

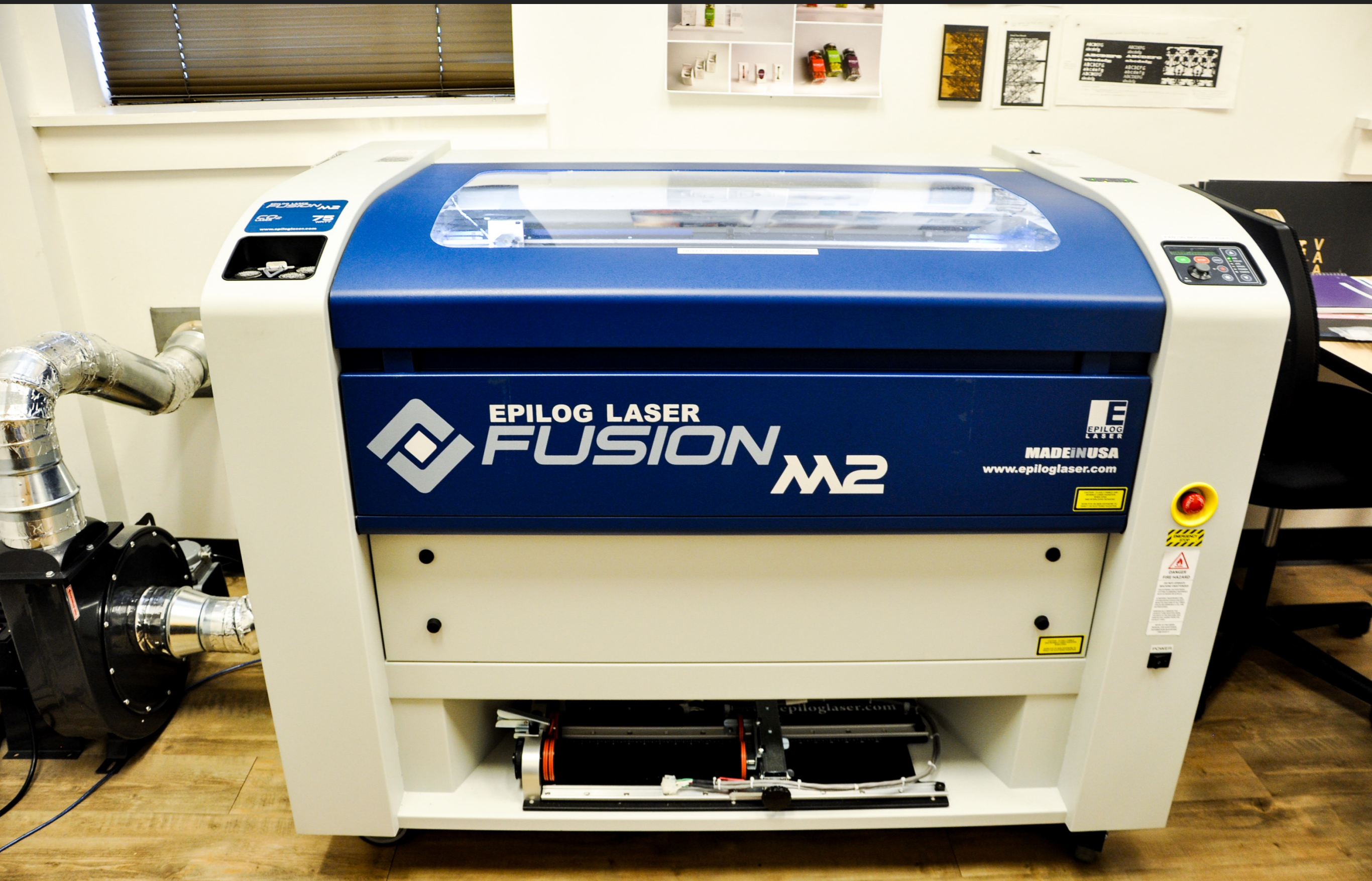
Department of Art, Graphic Design and Art History

EPILOG LASER CUTTER

SAFETY TRAINING

**THE ART DEPARTMENT LASER CUTTERS ARE
DESIGNED TO BE SAFE **WHEN USED PROPERLY**. THIS
POWER POINT COVERS BASIC SAFETY FEATURES THAT
ARE IN PLACE SO THAT YOU CAN IDENTIFY WHEN
THINGS ARE NOT WORKING CORRECTLY, OR MAY
NEED TO BE CHECKED.**

