

Proper Exposure

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With the advent of digital photography, people are very concerned about exposure and how things are different from when shooting film. What photographers and clients need to know is that there are only two basic differences between shooting digital and shooting film. One difference is the medium of recording – film vs. a chip. The second difference is that shooting digital is similar to shooting slides – your exposure is more critical.

One thing to keep in mind is that when shooting digital, you should consider it as if you were shooting slide. You do not want to be over exposed or under exposed. There is a prevalent feeling that you can be under exposed, however, this is not a good idea. The reason is that when you bring the photograph into a program like Adobe Photoshop to correct the exposure, it slows you down in your workflow. Even worse is that when shooting digital and you are under exposed, you are introducing noise into the photograph. This is less problematic than when being over exposed, however, it detracts from your image and quality.

You do not want to be over exposed because the camera will not be able to record information in the washed out highlights. In a pinch you can correct for under exposure, but not for over exposure.

If you are fortunate enough to be able to be shooting in Camera RAW, then you will have some latitude in the over exposure, but not that much. It is not recommended. Your best bet is to make sure you are always properly exposed.

One thing to keep in mind, there are three controls on the camera that control the amount of light, which makes the exposure. They are:

- ASA – film speed
- Aperture
- Shutter speed

All three of these must add up to make up our one bucket full of light. The concept of a bucket full of light will become clear in another article.

When shooting film, you have more latitude. This means that you can shoot and be under or over exposed by a few stops and it does not seriously matter. Of course, it is better to be properly exposed in the first place. This way the lab has less work to do and you will end up with better results. In addition, you will be a better photographer in the end if you know how to make better exposures and do so.

Sometimes exposure is a matter of taste. When you are taking a photograph, there are times you will want a low key, and sometimes a high key. I have seen photographs that are very dark but look nice, as the exposure was correct. This is something that takes time to learn and develop.

Camera Controls

When you take a picture, the camera causes light reflected from the subject to be recorded on light-sensitive material. The camera controls this action in several ways.

The first control is focus. Cameras have components to show what part of the scene will be recorded in sharp focus on the film. Cameras use a split-image range finder, and others use a focusing screen or ground glass.

The second camera control is the lens aperture. This control is located next to the focusing ring on most cameras. As we will learn in another article, the aperture affects both focus and exposure.

The third control is shutter speed. The shutter controls the length of time light is admitted to the film. Shutter speed also has an effect on the way movement is recorded on film.

The third control is film speed. This is referred to as ASA/ISO and controls how fast the film reacts to the light which you are allowing into the camera with the other two controls we just mentioned.

Focusing involves adjusting the distance between the lens and the focal plane, or film plane, when photographing subjects at various camera-to-subject distances. When a camera lens is focused on a subject point, all light rays from that point, and only that point, are brought to sharp focus at the film plane. When about 600 or more feet from the camera, the subject is considered to be at infinity. A subject at infinity is so far from the camera that rays of light reflected to the lens from the subject are considered parallel. When a camera is focused on a subject at infinity, the distance between the optical center of the lens and the film plane (lens-to-film distance) is equal to the lens focal length. At this point, the lens is closest to the film plane. As the camera-to-subject distance decreases, the lens-to-film distance must be increased to bring the subject into focus.

When you are taking a picture of only one subject, focusing is simple; however, when you want to include several subjects at different distances from the camera in the same picture and have them all in sharp focus, it becomes more complicated. Unless the subject is distant scenery with nothing in the foreground, there is always one object that will be somewhat closer. In that situation, you must decide what part of the scene is to appear in sharp focus. In simple cases, such as a person standing against a plain background, the decision is simple – focus on the person. In cases when subjects both close and far from the camera must be in sharp focus, you

should focus about one third of the distance between the closest and farthest subject you want in sharp focus. This is known as the depth of field. The way you focus the camera will depend on what part of the picture is most important and its purpose. For example, the pictures a civil engineer needs of a building is altogether different from the pictures a visitor to the air station wants to take home. The engineer needs pictures that show a maximum amount of detail throughout the scene. The visitor, on the other hand, is more interested in pictures that bring back pleasant memories. The requirements of the picture determine what you should focus on. The engineer needs to have everything in the picture in sharp focus. You might accomplish this as follows: Measure the distance to the nearest point of the picture and the distance to the farthest part of the scene. Then consult the depth-of-field scale on the camera lens to focus on a point between these two distances. Now, when the lens is stopped down to a small aperture, the depth of field will make the light level so low that you have to use a slow shutter speed and the largest f/stop to get the proper exposure. After determining the correct exposure, you can decide how to present the subject. Remember, depth of field can be used to emphasize your subject, and shutter speed affects subject blur.

As we will explain, camera exposures are controlled by the shutter speed and aperture. The shutter speed controls the time light is permitted to reach the film. The luminance (or intensity as it is sometimes called) is controlled by the aperture of the camera. The term *luminance* means the amount of light reaching the film plane. By adjusting these controls, you allow the correct amount of light to reach the film. The correct amount of light varies, depending on the film speed. Correct exposure for negative films is defined, as the exposure required to produce a negative that yields excellent prints with the least amount of difficulty. Correct exposure for color reversal film (slide film) produces color images in densities that represent the appearance of the original scene.

Determining Exposure

With all we have talked about, you must now realize that making a proper exposure is not the easiest thing to do in the world. This is the purpose of the book. I hope to make it easier for you. This chapter will give you some more pointers.

When working in the studio environment, it is very impractical to use automatic exposure methods to make your exposure. There are many reasons to this. You are using many different strobe units and they each are going to be set to deliver different amounts of light to your subject. You cannot rely on the ratings of the strobe units as we have already seen. The best thing to do is to purchase and use a light meter. We will talk more about that in article.

You will notice that all professional equipment is manual. It is done this way so that we will have more control over our work and product.

As we will discuss in another article, it is not practical to rely on the BCPS or guide number ratings, but it can be done. When you are using multiple units (especially if they are different) and put light modifiers on them, you will have to do so much calculating with the guide numbers or BCPS.

With all of this in mind, you can now understand why the professional photographer uses a light meter. This is the most accurate method of determining proper exposure. Once you have set all of your lights, you will want to test fire all of your lights and take readings to determine the total amount of light reaching the subject. With proper use of the light meter, you can determine the proper aperture setting to set your camera.

In another article, we will talk about different types of light meters. I want to touch on a few points about them now. Since most studios use strobe units, it is incumbent upon the studio to have a flash meter in order to measure the light output from each individual unit, and the combined light from all the units.

One thing you need to be aware of with light meters is that different meters by different manufacturers can have different readings for the same lighting situation. Personally, I have found that there can be as much as two f/stops difference between light meters from different manufacturers. The key factor is to be consistent by using only one light meter.

In good systems, there is a correlation between the modeling light output and the output of the flash. In this case, when you adjust the power of the strobe, the modeling light also adjusts. At the very least, we do have an advantage with the modeling lights in studio systems. That advantage is that the modeling lights usually mimic the pattern of the flash.