

# DUQUESNE UNIVERSITY

## Personal Protective Equipment (PPE) Program

*Effective  
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Prepared by: Environmental Health and Safety Department

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### **Purpose**

The purpose of this Personal Protective Equipment (PPE) Program is to document hazard assessments, to ensure protective measures are in place and that PPE is used at Duquesne University. PPE devices are not to be relied on as the only means to provide protection against hazards, but are used in conjunction with guards, engineering controls, and sound manufacturing practices. If possible, hazards will be abated first through engineering controls, with PPE to provide protection against hazards, which cannot reasonably be abated otherwise.

Duquesne University believes it is our obligation to provide a hazard free environment to our employees, students and visitors. Any employee, student or visitor encountering hazardous conditions must be protected against the potential hazards. The purpose of protective clothing and equipment (PPE) is to shield or isolate individuals from chemical, physical, biological, or other hazards that may be present in the workplace.

### **Scope**

This written program documents the steps Duquesne University has taken to minimize injury/illness resulting from various hazards present at the University by protecting employees, students and visitors through the use of Personal Protective Equipment (PPE) when the hazards cannot be eliminated.

The basic element of any PPE program is an in-depth evaluation of the equipment needed to protect against the hazards at the workplace. This is the initial hazard assessment for which written documentation is required. Two basic objectives of any PPE program should be to protect the wearer from incorrect use and/or malfunction of PPE.

The Director, Environmental, Health and Safety (EH&S) is the program coordinator. This Department, along with all other pertinent University Departments, will assist in training employees, students and visitors and monitoring the use of PPE.

Establishing an overall written PPE program detailing how employees, students and visitors use PPE makes it easier to ensure that they use PPE properly and document our PPE efforts in the event of an OSHA inspection. Duquesne University's PPE program covers:

- Hazard assessment
- PPE selection
- Employee training
- PPE specific information
- Cleaning and maintenance of PPE

If, after reading this program, improvements may be made, please contact the EH&S Department. All suggestions are encouraged because the University is committed to the success of the Personal Protective Equipment Program. Duquesne University strives for clear understanding, safe behavior, and involvement in the program from every level of the University.

## **Hazard Assessment**

In order to assess the need for PPE, the following steps are to be taken:

1. Each Department Supervisor, with the help from the EH&S Department, when requested, will identify job classifications where exposures occur or could occur. Each Department Supervisor or designee may examine the following records to identify and rank jobs according to exposure hazards:
  - a. Injury/illness records
  - b. First aid logs
2. Department Supervisors will conduct a walk through survey of workplace areas where hazards exist or may exist to identify sources of hazards to employees. These basic hazard categories are:
  - a. Impact
  - b. Heat
  - c. Penetration
  - d. Harmful dust
  - e. Compression (roll over)
  - f. Light (optical) radiation
  - g. Chemical

During the walk through survey, the Supervisor will observe and record the following hazards along with PPE currently in use (type and purpose):

- Sources of motion; i.e., machinery or processes where any movement of tools, machine elements or particles could exist, or movement of personnel that could result in collision with stationary objects.
  - Sources of high temperatures that could result in burns, eye injury or ignition of protective equipment, etc.
  - Types of chemical exposures.
  - Sources of harmful dust.
  - Sources of light radiation, i.e., welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.
  - Sources of falling objects or potential for dropping objects.
  - Sources of sharp objects which might pierce the feet or cut the hands.
  - Sources of rolling or pinching objects which could crush the feet.
  - Layout of workplace and location of co-workers.
  - Sources of electrical hazards.
1. Following the walk through survey, the EH&S Department will organize the data and information for use in the assessment of hazards to analyze the hazards and enable proper selection of protective equipment.
  2. An estimate of the potential for injuries will be made. Each of the basic hazards is reviewed and a determination made as to the frequency, type, level of risk, and seriousness of potential injury from each of the hazards found. The existence of any situations where multiple exposures occur or could occur are considered.

3. The EH&S Department documents the hazard assessment via a written certification that identifies the workplace evaluated, the person certifying that the evaluation has been performed, the date(s) of the hazard assessment, and that the document is a certification of hazard assessment.

