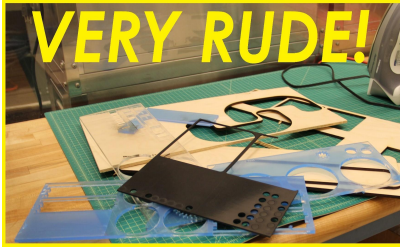# Laser Cutter - Epilog Helix 2418 50w
Standard Operating Procedure (SOP)

Introduction (Change to 3D printer)

The Epilog Helix 24 laser cutter at Factory Two is used to cut and etch a variety of materials. Common projects include making signs and cutting parts for boxes out of sheets of plywood.

Prepare Material

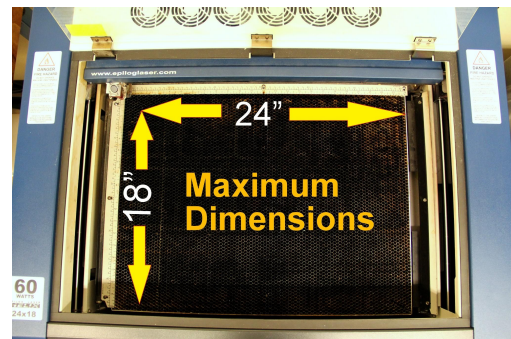You will need something to cut or etch. There are three ways to get material:

OPTION 1 Stocked Materials	OPTION 2 BYO	OPTION 3 Scrap Materials
Factory Two has a small selection of materials available for sale. Talk to a Factory Two staff person if you would like to make a purchase. Do NOT take materials from the stock storage area - ask a staff person to do that for you.	You may also bring your own material if it is listed on our approved materials list. If your material is not listed as approved, you *must* find the Materials Safety Data Sheet (MSDS) for your material and show it to the on duty staff. This is because some materials such as PVC and FR4 fiberglass emit poisonous gases when lased. Forbidden materials can hurt you, other people and the machine's optics. ***Do not cut unapproved materials!***	Scrap material from the scrap shelf can be also be used. Enjoy, and pay it forward! Beware: taking scraps out of the cabinet, picking one, and leaving the rest out on the workbench for someone else to clean up is rude!

Measure the dimensions of your material

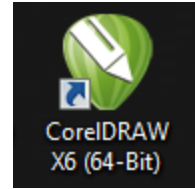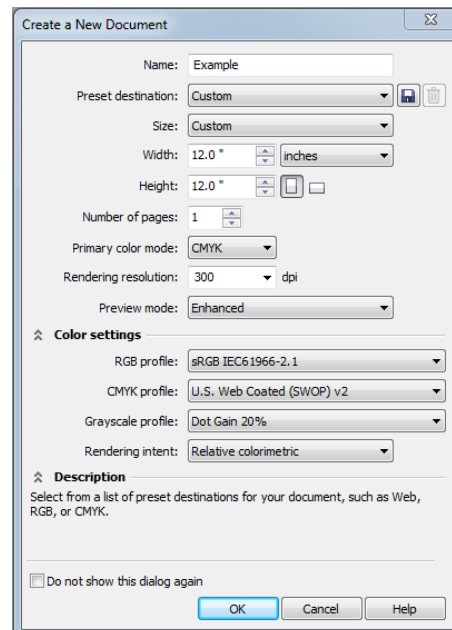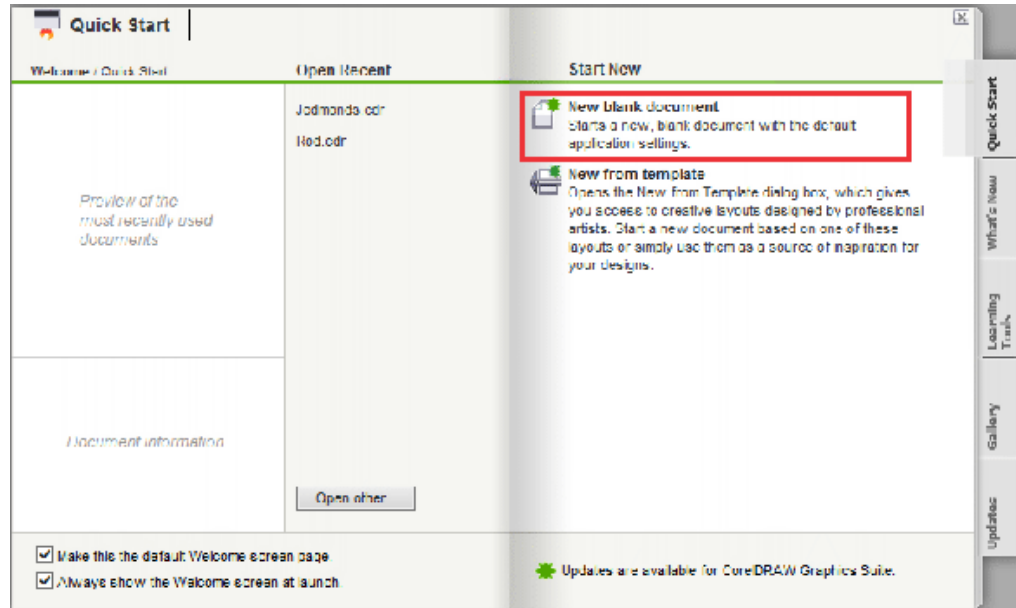|	
Measure width, height *and* thickness. Write these dimensions down - you will need them soon.	
If the material is larger than 24x18 inches, it is too big to fit in the machine. Make it smaller or find new material	

