PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal protective equipment (PPE) is used to protect an individual from hazards associated with their work tasks or environment. Specific types of personal protective equipment include protective clothing, eyewear, respiratory devices, protective shields, gloves, and hearing protection. Personal protective equipment is not a substitute for engineering controls such as chemical fume hoods and biosafety cabinets, or for administrative controls and good work practices. PPE is used in conjunction with these controls to provide safety and maintain health.

The Department of Environmental Health and Safety (EH&S) is available to assess areas or tasks to identify hazards, to select or advise on the appropriate PPE for identified hazards, and to provide training in the proper care, maintenance, use, and disposal of PPE.

1. Responsibilities Regarding Personal Protective Equipment

1.1. The University (through faculty and supervisors) is responsible for:

1.1.1. Selecting PPE that fits each affected faculty, staff and student.

1.1.2. Supplying PPE during the execution of job duties and experimentation that have been pre-determined to have potential hazards.

1.1.3. Assuring the adequacy of any employee-owned PPE.

1.1.4. Providing training to each PPE user on hazards and required PPE.

1.2. The Department of Environmental Health and Safety is responsible for:

1.2.1. Assessing work areas to identify hazards which necessitate the use of PPE.

1.2.2. Maintaining records of all hazard assessments.

1.2.3. Assisting in training on the proper use, care, and maintenance of approved PPE.

1.2.4. Providing guidance on the selection of PPE.

1.2.5. Evaluating the overall effectiveness of the PPE.

1.3. Supervisors are directly responsible for:

1.3.1. Ensuring that the affected faculty, staff and students working in their respective areas receive the appropriate PPE.

1.3.2. Ensuring that the affected faculty, staff and students working in their respective areas receive appropriate training for the use, care, and maintenance of PPE.

1.3.3. Ensuring that the affected faculty, staff and students working in their respective areas use PPE properly during their activities.

1.3.4. Seeking assistance from EH&S to evaluate and identify workplace hazards and to select appropriate PPE.

1.3.5. Notifying EH&S when new hazards are introduced into work areas or when hazardous processes are added or altered.

1.3.6. Ensuring defective or damaged PPE is immediately replaced or repaired.

1.4. PPE users are responsible for:

1.4.1 Attending training for the proper use of PPE.

1.4.2 Maintaining PPE in a sanitary and reliable condition.

1.4.3 Using PPE properly.

1.4.4 Informing their supervisor or advisor of the need to re-evaluate PPE.

2. Care and Maintenance of PPE

PPE must not be shared between users unless it has been properly sanitized. It is also important to ensure that used or contaminated PPE, that cannot be properly decontaminated, is disposed according to University waste disposal procedures.

Disposable or "single use" PPE must never be re-used without approval of EH&S.

3. Hand Protection

Faculty, staff and students are required to use appropriate hand protection when their hands are exposed to hazards, such as:

- skin absorption from harmful substances
- cuts, lacerations or abrasions
- chemical exposure
- thermal burns and/or temperature extreme
- potentially infectious material

3.1. The selection of appropriate hand protection should be based on the characteristics of the gloves relative to the task being performed, the conditions present, the duration of use, and the identified potential hazards.

3.1.1. General Purpose Work Gloves: Leather or fabric gloves used to reduce the effects of using tools over extended periods of time (generally not suitable for protection from liquids or chemicals).

3.1.2. High temperature gloves**:** Leather gloves with heat reflective aluminized coating, wool lining, heat resistant acetate lining in cuff.

3.1.3. Low temperature or refrigerator gloves: Leather gloves with, insulated wool lining and knit wrist.

3.1.4. Cut/Puncture/Abrasion Resistant Gloves: high strength synthetic fibers.

3.1.5. Chemical Resistant Gloves

3.1.5.1. Neoprene gloves protect against acids, caustics, oils, greases, most solvents.

3.1.5.2. Vinyl coated gloves provide abrasion resistance and protection against solvents, ammonia, alcohols, and most organic acids. Ideal for petrochemical operations.

3.1.5.3. Butyl gloves provide permeation resistance to most gas or water vapors and are ideal for protection against aldehydes, ketones, esters. They provide greater protection than neoprene, nitrile, and natural rubber for certain classes of chemicals.

3.1.5.4. Latex rubber gloves provide liquid resistance for food handling and laboratory work, and protection from exposure to potentially infectious material.

3.1.5.5. Nitrile gloves provide protection against a wide range of chemicals including aromatic, petroleum and chlorinated solvents, and offers liquid barrier protection for potentially infectious materials. These are ideal for faculty, staff and students with a documented sensitivity to latex.

