

Filters

What Filters Are All About

Filters are one of those features that everybody uses on a regular basis. I know some people whose only use for Photoshop is to open an image, apply a filter, and then click Save and Print. Filters make life easy. I always encourage people to experiment with filters. I tell them to play with the filters. I advise them, when faced with a dialog box for a filter, to enter a few different values and study the results of each. Enter negative values and see what happens. I also tell them to press the modifier keys—Option and Command (Alt and Ctrl)—to see if the effect of the filter is altered. Millions of happy accidents are waiting to happen!

Some filters have specific purposes. However, the effect of these filters can be applied to many other situations. All the filters have specific names. Pay no attention to the name of a filter. Understanding what a particular filter can do will open up possibilities for other uses beyond what its name implies. Sometimes a slight modification or combination of filters will provide solutions to problems that have nothing to do with what the filters were originally designed for. It is this creative use of filters that I discuss in the book.

In this document I'll cover a couple of the filters in greater detail than what I presented in the body of the book.

Smart Filters

Using multiple filters to produce effects is something I do often. CS3 introduced a new feature called Smart Filters that makes the use of filters a breeze. It allows you the freedom to experiment with multiple filters without permanently affecting the image. Smart Filters lets you apply as many filters as you want. The order in which the filters are applied can be changed. The settings can be altered. Filters can be deleted. All the filter functions can be performed without ever altering the image.

I used to run Actions when I experimented with filters. That way I had a record of what filters I used and what settings were applied. Smart Filters has changed the entire dynamic of working with filters. You can change the order of filters and even go back and change the amount! Let's study this gem of a feature.

Figure 1 shows an image that was opened in Photoshop. Selecting Convert for Smart Filters from the Filter menu (**Figure 2**) converts the image to a layer. This layer has an icon attached to it that distinguishes it as a Smart Filter layer (**Figure 3**).

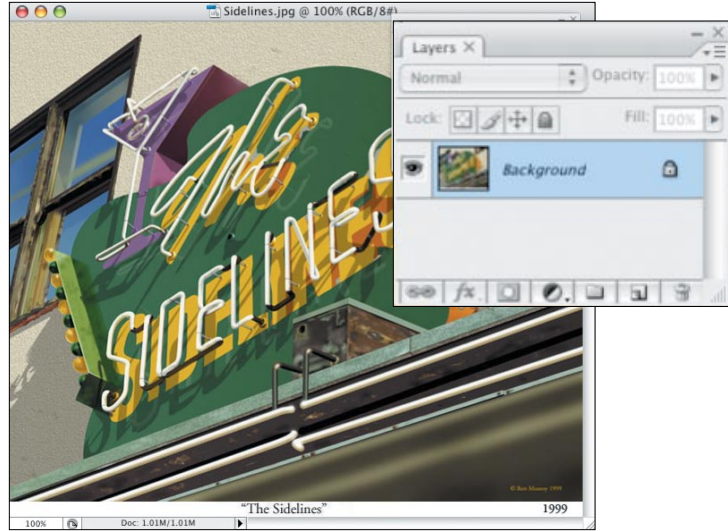


Figure 1 This image will be converted for Smart Filters.



Figure 2 The Convert for Smart Filters option in the Filter menu.

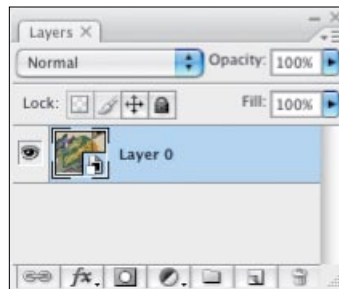


Figure 3 The image became a Smart Filter layer.

In **Figure 4** a combination of filters has been applied to the image. Note that the list of filters is displayed in a similar fashion as are layer styles when they are applied to a layer.

In **Figure 5** the filters Difference Clouds and Find Edges have been turned off. As you can see, the image starts to return a recognizable state. In **Figure 6** the settings for the Crystallize filter have been modified.

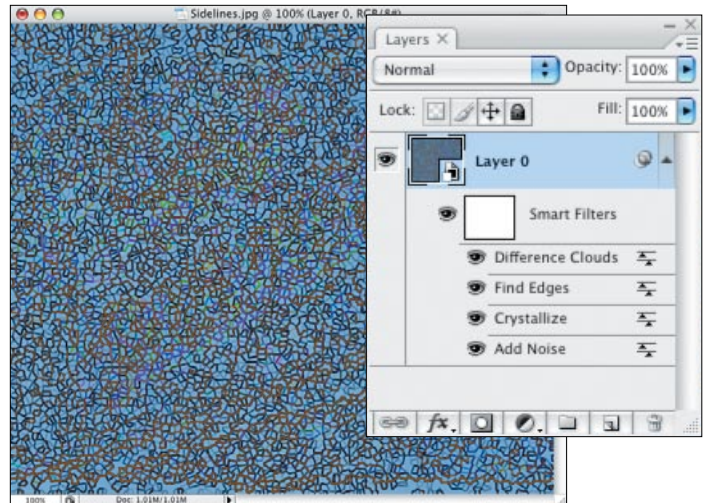


Figure 4 Multiple filters have been applied to the image.

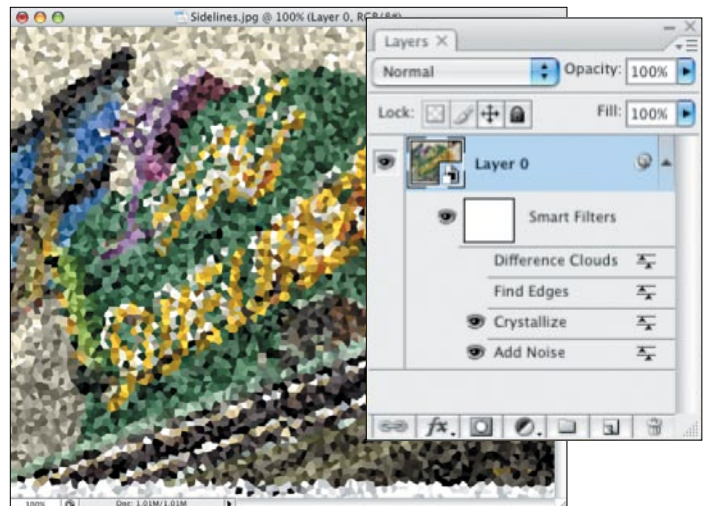


Figure 5 Two of the filters were turned off.

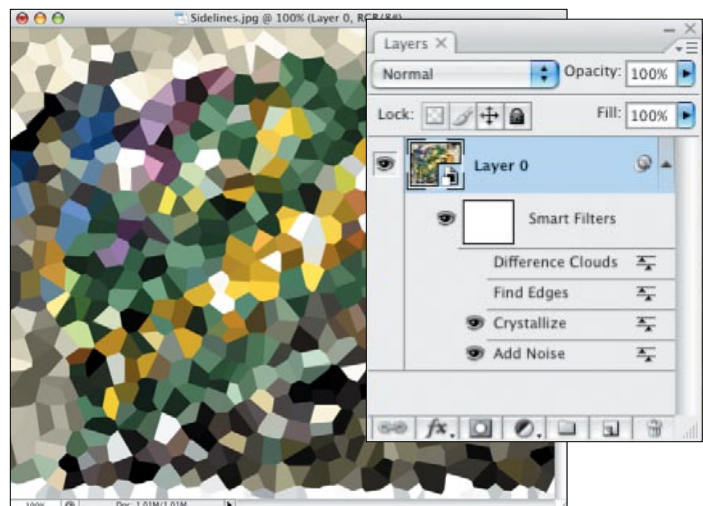


Figure 6 The Crystallize filter was modified.

