

Guidance Document to Lab Inspection Checklist

The Environmental Health and Safety Office inspect laboratories annually. Inspections are intended as a mechanism to increase the overall safety by helping to identify risks associated with laboratory activities and provide recommendations on how to correct and prevent potentially dangerous situations. The EHS inspection team works with your department safety officer to coordinate and schedule inspections in order to minimize interruptions to any teaching or research activities.

The following guidance document will provide details on the inspection questions found in the Laboratory Inspection Checklist. These details should help laboratories maintain a safe and healthful work environment. Should you have questions regarding this document please call Stephanie Corcoran at extension 5915 or Eric Ambrose at extension 4356.

Section I, General Safety

Q1. Are all emergency and evacuation procedures displayed?

Emergency procedures such as spill card, emergency manual and contact numbers should be posted in the laboratory. Students must be familiar with their area's evacuation procedure.

Source: American Chemical Society
Concordia University recommendation

Q2. Is the information on how to report maintenance deficiencies posted?

The laboratory Responsible person should know how to report maintenance deficiencies such as a leaky sink, temperature problems etc. to the Service Centre at extension 2400. For other important numbers see the Take Care brochure available from the EH&S Office.

Source: Concordia University recommendation

Q3. Is the lighting in the laboratory adequate and in good condition?

Burnt out fluorescents should be reported to the Service Centre at extension 2400. The standard for laboratory lighting is 80 -100 ft/candles. General lighting can be supplemented as needed by the Principal Investigators.

Source: IES, 8th Edition

Q4, Is the temperature in the laboratory well controlled?

Normal ambient laboratory temperature is generally 21–24 degrees Celsius. If the temperature does not seem comfortable please contact the Service Centre at extension 2400.

Source: Laboratory Design Handbook, 1994
Laboratory Health and Safety Handbook, 1990
ASHRAE 55-1992

Q5. Are the personnel and students wearing closed-toe shoes and lab coats?

Protection for legs and feet should be provided by a lab coat and closed shoes. Shoes that have high heels, open-toed or made of cloth or woven fabrics should not be worn since they do not provide adequate protection. Legs should be covered with long pants – shorts, cutoffs, and short skirts unnecessarily expose skin to potential corrosives and are not safe.

Source: American Chemical Society, 2003

Q6. Are protective gloves available and matched to the hazard?

Skin contact is a potential source of chemical exposure and hands are the area most in contact with chemicals. Protection from exposure is necessary by wearing protective gloves. Different gloves types have different chemical permeability. Use the gloves under the conditions for which they are recommended as protection against the penetration of the chemical for which they have been designed. Refer to the MSDS or to the manufacturers glove charts or call EH&S.

Source: Concordia University Lab Safety Manual
CCOHS
American Chemical Society

Q7. Is eye protection available and used?

Eye protection is required of everyone who enters a chemical work area. Safety glasses must have side shields. Goggles must be worn when there is a danger of splashing chemicals. Face shields over safety glasses or goggles must be worn when working with severely corrosive liquids or with glassware under reduced or elevated pressure, glass apparatus used in combustion or other high-temperature operations, cryogenic liquids.

Source: Concordia University Lab Safety Manual
American Chemical Society

Q8. Are lab coats only worn in the laboratory and are removed before entering offices, lunchrooms, restrooms, and other non-laboratory general use areas?

Food and drink can be contaminated by contact with unwashed hands, gloves or clothing. Lab coats should not be worn or brought to areas where food is consumed. Lab coats should be washed separate from personal laundry.

Source: American Chemical Society
CCOHS
Concordia University Lab Safety Manual

Q9. Are the food and beverage rules observed? (Food and drinks should not be consumed or stored in the lab)

Food and drink can become contaminated by contact with unwashed hands, gloves or clothing, or by being left exposed in the workplace. Food, drinks, gum and cosmetics should not be used or stored in laboratories or laboratory refrigerators.

Source: American Chemical Society
CCOHS
Concordia University Lab Safety Manual

Q10. Are the ceiling tiles in place and free of any water leaks, or stains?

Water leaks and stains can lead to mold growth. Ceiling tiles should be intact and in place to prevent contamination of laboratory experiments by dust or mold. Intact barriers are also necessary for fire safety and to control the dispersal of hazardous agents.

