



Introduction

LASER cutting devices are very versatile tools that can be used to cut or drill wood, plastics, and metals. These devices are often very economical, efficient and can easily be automated. Due to these features, these devices have found their way to campus and before purchasing or using this type of equipment, there are some things to consider.

Laser Hazard Classification

Typically, LASER cutters are classified by the American National Standards Institute (ANSI) as Class 1 LASERs. Class 1 LASERs emit low levels of energy that are not hazardous to the eyes or skin. However, enclosed within these devices are often Class 3B or 4 LASERs, which are capable of emitting high levels of energy, and are hazardous to the eyes and skin. Only manufacturer-trained personnel should perform maintenance on the device.

- **DO NOT modify or disable any safety features of the laser system.**
- **DO NOT operate the laser unless all covers are in place and interlocks are working properly.**
- **DO NOT look directly into LASER beam.**

Laser Generated Air Contaminants (LGAC's)

While LASER cutters typically pose little hazard due to the Class 1 Enclosure, these devices can pose a hazard when the beam is used to cut or drill certain metals, plastics, and other materials. As the beam strikes these materials, there is potential to produce Laser-Generated Air Contaminants (LGAC). These contaminants may be gaseous or particulate and can, under certain conditions, pose health risks to those exposed to them. The contaminant generated will depend on the type of material that is being cut or drilled. Cutting or drilling of some materials can generate airborne benzene, toluene, hydrochloric acid, isocyanates and other by-products which may be hazardous.

Filtration and Ventilation Requirements

To control the LASER-generated air contaminants, filtration and/or exhaust systems must be used to reduce or eliminate personnel exposures. In addition to reducing or eliminating personnel exposures, proper removal of contaminants is essential to ensure a properly functioning LASER cutter, as well as producing a quality product. The choice of whether to use filtration or exhaust systems will be specified by the manufacturer and these specifications should be followed.

Fire Hazards

In addition to LGAC, LASER cutters also pose a fire hazard. LASER cutters use a high intensity beam of LASER light that produces extremely high temperatures as it comes into contact with the materials it is engraving, marking or cutting. To further increase risk, some of the materials engaged by the LASER cutter can leave flammable debris and can ignite inside the cutter. The following tips will help reduce fire hazards:

- **NEVER operate the system unattended. One operator must be present at ALL times.**
- **ALWAYS keep the area around cutter free of debris, clutter and flammable materials.**
- **ALWAYS keep a properly maintained fire extinguisher in the area.**
- **Keep the interior of the LASER cutter clean and free of debris. Visually inspect the interior between uses and clean tray if debris or residue are present.**



LASER Registration

LASER Cutters must be registered with EH&S. To register your LASER cutter, please contact EH&S.

Contact EHS:

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