Professional Interior Photography

Third Edition

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4 LIGHTING EQUIPMENT, METERS AND FILTERS

Having chosen a suitable camera and selected an appropriate set of lenses, it is time to turn your attention to the rest of the supporting equipment that is necessary for photographing interiors: lighting, meters and filters. Again, it is easy to be dazzled by the vast array of equipment available, and it is therefore important to be clear about the equipment you actually need when starting in this field, and that which might be desirable at a later date once you are more experienced and eager to fine-tune your technique. For example, while a pair of photographic lights (probably flash units along with a flash meter) are essential, an independent light meter is unnecessary if you already possess a 35 mm camera with a built-in light meter. A colour meter, along with a comprehensive set of colour compensating filters, is probably one of the last pieces of equipment you would need to buy as its use is specialized and not absolutely necessary for most general interior photography.

Lighting

Supplementary lighting is usually necessary for photographing most interiors, for reasons explained in Chapter 5.

Photographic lighting can broadly be divided into two main categories: flash and tungsten. Flash is the best choice to simulate natural, white daylight in terms of colour temperature. Where daylight is dominant in an interior, flash is the perfect 'fill-in' light for the most natural appearance.

Tungsten light, on the other hand, is a redder, 'warmer' light source. While it can be used as a 'fill-in' light source in the rare situations of exclusively tungsten available light (and the image recorded on a tungsten-balanced film), it can also be filtered to approximate white light. However, its most effective use in interior photography is for dramatic sunshine-effect lighting. It can be filtered in varying degrees to achieve the required effect of harsh, yellow/orange sunshine at different times of day. The light from a winter sun in early morning and late afternoon is much redder than a summer sun at noon which is considered to be white, and its angle lower, penetrating further into the room. This can also be suitably emulated by lowering the height of the light stand.

Flash

Flash is the most practical and useful form of photographic lighting for interior work. As already mentioned, it closely approximates white daylight, without any filtration and, since daylight is often the dominant light source in interiors, this creates a natural and unobtrusive supplementary light

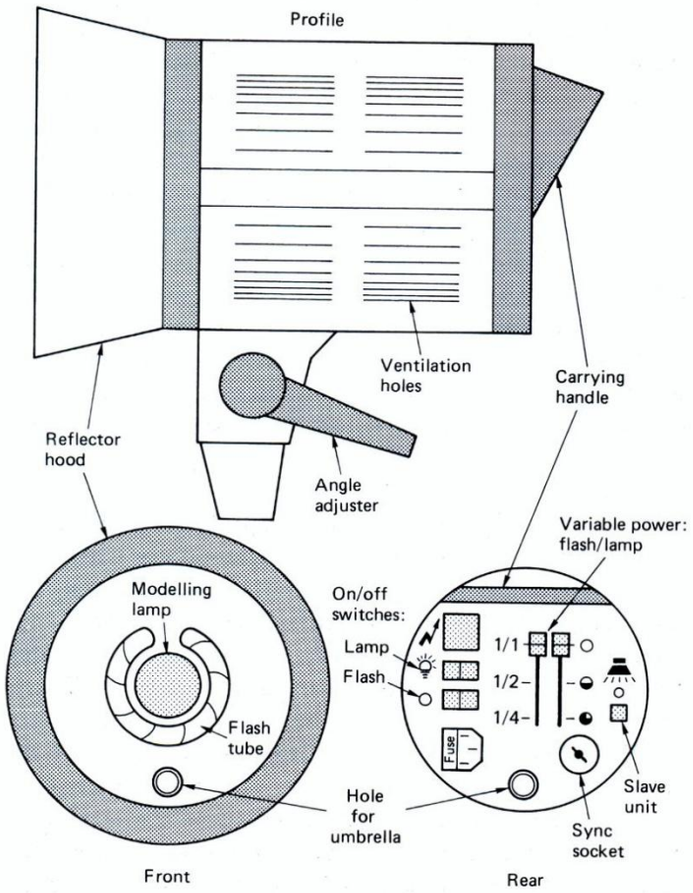

Figure 4.1 The integral flash unit: the profile, front view and rear view showing the controls

source when bounced off a white umbrella or white wall, or fired through a soft-box.

Flash lighting comes in various forms: from a simple on-camera flashgun, through integral mains units, to flash heads powered by a studio power pack. Since the interior photography that is the subject of this book is by definition location work, portability is clearly an important factor in choice of flash lighting.

By and large, the output of a portable flashgun will be too low for the power necessary for lighting interiors, especially since the flash is usually not used direct but is reflected off a white surface. This effectively reduces the flash output that reaches the subject by several stops. However, it is handy to carry a portable flashgun in your camera bag as it is small and can be used with a 'slave unit' (a flash-sensitive eye for triggering the unit when used in conjunction with one or more other units) to illuminate dark corners or spaces, while actually hidden within the picture area itself. The flashgun fires the instant it receives light from another flash source.

In terms of portability, a studio power pack with flash heads is impractical. The pack is large, heavy and unwieldy and necessitates extra, sometimes obtrusive, cabling. The most popular choice is a set of integral mains flash units which, although individually heavier as heads, are both more portable and simpler to use. The power of these heads ranges from the weakest at around 200 joules, to the most powerful (and accordingly the heaviest) at around 800 joules. Heads with a variable power up to 500 joules give a convenient output for lighting interiors. In many residential and small-scale commercial interiors, one or two heads are often sufficient, though it is sensible to carry at least three heads to enable you to cope with most situations.

The integral flash unit consists of a circular flash tube surrounding a modelling lamp (for previewing the effect of the light) at one end of the housing, with controls at the opposite end. The controls usually consist of a mains supply switch, two knobs for varying the output of the flash and modelling lamp, and a slave unit. Apart from having a synchronization cable from one of the units connected to the camera, every other unit only has to be connected to a regular 13-amp socket. The flash-sensitive slave units trigger their firing as soon as the first unit is fired by the camera. This obviously happens at the speed of light, so there are no

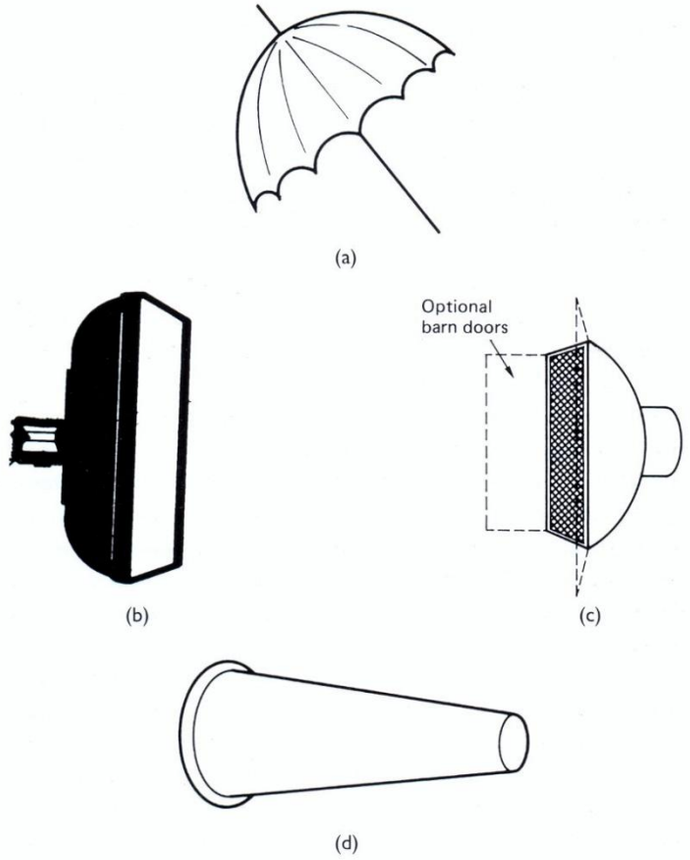

Figure 4.2 Various flash unit attachments for different lighting effects. An umbrella (a) for wide, soft fill-in light; a soft-box (b) for more controlled and directional fill-in light; a diffuser (c) for highlighting with soft, square light; and a snoot (d) for a harsh, directional circular spot of light

worries over the length of the exposure at shutter speeds slower than, say, $\frac{1}{250}$ second.

When used for interior photography, the modelling lamps on the flash units give the photographer a rough idea of the quality and direction of light, and are useful to check visually for any unwanted reflections in the picture. They do not give a correct indication of the intensity of the flash output in relation to the available light. This can only be checked by exposure calculation followed by shooting an instant-print test shot.

All integral flash units have a hole through them from one end to the other which acts as a socket for attaching umbrella reflectors. Umbrellas are essential ancillary equipment, with black-backed white ones being the most useful for interior photography, and gold umbrellas occasionally for special effects. A soft-box is used in preference to umbrellas

by some photographers because of its reduced light spill, and a variety of diffuser and snoot attachments are available that can be useful for highlighting specific areas within the image.

Finally, lightweight collapsible flash stands are necessary for mounting the flash units. These usually extend to a height of around 2.5 metres (8 feet), and collapse to fit into a tailor-made shoulder bag that should hold three stands and three umbrellas. The flash units themselves are best protected and most portable in the specially made cases available. These are commonly designed to hold two or three units.

Tungsten

Tungsten lighting plays a secondary role in interior photography, and as such is not essential equipment when starting in this field. It can, however, be useful for supplementary special-effects lighting: for creating artificial sunshine on an otherwise cloudy and overcast day; or to create the effect of sunshine through a window when no such window actually exists. It has to be used cautiously and judiciously to be effective, or its artificial nature quickly becomes apparent.

There are a variety of tungsten lamps available in many different housings. The cheaper, traditional short-life photo-floods have given way to the more expensive, more powerful and more efficient tungsten-halogen lamps, available in wattages from 200 to 2000 watts for general photographic

Figure 4.3 Creating the effect of sunshine on an overcast day. A 2000-watt tungsten-halogen lamp was placed outside the window (with a half-blue colour correction gel placed in front of it for partial colour correction)

purposes. The most portable variety for location work consist of a halogen lamp surrounded by a reflector. The position of the bulb is adjustable from 'spot' to 'flood', i.e., the deeper the bulb is seated in the reflector hood the more concentrated the beam light ('spot'); and the shallower the bulb is seated, the broader the spread of light ('flood'). The beam of light can then be shaped with the adjustment of 'barn doors', four hinged shades attached to the front of the reflector. These lights can be used either indoors as window-shaped spots, or from outside through a window as sun-mimicking floods. A pair of such lamps, rated at around 1000 watts, is a useful and effective complement to a set of flash units: desirable if not essential.

A less portable, more weighty alternative to these relatively simple lamps is the focusing spot-lamp. This consists of a halogen bulb and a focusing lens in a long and heavy housing. The relative positions of bulb to reflector and lens to bulb can be adjusted to alter the beam diameter and control edge sharpness of the light spot. 'Gobos', or metal-patterned inserts, can be added between the lamp and the lens with an effect similar to that of a projector. Light passes through the special effect gobo (available in various window and foliage designs) in the same way a transparency is projected, with the image focused or blurred onto a wall/

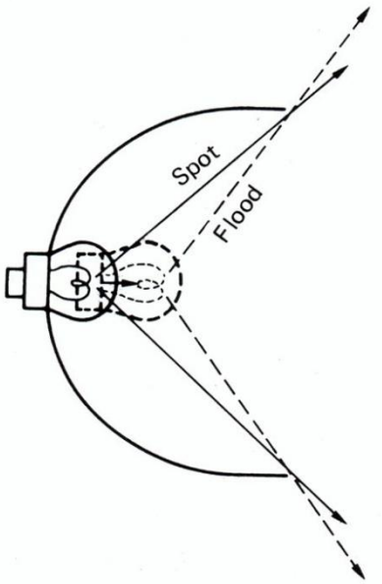

Figure 4.4 The tungsten-halogen lamp. The bulb position can be adjusted within the housing to create either a 'spot' or 'flood' effect. The deeper the bulb is seated in the reflector hood, the more concentrated the beam of light ('spot'); the shallower the bulb is seated, the broader the spread of light ('flood')

floor to give the effect of sunshine through a window, or sunshine through a plant. Though effective in the truest sense of artificial lighting, focusing spots are probably better suited to studio work because of their artificiality, weight and also the weight of the stand needed to support one of these lamps. It is also worth mentioning that Broncolor make a focusing spot flash head, which has the advantage of running at a cool temperature. This means that home-made cardboard gobos can be simply crafted to suit any situation.

Colour correction filters for tungsten

All tungsten lamps need a selection of colour correction filters to balance the colour temperature of their 'warm' light towards that of photographic daylight, depending on the degree of 'warmth' required from this artificial sunlight. It is rare to filter this effect completely to white as a degree of warmth gives the most natural appearance.

These filters come in the form of coloured plastic or gelatin sheeting which can be cut to any shape or size to fit over any lamp. Full Blue corrects tungsten (3200 K) to daylight (5500 K); also available are $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{1}{8}$ Blue for varying degrees of correction. Either a $\frac{1}{2}$ Blue or a $\frac{1}{2} + \frac{1}{4}$ Blue, make a good compromise between colour correction and a desirable suggestion of warmth in the light.

