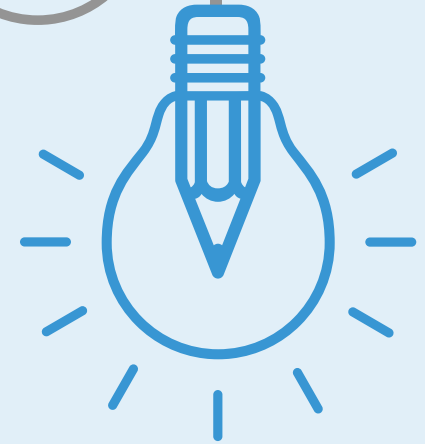
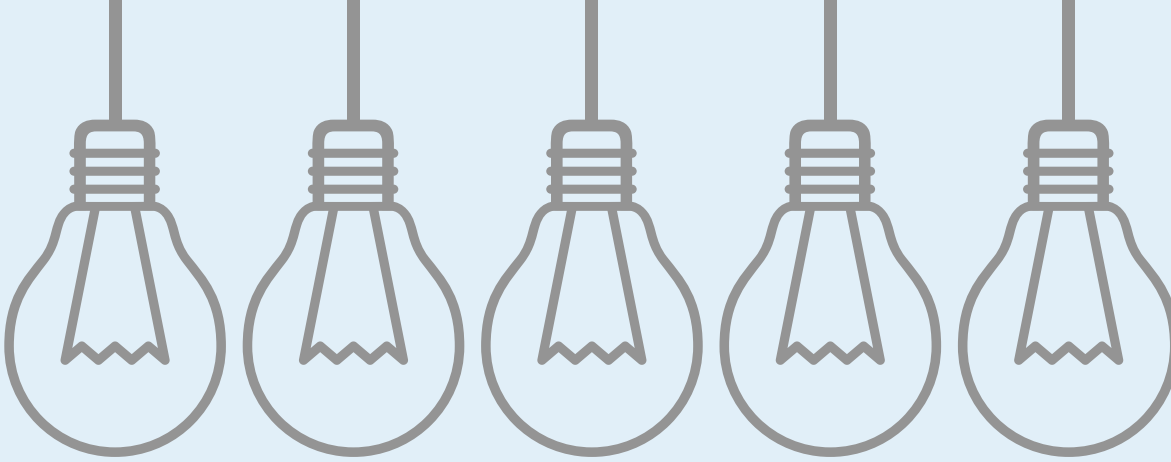


# COMMERCIAL LIGHTING BUYERS GUIDE





# STEP 1 LIGHTING AUDIT

The first step in any lighting project is to conduct a Lighting Audit (or Snapshot)

From this Lighting Audit we will determine what type of lighting you currently have, how many you have of each type and what the energy savings can be when you retrofit to LED lighting. This snapshot will also serve as a guide when ordering lights in step 2.

In addition to this guide, we've provided a Lighting Snapshot Worksheet for you to follow along and create a Lighting Snapshot for your facility. We're always here to help. If the facilities you manage have unique requirements, are too large or are spread out across multiple locations and you need FSG to conduct a complete audit for you. Reach out to us and we will work with you to create a lighting upgrade plan.

## What types of lighting do you have?

For you to love your new lights, the process to upgrade needs to be easy. In order to make sure that your new lights fit, we're going to discover exactly what you currently have.

The lighting industry has been around since the early 1900s, and like any industry over time the technical description of products has grown in complexity as new products and innovations make their way into the marketplace. We'll briefly describe some of the ways we describe lamps so that upgrading your lighting is as smooth a process as possible.

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*

## 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

# Lamp Environment

What type of environment does your lamp live in? There is a big difference between a lamp that is designed for an office, a kitchen or an oxygen-rich environment. If your facility has locations with have these or other special requirements, let us know when you speak to us and we will make sure that you get lighting that fits your specific needs.