The small white box between the layer and the list of filters is, as I am sure you have guessed by now, a mask. **Figure 7** shows that the Difference Clouds filter has been turned on again, but black has been added to the mask, making the effects of the filters visible only through the white of the mask.

In **Figure 8** all the filters have been turned off, showing the untouched image.

This is a great new feature: I don't know how we did without it for so long.

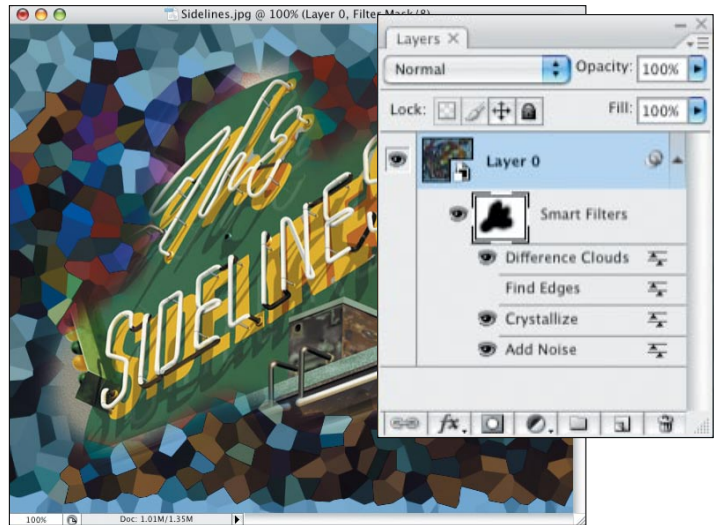


Figure 7 The mask hides portions of the filter effects.

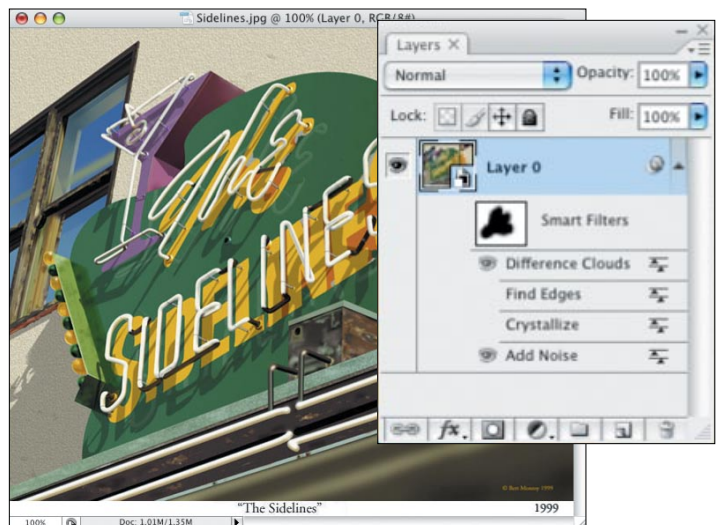


Figure 8 The filters are turned off, showing the unfiltered image.

Star Fields, Snowflakes, and Rain

I drew attention to the speckled effect on the headlamp in Chapter 6, “Red Truck.” I mentioned the use of this effect for star fields, snow, and rain. That effect was created with a combination of a few different filters. The result of these filters can be applied to many situations. I’ll show you the three effects just mentioned.

In **Figure 9** you see a radial gradient. This gradient will serve as the backdrop to see the effect of the filters.

A new layer is created and filled with black (**Figure 10**). In this black layer the first filter, Add Noise, is applied. A large Amount is entered to produce a lot of noise, as shown in **Figure 11**.

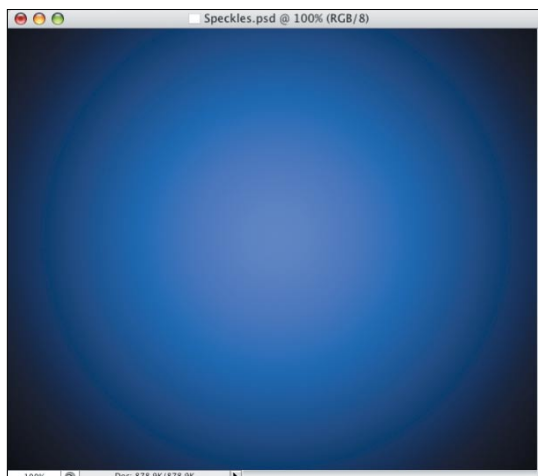


Figure 9 This gradient will serve as a backdrop for the effects of snow and rain.

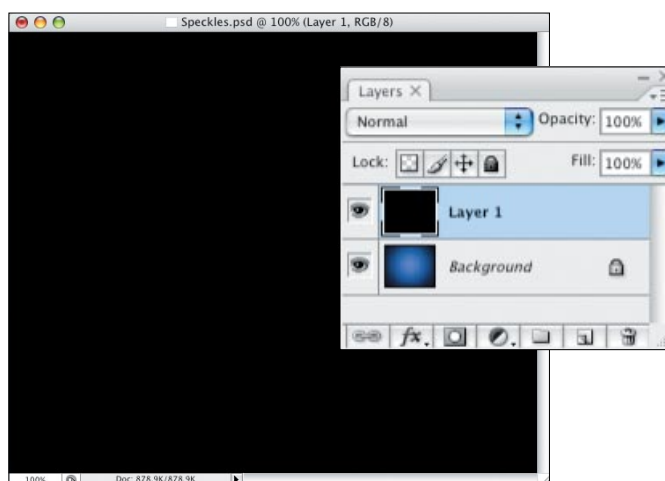


Figure 10 A new layer was filled with black.

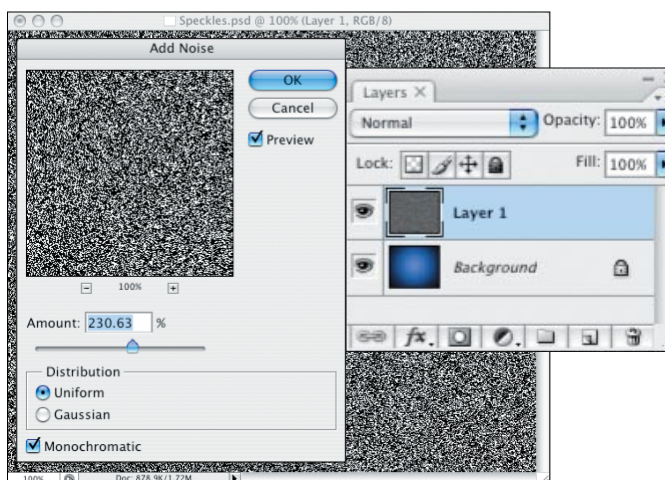


Figure 11 The Add Noise filter with a high Amount.

To introduce some gray values to the noise, the Blur More filter was applied.

Now here's the trick to make the noise behave the way you want it to so that you can create star fields or snowflakes—Levels. With the Levels adjustment (**Figure 12**) the dark value (black) slider is moved almost entirely to the right. The highlight slider (white) is moved slightly to the left, and the mid-tone slider (gray) is balanced between the two. This adjustment turns the noise into a star field.

Changing the mode of the layer with the star field to Screen allows only the values lighter than the values underneath to show through. This creates the effect of falling snow, as shown in **Figure 13**.

