

Subject: General Safety Rules  
& Personal Protective Equipment

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## General Safety Rules & Personal Protective Equipment

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# Brock University

## Facilities Management Operating Procedure

### 1.0 Background

This FMOP specifically addresses the requirement for general safety for Facility Management (FM) personnel, contractors & visitors to Facilities Management work spaces. It is the responsibility of each individual and supervisor to ensure adequate planning for the work to be done, evaluating what hazard the work presents and the measures that can be taken to control the hazards. It is not always possible to eliminate all hazards using engineering controls, (e.g. ventilation); administrative controls including changes to work processes should be considered as well such as using less toxic substances where appropriate. Once these measures are considered, then the use of Personal Protective Equipment to minimize risk is appropriate.

This document outlines the minimum requirements for Personal Protective Equipment (PPE) covering protective footwear, safety eyewear, work clothing and special equipment. All personnel, contractors and visitors to FM work spaces are responsible for making a personal commitment to themselves and to the University to work safely at all times, to be aware of their obligations under the Occupational Health and Safety Act (OHSA), and to abide by all safety rules.

*This revision outlines the requirement for Facilities Management staff and contractors to wear safety vests at all times working outside, wearing of safety glasses when working with cleaning chemicals, and outlines general requirements and personal protective equipment for laboratory and comparative bioscience facility access.*

### 2.0 Purpose of Procedure

To protect employees, visitors and contractors performing work when entering Facility Management or other University spaces, FM requires individuals to wear minimum PPE in specified work areas, or while performing specific job duties, and will ensure that such equipment is available for Brock employees. Minimum PPE includes safety footwear and adequate clothing. Additional safety equipment such as gloves, eye protection, hard hats/helmets or other, may also be required depending on the tasks being performed, the environment, a specific work activity, or as may be identified during a Job Risk Assessment (JRA). All PPE will be of safe design and certified (as needed) for the tasks/work to be performed.

Employees and contractors need to be aware of Brock University's Occupational Health and Safety Policy. All persons working on Brock's premises shall conduct their business in accordance with this procedure, the OHSA and this policy.

### 3.0 Roles and Responsibilities

#### 3.1 Facilities Management Managers/Project Managers/Supervisors

- Ensure compliance with all policies and procedures regarding safety and occupational health.
- Ensure employees do not begin working in any area requiring PPE until they have received training as required, have the required PPE, and receive fit testing as needed.

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- Maintain safety training records.
- Ensure any safety footwear or protective clothing/devices/equipment is CSA or MTO approved (if required).
- Ensure Job Risk Assessments (See FMOP 2-10 “Job Risk Assessments”) have been documented for work processes and job tasks to determine where additional PPE may be needed to protect workers. PPE should be used as a last resort if the hazard cannot be controlled by other means such as engineering controls, (for example, ventilation), redesign of work processes, or using less toxic substances.
- Ensure that employees have received adequate instructions before starting work. Review any special needs/circumstances with employee(s)/supervisor.
- Ensure employees follow University guidelines for purchase, replacement, proper use and maintenance of Personal Protective Equipment (PPE).

### **3.2 Employees/Lead Hands**

- Plan the work and tasks in a safe manner. Discuss special needs/circumstances with supervisor. Pre-plan the work through consultations with the supervisor/lead hand, as well as checklists or Job Risk Assessment (JRA).
- Wear PPE provided by and as required as outlined in this FMOP, the specific work activity or identified in the JRA (See FMOP 2-10 “Job Risk Assessments”).
- Ensure adequate knowledge of fit, wearing, maintaining and use of PPE. Ask your supervisor if you are not sure.
- Ensure you have the required skills and training to do the work requested. Advise your supervisor if you do not.
- Complete Authorization for Reimbursement form for prescription eyewear if required (Annex C), safety footwear (Annex D) or helmet (Annex E). Show protective eyewear and safety footwear to supervisor; attach original receipt to form, and then give to FM Administrator for processing for reimbursement.
- Inspect PPE before and after each use. Provide reasonable care and maintenance of PPE. Clean after use.
- Repair or replace damaged or broken PPE. Advise supervisor if replacement is not obtained.

### **3.3 Contractors**

- Follow all legal requirements, Brock Safety Policies, FMOPs and procedures, as well as posted or additional safety requirements communicated by the Project Manager. This includes ensuring work has been coordinated with Brock and the sub-trades, including issuance of Hot Work Permits, proper tag-outs for energized systems, and other required safe work pre-planning.
- Ensure all contractor employees are wearing suitable clothing and PPE as required by the work to be done and Brock requirements.
- Ensure PPE is in good working order.
- Discuss special needs/circumstances with Project Manager.

### **3.4 Human Resources/Environment Health & Safety (HREHS)**

- Provide training support and communications to employees about occupational

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health, safety and environmental matters.

- Provide input and technical assistance for Job Risk Assessments.
- Review requirements for adequate PPE.
- Provide periodic audit of work spaces and provide feedback or recommendations for safe working.

### **4.0 General Workplace Rules**

- 4.1 As part of Brock's commitment to ensuring a diverse and inclusive community where our students, staff, faculty, course participants, volunteers and visitors can work and learn in an environment that respects the dignity and worth of members of the Brock community, the "Respectful Work and Learning Environment Policy" outlines the requirements to ensure that these principles are implemented across the campus.
- 4.2 As per university policy, smoking is only permitted in specifically designated outdoor areas. All waste material is to be disposed in the provided receptacles. Burning materials shall be extinguished prior to disposal.
- 4.4 Keep work spaces clean and clutter-free. Remove waste as needed to minimize accumulation of combustibles. Contractors are to arrange for their own waste containers and for off-site waste removal.
- 4.5 The Service Tunnels, Cogeneration Plant, Mechanical Rooms & Electrical Rooms are considered "Restricted Spaces" where only authorized personnel are permitted. Hazards are present due to the operating equipment in these areas, and activities that may be underway (maintenance or construction work).
- 4.5 Ensure that all energy sources are identified and that provision is made for equipment & systems to be in "zero energy" condition before working on the equipment/system. See FMOPs 2-1 "Lockout/Tagout Procedures" and 2-7 "Electrical Safety Procedures" for more information.
- 4.6 Ensure that Job Risk Assessments (JRA) are completed as needed and that identified actions are incorporated into the work process. See FMOP 2-10 "Job Risk Assessments" for more information.
- 4.7 Ensure that Brock's Confined Space program requirements are followed. See FMOP 2-2 "Confined Space Program" for campus inventory and procedures.
- 4.8 Safety Equipment must never be by-passed or tampered with. For scheduled maintenance or construction work that may cause a "false alarm" of a fire monitoring system, a permit may be requested that describes the work to be done, and identifies the device that is requested to be taken out-of-service for a short period of time. A fire watch is to be maintained during the work, and a final inspection is required. For cutting and welding work, the fire watch is to be maintained for 30 minutes following the completion of the work. Equipment guards and safety equipment are to be installed prior to start-up of equipment.

