

Section 8—Specular Illumination

Digital Imaging Workflow for Treatment Documentation

Conservation Division, Preservation Directorate, Library of Congress

SPECULAR ILLUMINATION

Section 8—Specular Illumination

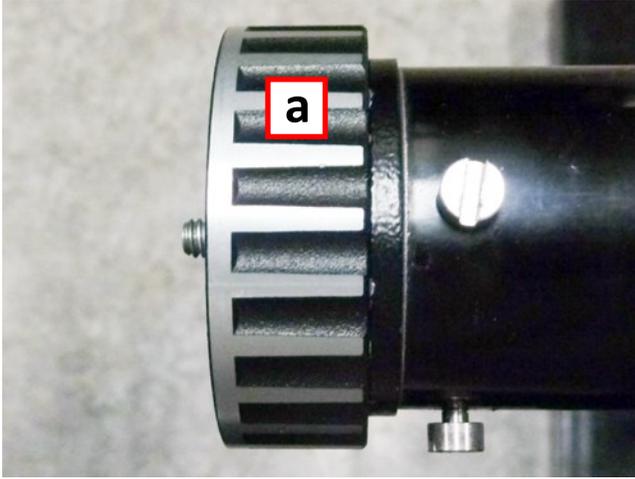


Figure 8.01



Figure 8.02



Figure 8.03

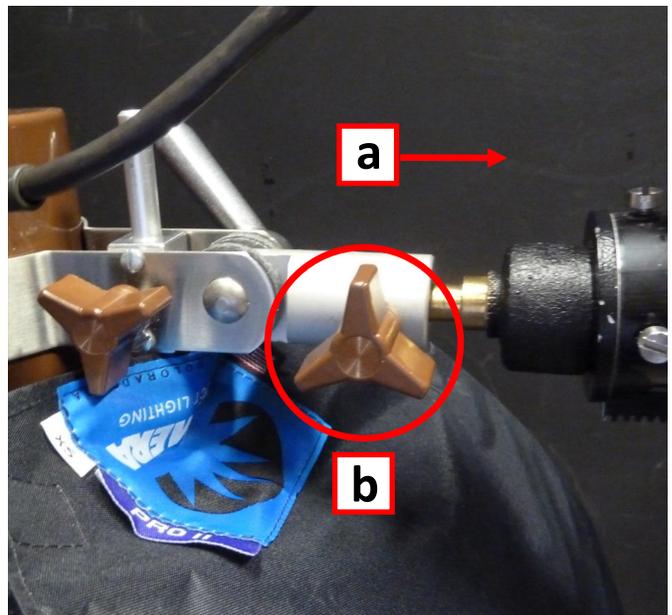


Figure 8.04

Section 8—Specular Illumination

Capture

Preliminary

Specular illumination documents variations in gloss and can be useful in documenting surface damage. Our particular arrangement has a **9 x 12 inch maximum useable area** of a pure specular reflection from very high gloss or mirrored surface. Lustrous objects up to approximately 12 x 20 inches may be photographed with acceptable results due to scattering.

Set Up

The specular illumination setup requires a lamp to be suspended above the copy stand and be aligned in plane with the object. To achieve this, an incandescent lamp head with a soft box is positioned using the large black camera stand. The equipment used for this setup is stored in a large box in the photo studio.

1. Unscrew and remove the ¼" to ⅝" adaptor at the end of the stand's horizontal arm (fig. 8.01a) and attach the ¼" to stud adaptor (fig. 8.02a).
2. With the preassembled Speedotron lamp head and soft box (fig 8.03) facing down, slide the adjustment arm of the lamp (fig. 8.04a) onto the 1/4" to stud adaptor now affixed to the studio stand. Use the thumbscrew to tighten the adjustment arm (fig. 8.04b).

