

## 6. PERSONAL PROTECTIVE EQUIPMENT

*\*This information does not take precedence over The Saskatchewan Employment Act and related regulations, or any other governing legislation. All worker should be familiar with the legislation applying to them in their workplace.*

### Definitions

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**approved:** *"approved by an agency acceptable to the director [of OH&S] for use under conditions prescribed by the agency; or (ii) approved conditionally or otherwise by a certificate of the director" [Reg 2(1)(c)].*

**atmosphere supplying respirator:** *"a respirator that delivers clean breathing air to a worker from a compressor or a cylinder, an SCBA, whether closed or open circuit, or a combination of SCBA and supplied air" [Reg 2(1)(d)].*

**competent:** *"possessing knowledge, experience and training to perform a specific duty" [Act 3-1(1)(e)].*

**fall arrest system:** see "personal fall arrest system"

**full body harness:** *"a safety device that is capable of suspending a worker without causing the worker to bend at the waist, and consists of straps that pass over the worker's shoulders and around the worker's legs, an upper dorsal suspension assembly and all integral hardware" [Reg 2(1)(cc)].*

**lifeline:** *"a length of rope or strap that is attached to a safe point of anchorage at one end or, in the case of a horizontal lifeline, at both ends to provide support and a guide for a personal fall arrest system or personnel lowering device" [Reg 2(1)(kk)].*

**personal fall arrest system:** *"personal protective equipment that provides a means of safely arresting the fall of a worker and that, subsequent to the arrest of the fall, does not by itself permit the further release or lowering of the worker" [Reg 2(1)(qq.2)].*

**personal protective equipment (PPE):** *"any clothing, device or other article that is intended to be worn or used by a worker to prevent injury or to facilitate rescue" [Reg 2(1)(rr)].*

**basic PPE:** eye and face protection, hand protection, hearing protection, head protection, safety footwear and appropriate clothing

**specialty PPE:** PPE which is used only for specific jobs or for protection from specific hazards (for example: gloves, welder's goggles, respiratory protective equipment, fall arresting equipment and specialty clothing)

**personnel lowering device:** "a device that provides a means of lowering a worker from a height at a controlled rate of descent" [Reg 2(1)(ss)].

**respiratory protective device:** "a device that is designed to protect a wearer from inhaling a hazardous atmosphere, and includes an atmosphere-supplying respirator, an air-purifying respirator and an escape respirator" [Reg 2(1)(zz)].

**SCBA:** "self-contained breathing apparatus" [Reg 2(1)(ccc)].

## **Personal Protective Equipment Policy**

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It is the policy of NexGen Mechanical Inc. to have all workers use suitable and adequate PPE when and where required. All workers will be trained in the use, care and limitations of PPE which they may be required to use.

Workers must wear work grade long trousers and CSA Grade 1 safety footwear at all times in all work areas. Hard hats, safety glasses and/or other PPE must be worn when required by provincial safety regulations, job site rules or by the nature of the work being performed. These requirements may not apply to workers when they are inside offices, lunch rooms or the cabs of passenger vehicles, unless specified by job site rules.

All PPE used will be in good condition and maintained according to manufacturer's instructions. All company-supplied PPE will conform to Occupational Health & Safety requirements and relevant safety standards.

## PPE Supply, Use & Care

NexGen Mechanical Inc. provides, and all workers are required to use, suitable and adequate PPE for the work being performed (with the exception of safety footwear). Workers must take reasonable steps to prevent damage to personal protective equipment. Where an item of PPE becomes defective, or otherwise fails to provide the protection it was intended for, the worker must inform the job lead or manager of the reason the item does not provide protection, and return the defective item to the job lead or manager. Any item of PPE that is identified as defective will be removed from service and repaired by a competent and qualified individual, or replaced immediately.

## Working at Heights / Fall Protection

1. A fall protection system must be used at a temporary or permanent work area where the worker may fall 3 metres (10 feet) or more; or where there is a possibility of injury if a worker falls less than 3 metres (10 feet).
2. A guardrail or similar barrier must be used at a permanent work area if a worker could fall a vertical distance of more than 1.2 metres (4 feet) and less than 3 metres (10 feet).
3. A Fall Protection Plan (the Plan) must be in place prior to work commencing in any area where a worker could fall three metres or more, and workers are not protected by a guardrail or similar barrier.
4. Where a worker is required or permitted to work in an area where a fall protection system must be used, the worker will be trained in all relevant elements of the Plan prior to commencing any work to which the Plan applies.
5. Places where fall protection is required include:
  - floors and floor openings
  - balconies
  - slab formwork
  - runways and ramps
  - stairways and landings
  - scaffolds and other work platforms
  - roof tops
  - bridge surfaces
6. A lifeline used in a fall protection system must be fastened to a secure anchor point that has a breaking strength of at least 22.2 kilonewtons (5,000 lbs) , and must not be used to suspend any platform or other load.

7. Lanyards used must be:
  - as short as work conditions permit,
  - constructed of nylon, polyester or polypropylene rope or webbing or wire rope,
  - be equipped with an approved shock absorbing device and suitable snap hooks, and
  - be approved and maintained in accordance with manufacturer's documentation and recognized industry standards.
8. Before using a lifeline or lanyard, ensure that it is free of imperfections, knots and splices other than end terminations, is protected by padding where the lifeline or lanyard passes over sharp edges, and is protected from heat, flame or abrasive or corrosive materials during use. Before using a full body harness, ensure that it is properly fitted and is attached by a connecting linkage to a fixed anchor or lifeline.
9. Full body harness and connecting linkage used in a fall protection system must be approved, and be maintained in accordance with OH&S regulations, established industry standards and the manufacturer's recommendations. The harness must be fitted to the worker, and the worker must be trained in its safe use.
10. All metal parts of the full body harness and connecting linkage must be of drop-forged steel, 22.2 kilonewtons (5,000 lbs) proof tested.
11. A protective thimble must be used to protect ropes or straps from chafing whenever a rope or strap is connected to an eye or a D-ring.
12. Any snap hook used as an integral component of a personal fall arrest system, connecting linkage, fall arresting device, full body harness or lifeline must be self-locking, and be approved and maintained.
13. Connecting linkage must be attached to the personal fall arrest system, lifeline or secure anchor point to prevent the worker from falling:
  - more than 1.2 metres without a shock absorber; **OR**
  - 2 metres (or the limit specified in the manufacturer's specifications, whichever is less).
14. The fall arrest system must apply a peak fall arrest force of not greater than 8 kilonewtons to a worker.
15. Know how to inspect your safety harness for wear or damage, such as frayed or damaged webbing, cracked or deformed D-rings, etc.. See the manufacturer's manual for further details.

