


<p>Carnegie Mellon University Environmental Health & Safety FIRE LAB WORK </p>	<p>Environmental Health and Safety Standard Operating Procedure Format for Class 3B and 4 Lasers</p>
<p>Date of Issuance:</p>	<p>Revision Date: 6/4/2021</p>
<p>Revision Number: 1</p>	<p>Prepared by: EHS</p>

1. Introduction

The American National Standards Institute (ANSI) Standard for Safe Use of Lasers requires that Standard Operating Procedures (SOPs) shall be written and approved for Class 3B and 4 lasers or laser systems. The SOP for Class 3B and 4 lasers or laser systems is usually a concise document that provides general safety guidelines for use and operation of the laser or laser system and is not intended to be a step-by-step instruction on using the laser or laser system. The following information should be provided in SOPs and the format used to may be adapted to meet individual needs.

2. System Description

This section should include information regarding the type of laser, intended application, wavelength, power, energy per pulse, pulse duration, and repetition rate of pulsed lasers, output beam diameter and beam divergence (if known).

3. Hazards

This section should list all hazards (both beam and non-beam hazards) associated with the laser. This includes eye and skin hazards from direct or scattered radiation, electrical hazards, laser generated air contaminants (LGACs), and any other recognized hazards.

Note: If the beam irradiance of the laser or laser system used exceeds 107 W/cm², LGACs such as metallic oxide fumes, gases and vapors and viable biological materials, may be generated by certain target materials.

4. Control Measures

This section should list and describe the control measures for the hazards listed in Section 2. This information should include:

- a. Laser protective eyewear type(s) and requirements for use
- b. A brief description of the laser controlled area and entryway controls.
- c. A reference to the manufacturer's equipment manual and its location in the lab.
- d. Procedures for Safe Alignment

5. Training Requirements

This section should list the specific training requirements for using Class 4 laser of laser systems. The training requirements include MANDATORY Laser Safety Training given by EHS as well as site-specific or laser-specific training provided by the Principal Investigator (PI).

6. Emergency Procedures

This section should list actions to be taken in the event of an emergency and should list the name AND telephone number for personnel to be contacted.

7. Approved Personnel

This section should list by name all individuals who are approved to operate Class 4 Lasers. It is recognized that this will be a dynamic list and as result this list should be updated whenever personnel leave or new personnel begin.

8. Revisions

Date	Documented Changes	Initials
6/4/2021	Updated Format and Accessibility Update	MAS