**Laser System Standard Operating Procedures**



All Principal Investigators are **required** to write standard operating procedures (SOP) for all laser operations involving Class 3b and Class 4 lasers detailing operation, and maintenance procedures, alignment, and hazards for each laser. The SOP should be available to all laser users in the laboratory.

**INSTRUCTIONS**

**Complete the SOP by first saving the file to your computer. Then fill in the highlighted sections. The sections will expand with typing.**

**After completing the SOP, email to Wendy Barrows at** **wbarrows@wayne.edu****.**

**Laser Standard Operating Procedures**

**Date Created**:

# **Principal Investigator (PI) Information**

| **PI Name**:  | **Department**:  |
| --- | --- |
| **Phone**:  | **Email**:  |
| **Emergency Contact**:  | **WSU Police (313) 577-2222** |

# **Laser Details**

| **Room Number** |  | **Building** |  |
| --- | --- | --- | --- |
| **Laser Class** |  | **Type** |  |
| **Manufacturer** |  | **Model** |  |
| **Wavelength** |  | **Maximum Output (Watts/Joules)** |  |
| **Open or Closed Beam** |  |  |  |

# **Operations of the Laser**

1. **Assure door remains closed and locked from the outside when laser is in use.**
2. **Turn on Warning Light outside entry door before laser is turned on.** (Required for Class 3b and 4 open beam lasers)
3. **Laser Eyewear and PPE: Must be kept at entry point to the laser room.**
4. **Read the SOP, take WSU Citi Laser Training, laser specific training in the lab and, sign this SOP.**

# **Laser Operations**

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| **Include specifics regarding eyewear OD and number of pairs available.** |
| Eyewear Optical Density (OD):  |
| Pairs Available:  |
| **List the start-up procedure for the laser that will be used.** |
|  |
| **List the experimental procedure (specific to the laser use).** |
|  |
| **List the shutdown procedure (specific to the laboratory laser). Include information on closing the shutter, turning the power supply off and turning the water off.** |
|  |

Assure “Laser In Use” sign is no longer activated when laser key has been removed and laser is off.

# **Non-Beam Hazards**

**(If not applicable make note in the section.)**

|  |
| --- |
| **Fume Hood Location:**  |
| **Location of Safety Data Sheets (SDS):**  |
| **What PPE is needed to handle chemicals?**  |
| **Where are flammable solvents used and stored?**  |
| **Where is the gas cabinet?**  |
| **What compressed gases are used with this laser?**  |
| **What are non-beam hazards and how are they addressed?**  |
| **List any hazards that are relevant and the method to address it.**  |

Notice: Only properly trained personnel shall work on high voltage systems (Electricians should be trained in CPR as a safety precaution). The “buddy” system should always be used when working on electrical systems.

Note the placement of fire extinguishers and assure the laboratory staff knows how to use extinguishers and the fire alarm system.

# **Beam Alignments**

**(If not applicable make note in the section.)**

Prepare and locate all equipment that is needed to perform the alignment. A list of the equipment that will be used is listed below.

|  |  |
| --- | --- |
| **When aligning is the beam visible or invisible?** |  |
| **Is special equipment needed to view the beam?** |  |

Note: Use a low power alignment laser or the lowest beam power with appropriate laser protective eyewear.

|  |  |
| --- | --- |
| **List beam power or the type or low power alignment laser that will be used.** |  |
| **List personal protective equipment (PPE) to be used during alignment. (Eyewear OD)** |  |

Use the buddy system when performing alignments or let someone else know your location and check in with this individual on a regular basis.

Assure the optical table remains clear of obstructions during alignments.

Always close beam shutter when adjusting optics or entering the beam path. Make sure all optics are secured to the table prior to opening the shutter.

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| **List Specific Steps To Be Taken During the Alignment of the Laser** |
|  |

Assure lab is secured and mark the door with the following sign:

“NOTICE – Laser Alignment in Progress – DO NOT ENTER – EYE PROTECTION REQUIRED”

Ensure all beam blocks, enclosures, and beam barriers are in place when the alignment is complete.

When alignment is complete, remove the “NOTICE – Laser Alignment in Progress – DO NOT ENTER – EYE PROTECTION REQUIRED” sign from the room entrance and assure the appropriate ANSI laser warning sign is in place and correct.

# **Operator Review**

**I have read and understood this procedure and its contents and agree to follow this procedure each time I use the laser or laser system. I have taken the basic WSU Laser Safety Training on CITI and have been given instructions on how to use this laser.**

| **Name (print)** | **Signature** | **Date** |
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