Epilog Helix Laser

Certification

To become certified on this piece of equipment you will need to complete a training class that lasts approximately 60 minutes. By the end of the class you will be able to:

- Identify approved, safe material to use in the laser cutter
- Use Corel Draw to generate files to send to the laser
- Adjust laser settings
- Install the rotary fixture
- Install the engraving fixture
- Load material into the laser
- Execute your laser job

You must be 18 to use the laser without supervision. Patrons aged 12 to 17 who have taken the certification class can use the laser with a certified adult present.

Reservations

To reserve this piece of equipment you will first need to be certified on this equipment. After you have completed the training class, you may reserve a time slot. To see available time slots and sign up for one please go to the library website at norfolkne.gov/library. The MakerSpace and its equipment are available during normal library operating hours Monday-Saturday. The MakerSpace is not open on Sundays.

If you are more than 15 minutes late to your reservation time, you will lose your reservation and the machine may be used on a first come-first served basis.

Safety:

- Makers must remain present with the machine during all laser operations. If you need to leave the area, the job should be paused.
- Lasers emit high frequency light which can damage eyes. Do not look directly at the laser beam.
- Smoke generated by the laser is removed through the venting systems in the back. If the laser cutting area fills with smoke, pause the job and consult a staff member.
- If the machine is not setup correctly, materials may ignite or smolder. In the event of sparks or small flames, stop the laser by lifting the lid.
  - If the flame does not go out immediately after lifting the lid, smother the fire with a piece of wood.
  - In the event this does not stop the flame, spray the area with the spray bottle of water.
  - In event of a large fire, keep the lid closed and call for library staff immediately.
- Unapproved materials should never be used in the laser cutter as they may emit dangerous, noxious fumes or damage the equipment. If you have an item that you are unsure what it is made of, DO NOT USE IT IN THE LASER CUTTER. See the Approved Materials list below for the approved materials.

Approved Materials

- Glazed Tile
- LaserTile
- Saltillo Tile
- Ballistic Nylon
- Denim
- Cotton Fabric
- Felt
- Film with Heat-Activated Backing
- Foamcore
- Tool Foam
- Lead Crystal Glass
- Soda-Lime Glass
- Anodized Aluminum
- Markable Aluminum
- Painted Metal
- Powder Coated Metal
- Cork Board
- Leather
- Mat Board
- Mother of Pearl
- Construction Paper
- Copy Paper
- Granite
- Marble
- Vellum
- Natural Woods
- MDF
- Plywood
- ABS
- Acrylic
- Nylon 6/6
- Mylar
- PET
- Polypropylene
- Polystyrene
- Delrin
- Tackle Twill
- Laser Rubber
- Silicone Rubber
- Stone

Banned Materials:

- **Vinyl**
- **Fiberglass**
- **Fr4 Boards**
- **Materials containing Chlorine (PVC, Moleskin)**
- **Polycarbonate**
- **Lexan**

Maximum Engraving Size:

- Maximum Engraving area 24" X 18"
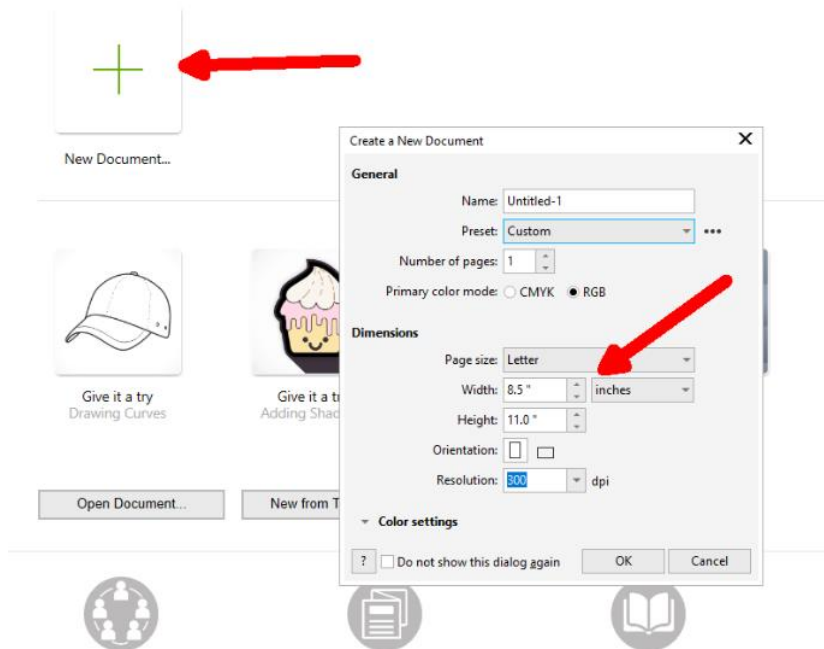- Maximum material thickness 8.5"

