

PHOTOGRAPHY SHOOTING TIPS

With a section on architectural photography

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Introduction

In this tutorial, I have compiled technical tips from two reference books: *Digital Exposure Handbook* by Ross Hoddinott and *Architectural Photography* by Adrian Schulz. General knowledge present in any reference book is not referred to a particular book. When a book made a particular point not seen anywhere else, I point to the exact reference.

This tutorial compiles tips for shooting photographs. Digital post-processing of images will be covered in a separate document.

The first part explains the general principles of exposure, the second part contains tips specific to architectural and interior photography because that is what I mostly do so far. Later versions may include specialised tips for other type of photography.

I very much hope this tutorial will be useful to many people, however, it took me a lot of work to write it therefore all content is copyrighted to me. You are welcome to use the information, quote etc... but please refer to the source as:

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Many thanks and have a good read!

I) Principles of exposure for general photography

ISO rating: sensor's sensitivity to light.

- Every doubling of the ISO speed halves the brightness of light or the length of time required to produce the correct exposure.

Shutter speed: length of time the camera shutter remains open.

- one full stop change in shutter speed either halves or double the amount of light reaching the sensor: for example, reducing the shutter speed from 1/500 to 1/250 doubles the length of time the shutter remains open.
- A fast shutter speed freezes movement. A slow shutter speed creates blur if the subject is moving.

Lens aperture: size of the adjustable lens diaphragm, which dictates the amount of light allowed to reach the sensor. For example, f/2 means that the diameter of the aperture is half the focal length, f/8 an eighth.

- **Large apertures (small f-numbers** such as f/2) allow light to reach the sensor more quickly, so that less exposure time is needed, while **small apertures (large f-numbers** such as f/32) require longer exposure.

Basic rule of exposure:

For a given ISO sensitivity, a change in shutter speed requires an equal and opposite change in Lens aperture to conserve correct exposure.

This is also known as **the law of reciprocity**.

The **Exposure Value (EV)** number represents all combinations of aperture and shutter speed that can be selected to produce the same level of exposure. Representation of moving subjects (sharp or blurred) will vary depending on the chosen combination.

An **EV chart** gives all the different combinations of apertures and shutter speed that give a specific exposure value. The following chart is for ISO 100. For ISO 200, you need to adjust the settings by -1 stop.

	f/1.0	1.4	2.0	2.8	4.0	5.6	8.0	11	16	22	32	45	64
1 sec	0	1	2	3	4	5	6	7	8	9	10	11	12
1/2	1	2	3	4	5	6	7	8	9	10	11	12	13
1/4	2	3	4	5	6	7	8	9	10	11	12	13	14
1/8	3	4	5	6	7	8	9	10	11	12	13	14	15
1/15	4	5	6	7	8	9	10	11	12	13	14	15	16
1/30	5	6	7	8	9	10	11	12	13	14	15	16	17
1/60	6	7	8	9	10	11	12	13	14	15	16	17	18
1/125	7	8	9	10	11	12	13	14	15	16	17	18	19
1/250	8	9	10	11	12	13	14	15	16	17	18	19	20
1/500	9	10	11	12	13	14	15	16	17	18	19	20	21
1/1000	10	11	12	13	14	15	16	17	18	19	20	21	22
1/2000	11	12	13	14	15	16	17	18	19	20	21	22	23
1/4000	12	13	14	15	16	17	18	19	20	21	22	23	24

Image location:

http://3.bp.blogspot.com/_3AnvN0uDg9A/TBBBsNQDnI/AAAAAAAAAwg/1XY Y1MBx7UQ/s1600/exposurevalues-749412.jpg

TTL (Through The Lens) light metering techniques

- **Multi-segment metering:** averages light reading over the frame. Good for compositions where the light is relatively even through the frame.
- **Spot metering:** takes a light reading for a small area of the frame. Best method for compositions where the light varies dramatically through the frame such as chiaroscuro or backlit silhouettes. **Partial Metering** is similar to spot metering but does the light reading on a slightly larger area of the frame.

Autoexposure lock (AE-L) setting on DSLR

This allows to take a **spot light reading** for a chosen spot, let the camera calculate the correct exposure, then lock those settings before recomposing the picture. This is useful if you want the picture to be correctly exposed for an object that is not the centre of the final composed frame.

To apply intentional underexposure: select either a faster shutter speed or smaller aperture.

Depth of field

Large apertures (small f-numbers such as f/2) give narrow depth of field, while **small apertures (large f-numbers** such as f/32) give extensive depth of field.

