

3. MODIFYING LIGHT

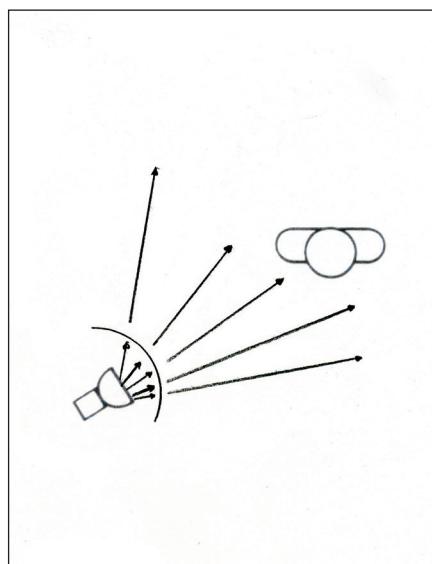
Light modifiers fall into two basic groups: those that broaden light and those that concentrate light so that you can affect just one part of a photograph. I use more light-broadening tools than light-concentrating tools, and I think most others do too.

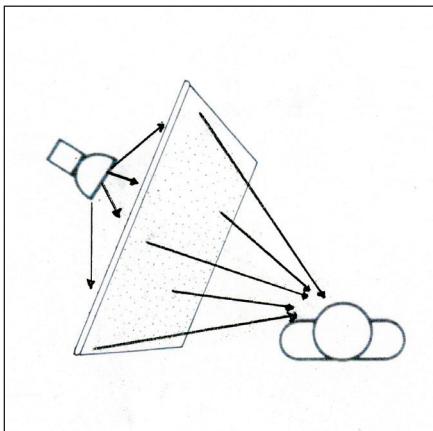
LIGHT-BROADENING TOOLS

As mentioned in chapter 1, light that comes from the sun on an overcast day is soft and diffuse. The light rays come from many areas and angles, not just a small part of the sky. When we are working with artificial light sources, we use bulbs. By default, they produce a hard, more direct light. Fortunately, there are a number of tools available that we can use to modify that bulb's light. Remember that simply using a light-broadening tool will not ensure that you achieve the effects you are after. If the tool is tiny and/or the modified light source is placed far from the subject, the source can still appear hard. For instance, a tiny softbox or umbrella, like the ones made for camera-mounted flash, placed 6 or 7 feet from the subject won't do much for your shot if you're trying to produce soft light.

Bare Bulbs. In certain situations, the strobe tube or quartz bulb, by itself, will be your best lighting tool. The advantage is that it spreads light everywhere. Because the light source is very small, it produces very hard light. It can be useful to aim a bare bulb into a corner of a room to bounce light back

Left—Spreading light with a diffuser doesn't change the quality of light on the subject very much, as the light comes from the same direction. **Right**—Only direct light was used to create this shot. A snoot was placed on the strobe to control the light.





Left—Umbrellas, softboxes, and light panels broaden the source of light, allowing the subject to be lit from more angles. When the light comes from more angles, it has softer transitions and less shadows. **Right**—The bare strobe tube can be useful in lighting a tight space. **Bottom left**—This shoe covering does a great job of bouncing light and makes the light source a little larger. It collapses into a small space, making it highly portable. You can buy a package of these at a hardware store for less than \$4.00.



onto your subject (unless you have colored walls that will create a color cast). Bare bulb lighting is generally not useful outdoors, as much of the light goes where it isn't needed.

There are many devices on the market that can be used to broaden the light from a camera-mounted strobe or a strobe that is being used in a small space. Unfortunately, many of them cost hundreds of dollars. As an alternative, you can put a translucent plastic bottle over the bare bulb to soften the light a little. I have been

using shoe coverings over my strobes rather than plastic bottles. They are very inexpensive and collapse into a very small size. Get white shoe covers from your local hardware store. The blue ones are only good for covering shoes.