I also mentioned rain at the beginning of this filter discussion. To turn your star field/snowflakes into rain, you need to apply one more filter—Motion Blur. Controlling the Angle and Distance gives you very realistic looking rain, as shown in **Figure 14**.

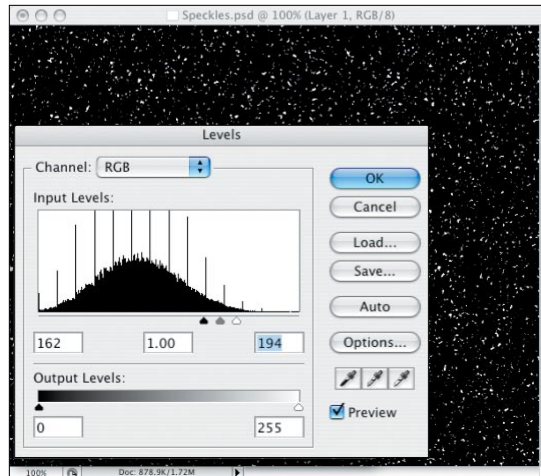


Figure 12 The effect of Levels on the noise produces a star field.

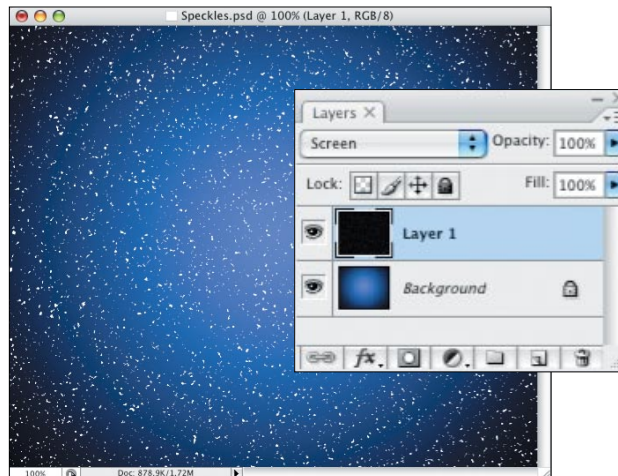


Figure 13 Changing the mode for the layer with the noise allows the gradient beneath it to show through, creating the look of snowflakes.

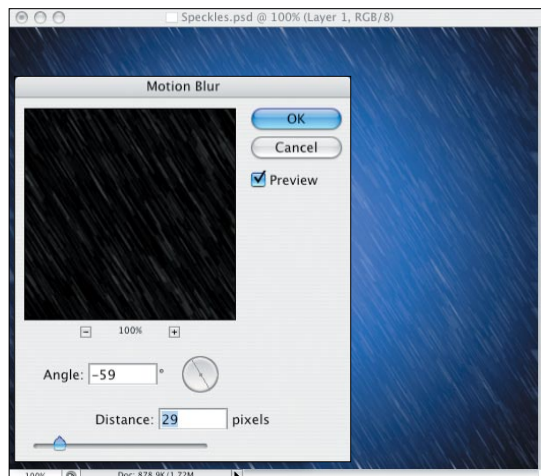


Figure 14 The effect of the Motion Blur filter on the noise creates the look of falling rain.

Displace

During my years lecturing around the world, I have heard many complaints about how Photoshop lacks the ability to bend or distort images along user-defined curves. Adobe has introduced a few features that address those requests. Liquify made its debut a few versions ago. It opened the door for all kinds of twists and turns, some of which I discuss in the book for making wood.

CS3 introduced Warp (Edit > Transform > Warp). Warp is a wonderful addition to the gang of exquisite tools. I also discuss Warp a few times in the book. However, it just so happens that the ability to bend things in a controlled fashion has existed in Photoshop for a long time—even before layers! It comes in the form of a filter that simply needs to be understood—the Displace filter (Figure 15). I use this filter many times in the book. Here I'll give you a detailed explanation of how it works.

Using the Displace Filter

Figure 16 shows the dialog box that pops up when you invoke the filter. Looking at it you understand why very few people know what to do with it. Nothing in it tells you what it does. To make matters worse, you decide to experiment so you enter a couple of values and then click OK to see what happens; as a result, another dialog box pops up (Figure 17)! Now what?

What you're about to explore will come in handy many, many times in the future. You'll to say to yourself, "Why didn't I know this when I had to work on the job for so and so?"

The Displace filter works with two files. One is the image you want to distort, and the other image is the one used to distort it.

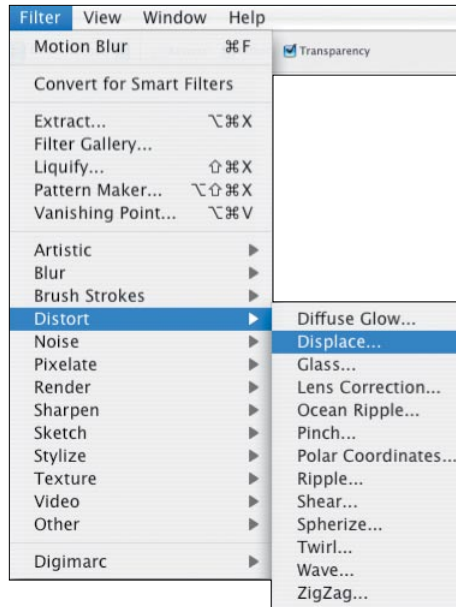


Figure 15 The Displace filter in the menu.

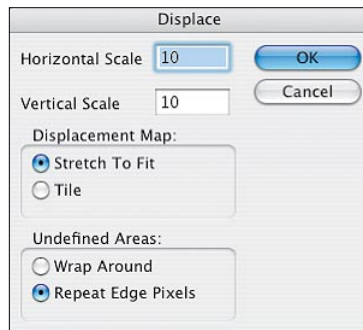


Figure 16 The Displace filter dialog box.

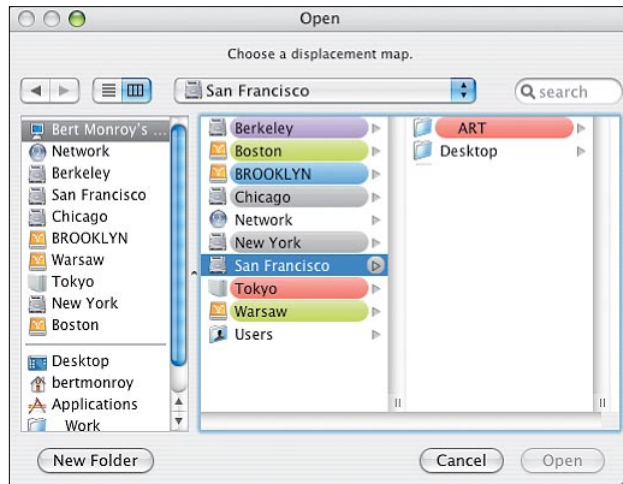


Figure 17 The second dialog box that opens when you click OK in the Displace dialog box is more confusing than the first.

This second image is called a Displacement Map. The filter uses the luminosity values (lights and darks) of the Displacement Map to distort the image. Where there is a 50% gray value or neutral density in the Displacement Map there will be no displacement (distortion). Any values lighter than 50% gray will distort the pixels of an image up and to the left. Any values that are darker than 50% gray will distort the pixels of an image down and to the right.

Keeping this in mind, you can create very elaborate Displacement Maps to distort images in every variety imaginable. I resort to using the Displace filter many times during the creation of my paintings.

Let's study this concept a little further.

