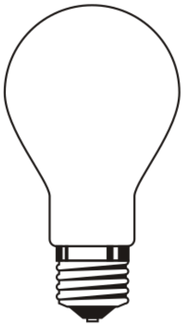
| LAMP TYPE/BASE/COLOR TEMP | # OF LAMPS | WATTS | HOURS/ MONTH | ENVIRONMENT | LOOK | CALCULATED kWh/MONTH |
|---|---|---|---|---|---|---|
| | | | | ○ INDOOR<br>○ OUTDOOR | ○ CLEAR ○ FROSTED<br>○ COLOR | ○ |
| | | | | ○ INDOOR<br>○ OUTDOOR | ○ CLEAR ○ FROSTED<br>○ COLOR | ○ |
| | | | | ○ INDOOR<br>○ OUTDOOR | ○ CLEAR ○ FROSTED<br>○ COLOR | ○ |
| | | | | ○ INDOOR<br>○ OUTDOOR | ○ CLEAR ○ FROSTED<br>○ COLOR | ○ |
| | | | | ○ INDOOR<br>○ OUTDOOR | ○ CLEAR ○ FROSTED<br>○ COLOR | ○ |
| | | | | ○ INDOOR<br>○ OUTDOOR | ○ CLEAR ○ FROSTED<br>○ COLOR | ○ |
| | | | | ○ INDOOR<br>○ OUTDOOR | ○ CLEAR ○ FROSTED<br>○ COLOR | ○ |
| | | | | ○ INDOOR<br>○ OUTDOOR | ○ CLEAR ○ FROSTED<br>○ COLOR | ○ |
| | | | | ○ INDOOR<br>○ OUTDOOR | ○ CLEAR ○ FROSTED<br>○ COLOR | ○ |
| | | | | ○ INDOOR<br>○ OUTDOOR | ○ CLEAR ○ FROSTED<br>○ COLOR | ○ |

To calculate the kWh your lamps use per month, multiply the number of lamps by the wattage and then divide by 1000. (NUMBER X HOURS)/1000

**TOTAL kWh** ☐

# BULB SIZE & SHAPE

## INCANDESCENT SHAPE GUIDE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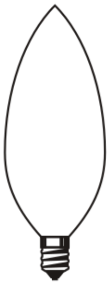
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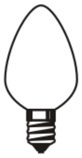
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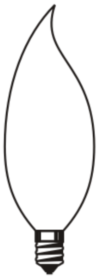
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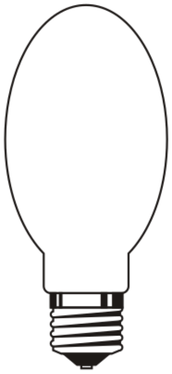
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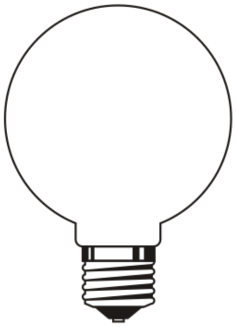
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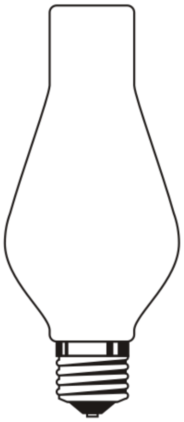
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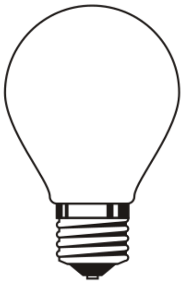
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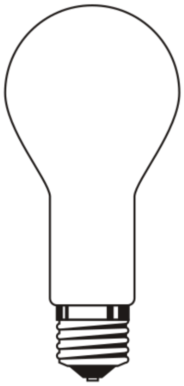
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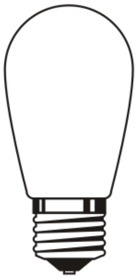
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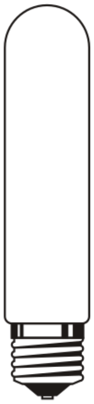
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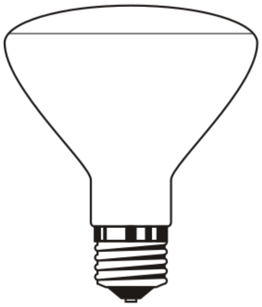
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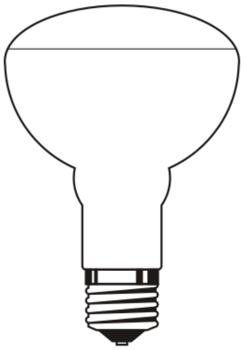
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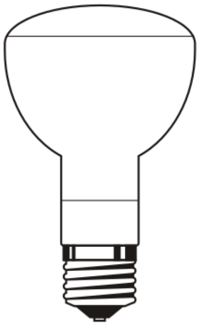
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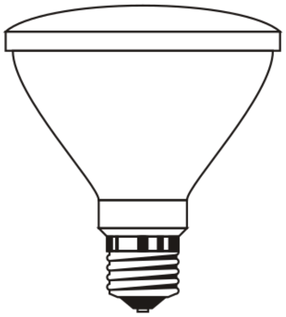
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# BULB SIZE & SHAPE
## REFERENCE CHART

