

The Abridged Solid Space Basics.

For Undergrads

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Solid Space Fabrication and Prototyping Lab.

School Of Interactive Arts and Technology.
Simon Fraser University, Surrey.
Room 3702.

Note: It's Card key access!

General Contact:

Maja Jensen,
Production Technologist.
maja_jensen@sfu.ca,
SFU phone: 778- 782-8911.

Everyone must go through safety and tool orientations to work in the Solid Space Lab. You should also read the full documentation and guidelines (for the laser and the 3D printer) which are available online or through the production technologist (that's me). Just because a note on a file format, a booking link, or material limitation is not mentioned here, doesn't mean it doesn't apply.

General Guidelines:

<http://www.siat.sfu.ca/undergrad/studios/solid-space/>

The orientations, and the guidelines, will NOT make you a toolshop pro. They are there to ensure everyone is aware of safety procedures and to help coordinate Lab use.

Some of these guidelines may be different from previous classes or projects. Feedback is always welcome.

The basic safety rules in the Lab:

Are detailed in the EHS Shop Safety Manual & online. Read it. You will be quizzed on your knowledge if you have not been already.

Remember that you cannot take your belongings (Backpacks, etc) into the Lab. NO CELL PHONES

Bookings for undergrads will be moderated by TAs. You may also ask the Production Technologist. Either way, be ready. You need to state what you are doing and how many team members/who will be there.

People who are late for bookings or for orientations (over **10 minutes**) will forfeit their bookings/times. If re-booked, it will be with the lowest priority so **BE ON TIME!!** Repeated issues with lateness will result in a suspension of Lab privileges. Bookings are not transferable.

Think: Before you go to the Lab, everything must be READY TO GO. This means, PLAN:

You essentially have what amounts to one work-day's worth of time to actually construct your project using the Lab itself .

YOU WILL NEED TO BRING YOUR OWN SUPPLIES (DUST MASKS, BASIC GLUES, SCREWS, WASHERS, ETC).

Large raw material sheet sizes **cannot** be cut down in the Lab- 4' x 8', 6' x 8' will not work.

Get the vendor to cut it. Keep raw materials to about 4' x 4' or less for materials you will be manually cutting, or to Laser bed size (18" x 32") or less for materials you are laser cutting.

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Laser cutter materials must be “ready to go”, files must be in Coreldraw:

See guidelines on the following page for types of materials permitted.

Laser cutter files being ready means formatted, scaled properly (INCHES) and laid out in **Coreldraw**.

Sheets for the laser cutter should be cut down to 18” x 32” or less, beforehand. They must be flat. If you must cut it in Solid Space, book power tool time **PRIOR** to your laser cutter time. If this is not done you will forfeit your laser time.

There is no time for reformatting, modifying, or fixing files in the Lab. Resources exist to help you get you to that point, so use them. Demos showing how to export work into Coreldraw can be given, just ask. That said, it's REALLY EASY.

The Solid Space guide online also notes how to get Solid Works files into Coreldraw if you need to use the 2D profiles from your 3D file for laser cutting.

For ALL Laser Information:

<http://www.siat.sfu.ca/files/File/PDF%20Files/SOLIDSPACE/Oct%202010/Laser%20Guidelines%20V3%20Fall2010.pdf>

CORELDRAW X5 (FOR MAKING LASER READY FILES) IS IN THE “FIREMANS” DROP-IN LAB
STUDENTS WHO SHOW UP FOR LASER BOOKING WITHOUT FILES IN COREL WILL BE ASKED TO LEAVE, REFORMAT. THEIR BOOKING TIME WILL BE LOST.

Ask your TA or the Production technologist if you have a problem or a question.

If you do 3D printing:

Files must be in STL format for the 3D printer. See the online guidelines for process details. Please note copies needed of each part when submitting a request via email.

You will have to submit models as far in advance as a week, **or more**, prior to deadline, depending on how many teams are printing.

Keep your files small and simple. One person printing an exceedingly large and complex 3D print will cut into the time and materials for others. 3D printing is rewarding, but it takes time. Lots of time, especially if you want to paint or otherwise finish models.

Please don't use the printer for printing out items that can easily be made by other methods, like cubes and boxes

Again, read the full documentation.

A List of Acceptable Materials for Cutting and Marking.

Generally, most wood composites (hdf, mdf, etc), acrylic plastics, and INTERIOR grade plywood materials are great to cut at 1/8" thick (3mm). **Windsor Plywood** is a good source for woods and they have many locations. Home Depot **does not** always carry permitted types of wood board.

Always make sure you have some extra material for testing. If you are unsure, ask before hand and leave yourself time to work something else out in case it does not work out.

MAXIMUM SHEET SIZE IS 18" X 32". CUT MATERIALS TO SIZE PRIOR TO LASER BOOKING! : HAVE THE VENDOR DO IT, OR BOOK POWER TOOL TIME. NOTE LARGE SHEETS CANNOT BE CUT

Note: Wood edges will char. **Materials must be flat!**

To cut:

- Thin MDF, Masonite (aka HDF, Hardboard): up to 3/16" thick (is 4.75mm but sold as 5mm,) 1/4" (6mm) under limited circumstances , --**smooth BOTH sides!**
- Bristol board, Matte board, Museum board. Edges may char. Cuts well and is stiff enough for certain structures.
- Corrugated cardboard: up to 1/4". Other thicknesses, please ask
- 'Regular' Hardwoods: up to 1/8" thick.
- **Interior Plywood: up to 3/16" thick (5mm).** Flat higher grade sheets only .
- Plexiglas, Lucite, Acrylic : up to 1/4" thick for cutting, cast preferred.
- Particleboard. (aka Chipboard): Up to 1/4"
- ASK & allow time to test: Depron Foam, thin styrofoam, Papers, Vellum, some natural fabrics and other materials like foamcore.

To mark or engrave: All of the above, plus:

- Certain fabrics can be marked provided they are prepared correctly, please ask, allow time
- Anodized aluminum and some metals with special coatings: Please ask, allow time for tests
- Tile and Glass: Please ask, allow time for tests

Prohibited materials: If unsure about something, ask.

- **ABSOLUTELY NO EXTERIOR GRADE, UNDERLAYMENT OR MARINE GRADE PLYWOOD WILL BE CUT.**
- **PVC, vinyl, other synthetic materials that may have PVC/chloride in them.**
- Styrene plastic, Lexan plastics & most reflective materials

IF YOUR PLASTIC IS A MYSTERY IT WILL NOT BE CUT. Prohibited materials damage the machine, or release toxic gas, or result in fires. If buying plastic, make sure you are buying confirmed, acrylic sheet or 'Plexiglass'. Ask the vendor if you need to, and keep a bill of sale with you.