

Purpose, Applicability, and Scope

Purpose – To establish a program and procedures through which employees can identify tasks and related hazards in order to properly select appropriate personal protective equipment. OSHA standard 29 CFR 1910.132 requires employers to assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of person protective equipment.

Applicability – This program shall apply to all SUNY Potsdam staff who perform construction or maintenance work on campus.

Scope – This policy covers the following types of construction or maintenance work

- Welding and allied processes
- Heat Treating
- Grinding
- Thawing pipe
- Powder-driven fasteners
- Similar applications producing a spark, flame, or heat

Further, this hazard assessment should be implemented any time one or more of the following conditions apply:

- Initial assignment or start of a new task
- When procedures or conditions change
- When current level of PPE is felt to be ineffective for the task

Supervisors and employees are encourage to contact Environmental Health & Safety at X2596 any time an assessment or reassessment is needed so that we can help guide you through the process.

Definitions and Abbreviations

Abbreviations

OSHA - Occupational Safety and Health Administration

PESH – Public Employee Safety & Health Bureau

PPE – Personal Protective Equipment

EHS – Environmental Health & Safety

References

1. Assessing the Need for Personal Protective Equipment – OSHA

Definitions

Hot work: Any work that involves welding, cutting, brazing, creates sparks, excessive heat or open flames, or that may be considered by supervisors to create a fire hazard.

Designated Area: A permanent location designed for or approved for hot work operations to be performed regularly.

Fire Watch: A temporary measure to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purposes of identifying and controlling fire hazards, detecting early signs of unwanted fire, and raising alarm of fire and notifying the fire department. (2020 Fire Code of New York State)

Hot Work Permit: A document issued for the purpose of authorizing a specified activity.

Hot Work Operator (HWO): An individual designated to perform hot work under the authorization of a supervisor.

Permit Authorizing Individual (PAI): Inspects hot work sites prior to the start of hot work operations using the checklist found on the Hot Work permit form.

Welding and Allied Processes: Those processes such as arc welding, oxy-fuel gas welding, open-flame soldering, brazing, thermal spraying, oxygen cutting, and arc cutting.

Roles and Responsibilities

Supervisors shall:

- Ensure that their direct report employees have been properly trained on the use of PPE, how to request it, its limitations, and how to replace it. (EHS can assist with this)
- .Ensure that before any work has been assigned that a hazard assessment, in accordance with this policy, has been completed for the tasks involved.
- Ensure that all employees are otherwise qualified to complete this task.
- Ensure that PPE has been identified far enough in advance to account for the procurement process for items not normally stocked.

Employees shall:

- Verify that a PPE hazard assessment has been completed for all work assigned.
- Verify that the PPE identified in the hazard assessment is available and used.

- Report any issues to their supervisor and/or EHS.

EHS shall:

- When requested, provide training on the use, limitations, and procurement of PPE.
- In coordination with supervisors, review and approve SUNY Potsdam's PPE Hazard Assessment program on an annual basis, or when regulations, policies, job duties, or equipment are changed or is otherwise warranted.
- Provide consulting services, when requested, to all SUNY Potsdam Stakeholders in regards to this program.

Program Activities

When hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE), a Hazard Assessment is required to determine the potential hazards and for selection of the appropriate PPE.

The PPE Hazard Assessment form can be used to determine the required PPE by identifying the hazards of performing the task and selecting appropriate PPE. The form is grouped according to the body part protected by specific types of PPE.

PPE Risk Assessment Instructions:

- Conduct a PPE Hazard Assessment:
 - Initially
 - When tasks or conditions change
 - Or when PPE is deemed ineffective.
- Perform a walkthrough of the work area and task or job to be performed. Identify hazards that the employee may be exposed to while performing work activities or while present in the work area.
- Describe the hazards that are present
- If the hazards cannot be eliminated or controlled without the use of PPE then indicate which type of PPE will be required to protect the employee from the hazard.

- PPE alone should not be relied on to provide protection against hazards but should be used in conjunction with guards, engineering controls and good operating practices.
- When selecting PPE select the most protective type available.
- The supervisor shall fit the worker with the PPE and give instructions on its use and care.
- The supervisor shall also ensure the employee understands the manufacturer's warning labels and provide training on the limitations of the PPE.
- Make sure that you complete the following fields on the form (indicated by *)
 - Name of the worksite or task.
 - Name of person certifying that a workplace PPE hazard assessment was performed.
 - Date the PPE hazard assessment was performed.
- Document and certify the PPE Hazard Assessment and maintain documentation for reference and employee training.

Appendix A

Hazard Assessment Form

Personal Protective Equipment Hazard Assessment

The PPE Hazard Assessment form can be used to determine the required PPE by identifying hazards to the employees performing the task and the required PPE. The form is grouped according to the body part requiring PPE.

The form can serve as a written certification of the PPE Hazard Assessment.