## **Selection Guidelines**

Once any hazards have been identified and evaluated through hazard assessment, and the hazard can not be controlled through engineering practices, the general procedure for selecting protective equipment is to:

1. Become familiar with the potential hazards and the type of protective equipment (PPE) that is available, and what they can do.
2. Compare types of equipment to the hazards associated with the environment.
3. Select the PPE that ensures a level of protection greater than the minimum required to protect employees from the hazards.
4. Fit the user with proper, comfortable, well fitting protection and instruct employees, students and/or visitors on care and use of the PPE. It is very important that the users are aware of all warning labels for and limitations of their PPE. (See the Employee Training guidelines outlined in the next section of this program for a more detailed description of training procedures.)

It is the responsibility of each Department Supervisor to reassess the workplace hazard situation as necessary, to identify and evaluate new equipment and processes, to review accident records, and reevaluate the suitability of previously selected PPE. This reassessment will take place as needed, but at least annually. Elements that should be considered in the reassessment include:

- Adequacy of PPE program
- Accidents and illness experience
- Levels of exposure (this implies appropriate exposure monitoring)
- Adequacy of equipment selection
- Number of hours that workers wear various protective ensembles
- Adequacy of training/fitting of PPE
- Program costs
- Adequacy of program records
- Recommendations for program improvement and modification
- Coordination with overall safety and health program

## **Employee Training**

The EH&S Department and/or Department Supervisors will provide training for each employee who is required to use personal protective equipment. The Department Supervisors are the preferred method of training due to the knowledge and understanding of the task at hand. Training includes:

- When PPE is necessary
- What PPE is necessary
- How to wear assigned PPE
- Limitations of PPE
- Proper care, maintenance, useful life, and disposal of assigned PPE

Employees, students and/or visitors must demonstrate an understanding of the training and the ability to use the PPE properly before being allowed to perform the work requiring the use of the equipment.

EMPLOYEES, STUDENTS AND/OR VISITORS WILL BE PROHIBITED FROM PERFORMING WORK OR ENTERING A WORK AREA WHERE HAZARDS EXIST WITHOUT DONNING APPROPRIATE PPE TO PROTECT THEM FROM THE HAZARDS THAT WILL BE ENCOUNTERED IN THE COURSE OF THAT WORK.

If the EH&S Department and/or Department Supervisors have reason to believe an employee, student or visitor does not have the understanding or skill required to appropriately wear the required PPE, the employee, student and/or visitor must be retrained. An employee's/student's supervisor is in the best position to observe any problems with PPE. Circumstances where retraining may be required include changes in the workplace or changes in the types of PPE to be used which would render previous training obsolete. Also, inadequacies in an employee's, student's or visitor's knowledge or use of the assigned PPE would indicate that person has not retained the necessary understanding or skills to properly wear the PPE; retraining would be required.

The PPE instructor will certify, in writing, that the employee, student or visitor has received and understands the PPE training. The employee, student and/or visitor will also certify, in writing that he/she fully understands the training received. This training must be documented and kept on file for the duration of the employee's

Failure to comply with University's PPE Program can result in OSHA citations and fines as well as employee, student and/or visitor injury/illness. Any employee who does not comply with this program may be disciplined for noncompliance according to established departmental practices and/or University disciplinary guidelines.

## **PPE Specific Information**

### ***Eye and face protection -- Goggles and face shields***

According to this University PPE Program, all employees, students and visitors are required to wear ANSI approved goggles/face shields to help prevent eye and face injuries. Eye and face protection must be properly donned when the potential hazard may result from flying objects/particles, welding, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, light radiation, and/or cryogenic liquids.

The selection and use of eye and face protection will be determined by the hazards identified during the hazard assessment. Contact the EH&S Department for assistance in selecting proper eye and face protection.

All supervisors and managers are responsible for ensuring employees or students under their charge are in compliance with this program.

All employees, students and visitors are responsible for wearing company provided goggles/face shields to comply with this program. Failure to comply may result in disciplinary action up to and including discharge.

All employees and students required to wear goggles/face shields must routinely inspect and properly care for their goggles/face shields.

Protective eye and face equipment will comply with ANSI Z87.1-2003, "American National Standard Practice for Occupational and Educational Eye and Face Protection". "Z87" will be stamped on the frame.