16. When the safety harness is not in use, make sure that it is stored in a safe, dry and secure place.

**Refer to Part VII of the Saskatchewan OH&S Regulations for more specific information.**

## Floor / Wall Openings & Open Holes

For further information, See OH&S Regulation 124

1. Any opening or hole in a floor, roof or other work surface into which a worker could step or fall must be adequately guarded. Open holes must be:
  - covered with a securely installed covering capable of supporting a load of 360kg per square metre, and provided with a warning sign; or
  - provided with a guardrail and a toeboard.
2. Where the covering or guardrail and toeboard mentioned in items 1 or any part of the guardrail or toeboard is removed for any reason, an effective alternative means of protection must be provided immediately.
3. Floor openings must be guarded with standard railing and toe board. Do not use covers for floor openings unless it is absolutely necessary to perform the job.
4. Where a floor covering is necessary, the covering must be securely installed, and built to withstand any load which may reasonably be expected to be placed on it. A warning sign or permanent marking clearly indicating the nature of the hazard must be posted.
5. All open-sided floors, walkways, platforms, ramps and runways with a drop of more than 4 feet must be guarded with standard railing and toe board as outlined above.
6. Wall openings with a drop of more than 4 feet must be guarded as required.
7. All stairs with four or more risers must be provided with railings.
8. Railings, posts and wall opening barriers must be constructed to protect workers from fall hazards.

## PPE Information Sheets

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Safety Footwear

Eye & Face Protection

    Selection of Eye & Face

    Safety Glasses

Selection & Care of Headwear

Hearing Protection

    Ear Plug Fitting Instructions

Limb & Body Protection

    Hand Protection

    Chemical Protective Gloves

    Fire Resistant Clothing

Safety Harnesses & Lanyards

    Care of Safety Harnesses & Lanyards

Respiratory Protective Equipment

    Care of Respirators

    Respirator Fit Test (Cannister Type)

# Safety Footwear

PPE-01  
CCOHS (2014)

Safety footwear is designed to protect feet against a wide variety of injuries. Impact, compression and puncture are the most common types of foot injury.

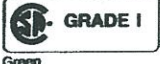
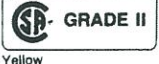








- All protective footwear must comply with recognized industry standards and regulatory requirements.
- Ensure footwear has the proper rating for the hazard and the proper sole for the working conditions.
- Walk in new footwear to ensure it is comfortable.
- Lace up boots fully. High-cut boots provide support against ankle injury.
- Use metatarsal protection (top of the foot between the toes and ankle) where there is a potential for injury.
- Inspect footwear regularly for damage.
- Repair or replace worn or defective footwear.

**FOOTWEAR SOLE RATINGS**

Sole	Abrasion	Metal Chips	Chemical	Cushion	Cement	Slipping	Water	Oil	Heat
Blown Rubber	G	F	F	X	X	G	G	G	F
Vulcanized PVC	G	G	F	G	G	F	G	G	G
Vibram	X	X	G	X	X	X	X	G	X
Leather	F	F	F	G	G	G	P	F	P
Vinyl Flex	G	F	F	X	X	X	G	G	F
Chemigum (Ambergum)	X	G	G	X	X	X	X	X	X
Neoprene	X	G	X	G	X	G	X	X	G
Krayton	X	F	F	X	G	G	G	F	F
Neo Crepe	G	F	F	X	G	X	G	G	P
Rubber (Vulcanized Rubber)	X	G	G	X	X	G	X	G	G
Nitrile (Nitrilegum)	X	G	X	G	X	X	X	X	G
Dynatread	X	X	G	G	X	X	X	G	G
Sur-Sport Rubber	G	G	X	X	G	X	X	X	G
Polyurethane	X	F	X	X	X	G	X	X	G
Vylyt	F	P	X	G	G	X	X	X	F
Crepe	G	X	G	G	X	G	X	G	G

X-Excellent    G-Good    F-Fair    P-Not Recommended

## SELECTION OF SAFETY FOOTWEAR

 <p><b>Grade I</b> will withstand 125 joules, or 93 ft. lbs.; a 50 lb. weight dropped from a height of 22 in.</p>	 <p><b>Grade II</b> will withstand 90 joules, or 65 ft. lbs.; a 50 lb. weight dropped from a height of 16 in.</p>	 <p><b>Grade III</b> will withstand 60 joules, or 45 ft. lbs.; a 50 lb. weight dropped from a height of 10.5 in.</p>			
<p><b>Electric Shock Resistant Footwear</b> carries this GSA marking tag. Footwear must withstand (under dry conditions) a test potential of 18 kV (18,000 volts), 60 Hz for a period of one minute, without discharge to ground of more than one milliamperere (1 mA). *Use where there is danger of high voltage</p>					
 <p>Green - GRADE I Yellow - GRADE II Red - GRADE III</p>		<p>Designates a puncture resistant sole able to withstand 135 kg of pressure, (300 ft. lbs.) without being punctured by a 5 cm. nail. **Use where there is danger of punctures</p>			
<p><b>GRADE I</b> Green</p> <p>Combined with:</p> <ul style="list-style-type: none"> <li> for punctures</li> <li> for high voltage</li> </ul>	<ul style="list-style-type: none"> <li>■ Freight Companies</li> <li>■ Steel Mills</li> <li>■ Construction</li> <li>■ Mining</li> <li>■ Auto Industries</li> <li>■ Paper Mills</li> <li>■ Lumbering</li> </ul>	<p><b>GRADE II</b> Yellow</p> <p>Combined with:</p> <ul style="list-style-type: none"> <li> for punctures</li> <li> for high voltage</li> </ul>	<ul style="list-style-type: none"> <li>■ Warehousing</li> <li>■ Machine Shops</li> <li>■ Auto Industries</li> <li>■ Aircraft Industries</li> <li>■ Paint Companies</li> <li>■ Home Appliance Co.</li> <li>■ Fire Departments</li> </ul>	<p><b>GRADE III</b> Red</p> <p>Combined with:</p> <ul style="list-style-type: none"> <li> for punctures</li> <li> for high voltage</li> </ul>	<ul style="list-style-type: none"> <li>■ Light Manufacturing</li> <li>■ Retail Stores</li> <li>■ Supervisors</li> <li>■ Office Staff</li> <li>■ Hospitals</li> <li>■ Service Stations</li> <li>■ Security</li> <li>■ Ambulance Staff</li> </ul>

## Eye & Face Protection

PPE-02a

Source: CCOHS (1997)

**General Information:** This PPE is designed to protect the worker from such hazards as:

- flying objects and particles
- molten metals
- splashing liquids
- ultraviolet, infrared and visible radiation (welding)

This PPE has two types. The first type, "*basic eye protection*", includes:

- eyecup goggles
- monoframe goggles and spectacles with or without side shields

The second type, "*face protection*" includes:

- metal mesh face shields for radiant heat or hot and humid conditions
- chemical and impact resistant (plastic) face shields
- welders' shields or helmets with specified cover
- filter plates and lenses

*Hardened glass prescription lens and sport glasses are not an acceptable substitute for the 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 or to fit with regular prescription eyeglasses. Contact lenses should NOT be worn at the worksite. Contact lenses may trap or absorb particles or gases causing eye irritation or blindness. Hard contact lenses may break into the eye when hit.



Basic eye protection should be worn with face shields. Face shields alone often aren't enough to fully protect the eyes from work hazards. When eye and face protection are required, advice from the Occupational Health & Safety office, Material Safety Data Sheet (MSDS) or your supplier will help in your selection.

All eye and face protection must comply with recognized industry standards and regulatory requirements.












