

## Simulating Very Long Exposure Motion Blur

By Diane Miller

Sometimes we want exposures of 10-15 minutes for moving water. When shooting moonlit landscapes we would often like to shoot for several hours to soften the shadows as the moon conveniently moves. These long exposures create noise for a digital camera, but you can do the equivalent of a 30-minute exposure with 15 two-minute exposures.

I was curious how well this would work and one night when we had a quarter-phase moon (half the surface illuminated) with clear skies, I set up a test. It was too windy to use a tree and a long way to a scenic mountain, so I propped a board against the back wall of the garage which faces south where the moon would be. The moon rose at 10 pm and wouldn't be clear of a hill and trees to the east until after midnight. So I set up the camera (Canon 5D3 and 24-70 II lens) in daylight, focused on the wall and switched to manual focus. I set ISO 800, f/4, and B mode. I set my intervalometer to shoot sequential 2-minute exposures with a start delay of 6 hours, by which time the moon should be in a good position. I estimated the proper exposure from online sources and it was right on.

I let it run and retrieved it in the morning. It had shot 114 exposures before the camera battery ran down, but I only used the first 15 for the test. They covered 30 minutes.

The rather tedious method of stacking the exposures in Photoshop and setting the opacity of each layer by hand, as 1 divided by the number of the layer, gives nicely soft shadows.

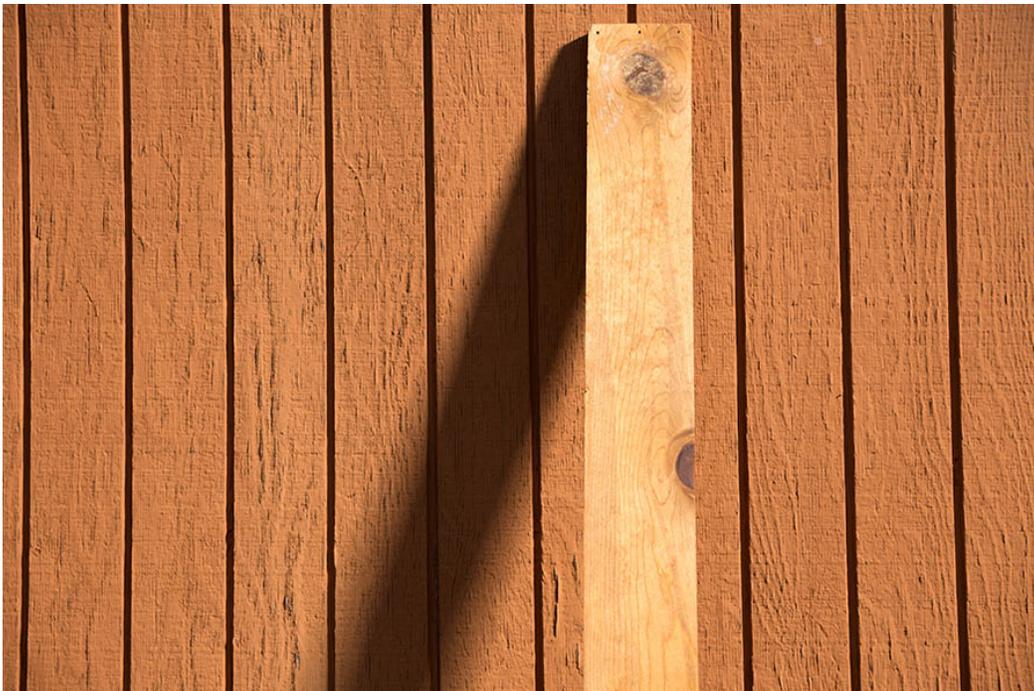
But a much easier method is this, which gives the same softening:

Files > Script > Load Files into Stack (browse to find the files)

Check Create Smart Object and hit OK

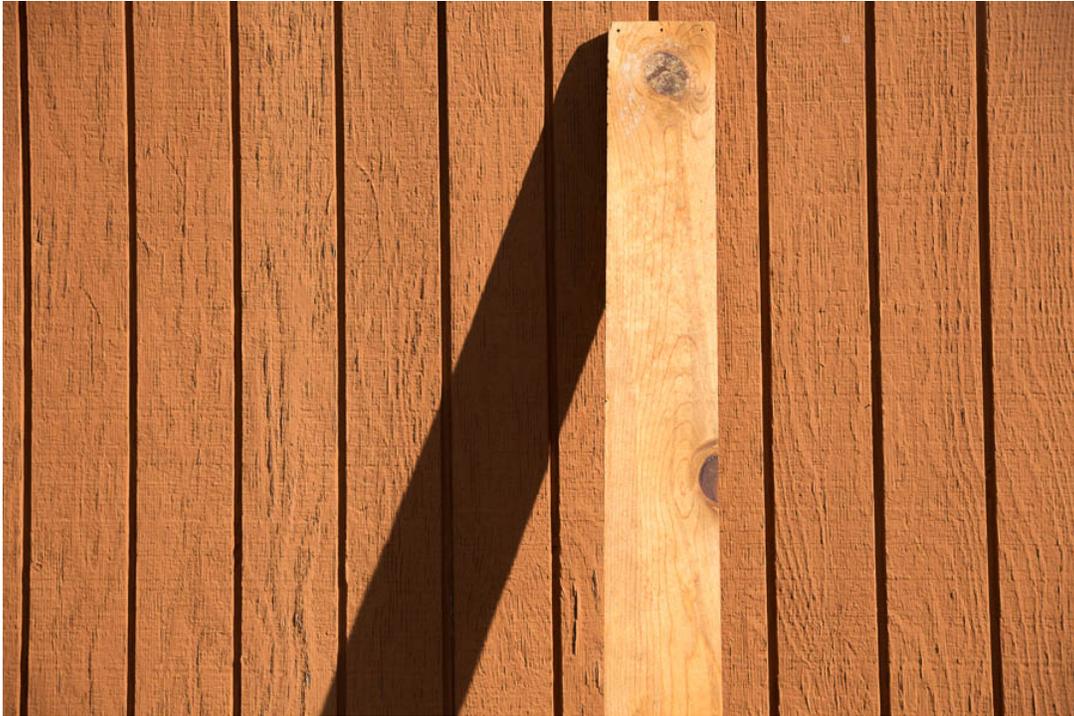
When the Smart Object appears in the Layers panel go to:

Layer > Smart Objects > Stack Mode > Mean



To save the image, first “flatten” it by going to Layer > Smart Object > Rasterize.

Although the moon moved slightly during each 2 min exposure, the shadow is basically hard-edged in each one.



But the accumulated 30 minutes of exposure shows a very nice softening of the shadow.

The camera was set to Daylight color temperature and rendered the same color as if I had photographed it in sunlight, as moonlight is simply sunlight reflected off a gray surface.

A good general tutorial on long exposure photography is this one:

<https://digital-photography-school.com/how-to-improve-your-long-exposure-with-photo-stacking/>

There are many online resources for long exposure night photography. An excellent e-book is “Seeing the Unseen” by Alister Benn. I bought it several years ago but I can’t find it listed anywhere now. Royce Bair is also an excellent online resource.