

THE LIGHTING DESIGN PROCESS

Remember that the word "design" implies both planning and execution, which implies that the designer goes through a process. The process of lighting a play, dance piece, or opera is highly subjective; each designer has to develop a process that works for her or him. This, of course, can only happen over a period of time and, depending on each individual situation, there may be slight differences in process for each production.

This is a checklist and I've found through the years that if I go through each step, the lighting will always be ok i;½ more or less inspired, but always appropriate to the play, good enough and trouble free.

I. **Before you start:** After you get the job (even before pre-production meetings), acquire information on two separate aspects:

A. **Technical:** Under what conditions will the play be produced?

1. **Physical:** will it perform in the same theater throughout its run?
 - If so, what are the physical conditions of that venue? This includes everything concerned with rigging the lights:
 - What lighting positions are there? (Front of house, over-stage electric or counterweight pipes, possibilities for sidelights, footlights).
 - Are there any problems or limits regarding the electrical power supply?
 - If the play will tour, what kind of theaters will it tour? (size, limitations).
2. **Equipment:**
 - Does the theater have its own equipment or will it be rented?
 - What options are there for extra equipment?
 - Get a complete list of existing equipment, including:
 - instruments
 - dimmers
 - control.

This should be a list of that equipment which is currently functional and ready for use; it does you no good for a fixture to be in the theatre, but broken.

3. **Routine:** Will the play be in repertory with other plays? If so,
 - How frequently will the lighting be taken down and reset?
 - How much time will there be to light this play before its first production? Before each subsequent performance?
4. **People:**
 - With whom will you be working?
 - How many electricians will be called for the first production week, and for ensuing setups if it is in rep/touring?
 - Meet, if possible, the master electrician/ lighting director of the theater.

B. **Artistic:**

1. **Read the play:** Read the play twice.
 - First read it through just to gain your own personal impression of it.
 - The second time read it through with two different sheets of paper.

- On the first, write down everything which appears in the text itself which expressly relates to lighting, because if an actor says "it's getting dark" you'll usually need to make it get dark.

In a different column write down everything appearing in stage directions, because these might not dictate lighting: they might not be the playwright's instructions but rather have originated in a previous production. Even if they are from the original play, the director and you could choose to ignore them.

In a third column write down any ideas or specific lighting impressions that cross your mind. Here's an example:

Page number	Text	Stage directions	Ideas/impressions
35	Anna: "it's dark in here"		
36		Anna turns on light	Fluorescent?
38			Gets darker and spookier (evening falls)

- On your second sheet of paper, as you read, summarize the play: Write down each act/scene number, and summarize in a sentence or two what happens in that scene. This will give you an idea of the dynamic development and structure of the play.
2. Research the play:
 - Where is it set? If in a different country/time, what kind of light would there be? Norway on a summer night is very different than New York.
 - If set in a previous age, what light sources would have been used inside buildings? This way, when you do meet the director and set designer, you will have practical information to use in discussion.
 3. What kind of play is it?
 - What style?
 - Who is the author?
 - What other plays has he written?

You may never need to use this knowledge, but it may help you understand

the director's concept, or it may help give you ideas.

4. Who are the other people on your creative team (director, other designers)? If you don't know them, try and find out what kind of work they have done before. For instance if this is a director who always does plays in his own idiomatic style regardless of the play's own style or period, you should know this before you meet him, and not start rattling off your new found knowledge of the play's background.

II. Preproduction:

- A. First meeting with the director, set designer, other contributors. Despite all your research, in this meeting you LISTEN. The director has thought a lot more about the play than you have, and generally has some general conception of what she wants. Your aim is to understand this and develop a dialogue. Oddly enough the best way to do this is not to talk much but to listen. If the director starts out talking about what spotlights she wants, listen politely and afterwards ask gentle questions aimed at understanding the general style and conception. Doing this is an art in itself one useful tactic might be to ask indirect questions about casting, choice of music, etc., which will lead the director on to talk about concept. (It's often not productive to ask bluntly "OK, what's your concept?")
- B. Subsequent preproduction meetings will be held as the set and costume designs emerge, until the final set model is presented. Here you want to be on the lookout for possibilities and problems in positioning the lights, because this is where suggestions can still be easy and effective (for example, building lighting positions into the set when there are no openings for lights from outside.)
- C. Final pre-production meeting, where all the technical people are present. This is your chance to request special lighting equipment and discuss scheduling.

III. Early rehearsal period:

At this point you don't have much to do since there is generally not much point in watching rehearsals at this stage. It's a good idea to keep in contact with the director and other designers, and you will be thinking about the play, casting around for ideas, looking at paintings for example to try and clarify visual ideas. There are two practical procedural steps I've found invaluable at this stage:

- Visit the shop where the scenery is being built, as soon as there is something to see. Often changes are made as the set is built and nobody thought it would be relevant to you but that open window you had planned on lighting is now opaque fiberglass, for instance. Also often you get clearer or new ideas when you see a set life size rather than model size.
- Visit the shop where the costumes are being made seeing the actual cloth and costumes is important, often changes have been made from the drawings, for instance the designer may have found a lovely brocade shot with gold which was not in the original sketch.

Runs-through

If you're lucky you'll get to see several run-throughs but often you are limited to one. During the run you do not sit back and let ideas flow. You are busy all the time making two different sets of notes:

- Note down the *mise en scene* (who goes where). This may often change later, but it's helpful to write it down for two reasons:

1. It will aid you in talking to the director after rehearsal.
 2. It keeps you focused and prevents your mind from drifting (just like taking notes in class.)
- A. Make a preliminary cue synopsis. This should include cue number, count (time up/down), when the cue starts, what the aim of the cue is in terms of atmosphere and effect, and specific lighting elements to be used. At the start of rehearsal this will necessarily be limited to "lights up slowly" etc., but as the rehearsal progresses it will become clearer, and the counts will become more precise. You need both a column for "what", indicating the feeling and atmosphere, as well as a column with explicit lighting elements that you plan to use for the cue; when executing the lighting later, you may find that your choice of elements here doesn't work, and you will want to refer to "what" for your original intention. You'll be refining and reworking this cue synopsis later for use during plotting of the lights. Example of a preliminary rehearsal version:

Cue	Count	When	What	Elements
1	3/9 3=up, 9=down	Anna falls	Isolate Anna, not realistic	Spot down center (sharp and cold)
2	60	Jim: "Oh no!"	General daylight, happy feeling	Sun from window, warm backlight, warm wash

- B. Put together a list of lighting elements. This will be a simplified and organized version of the last column of your cue synopsis. An element is a light or set of lights which fulfill a single purpose. As a rule this means they have the same or similar angle and color. Examples:
- warm diagonal backlight
 - cool head-on acting area coverage
 - greenish rectangular special down center

Afterwards you will translate the list of elements into a light plot, but in fact the element list is your lighting plan; then it is just a technical process to convert it into details of lighting instruments with gels, channel assignments, positions.

After the run-through, you meet with the director, and this time you do a lot of talking. You want the director to understand what you are going to do, and you want to make sure it agrees with what she had in mind, and what you have been talking about till now. If possible it can help to do "dry cues" to go over cues in detail before the actual lighting sessions.

Plans

- Now you make a complete set of lighting plans: layout and instrument schedule (see "Graphics" and "Paperwork").
- A. At this point you should refine and update your cue synopsis. Add a column with explicit channel levels and suggested intensities for each cue; you may not use them, and the intensities will most probably change but it will help you get started and get over humps.

- B. Meet with the chief electrician to go over the lighting plot and equipment list.

Production

WARNING: Do NOT agree to go on to the next stage before finishing the current one. For instance $i_c/2$ don't start focusing till everything works, and NEVER start cues before you have everything patched and focused!

- . Setup: rig the lights, patch them, get everything working.
- A. Focus: Aim the fixtures at the targets you want them to light.
- B. Cues: Plot the lighting states. The following people MUST be present during this step:
 - Director
 - Stage manager
 - Board operator
 - Stage walkers $i_c/2$ people to stand on stage so that you are lighting human faces and not just scenery.

People whose presence is helpful:

- Set designer
- Extra electricians to help make changes if necessary.
- C. Cue-to-cue rehearsal: With the actors, go through the play just doing cues, and skipping the scenes. In a particularly simple production it's possible to skip this and go straight to a run through.
- D. Full technical rehearsal: If the production is complicated, with sound cues, set cues etc., there should be another rehearsal devoted to integrating all technical aspects of the production.
- E. Runs-through of the play: There may be a run through where you have the option to stop and make changes (personally, I prefer to wait till after the run and then go back for corrections). Afterwards there will be runs-through where you can't stop, but will have sessions afterwards for corrections.
- F. Dress rehearsal and opening.

