

Laying out and setting up a lighting grid

Effective lighting layout relies on positioning as much as on the fixtures itself. **John Black** shares the critical knowledge you need to know

IN THE PREVIOUS ISSUE, WE looked at the features and benefits of each type of lighting fixture, and at some examples of how each could be used to achieve certain looks. Now we are going to look at how you can lay out those fixtures in a lighting grid that will enable you to achieve your lighting goals. In the theatre world, this is referred to as the distribution of fixtures – choices made as to the direction from which the light illuminates a subject.

There are several different situations you may encounter when approaching the layout of your lighting grid. It may be that you are in a facility that already has permanently installed lighting positions distributed around the auditorium. All the circuitry and hanging locations may be fixed, dictating where you can place fixtures, yet having all the power and data cable distribution available all the time. Alternatively, you could be in a facility that is equipped with rigging attachment points and temporary lighting positions flown using chain hoists and truss according to the lighting needs from event to event. The power and control cables to fixtures may have to be run each time the rig is set up, but you have the flexibility of where you place fixtures. Finally, you could be in a facility that utilises both permanent positions and temporarily flown positions, allowing you the benefits of both setups.

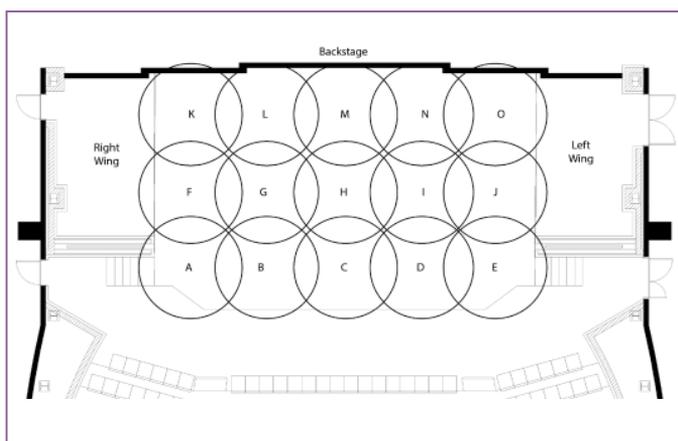
In any of these situations you will need to make choices as to the distribution of your fixtures. While there is no single 'right' way to distribute your fixtures and light a stage, there are a lot of resources and theories that can guide you towards achieving a well-lit stage.

Stanley McCandless

Having published *A Method of Lighting the Stage* and *A Syllabus of Stage Lighting* in the 1930s, Stanley McCandless is considered the father of lighting design and his method – the McCandless Method – is still one of the most popular theories on



Using front-lighting to create a connection with the congregation



Lighting areas defined on a stage plot

lighting design and the process of distributing fixtures.

McCandless' theory divided the stage into smaller areas to be lit, all between 1.8m to 3.6m in diameter. Each lighting area is then lit by two fixtures from the front, each of which are positioned 45-degrees above and 45-degrees to the sides of the centre

of the area to be lit. This is known as front lighting. A third light is then placed behind or high overhead the subject and is known as back lighting.

Consider for a moment placing a single light directly in front of a subject. The result is that the subject will appear flat and two dimensional because all natural shadows are

washed out. McCandless' goal was to more closely mirror lighting as observed in the real world. Using McCandless' method of two front lights positioned at an angle, natural shadows that define features and provide modelling will still exist and help provide three-dimensionality to the subject. Each of these front lights would have colour applied – one warm colour and one cool colour – that would blend together to provide natural lighting. With the addition of a backlight, the subject is given further modelling and will 'pop' out of the background more.

