



**Challenge Images: Building Distortion & Spiderweb**

# Challenge Images: Building Distortion & Spiderweb

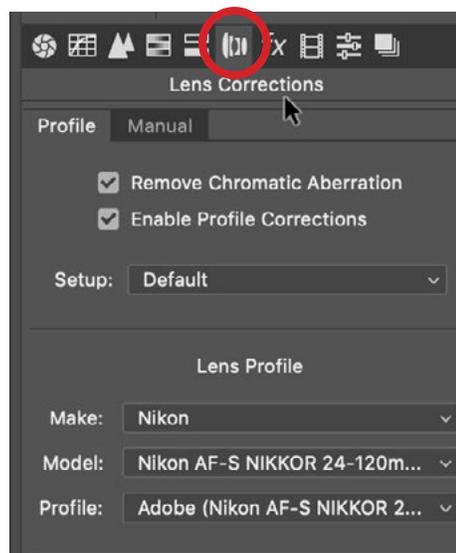
In this lesson, we're going to work on two challenge images submitted by Masters Academy members. I will take these images and show you the step-by-step process I would use to tackle the problems.

## Building image: Distortion correction

The first image is of a building that appears distorted due to the camera angle. Let's look at what we can do to correct for some of the distortion. The image is a raw file so we will double-click on it (from within Bridge) to open it in Adobe Camera Raw. In Camera Raw, we'll first try to get rid of any distortion that may have been caused by the lens. We'll click on the Lens Corrections tab on the right side of the interface. The icons for the different tabs can be found directly beneath the histogram. Within the Lens Corrections panel, it's always a good idea to turn on the "Remove Chromatic Aberration" check box, as this will remove any artifact that looks like a colored fringe running along contrasting edges in the image. We will also turn on the "Enable Profile Corrections" check box, which will straighten out any curvature that's in the building.



Some of the distortion in this image is due to the extreme angle at which it was shot. We will use a few different techniques to correct for it.



In the Lens Corrections tab (the icon is circled at left), we are turning on the "Remove Chromatic Aberration" check box and the "Enable Profile Corrections" check box.

At this point, we can click back on the Basic tab (it's the icon on the far left) and make any tonal adjustments that are necessary.

Next, we'll activate the Transform Tool by clicking on its icon in the Toolbar that runs along the top of the interface. With the Transform Tool active, a different group of settings will appear on the right side of the interface. (Note that in Lightroom, the same settings can be found under the Transform panel on the right side of the Develop Module.) There are a series of icons that run horizontally along the top of the tab and these are the Upright settings. The icon that looks like a square with a horizontal line through the center will try to make horizontal lines in the image become straight. The icon that looks like a square with vertical lines inside of it will try to make vertical lines become straight. The icon that looks like a grid will try to straighten both horizontal and vertical lines. The icon with an A on it is the Auto setting and this will try on its own to determine which settings are needed. When an image has this much distortion, however, these icons will likely not be enough. In a case like this, the Guided Upright tool is a better bet, and this is the icon on the far right side.

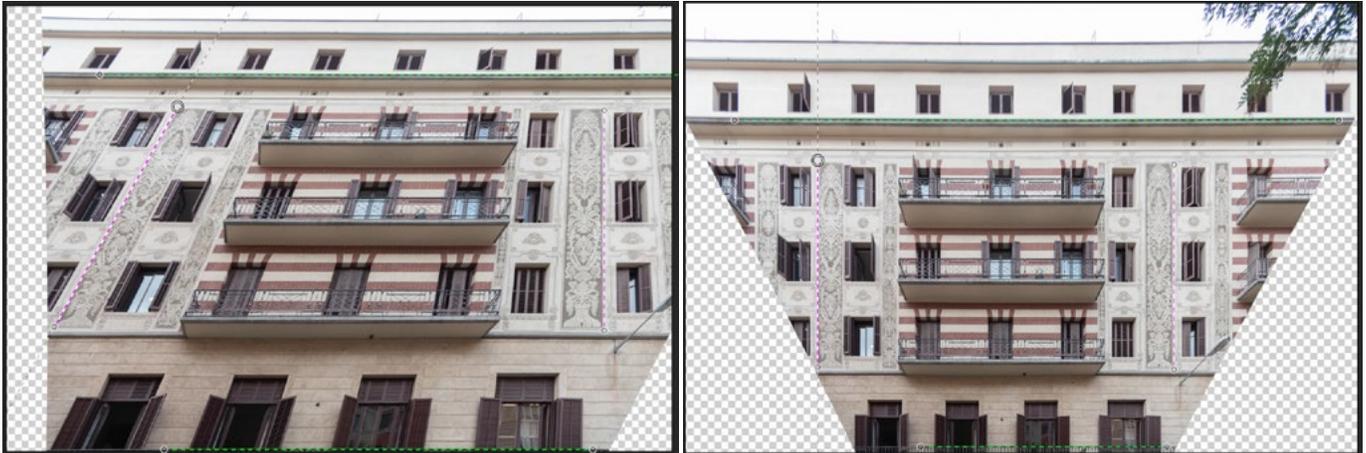


**We activated the Transform Tool (circled at top) and the Transform settings appear on the right side of the interface. We're going to use the Guided Upright feature (circled at right).**

We'll click on the Guided Upright icon in order to activate the tool. Then, we'll find a line in the image that should be horizontal. We'll hover the cursor over one end of the line and then click and drag our cursor over to the other end of the line. A guide will appear where we dragged out the line. This, by itself, will not do anything because it requires at least two lines to be defined in order to straighten things. Knowing this, we'll find another line in the image that should be horizontal and we'll do the same thing. Note that in order to get the most precision, it's best to choose lines that are far apart from each other. In the challenge image, we dragged out one line along the railing at the bottom of the image and we dragged out a second line on a horizontal rim near the top of the building. When we release the mouse button, it's going to make its corrections based on the horizontal lines we defined.

