



COMPREHENSIVE LASER SAFETY AUDIT CHECKLIST ANZI Z136.3 AND OTHER INTERNATIONAL STANDARDS

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Laser Safety Audit Checklist

1. Administrative Controls and Laser Safety Program:

- Has a comprehensive laser safety program been established and documented in accordance with ANSI Z136.3?
- Are responsibilities for laser safety clearly defined, including designated Laser Safety Officers (LSOs) and Laser Safety Committees (LSCs)?
- Is there a written laser safety policy that outlines procedures for safe laser use, maintenance, and disposal?
- Are laser safety procedures readily accessible to all personnel involved in laser activities?
- Have laser safety training requirements been defined and implemented for all personnel working with or around lasers?

2. Laser Classification and Hazard Evaluation:

- Have all lasers been classified according to ANSI Z136.1 and relevant international standards?
- Are laser classification labels prominently displayed on each laser system?
- Have accessible emission limits (AELs) been determined for each laser based on its classification?
- Have hazard evaluations been conducted to assess compliance with AELs and determine maximum permissible exposure (MPE) levels?

3. Engineering Controls and Safety Measures:

- Are engineering controls, such as enclosures, interlocks, and beam path control measures, in place to minimize laser hazards?
- Is the alignment of laser beams such that they do not intersect occupied spaces or pose hazards to personnel?
- Are laser warning signs and barriers installed in areas where laser hazards exist?
- Are emergency stop mechanisms readily accessible and clearly labeled on laser equipment?

4. Personal Protective Equipment (PPE) and Administrative Controls:

- Are appropriate PPE, such as laser safety glasses, goggles, or face shields, provided and used by personnel working with or near lasers?

- Are administrative controls, such as restricted access areas and controlled work procedures, implemented to minimize laser exposure risks?
- Is there a procedure for obtaining and using Class 4 lasers, including obtaining proper authorization and implementing additional safety measures?

5. Laser Safety Training and Education:

- Have all personnel received adequate training on laser safety procedures, hazards, and emergency response protocols?
- Is laser safety training provided to new employees and periodically refreshed for existing personnel?
- Are records of laser safety training documented and maintained for each employee?

6. Hazard Assessment and Incident Reporting:

- Is there a procedure for conducting regular hazard assessments to identify new or changing laser hazards?
- Are incidents involving laser exposures or near-misses promptly reported and investigated?
- Are corrective actions implemented to address identified hazards and prevent recurrence?

7. Maintenance and Inspection of Laser Systems:

- Are scheduled maintenance procedures established and followed for all laser systems?
- Is there a documented inspection checklist for routine inspection of laser equipment?
- Are records of maintenance activities and inspections maintained for each laser system?

8. Compliance with Regulatory Requirements:

- Are laser safety practices and procedures in compliance with ANSI Z136.3 and other relevant international standards?
- Are there procedures in place to ensure compliance with Occupational Safety and Health Administration (OSHA) regulations and FDA requirements for laser products?
- Are laser safety programs periodically reviewed and updated to reflect changes in standards and regulations?

9. Documentation and Record-Keeping:

- Are records of laser classifications, hazard evaluations, safety training, incidents, and maintenance activities maintained in an organized manner?
- Are records retained for the required duration as per regulatory requirements and organizational policies?

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10. Emergency Preparedness and Response:

- Is there a written emergency response plan for laser-related incidents, including procedures for evacuation, medical assistance, and containment of hazards?
- Are personnel trained in emergency response procedures, including the proper use of emergency equipment and communication protocols?

Conclusion:

By conducting regular audits using this checklist, organizations can ensure compliance with ANSI Z136.3 and other international laser safety standards, mitigate laser hazards, and promote a culture of safety among personnel working with or around lasers.

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OSHA REQUIREMENTS:

The Occupational Safety and Health Administration (OSHA) provides regulations and guidelines regarding the safe use of lasers in the workplace. The primary regulation pertaining to lasers is found in OSHA's General Industry Standards under 29 CFR 1910. Laser-related requirements are primarily addressed in OSHA's standard 1910. Laser radiation (non-ionizing radiation) is covered under Subpart Z of the OSHA standards, which deals with toxic and hazardous substances. Here are some key points regarding OSHA's requirements for the workplace use of lasers:

- 1. Hazard Assessment:** Employers are required to conduct a hazard assessment to determine potential exposure to laser radiation in the workplace. This assessment should include an evaluation of the types of lasers present, their power levels, the potential for exposure, and any control measures in place to mitigate hazards.
- 2. Engineering Controls:** OSHA requires the implementation of engineering controls to minimize employee exposure to laser radiation. This includes the use of barriers, enclosures, interlocks, and other engineering measures to prevent or limit exposure to hazardous laser beams.
- 3. Administrative Controls:** In addition to engineering controls, employers must implement administrative controls to ensure safe laser use. This may involve establishing standard operating procedures (SOPs), providing training to employees, and enforcing access restrictions to laser areas.
- 4. Personal Protective Equipment (PPE):** OSHA mandates the use of appropriate personal protective equipment (PPE) when engineering and administrative controls alone are not sufficient to protect employees from laser hazards. This may include laser safety glasses, goggles, or face shields designed to protect against specific wavelengths of laser radiation.
- 5. Training and Education:** Employers are required to provide training to employees who work with or around lasers. Training should cover topics such as the hazards associated with laser radiation, safe work practices, the proper use of PPE, emergency procedures, and hazard communication.
- 6. Medical Surveillance:** OSHA may require medical surveillance for employees who are potentially exposed to laser radiation above specified exposure limits. This may involve baseline medical examinations, periodic health monitoring, and medical evaluations as needed.
- 7. Recordkeeping:** Employers must maintain records related to laser safety, including hazard assessments, training records, medical surveillance records (if applicable), and documentation of control measures implemented to protect employees from laser hazards.
- 8. Compliance with ANSI Z136 Standards:** While OSHA regulations provide general guidelines for laser safety in the workplace, compliance with consensus standards such as those published by the American National Standards Institute (ANSI), specifically ANSI Z136 series standards, is



often considered a best practice and may be referenced by OSHA inspectors during workplace inspections.

Employers should ensure that their laser safety programs and practices align with OSHA requirements to protect the health and safety of their employees. Additionally, consulting with laser safety experts and reviewing relevant OSHA guidance documents can help ensure compliance with applicable regulations.

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