75 WATT LASER CUTTER LOCATED IN THE VRC



30 WATT LASER CUTTER LOCATED IN THE VAA



LASER INFORMATION

NEVER OPEN THE LID WHILE THE LASER IS FIRING

- ▶ The laser that “cuts” your materials is a high powered beam of energy that will burn the skin and damage the eye if exposed to the direct or reflected beams.
- ▶ The wavelength of the high-powered cutting laser is outside of the visible spectrum, so you will not see a “dot” like you would with a laser pointer.
- ▶ The laser fired by the machine is a class 4 laser (the highest class). The safety features on the equipment contain all laser radiation within the enclosure, so the machine is a class 2 system.
- ▶ The alignment laser is a low powered red laser that allows you to see where your cut lines will be run.

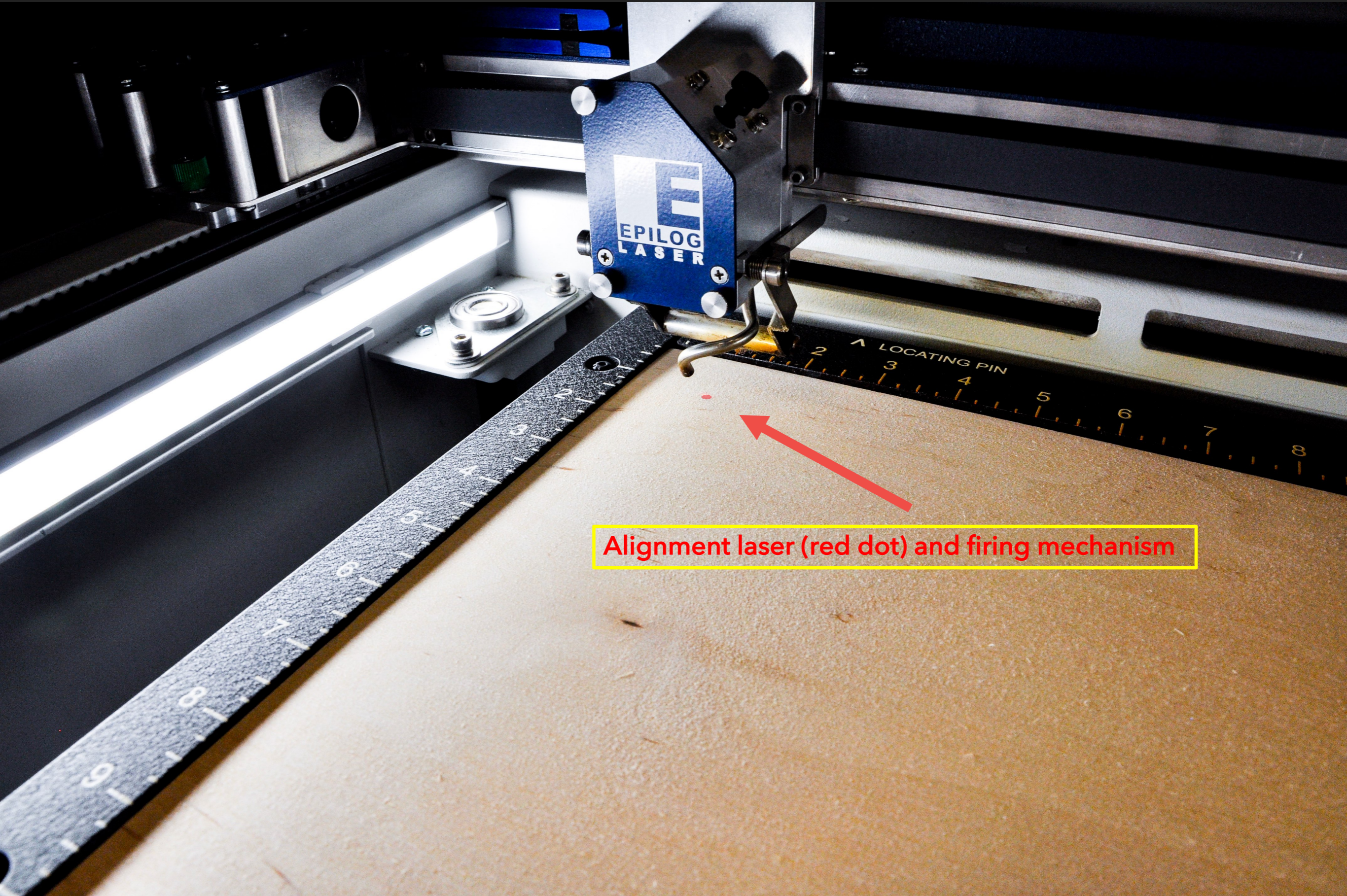
75 WATT LASER

Protective polycarbonate lid. Never open lid while the laser is running.