Source: Laboratory Health and Safety Handbook, 1990
Laboratory Biosafety Guidelines, 3rd edition, 2004

Q11. Is the garbage free of broken glass and hazardous materials?

For the safety of lab personnel and custodial staff, all broken glass must be disposed of in University provided broken glass containers. Regulations prohibit the disposal of hazardous waste with regular refuse. Hazardous materials are collected in University provided waste containers and collected by EH&S. For more information on waste collection refer to the EH&S website.

Source: Concordia University Lab Safety Manual
Basic guidelines for the safe use of hazardous materials are regulated by the Hazardous Products Act and the Quebec Act Respecting Occupational Health and Safety.

Q12. Are laboratory doors kept closed?

Laboratory doors must be kept closed in order to maintain the proper room pressurization and prevent the contamination of areas outside the laboratory. Keeping doors closed insures the best possible ventilation efficiency and temperature and humidity control. Any labs using biological agents must keep doors closed.

Source: Laboratory design handbook, 1994
Laboratory Biosafety Guidelines, 3rd edition, 2004

Q13. Are fume hoods clean and free of stored chemicals?

Laboratory hoods should not be used for storing chemicals or apparatus. Storage in hoods can interfere with the air flow in the hood. A cluttered fume hood does not provide the space required to work safely and may lead to spills or accidents and increases the amount of chemicals that could become involved in a hood fire.

Source: American Chemical Society
Concordia University Lab Safety Manual
Prudent practices for handling hazardous chemicals in laboratories, 1981

Q14. Are benchtops and storage areas uncluttered and orderly?

Proper housekeeping leads to a safer environment. Materials and especially chemicals should not be stored on the floor. Workspaces and storage areas should be clear and neat. Aisles must be free of obstructions such as chairs, boxes and waste receptacles. Floors must be clear of spilled liquids, ice, stoppers, glass beads, rods and other small items that are dangerous slipping hazards.

Source: American Chemical Society
Concordia University Lab Safety Manual

Q15. Are aisles and exits free from obstruction?

Same as above.

A clear unobstructed path to exit must be maintained according to fire prevention regulations.

Source: American Chemical Society
NFPA 45

Q16. Are heavy objects stored on lower shelves?

Storage shelves must be firm and secured against sliding and collapse. Shelves must be well supported and in no danger of tilting. Large containers should be placed on low shelves.

Source: American Chemical Society

Q17. Is there an 18” clearance from the ceiling?

The distance between sprinklers and the top of storage shall be 46cm (18”) or greater.

Source: NFPA 13

Q18. Are safety showers and eyewash facilities accessible and free from obstructions?

The safety showers and eyewash facilities must be readily accessible and access to emergency equipment must never be blocked.

Source: American Chemical Society
Prudent practices for handling hazardous chemicals in laboratories, 1981

Q19. Are eyewashes in good condition, clean and capped?

The nozzles to eyewash stations need to be protected from airborne contaminants. Eyewash stations need to be kept clean and are designed with pop-off covers that must remain in position until the unit is activated. ANSI standards requires that eyewash units be tested (activated) and verified weekly. An eyewash checklist is available from EH&S and on our website.

Source: ANSI standard Z358.1-1998
CCOHS

Q20. Are first aid kits in designated areas? Are they properly stocked with the supply list inside?

Each laboratory was provided with a first aid kit. Kits must be properly stocked kept clean and in good order. Consult the EH&S website for the supply list and order form:

<http://web2.concordia.ca/EHS/programs/emergency.management.shtml>

Source: First-Aid minimum Standards Regulation, A-3, r.8.2

Q21. Are fire extinguishers located in designated areas, accessible and free from obstructions?

Each laboratory is equipped with a fire extinguisher adapted to the hazard. Fire extinguishers should be readily available, located strategically, in good working condition and properly labeled. Access to a fire extinguisher should never be blocked.

Source: American Chemical Society
NFPA 10
Concordia University Policy VRS-49

Q22. Are extinguishers functional, labeled and inspected recently?

Extinguishers shall be inspected regularly and records shall be kept on tag or labels attached to the extinguisher. At Concordia, a full inspection is done annually by an external contractor.

