

Personal Protective Equipment



**SAFETY PROGRAM:
PERSONAL PROTECTIVE EQUIPMENT**

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Personal Protective Equipment

PREAMBLE

This program sets out the specifications for Personal Protective Equipment (PPE) used at Mount Royal University.

PPE is used as temporary protection until more effective hazard control techniques can be put in place, or as the last line of protection for workers against hazards that cannot be fully eliminated or controlled by the use of engineering or administrative controls. PPE must also be used when required by Occupational Health and Safety (OHS) legislation.

SCOPE

This program applies to all MRU employees when performing work on behalf of the University, whether on or off campus.

The program also applies to contractors working on MRU property when their employer does not have an equivalent policy in place.

Though this program does not explicitly apply to students, information contained herein may be used as a training tool for students when PPE is required to address an identified hazard (e.g. when performing laboratory work or environmental field work).

LEGISLATION

Alberta's Occupational Health and Safety Code outlines the requirements for personal protective equipment (PPE) in Part 18 Personal Protective Equipment.

RESPONSIBILITIES

Executive (President, Vice-Presidents):

- Provide management support and leadership necessary to provide a safe and healthy working environment for employees and students, in compliance with the Mount Royal Health and Safety Policy.
- Ensure that adequate resources are available to implement appropriate measures.

Associate Vice-Presidents / Deans / Directors / Department Managers:

- Ensure that safety programs are communicated to the employees.
- Require compliance with the programs.
- Identify areas or work processes that have hazardous conditions that warrant the need for PPE.
- Provide a budget for PPE within their department.
- Ensure that PPE users within their area are trained and competent and that associated records are maintained.

Supervisors / Chairs:

- Provide approved PPE that protects against identified hazards.

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- Ensure that PPE users are adequately trained and competent in the use, maintenance, limitations, and cleaning of required PPE.
- Ensure that respirator users complete the pre-screening medical questionnaire and fit testing prior to first use and at least every two years thereafter.
- Require compliance with this program, related safety programs, and PPE-specific manufacturer instructions.
- Maintain applicable training and usage records.
- Consult with the Environmental, Health & Safety (EH&S) Department if there are any concerns or questions regarding PPE.

MRU Employees (Staff, Faculty, or Volunteers):

- Comply with the procedures regarding PPE use.
- Use the PPE in accordance with their training and instruction.
- Clean, disinfect and store the PPE appropriately.
- Tag out and dispose of any damaged or defective PPE and report any PPE malfunction or deficiencies to their supervisor.

Contractors:

- Prime Contractors are required to have their own PPE policy or program that meets or exceeds applicable legislation, which will apply to their employees and subcontractors when performing work on MRU property.
- Where a Contractor will be working under MRU (i.e. the Contractor is not a prime contractor), the Contractor employees will follow MRU practice.

Students:

- Required to obtain PPE required for courses, as required by the department.
- Required to comply with departmental procedures regarding PPE use.

Visitors:

- Required to wear appropriate PPE when required, as provided by the project lead for the work area.

Environmental, Health & Safety (EH&S):

- Provide expertise and advice on PPE requirements and general training information to all levels of management and employees.
- Provide PPE fit testing and training.
- Receive, review and investigate all incidents related to PPE and provide recommendations for corrective action.
- Ensure this program and other documentation related to PPE use are kept current.

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Human Resources

- Work with EH&S to assess medical accommodations and medical pre-use screening as required.

SELECTION OF PPE

PPE selection is based on the hazards associated with performing a task. Each type of PPE has a specific use and may be appropriate for one use, but not appropriate for another. A position hazard assessment (PHA) is completed to determine hazards, appropriate engineering and administrative controls, and any PPE that will be required to protect against residual risk when performing a task.

MRU Departments will set standards for required PPE through consultation with EH&S, and will provide the standard PPE to their employees as required. Non-standard PPE may be considered for reimbursement by the department where a medical condition exists. Requests for non-standard PPE should be supported by a medical assessment and an internal review of the particular circumstances completed by the department with assistance from HR.

REQUIREMENTS FOR PPE

HEAD PROTECTION

MRU must comply with Alberta OHS Code Section 234 Industrial Headwear.

If a task or work site presents a risk of head injury from impact, flying or falling objects, or electrical shock and burns, workers must wear appropriate protective headwear that meets the standards outlined above.

Where hard hats are mandatory, bump caps cannot be used in lieu of a hard hat.

Further information on care and maintenance of head protection can be found in [Appendix A Head Protection](#).

EYE / FACE PROTECTION

MRU must comply with Alberta OHS Code Section 229 Eye Protection.

CSA approved eye protection shall be durable, comfortable and easy to clean. Persons whose vision requires the use of corrective lenses and who by nature of their job duties require eye protection shall wear eye protection that can be worn over prescription lenses, or shall obtain prescription safety glasses (reimbursement available to workers with approval from their department). Prescription safety glasses are available through the AAO Eyesafe program; for additional information, contact EH&S.

