

# PHOTOSHOP CLINIC: LINE DRAWING



## **What is Photoshop Elements?**

Photoshop Elements is a streamlined version of Adobe Photoshop CC. Despite missing some more advanced features, it is a robust piece of software capable of handling many types of projects. You can buy Photoshop Elements as a one-time purchase instead of a monthly subscription like the full version.

## **The Laser Cutter**

Converting images from color photos to line drawings is a great tool to use for the Laser Cutter. Retina Engraver, the software for the Laser Cutter, only recognizes black and white. In order to print an image that started as a color photo, it needs to be converted into a black and white line drawing, or “sketch.”

# INTRODUCTION

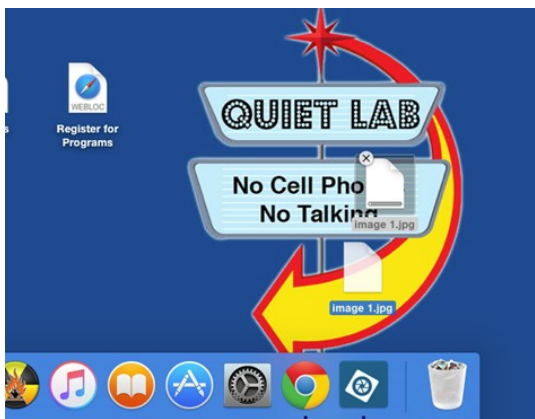
## Course Topics:

- Image Size
- Hue/Saturation
- Brightness/Contrast
- Filters
- Saving as JPEG

## Importing into Photoshop

To open Photoshop, select **Go** from the top menu and then **Applications**. Once the **Applications** folder opens, locate the **Adobe Photoshop Elements 13** folder at the top of the list. Select the folder and then select the icon for **Adobe Photoshop Elements 13**. Once Photoshop Elements opens, select **Photo Editor**.

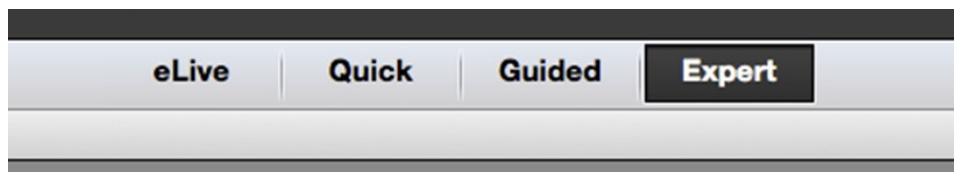
The simplest way to open a file you would like to edit is to move to the **File** tab, click **Open**, and locate the file on the desktop.



Another way to bring images into Photoshop is to drag and drop your photo on top of the Photoshop icon.

If you are using the image supplied by the instructor for today's lesson, open Photoshop Elements and drag the file named "Image 1" onto the Photoshop icon. If you are using your own image, locate your file and drag it to the Photoshop icon.

Once Elements is opened, click on the **Expert** button. Elements offers a variety of modes for different uses, but the **Expert** setting has the most tools available for photo editing.



This is the image supplied by the instructor that will be used for the remainder of the handout.