Meters

There are three different types of meter that are used in interior photography: a light meter, a flash meter and a colour meter. The first two are essential equipment and sometimes come in combined form, while the latter is optional, for critical work.

Light meters

A light meter is necessary for measuring the 'natural' available light in an interior before any supplementary photographic lighting is added. Since this is often treated as the dominant light source for the most natural appearance of a room, its correct measurement is of fundamental importance.

A hand-held meter can measure light in two ways. It can either record a direct reflected reading, which measures the quantity of light reflected off the subject (its brightness or luminance); or it can record an incident reading to measure the amount of light falling on the subject. Incident readings are more consistent as they are not affected by the reflectivity of the materials onto which the light is falling. However, whether reflected or incident readings are taken, an average brightness must be deduced from the whole of the subject area. While a spot meter, which measures reflected light with a 1° angle of measurement, is useful for determining the variations in light level across an interior, the centre-weighted metering system in a 35 mm SLR camera is useful for deducing a working average from several different readings across the picture area.

Whichever type of light meter is chosen, experience of it is the best way of achieving consistent results. If you are used to 'reading' the metering system of a 35 mm SLR camera, then this is probably your best choice. If not, incident readings on a hand-held meter are equally effective.

Flash meters

Flash meters are a specific type of light meter that are used to measure the strength of the very short, bright bursts of light emitted from a flash unit. They usually record only incident readings, measuring the intensity of the light reaching the subject, and displaying the necessary aperture for average exposure at preset shutter and film speeds. While this is an essential piece of equipment, it does not need to be the best or most expensive on the market: the cheaper meters still measure the flash intensity accurately. With interior photography especially, the meter readings need only act as a guide since the flash is often the secondary light source to the dominant available light already in the room.

Colour meters

A colour meter measures the colour quality of light in an interior, relative to the film type being used. It records the colour temperature, any colour casts and calculates the filters needed to balance the colour of the available light to the particular film type in use. Needless to say, this is an unnecessary item if working digitally where a white balance can be set, and any colour casts removed, in post-production.

Incident light readings are taken from within the picture area towards the camera. The light passes through a diffuser onto three separate silicon photocells, individually sensitive to blue, green and red light, respectively. The relative responses of these photocells to this light is compared, displaying a read-out of any necessary filtration required.

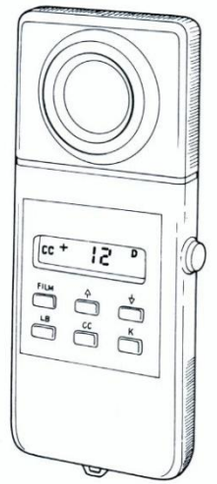

Figure 4.5 Colour meter. Light passes through the diffuser at the top onto three separate silicon photocells, individually sensitive to blue, green and red light, respectively. The relative responses to this light of these photocells are compared, displaying a readout of any necessary filtration required

It is an expensive piece of equipment and fortunately its use is not necessary for most everyday situations. Tables for colour correction and compensation (see Figure 4.6 and Table 7.1) are readily available as guides to the filtration required for various light sources. However, for precision interior work where perfect colour reproduction is critical, this is the best tool for the job.

Filters

Photographic filters are coloured or textured discs of glass, plastic or gelatin placed in front of the lens in order to modify the colour or quality of light passing through it onto the film plane, thereby altering or enhancing the recorded image.

Filters can broadly be divided into three categories: colour correction filters, colour compensation filters and special effects filters. Colour correction and compensation filters balance the colour of the light source with the type of film being used, and therefore are of fundamental importance for interior photography. Special effects filters tend to be of limited use, though a polarizer can be useful for cutting out daylight reflections on paintings and other reflective surfaces.

Colour correction filters

Colour correction filters alter the 'colour temperature' of the light passing through the lens. Therefore they are either a strength of amber, to 'warm' up the light (in the colloquial sense), or a strength of blue to 'cool' it down. They are necessary because, while the human eye readily compensates for variations in colour temperature, colour film tends to emphasize it.

The 'colour temperature' scale, in degrees Kelvin, measures the colour of the light radiated by an incandescent light source (i.e., one that glows from being heated) when heated to different temperatures. At the bottom end of the scale, these incandescent light sources include candlelight with a low colour temperature of 1930 K and domestic tungsten light bulbs with a medium-low colour temperature of 2900 K for a 100-watt bulb. Light sources with a low colour temperature radiate colours from deep red, through orange, to yellow and finally yellowish-white. They therefore require blue filtration to correct the balance of their colour temperature to that of photographic daylight. In the middle of the scale is direct noon sunlight, or 'photographic' daylight, at 5500 K: in photographic terms, neutral white light to which all general-purpose colour films are balanced.

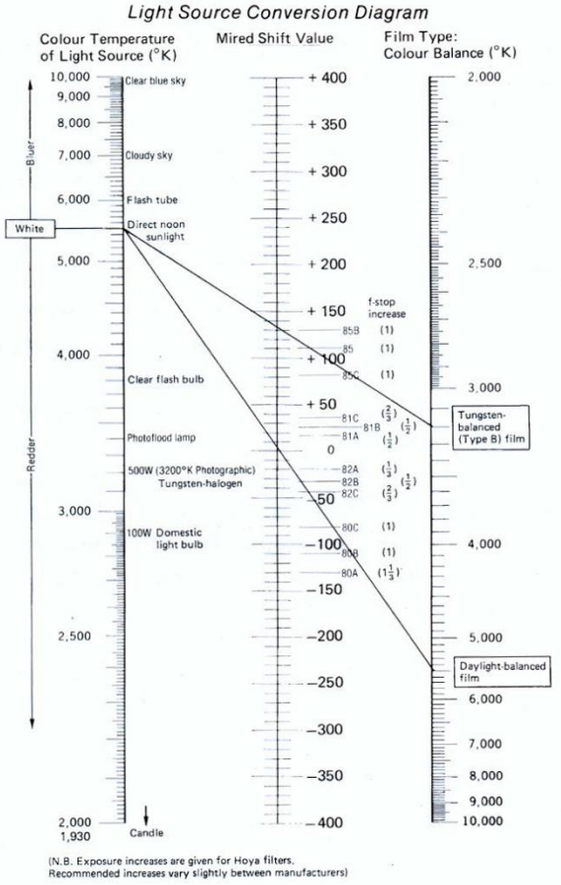

Figure 4.6 Colour correction filters. Draw a straight line between the colour temperature of a light source on the left, and the film type in use on the right. The necessary filter to correct the colour balance is indicated at the point where the line crosses the central scale. This also shows the mired shift value together with the necessary exposure increase in *f*-stops

Light sources with colour temperatures higher than 5500 K include sunlight filtered through an overcast sky at between 6000 K and 7000 K, to light reflected from a clear blue sky (in open shade, not in direct sunlight) at between 10 000 K and 15 000 K. These light sources with high colour temperatures radiate colours from bluish-white to blue, and therefore require amber filtration to correct the balance of their colour temperatures to that of photographic daylight.

The effects of colour correction filters are not measured in Kelvin because of the logarithmic nature of the scale which would give the same filtration different values for different source colour temperatures. Instead, they are measured in

mired shifts (shifts of MIcro REciprocal Degree, i.e., one million divided by the colour temperature in Kelvin). This is a more convenient means for calculating the necessary strength of filtration in order to correct the colour temperature of a particular light source, as it gives the filter a constant value. Thus, the colour correction filters for positive mired shifts above zero are strengths of amber (the 81- and 85-series), and for negative mired shifts are strengths of blue (the 80- and 82-series).

For example, using a daylight-balanced film, balanced for white light at 5500 K (a mired value of 1 000 000 divided by 5500 = 182) with tungsten photographic lighting at 3200 K (a mired value of 1 000 000 divided by 3200 = 312) the difference and incompatibility between the two is 182 – 312 = –130 mireds. Reading from the scale in Figure 4.6, a blue 80A filter would be the appropriate filtration necessary to correct the colour temperature of the light source to that of the film.

Professional colour transparency films are available in a choice of only two different colour balances: daylight-balanced (5500 K) film, the most common, for use when daylight or flash is the dominant light source; and tungsten-balanced (3200 K) film where tungsten light is the primary source. Colour correction filters can be used to balance the colour temperature of particular light sources with the film type being used, as described in the example above. A more frequent use of colour correction filters is to convert the balance of a daylight film to tungsten, and vice versa. The strong colour correction filters used specifically for this, are known as 'colour conversion' filters.

The 80A filter (deep blue) will convert a daylight-balanced film for use in tungsten lighting, as in our example; and the 85B filter (strong amber) will convert a tungsten-balanced film for use in daylight or with flash.

Colour compensating filters

Colour compensating filters, usually made of thin gelatin, are similar to colour correction filters but are more wide ranging in the sense that they are available in the six colours of the photographic process: red (R), green (G) and blue (B), and their complementary opposites cyan (C), magenta (M) and yellow (Y), all in varying densities. In combination or alone, these filters can finely tune the colour balance of almost any lighting situation when used in conjunction with a colour meter (an instrument that measures the colour quality of light in an interior, relative to the film type being used, and calculates any filtration necessary).

Colour compensation tables refer to appropriate colour compensation in terms of a numerical density or strength, followed by the initial of the colour of the particular filter, or filters, required for the situation. They frequently also give the exposure increase in terms of *f*-stops necessary for the recommended filtration. For example, the filtration needed to compensate the colour of light from a 'daylight-fluorescent' lamp for reproduction on a daylight-balanced film is recorded as 'CC 40M + 30Y, 1 stop'. This means that filtration with a strength of 40 Magenta plus 30 Yellow is required over the camera lens, with an overall increase in exposure of one stop.

These filters are especially useful to compensate for colour casts created by discharge lighting, i.e., non-incandescent light sources such as fluorescent, mercury vapour and metal halide lamps, which create light by means of an electrical discharge vaporizing a metal. The light produced may cover only narrow bands of the spectrum. However, the fluorescent coating on the inside of the glass tube of a fluorescent light expands the spectrum of light produced, enabling this type of non-incandescent lighting to be fully corrected in most cases. Colour compensating filters are also useful for correcting colour balance due to reciprocity failure of the film.

Unfiltered fluorescent lighting appears green on daylight-balanced film. To correct this, a magenta filter (known to some manufacturers as 'minusgreen') is placed in front of the lens. If further supplementary flash lighting is needed and is left unfiltered it would appear magenta on film as it has to pass through the compensating filter on the camera lens. To overcome this, green-coloured filters need to be placed in front of the flash units to convert their white light output to the equivalent colour balance of the fluorescent tube output. These can be purchased as large sheets of gelatin, cut to size, and then clipped to the flash unit.

Problems arise in situations of mixed lighting, when only a best possible compromise colour compensation can be achieved (see Chapter 7), and under sodium vapour lamps, which are discharge lamps that emit light of such a narrow yellow waveband it renders them uncorrectable. While critical colour compensation in situations of fluorescent

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lighting requires the use of a specific combination of colour compensation filters for perfect results (see Table 7.1), there are readily available fluorescent compensating filters for either 'daylight-fluorescent' (FL-DAY) or 'white-fluorescent' (FL-W) which are adequate for most general uses, and when not in possession of a colour meter.

In summary, the basic colour correction filters (80A and 85B) are essential equipment for interior photographers working with film, and others in the series can be useful. With regard to colour compensation filters, the basic standard fluorescent filters are essential, while the full set of compensation filters of different densities are only necessary for critical work, when using a colour meter.

Filter mounts

Colour correction filters (and the standard fluorescent compensating filters) are available in two different forms: either they are circular in a fixed mount that screws into the front of the lens casing (such as those by B&W and Hoya); or they are square and slide into a filter holder to which different-sized adaptor rings are attached corresponding to the different diameters of the lens barrel (the Cokin and Lee systems being the best-known makes). Both types are excellent, the first type being the fastest to use and the latter type being both more flexible and cheaper. The square variety is the cheaper system because it is only necessary to buy one filter holder with the different-sized adaptor rings to suit your lenses, and the same filter is good for all sizes. (If the diameters of the lens barrels are of widely differing sizes, it may be necessary to buy two different sizes of filter holder to cope with this wide variation.) The other advantage of the filter holder is that it can also carry colour compensating filter mounts.

Tripod

The importance of a robust, sturdy tripod cannot be overstated. Interior photography inevitably necessitates long exposures – for which a heavy-duty professional tripod is essential. Both the changing of film backs and pulling out exposed sheets of instant-print film are substantial, jerky movements throughout which the camera must be held rock-steady to avoid even the slightest displacement from its critical position. Resetting a camera position if it has been displaced for any reason is a time-consuming and frustrating

With regard to the head, it is essential for it to be heavy and to have plenty of available movement in the three dimensions, with large hand-sized handles with which to make necessary fine and tight adjustments. It is also useful to have the movement in each direction calibrated in degrees of angle: by zeroing everything, the operation of roughly setting up the camera in the first instance is speeded up; and if different critical angles of a view need to be taken this calibration makes it possible.