Figure 18 shows a series of vertical stripes of varying colors. The stripes also have numbers inside them. This is the image I'll use to distort using Displace.

In **Figure 19** is a gray field with a set of white and black horizontal lines followed by two different horizontal gradients composed of blacks and whites. This image will be used as the Displacement Map.

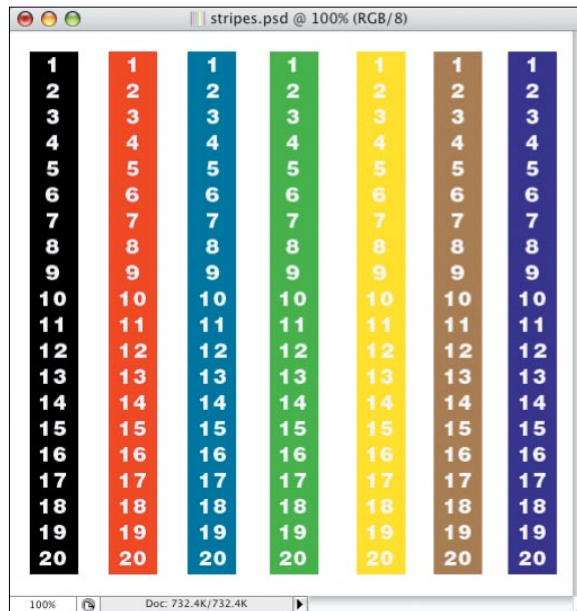


Figure 18 This image will help you understand the Displace filter's function.

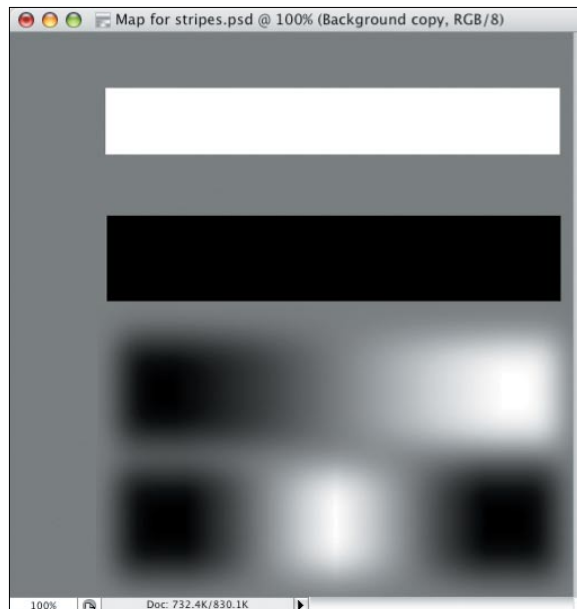


Figure 19 This image will serve as the Displacement Map for the image in Figure 18.

The filter is selected from the Filter menu (Filter > Distort > Displace). The default settings of 10 are used for both the Horizontal and Vertical Scales. I'll leave all the settings as they are for now. I explain them later.

As discussed earlier, clicking OK brings up the Open window where you are asked to choose a Displacement Map. The map in Figure 19 was chosen.

Clicking Open makes the filter perform its function. In **Figure 20** you see that the stripes have been distorted. In **Figure 21** I've placed the Displacement Map over the image so that you can study the effect that each of the values had over the image. The white stripe pushed things up and to the left, hiding the number two. The black stripe pushed things in the opposite direction, forcing the number ten to be hidden.

The curviness of the two lower transitions is due to the soft transition of tones. The white and black stripes had hard edges, making the transition sharp. The gradients on the two lower bars caused the distortions to be soft based on the value of the grays in between.

The areas that were 50% gray, such as the area over the far-left black, vertical stripe, were left untouched.

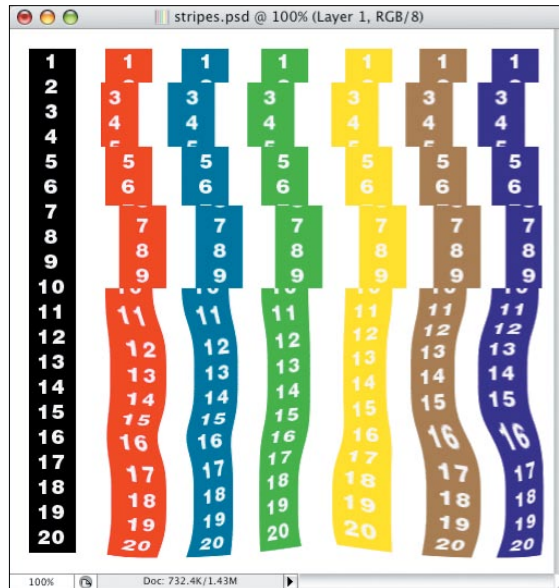


Figure 20 The effect of the Displace filter on the image.

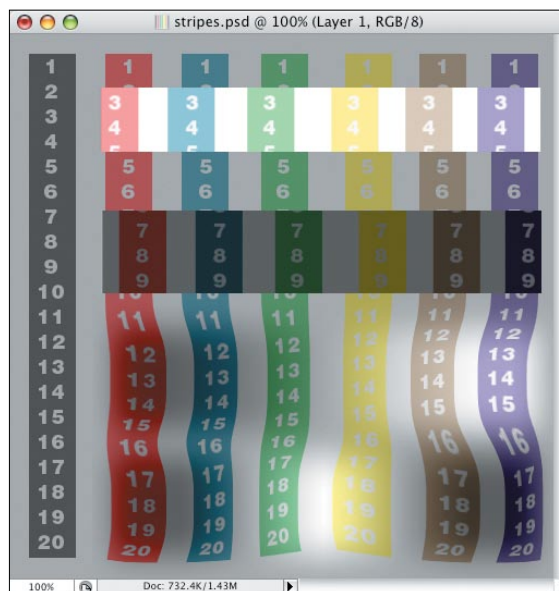


Figure 21 Superimposing the Displacement Map over the image, you can see how the values in the map have distorted the image.

As I mentioned earlier, the default settings in the dialog box are set to 10 for both the Horizontal and Vertical Scales. Obviously, the higher the number, the more exaggerated the distortion. You can set the values independently. In **Figure 22** I've set a high value for the Horizontal and set the Vertical to zero. You can see the result in **Figure 23** where the stripes have been pushed to the left and right, leaving their vertical position intact.



Figure 22 The Displace dialog box where only a Horizontal value has been entered.

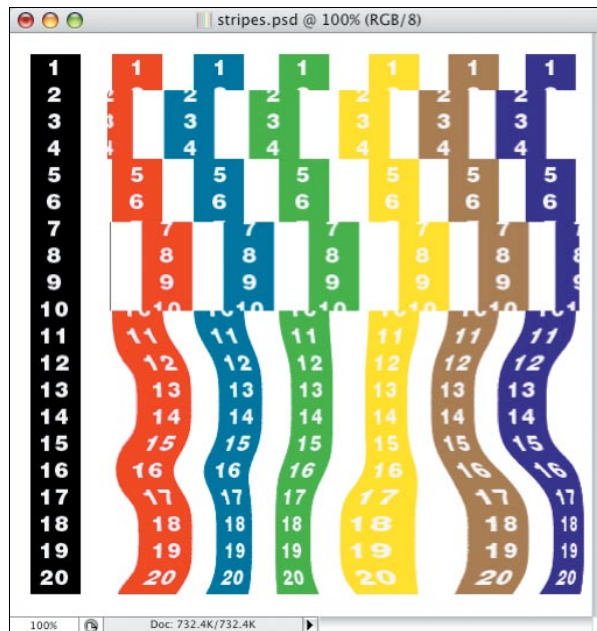


Figure 23 The effect of the horizontal displacement.

