

Laser Cutting / Engraving

Laser cutters read 2D vector drawing files in **RGB format** where 3 colours are used for Cutting, Etching and Engraving. Line thickness should all be 0.003pt for cuts and etches, black can be any line weight or solid colour fill. Files should be exported at the scale to be cut (1:200, 1:500 etc) and in landscape **Illustrator (.AI) format**. Laser cutting is charged at \$5.50 per 10 minutes.

- Cutting: Red (255,0,0). When cutting the material, ensure that there is at least a minimum distance between cuts the same as the thickness of the material. For example when cutting 3mm MDF, ensure that no two lines are within 3mm of each other, 1mm card has lines 1mm apart etc. This will provide the cleanest cut with little chance of charred edges.
- Etching: Blue (0,0,255). Etches can be as close together as you want however be aware that etching every detail as possible such as etching of individual bricks in a wall can take a very long time.
- Engraving: Black (0,0,0). Engraving creates solid sections etched out in order to separate outlines from solid areas. Engraving should only be used for small areas such as graphic scales.

When preparing files for export, **ensure there are no double lines**, especially on cuts. You can use the 'overkill' function in AutoCAD to remove double lines but sometimes lines must still be removed manually.

The universities laser cutters have a maximum cutting bed area of 1200x600mm. Depending on what material you wish to cut, you must ensure your cuts all fit within an artboard of the same size as the material that has been cut to fit inside the machine.

Files should have the following naming convention: aXXXXXXX (Name here) [material type and thickness] (cut number). For example a9123456 (Student Name) 3mm MDF (1).

During busy periods it is highly recommended to ask a laser cutting assistant what the current queue is and whether you may need to take your materials to an outside business to get it cut before your due date. Other businesses have smaller laser cutting machines and you must have your artboards and materials of the right dimensions. Typically outside businesses do not have machines more than 700mm long so if you need cuts bigger than that, you may need to get in early. Outside businesses often work with .DXF format but the line weight and colour requirements are the same.

There are a number of outside suppliers of laser cutting services and their costs are noticeably higher than getting cuts done through the university so it is advised to **get your jobs in early** to avoid having to go outside. Feel free to shop around or negotiate prices with businesses and ensure that they ALWAYS provide a written quote before cutting your job. A few outside businesses that students have used in the past are listed below, there are more in Adelaide or even online services that will post cuts to your door if required.

3D Prototypes and Models	danielbrown88@gmail.com	0415 246 775	Ridgehaven
Computer Cut	sales@computercut.com.au	8244 6600	Wingfield
Engraving Services Co	engrave@engravingservices.com.au	8269 1364	Woodville Sth
Lasercut Solutions	gary@lasercutcolutions.com.au	8326 3700	Lonsdale
The Engraving Crew	frontdesk@engravingcrew.com.au	08 8165 0964	Glynde

MATERIALS

The laser cutter regularly cuts MDF, plywood, balsa wood, cast Acrylic, paper and card up to 6mm thick. Plastic sheets such as polypropylene can also be cut.

The university will **not cut** metals, stone, glass, marine plywood, PVC, polycarbonate, foam or foamcore boards and Suntuf acrylic. If you are unsure what material you have and it does not have a label, it will not be cut and is banned from the laser cutter workshop. Keep the receipt and try to get a refund from the supplier.

Materials **MUST** be flat and will not be cut if warped. Students can attempt to flatten them out using books to help. Plywood is especially bad at warping, try to buy the most flat sheet you can find if you have to use this material.

Wood can easily be bought at various sizes at hardware stores such as Bunnings who will often cut boards to size for free. Cast acrylic sheets can be purchased from a variety of sources including City Plastics, Menzel Plastics and even online. Paper and card can be bought from any newsagent. Eckersely's has a wide variety of cards and screenboards suitable for laser cutting.