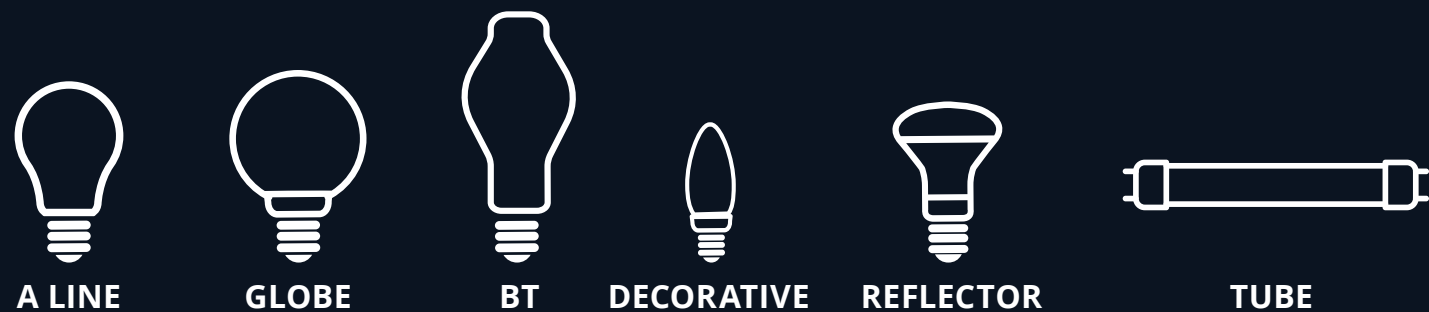
## Look

The overwhelming majority of lamps that you will need will either be frosted or clear. There are though, special situations where a blue, red or another color might be necessary for the task at hand. FSG isn't locked into any specific vendor or manufacturer so if it is out there, chances are we can find it for you.

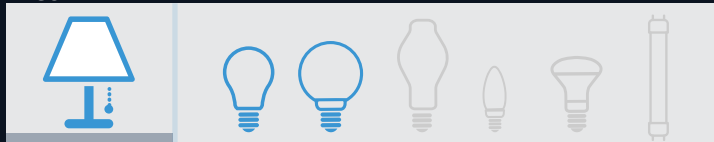
## Shape, Size & Base

Although shapes and sizes can vary, most of the lamps in your facility will either have a screw in base (medium or candelabra) or, in the case of fluorescent tubes, standard pins. If you do run across fixtures that are outside of these standards, we have provided a complete chart in the appendix that will allow you to identify your lamps.

# LAMP SHAPES AND APPLICATIONS



DECORATIVE



TROFFER



HANGING



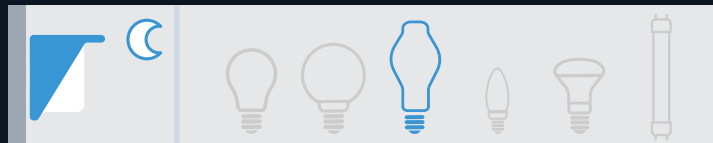
SCONCE



CEILING



EXTERIOR WALL PACK



RECESSED



TRACK



# Color Temperature

In simple terms, "color temperature" is a method of describing the color characteristics of light. In the past, when we created light by heating a filament, as it got hot enough to glow, the light it emitted would shift in color from deep reds, to yellows, to blues. We came to describe the character of the light based on the temperature at which it was produced.

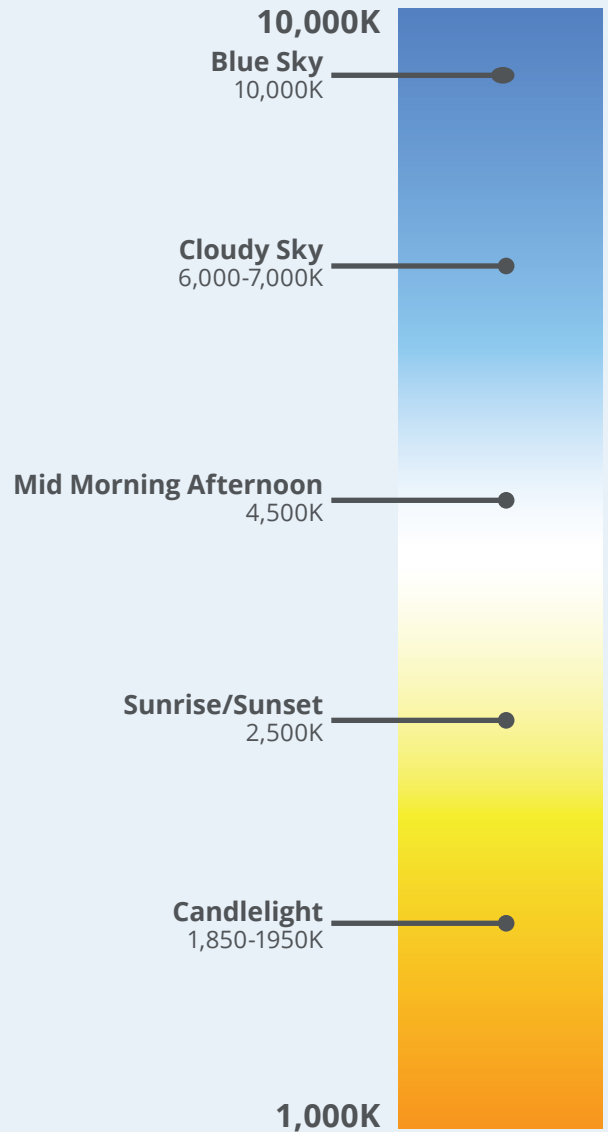
The scale goes from 10,000K (a bright blue sky) to 1,000K (Glowing Embers). **Light above 5,000K is considered 'cool' and light below 5,000K is described as 'warm'.**

