

Job hazard awareness report

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A) Potential Hazards

Radiation: Laser. High power pulse lasers are used in the lab. Exposure to high power laser radiation, particularly the exposure to invisible IR and UV radiation is dangerous considering the potential damage to eyes and skin.

Electrical: High Voltage Enclosed. High voltage laser power sources and power supplies may be required.

Mechanical. The use of machine tools may be required.

Potential Falling Objects. Tall bookcases and free-hanging shelf units in the lab could potentially pose a hazard for falling objects should objects on a high shelf be disturbed.

Fire. Fires may break out due to radiation or other reasons.

B) Operating Procedures

B.1) Laser radiation.

Laser Safety Goggles. Goggles will be worn whenever the laser is in operation. If others are present in the lab they will be informed of the work being done and the potential hazards. All others in the lab will be required to wear the appropriate protective equipment.

Laser Safety Training. The university's laser safety training as well as on-site training by the supervisor was already completed by the researcher. The department's laser safety training will be completed as soon as it is offered (supposedly in September).

Laser Manuals. The manuals for the lasers in use will be studied in detail to become aware of potential hazards posed by the lasers.

“Laser in Use”-Light. The warning light will be turned on whenever the laser is operating to inform others of potential dangers before entering the lab.

Containment: Covers and Curtains. Efforts will be made to contain any laser radiation within the lab by black covers on doors and windows and black safety curtain pulled closed around the work area. The installation of an enclosure around the setup will be considered.

Containment: Beam Blocks for Unused Beams. Unused beams (e.g. beams at different wavelengths emitted from the Nd:YAG-laser) will be blocked by appropriate beam blocks and/or plugs. These beams may be invisible – blocks will be checked using the appropriate detection equipment for the blocked wavelengths.

Containment: Vertical Setup. Additional care regarding the containment will be given to all parts of the setup that are vertical and might thus allow laser radiation to be emitted in eye-height.

Containment: Beam Blocks behind Optics. Radiation can exit the optical elements in the setup at unexpected places (e.g. radiation transmitted through mirrors, beams reflected off surfaces in unexpected places).

Containment: Recurrent Inspection. Each time the laser is powered up, the containment of the beams around the whole setup will be checked with the appropriate devices for the wavelengths emitted.

B.2) High Voltage and High Current Devices.

Manuals. Manuals will be consulted before the setup and operation of any high voltage and high current devices.

Powering Off. Devices will be turned off and disconnected from power before changing any connections.

B.3) Mechanical.

Manuals and Precaution. Manuals will be consulted before the operation of any tools; the appropriate care will be given to using tools.

B.4) Potential Falling Objects.

Precaution. Care will be taken to avoid disturbing bookcases in such a way that might cause something to fall from a shelf. When placing objects on shelves care will be taken to ensure they are stable and not at risk to fall. When removing objects from shelves care will be taken to prevent knocking adjacent objects from the shelves.

B.5) Fire.

Precaution. Care will be taken to avoid fire hazards in the lab.

C) Emergency Procedures

For immediate assistance in the case of an accident or a fire, dial **905-525-9140 - 88** (the lab phone in ETB 431 is an external phone). After calling, the supervisor will be contacted as soon as possible. If there is a large fire, alert surrounding staff, pull the fire alarm, and evacuate the building in addition. Two fire extinguishers can be found on the 4th floor: one across room 431 and one in front of room 435 for class A – paper/wood/garbage.

For accidents involving lasers, block the laser beam or turn off laser first to reduce eliminate the possibility of causing further damage or harm to others. 88 should be called immediately, and the supervisor and EOHSS LSO designate should be contacted. An incident report should be filed with the department as soon as possible following any accident.