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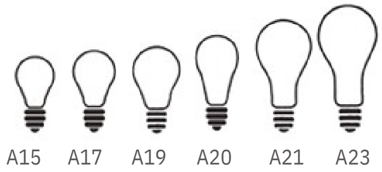
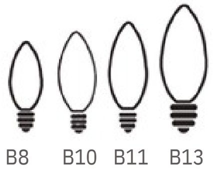


### P LAMPS

### B LAMPS



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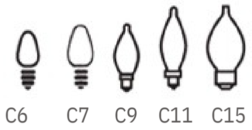

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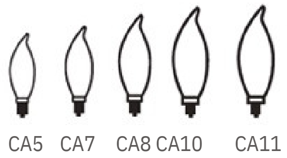

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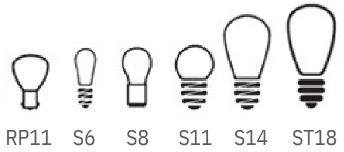

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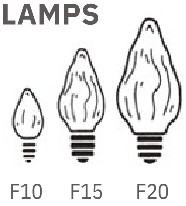

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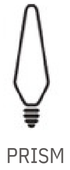
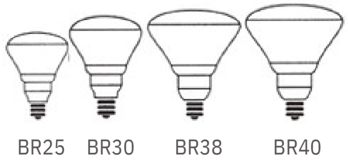


### R LAMPS

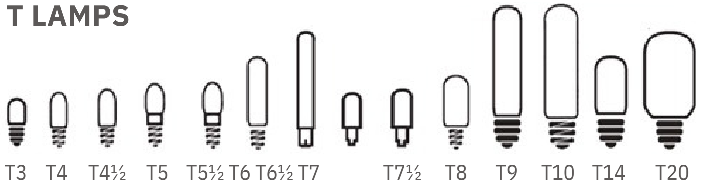
### MR LAMPS

### BR LAMPS



### G LAMPS

### T LAMPS



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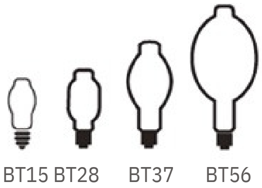

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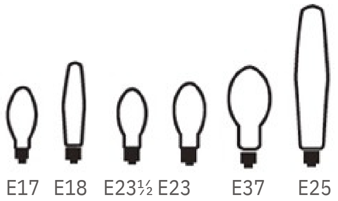

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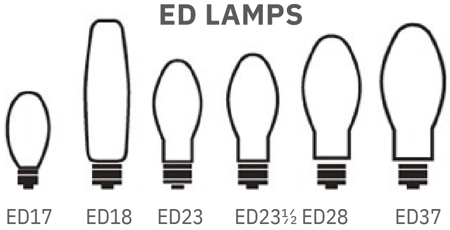

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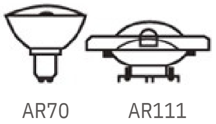

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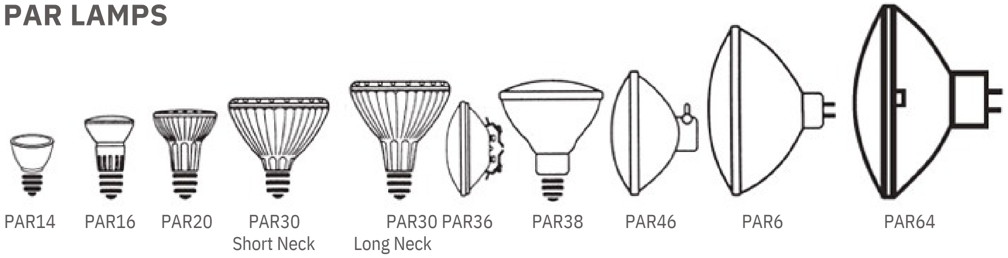

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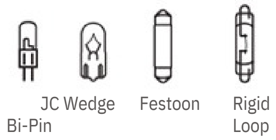

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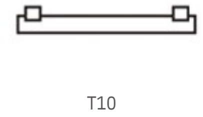
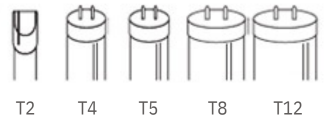
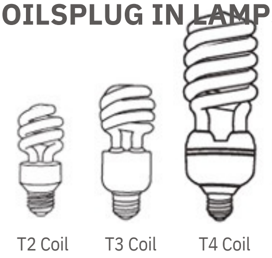