Source: Regulation Respecting Safety in Public Buildings, R.Q. S-3,r.4
NFPA 10

Q23. Are emergency switches clearly identified for power and gas supply and easily accessible?

Circuit breakers and cut-off switches should be labeled and accessible

Source: American Chemical Society
NFPA 70E

Q24. Are fire blankets available and stored correctly?

Fire blankets are available in service corridors. As with all other emergency equipment, access should never be blocked.

Source: American Chemical Society
Prudent practices for handling hazardous chemicals in laboratories, 1981

Q25. Are missing or deteriorating fume hood labels being replaced?

Instruction labels and calibration labels should be visible and in good condition.

Source: ANSI standard Z316.5-94

Q25. Are fume hoods in good condition, sashes open and close, and glass intact?

Fume hoods should be cleaned regularly and sash operation shall be smooth and easy throughout its travel

Source: ANSI standard Z316.5-94

Q27. Are the interiors of refrigerators and freezers sound and free of chemical spills or contamination and with containers tightly closed?

Housekeeping practices should keep chemical storage areas neat and orderly. Containers of liquids should be well sealed and placed in trays that have rims high enough to furnish secondary containment in case of spills or leaks.

Source: American Chemical Society
Prudent practices for handling hazardous chemicals in laboratories, 1981

Q28. Are refrigerators and freezers properly labeled? “Flammable” “Explosion proof” “Chemical use only”?

When laboratory refrigerators are used for the storage of chemicals they must be labeled as such. Flammable liquids can only be stored in approved, explosion-proof or laboratory-safe units (NFPA 45). Household refrigerators have various control switches that can spark and ignite flammable materials.

Source: American Chemical Society
Prudent practices for handling hazardous chemicals in laboratories, 1981
NFPA 45

Q29. Are microwaves labeled “Laboratory Use Only”?

Laboratory microwaves are to be used for laboratory usage only; food should not be prepared or stored in a laboratory.

Source: American Chemical Society
Prudent practices for handling hazardous chemicals in laboratories, 1981

Q30. Are electrical apparatus equipped with ground plugs or properly grounded? And not connected to extensions cords.

Laboratory equipment using 110V or higher should have a standard three-conductor line cord that provides an independent ground connection to the chassis of the apparatus. An overload-protection device that will disconnect the electrical circuit if the apparatus fails or is overloaded can also be acceptable. Extension cords are only intended as temporary solutions, to prevent overloaded

circuits, contact Facilities Operations at x2400 to arrange for additional electrical outlets.

Source: American Chemical Society
Prudent practices for handling hazardous chemicals in laboratories, 1981
NFPA 70E

Q31. Is the wiring on laboratory equipment in good condition and secured along the wall or benches?

Frayed or worn wiring, plugs and cords must be replaced. Wires should not be stretched across the floor causing a tripping hazard. Electrical outlets should have cover plates.

Source: American Chemical Society
NFPA 70E

Q32. Are electrical cords and appliances away from flammables and water (sinks), do they have grounding plugs? Are extension cords used only for computers?

Carefully place power cords so they don't come in contact with water or chemicals. Contact with water is a shock hazard. Keep flammable materials away from electrical equipment. The equipment may serve as a source of ignition for flammable or explosive vapors. Power cords must have grounding plugs or be double insulated, corrosives and solvents can degrade the cord insulation. Extension cords should not be used in laboratory or only for personal computers and their components.

Source: NFPA 70E

Q33. Are red outlets being used for critical equipment that requires continuous power?

Red outlets are available in most labs. These outlets provide emergency power in the event of a power failure. Please ensure that appliances and equipment needing continuous power are connected to these outlets. If they are not available in certain labs they can be requested through facilities at extension 2400.

Q35. Are laboratory apparatus properly assembled and used in a safe manner?

Principal investigators have a responsibility to ensure that students are trained in safe laboratory practices. Students must be able to recognize the potential dangers in their laboratory work and assess the risk associated. For example, apparatus under high vacuum, heated baths, ultra-centrifuges and high temperature ovens all present a serious risk to inexperienced students.

Source: American Chemical Society

Q36. Is the glassware free from cracks, chips and other defects?