Instructions:

1. Conduct a PPE Hazard Assessment initially, when tasks or conditions change, or when PPE is deemed ineffective
2. Perform a walkthrough of the work area and task or job to be performed. Identify hazards that the employee may be exposed to while performing work activities or while present in the work area.
3. Describe the hazards that are present
4. If the hazards cannot be eliminated or controlled without the use of PPE then indicate which type of PPE will be required to protect the employee from the hazard
 - a. PPE alone should not be relied on to provide protection against hazards but should be used in conjunction with guards, engineering controls and good operating practices.
 - b. When selecting PPE select the most protective type available
 - c. The supervisor shall fit the worker with the PPE and give instructions on its use and care.
 - d. The supervisor shall also ensure the employee understands the manufacturer's warning labels and provide training on the limitations of the PPE
5. Make sure that you complete the following fields on the form (indicated by *)
 - a. Name of the worksite or task
 - b. Name of person certifying that a workplace PPE hazard assessment was performed
 - c. Date the PPE hazard assessment was performed
6. Document and certify the PPE Hazard Assessment and maintain documentation for reference and employee training.

PPE Hazard Assessment Certification Form

Work Location: _____

***Job/Task:** _____

***Assessment conducted by:** _____

***Assessment Date:** _____

***Job Task or Job Performed:** _____

Eye Hazards

Tasks that can cause eye hazards include: working with chemicals and animals; molten metal; chipping; grinding; furnace operations; sanding; welding and woodworking and intense light.

Hazards	Yes	No	Description of Hazard	Required PPE
Chemical	△	△		
Dust	△	△		
Heat	△	△		
Impact	△	△		
Light/Radiation	△	△		
Electrical (shock& arc)	△	△		

Head Hazards

Tasks that can cause head hazards include: working below other workers who are using tools and materials which could fall; working on potentially energized electrical equipment; working with chemicals; and working under machinery or processes which might cause materials or objects to fall.

Hazards	Yes	No	Description of Hazards	Required PPE
Burn	△	△		
Chemical Splash	△	△		
Impact	△	△		
Electrical (shock& arc)	△	△		

Hand Hazard

Tasks that can cause hand hazards include: cutting material, working with chemicals, animals, and working with hot objects.

Hazards	Yes	No	Description of Hazards	Required PPE
Burns	Δ	Δ	1.	
Chemical Exposure	Δ	Δ		
Cut/Abrasion	Δ	Δ		
Hot/Cold Exposure	Δ	Δ		
Puncture	Δ	Δ		
Electrical (shock& arc)	Δ	Δ		

Foot Hazards

Tasks that can cause foot hazards include: carrying or handling heavy (>15 lbs.) material that could be dropped; performing manual material handling or working with chemicals

Hazard	Yes	No	Description of Hazards	Required PPE
Chemical Exposure	Δ	Δ		
Compression	Δ	Δ		
Impact	Δ	Δ		
Puncture	Δ	Δ		
Electrical (shock& arc)	Δ	Δ		

Noise Hazards

Task associated with equipment that can generate noise greater than 90 dBA this would include arc flash hazards, rotating equipment grinders etc.

Hazards	Yes	No	Description of Hazards	Required PPE
Moving Machinery	Δ	Δ		
Rotating Equipment	Δ	Δ		
Electrical (arc and shock)	Δ	Δ		

Fall Hazards

Tasks that can cause hazards to the employee as a result of working at elevation or in applications that risk to falling are present

Hazard	Yes	No	Description of Hazards	Required PPE
Heights greater than or equal than 4 feet	Δ	Δ		
Working from leading edge	Δ	Δ		
Confined Space	Δ	Δ		
Operating powered industrial vehicle	Δ	Δ		

Body Hazards

Tasks that can cause hazards to the body of the employee in locations where harm to the body could occur.

Hazards	Yes	No	Description of Hazards	Required PPE
Wet Environment	Δ	Δ		
Dusty Locations	Δ	Δ		
Confined Spaces	Δ	Δ		
Handling Chemicals	Δ	Δ		
Electrical (shock& arc)	Δ	Δ		

Respiratory Hazards

Tasks that can cause inhalation hazards in excess of the established exposure limits. Inhalation hazards may consist of exposure to gases, vapors, dust, mist or fumes or fibers. Activities that may be exposed to these types of hazards include abrasive blasting, spray painting, welding, chemical related activities and asbestos maintenance.

All respirator usage must conform to the [University Respiratory Protection Program](#).

Hazards	Yes	No	Description of Hazards	Required PPE
Chemical Exposure	Δ	Δ		
Vapor	Δ	Δ		
Dust	Δ	Δ		
Respirable Fibers	Δ	Δ		
Asbestos	Δ	Δ		

Certification

I certify that the above PPE Hazard Assessment was performed on the date indicated. This document is a Certification of the Hazard Assessment per OSHA Standard 29CFR 1910.132.