Post-production

- It's your responsibility to leave a full set of plans including focus plots, so that the crew will be able to recreate the production later.
- If the show is going to tour, you must also prepare a touring setup if necessary, taking into account the different circumstances (smaller theaters? Less time or crew for setup?) Since this obviously involves more work than would a non-touring show, you should negotiate the compensation for this at the time you accept the assignment.
- I generally try to go back to the theater for the second setup, if the show is being performed in rotating repertory.

Composition

- Unity: The creation of a stylistic plan or concept to which all elements of the production or design conform. Note that while there may be an overall concept for the production, each designer will establish a concept for his or her own design discipline. Ideally, this concept will be rooted in the overall production concept; otherwise, the principle of "unity" is violated.
- Harmony: The sense of blending and unity obtained when all elements of a design fit together to create an orderly, congruous whole. Note that for some productions, disharmony is appropriate.

What is the difference between "Unity" and "Harmony"? Unity is achieved when each element of a design fits in with the overall concept of the production. It is defined by how those elements relate to the production as a whole.

Harmony, on the other hand, is defined by how those same elements relate to each other.

For example, lets assume that we are doing a show about ducks:



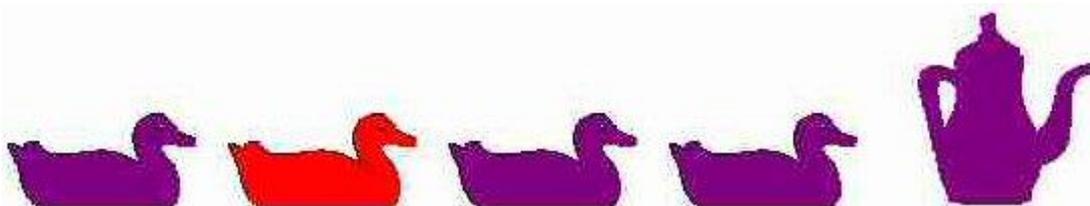
In the graphic above, we have achieved both harmony and unity. The icons are all ducks and they are all the same shape and color. It may not be very interesting, but that's due to a lack of variety and contrast, which are concepts that we'll discuss below.

Now look at this group:



They're still all ducks and still the same shape and size, so we're still achieving unity, but the colors clash — they are not harmonious.

In our next example, the addition of the teapot conflicts with the overall concept of the production — that it's a show about ducks — so we now have neither harmony nor unity:



- Contrast: The juxtaposition of dissimilar design elements. Note that elements can contrast with each other and remain harmonious. The Tony Award winning set and lighting designer David Hays once said that, "The primary tool of any form of design is contrast."
- Variation: Too much uninterrupted harmony is monotonous.

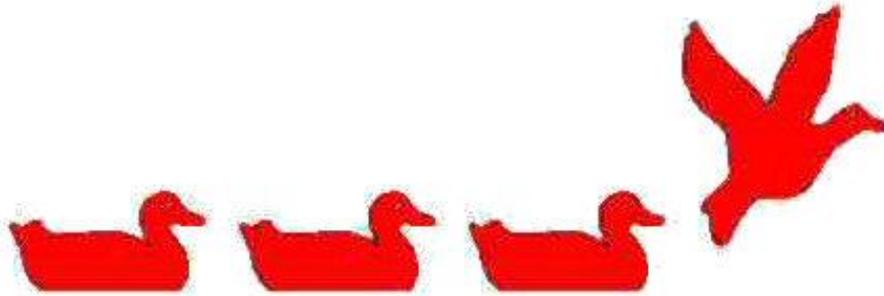
So what's the difference between "contrast" and "variation"?

"Contrast" is a difference in one or more qualities between similar elements. For example:

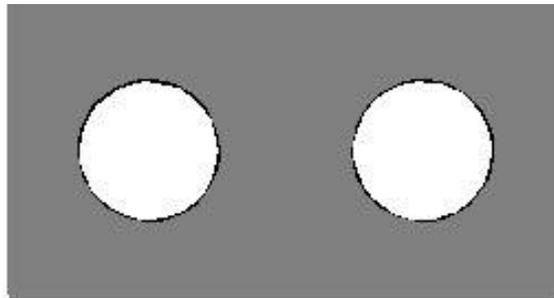


In the above image, the ducks are similar — they're identical in size and shape — but whereas three of them are red and facing Stage Left, one is blue and facing Stage Right. This is an example of "contrast".

Compare this to the graphic below, in which all the ducks share the same basic qualities (they're facing the same direction and are the same color), but the fourth one is a radically different element — this duck is flying, while all of the ducks we've seen so far have been swimming. This is an example of "variation".



- Balance: The arrangement of the design elements to bring a sense of restfulness, stability, or equilibrium to the design. There are two types of balance:
 - *Symmetrical Balance*: "mirror image", as in the first example, below.
 - *Asymmetrical Balance*: occurs when the composition is balanced in terms of weight and emphasis without one half's being a mirror image of the other half, as in the second example, below.



- Proportion: The harmonious relationship (in terms of size) of the parts to each other and to the whole. Physical beauty in humans (or anything else) is largely based on proportion.
- Emphasis: Directing the audience's attention to a specific place.

Functions of Stage Lighting

1. **Visibility(Selective): illumination & focus.** If the audience can't see the actors, everything else the lighting designer does is a waste of time. Studies have shown that visibility affects our ability to understand spoken speech. This doesn't mean that the audience must see everything all of the time; a German director named Max Reinhardt once said that, "The art of lighting the stage consists of putting light where you want it and taking it away from where you don't want it."
2. **Mood:** (or "atmosphere") "Mood" is the evocation in the audience of the appropriate emotion. Many designers err in paying attention to mood to the point where visibility is sacrificed.
3. **Composition:** The act of painting a picture, in this case, with light.
4. **Plausibility:** Sometimes called "realism", but that's not always accurate, since not all plays - and certainly very few ballets, modern dance pieces, and operas - are realistic. It's the same quality that Stephen Colbert refers to as "truthiness".
5. **Reinforcement:** What are we reinforcing? Everything.
 - We reinforce the playwright's text: In *A Midsummer Night's Dream*, Puck has the line, "And yonder shines Aurora's harbinger," meaning the dawn. The lighting designer can reinforce this by providing the first rays of dawn.
 - We reinforce the work or the set and costume designers:
 - We might use colors that flatter or complement those used by our colleagues.
 - If the sets and/or costumes are sculpted and lush, we might light them so as to highlight their 3-dimensionality.
6. **Revelation of Form:** Decide on the level of 3-dimensionality you want the audience to see. In some productions, you might want a "flat" look; in others it's particularly in dance it's you might want a more sculpted look. A case could be made that revelation of form is part of composition or mood; however, it's important enough (in some productions, at least) to be a stand alone function.
7. **Punctuation:** The blackout at the end of a climactic musical number! The slow fade to black....

Qualities of Light:

1. **Intensity**
2. **Distribution**
3. **Angle**
4. **Color**
5. **Change and movement-** moving heads etc.
6. **Visual quality of the light field** (diffuse, soft edged, or even and hard, with or without a clear outline.)
7. **External look:** beams cutting through smoke filled air.

COLOR

There are two ways to mix colors in lighting:

- **Additive mixing** happens when two or more differently-colored lights are aimed at the same surface.
- **Subtractive mixing** happens when a single light source shines through differently-colored filters. Each filter allows certain colors to pass while blocking or absorbing other colors.

In additive mixing, **primary colors** are those three colors which, when aimed at the same place at the same intensity, theoretically form white light ("theoretically", because in practice, this is limited by the imperfections of color filters and light sources). These colors are red, green, and blue.

