Types of Lights and Parts

Don't take this *lightly*!

Do you get it? Lightly? Because we're talking about lights. I feel like you're not getting it. See, because lightly is a play on words. Do you get it now? Well then why aren't you laughing?

Now furreal, the types of light.

There are several kinds of lights, and for each category, there are dozens of specific ones made by dozens of companies. We'll go over the most common ones you're likely to run into, but basically there are:

- Fresnels
- Ellipsoidal Reflector Spotlights, or ERS, or source 4 or leko. Lotta names for this one.
- Parcans (or Par Can or PAR)
- Cyc Light
- Moving Light
- LED
- Follow Spot
- Strip Light
- Scoop Light
- Misc.

All of these (mostly) fall into either a flood or spot unit category.

Flood units just kinda throw light on-stage. They're not very specific and generally have soft edges.

Spot lights can have very defined edges and can even project patterns onto the stage.

Fresnel (Fer-Nel) not (Fres-Nel)

You'll know this guy by that cool wavy lens there. They make soft, warm pools of light. Think street lamp. These are a flood fixture.

Most of these have a thing on the bottom that lets you move where the lamp is in the light, moving it closer or farther from the lens. This changes how big a pool the light it makes.



ERS's

These are the workhorses of lighting, especially that first one. That's an ETC source 4. These lights have a lamp at the back and adjustable lenses in front. Usually, you can put different size lenses in, making a bigger or smaller beam of light. They also have those handles sticking out called shutters that allow them to block light off of stuff. These can also be very sharply defined edges, but can be focused to be softer.



The Par Can Parabolic aluminized reflector

If you've been to a concert, you've seen these. This is the trusty, nigh unbreakable, simple as can be Parcan. They come in different sizes (48, 52, 64, etc) and how wide a beam they throw depends on the lamp, which has the lens built into it.

Also pictured is a Source 4 par. These guys have separate lenses, so you can change them out.

Also, pars are the only lights that throw an oval shaped beam. You change its orientation by physically rotating the lens.





Cyc Lights

Cyc lights are used for lighting tall pieces of fabric called cyc, which are typically hung at the back of the stage. This is usually to give a color background to the stage. They're made to throw an even spread of light from up where they're hung all the way to the floor (or from the floor to the ceiling). You'll know them by their curved reflector and long lamp.



Moving Lights

The cool one! There's a LOT to go into about these, so just the basics: It's basically a light made to be able to pan and tilt. Some of them have other things like strobes, color changing wheels, prisms and other cool stuff. Some are really basic. There are both flood and spot varieties and they come in all shapes and sizes.



LEDs

LEDs are the brave new world of lighting. The wild frontier. Basically, for each type of light in this list, there is an LED version. LED ERS, LED fresnel, LED par, LED moving light, LED stips, LED cyc. Everything. Instead of having a lamp making light, they use a number of small, less power consuming LEDs. Much more on these later.





Follow Spot

These behemoths are manned by a person who manually changes its color, focus and intensity while following someone or something onstage. These typically have a really long throw and are powerfully bright, lighting from behind the audience all the way to the stage.



Striplight

A strip light is a series of lights all chained together is varying lengths. Anywhere from a foot to even 8 feet long. They will often have multiple circuits, allowing for multiple colors, one for each circuit (like each circuit will do every other light or so).

Typically, they're also used to light cycs. They'll often be hung vertically for side light as well.





Scoop Light

These are generally just giant light bulbs in a giant can. They're generally used just for work lights, but sometimes are used just to throw a mass of nearly uncontrollable light onto stage.



Others...

Those were just the main types of lights you'll run into.

There are many others and film and television are a completely different world.



Kino flo



Birdie

There are also "practicals" which are household set pieces or props that fall under the lighting umbrella. These are things like lamps, wall sconces, chandeliers lamps and flashlights.



wall sconce



Candelabra



... Lamp.

Parts of a Light

A big thing about lighting is knowing the parts of a light and how to replace and repair them. Lights, for the most part have a few basic parts:

- Plug (connector)
- Lamp housing
- Lamp
- Lens
- Body
- Reflector
- Clamp

Connector

There are a bunch of different connectors for lights. Almost all of them are the same three prongs, just rearranged: **Live**, **Neutral** and **Ground**. For 90% of our normal, A/C power lights, the live and the neutral are interchangeable. Each plug has a male and female and if you need help knowing which is which, ask your parents.



