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Curtains

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StageLight Inc.



Winter, 2001

this issue:

- Fixture basics
- Ellipsoidals
- Fresnels
- Accessories for your fixtures

StageLight, Houston is a full service stage and studio equipment supplier, specializing in renovations for school theatres, churches, PAC's, and other entertainment venues.

We have factory trained technicians on staff for repair work and offer 24/7 emergency service.

StageLight's rental inventory includes equipment from leading theatrical lighting vendors including ETC, Strand and High End Systems.

We are the Southwest's leading stocking distributor of lighting and scene shop supplies.

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Now is the time to consider replacing or upgrading your fixture inventory

StageLight is offering great prices on popular fixtures for the NEW YEAR

StageLight is pleased to offer this promotion and guide "How to Select Lighting Instruments". This is the second "How to..." guide in a series we are developing. Many of you received last January the first guide entitled "How to Replace your Stage Curtains." It is our intention to develop additional guides for: Followspots, Special Effects, Control Consoles, Portable Systems, and Hardware. All of these guides will provide you with the basic information you need to make an informed decision. We will also include an easy means for you to contact us for further information, quotations, or pricing. Each of these publications will be posted on our WEB site at www.stagelight.com in case you want to go back and print a new copy for yourself. Just look under "How to..." Guides. If you know of any colleagues who might want to be added to our mailing list to receive these guides, please let us know.

The best reason for replacing your lighting instruments or buying additional ones is that it will make the biggest difference to your productions for the least cost. A number of advances in the design of lighting fixtures have occurred in the last 5 years. Extensive changes have been made in reflectors, lenses, lamps, and shuttering systems. Consequently, brighter more versatile fixtures are available that use less power than older instruments. These improved fixtures have enabled more fixtures to be used on individual circuits which has breathed new life into theatres with limited stage circuiting.

SAVE ON FIXTURES with StageLight's Complete Kit Pricing

How Complete Kit Pricing works

Manufacturers ship lighting fixtures with some things included and some things optional. For instance a Source Four ellipsoidal ships with a "C" clamp and a color frame but no plug and no lamp. This wouldn't be so bad except that a different manufacturer may include an edison plug or stage pin plug but leave out the color frame. It can be very confusing and expensive. A company may tell you that they sell a par can for \$40 but when you pick it up and discover it has no lamp, plug or clamp that \$40 fixture suddenly becomes \$85. To eliminate this confusion and save you money we offer the Complete Kit price. The Complete Kit Price means the price includes everything you need to take a fixture out of the box, put in the lamp, hang, and safety your fixture. Use StageLight's Complete Kit pricing and receive 20 to 30% off MSRP.

To help you select the right fixture for your theatre we have prepared this guide. Inside you will find commentary and helpful information to make your job easier. After you have read the information, please use the quotation request and fax it to our office. Be sure you include a phone number, fax number, and e-mail so we can contact you with any questions.

We look forward to working with you!

Which ellipsoidal do I need?

To answer this question, you must be able to measure the distance between the fixtures location in the theatre and the object it is focused on. Moreover, to provide generally flexible lighting areas, it is most helpful to be able to create beams of light between 8' and 14' across. The chart below should help you do this.

Ellipsoidal fixtures distinguish themselves by the degree of the beam spread. As a rule, the larger the degree of the fixture, the wider the beam of light is produced. For example a 50 degree



ETC
Source Four
Ellipsoidal

Source Four placed 20 feet from the stage produces an 18.6 foot circle of light. A 26 degree Source Four placed at the same distance produces only an 8.8 foot circle of light.

Step 1: Measure the distance between where the fixture will be placed and the object the fixture is lighting. Remember that you are not measuring the distance to the stage floor. In most cases you are measuring to a person's head, which is roughly 6' above the stage.

*see illustration 1 on next page for help with a section view

Step 2: Using the chart below cross reference your measured distance with those fixtures that produce beams of light between 8 feet and 14 feet across for area lighting. The chart will then cross reference a recommended fixture degree.

Step 3: Often you will find more than one degree might be appropriate. In these cases, select a fixture closest to the middle part of the 8 foot to 14 foot range.



