HARVARD
Campus Services
ENVIRONMENTAL HEALTH & SAFETY

Laser Cutter Installation Guidelines

Minimum Requirements

1. Connect spark arrester in exhaust stream directly downstream of laser cutter.
2. Connect further downstream one of these following equipment options (listed in order of decreasing preference):
    a. A booster/inline fan to direct the exhaust to roof; or
    b. A filtration unit, which exhausts to a canopy hood (thimble connection) with about 10% more cfm than exhausted from the filtration unit.

    Rationale: Laser cutters typically require connection to exhaust fans that can draw ~ 500 cfm at ~ 6" w.c. static pressure (check manufacturer specifications for exact requirements). This prevents particles from settling within the cutter, which would degrade the cutter performance and that could potentially catch fire. The filtration unit consists of a fan that can handle the volumetric flow rate and static pressure requirements, pre-filter, HEPA filter and charcoal filter; however, the charcoal filter can become saturated and be bypassed fairly quickly, so the canopy hood is necessary.
3. Provide mechanism to turn on exhaust only to specific laser cutter in use.
4. If there are no visible or audible indications that the exhaust equipment selected above is off (e.g., if the equipment is in a noise-dampening enclosure), provide mechanism to prevent laser cutter from turning on if exhaust is off and provide alarm for loss of exhaust during laser cutter operation.

    Rationale: The user needs to be alerted to initiate a shutdown process to enable an adequate cooling down time, instead of automatically cutting off the laser cutter power.
5. Provide the following fire extinguishers:
    a. Class A or ABC; or
    b. CO_2 in the immediate vicinity and Class A or ABC nearby.

    Rationale: CO_2 extinguishing units would leave less residue on the laser cutter but may at times not displace enough oxygen to totally extinguish the flames. Class A or ABC extinguishers are more effective and hence should also be made available if CO_2 is used as the first line of defense.