- Do:**
- 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 or poorly fitted PPE (damaged face/eye protection interferes with vision and will not provide the protection it was designed to deliver.
- Don't:**
- modify eye/face protection
  - use eye/face protection which 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)

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

# Selection of Eye & Face Protection

PPE-02b  
CCOHS (1997)

This chart adapted from Canadian Standards Association (CSA) recommendations found in *Industrial Eye and Face Protectors Standards Z94.3 1992*

HAZARD	HAZARDOUS ACTIVITIES INVOLVED	RECOMMENDED PROTECTION						LEGEND
		Spectacles	Eye-Cup Goggles	Monoframe Goggles	Welding Helmet	Face Shield	Hood	
<b>Group A</b>  <b>Flying Objects</b>	Chipping/Drilling/Scaling	■	▲	●		◆		 ■ Spectacles (impact) with side shields  □ Spectacles (radiation) with side shields  ▲ Eye-cup Goggles (impact)  ★ Eye-cup Goggles (dust/splash)  △ Eye-cup Goggles (radiation)  ● Monoframe Goggles (impact)  ♥ Monoframe Goggles (dust/splash)  ○ Monoframe Goggles (radiation)  + Welding Helmet  ◆ Face Shield  * Hood
	Grinding/Polishing/Buffering	■	★	♥		◆		
	Rivetting/Punching/Shearing	■	▲	●				
	Hammer Mills/Crushing	■	▲	●				
	Heavy Sawing/ Planing		★	♥		◆		
	Wire & Strip Handling	■	▲	●				
	Hammering/Unpacking/Nailing	■	▲	●		◆		
<b>Group B</b>  <b>Flying Particles Dusts/Wind</b>	Woodworking/Sanding/Turning	■	★	♥		◆		
	Light Metal Working/Machining	■	★	♥		◆		
	Exposure to Wind/Dust	■	★	♥				
	Resistance Welding*	□	△	○				
	Sand/Cement Handling		★	♥			*	
	Painting		★	♥		◆	*	
	Plastering/Concrete Work	■	★	♥		◆		
<b>Group C</b> <b>Heat/Glare/Sparks/ Splash from Molten Metal</b>	Material Batching/Mixing	■	★	♥		◆		
	Babbling/Casting/Pouring/Molten Metal		★	♥		◆		
	Soldering/Brazing	□	△	○		◆		
	Spot/Stud Welding*		△	○		◆		
<b>Group D</b>  <b>Chemical Splash</b>	Hot Dipping Operations		★	♥		◆		
	Acid/Alkali Handling		★	♥		◆	*	
	Pickling/Plating/Degreasing		★	♥		◆		
	Glass Breakage		▲	●		◆		
	Chemical Spraying		★	♥		◆	*	
<b>Group E</b> <b>Abrasive Blasting</b>	Liquid Bitumen Handling		★	♥		◆		
	Sandblasting		★	♥			*	
	Shot Blasting						*	
<b>Group F</b>  <b>Glare/Stray Light</b>	Shotcreting						*	
	Reflection/Sunlight	□	△	○				
	Reflected Welding Flash	□	△	○				
	Metal Pouring/Furnace Work	□	△	○		◆		
	Spot/Stud Welding*		△	○		◆		
<b>Group G</b> <b>Injurious Optical Radiation</b>	Photographic Copying	□	△	○				
	Gas Cutting/Welding*		△	○		◆		
<b>Group H</b>  <b>Injurious Optical Radiation</b>	Furnace Work	□	△	○		◆		
	Electric Arc Welding*	□			+			
	Heavy Gas Cutting*	□			+			
	Plasma Spraying/ Cutting*	□			+			
	Inert Gas Shielded Arc Welding*	□			+			
Atomic Hydrogen Welding*	□			+				

# Safety Glasses

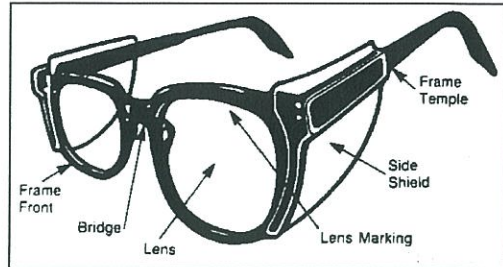
## How to Recognize Safety Glasses

**Lenses:** Safety glasses have glass, plastic or polycarbonate lenses. They are stronger than regular lenses, are impact-resistant, and come in prescription and non-prescription (plano) forms.

**Lense Marking:** The manufacturer's logo is marked (or etched) on all approved safety lenses.

**Frames:** Safety frames are stronger than street-wear frames and often heat resistant. They are designed to prevent lenses from being pushed into the eyes.

**Frame Imprint:** All CSA-certified safety frames have the imprint "Z94-3" and may have CSA logo imprinted on the temple



### Fit:

- Ensure your safety glasses fit properly. Eye size, bridge size and temple length all vary, so safety glasses need to 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.

**Care:** Safety glasses need maintenance.

- Clean your safety glasses daily.
- Store your safety glasses in a clean, dry place where they are protected from damage.
- Replace damaged or poorly-fitting glasses.

## COMPARISON OF LENSE MATERIALS

MATERIAL	ADVANTAGES	DISADVANTAGES
Glass	<ul style="list-style-type: none"> <li>• scratch resistant</li> <li>• superior visual transmission</li> <li>• superior infra-red/ultraviolet filter</li> <li>• greatest number of special-purpose lenses available</li> </ul>	<ul style="list-style-type: none"> <li>• general-grade impact resistance</li> <li>• pits weaken impact resistance</li> <li>• heavier than polycarbonate or plastic</li> </ul>
Polycarbonate	<ul style="list-style-type: none"> <li>• strongest material for impact resistance</li> <li>• lightweight - 37% lighter than glass</li> <li>• more flexible than glass; lenses easier to change</li> <li>• high visual transmission (91%)</li> </ul>	<ul style="list-style-type: none"> <li>• scratches more easily than glass</li> <li>• limited choice in tints</li> </ul>
Plastic	<ul style="list-style-type: none"> <li>• stronger than glass</li> <li>• more choice of tints than polycarbonate</li> <li>• lightweight - 40% lighter than glass</li> <li>• sheds metal splash and spatter the best</li> </ul>	<ul style="list-style-type: none"> <li>• scratches more easily than polycarbonate</li> <li>• weaker on impact than polycarbonate</li> </ul>

*Note: Polycarbonate and plastic are the only two lenses which are certified by CSA.*

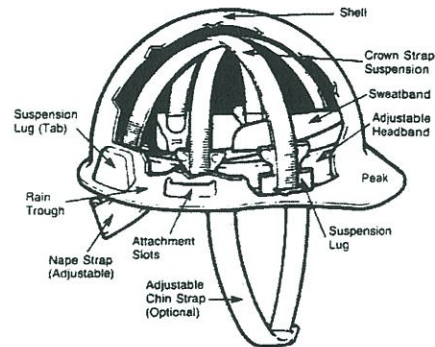
## Selection & Care of Headwear

PPE-03  
CCOHS, OHS, CSA (R2013)

Headwear consists of a shell and the suspension. These work together as a system and both need regular inspection and maintenance.

All headwear must comply with recognized industry standards and regulatory requirements. Select the proper headwear for the job.

