

# LASER SAFETY MANUAL

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## LASER SAFETY

### LASER SAFETY OFFICER DUTIES

1. Keeper of the key or passcodes
2. Sets up standard operating procedures
3. Understands operational characteristics of the laser
4. Knows output limitations of the device
5. Supervises staff education and training
6. Ensures laser maintenance, beam alignment and calibration
7. Posts warning signs
8. Oversees personal protective gear
9. Supervises medical surveillance and incident reporting
10. Is familiar with the biological and other potential hazards of the laser
11. Knows all regulations such as OSHA and ANSI
12. Determines the potential hazard and non-hazard zone

### SAFETY PROCEDURES FOR NON-BEAM HAZARDS

1. Fire extinguishers must be easily accessible, and all personnel must be competent in their proper use
2. Never use alcohol near a laser in use. Fibers may be wiped with a gauze saturated with water.
3. Put laser system in standby mode when procedure is interrupted or paused.
4. Endotracheal tubes should have a wavelength-specific reflective coating to prevent the laser beam from burning a hole in the tube and combusting with the gases.
5. A revision of ANSI Z136.3 (2005) allows dentists to use nitrous oxide and oxygen as long as a closed-circuit delivery system is used and the scavenging system is connected to the high-speed evacuation system. (**An appropriate scavenger system exists**)
6. Patients personal oxygen tanks should be shut off and placed outside of the operatory.

### Laser Generated Airborne Contaminants (LGAC) or Laser Plume Management

1. Remove laser-generated airborne contaminants from the energy impact site to reduce the transmission of potentially hazardous particulates.
2. Use high-volume evacuation to manage the laser plume.
3. Check operation of the high-volume evacuation prior to the beginning of the procedure.
4. Use HVE even in cases producing minimal plume.
5. Stop procedure if failure of evacuation occurs before or during operation.
6. All tubing, connectors, adaptors, tips and wands will be changed per case, and disposed of according to biohazard procedures.

### Laser Incident Reporting Protocol- By LSO

1. Notify the manufacturer of the laser system and the applicable agency by telephone with 24 hours of any incident that has/may have caused:
  - \* 3rd degree burns of the skin involving more than 5% of body surface
  - \* Permanent loss of sight in either eye
2. Notify within 5 days of incident that has or may have caused
  - \* 3rd degree burn of the skin, or an eye injury with any potential loss of sight
  - \* 2nd degree burn of the skin larger than one inch in greatest diameter
3. File a written report with the manufacturer of the laser system & applicable agency of any known exposure of an individual to laser radiation or collateral radiation with 30 days of its discovery, describing:
  - \* any incident that triggered a notice requirement in 1 & 2 above
  - \* Each exposure of the person to laser or collateral radiation that exceeds the applicable Maximum Permissible Exposure (MPE)

These written reports need to describe extent of exposure to each individual and include, the cause of the exposure, estimate of the individual's exposure, level of laser or collateral radiation involved, and corrective steps taken or a plan to prevent a recurrence.

## LASER REGISTRATION FORM

Laser Safety Officer \_\_\_\_\_

Address \_\_\_\_\_ Phone # \_\_\_\_\_

Email \_\_\_\_\_ Zip Code \_\_\_\_\_

Location of laser (room & building) \_\_\_\_\_

Laser Safety Code \_\_\_\_\_

Manufacturer \_\_\_\_\_ Model \_\_\_\_\_

Laser Serial number \_\_\_\_\_ Class \_\_\_\_\_

Manufacturing Date \_\_\_\_\_

Status of unit: \_\_\_Operable \_\_\_Inoperable \_\_\_Stored

Date placed in service: \_\_\_\_\_

Laser type : \_\_\_\_\_

Wavelength(s) \_\_\_\_\_ nm

Maximum power (Watts) or energy (Joules) \_\_\_\_\_

Pulse Mode: Yes \_\_\_\_\_ No \_\_\_\_\_

Emerging beam divergence \_\_\_\_\_

Beam diameter \_\_\_\_\_

Notes: \_\_\_\_\_





# LASER SAFETY OFFICER TRAINING RECORD

(If applicable per state requirement)

**Name:**

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**Position:**

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List all laser or laser safety training course work you have completed. Note all the titles, dates completed, duration (hours of course) and locations. Include photocopies of certifications, if applicable. Suggested training should also include the Manufacturer's Guide and Operations Manuals, Safety Guide Literature, Computer-Based Instruction, and Laser Safety Orientation programs.

**Title of Training Program:**

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**Date Completed:**

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**Duration (Hours) of Training:**

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**Location of Training:**

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**Instructor or Institute:**

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**Additional Training Courses:**

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