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Figure 8.05



Figure 8.06

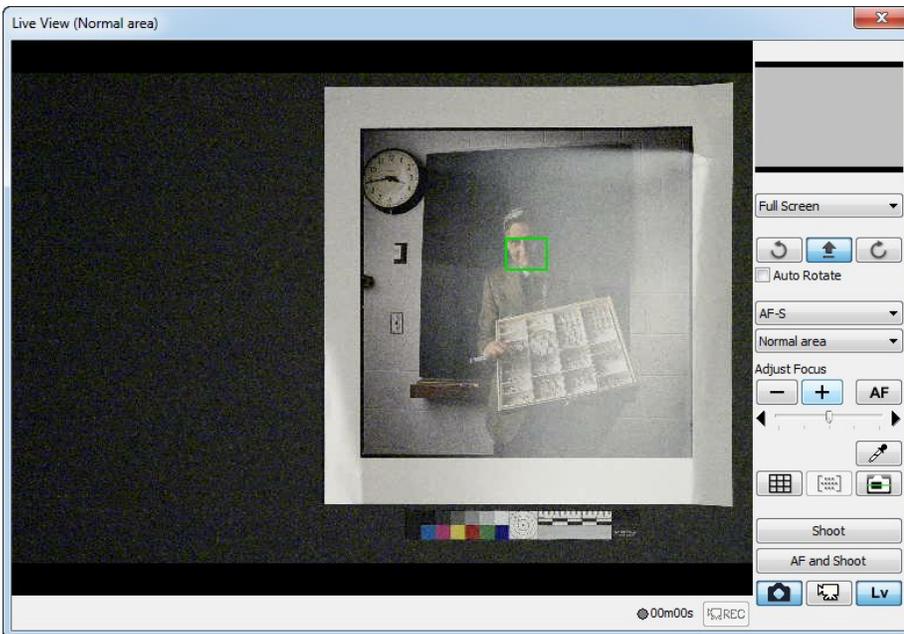


Figure 8.07

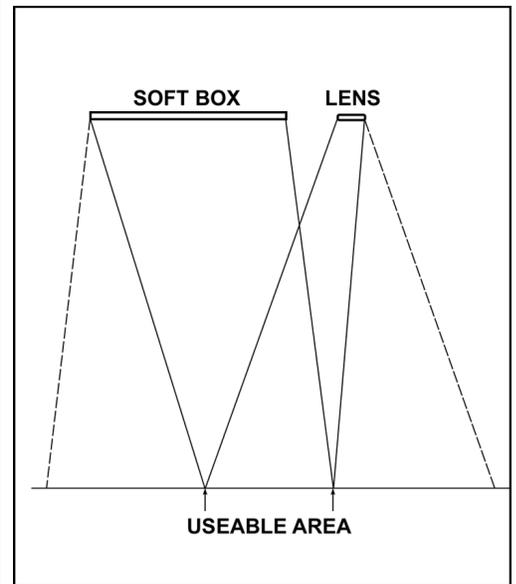


Figure 8.08

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Set Up, continued

3. Move the stand into position in front of the copystand. Extend the horizontal arm of the stand to position the softbox to the left side of the camera (fig. 8.05).
4. Connect the lamp power cord to its power pack (fig. 8.06a).
5. Connect the power pack power cord to the wall outlet (fig. 8.06b).
6. Turn on the “Model” switch (fig. 8.06c). The “Power” switch should remain in the off position (fig. 8.06d). Turn off the overhead room light.
7. Open **Camera Control Pro** > *Live View*.
8. Position your object to the far right, with the long side parallel to the image frame (fig. 8.07). In this manner of specular illumination, approximately 2/3 of the image will remain empty and should be cropped out in processing (fig. 8.08).
9. Place the color target adjacent to the object.

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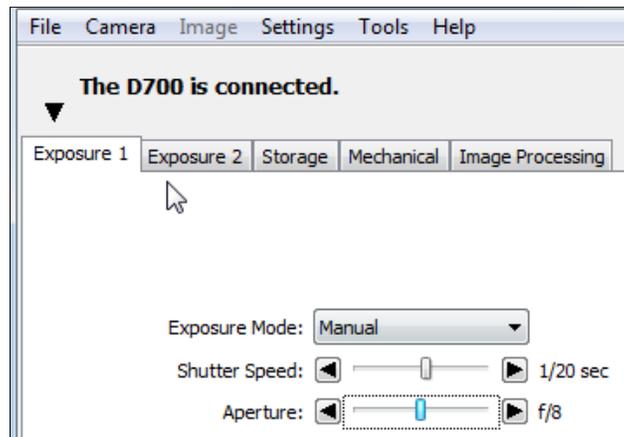


Figure 8.09

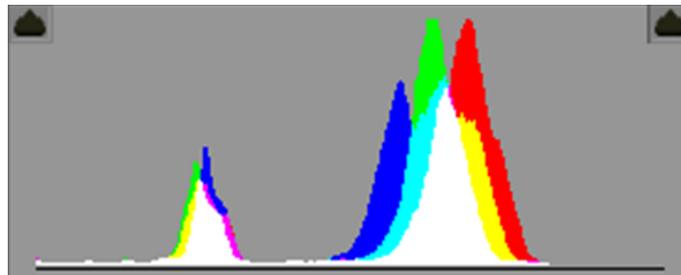


Figure 8.10 (no clipping)