Type I	Hat (full brim)
Type II	Cap (with or without peak)
Class G	General, protection to 2,200 volts
Class E	Electrical, protection to 20,000 volts
Class C	Conductive, no voltage protection



**Shell:** The shell is rigid and light, and is shaped to deflect falling objects. Correct maintenance is important.

- Inspect and replace a shell that shows signs of wear, scratches or gouges. Shells exposed to heat, sunlight and chemicals can become stiff or brittle. There can be a visible pattern of tiny cracks. Hats can be dull in colour or have a chalky appearance.
- Replace headwear when hairline cracks start to appear. These cracks will spread and widen.
- Replace headwear that has been struck, even if no damage is visible.
- Remove and destroy any headwear if it has been structurally modified, or if its protective abilities are in doubt.
- Do not drill holes, alter or modify the shell. Alterations may reduce the protection provided by the headwear.
- Do not paint on the plastic shell. Paint solvents can make plastic headwear brittle and more susceptible to cracks. Instead, use reflective marking tape to make numbers or symbols for identification purposes. Metal headwear may be painted.
- Do not use winter liners that contain metal or electrically conductive material.
- Do not use metal labels on Class E headwear.
- Do not draw chin strap over brim or peak of Class E headwear

**Suspension:** The suspension system is as important as the shell. It holds the shell away from the head and acts as a shock absorber. It also holds the shell in place on the head and allows air to flow freely.

- Adjust headband size so that headwear will stay on when wearer is bending over, but not so tight that it leaves a mark on the forehead.
- Ensure that the suspension is in good condition. The main purpose of the suspension is to absorb energy.

- Look closely for cracked or torn adjustment slots, frayed material or other signs of wear.
- Check suspension lugs carefully. Perspiration and hair oils can cause wear. Long periods of normal use can damage the suspension.
- Replace suspension that has torn or broken threads.

**Maintenance and Inspection:** The care and maintenance of headwear is needed if the headwear is to protect as designed. Its lifespan is affected by normal use and by heat, cold, chemicals and ultraviolet rays.

- Clean the suspension and shell regularly.
- Use a wet sponge or soft brush with mild dish detergent and thoroughly rinse with water to remove dirt and stains.

**Wear it Right:** The shock-absorbing space between the hard shell of the hat and the head. Anything that is placed in that space greatly reduces the protection provided. Do not store work gloves, or wear a regular hat or hood under a hard hat - winter liners are available to provide extra warmth. Keep the space between the headband and the shell free and clear to ensure the hat can provide all the cushioning effect possible if it is needed.

## Hearing Protection

PPE-04a  
CCOHS (1997)

**Noise Reduction Rating (NRR):** The noise reduction capability of hearing protection is given as NRR. The actual protection provided by a hearing protector is estimated to be seven decibels less than NRR (NRR-7) dB(A).

Improper fit and a low percentage of time worn greatly reduces the effectiveness of hearing protection. Select hearing protection that is:

- correct for the job.
- capable of adequately reducing sound frequencies. Check manufacturer's literature.
- comfortable enough to be accepted and worn during all exposure to noise.

All hearing protectors must comply with recognized industry standards and regulatory requirements.

Ear plugs are inserted to block the ear canal. They may be premolded (preformed) or moldable (such as glass down, foam plastic, waxed cotton). Canal caps are made up of two ear plugs held over the ends of the ear canal by a rigid headband. Ear muffs are made up of sound-attenuating (weakening) material and soft ear cushions which fit around the ear and hard outer cups. They are held together by a head band.

- Do not use radio headsets as a substitute for hearing protectors.
- Do not modify hearing protectors.

- Care:**
- Refer to manufacturer's instructions
  - Check hearing protection regularly for wear and tear
  - Replace unit if head bands are stretched and don't keep ear cushions snugly against the head.
  - Disassemble ear muffs to clean.
  - Wash hearing protectors with a mild liquid detergent in warm water, rinse in clear warm water.
  - Ensure that sound-attenuating material inside cushions does not get wet.
  - Use a soft brush to remove skin oil and dirt which can harden ear cushions.
  - Squeeze excess moisture from the plugs or cushions and place on a clean surface to air dry.

- Fit:**
- Follow manufacturer's instruction.
  - Ensure hearing protector tightly seals within the ear canal or against the side of the head.

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## COMPARISON OF HEARING PROTECTION

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### Ear Plugs

#### Advantages:

small and easily carried

- convenient to use with other PPE
- more comfortable in hot, humid work areas
- convenient for use in confined work areas
- cheaper than ear muffs

#### Disadvantages:

- require more time to fit
- more difficult to insert and remove
- require good hygiene practices
- may irritate the ear canal
- easily misplaced
- more difficult to see and monitor usage

### Ear Muffs

#### Advantages:

- designed so that one size fits most head sizes
- easily seen at a distance to assist monitoring of use
- not easily misplaced or lost
- may be worn with minor ear infections

#### Disadvantages:

- less portable and heavier
- more inconvenient for use with other PPE
- more uncomfortable in hot, humid work areas
- more inconvenient for use in confined work areas
- more difficult to wear with glasses

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*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, this is only a rule of thumb. Any activity where noise levels exceed 85dBA requires hearing protection. Hearing loss can be very gradual, usually happening over a number of years. If your hearing protection does not take the sharp edge off the noise, or if workers have headaches or ringing, pain or discomfort in the ears, your operation requires the advice of an expert. Workers should have their hearing tested at every two years, more often if they work in a high-noise area.*

# Ear Plug Fitting Instructions

PPE-04b  
various (2007)

## DISPOSABLE EAR PLUG FITTING INSTRUCTIONS

Before fitting any ear plugs, make sure your hands are clean.

Before fitting any ear plugs, make sure your hands are clean. Hold the ear plug between your thumb and forefinger. Roll and compress the entire ear plug into a small, crease-free cylinder. While still rolling, use your other hand to reach over your head and pull up and back on your outer ear. This straightens the ear canal, making way for a snug fit.



Insert the ear plug and hold for 20 to 30 seconds. This allows the ear plug to expand and fill your ear canal.



Test the fit. In a noisy environment, and with earplugs inserted, cup both hands over your ears and release. You should not notice a significant difference in the noise level. If the noise seems to lessen when your hands are cupped over your ears, your ear plugs are probably not fitted properly. Remove and refit.



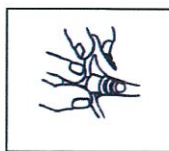
Always remove ear plugs slowly, twisting them to break the seal. If you remove them too quickly, you could damage your ear drum.



## REUSABLE EAR PLUG FITTING INSTRUCTIONS

Before fitting any ear plugs, make sure your hands are clean. Reach around your head and pull up and back on your outer ear. This straightens out the ear canal, making way for a snug fit.

Hold the stem end of the ear plug and insert it well inside your ear canal until you feel it sealing and the fit is comfortable.



Test the fit. In a noisy environment, and with ear plugs inserted, cup both hands over your ears and release. You should not notice a significant difference in the noise level. If the noise seems to lessen when your hands are cupped over your ears, your ear plugs are probably not fitted properly. Remove and refit.



Always remove ear plugs slowly, twisting them to break the seal. If you remove them too quickly, you could damage your ear drum.



Reusable ear plugs should be inspected and cleaned often in soapy water. If they become hard, torn or deformed, they should be replaced.

## Limb & Body Protection

PPE-05a  
CCOHS (1997)

**General Information:** 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, temperature extremes, body impacts, corrosives, molten metals, cuts from sharp or abrasive materials). PPE 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, and
- various types of plastic boot covers and overshoes.

