

Topic 058

Single source Methods

A designer may wish to light an entire stage with a single source of light as the sun or moon lights the earth, causing strongly motivated directional lighting, with a single shadow. This is seldom practical however for a number of reasons.

First, there are very few high-power lighting fixtures that are capable of lighting an entire stage. Typically a fixture of 10,000 watts or more would be required to provide the lighting to a small stage area.

Second, a single large fixture would be quite uncontrollable and would not only illuminate the acting area, but also the surrounding stage, wings and perhaps even some of the audience.

Third, for true single (point) source lighting to 'work', the source must be a great distance away. This is seldom possible in most theatre facilities.

In nature the point source of light is a great distance away. Assume the sun to be a lighting fixture and move say 25 feet 'away'. The drop-off of light is not noticeable. You have hardly moved away from the source at all. Now imagine a single stage lighting fixture, say 100 feet from the stage. An actor might move back 25 from the source. He has now moved a much greater distance in relationship to the source and the drop-off of light will be very noticeable. This is due to the inverse square law nature of light. The further the distance from the source, the more rapidly lighting levels drop. It is generally not possible to find appropriate mounting locations in most theatres for single source lighting and as a result, multi-fixture techniques are typically used instead.

There is also an important lighting concept that relates the size of a source to the sharpness of its shadow. In general, the smaller the source, the harder the shadow. Conversely, the larger the source, the softer the shadow. For example, at the same distance a lighting fixture with a 6 inch diameter lens will produce a harder shadow than a fixture with a 36 inch source diameter (such as a: scoop, light box or box flood). Also as the distance to the source is made to increase, the hardness of the shadow will increase.

Although lighting an entire stage production with a single source of light is usually not practical, single source lighting does have its uses. Often it is possible to use a single source of light when highly dramatic, stylized or 'effect' lighting is required for a specific scene. It is possible to light an entire scene from a single source such as the light from a table lamp or from an open refrigerator door however it is important to note that the audience can often tire easily of this.