The secondary colors in additive mixing are those colors which can be created by evenly mixing two primaries. These colors are:

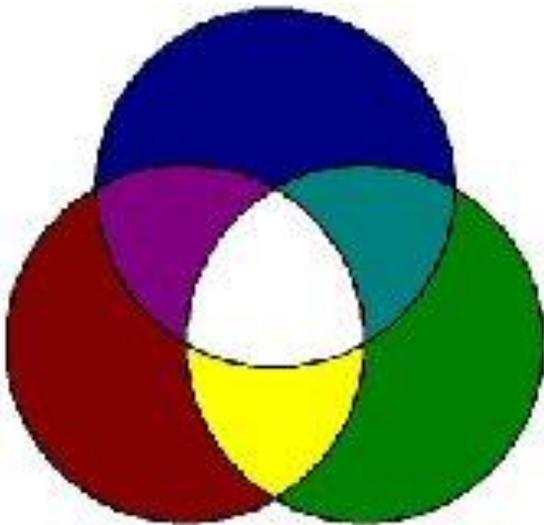
- Cyan (blue and green)
- Magenta (blue and red)
- Amber (red and green. Really.)

Televisions and computer monitors create colors by using additive mixing. For example:

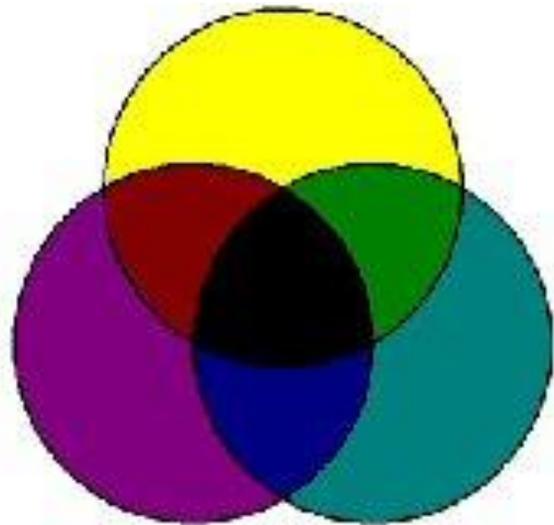
This sentence is 100% red.

This sentence is 100% green.

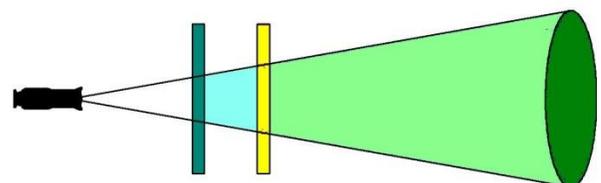
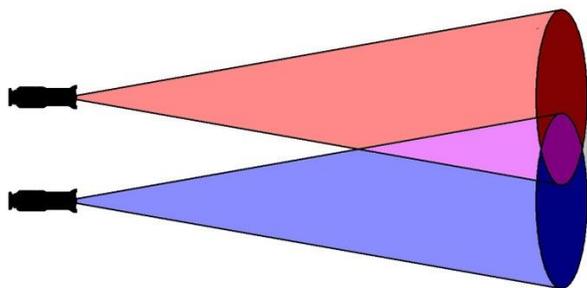
This sentence is 50% red and 50% green (See? I told you).



Additive Mixing



Subtractive Mixing

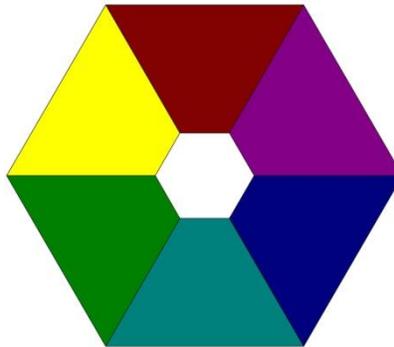


In subtractive mixing, the primary colors are those which can be created by evenly mixing two secondaries,

as shown in the drawing above. In the example on the right, a white light is altered by inserting a cyan filter, which absorbs the red part of the spectrum and passes (or "transmits") blue and green light. The resulting cyan light is then passed through a yellow filter. This filter absorbs blue light, but transmits any red or green that may be present. Since there *is* no red (because we've already blocked it with the cyan filter) all that is transmitted is green.

Subtractive mixing is often found in automated fixtures. The act of inserting a color filter in front of a light is a very simple form of subtractive mixing.

Complementary colors are those colors directly across from each other on the color wheel:



For example: yellow and blue are complementary to each other, as are green and magenta. As you can see, the complementary of any primary color is the secondary color formed by mixing the two remaining primaries.

Complementary colors, when combined additively on a neutral surface, form (in theory) white light.

Complementary colors, when used adjacently, reinforce each other; each makes the other appear to be more vibrant.



One of the most difficult problems faced by young designers is choosing color. The various manufacturers' swatchbooks (usually available free from dealers or from the manufacturers) offer literally thousands of possibilities.

How to choose? K.C. Hooper of Apollo Design Technology, a leading manufacturer of theatrical color media, offers these guidelines:

CHOOSING COLOR:

There are many factors to choosing color for your show, and as you look through your swatchbook, you will realize that there are many, many options to choose from. This section will cover the various concepts of choosing the best colors for your show.

Notice that I did not say the "*right*" color. Lighting design being an art form, we, as artists, are free to choose whatever color we feel will work for the effect or look that we are trying to create. Explore color and absorb the different elements of what it does for a scene, a dance piece, or a song.

The psychology of color is a wide ranging subject that many folks have written about. A quick Google search of the subject will bring up a large list of articles on the topic. One that I have found informative is [Color Psychology: How Colors Impact Moods, Feelings, and Behaviors](#), by Kendra Van Wagner.

Some obvious emotions connected with color are:

- Red = "anger," "danger," "evil."
- Green = "jealousy," "illness," "good luck."
- Blue = "tranquility," "coolness."

You, as a lighting design student, should sit down with a color swatchbook, put each color in front of a light fixture, and think about what each color means to you emotionally. You will call upon this process in the future when designing.

Seeing color is something that the designer will always practice. You may see a painting, scene, or museum exhibit and note that it has an emotional feeling. Analyze what is causing these emotions. Is it the colors, light angle, dimness or brightness? File that thought and use it down the road.

Many years ago, I saw a movie called *Cat People*. The movie itself was terrible and forgettable but the opening credits were done with green lettering on an orange sand background. As a designer, I remembered how vivid the lettering was and thought that it might be something that I could use down the road in a lighting design. Several years later, I was designing lights for a dance piece loosely based on the book, *Dune*. I remembered the effect from the movie and worked with the green/orange concept and creating the design based on that metamer (in this context, "mixing of two colors"). As an artist, you must use the variety of colors available to you to add to your visual tool kit.

SCRIPT ANALYSIS:

The lighting designer for a play can search for color clues in the script. The playwright often paints a clear picture of what he or she thinks the show should look like when the lights come up or the curtain opens. After going over the script, meet with the director and discuss his or her vision of the show. Ask the scenic designer and costume designer for swatches of the colors that they intend to use. These will be very helpful when you do your color testing. If you are lighting a dance or a music concert, discuss with the choreographer or director about anything they might want to see or feel during the presentation. The important thing to remember is to communicate as clearly as possible during these discussions.

Once the mental vision has started to develop, take the costume and scene paint swatches and do your homework by color testing with the color filters.

COLOR PREJUDICES:

We all have favorite colors that we love to use and colors that we avoid. Whether a particular color is too pale, or too deep, too much green, or too "murky", we all have to realize that these prejudices do exist, and use them to create our visuals of a scene. As you look at a color and think that it is "murky" or "soothing", mull over where you would use it in a scene. Every designer should do this with every color, to improve his or her color memory.

COLOR TESTING:

A great tool to use for color testing is a small incandescent accent light made by Hampton Bay and available (in the US) at Home Depot for around \$18. The fixture has an inline dimmer on the power cord, and the color temperature of the MR16 lamp is equal to that of most incandescent theatre lighting fixtures on the market today. These lights are very small and portable and work well when you do not have a chance to work with full size fixtures. Using the average-sized color filter swatchbook, you can find your colors without the need of a full-sized lighting fixture.

COLOR COMMUNICATION:

This is a very difficult part of designing. If you take 3 designers and ask them to pick out a blue, each will probably choose a different shade (and will argue for hours on why theirs is the right blue- be *passionate* about color!). In my discussions with the great lighting designers of this era, I am struck by the way they describe color. Very rarely do they call for a "named color" out of the swatchbook. They will say things like a "jagged" red or a "harsh" green. These help my mind form a picture of what they are trying to achieve. Color communication is very important to the designer, director, and the student. Develop that vocabulary.

