

DEPARTMENT OF ELECTRONIC AND ELECTRICAL ENGINEERING

EQUIPMENT SOP

Ensure you have a copy of the latest **Manufacturers Data Sheets** for the device/s,

Completed SOP should be kept locally in Red Safety Folder and made available to all persons working in the area.

SOP Title Laser cutting using the Glowforge PRO	Version 1
Creation Date 11/04/2026	Produced by Mr Andrew Moss
Review Date 11/04/2027	Approved By Mr Gerald McBrearty

Purpose

The purpose of this document is to outline the safe procedures for using a laser cutter to process plywood and acrylic sheets.

Scope

The procedure provides general instructions on how to use a laser cutter for cutting and engraving different materials.

Health and Safety precautions

Only laboratory technicians are to use the device.

The laser cutter operates using mains electrical power (240V), electric shock can occur if equipment is damaged or poorly maintained.

The laser beam does not emit outside to the devices enclosure, and an interlock is used on the access cover.

The laser cutter is treated as a class 1 device as the laser is contained and does not radiate out of the device.

A scope of work for using the laser cutter is required but dedicated laser safety risk assessment not required as below class 3.

The equipment is heavy requiring 2 people to carry/position. (see manual handling training).

Potential consequences of using the equipment. Electric shock. Cuts to fingers from materials, toxic fumes.

Materials

Desktop PC

Glowforge Laser Cutter (PRO)

Bofa Fume extraction unit ()

Material. (1.5mm, 3mm, 6mm Acrylic, laser cut safe plywood, other Glowforge certified material).

Standard Operating Procedure

Before use ensure the area is clean, tidy and clear of anything not required or other equipment/work.

Visual checks must be made of the equipment for damage and has an approved/passed PAT label. (Report if damage found).

Make sure equipment is sited in a secure position and fume extraction attached.

Open the laser cutter and ensure the bed is free of waste, secure and flat.

Insert material, close the lid and power on the device.

Log on to a UCL networked PC and navigate to the online GlowForge application in web browser.

Upload the artwork and prep the design by selecting the material type, thickness and what to cut/engrave.

Send the job to the laser cutter.

Double check the laser cutter is still safe to operate and turn on fume extracting.

Press the lit button to begin process job.

Once complete and the laser cutter returns to home. Leave the lid closed with extract running to remove and residual vapours/fumes (approximately 2 minutes) .

Open the lid remove processed job.

Turn off the laser cutter, turn off fume extract, tidy and remove any waste material.

Other procedures that need consideration

Some materials can have rough/sharp edges which could cause small cuts to fingers.

Vigilance must be high, do not leave machine unmonitored when in use.

Some materials can combust or produce harmful vapours when cutting. Only use certified laser cut materials.

Do not open the enclosure when machine is operating.

Any equipment failure or suspected failure to be reported/logged.

Injuries caused to be logged and investigated.

Fume extraction must be connected and fully operating.

Responsibilities

Technicians

Technician only operation

Visually inspecting area and equipment.

Supplying information and guidance as required.

PAT Testing and maintaining equipment.

Keeping area tidy.

Replacing faulty parts.

Acting upon reported issues.

Documents and References

Documents

- Glowforge laser cutter (PRO version), see data sheet in safety folder
- Glowforge Scope of work, see safety folder laser section.
- PAT test information. See safety folder.

References\Links

[New laser cutting guidance released | Safety Services - UCL – University College London](#)