An abridged excerpt from Kevin Ames' "Photoshop CS2: The Art of Photographing Women," coming out in September.

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Illumination

THE QUANTITY AND QUALITY OF LIGHT

One of the most difficult things to learn about lighting is the difference between the quantity and quality of light. For example, bright light isn't necessarily harsh light. One of the most important principles of lighting is that the larger the light source is in relation to the subject, the softer the quality of light. The closer the subject gets to the light source, the softer the light that falls on her.

At first it seems to make absolutely no sense that the light wouldn't become harsher on the subject as she neared the source. As the subject moves closer to the light source, the light in fact becomes brighter (quantity) *and* softer (quality). The key lies in the edge of the shadow cast by the subject.

It's a sunny, clear, cloudless day and the light source is the sun. Give or take a mile or two, the sun is 864,000 miles in diameter, and 8.32 light minutes away from the camera and our subject. This high-intensity light source appears to be about the size of a thumbnail held arm's length away from the eye—in relationship to our subject, the sun is a very small light source indeed. The sunlight casts a shadow on the wall behind our model, Laura ***(Figure 1)***. Is the light harsh or soft? Of course it's harsh; bright sunlight is harsh light, we've always heard. The answer lies in the distinct hard edge that demarks the dark shadow from the rest of the wall. It's called the *shadow edge transition*. A very short transition from highlight to shadow denotes harsh light.

Figure 1

The cause of confusion is the word *bright*. It's more accurate to say, "On a clear day sunlight is harsh light." Bright is a quantity. Harsh is a quality. During an eclipse the sunlight becomes dim, yet the shadows don't change. The contrast does.

Look at Laura after clouds roll in front of the sun, making the sky overcast ***(Figure 2)***. Two things happen: The light source becomes larger in relationship to the subject; and the clouds diffuse the light, so the quality of the light becomes softer. The quantity of light is reduced by the density of the cloud cover and by the spreading of light over a larger area. The shadow edge transition of the cast shadow on the wall

Figure 2

widens over a much greater distance, indicating a softer quality of light. Shadows cast on a very overcast day can be nonexistent because the light source is so incredibly large compared to the subject.

Contrast, measured in f/stops, is the difference between highlight and shadow. It refers to the *quantity* of the light and its relative brightness. High-contrast situations are often considered to have harsh light, even when the shadow edge transitions are wide, which indicates soft light. To lower the contrast in a scene, we add light to the shadows. Lowering the contrast does not change the quality (harshness/softness) of the light, only the relative brightness within the scene.

In **Figure 3**, the left image is sunlit with no fill. In the right image, taken at the same


Figure 3

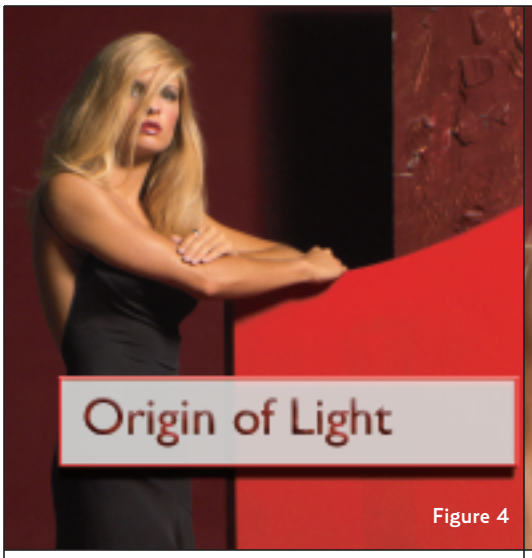

Figure 4

Figure 5

Figure 6

exposure, a reflector was positioned to bounce some of the sunlight into the right side of the scene. The added light brightens the shadow (and the highlights) as it lowers the contrast between the shadow and the model's skin. The shadow edge in the two images is the same. In the second image, it's still a short transition and the quality of the light is still harsh; the only difference is the lower contrast. There's more visible detail in the shadow. The background on the right is lighter. The fill isn't sufficient to change the exposure, but it's enough to add life to the image. Controlling the contrast is especially important when the images will be reproduced on a web printing press, where shadows can load up with ink (dot gain) and lose detail.

Three elements are key when lighting a subject: the quality of the light, the exposure for the diffused value, and the relative brightness between the highlight and shadow areas. Their interplay defines the artistry of the image and how well it will reproduce.

A photograph can exhibit many quantities and qualities of light. The quality of light is relative to other qualities. It's measured in relation to the chosen exposure for the image.

Here, I start the session with one light on Laura, a 22-inch beauty dish placed at a 45-degree angle above and to the right of the camera. **Figure 4** shows the effect. An incident meter in the scene reads the light falling on the subject ***(Figure 5)***. The diffused value is f/16.1. The shadow edge transitions are short. The light on Laura is harsh. The lens aperture setting for this image is f/16. The shutter speed for all the photographs in this section is 1/125 second.

