

# Basic Steps for Laser Cutting

Step 1-Prepare your laser file.

Step 2-Material Choices

Step 3-Schedule a laser appointment.

Step 4-Arrive for your appointment

\*Register for access to the Laser Scheduling Software.

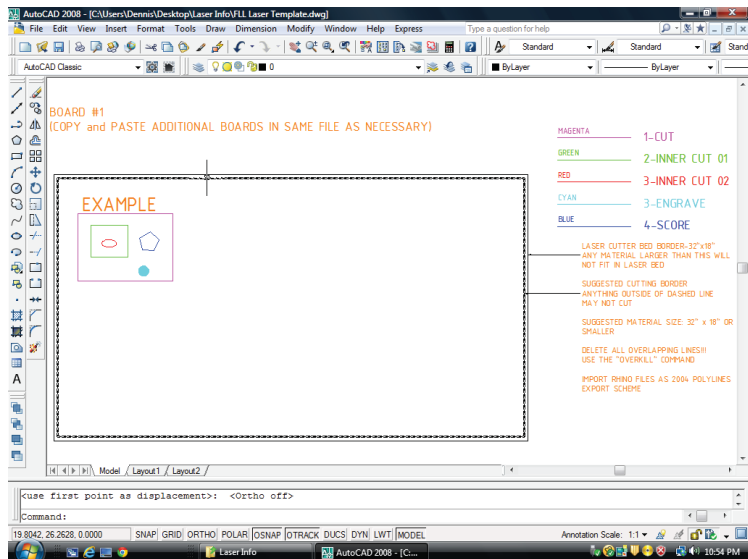
# STEP 1: PREPARE YOUR LASER FILE

## AUTOCAD

- ❖ Download the pre-configured laser template available on the Downloads page or at \\Juno\Public\DigitalFabrication\LaserCutter-Template\.

- ❖ Import your geometry and then assign components of your design to the appropriate layers for different laser operations (e.g., place linework to be scored on the blue “Score” layer).

- ❖ When saving files from Rhino as AutoCAD .dwg drawings, please select the 2007 Polylines export scheme in the “Option” field.



- ❖ Do not change the scale (1:1) or units (inches) of the template.
- ❖ Erase all stray and overlapping lines and delete all unnecessary information from your file.
- ❖ Follow the instructions on the orange “Instructions” layer.
- ❖ If you still have questions, please email Dennis Pierattini at [dennis2@design.upenn.edu](mailto:dennis2@design.upenn.edu).

## ILLUSTRATOR

- ❖ Set your artboard to 32" width and 18" height and set units to inches.
- ❖ All linework should be at least ¼" interior of the artboard edges.
- ❖ All linework must be black. Illustrator does not support color-dependent plotting.
- ❖ Cut and score lines must be set to .001 pt. stroke. Engraved lines should have a stroke of .25 pt. or greater, and engraved areas must be filled in black.
- ❖ Use separate layers for parts to be cut, scored, or engraved. Name the layers "Cut", "Score", or "Engrave".
- ❖ Erase all stray and overlapping lines and delete all unnecessary information from your file.
- ❖ If you still have questions, please email Dennis Pierattini at [dennis2@design.upenn.edu](mailto:dennis2@design.upenn.edu).

## STEP 2: MATERIAL CHOICES

- ❖ The Lab stocks 1/8" MDF for sale in 32" x 18" sheets (\$3) or in 32" x 12" sheets (\$2) which can be purchased directly from any Lab Staff member during normal hours of operation.
- ❖ All other materials choices should be informed by the following list:

### Laser Suitable Materials

#### Cutting and Etching

- Acrylic
- Wood-
- Paper
- Leather
- Mylar
- Matte Board
- MDF (1/8" thick only)

#### Etching Only

- Glass
- Stone
- Anodized Metals
- Corian

#### Banned Materials

- Rubber (All Forms)
- Casting Resins
- Polypropylene
- Polycarbonate
- Any material in the chloride/chlorine family (e.g. PVC-polyvinylchloride)
- Felt
- FoamCore
- Polystyrene
- Corrugated Cardboard

## STEP 3: SCHEDULE A LASER APPOINTMENT

- ❖ Log in to the laser scheduling calendar at <http://penndesign.calendarhost.com/> and choose either “Annex Laser 1” or “Annex Laser 2” or “Hall Laser” from the upper right corner.
- ❖ Select a convenient day and time for your laser appointment.
- ❖ You may make three 30-minute appointments per week. All other unused timeslots in a given week are available on a walk-in basis regardless of how many timeslots you might have scheduled.
- ❖ Please cancel your laser appointment online if you no longer need it.
- ❖ The laser week runs from Saturday to Friday. The schedule for the new week will become available at 11am on preceding Fridays. (For example, at 11am on Friday, October 9, the schedule for Saturday, October 10 through Friday, October 16, will become active.)