Your current lights will most likely not have a color temperature designation, they will likely say "cool white", "daylight" or "warm white." LED lamps are offered in a variety of color temperatures. 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.

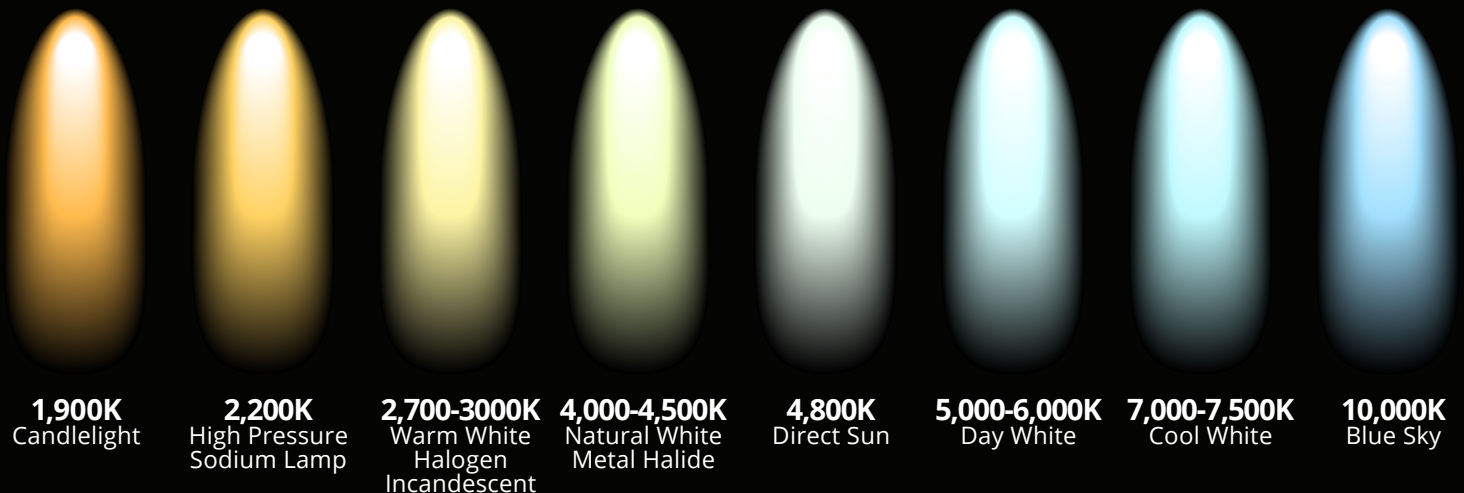
**Another color term that you might see is CRI (Color Rendering Index).** A light's CRI rating describes how accurately it displays color. A higher CRI signifies that the light displays color more accurately and a lower CRI signifies that the light will shift the way it illuminates some hues.

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 differences between lamp's CRI in action.



