

Camera Settings for Cultural Properties Photography: Without Using a PC

As described in another text, “How to Photograph Cultural Properties,” digital images are saved in two types of format: (1) RAW format (files preserving photographic data as captured by the camera and in need of processing with additional information for output), and (2) JPEG/TIFF format (photographic data captured by the camera and processed internally with additional information supplied manually or automatically to produce images). The basic differences are shown in the table below.

Format	Editing	Suitability for image adjustment after shooting
RAW	RAW processing software for adjustment and display	Yes
JPEG	Popular software for editing and display	No
TIFF	Popular image editing software for editing and display	Yes

Adjusting RAW format photographic data with processing software to produce image data in JPEG or TIFF format is the most suitable method for the accurate color tone and image quality necessary for cultural properties photography. However, this requires the use of a computer and special processing software, since the RAW format output cannot be used as is.

In contrast, the JPEG image format is widely used and its smaller file size makes it easy to handle. By using suitable camera settings at the time shooting, it is possible to use JPEG data processed in the camera for photographs of cultural properties.

○Photo shooting settings

Shooting mode/settings

As noted in the above table, JPEG images are not suitable for editing subsequent to shooting, because the image deteriorates and decreases in quality when corrected with editing software. Therefore the best image should be made at the time of shooting, and saved as is for preservation and future utilization.

It is therefore necessary to use appropriate settings for the following.

1. Focusing

Even if the proper camera settings are used and the color correctly reproduced, inadequate focusing will give a fuzzy image that is difficult to correct. Most digital single-lens reflex cameras are provided with an autofocus (AF) function, but the point on which to focus will vary with the object being photographed, and adequate focus may not be obtained with the AF function. Recent digital cameras are equipped with a rear display that provides a live feed during shooting. Precision focusing that



cannot be confirmed in the view finder can be accomplished using the enlarged viewing of images on the rear display.

2. Exposure

As photography makes a record using light, it is essential to expose the image sensors with the appropriate amount of light. Especially in JPEG image shooting, because later correction is difficult for the files, one should try to use proper exposure at the time of shooting. Using the automatic exposure mode (AUTO) is acceptable, but depending on the subject some exposure compensation may be needed. As a guide, by understanding the histogram and using the histogram display function of the camera to check each image, one can then add some plus correction if it shows underexposure, and minus correction for overexposure. As noted in “How to Photograph Cultural Properties,” most cultural properties photography is of still subjects, so the basic shooting mode should be Av (= “Aerture value,” meaning aperture priority).

3. Stabilizing the camera

Camera shake is the main cause of degraded precision in an image. It is important to use a sturdy tripod when shooting, and click the shutter without touching the camera by using a cable release or the camera’s self-timer.

○MENU settings on the camera

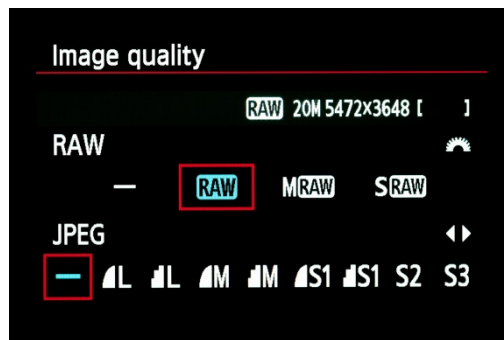
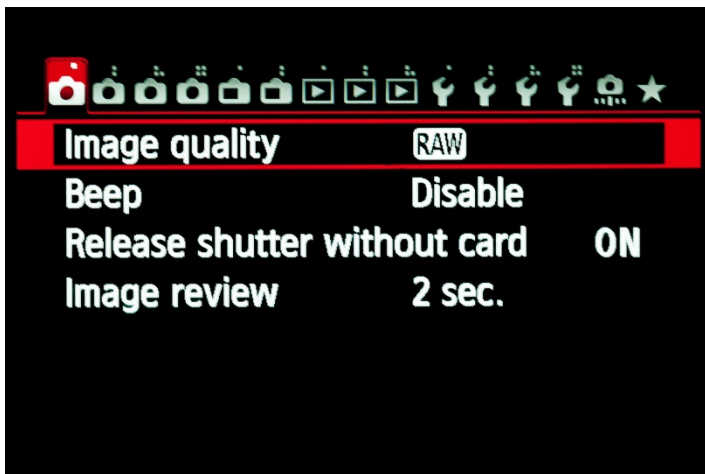
Here, the menu display for a Canon camera is taken up as example, and explanations given of the settings in turn, using actual photographic images.

Recording mode settings

When using the camera to produce JPEG images, first set the recording mode. On a Canon, make this setting on the “Image quality” menu.

