Rendering a perspective drawing using Adobe Photoshop

This hand-out will take you through the steps to render a perspective line drawing using Adobe Photoshop. The first important element in this process is to produce a good quality line drawing to render. This can be done in two ways; One is to produce a hand drawn sketch and scan it in to the computer and the other is to generate a sketch render or perspective line drawing using 3D CAD software.

If you are scanning in a hand drawing, you need to draw good quality lines and scan the image at a fairly high resolution such as 200, 240 or 300 DPI (dots per inch) for a sketch of approximately A4 size. It is usually best to save your scanned image in JPEG format but Photoshop can open many different image formats including PDF.
Open your JPEG image in Photoshop.

You will notice in the bottom right hand corner of the screen there is a LAYERS palette. At this stage your image will have only one layer and that layer should be called **Background**.

The first step will be to right click on the background layer and choose Duplicate layer from the pull-down menu that appears.
Name the new layer “Sketch Lines” or something or something meaningful to indicate that this layer will contain only the perspective sketch. Naming layers logically is good practice and allows you to organise and edit your photoshop files much more efficiently. It is also a good idea to keep each new element that you create in your rendering on a new layer. You will see the importance of this as we progress.

Next, create a new layer by clicking on the “Create a new layer” button.

Notice that a new layer called Layer 1 appears at the top of the layer list. Right click on the new layer, choose Layer properties from the menu that appears, click on Layer Properties and rename the layer “White Background”

The order that the layers appear in the layer list is also their display order. The layer at the top of the list displays on top of the one below it and so on down the list. This is used to organise how your graphics appear.

Re-organising the layer order simply involves dragging layers to a new position on the list. Now drag the layer you just renamed below the sketch Lines layer. It is a good idea to keep the sketch lines at the top of the layer list and as we keep working you will see why.
After dragging the layer to its new position, it's time to fill the whole layer with white using the Paint Bucket Tool.

When the Paint Bucket Tool is selected it will fill the space where you click with the foreground colour.

To change the foreground colour simply click on it and choose the colour you want from the Colour Picker that appears on the screen.

You will see that there are many options in the Colour picker including a full swatch, colour slider and an option to choose Only Web Colours. You can even type in the RGB (Red, Green, Blue) values if you know them for a certain colour.

For now, choose white from the top left corner of the Colour swatch and click ok. Make sure your White Background layer is selected on your layer list and click anywhere in the drawing space. You will see that the layer preview in the list changes from clear to white.

Next repeat the same procedure: create a new layer Rename it to “Green” then fill the whole layer with a green colour using the paint bucket tool. Drag the new green layer so that it sits above the white background but below the Sketch Lines layer. We will later use this green layer to show the contrast between the sketch lines and the background behind.
Image adjustments

One of the most useful features of the Photoshop software is the set of image manipulation of image manipulation tools. One thing we want to do is adjust the contrast of the Sketch Lines layer to ensure the lines are black and the space surrounding them is as white as possible. Then we will separate the black from the white so the black lines sit on their own layer in front of all the other colours and finishes we will create.

When you zoom in on an area of the sketch lines layer it is quite typical to see the sketch lines themselves being a combination of both black and also some grey pixels in the white space around the lines themselves. We want to eliminate the grey pixels around the lines and make the lines as black as possible. This will allow us to select areas of the sketch easily and also to fill them with colours or finishes without the lighter grey pixels getting in the way.

From the Image menu, choose Adjustments and you will see a large number of options available to adjust your image. It is worth exploring many or all of the options in this menu when you have time as there is a huge amount of adjustments you can make to images.

For now, use the Brightness/Contrast option to change the amount of white and black in the layer you are adjusting. The changes you make will only ever apply to the layer you have selected in your layer list at the time.
Once the brightness and/or contrast have been adjusted to get rid of the grey pixels around the sketch lines it is time to select the white space around the lines and delete it so the lines are the only thing left in the layer.

From the Select menu, choose Colour Range and you will see a small eye dropper appear. Click on the colour you want to select which in this case is the white space. You can adjust the Fuzziness slider which will change the sensitivity of the eye dropper. The default number might be 40 on the slider but if you reduce this number more pixels will be selected. Ideally your sketch lines would be 2 or maybe 3 pixels (or squares) wide.

Once you are happy with the way your selection looks, press delete on your keyboard to remove the selected area from your image.

Now you should see your sketch lines sitting in front of a green background showing just how much of the line information you have retained. (image on following page)
You should see your sketch lines sitting in front of a green background.

Now click on your Sketch Lines layer once again to make sure it is the active layer.

The space around your sketch lines should still be selected (indicated by a dashed outline). From the Select menu, choose Inverse. Now the lines themselves will be selected which means that you can modify them.

From the Image menu, once again click on Adjustments and choose Brightness/Contrast. Drag the Brightness slider all the way to the left to make your sketch lines darker.

You should see the lines become a darker grey. This will make them look better once we begin to render.

You can now hide the green layer by clicking on the eyeball symbol next to it in your layer list.