The opposite occurs when I switch the settings, as shown in **Figure 24**. This time the movement of the stripes is vertical, which is visible in the numbers in **Figure 25**, but the actual stripes remain straight up and down.

The two lower portions of the Displace dialog box control how the displacement file will be used. I have never concerned myself with these two settings. They make adjustments to the Displacement Map to control how it relates to the image being displaced. If the Displacement Map is smaller than the image being displaced, you can choose to scale it up or tile it. You can also decide what you want to do with the undefined areas.

Every time I've used this filter perfect registration has been crucial. I want total control over where something will be distorted. To get this control, my Displacement Map is always the exact same dimensions and resolution as the image being displaced.

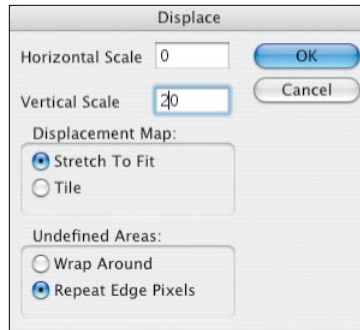


Figure 24 The Displace dialog box where only a Vertical value has been entered.

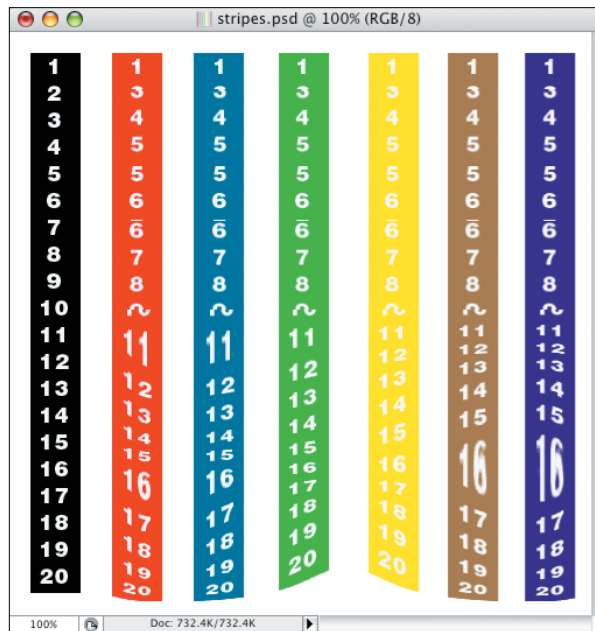


Figure 25 The effect of the vertical displacement.

Example of a necessary displacement

Let's look at a situation where displacement is necessary. **Figure 26** shows a saltshaker sitting on a white surface. A light source behind the shaker causes it to cast the long shadow across the front. It looks fine.

In **Figure 27** the same saltshaker sits on a sandy surface with ripples in the sand. Now it looks wrong! The shadow needs to follow the contours of the ripples in the sand. This is where the Displace filter comes in.

To enhance the effect of the filter, I increased the contrast for the image that will be used as the Displacement Map. **Figure 28** shows the file sand_dark.psd where the lights and darks are more pronounced.

In the file to be distorted (shaker), the filter is chosen from the menu (Filter > Distort).

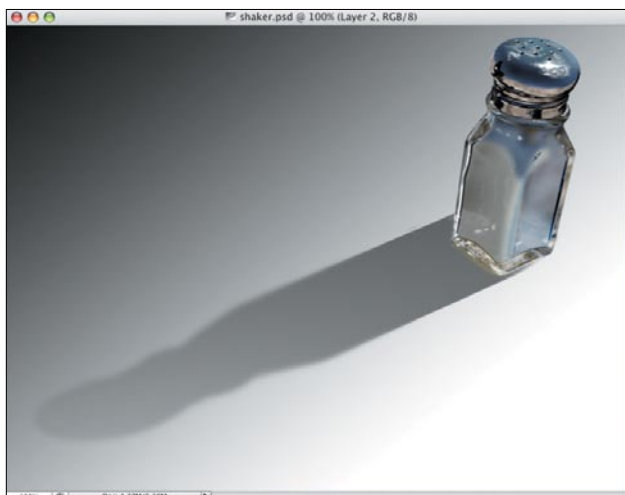


Figure 26 A lonely saltshaker casts a long shadow.

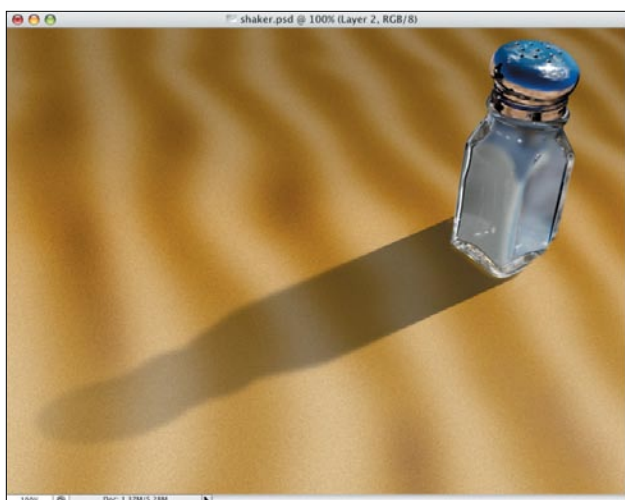


Figure 27 The saltshaker on a surface of rippling sand.

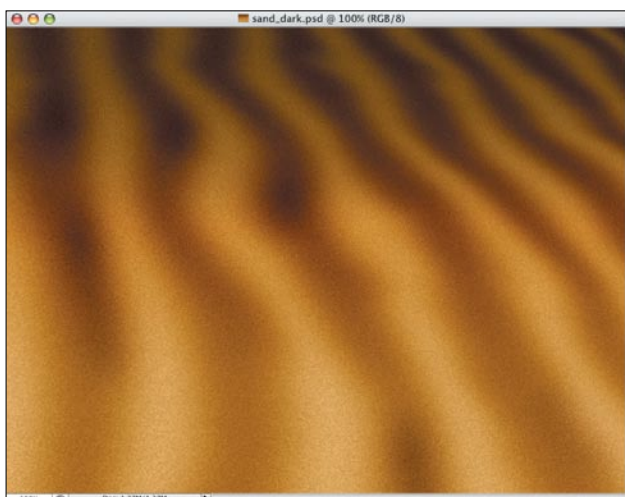


Figure 28 The contrast is increased for the original file for the sandy surface.

The Displacement Map is chosen, and the shadow is distorted, as shown in **Figure 29**.

Knowing how shadows behave, you know this shadow has to soften in intensity as it travels over the mounds of sand that face away from the shaker. In **Figure 30** a layer mask has been added where black tones have been placed to hide those portions of the shadow where needed.

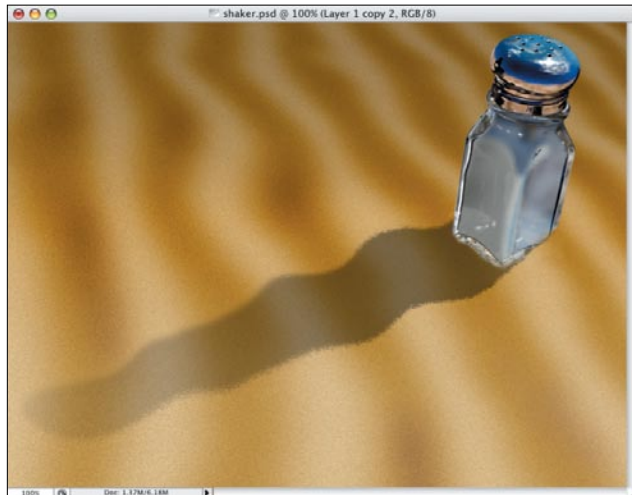


Figure 29 The effect of the displacement makes the shadow curve over the ripples in the sand.