The selection of protective eyewear (filter lenses and plates) for welding, cutting, and brazing will be based on ANSI Z87.1-2003, "American National Practice for Occupational and Educational Eye and Face Protection".

The selection of protective eyewear for laser will be based on ANSI Z136.1-2007, "American National Standard for Safe Use of Lasers". Consideration of optical density, laser medium, wavelengths and power output shall be reviewed. Contact EH&S Coordinator for assistance in selecting this type of protective equipment.

### ***Foot Protection-Safety Shoes***

According to this University PPE Program, all employees, students and visitors must wear adequate foot protection when working in areas where there is a danger of foot injuries due to falling or rolling objects, objects piercing the sole, where an employee's feet are exposed to electrical hazards, and when there is a slipping hazard. Protective footwear shall comply with ASTM F2412-05, "Standard Test Methods for Foot Protection" and ASTM F2413-05, "Standard Specification for Performance Requirements for Foot Protection".

Open-toed shoes, sandals, flip-flops, etc. shall not be worn into any area where there is a potential for foot injury.

All supervisors and managers are responsible for ensuring employees, students and visitors under their charge are in compliance with this program.

University employees will be responsible for providing their own supportive foot protection.

### ***Hand Protection -- Gloves***

According to this University PPE Program, all employees, students and visitors are required to wear gloves to help prevent hand injuries, including cuts or lacerations, abrasions, punctures, chemical exposure, skin absorption of harmful substances, electrical/thermal burns, and harmful temperature extremes.

All supervisors and managers are responsible for ensuring employees, students and visitors under their charge are in compliance with this program.

All employees, students and visitors are required to wear University provided gloves to comply with this program. Failure to comply may result in disciplinary action up to and including discharge.

All employees and students required to wear protective gloves must routinely inspect and properly care for their assigned gloves (if the gloves are not disposable).

No single glove provides protection against all potential hand hazards. The most common glove materials will typically provide only limited protection against chemical and physical hazards. A number of factors must be considered when determining the correct type of glove for the job. For each application the work activities, dexterity required, duration of use, frequency of use, degree of exposure, physical stresses and toxic properties must be considered.

When there is a potential for injury from hazardous chemicals, rubber, nitrile, neoprene, PVC or butyl gloves must be utilized based on the permeability of the glove and the toxicity and corrosivity of the chemical(s).

When there is a potential for injury from physical hazards (being struck against, caught between, cut or punctured, and material handling) leather or cotton gloves must be utilized.

When there is a potential for injury from temperature extremes (cryogenic gases and liquids, furnaces and ovens) specially designed, leather or other material gloves, with the proper insulating materials, must be utilized.

When there is a potential for injury from electricity, proper Linesman's rubber gloves must be utilized. Leather protector gloves, with gauntlet cuffs, will be utilized to prevent punctures of the rubber gloves. A visual inspection of the rubber gloves, prior to each use, must be conducted to determine any damage or breakthrough. Any rubber glove that has been damaged will not be used and must be disposed.

Gloves should not be worn when operating equipment such as drill presses, lathes, or other equipment with exposed rotating parts. In these instances, the gloves may be entangled in the moving parts causing injury.

### ***Head protection -- Hard hats***

According to this University PPE Program, all employees and visitors working in designated work areas and/or job assignments are required to wear ANSI approved hard hats to help prevent head injuries including those resulting from falling objects (Class A, B, and C) or electrical shock (Class A or B only). Hard hats shall comply with ANSI Z89.1-2003, "American National Standard for Personnel Assurance Protection-Protective Headwear for Industrial Workers-Requirements."

All supervisors and managers are responsible for ensuring employees and visitors under their charge are in compliance with this program.

All employees and visitors working in designated work areas and/or job assignments are responsible for wearing company provided hard hats to comply with this program. Failure to comply will result in disciplinary action up to and including discharge.

All employees and visitors required to wear hard hats must routinely inspect and properly care for their hard hats.