NEVER LIFT LID WHILE LASER IS RUNNING



75 WATT LASER



Alignment laser (red dot) and firing mechanism

30 WATT LASER

Protective polycarbonate lid. Never open lid while the laser is running.

DO NOT OPEN WHEN RUNNING!

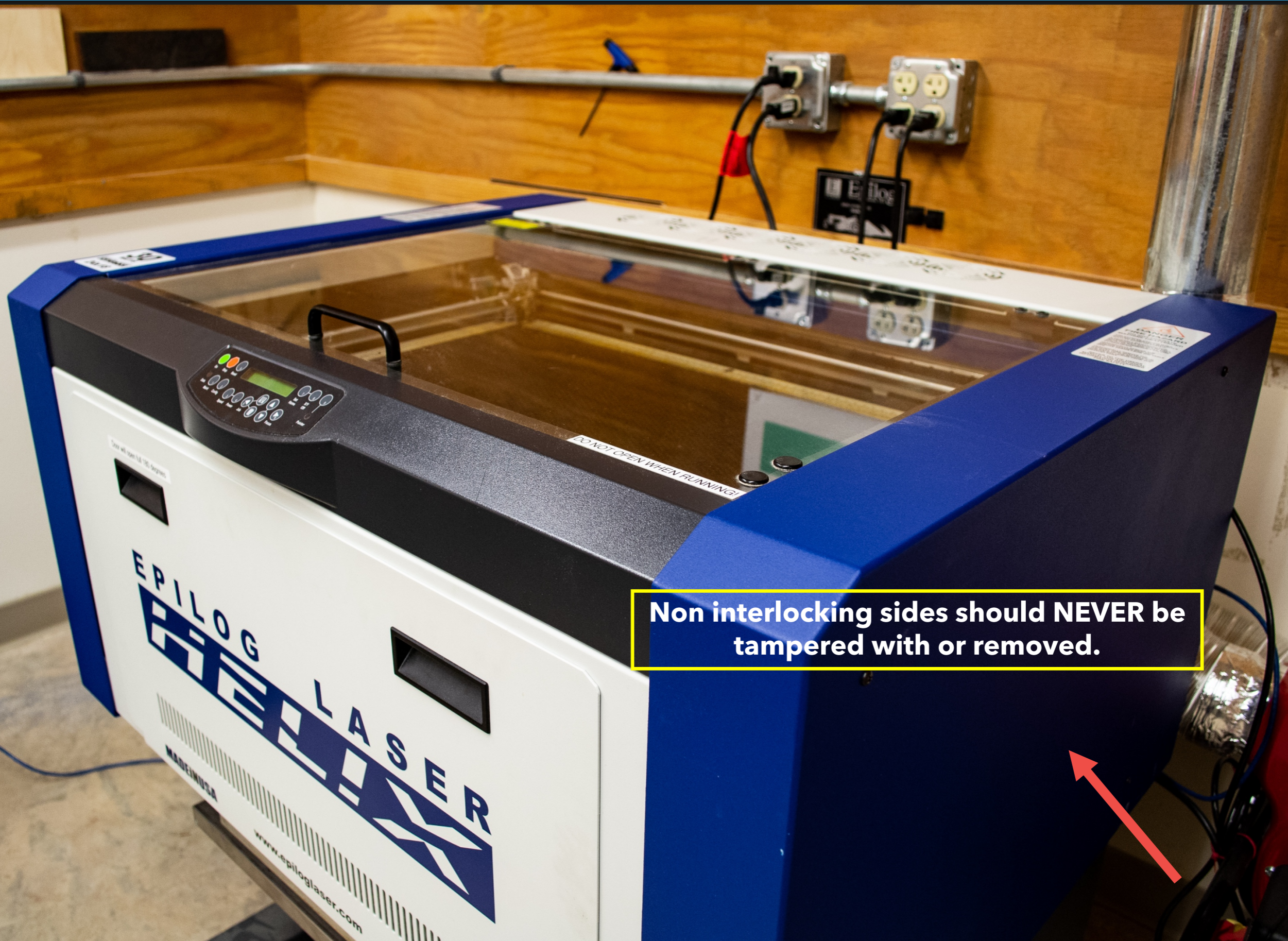
LASER CUTTER

SAFETY FEATURES

EPILOG 30 AND 75 WATT SAFETY FEATURES

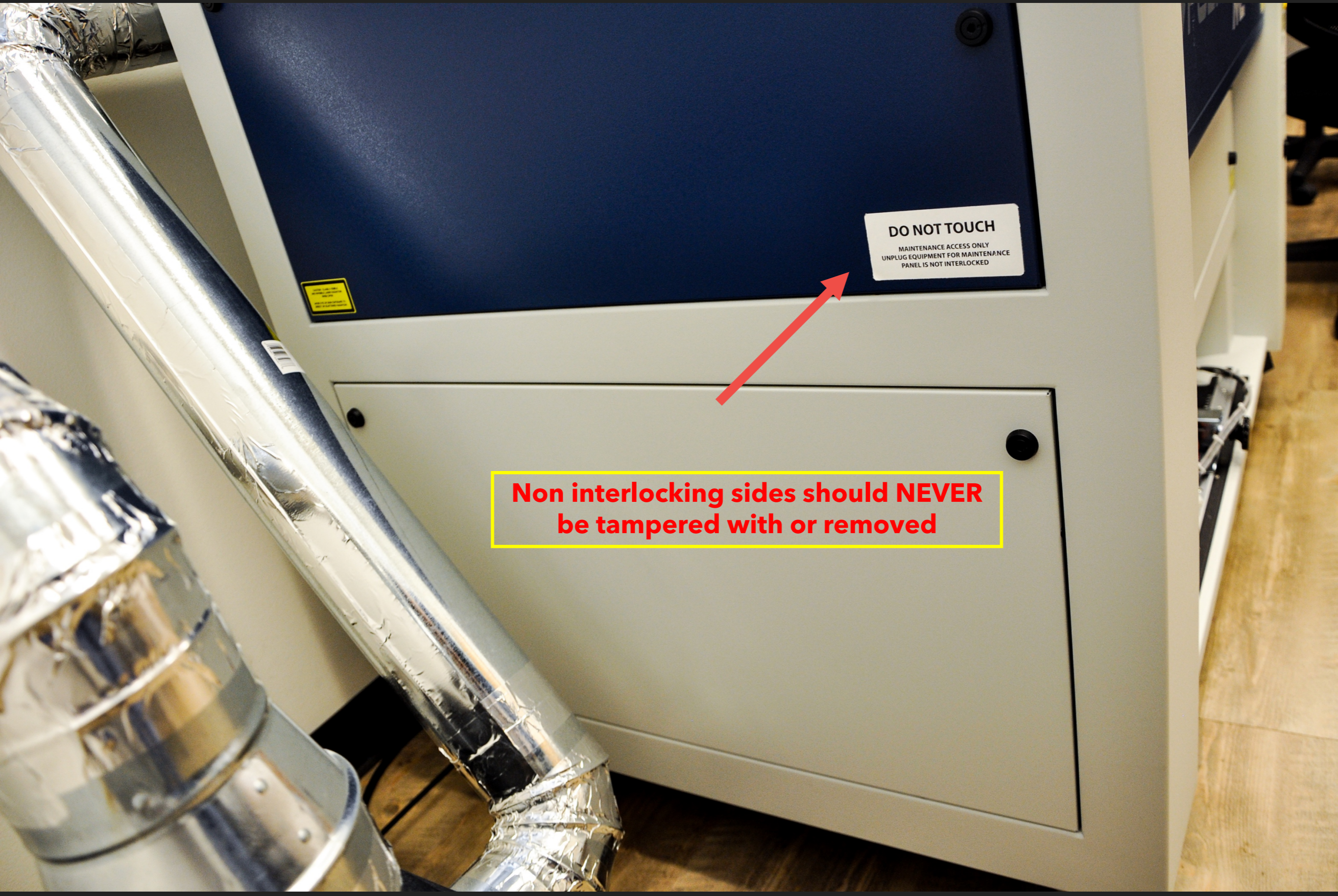
- ▶ The Art Department has two laser cutters: at the Bartlett Center in the Visual Resource Center and at the Visual Arts Annex.
- ▶ Both instruments have the following safety features:
 - The interlocking lid on each instrument has an electrical interlock that will interrupt the power to the laser when the lid is opened preventing any harm to the user from radiation. **NEVER OPEN THE LID WHILE THE LASER IS FIRING.**
 - The lid or viewing panel is made of a polycarbonate, it blocks the laser beam and the reflected radiation inside the instrument. If the lid is cracked, **DO NOT** use the instrument and report the problem to faculty or staff.
- ▶ Both instruments have side panels that do not lock. **DO NOT** use the instrument if the panels are altered or removed and report the problem to faculty or staff. **NEVER REMOVE OR TAMPER WITH THESE PANELS.**