## Pick a Good Photo

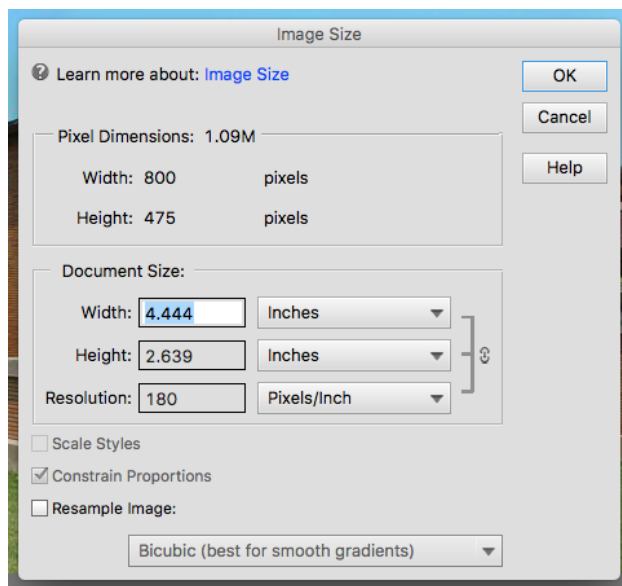
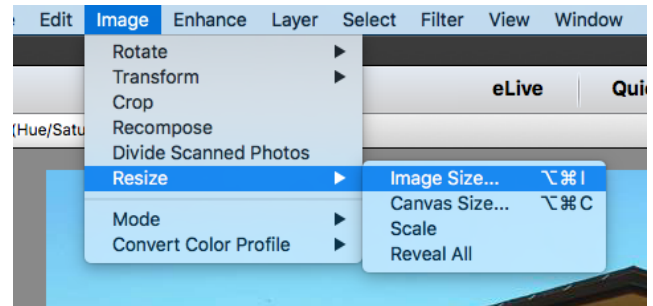
In addition to picking a photo that is well focus, you will want to choose an image with less "noise." For example, a house surrounded by trees and leaves will not have a good final result.



# PREPARING YOUR IMAGE

## Image Size

One of the first things you will want to do is check the size and resolution of your image. To do this, select **Image** from the top menu, and then **Image Size** from the **Resize** options. This will open up the menu for sizing your image. It is important that your image is sized appropriately before attempting to engrave it using the Laser Cutter.

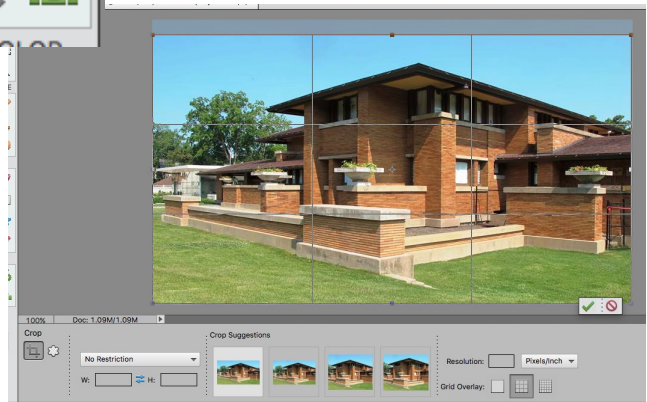
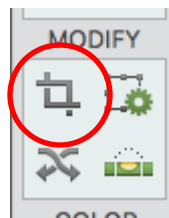


**Resolution** refers to the quality of your photo. There are two types of resolution: dots per inch (dpi) and pixels per inch (ppi). With both, the larger the number, the better the resolution. A photo with low resolution will look pixelated. It is easy to reduce resolution, but sometimes increasing resolution can be difficult. By default, the resolution will adjust according to your **Document Size**. To adjust your resolution without resizing, select **Resample image** from bottom left. You should now be able to resize and adjust resolution to your image.

## Crop Your Image

Depending on the composition and subject of your photograph, you might want to consider cropping. This will remove unwanted sections of your photo from the edges.

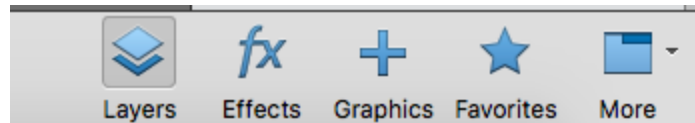
To crop, select the **Crop** tool from the side menu. A grid will then appear on your photo divided into nine sections. Along the edge are **bisecting squares**. Click and pull these squares inward until you have eliminated the unwanted edges. Click the checkmark to confirm the crop. There are more options in the **Crop Menu** below.