There are four general classes of eye and face protection: safety glasses, face shields, goggles and welding helmets. The type of protection required shall be determined by the type and degree of the hazard.

Contact lenses may be worn under safety glasses in some situations; see [Appendix B Eye / Face Protection](#) and applicable task hazard assessment.

HEARING PROTECTION

MRU must comply with Alberta OHS Code Section 222 Hearing Protection.

The selection of Hearing Protection is compliant with the current CSA Standard 94.2-14, Hearing Protection Devices - Performance, Selection, Care, and Use.

Hearing protection must be used in all areas and for all tasks where noise levels are equal to or greater than 85 dBA (TWA), as determined by a noise assessment. Hearing protection shall also be supplied for any workers concerned with noise hazards, regardless of the noise levels produced. The type of hearing protection provided must be capable of reducing noise exposure at the ear below the occupational exposure limits for noise, as outlined in Schedule 3, Table 1 of the Alberta OH&S Code.

See the MRU Hearing Conservation and Noise Control Safety Program for additional information.

RESPIRATORY PROTECTION

MRU must comply with Alberta OHS Code Section 244 Respiratory Protective Equipment.

The selection of Respiratory Protection Equipment must be compliant with the current CSA Standard Z94.4 Selection, Use and Care of Respirators.

All requirements are stipulated in the MRU Respiratory Protection Safety Program.

HAND / BODY PROTECTION

MRU must comply with Alberta OHS Code Section 242 Limb and Body Protection and 243 Skin Protection.

Hand and body protection shall be worn when there is a risk of absorption of harmful materials, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns, or harmful temperature extremes.

The types and styles of hand and body protection required must be determined through a task hazard and risk assessment. The assessment shall determine how much finger dexterity is needed to safely do the work; the type of hazards (physical, chemical, thermal, radiation) involved; the duration, frequency, and degree of exposure to the hazards; and the physical stresses that will be applied.

Protection for the body must consider comfort and the demands of the task as well as protection.

Protective clothing must not increase the hazard to the worker (e.g. loose fitting clothing around rotating equipment).

Body protection can include the following:

- Lab coats;
- Boot covers;
- Aprons;
- Bouffant caps;
- Tyvek suits; and

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- Coveralls.

When skin protection is required, all exposed skin at risk must be covered by protective clothing.

High-visibility apparel

In areas where there is a danger of contact with moving vehicles or equipment, MRU employees shall wear a high visibility vest with reflective striping.

All high-visibility apparel shall meet current CSA Z96 requirements. These garments must be laundered in a fashion as to not cause detrition of the reflective striping.

Project leads shall ensure that high-visibility apparel is available in locations where it is mandatory.

Cold Weather Clothing

Employees expected to perform work outside in cold or wet weather will be provided appropriate external layers (e.g. overshoes, winter coats, raincoats, jackets, traction aids) to reduce the risk of weather-related hazards.

Flame Resistant Clothing

Where fire, flame, or explosion is determined to be a task hazard, employees shall wear fire retardant / flame resistant clothing (6.0 oz. Plain weave, 100% Nomex 111A or better).

Lab Coats

Each Department will determine lab coat requirements though the position hazard assessment for the processes at hand. If flame resistant lab coats are required, they must meet the Flame Resistant Clothing clause of this program.

For additional information, see the Laboratory Coat Safe Work Procedure, available on the [MRU EHS website](#).

Arc Flash Protective Gear/Equipment

Employees shall wear arc flash protection when electrical arc flash is identified as a hazard in the field level hazard assessment. Protection shall adhere to the current CSA Z462 Workplace Electrical Safety standard and industry best practices.

Further information on the types of hand and body protection available, when they are required, applications and limitations, and care and maintenance can be found in [Appendix C Hand / Body Protection](#).

LIFEJACKETS / PERSONAL FLOTATION DEVICES

MRU must comply with Alberta OHS Code Section 241 Use of Jackets and Flotation Devices.

MRU will ensure that supplied life jackets and personal flotation devices are approved by Transport Canada, the Canadian Coast Guard, or Fisheries and Oceans Canada (as noted on the label

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The wearing of a flotation device is mandatory for all workers who work over water, if:

- No other safety measure may provide efficient protection and
- The depth of the water is adequate to allow for efficient usage.

For further information, see [Appendix D Life Jackets / Personal Flotation Devices](#) and applicable task hazard assessments.

FOOT PROTECTION

MRU must comply with Alberta OHS Code Section 233 Protective Footwear.

CSA approved foot protection shall be worn when there is potential for injury to the feet from falling or rolling objects, objects piercing the sole of the foot, electrical hazards, hot surfaces, or slippery surfaces.

MRU shall provide protective footwear (safety shoes or boots) to workers requiring them. MRU shall provide orthopedic protective footwear to workers who have an appropriate medical prescription.

Safety footwear with ankle support may be required for specific positions at MRU. Consult [Appendix E Safety Footwear](#) for additional information.