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- 4.9 Prior to completing work, an assessment of the presence of hazardous materials (asbestos containing materials, mould, etc.) is to be made in conjunction with the supervisor, manager, Project Manager and/or HREHS. Inventories of hazardous materials are maintained by HREHS.
- 4.10 Ensure appropriate Personal Protective Equipment for the specific task. Jewelry, keys or clothing that is loose or dangling, or rings shall not be worn near any rotating shaft, spindle, gear, belt or other source of entanglement. Jewelry, watches and keys should be removed as part of work in mechanical or electrical work or as required due to Arc Flash protection requirements as per HRC-2 or 4 (Heat Rating Classification).

4.11 For entrance into laboratories (chemistry or biology or other), all posted requirements must be followed. Laboratory safety awareness or other training is required before entering these areas. Additionally, access to many laboratories is only with authorization as experiments may be underway. In addition to requirements for mandatory wearing of lab coats and safety glasses for all FM staff and contractors entering laboratories, signage is posted at the doors indicating additional special safety or PPE requirements. Be aware of special entry requirements, including traffic flow, hand washing, hygiene or other requirements. No metal tools are to be brought into the NMR suites (CRN 112 & 113 and MCH-206). See Annex F for a listing of the symbols and signage used in these areas.



4.12 Entry into the Class 3 Biosafety area -CFHBRC Level 500 - is only allowed during the periodic shutdowns once the area has been prepared for access and authorization has been received from the employee's Director.

4.13 For entrance into the Comparative Bioscience Facility (CBF) - CFHBRC Level 100, FM staff needs to be aware that the facility has special cleanliness requirements requiring foot covers or dedicated footwear, as well as protective gowns/coveralls. Training from the CBF staff must have been completed prior to entry. Authorization for each entry is also required from the CBF supervisor. There are traffic flow requirements (from 'cleaner' to 'less clean' areas) that must be maintained with access into the CBF. Any Facilities Management tools are to be wiped down with the disinfectant at the entry vestibules on entry and exit from the facility. Refer to CBF Standard Operating Procedures (SOP) for more specific information.

### 5.0 Personal Protective Equipment (PPE)

Clothing and PPE needs to be appropriate at all times. There are numerous regulatory requirements for workers in Industrial Establishments. The Occupational Safety Act and the Industrial Regulation 851 cover a broad range of topics including industrial hygiene, machine guarding, fire prevention, confined spaces, equipment maintenance, material handling, and protective equipment among others. In this document, typical requirements for tasks done by

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FM and their contractors are contemplated. Refer to Annex A for general guidelines on minimum protective clothing and PPE based on the typical activities. Workers and supervisors need to be aware of planned tasks and work and ensure that any special requirements are addressed prior to the work being done. See FMOP 2-10 “Job Risk Assessments” for additional information on Job Risk Assessments (JRA).

Clothing requirements for employees need to suit the anticipated environmental conditions, e.g. working out-of-doors or in non-air-conditioned spaces may require special considerations (e.g. after JRA, shorts may be permitted for certain tasks during high heat periods). See FMOP 2-13 “Preventing Heat Stress” for more detailed information.

Employees and supervisors are to refer to applicable Collective Agreements between the University and Bargaining units for specific PPE reimbursement provisions.

### **5.1 Protective Footwear**

Facilities Management employees are to wear appropriate slip-resistant footwear at all times while working.

- For Custodial staff this means sturdy, well-fitting, “closed toe” standard footwear for standard *cleaning* work tasks. *During set-up and/or moving of furniture safety shoes are needed.*
- For Maintenance & Operations trades, this means CSA-approved safety footwear certified with the “green Δ” tag and “orange Ω” tag (tested for electrical shock resistance).
- While protective footwear is typically not required in an office or residential environment, for employees where there is any danger of foot injuries (e.g. due to falling/rolling objects, potential for objects piercing the sole, or in areas where electrical or chemical hazards may exist) must have protective footwear available at their normal workplace for such use.

Safety footwear includes steel-toed work shoes or boots with a steel shank to protect the bottom of the foot from puncture wounds. In wet environments, steel-toed boots that are waterproof and slip-resistant are necessary. For workers regularly in Mechanical or Electrical Rooms or areas defined as HRC-2 or higher, footwear shall have leather uppers.

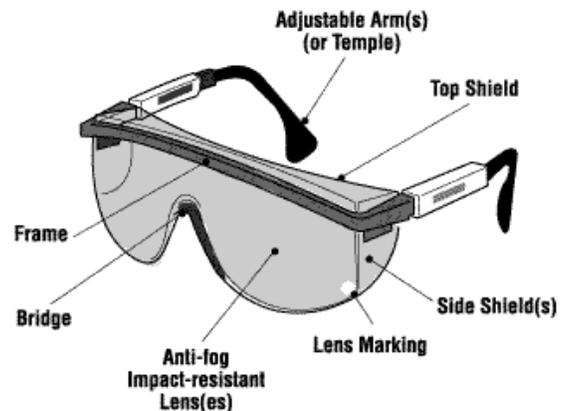
As protective footwear is a requirement for working in Maintenance & Operations and in other areas, Brock University will reimburse the employee as per the amounts outlined in the Collective Agreement(s). Costs in excess of allowed amounts are the responsibility of the employee. The employee’s supervisor/manager must examine the safety footwear (verifying the required “green Δ” and “orange Ω” tags) and sign the employee’s original receipt. The receipt is then given to the FM Administrator who will make arrangement for reimbursement. See Annex D.

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**5.2 Eye Protection**

Eye protection is required where there is a danger of flying objects, particles, liquids, sprays or other matter entering the eyes. Goggles that are suitable for protection from flying solid particles are not generally the recommended eyewear for protection against splashing. Eyewear should be impact resistant and can take many forms including:

- safety glasses (with permanently attached side shields),
- Chemical splash goggles, or
- Full-face protection.



Non-prescription safety eyeglasses will be supplied to staff, which in the course of their duties, must enter work areas requiring safety eyeglasses. Such glasses must have side shields. CSA-certified safety glasses have plastic polycarbonate lenses which are stronger than regular lenses, are impact-resistant, and come in prescription and non-prescription (plano or zero-power lens) forms. Safety frames are stronger than street-wear frames and are often heat resistant and are designed to prevent lenses from being pushed into the eyes.

If employees wear prescription eye-glasses and are required to regularly wear eye protection (e.g. electricians) they are to see their supervisor/manager, who will assist with an evaluation (Annex C Part 1). Generally one pair of CSA-approved Prescription Protective Eyewear would be reimbursed every 24 months. An Authorization Form (Annex C Part 2) will be completed by the employee and Manager for reimbursement. Note: Eye-exams are not covered by the Safety Eye-wear program.

*In order to enter a research or teaching lab, Facilities Management staff and contractors MUST wear eye protection, regardless of whether they intend to work in the lab or are simply passing through. The eye protection must provide a continuous brow bridge and side shields to mitigate the chances of foreign materials entering the eyes should something splash on the face to meet the following:*

- *safety glasses (e.g. UVEX Ultra-Spec 2001 (Product Number S0112C) available from CUB Stores or UVEX Astro OTG 3001(VWR Cat. No. CA33000-506), available from Science Stores, MC E 304. Alternatives to these models must be cleared with the Department Safety Officer.*
- *safety goggles that completely surround the eyes, or*
- *prescription safety glasses that have a brow ridge and side shields. Wear the aforementioned safety glasses over prescription lenses if they do not meet the laboratory safety requirement.*

Contact your supervisor or HREHS for additional information regarding chemical splash goggles or face shields.

