

PERSONAL PROTECTIVE EQUIPMENT POLICY			
	General Policy and Procedures	Policy No.	HSE 2-011
Section	Health and Safety	Original Date	May 24, 2023
Subject	Personal Protective Equipment		
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		Review	Annual

Personal Protective Equipment Policy

It is the policy of Cantiro to have all workers use personal protective equipment (PPE) when and where required.

All employees and visitors are to wear the mandatory personal protective equipment in all Cantiro workplaces. The required/recommended PPE shall consist of the following on all Cantiro worksites.

Work Locations	Protective Equipment																		
	Hard Hat	Hard Hat Liner	Glasses	Face shield	Goggles	Hearing Protection	Respirator	Dust /Mist Mask	Gloves	Ice Cleats	CSA Safety Boots	High Viz Apparel	4-inch Sleeves	Long Pants/ Short (April–October)	Chaps /Leggings	Fall Protection	Rain gear (Slickers)	Cold weather gear	Arc Flash Protection
Field	X	M	M	M	M	M	M	M	M	M	X	M	X	X	M	M	M	M	M
Offices & PPE exempt areas*																			
X – Mandatory Protection (continuous use)																			
M –Mandatory when required by legislation, client, or when conditions have changed in the workplace and identified by Hazard Assessment, Policies, Standards, or Work Procedures.																			
*Offices & PPE exempt areas – No PPE required																			

Required PPE may include:

- Eye Protection: Where danger of injury or irritation of a worker's eyes exists (e.g. during the use of power or pneumatic tools, drywall, sanding, working with a table saw)
- Foot Protection (steel toes): At all times when on Cantiro Sites

- Limb and Body Protection: Where danger of injury to the worker's hand, arms or leg, or trunk of his body exists (e.g. material handling, kneeling, and the use of a chainsaw).
- Respiratory Protective Equipment: Where there is or may be exposed to, an airborne contaminant in a concentration exceeding applicable Occupational Exposure (e.g. spray painting, cutting and sanding).
- Hearing Protection: Where noise levels in excess of the occupational Exposure Limit of 82 dBA exist (e.g. sawing, power tools, etc.).
- Head Protection: Where danger exists to the head (overhead dangers) and on all sites when walking up to the home. A Hard hat should always be on you to ensure that hazards do not become present when you are working.
- Reflective Clothing: All Cantiro Sites require all contractors and employees to wear reflective clothing when working around heavy equipment.

*Note: Any changes to mandatory PPE must be identified on a hazard assessment and approved by the site supervisor.

All personal protective equipment will be kept in good condition, maintained, and inspected according to the manufacturer's instructions and specifications. A pre-use inspection shall be performed on all PPE before use.

All personal protective equipment that has been removed from service will be tagged "out of service" and will not be returned to service until repaired and inspected by a qualified person.

Company-supplied personal protective equipment will conform to OHS Legislative requirements and the applicable CSA/NIOSH/ANSI requirements. A Code of Practice will be developed.

It is not the intention of this safety program to outline specific personal protective equipment for all situations. The ultimate responsibility of selecting suitable personal protective equipment is with the individual worker and supervisor. You must take the necessary actions to protect yourself.

Employees shall be familiar with the OHS Code Part 18 on Personal Protective Equipment.

Purpose

The Cantiro Personal Protective Equipment Handbook provides direction to managers, supervisors, and employees about their responsibilities in the selection, use, care, disposal, and safe job procedures related to personal protective equipment. The Alberta Occupational Health and Safety Legislation states that an employer shall take reasonable control measures. When beginning to implement control methods in the workplace, consider the hierarchy of controls to determine which control methods will be the most effective in reducing the risk of injury or illness. There are three categories of hazard control, and control methods are often used in combination to ensure the best level of worker protection possible. Whatever control methods are used, employers must have a system that allows for regular checks to determine whether the controls are working as intended.

Those methods include eliminating the hazards, followed by administrative controls. If those controls are not reasonably practicable, personal protective equipment would be put in place as a last line of defense. During some work operations conducted by Cantiro, it is impractical or impossible to eliminate all workplace hazards. Therefore, all workers performing jobs for Cantiro shall wear all mandatory Personal Protective Equipment (PPE) and all other PPE deemed necessary in the Hazard Assessment Process. You must always remember to check the Safety Data Sheet (SDS) if you are using any WHMIS-controlled material.

Process

During a hazard assessment, Cantiro looks for the following sample hazard sources:

- High or low temperatures; Chemical exposures (use SDS for guidance)
- Flying particles, molten metal, or other eyes, face, or skin hazards
- Falling objects or potential for dropping objects
- Employee falling from a height of 6' or more
- Sharp objects; Rolling or pinching that could crush the hands or feet; Electrical hazards

Where these hazards could cause injury to employees, personal protective equipment must be selected to substantially eliminate the injury potential. A worksite hazard assessment form is in each site-specific HSE plan that the Safety Advisor uses to identify potential workplace hazards.

Key Responsibilities

Safety Advisors and Supervisors

- Assists in the selection of appropriate PPE.
- Where it is not reasonably practicable to protect the health and safety of employees by design of facility and work processes, suitable work practices, engineering or administrative controls Cantiro shall ensure that every employee wear or uses suitable and adequate personal protective equipment.
- The Safety Advisor assists the supervisor to identify and select PPE suitable for the specific task performed, conditions present, and frequency and duration of exposure. Employees need to give feedback to the supervisor about the fit, comfort, and suitability of the PPE being selected.

Ensure all PPE obtained meets regulatory and this procedure's requirements.

- Performs Hazard Assessments - Initially and as needed to assess the need for PPE. Sources of hazards include but are not limited to hazards from impact/motion, high/low temperatures, chemicals, materials, radiation, falling objects, sharp objects, rolling or pinching objects, electrical hazards, and workplace layout.

Cantiro must ensure that:

- Employees wear PPE that is correct for the hazard and protects the employees and is used in accordance with recognized standards.

- Ensure the employees properly use and wear the PPE,
- The PPE is in a condition to perform the function for which it was designed and is at the worksite before work begins.
- Be compatible, so that one item of personal protective equipment does not make another item ineffective.
- Ensure that the use of PPE does not endanger the employee.
- Be maintained in good working order and sanitary condition.
- Certifies in writing the tasks evaluated, hazards found, and PPE required to protect employees against hazards and ensures exposed employees are made aware of hazards and required PPE before they are assigned to the hazardous task.
- Regularly monitor employees for correct use and care of PPE and obtain follow-up training if required to ensure each employee has adequate skill, knowledge, and ability to use PPE.
- Shall enforce PPE safety rules following provisions of the Cantiro progressive disciplinary procedures and ensure the Required PPE Poster is posted properly.

**ALWAYS REFER TO THE MANUFACTURER'S INSTRUCTIONS FOR PROPER USE,
CARE AND INSPECTION INSTRUCTIONS.**

Selection of Personal Protective Equipment

PPE should be selected based on the following information:

- Hazard Assessment
- Material Safety Data Sheets
- OH&S Legislation requirements
- Task requirements

Refer to the Hazard and Task Hazard analysis regarding the consideration of PPE required for the job.

Responsibilities:

Employees

The PPE user is responsible for following the requirements of the Cantiro Health and Safety Program. This includes:

- Wearing PPE as required.
- Attending required training sessions.
- Caring for, cleaning, and maintaining PPE per manufacturer's recommendations and specifications.
- Informing the supervisor of the need to repair or replace PPE.

Supervisors

Supervisors have the primary responsibility for the implementation of the PPE Program in their subdivision. This involves:

- Ensuring employees are trained on the proper use, care, and cleaning of PPE.
- Maintaining records on PPE training.
- Identifying additional PPE requirements for specific job sites.
- Ensuring that employees under their direction comply with the PPE requirements of Cantiro.

Management

Management is responsible for the development, implementation, and administration of the PPE Program. This involves:

- Conduct workplace hazard assessments to determine the presence of hazards that necessitate the use of PPE.
- Maintaining records on hazard assessments.
- Ensuring that PPE standards are developed for the tasks performed by Cantiro
- Including PPE as a component of worksite inspections.
- Guiding the proper selection and purchase of approved PPE.
- Providing training and technical assistance to supervisors on the proper use, care, and cleaning of approved PPE.

Periodically re-evaluating the suitability of previously selected PPE.

- Reviewing, updating, and evaluating the overall effectiveness of the PPE Program.
- Reporting to management on all aspects of the PPE program.

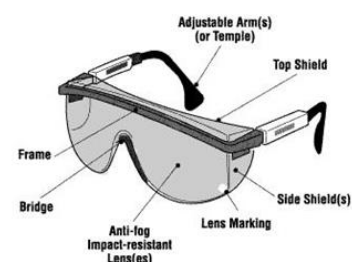
Personal Protective Equipment Requirements

The following standards apply to all operations of Cantiro. Where these standards are impractical, a documented deviation must be completed and approved in accordance with a written hazard assessment. Alternative control measures must be put in place to reduce or eliminate the hazard.