Umbrellas. Umbrellas are concave light modifiers that are lined with a reflective white, silver, or gold material. When the strobe fires into the umbrella, the beam of light is made broader and softer. Some umbrellas, called shoot-through umbrellas, work a little bit differently. They allow you to direct light through the fabric. This can really come in handy when you're working in a small room, as you can use the light that goes through the modifier as you intend, and the light that is reflected from the inside of the umbrella can be bounced off the wall and back onto your subject.

I first learned lighting using umbrellas. I still find them to be one of the best tools ever created for lighting. Umbrellas are wonderfully easy to set up, and there are several ways to use them. Shoot-through umbrellas permit you to aim the light through the white fabric, instead of bouncing off the inside of the umbrella. If you are lighting a small room, you can use light from both

**UMBRELLAS ARE WONDERFULLY EASY
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SILVER AND GOLD

An umbrella with a silver lining reflects more light, but the quality of the light is harder. An umbrella with a gold lining will help correct a color imbalance between daylight and tungsten (as will a blue umbrella if you can find one), but for my tastes, the light it produces is too yellow.

sides at once. The light from the back of the umbrella will bounce off the walls and into the shot. Unless I am pressed for space, I prefer to bounce light off the umbrella, as this method produces less spill light and allows for more control.

There are a variety of design variations that can allow more control over your umbrella. A bigger umbrella will produce softer light than a smaller one. I use umbrellas with a removable black back, so that when I bounce light there is no light spilling from the backside. This improves my control over the light and contrast. I also like to use umbrellas where the fabric is in front of the ribs; it makes a cleaner reflection. I refer to these umbrellas as ribless umbrellas. Finally, enclosed umbrellas are now available. These umbrellas, called brollyboxes or octaboxes, are sort of a cross between an umbrella and a softbox. They are like a shoot-through umbrella without the spill out the back.

There are pros and cons to using umbrellas. On the minus side, the reflections they produce look like white, round umbrellas (if you use ribless umbrellas, the reflection may be less objectionable); they are difficult to use outdoors, especially in high wind; and they spread light everywhere, so you won't have subtle control. On the plus side, they are easy to set up, heat is not a problem because of the standard umbrella's open design, and most strobes have built-in umbrella holders.

This is a ribless umbrella with a removable black back. It's a very useful and adaptable tool.



Softboxes. The basic design of a softbox is something like a dome tent. I find both dome tents and softboxes annoying to set up and take down. They have rods that have to be under tension to keep the shape. Once set up, they provide a good, even light source. Softboxes offer more subtle control than an umbrella, especially at the edges. If you can get a softbox that has a cover with a round or rectangular hole in the front, you can choose a round reflection as well as the rectangle the box normally creates. This might be more useful than getting an octabox or a brollybox. Note that most manufacturers make adapters to fit popular models of strobes.

Large softboxes produce softer light than small ones. I have one that is about 3x3 feet. I also have one that is about 12x16 inches. It is great for putting reflections in bottles, but not much else.

Light Panels. A light panel is a large white fabric panel inside of a frame. You can purchase a light panel or make your own (this way, they are very economical). The wonderful thing about the panels is that there are so many ways to use them. You can put a lamp behind them and use them to make a



Softboxes are available in different sizes and shapes. This image shows my 3x3-foot softbox and my 6x2-foot strip light.



Left—This is a light panel. You can find them at a photographic supply store or can make your own using the instructions on the facing page. **Right**—When you bounce light off an umbrella, it diffuses the light over the surface of the light panel. This provides a very large, even, and soft light source.

BUILDING A LIGHT PANEL

You are going to want some of these light panels. They help me to create large, shadowless light sources.

