/please read before using equipment./
questions/comments: contact jeff wilkinson
don swanner

//getting started

In order to gain access to the laser cutters at the FABlab one must read through all the steps listed below as well as consult a FABlab worker. Once you are fully acquainted with the proper procedures, use of the laser cutters is permitted. Be sure to refer to the each laser cutter's online schedule in order to reserve a spot.

//the steps

1. **open_** Begin by opening both the laser cutting software, UCP, located on the Desktop of the computer and also the main file you want to plot to the laser cutter on the respective program you have chosen to use. Select 'Print' from the 'File' menu of your chosen program (Refer to specific set-ups for each program). Select the **vsl6.60** as the printer, and go to 'Properties.'

2. **material database_** In the print window of your respective program are 'Custom Properties'// 'Set-up". Click this button to bring up the 'Material Database' and 'Manual Control' center. Under 'Material Database', choose the appropriate material type from the database and then type your material's depth under 'Material Thickness'. Be sure to press 'Apply' to save them.

3. **manual control_** While still in the 'Custom Properties' // 'Set-up' window toggle to 'Manual Control'. This is where you set up all your power settings. UCP software will automatically load the appropriate settings for each material as vector cutting (Red), vector engraving (Blue), and rastor/vector engraving (Black). The information given by the software can be applied to any index color you may have already chosen to use. Alternatively, the settings for approved materials are listed on the table next to the laser cutter computers. Highlight each color and input the settings for that color one at a time. After entering the settings, be sure to press 'Set' to lock in those settings. Use the drop down menu on the right of the 'Manual Control' window to toggle between Rast, Vect, Rast/Vect, or Skip for each color.
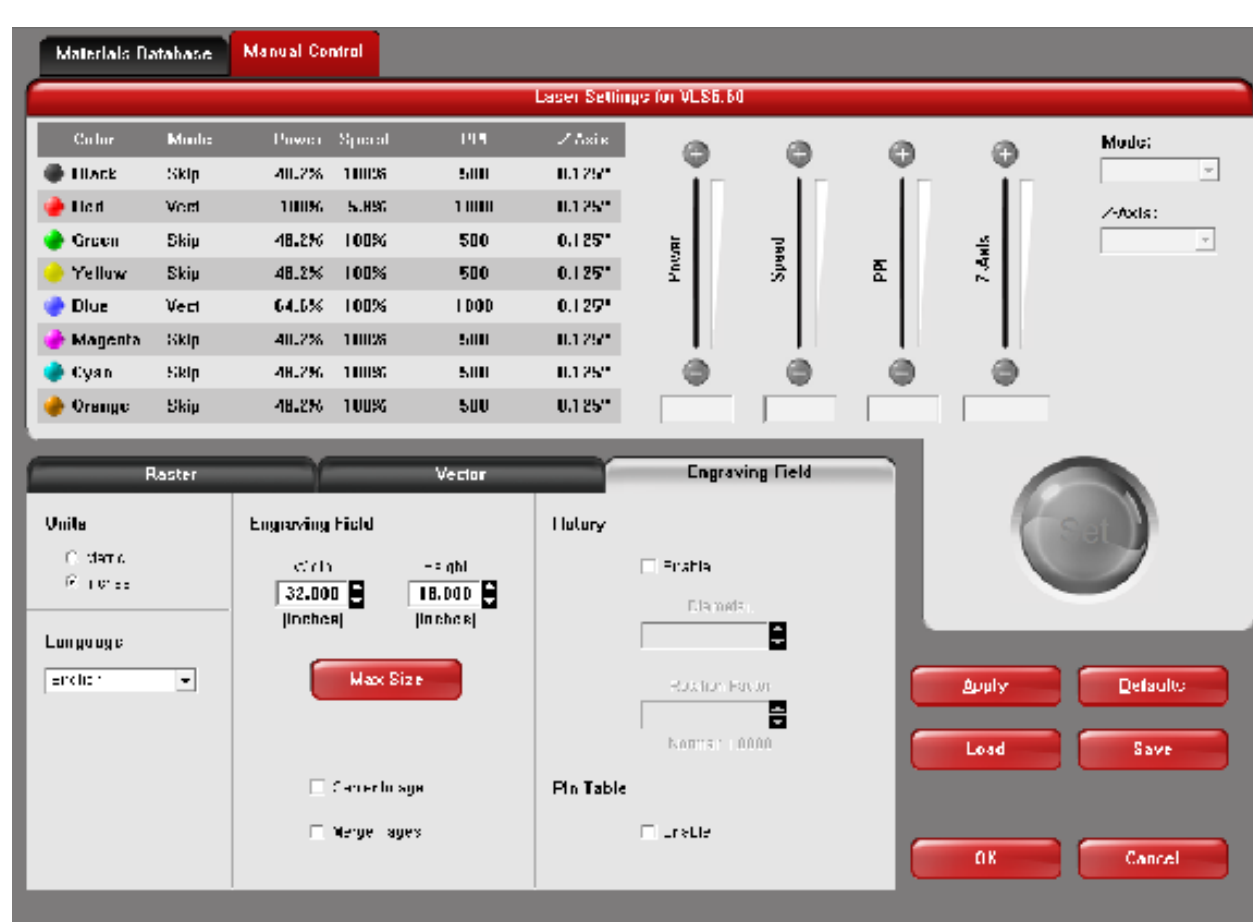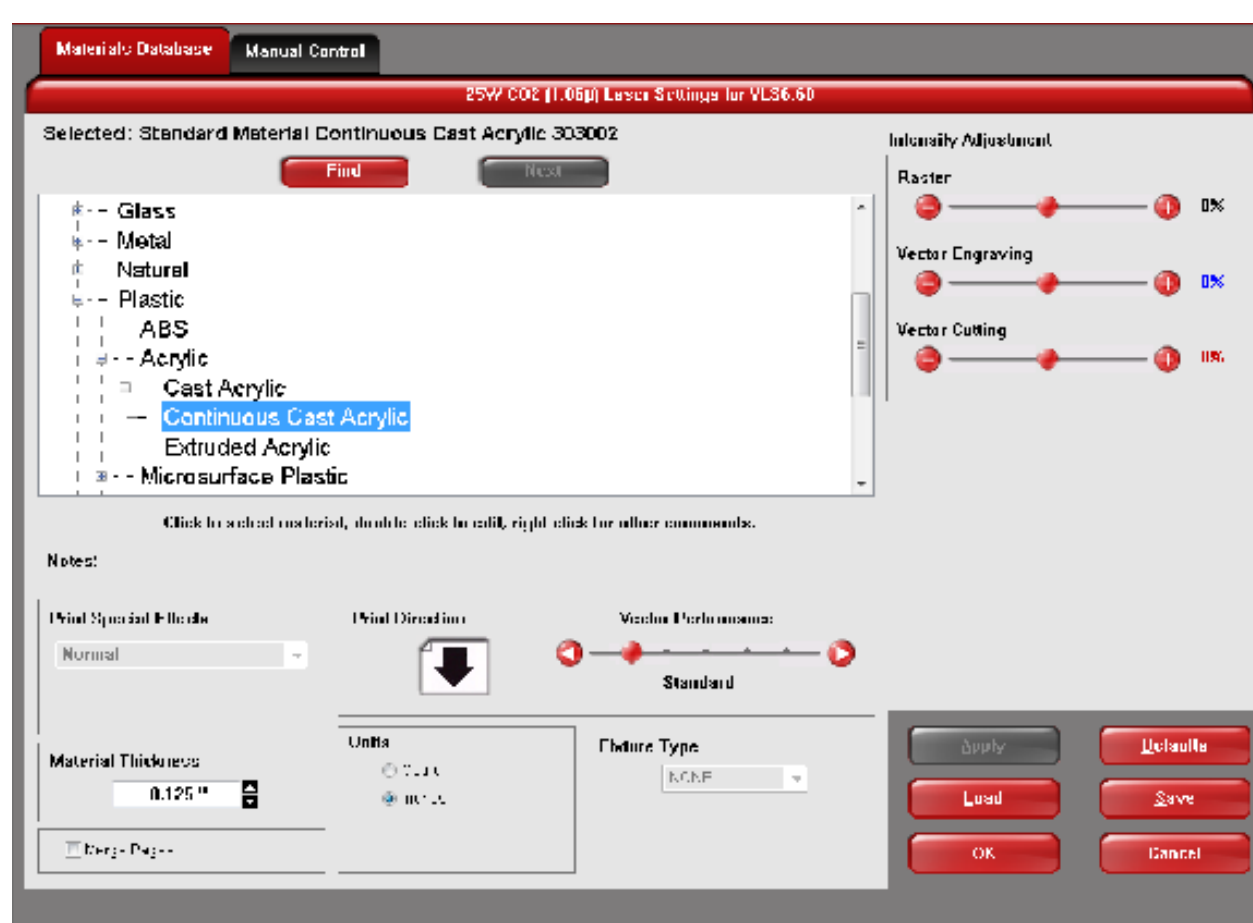
4. **laser cutter_** Before sending the file, make sure to turn the machine on. You can do this via an orange toggle switch on a power strip that is located at the back left side of the machine. In addition, press the power buttom on the front side of the laser cutter.

5. **extraction system_** You will also need to turn on the extraction system via a black switch on an electric box mounted on the wall above laser cutter FB1. This is extremely important in the removal of toxic fumes and in the preventation of fires.

6. **send file_** Be sure that the 'Print' window is set up according to software requirements. Now you can send your file by pressing 'Print' on the 'Print Setup' page. Switch to the UCP software where your file has been sent.

7. **focusing_** Before staring your file, place your material in the upper left hand corner of the machine (lower left if plotting from AutoCad.) Focus the machine by following the steps on the 'Focusing Sheet' which hangs from the wall in the FABlab.

