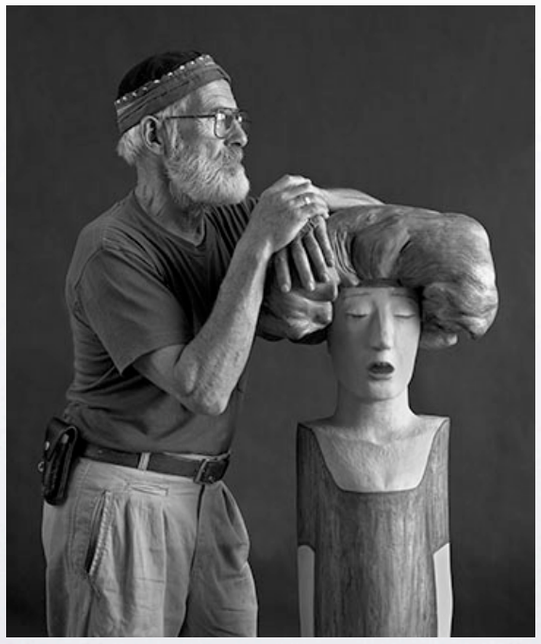
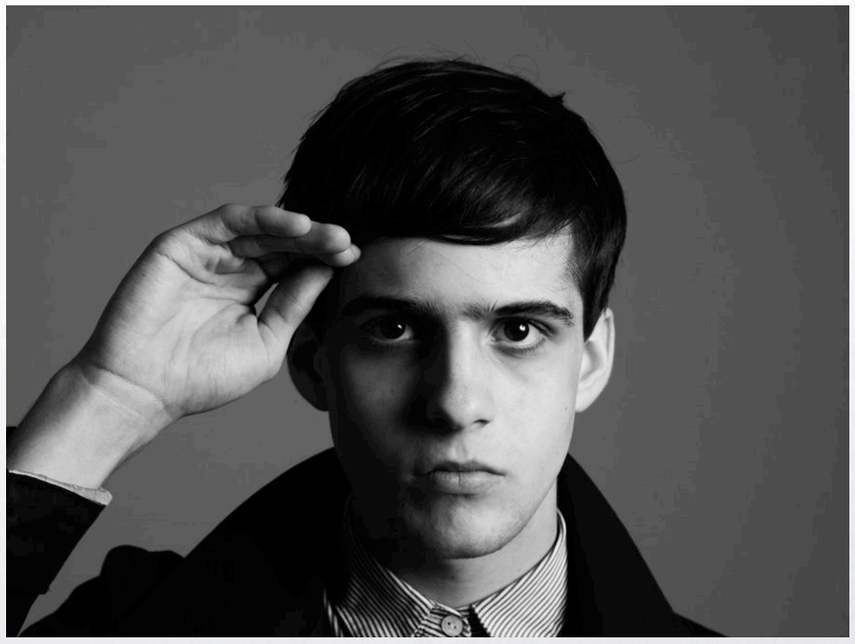
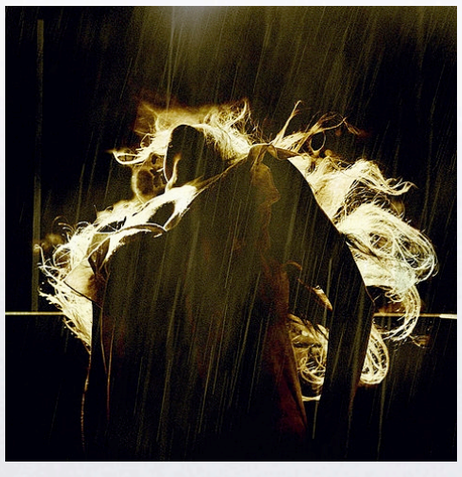
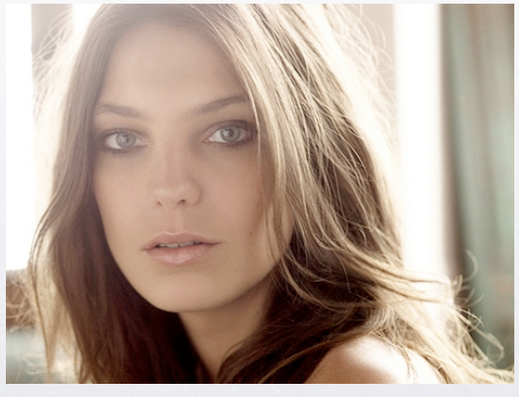
Studio Lighting