Finally, a quick-release plate is another handy, time-saving device much to be recommended. It consists of a metal shoe that is screwed firmly into the base of the camera, and simply clicks in and out of the socket on the tripod head.

Necessary extras

As well as the actual photographic apparatus described in this chapter so far, there is one further bag of equipment that is extremely important to take on a shoot and should certainly not be overlooked. This is the bag of essential extras, including cable releases, flash-synchronization cables, extension cables, double/triple socket adaptors, continental socket adaptors (if working overseas) and spare fuses for both the flash units and the plugs. A screwdriver with which to fit the fuses is required, and also spare modelling lamps, spare batteries for the meters and, if enough room, a roll of masking tape which has endless uses, including taping cables to the floor to prevent people tripping in a busy area. A small dustpan brush can also prove invaluable for brushing the pile of a dark carpet (or one with a sheen) in a consistent direction, in order to eliminate the distracting and unsightly foot scuffs that such carpets attract.

Finally, try to keep each grouping of equipment in its own bag or case, so that each case can be checked off when leaving for the shoot in the knowledge that it is complete within. This also helps when packing up after the job – if every item has its own place within a specific case, a quick visual check can reassure you that you have not left anything behind.

mediocrity on the other. As with composition, it is the point at which you start to break or stretch the rules that can produce the most creative styling. And again, this is where individual interpretation has its freedom of expression, which is why no two photographers will ever take exactly the same interior photograph of the same room.

Lighting

All interiors have their own individual combination of 'available' light sources by which the naked eye views them. This is often a mixture of daylight through the windows, with some form of artificial lighting to supplement it: a ceiling light or table lamps, for example. This available light, especially the daylight, creates mood and atmosphere in the room, and it is this that we want to convey in our image.

However, the contrast between the light and shade areas in an interior, though readily discernible to the eye, is usually too great to record on film: the light areas tend to 'burn out' and the shadow areas become a black void. The reason for this is that while the eye is sensitive to a range of at least 10 stops, colour transparency film only records about a 5 stop range, and colour negative film a 7 stop range.

In order to reduce the contrast, and thereby enable us to record the image clearly on film, we have to supplement the existing light with photographic lighting. This is a very subtle process, as we want to preserve the atmosphere and interplay of light and shade in the room, while reducing the contrast to acceptable photographic levels.

'Fill-in' lighting

Extra photographic lighting added by the photographer must be of a 'fill-in' nature, allowing the available light to remain the dominant source of illumination, except where special effects are required. This fill-in light, because of its secondary though important role, should be a diffuse light source, typically a flash bounced off a white umbrella or white wall, or a flash fired through a soft-box. Such diffuse lighting is the most subtle way of inconspicuously reducing the contrast of the available light.

The strength of this fill-in light should be approximately one-quarter the power of the dominant light source. In other words, the general ambient light reading in the interior should be 2 stops greater than the flash reading taken at a similar place.

(a)

(b)

Figure 5.10 Fill-in lighting. In image (a), the interior appears as the eye sees it. Because the sensitivity of the eye is much greater than the sensitivity of film, fill-in flash lighting has been added to reduce the contrast to recordable levels. Image (b) was taken without supplementary lighting, to illustrate the point

Placement of lights

The precise angle of this fill-in light is not critical because of its diffuse and subordinate nature. However, placed at an angle between the camera and the dominant light source (often a window), the gradual transition from light to shade is maintained, but the contrast subtly reduced. An angle closer to the camera, or even on the opposite side of the camera to the dominant light source, is usually acceptable, though tends to diminish the effect of atmospheric transition from light to shade.

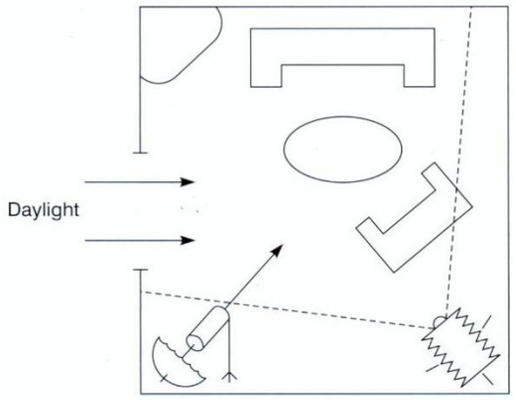

Figure 5.11 The placement of photographic lights for the fill-in effect. The best place is at an angle between the camera and the light source (often a window). This maintains the gradual transition from light to shade, while subtly reducing the contrast to recordable levels

A fill-in light on the opposite side of the camera also runs the risk of creating its own conflicting set of shadows, thereby reducing its subtlety. A well-lit interior should give the viewer the impression that no extra photographic lighting has been used at all.

Different requirements for different clients

The precise approach that a photographer adopts to shoot a particular interior assignment will depend first on the use for which the photographs are being taken, and second on the dictates of the client's preferred style.

For example, a property agent is likely to expect bright, clear, evenly lit images, with perhaps stronger than usual fill-in lighting. He will probably prefer you to shoot with your widest available lens (without linear distortion) to maximize the illusion of space in the room, and to include as many windows in view as possible to create the impression of a property with plenty of natural daylight.

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An architect, on the other hand, is more likely to be interested in symbolic shots showing the aesthetic and functional style of a particular building and its interior. While a wide shot will inevitably be part of the brief, the wide-angle lens is used more to exaggerate a specific aspect of the interior than to emphasize floorspace.

Editorial clients also have different preferences. For example, while they like to emphasize the atmosphere of an interior, created by available light, they differ in opinion over whether room lights should be left on or off. Some interior magazines believe that room lights and lamps should never be switched on, the philosophy being that one only turns on the lights on grey or rainy days. They also aim to shoot most of their features in the summer months since they are not in the business of selling dull days to their readers. Other magazines, on the other hand, which specialize in interior-designed rooms, do often like to have the lamps switched on in order to show off the lampshade designs to their best advantage. Some magazines prefer the use of a standard lens where possible rather than a wide angle, in order to create a more intimate and natural perspective, similar to the eye view of an interior.

A knowledge of the preferences and priorities of your clients is, therefore, essential. When starting work with new clients, it is always worth inspecting their recent publications to gain the best possible understanding of the way they like to work.

Detail shots and continuity

Alongside general interior shots, a client is likely to demand detail photographs as close-up extras to boost the illustrative impact of a set of pictures. These can range from decorative detail shots for a magazine feature of elaborate pieces of furniture, as styled for the main shots, to detail shots of cornicing or door handles to enhance the feel of quality in a property brochure. Modern light fittings or abstract construction detail may be the demand of an architect. Such details are important extra shots and should always be considered when working out your overall shooting sequence. Furthermore, it is sensible to decide at this stage which images are to be shot landscape and which portrait. A mix of each will give the editor and designer a wider scope for layout, and will enhance the visual interest of the printed page.

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6 TECHNIQUE IN PRACTICE

This chapter is about the actual mechanics of taking the photograph in order to achieve the best possible image, be it on film or digital. The practice for each is similar and most of the information in this chapter is appropriate to both technologies. When shooting film, most interior images are shot on a daylight-balanced colour transparency material, typically ISO 100, as this requires no filtration where daylight is dominant and the fill-in is from a flash source. Traditionally, a slow tungsten-balanced colour transparency film was the specialist film for interior photography as it is specifically designed for long exposures up to 100 seconds without any need for filter correction as a result of reciprocity failure. However, improved technology of the daylight-balanced colour transparency films means that similar exposures can now be made without any significant reciprocity failure, which is sufficient for most interior requirements. The majority of this chapter will therefore assume the use of a medium speed, daylight-balanced transparency film, though the use of tungsten-balanced film will be discussed in a separate section at the end of the chapter.

Lens selection

Having chosen the best position from which to take the photograph, select the appropriate lens for the job. This is likely to be a wide-angle lens, often the widest angle available because of the usual restrictions of space (not being able to get back far enough). It also gives the best depth of field and maximizes the illusion of space in a room by exaggerating the perspective.

This exaggeration of perspective must, however, be used judiciously as, in photographic terms, it is a form of

Figure 6.1 Geometric distortion. The closer an object is to a wide-angle lens, and the further it is from the central optical axis of that lens, the greater the geometric distortion of that object. Consequently, the plates in the foreground of this picture appear as ovals sliding out of the composition. This effect has been further exaggerated by the use of a vertical shift movement

distortion. The closer an object is to a wide-angle lens, and the further it is from the central optical axis of that lens, the greater the visual distortion and unnatural appearance of that object. For example, round plates in a bottom corner of the frame, photographed on a foreground table, can become awkward ovals sliding out of the composition. This can be further exaggerated by excessive shift movements, as any shift movement is a shift away from the central optical axis of the lens.

All wide-angle interior photography, therefore, is a compromise between coverage and distortion, though the effect of this distortion can be gainfully employed if the maximum illusion of space is demanded and due care is taken. Otherwise, a rule of thumb for lens selection is to select the longest focal length lens capable of including all the

significant elements of the interior. If it is a feature or small part of the interior that you wish to photograph, a standard lens or a short telephoto may be more appropriate. The advantage of the standard lens is that it has approximately the same focal length as the human eye, thereby giving the perspective in the image a high degree of normality. The telephoto, on the other hand, can be effectively used with a wide aperture to render sharp the feature while blurring the background.

Mount the camera on the tripod in the perfect position and get it roughly focused so that you have a clear idea of the picture you intend to take. Check with a spirit-level that the film plane is perfectly vertical to avoid any converging or diverging of the verticals in the image. If you need to include more of the floor or ceiling in the picture while retaining perfect verticals, you can do one of two things. You can either lower or raise the height of the camera on the tripod or, if using a view camera, you can raise or lower the front or back standard, which has the added advantage of also maintaining the level of the viewpoint already selected.

Lighting

Next, consider the lighting in terms of what is available, how you choose to supplement it and the effect you wish to create. Assuming you decide that the daylight through the windows is to be the dominant light source, you then have to decide whether or not you want any of the artificial room lights or table lamps switched on. These can add warmth to the picture and can brighten otherwise dimly lit corners, but they can also diminish the subtle atmosphere of an interior that appears to be lit only by daylight. Different combinations are appropriate for different purposes, as discussed at the end of the previous chapter, and again it comes down both to personal preference and the specific use of the photographs.

Having made your decision, you must next set up one or more flash units (depending on the size of the interior) to act as the fill-in light to reduce the overall contrast in the photograph. Fill-in flash is at its most subtle when bounced in from the side, at a place between the camera and the window, thereby supplementing the direction of the daylight from the window and maintaining the gradual transition from light to shade, while reducing the contrast to recordable levels. However, this is not always possible because of flash reflections appearing in the image. When this is the case, a

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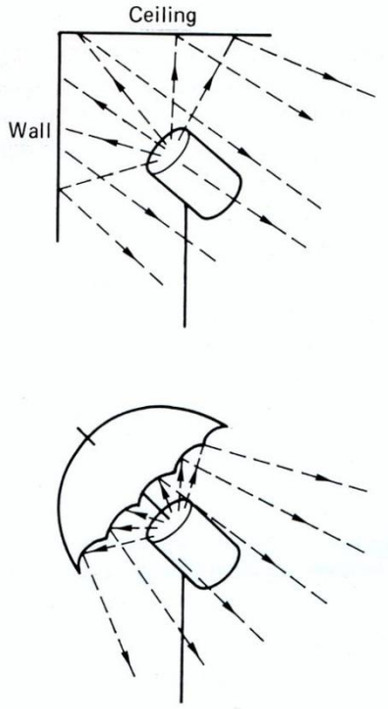

Figure 6.2 The effect of flash bounced off a white umbrella is similar to that bounced off the apex of a white wall and ceiling. This is a useful way to light an interior when space is restricted, and it also avoids the problem of unsightly umbrella reflections

position closer to the camera or even on the other side of the camera is still acceptable so long as the lighting ratio is significantly in favour of the dominant daylight.

If you are cramped in a corner, set up the flash unit beside the camera. If space allows, either bounce the flash off a white umbrella, or fire it through a soft-box if preferred. Alternatively, if space is very restricted, you can bounce the flash off the top apex of the wall behind you if the wall is white (any other colour will create a colour cast in the fill-in). Keep the height of the flash unit above the height of the camera so that the fill-in flash bounces slightly downwards onto the scene, at a similar angle to daylight through a window. Try and avoid placing the flash unit too close to any individual piece of furniture. This will allow the fill-in to penetrate as far into the room as possible, without 'burning out' any piece of furniture in the foreground.

With the flash unit(s) in place, make any necessary styling adjustments and check the image in the viewfinder. Look out for unwanted flash reflections and adjust the position of the flash units, camera, or both as required.