FALL PROTECTION

MRU must comply with Alberta OHS Code Part 9 Fall Protection, Section 139 General Protection.

Fall protection is required when workers perform task in an area where there is a risk of falling a distance of 3 m or more, or if there is an unusual possibility of injury due to falling onto something other than a flat, solid surface (e.g. into or onto a hazardous substance or object).

Personal fall protection includes elements such as full-body harnesses, lanyards or self-retracting lifelines. Consult the EH&S Fall Protection Program for additional information.

PERSONAL ATTIRE

In areas where there is a danger of contact with moving or rotating parts or sources of heat or flame, MRU employees shall comply with the following standards:

- Clothing shall be well-fitting with no loose flaps or drawstrings that could be pulled into equipment.
- Necklaces, bracelets, or rings shall be removed, tucked in, or taped down.
- Long hair shall be tied back and tucked into a collar, hat, or hairnet.
- Long beards shall be tucked into collars or otherwise secured.

Some work areas, such as laboratories, may have the same or similar standards in place; obey all signage and direction from those responsible for the work area.

TRAINING

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Training shall be provided for each employee who is required to use PPE. Training will consist of:

- When PPE is needed
- What types of PPE are required for job tasks
- How to properly don, doff, adjust, and wear PPE
- The limitations of the PPE
- The proper care, maintenance, useful life, and disposal of the PPE

Supervisors are responsible for ensuring their employees have the training required to use PPE safely. Respirator training and fit testing is provided by EH&S. Additional training and fit testing (when appropriate) shall be provided directly by the supervisor (or designate) or EH&S (e.g. respirator fit testing), or be provided by an outside contractor (e.g. fall protection or confined space entry training).

Each affected employee shall demonstrate an understanding of the aforementioned training and the ability to use PPE properly before being allowed to perform work requiring the use of PPE.

MAINTENANCE

PPE shall be inspected and maintained by employees at regular intervals to ensure that it is in safe working order. Inspect PPE before each use for tears, punctures, holes, cuts, cracks, embedded foreign objects and texture changes (e.g., swelling, softening or hardening, becoming sticky or inelastic).

All PPE shall be inspected, cleaned, maintained, discarded and/or changed according to the PPE specific manufacturer's instructions.

DEFINITIONS

Contractor: A worker performing work on University property while being employed by another organization.

Employees: Volunteers or individuals who are engaged to work for the University under an employment or apprenticeship contract, including Faculty, Staff, exempt Employees, Management Employees, and Undergraduate, Graduate or Postgraduate students carrying out work for the University.

Personal Protective Equipment (PPE): Equipment or garments designed to reduce or minimize exposure or contact to specific hazards (physical, chemical, ergonomic, or biological agents). PPE reduces the risk of injury or illness to the wearer. Examples of PPE include respirators, gloves, lab coats, ear plugs, hard hats, fall protection, safety glasses, and protective footwear. All PPE used at MRU must meet the appropriate CSA standard.

Hazard: A situation, condition, or thing that may be dangerous to the safety or health of workers or the environment.

Risk: The chance of injury, damage, or loss.

Student: Any individual who maintains an affiliation as a learner in the University educational community. Students are not workers, but receive credits, grades and fulfills tasks as a requirement of graduation. Work experience and Co-op students are treated as "workers".

REFERENCES

Alberta Occupational Health and Safety Code (2016)

Canadian Standards Association (CSA) Standards:

- Z94.1-05 Industrial Protective Headwear
- Z94.3-15 Eye and Face Protectors
- Z94.3.1-16 Guideline for Selection, Use, and Care of Eye and Face Protectors
- Z94.2-14 Hearing Protection Devices
- Z94.4-18 Selection, Use and Care of Respirators
- Z195-14 Protective Footwear
- Z195.1-16 Guideline for Selection, Care and Use of Protective Footwear
- Z259.1-05 Body Belts and Saddles for Work Positioning and Travel Restraint
- Z259.2.5-17 Fall Arresters and Vertical Lifelines
- Z259.10-12 Full Body Harnesses
- Z259.11-17 Personal Energy Absorbers and Lanyards
- Z259.12-16 Connecting Components for Personal Fall Arrest Systems (PFAS);
- Z259.13-16 Manufactured Horizontal Lifeline Systems.
- Z96-15 High-Visibility Safety Apparel
- Z96.1-08 Guideline on Selection, Use, and Care of High-Visibility Safety Apparel
- Z462-18 Workplace Electrical Safety

American National Standards Institute (ANSI) Standards:

- Z89.1-2014 Industrial Head Protection

American Standard for Testing and Materials (ASTM) Standards:

- F2413-18 Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear

Canadian General Standards Board (CGSB) Standards:

- 65.7-M88 Life Jackets, Inherently Buoyant Type
- 65-GP-14M Life Jackets, Inherently Buoyant, Standard Type

Canadian Centre for Occupational Health and Safety, OSH Answers Fact Sheets – Personal Protective Equipment