WORKSHOP AT WYNDHAM

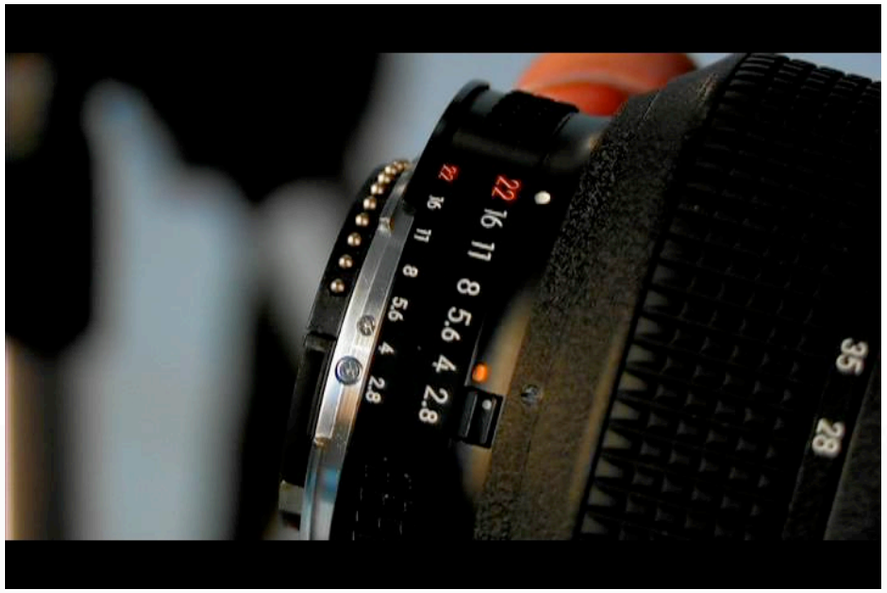




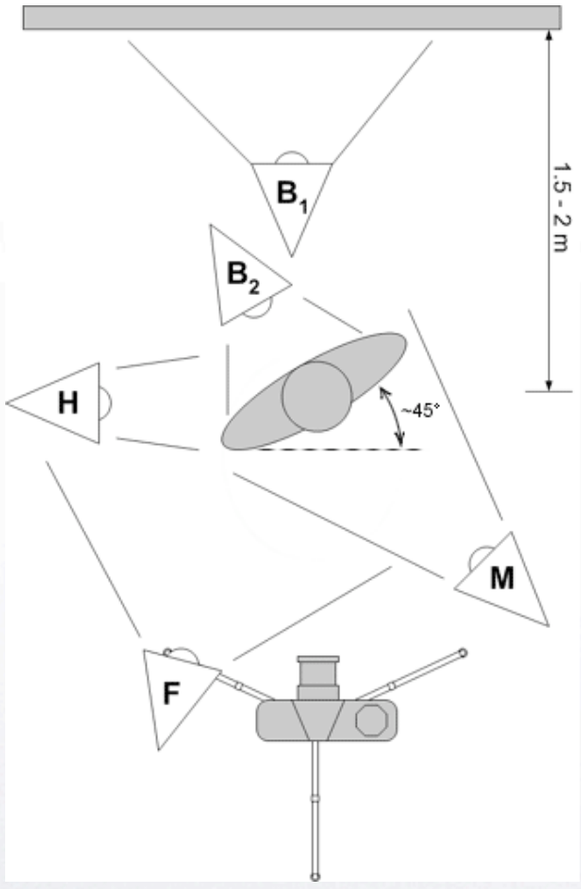




Basic Studio Equipment


22 16 11 8 5.6 4 2.8
35
28

Studio Layouts



* (M) Main - This type is your main source of light, it is most powerful light in the whole set. It is used to light the person and create mood of the portrait.