Glassware should be routinely inspected to ensure that it is free from cracks, chips and other obvious defects. Damaged glassware should be repaired or discarded in the waste container labeled "broken glass". Glass apparatus containing gas or vapor under vacuum or above ambient pressure shall be shielded or wrapped with tape, or otherwise protected from shattering during use.

Source: American Chemical Society
NFPA 45

Q37, Are vacuum pump belt guards in place and exhaust vented?

Vacuum pump belt drives should be equipped with belt guards. The exhaust from pumps should be vented to a laboratory hood.

Source: American Chemical Society

Section II, Chemical Safety

Safety information:

Q1. Are primary & secondary chemical containers labeled with identity and appropriate hazard warnings?

Containers must have either the supplier label or a workplace label containing the following information: Product identifier, supplier identifier, MSDS statement, risk phrases, precautionary measures, hazard symbol(s) and first aid measures.

Source: Federal Hazardous Products Act

Q2. Are signs on storage areas and laboratories consistent with hazards within?

Storage areas shall be identified by signs to warn emergency response personnel of hazards.

Source: Federal Hazardous Products Act
NFPA 45

Q3. Is there an updated inventory of the chemicals in the laboratory?

Laboratories must have an up-to-date inventory of their chemicals. The University is required to provide this list to the Montreal Fire Department annually.

Source: Federal Hazardous Products Act

Q4. Are the materials safety data sheets available for all chemicals present in the laboratory?

The MSDS for all chemicals stored in the laboratory must be available in the laboratory itself. The information on an MSDS must be reviewed and updated every 3 years. A binder of all MSDSs must be readily available and in plain site.

Source: Federal Hazardous Products Act

Q5. Are all chemical containers well labeled, capped and in good condition?

All chemical containers should be labeled according to WHMIS regulation. Containers should be sealed and in good condition to prevent vapors or spills.

Source: Federal Hazardous Products Act
Prudent practices for handling hazardous chemicals in laboratories, 1981

Q6. Are personnel and students familiar with spill cleanup requirements for their chemicals?

Personnel and students must be aware of the hazardous properties of the material they are working with and the necessary measures in case of a spill. Spills should only be cleaned-up by people qualified to do so and once the risk has been evaluated. Report all incidents to Environmental Health and Safety.

Source: American Chemical Society
Prudent practices for handling hazardous chemicals in laboratories, 1981

General Laboratory Chemical Storage:

Q7. Are all chemicals stored correctly, segregated by hazard and according to compatibility (e.g., organic from oxidizers, flammable from acid)?

Specific instructions on chemical storage may be obtained from the MSDS or on the container label. Incompatible chemicals must be stored separately, as opposed to alphabetically. Classify the chemicals into hazards and in storage groups. All chemicals should have a definite storage place and be returned to this place after being used.

Source: American Chemical Society
Prudent practices for handling hazardous chemicals in laboratories, 1981
Concordia University Lab Safety Manual

Q8. Are corrosive & flammable chemicals stored below eye level?

Liquid chemicals, large containers of reagents and especially corrosives should be stored on low shelves below eye level to prevent injuries to the eye.

Source: American Chemical Society
Prudent practices for handling hazardous chemicals in laboratories, 1981
Concordia University Lab Safety Manual

Q9. Are chemicals kept away from desks?

Chemicals belong in designated storage areas and away from non laboratory work areas.

Source: American Chemical Society
Prudent practices for handling hazardous chemicals in laboratories, 1981
NFPA 45

Q10. Are highly flammable liquids stored away from sources of heat and ignition (such as Bunsen burners in fume hoods)?

Flammables must be stored away from ignition sources in fire resistant storage cabinets.

Source: American Chemical Society
NFPA 45

Q11. Are all containers of non-hazardous substances (e.g., distilled water) labeled explicitly to avoid confusion?

To protect all personnel such as cleaning and maintenance staff - All chemical containers (regardless of hazard) must be labeled during use and storage. However, Laboratories Only - containers such as test tubes, flasks, beakers, and petri plates need not be labeled with an identity and hazard warning.

When more than one chemical is combined to create stock solutions, buffers, washing solutions and other specialized reagents refer to these mixtures by using a code and post the code sheet in the laboratory.

