

AERO-MECH-SREE 4907

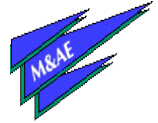
Engineering Project

Laboratory Safety

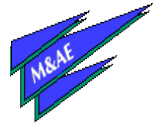
Professor M.J.D. Hayes
Department of Mechanical and
Aerospace Engineering



Laboratory Health and Safety Guidelines



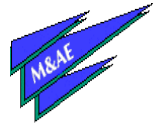
- **Occupational Health and Safety Act (OHSA)**
- Places the onus for compliance with legislation on the workplace parties within an organization. The Act lists responsibilities for employers, directors and officers, supervisors and workers forming the Internal Responsibility System (IRS).
- All individuals in the workplace, faculty and staff, visitors and students, officers and directors, managers and supervisors, share the responsibility for ensuring a safe working environment.



- **The OHS Act - Supervisor Duties**

A supervisor shall ensure that a worker:

- works in the manner and with the protective devices, measures and procedures required by this Act and the regulations;
- uses or wears the equipment, protective devices or clothing that the worker's employer requires to be used or worn;
- advise a worker of the existence of any potential or actual danger to the health or safety of the worker of which the supervisor is aware;
- take every precaution reasonable in the circumstances for the protection of a worker.



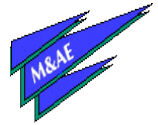
- **The OHS Act – Worker Duties**

A worker shall:

- work in compliance with the provisions of this Act and the regulations;
- use or wear the equipment, protective devices or clothing that the worker's employer requires to be used or worn;
- report to his or her employer or supervisor the absence of or defect in any equipment or protective device of which the worker is aware and which may endanger himself, herself or another worker;
- report to his or her employer or supervisor any contravention of this Act or the regulations or the existence of any hazard of which he or she knows.



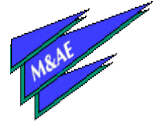
Laboratory Health and Safety Guidelines



- Safety is the joint responsibility of students and the university.
- Laboratory Management:
 - MAE Dept. Chair: Ron Miller
 - Associate Chair, Laboratory Operations: John Hayes
 - Laboratory Support Staff:
 - Stephan Biljan
 - David Raude
 - Steve Truttmann



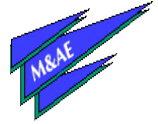
Laboratory Health and Safety Guidelines



- Laboratory activities require careful consideration and understanding of associated health and safety issues.
- Prior to beginning any laboratory work, the following basic guidelines must be adhered to.
 1. Do not operate any equipment without instruction. Ensure that you are completely familiar with its operation mode, controls, limitations and emergency stop procedure.
 2. Only use equipment and tools for their intended purpose.
 3. Ensure adequate ventilation and lighting is available.
 4. When working around rotating equipment, remove rings, watches, ties, jewellery, roll up sleeves and secure loose clothing.



Laboratory Health and Safety Guidelines



5. No open toed shoes or sandals are allowed in the machine shop.
6. Never work alone.
7. During regular work hours (8:00-16:30), ensure that a Laboratory Support Staff is aware of your presence.
8. Students are expected to read and understand the Laboratory Health and Safety Manual available at:

<http://www6.carleton.ca/ehs/ccms/wp-content/ccms-files/manualslabsafety1.pdf>

9. If you have any questions about how to safely undertake a task or project, ask your supervisor before you begin.



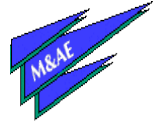
Laboratory Health and Safety Guidelines



10. Work in any MAE Laboratory performed outside of regular work hours (8:00-16:30):
 - a. must be performed only after consultation with the relevant Lead Engineer;
 - b. must not be done alone;
 - c. must be performed in compliance with the Carleton University Health and Safety Manual.
11. In the context of the Health and Safety Manual:
 - a. A worker in the lab is to be interpreted as a “student”.
 - b. A supervisor is to be interpreted as the “Lead Engineer” supervising your Capstone Design Project work.
12. Ensure your WHMIS training requirements have been met!



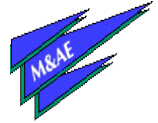
Laboratory Health and Safety Guidelines



13. To be granted key card access to your particular lab for after hours work you must complete the on-line training course available on cuLearn: “Worker Health and Safety Awareness”.

<http://carleton.ca/ehs/training/worker-health-and-safety-awareness-training/>

- i. Enter MC1 credentials.
- ii. If asked for an “Enrolment Key” please enter “stay safe”.
- iii. Once you have passed the course, capture an image of the screen that acknowledges you have passed the course.



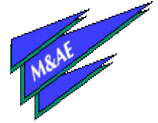
- **Preparing for work in the Lab**

You must find out:

- what personal protective equipment is available and/or required;
- what you should do in the event of a spill or fire;
- what is in place for personal security;
- how will safety measures be enforced;
- consequences for those who will not follow safety measures.



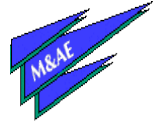
Laboratory Health and Safety Guidelines



- No horseplay or pranks -can have dangerous results.
- No eating , drinking , smoking in the lab.
- Confirm the location of the First Aid Kit in your lab.
- Confirm if the kit is fully stocked.
- Confirm who is trained to provide First Aid in your area.
- Report all incidents requiring first aid to your supervisor.
- To report an **Emergency** call University Safety at:
 - extension **4444** from any office or lab telephone, or
 - **613-520-4444** from any campus pay telephone or cell phone for Police/Fire/Ambulance response



Housekeeping



- Work areas must be kept clean and free of obstructions.
- Stairways and halls must not be used for storage: this applies to both equipment and personal property.
- Bicycles are not allowed in buildings.
- Walkways and aisles in laboratories must be kept clear.
- Access to emergency equipment or exits must never be blocked. (Ontario Regulation 851 Section 123 (2))



Housekeeping Cont'd



- Equipment and chemicals must be stored properly.
- Spilled chemicals must be dealt with immediately and, if safe, cleaned up by the chemical user (see Section 11.4 of the safety manual)
- Spills must be reported to the supervisor.
- Wastes must be placed in appropriate, labelled containers.
- Materials no longer used must not be allowed to accumulate and must be disposed of following proper procedures (see Appendix 4, Disposal of Hazardous Waste).



Housekeeping Cont'd



- Any time you use any laboratory equipment or space, ensure that you budget enough time to do a thorough clean up before you leave the lab.
 - Sweep up and dispose of any form of debris caused by your work.
 - If any equipment, or furniture is moved to perform the work, return it to it's proper location after use.
 - Return all borrowed materials, tools, and equipment.
 - Even if you did not personally create a portion of the mess, please take the high road, and clean it up anyway!



Homework



- Visit the EHS web site

<https://carleton.ca/ehs/training/worker-health-and-safety-awareness-training/>

- to:

- Complete on-line *Worker Health and Safety Awareness* training (by Sept. 15, 2016)
- Complete on-line *Workplace Hazardous Materials Information System (WHMIS)* training (by Sept. 15, 2016)
- Review the *Laboratory Health and Safety Manual* available at:

<http://carleton.ca/ehs/wp-content/uploads/manualslabsafety1.pdf>