

SECTION 3 : STANDARD PROCEDURE

SECTION 3.1 : LASER CUTTING STANDARD PROCEDURE

What is laser cutting?

Laser cutting is a process where a high powered laser travels along a computer generated pathway to cut, etch and score flat materials. A concentrated laser beam is directed onto the cutting material and a partial or total burning of the material occurs. The burnt material is then drawn away with compressed air leaving a sharp edge or score behind.

The MADA Digital Fabrication Workshop has a suite of 7 epilog laser cutters. These machines are free to use and are accessible to all MADA staff and students, once all appropriate training has been completed.

All information from here on is relevant for the successful completion of the Laser Cutting Quiz.

So, please ensure you read all sections of this guide.

You have now begun the online training that will enable you to achieve 100% score in the Laser Cutting Quiz

The table below shows each of the laser cutters currently available within the workshop and their capabilities with regard to dimensions and thickness. Please familiarise yourself with the table below. It will allow you to ascertain which machine is suited for the material that you have.

Please refer to this table as often as necessary.

LASER CUTTERS	Maximum Sheet Size		Maximum Thickness	
	800 mm x 500 mm	1000 mm x 700 mm	3 mm	6 mm
Laser 1	•		•	
Laser 2	•		•	
Laser 3		•	•	
Laser 4		•		•
Laser 5		•		•
Laser 6		•		•
Laser 7		•		•

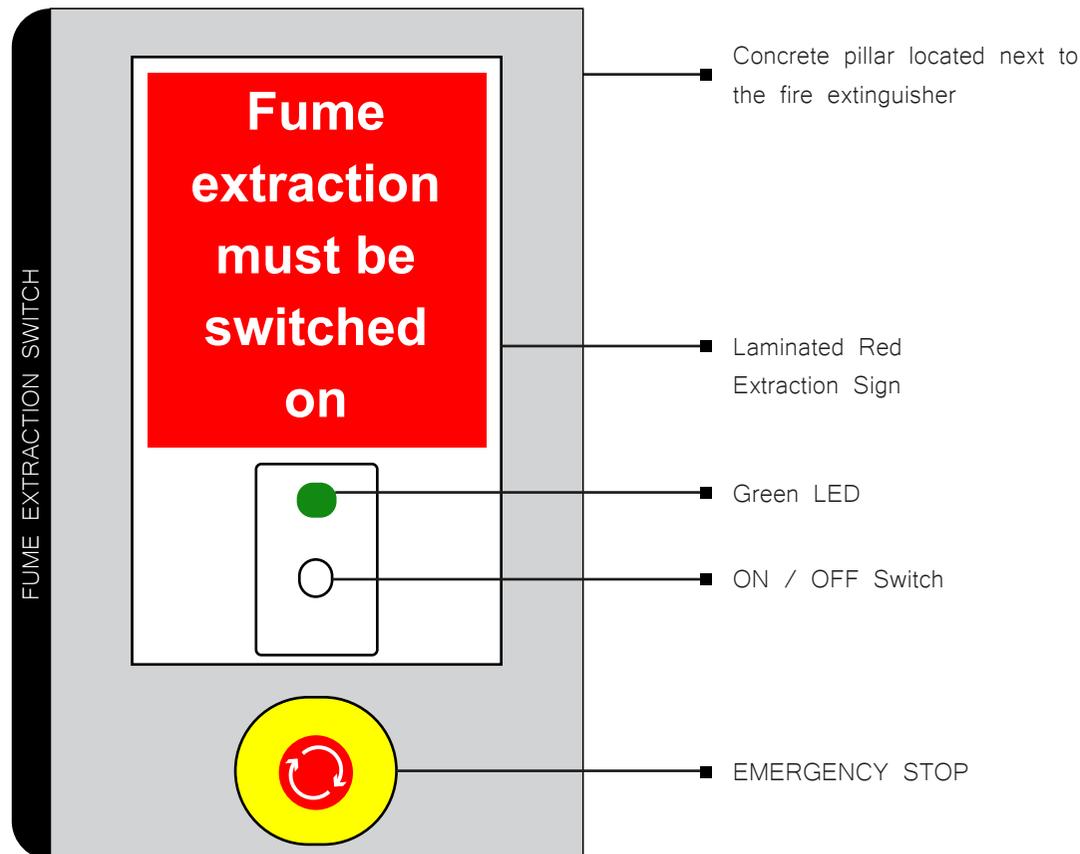
SECTION 3.1 CONTINUED

Smoke and fumes are generated as by-products during the cutting process. If these by-products are not removed by mechanical extraction, they can adversely affect the laser cutters, causing the optics (lens) to be burnt. To avoid damage to the optics, the fume extraction must be operating for the entire time that the laser machine is in use.

It is a common misconception that the extraction is always ON. For example, if you are the first person to enter the workshop in the morning, the extraction would be turned OFF when you come in, or if another student in the workshop had turned the extraction OFF etc. Hence, you must be mindful of the extraction at all times. The equipment will be seriously damaged if the extraction is OFF.

You are responsible for checking the extraction EACH TIME you are preparing to cut. A Green LED will indicate if the extraction is in operation.

Please ensure you identify the location of the extraction switch when you are in the workshop – look for this sign.



SECTION 3.1 CONTINUED

One of the most important rules to remember is that the machine must always be supervised while it is in operation.*

This is to ensure that in the event the machine exhibits any strange or erratic behaviour, you are there to pause or stop the machine and in the worst case scenario – initiate the emergency procedure.

There are other situations that will require you to act immediately and pause or stop the machine, for example, if there is (1) loose material that is getting caught or dragged in any part of the machine or (2) there is excessive smoke emitting from your material. It is impossible to predict when and what will go wrong during laser cutting and so you must be there to intervene if required.

Unsupervised machines that are operational will be paused by staff.

At your practical demonstration, you will receive further training on standard procedure, become familiar with the machine and correct material handling procedures.

* If you are observed to ignore this rule, staff members will caution you. If the conduct persists, your details (Full name and ID number) will be collected and stored by staff. If the negligent conduct persists, you may be suspended from the use of the machines.



YOU CANNOT UNDER ANY CIRCUMSTANCES

Leave the room while the machine is running

OR

Work somewhere you cannot physically 'see' your material being cut

OR

Sit at the workshop PC's and not
physically 'see' your material being cut