



Laser Safety Guidelines

Requirements:

1. Registration: Ensure all Class 3B and 4 lasers and laser systems are registered with EHS.
 - a. [Laser Registration Form](#)
 - b. Email the completed form to ehs.compliance@ucdenver.edu
2. Training: Completion of the appropriate training materials for the individual users of the specific laser(s) and/or laser system(s).
 - a. Laser Safety Skillssoft Training
 - b. [UCD Access](#) → Training → Start Skillssoft → CU Denver/Anschutz → EHS → Laser Safety
3. Signage: Ensure proper laser signs are posted.
4. PPE: Protective eyewear is required for Class 3 and 4 laser use where irradiation of the eye is possible. Check the laser manufacturer resources for recommended eyewear. Protective eyewear devices shall meet the following requirements:
 - i. Provide a comfortable fit all around the area of the eye.
 - ii. Provide adequate visibility (luminous transmission).
 - iii. Be in proper condition to ensure the optical filters and holder provide the required optical density (OD) or greater at the desired wavelengths, and retain all protective properties during its use. Refer to Table 1 (below) for OD requirements.
 - iv. All protective eyewear must be clearly labeled with the OD and wavelength for which the protection is afforded.

Table 1. Optical Density Required for Protective Eyewear Based on Laser Intensity

| Intensity, CW maximum power density (watts/cm ²) | Attenuation (optical density) | Attenuation factor |
|--|-------------------------------|--------------------|
| 0.001 | 5 | 10 ⁵ |
| 0.1 | 6 | 10 ⁶ |
| 1 | 7 | 10 ⁷ |
| 10 | 8 | 10 ⁸ |

Recommendations:

1. Hazard Assessment: Review laser hazards with EHS, including operating and emergency procedures for all Class 3B and 4 lasers and/or laser systems.
2. Laser Specific On-The-Job Training: In addition to the On-the-Job Training form that is required for all lab members, ensure that all new hires receive orientation and training specific to laser safety.