

 Portland Community College Health & Safety Manual	Department: EH&S	
	Function: Facilities Management Services	
	Topic: Ch 12—Personal Protective Equipment	
	Board Policy: B507 Effective Date: May 2004	Revision Date: May 2020

Authority	PCC Board Policy—B507
	Portland Community College (PCC) is committed to providing a safe and healthy work and educational environment for our employees, students and visitors.

Summary	This chapter, Personal Protective Equipment, was developed to comply with the applicable sections of OR-OSHA’s regulations on personal protective equipment (PPE) including hazard assessments, equipment selection, and employee training. This chapter references information about different types of PPE including those that have more stringent regulations and more comprehensive information found in other chapters of the Health & Safety Manual.
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I. PURPOSE

Portland Community College (PCC) is committed to employee occupational health and safety and accomplishes this through a wide range of hazard controls. PCC has developed its personal protective equipment (PPE) policy and procedures to ensure that when hazards cannot be fully controlled with engineering or administrative controls, employees have access to appropriate PPE.

This chapter covers hazard and PPE assessments as well as different types of PPE and the work tasks each style is appropriate for. There is also information regarding the purchase and sourcing of PPE and resources for training employees in proper use, care, and maintenance of the PPE they use in the course of their work.

II. AUTHORITY

Includes but not limited to:

- PCC Board Policy – B507
- OAR 437-002-0134 *Personal Protective Equipment*
- OAR 1910.95 *Occupational Noise Exposure*
- OAR 1910.1030 *Bloodborne Pathogens Standard*

Other related Health & Safety Manual chapters include:

- *Chapter 1 – General Safety Program and Responsibilities*
- *Chapter 4 – Bloodborne Pathogens Exposure Control Plan*
- *Chapter 11 – Noise Exposure and Hearing Conservation Plan*
- *Chapter 17 – Respiratory Protection Plan*
- *Chapter 20 – Fall Protection Program*

III. RESPONSIBILITY

Responsibility for PPE rests at all levels at PCC and is outlined as follows:

Supervisor/Manager/Deans

- Perform hazard assessments for department work tasks and determine hazard controls
- Select and provide PPE appropriate to each work task requiring protection
- Ensure employees are trained in the use of assigned PPE
- Perform inspections on all PPE as specified by the specific program, manufacturer, and/or best practices for the equipment
- Ensure all records are properly maintained in department files

Environmental Health & Safety (EH&S)

- Provide assistance on hazard assessments and PPE selection as needed by management
- Participate in Safety Committee safety inspections as needed
- Facilitate training for certain specialized PPE programs

Safety Committees

- Perform department or work area PPE reviews during safety inspections
- Assess and assign PPE for Safety Committee Members appropriate to safety

inspections at their specific location

All Employees

- Read and understand the Health & Safety Manual
- Follow all safety procedures pertaining to their work tasks
- Follow PPE specific procedures as outlined in this chapter or other program specific chapters
- Follow all manufacturer's recommendations regarding PPE use and care
- Perform inspections on all PPE as specified by the specific program, manufacturer, and/or best practices for the equipment
- Report all issues with PPE to management

IV. PROCEDURES

A. Hazard Assessments

PCC is required by OR-OSHA to conduct hazard assessments to determine what hazards are present and what controls should be put in place to protect against those hazards. At PCC, supervisors and managers are responsible for assessing the hazards in their department. While conducting the hazard assessment, supervisors and managers should include their employees to ensure as many hazards are identified as possible. The assessment should include:

- The general work area
- Specific work task or procedures
- Specific equipment and tools
- Specific chemicals or substances

Supervisors and managers should use information available to them from Safety Committee inspections, equipment manuals, chemicals safety data sheets (SDS) and past incident records to identify the hazards associated with their department. For additional information on hazard identification, supervisors and managers can review the online training available through MyCareer@PCC titled Online Hazard Identification Training.