To avoid camera shake in hand-held shots, employ a shutter speed equivalent to the focal length of the lens. For example, when using the long end of a 70-200mm zoom, use a minimum shutter time of 1/200sec ([1], p54).

Exposure mode programs on DSLR

- **Shutter-priority mode:** the photographer manually selects the shutter speed, the camera selects a corresponding aperture to maintain an overall correct exposure. **Best setting for pictures of moving subjects where the representation of motion is critical.**
- **Aperture priority mode:** the photographer selects the lens aperture, the camera selects a corresponding shutter speed to maintain correct exposure. **Allows the photographer to set a shallow of large depth of field creatively.**
- **Manual mode:** the photographer selects both the aperture and shutter speed, regardless of the camera's recommended exposure. **Useful to creatively over- or under-expose, or for awkwardly lit scenes where the camera's light reading does not work very well.**

General Troubleshooting and tips

A **small aperture** (very large f-stop such as f/22 or f/32) will maximise depth-of-field but also **cause light diffraction, which decreases image sharpness**. F/11 is generally considered the largest f-stop (smallest aperture) not to cause light diffraction. ([1], p74).

For **portraits**, a short telephoto lens (75mm to 180mm) is usually most flattering. ([1], p85)

Use a **circular polarizing filter** because linear polarizing filter affect the TTL light metering system of digital cameras. ([1], p154)

II) Architectural Photography specialised tips

Small apertures not only maximise depth of field but also **reduce optical errors** such as vignetting, chromatic aberrations and blurring around the edges. ([2], p30)

Perspective, vanishing points and converging lines

Central perspective: all parallel lines going into the distance end up at **one vanishing point located at the horizon and in the middle of the picture**. The photographer faces the building from the front. **Parallel lines appear parallel in the photograph.**

Two-point perspective: The photographer faces a corner of the building. There are **two vanishing points on the horizon. Only parallel vertical lines appear parallel in the picture, parallel horizontal lines appear convergent.**

Three vanishing points: when the camera is not aimed at the horizon but **tilted upwards (worm's eye view) or downwards (bird's eye view)**. **There are no parallel lines: vertical lines converge**, this is called '**perspective projection distortion**'.

Tricks to avoid converging verticals:

- Greater distance to the building
- Shoot from an elevated position.
- Use a wide-angle lens in portrait orientation then crop the image.
- Correct in post-processing (but image resolution will be affected: the pixels in the lower part of the image will be compacted compared to the pixels at the top of the image).

Focal length

- If several objects are located away from the camera, the space between them seem tighter. This effect is sometimes called '**compressed perspective**'. It happens with **telephoto lenses (long focal lenses)** which require long distances to the subject.
- If the distance between the camera and the subject is very small, the foreground appear more prominent than the background. **Close objects appear very large, far objects appear very small, spatial proportion appear wider and more open**. This effect is typical of **wide lenses (short focal lenses)**.
- Long focal length are rarely used in architectural photography because they require to move away from the building, with the likelihood of obstacles being in between.
- For special effect, long focal length and large distance may create a compacted view of the urban landscape.

- Wide lenses may create special effect of extreme perspective and converging verticals.
- Moderate wide lenses are best for a realistic depiction of a building for pure documentary purpose.
- Very wide lenses are well suited for showing an interior space in its entirety but they will also exaggerate the size of a room.

Miscellaneous tips for architectural photography

Reversing the image orientation compared to the building orientation (i.e. photograph a high building in landscape mode) may create interesting composition.

If people are present in the shot, they should be close to the building, not close to the camera, otherwise they will dwarf the building.

For HDR images: use exposure bracketing function in continuous shooting mode so that the successive shots are taken very quickly: it minimises the possibility of clouds, light or people moving too much. Also **use a remote control** to avoid the camera shaking even just a few pixels away between shots if pressing the shutter manually.

Beware of converging verticals when shooting interior spaces with high ceilings such as churches.

Façades facing north are easier to photograph when the sky is cloudy because shooting facing the sun may be avoided.

Blue Hour (Heure Bleue): time between sunset and darkness, when the sky is still lit by the sun from below the horizon but artificial lights start appearing as well.

Windows are often the darkest part of a façade during the day but turn shiny at night.

Shadows are longer in winter than summer because the sun is lower compared to the horizon. This affects how a building will appear.

Bibliography

[1] Hoddinott, R. (2008) *Digital Exposure Handbook*. Lewes, East Sussex: Photographers' Institute Press.

[2] Schulz, A. (2009) *Architectural Photography: Composition, Capture and Digital Image Processing*. Santa Barbara: Rocky Nook.