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### **5.3 Clothing & Body Protective Clothing**

Appropriate clothing is protection for the worker in completion of their tasks. Generally, in university areas with access to the public, standard clothing is acceptable. For M&O personnel, long pants are considered the starting standard, with exceptions made for personnel for certain tasks working outside or in high heat situations (after JRA is done). For other measures to be taken for working in high temperature or high humidity (e.g. hydration, rest breaks or alternate clothing see FMOP 2-13 “Preventing Heat Stress”). For work in Mechanical or Electrical Rooms where electrical panels are closed, suitable clothing is required, with additional requirements (e.g. fire-rated or arc-rated clothing or work jackets) as needed by the specific task(s) to be done. (See Section 5.3.2.) Brock University will supply a work jacket, reflective vest or special work clothing as needed by the circumstances of the worker’s regular and special work tasks. See Annexes A & B for guidance in selection of minimum personal protective clothing and equipment.

#### **5.3.1 Protective Clothing - General**

Body protection may be required in various situations including burn or abrasion prevention, dusty environments or when handling dangerous chemicals. Through the JRA, measures to reduce the risk will be reviewed and implemented. The hazard to be controlled will determine the type of protection that is most appropriate, for example, an apron, coveralls or a full body suit. Information specifying the best type of chemical protective material is what shall be on the Material Safety Data Sheet (MSDS) e.g., neoprene, butyl rubber. If this information is missing, contact the supplier or manufacturer of the product or HREHS. Manufacturers of chemical protective gloves and clothing may also assist in making the appropriate choices.

#### **5.3.2 Protective Clothing for Entry & Work in Mechanical & Electrical Rooms**

In order to comply with CSA Z462-08 Workplace Electrical Safety, Brock University has adopted a simplified, flame & heat resistant clothing system (called Heat Rating Classification or HRC), as detailed in CSA Z462 - Appendix H. All work in proximity to installed electrical equipment (e.g. in Mechanical and Electrical Rooms) will be performed based on HRC-0, HRC-2 or HRC-4 requirements, as applicable and defined in Tables 4 and 5 of the CSA Z462-08 standards. Clothing and equipment shall be suitable to protect the worker from shock and arc-flash hazards. Required clothing and equipment will be worn alone or integrated with non-melting apparel. If fire rated (FR) clothing is required, it shall cover associated parts of the body.

PPE is selected based on the hazard to which employees may be exposed. Some PPE is designed to provide protection from electrical shock, yet might not be adequate for protecting from flash hazards; PPE designed for flash protection may not provide protection from electrical shock. See Annex A for typical requirements for each class of apparel. For arc-flash protection, voltage-rated gloves must be used with leather protectors. The minimum PPE level for entry into Mechanical or Electrical Rooms is HRC-0. All work in Mechanical & Electrical rooms or any area with exposed electrical conductors shall be as per arc-flash labeling based on HRC-0, HRC-2 or HRC-4 requirements, as applicable and defined in CSA Z462. See also Brock document FMOP 2-7 “Electrical Safety Procedures” for more detailed information.

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Risk Category (HRC)	Description of clothing	Arc-Rating (minimum (cal/cm <sup>2</sup> ))
0	Long Sleeves, Long Pants. Materials to be non-melting or untreated natural fiber such as cotton, wool, rayon or silk, or blends of these materials with a fabric weight of at least 4.5 oz/yd <sup>2</sup> .	N/A
2	Arc-rated FR shirt and FR pant or FR coverall.	8
4	Arc-rated FR shirt and FR pant or FR coverall, and arc-flash suit selected so that the system arc-rating meets the required minimum.	40

### 5.3.3 High-Visibility Safety Apparel

For all work done outside, or working in low-light conditions (e.g. power shutdowns), on roofs, or susceptible to injury from vehicles or other dangers, high-visibility clothing shall be worn by Facilities Management staff and contractors.

High-visibility safety apparel (HVSA) is clothing (e.g. “5-point tear away” vests, bibs, shirts or coveralls) ensure that workers are more visible and to alert drivers or others of a worker’s presence. High-visibility clothing is typically made from polyester which is combustible so special care is required when fueling equipment or vehicles. See Annex B for specific requirements for each class of apparel.

### 5.3.4 Protective Clothing for Entry & Work in Laboratories

In order to enter a research or teaching lab, Facilities Management staff and contractors are to have completed orientation training and MUST follow the requirements POSTED for the area (See Annex F for the legend). This includes:

- Mandatory wearing of a clean lab coat, regardless of whether the FM staff or contractor intends to work in the lab or is simply passing through. Lab coats will be assigned through the supervisor for employees regularly working in scientific areas. For occasional access, lab coats are located in the building (e.g. in Mechanical Rooms in CFHBRC on Levels 100, 400 & 500). Borrowed lab coats are to be returned to the location from where they were taken.
- Mandatory Wearing of safety glasses or goggles (See Section 5.2)
- Wearing appropriate gloves (if needed)
- Being aware of special requirements outlined in SOPs for these areas.

### 5.3.4 Protective Clothing for Entry & Work in Comparative Bioscience Facility

In order to enter the CBF, Facilities Management staff and contractors are to have completed orientation training and MUST follow the requirements POSTED for the area. This includes:

- Wearing a clean gown or coveralls (available in the entry vestibules) over regular clothing.

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- *Mandatory wearing shoe covers or “booties” or use of CBF dedicated footwear*
- *Showering, or other hygiene routine on entry or exit from the area (includes hand washing before and after entering certain rooms)*
- *Following flow of traffic (“cleaner” to “less clean” areas) requirements*
- *Wearing appropriate gloves*
- *Being aware of special requirements outlined in SOPs in these areas.*

**5.4 Hand Protection**

Appropriate protective gloves are to be worn in all situations where the hands are potentially exposed to workplace hazards such as chemicals, infectious agents, cuts, lacerations, abrasions, punctures, burns and harmful temperature extremes. Glove selection is based on the job risk assessment (JRA) to identify the specific hazards related to the types of chemicals or other hazardous materials to be used, the specific tasks to be performed, and the conditions and duration of such work. The performance characteristics of a particular glove and its ability to protect against the specific hazards encountered are based on a number of factors, including the type of glove material, the manufacturing process, and its thickness, design and size. Glove manufacturers’ performance data should be consulted for physical and chemical resistance properties of their particular glove products.

Gloves may be made of many different materials - cotton, leather, rubber, or other materials impervious to liquids. Often, there are few alternatives available, or an emergency (e.g. a spill) requires their use. Many types are available through Stores. Since the clothing is the last line of defense for protecting the skin, care must be taken to ensure it provides the protection expected. For arc-flash protection, voltage-rated gloves must be used with leather protectors. The following chart provides a general guide to protective glove selection.