To control the visibility of any layer, click the eyeball symbol next to it to show or hide the layer at any time.
Using the Brush Tool

Now that our sketch lines have been separated from the pixels around them, what we are looking at are the sketch lines sitting in front of the “White Background” behind. Essentially we will be filling the spaces between the sketch lines with colour and/or texture. With this in mind it is often useful to join up any gaps in the sketch lines so you can select each area with a single click.

The tool we will use to do this is the brush tool. If you click and hold on the brush tool you will also find a pencil tool which is often very useful. As shown below left there are several other drawing tools available such as line, rectangle, ellipse, custom shape etc.

Once you have chosen the brush tool, there are several variables along the top of the screen that you can adjust. These include the brush type, brush size, mode, opacity and flow. All of these variables are very useful at various times. For now we will adjust the brush size to match the approximate sketch line thickness. This could be 2 or 3 pixels or more depending on the size and resolution of your image. You can drag the slider or type in a brush size under Master diameter.

**TIP:** Click and hold on tools in the Photoshop toolbar and you will almost always find more tools behind the one you can see.
Once again make sure you have the “Sketch Lines” layer selected then use the brush tool to fill in any gaps or breaks in the sketch lines. Zoom and pan around your image and fix up any obvious gaps that you see.

The main advantage of lines that join up in the corners is that you can use the magic wand tool to click in a space and select that whole area ready to fill with colour.
Selecting and filling areas.

Once an area is selected you can fill it with a single colour, gradient or an image of a real material. If it is not possible to select the area you want with the Magic Wand Tool there are several other selection tools available.

When rendering interior perspectives the Polygonal Lasso Tool is one of the most useful for selecting Areas to colour or fill. Simply click on the tool and draw a polygon to match exactly the area you wish To fill and make sure you complete the shape to see the selected area.

If you have made a selection it is often handy to modify the area you have selected. To do this, click on the Select menu and choose Modify then Expand. When selecting an area with the magic wand tool you can Achieve neater fill results by slightly expanding your selection.

Below you can see the result of slightly expanding the selection area. This means that when you fill this area on a layer below the sketch lines The fill will continue all the way behind the sketch lines without leaving Any small white borders.

**TIP:** If you click on Save Selection from the Select menu, you can save a selection to use again later. You will be prompted to name your selection then to activate that selection later click on Load Selection and choose your named selection from the list that appears.
Now that you have the area to fill selected there are a few more steps to follow. First, make a new layer, then name it, then drag it so that it sits below the sketch lines layer on the layers list. Next click on the foreground colour and choose a colour from the swatch that appears. Then click on the Paint Bucket Tool, make sure your new layer is the one highlighted in the layer list and click inside the space you wish to fill.
If you click and hold on the **Paint Bucket Tool**, you will see the **Gradient Tool**. The gradient tool is very useful for shading surfaces within interior design sketches.

Click on the **Gradient Tool** then click here to open up the Gradient Editor.

You can choose any of the gradients on display and then edit them below using Colour Stops and Opacity Stops.

Opacity Stops control how solid or transparent the gradient colours are.

Colour Stops control the colour of each stop on the gradient slider.

Click on any of the stops and then edit the values here.

To add new stops to the slider simply click above or below it to place one. Drag them away if you want to delete them.
Gradients are very useful to render the ceiling in an interior design sketch.

Select the ceiling area using either the magic wand tool or the polygonal lasso tool.

Make sure you create another new layer, name it then drag it below the sketch lines layer.

Click on one of the existing gradients and then modify it using the slider below.

Set both colour stops to a light to mid grey. Often a hint of yellow can be useful to create a nice off white gradient on the ceiling.

Set the first opacity stop to somewhere between 70 - 90% and the second opacity stop to 0%.

Click on a colour stop then click on the colour box below to bring up the larger colour picker.
With the ceiling space selected and ensuring you are working on the correct layer, click below the selected area and drag a line straight upwards still holding the mouse button down. If you hold down the **Shift Key**, this will keep the line vertical.

You should now see a light grey gradient in the ceiling space. The gradient will only stretch as far as you dragged the mouse. If you are unhappy with the way it looks, simply undo the gradient and re-do it using a longer or shorter line. You can always go back into the gradient settings and change the colour or opacity stops then draw a new gradient. If you are happy with it but want it to be just a bit lighter you can also adjust the opacity for the layer itself to reduce how much colour you will see.
Applying real materials to the rendering

So far we have created some basic colours and gradients to the sketch but as interior designers it is very useful to use photos of real materials and add them to a rendering. You can import timber, stone, brick or any number of other materials into your image.

To import a material, simply open an image then using the move tool, click and drag the image into your rendering. It will appear as a new layer in your image. Remember to rename this new layer before you start modifying it and drag it below the “Sketch Lines” in the layers list.

Make sure the timber flooring layer is the one highlighted in the layer list. Then from the Edit menu, click on Transform and choose distort.

Then drag the corners of the material so that they match the perspective of the sketch lines. Whilst doing this you will see the advantage of working below the sketch lines layer as you can see the shape of the floor that you wish to match.
Once you have the material roughly matching the perspective of the floor, use the selection tools you have used earlier to select and delete the unnecessary areas of timber leaving only the areas you want to keep.

The end result should look something like this and as you can see, we are well on the way to having a rendered interior perspective view.