MRSA collective agreement, current version

MRFA collective agreement, current version

Work Safe Alberta, Occupational Health and Safety Bulletin, Eye Protection at the Work Site

University of Regina, Personal Protective Equipment Procedures

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Ryerson University, Personal Protective Equipment Manual

Concordia University, Policy VPS-41

REVISION HISTORY

| Date | Revision | Notes |
|--------------|-----------------|----------------------------|
| October 2019 | 01 | Creation of Safety Program |

APPENDICES

[Appendix A – Head Protection](#)

[Appendix B – Eye / Face Protection](#)

[Appendix C – Hand / Body Protection](#)

[Appendix D – Life Jackets / Personal Flotation Devices](#)

[Appendix E – Foot Protection](#)

APPENDIX A: SAFE WORK PRACTICE: HEAD PROTECTION

If a task or work site presents a risk of head injury from impact, flying or falling objects, or electrical shock and burns, workers must wear appropriate protective headwear that meets or exceeds the standards outlined in the Alberta OHS Code Section 234.

Whether a task requires head protection and what type of protection should be used must be determined through the completion of a field level hazard assessment, completed by the worker and reviewed by the Supervisor and EH&S personnel.

Examples of tasks that may require the use of head protection include:

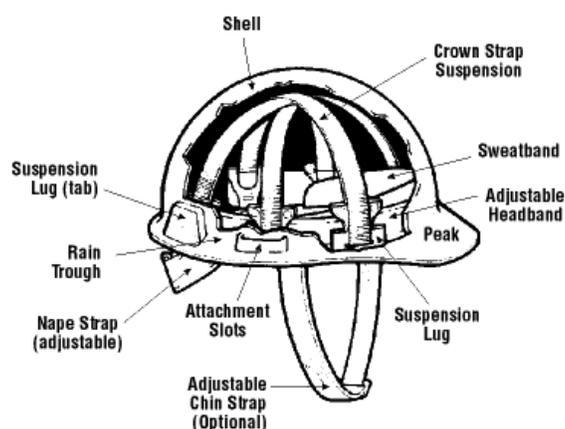
- Working below overhead workers (on scaffolding, ladders, or mobile elevated work platforms)
- Working near or visiting work areas with operating heavy equipment (e.g. excavators, cranes, or other heavy equipment).

Bump caps are not a suitable replacement for hard hats where hard hats are required.

Classes of headwear:

- Type 1 - protection from impact and penetration at the crown (top) and
- Type 2 - protection from impact, penetration at the crown (top) and laterally (sides and back)
- Each type is also available in the following classes:
 - Class E (20 000 V electrical rating) - non-conducting material (electrical trades)
 - Class G (2200 V electrical rating) - non-conducting material (general trades)
 - Class C (no electrical rating)

Figure A.1 Hard Hat Diagram



Hard hats consist of a hard shell and a suspension system. Both must be in good condition for the hard hat to function correctly.

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Usage:

- ✓ Inspect the hard hat before each use.
 - Check for cracks, fading, scratches or other evidence of physical damage to the shell, and for cracked or torn material or threads on the straps and suspension.
- ✓ Replace hard hats:
 - When they show visible signs of wear or fading (which can be due to heat, sunlight or chemicals).
 - When they've been struck or involved in an impact incident, even if no damage is visible.
 - If there is any doubt about the integrity of a hard hat.
 - If the hard hat has been in use for 5 years or more, or the age cannot be determined.
- ✓ Wear the hard hat so that the nape strap sits at the back of the head.
- ✓ Adjust the headband so that the hat stays on when the wearer bends over, but is not so tight that it leaves a mark on the forehead.
- ✓ Only use approved liners in the hard hat when required.
 - Do not use winter liners that contain metal or electrically conductive material under Class G or E hard hats.
 - Do not wear baseball style hats under the hard hat as they interfere with suspension.
 - If wearing a hood under the hard hat, ensure that the sides don't interfere with your peripheral vision.
- ✓ Limit use of stickers on hard hats, as they can hide cracks and signs of wear.
 - Don't paint over the plastic shell as the solvents can make the shell more brittle and susceptible to cracks.
- ✓ Don't leave the hard hat in hot or sunny areas. Heat and UV can damage the shell material, making it brittle and less protective.
- ✓ Don't put anything between the suspension and the shell of the hat. The clearance between the two helps to absorb the shock in case of impact.
- ✓ Clean the suspension and shell regularly, according to manufacturer's specifications.

APPENDIX B: SAFE WORK PRACTICE: EYE / FACE PROTECTION

Safety eye wear must be CSA-approved to ensure that they meet the standard criteria for impact resistance. The certification mark must be present on all approved safety lenses, frames (front and temple), removable side shields (when applicable) and other parts of the eye wear.

Safety eyewear must protect the eyes and surrounding soft tissue from identified hazards, such as chemical splashing, flying objects / debris, optical or laser radiation, or electric arc flash.