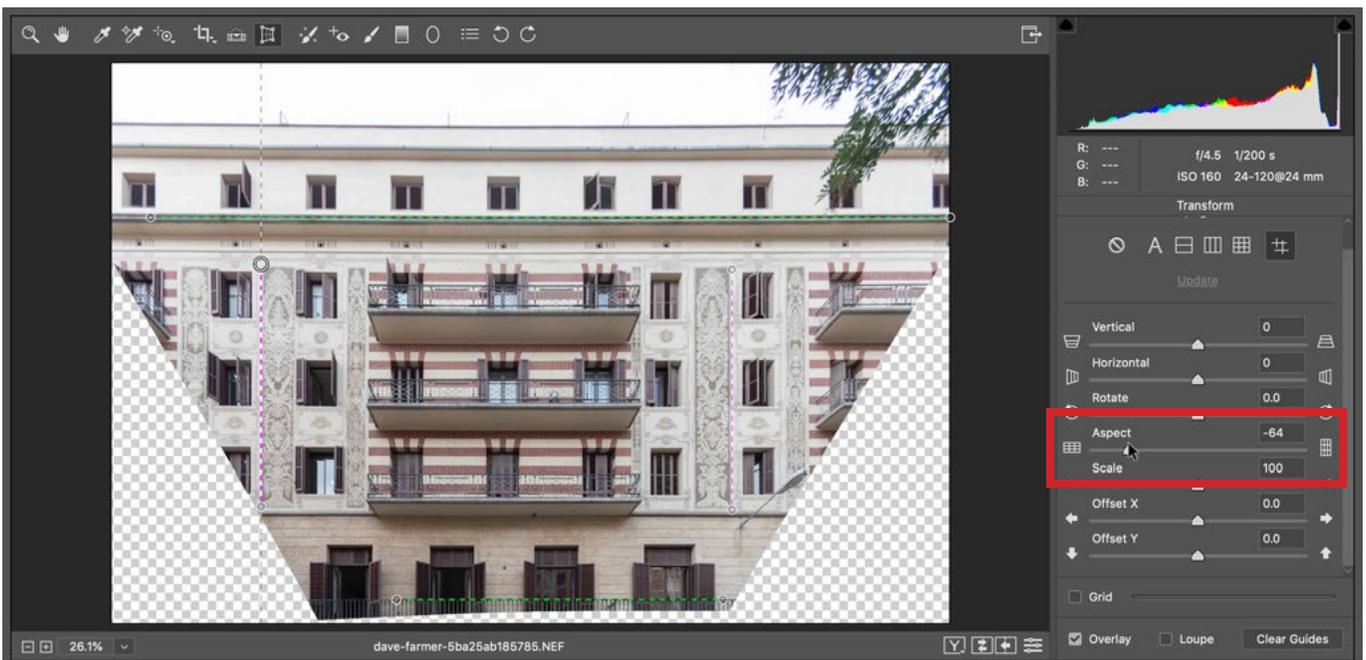


We'll now do the same thing with vertical lines. We'll click and drag out guides along two vertical lines in the image (preferably ones that are far apart from each other). In the end, we have corrected the distortion created by the tilting of the lens.



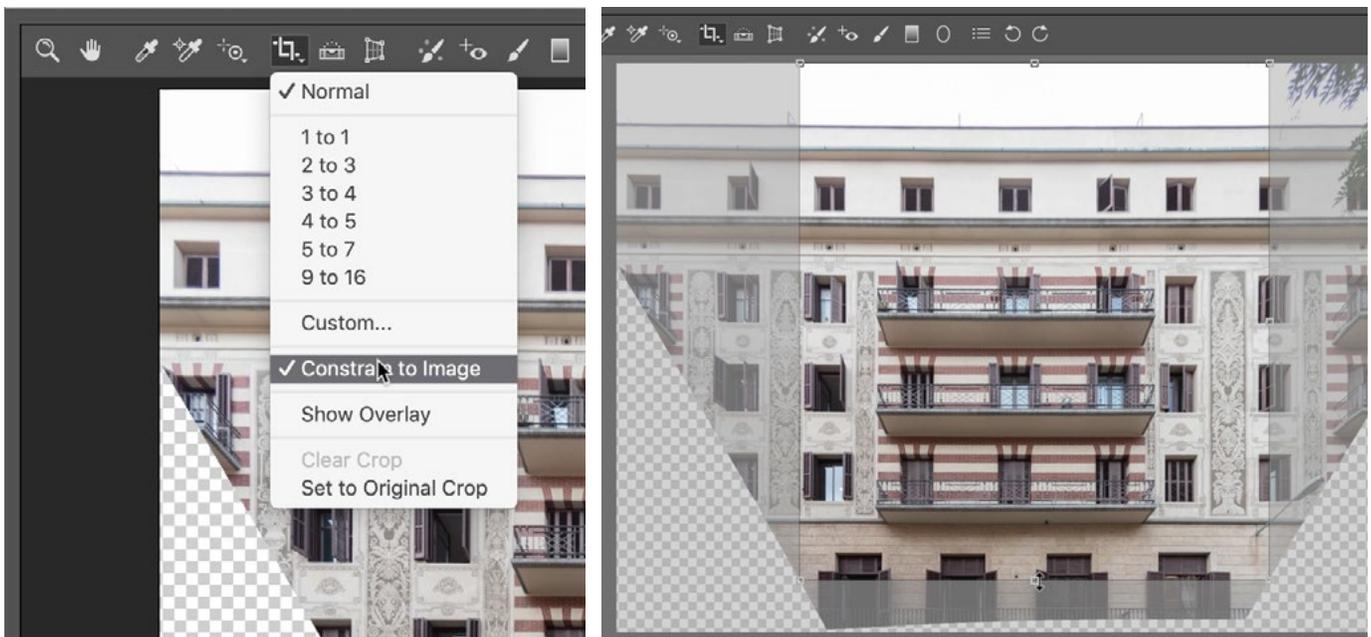
**LEFT:** We used the Guided Upright setting to drag two vertical lines on the image.  
**RIGHT:** When we released the mouse button after drawing the second line, Photoshop used the lines to correct for the vertical distortion.

Whenever we make a drastic transformation like this, it might look as if the building is squished in one direction. To compensate for this, we can adjust the Aspect setting, which is located within the Transform sliders.



After applying an extreme transformation, the image may look as if it is squished in one direction or another. Here, we are using the Aspect slider to correct for that.