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



# CONDUCTING A LIGHTING AUDIT

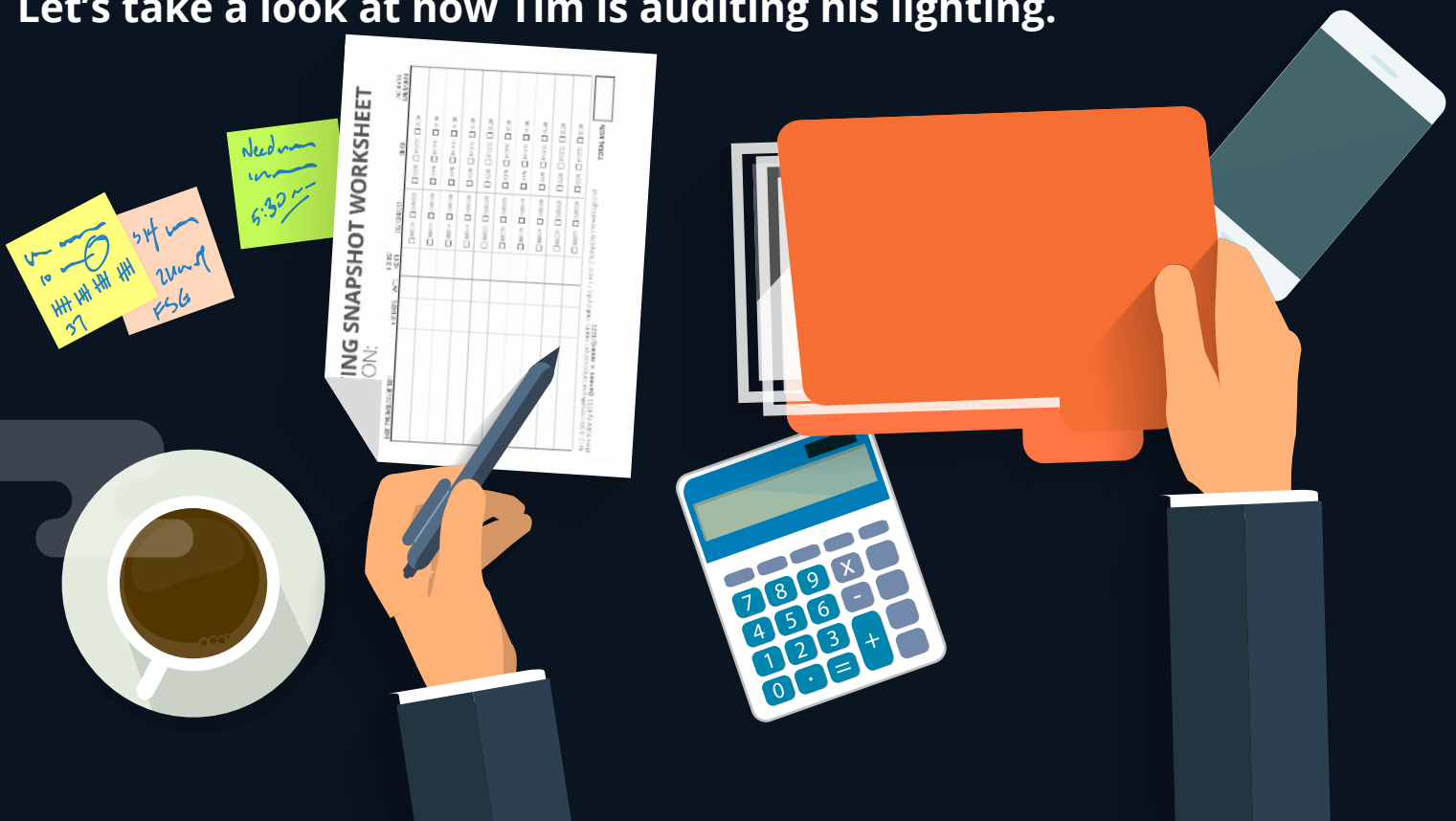
Now that you understand the types of lighting, we are going to use our new knowledge to create an audit of each room of your current installation.

When you upgrade to LED you'll have more options to choose from when it comes to brightness and color and you'll want to make sure the new LED lighting is going to be perfect for the task or workspace it's lighting.

Not only will this insure that your new lighting can be installed easily, but if you speak with FSG, we can use this information to calculate the energy savings that you can expect with your newer, energy efficient lighting. Depending on the size of your facility and your daily usage, your energy savings will not only be better for the environment, but could offset the entire cost of your project.

So, not only will your new lighting look better, perform better and improve your facility, but over time, it could pay for itself.

**Let's take a look at how Tim is auditing his lighting.**





# STEP 2

## ORDER YOUR NEW LIGHTING

Once you've identified what type of lighting you have in your space, you can start to look for replacement LED fixtures or lamps to upgrade your lighting to!