Nature of Hazard	Degree of Hazard	Protective Glove Material
Abrasion	Severe	Reinforced heavy rubber, staple-reinforced heavy leather
	Moderate	Rubber plastic, polyester, nylon, cotton
Sharp Edges	Severe	Metal mesh, staple-reinforced heavy leather, Kevlar-steel mesh
	Moderate	Leather, terycloth, Aramid fibre
	Mild for Delicate Work	Lightweight leather, polyester, nylon, cotton
Chemicals & Fluids	Refer to product material safety data sheet (MSDS) or glove manufacturer data	Dependent on specific chemical hazards: Natural rubber, neoprene, butyl rubber, Viton, polyvinyl chloride, polyvinyl alcohol
Cold	Moderate or Severe	Leather, insulated plastic or rubber, wool, cotton, cold resistant specialty fabrics (e.g. Zetex). Loose fitting gloves for liquid nitrogen or carbon dioxide.

Nature of Hazard	Degree of Hazard	Protective Glove Material
Heat	High temperatures (>350°C) Medium high temperatures (<350°C) Warm temperatures (<200°C) Less warm temperatures (<100°C)	Heat resistant specialty fabrics  Nomex, Kevlar, Zetex, heat-resistant leather with linings Nomex, Kevlar, Zetex, heat-resistant leather, terry cloth (Aramid fiber)  Chrome-tanned leather, terry cloth
Electricity	HRC-0 HRC-2 HRC-4	Rubber-insulating gloves and mitts tested to appropriate voltage with leather outer glove as per CSA Standard Z259.4-79
General Duty	Low risk duties	Cotton, terry cloth, leather, rubber, plastic

Adapted from Safety Infogram produced by the Canadian Centre for Occupational Health and Safety, January 1998

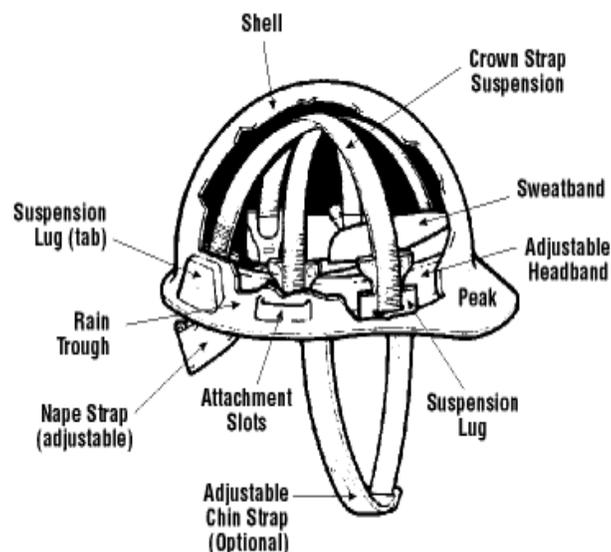
## 5.5 Head Protection

Hard hats and helmets are types of protection that are to be used if there is a hazard of head injury. Head injuries can occur under various circumstances including as the result of a slip or fall, working in confined areas, where there are low ceilings or passage heights, or where there may be falling objects. The correct headwear is needed for the job. For example, for exterior construction sites at the University, hard hats are required. For interior construction or work involving risk of head injury, the Project Manager/supervisor will determine the requirement for hard hats. Refer to CSA Standard Z94.1-05 "Industrial Protective Headwear - Performance, Selection, Care, and Use".

Classes of construction headwear include:

Type 1 - protection from impact and penetration at the crown (top) &

Type 2 - protection from impact, penetration at the crown (top) and laterally (sides).



Headwear consists of a shell and the suspension. These work together as a system and both need regular inspection and maintenance. Winter liners shall be inspected to ensure they do not interfere with fit of headwear. Chin Straps are required for Confined Space work as well as when required for unlicensed vehicles or bicycles. Do not draw the chin strap over the brim or peak of the headwear. Do not wear baseball style hats under the headwear as it interferes with the suspension. Do not paint the hard hat. Replace the hard hat after impact or after maximum 3 years.

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For head protection while operating an unlicensed vehicle without seatbelts or a bicycle, then a CSA or MTO approved helmet should be worn. Bicycle helmets are to have a smooth outer surface, be constructed so that the helmet is capable of absorbing energy on impact and be strongly attached to a strap designed to be fastened under the chin of the wearer. The half-shell type motorcycle helmet has a hard, smooth outer shell lined with protective padding material or fitted with other energy absorbing material and be strongly attached to a strap designed to be fastened under the chin of the wearer. Employees regularly using these modes of travel are to work with their supervisor who will arrange for a suitable helmet to be provided. See Annex E for reimbursements for helmets.

### **5.6 Hearing Protection**

Hearing protection is to be worn in work environments where noise levels exceed 85 decibels or where there are arc-flash considerations. Hearing protection will be selected to reduce noise levels to below 85 dB. Only hearing protection with noise reduction rating will be used. There are many types of hearing protection, including earplugs or muffs (available through Stores). Hearing protection shall be CSA-approved and suitable for the work environment and provide adequate noise reduction. For areas with very high noise levels, two levels of hearing protection may be required e.g. ear muffs with ear plugs depending on the duration of the work.

- Ear plugs are inserted to block the ear canal. They may be pre-moulded (pre-formed) or moldable (foam ear plugs).
- Semi-insert ear plugs which consist of two ear plugs held over the ends of the ear canal by a rigid headband.
- Ear muffs consist of sound-attenuating material and soft ear cushions that fit around the ear and hard outer cups. They are held together by a head band.
- For Arc-Flash HRC-4 non-melting hearing protection shall be used.
- Care should be taken to ensure that communications are still possible when hearing protection is needed. This may be a visible cue or other type of system to ensure that fire alarms and other safety alerts can be adequately communicated.

### **5.7 Respiratory Protection**

There are many types of dust masks or respirators available to protect against a variety of atmospheric hazards. First measures are to reduce the hazard if possible, then to use mechanical ventilation, and as a last resort to use respiratory protection. These are hazard-specific, meaning that a cartridge designed to filter out a particular gas may not protect a worker from exposure to a different gas. They must not be used in oxygen deficient atmospheres.

It is important that the protection being used for a particular job is suitable for the hazard in question. Using the wrong dust mask or respirator can be as dangerous as not wearing one at all. All masks and respirators must fit well and provide a proper seal with the wearer's face in order to provide adequate protection. Standard dust masks are available through Stores. For specialized tasks, the supervisor, with assistance of HREHS if needed, will obtain the required protection and ensure training and fit-testing

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is done on an annual basis. Removal of facial hair or use of alternate protection may be required for safe use of respirators.

- Disposable dust masks or respirators are to be used where dusts, mists and fumes may be present. They must not be used in oxygen deficient atmospheres.
- Chemical cartridge respirators are to be used to filter out gases and organic vapours.
- Refer to manufacturer's recommendations for selection of appropriate cartridge type depending on the specific hazard.

### **5.8 Leg Protection**

When using a chainsaw, protective chaps with sewn-in ballistic nylon shall be worn. When using line trimmers or "push" lawn mowers, long pants shall be worn.