Printed Name	
Date	
Signature	

Number	Printed Name of Employee	Signed Name of Employee	Date of Training	Name of Trainer
1				
2				
3				
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9				
10				
11				
12				

Appendix B
OSHA Publication
“Assessing the Need for Personal Protective
Equipment”

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ASSESSING THE NEED FOR PERSONAL PROTECTIVE EQUIPMENT (PPE)



These materials were developed by OSHA's Office of Training and Education and are intended to assist employers, workers, and others as they strive to improve workplace health and safety. While we attempt to thoroughly address specific topics, it is not possible to include discussion of everything necessary to ensure a healthy and safe working environment in a presentation of this nature. Thus, this information must be understood as a tool for addressing workplace hazards, rather than an exhaustive statement of an employer's legal obligations, which are defined by statute, regulations, and standards. Likewise, to the extent that this information references practices or procedures that may enhance health or safety, but which are not required by a statute, regulation, or standard, it cannot, and does not, create additional legal obligations. Finally, over time, OSHA may modify rules and interpretations in light of new technology, information, or circumstances; to keep apprised of such developments, or to review information on a wide range of occupational safety and health topics, you can visit OSHA's website at www.osha.gov.

Assessing the Need for Personal Protective Equipment**(PPE)**

- OSHA standard 29 CFR 1910.132 requires employers to assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of PPE
- Although not specifically directed to construction industry operations, this discussion will help you comply with OSHA's general PPE requirements for the construction industry (see 29 CFR 1926.28)
- Consult the OSHA standards for specific requirements concerning selection and use of PPE

Protecting Employees from Workplace Hazards

- OSHA regulations require employers to protect their employees from workplace hazards such as machines, work procedures, and hazardous substances that can cause injury
- Employers must institute all feasible engineering and work practice controls to eliminate and reduce hazards *before* using PPE to protect against hazards

Engineering Controls

If . . .

You can physically change the machine or work environment to prevent employee exposure to the potential hazard,

Then . . .

You have eliminated the hazard with an engineering control.

Examples . . .

- Initial design specifications
- Ventilation
- Substitution with less harmful material
- Enclosure of process
- Isolation of process
- Change the process

Work Practice Controls

If . . .

You can remove your employees from exposure to the potential hazard by changing the way they do their jobs,

Then . . .

You have eliminated the hazard with a work practice control.

Examples . . .

- Job rotation of workers
- Wet methods
- Personal hygiene
- Housekeeping and maintenance

Examples of PPE

- Eyes - safety glasses, goggles
- Faces - face shields
- Heads - hard hats
- Feet - safety shoes
- Hands and arms - gloves
- Bodies - vests
- Hearing - ear plugs, earmuffs

NOTE:

Respirators and rubber insulating equipment (gloves, sleeves, blankets, etc.) are also considered PPE. However, because OSHA has specific requirements for them, they are not discussed in this general guide.

Checklist for Establishing a PPE Program

Identify steps taken to assess potential hazards in every employee's work space and in workplace operating procedures.	D
Identify appropriate PPE selection criteria.	D
Identify how you will train employees on the use of PPE, including:	
What PPE is necessary	D
When PPE is necessary	D
How to properly inspect PPE for wear or damage	D
How to properly put on and adjust the fit of PPE	D
How to properly take off PPE	D
The limitations of the PPE	D
How to properly care for and store PPE.	D
Identify how you will assess employee understanding of PPE training.	D
Identify how you will enforce proper PPE use.	D
Identify how you will provide for any required medical	D

examinations.

Identify how and when to evaluate the PPE program.

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CHECKLIST ON NEED FOR PPE			
SUGGESTED QUESTIONS	TYPICAL OPERATIONS OF CONCERN	YES	NO
EYES			
Do your employees perform tasks, or work near employees who perform tasks, that might produce airborne dust or flying particles?	Sawing, cutting, drilling, sanding, grinding, hammering, chopping, abrasive blasting, punch press operations, etc.		
Do your employees handle, or work near employees who handle, hazardous liquid chemicals or encounter blood splashes?	Pouring, mixing, painting, cleaning, syphoning, dip tank operations, dental and health care services, etc.		
Are your employees' eyes exposed to other potential physical or chemical irritants?	Battery charging, installing fiberglass insulation, compressed air or gas operations, etc.		
Are your employees exposed to intense light or lasers?	Welding, cutting, laser operations, etc.		
FACE			
Do your employees handle, or work near employees who handle, hazardous liquid chemicals?	Pouring, mixing, painting, cleaning, syphoning, dip tank operations, etc.		
Are your employees' faces exposed to extreme heat?	Welding, pouring molten metal, smithing, baking, cooking, drying, etc.		
Are your employees' faces exposed to other potential irritants?	Cutting, sanding, grinding, hammering, chopping, pouring, mixing, painting, cleaning, syphoning, etc.		
HEAD			
Might tools or other objects fall from above and strike your employees on the head?	Work stations or traffic routes located under catwalks or conveyor belts, construction, trenching, utility work, etc.		
Are your employees' heads, when they stand or bend, near exposed beams, machine parts, pipes, etc.?	Construction, confined space operations, building maintenance, etc.		