This is the part that can get really complicated quickly, but don't worry. If you know what you have, and you know what you need the lighting to do, finding an LED lamp or fixture to upgrade to is very doable!

As a note, LED Lighting has more variables of brightness, color temperature, and dimming capability than traditional fluorescent lighting. Don't be afraid to be creative, or ask for help when choosing LED lighting! Remember, the best lighting is the lighting that makes your staff more productive and your patients more comfortable—you're not stuck with just one or two variations like you were with fluorescent. You can even buy LED fixtures that go from a cooler color to a warmer color as the day progresses—adding an extra level of comfort for your staff and patients.

**Let's take a look at how Tim is ordering lighting for his projects.**



# STEP 3

## INSTALLING YOUR NEW LIGHTING

Once your new lighting arrives it's time to transform your space! If your new lighting involves a small space and just simply installing new LED lamps, then that means installation could be as simple as coming up to the office on a Saturday for a few hours.

However, if your project involves a lot of lamps over a large area, or involves changing out fixtures you might want to have or may be required to have an installation crew or electricians install your new lighting for you.

### **Some considerations to keep in mind when planning your installation include:**

- If necessary, when can power be turned off for extended periods of time?
- Have you taken all necessary safety precautions?
- Can the project be done in phases around patient care and facility operations?
- Do you have plan or does the installer have a plan for keeping the space clean while working?

**Let's take a look at how Tim is installing his projects.**





# LIGHTING AUDIT WORKSHEET

## LOCATION

LAMP TYPE/BASE/COLOR TEMP	# OF LAMPS	WATTS	HOURS/ MONTH	ENVIRONMENT		LOOK			CALCULATED KWh/MONTH
				<input type="checkbox"/> INDOOR DOOR	<input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR	<input type="checkbox"/> FROSTED COLOR	<input type="checkbox"/>	
				<input type="checkbox"/> INDOOR DOOR	<input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR	<input type="checkbox"/> FROSTED COLOR	<input type="checkbox"/>	
				<input type="checkbox"/> INDOOR DOOR	<input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR	<input type="checkbox"/> FROSTED COLOR	<input type="checkbox"/>	
				<input type="checkbox"/> INDOOR DOOR	<input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR	<input type="checkbox"/> FROSTED COLOR	<input type="checkbox"/>	
				<input type="checkbox"/> INDOOR DOOR	<input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR	<input type="checkbox"/> FROSTED COLOR	<input type="checkbox"/>	
				<input type="checkbox"/> INDOOR DOOR	<input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR	<input type="checkbox"/> FROSTED COLOR	<input type="checkbox"/>	
				<input type="checkbox"/> INDOOR DOOR	<input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR	<input type="checkbox"/> FROSTED COLOR	<input type="checkbox"/>	
				<input type="checkbox"/> INDOOR DOOR	<input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR	<input type="checkbox"/> FROSTED COLOR	<input type="checkbox"/>	

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**

# LIGHTING AUDIT WORKSHEET

## LAMP INVENTORY

REFER- ENCE	TYPE	BASE	WATT- AGE	SHAPE & SIZE	COLOR TEMP	LOCA- TION(S)	ENVIRONMENT	LOOK	TOTAL COUNT
							<input type="checkbox"/> INDOOR DOOR <input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR <input type="checkbox"/> FROSTED <input type="checkbox"/> FROSTED COLOR	
							<input type="checkbox"/> INDOOR DOOR <input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR <input type="checkbox"/> FROSTED <input type="checkbox"/> FROSTED COLOR	
							<input type="checkbox"/> INDOOR DOOR <input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR <input type="checkbox"/> FROSTED <input type="checkbox"/> FROSTED COLOR	
							<input type="checkbox"/> INDOOR DOOR <input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR <input type="checkbox"/> FROSTED <input type="checkbox"/> FROSTED COLOR	
							<input type="checkbox"/> INDOOR DOOR <input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR <input type="checkbox"/> FROSTED <input type="checkbox"/> FROSTED COLOR	
							<input type="checkbox"/> INDOOR DOOR <input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR <input type="checkbox"/> FROSTED <input type="checkbox"/> FROSTED COLOR	
							<input type="checkbox"/> INDOOR DOOR <input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR <input type="checkbox"/> FROSTED <input type="checkbox"/> FROSTED COLOR	
							<input type="checkbox"/> INDOOR DOOR <input type="checkbox"/> OUT-DOOR	<input type="checkbox"/> CLEAR COLOR <input type="checkbox"/> FROSTED <input type="checkbox"/> FROSTED COLOR	