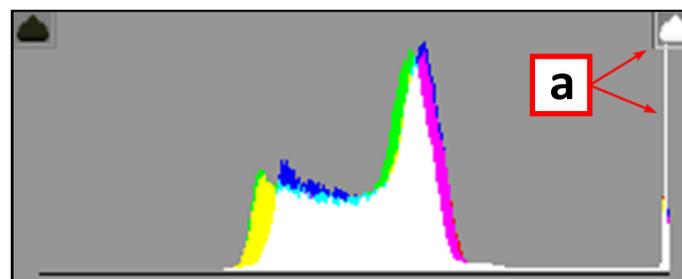


Figure 8.11 (highlight clipping / overexposed)

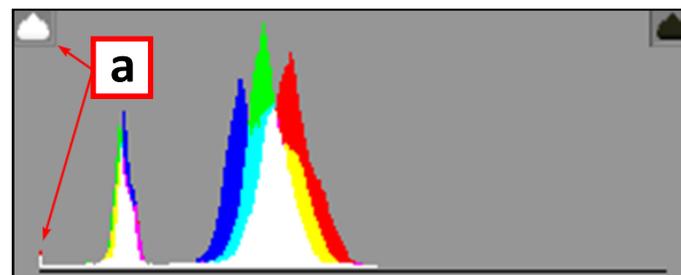


Figure 8.12 (shadow clipping / underexposed)

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Image Capture

1. In **Camera Control Pro** under the *Exposure 1* tab, select the following (fig. 8.09):
 - Exposure Mode: Manual
 - Shutter Speed: 1/20 (this may need to be adjusted)
 - Aperture: f/8
 - Exposure Comp.: 0
2. Settings under the *Exposure 2* (including auto white balance), *Storage*, and *Image Processing* tabs are the same as with normal illumination (page 2.13).
3. Press *AF and Shoot*.

Preview Images

1. In **Bridge**, open the image in **Camera Raw**.
2. Image exposure will be dictated by the surface gloss of the artwork, determined using the histogram displayed in top right of **Camera Raw**. A correct exposure will show no highlight or shadow clipping within the perimeter of the artwork (fig. 8.10).
3. If the histogram shows overexposure (fig. 8.11a), choose a faster shutter speed and reshoot. If the histogram shows underexposure (fig. 8.12a), choose a slower shutter speed and reshoot. Shutter speed may vary between 1/50 second for glossy surfaces and 4 seconds for matte surfaces. Choose the final shutter speed in this range based on visual preference and make note of it to replicate for during and after treatment capture.

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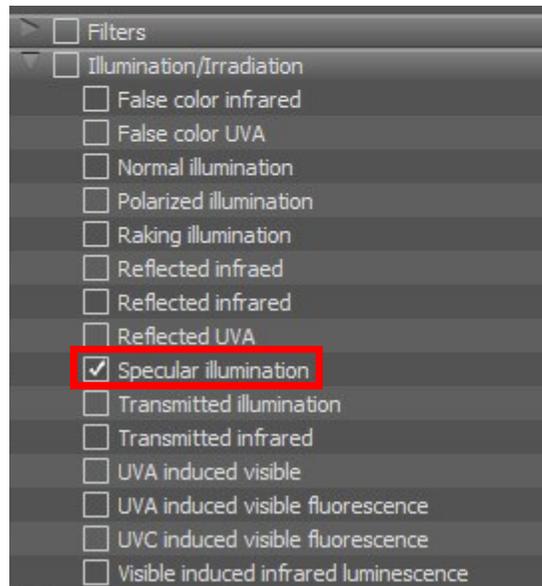


Figure 8.13

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Finish

Finish the photography session as done with normal illumination (Section 2). In addition:

1. Turn off the lamp and disconnect the power cord from the pack and wall outlet.
2. After the lamp has cooled down, lower the lamp head and detach the lamp and softbox from the stand.
3. Return the lamp soft box assembly, power pack, and the ¼” to stud adaptor to their storage box.
4. Return the studio stand to its storage location along the back wall of the studio.

Metadata

Add metadata as you would for normal illumination except when applying *Keywords* (Section 3). Select *Specular illumination* under Illumination/Irradiation (fig. 8.13).

Image Processing

Adjust Image Files

1. In **Bridge**, open the image in **Camera Raw**.
2. White balance, sharpening, straightening, cropping and confirming workflow procedures are the same as with normal illumination images (Section 4).
3. Click *Done* to save your adjustments.

Rename and Save

Follow the instructions in Section 4 for renaming and to create .dng archive files and .tiff derivative files.