Eye and Face Protection

Prevention of eye or face injuries requires that all personnel who may be in eye/face hazard areas wear protective equipment. This includes employees, or visitors passing through an identified hazard area. This PPE is designed to protect personnel from such hazards as:

- Flying objects and particles
- Molten metals
- Splashing liquids
- Ultraviolet, infrared, and visible radiation (welding)



"Basic eye protection" includes:

- Eye cup goggles
- Mono-frame goggles and spectacles with side shields

"Face Protection" includes:

- Metal mesh face shields for radiant heat or hot humid conditions
- Chemical and impact-resistant (plastic) face shields
- Welders' shields or helmets with specified cover
- Filter plates and lenses

Hardened glass prescription lenses and sports glasses are not an acceptable substitute for proper, required industrial safety eye protection.

Comfort and fit are very important in the selection of safety eyewear. Lens coatings, venting or fittings may be needed to prevent fogging. Contact lenses should not be worn at the work site. Contact lenses may trap or absorb particles or gases causing irritation or blindness. Hard contact lenses may injure the eye when hit.

Proper Use of Eye and Face Protection

- Ensure your eye protection fits properly (close to the face)
- Clean safety glasses daily, more often if needed
- Store safety glasses in a safe, clean, dry place when not in use

Replace pitted, scratched, bent, and poorly fitted PPE. (Damaged face/eye protection interferes with vision and will not provide the protection it is designed to deliver)

Do Not:

- Modify eye/face protection
- Use eye/face protection that does not have proper certification.

Fit and Correct Use

- Ensure your safety glasses fit properly, the frame of the safety glasses should be no more than 5 millimeters away from your face.
- Eye size, bridge size, and temple length all vary.
- Safety glasses should be individually assigned and fitted.
- Wear safety glasses so that the temples fit comfortably over the ears. The frame should be as close to the face as possible and adequately supported by the bridge of the nose.

Comparison of Lens Materials	
Material	Characteristics
Polycarbonate	☐ Strongest material for impact resistance ☐ Lightweight ☐ Can be coated for scratch resistance ☐ Most have built-in UV radiation protection
Plastic (CR39)	☐ About one-half the weight of glass ☐ Resistant to solvents and pitting ☐ More choices for coatings and tinting
Trivex	☐ More impact resistant than CR39 Plastic ☐ Less impact resistant than polycarbonate ☐ UV radiation absorption properties
Glass	☐ High-density material (heavy lenses) ☐ Loses impact resistance if scratched ☐ Does not meet impact criteria as set by CSA

The CSA Standards classify eye protection into two classes as follows:

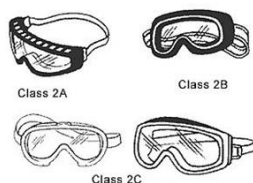
Class 1 – Spectacles

- Class 1A spectacles for impact protection with side protection
- Class 1B spectacles for impact and radiation protection with side protection



Class 2 – Goggles

- Class 2A goggles for impact protection with direct ventilation
- Class 2B goggles for impact, dust, and splash protection; non-ventilated and indirectly ventilated
- Class 2C goggles are Class 2A or 2B goggles with radiation protection



Eye Protection for Welders

Welders and welders' helpers should wear the prescribed equipment. Anyone else working in the area should also wear eye protection where there is a chance they could be exposed to a flash.

Eye Protection for Driving – Tinted eyewear

It is important to choose the appropriate eyewear to suit the environment you are in. The color of the lenses of sunglasses should match the occupation for which they are designed.

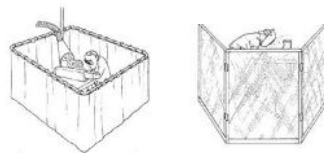
- Where there is a real excess of ultraviolet rays, for example over water or snow, the pink or brown tints work the best.
- In hot inland countries or when driving for long distances over hot arid areas, protection is required against excessive infra-red rays, the ideal color is green.
- As regular sunglasses, for intermittent use in the city, the pale brown and pale-grey lenses are adequate.

There are two simple tests to try when selecting eyewear:

- First, look at a lamp post while holding your sunglasses at arm's length, move the sunglasses slowly from side to side, looking through each section. If the post distorts or breaks, the lenses are defective.
- Secondly, look at the reflection of a tube-light in the plastic lenses. It should reflect the light crisply and clearly. A poor distorted reflection tells you of the poor quality of the sunglasses.

Electric Arc Welding

A worker performing electric arc welding is responsible for ensuring that all workers in the area are protected from exposure to the radiation created by the arc. Workers in the area can be protected if they wear appropriate eye protection or the arc welding is done behind a screen.



Fit and Correct Use

Face Protection for Welders

Welders and welders' helpers should wear the prescribed equipment. Anyone else working in the area should also wear eye protection where there is a chance they could be exposed to a flash.

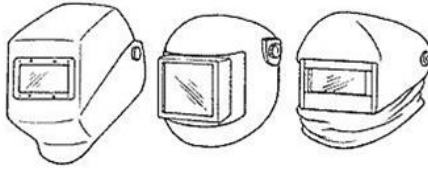
Electric Arc Welding

A worker performing electric arc welding is responsible for ensuring that all workers in the area are protected from exposure to the radiation created by the arc. Workers in the area can be protected if they wear appropriate eye protection or the arc welding is done behind a screen.

The CSA Standards classify face protection into five classes as follows:

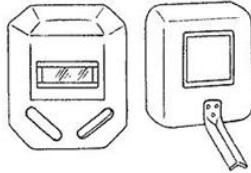
Class 3 – Welding Helmets

- This Class includes a variety of configurations



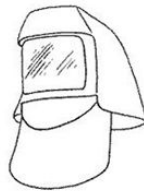
Class 4 – Welding Hand Shields

- This Class includes a variety of configurations



Class 5 – Non-rigid helmets (hoods)

- Class 5A non-rigid helmets have an impact-resistant window
- Class 5B non-rigid helmets are intended for dust, splash and abrasive materials protection
- Class 5C non-rigid helmets have radiation protection
- Class 5D non-rigid helmets are intended for high-heat applications



Class 6 – Face shields

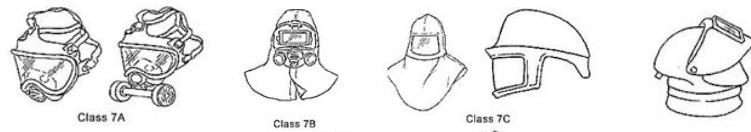
- Class 6A face shields offer impact and splash protection
- Class 6B face shields offer radiation protection
- Class 6C face shields are intended for high-heat applications



Class 7 – Respirator face pieces

- Class 7A respirator face pieces offer impact and splash protection

- Class 7B respirator face pieces are Class 7A respirator face pieces with radiation protection
- Class 7C respirator face pieces have loose-fitting hoods or helmets
- Class 7D respirator face pieces are Class 7C respirator face pieces with radiation protection



Care and Storage

Face Protectors need maintenance.

- Clean your Face Protectors daily.
- Follow the manufacturer's instructions.
- Avoid rough handling that can scratch lenses.
- Scratches impair vision and can weaken lenses.
- Store your Face Protectors in a clean, dry place where they cannot fall or be stepped on.
- Keep them in a case when they are not being worn.
- Replace scratched, pitted, broken, bent, or ill-fitting Face Protectors.
- Damaged protectors interfere with vision and do not provide protection.
- Replace damaged parts only with identical parts from the original manufacturer to ensure the same safety rating.

Limitations and Standards

OHS Legislation

General Protection of Workers – OHS Regulation Part 1, Section 13, Subsection (3) Duty to Use Personal Protective Equipment – OHS Code Part 18, Section 228, Subsection (1) – (3)

Compliance with Standards – OHS Code Part 18, Section 229, Subsection (1) – (3) Contact Lenses – OHS Code Part 18, Section 230

Electric Arc Welding – OHS Code Part 18, Section 231

CSA Standards

General Information for Eye and Face Protectors – CAN/CSA Standard Z94.3 – 07 Selection, Use and Care for Protective Eyewear – CAN/CSA Standard Z94.3 – 09

Inspection and Maintenance

Always

- Ensure your eye protection fits properly (close to the face).

- Clean safety glasses daily, more often if needed.
- Store safety glasses in a safe, clean, dry place when not in use.
- Replace pitted, scratched, bent, and poorly fitted PPE (damaged eye/face protection interferes with vision and will not provide the protection it was designed to deliver).

Never

- Modify eye/face protection
- Use eye/face protection that does not have a CSA certification (CSA stamp for safety glasses is usually on the frame inside the temple near the hinges of the glasses).

***Ensure to record your PPE inspection daily on your Field Level Hazard Assessment. ***

Head Protection

General Information

Safety headgear is designed to protect the head from impact from falling objects, bumps, splashes from chemicals or harmful substances, and contact with energized objects and equipment.

In the construction field, the recommended type of protective headgear is the Class B hardhat, which has the required "dielectric strength". There are many designs but they all must meet CSA requirements for Class B industrial head protection.

Most head protection is made up of two parts:

- The shell (light and rigid to deflect blows).
- The suspension (to absorb and distribute the energy of the blow).