COLOR FILTER SYSTEMS:

Which system should you use? There are several filter systems out there with many colors to choose from. Most designers will develop their palette from all of the systems available to them. Over the years, young designers will find nuances in colors that they desire, and add those colors to their "toolboxes". All of the major color systems give out color swatchbooks. These swatchbooks are invaluable in choosing your colors. The separator pages in the swatchbooks usually have the color name and a spectral energy distribution curve ("SED curve") graph on them along with other helpful information. The graph will give the viewer a good idea of what colors are used to create the filter that they are seeing. Believe it or not some greens have more red dyes in them than some of the reds (look at the charts). I would never recommend a designer use only the color graphs to choose their colors for a show, but it is a good starting point when a light is not available for color testing.

COLOR INTERACTION:

Never assume how a fabric or paint color will interact with a lighting color. The colors in paint and fabric may be made up of various individual pigments and dyes, and these all will react differently to colored light. I have spent hours trying to visually separate close shades of costume colors on dancers in the same dance piece onstage. Had I done color testing prior to cue setting, this might have been avoided. Sometimes there are 2 or 3 different colors that may be needed to bring out costume colors or skin tones. In such cases you can cut the color filters and create a patchwork filter made up of several different shades or color saturations. Clear tape can be used to assemble the colors as it does not retain any energy or heat from the light. By color testing with the actual color samples, the designer will find several options to use in their designs. Sometimes the testing will bring out an interesting effect that can be used as well.

Skin tones can be difficult as well. ALL skin tones are different. They have differing amounts of blues, greens, and reds in them. A day at the beach without sunscreen can drastically change the color of Caucasian skin on stage. Although the designer probably won't alter the design for that, it is an example of how far skin tone colors can range. Keep this in mind when designing for a wide range of skin tones. Again, if proper lighting of

the skin tones is important, spend the time doing color testing with the performers.

Finally...You are the artist responsible for choosing the colors for your show. Always remember that collaboration is a large part of the process, but you must do your homework to create the palette. Always keep your eyes open to new sources of colors for your designs! Form an opinion on where you might use a particular color in a swatchbook (it was created for some reason at one time). Look for color combinations around you that create visual interest or emotions and analyze how to recreate them with the lighting tools available. This palette development should be a lifelong pursuit and will never change even with the new color mixing technologies that develop throughout the years.

Remember... the final judge of color is the eyes and the brain...and that will *never* change!

Plots

SCALE

Lighting graphics are said to be "drawn to scale". "Scale" is the relative size at which a drawing is printed or plotted.

In American theatre (obviously, this may differ in countries that use the metric system), the traditional scales are:

$$\frac{1}{4}'' : 1'-0''$$

and

$$\frac{1}{2}'' : 1'-0''.$$

If the scale is $\frac{1}{4}'' : 1'-0''$, an object that is 1' long in the "real world" is drawn $\frac{1}{4}''$ long on the drawing.

Likewise, if the scale is $\frac{1}{2}'' : 1'-0''$, the same object would be drawn $\frac{1}{2}''$ long.

In other words, a 3" line on the drawing represents a 12' wall in the real world (because a 3" line is 12 quarters of an inch, and each $\frac{1}{4}''$ represents one foot). These scales are generally referred to as "quarter-inch" and "half-inch".

Resist whatever temptation you might have to use other scales; in the American and Canadian professional theatre, electricians are accustomed to these scales and using different ratios will cause confusion and waste of time.

If you are reading a plot or drawing by hand, rather than with a Computer-Aided Drafting and Design (CADD) program, drawing and measuring to scale is made much easier by using a special ruler called an



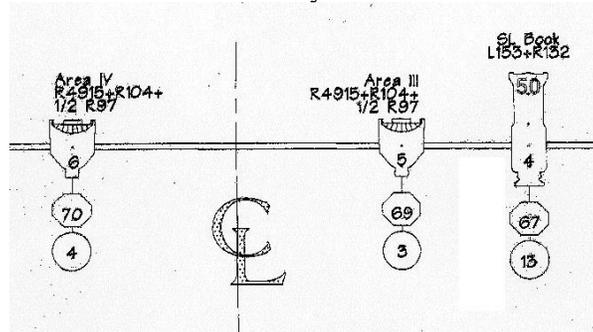
"architects' scale" (be aware that there is also a tool called an "engineers' scale", which uses the metric system but otherwise looks exactly like an architect's scale).

PLOT

A "plan" drawing is an overhead view. A "composite" plan drawing is one that shows more than one horizontal level. The light plot is a composite plan drawing that shows the type and location of the lighting fixtures. It is used by the electricians when installing the production — indeed, this phase of the process is often referred to as "hanging the plot". The plot may consist of more than a single drawing, or "plate". When possible, the size and positions of all hanging positions should be drawn to scale, although it frequently becomes necessary (for reasons of space) to compress the distance between Front-of-House positions and the stage. In these cases, the compression should be clearly noted.

The light plot should include any information necessary for the electricians to have a clear understanding of the designer's intentions. The location and type of every fixture and accessory should be indicated, along with the following information:

- The centerline. This line is drawn with alternating long and short dashes and should be clearly labeled with a "CL" symbol.



- A lineset schedule (when appropriate).
- A ruler or some other indicator of distance left and right of centerline, in scale.
- A ruler indicating on-stage distances up and down stage (or the 90° axis to centerline), in scale.
- The edge of the stage, where applicable.
- The edge of the playing area, where applicable, especially when it does not coincide with the edge of the stage.
- The basic scenic elements.
- All scenic masking.
- All architectural and scenic obstructions.
- The proscenium arch, plaster line, smoke pockets, or other architectural details necessary to orient the lighting design in flexible spaces.
- Trim (height) measurements for movable mounting positions should read from the stage level surface (or other common point of reference) to the pipe (or mounting position).
- Trim heights to boom positions measure from bottom of the boom base to the

- side arm or clamp.
- Identification (labeling) of hanging/mounting positions.
- The "legend" or instrument key designating symbol type and notation in the light plot.
- The Title block.
- Sightlines.

The plot might also include such information as:

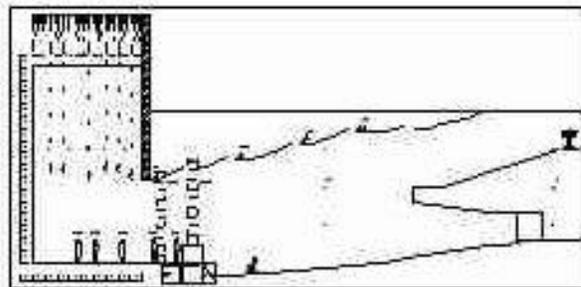
- Lighting areas.
- Revision date/number.
- Intended recipient ("Designer", "Electrician", "Archive", etc.).
- Template key.
- Color key.
- Liability disclaimer.
- Union stamp.

The plot should always be clearly-drawn and easy to read.

Note that while the plot might be attractively drawn, it is *not* the "lighting design". It is part of your art, to be sure, but your real art, always, is the lighting itself, as presented to the audience.

SECTION

The section is a cross-sectional view in which the cutting plane intersects the space, often through the centerline. In most cases, a composite section is appropriate, showing all relevant architectural details from various planes, not just the centerline. The section provides information concerning the relationship of the hanging positions to the architectural and scenic elements of the production. Click on the image below to view a typical composite section.



The section drawing should contain:

- A notation of the plane through which the section is cut (or, if appropriate, the descriptor, "Composite").

- The "vertical zero" location — usually the stage floor
- The "horizontal zero" location — usually the proscenium, plaster line, or smoke pocket
- The upstage boundary of the performing space - usually the back wall or upstage-most backdrop
- Vertical audience sightlines
- Downstage edge of stage floor and/or edge of playing area
- Such architectural details as may affect the placement of lighting fixtures, including any obstructions.
- All hanging positions, including side elevations of vertical positions such as booms, ladders, etc.
- Trim height for all hanging positions with adjustable height
- Identification of all lighting positions
- A sectional view of such scenery as may be relevant
- All masking
- Title block
- Scaled representation of the typical (or largest) fixtures that are to be hung on each position
- Human figure or other indication of head height
- Horizontal and vertical rulers in scale
- Defined distance to such other elements as may not be shown on the drawing, such as follow spot positions, control booth, other sightlines, etc.