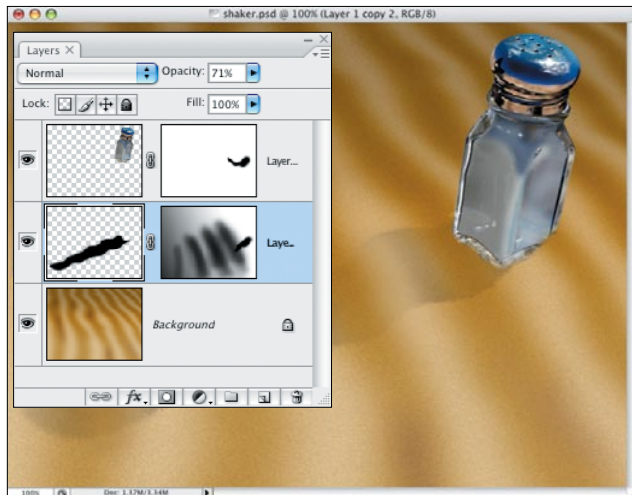


Figure 30 A layer mask is applied to soften the shadow in the areas where it should not appear.

Examples of Displace in my paintings

I mentioned using Displace in the course of creating my paintings. Let's look at a couple of subtle yet obvious places where I used this filter. Let's go back in time to a painting I did in 1999—"The Rendez-vous" (Figure 31).

Figure 32 shows a zoomed in view of the detail of the awning above the door. The bottom flap with the word COFFEES on it has been rippled by the wrinkles in the canvas. In Figure 33 the awning appears without the text in it.



Figure 31 The painting "Rendez-vous."



Figure 32 The awning of the café where the word COFFEES has been displaced.

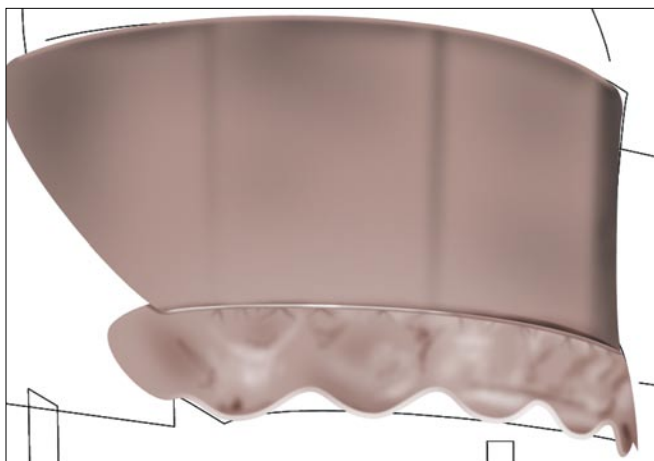


Figure 33 The awning without the words in place.

Figure 34 shows the word COFFEES as it was typed using the Type Tool.

The text was rasterized (Layer > Rasterize > Type). Using the various transform tools (Edit > Transform), like Scale, Skew, and Distort, the individual letters were altered to simulate a three-dimensional view (**Figure 35**).

In **Figure 36** the Displacement Map was used to distort the letters into what you see in **Figure 37**.



Figure 34 The word COFFEES is straight text created with the Text Tool.



Figure 35 The type for the word COFFEES has been rasterized and distorted.



Figure 36 The Displacement Map for the word COFFEES.



Figure 37 The word COFFEES displaced.

Vanishing Point

Vanishing Point was introduced to the CS versions of Photoshop and suddenly the third dimension came to life! Not that Photoshop has become a 3D application. In fact, the inclusion of a 3D layer in CS3 does not mean you can create 3D objects. It means you can import 3D objects from 3D applications and move them around in 3D space, but the rest of Photoshop is still two dimensional.

What Vanishing Point does is let you establish the vanishing point of an image and then move objects within that 3D space. It does not add sides to an object, but it will distort that object to conform to the angles of the vanishing lines. Chapter 1, “The Workflow,” in the book provides an explanation of the concepts behind 3D space and vanishing lines.

Using Vanishing Point in “Damen”

I’ll expand on what was covered in Chapter 9, “Damen,” using the same example. **Figure 38** shows the platform on which the viewer is standing in the painting “Damen.” I’ll pick up where I left off in the book and cover the other parts of the Vanishing Point filter.

In **Figure 39** you see the lines that were drawn to outline the actual platform area. The wooden texture has already been distorted into the platform, as outlined in Chapter 9.

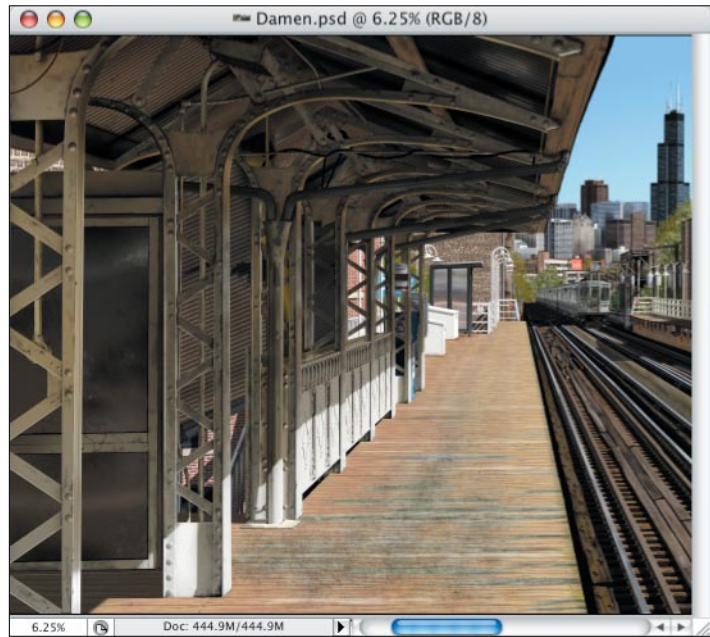


Figure 38 The platform on the left of the painting “Damen.”

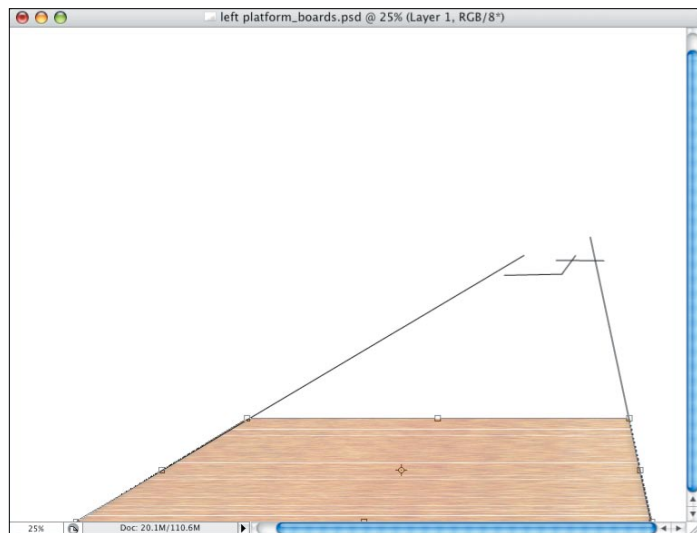


Figure 39 The guide for the platform with the texture distorted into place.