Eye and face protection should be worn while in or near the vicinity of a work area where the following are present:

- Welding, cutting, and brazing
- Sawing or grinding
- Spray painting
- Dusty environments
- Chemical gases, vapours, or liquids
- Swinging chains or ropes
- Moving particles
- Splashing or spray of biological hazards
- Sharp objects
- Explosions
- Exposure to UV or IR radiation
- Any other situation that could cause injury to the eye

The type of safety eyewear required will be determined through the completion of a field level hazard assessment, completed by the worker and reviewed by the supervisor and EH&S personnel. Guidance on suggested levels of protection is noted below; additional information can be found on Position Hazard Assessments:

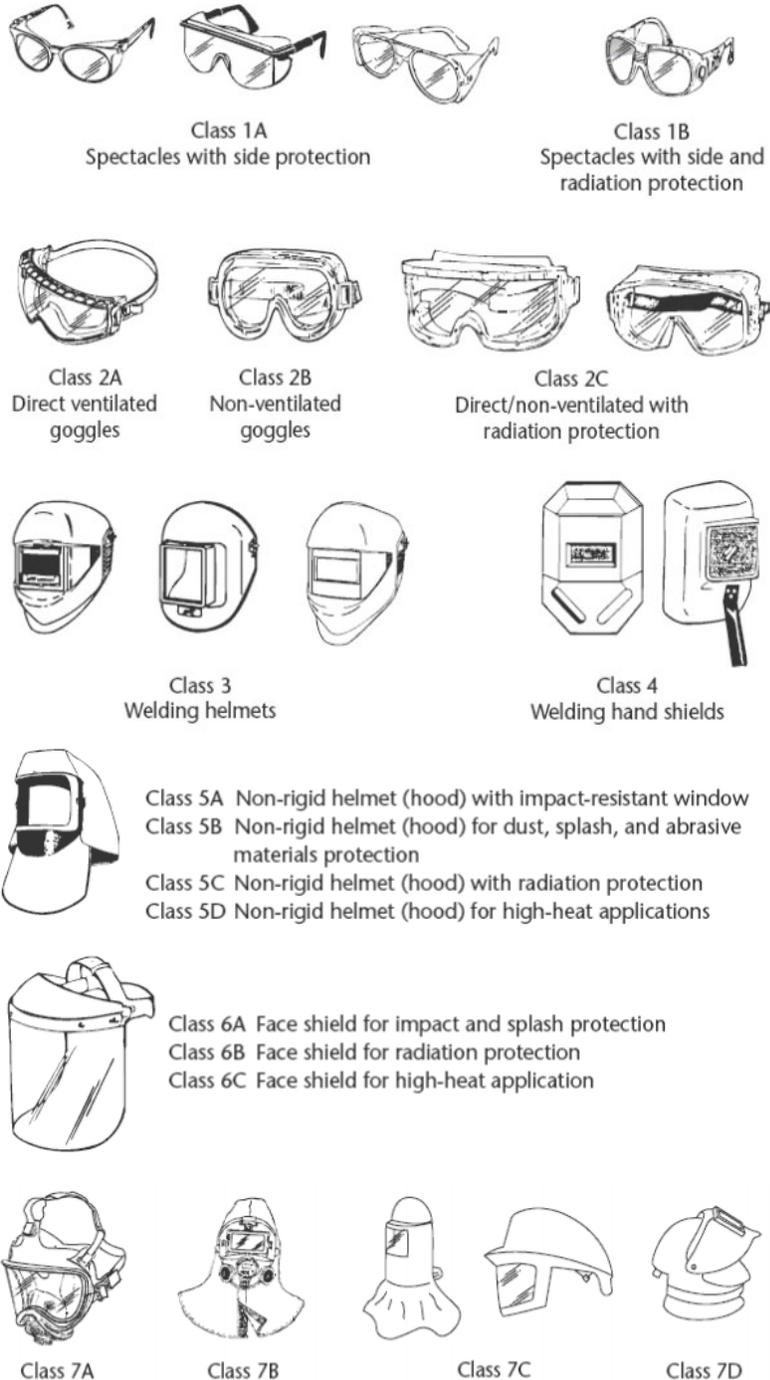
- **Minor splash hazards and light work:** Safety glasses with protective side shields are sufficient.
- **Moderate hazards and higher risk of splashing:** Safety goggles should be worn. Safety goggles are also recommended for dusty environments.
- **Severe hazards involving risk of ruptures or high splash hazards:** Face shields should be worn in conjunction with either safety glasses or goggles depending on the level of risk.
- **Ultraviolet Light (UV) exposure:** UV protective eyewear should be worn.
- **Electrical Arc Flash:** Arc-rated face shield or hood shall be worn.