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Focusing

Next turn your attention to final focusing. To ensure absolutely perfect focus throughout the image area, one has to calculate the optimum plane of focus and necessary aperture for the required depth of field, but this is something we will come to later in the chapter, in the section on 'The use of tungsten-balanced film'. More simply, for the purposes of this quicker alternative, most SLR roll film camera lenses have depth of field scales engraved on them which give a reasonably accurate guide as to the available depth of focus for any particular aperture. A simple rule of thumb technique (so long as your aperture will be a minimum of 2–3 stops smaller than its widest) is to focus at a point half-way between the mid-foreground and the far wall. This should guarantee that the far wall is in focus and gives you a good chance that close foreground objects will be in focus as well. Check it visually by looking through the viewfinder with the lens stopped down, though this is sometimes difficult because of low levels of available light. If there is any doubt, it is usually better to ensure that the background is in focus rather than the foreground, as this tends to be more visually acceptable.

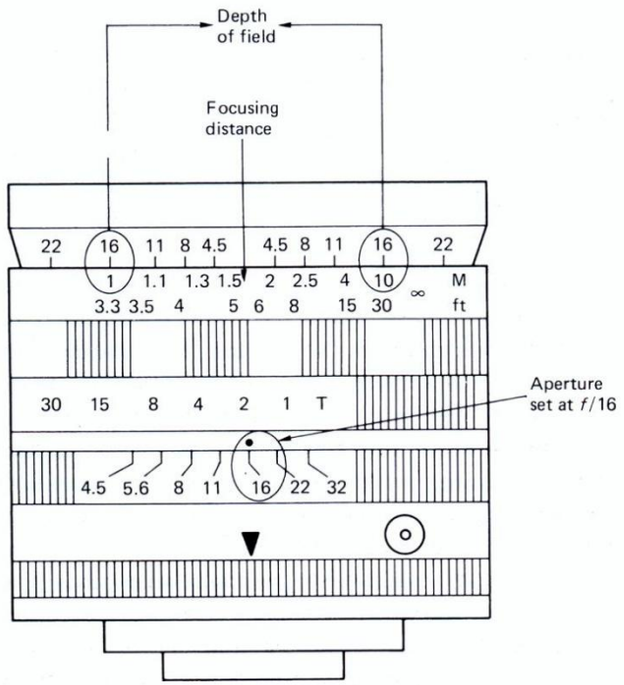

Figure 6.3 The depth of field scale on a roll film SLR camera lens. The aperture markings show the limits to the depth of field for any particular aperture, when compared with the distance markings. In this example, on a 50 mm medium-format wide-angle lens at *f*/16, the image would be sharp between 1 m and 10 m when focused at 1.7 m

Flash/light metering

One or two 500 J flash units are adequate as a fill-in for most residential interiors when using ISO 100 film, though for large interiors more units may be necessary. There are two ways to proceed. First, the traditional way is to meter the ambient light and work out a desirable aperture and exposure combination (within tolerant limits of both flash output and film sensitivity). You then adjust the flash output to register a meter reading a stop or two wider (see next section) depending upon the strength of fill-in lighting that you want.

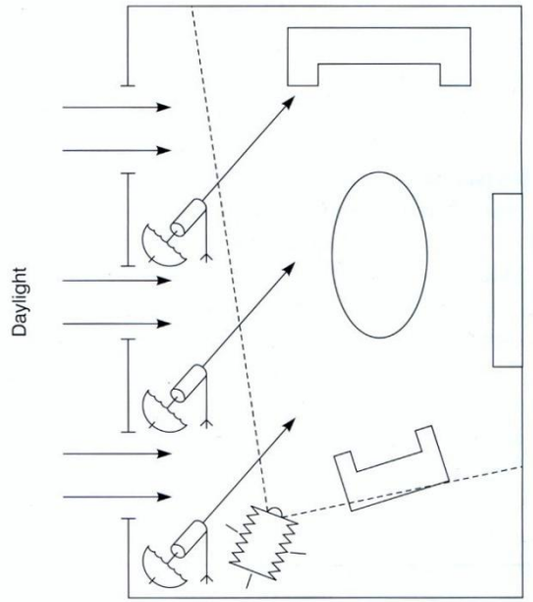

Figure 6.4 The placement of photographic lights in a large interior for effective fill-in lighting

Alternatively, a simpler but less orthodox approach is to allow the maximum output of the bounced flash to dictate the aperture setting on the camera. Take an incident flash reading from a point approximately one-third of the distance between the flash and the farthest wall, or off the first piece of furniture in the picture that is in its line of fire if that is closer. Assuming a typical reading of, for example, *f*/11 at ISO 100 from the flash output, you use this as your working guide. Next turn off the modelling lamps on the flash units. Then, using your light meter, take several exposure readings for an *f*/11 aperture setting. Take these as either direct readings off the floor, walls and furniture (or off a grey card) around the middle of the room, or as incident readings from

(a)

(b)

Figure 6.5 Evaluation of lighting ratio variants. Four colour transparencies show different ratios of flash output to the strength of the available daylight. Photograph (a) shows an even balance of flash and available light: $\frac{1}{4}$ second at *f*/11. The interior appears uniformly lit, producing a flat image. In (b), the effect of the daylight has been increased at the expense of the flash by 1 stop each way: $\frac{1}{2}$ second at *f*/16.

(c)

(d)

Figure 6.5 Photograph (c) shows the effect of a 2 stop difference each way, whereby the flash output is now one-quarter the power of the available daylight: 1 second at *f*/22. This is often the preferred power ratio of fill-in to dominant light. For the purposes of exposure comparison, (d) was taken with just daylight and no supplementary flash at all: 1 second at *f*/22. Notice how the exposure for the daylight has been kept consistent throughout. Subtle fill-in lighting creates a natural atmospheric balance on film between even, flat lighting, and excessive contrast when using available light alone

getting your image near perfect before committing it to the real film, but it is a poor guide to both colour and focus (it is too soft to show up sharp detailing on medium format). However, if you are happy with the instant-print image, you will be delighted with the image on transparency.

Exposure trials

Suggested exposure trials for this example:

	Exposure	Aperture
Original meter reading	$\frac{1}{4}$ second	*f*/11 (flash reading)
Starting point: 2 stop each way differentiation	1 second	*f*/22 (× 2 frames)
Further trials/brackets	1 second	*f*/19 – *f*/27
	$\frac{1}{2}$ second	*f*/13 – *f*/16 – *f*/19
	2 second	*f*/22 – *f*/27 – *f*/32

I suggest shooting two frames of the likely perfect exposure, with $\frac{1}{2}$ stop aperture and exposure variations around this base.

These ten exposure trials will fill a roll of film on a 6 cm × 7 cm format, or will leave you with two spare frames for further trials on the square 6 cm × 6 cm format. You will find that most of the frames will be usable, but that they vary both in brightness and ratio of available light to flash. This gives the photographer and client a wide choice of slight variations in the final photograph, a choice that will be dictated both by usage and personal preference. It also demonstrates the advantage of flexibility that roll film holds over sheet film.

Apart from giving a more natural appearance to the room's illumination, another positive result of increasing exposure time and reducing the aperture size is that it progressively increases the depth of field to a point whereby everything in shot is likely to be in focus when stopped down for taking the actual photograph.

The use of tungsten-balanced film

Tungsten-balanced colour transparency film can be useful for photographing large interiors, such as theatres for example, which are well lit with ambient tungsten lighting and require

Figure 6.6 The use of tungsten-balanced film. For interiors illuminated with tungsten lighting, this is the ideal film choice. It is especially useful for narrow interiors such as this where there is no room to place any photographic lights

little, if any, extra photographic lighting. It is also suitable for photographing tungsten-lit corridors, where extra photographic lighting can be awkward or impossible to place, giving perfect colour correction to the ambient lighting – see Figure 6.6.

The special property of tungsten-balanced transparency film rated at ISO 64 is that it has been specifically designed for long exposures between 1/10 second and 100 seconds without suffering any significant reciprocity failure. At 100 seconds, Kodak suggests its Ektachrome 64T film requires merely a $\frac{1}{3}$ stop exposure increase and no filter correction. Such tolerance to long exposures therefore makes this the ideal film choice when small apertures are required to achieve maximum depth of field in the image of a deep interior, such as a church, for example (this was the film chosen for the 'Painting with light' technique in Chapter 8). The long exposure times also give the photographer enough time to fire the flash units several times to build up sufficient fill-in light for such small apertures. For most interior work where daylight is the dominant light source, an 85B colour correction filter is necessary over the camera lens. However, the density of this filter reduces the effective film speed by 1 stop to ISO 32.

Deducing the optimum plane of focus

The theory behind perfect focus throughout the depth of the image being photographed is to establish the optimum plane of focus from which sharpness will extend in both directions to include the nearest and furthest elements of the picture, at a certain aperture. It is also important to find the largest aperture possible that will encompass this zone of sharpness as the performance of even the best lenses tends to fall off at apertures smaller than *f*/22. Using the largest aperture possible has the further advantage of minimizing the necessary flash output and exposure time.

The simplest way to do this is to measure the bellows displacement between the focus on the furthest and nearest elements of the image, and then set the camera to half the displacement measured. So first focus the camera on the furthest element (the far wall in an interior) and mark this position at the monorail, baseboard or focusing knob. Then focus on the nearest element. The camera focus will increase and a second focus setting will be obtained. Measure the distance between the two displacements and set the camera at half this measured displacement. The optimum focus position for the desired depth of field zone has now been established. The corresponding working aperture needed to cover the required depth of field is found in the 'Linhof universal depth of field table'. The appropriate minimum *f*-numbers for a given film format are listed for various bellows displacements.

Universal depth of field table

Table 6.1 shows different displacements at the same aperture for different formats because smaller negatives normally require a higher magnification. As a result, closer tolerances apply for calculating the depth of field available for critical sharpness.

If neither the smallest possible aperture nor a Scheimpflug adjustment can produce sufficient depth of field to

Table 6.1 The 'Linhof universal depth of field table' calculates the minimum aperture needed to cover the required depth of field, once the optimum focus position has been established

Linhof Universal Depth of Field Table

Focus camera to far and near object points (also when Scheimpflug rule is applied) and measure extension difference in mm, using scale above. Look up this figure in appropriate format column and read off f/stop required to obtain the necessary depth-of-field on the same line at right. For intermediate values, use next smaller f/stop shown on the line below.

Set rear standard at half the displacement established

	2¼×2¾ in.	4×5 in.	5×7 in.	8×10 in.	f – stop
mm	1,2	1,6	2,4	3,2	8
mm	1,7	2,2	3,3	4,4	11
mm	2,4	3,2	4,8	6,4	16
mm	3,3	4,4	6,7	9,0	22
mm	4,8	6,4	9,6	12,8	32
mm	6,7	9,0	13,5	18,0	45
mm	9,6	12,8	19,2	25,6	64
mm	13,5	18,0	27,0	36,0	90
mm	19,2	25,6	38,5	51,2	125
mm	27,0	36,0	54,0	72,0	180
mm	38,5	51,2	77,0	102	250

In close-up work, the f-stop taken from the table should be corrected as follows

G = 6f : open by ½ stop; G = 2f : open by 2 stops;
G = 4f : open by ⅔ stop; G = 1.5f : open by 3 stops;
G = 3f : open by 1 stop; G = 1.3f : open by 4 stops;

Explanation: G = distance of diaphragm plane to the forward ⅓ of the subject; 6f = 6 × focal length of the lens employed.

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render the full depth of the image sharp, a smaller reproduction ratio has to be chosen by increasing the camera-to-subject distance or using a lens of shorter focal length.

Universal depth of field calculators

Universal depth of field calculators are available for some view cameras. These work on exactly the same principle as described above and are more convenient as they are built into the camera and remove the need for any further external tables. They consist of a movable aperture scale on the rear focus knob which indicates the working aperture for any required depth of field, and also the optimum focus position.

Multiple flash and multiple exposure

Once perfect focus has been achieved, and the working aperture deduced, it is time to take a light reading of the available light to determine the exposure required for the working aperture. Let us assume that the working aperture was calculated as *f*/22, and the exposure required measured as 8 seconds at ISO 32 (that is, ISO 64 less 1 stop for the colour correction filter). If the flash reading is *f*/5.6 at this film speed, the flash output needs to be boosted to read *f*/11 for it to act as an adequate fill-in, 2 stops below the available light reading of *f*/22. To do this, one would have to fire the flash unit(s) four times during the 8-second exposure: once for *f*/5.6; twice (double the output) to boost it 1 stop to *f*/8; and then double that output making a total of four times, to boost it a further stop to *f*/11. This is done most easily by firing the flash units manually with the flash meter, so long as the length of exposure allows for the number of flashes needed. Otherwise, it should be done by multiple exposure: in this case, for example, four 2-second exposures with the flash unit(s) fired each time directly by the camera. A Prontor Professional self-cocking shutter system on a view camera lens is the perfect shutter system for multiple exposures as it prevents any small movement of the camera between exposures as a result of re-cocking the shutter.