Once a department's hazards have been identified, the supervisor or manager shall determine which controls will be used to protect employees. PCC follows the standard practice of the hierarchy of controls to reduce hazards. This hierarchy of controls evaluation should be included in the hazard assessment. The hierarchy of controls includes:

- **Eliminate** the hazard by eliminating the source of the hazard
- **Substitute** the source of the hazard for a safer option
- **Engineering controls** which prevent the hazard from reaching the employee
- **Administrative controls** which require an employee or PCC to take specific action through policy or procedures
- **PPE** which serves as a barrier between the employee and the hazard

It is PCC procedure and a general best practice to reduce hazards in the workplace through engineering controls and administrative controls. When a hazard cannot be completely controlled with these methods, then PPE shall be selected and assigned based on work task and hazard level. PPE devices alone should not be relied on to provide protection against hazards but should be used in conjunction with engineering controls and

administrative controls. More information on the hierarchy of controls and how PCC implements them can be found in *H&SM Chapter 1: General Safety Program and Responsibilities*.

Supervisors and managers shall use *Form 1: Hazard Assessment and PPE Training* to document the departments hazard assessment and specific PPE requirements for various tasks and processes. Each work area, task, or specific equipment or chemical should be listed along with its associated hazards and the different controls that will be used to protect the employee. Once the hazards and controls are listed, the specific types of PPE required shall be listed. Supervisors and managers shall complete *Form 1* for each employee's job duties and ensure a signed copy is kept in the employee's file. For assistance with completing *Form 1*, supervisors and managers should contact EH&S.

1. Reassessment of Hazards

There are many events which would require a department to reassess its hazards. This includes any changes to a work area which could introduce a new hazard, any new equipment, tool, or chemical which could introduce a new hazard, or any larger occupational hazard which affects PCC as a whole.

In the event of any potential introduction of a new hazard, the supervisor or manager must perform a new hazard assessment and determine what controls will be used to protect employees. Supervisors and managers shall use Form 1 to document the additional assessment and controls.

2. Annual Review

PPE requirements should be reviewed with employees at least once a year to ensure any changes are communicated and employees understand the use and maintenance of their PPE. The review should focus on the types of PPE required, which tasks the PPE is required for, and any training that might be needed for the employee to use and maintain the PPE.

B. PPE Selection

Once the hazard assessment is complete and it is determined which hazards will require PPE protection, selection of each item of PPE shall be made. For each hazard needing PPE, it is important to know what options are available and what levels of protection are provided by each. Individual pieces should be selected to protect against as many anticipated hazards as possible. For example, if an employee needs to clean a piece of machinery with a corrosive chemical, rather than layering two types of gloves, a glove should be selected which offers both chemical protection as well as puncture and abrasion protection. Additionally, an item of PPE shall not interfere or compromise the protection of any other PPE an employee might be required to wear.

Employees should be included in the PPE selection process as it is important to remember that PPE is not "one size fits all". If PPE doesn't fit well it cannot protect the employee as it should. Also, poorly fitted PPE can be uncomfortable which causes employees to not wear the item. Whenever possible, multiple sizes or styles of PPE should be provided for employees to choose from to ensure the best fit. It is also important to ensure each employee has their own equipment rather than relying on shared PPE.

Some types of PPE are available in both disposable and reusable options. Sometimes, when PPE will have to be used repeatedly for a long period of time, a more expensive and durable type of PPE may be less expensive overall than disposable PPE. When considering whether to select disposable or reusable PPE keep in mind the following:

- Duration of work task
- Frequency of work task
- Ease of cleaning
- Cost of PPE
- Level of protection required
- Chemical compatibility
- Range of motion required for work task

If an item of PPE needs to provide protection from chemical exposure, it must be confirmed by the product information that the PPE will protect against the chemical or class of chemicals. Some materials have different permeability and degradation rates depending on the chemicals they are exposed to. The permeability and degradation rate should be considered when selecting the PPE and establishing the work procedures and timeline for any work using that PPE. Information on PPE compatibility with a chemical can be obtained from the manufacturer. Some chemicals will include information in their SDS on specific types of PPE needed for work tasks involving that chemical. This information could include what material the PPE should be constructed of as well as material thickness requirements.