Usage:

- Ensure safety glasses and goggles fit properly:
 - Should cover area from eyebrow to cheekbone, and across from the nose to the boney area near the temples.
 - Gaps between the edges of the device and the face should be kept to a minimum.
 - Should fit comfortably over the temples and the ears, as close to the face as possible and supported by the bridge of the nose.
- Inspect all safety eye wear before each use and replace scratched, pitted, broken or bent devices immediately.
- Store safety eye wear, face shields, or hoods in protective cases when not being worn and clean regularly.

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Figure B.1 CSA Classification of Protective Eyewear



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Table B.1 Protective Eyewear Selection Guide

| Nature of hazard | Typical hazardous activities | Spectacles | | Goggles | | | Welding helmet Class 3 | Welding hand shields Class 4 | Non-rigid hoods | | | | Face shields | | |
|---|---|------------|---|---------|---|---|------------------------|------------------------------|-----------------|---|---|---|--------------|---|---|
| | | Class 1 | | Class 2 | | | | | Class 5 | | | | Class 6 | | |
| | | A | B | A | B | C | | | A | B | C | D | A | B | C |
| Flying objects | Chipping, scaling, stonework, drilling, grinding, buffing, polishing, etc; hammer mills, crushing, heavy sawing, planing; wire and strip handling; hammering, unpacking, nailing; punch press, lathe work, etc. | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | | | ✓ | | |
| Flying particles, dust, wind, etc. | Woodworking, sanding; light metalworking and machining; exposure to dust and wind; resistance welding (no radiation exposure); sand cement, aggregate handling; painting; concrete work, plastering; material batching and mixing | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | | | ✓ | | |
| Heat, sparks, and splash from molten materials | Babbling, casting, pouring molten metal; brazing, soldering, spot welding, stud welding; hot dipping operations | | ✓ | | | ✓ | | | | | ✓ | ✓ | | ✓ | ✓ |
| Acid splash; chemical burns | Acid and alkali handling; degreasing, pickling and plating operations; glass breakage; chemical spray; liquid bitumen handling | | | | ✓ | | | | | ✓ | | | | ✓ | |
| Abrasive blasting materials | Sand blasting; shot blasting; shotcreting | | | | ✓ | | | | ✓ | | | | | ✓ | |
| Glare, stray light | Reflection, bright sun, and lights; reflected welding flash; photographic copying | ✓ | | ✓ | ✓ | | | | ✓ | ✓ | | | | ✓ | |
| Injurious optical radiation (where moderate reduction of optical radiation is required) | Torch cutting, welding, brazing, furnace work; metal pouring, spot welding, photographic copying | | ✓ | | | ✓ | | | | | ✓ | | | | ✓ |
| Injurious optical radiation (where large reduction of optical radiation is required) | Electric arc welding; heavy gas cutting; plasma spraying and cutting; inert gas shielded arc welding; atomic hydrogen welding | | | | | | ✓ | ✓ | | | | | | | |

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Contact Lenses:

Alberta OHS Code, Section 230 Contact Lenses states:

An employer must ensure that, if wearing contact lenses poses a hazard to the worker's eyes during work, the worker is advised of the hazards and the alternatives to wearing contact lenses.

The hazards present at MRU do not present an increased risk to contact lens wearers beyond the risk of damage to the eyes in general, provided recommended eye protection is worn.

Contact lenses should be removed at the first signs of eye irritation or redness. Only remove contact lenses in a clean environment after thoroughly washing your hands.

In the event of chemical exposure, begin eye irrigation immediately and remove contact lenses as soon as practical. Do not delay irrigation while waiting for contact lens removal. Additional information on the use of emergency eyewash stations can be found in the EH&S [Safe Work Procedure: Emergency Eyewash and Safety Showers](#).

APPENDIX C: SAFE WORK PRACTICE: HAND / BODY PROTECTION

Hand and Arm Protection:

There is a wide assortment of gloves, sleeves, and wristlets for protection against various hazards. Examples of injuries to arms and hands include burns, cuts, electrical shock, amputation and absorption of chemicals.

Employers need to determine the type and style of hand protection their workers need. Work activities should be studied to determine:

- how much finger dexterity is needed to safely do the work;
- the duration, frequency, and degree of exposure to hazards;
- breakthrough time (how long a glove can be used before the chemical will permeate through the material);
- degradation (how quickly the material will physically deteriorate due to contact with a chemical);
- and the physical stresses that will be applied.

The protection selected must be appropriate to the type of hazard identified in the Field Level Hazard assessment.

Safety Data Sheets of the chemicals you are working with will specify the best type of protective material (e.g. neoprene, rubber). The manufacturer's specifications and selection guides should also be consulted for information about the effectiveness of specific materials against specific chemicals.

Physical hazards to consider include sharp edges, puncture hazards, abrasion, electricity, heat or fire/flame, biological hazards, and vibration, all of which will be protected by different types of hand protection.

