

TEMPLATE

CREATING A STANDARD OPERATING PROCEDURE (SOP) FOR LASERS



PREFACE

This document serves as a template and offers some guidelines to writing a standard operating procedure (SOP) for lasers.

All SOPs should be dated with either the date of original release or the date of the last review given.

HAZARDS

Provide a brief list of hazards encountered whilst operating the laser in this laboratory. Specific hazards should be discussed in detail elsewhere.

The following hazards are present when working with a Class 3B or Class 4 laser:

- Eye
- Skin
- Fire (Class 4 only)
- Electrical

List other hazards that may be encountered whilst working with the laser in the laboratory.

INTRODUCTION

The Introduction should state the make, model number and class of laser if known. A brief summary of the purpose of the laser should be stated here.

LABORATORY FLOOR PLAN

Include a drawing of the laboratory floor plan. On the drawing include things like:

- The entrance with location of warning sign.
- Where the laser eye protection (LEP) is kept.
- The orientation of the laser and optical table within the laboratory.
- The output beam direction of the laser.
- The location of the emergency stop button.
- The location of the fire extinguisher.

ENTERING THE NOMINAL HAZARD ZONE

Describe the entrance to the laboratory and any procedures required to gain entry to the laser controlled area (LCA).

EXITING THE NOMINAL HAZARD ZONE

List the steps to be taken in exiting the laboratory and procedures to be followed upon exiting the LCA.

PERSONAL PROTECTIVE EQUIPMENT

This section should state what the personal protective equipment (PPE) requirements are and preferably include photos of it. Typically, this would identify the LEP, its optical density requirements at the laser wavelength of interest.

CONTROLS

This section lists the controls necessary to operate the laser and is not meant to be a substitute for an operator's manual. Examples are:

- Whether or not the power cord has to be plugged into a dedicated electrical power circuit.
- The laser curtain must be closed in order to close an interlock switch.
- The chiller providing cooling water must be powered up and circulating cooling water first.

TURNING THE LASER ON

Describe the steps necessary to turn the laser on. This could be as simple as switching the power supply on/off switch but might include things like turning on the laboratory's laser warning sign, or turning on an exhaust fan.

TURNING THE LASER OFF

Describe the steps necessary to turn the laser off. These steps should include those to leave the laser in a safe condition.

OTHER PRECAUTIONS

Precautions such as out-of-plane beams, tight spots in the optical layout that require extra care when making adjustments to optical mounts, should be noted.

EMERGENCY PROCEDURES

List the procedures to be followed in the case of an emergency. Typically for campus-based laboratories this would be an instruction to call x5000 and follow the Caltech Emergency Response Guide. For off-campus laboratories, follow the local site procedures.

OTHER SUPPORTING DOCUMENTS

List supporting documentation or reference material such as the owner's or user's manual, any risk hazard analyses documents