Both parts of the headgear must be compatible and maintained according to the manufacturer's instructions. If attachments are used with headgear, they must be designed specifically for use with the specific headgear used. Bump caps are not considered an approved helmet. In Alberta, they can only be used when the only hazard is where a worker might strike their head against a stationary object.

Choose the correct headwear for the job. Refer to CSA Standard Z94.1-05 "Industrial Protective Headwear - Performance, Selection, Care, and Use" or the legislation

Classes of headwear can include:

Type 1 – offer protection from impact and penetration at the crown (top)

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

Each type is also available in the following classes:

- Class E (Electrical Trades) Proof tested at 20 000 V electrical rating- non-conducting material. Used for employees who are engaged in electrical work. They protect against falling objects and high-voltage shock and burns.

- Class G (General Trades) Proof tested at 2200 V electrical rating - non-conducting material. Used for general service. They provide good impact protection but limited voltage protection. They are used mainly in mining, building construction, shipbuilding, lumbering, and manufacturing.
- Class C (Conductive) No electrical rating. Provides no electrical insulation. Designed for comfort, these lightweight helmets offer limited protection. They protect workers from bumping against fixed objects but do not protect against falling objects or electric shocks.

Look at the inside of any protective helmet you are considering for your employees, and you should see a label showing the manufacturer's name, the ANSI standard it meets, and its class.

Type 1 – Impact and Penetration to the Crown Only

Fit and Correct Use

Hardhat Size	Circumference of Head cm (in)
6-1/2	52 (20-1/2)
6-5/8	53 (20-7/8)
6-3/4	54 (21-1/4)
6-7/8	55 (21-5/8)
7	56 (22)
7-1/8	57 (22-3/8)
7-1/4	58 (22-3/4)
7-3/8	59 (23-1/8)
7-1/2	60 (23-1/2)
7-5/8	61 (23-7/8)
7-3/4	62 (24-1/4)
7-7/8	63 (24-5/8)
8	64 (25)
8-1/2	68 (26-1/2)

- Always check with the manufacturer when adding or using accessories (non-metallic stickers, tape, bandanas, hanker chiefs, etc.).
- Winter liners should be inspected to ensure they do not interfere with the fit of headwear.
- 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.
- Only wear the hard hat with the peak at the back, if the suspension has been adjusted so the nape strap remains at the back of the head. Check with the manufacturer to ensure the headwear was designed to be worn this way.
- Correct application of reversed hard hat with nape strap at back of head

Care and Storage

Proper care is required for headgear to perform efficiently. The service life (may be stamped on the helmet) is affected by many factors including:

- temperature,
- chemicals,
- sunlight and

- ultraviolet radiation (welding).
- The usual care for headgear is simply washing with a mild detergent and rinsing thoroughly.
- Keep headwear out of sunlight as the ultraviolet rays will degrade the material.
- Do not store hard hats on the dash of a vehicle.

Limitations and Standards

Limitations

To perform certain functions, workers may need to remove their protective headwear. When this is the case, the employer must ensure that an adequate alternative means of protecting the worker's head during the work process is in place. This might be a simple matter of having persons working above the worker stop work and ensure that nothing falls during the time that the worker beneath them is without head protection.

Providing overhead protection with a solid barrier or properly designed safety net are other approaches that may protect the worker from the hazard. If the falling object hazard is still present after the work process is completed, the worker must immediately return to wearing his or her protective headwear.

Situations sometimes arise in which an employer requires a worker to wear protective headwear and the worker wears a turban as part of his religious doctrine.

OHS Legislation

General Protection of Workers – OHS Regulation Part 1, Section 13, Subsection (3) Duty to Use Personal Protective Equipment – OHS Code Part 18, Section 228, Subsection (1) – (3)

Industrial Headwear – OHS Code Part 18, Section 234, Subsection (1) – (2) Bump Hat – OHS Code Part 18, Section 238

Exemption from Wearing Headwear – OHS Code Part 18, Section 239, Subsection (1)– (2)

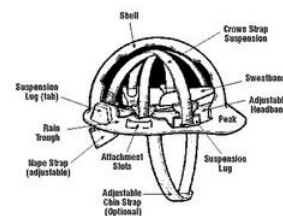
CSA Standards

Industrial Protective Headwear – CAN/CSA – Z194.1-05

Inspection and Maintenance

Always

- Replace headgear that is pitted, holed, cracked, or brittle.
- Replace headgear that has been subjected to a blow even though damage cannot be seen.
- Remove from service any headgear if its serviceability is in doubt.
- Replace headgear and components according to the manufacturer's instructions.



- Consult OHS or your supplier for information on headgear.

Never

- Drill, remove peaks, and alter the shell or suspension in any way.
- Use solvents or paints on the shells (makes shells “break down”).
- Put chinstraps over the brims of Class B headgear.
- Use any liner that contains metal or conductive material.
- Carry anything in the hard hat while wearing the hardhat

Type 2 – Impact and Penetration to the Crown and Laterally

Fit and Correct Use

Hardhat Size	Circumference of Head cm (in)
6-1/2	52 (20-1/2)
6-5/8	53 (20-7/8)
6-3/4	54 (21-1/4)
6-7/8	55 (21-5/8)
7	56 (22)
7-1/8	57 (22-3/8)
7-1/4	58 (22-3/4)
7-3/8	59 (23-1/8)
7-1/2	60 (23-1/2)
7-5/8	61 (23-7/8)
7-3/4	62 (24-1/4)
7-7/8	63 (24-5/8)
8	64 (25)
8-1/2	68 (26-1/2)

- Always check with the manufacturer when adding or using accessories (non-metallic stickers, tape, bandanas, hanker chiefs, etc.).
- Winter liners should be inspected to ensure they do not interfere with the fit of headwear.
- 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.
- Only wear the hard hat with the peak at the back, if the suspension has been adjusted so the nape strap remains at the back of the head. Check with the manufacturer to ensure the headwear was designed to be worn this way.
- Correct application of reversed hard hat with nape strap at the back of the head

Care and Storage

Proper care is required for headgear to perform efficiently. The service life (which may be stamped on the helmet) is affected by many factors including:

- temperature,
- chemicals,
- sunlight and

- Ultraviolet radiation (welding).
- The usual care for headgear is simply washing with a mild detergent and rinsing thoroughly.
- Keep headwear out of sunlight as the ultraviolet rays will degrade the material.
- Do not store hard hats on the dash of a vehicle.

Foot Protection

CSA CERTIFICATION MARK FOR CANADA

Indicates footwear is CSA certified to Canadian national requirements.

LABEL	DESCRIPTION	LOCATION
	This serialized label indicates certification by CSA International and is available only through CSA.	This label will be side-stitched or heat-sealed inside the top of the tongue or inside the quarter lining of the right shoe.

CLASSES OF PROTECTION

One or more of the markings will appear on the outer side or the tongue of the right shoe.

PROTECTION MARKINGS	SAFETY FEATURES	RECOMMENDED USE
	Green triangle indicates sole puncture protection with a Grade 1 protective toe to withstand impacts up to 125 Joules. Comparable to a 22.7 kg (50 lb.) weight dropped from 0.6 m Sole puncture protection is designed to withstand a force of not less than 1200 Newtons (270 lbs.) and resist cracking after being subjected to 1.5 million flexes.	For any industry, especially construction and heavy work environments, where sharp objects, such as nails are present.
	Yellow triangle indicates sole puncture protection with a Grade 2 protective toe to withstand impacts up to 90 Joules. Comparable to a 22.7 kg (50 lb.) weight dropped from 0.4 m Sole puncture protection is designed to withstand a force of not less than 1200 Newtons (270 lbs.) and resist cracking after being subjected to 1.5 million flexes.	For light industrial work environments requiring puncture protection as well as toe protection.
	Blue rectangle indicates Grade 1 protective toe without sole puncture protection. Grade 1 protective toe withstands impacts up to 125 Joules. Comparable to a 22.7 kg (50 lb.) weight dropped from 0.6 m.	For industrial work environments not requiring puncture protection.
	Grey rectangle indicates Grade 2 protective toe without sole puncture protection. Grade 2 protective toe withstands impacts up to 90 Joules. Comparable to a 22.7 kg (50 lb.) weight dropped from 0.4 m.	For institutional and non-industrial work environments not requiring puncture protection.
	White label with green fir tree symbol indicates chainsaw protective footwear. Protective features are designed into the boots to prevent a running chainsaw from cutting all the way through the boot uppers so as to protect the shins, ankles, feet and toes.	For forestry workers and others exposed to hand-held chain saws or other cutting tools.
 	White rectangle with orange Greek letter omega 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 intended to withstand 18,000 Volts and a leakage current not exceeding 1 mA.	For any industry where accidental contact with live electrical current conductors can occur. Warning: Electrical Shock Resistance deteriorates with wear and in wet environments.
	Yellow rectangle with a green "SD" and grounding symbol indicates soles are static-dissipative. The outer soles are made from an antistatic compound, chemically bound into the bottom components, capable of dissipating an electrostatic charge in a controlled manner. The test criteria are 106 to 108 Ohms. Note that SD footwear without toe protection will not have sole protection certified by CSA.	For any industry where a static discharge can create a hazard for workers or equipment.
	Red rectangle with a black "C" and grounding symbol indicates soles are electrically conductive. The outer soles are made from a conductive compound that is permanently bound to the bottom components to provide electrical grounding of each foot. Test criteria are 0 to 500,000 Ohms.	For any industry where static discharge can create a hazard of explosion.