3.2. Care and Use of Hand Protection

3.2.1. To preserve the useful life of gloves, wash chemicals or materials from reusable gloves after each use.

3.2.2. Store gloves away from the contaminating area or hazard to reduce deterioration.

3.2.3. Properly discard disposable or compromised gloves.

3.2.4. Check gloves prior to donning and periodically for signs of wear or deterioration and replace as necessary.

4. Body Protection

Certain activities require protective apparel to minimize the potential for exposure to skin. This section is intended to provide faculty, staff and students with general guidelines for identifying activities that require protective apparel and selecting appropriate body protection for the associated hazards.

4.1. Chemical Resistant Clothing: Protective apparel designed to provide a barrier against a variety of chemical hazards. Chemical resistive clothing may be required for tasks where chemical splashing is anticipated or large volume transfers are conducted. Prior to selection of chemical resistant clothing, EH&S should be consulted.

4.2. Laboratory Apparel and Scrub Suits: A wide variety of styles and materials are available to protect employees during laboratory operations. The selected type of lab coat or other apparel is designed to protect the wearer against accidental splashes or day-to-day handling of chemicals.

4.3. Cleanroom Apparel: Cleanroom apparel is designed and classified to meet Federal requirements for the control of airborne particles.

4.4. Care and Use of Body Protection: Body protection is specifically designed and designated as “reusable” or “disposable”.

4.1.1. When using disposable apparel, a new garment should be used for each operation, and the used garment should be properly discarded after each use.

4.1.2. When utilizing reusable protective apparel, it is important to follow the manufacturer’s cleaning instructions. Improper cleaning may compromise the integrity of the garment and reduce its capability for body protection or protection of clean room environments.

5. Ear and Hearing Protection

Ear plugs and muffs are available for any employee potentially exposed to noise levels at or above 85 dBA.

6. Eye and Face Protection

Approved eye protection must be worn by all University faculty, staff, students, and visitors that engage in hazardous activities or are exposed to identified eye hazards within University buildings or on University property. Protective eye wear does not provide unlimited protection and is not intended as a substitute for engineering controls, such as equipment shields and operational controls.

6.1. University faculty, staff and students that wear prescription eyeglasses while engaged in operations that involve eye hazards must wear protective eye wear that incorporates the prescription lens in the design or fits properly over the prescription eyeglasses.

6.2. Wearers of contact lenses must wear appropriate eye and face protection devices in hazardous environments.

6.3. Safety goggles and/or a face shield must be used when there is a significant hazard from chemical splashes or from projectile hazards such as fragments, chips, or flying particles.

6.4. Equipment fitted with appropriate filter lenses must be used to protect against light radiation. Filter lenses must have a shade number that is appropriate for the work being performed. See the Laser Safety section of this manual for more information.

6.5. All protective eye and face equipment must comply with ANSI Z87.1-2015, American National Standard for Occupational and Educational Eye and Face Protection.

6.6. Care and Use of Eye and Face Protection:

6.6.1. Clean eyewear after each shift or work activity. Use anti-fogging agents to reduce or eliminate fogging.

6.6.2. Replace scratched or damaged eyewear.

6.6.3. Thoroughly disinfect eyewear that was used by other employees with warm water and soap or a recommended disinfectant.

6.6.4. Store eyewear in a bag, drawer or protective case to prevent scratching, damage or contamination.

6.7. Recommended Types of Eye Protection for Identified Hazards

Workplace activities	Identified Hazards to Eye and Face	Recommended Eye Protection (Listed from least to most protective)
Woodworking, grinding, drilling, any operation that produces flying particles.	Impact from flying particles	Safety glasses with side shields Direct vent goggles Clear face shield over Safety glasses or impact protection goggles
Laboratory or chemical handling operations	Impact from broken glassware, splashes from liquid chemicals	Safety glasses with solid side shields Indirect vent goggles
Medical, clinical, or biological laboratory operations	Exposure to biohazardous or infectious materials	Safety glasses with solid side shields Face shield over Safety glasses
Laser operations	Exposure to direct or reflected laser radiation	Laser protective eye wear appropriate for individual laser
Welding operations (electric arc or gas welding)	Exposure to infrared radiation and hot sparks	Welding goggles, welding helmet or welding shield specific to type of welding operations

7. Respiratory Protection Program

See the Respiratory Protection Program, Section VII of this manual, for information on respirators and respiratory protection**.**