It may also contain:

- Liability disclaimer
- Union stamp

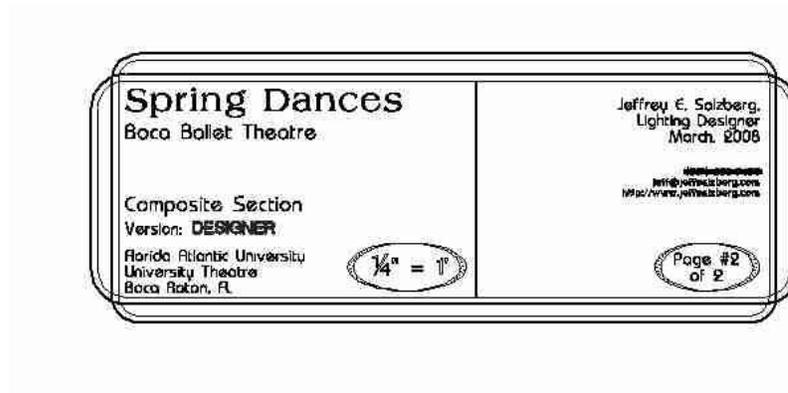
TITLE BLOCK

The title block is a box, located either in the bottom right corner of a drawing or as a vertical banner along its right side. The title block should include the following information:

- Name of the producer or producing organization
- Name of the production
- Venue name and location
- Title of drawing (Such as "Light Plot" or "Composite Section")
- Drawing number (For example, "#1 of 2")
- Predominant scale of the drawing (Inset details may use a different scale, which should be clearly indicated)
- The date the plate was drafted
- Designer's name and title
- Draftsperson of the drawing

It may also include:

- Director's name
- Assistant Lighting Designer and/or Master Electrician
- Date and revision number
- Approval of the drawing
- Contact information such as telephone numbers and email addresses



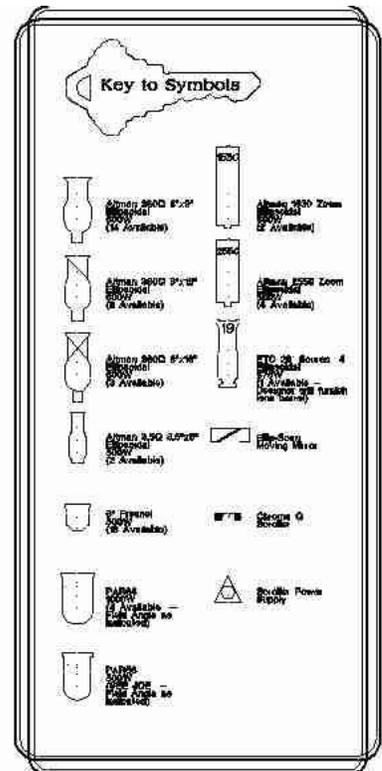
<="" center=""

)="">

LEGEND

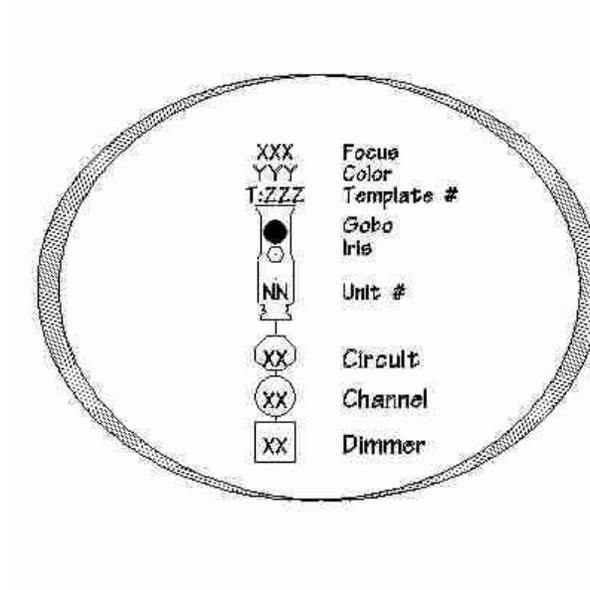
The legend or "key" is a representation and description of the symbols used in the plot. It may be placed in any convenient location and should include:

- Symbols of all fixtures and devices shown on the plot, with identifying descriptions of each and, optionally, the available inventory
- Beam spread (in degrees or focal length) for each fixture type if the numeric value is not part of the fixture's name
- Wattage and/or ANSI lamp code
- Symbols for any accessories i; 1/2 templates, irises, color scrollers, top hats, barn doors, etc.
- The following information may be included in the legend or may be in a separate box (see image below):
 - Designation of all notations (such as channel, dimmer, circuit, color, template) associated with each fixture.
 - Color manufacturer designation (e.g., R = Rosco, L = Lee, G = Gam, etc.)



- Template manufacturer designation (when applicable)
- The legend should be enclosed in a box so that it is completely clear to the electricians that the fixtures contained therein are not to be hung as part of the plot.

Click on the image to the right to view an example of a legend.

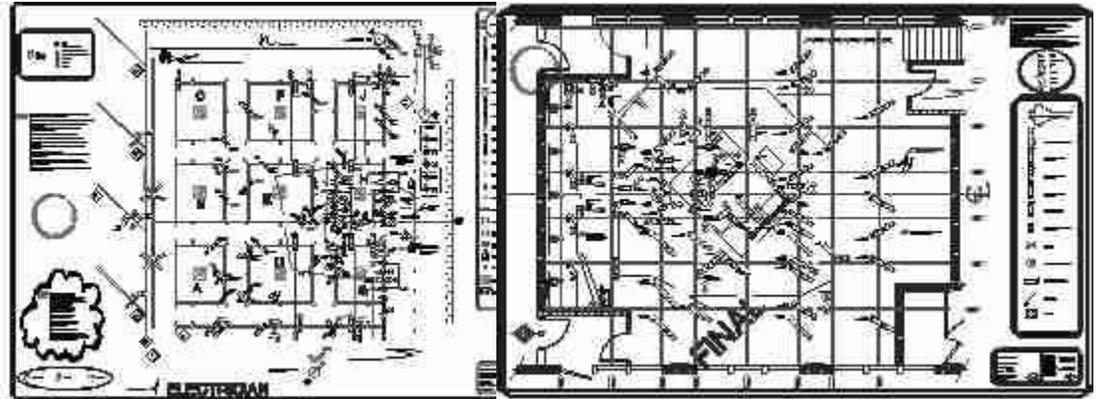


NUMBERING

Hanging positions which intersect centerline are numbered from the proscenium outward (in the case, of course, of a proscenium stage). For example:

- Front of House (FOH) positions are numbered or labeled from the position closest to the proscenium and progressing to the position farthest from the proscenium.
- Onstage electrics are numbered from downstage to upstage.
- Onstage booms are numbered from downstage to upstage.
- Box booms, booms, and other positions which do not intersect centerline are divided between stage left and stage right, with stage left listed first.

For examples of ways to number the hanging positions in a non-proscenium stage, click on these images:



In general, when numbering the positions in a non-proscenium space, or a proscenium space with an overhead pipe grid instead of conventional battens:

- Pipe grid positions should be designated by numbers on one axis of the grid and by letters on the other axis (See the example on the above right).
- Other unconventional mounting positions may be designated by compass points or numbering in a clockwise manner.
- As in the left-hand example above, grids with discrete "cells" or "bays" may have each such lettered or numbered.

Fixtures each receive a unique whole number. If a fixture has an accessory that alters the beam of an instrument, the accessory may or may not receive its own number (a good rule of thumb is that if the accessory requires its own power source or control channel [for example, color scrollers and automated irises], it should be numbered discretely). When fixtures are inserted between previously numbered fixtures, they are given the lower-numbered fixture's unit number with an additional letter (for example, "12a" or "36b"). Fixtures with multiple circuits, such as striplights and cyclorama lights, are assigned a letter with a corresponding number for each circuit (for example, "A1", "A2" and "A3" might be the numbers of a three-circuit striplight), while fixtures needing multiple control channels or attributes (such as moving lights or LED fixtures) are numbered with a whole number followed by a decimal point and number for each attribute (for example, if unit #24 is an LED fixture, "24.1" might be the red circuit, "24.2" might be the green circuit, "24.3" might be the blue circuit, etc.).

In general:

- Units mounted on hanging positions which are perpendicular to centerline (for example, overhead pipes or most FOH positions) are numbered from stage left to stage right.
- Units mounted on vertical hanging positions such as onstage booms or ladders are numbered from top to bottom, downstage to upstage.
- Fixtures mounted on FOH positions which are parallel to centerline should be

numbered beginning with the units nearest to plaster line.