Materials

You can get all of this stuff at most hardware stores:

3 pieces 10-foot PVC pipe, 3/4-inch schedule 40 (the thick stuff)
4 pieces T connectors
2 pieces straight connectors
2 pieces corner connectors
4 pieces end caps
7 feet of white cotton broad cloth, 42 inches wide. You can use nylon as well. You may also want gold, silver and black covers.
2-foot elastic strip
PVC glue (use outdoors)
white glue or wood glue

How to Assemble

Cut the PVC into the following lengths:

2 pieces 42 inches
4 pieces 36 inches
2 pieces 6 inches
4 pieces 10 inches

Glue one side of a PVC connector to a pipe (except on the feet). If you do this, you will be able to break down your panel. You can glue all the parts on the feet (see image A.2), but don't glue the feet to the panel. It is best to assemble the panel once before you start gluing.



Above—This image shows how to assemble the foot for the light panel. **Right**—The elastic will hold the fabric onto the frame.

Attach two corner connectors to the same piece of 42-inch PVC. Make sure the openings point in the same direction.

Attach one straight connector to a piece of 36-inch PVC and a T-connector to the other side. Make two of these. You should have two pieces of 36-inch PVC without any connectors and two pieces with a connector on each end.

Put the 36-inch piece with no connector into the straight connector on the other 36-inch piece. The 42-inch connector with the corner pieces will fit on the top and the other 42-inch piece will fit across the bottom. You should be able to assemble these pieces into a rectangle 42x72 inches. When you are through, it should come apart easily. You should be able to put everything into an equipment bag.

The feet will fit into the open holes at the bottom of the 36-inch pieces with connectors on both ends.

Take two of the 10-inch pieces of PVC and glue them into the straight through sides of a T connector. Glue an end cap onto each of these. Glue a piece of 6-inch PVC onto the open side of the connector. This will fit into the bottom of the frame you just made.

Now the fabric. You will want to finish up with a piece of reflective gold, silver, black, or white cloth that is tight in the frame, so measure the frame! For the shoot-through white, either cotton or ripstop nylon fabric works well, but it is easier to glue hems on the cotton. Glue hems on the top and bottom of the fabric. (*Note*: If you buy fabric that is 42 inches wide, you will not need to hem the sides.) Sew pieces of the elastic ribbon on each corner. This will hold the fabric on the frame.

You have just made an important lighting tool.



large, diffused light source. In this case, you can use the lamp straight, you can rake it across the surface or, if you want very soft light, you can bounce the light off an umbrella before it goes through the panel. You can put a reflective silver or gold cover on a panel and use it as a reflector. You can even reflect off the white cotton cover that is generally used to transmit light. Finally, you can put a black cover over the panel and use it to block light.

Beauty Dishes. A beauty dish is a wide and shallow bowl-shaped reflector that is fitted onto a strobe. It works like a small umbrella or round softbox, but with a defined shape. The one shown on this page is 22 inches across, a good size for portraiture if placed close to the subject. I really like to use them to create catchlights in the eyes.

LIGHT-NARROWING TOOLS

On a sunny day, the sun comes from a small area of the sky and produces hard, distinct shadows, sparkling highlights, and you can really see texture. When working with strobe lighting, we can mimic the effects of harsh sunlight. Each of the tools described below make light cover a smaller area. The resulting light, called hard light, creates hard shadows and fast transitions from light to dark.

Clip-On Reflectors. A clip-on reflector is a simple dish that attaches to the end of a strobe or is built into a tungsten light. This offers control, especially compared to a bare bulb. Most strobe manufacturers make clip-on reflectors of various sizes that offer different light spreads. These reflectors are only available from the strobe manufacturer.