Safety footwear is designed to protect against foot hazards in the workplace. Safety footwear protects against compression, puncture injuries and impact.

Proper Use of Foot Protection

- Choose footwear according to the job hazard and approved standards.

- Lace up boots and tie laces securely (boots do not protect if they are a tripping hazard or fall off).
- Use a protective boot dressing to help the boot last longer and provide greater water resistance (wet boots conduct current).
- Choose a high-cut boot to provide ankle support.

Do Not:

- Wear defective safety footwear (exposed steel toes, etc.).
- Under protect your feet.
- Modify safety footwear.

Foot Protection for Electrical Work

CSA Approved Safety boots of the proper class (White rectangle with orange Greek letter omega) must always be worn when working where accidental contact with live electrical current conductors may occur. This includes footwear with dielectric protective soles, in addition to any other protective features required by the circumstances of the work.

REMEMBER: Electric shock resistance is greatly reduced by wet conditions and with wear. Ensure that the footwear is periodically tested for conductance. Also know that conductive footwear as listed in CSA Z195-09 relates to an electrical discharge that might ignite volatile, flammable materials that are close to the wearer. Live electrical work should follow recommendations for an electrically conductive clothing ensemble (as specified under CAN/ULC-60895).

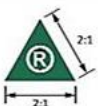
This includes electricians or power line technicians and any other workers with a potential for electric shock.

Marking

The right foot of each pair bears the following information permanently marked in a conspicuous location:

- Manufacturer's name, trade name, or CSA Master Contract number
- Date of manufacture by month and year or by date code
- Outsole construction style or name

Grade 1 and Grade 2 footwear

Label	Criteria	Intended application
	Green triangle indicates sole puncture protection with a Grade 1 protective toecap.	For heavy industrial work environments, especially that of construction, where sharp objects (such as nails) are present.
	Yellow triangle indicates sole puncture protection with a Grade 2 protective toecap.	For light industrial work environments requiring puncture protection as well as toe protection.
	Blue rectangle indicates a Grade 1 protective toecap with no puncture-resistant sole.	For industrial work environments not requiring puncture protection.
	Grey rectangle indicates a Grade 2 protective toecap with no puncture-resistant sole.	For institutional and non-industrial work environments not requiring puncture protection.

Metatarsal Protection

Metatarsal Protection is intended to safeguard the upper foot (metatarsal bones) and toe areas. To meet CSA design requirements the footwear must provide enough width and height to cover the dorsum of the foot. Note that there is no CSA certification for metatarsal protection as the standard does not currently contain performance requirements.

Care and Storage

Wipe wet or soiled shoes clean with a clean cloth or paper towel. Use a protective coating to make footwear water-resistant. Repair or replace worn or defective footwear.

Electric shock resistance of footwear is greatly reduced by wet conditions and with wear. Keep rubber boots out of the sun as the ultra-violet light will degrade the material.

Follow manufacturer's recommendations for cleaning and maintenance.

Limitations and Standards

OHS Legislation

- General Protection of Workers – OHS Regulation Part 1, Section 13, Subsection (3)
- Duty to Use Personal Protective Equipment – OHS Code Part 18, Section 228, Subsection (1) – (3)
- Footwear – OHS Code Part 18, Section 233, Subsection (1) – (5)

CSA Standards

Guideline on Selection, Care, and Use of Protective Footwear – CAN / CSA Standard Z195.1-02

ASTM Standards

Inspection and Maintenance

- Safety footwear should be inspected prior to each use.
- They should be checked for wear and tear and replaced as needed.
- Look for cracks or holes, separation of materials, and broken buckles or laces.
- Check the soles for pieces of metal or other embedded items that could present electrical or tripping hazards.
- Air out work shoes after work.

Hand Protection

Suitable hand protection shall be utilized when hazards from chemicals, cuts, lacerations, abrasions, punctures, burns, and harmful temperature extremes are present.

- Inspect hand PPE for defects before use.
- Wash all chemicals and fluids off gloves before removing them.
- Ensure that gloves fit properly.
- Use the proper hand PPE for the job.
- Follow the manufacturer's instructions on the care and use of hand PPE.

Ensure exposed skin is covered (no gap between the sleeves and hand PPE).

Gloves

Personal protective equipment for the hands includes finger guards, thimbles and cots, hand pads, mitts, gloves and barrier creams. Choose hand personal protective equipment that will protect against the job hazard. Gloves should fit well and be comfortable. This type of personal protective equipment must protect against chemicals, scrapes, abrasions, heat and cold, punctures and electrical shocks. Information on the type of hand protection required to prevent chemical exposure can be found in the Safety Data Sheet (SDS) manual.



Types

There are many types of gloves available today to protect against a wide variety of hazards. The nature of the hazard and the operation involved will affect the selection of gloves. The variety of potential occupational hand injuries makes selecting the right pair of gloves challenging. It is essential that employees use gloves specifically designed for the hazards and tasks found in their workplace because gloves designed for one.

function may not protect against a different function even though they may appear to be an appropriate protective device.

The following are examples of some factors that may influence the selection of protective gloves for a workplace.

- Type of chemicals handled.
- Nature of contact (total immersion, splash, etc.).
- Duration of contact.
- Area requiring protection (hand only, forearm, arm).
- Grip requirements (dry, wet, oily).
- Thermal protection.
- Size and comfort.
- Abrasion/resistance requirements.

Gloves made from a wide variety of materials are designed for many types of workplace hazards. In general, gloves fall into four groups:

- Gloves made of leather, canvas or metal mesh;
- Fabric and coated fabric gloves;
- Chemical- and liquid-resistant gloves;
- Insulating rubber gloves (See 29 Fire Resistant 1910.137 and the following section on electrical protective equipment for detailed requirements on the selection, use and care of insulating rubber gloves).

Leather, Canvas or Metal Mesh Gloves

Sturdy gloves made from metal mesh, leather, or canvas provide protection against cuts and burns. Leather or canvas gloves also protect against sustained heat.

- Leather gloves protect against sparks, moderate heat, blows, chips, and rough objects.
- Aluminized gloves provide reflective and insulating protection against heat and require an insert made of synthetic materials to protect against heat and cold.
- Aramid fiber gloves protect against heat and cold, are cut - and abrasive - resistant and wear well.
- Synthetic gloves of various materials offer protection against heat and cold, are cut - and abrasive - resistant and may withstand some diluted acids. These materials do not stand up against alkalis and solvents.

Chemical - and Liquid - Resistant Gloves

Chemical-resistant gloves are made with different kinds of rubber: natural, butyl, neoprene, nitrile and fluorocarbon (Viton); or various kinds of plastic: polyvinyl chloride (PVC), polyvinyl alcohol and polyethylene. These materials can be blended or laminated for better performance. As a rule, the

thicker the glove material, the greater the chemical resistance but thick gloves may impair grip and dexterity, having a negative impact on safety.

Some examples of chemical-resistant gloves include:

- Butyl gloves are made of a synthetic rubber and protect against a wide variety of chemicals, such as peroxide, rocket fuels, highly corrosive acids (nitric acid, sulfuric acid, hydrofluoric acid and red-fuming nitric acid), strong bases, alcohols, aldehydes, ketones, esters and nitro compounds. Butyl gloves also resist oxidation, ozone corrosion and abrasion, and remain flexible at low temperatures. Butyl rubber does not perform well with aliphatic and aromatic hydrocarbons and halogenated solvents.
- Natural (latex) rubber gloves are comfortable to wear, which makes them a popular general-purpose glove. They feature outstanding tensile strength, elasticity and temperature resistance. In addition to resisting abrasions caused by grinding and polishing, these gloves protect workers' hands from most water solutions of acids, alkalis, salts and ketones. Latex gloves have caused allergic reactions in some individuals and may not be appropriate for all employees. Hypoallergenic gloves, glove liners and powderless gloves are possible alternatives for workers who are allergic to latex gloves.
- Neoprene gloves are made of synthetic rubber and offer good pliability, finger dexterity, high density and tear resistance. They protect against hydraulic fluids, gasoline, alcohols, organic acids and alkalis. They generally have chemical and wear resistance properties superior to those made of natural rubber.
- Nitrile gloves are made of a copolymer and provide protection from chlorinated solvents such as trichloroethylene and perchloroethylene. Although intended for jobs requiring dexterity and sensitivity, nitrile gloves stand up to heavy use even after prolonged exposure to substances that cause other gloves to deteriorate. They offer protection when working with oils, greases, acids, caustics and alcohols but are generally not recommended for use with strong oxidizing agents, aromatic solvents, ketones and acetates.

Always refer to the Manufacturer Specifications

Fit and Correct Use

Personal protective equipment for the hands comes in many forms, each designed to protect against certain hazards. Gloves most used in the construction industry are made from leather, cotton, rubber, synthetic rubbers and other man-made materials, or combinations of materials.