It would be easy to simply select the area of the wood, copy it, reduce the size, and place it farther back in space. However, doing it this way, the detail of the grain started to blur as it got smaller and smaller with each distortion and copy. The beauty of Vanishing Point is that it gives me the ability to copy the planks as far back as I want without losing detail.

Let's take a look at the Vanishing Point filter (Figure 40).

The first tool available, besides the view tools, is the Create Plane Tool. With this tool you trace the existing perspective plane in your image. In the case of my painting I traced the black lined guide that denoted the shape of the platform. In Figure 41 you see the tool being dragged along the right side of the guide. It is displayed as a blue line, and the cursor becomes a target box.

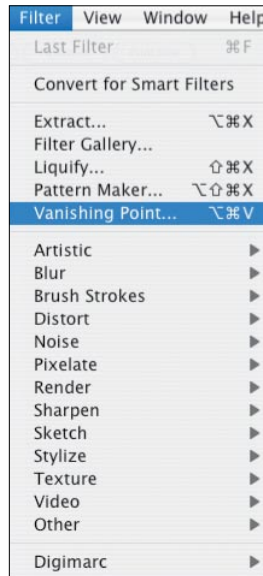


Figure 40 The Vanishing Point filter in the Filter menu.

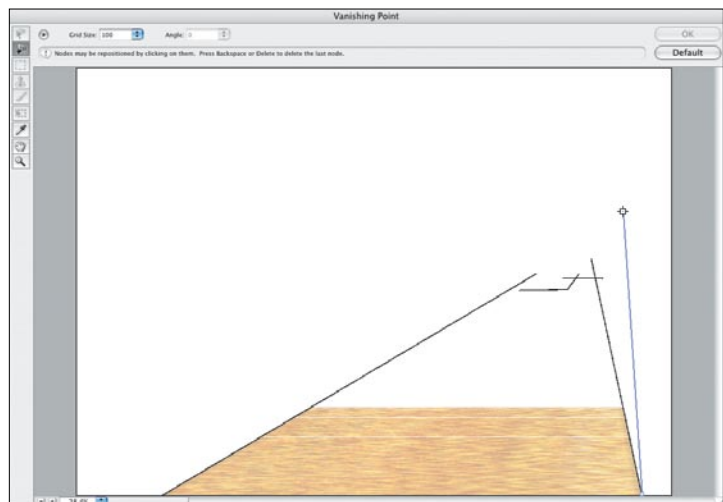


Figure 41 The Vanishing Point dialog box with one of the plane sides being created.

Each time you click at a specific point, a new line pulls out to follow the next edge, as shown in **Figure 42**.

When you have completely surrounded a shape, a blue grid appears, like the one you see in **Figure 43**. If you get a red outline, like the one in **Figure 44**, you have created a shape that defies the laws of perspective. Remember the lesson in Chapter 1: Perspective is part of nature, and you shouldn't fool around with nature.

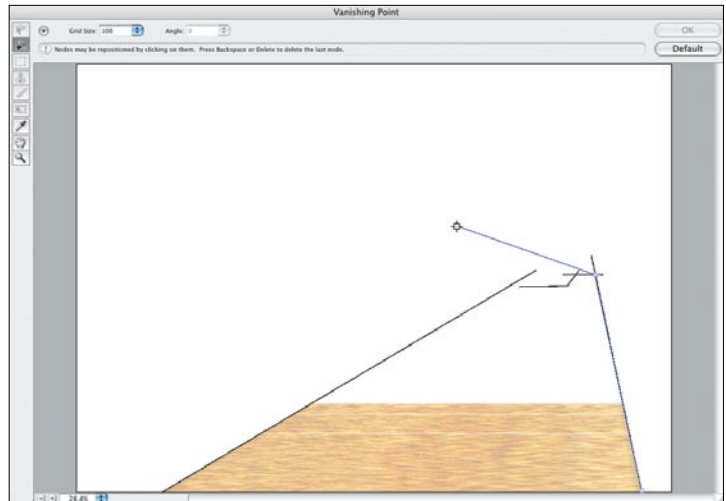


Figure 42 A second plane side being created.

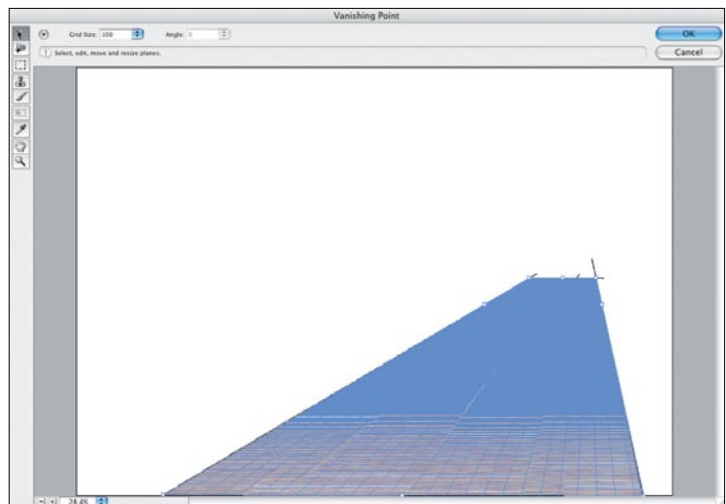


Figure 43 The Vanishing Point grid that denotes a perspective plane.

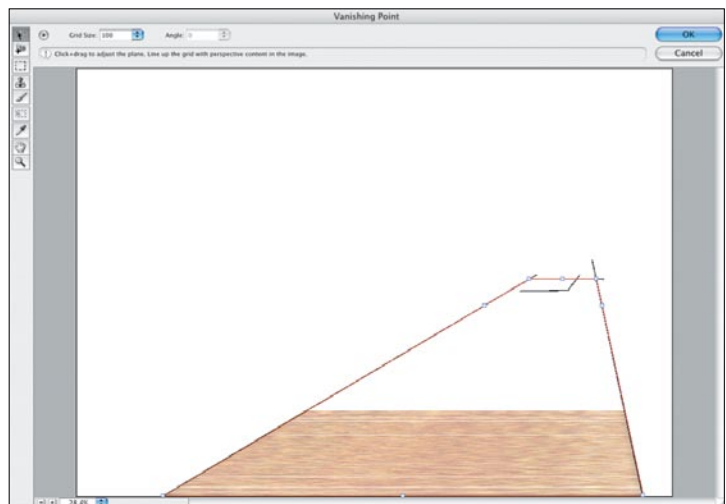


Figure 44 If the plane has a red outline, the plane is incorrect.

To correct a red outline, all you have to do is adjust any one of the four corners until you get the blue grid.

When the grid is complete you can pull out other parts of the room or space. Pressing the Command (Ctrl) key, grabbing the small, white handles on the side edge of the grid, and dragging will produce these shapes. These shapes will automatically conform to the perspective based on the vanishing point you established by the initial grid you created. **Figure 45** shows the left sidewall exposed. **Figure 46** shows the far wall.

For the platform, I only needed the ground plane. Switching to the Marquee Tool in the Vanishing Point filters dialog box, I was ready to select the planks to duplicate them in 3D space. Note in **Figure 47** that since I am selecting within a perspective plane the marquee is conforming to the shape of that plane.