To lay out the lighting grid using the McCandless Method, these three lighting positions will be applied to each of the lighting areas. If your stage is divided into six lighting areas for instance, you would plan on 18 lighting fixtures to light the entire stage area. Also referred to as 3-point lighting, this method is lighting distribution at its most basic. It provides good lighting coverage that appears natural and



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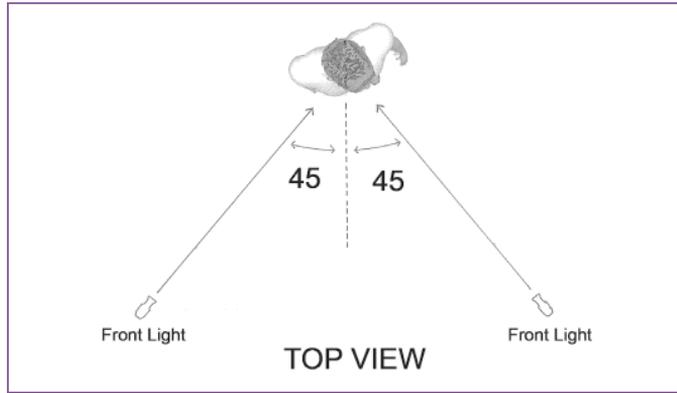
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provides modelling over the entire acting area, but it does not take into consideration the lighting of backdrops, scenery, or other specialised lighting needs.

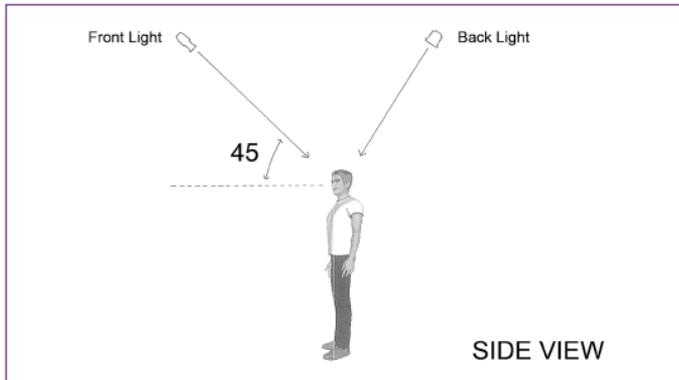
McCandless applied today

Before thinking to yourself that the McCandless Method doesn't have anything to do with lighting in a house of worship setting, let's look at how it is still applied today. Many worship facilities utilise video recording, streaming, broadcast, and/or image magnification (IMAG), all of which benefit from lighting techniques with ties to Stanley McCandless. This can be seen through the concepts of key light, fill light, and back light, all of which are



A top view of front lighting from a three-point configuration

visibility is often one of the most important considerations in lighting design in houses of worship. Also, worship staging typically doesn't have extreme scenic changes – backgrounds, backdrops, and band



A side view of a front three-point lighting configuration

commonly used and understood terms with photographers and videographers.

The key light is the main light used on a subject and is often the brightest. As the dominant front light, it is often placed at a 45-degree angle to the camera, though different positions can be used creatively to produce certain effects. The fill light is the second front light and is used to fill in some of the dark shadows created by the key light. It should not be as bright as the key light and create additional shadows, but rather just soften the contrasts while allowing some shadowing for modelling. Finally, the backlight creates a glowing edge around the subject and pulls the subject out from the background, further ensuring that the subject doesn't appear flat.

Building on the McCandless Method, many designers utilise larger lighting layouts using 4-point and 5-point lighting methods. Of course, this means even larger fixture quantities are needed, but is argued to result in even more realistic lighting results.

Subject visibility

The reason I began with the McCandless Method is that subject

setups may change, but often speakers and the use of the presentation space remains the same. Therefore, once a good lighting layout for primary lighting is setup, it generally can stay that way for long periods of time.

You can begin using a scale drawing of your facility, or if one doesn't exist you can physically tape out the stage into your lighting areas – each of which should be between 1.8m to 3.6m in diameter. These will be the areas for which you will plan the positions of your lighting fixtures. Starting with the two front lights, locate a lighting position at roughly a 45-degree vertical angle and at 45-degrees to the left and right of the centre of your lighting area. These will be your two front lighting positions. Ellipsoidal spotlights are the most commonly selected fixtures to use as front lights, and the lens degree most suitable to your specific situation will vary depending on the throw distance between the lighting fixture and the lighting area.