# LAYERS

## What Are Layers?

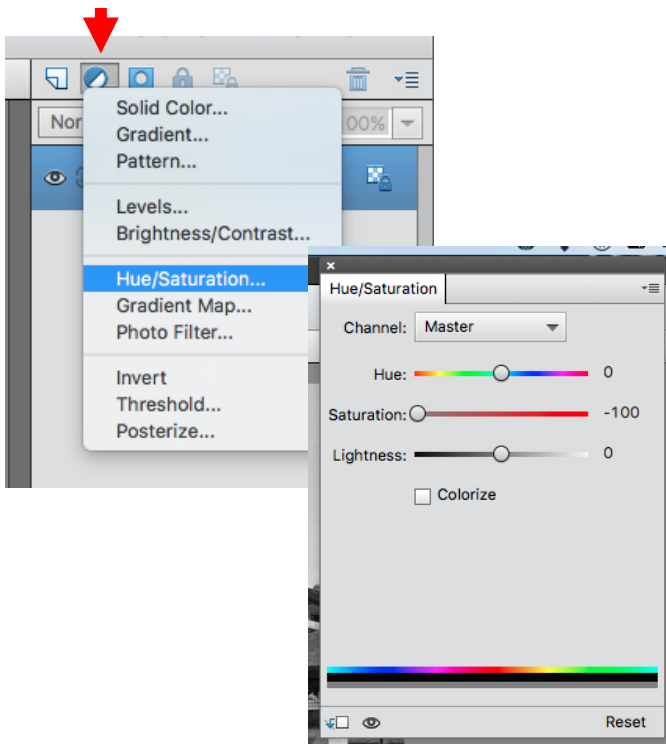
Layers are like transparent sheets stacked on top of each other. The highest layers are the most visible while the lowest layers may be invisible or slightly covered. Layers allow you to edit your photo without directly editing your **“Background”** (or original) photo. This helps you undo or adjust edits easier. To turn on the layers, select **Layers** from the menu in the bottom right.



## Adding Hue/Saturation Layer

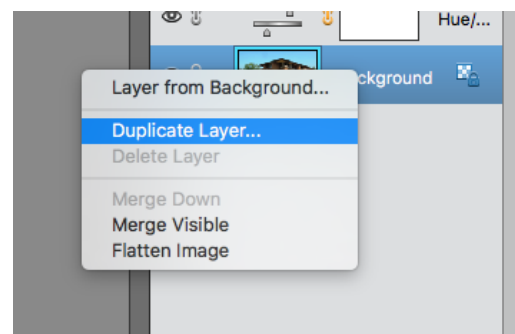
Since we are working with color photos, and images for the Laser Cutter need to be in black and white, we will need to desaturate the photo using the **Hue/Saturation** menu. One way to do this is by adding a **Hue/Saturation Layer**. To add the layer, select the **Create new fill or adjustment layer** icon from the **Layers Panel**. Then choose **Hue/Saturation** from the menu. The **Hue/Saturation** menu will appear. You will want to click and drag the setting for **Saturation** to  $-100$ . Hue and Lightness can be left alone.

Another way to do this is by clicking **Enhance** from the top menu, selection **Adjust Color**, and choose **Adjust Hue/Saturation**.



## Duplicate the Background Layer

A duplicate layer of the background will need to be created before the next step. The **Background** is the layer of your original photo. To create a duplicate layer, right-click on the **Background Layer**, or sometimes called **Layer 1**. A menu will appear and within that menu is **Duplicate Layer**. Give the new layer a name.