* (F) Fill-in - This light is less powerful and is used to soften the shadows, which are created by the main source of light. Usually the ratio of main light to the fill-in is about from 1:2 to 1:9. The weaker the fill-in the more prominent the shadows. Use the light to create three dimensional feeling (the ratio is about 1:3).

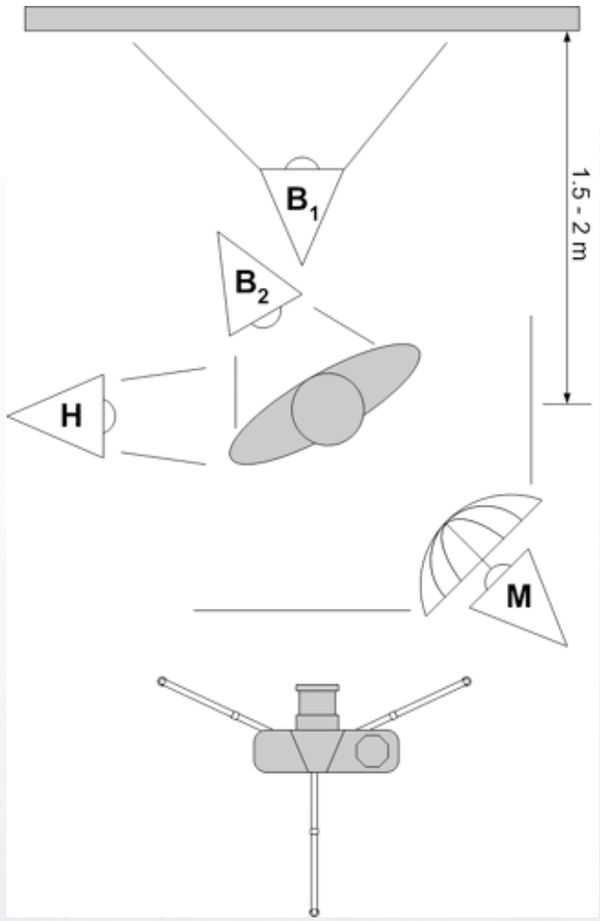
* (B1) Background I (Optional) - You will use this light to remove shadows on the background and create a bright spot on the background, which will help you to separate the head of the person from the background.

* (B2) Background II (Optional) - This light usually used to create a nice hallo around the person's head and is another way to separate the head from the background. The light is usually good for women because they have fabulous haircuts and the light will add "air" to it.

* (H) Hair Light (Optional) - Actually there are two types of this light. One of them (Hair Light) is to enlighten the hair generally and usually placed above the head. Another one is to create a small beam of light placed upon a shoulder or side of the head and is called Accent Light , this light source will create a small highlight on the hair or shoulder to give some accent to it.