Channel Assignment is, as much as anything, a matter of personal preference and convenience. You can, of course, just start with Channel #1 and number everything sequentially, but you may find it more convenient, in tech rehearsals, to "bundle" washes (and other channels which might all work together) so that each one starts with a "1", as in this example:

Wash	Channel #s
Cool Fronts	Channels 1-14
Warm Fronts	Channels 21-34
Cool Sides	Channels 41-48
Throne Special (Front)	Channel 51
Throne Special (Sides)	Channel 52
Throne Special (Back)	Channel 53

The important thing to remember is that channel assignment should be done in such a way as to be most convenient for you and the board operator.

SYMBOLS

Some guidelines to remember when drawing fixtures:

- The fixture symbols used on the light plot should approximate the scale size and shape of the fixtures and should be placed so that their locations reflect the fixtures' exact hanging points.
- Unless otherwise noted, the default spacing between typical fixed focus fixtures should be 18½", to allow sufficient clearance for focusing each unit.
- When symbols are placed with spacing other than the default 18", dimension lines or other measuring notations should be added between the symbols to indicate the distance.

- The fixtures may be drawn so as to face their focus points, or on 90i_c ½ axes.

Normally, each symbol is accompanied by the following information:

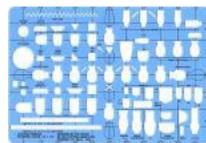
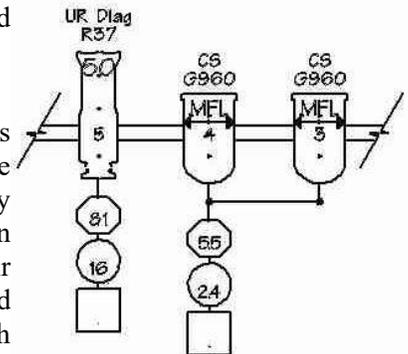
- Fixture number
- Indication of focal length or beam spread as part of the symbol (where appropriate)
- Indication of any accessories such as templates, irises, scrollers, top hats, barn doors, etc.
- Channel (or control designation), drawn inside a circle
- Axis notation for PAR lamps (which, remember, are usually oval-shaped)

Additional information may include:

- Focus (The point to which the fixture is to be aimed)
- Wattage
- Dimmer (drawn inside a square or rectangle) and/or circuit (drawn inside a hexagon) number (or space for the electrician to add this information during the hang)
- Indication of twofers
- Color notation
- Color notation for scrollers
- Template notation

Note that if the plot is overly busy and difficult to read, some of the above information may be omitted for the sake of clarity, but it should always be included in the instrument schedule, channel hookup, and other paperwork.

In the image to the right, fixtures #3 and #4 are twofered, as evidenced by the right-angled lines (with the dots in the corners, to indicate the legs of the twofer) linking them. They are Medium-Flood PAR56s (as indicated by the "MFL" in each fixture's nose), and are pointed center-stage, with their oval beams turned horizontally (note the double-headed arrows in the fixture noses). They are both colored with GAM960 and are plugged into circuit 55, and will be controlled by channel 24. The box for the dimmer information has been left blank for the electrician or assistant lighting designer to fill in at a later date.



When drafting by hand, as with the architects' scale mentioned above, there are specialized drafting tools, called "templates" that greatly simplify the drawing of symbols.

Examples of the most commonly-used lighting symbols can be downloaded from Jeffrey E. Salzberg's [web site](#).

You may be drawing your lighting plan by hand, or using a CAD (Computer Aided Drafting) program. The basic principles are the same, though the CAD programs may have shortcuts which will help with some of these stages. In any case you should understand the basic method.

I. Preparation

You will need:

- A. A scale plan of the set. This almost always includes architectural features of the stage as well: rear and side walls if they are close enough to be relevant, and the sides of the proscenium arch. However if you are given a plan of the set which does not include these, you will have to add them, to the same scale. The idea is to have a scale plan which includes all important physical features of the area you need to light.
- B. A ceiling plan of the theater. If the theater has a fixed grid this should be a plan of the grid. If it has electric pipes which are raised and lowered you will need to know where all the pipes are. The ceiling plan must be to scale; if it isn't, you will need to find out the exact locations of the lighting positions so that you will be able to add them to scale in your lighting plan. You will also need to know the exact height of all lighting positions.

If the theater has a fixed front of house bridge this information might be difficult to obtain, but you should try. In a properly designed theater the angle for front of house lighting is about 45 degrees but there are theaters which are not well designed and the angle might be steeper or shallower. If you can't get exact information, you might be able to turn on a fixture from the front of house bridge, and then you will be able to measure the size of area it covers. You can also measure the angle by drawing a section: Put a friend in the center of the light, and draw a stick figure to scale of the friend, and draw the beam of light on the floor: you will see the angle from the person's head to the shadow of their head.

- C. A list of lighting elements. You will have prepared this during rehearsal (see "[Two Approaches](#)" under "The Lighting Design Process") and probably revised it and cleaned it up, unifying some elements, adding others, following talks with the director and designer and further thought.

II. Drawing the Basic Setup

You need to align the set and theater plan with the ceiling. You won't need all the details that appear on these plans; for instance you will only need those parts of the set that are relevant for lighting (walls, doors) . You don't need to draw all the lighting pipes, you'll only be drawing the ones that you need. (*Jeff says: I find it helpful to draw even the unused pipes so as to provide greater clarity to the electricians.*) Section III describes how to decide on those. Some theater plans include all the lighting pipes marked out at the side of the plan, and you can then extend only those you need to the entire width of the plan.

You don't want to draw irrelevant information because eventually the plan will be crowded enough with necessary information.. If set and ceiling plans are not to the same scale, decide on the scale with which you want to work. In Europe customary scales are 1:24 cm (1 centimeter represents 24 cm) or 1:50 for larger stages. In the US a customary scale is 1/2":1' (half inch represents a foot) or 3/4":1'. (See "[Graphics](#)")

Start out by drawing the set line (curtain line) and center line. If either of your plans doesn't have a set line, you might draw the rear wall. The point is to make sure that the set and ceiling plans coincide, by aligning features that appear in both.

You do not need to draw all the details that appear in the set plan, but only those that will affect the way the lighting is hung. Your lighting plan is a guide for the electricians who hang the lights and should only include relevant information. This means that you'll probably need to draw any walls that appear in the set. However you won't need to draw all the furniture, for example, but only things that are directly relevant to positioning of light. For instance you might need a fixture to be hung exactly over the center of a table.

III. Turning Lighting Elements into Fixtures on a Plan

This is the hard part, though some CAD programs can make it easier. Your lighting element might be one special spotlighting an actor, or a large block of lights. For instance you might have a lighting element called "warm backlight: sun through window and spreading through the room." You've decided you want this to be made up of two different subelements: the lights indicating the actual sun from outside, and another element inside the room giving the feeling that it's sunlight from outside. Now you have a few decisions to make (some of these you've probably made already):

- A. What kind of lamp? You decide what kind of instrument you want for each of these. You might decide, for instance, that the sunlight from outside needs to be PAR Medium Floods (CP62) because you want a sharply directional yet diffused feeling. The light inside might be 2 KW Fresnels, to give a more uniform and diffuse effect.
- B. Color? All the sunlight fixtures don't necessarily have to have the same color; you might want those closer to the window to be yellower, for instance.
- C. Channel assignment. (In some cases, it might be better to save this till after doing section IV, placing the lamps on the plan.) Do you want all the lamps of this element to work together? This is generally a bad idea unless you have a limited amount of dimmers. (*Jeff notes: In this case, it's still a bad idea, but unavoidable.*) It's best to have as individual control as possible, on the other hand grouping things together can make it easier to design the lights. When doing the lighting cues, you will use the elements of light as your palette. That is, you will generally bring up elements or blocks of light rather than individual lighting units. In this example of sunlight, you would certainly want the light outside the window to be on a separate channel than the lights inside, because it has a different job, and also because it's a different kind of fixture. Then you might want the units close to the window to be on a different channel than those further away. You might want a separate channel for the downstage units, or for those which hit the scenery.
- D. Where to put them? This will be much easier to understand if someone can demonstrate it to you, the guide below is intended just to give you the idea in principle. Here are three examples:
 1. Easiest example: an actor is standing center stage and you want to light them from the front.

You are working in two dimensions: from above as a bird's eye view, which we will call the horizontal dimension, and from the side, which we call the vertical. Start by choosing a horizontal angle. In this case you have decided the actor should be lit directly from the front. On your ground plan mark a little X where the actor stands, and draw a line along your horizontal angle. In this example, your line will coincide with the center line: it will run from downstage, through the X and back upstage. On this line mark everything that it touches: front of stage, rear wall of set, etc.

