KENNESAW STATE
UNIVERSITY
COLLEGE OF ARCHITECTURE AND
CONSTRUCTION MANAGEMENT

Digital Fabrication Lab
Architecture Building
Room N315

Last Edited: August 3, 2021

Laser Cutter Policy and File Setup Guide

All students and faculty must review the laser cutter policy and prepare their design files prior to using the equipment. For more information about materials that are safe to laser cut, please check the "Laser Cutter Approved and Banned Materials List" PDF on the Digital Fabrication webpage and research your material options in advance.

Laser Cutter Policy:

Failure to comply with lab and safety policies may result in removal of lab privileges.

- Users must <u>always</u> remain next to the laser machines as the equipment is running a job
- Only one user may operate one machine at a time
- The lab computers are only reserved for setting up and sending laser jobs
- Only approved materials are permitted inside the laser machines
- No open food or drink is permitted in the lab and near the equipment
- Users must clean up their space and the inside of the laser beds after usage

Standard Laser Cutter Final File Export:

Most laser jobs should be prepared in advance for use on the standard size (24 x 36" or 18 x 24") laser cutters.

1. Prepare drawing in native software by placing lines into a box representing the size of the materials
   a. Max machine bed sizes are 24 x 36" and 18 x 24"
   b. Lines must be vector
2. Separate lines into separate colors/layers to differentiate lines intended for cutting (Red) and for scoring (Yellow)
3. Convert units to inches and export as a DWG file
   a. Users may export out multiple sheets as individual files, or may include all sheets into one single file for copy-pasting onto the template
   b. DWG files can be downloaded through email or opened with a thumb drive in the lab

**Large Format Laser Cutter Final Export:**

The large-format machine is only reserved for cuts that cannot otherwise be completed on the smaller equipment. The large-format machine is *not* used for cutting multiple small designs out of large un-trimmed sheet stock, as the laser is slower than on the standard equipment and requires the user to manually level the bed before use.

1. Follow steps 1-2 above in "Standard Laser Cutter Final File Preparation" for setting up vector lines
   a. Max machine bed size is 36 x 48"
2. Convert units to inches and export each individual sheet as a DXF file
   a. Multiple separate sheets must be exported out as individual files
   b. DXF files can be downloaded through email or opened with a thumb drive in the lab

Laser Cutting File Tips for Success:

Here are some design tips to consider while setting up an optimal laser cutting file for the laser cutting equipment.

- Check for and delete overlapping lines in advance to prevent doubling the laser job length and to prevent burning the material
- Reduce and simplify complex details (such as dense brickwork patterning, etc.) to help prevent software from crashing
   o This will also reduce laser job length
- Nest/consolidate the designs to the upper-left hand corner to preserve material and speed up laser cutting time
- Do NOT allow any lines to intersect or touch the borders of the maximum bed size template box
   o Allow 1/8" margin from edge to ensure lines stay within material
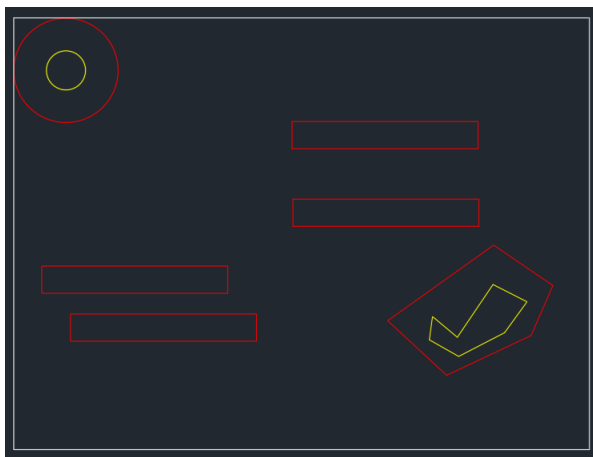
The designs above are not setup in an optimized manner and wastes time and material; the circle is also too close to the material border and will likely be cutoff during production
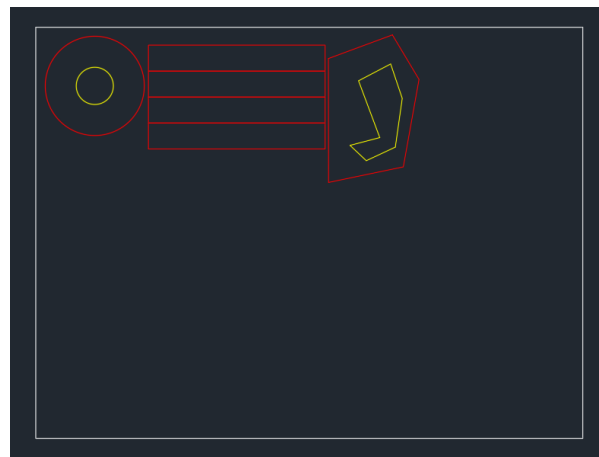
The designs are neatly nested to the upper-left within a 1/8" margin, preserving material and speeding up production time

Laser Cutter Scheduling:

1. Scheduling a laser cutting appointment in advance is highly encouraged, especially during the busiest times of the semester
2. The Laser Cutter Schedule is located online [here](#) and further information regarding scheduler usage and policy can be found in the "Laser Cutter Scheduler Guide" on the Digital Fabrication Lab webpage
3. When making an appointment, make sure that the appropriate size laser is selected for your project and material size