Source: The Federal Hazard Communication Standard of the Occupational Safety and Health Act. (OSHA).

Q12. Are hazardous materials used/stored limited to small quantities?

Quantities of chemicals stored in a laboratory should be limited to the minimum quantity necessary to perform the work being done. Flammable and combustible liquid storage is limited based on the laboratory size and fire rating.

Source: Laboratory Safety: theory and practice, 1980
NFPA 45

Q13. Do chemical containers larger than 4L have a second containment?

Large containers that must be stored on the floor (such as waste) should have a second containment to contain the contents of the container in case of breakage or spill.

Source: Laboratory Safety: theory and practice, 1980
Prudent practices for handling hazardous chemicals in laboratories, 1981

Compressed Gas Cylinders:

Q14. Are gas cylinders properly chained/secured and in use?

Gas cylinders must be stored in an upright position with the valves facing upwards and be solidly held in place with chains or straps or a suitable stand. Cylinders in use shall be connected through a regulator or to a manifold to deliver gas to a lab operation. Cylinders not in use shall not be stored in the laboratory.

Source: American Chemical Society
NFPA 45
Regulation respecting occupational health and safety, S-2.1

Q15. Are cylinder caps in place when cylinders are not in use or being moved?

All compressed gas cylinders shall be equipped with a protective cap for the valves when not connected for use.

Source: Regulation respecting occupational health and safety, S-2.1

Q16. Are cylinders transported on a cart with chains?

When moving cylinders use only properly designed carts. The cylinders must be properly fastened to the cart and have the protective cap over the valves.

Source: American Chemical Society
Regulation respecting occupational health and safety, S-2.1

Q17. Are cylinders properly labeled?

Cylinders must be labeled according to WHMIS regulations.

Source: Regulation respecting occupational health and safety, S-2.1
Hazardous Products Act

Q18. Are full and empty cylinders stored separately?

When cylinders are empty, regulators should be removed promptly and the protective caps replaced. The cylinders should be labeled as empty and stored separately.

Source: Regulation respecting occupational health and safety, S-2.1
Laboratory Safety Institute

Q19. Are regulators, proper connections and tubing in good condition/use?

Only regulators approved for the specific gas should be used. Valves should be closed with all pressure released from equipment connected to the cylinder at the end of a work shift.

Source: Act respecting pressure vessels, s, A-20.01
Laboratory Safety Institute

Hazardous Waste Disposal:

Q20. Are waste being separated appropriately (e.g. solid vs. liquid, halogenated vs. non-halogenated)?

When disposing of chemicals, put each class of waste chemical in its specifically labeled disposal container. See also Question 22 for labeling information.

Source: Concordia waste procedures: Laboratory Safety manual
American Chemical Society

Q21. Are there sufficient and appropriate waste containers in laboratory?

Waste containers can be ordered through the EH&S office by calling extension 4356 or from the website at:

<http://web2.concordia.ca/EHS/programs/hazardous.program.shtml>

Source: Concordia waste procedures: Laboratory Safety manual

Q22. Are the waste containers clearly labeled and the chemicals identified?

Waste containers must be clearly identified using the Concordia chemical waste label. Indicate the chemical name or common name of each substance in the mixture. Indicate the strength or concentration of the substance where applicable. Do not use chemical formulas, abbreviations, symbols or equations. Indicate the physical and/or health hazards of the substances.

Source: Concordia waste procedures: Laboratory Safety manual

Q23. Are syringes and other sharps disposed into biohazard waste containers?

Sharps such as needles, syringes, scalpel, razor blades, clinical glass such as Pasteur pipettes and any other items capable of puncturing, must be disposed of in a biohazardous container. Containers can be ordered through the EH&S office by calling extension 4356 or from the website at:

<http://web2.concordia.ca/EHS/programs/hazardous.program.shtml>

Source: Concordia waste procedures: Laboratory Safety manual

Q24. Are waste containers kept closed using tight-fitting lids?

Containers should be in good condition with properly fitting caps.

Source: Concordia waste procedures: Laboratory Safety manual

Section III: Biohazard Safety

General biohazard Safety:

Q25. Are lab coats kept in the lab to prevent contact with street clothing?

