Workshop Facilities at Bailes+Light

Our workshop facilities are mostly used for our commissioned work, but we also offer a custom fabrication service whereby our clients can send us a sketch or CAD file and we will fabricate that item on one of our CNC machines for delivery or collection. We also offer workshop space, technician time, and access to our tools for individual artists and makers, and creative teams who need assistance with fabrication projects. Our speciality is in lighting, electronics, and interactive technology.

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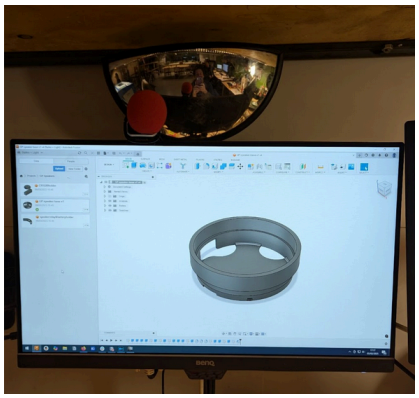
3D Modelling



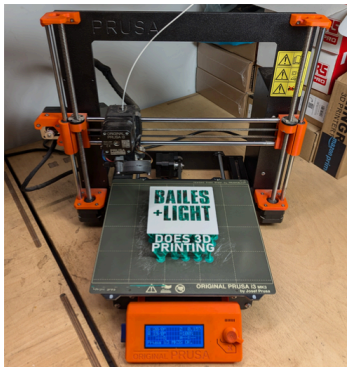
We use Fusion 360 for 3D modelling. We specialise in components but can also model for a range of other briefs to a high degree of detail and accuracy.

We can work from a sketch (hand drawn or digital) and transform it into a 3D model complete with technical drawings, ready for manufacture on our CNC router, laser cutter, or 3D printer.

A digital sculpting service is also available.

Generated files types	.stl, .dxf, .gcode, .nc

3D Printer



We run a Prusa Original i3 MK3S FDM 3D printer with a 0.4mm nozzle as standard. 0.25mm & 0.6mm nozzles are also available.

We import the 3D design file (file types listed below) into the slicer which cuts the model into thin horizontal layers, each layer is built upon the last. For this reason, it is important to be careful with overhangs, since they will have nothing to print on top of. Support structures can be built under overhangs, but they are slow to print.

Primarily we use black PLA filament in our machine, but we have a selection of colours available. We can source different filament if you have specific requirements for colour and material. The absolute maximum print dimensions are W250mm x D210mm x H210mm.

Compatible Materials	PLA, PETG, ABS
File Types	.stl, .step, .stp (we do not print SketchUp files)
Bed Size	250mm x 210mm
Maximum Build Volume	250 x 210 x 210 mm | 9.84 x 8.3 x 8.3 in

Laser Cutter

We have a 50W CO2 laser cutter capable of cutting thin material (<6mm) with a high degree of accuracy and only 0.5mm of kurf.

The machine can also etch the surface of a material. Etching is often a longer process than cutting so this will affect the price.

It cuts acrylic especially well, leaving class clear edges when cutting transparent acrylic. It also cuts plywood well but does leave a burnt-cut edge. Other compatible materials are outlined below.

Lots of materials are NOT compatible, normally because they melt, catch fire or give off toxic fumes. These materials are also listed below.

Compatible Materials: Cut	Acrylic, plywood, MDF, paper/card, cork, cloth/felt, leather, thin Delrin, thin PTFE, thin polycarbonate
Compatible Materials: Etch	All of the above, flat glass, ceramic tile, anodized aluminium, panted/coated metal
DO NOT CUT	PVC, ABS, HDPE, polystyrene foam, polypropylene foam, fibreglass
File types	Cut: .dxf, most vector graphics types etch: .bmp, .jpg, most raster graphics types.
Bed Size	300mm x 500mm
Max thickness of materials	6mm

CNC Router

We have a Onefinity Elite CNC router. It has a 48” x 48” inch bed and a 18000RPM water-cooled spindle. It can cut sheet material up to 25mm thick.

We mostly cut soft material - wood based or engineering plastics - but cutting aluminium and other soft metals is also possible.

You will need to provide us with a 3D model or vector graphic of the component you require, and we will generate the gcode for the machine from that file.

We use a 1/4” compression bit as standard - this means there will be a 1/8” radius on the inside edge of any corners. We can do a finishing pass using a 1/8” endmill, which will reduce this radius and improve the surface finish. We can also cut ‘dogbone’ undercuts to allow square material to mate into inside radius’

Compatible Materials	Timber, plywood, MDF, acrylic, Delrin & other engineering plastics,
File types	.stl, .step, .stp, .dxf, .svg
Bed Size	48" x48” (1220mm x 1220mm)
Max thickness of material	25mm

Workshop and Technician Services

In addition to our CNC machines, we have a fully equipped workshop with skilled technicians on hand to work on fabrication projects, particularly those involving electronics and woodwork.

We can offer advice, skills, and use of our space for individual artists and makers or creative teams with a fabrication project. Read more about our facilities below:

Woodworking machines	Band saw, rail saw, mitre saw
Mixed material machines	Pillar drill, angle grinders, drills and impact drivers, belt sander, jig-saws
Other power tools	Heat guns, hot glue guns, mig welder
Other hand tools	Extensive range of hand tools
Electronics	Multi-meters, PAT tester, soldering irons, reflow oven, hot-air rework station, various crimpers & ferrule tools

How to get in touch for CNC and Workshop Services

If you would like a quote for CNC or workshop services, please email us at workshop@bailesandlight.com with the information below:

For CNC Projects (3D Modelling, 3D Printing, Laser Cutting, CNC Routing):

- **Name, contact number, billing address (and shipping address if different).**
- **Description of item(s) to be printed or cut, including quantities**. If printing multiples of the same design, we recommend you order a single prototype first, and then order a larger production run once you've confirmed everything is as you expect.
- **Which tool you need for your project**. If you aren't sure what machine is best for your project, or need help finalising designs, we can advise you for no extra charge. For an additional fee we offer a complete design service.
- **Sketch of item(s) with dimensions.** A photo or PDF of a drawing is fine, as long as it has dimensions. You can also send us a CAD file (.dxf, .svg), but we will draw one up for you in the next round anyway.
- **Desired material,** including thickness, etc
- **Timeframe** for when you need the project completed by.

After receiving your email, we will send you a quote and payment instructions and request any missing details.

Once you approve the quote, we will draw up your sketch in Fusion360, our preferred CAD software, and send the drawing with dimensions back to you for approval.

Once approved, we will print or cut your project.

For Workshop Services:

- **Name, contact number, billing address (and shipping address if different)**
- **Description of project**
- **Which tools you need (if known). Read about our workshop tools here.**
- **What materials you will be working with.**
- **Description of technical or design assistance you need.**
- **An idea of timeframes.**

We will get back to you with a quote and some suggested dates for you to come in to work on your project.