### **5.9 Fall Protection**

If there is a risk for falling 3 meters or more (measured from the feet to the lower surface), or potential for work to be done within 2 meters of an unprotected roof or change in elevation, then the appropriate fall restraints/protective equipment shall be used. Fall restraints include permanent or temporary fencing or restraints installed when work is closer than 2 meters to the change in elevation. Fall protection includes the use of safety belts, harnesses and lifelines to prevent injury due to a fall from a height. The manager/ supervisor will obtain with assistance of HREHS if needed, and ensure training to employees is given on an annual basis. (See FMOP 2-10 "Pre-Job Risk Assessments" & FMOP 2-11 "Ladder Safety" for more information.)

Annual inspections of fall protection equipment are required. Do not tamper with or mark, paint or damage fall protection equipment.

### **6.0 References**

#### **6.1 Legislation & Standards**

The following legislation, regulations or standards apply to this procedure:

- Occupational Health and Safety Act RSO, 1990 Ontario
- Industrial Establishments Regulation RSO 851, 1990 Ontario
- CSA Standard Z460-05 Control of Hazardous Energy - Lockout and Other Methods
- CSA Z462-08 Workplace Electrical Safety
- CSA Standard Z94.2-02 (Reaffirmed 2007) "Hearing Protection Devices - Performance, Selection, Care and Use"
- CSA Standard Z94.3.1-09 "Selection, use and care of protective eyewear" by Canadian Standards Association, 2009 and ANSI Z87.1-2003
- CSA Standard Z94.1-05 "Industrial Protective Headwear - Performance, Selection, are, and Use"
- CSA Standard D113.2-M89 "Cycling Helmets"
- CSA Standard D230 "Safety Helmets for Motorcycle Riders"

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- CSA Standard Z195-09 "Protective Footwear"
- CSA Standard Z96-09 "High-Visibility Safety Apparel" and related guideline "CSA Z96-02, Guideline on selection, use, and care of high-visibility safety apparel"
- CSA Standard Z259.1-95 "Safety Belts and Lanyards"
- CSA Standard Z259.4 M-79 "Full Body Harnesses"
- CSA Standard Z259.10-06 " Rubber Insulating Gloves and Mitts"
- CSA Standard Z94.4-02 (R2008) "Selection, Use and Care of Respirators"
- ASTM F1897-08 "Standard Specification for Leg Protection for Chain Saw Users"

### 6.2 Brock Documents

Occupational Health & Safety Policy

Respectful Work and Learning Environment Policy

FMOP 2-1 Lockout/Tagout Procedures

FMOP 2-2 Confined Space Program

FMOP 2-7 Electrical Safety Procedures (future)

FMOP 2-10 Job Risk Assessments (future)

FMOP 2-11 Ladder Safety

FMOP 2-12 Mould Remediation Procedures (future)

FMOP 2-13 Preventing Heat Stress (future)

FMOP 3-4 Scheduling Fire Alarm System & Electrical Interruptions

*Brock Office of Research Services*

*SOP-CBF02 "Entry into Comparative Bioscience Facility)"*

*Brock Chemistry department Directive CHEM-HS-0001*

*"Personal Protective Equipment in the Department of Chemistry"*

### Annexes

Annex A Summary Table for Minimum Personal Protective Equipment

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Annex A Summary Table for Minimum Personal Protective Equipment

Occupancy/Area	Footwear	Clothing	Eye / Hearing Protection	Headwear, Respiratory, Safety Vest or Other
University Public Access Areas, Office, Residences & Common Areas	Standard footwear. No restrictions	Standard clothing. No restrictions	None	Applies to general public & visitors
Custodial - general or cleaning <b>working indoors</b>	Sturdy, slip resistant, comfortable “Closed Toe” footwear	Standard clothing. Shorts are permitted unless “long pants” or other required by Job Risk Assessment (JRA)	<b>Safety glasses when cleaning with cleaning solutions or chemicals</b>	<b>Gloves suitable for chemical or task as needed</b>
Custodial - furniture and equipment moving	Green Δ Safety shoes	Standard clothing. Shorts are permitted unless “long pants” required by JRA	None	<b>High Visibility Safety Vest required if loading or unloading on roadway, parking lot or laneway.</b>  Gloves to protect from sharp edges
Custodial - operating baling/compactor equipment	Green Δ Safety shoes	Standard clothing - long pants	Safety glasses	Gloves to protect from sharp edges
Custodial and/or chemical handling/dispensing including mould removal <10 ft <sup>2</sup>	“Closed Toe” Standard footwear	Standard clothing. Other items (long pants, long sleeves or protective apron) as required by JRA	Safety glasses	Gloves suitable for chemicals or task.  For “limited” mould removal - Respirator (see FMOP 2-12)

Annex A Summary Table for Minimum Personal Protective Equipment

Occupancy/Area	Footwear	Clothing	Eye / Hearing Protection	Headwear, Respiratory, Safety Vest or Other
<i>Custodial - exterior work</i> <i>e.g. Window or exterior cleaning, recycling, etc.</i>	<i>Sturdy, slip resistant, comfortable "Closed Toe" footwear or Safety shoes as per work assignment</i>	<i>Standard clothing. Shorts are permitted unless "long pants" or other required by Job Risk Assessment (JRA)</i>	<i>Safety glasses when cleaning with cleaning solutions or chemicals</i>	<i>High Visibility Safety Vest required</i> <i>Appropriate sun protection e.g. broad-brimmed hat and sunscreen based on environmental, personal and task factors</i> <i>Gloves as per material, task and/or JRA.</i>
<i>Laboratories</i>	<i>Sturdy, slip resistant, comfortable "Closed Toe" footwear or Safety shoes as per work assignment</i>	<i>Lab Coat (buttoned) Certain laboratories may require a "dedicated" lab coat or other</i>	<i>Safety glasses or goggles</i> <i>Hearing protection depending on activity and local conditions</i>	<i>Follow POSTED requirements for each lab</i>
<i>Comparative Bioscience Facility (CBF)</i>	<i>Sturdy, slip resistant, comfortable "Closed Toe" footwear or Safety shoes as per work assignment</i>  <i>Clean shoe covers</i>	<i>Disposable lab coat, surgical gown or coveralls</i>	<i>None</i>	<i>Follow POSTED requirements</i>  <i>Special hygiene routine is needed for certain areas - See SOP CBF-02</i>  <i>Follow traffic flow order- 'cleaner' to 'less clean'</i>
Passage through Service Tunnels & Mechanical Rooms (within yellow lines)	"Closed Toe" Standard footwear	Standard clothing - long pants	Safety glasses or goggles Hearing protection depending on activity and local conditions	Also applies to Custodial, Administrative staff and Visitors

Annex A Summary Table for Minimum Personal Protective Equipment

Occupancy/Area	Footwear	Clothing	Eye / Hearing Protection	Headwear, Respiratory, Safety Vest or Other
Use of bicycles (in tunnels or on campus)	As per work assignment	As per work assignment	None	CSA approved bicycle helmet
Work in Tunnels, Mechanical Rooms & Crawl Spaces - General work, not in vicinity of electrical panels	Safety shoes/boots. Green Δ, Orange Ω tags	Standard clothing - long pants.  Other items (e.g. long sleeves) as required by JRA	Safety glasses or goggles and hearing protection depending on activity and local conditions	Dust mask if dusty environment as per JRA. Communicate with supervisor for more information.  Gloves as per material, task and/or JRA.  High Visibility Safety Vest required in low visibility conditions (e.g. shutdowns)  Jewelry, watches & keys to be removed when working near rotating equipment.
Confined Spaces  See FMOP 2-2 for more information  <b>Minimum - 2 trained persons</b>	Safety shoes/boots. Green Δ, Orange Ω tags	Standard clothing - Long pants & long sleeves	Safety glasses or goggles  Hearing protection depending on activity and local conditions	Gas Monitor Helmets c/w light & chin strap Personal harness Entry & Rescue equipment - depending on energy & potential hazards