Materials and Software:

- Epilog Helix Laser Cutter
- Corel Draw Software

Machine Accessories:

- Cutting Table
- Engraving Table
- Rotary Tool
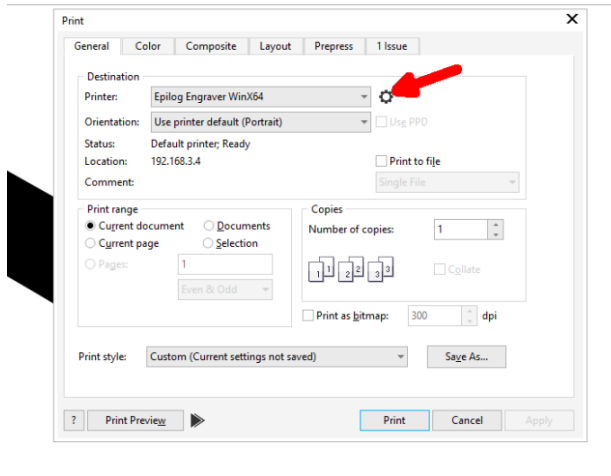- Air compressor

Instructions for using laser:

1. Turn on the computer, lasercutter.
2. Start CorelDraw.
   a. Start a New Document.
   b. Choose the Primary Color Mode to be RBG.
   c. Set the document size and resolution. The document size should be same size as the material you are going to engrave or cut.
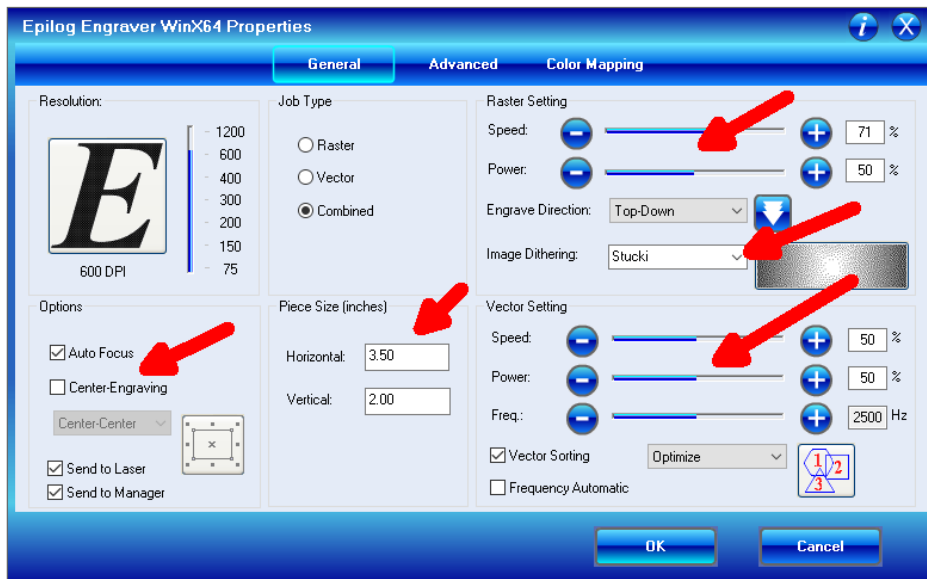

3. Design your project.
   a. CorelDraw tutorials can be found online. See the Helpful Links Section for some introductory CorelDraw instructions.
   b. Cut lines must be vectors and must be "Hairline" thickness. Any "Hairline" vector lines will cut regardless of color.
4. Set up the laser printer.
   a. Put in the correct table or Rotary attachment.
   b. Place work piece in the laser cutter.
   c. If your work has cut lines turn on the air compressor. (The air compressor will get very hot if left on for long periods. Please try to shut it off if you won't be cutting or while designing.)

5. Send print Job to Printer
    a. File > Print
    b. Click on the gear icon highlighted above to access the Epilog engraver properties

    c. Pick the focus settings : Auto Focus or Center-Engraving.
        i. Auto Focus is for square or rectangular items placed in the top-left-hand corner of the machine.
        ii. Center-Engraving is for any object not placed in the corner, any object that is not square or rectangular in shape, or for use with Rotary Fixture. See Tips Section at the end for more information about Center Engraving Options.
    d. Set the Piece Size. This should match your document size.
    e. Set the Raster and Vector settings. (Refer to Appendix B: Material Settings)
    f. Set the Engrave Direction. (System defaults to Top-Down. Using Bottom-Up is helpful on wood engraving to avoid smoke discoloration.)
    g. Set Image Dithering. Use Stucki for higher-resolution Raster engraving.
    h. Click "OK" to print.