Using an Umbrella

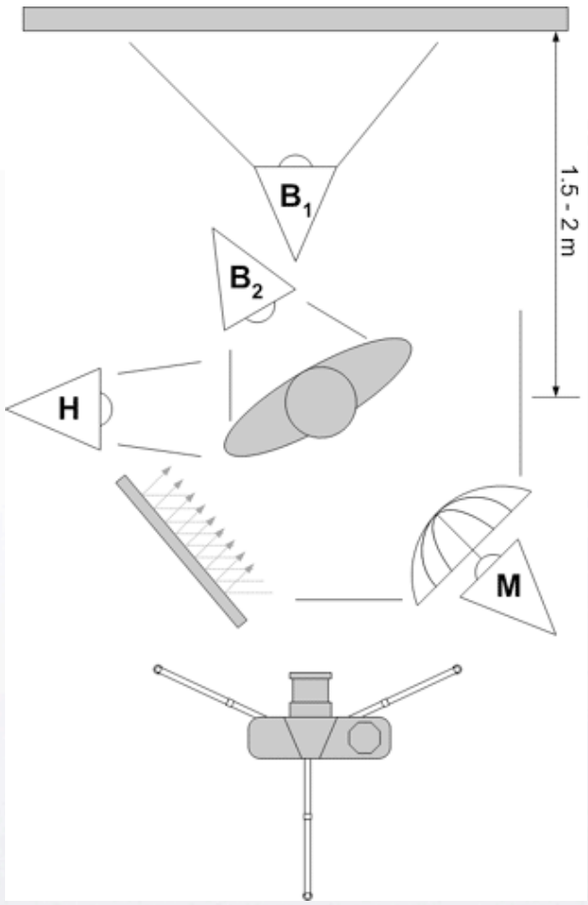
A photographic umbrella is very useful tool for creation a soft, broad and pleasing light. Sometimes you may use only one light with the umbrella to create a good portrait. Usually the umbrella is used for photographing kids, they could move easily without restrictions and you don't have to adjust the lights every minute. Here the umbrella is used as the only front light source, you may even remove the rest of lights. It will be the simplest setup, but you will still produce good portraits.



Basic studio setup

Umbrella and Reflector Board

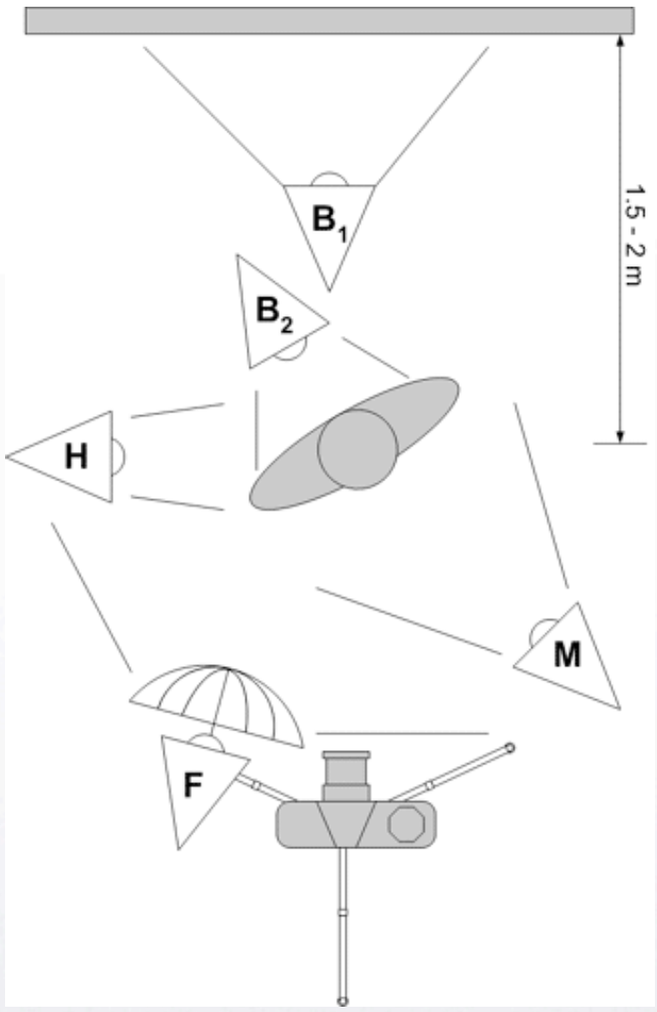
You may upgrade the previous setup with a reflector board to soften the shadows as shown below: Moving the reflector board to and from the subject will change the power of the reflected fill-in light falling on the subject. You even use a black reflector to remove some light from the subject and create more depth. A black reflector is a good tool for location session in a cloudy day, when the light just envelopes the subject, by using the reflector use remove some light and give it some direction.