Strand SL
Coolbeam 10°
Ellipsoidal

Short and medium throw fixtures

throw in feet	10'	15'	20'	25'	30'	35'	40'	50'	60'	70'	80'
ETC 450	9.31	13.95	18.6	23.25	NA	NA	NA	NA	NA	NA	NA
SL 50	9.31	13.95	18.6	23.25	NA	NA	NA	NA	NA	NA	NA
Numbers represent diameter of the field angle. Numbers highlighted are optimal beam for throw.											
ETC 436	6.1	9.15	12.2	15.25	18.3	21.35	NA	NA	NA	NA	NA
SL 36	6.41	9.61	12.8	16	19.2	22.4	NA	NA	NA	NA	NA
ETC 426	NA	6.61	8.8	11	13.2	15.4	17.6	22	NA	NA	NA
SL 26	NA	6.91	9.2	11.5	13.8	16.1	18.4	23	NA	NA	NA
ETC 419	NA	NA	NA	7.51	9	10.5	12	15	18	21	NA
SL 419	NA	NA	NA	8	9.61	11.2	12.8	16	19.2	22.4	NA

Long throw fixtures

throw in feet	40'	45'	50'	60'	70'	80'	90'	100'	110'	120'	130'
ETC 410	6.81	7.651	8.51	10.2	11.9	13.6	15.3	17	18.7	20.4	22.1
SL 10	6.81	7.651	8.51	10.2	11.9	13.6	15.3	17	18.7	20.4	22.1
Numbers represent diameter of the field angle. Numbers highlighted are optimal beam for throw.											
ETC 405	NA	NA	NA	7.2	8.41	9.61	10.8	12	13.2	14.4	15.6
SL 5	NA	NA	NA	NA	6.31	7.2	8.1	9	9.91	10.8	11.7

NA = Not Appropriate

*The data used above is taken from the Manufacture's data or specification sheets.

Keep in mind that other factors can affect the selection of the most appropriate ellipsoidal for your theatre. The number of available dimmers and the capacity of these dimmers has a big impact. The size of your stage also impacts the selection of appropriate fixtures. If you have any questions at all about what is most appropriate for your stage, please give us a call and we can discuss it with you. When you call, be sure to have your stage measurements with you as well the number and type of dimmers in your theatre.

Basic Lighting Design Principles

Breaking the stage up into lighting areas

To light the stage properly, you must first break the stage into manageable lighting areas. For general lighting purposes the optimum area light is 8 to 14 feet in diameter. Each area should have a minimum of two fixtures to provide two color mixing from a given direction. To find out how many lighting areas are needed for a full stage wash in your theatre, measure the width and depth of your stage. Divide each number by a typical lighting area (roughly 10-11 feet), and the resulting number will indicate the number of lighting areas you will need. For example, if your proscenium arch is 50 feet wide, you will need about 5 lighting areas wide to evenly wash it. If the depth of your stage is 30 feet then you will need about 3 lighting areas deep. In this example a total of 15 lighting areas would be needed to wash this stage.

In order to provide even lighting across your stage, you must overlap these lighting areas by blending the adjacent field angles of the instruments. (For a definition and example of Field Angle please see below) Creating a good stage wash is the result of careful planning of the hanging positions and the fixture

Illustration of overlapping field angles on two stage areas

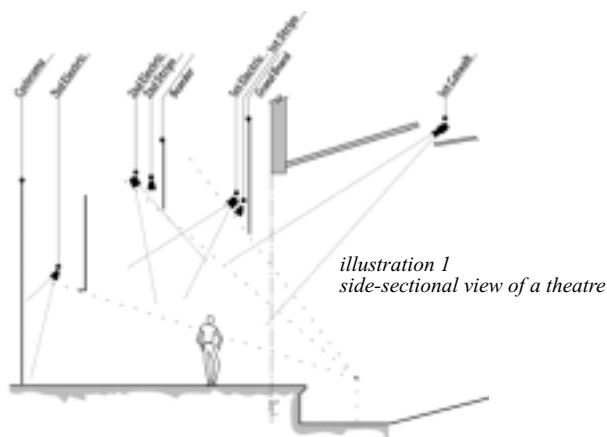


* For a more comprehensive source of data, you may want to consider getting the Photometric Handbook available from StageLight for \$20 which compiles this data for many manufacturers into a single publication.

selection. If the areas are too far apart, you get dark holes between lighting areas. If they are too close together, you run the risk of running out of dimmers or creating a lighting plot for which it is too difficult to write cues.