Protective laboratory clothing must not be worn in non-laboratory areas; laboratory clothing must not be stored in contact with street clothing.

Source: Health Canada: Laboratory Biosafety Guidelines

Q26. Are cleaning procedures established for normal cleaning and emergency spills?

Work surfaces must be cleaned and decontaminated with a suitable disinfectant at the end of the day and after any spill of potentially biohazardous material.

Source: Health Canada: Laboratory Biosafety Guidelines

Q27. Are autoclave procedures available for disinfection?

All contaminated materials, solid or liquid, must be decontaminated before disposal or reuse; the material must be contained in such a way as to prevent the release of the contaminated contents during removal.

Source: Health Canada: Laboratory Biosafety Guidelines

Q28. Is biohazard waste treated before disposal?

See question 26, if waste cannot be autoclave then biohazard waste containers must be used.

Q29. Are biohazard waste containers rigid, labeled and with lids?

Containers can be ordered through the EH&S office by calling extension 4356 or from the website at:

<http://web2.concordia.ca/EHS/programs/hazardous.program.shtml>

Source: Concordia waste procedures: Laboratory Safety manual

Q30. Are biohazard waste containers used properly where needed? (e.g. autoclave, bags, sharps containers, etc?)

Biohazardous waste that cannot be autoclaved must be disposed of in the designated plastic biohazard containers. Animal carcasses must be placed in bags that are then stored in the designated bio-hazardous freezer located in SP-S231-5. Sharps must also be disposed of in plastic biohazard containers.

Source: Concordia waste procedures: Laboratory Safety manual

Q31. Has the Biosafety cabinet been certified in the last year?

The correct operation of a BSC should be tested annually and certified in accordance with CSA standards.

Source: Health Canada: Laboratory Biosafety Guidelines

Section IV: Radiation Safety

General Ionizing radiation safety:

Q32. Are registered areas properly designated?

Specific areas within a laboratory must be defined for handling unsealed sources. These areas must be enclosed by yellow warning tape displaying the standard radiation warning symbol.

Source: CNSC
Concordia Radiation Safety Policy Manual: University Radiation Safety Committee

Q33. Is radiation monitoring and detection equipment readily available and calibrated?

A suitably calibrated and certified radiation survey instrument must be available when working with radioisotopes. All monitoring equipment used contamination checks must be calibrated and certified every 12 months by a licensed company or organization approved by the CNSC.

Source: CNSC
Concordia Radiation Safety Policy Manual: University Radiation Safety Committee

Q34. Are personnel trained appropriately?

Laboratory instructors, technicians, teaching assistants and demonstrators must be adequately trained in radiation procedures and regulations. The licensee is responsible for supervising work involving radioactive materials used by associate users or students in the lab under their jurisdiction.

Source: CNSC

Concordia Radiation Safety Policy Manual: University Radiation Safety Committee

Q35. Are radioactive materials securely stored according to procedures?

Unsealed radioisotopes must be stored in a refrigerator, freezer or cabinet clearly labeled with a radiation warning sign. The storage areas should be cleaned and wipe-tested on a regular basis. Refer to the manual for more detailed information and regulations.

Source: CNSC

Concordia Radiation Safety Policy Manual: University Radiation Safety Committee

Q36. Is radioactive waste securely stored and disposed of according to procedures?

Only solid waste may be transported for disposal. Liquid and gas wastes must be solidified (absorbed/adsorbed) before disposal. The following radioactive waste containers are available: 20-L pails for radioactive dry waste and scintillation vials; 4.5-L containers with absorber material are available for radioactive liquids. For other special radioactive waste containers contact the RSO or the Hazardous Materials/Lab Safety Technician at extension 4896 or 4356. A *Container Request Form* is also available on-line at:

<http://web2.concordia.ca/EHS/documents/forms.shtml>.

Source: CNSC

Concordia Radiation Safety Policy Manual: University Radiation Safety Committee

Q37. Is the inventory of all radioactive materials up-to-date?

An up-to-date logbook must be maintained for all radioactive material outlined on the internal radioisotope permit. This will include records of acquisition, inventory, storage, waste disposal.

Source: CNSC

Concordia Radiation Safety Policy Manual: University Radiation Safety Committee

Q38. Is there an inventory of all radiation counting and monitoring?