Prepare CorelDraw file

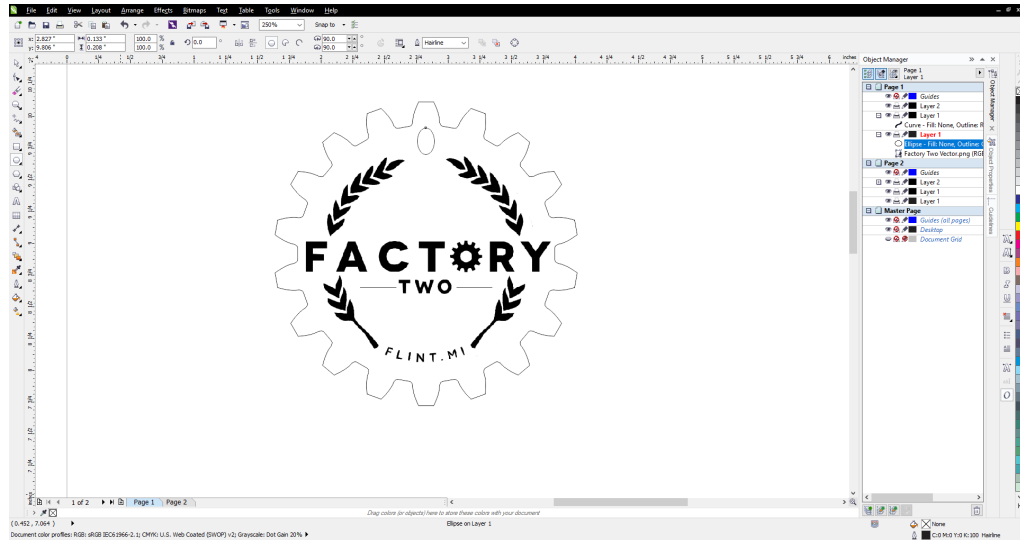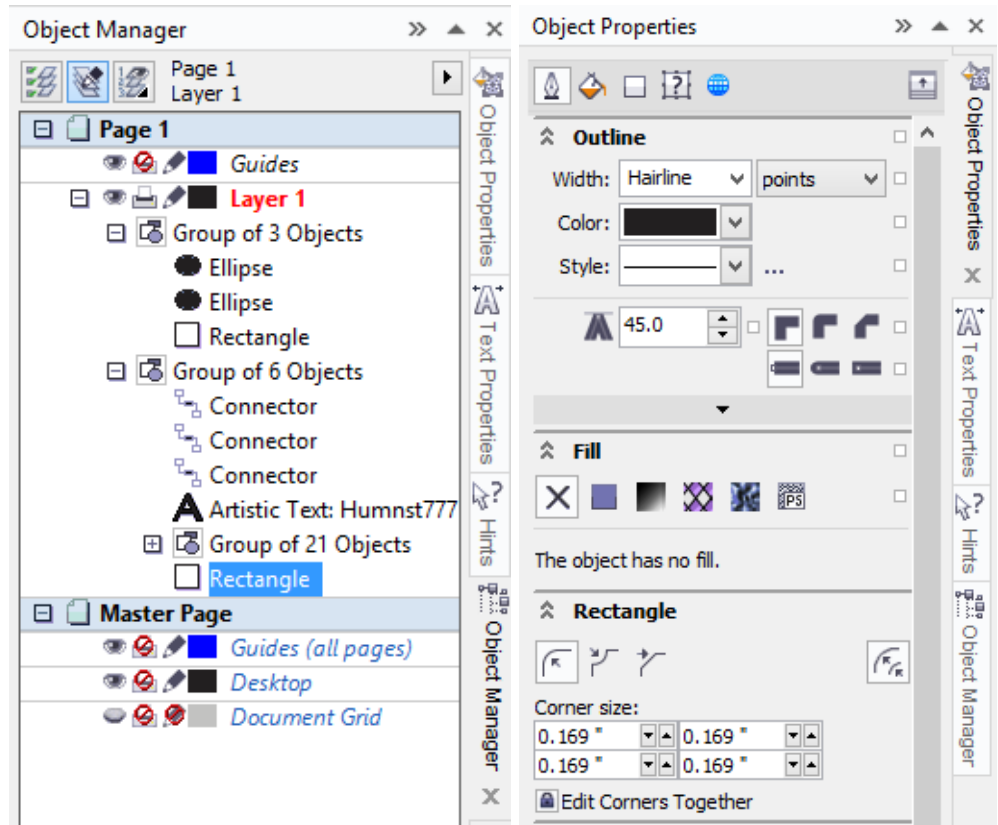|	
1. Load Corel Draw	CorelDRAW X6 (64-Bit)
2. Create New Document ● Select New blank document from the quick start guide or go to File > New. ● Title your File. ● Set Canvas Size equal to your material size. ● Select OK.	