Now we might think about cropping the image, and there is an important setting to consider, given that the transformation has resulted in transparent areas of canvas on the left and right sides of the image. The Crop Tool is located in the Toolbar on the top of the Camera Raw interface. If we click and hold the mouse button on the tool's icon, a menu will appear and one of the menu items is "Constrain to Image." If this option has a check mark next to it, that means that the setting is turned on and when we go to crop the image, it will not allow us to include any transparent areas. If we turn the setting off, then the Crop Tool will allow us to include transparent areas of canvas. If we plan on using Photoshop to fill in the transparent areas, we would keep this setting turned off.

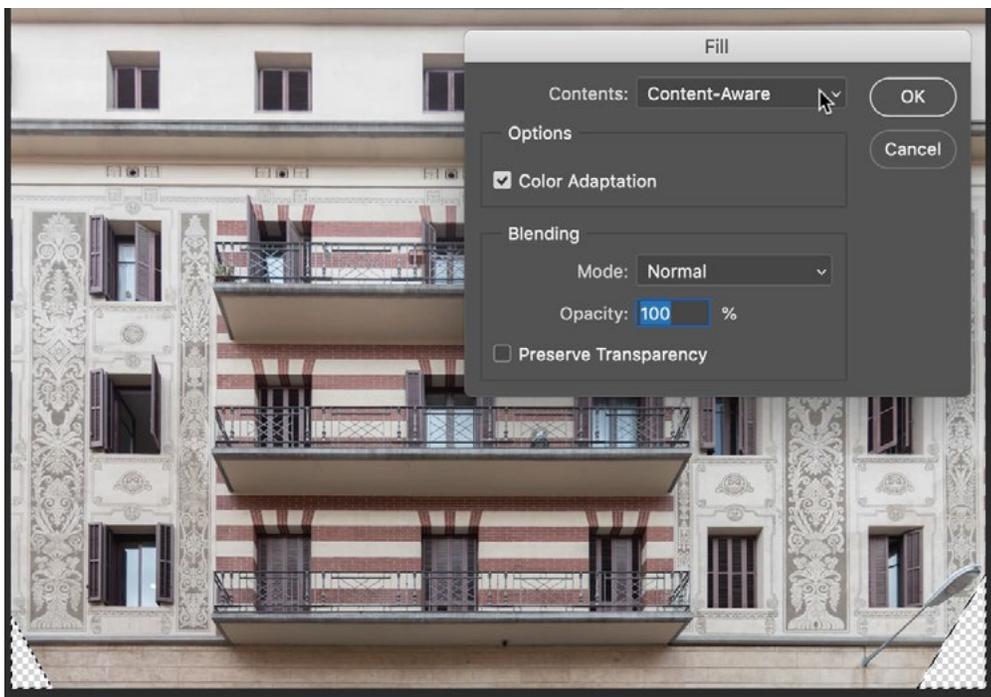


**LEFT:** We are clicking and holding on the Crop Tool icon to access this menu. **RIGHT:** When the Constrain to Image setting is turned on, the Crop Tool will not allow us to include transparency when we crop the image.

We will allow for some transparent areas and we will click the Open Image button in the lower right corner of the interface. This will open the image in Photoshop so that we can attempt to fill in those transparent areas. We're going to try and let Photoshop fill in the empty areas but we first need a selection. We'll activate the Magic Wand Tool and click in one of the transparent areas. We'll hold down the Shift key and click on the other transparent area so that both areas are selected.

Now, in order for the Content-Aware Fill feature to work properly, the selection will need to overlap the image by just a tiny amount. We'll go to the Select menu and choose Modify > Expand. In the Expand dialog, we'll tell it to expand by just one pixel and then click OK.

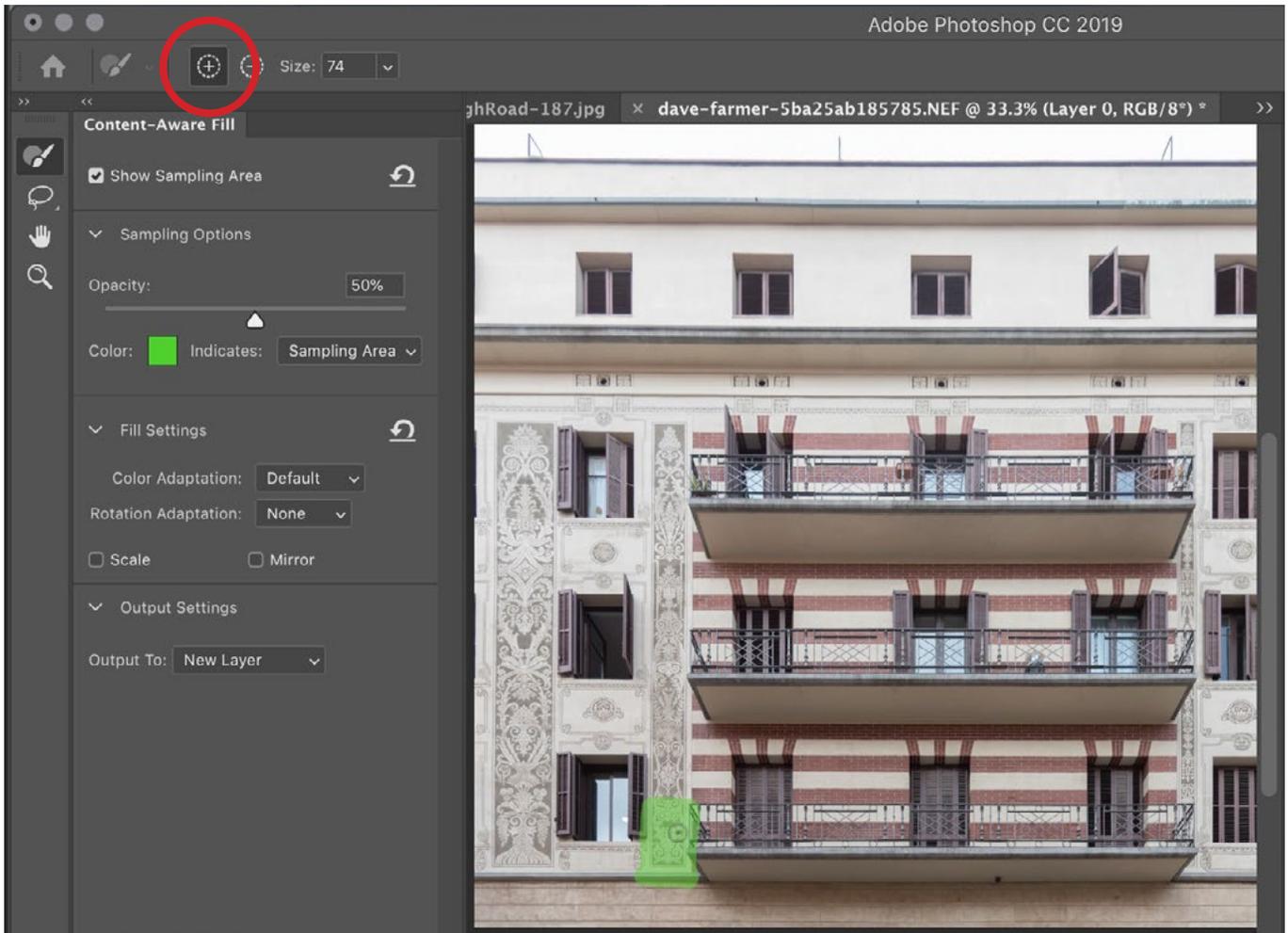
Now there are a couple of ways that we could fill this selection. In the past, I would go to the Edit menu and choose Fill. The Fill dialog would appear, I'd make sure the Contents menu was set to Content-Aware and then click OK. Photoshop would then look at the areas of the image surrounding the selection and try to fill in the selection based on those areas.