CHECKLIST ON NEED FOR PPE			
SUGGESTED QUESTIONS	TYPICAL OPERATIONS OF CONCERN	YES	NO
Do your employees work with or near exposed electrical wiring or components?	Building maintenance; utility work; construction; wiring; work on or near communications, computer, or other high tech equipment; arc or resistance welding; etc.		
FEET			
Might tools, heavy equipment, or other objects roll, fall onto, or strike your employees' feet?	Construction, plumbing, smithing, building maintenance, trenching, utility work, grass cutting, etc.		
Do your employees work with or near exposed electrical wiring or components?	Building maintenance; utility work; construction; wiring; work on or near communications, computer, or other high tech equipment; arc or resistance welding; etc.		
Do your employees handle, or work near employees who handle, molten	Welding, foundry work, casting, smithing, etc.		
Do your employees work with explosives or in explosive atmospheres?	Demolition, explosives manufacturing, grain milling, spray painting, abrasive blasting, work with highly flammable materials, etc.		
HANDS			
Do your employees' hands come into contact with tools or materials that might scrape, bruise, or cut?	Grinding, sanding, sawing, hammering, material handling, etc.		
Do your employees handle chemicals that might irritate skin, or come into contact with blood?	Pouring, mixing, painting, cleaning, syphoning, dip tank operations, health care and dental services, etc.		
Do work procedures require your employees to place their hands and arms near extreme heat?	Welding, pouring molten metal, smithing, baking, cooking, drying, etc.		

CHECKLIST ON NEED FOR PPE			
SUGGESTED QUESTIONS	TYPICAL OPERATIONS OF CONCERN	YES	NO
Are your employees' hands and arms placed near exposed electrical wiring or components?	Building maintenance; utility work; construction; wiring; work on or near communications, computer, or other high tech equipment; arc or resistance welding; etc.		
BODY			
Are your employees' bodies exposed to irritating dust or chemical splashes?	Pouring, mixing, painting, cleaning, syphoning, dip tank operations, machining, sawing, battery charging, installing fiberglass insulation, compressed air or gas operations,		
Are your employees' bodies exposed to sharp or rough surfaces?	Cutting, grinding, sanding, sawing, glazing, material handling, etc.		
Are your employees' bodies exposed to extreme heat?	Welding, pouring molten metal, smithing, baking, cooking, drying, etc.		
Are your employees' bodies exposed to acids or other hazardous	Pouring, mixing, painting, cleaning, syphoning, dip tank operations,		
HEARING			
Are your employees exposed to loud noise from machines, tools, music systems, etc.?	Machining, grinding, sanding, work near conveyors, pneumatic equipment, generators, ventilation fans, motors, punch and brake		

Eye and Face Protection**Criteria**

- Protect against specific hazard(s) encountered by employees
- Comfortable to wear
- Must not restrict vision or movement
- Durable and easy to clean and disinfect
- Must not interfere with the function of other required PPE
- Meet requirements of ANSI Z87.1-1989 for devices purchased after July 5, 1994, and ANSI Z87.1-1968 for devices purchased before that date

Eye Protection for Employees Who Wear Eyeglasses

- Prescription spectacles, with side shields and protective lenses meeting requirements of ANSI Z87.1
- Goggles that can fit comfortably over corrective eyeglasses without disturbing their alignment
- Goggles that incorporate corrective lenses mounted behind protective lenses