30 WATT LASER



Non interlocking sides should NEVER be tampered with or removed.

75 WATT LASER



DO NOT TOUCH

MAINTENANCE ACCESS ONLY
UNPLUG EQUIPMENT FOR MAINTENANCE
PANEL IS NOT INTERLOCKED

**Non interlocking sides should NEVER
be tampered with or removed**

75 WATT LASER

DANGER
FIRE HAZARD
DO NOT OPERATE
MACHINE UNATTENDED

USE EXTREME CAUTION WHEN
CUTTING FLAMMABLE MATERIALS
SUCH AS WOOD OR ACRYLIC.

A PROPERLY MAINTAINED FIRE
EXTINGUISHER SHOULD BE KEPT
NEAR THE MACHINE AT ALL TIMES.
EPILOG RECOMMENDS A CO₂ FIRE
EXTINGUISHER.

PERIODICALLY REMOVE THE
VECTOR CUTTING GRID AND
REMOVE DEBRIS FROM THE TABLE
FAN.

PERIODICALLY REMOVE THE
EXHAUST TUBE ADAPTER FROM
THE BACK OF THE MACHINE AND
REMOVE ANY DEBRIS FROM THE
EXHAUST PORT.

REFER TO THE USERS
MANUAL FOR ADDITIONAL
INFORMATION REGARDING
FIRE SAFETY

WARNING: TO PREVENT ACCIDENTS AND
DAMAGE TO THE MACHINE, ALWAYS
USE THE LASER SAFELY AND
NEVER OPERATE UNATTENDED.

**Green sensors indicate the lid is closed and
the laser is safe to fire.**

A control panel with two rows of LEDs. The top row has three LEDs: 'L' (green), a lock icon (white), and 'R' (green). The bottom row has five LEDs: '1' (orange), '2' (orange), '3' (orange), '4' (orange), and '5' (green). A red arrow points to the right side of the panel. Below the panel is the URL www.epiloglaser.com/status.

SN:1475XX

TECH SUPPORT#: (182) 601-3220

LASER CUTTER

EXHAUST SYSTEM

EXHAUST SYSTEM MUST ALWAYS BE TURNED ON WHILE LASER IS FIRING

- ▶ Both laser cutters are equipped with an exhaust system to prevent excess heat and smoke from building up. Accidents happen when the system is not turned on and there is no air flow to prevent materials from catching fire.
- ▶ What does the machine SOUND, SMELL, and LOOK like when it is operating properly?
 - ▶ Pay attention to the way the laser sounds when first operated with a staff member. If the machine is making unexpected noises, immediately press stop and seek assistance from faculty or staff.
 - ▶ If you smell excess smoke or abnormal burning, immediately press stop and seek assistance from faculty or staff.
 - ▶ If you see flares or smoke build up within the machine during cutting, immediately press stop and seek assistance from faculty or staff.

75 WATT LASER

Exhaust system with vent and blower



30 WATT LASER

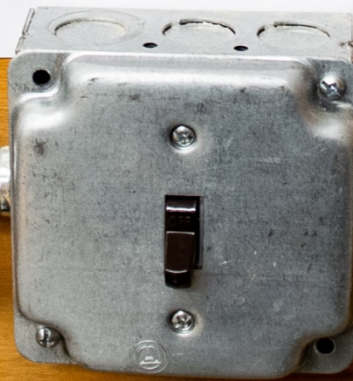


Exhaust system with vent and blower

30 WATT LASER

**VENT MUST BE ON
WHEN LASER CUTTER
IS IN OPERATION**

VENTILATION ON/OFF SWITCH



75 WATT LASER

CONSULTATION

BEFORE

1. Check for student on 'authorized laser user' list
2. Fill out the form so the project can be completed by any staff member
3. Remind student to bring file to consult and cut appointment
4. Give them the "laser cutter" handout
5. Put 'consult' form and appointment date in binder