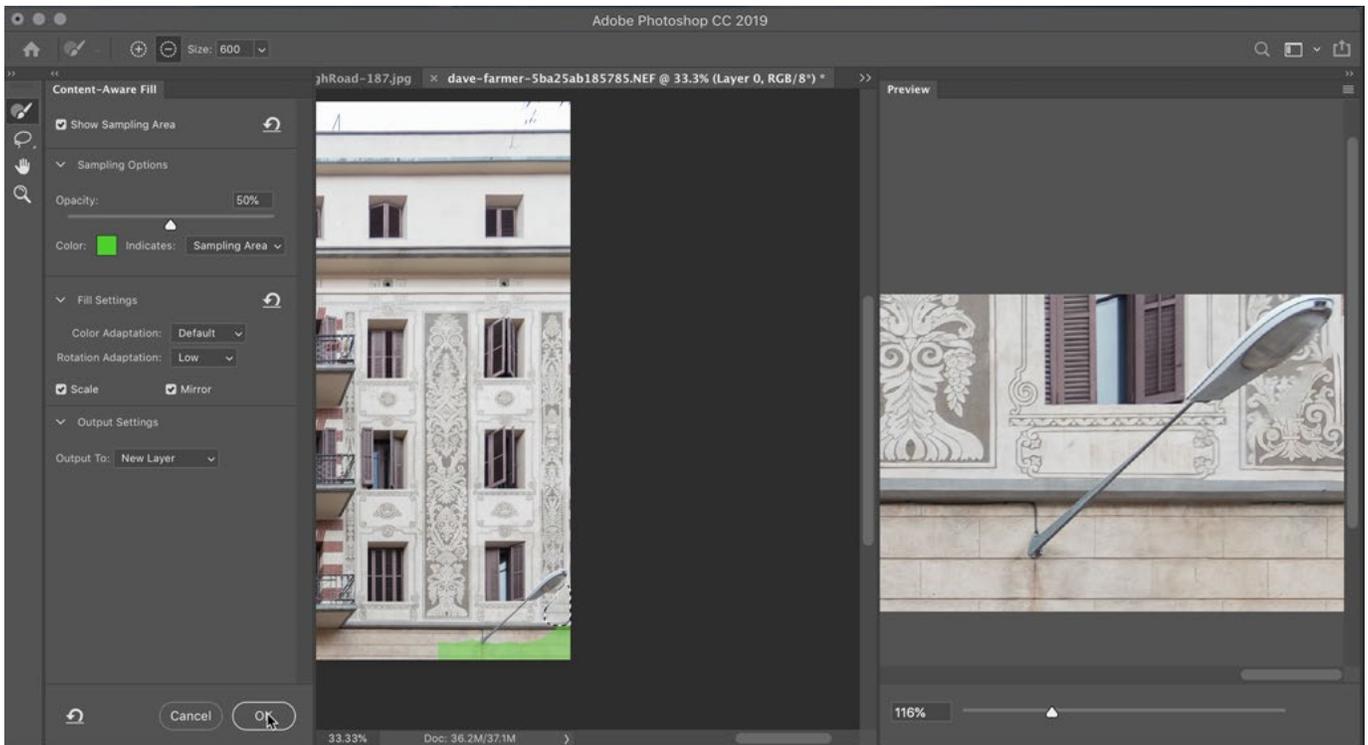
**With active selections around the transparent areas, we went to the Edit menu and chose Fill. In the Fill dialog, we are using the Content-Aware setting. This is the older method for applying the Content-Aware Fill settings.**

There is now another, smarter method for using the Content-Aware Fill feature. With the selection[s] active, we'll click on the Edit menu and choose Content-Aware Fill. (This feature was added in October of 2018.) When we choose this option, the Content-Aware Fill interface will appear and there will be two image windows. The window on the left shows the selection as well as a colored overlay. The colored overlay represents the areas that Photoshop can copy from in order to fill in the selection area. The window on the right shows a preview of the result, with the selection filled in.

We can specify where we would like Photoshop to sample the content from by adding or subtracting from the colored overlay. With the Brush Tool active (in the Toolbar on the left), we will make sure that the Plus icon ( + ) is highlighted in the Options Bar at the top of the image window. This will allow us to add to the colored overlay and we'll paint over part of the image that we WANT Photoshop to copy from in order to fill in the selection.



Here, we are adding the colored overlay in the area we want Photoshop to copy from in order to fill in the retouch area. To add the colored overlay, we need to make sure the brush tool is set to the plus icon (+), which is circled above.



Here, we set the brush to the subtract setting (-) and are painting to remove the colored overlay in the window on the left. At right, we can see a preview of the result. It's not perfect, but it's getting closer.

Then we will click on the minus icon (-) and use the brush to paint away the overlay in places where we do NOT want Photoshop to copy from. Looking at the preview on the right, we can see that it's starting to fill the selection with more appropriate content. In order for Photoshop to fill this selection most effectively, we're going to need to give it more control. If we turn on the Mirror and Scale check boxes under the Fill Settings category, Photoshop will be able to take the sample content and flip it or scale it to best fill the selection. We can also change the setting in the Rotation Adaptation menu, which determines how much Photoshop is allowed to rotate the sampled content. We'll set this to Low for this image, but it's something you'll need to experiment for each image/selection you are trying to fill. Once we are happy with the result, we'll click OK.