3. Add media
   ● Create vector graphics from scratch, or
   ● Use File > Import to add images.	

4. Customize Media
   ● Navigating in between the "Object Properties" and "Object Manager" tabs on the right side will allow you to select, modify or delete specific items in your design.
   ● If you do not see Object Manager or Object Properties, you can go to Window > Dockers and select them to make them visible.	

5. Customize Media
IMPORTANT DETAILS

- Very thin lines will **Vector/Cut** with the laser. The definition of "thin" varies depending on the resolution being used. The following table shows which line weights will Vector Cut at different resolutions when in Vector or Combined mode. As a general rule, most users set their vector line weights to .001 inch.

- Any shape with a fill will **RASTERIZE / ENGRAVE.** You can also Engrave lines, as long as they are greater than the weights used to indicate Vector Cutting.
- Customize using CorelDraw tools.
- Complete guides and information are available from Corel under the Help menu.

Vector Line Weight

Line weights that will vector at different resolutions
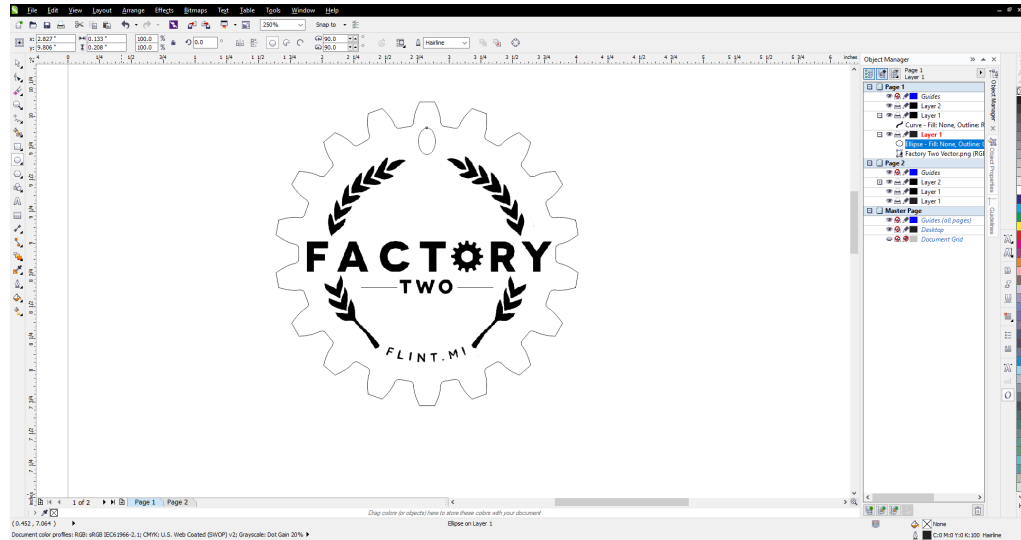
(DPI) when in Vector or Combined mode.

