



SAFE LASER WORK PRACTICES

You are responsible for your safety and the safety of your coworkers. Following these SAFE LASER WORK PRACTICES are proven to prevent injuries.

- Use enclosures to eliminate laser hazards when possible. This includes protective housings, beam stops, perimeter guards, barriers, beam tubes, and fiber optic cables.
- Select proper laser eyewear (fit, purpose, wavelength and OD). Verify lenses are in good condition. Ensure all personnel are wearing appropriate laser eyewear.
- Control access to laser labs to authorized individuals. Use entry controls and connect laser safety interlocks to entry controls when possible.
- Isolate laser work areas from non-laser work areas.
- Isolate laser work areas from other laser work areas with variable beam characteristics.
- Post warning signs and SOPs, and place PPE in a protected location at the entrance to the laser area.
- Be knowledgeable of all safety controls and equipment features. Train employees on company laser policies, laser work area requirements, laser device operation, and laser SOPs.
- Use beam shutters and irises when possible.
- Remove or cover jewelry, watches, or other reflective objects near the beam path.
- Use laser rated tools, curtains, barriers and/or other equipment that is non-reflective and non-combustible.
- Cover windows with laser rated film or non-reflective coatings
- Remove any reflective materials or equipment with shiny surfaces.
- Do not wear loose clothing near the beam path.
- Communicate: Alert others prior to turning on laser, opening beam shutters or creating new beam paths.
- Secure laser devices, optics, beam enclosures, etc. to table. Practice good housekeeping!

- Exclude unnecessary personnel during alignment.
- For alignment - use minimum beam power/intensity or low power alignment lasers.
- Check for and block stray beams: when placing a new optical component in the beam, locate and block all stray reflections before proceeding to next step.
- Use beam blocks: in particular, if inserting or removing optics. Block the beam upstream until beam is needed. Place a block down-beam of optic path being aligned.
- Use indirect methods for viewing the beam such as fluorescent cards, remote viewing camera or infrared (IR) viewers.
- Keep primary and stray beams in horizontal plane below eye-level when possible. Use proper height seating to ensure this.
- Avoid dimming lights while operating lasers.
- Special caution is needed when using periscopes, beam splitting polarizers, and other optics that may generate out-of-plane beams. Secure appropriate beam blocks to contain possible stray beams.
- Keep flammable or combustible chemicals, gasses, and other materials away from beams. Ensure the work area is equipped with proper fire suppression and fire extinguishers.
- Use proper ventilation controls when laser generated air contaminants (fumes) are possible.
- Test your interlocks, alarms, etc. and ensure they are fail-safe.
- Perform zero-energy verification when disabling a laser hazard before laser eyewear is removed.
- Follow lock-out/tag-out procedures when servicing, maintaining, or repairing lasers, high power energy supplies, robotics or other moving machinery, etc. Only trained and company-authorized individuals should perform this work.
- Consider proper ergonomic principles when designing lab configuration.
- Include these important safety steps in SOPs.
- Report all laser injuries, incidents, and near misses to the LSO.
- Perform regular laser safety inspections of your laser work areas.
- Review your written laser safety program and audit laser operations at least annually.