In this challenge photo, we were unable to perfectly fill in the selection using the Content-Aware Fill feature. If this ever happens, you will need to use Photoshop's retouching tools in order to fill the area. We would find a sample area that could best be used to fill in the retouch area and then we would copy that sample area using the Clone Stamp Tool or the Healing Brush. Then, we would use the Clone Source panel to scale and rotate that sampled content so that we can perfectly paste it into the retouch area.

## Spiderweb image: Removing the background

The next challenge image features a spiderweb and we want to try and remove the background. In order to do this, we'll need to make a selection and isolate the web.

### Making a selection based on brightness

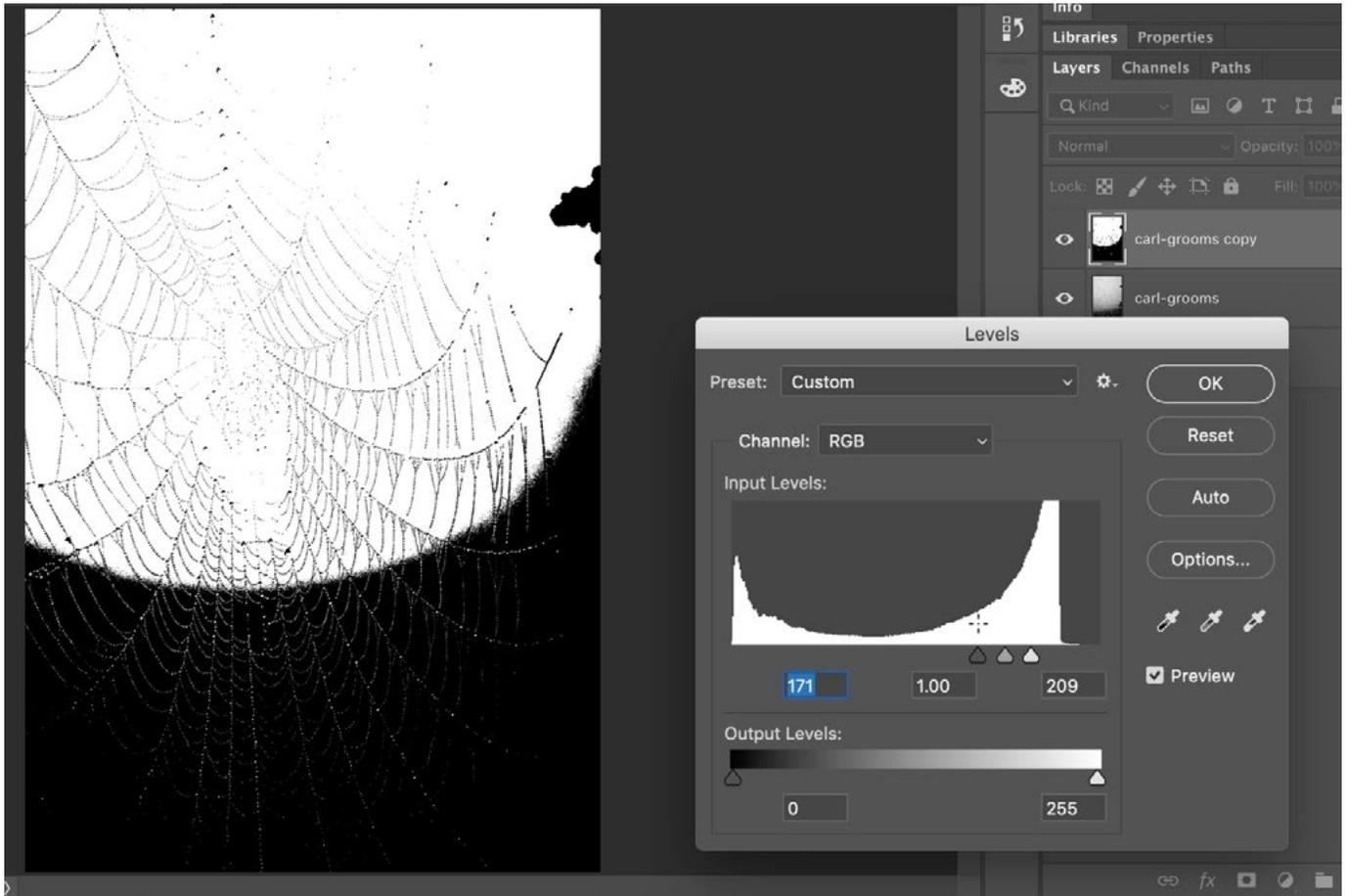
One way of making a selection is to make the selection based on brightness. To do this, we would first duplicate the image layer and then try to take the background on the top half (the part that's almost white) and force it to solid white. Then, there is a way to make a selection of that background where all the white areas would become selected.



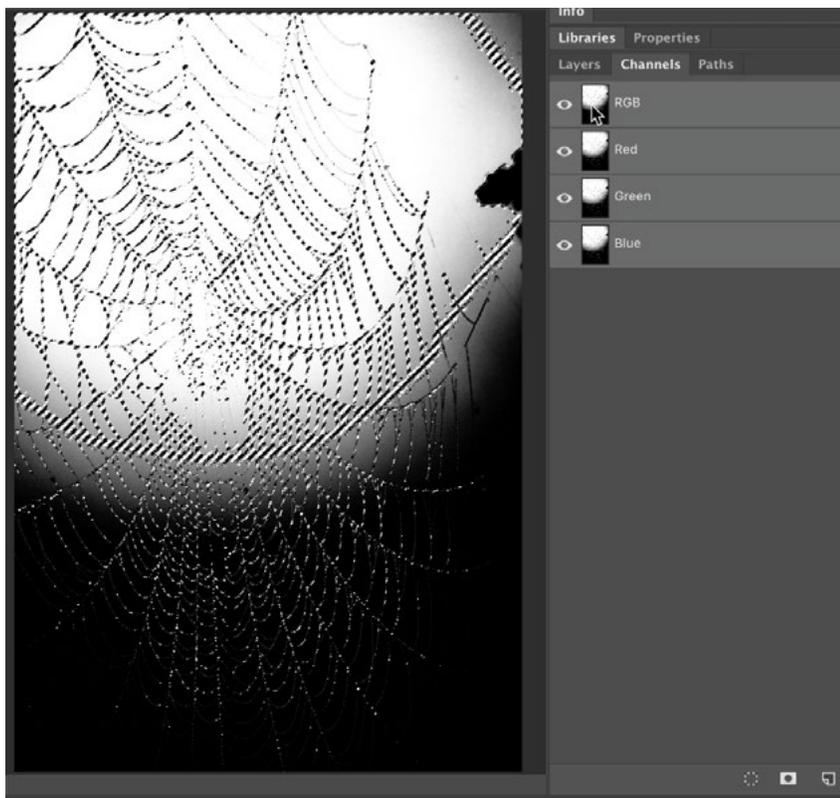
**With this image, we are going to try to remove the background and isolate the spiderweb.**