Resolution

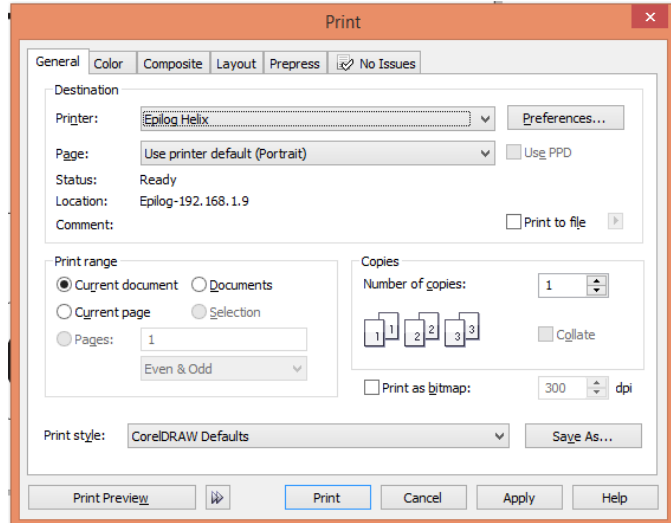| Line Weight (Inches)	150	200	300	400	600	1200
.001	Yes	Yes	Yes	Yes	Yes	Yes
.002	Yes	Yes	Yes	Yes	Yes	Yes
.003	Yes	Yes	Yes	Yes	Yes	Yes
.004	Yes	Yes	Yes	Yes	Yes	Yes
.005	Yes	Yes	Yes	No	No	Yes
.006	Yes	Yes	Yes	No	No	No
.007	Yes	Yes	No	No	No	No

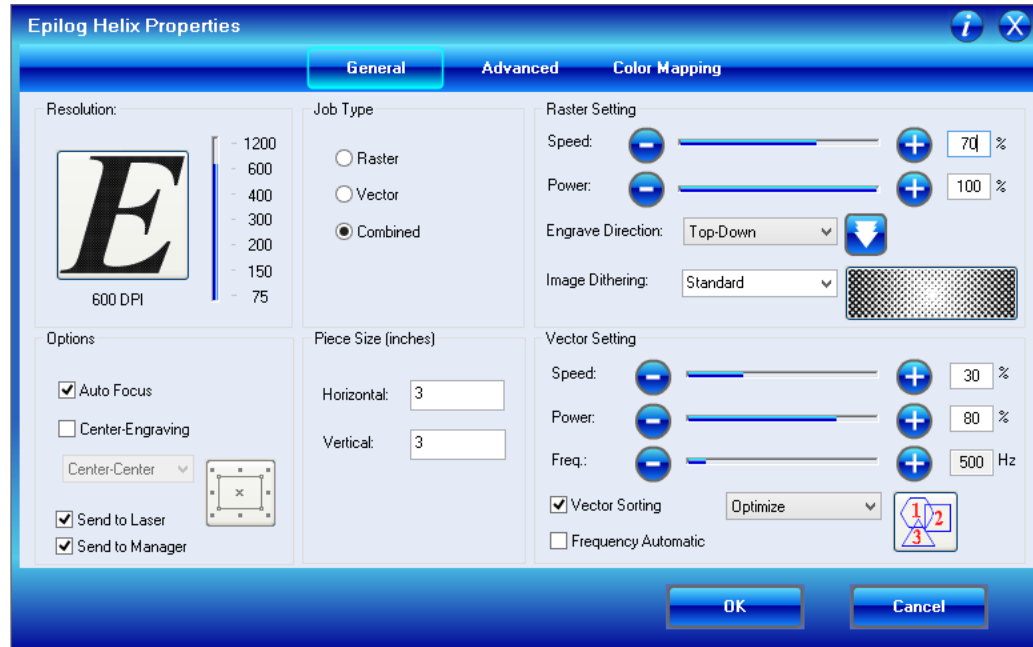|	
6. Send to Laser ● Make sure to double check that you have everything setup correctly. ● Once all object properties are verified for correct operation and outcome select File > Print.	
7. Confirm Settings ● Change Printer to "Epilog Helix." ● Select Preferences.	