Umbrella as main and reflector to fill-in

Umbrella as Fill-in Light

You may prefer to broaden the fill-in light and use the umbrella for it. The following diagram shows the setup:

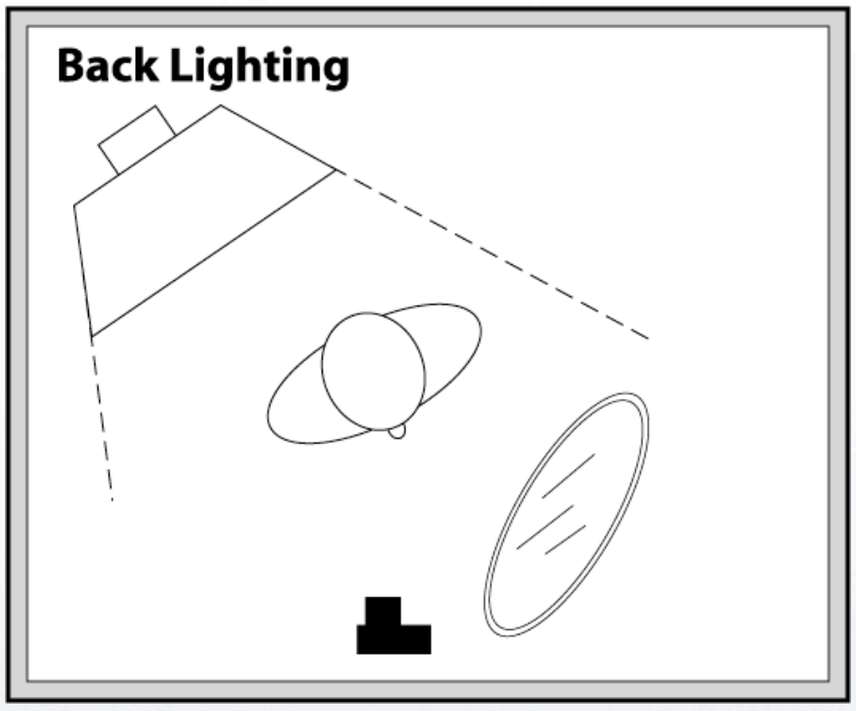


Umbrella as fill-in

Backlighting

Back Lighting is a flattering dramatic lighting style. It can be effective for covering skin blemishes due to the generally soft portraits it can produce. Since the light is coming from behind the subject, lens flare is typical, but accepted.

The main light should be a large light source or a smaller one aimed at a white background (effectively using the background as the source). The portrait can be taken with a reflector providing fill light or without a reflector for a silhouette effect.

