

### Topic 043

#### The Lighting Designer's Skills

Lighting designers need a variety of skills, many of them pertinent to other professions

**1. Electrical engineer**

- a. The designer needs to understand physics and electronics

**2. Optical engineer**

- a. The designer needs to understand the principles of optics and light to use light effectively for artistic purposes

**3. Computer programmer**

- a. The designer needs computer literacy to program sophisticated automated lighting instruments and control boards effectively

**4. Display designer**

- a. Both use the controllable qualities of light to focus attention on important elements

**5. Visual artist**

- a. Expresses ideas through visual means – drawings, renderings, scale draftings

**6. Electrician**

- a. The designer must know what each instrument can do, the types of lamps, electrical cable, and connectors that are needed, where instruments are to be mounted and plugged in, and a host of other details

**7. Social and cultural historian**

- a. The designer must know what role light played in various periods in the past
- b. Be aware of what illuminants (candles, oil, torches, etc) were available, how each was used, and what qualities of light each generated
- c. The designer needs to know the conventions that governed stage lighting in each period

**8. Stage director**

- a. The designer must keep in mind and unify the entire stage picture
- b. Must be attuned to the overall needs of each scene as it develops moment by moment

#### The Lighting Designer's Working Procedures

There is no standard approach to the design of lighting

- What they light is designed by others and frequently they must adjust their work to enhance that of others

- They cannot make firm decisions about placement and direction of lighting instruments until the scene design is agreed upon and the movement pattern of the actors is established
- Firm decisions regarding color usually are not made until the costume and scene designers have made their decisions - each designer's work impacts the others

Lighting designers should be able to convey their ideas about how the stage should look during performances. They often create:

- Value sketches - emphasize mood, atmosphere, light and shadow
- A lighting score - breaks the play into scenes or units and indicates in a diagram the time of day, source of light, overall brightness, the desired mood, color, etc.
- Computer simulations - show how the production will look when lighted

Lighting designers usually attend several rehearsals to become familiar with the movement patterns and to understand the director's intentions

- They may try out their ideas in a lighting lab
- They usually do not arrive at fully developed designs until shortly before the instruments are to be hung and focused

### **Organizing the Distribution of Light**

Lighting designers use two primary working plans to organize the distribution of light

- Light plots
- Instrument schedules

Light plots can be divided into two types

- A floor plan plot
- A scale drawing from a top view of the stage, setting and auditorium
- This plot indicates the type, size, position and focus of each instrument – shows horizontal placement of the instruments

Vertical sections

- Scale drawing from a side view of the stage, scenery and auditorium
- Shows the trim height of all the battens, the lighting positions in front of the proscenium, the vertical placement of any instruments on vertical standing pipes and the instruments' beam angles
- Light plots specify what instruments are to be used and where each will be mounted

Lighting plots also take into consideration the 3 principal types of stage lighting:

- Specific illumination
- General illumination
- Special effects

Specific illumination is confined to a limited area

- Used principally for the acting areas
- Spot lights are the principal source of specific illumination
- They combine a reflector with a lens to help concentrate the beam of light
- A single spotlight can only illuminate a small segment of the stage
- Lighting designers generally divide the stage into small areas, and focus several instruments to illuminate each area

Where instruments are mounted to achieve desired distribution depends in part on the type of stage

For the proscenium stage lights typically are:

- i. Mounted in the auditorium to light the front of the stage
- ii. Mounted over the stage on battens
- iii. Mounted at the side of the stage on vertical pipes
- iv. Mounted on stands or on the floor

For the thrust stage lights typically are:

- v. Mounted above the acting area and audience
- vi. Mounted on vertical pipes out of sightlines

For the arena stage lights typically are:

- vii. Mounted above the acting area and audience

For the flexible stage lights may be mounted almost anywhere

General illumination

Spreads over a much larger area than specific illumination

Serves three functions on the proscenium stage:

- Lights the background elements (cyclorama, ground rows, drops)

- Blends acting areas and provides a smooth transition from the acting areas to the background
- Enhances or modifies the color of settings and costumes

Cannot be confined to a small area, but its direction can be controlled

- Footlights – point upward and backward
- Borderlights – point down or to the side

Striplights and floodlights are the primary sources of general illumination

- These contain a reflector, but no lens to concentrate the light
- Plays a minor role in arena stages, as there is no background to light
- May play a larger role in thrust stages
- For a flexible stage, all the illumination may be general

Special effects

- Out-of-the-ordinary demands such as projections, fires, fog, bright rays of sunlight, etc.
- In making light plots, the designer considers each type of instrument separately and then as a part of the whole
- After the light plots are complete, an instrument schedule is made

A chart that lists for each lighting instrument:

- Its specifications
- Mounting position
- Color filter
- Focus
- Circuit into which it is plugged
- Dimmer to which it is connected

There is a wide array of lighting instruments available to the lighting designer

- Ellipsoidals and fresnels
- Both are considered spotlights, but they have different lenses which produce different qualities of light
- The type of reflector also alters the properties of light the instrument emits

Lighting designers must understand the basic properties of each type of lighting instrument in order to select the proper instrument to create the effect they wish.

In addition to spotlights and floodlights, there are also a variety of projectors and “intelligent” instruments available

Numerous accessories can shape the pattern of light and shadow

Gobos (etched metal or glass filters) selectively block some light from reaching the stage

### **Setting the Lights, Rehearsals, and Performances**

The tasks required to set the lights are reasonably standard

- Using the light plot and instrument schedule, the master electrician and assistants mount each instrument, direct it toward the stage area specified, may add a color filter or gobo, plug it in to the proper circuit and then connect it to the proper dimmer.
- To expedite these procedures, a number of aids may be used to avoid the need to refer constantly to light plots and instrument schedules
  
- Each instrument’s information is put on a piece of tape at its mounting position
- Each batten’s information may be placed on a separate card
- Although the work may be done by others, the lighting designer is typically available to answer questions or to clarify plans
- Setting and focusing the instruments can be time consuming and sometimes disheartening because it is difficult to confine light precisely

Cue sheets must also be made

They indicate, moment by moment, which dimmers are to be used and the setting of each

- Sometimes designers will create a cue synopsis
- A listing of each cue, its effect, and how it is created

The cue sheets become the basis for controlling the lights during the performance

Lighting is usually integrated with the other elements for the first time during technical rehearsals

- This is a crucial time for the lighting designer because many of the decisions that determine the final design are not made until these rehearsals
- Lighting may need to compensate for other aspects of the production
- Designers often condense their light plot organization into a “magic sheet” or “cheat sheet”

These sheets serve as a reminder of where the lights are positioned and how they are controlled

- They indicates dimmer, channel, color and focus of each instrument
- A magic sheet provides this information in a graphic format
- A cheat sheet provides this information in an alpha-numerical arrangement