Now draw a section. This is a vertical side view, where the floor of the stage will be along the line you have drawn on your ground plan. Obviously it should be to the same scale. Here you reproduce everything that intersects the line on your ground plan: the set with the window in it, the edge of the stage, furniture. This should also have a line at head height, and I generally add some stick figures with heads to represent people.

If your grid is at a fixed height, you put the grid in on top. Otherwise there will generally be a height at which you've decided to put your lighting pipes, due to considerations of scenery and masking, and you should lightly draw a line parallel to the floor at that height.

Now draw a line from the actor's head up towards the lighting grid or pipes, at the angle which you want to light. Supposing you are trying for a dramatic effect, and you know you want an angle slightly steeper than natural, say 60 degrees. This means there is a 60 degree angle between the line you are now drawing, and a line parallel to the floor but at the actor's head height. Your fixture will be along that line at grid height. Drop a perpendicular from your fixture to the floor. Now you know exactly at what distance from the actor, along your floor line, you will place the fixture.

You will have details for your fixture such as its beam angle, and you can actually draw the light emerging from the fixture. You will see from the drawing just how wide an area the light will hit. You will see how far it lights the floor behind the actor, etc. Based on this you might want to change your choice of fixture, or lighting angle, or decide you want barn doors, and so on.

Go back to your ground plan, measure that distance along the line you drew for your horizontal angle, and draw in the fixture. That is where it will be hung.

2. General front wash of the entire stage. First repeat the process of example (a) to find out how large an area your choice of fixture will give you. You can add fixtures to your section from example (a) until you have a side view of the entire acting area along the center line, and you can check the overlap between areas. Then mark out circles of this size on the ground plan, until the entire acting area (not just the center) is covered. Your section will give you the distance from fixture to area along the center, and you can just copy the same distances for all your areas. You might want to draw a special section for problematic areas, at the edge of the stage, or along pieces of scenery.
3. Sunlight. Suppose you want your sunlight to come along a diagonal from a window upstage right. Draw a line on your ground plan along this diagonal.

Now draw a section. As before, the floor of the section will be the line you have drawn along the diagonal on the ground plan, and you will include a side view, to scale, of everything which intersects this line.

Now it is time to decide on a vertical angle for your sunlight. You can sketch at first, trying to decide what angle you want the light to come from. Let's start with the light from outside. You can draw the light coming in through the window, and you will be able to see what distance and height the fixture will have to be hung in order for the light to reach in past the window. Since the drawing is to scale, you'll also see how far the light will reach on the floor, and whether it will be able to light people standing at the window. You will have the details of the fixture you've decided to use: you will know, for instance, the beam width of your PAR MFL, and you can actually draw the beam.

You'll want your next fixture to light someone further inside the room. This will have to be hung onstage of the set wall, and you can decide how steep you want the vertical angle to be. Since you know the beam width of this fixture too, the drawing will tell you how large an area this fixture will be able to light.

You can then reproduce this area along the entire line in your section. Say the onstage fixture lights an area around five feet in diameter. Draw another area further along the line, and place another fixture at the identical distance from the second area as your previous one has been from the first area. Repeat the procedure for the entire section.

Then you can go back to the ground plan, place the fixtures at the distances you have found on your section, and add more areas till you have covered the entire acting area.

It is **important to stress that we light actors' faces**, not the floor! That is, the area size is taken as the area where the light hits the actors at head height!

For all elements, you follow the same principle: decide on the horizontal angle from which you want to light the target, then decide on the vertical angle in a section. The section will give you information on the path of your lighting beam, and the distance and height at which it should be placed. Then return to the ground plan and draw the fixtures.

- E. Drawing the fixtures. Till now, you may have sketched your fixtures lightly on the plan. At this point you need to locate them precisely, and add details on channels, color etc. You also need to erase all the circles and lines you've used as temporary aids.

Your sketch from the previous step will probably not have all the fixtures along the same lines. You will need some compromise: if you have a grid, the lights will have to be moved to the grid. If you are using lighting pipes, you will can move the positions of your fixtures $i_6^{1/2}$ some a little forward, some a little back perhaps, so that they are on a reasonable amount of lighting pipes. Usually variation of about a foot does not make much difference.

In a theater with fixed front of house bridges, you don't need to draw the FOH positions to scale because there is no chance for misunderstanding, and no possibility to rig the front of house fixtures elsewhere.

Important: IF a particular position is really important, you can generally find a way to put a light there! If your section convinces you that you absolutely must have a fixture just between two grid points, you might be able to rig a short pipe on the grid so the fixture can be just at that point. It is rare that a fixture must absolutely be at a certain position, but not impossible. Constraints of scenery could lead to this, for instance.

Fixtures should be drawn to scale. Templates are available for most CAD programs (and Jeff has, on his website, a set of symbols which will work in most CAD packages), and when drawing by hand you can either get hold of a template or make your own. Drawing the fixture to scale protects you from hanging too many lamps on a pipe where it won't be physically possible to put them.

Fixtures should be drawn pointing in the general direction they are to light. Again, this will ensure that there is enough room to hang them properly, and hopefully they will indeed be rigged in that direction as they're drawn, which will save time when focusing. There are few things more annoying than beginning to focus and finding you have to turn the fixture around, or that there is not enough room to point it where you want it to go, because a neighboring fixture is in the way.

Every fixture has additional information: its channel number and its gel (color filter), and — depending on the theater — its dimmer number and perhaps a socket or circuit number as well. In some situations the chief electrician will add this information as the lamps are rigged. The

designer must indicate channel number and color. These should be marked in a consistent position. For instance channel number could be within the drawing of the fixture, and color filter number could be next to the lens.

- F. Legend: Your plan must have a legend, labeling the fixtures you have used, so that it will be clear that the drawing with the jagged edge is a 1 KW Fresnel, the drawing with jagged edge and two lines at the bottom is a 2KW Fresnel, and so on. Your legend should a fixture with a channel number and color filter number drawn (and dimmer number if that appears too), so that it will be clear what these represent on the plan.
- G. Label: Labels vary, but your plan must be labeled with the name of the play and theater, with your own name, with the date, and with the scale used. It is customary to add the director's name as well. I also add my phone number, in case I'm not present when the lighting is being rigged and it's necessary to get in touch with me.

Paper Work

DATABASE S AND REPORTS

Most stage lighting paperwork consists of a database with all relevant information about the light plot and the fixtures it contains, along with the various formats for reporting and organizing that information. The purpose of this database is threefold:

- It serves a guide during the initial hang and focus. In most cases, the paperwork has much more information than could possibly be noted on the plot; ½ the plot would be so cluttered that it would be difficult to read.
- It serves as a reference when trouble-shooting problems. For this reason, it must be kept up-to-date as changes are made during the hang and focus and during rehearsals. This is usually part of the Assistant Lighting Designer's job.
- It serves as a record should it be necessary to revive or otherwise recreate the production.

At a minimum, the paperwork database should always contain the following information for each fixture:

- Channel#
- Dimmer#
- Circuit# or Name
- Fixture# (or Unit #)
- Type of Fixture
- Wattage
- Purpose (such as "chair special" or "Area I")
- Accessories (if any)
- Color

It may, of course, contain other information as well, at the designer's discretion.

The paperwork is usually printed out in various report formats. These include:

- Channel Hookup: Data are arranged in order, by channels. A typical (but not the only) situation in which this report is helpful is the channel check run by

the electrician and/or stage management before each performance.

TRF **peccadillo** THEATRE COMPANY **Room Service – Soho Playhouse** Page 1
CHANNEL HOOKUP 06 Apr 2009 14:04
 Dan Wackerman, Director Jeffrey E. Salzberg, Lighting Designer
 Soho Playhouse 917/ [REDACTED] – 201 [REDACTED]
 New York, NY jeff@jeffsalzberg.com

Channel	Grp	Dim	Position	U#	Type & Accessories & Watts	Purpose	Chr+T	Ckt+#
(1)	1		#3 FOH	3	4½x6½ Altman 360Q 500w	Area I	R3314+R0132	
	"		#2 Box Boom SL	1	4½x6½ Altman 360Qw/18" SIDEARMw/2' PIPE EXTENSION 500w	"	R0033	
(2)	2		Electric A	1	4½x6½ Altman 360Q 500w	Area II	R3314+R0132	
	"		Electric B	"	"	"	R0033+R0132	
(3)	3		#3 FOH	1	4½x6½ Altman 360Q 500w	Area III	R0033+R0132	
	"		#2 Box Boom SR	"	4½x6½ Altman 360Qw/18" SIDEARMw/2' PIPE EXTENSION 500w	"	R3314+R0132	
(4)	4		#1 FOH	1	4½x6½ Altman 360Q 500w	Area IV	R0033+R0132	

- Instrument Schedule: The data are arranged in order of hanging position. Used mostly during hang and focus, and for trouble-shooting afterwards.