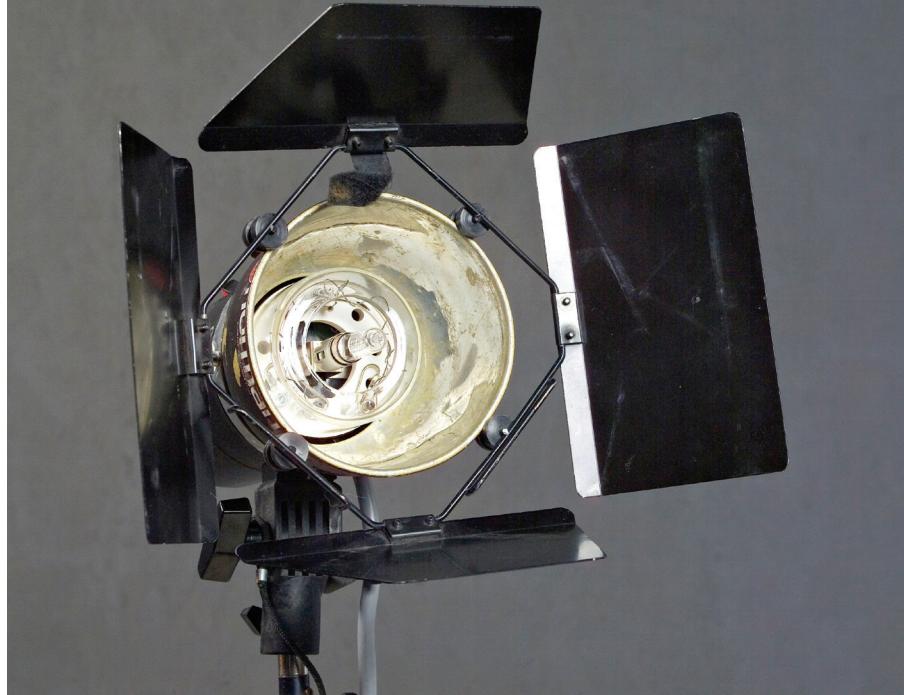


Beauty dishes create a nice, even, round reflection. The light has about the same quality as any light source of the same size.



This shows a 60-degree clip-on reflector on a strobe. Reflectors give some control over the direction of your light.

This strobe has a clip-on reflector and a set of barn doors. The doors enable you to control the spread of the light.