6. Go to the Control Panel on the Laser Cutter.
   a. If using Auto Focus:
      i. Check the screen to ensure the correct job is queued up.
      ii. Press Go.
   b. If using Center Engraving:
      i. Press the X/Y Off key.
      ii. Press the Go button to say "Yes" to turning it off.
      iii. Move the laser carriage and laser to the desired position on your material.
      iv. Turning on the Pointer will help with aligning.
      v. Remove the manual focus gauge and flip it over so the point is facing towards the table.
      vi. Use the Up and Down arrows to raise or lower the table until it just touches the gauge.
      vii. Remove the manual focus gauge and flip it back over to so the point is facing up.
      viii. Press "Set Home" button
      ix. Press "Reset" button
      x. Check the screen to ensure the correct job is queued up.
      xi. Press Go.

   c. Pressing Go with the lid open will do a "practice" version of your job without actually engraving or cutting anything.
      i. If you do this, and then want to execute your job from the beginning, you'll need to press the back arrow to get back to the beginning of your job, verify the correct job is queued up, then close the lid and press Go.
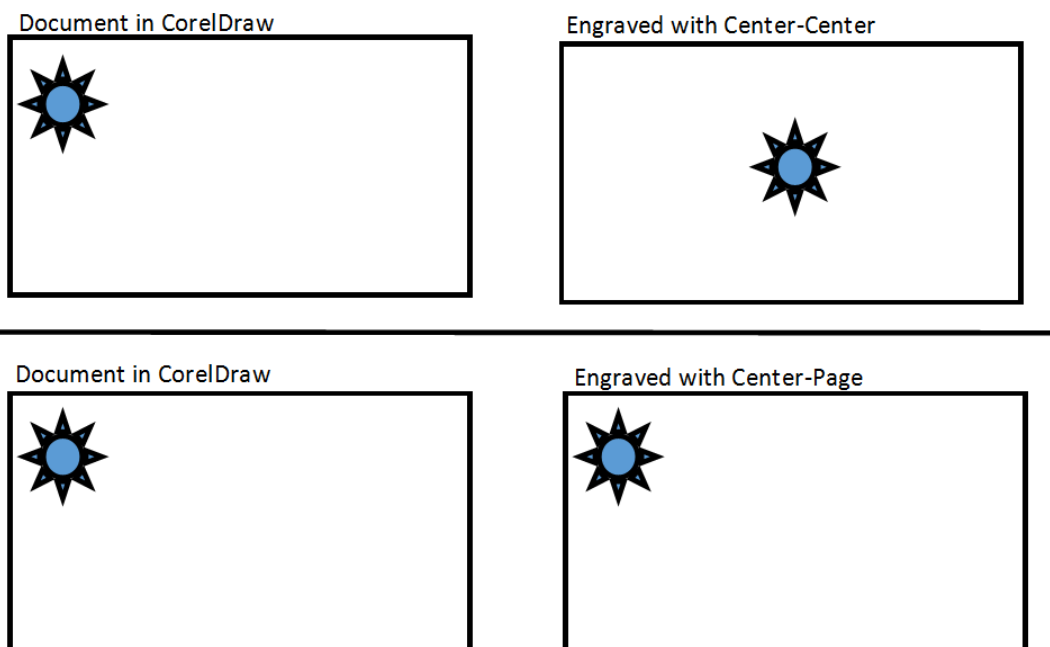
Tips:

To view where artwork will engrave on your material:

In CorelDraw draw a box or circle around the artwork and change the line to hairline thickness. Then, make sure just the box/circle is selected. Print by clicking on the print icon or File > Print and change the "Print Range" to "Selection". Set the Vector Cut speed settings to 50%, which should be slow enough for you to see the laser path. Verify the pointer is on by looking at the control panel and making sure the light under the pointer button is on. Make sure the laser cutter lid is open. Then press Go on the current job. The red laser light will trace the box/circle you created and show you where your engraving job will be placed on your material.

Center Engraving tips:

- The "Center-Center" option will center your selected image/text on where you've set your "home" at on your material, regardless of where that image/text appears on your document in CorelDraw.
- The "Center-Page" option will place your image/text in relation to where you've set your "home" at, and will appear on your material as it does on your document.

Document in CorelDraw

Engraved with Center-Center

Document in CorelDraw

Engraved with Center-Page

Reset Home Position:

To reset the Home Position, on the Control Panel and select the Maintenance key. Press the down arrow to see 1. Restore Home. Press the Go key and the Home Position will be restored.

Helpful Links:

Corel Draw Tips and Tutorials

- https://www.youtube.com/user/DougGreenAustin
- https://www.coreldraw.com/en/pages/tutorials/coreldraw/

- https://www.coreldraw.com/en/learn/how-to/?topNav=en
- https://www.youtube.com/watch?v=iKfFNNtfpMU