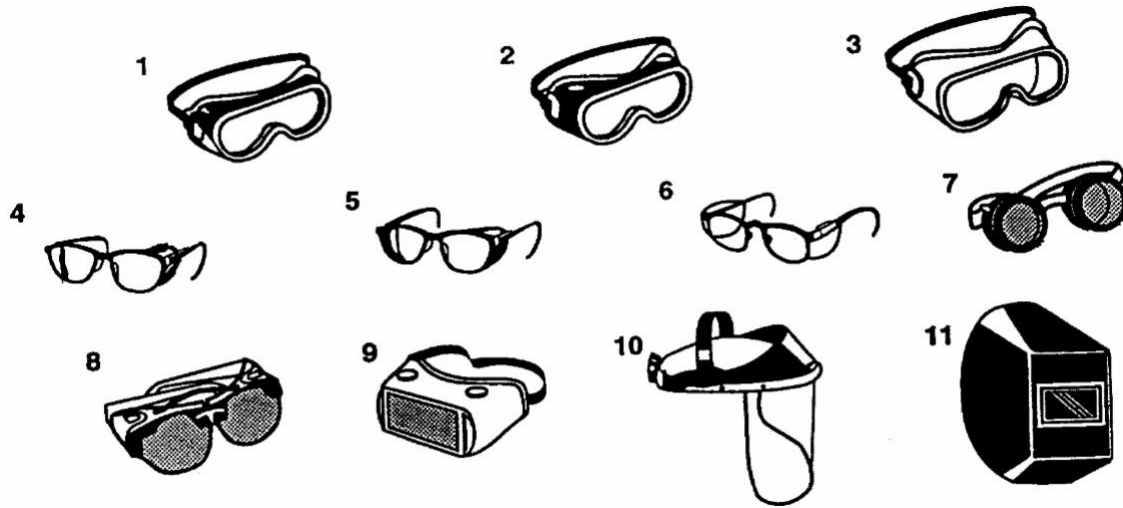
Face Shields

- Do *not* protect employees from impact hazards
- Use face shields in combination with goggles or safety spectacles when you must protect your employees from impact hazards, even in the absence of dust or potential splashes

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Figure 1. Recommended Eye and Face Protectors

Source: 29 CFR 1926.102 (a)(5) Table E-1



Eye and face protectors are identified below by number and type. Refer to Table 1 for recommended usage applications.

1. GOGGLES, Flexible Fitting, Regular Ventilation
2. GOGGLES, Flexible Fitting, Hooded Ventilation
3. GOGGLES, Cushioned Fitting, Rigid Body
- *4. SPECTACLES, Metal Frame, With Sideshields
- *5. SPECTACLES, Plastic Frame, With Sideshields
- *6. SPECTACLES, Metal-Plastic Frame, With Flat-Fold Side shields
- **7. WELDING GOGGLES, Eyecup type, Tinted Lenses
- 7A. CHIPPING GOGGLES, Eyecup Type, Clear Safety Lenses (not illustrated)
- **8. WELDING GOGGLES, Eyecup type, Tinted Plate Lens
- 8A. CHIPPING GOGGLES, Coverspec Type, Clear Safety Lenses (not illustrated)
- **9. WELDING GOGGLES, Coverspec Type, Tinted Plate Lens
10. FACE SHIELD (Available With Plastic or Mesh Window, Tinted/Transparent)
- **11. WELDING HELMETS

*These are also available without side shields for limited use requiring only frontal protection.

** See Table 2, Filter Lens Shade Numbers for Protection Against Radiant Energy.

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Table 1. Eye and Face Protector Selection Guide

Source: 29 CFR 1926.102(a)(5)

Operation	Hazards	Recommended protectors: (see Figure 1)
Acetylene-burning, Acetylene-cutting, Acetylene-welding	Sparks, harmful rays, molten metal, flying particles	7,8,9
Chemical handling	Splash, acid burns, fumes	2,10 (for severe exposure add 10 over 2)
Chipping	Flying particles	1,3,4,5,6,7A,8A
Electric (arc) welding	Sparks, intense rays, molten metal	9,11 (11 in combination with 4,5,6 in tinted lenses advisable)
Furnace operations	Glare, heat, molten metal	7,8,9 (for severe exposure add 10)
Grinding - light	Flying particles	1,3,4,5,6,10
Grinding - heavy	Flying particles	1,3,7A,8A (for severe exposure add 10)
Laboratory	Chemical splash, glass	2 (10 when in breakage combination with 4,5,6)
Machining	Flying particles	1,3,4,5,6,10
Molten metals	Heat, glare, sparks, splash	7,8 (10 in combination with 4,5,6 in tinted lenses)
Spot welding	Flying particles, sparks	1,3,4,5,6,10

How dark do lenses on welding helmets and goggles need to be?

The intensity of light or radiant energy produced by welding, cutting, or brazing operations varies according to a number of factors including the task producing the light, the electrode size, and the arc current. Table 2, Filter Lens Shade Numbers for Protection Against Radiant Energy, shows the minimum protective shade for a variety of welding, cutting, and brazing operations.

To protect employees who are exposed to intense radiant energy, begin by selecting a shade too dark to see the welding zone. Then try lighter shades until you find one that allows a sufficient view of the welding zone without going below the minimum protective shade.

Table 2. Filter Lens Shade Numbers For Protection Against Radiant Energy

Source: 29 CFR 1926.102(b)(1)

Welding operation	Shade number
Shielded metal-arc welding 1/18-,3/32-,1/8-,5/32-inch-diameter electrodes	10
Gas-shielded arc welding (nonferrous) 1/16-,3/32-,1/8-,5/32-inch diameter electrodes	11
Gas-shielded arc welding (ferrous) 1/16-,3/32-,1/8-,5/32-inch diameter electrodes	12
Shielded metal-arc welding 3/16-,7/32-,1/4-inch diameter electrodes	12
5/16-,3/8-inch diameter electrodes	12
Atomic hydrogen welding	10-14
Carbon-arc welding	14
Soldering	2
Torch brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting, over 6 inches	5 or 6
Gas welding (light), up to 1/8 inch	4 or 5
Gas welding (medium), 1/8 inch to 1/2 inch	5 or 6
Gas welding (heavy), over 1/2 inch	6 or 8

Checklist for Training Employees to Use and Care for Eye and Face Protection

Train your employees to know . . .