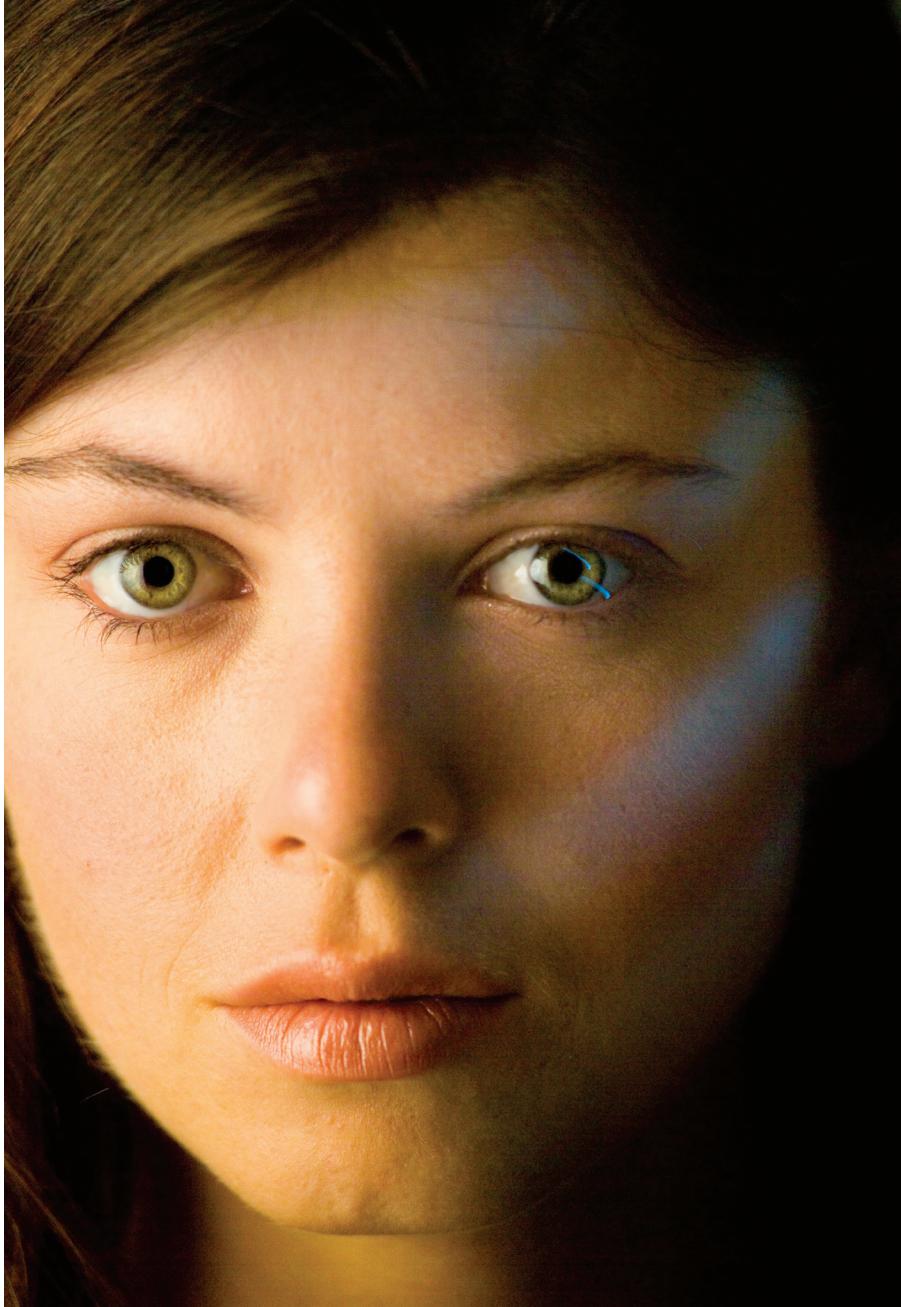


Top—A snoot keeps light from spreading, allowing you to bring out one part of an image. I used this snoot to create the portrait in the beginning of this chapter. **Bottom**—The grid spot allows you to put very small highlights into a shot with considerable accuracy.

Barn Doors. This is the most flexible of the light-condensing tools. Two or four metal blades are attached to a clip-on reflector, and in some models, the shape of the blades can be changed. By moving the blades, you can control the spread of light, from wide open down to a small strip of light. Keep in mind that the metal blades become extremely hot in use. It is easy to forget and get burned. Barn doors offer more control over the light than do snoots and grids but do not limit the spread of light to the degree that those tools do. Also, light tends to leak out of the sides of the barn doors. This light can bounce around the studio and create some fill light on your subject.

Snoots. A snoot is a tube-shaped modifier that slips over a light. It reduces the spread of light dramatically (but not as much as a grid can) and is designed to throw a small round light at your subject. I like using a snoot because the light transitions from light to shadow very quickly, resulting in very contrasty lighting. Light spreads when it leaves the snoot, so the size of the light changes depending on the light-to-subject distance. Because a snoot prevents light from spilling from the sides of a light unit, there is no reflected fill light. Snoots are available in different sizes. The one shown in the image on the left is a stovepipe snoot; its opening is about 4 inches across.

Grids. A grid is a metal honeycomb that goes over the light. It reduces the spread of the light more than any of the other tools. A gridded light placed 6 feet from the subject may light an area that is less than 1 foot around. Grids are rated in degrees (e.g., 10 degrees, 20 degrees, etc.) The smaller the number, the more narrow the spread of light. This also makes a small round light, similar to the snoot, but since the light goes through a honeycomb-shaped series of tubes, the light doesn't spread as much. A grid spot is just the thing for adding a very small highlight. This makes a strobe act more like a small optical spot. These lights are extremely useful for adding sparkle and



I used a Kodak slide projector, a cookie, and a blue gel to create this shot. The large light source was an umbrella/light panel combination. 1/4-second exposure.