We will make sure the image layer is active and then we'll use the keyboard shortcut Command+J (Ctrl+J on Win). This will duplicate the layer. With the image duplicate layer active, we'll click on the Image menu and choose Adjustments > Levels. In the Levels dialog, the slider in the upper right will force areas to become white. If we hold down the Option key (Alt on Win) while dragging this slider, we'll get a different view of the image that shows us what areas are becoming solid white.

We'll drag this as far as we can before parts of the spiderweb start disappearing. Because the bottom part of the spiderweb image is almost black, we will try to force those areas to black by dragging the left slider (the black one) over to the right as far as we can before the top part of the web starts to get too thick. (see screen shot) We'll click OK.



The Levels adjustment is being used to force all the bright parts of the background to solid white. We are holding down the Option key (Alt on Win) to get this view of the image that shows what parts are being forced to become solid white. We also moved the black slider in to force the dark parts of the background to become solid black.



**With the Channels panel open, we held down the Command key (Ctrl on Win) and clicked on the top channel thumbnail in order to get a selection based on brightness.**

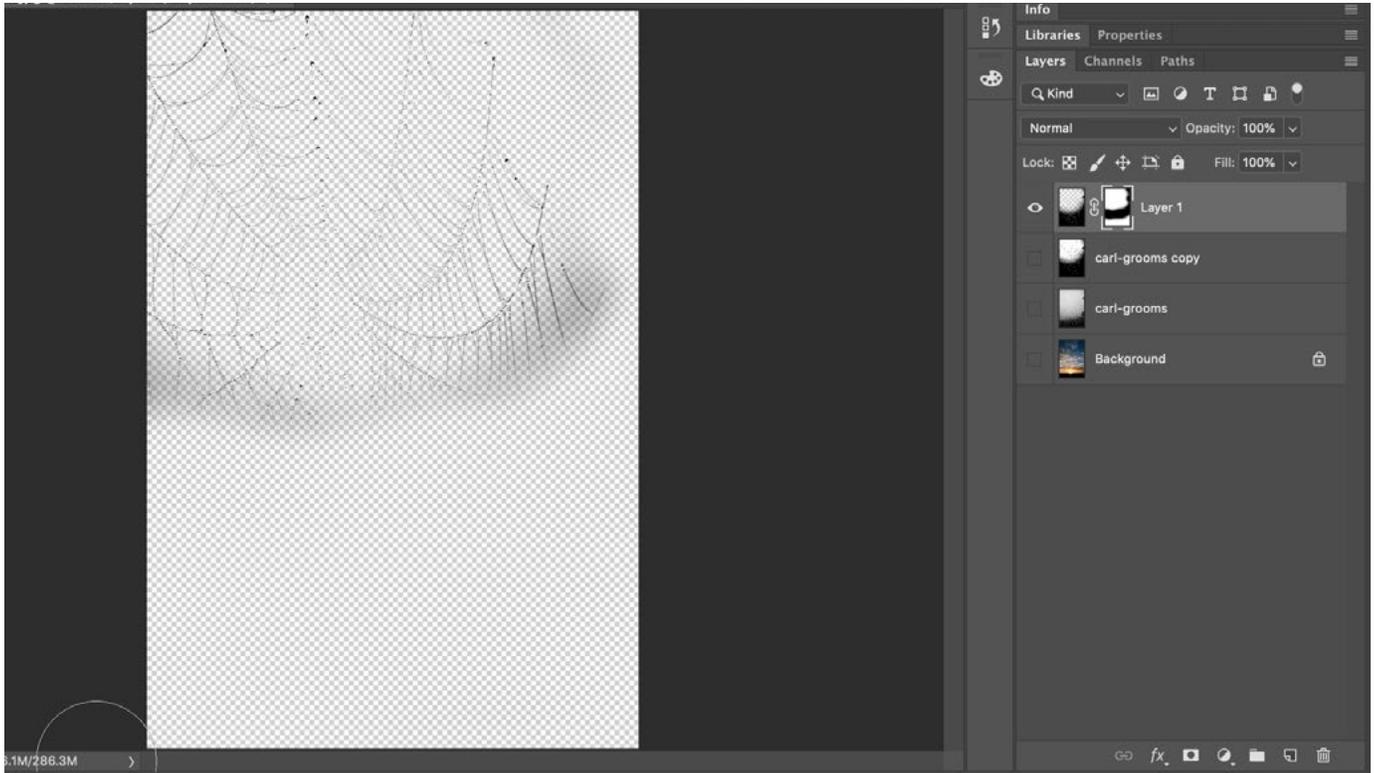
We have forced a large part of the image to solid black and solid white so we can now make that selection based on brightness. We'll open the Channels panel and hold down the Command key (Ctrl on Win) while clicking on the thumbnail for the top-most channel (RGB). This will give us a selection where all white areas are completely selected and all black areas are not selected at all. The white areas represent the background, and we want the opposite, so we'll click on the Select menu and choose Inverse. Now, the top half of the spiderweb will be selected.

To see how accurate the selection is, we'll create a new, empty layer and then fill the selection with black by going to the Edit menu, choosing Fill and then setting the Contents menu to Black. In our example image, we placed a different photo at the bottom of the layer stack so that we could see what the content looked like on a different background. We'll deselect the selection and then zoom in to see the results. We ended up getting a good portion of the spiderweb but I'd like to maintain more of the highlights that were in the original image.



