

BUILDING SYSTEMS LAB

Using the VersaLaser Cutting and Etching Tool

The VersaLaser is a CO₂ laser cutting and etching tool available to Architectural Studies students. The following is a set of guidelines to help students know how best to use the laser, and how to prepare for cutting or etching a project.

1. What the Laser can be Used for:

- a. Cutting soft materials - Wood, leather, paper, and most plastics. Most materials need to be 1/8" or less in thickness to cut all the way through. Cuts are made by disintegrating the material with extreme heat. The laser width is about 1mm, so designs that have pieces 2mm or smaller in width generally will not work.
 - i. *Hard or dense materials do not cut well. Masonite and other compressed hardboard are difficult to cut and can take up to 5x longer than other materials to cut out.*
- b. Etching the surface of a material - Soft materials listed above, plus glass and thicker materials can be etched. Etching is sublimating the surface of a material to make an image appear. Etching can be done with lines, or with high resolution grayscale (or black and white) images.

2. Laser Guidelines

- a. **SOFTWARE** - Designs can be prepared in AutoCad or Illustrator
 - i. When drawing a design in Illustrator, be sure to use the RGB setting for your document.
- b. **BED SIZE** - The laser bed is **12"x24"**. Designs should not be larger than this.
 - i. In AutoCad, make sure the Layout is set to 12"x24"
 - ii. In Illustrator, make sure your artboard is set to 12"x24"
- c. **COLOR** - The laser uses color to determine whether it is cutting or etching
 - i. **All lines should be set to 0.00mm in AutoCad or .001 pixels in Illustrator**
 - ii. **RED** lines will **CUT** material, and should be set to true RGB red (255,0,0)
 - iii. **BLUE** lines will **ETCH** material, and should be set to true RGB blue (0,0,255)
 - iv. **BLACK** raster images will **ETCH** material, and should be high resolution (300dpi)
- d. **FIT** - Make sure your designs are arranged on the 12"x24" layout so that they fit on the material you intend to use. **KNOW** the dimensions of your material and have it prepared.
- e. **SCALE** - In AutoCad, be sure you have the scale of your design set properly. This is easy to check by looking at the layout and setting the scale there.

3. Bring your file on a flash drive

- a. You will not have access to email or other cloud based services, so be prepared and come with your file on a disk or drive

**Think of the laser cutter like a printer. If you don't set the right size for paper and colors, then your design won't come out right.*