

# Standard Operating Procedure

## Laser Cutter Safety



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<b>Hazard Controls</b>	<b>Hazards</b>	<b>Potential Hazards</b>	<ul style="list-style-type: none"> <li>• The invisible high energy laser beam can cause burns and serious eye damage, including blindness.</li> <li>• The laser beam can produce significant amounts of heat creating the potential for fire or flare-ups.</li> <li>• Laser cutting can produce toxic byproducts from the material being cut.</li> <li>• During setup, the moving laser head is exposed and travels at a high rate of speed. This can cause injury or the potential for loose clothing, hair, or jewelry to become entangled.</li> <li>• Sharp edges or burrs when handling fresh-cut pieces can cause injury to the hands.</li> <li>• Debris from attempting to “break-out” partially cut-thru material can cause injury to the eyes.</li> </ul>
	<b>Hazard Controls</b>	<b>Engineering Controls</b>	<ul style="list-style-type: none"> <li>• Laser cutters must be equipped with an exhaust or filtration system that meets manufacturer specifications.</li> <li>• Installation of exhaust ventilation, if used, must be coordinated through Facilities Management.</li> <li>• A change-out schedule for filters, if used, must be developed based on use or as specified by the manufacturer.</li> <li>• Site-specific engineering controls:</li> </ul>
		<b>Personal Protective Equipment</b>	<ul style="list-style-type: none"> <li>• Safety glasses, work gloves, closed-toe shoes.</li> <li>• Site-specific PPE:</li> </ul>
		<b>Training</b>	<ul style="list-style-type: none"> <li>• Understanding the use, limitations, and hazards of the laser cutter, use of PPE, emergency procedures.</li> <li>• Site-specific training:</li> </ul>

	<b>Work Practice Procedures</b>	<ul style="list-style-type: none"> <li>• Understand and follow manufacturer operating procedures.</li> <li>• NEVER operate the laser unless all covers are in place and in good condition. Damage to the enclosure could allow laser light to escape and cause serious eye injury.</li> <li>• NEVER attempt to bypass safety interlocks.</li> <li>• NEVER operate a cutter without a properly working exhaust or filtration system.</li> <li>• Do not look directly into the laser beam.</li> <li>• Ensure that the blower unit is turned on BEFORE beginning work.</li> <li>• Remove or tie-back loose-fitting clothing, jewelry, and hair before operating the cutter.</li> <li>• Remain with the laser cutter during operation to ensure that any fire or flare-ups are contained and extinguished. Keep a properly maintained fire extinguisher nearby.</li> <li>• Do not cut material that has not been approved by the cutter manufacturer. See EHRS Fact Sheet for listing of materials that should not be cut.</li> <li>• Do not use with materials that are highly flammable or explosive.</li> <li>• Allow materials to cool before removing from the cutting bed.</li> <li>• Allow the exhaust fan to operate for several minutes after completing the cut.</li> <li>• Clean up clutter and debris from the cutter after use.</li> <li>• Clean and maintain the cutter according to manufacturer specifications, paying attention to the exhaust port and duct.</li> <li>• Immediately report any malfunction or damage to the cutter to a supervisor or manager.</li> <li>• Site-specific procedures:</li> </ul>
<b>Other</b>	<b>Emergencies</b>	<b>In the event of an emergency such as a fire– evacuate the area and call Campus Safety at (215) 204-1234</b>
	<b>Questions</b>	<b>Contact Environmental Health and Radiation Safety (EHRS) at (215) 707-2520 Site-specific contact information:</b>