C. PPE by Type

There are a variety of PPE types available depending on the specific exposure risk from a given hazard. Some types are for more general use and protect an employee from a wide range of hazards with one piece of equipment. Other types of PPE are specific to a work task or a specific hazard and might require more training or guidance to ensure its proper use, maintenance, and upkeep. A listing of the various types of PPE used by different departments at PCC can be found in *Appendix B: PPE Use by Department*.

1. Hand and Arm Protection

Hand and arm protection should be worn when an employee's hands are exposed to harmful substances, cuts, abrasions, punctures, or extreme temperatures. Some hand protections are also available in long, elbow length gloves to provide arm protection as well.

Chemical protective gloves shall be selected based on the type of material which affords proper protection against the chemical class or the specific chemical used. Some chemicals might require a specific thickness of glove material. This information will be included in the PPE section of that chemical's SDS. Additional information on chemical compatibility can be found in the glove manufacturer's product information.

Gloves that provide protection against cuts, abrasions, and punctures shall be worn when employees are exposed to wood splinters, friction, sharp metal edges, hot or cold materials, or when moving heavy objects. This includes gloves made of leather, heavy canvas, or specifically designed synthetic materials.

Gloves designed for protection in extreme temperatures shall only be used for the temperature ranges they are intended for. Gloves designed for freezing temperatures or handling cryogenic liquids could melt if exposed to high heat. Likewise, gloves designed

for high heat applications could breakdown or be permeable when exposed to freezing temperatures.

Gloves rated to protect against electrical shock shall be worn when employees are working near exposed energized conductors or circuit parts or when working with 50 volts or more. Safety gloves shall be worn if the tools or handling equipment might make contact with such conductors or parts.

Hand protection should not be worn by employees working closely with equipment's moving parts if there is potential for the glove to get caught in the mechanism.

2. Foot and Leg Protection

Special foot protection is necessary when there is a potential for foot injury due to falling objects, objects piercing the sole, electrical exposure, chemical exposure, poor traction, or when the feet may become wet due to the work environment. Depending on the variety of hazards present, it is possible to select a shoe or boot that protects against a wide range of hazards.

No sandal-type shoes with open toes or open heels shall be allowed in work areas where foot hazards are present. Employees briefly entering one of these work areas must, at a minimum, wear shoes that cover the whole foot.

Safety shoes are designed to protect feet from common machinery hazards such as falling or rolling objects, cuts, and punctures. The entire toe box and insole are reinforced with steel or a comparable composite, and the instep is protected by steel, aluminum, or plastic materials. Safety shoes are also designed to insulate against temperature extremes and may be equipped with special soles to guard against slip, chemicals, and/or electrical hazards.

Safety boots offer more protection when splash or spark hazards (chemicals, molten materials) are present. Boot material and construction should be selected to protect against the hazards present and could include chemical resistant material, leather to protect against molten material, or a none conductive material for work areas with potential electrical exposure.

Some work tasks or work areas might require additional foot protection in the form of shoe or boot covers to provide addition chemical resistance or facilitate ease of cleaning after work activities. There are also traction devices available that increases grip in icy conditions.

Any employees using chainsaws shall wear leg protectors which cover the leg from upper thigh to mid-calf. The protector must be made of material designed to resists cuts from chainsaws.

3. Body Protection

In general, most work clothes provide adequate protection against many hazards provided they are not loose fitting or have elements that could easily get caught in machinery. All work clothes should be appropriate to the work performed and conditions encountered including the temperature of the work area. There are some situations where additional body protection is required due to specific hazards such as splashes from hot material, corrosive chemicals, potential for clothing to become significantly dirty, or exposure to bodily fluids.

Full body coveralls or chemical resistant suits should be used when there is significant chemical exposure or potential for substances splashing on clothing. These coveralls and suits are available in disposable material as well as materials that can be easily cleaned for reuse.

Lab coats or chemicals resistant aprons should be used in work areas where there is a potential for substances to splash on the employee's torso.

Leather jackets or aprons should be used when working with molten material or where there is a fire hazard. The leather coverings should adequately cover all parts of the body that could potentially be exposed during the work task.