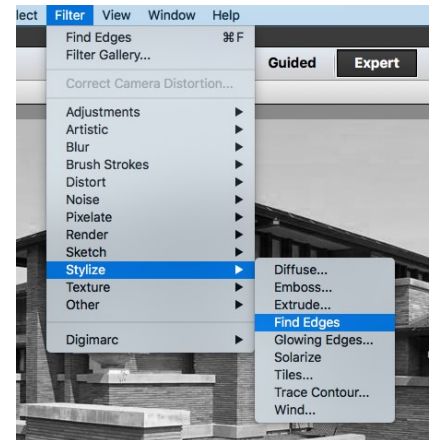




# LAYERS AND FILTERS

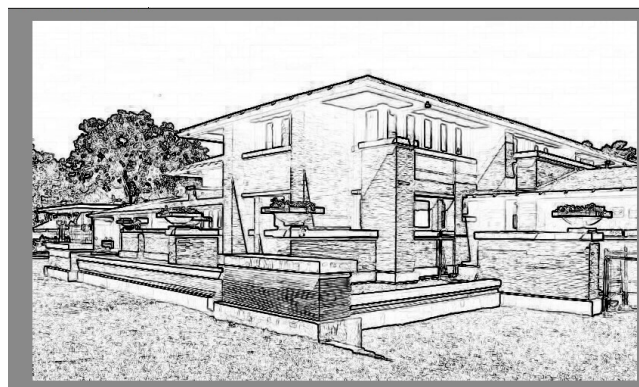
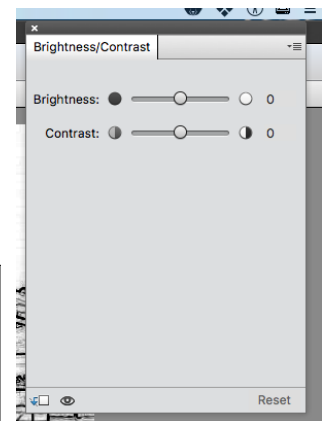
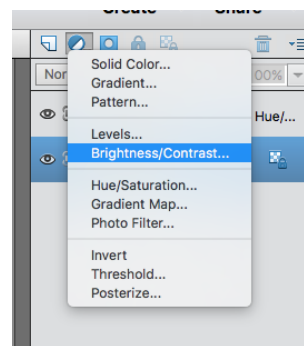
## Find Edges Filter

The next step is to use the **Find Edges** filter on your **Duplicated Background**. This filter is the key to turning your photo from a color image to a line drawing. To use this filter, select **Filter** from the top menu, and then **Find Edges** from the **Stylize** menu. Voila! You have a line drawing! This next few steps will be to clean up the photo and improve the quality.



## Adding a Brightness/Contrast Layer

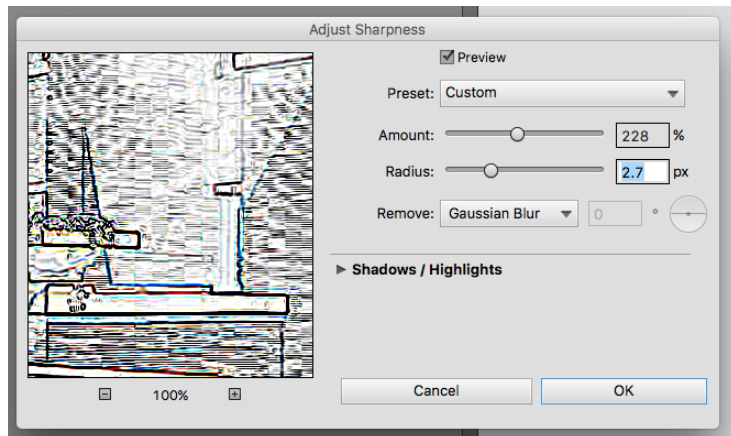
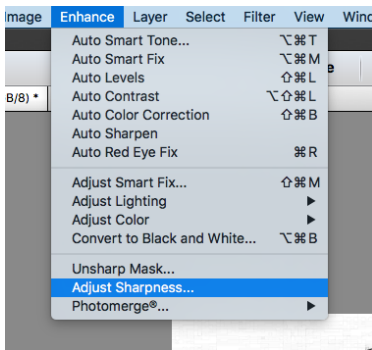
Even though we have desaturated the color image and used the **Find Edges** filter, your image still have greys (or shading) in it. The best way to resolve this is by using the **Brightness/Contrast** adjustments. A **Brightness/Contrast Layer** can be added to your image the same way the **Hue/Saturday Layer** was added. A menu will appear to adjust the **Brightness** and **Contrast** settings. Each image is different, but often it is best to drastically increase the **Contrast** and slightly decrease the **Brightness**.