Vinyl coated, or leather gloves are good for providing protection while handling wood or metal objects. When selecting hand personal protective equipment, keep the following in mind: look for anything at the workplace that may be a hazard to the hands. If gloves are to be used, select the proper type for the job/task.

Men's General Glove Sizing Chart*

MEN'S SIZE CHART		
Size	Palm Circumference	Palm Length
SM	19.5 - 20.5 cm	17.5 – 18.5 cm
MD	20.5 – 21.5 cm	18.5 – 19.5 cm
LG	21.5 – 22.5 cm	19.5 – 20.5 cm
XL	22.5 – 23.5 cm	20.5 – 21.5 cm
XXL	23.5 – 24.5 cm	21.5 – 22.5 cm

Women's General Glove Sizing Chart*

WOMEN'S SIZE CHART		
Size	Palm Circumference	Palm Length
SM	16.5 - 17.5 cm	15.5 – 16.5 cm
MD	17.5 – 18.5 cm	16.5 – 17.5 cm
LG	18.5 – 19.5 cm	17.5 – 18.5 cm
XL	19.5 – 20.5 cm	18.5 – 19.5 cm
XXL	20.5 – 21.5 cm	19.5 – 20.5 cm

How to Properly Measure:

Palm Circumference:

- Using your dominant hand (if you are right-handed, use right; if you are left-handed, use left) open hand
- Using a tape measure (or string) measure the circumference of your palm.
- Wrap the tape measure (or sting) around your, hand, over your knuckles, returning the tape measure (or string) to the starting point.
- After, wrapping your hand, the reading on the tape measure is your glove size. If using a string, after marking the string, lay it flat on a ruler to measure your size.

Palm Length:

- Using your dominant hand (if you are right-handed, use right; if you are left-handed, use left) open hand
- Using a tape measure (or string) measure the length of your hand.
- Measure starting from the bottom edge of your palm to the tip of your middle finger.

*Note: This is just a guide, many people have different sizes of hands. Also, many companies have different sizing options. You determine which is comfortable for you.

Care and Storage

Care of reusable gloves

Re-useable gloves need to be washed and dried after work to avoid accidental skin contamination when next putting the gloves on. This is especially important if the work has involved immersion or handling of chemicals that can permeate the glove material.

If frequently re-used the gloves should periodically be turned inside out and the inner surface washed and rinsed off. Re-useable gloves should be inspected before each use for discoloration, cracking at flexion points or damage and should be discarded if found. They must also be discarded if the inside becomes contaminated.

Taking care of chemical-resistant gloves

1. Be sure the gloves you plan to wear are clean. Don't touch them if you're not sure. Instead, ask your supervisor for a different pair.
2. Carefully inspect the gloves before you put them on. Look for cracks, tears, holes, swelling or other damage. Chemicals can pass through even the smallest pinhole. If you spot any damage, discard the gloves.
3. Wash your hands with soap and water before you put on the gloves. Bandage any minor cuts or scrapes.
4. Close each glove tightly outside of your sleeve. If you work with liquid chemicals, you can seal the edge of your gloves with heavy-duty tape or an elastic band.
5. Wash the outside of your gloves with soap and water before you remove them. Always wash them when you take a break and when you are done for the day. Then thoroughly wash your hands.
6. Put your gloves in the proper container when you are finished with your task for the day.

A few more safety tips

- Immediately remove your gloves if pesticides or other chemicals get inside. Thoroughly wash your hands, then put on clean gloves. Report the incident to your supervisor.
- Never touch contaminated gloves with bare hands.
- Some people are sensitive to latex gloves. If your hands itch or feel irritated from these gloves, you can substitute a different type of protective glove. But remember: Leather or cotton work gloves won't protect you from hazardous materials.
- Don't store your gloves inside out. Store gloves in a cool, dry place away from chemicals.
- Wear chemical-resistant gloves that extend to at least the mid-forearm when working with pesticides.
- Shoulder-length gloves or gloves worn with chemical-resistant sleeve guards are ideal for mixing and loading highly toxic chemicals or liquids.
- If gloves have frays or tears, do not wash them, throw them away.
- If gloves are saturated with an unknown substance, dispose of them properly.

Limitations and Standards

OHS Legislation

General Protection of Workers – OHS Regulation Part 1, Section 13, Subsection (3) Duty to Use Personal Protective Equipment – OHS Code Part 18, Section 228, Subsection (1) – (3)

Flame Resistant Clothing – OHS Code Part 18, Section 232, Subsection (1) – (2) Limb and Body Protection – OHS Code Part 18, Section 242

Skin Protection – OHS Code Part 18, Section 243

Inspection and Maintenance

Inspect and maintain hand personal protective equipment on a regular basis. If in doubt about the selection or need for glove or hand personal protective equipment, consult your safety supplier, Safety Data Sheet (SDS), or local OHS office.

Always

- Inspect hand personal protective equipment for defects before use.
- Wash all chemicals and fluids off gloves before removing them.
- Ensure that gloves fit properly.
- Use the proper hand personal protective equipment for the job.
- Follow manufacturer's instructions on the care and use of the personal protective equipment you are using.
- Ensure exposed skin is covered (no gap between the sleeve and the hand personal protective equipment).

Never

- Wear gloves when working with moving machinery (gloves can get caught or tangled).
- Wear hand personal protective equipment with metal parts near electrical equipment.
- Use gloves or hand protection that is worn out or defective.

Electrical Safety Gloves

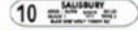
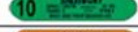
Fit and Correct Use

Rubber insulating gloves are among the most important articles of personal protection for electrical workers. They provide protection against electrical shock, and in order to be effective, electrical safety gloves must incorporate high dielectric and physical strength, along with flexibility and durability.

A glove system for an electrical worker consists of:

- Rubber Insulating Gloves – These gloves are classified by the level of voltage and the protection provided. See the Table Below for Voltage Classifications for Rubber Gloves.
- Liner Gloves – These gloves are used to reduce the discomfort of wearing the rubber insulating gloves. They provide warmth in cold weather and absorb perspiration in warm weather.
- Leather Protector Gloves – These gloves are worn over the rubber insulating gloves in order to provide the mechanical protection needed against potential hazards such as

cuts, abrasions and punctures. Ensure they fit properly over the rubber insulating glove by choosing those that are steam pressed on curved hand forms.

Voltage Classifications for Rubber Gloves				
Tag Color	Class	Proof Test Voltage AC / DC	Max. Usage Voltage AC / DC	Glove Tag
Beige	00	2,500 / 10,000	500 / 750	
Red	0	5,000 / 20,000	1,000 / 1,500	
White	1	10,000 / 40,000	7,500 / 11,250	
Yellow	2	20,000 / 50,000	17,000 / 25,500	
Green	3	30,000 / 60,000	26,500 / 39,750	
Orange	4	40,000 / 70,000	36,000 / 54,000	

Remember – the color of the tag is important, not the color of the glove.

Ozone Resistance is another category of classification for Insulating Gloves. Designated by “Type”:

- Type 1 – Not ozone-resistant. Provides flexibility and feel but are not ozone-resistant and will cracked if exposed to ozone or UV over time.
- Type 2 – Ozone-resistant. Not as comfortable to wear due to lack of flexibility.

Class and type designations can be found on the cuff of the glove. Except when using class 0, under limited-use conditions, and when high finger dexterity is needed, protector gloves must also be worn over the insulating gloves. Never use leather protectors alone for protection against electrical shock. Serious injury or death can result. Always use proper rubber insulating gloves. Test the gloves before the first use and every 6 months after that. Before each use, inspect gloves for damages.

Using rubber-insulating gloves in the appropriate voltage class is essential to user safety. Remove all jewelry and sharp objects from your hands or arms before wearing gloves – they will cause damage to the rubber gloves which will affect glove safety and performance. In order to maintain the highest level of insulating protection and ensure long life, it is essential that gloves are properly cared for, stored, inspected and electrically tested periodically.

Care and Storage

Rubber-insulating gloves can be damaged by many chemicals, especially petroleum-based products (oils, gasoline, and hydraulic fluid) solvents, hand creams, pastes and salves. If any rubber glove is exposed to chemical contaminants or suspected of any other physical damage, it should be cleaned, inspected, and electrically re-tested. The first sign of chemical exposure is swelling in the area of contamination.

To clean rubber-insulating gloves, wash with a mild soap and rinse thoroughly with water. Only use soapy water or denatured alcohol to clean label area. Air-dry the glove at less than 120° F (49° C) away from direct sunlight and sources of ozone or high heat. Store dry rubber gloves in a protective bag when not in use, away from excessive heat and direct sunlight. Do not store gloves

folded, creased, inside out, compressed or in any manner that will cause stretching or compression.

Limitations and Standards

OHS Legislation

General Protection of Workers – OHS Regulation Part 1, Section 13, Subsection (3) Duty to Use Personal Protective Equipment – OHS Code Part 18, Section 228, Subsection (1) – (3)

Flame Resistant Clothing – OHS Code Part 18, Section 232, Subsection (1) – (2) Limb and Body Protection – OHS Code Part 18, Section 242

Skin Protection – OHS Code Part 18, Section 243

Inspections and Maintenance

To maintain the highest level of insulating protection, gloves must be properly cared for and stored.