TRF **peccadillo** THEATRE COMPANY **Room Service – Soho Playhouse** Page 1
INSTRUMENT SCHEDULE 23 Feb 2007 12:45
 Dan Wackerman, Director Jeffrey E. Salzberg, Lighting Designer
 Soho Playhouse 917/ [REDACTED] – 201 [REDACTED]
 New York, NY jeff@jeffsalzberg.com

#3 FOH

U#	Purpose	Type & Accessories	Watts	Color & Tmp	Chn	Dim	Ckt+#	Comment
1	Area III	4½x6½ Altman 360Q	500w	R0033+R0132	(3)	3		
2	Phone	4½x6½ Altman 360Q	500w	R3314	(43)	30		
3	Area I	4½x6½ Altman 360Q	500w	R3314+R0132	(1)	1		

#2 FOH

U#	Purpose	Type & Accessories	Watts	Color & Tmp	Chn	Dim	Ckt+#	Comment
1	Worklight	TBA	500w	N/C	(150)	46		
2	DR Door	4½x6½ Altman 360Q	500w	R3314	(36)	28		
3	Closest Door	4½x6½ Altman 360Q	500w	R3314	(35)	27		
4	Worklight	TBA	500w	N/C	(150)	46		

- Dimmer Schedule: Arranged in order of dimmer. ("Hey Jeff! Dimmer 23's blown! Into what dimmer can I move this circuit?" [My electricians are **always** grammatically correct. They even follow rules of grammar which are not, technically, rules of grammar.])

THE peccadillo		Room Service – Soho Playhouse				Page 1	
THEATRE COMPANY		DIMMER HOOKUP				06 Apr 2009	
Dan Wackerman, Director Soho Playhouse New York, NY		Jeffrey E. Satzberg, Lighting Designer 011-212-240-3100 jeff@jeffsatzberg.com				14:04	
Dimmer	Chn	Position	U#	Type & Accessories & Watts	Purpose	Color & Trnp	Ckt+#
1	(1)	#3 FOH	3	4½x6½ Altman 360Q 500w	Area I	R3314+	R0132
	"	#2 Box Boom SL	1	4½x6½ Altman 360Qw/18" SIDEARMw/2' PIPE EXTENSION 500w	"	R0033	
Total Load: 1kw							
2	(2)	Electric A	1	4½x6½ Altman 360Q 500w	Area II	R3314+	R0132
	"	Electric B	"	"	"	R0033+	R0132
Total Load: 1kw							
3	(3)	#3 FOH	1	4½x6½ Altman 360Q 500w	Area III	R0033+	R0132
	"	#2 Box Boom SR	"	4½x6½ Altman 360Qw/18" SIDEARMw/2' PIPE EXTENSION 500w	"	R3314+	R0132
Total Load: 1kw							
4	(4)	#1 FOH	1	4½x6½ Altman 360Q 500w	Area IV	R0033+	R0132

- Circuit Schedule: Serves the same purpose for circuits that the Dimmer Schedule serves for dimmers.

Some designers find it helpful to color-code their reports, as in the above graphics, so as to make it easier to quickly locate the one that's needed. In addition to the ones listed above other formats might include template schedules, accessory schedules, color schedules, etc.

The header of each report should include the following information:

- Name of the producer or producing organization
- Name of the production
- Venue name and location
- Title of report (Such as "Instrument Schedule" or "Channel Hookup")
- Page number (For example, "#1 of 2"). Alternately, this may be at the bottom of the page.
- The date the report was generated.
- Designer's name and title

It may also include:

- Director's name
- Assistant Lighting Designer and/or Master Electrician.
- Contact information such as telephone numbers and email addresses.
- An identifying graphic. This is particularly helpful to designers and electricians who may be working on multiple productions simultaneously, as it helps to quickly identify the correct paperwork; it may keep you from showing up for the hang of *Death of a Salesman* and discovering that you've brought the paperwork for *Swan Lake*.

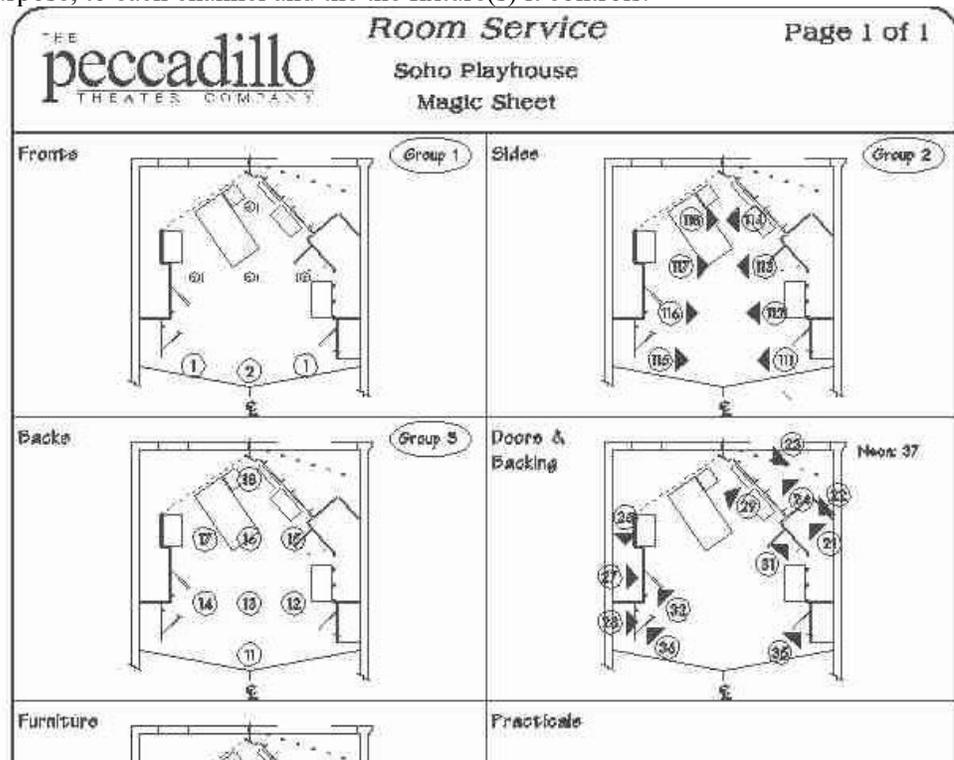
There are several methods of generating these reports. By far the most frequently-used in professional and academic theatre is *Lightwright*®, a lighting specific database program written by John McKernon. It is available for MacIntosh and Windows (and

can be made to run over Linux)and is the closest thing we have to an industry standard. The above examples were generated with Lightwright. There are other lighting database packages available and, of course, one can use a general purpose database such as Paradox or Access as well as spreadsheets and word processors. The reports can also be written by hand:

Production: <u>Quartermaine's Terms</u>								Instrument Schedule		
Company: <u>Cathedral Stage Company</u>								Date: <u>January, 2009</u>		
Position	#	Instrument Type	Watts	Purpose	Color	Template	Chnl	Dew	Chn	Notes
Booth Rail	1	360Q 6x22	1kw	Stage Left	L151		8	42		
	2	360Q 6x22	1kw	Stage Right	L151		8	42		
Eql Electric	1	20 Shkopre	600	Area IV	F5515	G579	4	22		
	2	20 Shkopre	600	Area V	F5515	G579	8	25		
	3	20 Shkopre	600	Area VI	F5515	G579	8	24		

MAGIC SHEETS

A magic sheet (sometimes referred to as a "cheat sheet") is a quick reference, usually only one or two pages long, giving the lighting designer quick visual access, sorted by purpose, to each channel and the the fixture(s) it controls.



As you can see from the above example, the front light for the DL area was controlled by channel 1 and the backlight for UC was in channel 18.

Since the magic sheet gets handled a great deal during the technical rehearsal period, it is a good idea to print/draw it on card stock rather than on paper.