# FINAL TOUCHES

## Sharpen Filter

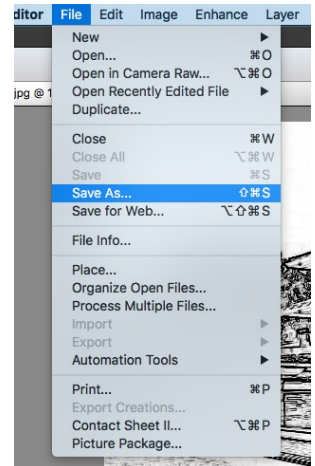
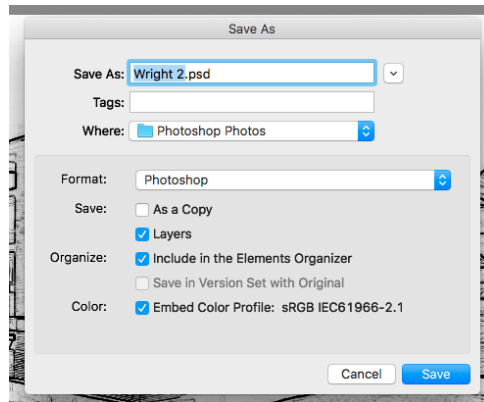
The **Sharpen Filter** is great to help make the lines of your photo more defined. To sharpen, select **Enhance** from the top menu, then **Adjust Sharpness**. A menu will appear to adjust the **Amount** and **Radius**. Adjust these to preference.



## Saving as a .psd

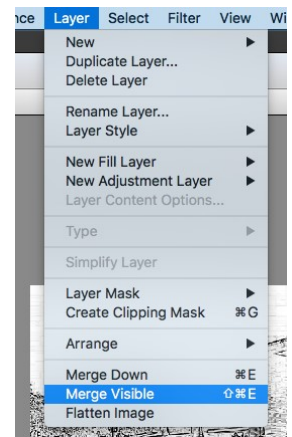
Depending on your subject, you might still have unwanted lines in your image. The best way to clear these up is by using the **Eraser Tool**, but before we can use the **Eraser Tool**, we will want to save our progress and merge the layers.

To save, click **File** then **Save As**. Use the **Save As** window to give it a file name and location. The format will default to *Photoshop* (.psd). Save it once as a .psd file and make sure that the box for **Layers** is checked. This will give you the option to return to your file at a later date and make new edits or adjustments.



## Merge Visible Layers

To use the **Eraser Tool**, your layers will have to be merged. Merging the layers together will compress all the edits made to the photograph. This will reduce the file size and allow for the **Eraser Tool** to properly function. To merge, select **Layer** from the application menu, and then choose **Merge Visible**. (**Flatten Image** will have a similar effect.) It is recommended to have two saved version of your photo; one without merged layers and one with merged layers.

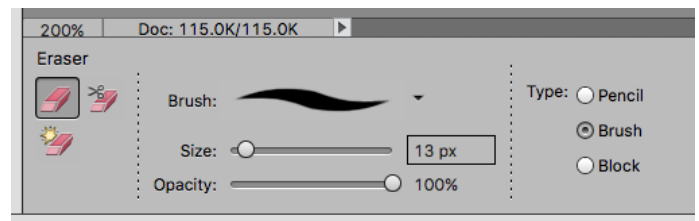
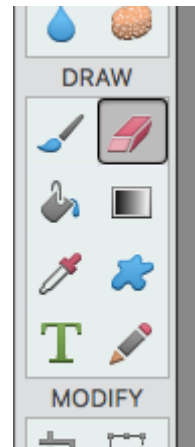


# SAVING

## Eraser Tool

Depending on your subject, you might still have unwanted lines in your image. The best way to clear these up is by using the **Eraser Tool**. This tool will remove section of your photo, leaving the space blank. In most photo editing cases, the **Eraser Tool** is not recommended, but it is great for our purposes. First, create a **New Layer**. Then, select the **Eraser Tool** icon from the side menu. There are options to adjust the size of your eraser using the **Eraser Tool** menu near the bottom left. Once you have the ideal size, you can then click and drag over the lines you want to erase. Do this until you've cleared away the unwanted lines.

*Tip: It is best to do little by little in case you make a mistake and need to **Undo**. **Undo** is located in the **Edit** menu at the top.*



## Saving as a JPEG

You will also want to save it as a JPEG. Select **Save As** from the **File** menu. This time, use the drop down menu for **Format** to select **JPEG**. Your project is now complete and you are ready to bring it to the Laser Cutter in the Makery!