8. Confirm Settings ● Check the materials data sheet for approximate laser settings for Rasterization and Vectoring. ● ⅛" Birchwood is used in the example. ● Beware of Auto Focus. (**NEVER USE AUTOFOCUS WITH THE ROTARY ATTACHMENT.**) ● Ensure Piece Size setting matches page size defined in Coreldraw. ● Select OK, then print.	
9. Turn on Epilog.	Power switch on the lower left side of the machine towards the back.
● Turn on the power strip mounted on side of Epilog to enable exhaust blower fan and press the reset button on the power cord to the air assist compressor pump.	

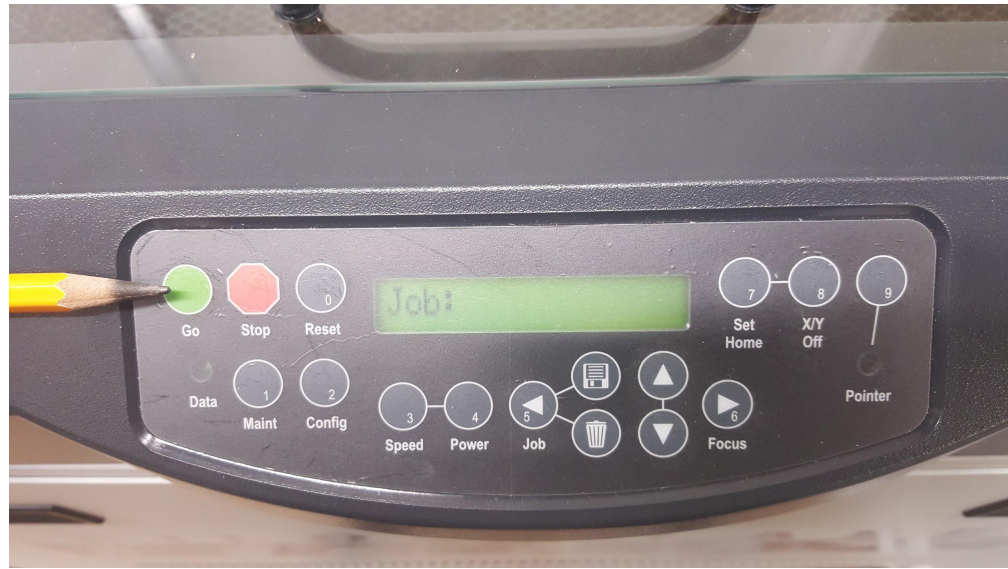|	
● Home menu - Machine should home to upper right corner and arrive at this screen after being turned on.	
● To reset home before or after a job press "Maint" button.	
● Press Down arrow.	

● Select Option 1 "Reset Home" by pressing "Go."	
● Place material in upper left corner.	

- To lower bed for material clearance press "X/Y Off", then **Go**.

10. Send job to Laser Cutter ● Once you've determined the best clearance for your object press "Stop" and then press "Job", locate the file you sent to the laser cutter by using the up and down directional arrows. Once you've found your file, and you are ready to monitor the job, press "Go".	
● It is very important to monitor the progress of your job. When working with wooden materials it is possible to start a fire and you can seriously damage the laser cutter if you're unaware of any mishaps during the cutting process. ● Once your object has been engraved/cut from the laser cutter you may lift the glass and pull it out!	