

Laser Cutter - General Information and Policies

Location + Contact

Room:
Supervisor: Ken Kam
Email: ken.kam@dal.ca

Access:

Self-operated with supervision from lab staff; open to currently enrolled students, active faculty and staff. Users must be authorized prior to use through a *Laser Cutter Tutorial* administered by the printing lab staff.

All work must be **academic related**. A different fee structure will apply for personal work i.e., portfolios, wedding cards, presents etc. For any personal or commercial work contact Ken Kam.

Max Sheet Size:

18"x32"; Max depth ranges from 3/8" to 1/2" by material. See printing lab staff for authorization of a material for use.

File Types:

Illustrator (.ai) vector files, down-saved to CS3 for optimal vector translation.

Materials:

See approved and banned material list

Pricing:

This service is **free of charge** to students, faculty and staff for academic related work.

Applicable Fees:

Damage Fee

\$50 minimum fine + repair costs for irresponsible cutting, damage, etc
See "Fines" section for details

Late Cancellation + No-show Fee

A \$25 fee will be charged if:

1. User does not show up within the first 20 minutes of their reservation.
2. User does not cancel at least 24 hours before their reservation.
3. User gives their reservation to another student, and that student meets list items 1 or 2.

**If you trade times with someone, the person whose name appears in the scheduling data-base will be charged applicable fees.*

Accessing the Laser Cutter

Authorizations

- Before using the laser cutter, you must first attend an authorization session. Currently enrolled students, faculty and staff can be authorized for laser cutting.
- The information covered during authorizations will change as software and hardware are updated or reconfigured. To keep users up to date on laser cutter techniques and policies, authorizations will be good for one calendar year, after which you may need to be re-authorized depending on your activity level. View the authorization schedule please speak to lab staff.

Reservations

- Reservations must be made online through a provided link. The link can be found on **Dalhousie Architecture and Planning Print Shop** webpage and is distributed via email to all students, faculty and staff.

<https://signup.com/client/invitation2/secure/2650776/false#/invitation>

- If needed, contact the lab staff for access to the online sign-up link.
- Reservations can only be made in 30 minute blocks. You can reserve up to 8 sessions of 30-minutes each per week.
- Reservations are transferable from one person to another, however applicable fees will be charged to the person whose name appears on the sign-up list
- You will be given a 20 minute grace period to show up for your reserved time slot. After the grace period expires, you will be charged applicable fees and your slot will become available for walk-ins.
- **Check for walk-in opportunities often. Traditionally we see a lot of cancellations. Also, communicate with your class when you cancel a slot so students are aware of freed-up reservations.**

- In the unlikely event that your reserved time slot must be canceled due to equipment malfunction or other unforeseen-able issues, you will be notified as quickly as possible and given the option to make a new reservation at the earliest available time slot.
- In the event that a laser cutter is taken offline, it will not be available for reservation until its operational again.

Using the Laser Cutter

- See tutorial document for instructions on using the laser cutter.

General Safety

The most common safety risk while using the laser cutter comes from fire. Anyone using the cutter must sit in front of it and watch their entire job until it is finished. Failure to do so may result in fines, damage to the machine, and possible bodily harm to the user and lab employees.

NOTE: If at any time during cutting you notice anything unusual, shut off the machine immediately! This includes fire, loose parts, warped materials, or anything that looks or sounds strange to you...WHEN IN DOUBT, SHUT IT OFF!

- When using a flexible material such as paper, the edges must be held down securely with tape or a weight checked out from a lab monitor.
- After your job finishes cutting, the enclosure lid must be left shut for at least 10-15 seconds to allow for smoke and fumes to be exhausted.

Responding to a Small Fires/Flare-ups

- Watch your job carefully. If you notice a small flare-up while your job is being processed, hit the "Pause" button, and wait for the laser head to clear the table. The wall switch can also be used to immediately stop the laser cutter.
- Open the enclosure lid, and spray the flare-up out using the water bottle on the side of the machine if the flare-up does not go out on its own.
- Close the lid, and hit the "Resume" button if you wish to continue where it left off.
- If you notice that your material is being scorched or is producing visible smoke or flame, either lower the power setting, increase the speed setting or re-check your focus.

NOTE: Whenever the "Pause" button is hit, the laser will finish whichever path it is in the process of completing before stopping. This can, in some cases, take up to several minutes.

Excessive Fire/Smoke

- If your job begins to produce large flames and/or excessive smoke, immediately notify the nearest lab staff member.
- There is a fire extinguisher located near the door inside the laser cutting room, as well as one on the right wall immediately outside the laser cutting room.

Fines

The standard fine for damaging or irresponsibly operating the laser cutter is \$50. Any resulted repair costs will also be charged to the user responsible. The following infractions will result in fines:

- Cutting hazardous or non-approved materials
- Cutting without lab monitor supervision
- Cutting without first checking in with the lab monitor on duty
- Producing excessive (visible) smoke and/or fire.
- Walking away from the cutter while it is operating
- Any unsafe cutting, or cutting that causes damage to the carriage or bed.

Banned Materials

The materials listed here are banned from laser cutting. If you attempt to cut anything listed below you will be issued a \$50 fine

Material	Banned Reason
PETG, PET	Along with other emissions, is known to emit Benzene which is known to cause cancer.
Polystyrene	Known to emit styrene fumes.
ABS	Emits cyanide gas and tends to melt.
PVC	Emits chlorine gas during a cut.
Bending Plywood	Bends into the path of the laser carriage during operation.
Tropical Hardwoods	A lot of tropical hardwoods have toxins in the wood.
Corian	Creates a fine grit inside the laser bed and will grind down equipment
Casting Wax	Melts a lot.
Nylon	Emits toxic fumes.
Vinyl	Emits chlorine gas during a cut
Delrin	Along with other emissions, is known to emit Benzene which is known to cause cancer.
Foamcore	Foamcore is an expanded polystyrene and is known to emit styrene fumes when cut.

Approved Materials

Anything in this section is safe to cut from any vendor.

Material	Raster Engraving	Vector Engraving	Vector Cut
Corrugated Cardboard	OK	OK	OK
Uncoated Paper	OK	OK	OK
Chipboard/Matboard/Museum board	OK	OK	OK
Resale Acrylic	OK	OK	OK
Interior Plywood	OK	OK	OK
Balsa Wood / Basswood	OK	OK	OK
Hardwoods (Domestic Only)	OK	OK	OK
Arries Board (Resale MDF)	OK	OK	OK
Masonite	OK	OK	OK
Resale Cork	OK	OK	OK
Resale Vegetable tanned leather	OK	OK	OK
Resale Muslin	OK	OK	OK
Unmounted Linoleum	OK	OK	OK
Glass	OK	OK	NOT OK