Next locate the position of your backlight. It will be centred with the middle of the lighting area and positioned on a steep angle from behind or high above. Backlight fixtures are often Fresnels, par/flood fixtures,

or LED wash fixtures and often are also used as a colour wash on the stage. One consideration for backlight fixtures is that you may want to prevent the ability for the audience or cameras to see into the lens of the fixtures as it can be uncomfortable to the eyes or create lens flares (though this can also be an intentional, creative effect). To avoid this, make sure that the backlight is either at a very steep angle, hung very high above the stage, or use barn doors to mask off the visible part of the fixture lens.

You will need to go through this process for each of your lighting areas to create a uniformly lit stage using this 3-point lighting method. If you are working in a facility that has had a lighting designer involved in the design process, chances are you will find these positions easily. If positions at these angles aren't possible, don't worry – find positions that are as close to them as you can and use those. Many facilities are less than ideal when

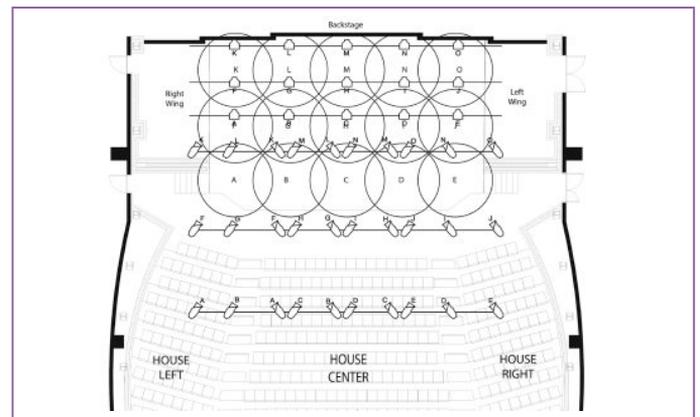
more and more in the auditorium as well. As previously mentioned, the backlights in the lighting layout can often be used to create the stage wash, but you can also supplement with additional fixtures as needed. Most often stage colour washes are set up in backlight or toplight positions, and these days are often created using LED wash fixtures. Washing the stage in colour can affect how the audience feels and can powerfully reinforce what is happening on the stage – or distract from it.

Creating texture

Texture added to the stage floor, scenic elements, or in the air (using a hazer) can add visual interest to the lighting design, and add environment as well as depth. Texture is created using patterns, or gobos. Ellipsoidal fixtures used to be the workhorses in this area, though they have become widely replaced with automated spot fixtures capable of carrying large quantities of gobos. Additionally, these fixtures can often animate gobos, add colour to gobos, resize gobo projections through zooming, and be programmed in movement cycles to add even more interest. Often this is the visual 'eye candy' we think of when attending a concert. These fixtures are often placed in backlight, toplight, sidelight, or positions on the stage deck itself.

Conclusion

There is no single 'right' way to lay out your lighting grid. Once your subject is



Arrangement for 3-point lighting of each stage area

it comes to lighting positions and you may have to do some experimentation in terms of placement to model subjects as best as you can.

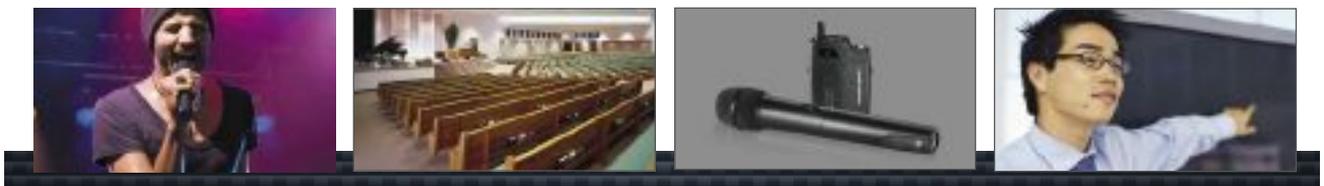
Creating mood

Another important lighting consideration for houses of worship is being able to create moods by using coloured lighting on the stage – and

visible, the rest is up to your budget, system capabilities, and your creative vision. Lighting design is a layering process – combining colour, texture, movement, and distribution in ways that create moods and atmospheres to support the event or story being told. We've only scratched the surface of how to begin approaching it – always be willing to experiment and try new methods.



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