Annex A Summary Table for Minimum Personal Protective Equipment

Occupancy/Area	Footwear	Clothing	Eye / Hearing Protection	Headwear, Respiratory, Safety Vest or Other
<p>Mechanical &amp; Electrical Rooms General work, no exposed electrical conductors</p> <p><b>HRC-0</b> as per CSA Z462</p>	<p>Safety shoes/boots. Green Δ, Orange Ω tags</p>	<p>CSA Z462 HRC-0 clothing: Long sleeves, Long Pants materials to be non-melting or untreated natural fiber such as cotton, wool, rayon or silk, or blends of these materials with a fabric weight of at least 4.5 oz/yd<sup>2</sup></p>	<p>Safety glasses or goggles and hearing protection depending on activity and local conditions</p>	<p>Dust mask if dusty environment as per JRA. Communicate with supervisor for more information.</p> <p>Gloves as per material, task and/or JRA.</p> <p>High-Visibility Safety Vest required in low light conditions (e.g. shutdowns).</p> <p>Jewelry, watches &amp; keys to be removed when working near rotating equipment.</p>
<p>Mechanical &amp; Electrical rooms or any area with exposed electrical conductors as per arc flash labeling /distance</p> <p><b>HRC-2</b> as per CSA Z462</p>	<p>Leather Safety shoes/boots. Green Δ, Orange Ω tags</p>	<p>Long sleeves &amp; Long Pants or Coveralls.</p> <p>FR material or HRC-2 FR rated clothing (min arc rating of 8 cal/cm<sup>2</sup>)</p>	<p>Safety glasses or goggles (Class 2)</p> <p>Hearing protection</p> <p>Arc-rated Face Shield</p>	<p>Hard hat or helmet</p> <p>Leather gloves and/or voltage gloves</p> <p>No jewelry, watches or keys</p>

Annex A Summary Table for Minimum Personal Protective Equipment

Occupancy/Area	Footwear	Clothing	Eye / Hearing Protection	Headwear, Respiratory, Safety Vest or Other
Mechanical & Electrical rooms or any area with exposed electrical conductors as per arc flash labeling  HRC-4 as per CSA Z462	Leather Safety shoes/boots. Green Δ, Orange Ω tags	Long sleeves & Long Pants or Coveralls.  FR material or HRC-4 FR rated clothing assembly (min arc rating of 40 cal/cm <sup>2</sup> )	Arc-flash face shield c/w hood (Class 4)  Hearing protection (non-melting) depending on activity and local conditions	Hood with FR Hard hat liner Leather gloves and/or voltage gloves FR High-Visibility Safety Vest required in low light conditions (e.g. shutdowns) No jewelry, watches or keys
FM Vehicles (licensed)	As per planned work activities	Standard clothing.  Other items as required by work activity	None	High-Visibility Safety Vest required if working outside
FM Vehicles (unlicensed or licensed) e.g. Golf Carts, Off-Road & Utility Vehicles and Snow Removal Equipment	Safety shoes/boots. Green Δ, Orange Ω tags	Standard clothing.  Other items as required by work activity	Hearing protection mandatory in fueled RTVs, mowers, tractors, loaders & litter vac	High Visibility Safety Vest or apparel required Off-Road & Utility Vehicles & Golf Carts without seatbelts require MTO approved helmet
Fueling Operations at CUB or for portable equipment	As per planned work activities	Standard clothing	Eye splash protection to be worn.	NO SMOKING. Vehicle to have ignition “off”. No cell phone usage. Allow 2 minutes cool down before fueling. Remove High Visibility vests due to flammability issues.

Annex A Summary Table for Minimum Personal Protective Equipment

Occupancy/Area	Footwear	Clothing	Eye / Hearing Protection	Headwear, Respiratory, Safety Vest or Other
Grounds & Exterior Work Areas within 3 m including roadways and parking lots and completing locates	Safety shoes/boots. Green Δ, Orange Ω tags	Polyester “Wicking” material permitted. Shorts are permitted depending on JRA.  Long pants required if using line trimmers, mowers or as required by JRA	Safety glasses or goggles (Class 2) required if using mowers, blowers, line trimmers, cut-off saws, edgers, etc.  Hearing protection depending on activity and local conditions	High Visibility Safety Vest or apparel required  Appropriate sun protection e.g. broad-brimmed hat, long sleeves/pants and sunscreen based on environmental, personal and task factors
Grounds, Chain Saw usage  Minimum - 2 trained persons	Safety shoes/boots. Green Δ, Orange Ω tags	Polyester “Wicking” material permitted. Long pants required.	Safety glasses or goggles (Class 2) and face shield. <b>Note:</b> face shield without safety glasses does not provide adequate eye protection  Hearing protection is required	High Visibility Safety Vest or apparel Mandatory Leg Chaps with sewn-in ballistic nylon pads as per ASTM F189708 Leather gloves with ballistic nylon reinforcement on the back
Carpenter or Locksmith Shops or similar work on campus	Safety shoes/boots. Green Δ, Orange Ω tags	Standard clothing - long pants.  Short or long close-fitting sleeves.	Safety glasses or goggles and hearing protection depending on activity and local conditions (e.g. grinding, using chemicals, etc.) as required by JRA.	Dust mask or respiratory protection as required (e.g. sanding or painting)

Annex A Summary Table for Minimum Personal Protective Equipment

Occupancy/Area	Footwear	Clothing	Eye / Hearing Protection	Headwear, Respiratory, Safety Vest or Other
Building Roof Access - assumes passage/movement > 2 m from edge	Safety shoes/boots. Green Δ, Orange Ω tags	Clothing as per work requirements	Safety glasses or goggles and hearing protection depending on activity and local conditions	High Visibility Safety Vest or apparel  Respirator may be required for HVAC unit servicing  Fall restraint needed if <2 m to edge - see FMOP 2-11 for more info.
Construction Site/Designated Construction Site or Work Areas	Safety shoes/boots. Green Δ, Orange Ω tags	Long sleeves Long Pants	Safety glasses or goggles and hearing protection depending on activity and local conditions or as posted	Construction hard hat Safety vest - exterior work, low-light conditions or as posted  Other items as per posted requirements

Job Risk Assessment (JRA)

