

# Personal Protective Equipment–6500-2.0

## Associated OHS Process: General Industry and Construction Safety

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## Table of Contents

1.	Summary.....	3
1.1	Objective .....	3
1.2	Scope.....	3
2.	Regulations & Other Requirements.....	3
2.1	Occupational Safety & Health Administration (OSHA).....	3
2.2	University of Virginia .....	3
3.	Roles and Responsibilities .....	3
3.1	Facilities Management Occupational Health & Safety.....	3
3.2	Facilities Management Supervisors .....	3
3.3	Facilities Management Employees .....	4
4.	Personal Protective Equipment Program .....	4
4.1	Hazard Assessments.....	4
4.2	How to Select PPE.....	5
4.3	Employee-Owned Equipment.....	5
4.4	Disposal of Defective and Damaged Equipment.....	5
4.5	Employee Training .....	5
4.6	Types of PPE.....	6
4.6.1	Head Protection .....	6
4.6.2	Eye and Face Protection.....	6
4.6.3	Hearing Protection .....	7
4.6.4	Hand Protection.....	8
4.6.5	Foot Protection .....	8
4.6.6	Body Protection .....	9
4.6.7	Electrical Protection Equipment.....	9
4.6.8	Respiratory Protection .....	9
4.6.9	Fall Protection .....	9
5.	Review and Recordkeeping .....	9
5.1	Program Review .....	9
5.2	PPE Records.....	9
5.3	Program Recordkeeping .....	10
	Appendix A: Definitions.....	11
	Appendix B: Acronyms.....	12

## 1. Summary

The Personal Protective Equipment (PPE) procedures and specifications described in this document are designed to establish standards for workplace hazard assessments as well as the proper selection and use of PPE. PPE should be considered only after all other attempts have been made to avoid exposure to a hazardous condition with engineering and administrative controls.

Using PPE requires hazard awareness and training on the part of the user. Employees must be aware that PPE does not eliminate the hazard. If the equipment fails, exposure will occur. Selection of the proper PPE for each job or task is important. Supervisors and employees must understand the equipment's purpose and its limitations.

### 1.1 Objective

This Personal Protective Equipment Program provides policies and procedures for the identification, use, care, and maintenance of required PPE to ensure the safety of University of Virginia (UVA) Facilities Management (FM) employees.

### 1.2 Scope

This Program applies to UVA Facilities Management employees directly or indirectly involved in performing jobs for which OSHA Standards, ANSI Standards, NFPA Regulations, NIOSH, University of Virginia, or Facilities Management Safety Policies and Rules are applicable.

## 2. Regulations & Other Requirements

### 2.1 Occupational Safety & Health Administration (OSHA)

Risk Management best practices endorsed by OSHA and other health and safety consensus organizations (ANSI, NFPA, etc.) requires employers to protect their employees from workplace hazards through the use of engineering or administrative controls. If the machine or work environment can be physically changed to prevent employee exposure to a potential hazard, then the hazard can be eliminated with an engineering control. If employees can be removed from exposure to the potential hazard by changing the way they do their jobs, then the hazard can be eliminated with an administrative control. When these controls are not feasible or do not provide sufficient protection, the use of PPE is required. Employers are required to assess the workplace to determine if hazards are present, or are likely to be present, that would require the use of PPE.

### 2.2 University of Virginia

This Personal Protective Equipment Program complies with UVA-FM requirements.

## 3. Roles and Responsibilities

### 3.1 Facilities Management Occupational Health & Safety

- a) Develop, administer, and review this PPE Program
- b) Upon request, assist with the selection of PPE
- c) Review, update, and evaluate the overall effectiveness of PPE use, training, policies, and procedures

### 3.2 Facilities Management Supervisors

- a) Conduct workplace hazard assessments to determine the presence of hazards that require the use of PPE
- b) Review, update, and conduct PPE hazard assessments whenever:
  - A job or process changes
  - New equipment is used or added
  - There has been a negative incident (injury, near miss)
  - A supervisor or employee requests it
- c) Provide PPE to employees upon initial assignment and when equipment becomes defective
- d) Provide training, guidance, and assistance to employees on the proper use, care, and cleaning of approved PPE
- e) Enforce the use of required PPE
- f) Periodically reevaluate the suitability of previously selected PPE

### **3.3 Facilities Management Employees**

- a) Comply with all procedures regarding the use, maintenance, and disposal of PPE assigned to them
- b) Properly maintain and sanitize PPE
- c) Not use damaged or defective PPE
- d) Contact their Supervisor if they need to be issued new or additional PPE
- e) Receive instruction on proper use of PPE prior to using it

## **4. Personal Protective Equipment Program**

### **4.1 Hazard Assessments**

Hazard assessments analyze the workplace and/or task to determine if hazards are present that would require the use of PPE.