Daily visual inspection: Inspect rubber-insulating gloves for damage prior to use daily and after any incident suspected of causing damage. Look for signs of physical damage (punctures, cuts, nicks, cracks, scratches and abrasions), chemical deterioration (swelling, softness, hardening, and stickiness), ozone deterioration, and other irregularities.

Daily air-testing: Air-expand Type I gloves no more than twice their normal size. Expansion stretches the rubber, making cuts, ozone damage and abrasions easy to detect. Listen for escaping air to detect holes. If a portable inflator is unavailable, manually inflate the glove by rolling the cuff tightly to trap air inside; then apply pressure to areas of the glove to listen for escaping air. Repeat procedure with glove turned inside out. More detailed inspection procedures and defect illustrations are described in ASTM F1236 (Standard Guide for Visual Inspection of Electrical Protective Rubber Products).

Electrical testing: Rubber-insulating gloves must be electrically tested at least once every six (6) months. (The detailed testing procedures described in ASTM Standard F496 usually require a laboratory equipped for such testing).

Hearing Protection

Hearing protection is designed to reduce the level of sound energy reaching the inner ear.

Hearing protection with a noise reduction rating (NRR) of 25 or higher must be worn where noise levels exceed 85 dB, or where the hazard is identified by signage or other means at a work site.

The “rule of thumb” for hearing protection is use hearing protection when you can’t carry on a conversation at a normal volume of voice when you are 3 feet apart.

- Remember that this is only a rule of thumb. Any sound over 82 dBA requires hearing protection. Hearing loss can be very gradual, usually happening over several years.
- The most common types of hearing protection in the construction industry are earplugs and sound muffs. If you choose to use the other types of hearing protection, ask your safety supplier or OHS office for further information.
- It is important to have different styles of hearing protection available. Different styles allow a better chance of a good fit. Each person's head, ear shape and size are different. One style may not fit every person on your crew. If hearing PPE does not fit properly or is painful to use, the person will likely not use it. If the hearing protection is not fitted, it will not supply the level of protection it was designed to deliver.
- Most earplugs, if properly fitted, generally reduce noise to the point where it is comfortable (takes the sharp edge off the noise).

If your hearing protection does not take the sharp edge off the noise, or if workers have ringing, pain, headaches or discomfort in the ears, your operation requires the advice of an expert.



Noise Management and Hearing Conservation Program

Occupational hearing loss is a cumulative result of repeated or continued absorption of sound energy by the ear. Employee protection is based on reduction of the noise level at the ear or limiting the employee's exposure time.

Cantiro shall offer hearing protection to all employees exposed to potential high noise levels in working areas and to those employees requesting hearing protection.

For Alberta Operations: Exposure to noise shall not exceed the noise exposure limits in Schedule 3, Table 1 of the Alberta OHS Code and 82 dBA Lex.

Conditions and Engineering Controls

When employees are required to work in areas in which noise levels exceed the criteria for permissible noise exposure Cantiro shall first take appropriate measures to reduce the noise intensity to approved levels. Cantiro shall ensure that all reasonably practicable means are used to reduce noise levels in all areas where employees may be required or permitted to work.

If it is not practicable to reduce the noise to approved noise levels, or isolate the employees from the noise, the employees shall wear personal protective equipment which will effectively protect their hearing.

Cantiro shall ensure that all new places of employment are designed and constructed to achieve the lowest reasonably practicable noise level. Any alteration, renovation or repair to an existing place of employment will be made to achieve the lowest reasonably practicable noise level. All new equipment to be used will be designed and constructed to achieve the lowest reasonably practicable noise level. The following is a sample list of conditions encountered that require protection for sound levels. Each work site has other conditions based on equipment and work scope:

- Band Saw 104 dBA 26 6 minutes
- Blower 99 dBA 21 19 minutes
- Concrete Saw 112 dBA 34 1 minute
- Chain Saw 110 dBA 32 -1 ½ minutes
- Compressed Air 92 dBA 14 -1 hr. 35 minutes
- Front End Loader 95 dBA 17 -48 minutes
- Mitre Saw 109 dBA 31 - 2 minutes
- Pneumatic Staking 103 dBA 25 7 ½ minutes
- Pressure Washer 100 dBA 22 15 minutes
- Sprayer, 1,000 gal. 101 dBA 23 12 minutes
- Tables Saw 93 dBA 15 1 hr. 16 minutes
- Wet/Dry Vac 94 dBA 16 1 hour

Ear Plugs

Fit and Correct Use

The human aspects of hearing protection are particularly important since the only useful kind of protection is the protection that is worn. Some people do not accept kinds of protectors; every human being is different, and the anatomy of the ear and ear canal can vary significantly from person to person.

It is a good idea for the employer to provide several different types of hearing protection from which workers can choose, keeping in mind any safety or hygienic reasons for not providing a kind of protector. That is, a protector should not be used if noise levels are too high or if it proves to be inadequate from a hygienic point of view. For example, ear plugs which are used in a plant setting where people reuse them throughout the day, often reinserting them with dirty fingers, can introduce dirt and bacteria into the ears, causing ear infections.

The bottom line on hearing protection is worker preference. If the workers do not like the type of protection (for example, if it is uncomfortable, does not fit well, or is impractical), they will not wear it.

The choice of hearing protectors is a very personal one and depends on several factors including level of noise, comfort, and the suitability of the hearing protector for both the worker and his environment. Most importantly, the hearing protector should provide the desired noise reduction.

It is best, where protectors must be used, to provide a choice of several different types to choose from.

If the noise exposure is intermittent, earmuffs are more desirable, since it may be inconvenient to remove and reinsert earplugs.

Follow manufacturers' instructions. With ear plugs, for example, the ear should be pulled outward and upward with the opposite hand to enlarge and straighten the ear canal and insert the plug with clean hands.

- Ensure the hearing protector tightly seals within the ear canal or against the side of the head.
- Hair and clothing should not be in the way.

Care and Storage

Follow the manufacturer's instructions:

- For proper hygiene, discard Single-Use earplugs at the end of every day.
- Wash Multiple – Use earplugs with mild soap and warm water only. Pat dry with a towel and store in a case when not in use. Do not treat with any other substances, as the earplugs may degrade and compromise use.
- Wash pods and bands with mild soap and warm water only. Pat dry with a towel. Do not treat with any other substances, as the ear pods may degrade and compromise use. Replace pods every 2 – 4 weeks to ensure optimal protection and performance.
- Check hearing protection regularly for wear and tear.
- Replace plugs that are no longer pliable.
- Squeeze excess moisture from the plugs and then place them on a clean surface to air dry.
- Check the manufacturer's recommendations first to find out if the earplugs are washable.

Limitations and Standards

Limitations

Compared to earmuffs, ear plugs have the following limitations/disadvantages:

- Requires more time to fit
- May irritate the ear canal
- More difficult to insert and remove
- Easily misplaced
- Require good hygiene practices
- More difficult to see and monitor usage



OHS Legislation

General Protection of Workers – OHS Regulation Part 1, Section 13, Subsection (3) Duty to Use
Personal Protective Equipment – OHS Code Part 18, Section 228, Subsection (1) – (3)

Duty to Reduce – OHS Code Part 16, Section 216

Noise Control Design – OHS Code Part 16, Section 217, Subsection (1) – (2) Worker Exposure to Noise – OHS Code Part 16, Section 218

Noise Exposure Assessment – OHS Code Part 16, Section 219, Subsection (1) – (4) Results Recorded – OHS Code Part 16, Section 220, Subsection (1) – (2)

Noise Management Program – OHS Code Part 16, Section 221, Subsection (1) – (3) Hearing Protection – OHS Code Part 16, Section 222, Subsection (1) – (3) Audiometric Testing – OHS Code Part 16, Section 223, Subsection (1) – (5)

Credit of Time – OHS Code Part 16, Section 224

CSA Standards

Hearing Protection Devices – Performance, Selection, Care, and Use – CAN/CSA Standard Z94.2 – 14

Single – Use Earplugs

Inspect prior to fitting, examine your ear plugs for dirt, damage or extreme hardness – discard immediately if compromised.

Multiple – Use Earplugs

Prior to fitting, examine your earplugs for dirt, damage, deformation, or extreme hardness – discard immediately if compromised.

Semi – Insert Earplugs

Prior to fitting, examine your ear pods for dirt, damage, or extreme hardness – discard immediately if compromised.

Earmuffs

Fit and Correct Use

The human aspects of hearing protection are particularly important since the only useful kind of protection is the protection that is actually worn. Some people do not accept particular kinds of protectors; every human being is different, and the anatomy of the ear and ear canal can vary significantly from person to person.

It is a good idea for the employer to provide several different types of hearing protection from which workers can choose, keeping in mind any safety or hygienic reasons for not providing a kind of protection. That is, a protector should not be used if noise levels are too high or if it proves to be inadequate from a hygienic point of view. For example, ear plugs that are used in a plant setting where people reuse them throughout the day, often reinserting them with dirty fingers, can introduce dirt and bacteria into the ears, causing ear infections.

The bottom line on hearing protection is worker preference. If the workers do not like the type of protection (for example, if it is uncomfortable, does not fit well, or is impractical), they will not wear it.