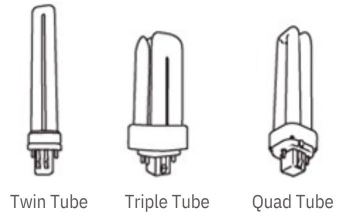
### LINEAR FLUORESCENTS



### COMPACT FLOURESCENT COILS

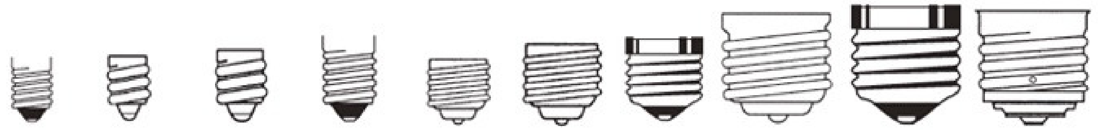


### COMPACT FLOURESCENT PLUG IN LAMPS



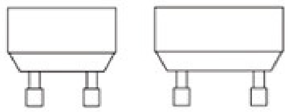
# BULB BASE
## REFERENCE CHART

### SCREW



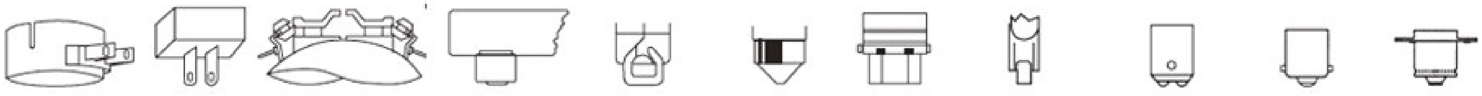
E10 Mini Screw
E11 Mini Candelabra
E12 Candelabra
E14 European
E17 Intermediate
E26 Medium (Standard)
E27 Medium
E39 Mogul
E40 Mogul
EX39 Extended Mogul

### TWIST & LOCK



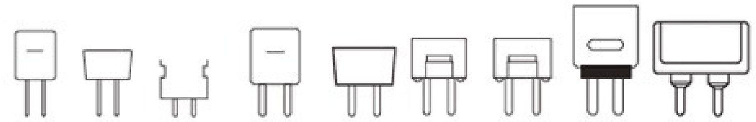
GU10 10mm
GU24 24mm

### SPECIALTY



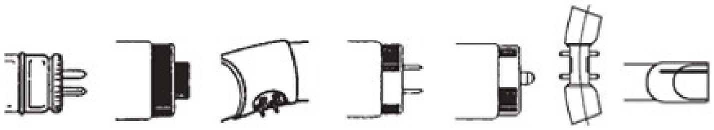
Medium Side Prong
End Prong
M-P Screw Terminal
S14sw
Rigid Loop Rigid Loop Cap
Festoon
Wedge
R7x Recessed Single Contact
BA15d Double Contact Bayonet
BA15s Single Contact Bayonet
SC 10mm

### BI PIN



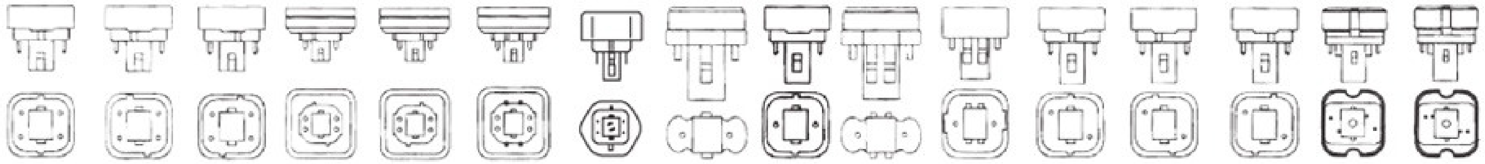
G4 4mm
GU4 4mm
GU5.3 5.3mm
GY6.35 4.35mm
GU8 8mm
GY8 8mm
GY8.6 8.6mm
G9 9mm
G12 12mm

### FLUORESCENT PIN

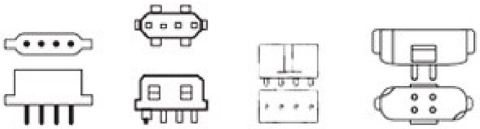


MINI BI-PIN
RECESSED D.C.
G10q 4-PIN
MEDIUM PI-PIN
SINGLE BI-PIN
2GX13
AXIAL

### COMPACT FLOURESCENT PLUG IN



G24q-1
G24q-2
G24q-3
GX24q-2
GX24q-3
GX24q-4
GX24q-5
G-23
G23-2
GX23
GX23-2
G24d-1
G24d-2
G24d-3
GX32-2
GX32-3



2G7
2GX7
2G11
GX10q-4