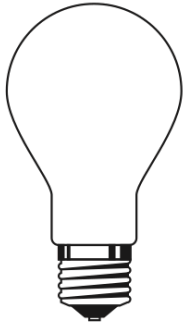
# LIGHTING AUDIT WORKSHEET

## ROOM COUNT

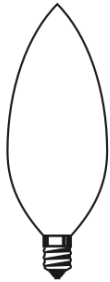
AREA																			LAMP COUNT HR/MO
	AREA																		LAMP COUNT HR/MO
AREA																			LAMP COUNT HR/MO
	AREA																		LAMP COUNT HR/MO
AREA																			LAMP COUNT HR/MO
	AREA																		LAMP COUNT HR/MO
AREA																			LAMP COUNT HR/MO
	AREA																		LAMP COUNT HR/MO

# BULB SIZE & SHAPE

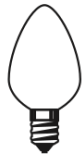
## INCANDESCENT SHAPE GUIDE



A



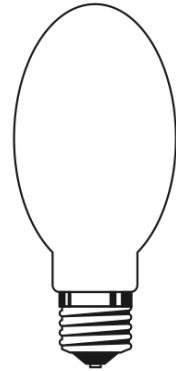
B



C



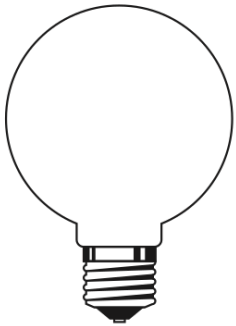
CA



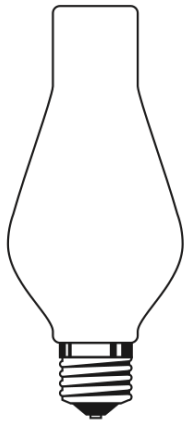
E



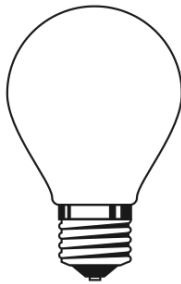
F



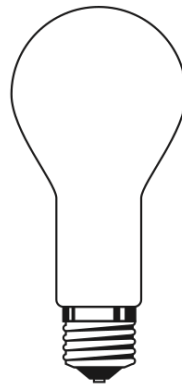
G



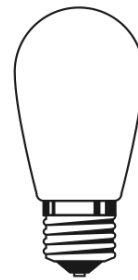
H



P



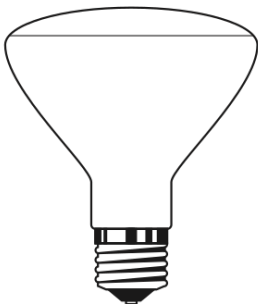
PS



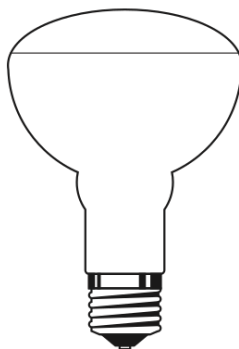
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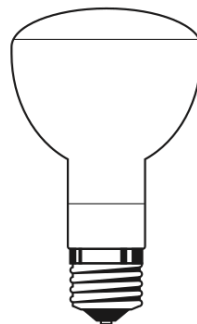
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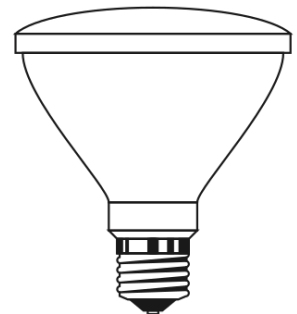
R