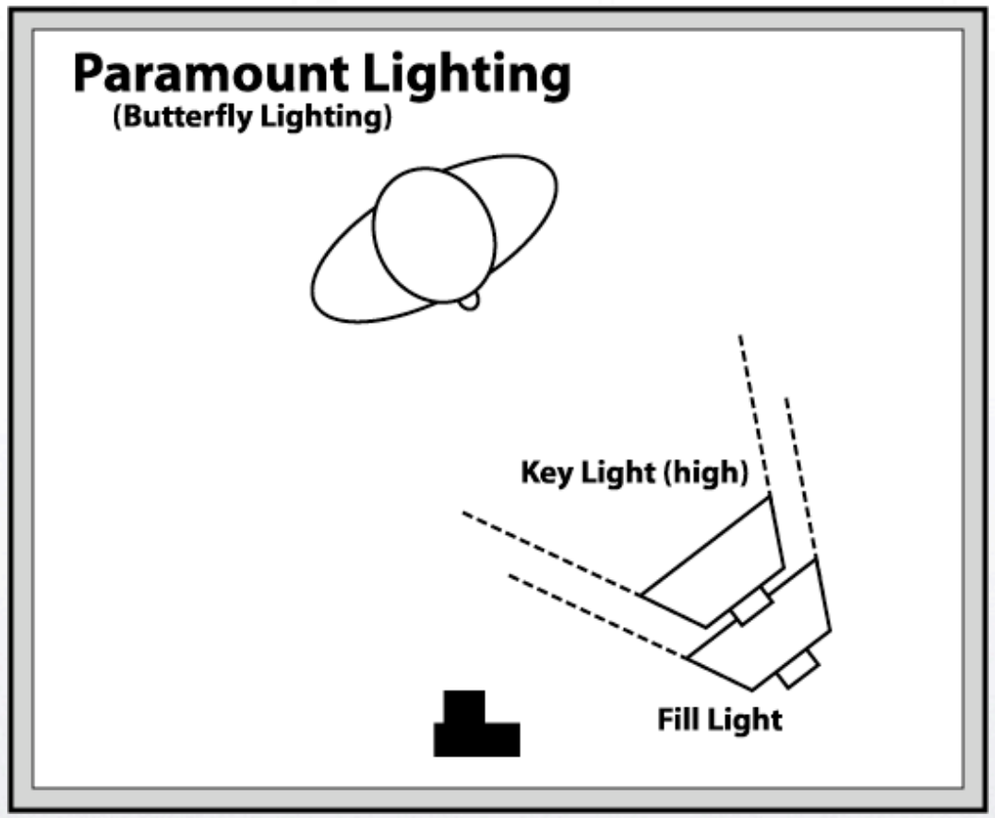


Butterfly LIghting

Paramount Lighting, sometimes called Butterfly Lighting for the shape of the shadow it forms under the nose, is a female glamour lighting style. It works best for women with strong cheek bones and good skin. This lighting is not typically used with male subjects.

The key light is placed high with the fill light directly under it. Keeping the light close to the subject, watch for the butterfly shaped shadow to form under the nose. Be careful not to place their eyes in shadow.

The fill light is placed at roughly head height and can be accompanied or replaced by a reflector under the face to lighten the shadows under the chin and lower cheek.



Working with Portraits

Understanding multiple light studio portrait setups can be challenging. Here are some tips and hints to consider when using multiple lights in a portrait:

As a general rule, the exposure for your portraits should be based upon the main light, with fill light contributing little significant overall exposure. (An exception to this is "high key" lighting, where the fill and background lighting are comparable in subject lighting to the main light.)

Attractive portraits often require at least two light sources: one at the camera or to one side, and a second (often on the other side of the camera) for filling in shadows and making the lighting on the subject more even.

The distance or angle between the camera and the flash units is dictated by the light and shadow effect the photographer desires.

A very pleasing arrangement is to have the main flash to one side and above the camera, and to have the fill on the other side of the camera, and about one-half as far above the camera as the main light. A 30 to 60 degree angle between the flash units works well in most cases. Note that this effect can be done with lights with the same output by putting one closer to the subject than the other.

To analyze facial lighting in a portrait, look at the light/shadows on each side and under the nose. Then look at the shadows under the chin and cheeks. Finally, look at other areas to see if shadows show more information about the lighting setup.

Hair highlights and background shading will give you information on auxillary lights. The complete absence of shadows on the background usually indicates that one or more separate background lights were used.

Outstanding portraits often require three or more lights. Main, fill, highlight, and background. For some desired effects, more than one flash unit may be needed for some of these.

Look for and analyze other examples of multiple light portraits (or even advertising shots). Analyze the lighting setups used, then try some of your own.

High, Mid and Low Key LIghting

When used in portrait photography, the term “Key” refers to the overall tone of the final photograph. The elements of the portrait that play into the tone of it are the color of the background, the color of clothing used and the color of any props or foreground elements. Portraits that have a consistent key generally have much more of an impact that those whose elements are not consistent. It is true as well that, though rare, tones can be mixed in a photo with success. A danger in mixing tones is that the potential for confusion on the part of the viewer.

Generally, portraits are classified in one of three keys – low key, middle key or high key. Low key portraits are created using a dark background and dark clothing and props. You can identify the key of a portrait by determining the average tone for the scene.