Having determined the optimum aperture and exposure, and calculated the necessary flash output, it is time to shoot an instant-print test shot to check that your calculations are creating your intended results. If using ISO 64 tungsten-balanced instant-print film, expose it just as you would for the transparency film, but with any slight exposure adjustments recommended on the pack to take account of the ambient temperature. If you are choosing to work with ISO 100 daylight-balanced instant-print film, remove the 85B filter for the test shot and follow the calculations outlined below.

Exposure calculations between instant-print and transparency films of different speeds

Remember that our calculations are based on a film speed of ISO 32, whereas the daylight-balanced instant-print film is rated at ISO 100. If we keep the working aperture constant at f/22, the exposure time and flash output will need to be adjusted accordingly. The difference in film speed between ISO 32 and ISO 100 is almost exactly $1\frac{1}{2}$ stops (1 stop: 32 + 32 = ISO 64; $1\frac{1}{2}$ stops: 64 + 32 = ISO 96; 2 stops: 64 + 64 = ISO 128). Because the instant-print is the 'faster', more light-sensitive film, because of its higher film speed rating, the exposure time and flash output will have to be decreased by $1\frac{1}{2}$ stops for the purposes of the test shot(s).

Thus, a $1\frac{1}{2}$ stop decrease in an 8-second exposure would be a 5-second decrease, creating a 3-second exposure for the instant-print shot (1 stop decrease: 8/2 = 4-second decrease; a further $\frac{1}{2}$ stop decrease on remaining 4-second exposure: 4/4 = 1-second further decrease, making a total decrease of 5 seconds).

A $1\frac{1}{2}$ stop decrease in a four-flash output would be a $2\frac{1}{2}$ flash decrease, creating a $1\frac{1}{2}$ flash output for the instant-print shot (1 stop decrease: 4/2 = 2 flash decrease; a further $\frac{1}{2}$ stop decrease on remaining 2 flash output: 2/4 = $\frac{1}{2}$ flash further decrease, making a total decrease of $2\frac{1}{2}$ flashes.

So, the ISO 100 instant-print is shot at *f*/22 with a 3-second exposure, and $1\frac{1}{2}$ flashes at full output (a little awkward, but quite possible for the purposes of the instant-print). Assuming you are happy with the result of this instant-print, you can now put the 85B colour correction filter on the lens and proceed to shoot the transparency film. Bracketing is the best way to guarantee a perfect result, so below are the bracketing suggestions for this particular example, again assuming a 10-frame roll film.

Exposure/flash trials

Suggested exposure/flash trials for this example:

Aperture constant at *f*/22

	Exposure	No. of flashes
Starting point	8 second	4 (*f*/11) (× 2 frames)
Further brackets	8 second	2 (*f*/8)
	8 second	6 (*f*/13)
	8 second	8 (*f*/16)
	8 second	12 (*f*/19)
	4 second	8 (*f*/16)
	6 second	4 (*f*/11)
	12 second	4 (*f*/11)
	6 second	8 (*f*/16)

Again, this allows two frames for the likely perfect exposure, and $\frac{1}{2}$ stop variations in exposure time and flash output around this base. While most frames should be usable, they will vary in terms of both brightness and ratio of the dominant available light to the fill-in flash. This gives the photographer and client a full choice for final reproduction, depending on usage and personal preference. Notice that the working aperture remains constant throughout at *f*/22, as this was the determined maximum aperture for perfect focus throughout the depth of the image, thus giving both perfect focus and optimum lens performance for the situation.

If the instant-print test shot is either too dark or too light, or the balance of dominant to fill-in light is not to your liking, then assess the necessary exposure and/or flash adjustments and shoot further test shots until you are completely satisfied with the result. A satisfactory instant-print should yield an excellent result on transparency. If working with ISO 100 daylight-balanced instant-print film, do not forget to increase the exposure time and flash output by $1\frac{1}{2}$ stops to deduce the starting point for bracketing on the transparency film, and again remember to put the 85B filter over the lens.

Checking colour balance

Finally, the colour balance of the artificial light source(s) may need to be checked to ensure optimum colour rendition on the final transparency. This is done by using a colour meter, which measures the colour balance of light in an interior and then calculates the colour correction and compensating filters necessary to balance the light to the film being used. You register the film type into the meter, and then take an incident reading from the centre of the room. The relative responses of the three colour-sensitive photocells to this light are compared, displaying a readout of any necessary filtration required. It is important to use as few filters as possible to retain optimum image quality.

Checking the colour balance of the available light in an interior is essential for critical colour rendition in situations of only artificial lighting – for example, tungsten and/or fluorescent. Where daylight is present in an interior, and especially if a window is in view, you must remember that any filtration you put over the lens to compensate for the colour casts of the artificial lighting will also discolour the daylight on the recorded image. For details on how to overcome such problems, see Chapter 7.

Checking the colour balance is only of limited use for residential interiors where daylight is likely to be dominant. It is usually more important to maintain the same balance of available tungsten lighting to daylight between shots of the same room in order to retain the same atmosphere than it is to ensure perfect colour reproduction. A reddish glow from a table lamp, for example, can create a desirable warmth in the picture adding to the rich essence of the interior. Personal preference and the use for which the photographs are being taken should guide you in these matters.

Professional etiquette

As a conclusion to this chapter on the fundamental techniques of interior photography, it seems appropriate briefly to outline some guidelines on professional etiquette that all interior photographers should follow. This is important, both as a matter of natural courtesy to the client and/or owner of the property being photographed and also to demonstrate an attentive respect to create the best possible impression to further your chances of future commissions.

These guidelines include being polite and respectful of the owner's property on a shoot – which could be the personal and private sanctuary of the owner's home – and to always carefully rearrange every photographed interior back to its original state. If possible, remember to bring an old plastic carrier-bag with you in which to collect and take away your rubbish. Film papers and boxes, instant-print papers and empty packs are messy and quickly mount up.

7 INTERIORS WITH MIXED LIGHTING

The last chapter, on technique, dealt with an average interior illuminated predominantly by daylight, with supplementary fill-in flash. Any artificial room lights or lamps have been treated as either negligible or atmospheric. Interiors illuminated predominantly by artificial lighting are, however, likely to appear with an unacceptable colour cast on a film balanced for white daylight, if no filtration is used over the camera lens: tungsten lighting will produce an orange cast and fluorescent an unpleasant green one. Likewise, if tungsten-balanced film was used in an interior of predominantly tungsten lighting, any daylight or flash would produce a cold blue cast on the film. None of this applies to digital photography, of course, where the white balance can be set at the time of exposure, and colour balance adjusted in post-production.

For optimum colour rendition in interiors with mixed lighting, the 'multiple exposure' technique is the best method, whereby a separate exposure with appropriate filtration is made for each different light source independently, all on a single film frame. It is essential to keep the camera absolutely steady throughout the whole process as even the slightest movement between exposures can cause a double image on the film.

Mixed daylight and tungsten

Most residential interiors, and some offices, are illuminated by a combination of daylight and tungsten lighting in the form of ceiling lights or table lamps. This can present a problem, as discussed above: no filtration would create an orange colour cast on daylight-balanced film, while filtering specifically for the tungsten lighting would cause the colour of the white daylight to appear blue on film. There are several alternative methods for dealing with such situations of mixed lighting, depending on the effect being sought.

The first, the simplest, and often the best method is to leave all the tungsten lamps switched off, and work with just the dominant daylight and flash: a technique that is preferred by most of the interior magazines. Alternatively, if the

Figure 7.1 Mixed flash and tungsten. A double exposure was used on daylight-balanced film. The first part of the exposure was for the flash alone (located beside the camera) at a fast shutter speed, without filtration, and the second part was for the ambient tungsten lighting with an 80A filter over the camera lens

tungsten lamps are to appear lit in the photograph, you can either replace the bulbs with special colour-corrected 'daylight' bulbs, or switch them off for a portion of the exposure and correspondingly increase the exposure for the daylight to reduce their impact. These are the methods used by most interior photographers most of the time, tungsten lighting being considered an acceptable warm light source (as opposed to the sickly green of fluorescent).

It is, however, possible to use a multiple exposure to improve the overall colour rendition on the transparency. As a general rule for any mixed lighting situation, the total exposure of a single film frame can be divided into as many parts as there are different types of light source in the interior to be photographed, assuming that each different source can be controlled independently of the others. To control the daylight, it will have to be possible to black out the windows. You divide the exposure in two: the first part for the daylight and any fill-in flash, with the tungsten lights switched off; and the second part for the tungsten lights only, with the windows blacked out. Using tungsten-balanced film, the first part of the exposure for the daylight and flash would have to be filtered with an amber 85B colour correction filter. The exposure time for that part of the overall exposure, and also the flash output, would have to be increased by 1 stop to take account of the strength of filtration.

A light meter reading should be taken with full available light (i.e., with both the daylight, and the tungsten lights switched on) for a specified working aperture. If the existing balance of daylight to tungsten is to be maintained for the most natural appearance on film of the actual situation, then the exposure reading taken should be used for both parts of the exposure independently. If a different balance between the two light sources is preferred, then the exposure time for each part can be adjusted accordingly.

The first part of the exposure for the daylight is likely to be supplemented by fill-in flash. Depending on the flash output necessary for the working aperture, the flash can be fired any number of times to reach the required output – either by firing it manually, if exposure time permits, or by dividing the exposure time into equal parts and letting the camera trigger the flash with each of a multiple of exposures.

For example, let us assume an exposure reading of 10 seconds for a working aperture of *f*/22 when using a tungsten-balanced film rated at ISO 64. A flash reading of *f*/6.7 was taken at full output. In order to be an effective fill-in, the flash would have to be fired twice to increase its effective output by 1 stop to *f*/9.5, and half of this overall output again, i.e., one more flash, to achieve a further $\frac{1}{2}$ stop for an *f*/11 reading. This would mean firing the flash three times in all to create an effective output of *f*/11, which would be the recommended fill-in ratio of one-quarter the power of the available light.

The 10-second exposure and three flash output must next be increased by 1 stop to take account of the strength of the 85B filtration. A 1 stop increase requires a doubling of exposure time and flash output, so the exposure time would become 20 seconds and the flash output would become six flashes.

The daylight/flash part of the overall exposure could therefore be achieved, most sensibly, by firing the flash manually six times during the 20-second exposure. Alternatively, for the purpose of illustrating the point, this could also be achieved by multiple exposure in the following way: five exposures of 3 seconds each, and a sixth exposure of 5 seconds, each time triggering the flash unit(s) at full power. The tungsten part of the exposure would be for a straight 10 seconds.

The image in Figure 7.1 was a double exposure on daylight-balanced film. The first part of the exposure was for the flash alone, at a fast shutter speed without filtration; and the second part was for the ambient tungsten lighting with an 80A filter over the camera lens.

Mixed tungsten and fluorescent

When an interior is illuminated by a mixture of tungsten and fluorescent lighting – usually in a commercial or industrial building – the photographer should use a double or multiple exposure technique similar to the method outlined in the last section for daylight and tungsten.

Again, an overall light measurement should be taken with both light sources switched on, for a specified working aperture. Unless tungsten photographic lighting is used as a supplementary light source (in which case it should also be switched on when taking the light reading), any flash fill-in will have to be filtered appropriately. However, it is likely that interiors lit purely artificially will be large industrial sites

Table 7.1 Filters required to compensate for fluorescent and other forms of discharge lighting. Necessary exposure increase in *f*-stops is given

Colour compensation filters for fluorescent lighting

Type of lamp	*UK tubes*		*Type of lamp*	US tubes	
	Daylight-balanced film	*Tungsten-balanced film*		Daylight-balanced film	Tungsten-balanced film
Daylight	40M + 30Y + 1 stop	85B + 30M + 10Y + $1\frac{2}{3}$ stops	Daylight	50M + 50Y + $1\frac{1}{3}$ stops	85B + 40M + 30Y + $1\frac{2}{3}$ stops
White	30M + 20C + 1 stop	40M + 40Y + 1 stop	White	30M + 20C + 1 stop	60M + 50Y + $1\frac{2}{3}$ stops
Warm white	40M + 40C + 1 stop	30M + 20Y + 1 stop	Warm white	40M + 40C + 1 stop	50M + 40Y + 1 stop
Warm white deluxe	30M + 60C + $1\frac{2}{3}$ stops	10Y + $\frac{1}{3}$ stop	Warm white deluxe	30N + 60C + 2 stops	10M + 10Y + $\frac{2}{3}$ stop
Cool white	30M + $\frac{2}{3}$ stop	50M + 60Y + $1\frac{2}{3}$ stops	Cool white	40M + 10Y + 1 stop	60R + $1\frac{1}{3}$ stops
Cool white deluxe	20M + 30C + 1 stop	10M + 30Y + $\frac{2}{3}$ stop	Cool white deluxe	20M + 30C + $\frac{2}{3}$ stop	50M + 50Y + $1\frac{1}{3}$ stops

Suggested colour compensation filters for other types of discharge lighting

Type of lamp	*Daylight-balance film*	*Tungsten-balanced film*
Metal halide	40M + 20Y + 1 stop	60R + 20Y + $1\frac{2}{3}$ stops
Deluxe white mercury	60M + 30Y + 1 stop	70R + 10Y + $1\frac{2}{3}$ stops
Clear mercury	50R + 20M + 20Y + $1\frac{1}{3}$ stops	90R + 40Y + 2 stops
High-pressure sodium	80B + 20C + $2\frac{1}{3}$ stops	50M + 20C + 1 stop

or warehouses with sufficiently even illumination not to warrant any extra photographic lighting. An ambient light reading will give the necessary exposure for the photograph, and this will be the basis for each part of the double exposure as each light source is switched on and off independently. Using this same exposure for each part of the overall exposure will maintain the existing lighting balance of tungsten to fluorescent as they naturally appear.