The Canon menu display

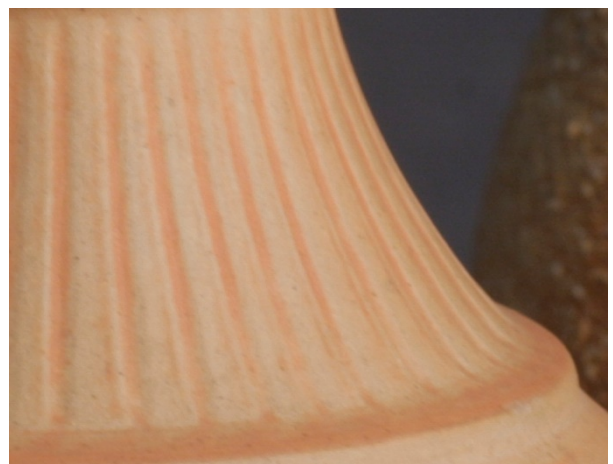
The shooting mode is selected with the “Image quality” setting. RAW is selected in this display.



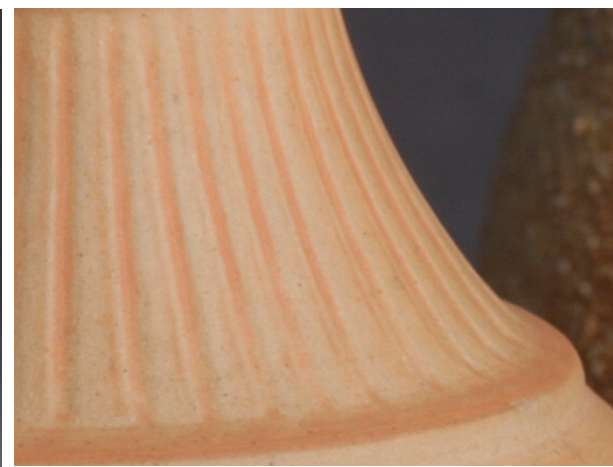


To change to JPEG shooting, select “—” (meaning “none”) in the RAW section. JPEG image sizes are displayed as L, M, S1, and S2 in the JPEG section. The icon to the left of the size shows the image quality; those with a rounded edge are high quality, and those with a stepped edge are low quality.

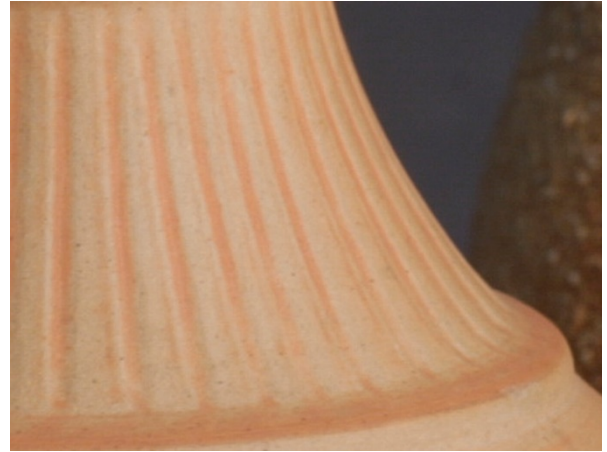
The respective image sizes are shown below.



The image for L size (left) and a partial enlargement (right)



The image for M size (left) and a partial enlargement (right)

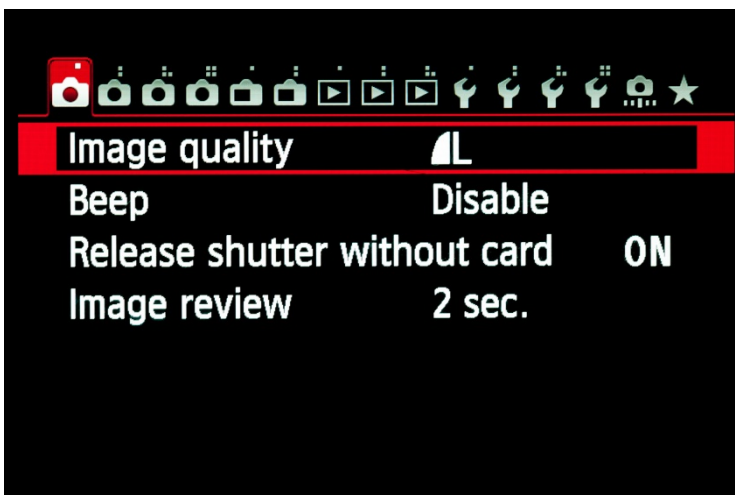


The image for S1 size (left) and a partial enlargement (right)



The image for S2 size (left) and a partial enlargement (right)