Contamination checks for radiation and radioactive contamination must be performed after each procedure involving radioactive materials and recorded in the radiation logbook. At the end of each week designated test-sites shall be inspected, surveyed, wipe-tested and cleaned as needed. Records of survey and/or wipe tests must be maintained in a logbook.

Source: CNSC

Concordia Radiation Safety Policy Manual: University Radiation Safety Committee

Q39. Are all radiation-emitting operations restricted to a low-density traffic area and are adequately shielded?

Radioisotopes must be used only in licensed laboratories or areas, in accordance with the ALARA principles minimizing all exposures by judicious consideration of time, distance and shielding. Bench areas that are low traffic zones should be chosen and the bench area next to the fume hood should be used when a fume hood is part of the procedure.

Source: CNSC

Concordia Radiation Safety Policy Manual: University Radiation Safety Committee

Q40. Are safe work procedures and decontamination/emergency procedures established?

The Internal Radioisotope Permit Holder must make certain that individuals working with radioisotopes are supervised, receive training, and are made aware of potential risks, safety procedures and the operation of monitoring equipment.

Source: CNSC

Concordia Radiation Safety Policy Manual: University Radiation Safety Committee

Section V: Laser Safety

Q41. Do laser laboratories have appropriate warning signs?

All warning signs and labels should be displayed conspicuously in locations where they best serve to warn all personnel of potential safety hazard.

Source: Laboratory Safety manual

Q42. Are lasers equipped with protective housings, safety interlocks, key controls, beam stops, attenuators and scanning safety guards as appropriate?

Protective housings which enclose Class 3B or Class 4 lasers or laser systems should be provided with an interlock system which is activated when the protective housing is opened or removed during operation and maintenance.

Source: Laser Safety manual

Q43. Are the laser operators provided with wavelength specific eye protection?

All investigators or staff, who operate or supervise the operation of a laser, are responsible for determining the need for eye protection for a particular laser. Eye protection suitable to the laser must be provided and worn within the laser control area if there is a potential for exceeding the Maximum Permissible Exposure limit if viewing the beam. Contact the Radiation Safety Officer if you require assistance.

Source: Laboratory Safety manual, Laser Safety manual

References:

Act Respecting Occupational Health and Safety, Quebec, R.S.Q., chapter S-2.1

Act respecting pressure vessels, Quebec, s, A-20.01

American Chemical Society, Safety in academic chemistry laboratories, 7th Edition, 2003

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., Thermal environmental conditions for human occupancy. ASHRAE 55-1992.

ANSI standard Z316.5-94, American National Standards Institute

CCOHS. Website: www.CCOHS.ca

Concordia University, Laboratory Safety Manual, Radiation Safety, Laser Safety
Concordia University, Recommendation
Concordia University, Policy VRS—49
Website: ehs.concordia.ca

CNSC, Canadian Nuclear Safety Commission, Nuclear Safety and Control Act and Nuclear Substances and Radiation Devices Regulation S.C. 1997, c. 9

Crawley Cooper. E., *Laboratory Design Handbook*, CRC Press, 1994

The Federal Hazard Communication Standard of the Occupational Safety and Health Act. (OSHA). Occupational Safety and Health Administration, Standard 29 CFR, 1910.1200.

Hazardous Products Act; Federal, R.S. 1985, c. H-3

IESNA, Lighting Handbook, 9th Edition. Illuminating Engineering Society of North America, 2000

Laboratory Biosafety Guidelines, 3rd edition, Health Canada, 2004

Laboratory Safety Institute, Laboratory Health and Safety notebook, 2002.

NFPA 45, National Fire Protection Agency, Codes and Standards

NFPA 10, National Fire Protection Agency, Codes and Standards

NFPA 70E, National Fire Protection Agency, Codes and Standards

NRC, Prudent practices for handling hazardous chemicals in laboratories, National Academy Press, 1981

Regulation respecting occupational health and safety, Quebec, c. S-2.1, r.19.1

Regulation Respecting Safety in Public Buildings, Quebec, R.Q. S-3,r.4

Stricoff, R.S., Walters, D.B., Laboratory Health and Safety Handbook, A. Wiley-Interscience publication, 1990