### NOTE:

If you have not already registered for the laser scheduling software, please see the “Register For Software Access” document below.

### LASER SCHEDULE WEEK

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						←
THREE slots between Saturday thru Friday →						

### IMPORTANT!!!

The Laser Schedule Week starts on Saturday and ends Friday.  
You may sign-up three 30 min. slots within the 7 days.

## STEP 4: ARRIVE FOR YOUR APPOINTMENT

- ❖ Please arrive on time. If you are more than five minutes late, your appointment may be reassigned to a walk-in student. Please be patient and understand that we may have to reschedule your appointment.
- ❖ Please arrive with your materials fully prepared and your file completed. The Lab staff can help prepare materials prior to your appointment. If you need assistance in formatting files, please contact Dennis Pierattini well before your appointment time.
- ❖ You will be asked to remain in the laser room while the operator cuts your files so that you may answer any questions that might arise or be advised of any remedial CAD work that may be required.
- ❖ All work must be completed within your scheduled timeslot. Before starting your laser job, the laser operators can give you an estimate of your cutting time for planning and prioritizing purposes.
- ❖ If there is no one scheduled after you, you may continue to cut until the next appointment time.

# # REGISTER FOR SCHEDULING SOFTWARE ACCESS

1-Go to the Laser Scheduling Calendar at <http://penndesign.calendarhost.com/>, click on “Login” at the right of the page, click on “I am a new user”, and then fill out the “Add User” form.

- ❖ At “User ID” enter your PennKey. Your PennKey is the username at the beginning of your Penn email address. For example, Mary Smith, whose email address is [smithm@design.upenn.edu](mailto:smithm@design.upenn.edu), would enter “smithm”. Bill Jones, whose email address is [jonesb@sas.upenn.edu](mailto:jonesb@sas.upenn.edu), would enter “jonesb”.
  
- ❖ At “Password” enter a password that is strong but easy to remember. DO NOT use your Pennkey password. This website is NOT secured by the university.
  
- ❖ Enter your name as it appears on your PennID, then enter your most frequently checked email address, then your phone number.
  
- ❖ Click the “Submit” button.

2-To complete your registration, email a request for laser scheduling access to [laseracc@design.upenn.edu](mailto:laseracc@design.upenn.edu).

- ❖ **You MUST send this request from your Penn email address.** Requests sent from any other email address will not work. Please include your full name and your PennKey name. Do not include ANY passwords. For example, format the email as follows:

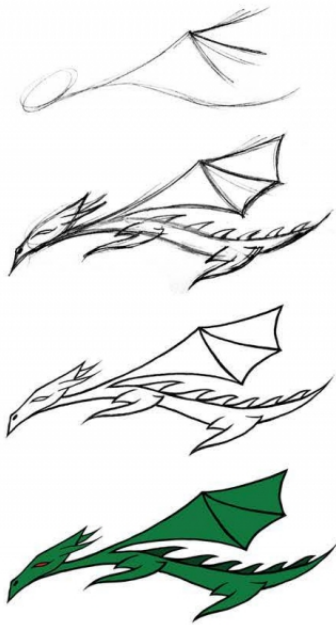
*“I am requesting access to the PennDesign Online Laser Schedule. I have already completed the online registration. My full name is Mary Smith and my PennKey is smithm.”*

- ❖ You will receive a confirmation email from [laseracc@design.upenn.edu](mailto:laseracc@design.upenn.edu) that your registration is complete.

- ❖ Requests for access to the scheduling software will be processed as quickly as possible, Monday through Friday, during normal business hours. Please note that NO requests will be processed during the weekends or evenings.

## Design File

use this at your desk



## Fabrication File

bring this to the Fab Lab



- No unnecessary info
- Remove your design process work
- Use the laser/CNC file templates
- Use the template layers only
- Delete all other layers