Before the double exposure can take place, the appropriate exposure increase for the fluorescent part of the exposure must be calculated to take account of the necessary filtration, assuming a tungsten-balanced film.

For example, using a tungsten-balanced film rated at ISO 64, a light meter reading indicates an exposure of 10 seconds for a working aperture of *f*/22, with all the lights switched on. The tungsten part of the exposure will therefore be a straightforward 10-second exposure without filtration. The fluorescent lighting in this example is White Fluorescent. The colour compensation filter necessary to balance the colour of the fluorescent lighting to the tungsten-balanced film is CC 40M + 40Y, as read from Table 7.1. This filtration requires an exposure increase of 1 stop. Therefore, the fluorescent part of the exposure will have to be double the 10-second meter reading, making a 20-second exposure.

The double exposure would therefore work as follows. Switch off the fluorescent lights and expose the film at *f*/22 for 10 seconds without filtration. Next, reset the shutter and place filtration to the value of CC 40M + 40Y over the lens. Switch on the fluorescent lighting, switch off the tungsten and make a further 20-second exposure on top of the first.

Mixed fluorescent and daylight

This is the most common combination in office interiors and probably the hardest to correct with great accuracy. Working on daylight-balanced film without filtration would create an unpleasant green colour cast across the image. Filtering for the fluorescent would make the daylight coming through the windows appear magenta in colour. Several alternative solutions are possible, the simplest being to leave the fluorescent lighting switched off and to work with just a combination of daylight and flash lighting. Where daylight is

(a)

(b)

dominant, in combination with flash, it is also possible to leave the fluorescent lighting switched on with negligible effect on modern emulsions.

Alternatively, a double exposure can be used: the first part for the flash alone without filtration and the second part for the fluorescent and daylight with magenta filtration for the fluorescent. Inevitably, this produces a slight magenta cast on the daylight, but where the daylight is the secondary light source this can be negligible – see Figure 7.2(a) and (b).

A better solution is to shoot a triple exposure on one transparency. Switch off the fluorescent lights and make the first exposure for the flash alone, without filtration and at a fast shutter speed (1/125 second, for example) to render negligible the ambient light. The second exposure is for the daylight alone, with an appropriate green gel over the lens (typically CC 20G or CC 30G); and the third is for the fluorescent and daylight together, with magenta filtration (corresponding to the opposite of above, i.e., CC 20M or CC 30M) to neutralize the effect of the first green gel on the daylight. The second and third exposures must be exactly the same for the neutralizing process to work effectively. Take your ambient light reading with the fluorescent lights switched on. Add approximately half a stop to this light reading to compensate for the reduced light level of the second exposure when the fluorescent lights are switched off.

For example, an ambient reading of 1 second at *f*/19 with the lights switched on should be interpreted as 1 second at *f*/16 to compensate for this part of the exposure when the lights are switched off. The second and third parts of the exposure should therefore be for $\frac{1}{2}$ second at *f*/16, plus the recommended exposure increase in the region of half a stop to take account of the filtration (the CC 30G and the CC 30M filters recommend an exposure increase between $\frac{1}{3}$ and $\frac{2}{3}$ of a stop). This would make an exposure of $\frac{1}{2}$ second at *f*/13 for the second and third exposures on the single frame. Fill-in flash at 2 stops below a working aperture of *f*/13 would need to register a reading of around *f*/6.7.

To recap, using a constant aperture of *f*/13 the first exposure for the flash alone would be 1/125 second (with a flash reading of *f*/6.7); followed by a second exposure of $\frac{1}{2}$ second with a green filter over the camera lens and no flash or fluorescent lighting; and a final exposure, with the fluorescent lighting switched on, of $\frac{1}{2}$ second at *f*/13 with a

Figure 7.2 (*facing page*) Mixed fluorescent and daylight. Image (a) shows the effect of fluorescent lighting on film when left unfiltered, with its unpleasant green colour cast. Image (b) was a double exposure: the first part for the flash alone at a fast shutter speed and without filtration and the second part for the mixed fluorescent and daylight with 20M and 81A filtration over the camera lens. While the colouring in the interior has been suitably neutralized, notice how the daylight in the window now has a magenta cast over it. This was quite acceptable for the purpose for which the shot was taken, but had I wanted to completely correct all the colours, I would have had to use a triple exposure, neutralizing the magenta with green filtration for the daylight

magenta filter over the camera lens. Be sure to check the results on instant-print film, and then bracket the exposures when shooting the transparency film.

The best results can be obtained by the time-consuming business of covering each fluorescent tube with a sheet of gelatin daylight conversion filter. This would have the effect of balancing the colour of the fluorescent light with that of the daylight, avoiding the need for complicated multiple exposures and camera filtration.

8 PROBLEM INTERIORS

Problem interiors are those that deviate from the typical, average interior used to illustrate 'Technique in practice', Chapter 6. This deviation can be of size, structure or lighting. Difficulties can also arise with interiors that have no electricity or no furnishings. Those full of reflective surfaces require certain necessary precautions to be taken, to prevent unsightly flash reflections from appearing in the image. Various solutions to these problems are outlined to assist you in the day-to-day practice of this type of work.

Large interiors

Large interiors include open-plan office areas, factories, industrial warehouses, theatres and churches, for which the output from a couple of flash units could appear totally ineffective. There are three possible methods for dealing with such interiors. The first and simplest is to use the available light only. The second is to choose a camera position that enables you to hide several flash units within the picture area, thereby using the flash either as the dominant source or a very effective fill-in. And the third method is what is known as 'painting with light' whereby the photographer literally paints the interior with light from a flash or tungsten source while the camera shutter remains open.

Using available light

Photographing a large interior with available light only is both the simplest and fastest method, and often quite adequate for the use for which the photograph is being taken. For example, a photograph of a warehouse for a property brochure can often end up being printed around the same size, if not smaller, than the original transparency. This would

not warrant extensive subtle photographic lighting either in terms of quality or time. In fact, many such warehouses have very effective skylights along the length of their roofs that provide wonderfully even sources of white illumination over the whole interior, and that can often be supplemented further by opening their massive doors. If they do not have skylights, they will have some form of artificial lighting which, with simple filtration, should render an evenly lit image of sufficient quality.

Problems only arise when the large interior has a combination of both daylight through windows and artificial lighting, as discussed in the previous chapter.

Hidden flash lighting

There are often occasions when a relatively deep and narrow interior has to be photographed, with the deepest part disappearing into the shadows. The fill-in flash beside you will never penetrate deep enough without 'burning out' the furniture, floor and ceiling in the foreground, and the available light may also fail to penetrate the depths without causing excessive brightness in the rest of the image. In such circumstances, the best remedy is to hide a flash unit within the picture area itself. Flash units can be concealed behind pillars or furniture, or hidden in doorways so long as nothing of the unit or its cabling is visible in the final image. The sight of any equipment, cabling or photographic lighting reflections in a photograph is an instant picture-killer and should be avoided at all costs.

Figure 8.1 An example of hidden flash lighting. The fireplace was very dark within an otherwise dark interior. The only way to lift this was to lie a flash unit on the floor underneath the table at the far end, aiming it directly at the fireplace

Flash can be bounced off anything white, not necessarily an umbrella if there is insufficient space for it or it is causing an unsightly reflection. It can be bounced off a wall, the junction of the wall with the ceiling, white card or even woodwork if you are happy with a warmer light. In Figure 8.1 the dark dining-room interior caused the fireplace area to disappear into a black void without supplementary lighting. With one flash unit bounced off a white umbrella beside me, I was able to hide a second on the floor underneath the table, aimed directly at the fireplace. The result picks out all the detail of the fireplace with great clarity. For illuminating such small dark areas within the picture area when there is not sufficient space to conceal a flash unit, a portable flashgun with a slave unit (a flash-sensitive triggering device) attached is a small, handy and very easily hidden source of flash light without any cabling.

'Painting with light'

When you require even illumination of a large, dark interior without having to set up and conceal many flash units within the picture area, it is possible to use a very long exposure during which time you literally 'paint' the interior with light from either tungsten lamps or flash units. This creates a shadowless light and requires the photographer to walk around the interior painting the light or firing the flashes from within the picture area itself.

In order to make this long exposure, use the 'T' shutter setting on the lens as, once fired, this will hold the shutter open until the cable release is pressed a second time. If there is no 'T' setting on your lens, use the 'B' setting in conjunction with a locking cable release. Once fired, the screw lock will hold the shutter open while you are away from the camera. Releasing it on your return will close the shutter.

For example, I used this technique to illuminate the church in Figure 8.2. The church itself was suitably dark and gloomy with the lights switched off, which enabled me to use

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Figure 8.2 Mursley Church, Bucks. A 60-second exposure was used during which time I 'painted' the interior with light, walking around within the picture area firing a flash unit. I wore dark clothes and kept moving throughout to prevent my own image appearing on film. My 'painting' sequence is illustrated in Figure 8.3

a 60-second exposure at *f*/16 with an 85B filter over the lens. This gave me just enough time to get around the full interior, with negligible reciprocity failure on tungsten-balanced film rated at ISO 64. If the ambient light is too bright for a long exposure, neutral density (ND) filters can be used over the camera lens to reduce the intensity of light reaching the film plane (see Table 9.1). However, they also reduce the intensity of the flash light reaching the film, which means more power will be needed from the flash units. This is most simply done by firing them more times within the extended exposure time.

The painting sequence I used is illustrated in Figure 8.3. It is essential to work out the most appropriate painting sequence in advance in order to illuminate the interior evenly and efficiently in the limited time available. It is also practical to position beforehand two or three flash units, or tungsten

lamps, in concealed positions, in order to keep power cables to manageable lengths and prevent their image appearing on film. The placing of these units will be dictated to a large extent by the location of power points. The church in Figure 8.3 had only two power points: one in the nave and one in the chancel. Concealed places near to these points were therefore used to hide the units when not in use during the exposure. Their slave units were switched off so to prevent them being triggered by other flashes.

As already mentioned, this technique involves walking around the interior during the exposure. The golden rule, therefore, is to wear dark clothes and keep moving so as not

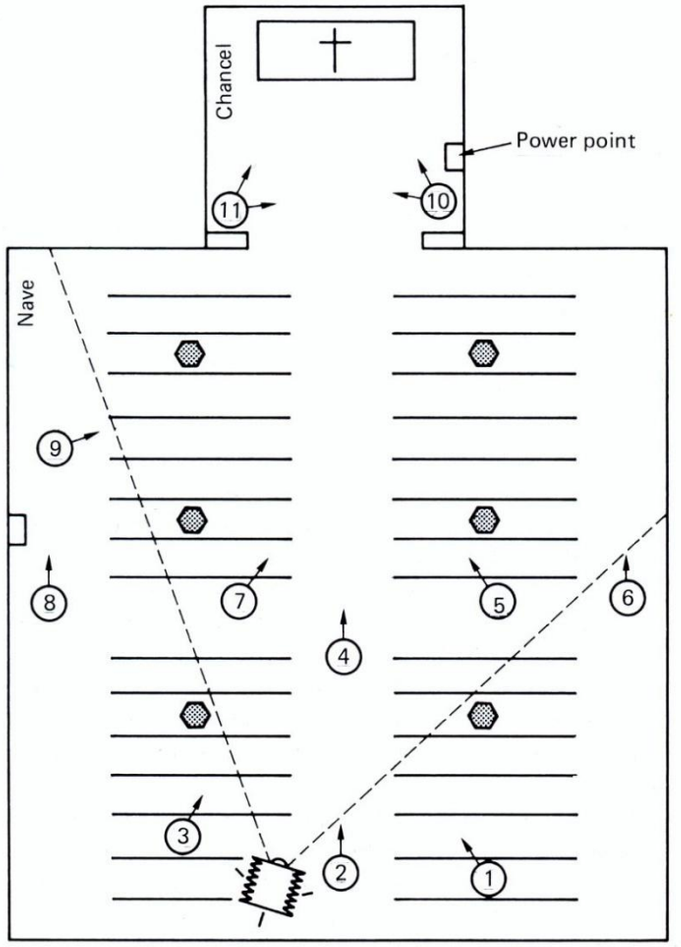

Figure 8.3 The 'painting' sequence used to photograph Mursley Church in Figure 8.2

to be recorded on film. Fire the flash as you move, and make sure the unit is never aimed in the direction of the camera.