KODAK SLIDE PROJECTOR

There is one other tool that I like to use for controlling light: the Kodak Slide Projector. This is a continuous light, so you often need long exposures. You have fantastic control over the light. You can make tiny spots of light or add a piece of Cinefoil with cutout patterns where a slide would normally be inserted to project patterns of light and shadow. You can add a colored gel in the slide holder—or even use a slide of a pattern. The most recent Kodak projectors have better color: earlier ones are green. All of them are basically a tungsten light balance. I like to use rear curtain sync when I use the projector. This way, the strobe comes at the end of the shot, which makes the model less likely to move during the shot.

drama to a shot. You can mix them with soft lights to add highlights that you wouldn't get from a large light source. You can mix a soft light and a grid spot from the same direction. This can create a very effective light: sparkle from the grid and soft light from the larger source. The grid spot shown on page 27 has $\frac{1}{4}$ -inch holes and fits a 6-inch, clip-on reflector. The grids are available for larger reflectors and have different sized holes. The differences control the size and spread of the light. A bigger grid with bigger holes throws a bigger spot that spreads faster. It is often useful to have several different grids.

Cinefoil. Rosco Cinefoil is a matte black aluminum foil that soaks up light. It won't burn, so you can use it to make custom light control devices for your specific needs. Keep in mind it will get hot and the black coating may smoke. You need to be careful when shaping it on the light. Cinefoil is really a useful thing to have around the studio.

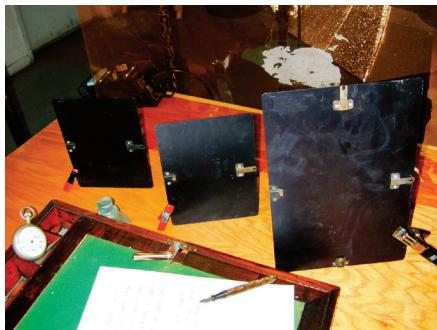
DARKENING TOOLS

Flags, Gobos, Scrims, and Cookies. Flags, gobos, and scrims can be used to subtract light from a scene. A gobo (short for “go before optics” or “go between”) is a device (usually black) placed between a light source and the subject to modify the way the light falls on the subject. A flag is a kind of gobo used to shield an area of the subject from light or prevent lens flare. A scrim is a device placed in front of a light source to reduce its intensity.

