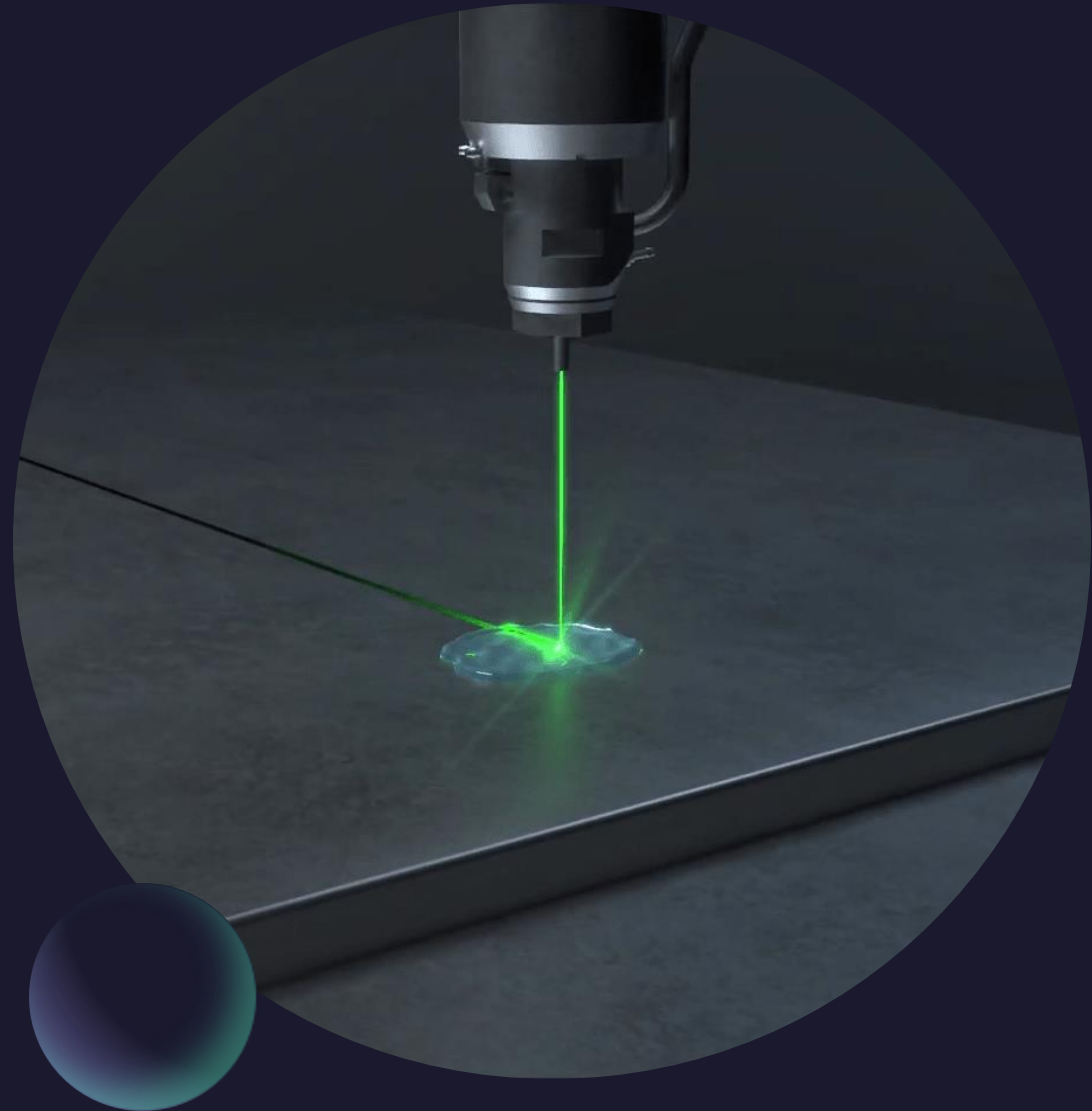


# LEARNING LAB: LASER CUTTING AND ENGRAVING

## Overview:

- How to book equipment
- Meet the equipment
- Materials and Cost
- Material basics and Safety
- Additional Resources



# But first...

- How do these Learning Labs work?
- We give you the basics and resources, you do the deep dives.
- More information on the [Fabrication and Robotics Lab page](#)
- This space is intended for users **13 and up**. Younger users must be accompanied by a responsible adult with the relevant badge.