The flashing, or painting, must be balanced between the two sides of the interior, assuming a symmetrical arrangement, and as evenly as possible in all circumstances. Avoid firing the flash or painting the tungsten light too close to foreground furniture when illuminating more distant areas, as you do not want any element artificially burnt out on the image.

Use the flash or tungsten direct, and determine the exposure by metering the ambient daylight for the predetermined working aperture. If it is less than 60 seconds, it may be worth reducing the aperture size further to increase the exposure time. Once established, you can then work out the necessary amount of flashes, or length of painting time, for each area, in order to create effective fill-in lighting. Base this last calculation on average flash or light readings from one of the units across two different distances, one shorter and one longer, that are likely to be used for the illumination.

The *f*/16 aperture for the church example effectively required a light output for an *f*/22 aperture to account for the approximate 1 stop exposure increase necessary for the strength of filtration. For the flash to act as a fill-in, the output would have to be suitable for an aperture 2 stops wider than this, i.e., *f*/11, to reduce its effect to a quarter that of the ambient daylight. To achieve this output, I fired the flash twice for the shorter distances, and four times for those further away, but never with clinical precision as I was moving throughout.

The strength of this technique is that it enables you to illuminate very large areas with a minimum number of photographic lights. Its corresponding weakness, however, is that inevitably it is not 100 per cent accurate either in terms of exposure or perfectly even lighting, all of the time. For this reason, it is most effective as a fill-in form of lighting where its output is subsidiary to the dominant daylight. This has the added advantage of retaining the most natural appearance of the interior on film and demands the minimum flash output.

Examine the effects on instant-print tests very closely before exposing the actual transparency or negative film, and use the instant-print as a valuable secondary exposure guide. Bracketing with this technique is awkward, so I would recommend having your transparency films 'clip tested' instead.

Clip testing

'Clip testing' is a useful facility offered by professional laboratories in order to achieve a perfect result on film so long as reasonably accurate, consistent exposures were maintained throughout the whole roll of film. When a film is clip tested, approximately the last frame is cut off the film and processed separately in the normal way. The result is viewed and assessed for perfect exposure. If the clip test is perfectly exposed, the rest of the roll can then also be processed normally. If the image on the clip is slightly over- or underexposed, the variation from perfect exposure is estimated in *f*-stops and the film development adjusted accordingly. A further clip test can then be taken to confirm the adjustment if you are not absolutely confident of the judgement that has been made. However, each clip test eats further into the film, reducing the number of frames left for perfect processing.

Film development time can be either shortened ('pull-processing') if the clip test was over exposed, i.e., too bright, or lengthened ('push-processed') if the clip test was underexposed, i.e., too dark. Push- or pull-processing by up to 1 stop should yield excellent results, correcting exposure within what is effectively a 2-stop band around the perfect exposure. Wider than this, contrast is reduced with pull-processing and colours shift towards blue. Conversely, with push-processing, contrast is increased along with graininess and fog levels, and colours shift towards red.

The only minor disadvantages of clip testing are that it doubles the process time as the two parts of the film are processed separately and it incurs a little extra cost. It should, however, yield a greater quantity of correctly exposed images per film than that achieved by bracketing alone, but is only useful when conditions of lighting and exposure are kept constant for the whole film.

Small interiors

The first problem with small interiors such as bathrooms, cramped kitchens and the like is finding the best position (often the only position) from which to take the photograph, in order to include enough of the elements in the room for it to yield a sensible, representative image of that interior. This can still be a problem with even the widest-angle lens.

Having found that position, the next problem is to actually erect the tripod within such a confined space. Often

Figure 8.4 In a small interior, you can use just the available light if it is all artificial and can easily be filtered

the doorway is the best place to work from, as the camera can be placed as far back as possible to the point of maximum room coverage (without clipping the door frame). You will also be less cramped as you will actually be standing outside the room.

Having set up the camera in the most suitable position in the circumstances, lighting is the next consideration. Two basic options are open to you. First, you can use just the available light if this is all artificial and can be easily filtered (as in the case of the lift in Figure 8.4); second, you can use flash as either a dominant or fill-in light source. The first option is obviously the simplest, quickest and often the most effective. The problem with the latter is where to place the flash unit in such cramped conditions without being visible from the camera position and without causing any

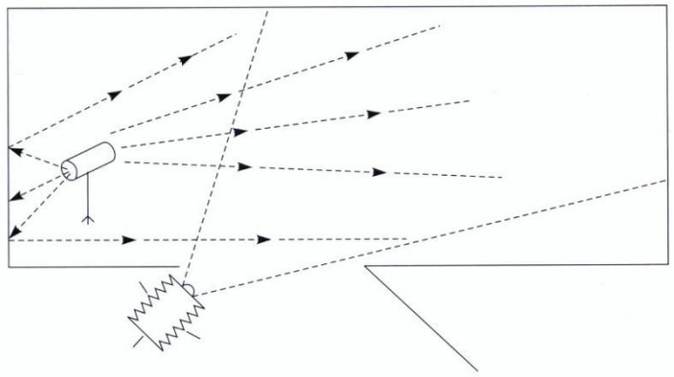

Figure 8.5 Photographing a small interior can be problematic because of lack of space. Placing the camera in the doorway, and tucking a flash unit into the corner of the room, can provide an effective solution

unacceptable umbrella reflections. Often the flash unit can be tucked into a corner either just within the room, if the camera is in the doorway (see Figure 8.5), or right up beside the camera if the camera is actually in the room.

There is often not room for an umbrella reflector or soft-box, but this is no disadvantage if the wall and/or ceiling are white as it is usually more subtle to bounce the flash off the junction of the wall with the ceiling. This is because the flash light will be coming in from a similar angle to the way it would have been reflected off an umbrella, but without any possibility of an ugly umbrella reflection. The reflection (if there is one) of a glow off the far wall is much more aesthetically acceptable – see Figure 8.6.

If flash is to be used, the best technique is to use it as a fill-in. If the interior is otherwise completely artificially lit, the best results are obtained by using a double exposure: one fast exposure just for the flash (and with the artificial lights

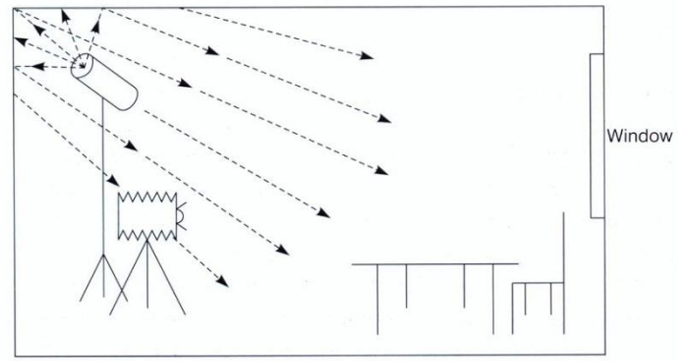

Figure 8.6 Where space is limited within a small interior, or where an umbrella reflection in a window or picture is inevitable, bouncing the flash off the junction of the wall and ceiling is an effective alternative. Any reflection this might cause will be more subtle and therefore more aesthetically acceptable

switched off if possible) and a second, longer, exposure with the lights switched on and the appropriate filtration over the lens. Burning in the available light without filtration will only create an unpleasant colour cast over the whole image. This is also the best technique for photographing internal corridors where there is nowhere to conceal any flash units, other than beside the camera to add a little extra light in the foreground, as in Figure 7.1.

Empty interiors

Empty interiors are always a challenge. In my experience they frequently seem to be recently developed, large open-plan office areas with dull-coloured carpeting, fluorescent lighting and a series of structural pillars. The combination of pillars and lights can be used to reasonable effect to create an impressive perspective shot, with the diminishing pillars and receding rows of lights leading the eye into the picture from both sides. This is best achieved by standing approximately one-third of the distance along the wall from the corner, to include three walls in the final image.

Figure 8.7 The perspective of pillars and rows of ceiling lights can add an abstract interest to a modern, empty interior

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While such shots are suitably effective for the purpose for which they are usually used, they can be dramatically enhanced – as can any photograph of an empty interior – by direct sunshine creating abstract window patterns across the otherwise plain floorspace. The effect of these impressive patterns not only suggests a permanently bright and sunny interior, but also breaks up the empty space with an abstract dynamism similar to that created by furniture in a room. This works both for a general view of the interior and also for an interesting detail shot of a window, or row of windows, with their corresponding sunshine patterns. Such patterns are richest in colour, longest and reach furthest into the room either early in the morning or late in the afternoon, and in the winter months owing to the lower elevation of the sun.

Light readings for interiors with direct sunshine should be taken, as usual, of the general ambient light in the interior and

Figure 8.8 Sunshine is the ultimate saviour in an empty interior. The window patterns created by direct sunshine can break up the space with an abstract dynamism similar to that created by furniture in a room

not from the sunny areas. This is because we want the sunny areas to record brightly, even slightly burning out on the film, as this is how they appear to the naked eye. If the sunshine patterns appear too burnt out on the instant-print test shot, you can always reduce the exposure time (or aperture size, if appropriate) and correspondingly boost the flash output to effectively reduce the brightness of the direct sunshine.

In summary, to get the best out of an empty interior, it is worth choosing a day with full sunshine (which will, of course, help with any exterior work you might also be doing). With the help of a compass or plan, work out a shooting sequence that makes the best possible use of that sunshine.

Interiors with no electricity supply

When you have to photograph sites that are either not fully completed, or that have been unoccupied for any length of time, it is likely that either the electricity has not yet been installed or has been disconnected awaiting a new tenant. In either circumstance, you are left with the limitation of being unable to use your mains-powered flash units.

These circumstances seem to arise most frequently on commercial sites with large interiors. The only realistic option open to you is to stretch the available daylight as far as possible. Allow the window areas to burn out, if that is necessary, to create sufficient illumination for the interior to be clearly visible. The use of a portable flashgun, fired direct from the camera position, will act as a modest fill-in and can brighten up the foreground with exaggerated effect when using a wide-angle lens, because of the perspective distortion that this lens creates.

In a small to average size interior a portable flashgun can also be used as a direct fill-in, or more effectively bounced off a wall or ceiling. Its output can be boosted by firing it several times either on a long, timed exposure, or by using several shorter exposures on a single frame to build up sufficient flash output to achieve satisfactory fill-in lighting.

Poor daylight conditions

There are times when interiors have to be photographed without the perfect conditions of sunshine or even bright daylight. Pressure on a photographer's time and unpredictable weather conditions make this inevitable. There are two possible paths to follow to create the impression that there is a bright day outside.

(a)

(b)

Figure 8.9 (*facing page*) Poor daylight conditions. Image (a) shows an interior photographed on a dull, grey day, using available daylight and flash fill-in. In (b) an 81B 'warming' filter has been placed over the camera lens to warm up the colour of the light

The first, and simplest, way is to take an available light reading in just the same way as you would on a bright day. You will need a longer exposure than usual, which does not present a problem so long as that exposure falls within the tolerance of the particular film you are using. You can then place an 81B 'warming' filter over the camera lens to warm up the colour of the otherwise cold, dull-grey light. This will create on film the appearance of warm, bright and diffuse light filling the room – see Figure 8.9(a) and (b). It will, of course, also warm up the colour of any fill-in flash. This, however, is only very subtle and usually enhances the atmosphere, especially of a residential interior, by giving it an added welcoming warmth. Once again, when using any filters, do not forget to increase the exposure by the appropriate factor.

The other possibility is to place a tungsten lamp or flash unit outside the window to act as an artificial sun. This will have the effect of creating sunny window patterns across the interior and is most effective when photographing either a small interior or a small part of an interior. While natural sunshine would usually be the preferred choice, artificial sunlight does have the added advantage of being totally under the control of the photographer. Whereas the sun is constantly moving (and it is amazing just how fast it does move when you are busy setting up the camera, taking light readings and shooting instant-prints), the tungsten light is obviously stationary for as long as the photographer requires it, and it can never disappear behind clouds! It can be angled from any direction to simulate any chosen time of day. It can also be filtered to varying degrees, with the appropriate combination of blue gels for tungsten lighting and amber gels for flash lighting, to suit the angle chosen or amount of warmth desired. The higher the angle, the whiter the light; the more horizontal the angle, the more orange the light should be if it is to adequately simulate the real sun.

Tungsten lamps powered at between 1000 and 2000 watts are suitable for this work. The reason this alternative only really works well in small interiors, or for details of interiors, is because the light fall-off in a large interior would look unnatural and would also require one lamp for each window in shot, set at precisely the same angle, and taking great care to avoid any double shadows.