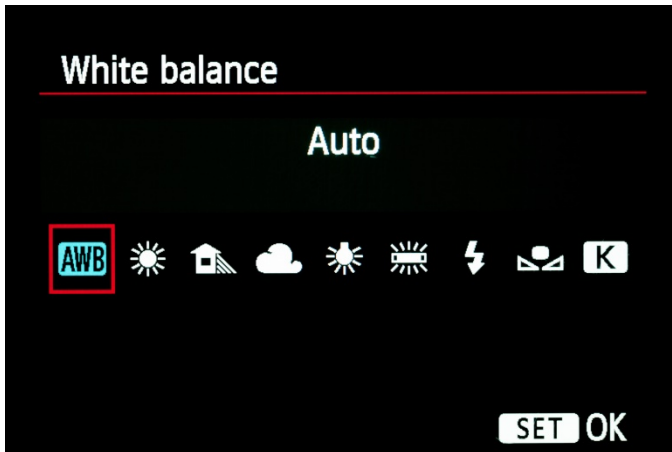
With regards to image size, the larger the image file, the larger its possible utilization as an image in its entirety. It is also possible to enlarge the image for observation or publication. As JPEG files are saved in a compressed format and the file sizes are thus relatively small, the largest size (L) and the highest quality for any given camera should be used.



The display shows the settings of JPEG output, image size L, and highest quality as selected.

White balance settings

Reproducing the correct color is the most important requirement for cultural properties photographs. It is necessary to begin by setting the lighting condition, whether artificial or sun light, on the camera. In most cases, selecting automatic white balance will give a reproduction that appears natural to the viewer. However, this is not always reliable when shooting under a tungsten lamp or in cloudy weather.



Selecting the auto white balance mode

In most cases, this mode is automatically selected as the default setting.



Auto white balance mode: shooting under a tungsten lamp.

Using auto white balance gives a reddish tint over the entire photograph, which makes correct reproduction with good color balance difficult.

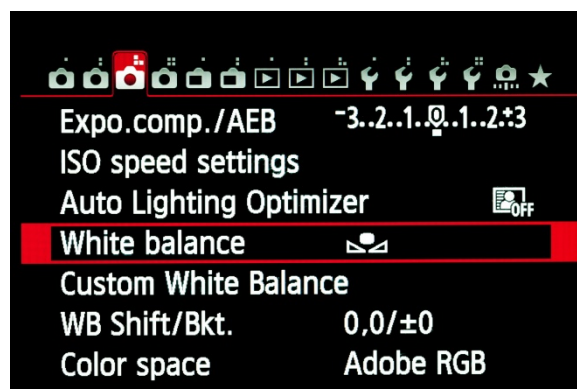
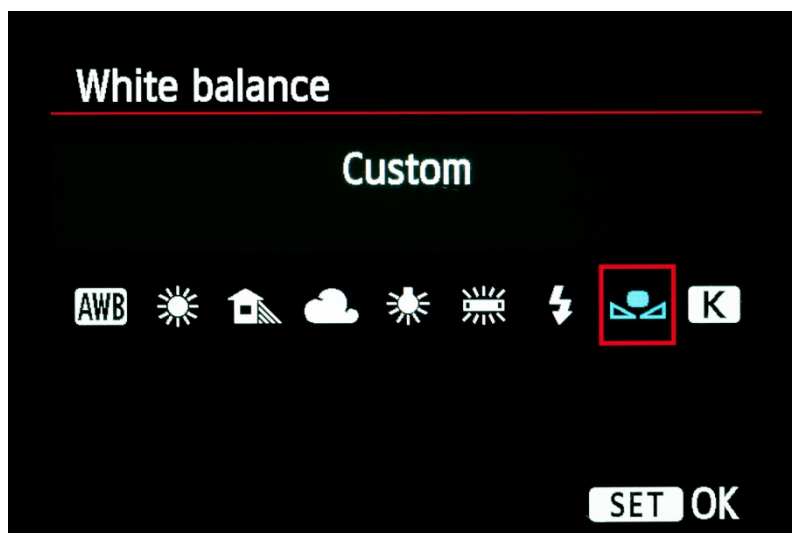


Tungsten lamp mode: shooting under a tungsten light

The camera adjusts the balance according to the colors produced by a typical tungsten lamp, but due to differences between various types of lamps and their deterioration with age, accurate correction is difficult.

In either of the above modes, the camera makes adjustments based on generalizations, so it may be difficult to obtain an accurate reproduction of any particular subject and the color of the light source.

Another method is to take a photograph of a bright, neutrally colored object (white or light grey), and set the color balance to the manual (custom) mode based on that image; whenever the light conditions change this manual setting needs to be repeated.



Custom setting on a Canon

The setting methods are numerous and depend on the camera. For example, a previously taken image of a white card or piece of paper can be selected as reference, or the setting can be made by directly photographing the card or paper.