Why eye protection is necessary, i.e., the workplace hazards that threaten their eyes. D

How the eye protection will protect them. D

The limitations of the eye protection. D

When they must wear the eye protectors. D

How to put the protective eyewear on properly. D

How to adjust straps and other parts for a comfortable and effective fit. D

How the protective eyewear fits over or contains an employee's corrective lenses. D

How to identify signs of wear such as:

- Chipped, scratched, or scraped lenses; D

- Loss of elasticity or fraying of head bands. D

How to clean and disinfect the safety eyewear.

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Head Protection

You must provide head protection for your employees if:

- Objects might fall from above and strike them on the head
- They might bump their heads against fixed objects, such as exposed pipes or beams
- They work near exposed electrical conductors

Head Protection Criteria

In general, protective helmets, or hard hats, should:

- Resist penetration by objects,
- Absorb the shock of a blow,
- Be water resistant and slow burning,
- Come with instructions explaining proper adjustment and replacement of the suspension and head band, and
- Comply with ANSI Z89.1-1986 (if purchased after July 5, 1994) or ANSI Z89.1-1969 (if purchased before this date).

Classes of Hard Hats

Class A

- Used for general service (e.g., mining, building construction, shipbuilding, lumbering, manufacturing)
- Provide good impact protection but limited voltage protection

Class B

- Used for electrical work
- Protect against falling objects and high-voltage shock and burns

Class C

- Designed for comfort, offer limited protection
- Protect heads that might bump against fixed objects, but do not protect against falling objects or electrical shock

Note: The terminology and designations used in ANSI Z89.1-1986 are different from those used in later editions of ANSI Z89.1.

Checklist for Training Employees to Use and Care for Head Protection

Train your employees to know . . .

Why head protection is necessary, i.e., the workplace hazards that threaten their heads.	D
How the head protection will protect them.	D
The limitations of the head protection.	D
When they must wear the head protection.	D
How to wear the protective head gear properly.	D
How to adjust straps and other parts for a comfortable and effective fit.	D
How to identify signs of wear such as:	
• Cracked, torn, frayed, or otherwise deteriorated suspension systems;	D
• Deformed, cracked, or perforated brims or shells; and	D
• Flaking, chalking, or loss of surface gloss.	D
How to clean and disinfect the hard hats you provide for them.	D

Foot and Leg Protection

Some of the potential hazards that would require foot and leg protection include:

- Heavy objects such as barrels or tools that might roll onto or fall on employees' feet
- Sharp objects such as nails or spikes that might pierce the soles or uppers of ordinary shoes
- Molten metal that might splash on feet or legs
- Hot or wet surfaces
- Slippery surfaces

Foot Protection Requirements

- Protective footwear purchased after July 5, 1994 must meet the requirements of ANSI Z41-1991
- Protective footwear purchased before that date must comply with ANSI Z41-1967

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Foot and Leg Protection Choices

- **Leggings.** Protect lower legs and feet from heat hazards, like molten metal or welding sparks. Safety snaps allow leggings to be removed quickly.
- **Metatarsal Guards.** Strapped to outside of shoes to protect instep area from impact and compression. Made of aluminum, steel, fiber or plastic.
- **Toe Guards.** Fit over the toes of regular shoes to protect only the toes from impact and compression. Made of steel, aluminum, or plastic.
- **Combination Foot and Shin Guards.** May be used in combination with toe guards when greater protection is needed.
- **Safety Shoes.** These have impact-resistant toes and heat-resistant soles that protect against hot work surfaces common in roofing, paving, and hot metal industries.
 - May have metal insoles to protect against puncture wounds
 - May be designed to be electrically conductive for use in explosive atmospheres
 - May be designed to be electrically nonconductive to protect from workplace electrical hazards

Checklist for Training Employees to Use and Care for Foot and Leg Protection

Train your employees to know . . .

Why foot or leg protection is necessary, i.e., the workplace hazards that threaten their feet or legs. D

How the equipment you provide will protect them. D

The limitations of the foot or leg protection. D

When they must wear the protective leggings, guards, or shoes. D

How to properly put on the protective equipment. D

How to adjust straps, laces, and other parts for a comfortable and effective fit. D

How to identify signs of wear such as:

- Scuffed, cracked, or lacerated uppers; D
- Signs of separation between soles and uppers, D
- Holes or cracks in soles or heels, or D
- Metal embedded in heels or soles of electrical hazard, safety-toe shoes. D

How to clean and maintain the leg and foot protection
you provide for them.