Coats, gowns, or scrubs should be worn when there is potential for exposure to bodily fluids or potentially infectious material.

High visibility clothing should be worn in work areas with high vehicle traffic, limited visibility due to equipment use, or construction zones. The colors must contrast with other colors in the area sufficiently and shall include reflective material if the work will be performed in low light conditions.

4. Head Protection

There are two primary situations when employees must wear head protection: when there are falling objects or impact hazards, or when there are electrical hazards. Head protection has different rating systems depending on what it protects against as well as what material the protection is constructed from.

Hard hats are to be used to protect the head from falling or flying objects and impacts. This includes when working under floor openings or walkways, working in areas with low ceilings or protruding objects, and at all construction or remodeling work sites. All hard hats used at the college shall meet the ANSI standard for the job task. These standards are ANSI Z89.1-2009, ANSI Z89.1-2003, and ANSI Z89.1-1997.

When employees work in areas where there is potential for the head to contact an electrical system, the protective helmet must be designed to reduce the electrical shock hazard.

5. Eye and Face Protection

Eye and face protection shall be used by employees when there is a reasonable probability of injury to the eyes and face from flying objects, glare, harmful liquids, or injurious light, such as arc welding flash. Eye protection shall provide adequate protection against the particular hazards for which they are designed, be reasonably comfortable, and shall not unduly interfere with the movements of the wearer. All eye and face protection shall be durable, capable of being cleaned easily, and be kept in clean and good repair. All eye and face protection shall comply with ANSI Z87.1-2010, ANSI Z87.1-2003, or ANSI Z87.1-1989. The specific type of eye and face protection needed depends on the type of hazard.

Safety glasses with side shields shall be used for work tasks which could produce flying objects or particle hazards such as from grinding, chipping, or sanding.

Splash goggles shall be used when there is potential for liquids to splash in the employee's face. This includes but not limited to laboratory, maintenance, and custodial

staff who mix corrosive materials. Splash goggles come in a variety of forms both vented, and none vented and should be chosen according to the specific chemical hazards present.

Face shields add additional protection for employees working in areas with high potential for splash hazards and should always be used in combination with safety glasses or goggles.

When an employee's work includes exposure to light radiation, eye protection with appropriate filtering lenses shall be provided. This can include welding goggles or welding masks.

For employee's with prescriptive lenses, eye protection shall be chosen which can be worn over the prescriptive lenses or incorporates the prescription in its design.

6. Hearing Protection

For work areas or work tasks with noise levels exceeding OR-OSHA listed permissible exposure limits (PEL), controls shall be put in place to reduce employee exposure. Engineering and administrative controls should be used first to reduce the noise exposure for the area or task. If implementing engineering and administrative controls does not reduce the exposure below the limits, employees shall use hearing protection.

There are three recognized types of hearing protectors available to employees.

Earplugs are inexpensive protectors that must be inserted directly into the ear canal. Generally, earplugs are designed to be single use but there are some models designed for repeated use which can be custom modeled for a more secure fit.

Ear caps are protectors designed to cover the ear canal. They may be more comfortable than earplugs, but they may not be as effective in reducing noise exposure.

Earmuffs are designed to cover the entire ear but could be impacted by other PPE such as eye and face protection. Earmuffs are adjustable and designed for multiple use.

All hearing protection has an associated noise attenuation value associated with them. It is important to choose hearing protection with the appropriate attenuation value to reduce the employee's noise exposure below the PEL. If a work environment exposes employees to high enough decibel levels on a consistent basis, the employee must be in PCC's hearing conservation program. For more information on hearing protection and conservation, please see *H&SM Chapter 11: Noise Exposure and Hearing Conservation Plan*.

7. Respiratory Protection

For work tasks or areas with exposure to airborne contaminants such as mists, vapors, dusts, smoke, or fumes, controls shall be put in place to protect employees from respiratory exposure. PCC shall use engineering controls as much as possible to protect employees from respiratory hazards. When effective engineering controls are not feasible, employees shall wear appropriate respiratory protective equipment. Certain types of respiratory protection require the employee to be included in the Respiratory Protection Plan.