BR



ER



PAR

# BULB SIZE & SHAPE

## REFERENCE CHART

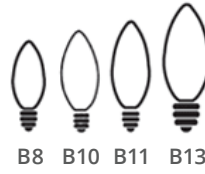
### A LAMPS



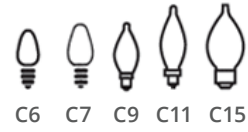
### P LAMPS



### B LAMPS



### C LAMPS



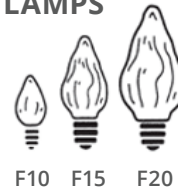
### C LAMPS



### RP & S LAMPS



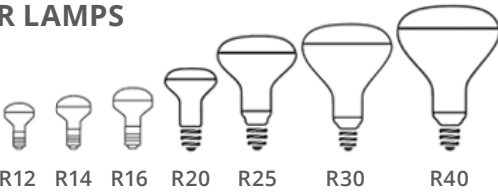
### F LAMPS



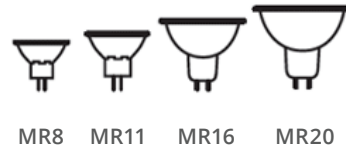
### PRISM



### R LAMPS



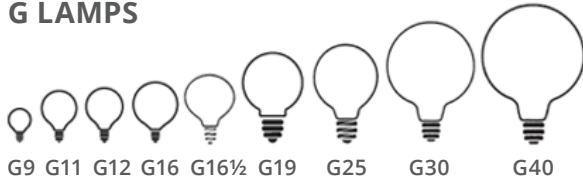
### MR LAMPS



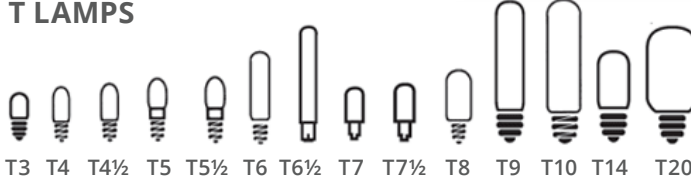
### BR LAMPS



### G LAMPS



### T LAMPS



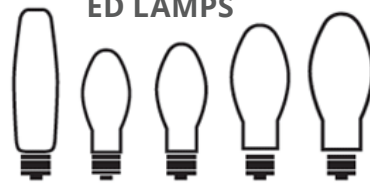
### BT LAMPS



### ET LAMPS



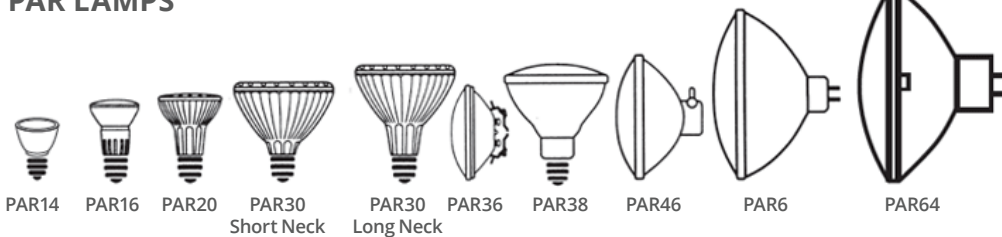
### ED LAMPS



### AR LAMPS



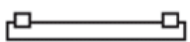
### PAR LAMPS



### SPECIALTY

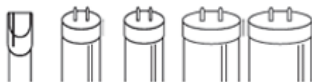


### LINISTRA



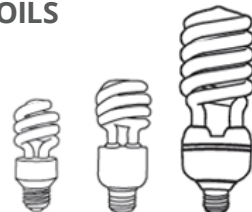
T10

### LINEAR FLUORESCENTS



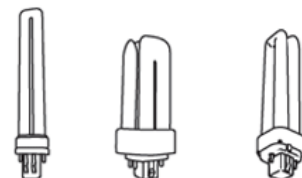
T2 T4 T5 T8 T12

### COMPACT FLOURESCENT COILS



T2 Coil T3 Coil T4 Coil

### COMPACT FLOURESCENT PLUG IN LAMPS

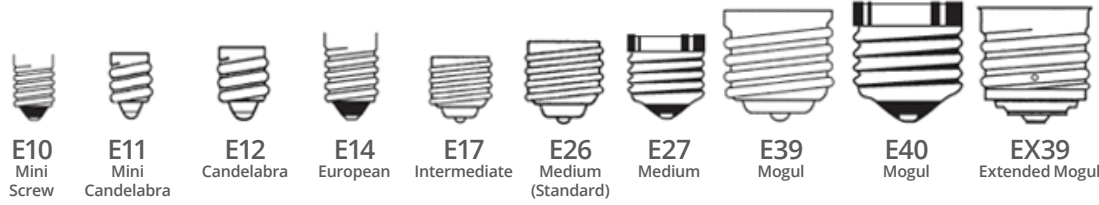