## Annex B High-Visibility Safety Apparel

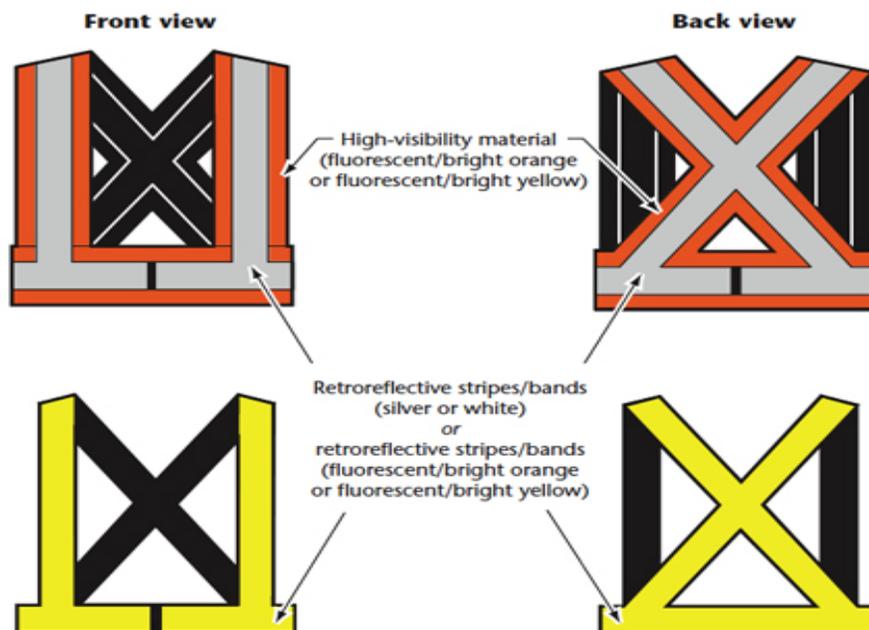
For FM employees and contractors working in low-light conditions (e.g. power shutdowns), on roofs, or outside, (including on/near roads or susceptible to injury from vehicles or other dangers), high-visibility clothing shall be worn. High-visibility safety apparel (HVSA) is clothing (e.g. "5-point tear away" vests, bibs, shirts or coveralls) ensure that workers are more visible and to alert drivers or others of a worker's presence.

CSA lists three classes of garments based on body coverage provided. Each class covers the torso (waist to neck) and/or limbs according to the minimum body coverage areas specified for each class.

**Class 1:** Class 1 provides the lowest recognized coverage and good visibility. Apparel consists of a basic harness or stripes/bands over the shoulder(s) and encircling the waist. The center portion of the front torso band between the two vertical bands is optional.

Examples of situations where you may use Class 1:

- Workers in activities that permit full and undivided attention to approaching traffic.
- When work backgrounds are not complex, allowing for optimal visibility.
- When workers on foot are separated from traffic (e.g. by barriers).
- Workers directing vehicle operators to parking or service locations.
- "Right-of-Way" or sidewalk maintenance workers.
- When vehicles or equipment are moving between < 35 km/hr (20 mph).

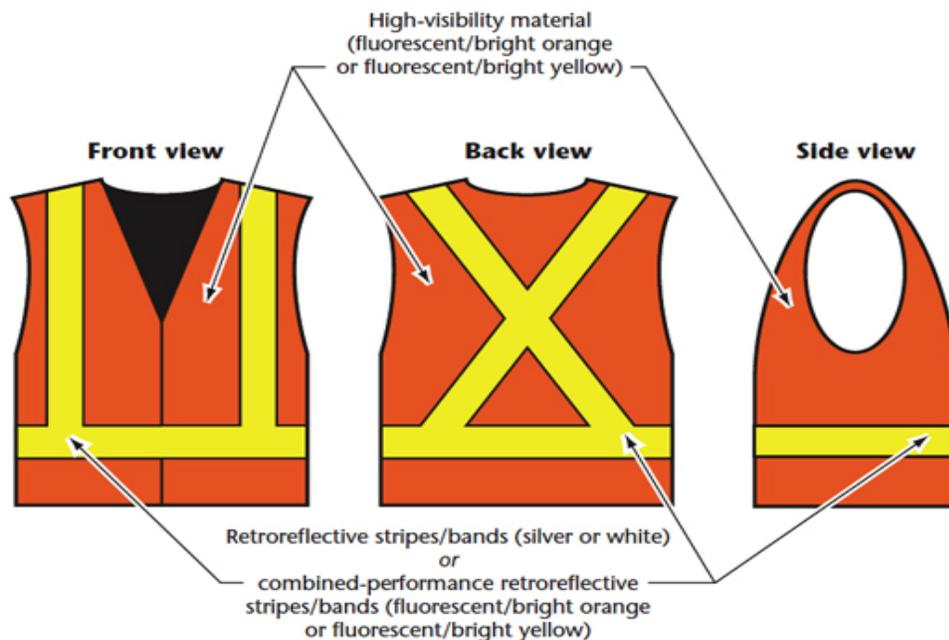


**Figure 1**  
**Examples of Class 1 Apparel**  
**Harness or Colour / Retroreflective Stripes on Other Clothing**

**Class 2:** Class 2 provides moderate body coverage and superior visibility. Apparel provides wearer with more visibility than Class 1. Apparel has full coverage of the upper torso (front, back, sides, and over the shoulders) and includes bib-style overalls. Stripes/bands are composed of retroreflective or combined performance materials.

Examples of situations where you may use Class 2:

- When vehicles or equipment are moving between 40-80 km/h (25-50 mph).
- Workers who require greater visibility under inclement weather conditions or low light.
- When workers are performing tasks that divert attention from approaching vehicle traffic.
- When work activities are in closer proximity to vehicles (in or near flowing vehicle traffic).
- Roadway construction, utility, forestry or railway workers.
- Roadside vehicle maintenance workers

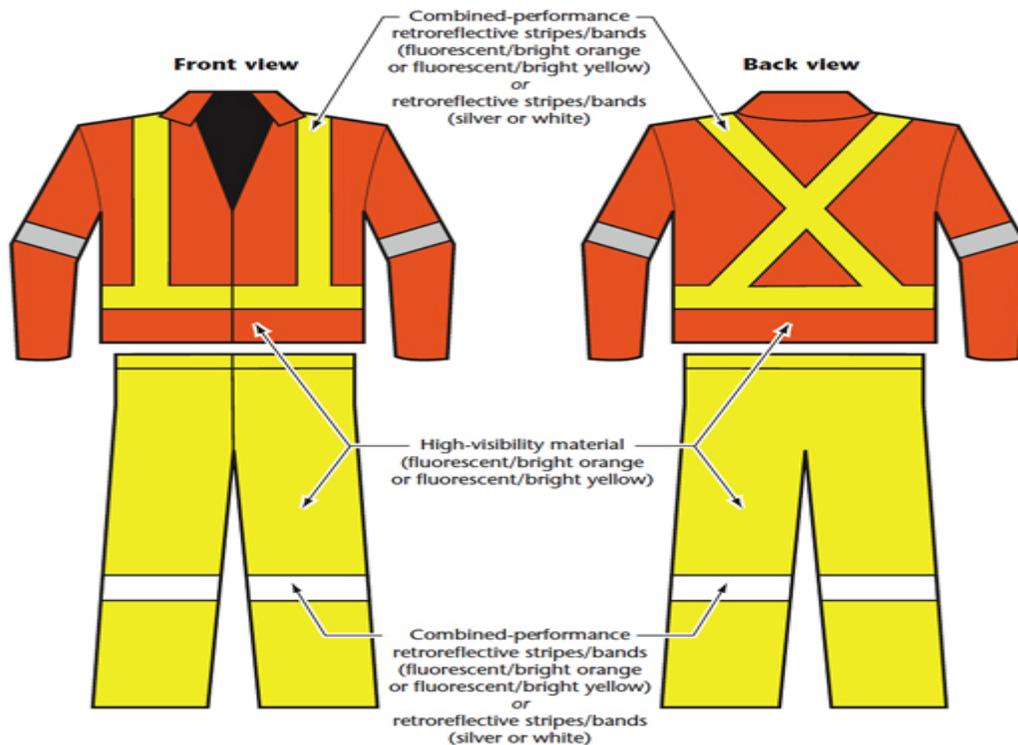


**Figure 2**  
**Examples of Class 2 Apparel**  
**Vests**

Class 3 - Class 3 provides the greatest body coverage and visibility under poor light conditions and at great distance. Apparel meets the same requirements as Class 2 with the addition of bands around both arms and legs. These bands are made up of combined performance stripes/bands or a combination of retroreflective and background material. Background material can cover the whole garment or a portion of the garment.