8. **start cut_** Now you can start your file by pressing the green 'Start' button within the program of the laser cutter. If you press the button with the lid raised, the machine will do a 'mock-up' run in which a small red dot traces the lines the laser will cut. If the lid is closed, the laser begin cutting/etching. To cancel your file, press the stop button in the laser cutter program or simply lift the lid.

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//printing from illustrator

1. **artboard_** Scale drawing to fit inside 18X32 inch area as constrained by the laser cutter bed size. Locate your file in the upper left hand corner of the artboard.

2. **color_** First, set the document color mode to RGB. **file** > **document color mode** > **rgb**. Afterwords, make sure all the colors you use are pure RGB colors- Black, Red, Green, Yellow, Blue, Magenta, Cyan, Orange. The color values for these are as follows:

Black: 0-0-0   Blue: 0-0-255

Red: 255-0-0   Magenta: 255-0-255

Green: 0-255-0   Cyan: 0-255-255

Yellow: 255-255-0   Orange: 255-102-0

3. **line weight_** Any vector lines that you would like to be cut in the print must be set to a stroke size of 0.01 mm or smaller in order to work. Any fill will be seen by the driver as an engraved area.

4. **print set-up_** Select 'Print ' from the 'File' menu. Select **vsl6.60** as the printer. Select the 'Set-up' button on the bottom left of the window, then in the next window select the 'Preferences' button. Follow the same steps as from the general printing on the preceding page to set up the power settings.
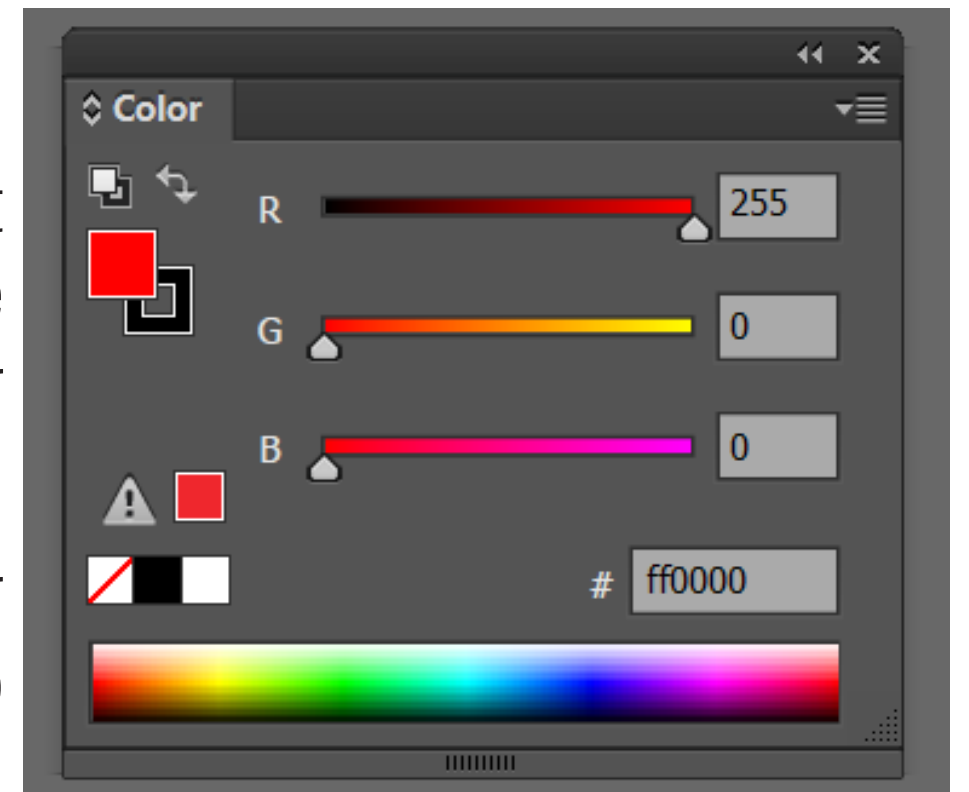
5. **page orientation_** Before sending the file, remember to adjust the printing area with the page tool. You may have to set the driver to 'Portrait' to snap the page tool to 'Landscape.' Now you should be ready to print.

//printing from autocad

1. **drawing set-up_** Scale drawing to fit inside 18X32 inch area as constrained by the laser cutter bed size. Locate your file close to the origin in the upper right quadrant (Quadrant I). Finally, make sure the lines of your drawing are assigned as an index color and each color should differ depending on the intended task of cutting or engraving.

2. **print set-up_** Select 'Print' from the 'File' menu. Select **vsl6.60** as the printer. Select the 'Properties' button next to the printer selection, then select the 'Custom Properties' button. Follow the same steps as from the general printing on the preceding page to set up the power settings.

3. **plot set-up_** Under the 'Plot Settings' tab, change the scale to 1:1 and select 'Window' to define a printing window. One corner of the window should be the origin. Make sure to uncheck all items listed under 'Plot Options'. Before sending the file, check the 'Preview' to make sure your file is OK. You can now send the file.