Twin Tube Triple Tube Quad Tube

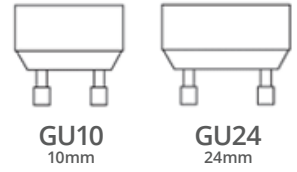
# BULB BASE

## REFERENCE CHART

### SCREW



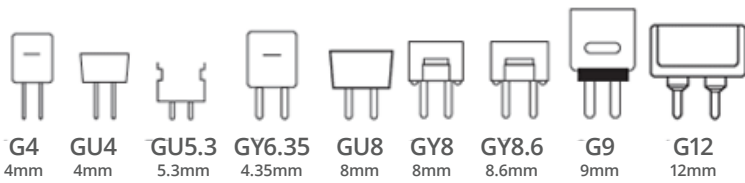
### TWIST & LOCK



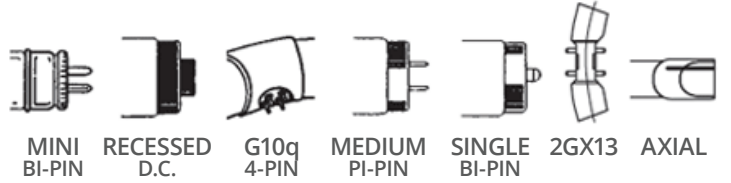
### SPECIALTY



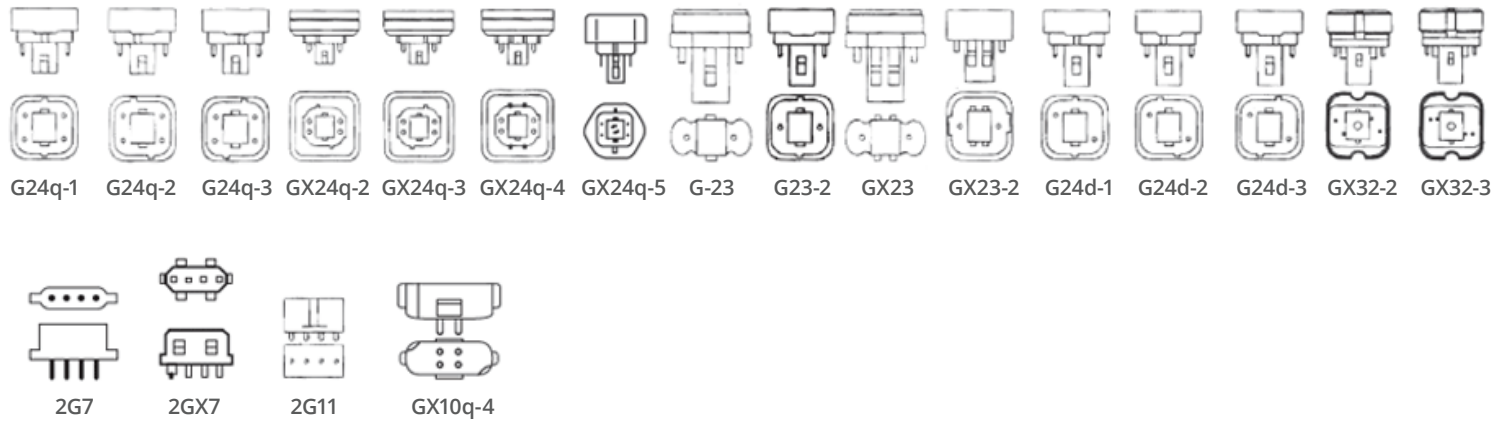
### BI PIN



### FLUORESCENT PIN



### COMPACT FLOURESCENT PLUG IN



# We'd love to talk to you more about your lighting needs

FSG has been selling and installing commercial lighting products since 1982. But you don't need someone who sells you a product. You need a trusted advisor who will bring you the right solution. This guide is meant to be a resource to help you determine if upgrading your lighting is the right solution for you!

There are a number of variables to consider when actually building a lighting upgrade project and this guide has only begun to scratch the surface, however, we hope that you have found it helpful.

Contact our Lighting Guide Team at **(888) 523-3447**

Let them know where you are located and how we can help you.

You can also visit us online at [FSG.COM](http://FSG.COM)