Generally a low key portrait would have more dark elements than bright ones. Clothing and background might be black or dark browns giving the feeling of drama or rigidity. Low key portraits may also be shot with a higher lighting ratio near 3:1 as contrast is acceptable due to the drama of a lower tone.

A high key portrait setup would involve the use of a white or off white background and brighter clothing. A high key portrait can be challenging as it requires a great deal of light control and has the most risk of overexposure and loss of detail. In general they would have a low lighting ratio near 2:1. A common background for high key portraits is paper which is slightly overexposed resulting in a pure white seamless background and a feeling of cleanliness. Great care is usually taken to separate the subject from the background to eliminate shadows. These portraits also tend to require more light and thus more power and lighting equipment to create.

As expected, a photo which has tones in the middle of high and low would be called a middle key portrait. Often middle key portraits will use skin tone to set the mood. In these cases, clothing may be used to accent the tone of the skin with contrast rather than allow all elements to blend together. Often a high key portrait can be converted to a middle key portrait by reducing exposure.

Often the background sets the tone for the image and as such key should be a consideration at the beginning of a portrait setup. A background should not take focus off of the subject, but rather help lead the eye to the subject in the final image. Take time to identify your overall tone, or key before you arrange the lighting setup and you will be surprised at the results.

Further down the road

An important concept to understand when dealing with studio lighting for portrait photography is contrast. Contrast is the difference in the amount of light that falls on the dark areas of a scene and the amount of light that falls on the highlight areas of a scene. The eyes can see a wide range of contrast, while film and digital capture devices are much more limited in the light level ranges that they can record. For this reason, you must use caution when lighting a scene, and consider the ratio of the amount of light between light and dark areas or the Lighting Ratio.

Due to the latitude of film and digital sensors, it is the photographer's goal to find the exposure that strikes the appropriate balance between the highlights and shadows. You must begin by deciding the desired "feel" of the final image. If you wish to obscure shadow detail and draw attention to the subject, high contrast lighting may be most appropriate. On the other hand, you may wish to show detail in both the highlight and shadow areas which would require lower contrast lighting. Once you know the effect you wish to obtain, you can begin to identify the proper lighting ratio for the shoot.

The definition of a proper lighting ratio is very subjective and can vary widely between photographers. There are, however several lighting ratios commonly used in commercial portrait photography that can be used to illustrate the process for determining this ratio in the studio setting. For example, a lighting ratio of 4:1 is common for traditional portraits. A 4:1 ratio indicates that there is four times (or two stops) more light in the highlight areas of the face than in the shadow areas. A 4:1 ratio gives enough light in the shadows that details can be seen, while creating the sense of depth required for realism.

To produce a portrait with a 4:1 lighting ratio, you would begin by determining the exposure values for the main light. Let's assume for this example that there is a main light and a fill reflector. The main light is off camera right at 45 degrees and the fill reflector is off camera left at a similar angle. Remove the fill reflector and take an exposure with only the main. Use an incident light meter to measure the amount of light that falls on the side of the face nearest the light. This value will give you the working aperture for the shot. In other words, this exposure value is set such that you get proper exposure in the highlight area of the subject's face. Now, add the reflector back in and take another exposure. This time, use the light meter to record the exposure value for the light falling on the shadow side of the face. The ratio between these two values should be 1:4 or two stops. So, if the highlight side of the face registered f11 and the shadow side registered f5.6, you have achieved the proper ratio. If you do not get 5.6 in the shadow side, simply move the reflector forward or backward to compensate taking a new reading each time you move it.

When the reflector or second light is placed such that fill light can spill into the highlight areas, extra caution must be used to calculate the resulting ratio. Be sure to measure highlights again and recalculate the ratio after adding a second light or reflector.

Below is a chart that will help illustrate some of the common light ratios and what they mean in terms of f stop differences. As you can see, a rule of thumb is that to calculate ratio, using stop difference, take 2 and raise to the power of the stop difference.