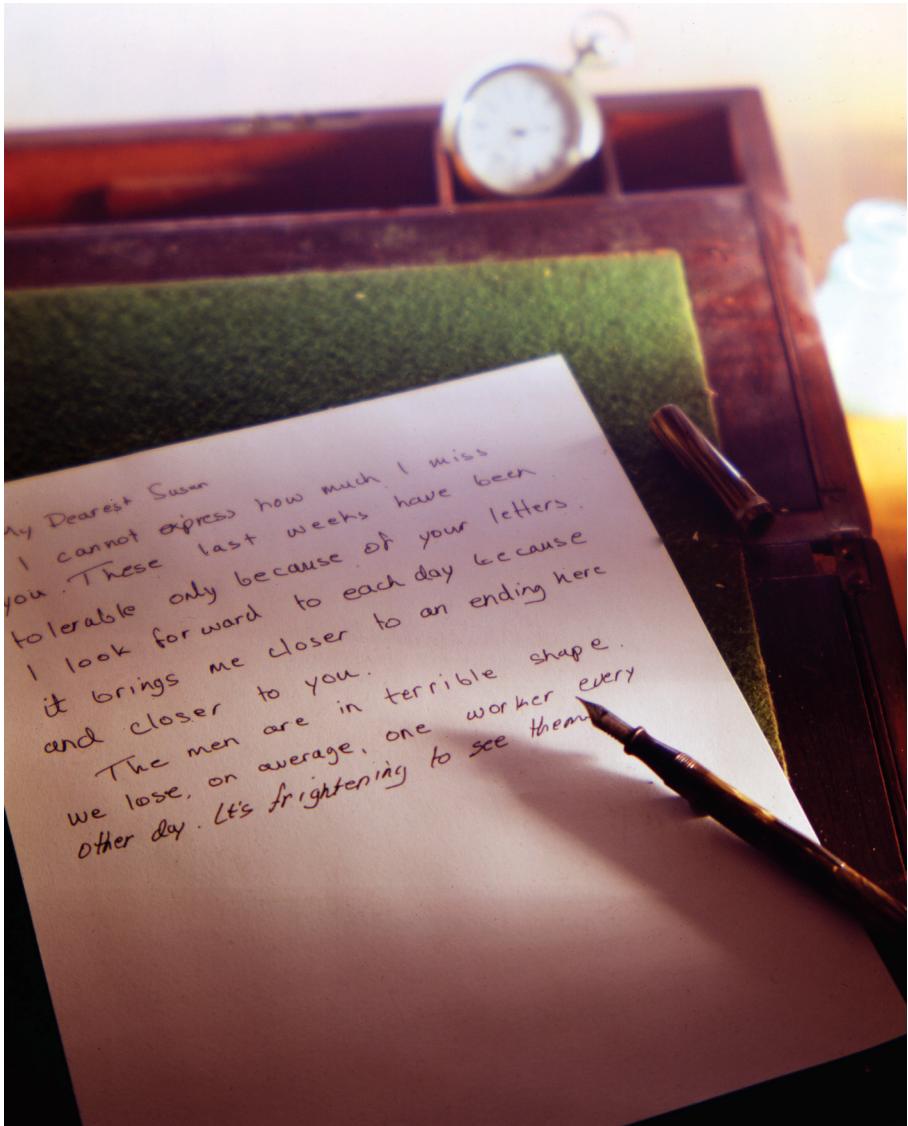
The closer the darkening tool is to the subject, the better and more precise the light-blocking is. When the device is moved farther from the light source, there is smoother transition from light to shadow.

These tools can also be used to keep light from bouncing back into a shot.

A cookie is an opaque device with a cutout pattern that, when placed in front of a light source, will cast shadows over the subject or backdrop. They can be purchased or made from Cinefoil. I use them with the slide projector.



The final shot (right) and the setup shot (above) show how darkening tools were used to create a light with character for this shot. In addition to the three darkening tools, you can see the filters I used to help create the mood of this shot.





I used a piece of glass covered with filters (left) to reflect in the shiny black paper at the base of this shot (right).

FILTERS

Filters are flexible plastic sheets that can be used to control the light from your strobe or change its color. I get filters from Rosco. These filters are designed primarily for the movie industry. This is an advantage because the filters are designed to withstand heat without burning. The modeling light in a strobe can get quite hot, so a random piece of colored plastic could be dangerous. I use several filters to control color:

- Full Orange (CTO/3407)—Converts daylight or strobe to tungsten color balance.
- Half Orange ($\frac{1}{2}$ CTO/3408)—Makes strobe or daylight much warmer.
- Quarter Orange ($\frac{1}{4}$ CTO/3409)—Makes strobe or daylight a little warmer.
- Full Blue (CTB/3202)—Converts tungsten to daylight. Makes color temperature cooler.
- Half Plus Green (3315)—Makes strobe or daylight look more like fluorescent light. (This doesn't always work.)

These filters are available in sheets and rolls. The rolls of half orange are very useful for covering windows. The material can be reused until the color fades.

MOVING FORWARD

It seems that I've described many tools, but as I mentioned earlier in this book, we are going to write with light, so we will need the tools that work best for each scenario. Having the ability to carry out the shots as you've conceived them is tremendously rewarding!

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CHANGE ITS COLOR.