

Full Spectrum (12x20) Hobby Series Laser Cutter

About the Full Spectrum

The Full Spectrum Laser Cutter is a laser cutting and etching machine that can accommodate projects with dimensions up to 12"x20". It uses raster image files to etch designs, and vector image files to cut through materials. It also features a rotary attachment to etch curved surfaces. CorelDraw is a powerful graphics design software that is available for use in making laser projects.

There are few libraries in the United States that offer free access to the Full Spectrum Laser Cutter--your library is one! We need your help to keep this machine accessible to everyone in the community. The Carvey CNC Router retails for \$3,500. Repairs are costly, and we cannot replace this machine if it is permanently damaged.

We require patrons who improperly use the machine, fail to follow policies and procedures, or make mistakes that cause unnecessary wear and damage to the machine to re-certify. If issues persist after re-certification, we may ban patrons from use of the machine.

Age Restrictions

- Must be 18 or older to operate this equipment.

Materials (and restrictions)

You must supply your own consumables for use in the laser cutter. A STEAM Central staff member will need to inspect the material you intend to use, to ensure that it can be used safely in the machine.

The maximum dimensions for any material used in this machine are 20" (length) by 12" (width) by 8.5" (height).

Allowable Materials

Cutting and etching

Material must be no thicker than 1/4" for cutting purposes.

Natural wood
Uncoated cardboard
Natural fabric
Paper products
Cork
Acrylic plastic
Natural leather (<1/8" thick)
Matte board

Etching only

These materials may be etched but are not able to be cut.

Ceramic tile
Various stone materials
Glass
Painted/coated metals
Anodized metals

Never Use

These materials are extremely flammable and can emit chlorine gas and cyanide gas.

PVC
HDPE (milk bottle plastics)
Polystyrene foam
Fiberglass
Polypropylene foam
Reflective/mirrored materials

Before Use

- Attending the Full Spectrum (12x20) Laser Cutter Certification Class is required before an appointment may be made to use this equipment.
- Appointments must be scheduled through Acuity ahead of time (<http://tgclibrary.com/steamcentralreservations.asp>).
- Upon arriving for your appointment, you must show STEAM Central staff the material you intend to use. If a material cannot be correctly identified, you will not be allowed to use the material in the laser cutter.
- Make sure a STEAM Central laptop is plugged into the laser cutter via an Ethernet cable. (required to run the machine).
- Inspect all power cords and equipment before use. Do not use if the power cord is damaged or the machine is not working properly, and immediately notify STEAM Central Staff of any issues that occur during your appointment.

During Use

- You must watch your work at all times, for the duration of the job. If you must leave, pause job and notify staff member that you are stepping away.
- Notify a STEAM Central staff member if material is not cutting properly or you see smoke and/or flames.
- If your material catches fire...
 1. Push the emergency stop button and turn off air compressor. The fire should go out on its own. If not, proceed to Step 2.
 2. Spray the fire with water bottle located next laser cutter and immediately notify staff member. If not, proceed to Step 3.
 3. Remove fire blanket from column next to laser cutter and smother fire.
 4. If all these attempts fail, follow the direction of the staff member present.

After Use

- Remove material from laser cutter.
- Power off the machine, and close the laptop.
- Turn off laser cutter, chiller, filter, and air compressor.
- Clean any leftover debris from the machine.