For more information on the type of specialty PPE you require, check your local Occupational Health & Safety office. With all PPE, following the manufacturer's instructions on its use, care and cleaning is critical and will help you get the full service life from your specialty PPE.

**Hand PPE (Gloves and Mitts):** PPE for the hands include: finger guards, thimbles and cots, handpads, mitts, gloves and barrier creams. Choose hand PPE that will protect against the job hazard. Gloves should fit well and be comfortable. This type of PPE has to protect against chemicals, scrapes, abrasions, heat and cold, punctures and electrical shocks.

**Types:** PPE for the hands come in many forms, each designed to protect against certain hazards. Gloves most commonly 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 PPE, keep the following in mind: look for anything



at the job-site that may be a hazard to the hands. If gloves are to be used, select the proper type for the job to be done. Inspect and maintain hand PPE regularly. If in doubt about the selection or need for glove or hand PPE, consult your safety supplier, Material Safety Data Sheet (MSDS), or local Occupational Health & Safety Office.

- |            |                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Do:</b> | <ul style="list-style-type: none"><li>• inspect hand PPE for defects before use</li><li>• wash all chemicals and fluids off gloves before removing them</li><li>• ensure that gloves fit properly</li><li>• use the proper hand PPE for the job</li><li>• follow manufacturer's instructions on the care and use of the hand PPE you are using</li><li>• ensure all skin is covered (no gap between the sleeve and the hand PPE).</li></ul> |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- |               |                                                                                                                                                                                                                                                                              |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Don't:</b> | <ul style="list-style-type: none"><li>• wear gloves when working with moving machinery (gloves can get tangled or caught)</li><li>• wear hand PPE with metal parts near electrical equipment</li><li>• use gloves or hand protection that is worn out or defective</li></ul> |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# Hand Protection

PPE-05b  
CCOHS (1997)

Hand protection is designed to protect hands against a wide variety of hazards. The protection can be provided in a number of different ways: barrier creams, finger guards, cots and thimbles, hand pads, mits and gloves.

- Choose hand protection that adequately protects from the hazard.
- Follow manufacturer's instructions for care and maintenance of gloves
- Ensure gloves fit properly.
- Ensure all exposed skin is covered by gloves. Gloves should be long enough so that there is no gap between the glove and the sleeve.
- Do not wear gloves with metal parts near electrical equipment.
- Do not use worn or torn gloves.
- Do not wear gloves while working on moving equipment; they can become caught.
- Wash off all chemical-protective gloves with water before removing them.
- Inspect and test gloves for defects before using.
- Test all rubber or synthetic gloves for leaks by inflating them.



GUIDE TO THE SELECTION OF HAND PROTECTION		
Hazard	Degree of Hazard	Protective Material
Abrasion	severe less severe	<ul style="list-style-type: none"> <li>reinforced heavy rubber, staple-reinforced heavy leather</li> <li>rubber, plastic, leather, polyester, nylon, cotton</li> </ul>
Sharp Edges	severe less severe mild with delicate work	<ul style="list-style-type: none"> <li>metal mesh, staple-reinforced heavy leather, Kevlar-steel mesh</li> <li>leather, terry cloth (Aramid fiber)</li> <li>lightweight leather, polyester, nylon, cotton</li> </ul>
Chemicals & Fluids	refer to <i>ACGIH Guideline for the Selection of Chemical Protective Clothing</i> , the mfr, product MSDS, or CCOHS	<ul style="list-style-type: none"> <li>dependent on chemical job-rated rubber or synthetic of the following material: natural rubber, neoprene, nitrile butyl rubber, Viton, polyvinyl chloride, polyvinyl alcohol and others</li> </ul>
Cold		<ul style="list-style-type: none"> <li>leather, insulated plastic or rubber, wool, cotton</li> </ul>
Electricity		<ul style="list-style-type: none"> <li>rubber-insulated gloves tested to appropriate voltage (CSA Standard Z259.4-M1979) with leather outerglove</li> </ul>
Heat	high temperatures (over 350°C) medium high (up to 350°C) warm (up to 200°C) less warm (up to 100°C)	<ul style="list-style-type: none"> <li>asbestos, neoprene-coated asbestos</li> <li>Nomex, Kevlar, neoprene-coated asbestos, heat-resistant leather with linings</li> <li>Nomex, Kevlar, heat-resistant leather, terry cloth (Aramid fiber)</li> <li>chrome-tanned leather, terry cloth</li> </ul>
General Duty		<ul style="list-style-type: none"> <li>cotton, barrier creams, terry cloth, leather</li> </ul>
Product Contamination		<ul style="list-style-type: none"> <li>thin-film plastic, lightweight leather, cotton, polyester, nylon</li> </ul>
Radiation		<ul style="list-style-type: none"> <li>lead-lined rubber, plastic or leather</li> </ul>

## Chemical Protective Gloves

PPE-05c  
CCOHS (1997)

- Choose a material and style of glove that adequately protects hands from the hazard.
- Review the following sources to determine the material's ability to protect hands against the hazard: MSDS/Label from chemical manufacturer; manufacturer of the gloves (review recent permeability information); CCOHS Data Bases / Inquiries Service.
- Inspect and test gloves for defects before using
- Follow manufacturer's instructions for care and maintenance.
- Wash off all chemical-protective gloves with water before removing them.
- Ensure gloves fit properly, and maintain them carefully.

**\*CHEMICAL PERMEATION OF GLOVE MATERIAL Breakthrough time in hours is calculated as an average**

PURE CHEMICAL	Butyl Rubber	Neoprene	PVC	Natural rubber	Nitrile	Viton	Poly-ethylene	PURE CHEMICAL	Butyl Rubber	Neoprene	PVC	Natural rubber	Nitrile	Viton	Poly-ethylene
PCBs	>8	>8		<1		>8	>1	ammonium hydroxide		>4	>2	>2	>4		
sulphuric acid >70%		>1	<1	>1	>1	>1	>4	xylene	<1	<1	<1	<1	<1	>8	
hydrochloric acid	>8	>4	>2	>2	>4	>1	<1	toluene diisocyanate	>8			<1	>4	>8	
sodium hydroxide <70%	>8	>4	>4	>2	>4	>4	>8	trichloroethane	>4	<1	<1	<1		>8	<1
nitric Acid <30%		>4	>4	>4	>4		<1	formaldehyde	>8	>2	<1	<1	>8	>8	>4
ethylene glycol		>2	>1	>2	>2		>2	perchloroethylene	<1	<1	<1	<1	>4	>8	<1
vinyl chloride					>4	>4		phenol >70%	>8	>4	<1	<1	<1	>8	>4
pentachlorophenol		>1	>2		>4			acetic acid		>4	>2	>2	>4	>1	>4
methanol	>8	<1	<1	<1	<1	>1	>8	chromic acid		>1	>4	<1	<4		
phosphoric acid >70%		>4	>4	>4	>4		>4	hydrogen peroxide		>1	>4	>4			

<1 (0-0.9) >1 (1-1.9) >2 (2-3.9) 1/4 shift >4 (4-7.9) 1/2 shift >8 (>8) full shift