Edison. The typical home connector. Ground is the rounded pin.



Twist-lock or L6-20. Nice because it lock together. Ground is the pin with the bend.



Stage Pin. Very common in entertainment. Nigh unbreakable. Center is ground.



IEC cable (or euro connector). Mostly used for intelligent fixtures. Center is ground.



Powercon. Also common for intelligent fixtures. Ground is one of the internal connections

Lamp/ Lamp base.

The connector's attached to a cable and that's gotta go somewhere, and that where is the lamp housing. The lamp housing is usually a porcelain base that the lamp goes in. Theatre lamps are usually pretty small, work at very high wattages and burn both very bright and very, very hot. Almost every light uses a different kind of lamp. The metal compartment a lamp is in is called the lamp housing.

The number one rule of lamps is **NEVER TOUCH THE LAMP WITH YOUR BARE FINGERS**. When you touch a lamp, you put your oils all over it. Because of the high heat, this can cause the lamp to burn out prematurely. Always wear gloves when handling a lamp.



Parcan lamp base



BTL Fresnel lamp



HPL source 4 Lamp



MSR Moving light lamp

Lenseseseses

Many lights have a lens in some capacity. Many of them are interchangeable. Primarily, the ERSes have a variety of lenses. Each lens will make a different sized beam on the stage. What lens you use depends on things like how far the light is from the stage, how bright the light is and what your intended effect is. There are also zoom lights with move-able lenses. Lenses are often held in "lens tubes."



Fresnel Lens



10° source 4 lens



36° source 4 lens



Medium flood (MFL) parcan lamp/ lens

Body / Yoke

The body of a light is pretty much everything else. The metal that the thing is encased in. The yoke is the the U shaped metal that has the clamp in it. With it, one controls the tilt of a light. It is locked in place by a T-Handle



Some random Fresnel

36° Source Four Jr.

Reflector

Many lights have reflectors. Some are built into the lamp, like pars, some are part of the body, like scoops, and some are separate pieces, like for most ERSes.





Clamps!

Clamps are the thing that actually attaches the light to your pipe or truss or what have you. There are bunch of different types! Here are a few:





Mega Claw





C-clamp on Side-arm

C-Clamp (most common)

Cheeseboro Clamp

C-Clamp Parts

(FEMALE DOG) pin/ (INTERCOURSE) Nut/ Jesus bolt. Seriously. Used to pan light. It gets its name and hatred from how easy it is to break.

Yoke Bolt. (attaches clamp to yoke) Also used to pan light.



- Clamp. The... Actual clamp part.

Bolt. Used to attach light to pipe. Make sure this is tightened down with a wrench, but don't over tighten. You want it to not take herculean strength to take off later.

To Review



Lighting Positions

So where do we hang these lights? Well, if you for some reason have no idea how to read into context clues, the answer is on lighting positions. These are bars, truss, floor bases, scaffolding and stuff around the theatre/ hall/ wherever you are.

These things also get different names depending on where they are. So lets crack into the basics.

What we hang on.

So before we get to the positions, let's talk about what's at them. A position is made up of places we can put our lights. This can be any number of things, but here are the three most common: Truss, Battens, and Booms



Truss is a series of welded pipes. They're incredibly strong. Often, whole stages will be built from it.



A batten is basically a pipe. The above is a fancy double batten. A batten that can not move is "dead hung" while one that can go up and down is "flown." Dedicated lighting battens are called "electrics."



Booms are vertical poles with big, heavy bases.

Positions!

- Front of House (FoH, Coves): Battens or Truss that are above the audience.
- Balcony rail: Batten that is behind/ in the audience, but a shallower "shot" towards the stage.
- Electrics: Battens or Truss hung above the stage itself. Often, circuits will be permanently attached to them. This bank of circuits is called a "raceway."
- Torm (Juliets, Tormentors): Usually a series of pipes down stage left and downstage right sort of between the transitions between stage and audience. Usually not as high as FoH or electrics.
- Side Lighting: Usually booms set offstage left and right. Sometimes pipes hung vertically off the edge of electrics called "tail downs."

Every theatre and space is different, however. Very often, they will have unique positions that aren't listed here.

Positions: Diagram style



Lines are battens. Circles are booms.

Pretend this is a birds-eye view.

Also note, electrics and FoH positions are numbered away from the front of the stage, as seen here.