As with light meters, lighting controls are either reflective or incident. *Reflective controls* deal with light after it has hit the subject and is on its way to the imager. Used mostly with film, filters for color correction or soft focus and vignetters are reflective controls.

Incident controls are devices that come between the origin of light and the subject. They do their work on the light before it strikes the subject. Diffusion panels, scrims, flags, and cookies are examples of incident lighting controls.

I place a diffusion panel (translucent sailcloth stretched on a 42x72-inch Chimera frame) in front of the origin of light and move it closer to Laura. The shadow edge becomes wider and the light quality softens ***(Figure 6)***. The panel spreads the light two-dimensionally over a 21-square-foot area, making the source much larger in relation to the subject's face (about one-half square foot). The panel is now the source of light and the beauty dish on the flash head is the origin of light.

The diffusion panel lowers the amount of light reaching Laura. Whenever I modify the origin of light, I take a new incident reading. The diffused value is now f/8.0.4, almost one-and-a-half stops darker than the harsh light exposure. I set the new exposure on the camera, allowing an additional stop-and-a-half of light to reach the sensor. The exposure doesn't change even if I move the panel closer or farther from the model.

The background areas become brighter because of the modified exposure. Laura

Figure 7

Figure 8

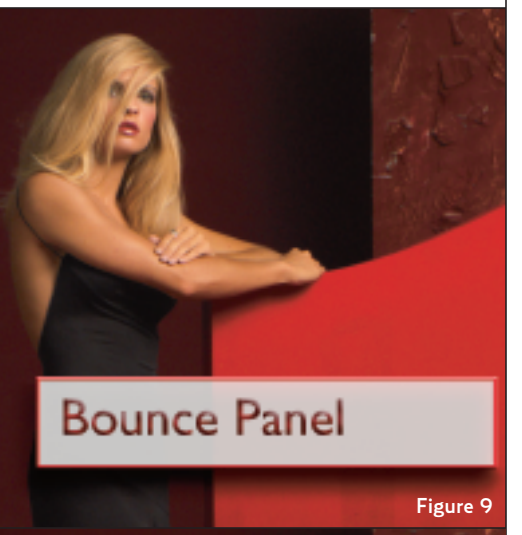

Figure 9

Figure 10

remains the same because I adjusted the exposure to compensate for the diffusion panel. The ColorChecker in the images shows the same reflected brightness.

The exposure as read from the ColorChecker in **Figure 7** shows that Laura will record with detail in her skin and hair (R, G, B: 249) and in her black dress (R, G, B: 49).

The placement of the lights and incident controls I used are shown in **Figure 8**. I've labeled the effect of each one on the corresponding photograph illustrating the building of the lighting. The flag in front of the strip light blocks its light from hitting the lens and causing flare.

I use an incident control to lower the contrast by adding light to Laura's shadows. The bounce panel is a 42x72-inch Chimera frame covered with a white reflector panel, which I place to the side opposite the light source (the diffusion panel). Light bounces into the shadows on her hair and arm ***(Figure 9)***. Details in these areas open up, become more visible. Laura's back is beginning to separate from the background, and even though the contrast is lower, the shadow edge transition is unchanged. You can raise contrast for a moody and dramatic look or lower it for a more open feeling.

Laura's blond hair merges with the background. When I add a Chimera medium soft box fitted with a fabric grid and a warming gel directly overhead, her hair, shoulders, and arms separate from the background. The grid minimizes spill on the background. A Rosco 3407 warming gel puts a golden glow in the hair and warms the color on her arms ***(Figure 10)***.

After firing this light independently of the other lights and measuring it with a reflective meter pointed at her hair, I adjust the power of the light until it's about a half-stop brighter than the diffused value. Laura's back and dress are still lost in the background. A large Chimera strip light with a grid adds a beautiful highlight that separates them nicely. A reflective reading of the highlight is again about a half-stop brighter than the diffused value ***(Figure 11)***.

The last goal of the lighting scheme is to bring up the illumination on the background

Figure 11

Figure 12


Figure 13

elements—a textured wall on the right and red background paper. I aim a light with a 16-inch reflector and a red Rosco No. 25 gel at the wall. Barndoors keep the light from spilling anywhere but the wall ***(Figure 12)***. The red background paper is still very dark, so I place a bare bulb head behind the textured wall. It shines through a 4-foot-square panel with leaf-shaped holes. This incident control is called a *cucoloris* or *cookie*. It breaks up the light into the pattern on the background paper ***(Figure 13)***. ■

This excerpt was edited for length. Find supplemental information contained in this chapter in the Bonus Content section at www.ppmag.com. "Photoshop CS2: The Art of Photographing Women" (Wiley Publishing, Inc.) will be available in September.