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Hand and Arm Protection

- When engineering and work practice controls fail to eliminate the risk of injury to your employees' hands or arms, protective gloves are the primary means of protecting their hands
- When the risk of injury includes the arm, protective sleeves, often attached to the gloves, may be appropriate
- Nature of the hazard(s) and the operation to be performed will determine your selection of gloves

Types of Gloves

- Durable work gloves made of metal mesh, leather or canvas
- Fabric and coated fabric gloves
- Chemical and liquid resistant gloves
- Insulating rubber gloves*

Asbestos gloves and asbestos linings ***are prohibited.***

* Detailed requirements for selection and use of insulating rubber gloves for use against electrical hazards are provided in 29 CFR 1910.137, and are therefore not included in this discussion.

Metal Mesh, Leather, or Canvas Gloves

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

- **Leather Gloves**
 - Protect against sparks, moderate heat, blows, chips, and rough objects
 - Welders in particular need the durability of higher-quality leather gloves

- **Aluminized Gloves**
 - Provide reflective and insulating protection against heat
 - Usually used for welding, furnace, and foundry work
 - Require an insert made of synthetic materials that protect against heat and cold
 - *Asbestos inserts are prohibited*

Metal Mesh, Leather, or Canvas Gloves**(cont'd)**

- **Aramid Fiber Gloves**
 - Aramid is a synthetic material that protects against heat and cold
 - Many glove manufacturers use aramid fiber to make gloves that are cut- and abrasive-resistant and wear well

- **Other Synthetic Materials**
 - Several manufacturers make gloves with other synthetic fabrics that offer protection against heat and cold
 - Cut- and abrasive-resistant and may withstand some diluted acids
 - Do not stand up well against alkalis and solvents

Fabric and Coated Fabric Gloves

- Gloves made of cotton or other fabric protect against dirt, slivers, chafing, and abrasion but do not provide sufficient protection to be used with rough, sharp or heavy materials
- Cotton flannel gloves coated with plastic transform fabric gloves into general-purpose hand protection offering slip-resistant qualities
- Coated fabric gloves are used for tasks ranging from handling bricks and wire rope to handling chemical containers in laboratory operations
- For protection against chemical exposure hazards, always check with the manufacturer to determine the gloves' effectiveness against the specific chemicals and conditions in the workplace

Chemical and Liquid-Resistant Gloves

- Gloves made of rubber (latex, nitrile, or butyl), plastic, or synthetic rubber-like material such as neoprene protect workers from burns, irritation, and dermatitis caused by contact with oils, greases, solvents, and other chemicals
- Use of rubber gloves also reduces the risk of exposure to blood and other potentially infectious substances

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Common Gloves Used for Chemical Protection

- **Butyl Rubber Gloves**
 - Protect against nitric acid, sulfuric acid, hydrofluoric acid, red fuming nitric acid, rocket fuels, and peroxide
 - Resist oxidation and ozone corrosion.
 - Resist abrasion and remain flexible at low temperatures.
- **Natural Latex or Rubber Gloves**
 - Comfortable wear and pliability along with their protective qualities make them a popular general-purpose glove
 - Resist abrasions caused by sandblasting, grinding, and polishing and protect workers' hands from most water solutions of acids, alkalis, salts, and ketones
 - Hypoallergenic gloves, glove liners, and powderless gloves possible alternatives for those allergic to latex

Common Gloves Used**for Chemical Protection (cont'd)**

- **Neoprene Gloves**
 - Good pliability, finger dexterity, high density, and tear resistance
 - Provide protection from hydraulic fluids, gasoline, alcohols, organic acids, and alkalis

- **Nitrile Rubber Gloves**
 - Provide protection from chlorinated solvents such as trichloroethylene and perchloroethylene
 - Intended for jobs requiring dexterity and sensitivity, yet stand up to heavy use even after prolonged exposure that cause other gloves to deteriorate
 - Resist abrasion, puncturing, snagging, and tearing

Checklist for Training Employees to Use and Care for Hand and Arm Protection

Train your employees to know . . .

Why hand and arm protection is necessary, i.e., the workplace hazards that threaten their hands and arms. D

How the protective gloves and sleeves will protect them. D

The limitations of the protective equipment you've supplied. D

When they must wear the gloves and sleeves. D

How to properly put on the gloves and sleeves. D

How to ensure a comfortable and effective fit. D

How to identify signs of wear, such as:

- Cracks, scrapes, or lacerations, D

- Thinning or discoloration, and D

- Breakthrough to the skin.

D

How to clean and disinfect the nondisposable protective gloves and sleeves.