DURING

1. Review handout file requirements
2. Approve material and determine if testing is needed
3. Review file
 - Discuss design, determine if color mapping is necessary or if layer separation is needed
 - Confirm cuts are intact and pieces will not drop out when cut
 - Fill out the form so the project can be completed by any staff member
4. Have student sign agreeing to remain for the duration of the cut
5. Schedule student for cut time and put the date on the calendar



LASER CUTTER

1. Open file in Illustrator check for:
 - Double lines
 - Lines closer than 1/8", (0.125)
 - Labeled raster layers with RGB color
 - Separate vector layer
 - 1/4 inch margins on artboard
2. Send file > watch data light: confirm file name
 - Orient material and confirm cut path with lid up & red dot on to preview.
 - Make sure Preview is correct
 - If needed tape down material
3. Review Safety Checklist
4. At Printer
 - Turn on vents
 - Confirm rulers are down
 - Close lid (Never open while laser is running)
 - Watch entire cut.
 - Immediately press stop if something does not look right



TROUBLESHOOTING

Check the following:

- Artboard is RGB
- Confirm correct artboard is selected
- Lines are .001
- Lines are 100% black and are not transparent
- Lines are uniform (doesn't have 'variable width profile')
- Lines have a basic brush definition (no calligraphic brushes)
- Document size = media size
- Reorient image in Preview, click **print > setup > print** until it matches laserbed

If all of these settings are correct and the laser still won't fire, copy the vector lines to a new file.



SAFETY CHECKLIST

Never lift the lid while the laser is firing
The exhaust fans must always be on.

Immediately press stop and seek assistance from a staff member

- If you **hear** the machine making unexpected noises,
- If you **smell** excess smoke or abnormal burning
- If you **see** large flares or smoke build up.



THE MOST COMMON SOURCE OF ACCIDENTS IS FIRE BUILDING UP INSIDE OF THE LASER CUTTER DUE TO INADEQUATE EXHAUST.

IT IS REQUIRED THAT A TRAINED, AUTHORIZED OPERATOR BE PRESENT AT ALL TIMES WHEN THE LASER CUTTER IS IN OPERATION BECAUSE OF THE INHERENT FIRE DANGER. NEVER LEAVE THE INSTRUMENT UNATTENDED WHILE OPERATING. IF YOU NEED TO STEP OUT OF THE ROOM, PAUSE THE EQUIPMENT AND ALERT A FACULTY OR STAFF MEMBER.

LASERABLE

MATERIALS

ALL MATERIALS MUST BE PRE-APPROVED

- ▶ Some materials produce noxious fumes when they are cut. Our exhaust systems do not have filters, so we need to control which materials we cut to prevent release of noxious fumes.
- ▶ There is an approved list of materials available in the VRC. If your material is not on the list, get it approved by Sally Schuh prior to cutting.
- ▶ All plastics **MUST** be purchased through the VRC.

**NOW LETS
REVIEW**

REVIEW

- ▶ The laser is a high powered invisible wavelength of energy that is fully contained in the machine by the enclosure and a polycarbonate lid.
- ▶ Do not be afraid to use the laser cutter. The machine is safe when used properly and guidelines & instructions are followed.
- ▶ Safety features must be in place to protect the user from harm.
- ▶ Do not lift the lid while the laser is firing.
- ▶ The exhaust system must always be on when the machine is in use.
- ▶ All materials need to be pre-approved before use in the laser cutter.
- ▶ Do not leave the equipment unattended.
- ▶ Alert faculty or staff when it is not functioning properly, or if something seems off.
- ▶ Ask a Faculty or Staff member when you have questions or concerns.

**THE QUIZ THAT FOLLOWS WILL COMPLETE THE TRAINING
REQUIRED BY UNIVERSITY RADIATION SAFETY TO USE THE
LASER CUTTER.**

**VRC + VAA STAFF WILL PROVIDE OPERATIONAL TRAINING FOR
YOU TO USE THE EQUIPMENT.**

CONTACT SALLY:

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