**Introduction to Glowforge**

**What is a Glowforge**

A machine that cuts, scores and engraves materials such as wood, leather and acrylic using a CO2 laser. Using a camera in the lid of the machine, an image of the printable area (print bed) is transmitted wirelessly to the Glowforge Software. The software, which uses .svg files (scalable vector graphics) allows the user to choose how to “print” on a chosen material.

**The Glowforge Software**

The Glowforge software offers some tools to help create designs that are printable. These tools are very basic and include text, borders, shapes and straight lines. Glowforge also offers the ability to scan a drawing through the camera focused on the bed and import it into the design space of the software for “printing.”

The software also offers some editing capabilities to designs that have been imported such as grouping and resizing. The Glowforge software is only available to Glowforge owners and isn’t available to the public for download.

**Creating .SVG Files**

.SVG files are created using a graphic design tool like Adobe Illustrator. Graphic design tools are capable of taking images and texts and saving them as mathematical formulas based on points and lines on a grid. This allows the Glowforge to cut, engrave or score different parts of an image based on this file type. Here are some graphic design tools that can create, save or convert files to .SVGs and are free to use:

* Adobe Express (free) (https://www.adobe.com/express/)
* Inkscape (free) (https://inkscape.org/)

**Finding .SVG Files**

There are plenty of places to find already created .SVG files. The library subscribes to the Glowforge Premium app, which comes with access to projects and images that are created and ready to print. Patrons are free to make an appointment to check-out the kinds of projects available through our Premium subscription.

**Materials**

The library provides practice materials for users including plywood and clear acrylic for learning. Makers are allowed to use materials but should not consider these as the primary source for projects. The library encourages the use of Proofgrade materials, which are guaranteed to work well with the machine. These materials can be easily bought online or in local stores. Non-Proofgrade materials brought by makers should be laser safe. Maker Room staff **must** approve all materials before being used on the machine. **The library reserves the right to refuse materials we are uncertain of or deem to be unsafe.**

* Maximum thickness for cutting is ½ inch
* Maximum thickness for engraving or scoring is 2 inches with the bed removed
* Bed size is 11 (height) x 19.5 (width) inches

## **Typically Accepted Materials**

|  |  |  |
| --- | --- | --- |
| **Material Type** | **Cuts** | **Engraves** |
| Acrylic (cast or non-toxic) | Yes | Yes |
| Canvas | Yes | Yes |
| Cardboard (with supervision) | Yes | Yes |
| Cork | Yes | Yes |
| EVA Foam Sheets | Yes | Yes |
| Fabric | Yes | Yes |
| Leather | Yes | Yes |
| Mylar | Yes | Yes |
| Paper | Yes | Yes |
| Sandpaper | Yes | Yes |
| Wood (plywood/hardwood) | Yes | Yes |
|  |  |  |
| Anodized Aluminum | No | Yes |
| Ceramic Tile | No | Yes |
| Devices (like a laptop) | No | Yes |
| Glass | No | Yes |
| Marble | No | Yes |
| Slate | No | Yes |
| Stone | No | Yes |

**Prohibited Materials: These materials are NEVER allowed in the Glowforge, as they may cause damage to the machine or endanger the users.**

|  |  |
| --- | --- |
| **Material Type** | **Danger** |
| PVC (Poly Vinyl Chloride) *most plastics in the US are made with PVC* | Emits chlorine gas |
| Vinyl | Emits chlorine gas |
| Pleather/Artificial Leather | Emits chlorine gas |
| Thick (>1mm) Polycarbonate/Lexan | Cuts very poorly, can discolor, catches fire |
| ABS | Melts/Emits Cyanide |
| HDPE/Milk Bottle Plastic | Catches fire and melts |
| PolyStyrene andPolypropylene Foams | Catches fire |
| Epoxy | Burn/Smoke |
| Fiberglass | Emits fumes |
| Coated Carbon Fiber | Emits noxious fumes |
| Polytetrafluoroethylene (PTFE)(trade name: Teflon®) |  |
| Rubber (latex-based) | Emits noxious fumes |
| Any Foodstuff | The laser is not food-safe, as it cuts other types of items |
| Materials with sticky glue backing | Coats and/or cracks the lens |