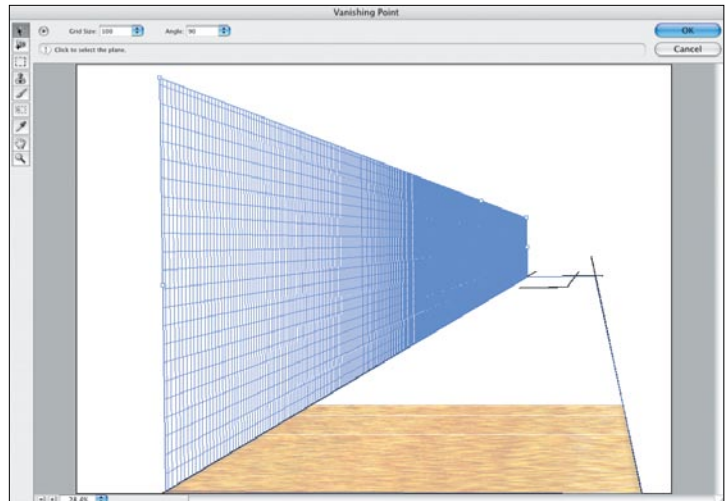


Figure 45 The plane for the wall on the left side of the scene.

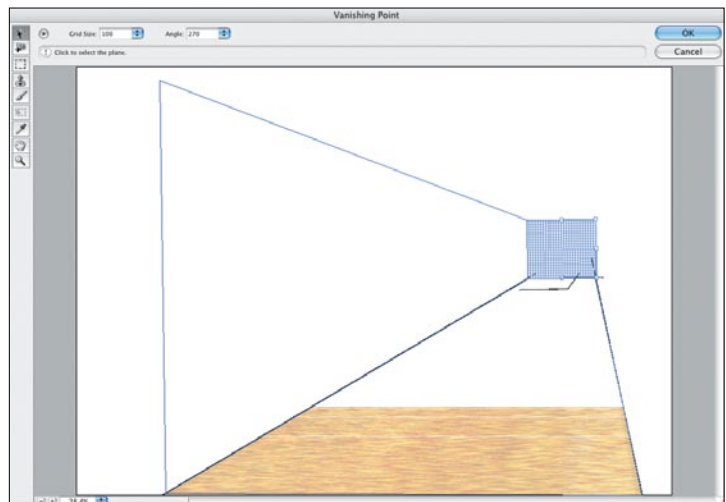


Figure 46 The plane for the far wall at the back of the scene.

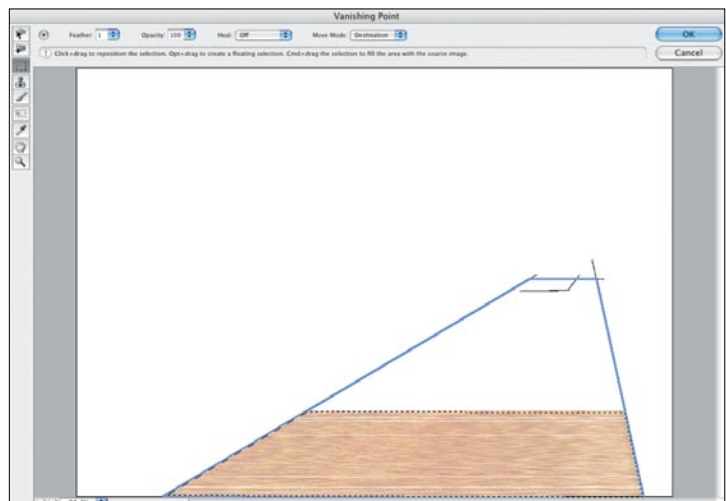


Figure 47 The selection marquee conforms to the shape of the 3D plane.

Pressing the Option (Alt) key to make a copy, the platform was duplicated and shifted back along the expanse of the platform (Figure 48).

To save time, when I had gotten about half-way to the rear, I reselected the entire area (Figure 49) and duplicated it. When the job was complete, I clicked OK. The completed platform is shown in Figure 50.

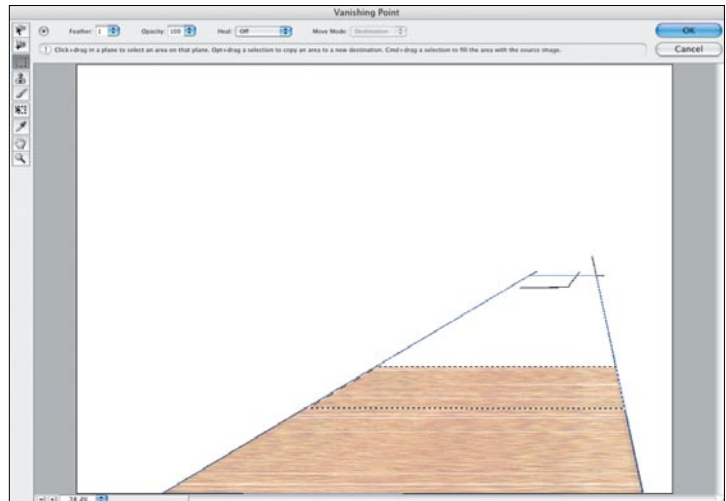


Figure 48 The area of the wooden planks was selected within the perspective plane.

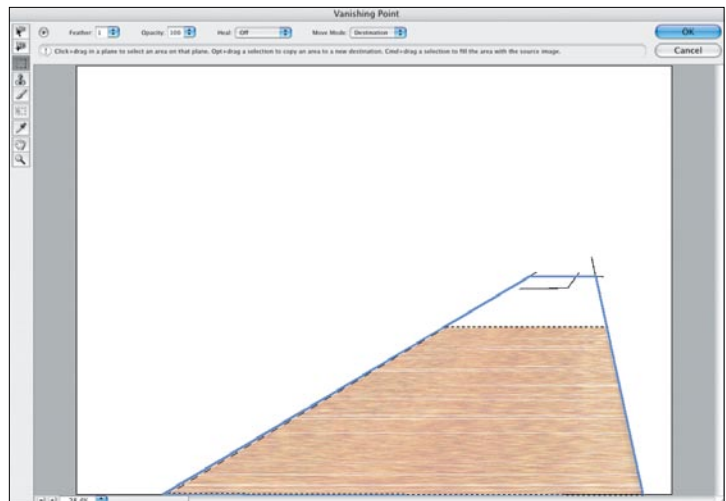


Figure 49 A larger area of the wooden planks was selected within the perspective plane.

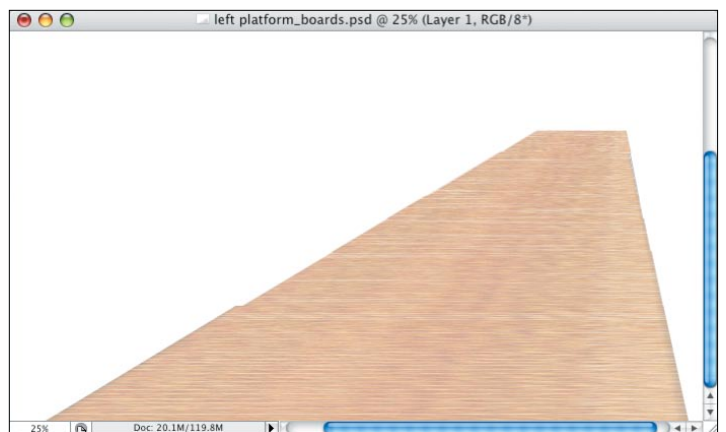


Figure 50 The completed platform.