Face masks or surgical masks are generally loose-fitting masks designed to cover the nose and mouth to protect against large respiratory droplets spreading from the person

wearing the mask. These types of masks are monitored and rated by the FDA to resist splashes of blood and other bodily fluids. Most surgical masks are designed to be single use.

Respirators are tight fitting face pieces designed to reduce exposure to airborne contaminants and must be fit tested to ensure they provide proper protection. There are different designs and levels of protection available including filtering facepieces, half-face air purifying respirators, full-face air purifying respirators, and full-face air supplied respirators. Each type of respirator has an assigned protection factor which must be taken into account when selecting a respirator for a work task. The service life of respirator cartridges will vary depending on the work tasks and actual time of use. At a minimum, filtering facepieces should be disposed of after each work shift, whereas cartridges and filters may be used up to 8 hours of use spanning several shifts. The cartridge change-out information shall be provided to each employee during training and fit testing.

Any employee required to use a respirator must be included in the respiratory protection program, which includes a medical evaluation, fit testing, and annual training. There are some instances where an employee can wear a respirator on a voluntary basis, but they must fulfill some aspects of the respiratory protection program. For more information on PCC's respiratory program, see *H&SM Chapter 17: Respiratory Protection Plan*.

8. Infectious Disease and Bloodborne Pathogen Protection

Infectious diseases and bloodborne pathogens pose a significant hazard to specific work environments at PPC. Because of this, there are certain controls that PCC must put in place whenever employees could be reasonably expected to come into contact with human blood and other potentially infectious materials in the performance of their work. Although these controls rely heavily on engineering controls and administrative procedures, infection prevention also includes a combination of PPE items.

Gloves should be selected which are rated to protect against bloodborne pathogens or other diseases.

Eye protection or face shields should be used to protect against body fluid splatters.

Surgical masks should be used to protect against inhalation or ingestion of body fluids or respiratory secretions.

Body protection such as gowns or coats should be used to protect clothing against contamination from body fluids.

The amount of PPE should be chosen based on the potential routes of exposure anticipated for a specific task. When multiple pieces of PPE are used together, it is important to ensure they are compatible and the construction and style of one piece won't decrease the protection provided by another.

Employees performing work tasks with reasonable potential for exposure to bloodborne pathogens shall be included in PCC's Bloodborne Pathogens Exposure Control Plan which includes annual training, information on controls and protections used at PCC, and additional resources. For more information, please see *H&SM Chapter 4: Bloodborne Pathogens Exposure Control Plan*.

For additional guidance on infectious disease protection including engineering controls and administrative procedures, please see *Appendix C: Infectious Disease Hazard Identification and Protection*. In the event of a significant disease outbreak, such as COVID-19, additional resources will be developed and provided to assist supervisors and managers with conducting hazard assessments and selecting protections.

9. Fall Protection

Fall protection at PCC can be found in many forms including engineering controls such as guardrails, administrative controls such as warning lines, and PPE. Engineering and administrative controls should always be used before reliance on PPE. When a work task or work area makes engineering or administrative controls unfeasible to protect employees from falls, PPE shall be used. Fall protection PPE has multiple components and generally fall into two categories; fall restraint or fall arrest.

Fall restraint systems are designed to prevent an employee from falling. At a minimum, the system must be rigged so that an employee cannot free fall more than two feet.

Fall arrest systems are designed to stop a fall once it is initiated. At a minimum, the system must be rigged so that an employee cannot free fall more than six feet.

Both systems include an attachment point such as an anchor or lifeline, a harness, and a rope or lanyard. The components shall be rated for which type of system they are appropriate to, so it is important to know the limits of the equipment.

Hardware for harnesses and lanyards must be drop forged, corrosion resistant with smooth edges, and without cracks or breaks.

Lanyards should be as short as possible to minimize the possibility and length of a free fall. Under no circumstance shall a lanyard exceed six feet.

All PPE components shall be stored such that they are not exposed to conditions that could degrade or damage the material.

Harnesses and lanyards that have been subjected to a fall shall be removed from service and destroyed or returned to the manufacturer for recertification.