**\*GLOVE MATERIAL RATINGS**

Material (designation in matrices)	Abrasion Resistance	Cut Resistance	Flexibility	Heat Resistance	Ozone Resistance	Puncture Resistance	Tear Resistance
Butyl Rubber (Butyl)	F	G	G	X	X	G	G
Chlorinated Polyethylene (CPE)	X	G	G	G	X	G	G
Natural Rubber	X	X	X	F	P	X	X
Nitrile-Butadiene Rubber (MBR)	X	X	X	G	F	X	G
Neoprene	X	X	G	G	X	G	G
Nitrile Rubber (Nitrile)	X	X	X	G	F	X	G
Nitrile Rubber/Polyvinyl Chloride (Nitrile/PVC)	G	G	G	F	X	G	G
Polyethylene	F	F	G	F	F	P	F
Polyurethane	X	G	X	G	G	G	G
Polyvinyl Alcohol (PVA)	F	F	P	G	G	G	G
Polyvinyl Chloride (PVC)	G	P	F	P	X	G	G
Styrene-butadiene Rubber (SBR)	S	G	G	G	F	F	F
Viton	G	G	G	G	X	G	G

X-Excellent G-Good F-Fair P-Not Recommended

Ratings are subject to variation depending on formulation thickness, and whether the material is supported by fabric.

\*Adapted from ACGIH Guidelines for the Selection of Chemical Protective Clothing

## Fire Resistant (FR) Clothing

PPE-05d  
TEL. OSHA (2015)

FR clothing is designed to protect the worker from arc flash or flash fires. It is not designed for extended exposure to flames.

**Personal Clothing Under FR Material:** Personal clothing worn under FR material should be constructed of 100% natural fibres (such as wool or cotton) as it is less likely than synthetic material to ignite and continue to burn, or melt on the skin. A US Occupational Safety & Health Administration (OSHA) document addressing the use of FR clothing in certain industrial environments states that because of the increased potential of injury, *"workers are generally prohibited from wearing clothing materials made entirely of, or blended with, synthetic materials such as acetate, nylon, polyester, or rayon..."*

*If a prohibited material is worn as one of multiple layers of clothing, hazards still may be present... If a layer of clothing made from a prohibited material is worn as a middle or inside layer of clothing, and if enough heat passed through the outer layer(s), there is a hazard that the fabric also could ignite (assuming sufficient air flow). If a layer of clothing made from a prohibited material is worn as the inside layer of clothing, there is a hazard that the fabric could melt in contact with the employee's a skin thereby causing a burn injury..."*

**Weight:** The weight of fire resistant fabric is specified in weight per unit area (ounces/sq yard or g/m<sup>2</sup>). Higher weights provide more thermal insulation and a higher Arc Thermal Performance Value (ATPV) (arc flash cal/cm<sup>2</sup>).

**Layers:** Multiple layers of clothing retain air space between the layers, thus providing greater thermal insulation than a single layer. Single, thick clothing provides less physical comfort, whereas multiple layers allow flexibility. Comfort and flexibility are important in avoiding accidents while working on live equipment.

### **Care of Fire Resistant Clothing:**

- **Laundering:** Obtain complete instructions on care of fire resistant clothing from the manufacturer. Indura® and Nomex® IIIA are not supposed to be harmed by regular machine-washing or dry-cleaning. Follow laundering instructions provided by the manufacturer.
- **Contamination:** Grease, oil or other flammable material catch fire easily and will continue to burn after the arc ceases. Therefore, fire resistant clothing contaminated with these substances should not be used (or are to be adequately laundered before use). Care should be taken at work to avoid contaminating fire resistant clothing with flammable substances.

- **Storage:** Store fire resistant clothing in a safe, dry environment to ensure you can rely on it when you need it.

**Useful Life of Fire Resistant Clothing:** The useful life of fire resistant clothing depends on factors such as the material, weight, severity of the work activity and the abrasion characteristics of the material. Normally, if the material is torn, worn out, or has become contaminated by a flammable substance that cannot be washed out, it should be replaced immediately.

**Selection of Fire Resistant Clothing:** Fire resistant clothing should be selected according to the needs of the worker and the nature of the work environment and work to be performed.

- **Comfort:** It is vital that the worker be comfortable.
- **Fit:** A loose-fitting garment provides more thermal insulation; however, it should not be so loose that it restricts easy movement or could get caught on equipment or other items in the work area. Likewise, it should not be so tight that it restricts easy movement.
- **Layers:** Multiple layers provide additional air insulation and greater protection and versatility. Multiple layers of clothing is more comfortable than a single thick, heavy garment.
- **Materials:** The choice of fabric material can affect comfort and weight. Nomex® IIIA is lighter and breaths better in summer, while Indura® Ultra-Soft is heavier and warmer in the winter and provides a high ATPV.

## Safety Harnesses & Lanyards

PPE-06a

*CCOHS, OH&S, various (R2009/03)*

### General Information

Body harnesses are used in construction to provide workers working at heights above ground level with freedom of movement and protection from falls. These devices will arrest a fall and absorb some of the shock of the fall. The systems are usually worn around the body and attached to a lanyard, fall arresting device or rope grab. Better quality systems usually have some form of shock absorber in the system.

Any lifeline in use must be suitable for the conditions in which it is to be used (strength, abrasion resistance, extensibility, chemical stability, etc.). Lifelines made of wire rope or synthetic materials must be free of imperfections, knots and splices (other than end

terminations), and must be protected by padding where the lifeline passes over sharp edges. Lifelines must be protected from heat, flame and abrasive or corrosive materials during use and be maintained in accordance with the manufacturer's recommendations.

A lifeline should never be used as a service line. The only time a lifeline becomes a load bearing line is in the event of a fall. At all other times it should be just slack enough to permit free movement on the service lines.

All metal parts of the full body harness and connecting linkage must be of drop-forged steel 22.2 (5,000 lbs) kilonewtons proof tested. A protective thimble must be used to protect ropes or straps from chafing whenever a rope or strap is connected to an eye or a D-ring.

It is very important to get quality advice in the selection, purchase and maintenance of your fall-arresting equipment. All fall protection equipment and devices must comply with recognized industry standards and regulatory requirements.

- Do:**
- obtain expert advice before purchasing a fall-arresting device
  - properly fit, train and practice with the system you decide to use
  - use webbing type harnesses instead of leather harnesses
  - use only the manufacturer's components for replacement parts
  - inspect carefully before each use (inspection to be performed by a trained worker)
  - have the harness fitted snugly to the worker using the system
  - *ensure that the anchor points are secure and able to support the load in the event of a fall*
  - follow the manufacturer's instructions on care and use
  - ensure all components of fall protection systems meet required standards (CSA, CGSB, NIOSH, ANSI).
  - use only the proper safety and rated fastenings with the system
  - *use a full body harness with shock absorber whenever possible*

- Don't:**
- modify, change or put additional holes in the harness or hardware
  - jerry-rig the system
  - use the system for any other than its intended use
  - use the lifeline for a service line

# Care of Safety Harnesses & Lanyards

PPE-06b  
CCOHS, OH&S (R2012/01)

## **Equipment:**

- Inspect your equipment daily.
- Replace any equipment involved in a fall.
- Replace defective equipment.
- Refer questionable defects to a qualified individual.

