Laser Safety Training

LASER SAFETY PROGRAM

http://www.ryerson.ca/irm/programs_policies/index.html
Ryerson Health and Safety Policy

- Occupational Health and Safety Act of Ontario
- ANSI standard Z136.1
- ANSI standard Z136.5 for educational institutions

Ryerson has developed a LASER Safety Program to protect its employees, students and visitors from the hazards associated with the use of lasers.
RESPONSIBILITIES

Principal Investigator (PI)

Person in charge of a laser laboratory and/or principal authority for Class 3B or Class 4 laser and laser systems; usually an appointed Ryerson professor. He/she has the following responsibilities:

- Register all Class 3B and Class 4 lasers/laser systems before use
- Deregister decommissioned lasers
- Identify all Class 3B and Class 4 laser supervisors and workers under his/her authority to the LSO
- To correct unsafe conditions in a timely manner
PI Responsibilities (cont.):

- Ensure laser supervisors participate in Laser Safety Program training prior to operating or working in proximity to Class 3B or Class 4 lasers/laser systems

- Provide/enforce use of appropriate personal protective equipment

- Ensure that all laser workers and laser supervisors participate in the University's medical surveillance program
RESPONSIBILITIES

LASER Worker

The laser worker is one who operates or works in proximity to Class 3B or Class 4 laser/laser systems. He/she has the following responsibilities:

- Participate in University's Laser Safety Program training prior to operating or working in proximity to Class 3B or Class 4 laser/laser systems

- Operate Class 3B and 4 laser/laser systems safely, consistent with safe laser practices, requirements and written SOPs

- Wear the personal protective equipment

- Participate in the University’s medical surveillance program
RESPONSIBILITIES

LASER Worker (cont.)

- Report to laser supervisor/principal investigator any medical conditions that could cause increased risk for chronic exposure e.g. photosensitivity of skin, use of photosensitizing medications, and dermatological abnormalities of the skin.

- Promptly report known or suspected accidents and unsafe conditions to laser supervisor/principal investigator.

- As a laser worker you have the right to: know, participate in all aspects of work safety and to refuse unsafe work.
LASER REGISTRATION / PERMIT APPLICATION

- **Responsibility of the PI to provide the Radiation Protection Service with:**
  - name of PI
  - location (bldg, room)
  - department
  - type of LASER (CO2, Nd: YAG, He-Ne, etc.)
  - production class (commercial, modified, home-made)
  - LASER classification
  - proposed use (research, teaching, medical, etc.)
TRAINING

- Who participates in the training?
  - LASER supervisors, LASER workers

- Training Components

- Training follow-up
  - LASER training quiz review

- Awareness training for:
  - Joint Health & Safety Committee certified members
  - Support staff, police, fire fighters, housekeeping personnel, etc.

- Refresher training – every 3 years
CONTROLS and PPE

- Controls applicable to Ryerson laboratories
  - Engineering, administrative, procedural, and personal protective equipment (PPE)

- When engineering controls are not applicable (due to the nature of the experiments), establish alternate controls which will give equivalent or better protection

- Inside the NHZ laser protection eyewear and skin protection are mandatory
LSO is Responsible for

- maintaining, updating and implementing the laser safety program
- inspecting all Class 3B and Class 4
- ensuring compliance with Laser Safety Program
  - laser posting, labeling and room security measures
  - laser unit safety control measures
- laser safety training
- accident analysis
Lasers stand for Light Amplification by Stimulated Emission of Radiation. **Laser safety inspections** include:

- Safety control measures
- Other safety and security measures
- Non beam hazards
- Inspection Report
  - Provide a copy of Inspection Report to PI
  - Require correction of non-compliance
  - Continued non-compliance reported to PI, copy to Dean
  - Continued non-compliance reported to VP - AFMG
MEDICAL SURVEILLANCE

Pre-assignment medical assessment

- Purpose
  - To establish a baseline of ocular conditions before working with lasers at Ryerson
  - To detect early signs of any ocular damage and to initiate prompt treatment
  - To identify persons with skin photosensitivity

- Records maintained by IRM – not info about your health
MEDICAL SURVEILLANCE

Required before a laser worker begins work in an area involving open beam Class 3B or Class 4 lasers.

This assessment includes:

- Measures of visual function related to the different parts of the eye: cornea, iris, lens, vitreous humour, macula, retina, EOM (extra ocular muscles);
- Visual acuity (corrected: bring glasses!), visual fields, stereovision, fundoscopy;
- Colour vision (Ishihara colour vision test);
- Amsler Grid (to assess blind spots and distortions)
MEDICAL SURVEILLANCE

- Periodic medical assessments are not required by the University’s laser protection program, unless required as a result of medical status, ocular illness or injury.

- When a known or suspected accident is reported, the laser worker with a suspected injury will be referred to the appropriate Health Service or hospital/physician/ophthalmologist.

- All medical records are kept in strict confidence.

- For more information visit “Laser Safety” under:
  - [http://ryerson.ca/irm/labsafety/index.html](http://ryerson.ca/irm/labsafety/index.html)
LASER SAFETY PROGRAM AUDIT

IRM will:

- Perform periodic audits of Program
- Report includes
  - Review LASER inspection records
  - Review LASER registration/de-registration and co-ordinate this with inspection records
  - Review training records and training content
  - Review medical surveillance records
- Joint Health & Safety Committee may inspect class 3B and class 4 LASER facilities
Lasers Safety Program - MOL

Radiation Protection Service
Ministry of Labour (Ontario):
- Contact the RPS: 416-235-5922
- The mailing address is:
  
  Ministry of Labour
  Radiation Protection Service
  81A Resources Rd
  Weston, ON
  M9P 3T1
Radiation Protection Service (RPS @ MOL)

- Radiation Protection Officers
- Have the authority of MOL inspectors, provincial enforcement officers

**What is their role:**

Enforce worker safety in Ontario workplaces around ionizing radiation hazards (x-ray sources and radioactive materials) and non-ionizing radiation hazards (lasers, EMF, RF, UV, IR, microwaves, etc.)
Recent Investigations by MOL-RPS:

- Worker complaints over lack of training
- Inadequate eye protection with lasers
- Concerns over servicing of equipment
- Inadequate safety precautions
- Worker concern over exposure resulting from adjacent working areas