D

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Body Protection

Workplace hazards that could injure your employees' bodies include the following:

- Intense heat
- Splashes of hot metals and other hot liquids
- Impacts from tools, machinery, and materials
- Cuts
- Hazardous chemicals
- Contact with potentially infectious materials, like blood
- Radiation

Types of Body Protection

- Vests
- Jackets
- Aprons
- Coveralls
- Surgical gowns
- Full body suits

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Materials for Protective Clothing

- **Paper-Like Fiber.** Disposable suits made of this material provide protection against dust and splashes.
- **Treated Wool and Cotton.** Adapts well to changing workplace temperatures. Comfortable and fire resistant. Protects against dust, abrasions, and rough and irritating surfaces.
- **Duck.** Protects employees against cuts and bruises while they handle heavy, sharp, or rough materials.
- **Leather.** Often used against dry heat and flame.
- **Rubber, Rubberized Fabrics, Neoprene, and Plastics.** Provides protection against certain acids and other chemicals.

Checklist for Training Employees to Use and Care for Body Protection

Train your employees to know . . .

Why protective clothing is necessary, i.e., the workplace hazards that threaten their bodies. D

How the protective clothing will protect them. D

The limitations of the body protection. D

When they must wear the protective clothing. D

How to properly put on the protective clothing. D

How to adjust parts for a comfortable and effective fit. D

How to identify signs of wear, such as:

- Rips, tears, scuffs, and D
- Loss of elasticity in tight fitting parts. D

How to clean and disinfect the protective clothing you provide for them. D

Hearing Protection

- Noise exposure depends on:
 - Level of sound, measured in decibels on the A-scale (dBA)
 - Duration of employee's exposure to sound of various levels throughout the work day
- Measured with noise dosimeter, which indicates daily noise dose in percent

When is Hearing Protection Required?

- As with other types of hazards, you must implement feasible engineering and work practice controls before resorting to PPE, in this case hearing protection
- OSHA's noise standard (29 CFR 1910.95) requires the use of hearing protection when the employee's noise exposure exceeds an 8-hour time-weighted average sound level (TWA) of 90 dBA (dose of 100 percent)
- Employees who are exposed to an 8-hour TWA of 85 dBA (dose of 50 percent) and who have measured hearing loss (as prescribed by the OSHA standard) are also required to wear hearing protection

Hearing Conservation Program (HCP)

- All employees whose noise exposures equal or exceed an 8-hour TWA of 85 dBA must be included in a HCP

- HCP is comprised of five basic elements:
 - Exposure monitoring
 - Audiometric testing
 - Hearing protection
 - Employee training
 - Recordkeeping

Monitoring

- Required to identify employees who are subjected to noise exposures of 85 dBA or more
- Must be repeated whenever change in production, process, equipment or controls increases noise exposures to extent that:
 - additional employees may be over-exposed, or
 - hearing protectors being used may be rendered inadequate

Audiometric Testing Program

- Monitors employee hearing acuity over time
- Includes baseline and annual audiograms and initiates training and follow-up procedures
- Tests must be conducted by a professional or trained technician in an appropriate test environment

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Hearing Protection

- Must be made available to all employees exposed to an 8-hour TWA of 85 dBA or more
- Mandatory for those who have experienced hearing loss, defined as a “Standard Threshold Shift” in the OSHA standard
- Common types include ear plugs and earmuffs
- Hearing protector’s attenuation capacity shown by its Noise Reduction Rating (NRR) on package
- Proper fit *very* important

Training

Annual training required in:

- Effects of noise
- Purpose, advantages, disadvantages, and attenuation characteristics of various types of hearing protectors
- Selection, fitting and care of protectors
- Purposes and procedures of audiometric testing

Recordkeeping

- Noise exposure records must be kept for 2 years
- Records of audiometric test results must be maintained for duration of affected employee's employment

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Checklist for Training Employees to Use and Care for Hearing Protection

Train your employees to know . . .

- | | |
|---|---|
| Why hearing protection is necessary, i.e., the workplace hazards that threaten their hearing. | D |
| How the ear plugs or earmuffs will protect them. | D |
| The limitations of the hearing protection. | D |
| When they must insert or wear the hearing protectors. | D |
| How to adjust earmuff parts for a comfortable and effective fit, or form the ear plugs to fit their ears. | D |
| How special earmuffs fit over an employee's corrective lenses. | D |
| How to clean and disinfect the hearing protection you provide for them. | D |

PPE Hazard Assessment Program

Summary

- OSHA requires that you implement a PPE program to help you systematically assess the hazards in the workplace and select the appropriate PPE that will protect workers from those hazards
- As part of this PPE program, you must do the following:
 - Assess the workplace for hazards
 - Implement engineering controls and work practices to control or eliminate these hazards to the extent feasible
 - Select appropriate PPE to protect employees from hazards that cannot be eliminated or controlled through engineering controls and work practices
 - Inform your employees why the PPE is necessary and when it must be worn
 - Train your employees how to use and care for the selected PPE and how to recognize PPE deterioration and failure
 - Require your employees to wear the selected PPE in the workplace



PPE Hazard Assessment Program

Record of Revision

Date	Description	Person Authorizing
March 31, 2022	New Program Release	Patrick O'Brien