

# Laser System and Personnel Registration

## Instructions:

All Principal investigators that have laser in their labs are required to register their system along personnel working with lasers.

Please list all Class 3B and Class 4 lasers even if they are in storage.

Contact information:		
PI Name:	Email:	Phone:
Lab Manager:	Email:	Phone
Department:	School:	Date:

## Laser System Registration

- Check if you are not registering lasers (Registering personnel is on next page)
- Check if another sheet is attached for more lasers
- Supporting document attached (manufacturer Manuals, documents explaining complex laser systems)

CONTROL	Laser 1	Laser 2	Laser 3
Location Bldg – room #			
Medium (Argon, Nd-YAG, CO2, etc.)			
Manuf.			
Serial#			
Class of laser (3B or 4)			
Wavelength (nm)			
Mode – CW/Pulsed /Q-switched			
Max Power of CW (W)			
Max Energy per pulse (J)			
Pulse Frequency (Hz)			
Pulse Duration (s)			
Beam Diameter (mm)			
Beam Divergence (mrad)			
Fiber optics (mm)			
Status (In-use/ Storage)			

## Authorized Laser Users

Check if you not registering personnel

Name (First name Last name)	10-digit USC ID	Laser training date

### 1.0 Definitions

**Nominal Hazard Zone (NHZ)** – The area where the laser radiation can cause damage to the eye or body, i.e. where laser radiation exceeds the maximum permissible exposure.

**Maximum Permissible Exposure (MPE)** – **The level of laser light to which a worker may be exposed with no risk of injury.**

**Laser Controlled Area (LCA)** – Designated as the controlled access area for the laser system. Laser radiation in this area must not exceed the MPE. The LCA must be only accessible and operated by authorized and trained personnel. It must also be labelled with appropriate warning signs.

### 2.0 Administrative Controls

Attach diagram of laser system illustrating the NHZ and LCA during normal operation (nonalignment) of the laser system.

Check if attached

### 3.0 Engineering Controls

#### 3.1 Beam Enclosure

Attach diagram of laser system illustrating beam enclosure. Include description of how beam paths will be enclosed.

Check if attached

#### 3.2 Entryway Safety Control

A Class 4 laser system is required to have one of three entryway safety controls:

1. A non-defeatable entryway interlock that shuts down the laser system in the event of unexpected entry into the LCA.
2. A defeatable entryway safety control that shuts down the laser system in the event of unexpected entry into the LCA.
3. Procedural entryway safety controls:
  - a. All personnel with access to the area during laser use shall be trained and provided with adequate personal protective equipment upon entry.
  - b. A door, blocking screen, curtains, etc. shall ensure laser radiation does not exceed the MPE at entry and outside the NHZ.
  - c. At the entrance to the LCA, an activated laser warning system must indicate that the laser is operational.

Select the entryway safety control that will be used for laser systems:  1  2  3  N/A

**4.0 Personal Protective Equipment (PPE)** Select all that apply

Gloves	✓	Glasses/Goggles	✓	Optical Filter (wavelength)	✓	Body	✓	Other	✓
Nitrile	<input type="checkbox"/>	Splash	<input type="checkbox"/>			Lab Coat, cotton	<input type="checkbox"/>		<input type="checkbox"/>
Neoprene	<input type="checkbox"/>	Safety	<input type="checkbox"/>			Lab Coat, Nomex	<input type="checkbox"/>		
Butyl	<input type="checkbox"/>	Face Shield <sup>1</sup>	<input type="checkbox"/>			Lab Coat, FR <sup>2</sup>	<input type="checkbox"/>		
Leather	<input type="checkbox"/>					Apron, FR <sup>2</sup>	<input type="checkbox"/>		

**5.0 Standard Operating Procedure**

Summarize startup and shutdown procedures below. Include instruction/information on: (a) Lock Out/Tag Out e.g., when laser system is being repaired, modified, or on standby; (b) visual and audible alarms during operation; (c) interlocks employed; and (d) beam alignment. Attach supporting documents (e.g., manufacturer startup and alignment instructions) as needed.

All class 3B and class 4 user are required to submit SOP from along with this application. Please see Laser Standard Operating Procedure form.

Check if SOP is attached

If your lab is involved in beam alignment procedure. Please submit Laser Beam alignment procedure.

Check if Beam alignment procedure is attached

**6.0 Acknowledgment**

I acknowledge that laboratories under my authority will comply with the requirements of the USC Laser Safety Program. Each person that will operate or participate in the operation of any laser system will receive Laser Safety Training before working with lasers or accessing controlled areas. Furthermore, the Laser Safety Committee and Laser Safety Officer will be notified of modifications to any laser system under this permit since these may impact laser safety; a site review may be necessary.

Principal Investigator

Signature

<sup>1</sup> Face shield must be worn with safety glasses or splash goggles.

<sup>2</sup> Flame Resistant.