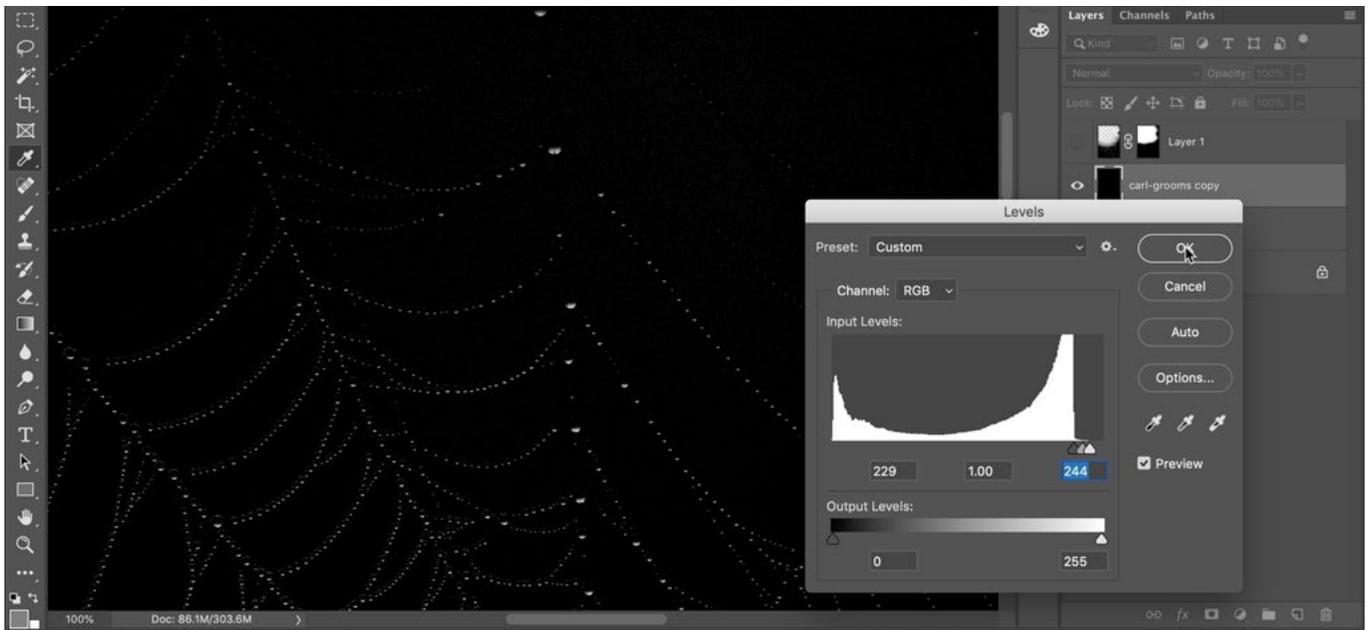
**Working on an empty layer, we filled the selection with black and then placed it on a different background so we could see the results.**

To get the rest of the spiderweb selected, we'll need to take the selection process we just used and repeat it several times. First, however, we'll mask out the part of this new layer that is not useful. We want to keep the part of the spiderweb that is isolated on a transparent background. That's the top part of the layer. We'll mask out the bottom part by adding a layer mask and then painting with black on the bottom part of the mask. Then, we would repeat the selection process a few more times, each time targeting an additional portion of the web.



**We only need the top part of this new layer, so we added a layer mask and we're painting on the mask with black in order to hide the bottom half of the layer.**

If we wanted to make a selection that includes the bright highlights within each droplet on the web, we would use Levels to isolate the absolute brightest parts of the image, which should be the specular highlights within the droplets. We'll use the keyboard shortcut Command+J (Ctrl+J on Win) to duplicate the image layer and then go to the Image menu and choose Adjustments > Levels. We will use the black slider to try to force everything to black except for the little highlights on the water drops. We'll also drag the white slider in just a bit in order to brighten those highlights and then we'll click OK.



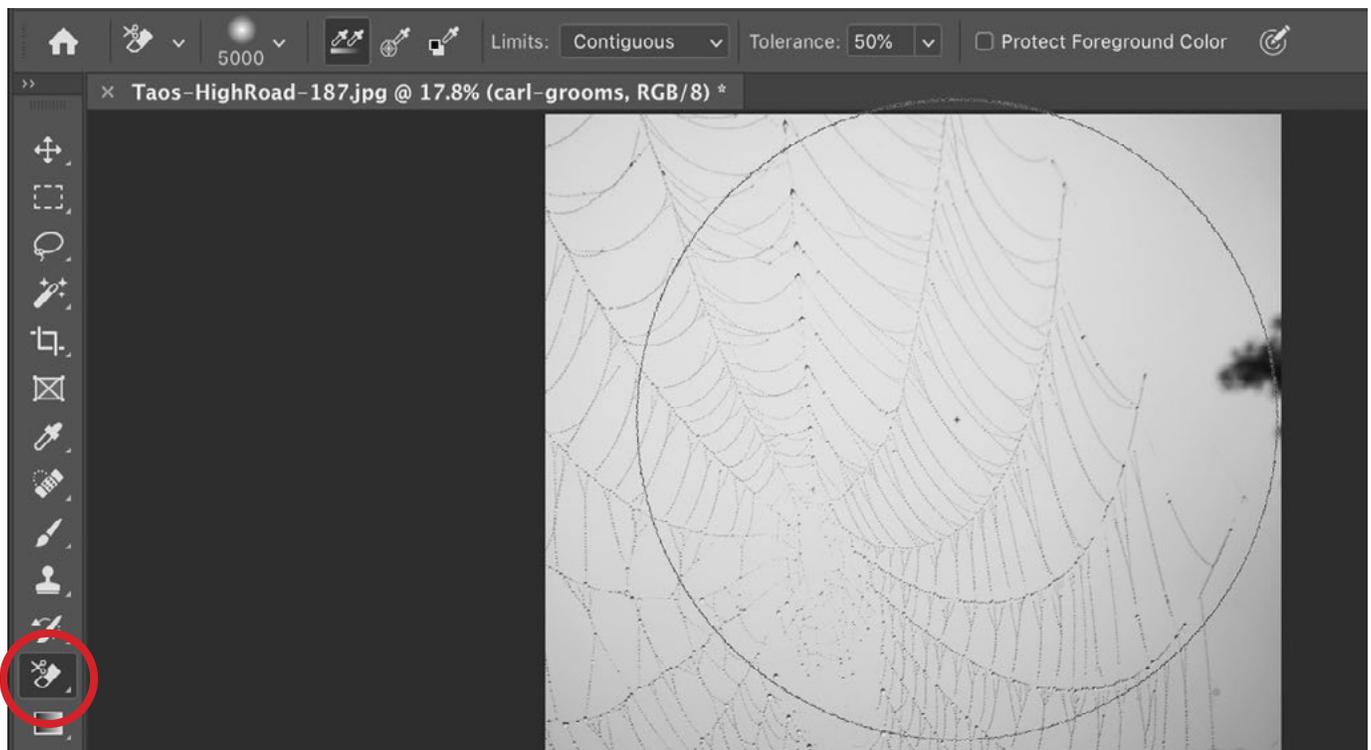
**A Levels adjustment is being used to isolate just the highlights within the water drops.**

