

Quick Guide for Outdoor Laser Safety Based on ANSI Z136.6-2015

This Quick Guide provides essential safety information for using Class IV Nd:YAG lasers outdoors, particularly for applications like statue restoration. It summarizes key safety considerations from the ANSI Z136.6-2015 standard for safe use of lasers in outdoor environments.

1. Laser Safety Officer (LSO) Responsibilities

A Laser Safety Officer (LSO) must be designated to oversee the safe use of lasers. The LSO is responsible for performing hazard evaluations, ensuring appropriate control measures are in place, and monitoring compliance with safety protocols. Key duties include establishing hazard zones, ensuring training for operators, and approving standard operating procedures (SOPs).

Optional: To become a certified LSO, consider completing a recognized training program, such as the one offered by the Laser Institute of America (LIA). More information can be found at:

<https://www.lia.org/training/non-medical/classroom-courses/laser-safety-officer-training>

2. Hazard Classification and Evaluation

Class IV lasers, such as the Nd:YAG laser, are high-powered and present potential hazards to both skin and eyes. The LSO must conduct hazard evaluations to define the Nominal Hazard Zone (NHZ), ensuring that exposure outside this zone is below Maximum Permissible Exposure (MPE) levels. To assist with these calculations, consider using online laser safety analysis software, such as the EASY-HAZ™ Laser Hazard Analysis Software available from Kentek at <https://www.kenteklaserstore.com/online-web-edition-easy-haz-laser-hazard-analysis-software>

3. Control Measures

The following control measures should be implemented:

- Establish a controlled area: Ensure that only authorized personnel are present within the laser operating area.
- Use signage: Place appropriate warning signs near the laser operation area to alert personnel and bystanders. These can be purchased from recognized suppliers such as Kentek (<https://www.kenteklaserstore.com/products/laser-control-measures/laser-safety-signs>), which offers ANSI-compliant laser safety signs, or from the Laser Institute of America (LIA).
- Implement remote operation where feasible to reduce human exposure.
- Equip personnel with protective eyewear suitable for Nd:YAG laser wavelength.

4. Visual Interference Control

Class IV lasers can cause visual interference, especially at night. Operators should avoid directing beams towards areas where they could interfere with drivers, pilots, or other individuals performing critical tasks. Ensure laser beam paths are directed away from navigable airspace and coordinate with local authorities if necessary.

5. Emergency Procedures

In the event of an emergency or accidental exposure, establish a protocol for immediate shutdown of the laser. All personnel should be familiar with the emergency procedures, including first aid for potential eye and skin exposures.

Contact Information

For more information on outdoor laser safety, consult the ANSI Z136.6-2015 standard or contact the Laser Institute of America (LIA) for additional resources and guidance on compliance.