

LASER CUTTING POLICIES + INSTRUCTIONS

LASER CUTTING POLICIES

Who is allowed to use the laser cutter?

- Only students in Architectural Representation: Abstraction, Architectural Design I, Architectural Design II, and Architectural Design III are eligible to use the laser cutter.

What is the maximum number of hours that students are permitted to use the laser cutter per week?

- Students are limited to 30 minutes per day and 1 hour per week.

How do I sign up for an appointment?

- The DAL TAs manage a Google spreadsheet that is used to register appointments; access will be shared with all eligible students' CU email addresses on **Monday, January 29th**.

How do I prepare for my appointment?

- Students must submit their properly prepared file(s) 30 minutes before their scheduled appointment. See the section below on files for a full description of what is expected.
- Students must arrive 5 minutes before their appointment with materials that have already been cut to the proper dimensions. See the section below on materials to see a full description of what is required.
- Students must remain in the laser cutting room (404A Diana) for the duration of their appointment.

What happens if I don't follow the policies outlined above? What if I need to cancel my appointment?

- If a student has made an appointment and needs to cancel or reschedule, they must do so by 5 PM the **DAY BEFORE** their appointment. If a student cancels anytime after 5 PM the day before (or fails to arrive more than 5 minutes before their appointment), they will not be allowed to laser cut for the following 7 days. This is the department's penalty for one late cancellation.
- If a student hasn't arrived 5 minutes before their appointment start time, their reservation will be considered a "late cancellation," their slot will be given to another student, and they won't be able to sign up for another appointment for a full 7 days.
- If a student makes more than one late cancellation (or has more than 1 late arrival on their record), their laser cutting privileges will be revoked for the remainder of the semester.

INSTRUCTIONS FOR SELECTING YOUR MATERIALS

You must check our list of approved materials before your appointment to confirm that you have selected an appropriate type of material. If you are unsure if a specific material may be used, bring a sample to the TA. All materials should be cut to size before your appointment.

APPROVED MATERIALS

- Acrylic (ONLY 1/32", 1/16", 1/8", and 1/4")
- Adhesive vinyl
- Basswood
- Bristol
- Butter board
- Cardboard
- Chipboard (ONLY 1-, 2-, and 3-ply)
- Museum board
- Mylar
- Poster board
- Wood (ONLY 1/32", 1/16", 1/8", and 1/4")

PROHIBITED MATERIALS

These materials produce toxic fumes and/or are a fire hazard:

- Any warped material
- Any material exceeding 1/4" in thickness
- MDF
- Extruded acrylics
- Corrugated plastics

A NOTE ABOUT ACRYLICS

When submitting acrylic to cut, please leave the protective paper adhered to the material on ONE SIDE ONLY. You should remove the protective paper on the other side in advance. We only cut cast acrylic (plexiglass). This is commonly sold with the brown paper covering. Other types with blue or clear protective film often cannot be cut as they are extruded acrylic and release toxic fumes during the cutting process.

A NOTE ABOUT WARPED MATERIALS

Please inspect your materials the day before your appointment to confirm that they are in good condition. If stored improperly, matte board, corrugated cardboard, and museum board may bend slightly. Warped materials are a potential fire hazard and will not cut properly; therefore, we do not allow students to cut warped materials.

INSTRUCTIONS FOR PREPARING YOUR FILES

- You must download the Rhino or AutoCAD template file from the laser cutting appointment spreadsheet (see the links at the top of the page). **DO NOT** use templates from any other site. The templates we have provided are the only one that are calibrated specifically for our laser cutter.
- Make sure your layers have been assigned the appropriate colors. The colors will determine the following: 1) the order in which the laser will cut/score and 2) the depth of the cut/score. Generally, you will try to score first and then cut. We do not use the white, black, brown, or orange layers for cutting, so vectors should be cut and scored on the red, green, yellow, blue, magenta, and/or cyan layers. Here is the order of the colors (top will cut first, then the second will cut next, and so on): red, green, yellow, blue, magenta, cyan.
- Make sure vectors are inside the dotted line. The template's size is adjusted to the size of the laser bed (32" x 18") and should remain untouched. It is advised that you keep vectors inside the dotted line to ensure they are not cropped and/or missed by the laser.
- Make sure your file is aligned to the top left-hand corner of the template. If the material you are submitting is smaller than the template, draw an outline on the file that matches your material size using the 'NO CUT' layer. This is for you to verify that your lines will not go off of the material.
- Name your file appropriately and submit it by email or WeTransfer to dal.lasercut2017@gmail.com no later than 30 minutes before your appointment time. All files should be named in the following manner before they are submitted: UNI_DATE_MATERIAL.
- Make sure you 'Overkill' your file on your personal or lab computer before you submit your file. Running the 'overkill' command in AutoCAD will guarantee that any duplicate lines are eliminated, which lowers the chances of your material being singed, burned or melted. Files with duplicate lines are considered erroneous files. If we find duplicate lines in your file as it is cutting, we will have to stop the job, which may jeopardize your ability to finish during your allotted time.
- If you would like the pieces to be taped, you must provide your own tape. Please note that tape can tear materials like chip and paper.
- When vector lines are extremely close together, they can become a fire hazard. As a general rule, you should be cautious with lines any closer than half the thickness of your material. E.g. if your material is 1/8" then you can cut up to 1/16" apart. If the thickness is 1/16" then cut as close to 1/32" as possible.
- If your file has several cut lines, it is best to alternate the cut layers (yellow, magenta, and cyan) so that your material has time to cool down. This will result in cleaner laser cuts.
- If you have nested shapes, please follow the cut order (inner, inner-2, outer). This will result in a more accurate laser cut.
- If you have any material exceeding 1/4", you will need to get a time estimate before your appointment. Thicker materials always take longer to cut and anything above 1/4" will likely take longer than the 30-minute limit.