The choice of hearing protectors is a very personal one and depends on several factors including level of noise, comfort, and the suitability of the hearing protector for both the worker and his environment. Most importantly, the hearing protector should provide the desired noise reduction. It is best, where protectors must be used, to provide a choice of a few different types to choose from.

If the noise exposure is intermittent, earmuffs are more desirable, since it may be inconvenient to remove and reinsert earplugs.

Care and Storage

Follow the manufacturer's instructions:

- Wash ear cups and ear cushions regularly with mild soap and water. They may not be dipped into the water. Do not treat with any other substances, as the ear cushions may degrade and compromise use.
- Check hearing protection regularly for wear and tear.
- Replace ear cushions that are no longer pliable.
- Replace a unit when headbands are so stretched that they do not keep ear cushions snugly against the head.
- Disassemble earmuffs to clean.
- Wash earmuffs with a mild liquid detergent in warm water, and then rinse in clear warm water. Ensure that sound-attenuating material inside the ear cushions does not get wet.
- Use a soft brush to remove skin oil and dirt that can harden ear cushions.
- Squeeze excess moisture from the cushions and then place them on a clean surface to air dry.

Limitations and Standards

Compared to ear plugs, earmuffs have the following limitations/disadvantages:

- Less portable and heavier
- More inconvenient for use with other personal protective equipment
- More uncomfortable in hot, humid work area
- More inconvenient for use in confined work areas
- May interfere with the wearing of safety or prescription glasses: wearing glasses results in breaking the seal between the earmuff and the skin and results in decreased hearing protection.

Ear Muffs



OHS Legislation

General Protection of Workers – OHS Regulation Part 1, Section 13, Subsection (3)

Duty to Use Personal Protective Equipment – OHS Code Part 18, Section 228, Subsection (1) – (3)

Duty to Reduce – OHS Code Part 16, Section 216

Noise Control Design – OHS Code Part 16, Section 217, Subsection (1) – (2) Worker Exposure to Noise – OHS Code Part 16, Section 218

Noise Exposure Assessment – OHS Code Part 16, Section 219, Subsection (1) – (4) Results Recorded – OHS Code Part 16, Section 220, Subsection (1) – (2)

Noise Management Program – OHS Code Part 16, Section 221, Subsection (1) – (3) Hearing Protection – OHS Code Part 16, Section 222, Subsection (1) – (3) Audiometric Testing – OHS Code Part 16, Section 223, Subsection (1) – (5)

Credit of Time – OHS Code Part 16, Section 224

CSA Standards

Hearing Protection Devices – Performance, Selection, Care, and Use – CAN/CSA Standard Z94.2 – 14

Inspection and Maintenance

Regularly examine ear cups and ear cushions for cracks and leaks. Discard if ear cups are visibly damaged or compromised. Replace ear cushions if damaged.

As ear cushions and foam inserts can degrade over time, replace every 6-8 months under normal wear, or every 3 – 4 months with heavy use or in humid / extreme climates.

*Ensure to record your PPE inspection daily on your Field Level Hazard Assessment. *

Limb and Body Protection

Due to the nature of the construction workplace and the number of different hazards, it is not possible to cover specialized limb and body protection in detail. These types of hazards are known as “job exposures” (exposure to fire, temp. extremes, body impacts, corrosives, molten metal’s and cuts from sharp or abrasive materials). PPE in this category includes, but is not limited to:

- Chain saw chaps
- Chemical resistant suits
- Leather welder chaps and gauntlets

- Leg, arm, chin and belly guards
- Leather aprons
- Full body suits
- Various types of plastic boot cover and overshoes

If there is a danger that a worker's hand, arm, leg or torso may be injured Cantiro will ensure that PPE appropriate to the work, worksite and hazards identified is available for use. For more information on specialty PPE, check with your Supervisor, manager and the OH&S regulations. As with all PPE, following the manufacturer's instructions on its use, care and cleaning is critical for worker safety and the service life of the PPE.

Due to the nature of Cantiro and the number of different hazards, it is not possible to cover specialized limb and body protection in detail. These types of hazards are known as "JOB EXPOSURES" (exposure to fire, temperature extremes, body impacts, corrosives, molten metals, and cuts from sharp or abrasive materials). Personal Protective Equipment in the category would be items such as:

- Leg, arm, chin and belly guards.
- Specialty hand pads and grips.
- Leather aprons and leggings.
- Full body suits.
- Flame and chemical resistant clothing.
- Various types of plastic boot covers, and overshoes.



For more information on the type of specialty personal protective equipment you require, check your hazard assessment/s or local OHS office. With all personal protective equipment, following the manufacturer's instructions on its use, care and cleaning is critical and will help you get the full-service life from your personal protective equipment.

Outer Clothing

- Material that is inherently non-flammable and does not melt when exposed to heat.
- Material that does not cause a build-up of static electricity.
- Hardhat liners will also be required to be fire resistant.

Examples:

- Nomex 111
- Wool
- Proband Cotton
- Melton
- PBI (Polybenzimidazole fiber)
- Flame Cotton
- Leather

Inner Clothing

Material that does not melt when exposed to heat

Examples:

- Cotton
- Silk
- Denim
- 50/50 – Cotton / Polyester

Note: Nylon and 100% polyester clothing will not be accepted as inner or outer clothing at an industrial workplace.

Fit and Correct Use

Cantiro will ensure that whenever an employee is in potential danger from physical, chemical and /or biological hazards, the employee will wear the required protective clothing to protect their body from injury.

- Information about specific protection from chemicals can be obtained from the respective Safety Data Sheets (SDS).
- For protection from cold temperatures, employees are recommended to wear layered clothing that can be removed or added as required.
- Long sleeve clothing should always be worn for protection from sunburns, scratches, insects, and excessive dirt.
- Baggy, loose or torn clothing will not be permitted at Cantiro

Wear long sleeve shirts with buttoned cuffs and buttoned collars to protect from both sparks and UV radiation. All clothing should be close fitting to minimize the chance to catch on work areas. Cuffs should not be used in either sleeves or pant legs as they can collect sparks. Tape shirt pockets closed to prevent sparks or hot slag from collecting. Wear high top boots fully laced with pant legs long enough to cover boot tops. Use fire resistant boot protectors or spats strapped around the pant legs. Wear leather aprons to protect your chest and lap.

Care and Storage

- Keep clothing clean and free of oils, greases and combustible contaminants.
- Launder according to the manufacturer's directions.
- If there is chemical contamination the clothing will have to be laundered using specific laundry equipment or by a contractor that is familiar with this type of laundering.
- Repair all frayed edges, tears or holes in clothing.
- While working, direct any spark away from clothing.

Limitations and Standards

OHS Legislation

General Protection of Workers – OHS Regulation Part 1, Section 13, Subsection (3)

Duty to Use Personal Protective Equipment – OHS Code Part 18, Section 228, Subsection (1) – (3)

Limb and Body Protection – OHS Code Part 18, Section 242 Skin Protection – OHS Code Part 18, Section 243

Inspection and Maintenance

- Daily inspection of the clothing is necessary prior to use.
- Check for contamination from oils and greases.
- Also look for any damage to the clothing, check that all zippers are operational.
- Be sure to repair all frayed edges, tears or holes in clothing.

Fit and Correct Use

Cantiro will require employees to have available and wear, suitable fire-resistant clothing (FRC) whenever they are potentially exposed to a flammable and / or combustible atmosphere.

In choosing the right FRC garments for your workforce, there are several qualities that you should consider: thermal protection, static resistance, arc rating, comfort, durability, stability, employee satisfaction, overall appearance, ease of laundry care, and relative cost. But most importantly, it is essential that you choose the FRC garments that provide the appropriate level of protection based on your hazard risk analysis.

FRC's include both flame-resistant and fire-retardant treated clothing.

Workers involved at worksites or in operations that have been classed as having a fire or explosion hazard will be required to wear FRC's

Care and Storage

Fire Resistant products are flame-resistant for the useful life of the garment, provided recommended care instructions are followed.

Below are some facts related to flame-resistance and garment care:

- Fire Resistant garments can be home laundered – follow the care instructions on the label and the Fire-Resistant qualities will remain in the fabric for the useful life of the garment.
- Fire Resistant garments do not require special detergents, but detergent should not contain fabric softeners – the fabric softener doesn't remove the Fire-Resistant treatment, but the fabric softener itself may coat the fiber and mask flame resistant performance. It may also serve as fuel in case of combustion.
- Fire Resistant fabrics do not have to be washed in specific temperatures, but temperatures provided on garment care labels are recommended to avoid excessive shrinkage. Temperatures in home laundries are fine for Fire Resistant. In reality, temps

can get too hot for Fire Resistant garments and negatively affect the treatment, but that's not a factor in home laundering - home washers/dryers can't reach temperatures that high - industrial launderers are where you need to be careful of too much heat. So, it's recommended to reference temperatures on garment care labels.