The table below lists the major hand protection options and guidance on the protection offered. Specific information on protection and limitations should be obtained from the manufacturer:

Table C.1 Protective Hand Protection Guidance

| Glove Type | Protection |
|-----------------------------------|--|
| Cotton / Fabric | Minor scrapes, abrasions Keep hands clean |
| Coated Fabric | General purpose Moderate puncture and cut resistance, abrasions Some moderately concentrated chemicals (depends on chemical and the type of coating on the glove) Coating makes gloves less flexible and less insulating in cold temperatures |
| Rubber, Plastic, Synthetic | Oils, solvents and other chemicals Biohazards (blood and potentially infectious material) |

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| Glove Type | Protection |
|---|--|
| | Increased dexterity, but poor protection from punctures, sharp edges, or abrasions |
| Leather | Resists sparks, cuts, abrasions, moderate heat or cold Suitable for welding or general purpose |
| Aluminized | High heat protection Suitable for welding or high-heat ovens |
| Kevlar | Cut and abrasion resistant, hot or cold temperatures |
| Puncture Resistant | Woven Kevlar or “scale-like” structure to defect puncture hazards |
| Impact-Resistant and Vibration-Resistant | Activities that include repeated or frequent impact or vibration to the hands |
| Butyl Rubber | Nitric acid, sulphuric acid, hydrochloric acid, peroxide Highly impermeable to gases, chemicals, water vapour Resists abrasion, cold Suitable for extended contact with a hazardous substance |
| Natural Latex / Rubber | Water solutions or acids, alkalis, salts, ketones Blood and potentially infectious materials Incidental contact situations |
| Neoprene | Hydraulic fluids, gasoline, fuels, alcohols, organic acids Suitable for extended contact with a hazardous substance |
| Nitrile Rubber | Chlorinated solvents and aromatic petroleum, acids, alcohols, caustics, oils and greases Abrasion, puncture resistant |

Body and Leg Protection:

Full body protection shall be worn when there is potential for contamination or exposure to parts of the body (e.g., legs, arms, back, chest) from heat, splashes from hot metals and liquids, impacts, cuts, chemicals, biohazardous material, and radiation.

Body protection can include the following:

- Lab coats
- Boot covers
- Aprons
- Bouffant caps
- Tyvek suits
- Coveralls

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Heat-resistant materials such as leather are often used in protective clothing to guard against dry heat and flame. When required, Flame Resistant / Fire Retardant Clothing will be as a minimum 6.0 oz. Plain weave, 100% Nomex 111A.

Rubber and rubberized fabrics, neoprene and plastic offer protection against some acids and chemicals. The manufacturer's specifications and selection guides should be consulted for information about the effectiveness of specific materials against specific chemicals.

Disposable suits of plastic-like or other similar synthetic materials are important for protection from dusty materials or materials that can splash. If the substance is extremely toxic, a completely enclosed chemical suit may be necessary.

The clothing should be inspected to ensure proper fit and function for continued protection.

To protect the feet and legs from falling or rolling objects, sharp objects, molten metal, hot surfaces, and wet slippery surfaces, workers must use protective footwear meeting the requirements of OHS Code Section 233 (also see Appendix E). Appropriate foot-guards, boots, leggings and chaps protect the legs and feet from molten metal or welding sparks.

Aluminum alloy, fiberglass, or galvanized steel foot-guards can be worn over work shoes, although they may catch on objects and cause workers to trip. Heat-resistant soled shoes protect against hot surfaces like those found in the roofing, paving, and hot metal industries.

Tasks and Suggested Hand / Body Protection

The type of hand and body protection required for a task will be determined through the completion of a field level hazard assessment, completed by the worker and reviewed by the supervisor and EH&S personnel.

Usage:

- Choose protective clothing that adequately protects from the hazard(s) of a specific job and adequately meets the specific tasks involved in the job (such as flexibility or dexterity).
- Follow the manufacturer's instructions for care, decontamination, and maintenance of equipment.
- Make sure the clothing fits properly and that all exposed skin is covered.
 - Gloves should be long enough so that there is no gap between the glove and sleeve.
 - Body and leg protection should not be so loose that it creates additional hazards (tripping, getting caught in equipment), but not so tight that it is uncomfortable.
- Do not wear gloves or other protection with metal parts near electrical equipment.
- Inspect gloves and clothing before use and contact your supervisor for replacement if worn or torn.
- Know how to safely remove, and either clean or dispose of used protective clothing, as appropriate. Hands-on training and the pre-job hazard assessment shall review the required procedures.

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APPENDIX D: SAFE WORK PRACTICE: LIFEJACKETS / PERSONAL FLOTATION DEVICES

The wearing of a flotation device is mandatory for all workers who work over water if the following conditions are met:

- No other safety measure may provide efficient protection, and
- The water is deep enough that a flotation device will provide protection.