## **Webbing (Body of Harness or Lanyard):**

- Inspect entire surface of webbing for damage. Beginning at one end, bend the webbing in an inverted "U". Holding the body side of the harness toward you, grasp the harness with your hands six to eight inches apart.
- Watch for frayed edges, broken fibres, pulled stitches, cuts or chemical damage. Broken webbing strands generally appear as tufts on the webbing surface.
- Replace according to manufacturer's guidelines.

## **Buckle:**

- Inspect for loose, distorted or broken grommets. Do not cut or punch additional holes in waist strap or strength members.
- Check harness without grommets for torn or elongated holes which could cause the buckle tongue to slip.
- Inspect the buckle for distortion and sharp edges. The outer and centre bars must be straight. Carefully check corners and attachment points of the centre bar. They should overlap the buckle frame and move freely back and forth in their sockets. The roller should turn freely on the frame.
- Check that rivets are tight and cannot be moved. The body side of the rivet base and outside rivet burr should be flat against the material
- Inspect for pitted or cracked rivets which indicate chemical corrosion.

## **Rope:**

- Rotate the rope lanyard and inspect from end to end for fuzzy, worn, broken or cut fibres. Weakened areas have noticeable changes in the original rope diameter.
- Replace when rope diameter is not uniform throughout, following a short break-in period.

## **Hardware (Forged Steel Snaps, "D" Rings):**

- Inspect hardware for cracks or other defects. Replace the harness if the "D" ring is not at a 90° angle and does not move vertically independent of the body pad or "D" saddle.
- Inspect tool loops and harness sewing for broken or stretched loops.
- Check bag rings and knife snaps to see that they are secure and working properly. Check tool loop rivets. Check for thread separation or rotting.
- Inspect snaps for hook and eye distortions, cracks, corrosion or pitted surfaces. The keeper (latch) should be seated into the snap nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to close the keeper firmly. Steel snaps must be equipped with a double latch.



### **Safety Strap:**

- Inspect for cut fibres or damaged stitches inch by inch by flexing the strap in an inverted "U". Note cuts, frayed areas or corrosion damage.
- Check friction buckle for slippage and sharp buckle edges.
- Replace when tongue buckle holes are excessively worn or elongated.

### **Cleaning:** Basic care prolongs the life of the unit and contributes to its performance.

- dry equipment away from heat, steam and out of long periods of sunlight
- store in a clean, dry area free of fumes, sunlight or corrosive materials.

### **Nylon & Polyester:**

- Wipe off all surface dirt with a sponge dampened in plain water. Rise sponge and squeeze it dry. Dip the sponge in a mild solution of water and commercial soap or detergent. Work up a thick lather with a vigorous back and forth motion.
- Rinse webbing in clean water.
- Wipe the equipment dry with a clean cloth. Hang freely to dry, but away from excessive heat.

### **Cotton:**

- Clean like nylon. For heavy dirt or grease, soak in a solution of one tablespoon of grease cutter to one gallon of water. Consult supplier.
- After soaking, rinse again; then hang to dry.

It is the responsibility of each worker to inspect his fall protection system prior to each use. Where a defect which may create a hazard is identified in any component of a fall protection system, the system or component must be removed from service and tagged immediately. No component of a fall protection system will be returned to service until a competent person has inspected the equipment and is satisfied that it does not pose a hazard. Where a defect is identified which may pose a hazard to a worker, immediate steps must be taken to protect the health and safety of any worker who may be at risk until the defect is repaired or the unsafe condition is corrected. The repair / correction will be implemented as soon as is reasonably practicable.

## **Respiratory Protective Equipment**

PPE-07a  
CCOHS, OH&S (R2009/03)

**General Information:** Respiratory protection falls into two major categories. The first category is *Air Purifying Respirators* (APRs), which are particle (dust) chemical cartridges but have no visor plate. The second category is *Atmosphere Supply Respirators*, including self-contained breathing apparatus (SCBA), air line systems and protective suits that completely enclose the worker and incorporate a life support system. Only APRs will be

dealt with here. The second category of respirators requires much more specific information and training. If you need to use Atmosphere Supply Respirators, you should get expert advice.

**APRs:** There are two basic types of APRs: disposable fibre type with or without charcoal or chemical filter "buttons", and the reusable rubber face mask type with disposable or rechargeable cartridges. The choice depends on your job, labour, cost and your maintenance facility. *It is important to remember that APRs are limited to areas where there is enough oxygen to support life. APRs don't supply or make oxygen.*

The service life is affected by the type of APR, the wearer breathing demand and the concentration of airborne contaminants. When an APR is required, consult the Material Safety Data Sheet (MSDS), Occupational Health & Safety or the supplier for the exact specifications for the APR.

*Facial hair can prevent a good seal and fit of an APR; one to three days' growth is the worst. Follow the manufacturer's instructions to the letter regarding the mask, filters, cartridges and other components. Workers who must use respiratory protection should be clean shaven. An APR is only as good as its seal and its ability to filter out the contaminants it was designed to filter.*

**Combination Respirators:** This type of APR combines separate chemical and mechanical filters. This allows for the change of the different filters when one of them becomes plugged or exhausted before the other filter (usually the dust filter plugs before the chemical filter). *This type of respirator is suitable for most spray painting and welding.* For more information check the:

- Material Safety Data Sheet (MSDS)
- Occupational Health & Safety Regulations
- the local Occupational Health & Safety office
- the safety equipment supplier

All respiratory protective equipment and devices must comply with recognized industry standards and regulatory requirements.

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Do:</b></p> <ul style="list-style-type: none"><li>• train workers very carefully in the APR's use, care and limitations</li><li>• ensure that respirators are properly cleaned and disinfected after each shift according to the manufacturer's instructions</li><li>• dispose of exhausted cartridges and masks in sealed bags or containers</li><li>• keep new, unused filters separate from old, used filters</li><li>• monitor APR use; they are useless just hung around the neck</li><li>• replace filters when breathing becomes difficult</li></ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- Don't:**
- use for protection against materials which are toxic in small amounts
  - use with materials that are highly irritating to the eyes
  - use with gases that can't be detected by odour or throat or nose irritation
  - use with gases not effectively halted by chemical cartridges regardless of concentration (read the cartridge label)
  - use respirators or masks if the serviceability is in doubt
  - use APRs where oxygen content in the air is less than 19.5% (Sask) or 18% (Alberta)

***Workers required to use respiratory protective devices must be adequately trained by a competent person (in compliance with regulations and recognized industry standards) in the proper testing, maintenance, use, cleaning and limitations of the equipment they are required to use. Workers must demonstrate knowledge of training through a practical demonstration in an uncontaminated environment.***

## Care of Respirators

PPE-07b  
CCOHS (1997)

Inspect before and after each use and during cleaning. Inspect equipment designated for "emergency use" at least monthly, in addition to after each use. Replace all parts that are cracked, torn, broken, missing or worn. Follow manufacturer's instructions for care and maintenance.

### Facepiece:

- Ensure that there are no holes or tears.
- Inspect for cracked, scratched or loose-fitting lenses. For full facepiece, check for missing mounting clips.
- Ensure that metal nose clip forms easily over the bridge of the nose on disposable respirators.

### Headstrap/Harness:

- Check webbing for breaks.
- Look for deterioration of elasticity.
- Test excessively worn head harness.