- Fire Resistant clothing does not have to be washed separately. The only reason someone would separate Fire Resistant from regular clothing is to keep very dirty work clothes separate from the other clothes - the Fire-Resistant treatment has no negative impact on the other clothing
- Don't use bleach - over time, bleach will break down the molecular bond between the fabric and the Fire-Resistant treatment
- Don't use starch on Fire Resistant garments because starch is a propellant
- Fire Resistant garments can be dry cleaned (if no starch is used) and ironed Fire-Resistant Denim garments are not recommended to be dry cleaned as the indigo dye in them can fade excessively from this cleaning method.
- Don't use DEET on Fire Resistant clothing - DEET is one of the most effective mosquito repellents on the market, but it should only be used on the skin, never on Fire Resistant clothing. For the most effective mosquito and tick protection, use DEET based repellents on the skin (especially on exposed skin) and use a permethrin (the active ingredient in most lice shampoos) product washed into or applied to flame-resistant clothing. These products do not add any appreciable flammability to Fire Resistant clothing and therefore do not affect its flame-resistant properties. When using permethrin in a spray form, use the WATER-BASED formulas only. Propellants are almost always flammable in this application, so the powder form washed into the clothing or the WATER-BASED spray formula is recommended.

Fire Resistant Insulated Outerwear

- Machine wash warm at a temperature not to exceed 140 degrees F (60 degrees C).
- Do not use bleach, hydrogen peroxide, softeners or starch.
- Tumble dry low and remove promptly.
- Iron with low heat.
- Garments may be dry cleaned.
- For maximum color retention this garment should be washed in a large capacity commercial washing machine.
- Avoid overloading for best results
- See manufacturer specifications for any questions.

Fire Resistant Knit Shirts and Accessories

- Machine wash cold using the permanent-press cycle, separately.
- Do not use bleach, hydrogen peroxide, softeners or starch.
- Tumble dry low and remove promptly.
- Iron with low heat.
- Garments may be dry cleaned.

- See manufacturer specifications for any other questions.

Limitations and Standards

OHS Legislation

General Protection of Workers – OHS Regulation Part 1, Section 13, Subsection (3)

Duty to Use Personal Protective Equipment – OHS Code Part 18, Section 228, Subsection (1) – (3)

Flame Resistant Clothing – OHS Code Part 18, Section 232, Subsection (1) – (2) Limb and Body Protection – OHS Code Part 18, Section 242

Skin Protection – OHS Code Part 18, Section 243

Inspections and Maintenance

- Daily inspection of the clothing is necessary prior to use.
- Check for contamination from oils and greases.
- Also look for any damage to the clothing, check that all zippers are operational.
- Be sure to repair all frayed edges, tears or holes in clothing.

Respiratory Protection

Where respiratory equipment is required, appropriate protection must be worn, as per the Cantiro Code of Practice for Respiratory Protection. When required, Respiratory Protective Equipment will be made available for workers at Cantiro worksites.

Types of Respirators

Air Purifying Respirator

There are two basic types of APRs:

- Disposable fibre type (paper dust masks) with or without charcoal or chemical filter “buttons”; and



- The reusable rubber facemask type with disposable or rechargeable cartridges in half or full-face.



An air-purifying respirator uses a filter or cartridge to clean the air before you breathe it. The contaminant is removed as air is pulled through the filter or cartridge.

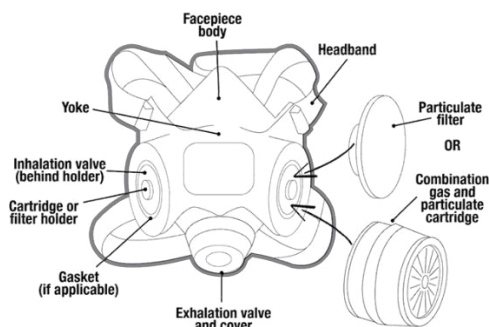
It's important to remember that APRs are limited to areas where there is enough oxygen to support life. A minimum of 19.5% oxygen is required. Where there is less than 19.5% oxygen by volume, the atmosphere is considered oxygen deficient. APRs do not supply or make oxygen.

It is important to know the concentration of the contaminant in the workplace to choose the correct air-purifying respirator. The service life is affected by the type of APR, breathing rate, concentration of airborne contaminants, humidity level, and temperature. When an APR is required, consult the SDS/SDS, or supplier for the exact specifications for the APR.

Facial hair can prevent a good seal and fit of an APR. Sideburns, mustaches, beards must not interfere with the sealing surface of the face. Workers who are required to wear respirators must be clean shaven since even one day's growth reduces the effectiveness of the seal.

An APR is only as good as its seals and its ability to filter out the contaminants it was designed for.

Typical cartridge style half-mask APR respirator



Filters and cartridges

APR filters are made of a fibrous material that traps or secures particles as you breathe in. Respirators that use filters provide protection against particulate (particles) contaminants.

Cartridges provide protection against some gases and vapours. The makeup of the cartridge may be of a sorbent material such as activated charcoal, or the cartridge may contain a substance that results in a chemical reaction with the contaminant, changing its properties into a harmless gas. These cartridges are commonly referred to as gas and vapour cartridges or chemical cartridges.

Warning properties

Gas and vapours cartridges must have warning properties to notify the user if the cartridge is no longer working. The user must be able to sense the contaminant by smell, taste, or breathing irritation in the throat as it starts to break through the cartridge. Some contaminants have good warning properties while others have poor warning properties.

Although odour can sometimes be a warning property, be aware that different contaminants have different odour thresholds. Odour threshold is defined as the lowest concentration of a contaminant in the air that can be detected by the sense of smell. If using odour as a warning property, the odour threshold of a contaminant must be below its exposure limit, or the maximum concentration of a contaminant an Employee can be exposed to without a respirator (PEL).

Combination gas/vapours and particulate cartridges are available to provide protection against particulates as well as some types of gases and vapours. Always refer to manufacturer's instructions for specific use of cartridges. If in doubt, contact a supervisor immediately.

NIOSH Approved Respirators (non-powered)

The NIOSH specifies minimum approval requirements for respiratory protective devices including respirator filters.

NIOSH has nine classifications for particulate filters based on minimum filtration efficiency and the type of aerosol (non-oil or contains oil).

Oil will degrade and reduce the effectiveness of a filter material. NIOSH certifies the following three classes of filters:

1. N Series (Not resistant to oil). Use in an atmosphere where there is an absence of oil particulate.
2. R Series (Resistant to oil). Oil can be present, but only for a single 8-hour shift of continuous or intermittent use. Reuse beyond a single 8-hour shift is not recommended.
3. P Series (Oil-Proof). Oil can be present but follow the manufacturer's time use limitations for reuse.

The N, R, and P series are further classified according to efficiency which is broken into three areas:

Efficiency Level	Explanation
100	Filter is expected to trap 99.97 particles out of every 100. It compares to a HEPA filter
99	The filter is expected to trap 99 particles out of every 100
95	The filter will trap 95 particles out of every 100

PPE Inspections

An effective PPE inspection program will feature five different inspections:

- Inspection of the equipment as it is issued to the workers
- Inspection prior to each use
- Inspection after use
- Periodic inspection of PPE including stored equipment (Monthly)
- Periodic inspection when a question arises about the appropriateness of the selected equipment or when problems with similar equipment arise.

Each inspection will vary. Detailed inspection procedures are usually available from the manufacturer. Records must be kept of all inspection procedures".

All PPE will be inspected according to the manufacturer's specifications and prior to each use.

Marking	Criteria	Intended Application
	The CSA green triangle indicates sole puncture protection with a Grade 1 Protective toe to withstand an impact up to 1106 inch-pound and the sole puncture protection of 270 pounds	For heavy industrial work environments, especially that of construction where sharp objects (such as nails) are present.
	Yellow triangle indicates sole puncture protection with a Grade 2 protective toe cap.	For light industrial work environments requiring puncture protection as well as toe protection.
	Blue rectangle indicates a Grade 1 protective toe cap with no puncture-resistant sole.	For industrial work environments not requiring puncture protection.
	Grey rectangle indicates a Grade 2 protective toe cap with no puncture-resistant sole.	For industrial and non-industrial work environments not requiring puncture protection.
	Green triangle indicates sole puncture protection with a Grade 1 protective toe cap.	For heavy industrial work environments, especially that of construction where sharp objects (such as nails) are present.
	Yellow rectangle with black SD letters indicates static-dissipative footwear.	For industrial work environments where a static discharge can create a hazard for workers or equipment. Warning: This footwear should not be used where contact with live electrical conductors can occur.

	Yellow rectangle indicates sole puncture protection with a Grade 2 protective toecap.(super-static dissipative footwear)	For industrial work environments where a static discharge can create a hazard for workers or equipment. Warning: This footwear should not be used where contactwith live electrical conductors can occur.
	Red rectangle with white C letter indicates electrically conductive footwear.	For industrial work environments where low-power electrical changes can create a hazard for workers or equipment. Warning: This footwear should not be used where contact with live electricalconductors can occur.
	Dark grey rectangle with M letter indicates metatarsal protection. Note: Toe protection isrequired for all metatarsal protective footwear.	For industrial work environments where heavy objects can hurt the metatarsal regionof the foot.
	White label with green fir tree symbol footwear provides protection when using chainsaws	For forestry workers and others who workwith or around hand-held chainsaws and other cutting tools.