Using these basics as a starting point you can look at the data provided by fixture manufacture's (called photometric data) to determine which fixture is appropriate for your application. On the facing page you will find some of the photometric data of the most commonly used fixtures in the theatre*. With this data you can then determine which fixtures will cover a basic stage area at your theatre based on the available hanging positions. It is helpful to have both a ground plan and section view (see above) of your theatre and some graph paper and scale rule to determine your lighting distances.

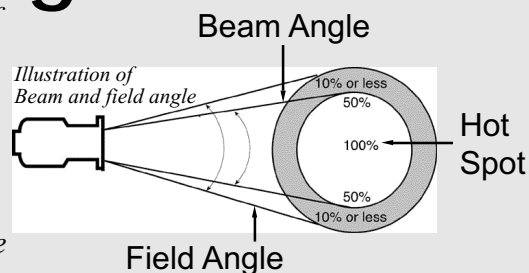
(**TIP:** Keep in mind that since the center of the stage is the most "powerful" it is always preferable to have an odd number of lighting areas so that the center stage position can always be isolated.)



Anatomy of a beam of light

Beam Angle: A term that describes the center portion or "hot spot" of a beam of light where the light intensity does not drop below 50% of the maximum intensity.

Field Angle: A term that describes the "whole beam of light." More precisely, a field angle is that portion of the cone of light where the light intensity does not drop below 10% of the maximum intensity. The more standard measurement is the field angle.



Which fresnel do I need?

The fresnel is a much easier fixture to select in many ways. For theatrical stage use there are 6" and 8" units. By changing the spot and flood focus of a fresnel, you cover a wide range of degree settings, so degree spread is not the most important factor. More important is how it is constructed.

The 6" fresnels we are recommending can handle lamps up to 1,000 watts and are made of cast aluminum. There are less expensive fresnels on the market, however they are typically made of rolled sheet metal and not rated for 1,000

watts. The units StageLight recommends also have a much easier way to change focus positions via a single focus handle at the rear of the fixture. Less expensive units have a thumb screw on the bottom of the fixture directly connected to the base. In addition to the above information here are some other steps to help you select which fresnel is right for your space.

Step 1: When selecting a fresnel, it is important to know the typical height of your over stage lighting positions. A scale ruler and a section view of your theatre are helpful for this (see illustration 1



*Altman 1KAF
6" Fresnel*

inside). If the fixtures are to be mounted at a height of 18 feet or less above the stage, the 6" fresnel would make the most sense. If your lighting position is 20 feet or more in height, you may want to consider the 8" fresnel which can handle lamps up to 2,000 watts. Fresnels may be hung on pipes that move, therefore, you may have to cover a range of heights. Remember that you are not measuring the distance to the stage floor. In most cases you are measuring to a person's head which is roughly 6' above the stage.

Step 2: After determining which fresnel you need next consider what wattage lamp to use in your fixture. Most fresnels will take up to three or more different wattages. Again consider the hanging height, use the stronger lamp selections if you are at the higher end of one of the above ranges. Also consider what fixtures you are using from front of house positions. If you are in a small space using older ellipsoidal models you can get away with a lower wattage lamp for your fresnel. If you are in a bigger space, and/or you are already using some of the 575watt fixtures in this guide lamps request the higher wattage lamps for the fresnel.



*Strand
Fresnelite
6" Fresnel*



*Strand
Fresnelite
8" Fresnel*

NEXT

Look for the next **How 2** brochure in Spring 2001 – Followspots
Be sure to ask for the
How 2 Curtain replacement brochure