### **Inhalation and Exhalation Valves:**

- Ensure valve and valve seat are free of detergent and residue, dust particles, or dirt which may cause a poor seal or reduce efficiency.
- Replace missing or defective valve cover.

### **Filter Element:**

- Ensure that filter and mask are certified for use together.
- Check filters to see that they are approved for the hazard.
- Inspect both filter threads and facepiece threads for wear.
- Check filter housing for cracks or dents.
- Check end of service life indicator for gas masks. Check expiration date.

### **Air Supply System:**

- Inspect air-supply hose and end-fitting attachments for breaks, cracks or kinks.
- Test the tightness of connections.
- Ensure proper operation and condition of all regulators, valves and other air-flow devices.
- Check for proper settings of regulators and valves. Consult manufacturer's recommendations.
- Monitor operation of air-purifying elements and carbon monoxide or high-temperature alarms.
- Check seams in suit or blouse for rips and tears.
- Ensure that protective screens are intact and fit correctly over facepiece (abrasive blasting hoods and blouses).

### **Respirator Battery Pack:**

- Follow manufacturer's instructions for charging/discharging.
- Fully discharge nicad batteries before charging.
- Ensure batteries are fully charged before using.

### **Repair, Cleaning and Storage:**

- Follow manufacturer's instructions. Do not clean with solvents.
- Wash with a mild dish detergent or a combination of detergent and disinfectant. Use a brush and warm water (49-60°C).

- Rinse with clean water, or rinse once with a disinfectant and once with clean water. The clean water rinse removes excess detergent or disinfectant that can cause skin irritation or dermatitis.
- Dry on a rack, clean surface or hang from a clothes line. Position the respirator so that the facepiece rubber will not "set" crookedly as it dries.
- Store respirator at the end of each shift to protect it from dust, sunlight, heat, extreme cold, excessive moisture and chemicals.
- Clean and disinfect shared respirators after each use.
- Only trained and qualified personnel are permitted to repair respirators.
- Do not mix parts from different manufacturers.
- Record repairs and/or inspections.
- Remove dirt.
- Check for distortion caused by improper storage.

**Where a respiratory protective device is required for emergency use, it must be thoroughly inspected by a competent person at least once a month and after every use. The date of every inspection and the name of the person conducting the inspection must be recorded and displayed at the location where the device is stored. Any defects identified during the inspection must be corrected immediately by a competent person.**

# Respirator Fit Test (Cannister Type)

PPE-07c  
various (2002/03)

Only trained, competent and authorized individuals are permitted to administer / supervise respirator fit testing. All fit testing will be conducted in compliance with recognized industry standards and regulatory requirements. Any respirator used must be:

- **an approved respirator:** NIOSH, MSHA or BSA approved and the filters must be correct and approved for the work being performed; and
- **properly fitted.**

Worker Name (print):	Date of Test:
<b>Respirator Type</b> (circle one): Cartridge Cartridge Supplied Air Supplied Air 1/2 mask full face mask 1/2 mask full face mask	Brand:  Size:

### Condition of Respirator

New Respirator     Inspection Performed & Passed (see PPE-07b, Care of Respirators)

#### FITTING YOUR MASK:

A half mask won't protect you unless it is sealed tightly to your face; otherwise, contaminated air can leak in around the edges. Facial hair can prevent a secure fit. Doing these positive and negative fit tests helps you detect any leaks before entering a hazardous area. Other fit tests may also be required.

Also during initial fitting, a fit test should be conducted using an easily detectable non-toxic aerosol vapour or gas as the test agent. During this test, the wearer should conduct a number of exercises that will simulate his activity in the work area: talking, nodding the head up and down, and from side to side.



#### ← Negative fit test

Place palms over cartridge openings and inhale for 10 seconds. You should feel the mask pull in toward your face.



#### Positive Fit Test →

With palms over exhalation valve opening, exhale gently into the mask. You should feel pressure in the facepiece.

**Positive Fit Test:**                                     Pass                                     Fail

**Negative Fit Test:**                                     Pass                                     Fail

#### Test Substance:

**Final Result of Test:**                                     Pass                                     Fail                                    Number of Tries:

Test Supervised by:	Worker (signature)
Test Supervisor (signature)	

*When most trainers think about PPE, they usually focus on proper selection and use. But care and maintenance of PPE is another important training issue--one that all too easily can fall through the cracks.*

	Yes	No	N/A
<b>Hard Hat Care</b> Heads up on hard hat care. Employees who use head protection should be trained to: <ul style="list-style-type: none"> <li>- Clean hard hats regularly with warm water and soap, and allow to air dry.</li> <li>- Store head protection out of the sun, away from extreme temperatures, and in a safe place (like a locker) where it can't get knocked around and damaged.</li> <li>- Check the headband to make sure that it isn't stretched or worn and that the hat fits comfortably on the head.</li> <li>- Replace a hard hat if it is cracked, dented, or has taken a heavy blow.</li> </ul>			
<b>Eyewear Maintenance</b> - Clean safety glasses and goggles regularly with mild soap and water. - Wash lenses with water before wiping to prevent scratching. (If employees don't have access to clean water, tell them to blow dust and grit from lenses before wiping.) - Store eye protection preferably in a clean dust-proof case or in a safe place such as the top shelf of a locker where it won't get scratched or otherwise damaged. - Replace safety glasses if frames are bent, and replace goggles if headbands are loose, twisted, knotted, or worn. Replace any kind of eye protection if lenses are scratched or pitted and impair vision.			
<b>Hearing Protection</b> Take good care of hearing protection! Even hearing protection needs proper maintenance to keep it in good, safe condition. That means employees need to: <ul style="list-style-type: none"> <li>- Wipe earmuffs with a damp cloth after each use, store them in a safe place, and replace cushions when they lose their resilience.</li> <li>- Wash reusable earplugs every day, store them in a clean case, and replace if plugs are hard or discolored.</li> <li>- Wipe canal caps (headband plugs) with a damp cloth after each use, store them in a safe place so the headband won't get bent or twisted, and replace if the band is damaged and no longer fits comfortably.</li> </ul>			
<b>Respirators</b> After employees use respirators they should: <ul style="list-style-type: none"> <li>- Clean and disinfect them according to manufacturer's instructions.</li> <li>- Check for holes, cracks, deterioration, and any other problems that could interfere with the effectiveness of protection.</li> <li>- Store in a safe location, protected from dust, light, heat, cold, moisture, and chemicals.</li> <li>- Place the respirator so that rubber and plastic parts are in a normal position and hold their shape.</li> </ul>			
<b>Gloves</b> - Have a backup pair in case gloves get wet (or must be washed) and need to dry. - Check for holes, cracks, and other damage before each use. - Replace worn or damaged gloves right away.			
<b>Foot Protection</b> Boots need proper care and maintenance just like any other kind of PPE. To get the best protection from work shoes, employees should: <ul style="list-style-type: none"> <li>- Wipe wet or soiled shoes with a clean cloth or paper towel.</li> <li>- Air out work shoes after work, and check regularly for signs of damage or wear.</li> <li>- Have worn or damaged shoes repaired, or replace them.</li> <li>- Change socks during the lunch break to keep feet and shoes dry if feet sweat a lot.</li> </ul>			

Completed By: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_