How often can you book equipment? Reservations may be made:

- Once per day
- Up to 2 times per week
- For a maximum of 5 times per month

(After the limit has been met, users may still access the tools on a walk-in basis if equipment is available.)



# What do we have here?

Epilog Zing 24



- 40 watts
- 12"x24" print area
- Epilog job manager
- Rotary attachment
- Fume extraction!!
  - Usually turned to 50 but higher for acrylic

Glowforge Pro



- 45 watts
- [Glowforge app](#)
- 19.5"x forever with pass through
- Add cut lines in app
- Camera placement
- Fume extraction!!

Always clean up after yourself: clean debris tray, put away materials, turn off machines, and clean up workspace.



# DANGER!!

**Don't be AFRAID.**

**Be INFORMED.**

- 1. Fires**
- 2. Fumes**
- 3. Burns**
- 4. Eye Contaminates**
- 5. Cuts**

**For real...be careful. Some things in the Fabrication Lab can seriously injure or kill you...and by *things* I mean LASERS.**






# What if there is a fire?

## **Don't Panic**

1. Stop laser cutter by pressing stop button or open lid briefly to engage auto-stop
2. Keep lid closed and shut off air assist. Many fires will go out on their own
3. Grab fire blanket and extinguisher
4. Small fires that persist can be put out with blanket
5. Larger fires that are growing can be put out with extinguisher

\*If you must do this, call facilities and/or fire department\*





**When working with a new material always make sure it is an approved material. When in doubt ask staff.**

# Fumes

1. Always turn up fume extractor to 50% at least; more if fumes are present
2. NEVER CUT PVC or VINYL (it will emit chlorine gas!)
3. No treated woods or wood with glue/adhesives (they also burn, and laser will NOT cut through glue)
4. No Artificial/Vegan leather (almost always vinyl!)
5. No Carbon Fibers
6. No PVB (safety glass)
7. No ABS plastic (it will emit cyanide gas!)

# What File do I need? Where can I find it? Where can I make it?

When downloading or exporting files, you will want a **.SVG File**

When creating files for the Glowforge save as **.PDF** if you have images.



## Where to find **.SVG** files:

- Thingiverse
- Glowforge (Search for Free with Pro Account)
- Epilogue Free Sample Club
- Maker Case

## Programs available in Mac Lab:

- Adobe Illustrator
- Inkscape
- Canva (Web based)

# Getting started with the Epilog Zing 24



Resources are your friend!!

- Fayetteville Public Library [website](#)
- [Center for Innovation playlist](#) on YouTube

BEWARE FORBIDDEN MATERIALS!

Pre-plan your CUT lines (.001 stroke)