Set up the rear rim or "modeling" lights to create highlights on the model's form and curves. Use a "flag" to block direct light from the modeling lights entering the camera causing lens flares.

Meter the highlights from both sides to ensure they are both at the same f-stop, so one side isn't brighter. Adjust the distance (or power) of the lights as necessary.

Set up a front soft box directly in front of, and above, to provide lighting for the model's face and torso. This light is set at a higher f-stop than the back lights so it's not as bright as the highlights.

Case Study

Using a 43-Inch Silver Umbrella

We positioned our model in front of a Photoflex Blue Marble muslin BackDrop (supported with a ProDuty BackDrop Support Kit). We positioned a 43-inch silver umbrella to the left and slightly above the model. For the first shot we had the model turn her body towards the light and her head was turned looking directly at the camera (figure 1).

Fig 1

Fig 2

The result (figure 2) is a classic example of a side lit portrait. Notice that the eye on the shadow side of the face has just a little bit of light on it. The silver umbrella has produced a relatively high contrast light, which has a wide spread reaching across the model and background.

Fig 2

Next, we repositioned the model by turning her body away from the light. Her face was still turned towards the camera (figure 3).

Fig 3

The result (figure 4) is interesting and very different from the first shot. This time the model's head is turned slightly away from the camera. This has caused the right eye to be completely lost in shadow.

Fig 4

Using a Medium LiteDome

For the next shot we repositioned the model to have her facing towards the light. We replaced the umbrella with a Medium LiteDome soft box and took another shot (figure 5).

Fig 5

Judging from this result (figure 6), the LiteDome has helped to reduce the contrast in the photograph. By using the LiteDome we were able to achieve more wrap around light, which has helped to add some detail to the shadow areas.

Fig 6

Keeping the LiteDome in the same position, we asked our model to turn her body facing away from the light (figure 7).

Fig 7

By using the LiteDome, we were able to achieve the same wrap around quality of light with this pose. Notice the eye peeking out of the shadow. Also pay attention to the extra level of detail in both the highlight and shadow areas (figure 8).

Fig 8

Attaching the Accessory Louvers

We definitely liked the results using the LiteDome. However, we felt that there was still too much light reaching the background. This made the image look flat and took away from the dramatic look that we set out to achieve.

For the next shot we attached the Accessory Louvers to our LiteDome. The model was turned towards the light, looking directly into the camera (figure 9).

Fig 9

The result (figure 10) is a clear example of how the louvers act to narrow the path of the light and keep most of the light from reaching the backdrop. Remember that the quality (or softness) of the light does not change. Only the direction of the light is modified.

Fig 10

Next, we repeated the same setup this time with the model's body turned away from the light (figure 11).

Fig 11

Once again we can see how the louvers have kept the light off the background (figure 12). Using the louvers has helped us to separate the model from the background and to add just the right sense of drama to our portrait.

Fig 12

Lets compare our results so far. Below is our sequence with the model turned towards the light (figure 13). First, we used an umbrella. Next, we switched to a Medium LiteDome soft box. Then, we added the louvers to the LiteDome.

Fig 13

Here is a comparison of the same lighting changes, this time with the model turned away from the light (figure 14). The first shot was taken using an umbrella. In the second shot we used a LiteDome. For the third shot we attached the louvers.

Fig 14

Adding a Slight Fill

To improve on this result, we decided to pull out a 39"x39" LitePanel fitted with white reflective fabric. We positioned the LitePanel to the right of the model in order to add a little bit of fill to the shadows (figures 15 & 16).

(Note: The LitePanel frame is positioned using a LitePanel 39" Crossbar, a Main & T Clamp, and a LiteStand.)

Fig 15

Fig 16

As you can see in the final result (figure 17), the LitePanel added just enough fill to help delineate the right side of the face without revealing too much. It was this subtle change that turned our standard side lit portrait into a truly eye catching image.

Fig 17

END