Table D.1 Lifejackets vs Personal Flotation Devices

| Lifejacket | Personal Flotation Device |
|---|--|
| Designed to turn an unconscious person face up in the water | Will NOT turn an unconscious person face up |
| More buoyancy, especially in the front of the device – more bulk, less comfortable to wear | Less buoyancy, less flotation material – less bulk, more comfortable to wear |
| Available in bright yellow, orange, or red and come with a whistle | Variety of bright colours |
| Must have a permanent label, identifying the: <ul style="list-style-type: none"> • standard it meets • size of the jacket • mass (weight) of the person for which the jacket is designed • name of the manufacturer • lot number • date of manufacture • Transport Canada approval number. | Must have a permanent label, identifying the: <ul style="list-style-type: none"> • standard it meets • date of manufacture • acceptable chest size • name of manufacturer • Transport Canada approval number. |

Usage:

- Choose the appropriate type of flotation device to adequately protect from the hazard(s) of a specific job; consider the risk of falling unconscious in the water and flexibility needs for the task(s).
- Make sure the flotation device fits properly.
 - Select an appropriate size based on chest diameter. Some devices also size by weight.
 - Check fit by fastening the straps as per manufacturer's instructions and adjusting to ensure a snug fit. Hold your arms straight up over your head and have someone pull up on the top of the arm openings. The device should not ride up over your chin or face.
- Inspect flotation devices before each use. Look for rips and tears and ensure all straps and hardware is in good condition and is working correctly.
- Don't use flotation devices for anything other than intended use (e.g. boat cushion or fender).
- To clean, hand wash with a mild soap and water and air dry in a well-ventilated space out of direct sunlight.
 - Do not use a washing machine or heavy detergents.
 - Do not use direct heat to dry as this could damage the vinyl or plastic components.
- When possible, flotation devices should be stored hung and outside of direct sunlight.

Personal Protective Equipment**APPENDIX E: SAFE WORK PRACTICE: SAFETY FOOTWEAR**

Workers shall wear protective footwear (safety shoes or boots) when required to provide protection against falling objects, punctures, and penetration, as well as electrical hazards or conductive protection when applicable.

MRU shall provide orthopedic protective footwear to workers who have an appropriate medical prescription.

All protective footwear shall meet the requirements outlined in the current CSA Z195 "Protective Footwear" standard. Appropriate footwear must be determined for each position based on the hazard and risk assessment.

Potential hazards that should be assessed:

- Objects, material, or equipment that could fall onto, strike, or roll over the feet.
- Sharp or pointed objects that might cut the top of the feet.
- Objects that may penetrate the bottom or side of the foot.
- Uneven walking surfaces, loose ground cover, or rough terrain.
- Extreme hot or cold temperatures.
- Slippery walking surfaces (wet, oily, icy)
- Possible exposure to corrosive or irritating substances.
- Possible explosive atmospheres including the risk of static electrical discharges.
- Risk of damage to sensitive electronic components or equipment due to the discharge of static electricity.
- Risk of coming into contact with energized conductors of low to moderate voltage (e.g., 220 volts or less).
- Risk of exposure to rotating or abrasive machinery (e.g. chainsaws or grinders)

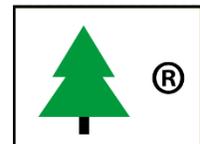
The most common level required is indicated by a green triangle. The CSA Green triangle patch indicates sole puncture protection with Grade 1 Protective toe to withstand impacts up to 125 joules. Sole puncture protection is designed to withstand a force of not less than 1200 Newtons (270 pounds).



For electrical work, footwear identified with a CSA white rectangle with orange Greek letter omega - Ω – are required. This symbol indicates soles that provide resistance to electric shock. Such certified footwear contains a sole and heel design assembly that, at the point of manufacturing, has electrical insulating properties to withstand 18,000 Volts and a leakage current not exceeding 1mA for 60 seconds.



When working with chainsaws or other cutting equipment, footwear with the green fir tree symbol should be selected. Additional protective clothing (including leg protection with ballistic nylon reinforcement) may be required.



Workers that regularly walk on uneven ground should select safety boots that provide protection and support for the ankle, rather than safety shoes.

Workers that are regularly exposed to slip hazards (indoors or outdoors) should select safety footwear with non-slip soles. Note that no single type of non-slip footwear can prevent the wearer from slipping on every surface type. For positions that regularly work out of doors in inclement weather, traction aids are recommended.

Workers exposed to corrosive chemicals or biohazards may require chemical resistant foot protection or Tyvek shoe covers.

Usage:

- Determine appropriate foot protection for the tasks to be completed.
- When purchasing footwear, ensure they have ample toe room. Make allowances for thicker socks if the footwear will be worn in cold weather. Do not expect safety footwear to stretch with use.
- If support insoles are required, test them in the footwear before purchase (when possible).
- Footwear should fit snugly around the heel and ankle when laced.
- Always lace up footwear fully to provide proper support to ankles (for boots) and reduce trip hazards.
- Use protective coating to make footwear water-resistant (when required).
- Inspect footwear regularly for cracks in soles or uppers, damaged laces, or exposed toe caps.
- Repair or replace worn or defective footwear.
- Note that electric shock resistance of safety footwear is greatly reduced by wet conditions and with wear.
- It's recommended that footwear exposed to impact or sole penetration is replaced.