The entire hard hat must be inspected, prior to each use, to determine signs of damage and wear. If the shell shows signs of damage, wear or has been subjected to impact that would lessen the integrity of the hard hat; the hard hat must be replaced. Employees or visitors may not alter the shell of the hard hat in any way. Hard hats must be worn properly according to the manufacturer's design. Improper donning of a hard hat may not offer the full level of protection for which it is designed.

### ***Body Protection - coveralls/suits/aprons/lab coats***

There is a large variety of clothing for protecting the body based on the type of hazards and work conditions. Proper selection is based on the permeability of the coveralls/suit and the toxicity and corrosivity of the chemical(s). The EH&S Department should be contacted for assistance.

Protective coveralls/suits should be utilized when there is an immediate danger of exposure to a hazardous material. Splash suits and aprons may be utilized when there is a lesser degree of danger from exposure to the hazard. Lab coats must be worn in all laboratories when hazardous chemicals or processes are likely to be present. Lab coats offer protection when there is minimal exposure to hazardous substances.

Protective clothing should be removed prior to leaving the work area and properly disposed. If the protective clothing has been contaminated, the EH&S Department should be contacted for assistance.

### ***Hearing Conservation - ear plugs/ear muffs***

According to this University PPE Program, all employees, students and visitors, working in areas where the sound level meets or exceeds an 8-hour time-weighted average of 85 decibels, are required to wear hearing protection. If practical, these areas will be posted with appropriate warning signs and hearing protection devices will be readily available.

University employees that are required to wear hearing protection will participate in the University's annual audiometric testing and shall be trained according to OSHA 29CFR1910.95. Refer to the University's Hearing Conservation Program for further assistance.

### ***Fall Protection - Personal Fall Arrest Systems***

According to this University PPE Program, all employees and visitors on a walking/working surface (horizontal or vertical) which is 6 feet or more above the next lower level is required to be protected by a guardrail system, safety net system, or personal fall arrest system.

However, when inspecting, investigating, or assessing the workplace conditions prior to the start of work or after all work has been completed, personal fall arrest systems are not required.

OSHA requirements for fall protection while employees are working on ladders are located at 29CFR1926.1051.

OSHA requirements for fall protection while employees are working on scaffolding are located at 29CFR1926.451.

OSHA requirements for guardrail and safety net systems are located at 29CFR1926.501.

Personal fall arrest systems consist of a full-body harness, shock absorbing lanyard and a lifeline. Lifelines are necessary during certain types of work such as confined space entry and while working in trenches and excavations. Lifelines may not be applicable in all situations but must be utilized when possible.

Personal fall arrest systems are for personal protection only and are not to be used for hoisting materials. Any personal fall arrest system, which has been subjected to impact loading, will be removed from service and destroyed, if possible, to prevent reuse. Only self-closing, self-locking snaphooks will be utilized as part of the personal fall arrest system.

Personal fall arrest systems must be inspected prior to each use. If excessive wear, damage, deterioration and/or defective components are found, the part/component must be removed from service and destroyed, if possible, to prevent reuse.

## **Cleaning and Maintenance**

It is important that all PPE be kept clean and properly maintained by the employee, student or visitor to whom it is assigned. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision. PPE is to be inspected, cleaned, and maintained by employees and students at regular intervals as part of normal job duties so that the PPE provides the necessary protection. Supervisors are responsible for ensuring compliance with cleaning responsibilities by employees and students. If a piece of PPE is in need of repair or replacement, it is the responsibility of the employee to bring it to the immediate attention of his or her supervisor and the EH&S Department. It is against the University PPE Program to use PPE that is in disrepair or not able to perform its intended function. Contaminated PPE, which cannot be decontaminated, will be disposed of in a manner that protects employees and students from exposure to hazards. The EH&S Department will be responsible for proper disposal of contaminated PPE.

### **NOTE:**

Employees from temporary work agencies and outside contractors and sub-contractors are also required to wear personal protective equipment while working on Duquesne University property if a hazard is present and/or the potential for hazards may exist. Outside work agencies and contractors/sub-contractors will be responsible for providing their own PPE. The Department Supervisor responsible for these agencies and/or contractors/sub-contractors will ensure compliance with this program.

Each University Department will be financially responsible for providing their own PPE to pertinent employees, students, and/or visitors.

This Program will be reviewed at least annually and updated when deemed necessary.