For additional information on PCC's fall protection systems including engineering controls and administrative procedures, please see *H&SM Chapter 20: Fall Protection*.

10. Ointments and creams

When needed, and an option is available, protective ointments and creams shall be provided for skin protection. Most commonly available creams are designed for sun and UV protection but there are some options available to protect the skin against freezing temperatures or to protect against high winds.

D. PPE Maintenance and Inspections

All PPE must be kept clean and maintained in a reliable condition. Equipment shall be stored in such a way as to maintain its structural integrity and protective properties. All reusable PPE must be cleaned and maintained according to the manufacturer's recommendations to retain all protective properties. Follow the manufacturer's instructions for cleaning so as not to degrade the material.

Equipment should be inspected before each use to ensure nothing is damaged. Certain

PPE types have required inspection schedules and specific items that must be inspected. Employees must inspect PPE according to any requirements from specific PCC safety programs or regulations.

If any equipment is found to be damaged or defective, it shall not be used. If the PPE is designed such that repair is possible, it shall not be reused until the repairs are completed according to manufactures specifications and the protective properties are confirmed.

E. Fiscal Responsibility and Sourcing

Each department is responsible for purchasing required PPE for their employees. The department is responsible to pay for any replacement or repair of damaged equipment. PPE procurement should be coordinated with the support of the Purchasing Manager.

PPE should be purchased from reputable suppliers or safety equipment companies. All PPE shall be reviewed for any required standard certifications or specific protection parameters before purchasing. In the event that a department receives a donation of PPE, the department shall confirm the equipment is properly certified, undamaged, and has not exceeded the PPE's shelf life before it is put to use.

In the event of a PPE shortage for items such as disposable PPE, there are a few options available to departments. The department shall perform a hierarchy of controls evaluation to determine if the work task can be eliminated, substituted, or if there are any additional engineering or administrative controls that can be implemented to reduce the hazard. If it is determined that PPE is the only option, then the department shall purchase and provide equipment of a higher protection level. If higher levels of protection are not available, the department shall evaluate options for extended use or reuse of the PPE. Extended use or reuse will only be allowed if the protection provided is not compromised due to damage, permeation, or the donning and doffing process. Extended use is preferred over reuse due to contact transmission risks associated with donning and doffing during reuse.

V. TRAINING

Department supervisors and managers are responsible for ensuring employees are trained for the PPE they will be using. The training must be documented, and the employee shall demonstrate an understanding of the training before they are allowed to perform the work requiring PPE. The training must include:

- What PPE is necessary
- When PPE is necessary
- How to don, doff, adjust, and properly wear PPE
- The limitations of each piece of PPE
- The proper care, maintenance, useful life, and disposal of PPE

While not a requirement, it should also be communicated to employees why the PPE is needed and what hazard(s) it is protecting against.

When the PPE training is for a new employee, these training elements shall be covered while the supervisor or manager is completing *Chapter 1 Form 1: Supervisor/Manager New Employee Department Safety Training Checklist*. This form shall be kept by the department in the employee's file.

If a hazard assessment or PPE review determines that additional/new PPE is required for a

work task, the supervisor or manager will ensure all effected employees receive the required training before the employee completes that task.

If a supervisor or manager determines that an employee does not have the understanding or skill to properly use PPE they were previously trained to use, the supervisor or manager must retrain that employee.

Any training that occurs after an employee's initial training as a new employee shall be documented using *Form 1: Hazard Assessment and PPE Training*. This form shall be kept by the department in the employee's file.

VI. Recordkeeping

Hazard assessment documents and any information used to support hazard identification shall be maintained by the department.

Safety committee inspection records shall be maintained by each campus or center's safety committee according to the recordkeeping procedures for that campus or center.

Form 1: Hazard Assessment and PPE Training shall be maintained by the department in the employee's file.

PPE Inspection documentation that is specific to a type of PPE or safety program (such as fall protection equipment inspections) shall be maintained according to the requirements of that safety program.

Training records shall be maintained by the department either in the employee's file or in the PCC online learning management system.