Examples of situations where you may use Class 3:

- Roadway construction workers in inclement weather, road closures, complex lane shifts
- Utility workers & Survey crews
- Flaggers in night operations and/or high congestion areas



**Figure 3**  
**Examples of Class 3 Apparel**  
**Jackets and Overalls**

*From CSA Standard Z96-09 High-Visibility Safety Apparel (Table 1 and Annex B), CSA Z96.1, Guideline on selection, use, and care of high-visibility safety apparel, and "Choosing the Best High-Visibility Apparel in a Variety of Roadway Scenarios" (2005), American Traffic Safety Services Association (ATSSA).*



**Annex C Prescription Eyewear Authorization Form**

**PART 1**

Brock University is committed to the prevention of illness and injury through the provision and maintenance of healthy and safe conditions on its premises. The University endeavors to provide a hazard-free environment and minimize risks by adherence to all relevant legislation, and where appropriate, through the development and implementation of additional internal standards, programs and procedures.

Brock University requires that health and safety be a primary objective in every area of operation and that all persons utilizing University premises comply with procedures, regulations and standards relating to health and safety.

- Eye Exam completed in the last 12 months
- No Metal Frames
- Permanently attached side shields
- Safety glasses shall be at the work place at all times
- Safety glasses may be replaced every 24 months or at a change of prescription
- Damaged or lost safety glasses shall be reported to Supervisor

*Be wise and protect your eyes. It's the last pair you have.*

Name: _____	Signed: _____
Approved By: _____	Date: _____



Annex C Prescription Eyewear Authorization Form

**PART 2**

**INSTRUCTIONS:** Employee to complete all required information. Employee shows safety eyewear to supervisor, attaches original receipt to form, and then gives to FM Administrator for processing reimbursement. Refer to FMOP 2-8 for further information.

	PLEASE PRINT	SIGNATURE
NAME:		
EMPLOYEE NO:		
UNION: NONE	CUPE 1295	CUPE 1295 STUDENT
MANAGER:		
GROUP:	MAINTENANCE & OPERATIONS	CPDC
	CUSTODIAL SERVICES	OTHER
PRESCRIPTION EYEWEAR:	CSA APPROVED PER SHOP REQUIREMENTS	
- SAFETY LENSES	PERMANENTLY ATTACHED SIDE SHIELDS	
- OTHER - DESCRIBE:	- OTHER:	INDICATE:
One pair of CSA approved prescription eyewear is covered every 24 months.		
RECEIPT FROM:		
DATE OF RECEIPT:		
COMMENTS:		
DATE OF CLAIM:		
CHARGE TO #		



Annex D Safety Footwear Reimbursement Form

**INSTRUCTIONS:** Employee to complete all required information. Employee shows safety footwear to supervisor, attaches original receipt to form, and then gives to FM Administrator for processing reimbursement. Refer to FMOP 2-8 for further information.

	PLEASE PRINT	SIGNATURE
NAME:		
EMPLOYEE NO:		
UNION: NONE	CUPE 1295	CUPE 1295 STUDENT
MANAGER:		
GROUP:	MAINTENANCE & OPERATIONS	CPDC
	CUSTODIAL SERVICES	OTHER
TYPE OF FOOTWEAR:	CSA APPROVED PER SHOP REQUIREMENTS	
- SAFETY SHOE		
- WORK BOOT	- GROUNDS, STRUCTURAL, MECHANICAL & ELECTRICAL	GREEN Δ/ORANGE Ω
Note: Refer to applicable Collective Agreements between the University and Bargaining units for specific PPE reimbursement provisions		
RECEIPT FROM:		
DATE OF RECEIPT:		
COMMENTS:		
DATE OF CLAIM:		
CHARGE TO #		



Annex E Helmet Reimbursement Form

**INSTRUCTIONS:** Employee to complete all required information. Employee shows helmet to supervisor, attaches original receipt to form, and then gives to FM Administrator for processing reimbursement. Refer to FMOP 2-8 for further information.

	PLEASE PRINT	SIGNATURE
NAME:		
EMPLOYEE NO:		
UNION: NONE	CUPE 1295	CUPE 1295 STUDENT
MANAGER:		
GROUP:	MAINTENANCE & OPERATIONS	CPDC
	CUSTODIAL SERVICES	OTHER
TYPE OF HELMET:	CSA OR MTO APPROVED PER REQUIREMENTS	
- BICYCLE HELMET		
- UNLICENSED VEHICLE HELMET		
<b>Note:</b> Refer to your supervisor for specific PPE reimbursement provisions		
RECEIPT FROM:		
DATE OF RECEIPT:		
COMMENTS:		
DATE OF CLAIM:		
CHARGE TO #		

Annex F Laboratory Signage

Personal Protection & Other Safety Requirements Postings for Laboratories & Other Areas			
Requirement	Symbol	Requirement	Symbol
No Open Toe Shoes		No Pacemakers in this Area	
No Eating Allowed		Wear Face Shield	
Lab Safety Glasses Required		Wear Hearing Protection	
Lab Coat Required		Wear Gloves	

Hazardous Materials /Processes Signage			
HAZMAT Element	Symbol	HAZMAT Element	Symbol
1 Class 1 Explosives		11 Class 5.2 Organic Peroxide	
2 Class 2.1 Flammable Gas		12 Class 6.1 Solid or Liquid that is toxic	
3 Class 2.2 Non-flammable, Non-toxic Gas		13 Class 6.2 Infectious Microorganisms (BL-01)	
4 Class 2.2 (5.1) Oxygen and Oxidizing Gas		14 Class 6.2 Infectious Microorganisms (BL-02)	

Hazardous Materials /Processes Signage			
HAZMAT Element	Symbol	HAZMAT Element	Symbol
5 Class 2.3 Toxic Gas		15 Class 6.2 Infectious Microorganisms (BL-03)	
6 Class 3 Flammable Liquids		16 Radioactive Material	
7 Class 4.1 Flammable Solids		17 Class 8 Corrosive Material	
8 Class 4.2 Spontaneously Combustible		18 Laser	
9 Class 4.3 Dangerous when wet		19 High Energy Magnet Laser	
10 Class 5.1 Oxidizer		20 X-Ray	