We'll open the Channels panel, hold down the Command key (Ctrl on Win) and click on the thumbnail for the top channel. This will make a selection based on brightness, so all the white areas will be selected. Back in the Layers panel, we'll create a new, empty layer and then fill the selection with white. This layer now contains the highlights on the bubbles. We'll also turn on the last layer that we created, containing the dark part of the web. Looking at this result with the other image as the background, we can see the progress that we have made in isolating the web. Again, we would need to repeat the selection process a few more times, each time isolating a different part of the web.



**LEFT: We're looking at the layer that was created for the specular highlights on the web. RIGHT: We are viewing the highlight layer as well as the web layer on a different background image.**

**The Background Eraser** Now, let's try a completely different technique for removing the background on the spiderweb. We'll place the spiderweb image as a separate layer on top of another image, just so that we can better see the results. Then we'll activate the Background Eraser, which is hidden behind the Eraser Tool in the Toolbar on the left side of the interface. We'll click and hold the mouse button on the Eraser Tool in order to get the menu that gives us access to the Background Eraser. With this image, we'll set the Background Eraser to paint with a huge, soft-edged brush. (The settings can be found in the Options Bar above the main image window.) We'll also make sure that the Limits menu is set to Contiguous.



**We activated the Background Eraser (circled) and, using a very large brush, we are positioning the center crosshair over part of the background color.**

With the Background Eraser, you will notice that there is a little crosshair in the middle of the brush tip. We want to position this crosshair over part of the background color. When we click, it's going to try and erase ONLY the color that is directly beneath the crosshair and it will do so across the entire diameter of the brush. We'll click and then zoom in to examine the results.

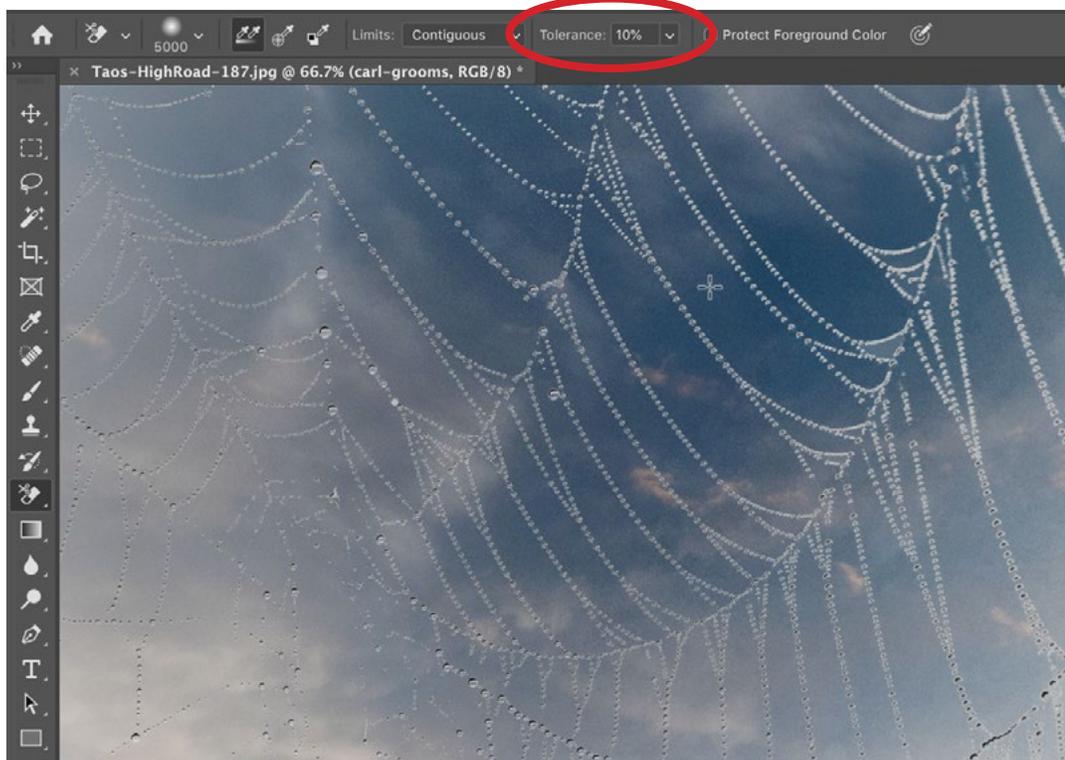
The tool did erase the background of the spiderweb, but it ended up taking part of the web with it. We'll use the Undo command, change a setting and then try again. We want to make sure that the Tolerance setting (also located in the Options Bar) is as low as is workable. The Tolerance setting determines how much the eraser can vary from the color we click on. We'll set the Tolerance to 10% and try again. This time, it did a pretty good job!



**We attempted to remove the background on the spiderweb using the Background Eraser. It removed the background but unfortunately took part of the web with it.**

This setting will vary from image to image, so when trying to remove a background using the Background Eraser, you will need to experiment with the Tolerance in order to find the right setting for your particular image.

We'll continue to click around the image using the Background Eraser, making sure to position the crosshair in the background area between the strands of the web, until the entire background has been removed.



**Here, we set the Background Eraser's Tolerance setting to 10% (circled) and then tried to remove the background. This time, it did a good job, removing the background while leaving the web intact.**