Interiors full of reflective surfaces

Reflective surfaces always provide a challenge for the photographer. Working out a way to overcome the problem of flash reflections, or even your own reflection (in a small mirrored bathroom, for example), can be a time-consuming and precise business. This section will outline a few helpful techniques to deal with such problems.

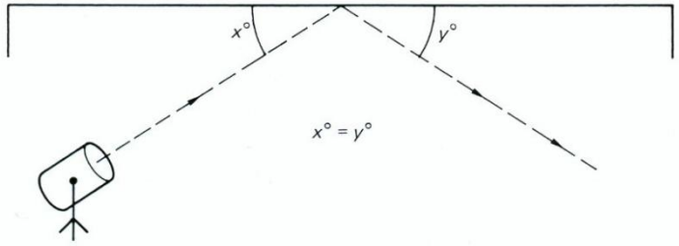


Figure 8.10 Light travels in straight lines and reflects off any flat surface at the same angle to that surface as the incoming light, but in the opposite direction. This is essential to keep in mind when placing lights, in order to avoid reflections

It is important to remember that light travels in straight lines and reflects off any flat surface at the same angle to the surface as the incoming light, but in the opposite direction (see Figure 8.10). For the flash unit not to cause unsightly reflections in a shiny wood-panelled room, for example, you would have to place yourself in one corner of the room, shooting towards the opposite corner, with the flash unit(s) beside you (see Figure 8.11). This will prevent any direct reflections from coming back towards the camera. Reflection from window light is usually quite acceptable as it a natural light source.

The same principle applies to other reflective surfaces: paintings, picture glass, windows in the picture, etc. Some

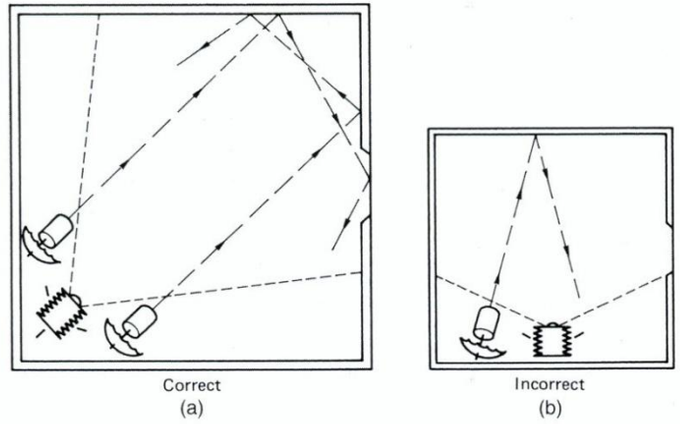


Figure 8.11 Reflective surfaces. Placing the camera and flash unit(s) in one corner and shooting towards the opposite corner avoids the problem of reflections in a shiny wood-panelled room, as shown in (a). A less diagonal position, as in (b), would cause the flash to be reflected back towards the camera, causing obvious light spots on the panelling

modern offices have glass wall partitions on two or three sides, with a window on the fourth. These can cause havoc with secondary and tertiary reflections bouncing around the room, even if you have been careful to position yourself so as to avoid any direct reflections.

Where wall mirrors present a problem, as in small bathrooms, the photograph of the interior can be taken from an angle looking into the mirror itself, to include the area surrounding the mirror as well (see Figures 8.12 and 8.13). This effectively transforms the problem to your advantage. Photographing into the mirror from an angle, including the hand basin in the foreground, not only creates an unusual and imaginative shot, but also enables you to include most of the significant elements within the room, which would otherwise be impossible to achieve. In other words, your final image will be an original, exciting photograph that best conveys the essence of that interior. There will also be no problem reflections as you are using the reflective surface itself as part of the photograph.

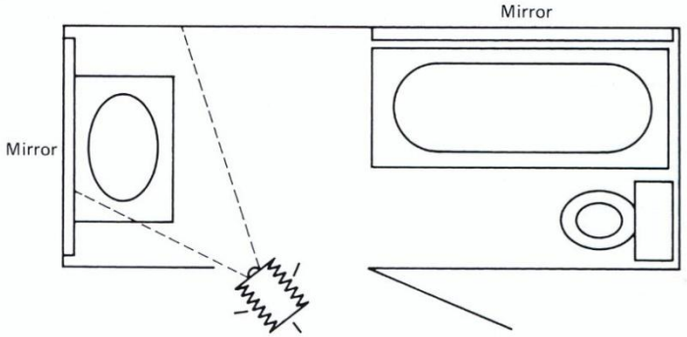


Figure 8.12 Large mirrors in small interiors, such as bathrooms, can be problematic. It is possible, however, to use them to your advantage by photographing the reflection of the interior in the mirror, from an angle. By including the basin, or area surrounding the mirror, this method can sometimes enable you to include all the significant elements within the room, which would otherwise have been impossible to achieve

If you have the problem of a flash reflection in a picture glass, there are two possible solutions. Either shift the offending flash unit sufficiently so that it is just not reflected, or tilt the picture frame by lodging a crushed film paper or box behind it.

Bedrooms

I have chosen to include bedrooms as problem interiors for the simple reason that the main feature of the room, the bed, is often so dominating that it can easily obscure the other

Figure 8.13 An image of an office bathroom, using the technique shown in Figure 8.12. The mirrors also enhance the apparent size of the room

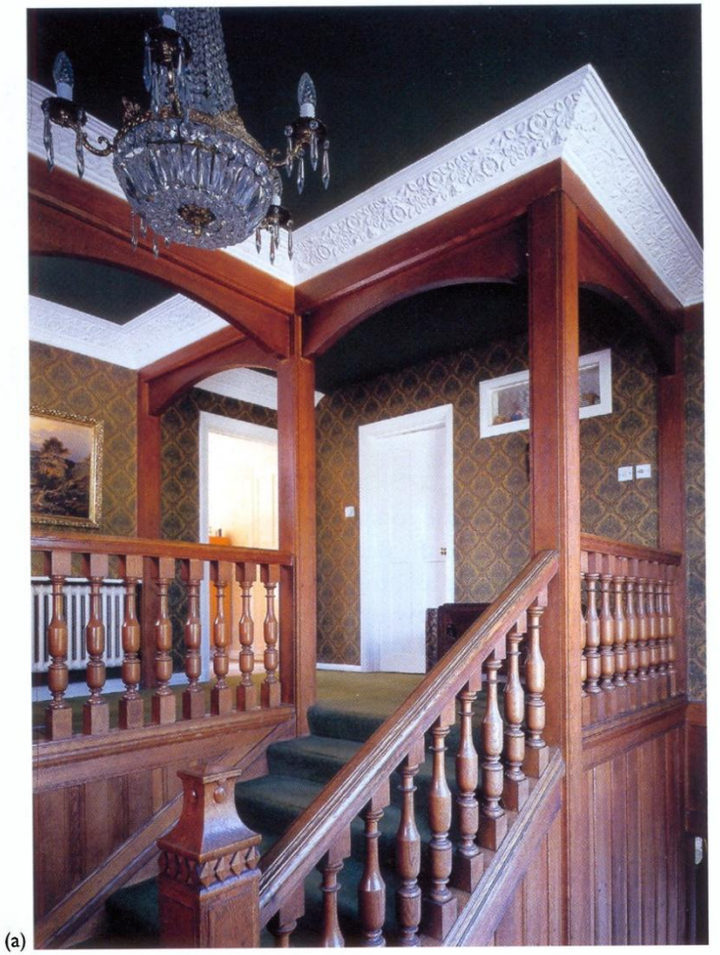
decorative features of the room. Remember, you do not have to include the whole of the bed in the image to show that it is a bedroom you are photographing. Try and avoid the conventional diagonal view towards the massive bed where possible, and instead find a more original angle. A shot that cuts across the corner of the bed in the foreground, looking towards the rest of the room in the background can be a good choice. The viewer can still see it is a bedroom, but the result is a much more interesting and rewarding shot.

Staircases and stairwells

Staircases can initially appear problematic: they can look somewhat dull and uninspiring from ground level. However, there are certain places on most staircases from where one

can create some of the most interesting interior photographs possible, often with abstract and dynamic effect.

The best place from which to photograph a staircase with a double flight of stairs is often from the half-landing, using a wide-angle lens. From this point you can embrace within a dynamic composition both the banister rising to your level and the stairs leading up away from you. This both yields the best interpretation of the structure of the staircase and prevents any problems of converging verticals. It is best to light such shots from both the floor below and the floor above to prevent either part of the staircase disappearing into a shadowy abyss.



(a)

Figure 8.14 Three different treatments of staircases. In (a) a half-landing on the staircase provided the best vantage point for a dynamic picture of its construction; (b) (*facing page*) an alternative treatment is to look down the staircase towards the atrium area below; and (c) (*page 124*), the final staircase was shot from the top looking down the stairwell, illuminated by flash from a similar position at every level

(b)

Figure 8.14 *(continued)* (c)

A dramatic technique for photographing a stairwell is to either shoot it from the bottom looking vertically up the spiral to a possible skylight at the top, or to climb to the top and shoot directly down the full spiral. In either case, if sufficient flash units are available, it is best to illuminate the staircase from a similar position (i.e., out of view on the same side of the stairwell as the photographer) at every level.

9 CREATIVE TECHNIQUES

The previous chapters have established various approaches with a diversity of techniques to enable you to photograph most interiors that you are likely to encounter. By now, you should be starting to feel in tune with the whole process and language of interior photography, from which your own individual approach to interiors can be confidently generated. Within this framework, we can now go a step further and look at some creative effects that can be employed to enhance your images.

Balancing the interior and exterior light to show the outside view

A key feature of an interior can, on occasion, be the view outside the window. This can be an exquisite garden or countryside in the case of a residential interior, an important view of the rest of the complex from an industrial or commercial interior or, in the case illustrated in Figure 9.1, an important city view.

Employing the regular 'fill-in' technique as described throughout this book, whereby the daylight through the window is treated as the dominant light source, will usually cause the view outside any window to be burnt out, i.e., to be so bright as to bleach out much of the colour or detail in the external view. This clearly has its advantages, especially in built-up areas, where the external view is often best burnt out by overexposure. However, when you want to retain the rich colours and detail of the view outside, a different balance has to be employed. As you might imagine, this should be based around an approximately equal balance of the interior and exterior light intensity, with a slightly brighter intensity outside than in.

Having determined your working aperture, take a light reading from the window of the external view for an aperture half a stop smaller than the working aperture, for example *f*/19 instead of *f*/16. This will give you an exposure that will record the external view on film as half a stop brighter than the interior lighting.

The reason for a half stop, or even a full stop, difference between the interior and exterior light intensity is to create on film the most natural appearance possible. We expect the outside view to be brighter than the light level inside, so this produces that illusion without damaging the detail of the view or weakening its colours too much. The exposure required will be much shorter in duration than we are used to using. This therefore means that the interior will largely be illuminated by a combination of flash and any direct sunshine in the room, rather than the usual burning in of available light.

Figure 9.1 Balancing the light to show the outside view. Here it was important to set this boardroom image within the context of its City location

If the flash output needs to be built up by firing the flash units more than once, this will have to be done by double, or multiple, exposure. For example, with a working aperture of *f*/16 and a corresponding exposure reading of $\frac{1}{30}$ second (at *f*/19, for a brighter external view), a flash with a single output reading of *f*/8 will need to be fired four times (twice to take it up to *f*/11, and double that, i.e., four times, to increase the output for an *f*/16 aperture). In order for the flash to be fired four times, four exposures will be necessary, each at one-quarter the duration of the metered $\frac{1}{30}$ second, i.e., at 1/125 second (being the calibration on the camera that is approximately one-quarter the duration).

Unless working on a detail area surrounded by windows, you are likely to lose some of the natural atmosphere of the interior that would have been created using the fill-in technique. This is the compromise that must be made if the external view is an important feature to be included in a particular interior.

(a)

(b)

Figure 9.2 (*facing page*) Balancing the lighting of other rooms in view. Image (a) shows how the power of the flash, in combination with the available light, has rendered the internal room dark. The addition of a flash unit bounced off a white umbrella inside that room brings the image back to life, as illustrated in (b)

Balancing the lighting of other rooms in view

An interior image will often show a view through to another room, albeit in the distance. If this is not filled with sufficient natural light to record brightly on the test shot, you will have to balance the lighting in this room with that of the interior you are photographing. This is usually done, quite simply, by concealing an extra flash unit within that room, and adjusting its output accordingly. The example illustrated here (Figure 9.2) is an extreme case where there is a window into an internal room. The power of the combined flash and available light in (a) rendered the available artificial lighting in the internal room ineffectual. It is a nice enough image, but with a dark hole in the middle of it. The addition of a flash unit bounced off a white umbrella inside that internal room brings the image back to life, as illustrated in (b).

Creating a night scene

Clients will sometimes ask for a residential interior to be photographed as a night scene, be it a bedroom, living room or dining room. This can easily be achieved during the day as Figure 9.3(a) and (b) demonstrates: the night shot being taken immediately after the daytime shot.