Manual white balance mode: shooting under a tungsten lamp

The grey background is reproduced correctly as grey, and the colors of the artefacts appear natural.

Picture control setting

Picture control (called Picture Style in Canon) is an adjustment made when producing an image in the camera, according to a particular profile of characteristics.

Picture Style Neutral	
Long exp. noise reduction	OFF
High ISO speed NR	OFF
Highlight tone priority	OFF
Dust Delete Data	
Multiple exposure	Disable
HDR Mode	Disable HDR

For example, in Standard mode (the default setting), the image is processed so that it will appear dynamic to most people by enhancing contrast and sharpness. Portrait gives skin colors a light reddish tinge, and Landscape makes bright colors stand out. Various other modes can be selected depending on the camera.

As excessive sharpness and color emphasis hinder accurate image reproduction, photographs of cultural properties should use Neutral or Faithful (close to correct color reproduction with slight emphasis) mode.



Neutral mode



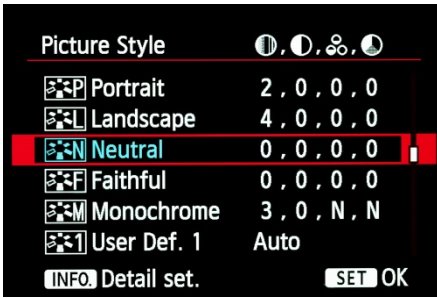
Standard mode



Portrait mode



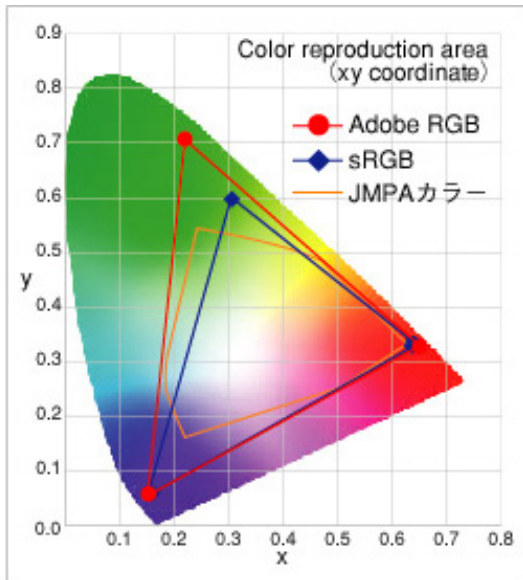
Landscape mode



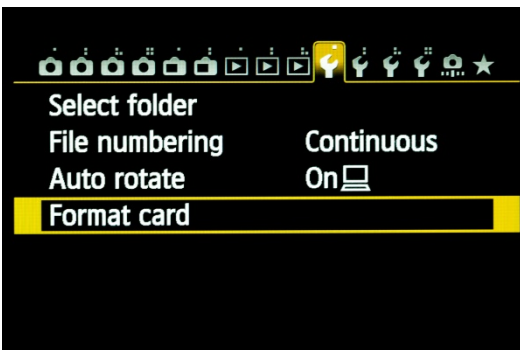
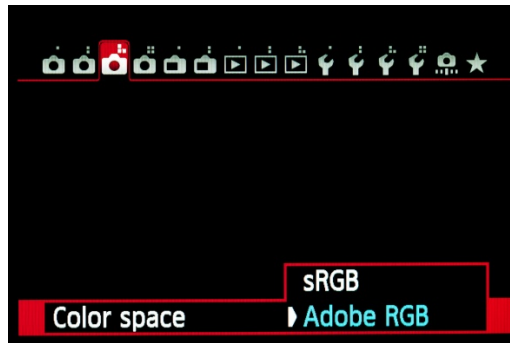
Detailed settings for each mode. Fine adjustments are possible for each mode's setting for sharpness, contrast, saturation, and color tone. In the neutral mode, all of the adjustments values are zero.

Color space setting

In reproducing digital color images, "color space" indicates the range of possible colors. The most commonly used color space at present is sRGB. This is targeted for devices such as television monitors and computer displays, and aims to reproduce colors brightly and with a somewhat narrower color resolution than the human eye. By contrast, AdobeRGB provides a slightly wider range of color reproduction.



In cultural properties photography, as images should be suitable not only for reproduction through printing but also all manner of future applications, AdobeRGB, which can fully cover all of the colors for printing, should be selected.



Other settings

While it is surprisingly easy to forget, always having the correct setting for the date and time is useful when organizing and managing images later on. This is also an essential setting for GPS-equipped cameras.

Finally, deleting files or formatting the memory card in a computer may cause data errors. Consider the memory card as a bridge between the camera and computer, and get in the habit of formatting it in the camera before shooting.