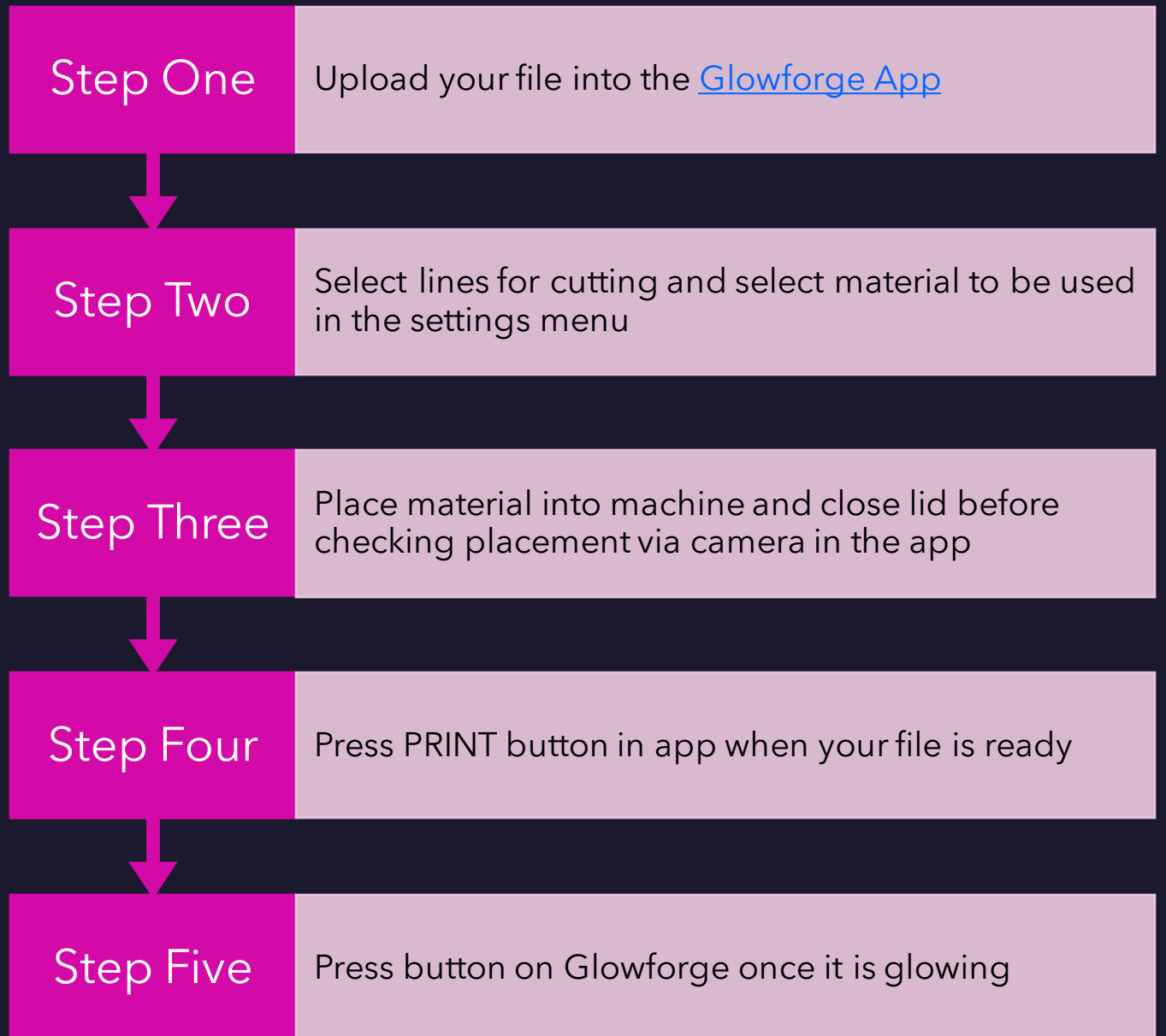
VECTOR=CUT    RASTER=ENGRAVE

Don't forget the *Air-Assist* to help suppress fires

**Look around the room at the information being provided!**



# Getting started with the Glowforge Pro



# These things will help, please use them



- Book online [HERE](#)
- Glowforge [Help Page](#)
- Epilog Zing [Video](#)
- [Epilog Zing 24 Manual](#)
- [Safety Orientation](#) for Fab Lab
  - Remember? We talk about those forbidden materials!

# Important Takeaways

- Lasers are serious business, please do not use them if you do not feel safe
- Safety is priority and proper use of equipment is a close second
- Be cool and don't lose your Fab Lab privileges
- Use the guides we've made for you; they are all over the Fab Lab
- When in doubt, please ASK! This is a library, and we like questions!
- Scrap materials are FREE while new materials are limited and cost \$\$







## Ready to start lasering?

Head to the front desk and request your laser badge.

## Need some more time to learn?

Sign up for another Learning Lab and/or the Maker Mingle to learn from peers!

More questions? Email [centerforinnovation@faylib.org](mailto:centerforinnovation@faylib.org)