ABOUT THE LASER CUTTER

The FIT Library Fablab is now equipped with a Universal Systems VL53.60 Laser Cutter. The VL53.60 has a material processing platform of 24” x 12” x 9” and a 60 watt laser.

ACCEPTED FILE TYPES

Illustrator files: Vector Cutting, Vector Engraving, Raster Engraving
Photoshop files: Raster Engraving
JPEGs: Raster Engraving

Fablab Staff will not resize, adjust, or manipulate your files. Files must adhere to the color, format, and size requirements of the Laser Cutter Program before being submitted. If any changes are required to successfully complete the job, the Fablab will not proceed until the client fixes the errors and resubmits the corrected file. The Fablab is not responsible for cutting or engraving errors if they are a result of a improperly prepared file.

ACCEPTED MATERIAL

Only the following materials will be accepted for use with the laser cutter.

- Bristol Board
- Butter Board
- Cardboard
- Chipboard
- Museum Board
- Poster Board
- Fine Art Paper
- Cardstock
- Illustration Board
- Construction Paper
- Matte Board
- Marker Board
- Wood Veneer
- Basswood
- Plywood
- Balsa Wood
- Birch Wood
- Cork
- Leather
- Rubber
- Glass (Etch only)
- Marble (Etch only)
- Acrylic Sheets (Non-toxic)
- Natural Fabrics
- Hard Woods

Please see our separate acceptable materials list for local suppliers and online vendors. We reserve the right to refuse material if we deem it to be unsafe or inappropriate.

TESTING MATERIAL

For non-standard or specialty materials, we recommend supplying a separate piece of material (recommended at least 2”x4”) for the Fablab Staff to test and determine the correct Laser settings. This testing is covered by the $5.00 setup fee per material submitted. We will do our best to determine suitable settings, but depending on the results of the testing, the Fablab may not be able to perform your job exactly as submitted. We will not replace damaged testing material.

The client is allowed to keep any scrap material from their job. If the client does not supply a separate piece of testing material, the Fablab may use areas of the client’s scrap material to perform testing.

FABLAB POLICIES

Turnaround time will vary and is subject to change. All jobs must be paid for with your FIT ID card before the job is released.

$5.00 minimum STANDARD FEE

After the $5.00 setup fee (per material), the price for use of the laser (for Vector Cutting, Vector Engraving, and Raster Engraving) is $0.50 per minute.

Laser Cutting Guidelines

HOURS OF OPERATION

Mon - Thur 9am - 7pm | Fri 9am - 6:30pm
Pomerantz Center 5th Floor D529A
212 217.5470 | www.fitnyc.edu/fablab
VECTOR CUTTING & ENGRAVING

The laser cutter can cut or engrave along vector paths. The laser cutter program will "read" your Illustrator file, and depending on the Stroke Weight and Color of a vector, the laser will cut through or engrave (i.e. scorch/mark) the surface of your material.

In order for your Illustrator file to be read by the laser cutter program, your files must be in RGB Color Mode:

![Illustrator RGB Color Mode](image)

VECTOR ENGRAVING

Lines that you would like to engraved on the surface of your material should be Vector Paths in your Illustrator files, with a Stroke Weight of .001 pt and colored RGB Blue (#00-255, or #0000FF).

![Illustrator Stroke and Color Settings](image)

Depending on the density and surface texture of the material, certain objects may not be able to be engraved at all. Please see our approved materials list.

VECTOR CUTTING

Lines that you would like to be cut through your material should be Vector Paths in your Illustrator files, with a Stroke Weight of .001 pt and colored RGB Red (255,0,0, or #FF0000).

![Illustrator Stroke and Color Settings](image)

Materials to be cut must be 1/8th inch or less. Depending on the density of the material, certain objects may not be able to be cut at all. Please see our approved materials list.

CUTTING, ENGRAVING & RASTER ENGRAVING

The laser cutter can Vector Cut, Vector Engrave, and Raster Engrave all from one image. Import grayscale or B&W images (JPEG or PSD) into an Illustrator file, and follow the guidelines for Stroke Width and Stroke Color for vectors described here. The laser cutter program will automatically distinguish between vector paths meant to be cut, vector paths meant to be engraved, and grayscale or B&W artwork will be Raster Engraved.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Stroke</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vector Engrave</td>
<td>0.001</td>
<td>RGB Blue</td>
</tr>
<tr>
<td>Vector Cut</td>
<td>0.001</td>
<td>RGB Red</td>
</tr>
<tr>
<td>Raster Engrave</td>
<td>N/A</td>
<td>B&amp;W Grayscale</td>
</tr>
</tbody>
</table>

HELPFUL TIPS

Vector Cutting & Engraving: Depending on the physical properties of the material, the line being cut or engraved will have a variable "thickness." This is determined by how the material reacts to being burned or scorch by the laser. Vector artwork should be designed with this in mind, as vector paths that are very close together in an Illustrator file may actually overlap or touch once cut (or engraved) onto the material.

Raster Engraving: Higher contrast images are desirable. Depending on the characteristics of the material being engraved, the range of dark to light tones (i.e. the depth being engraved) may be very limited — in some cases only a twotone, black & white color range is possible.