- a) If potential or immediate hazards are found, the supervisor should document necessary PPE.
- b) Upon request, FM-OHS will provide assistance with the proper selection and use of PPE.
- c) A job hazard analysis (JHA) is the most common form of workplace hazard assessment. This technique focuses on job tasks as a way to identify hazards. After hazards have been identified, then steps will be taken to eliminate or reduce them. A copy of the UVA Facilities Management JHA form can be found on the UVA FM website.
- d) General hazard categories requiring assessment include:
  - Impact/penetration
  - Noise
  - Compression (rollover)
  - Chemical contact
  - Extreme heat and/or cold
  - Electrical hazards
  - Light (optical) radiation
  - Respirable hazards (dusts, mists, fumes, vapors)
  - Laceration/abrasion
  - Vibration
  - Struck-by/Caught-in
  - Falls

#### 4.2 How to Select PPE

- a) A hazard assessment will be performed for each work area to determine what hazards are present or potentially present. This assessment will identify the proper PPE for any hazards identified.
- b) The Supervisor will:
  - Provide assistance in selecting the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment
  - Communicate selections to each affected employee
  - Select PPE that properly fits each employee
  - Contact FM-OHS for assistance, if needed
- c) PPE must be certified and meet regulatory guidelines to include: American National Standards Institute (ANSI), Occupational Health and Safety Administration (OSHA), and the National Institute of Occupational Safety and Health (NIOSH).

#### 4.3 Employee-Owned Equipment

Employees are not permitted to provide their own PPE.

#### 4.4 Disposal of Defective and Damaged Equipment

- a) Defective or damaged PPE shall not be used.
- b) Each employee is responsible for inspecting all PPE prior to its use to ensure that the equipment is in good working condition.
- c) Defective or damaged PPE shall be marked/tagged as defective or damaged (if applicable) and returned to a supervisor or FM-OHS.
- d) Damaged or defective PPE should be rendered unusable and deposited in municipal trash by the supervisor.

#### 4.5 Employee Training

- a) Before any employee is allowed to perform work in areas requiring PPE, they must first receive training in the proper use and care of the PPE they will be using.
- b) Periodic retraining will be required of users that are identified as improperly wearing their PPE, are identified as having a lack of knowledge about proper PPE use, or for whom changes in work tasks have occurred. In addition, supervisors may provide retraining as he or she sees fit.
- c) PPE training/retraining will include, at a minimum, the following subjects:
  - When it is necessary to wear PPE
  - What PPE is necessary
  - How to properly don (put on) and doff (take off), adjust, and wear PPE
  - The limitations of PPE
  - The proper care, maintenance, useful life, and disposal of PPE
- d) Each employee should be able to physically demonstrate an understanding of the training to their supervisor, who will verify their ability to use the PPE properly before they are allowed to perform any job/task with PPE.
- e) Written training records for each employee detailing the extent of training received and the date it was received will be documented by the supervisor.

## 4.6 Types of PPE

### 4.6.1 Head Protection

- a) Employees will wear a protective helmet (hard hat) when working in areas where there is the potential for injury from falling objects or exposed energized electrical conductors that could contact the head.
- b) Head protection must be worn when entering any area designated and posted as a "hard hat" area, or when directed by a supervisor or other employee in charge.
- c) ANSI standards indicate two types of protective helmets classified for impact:
  - Type I – intended for impact resulting from a blow to the top of the head
  - Type II – intended for impact resulting from a blow which may be received off center or to the top of the head
- d) In addition, ANSI standards have three types of protective helmets specifically classified according to their intended use related to working with, or near, electricity:
  - Class G (General) – intended to reduce the danger of contact to low voltage conductors (proof tested to 2,200 volts phase to ground)
  - Class E (Electrical) – intended to reduce the danger of contact to high voltage conductors (proof tested to 20,000 volts phase to ground)
  - Class C (Conductive) – not intended to provide protection against contact with electrical conductors

### 4.6.2 Eye and Face Protection

- a) Employees must use appropriate eye and/or face protection when exposed to eye or face hazards as a result of a task being performed or when working near areas subject to flying particles, liquid chemicals, acids, or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.
- b) Each affected employee will:
  - Use appropriate eye and face protection when exposed to hazards from flying objects or particles, fumes, chemical liquids, gases, vapors, dusts, acids, caustics, and other potentially injurious chemical or physical hazards
  - Select all eye and face protection in compliance with OSHA 29 CFR 1910.133 and ANSI Z87.1-2015; only those safety glasses that are stamped "Z87.1" are to be used
  - When wearing prescription lenses while engaged in operations that involve eye hazards, wear eye protection that incorporates the prescription in its design, or wear eye protection that can be worn over the prescription lenses without disturbing the prescription lenses or the protective lenses
  - Wear safety goggles when mixing and using cleaning chemicals
  - Wear safety goggles and face shield when unstopping drains. Corrosive drain cleaners are strictly prohibited.
  - Utilize safety glasses with brow guard protection, or a face shield for overhead work when dust and debris could fall into eyes
  - Wear appropriate eye protection with proper lens shading for all welding, cutting and brazing (see Table 1)

- Use appropriate eye protection equipment with filter lenses that have a shade number appropriate for the work being performed when exposed to an eye hazard from potentially injurious light radiation (see Table 1). More information on laser safety can be found in the UVA Environmental Health and Safety Laser Safety Guide on the UVA EHS website.
- c) All safety glasses must meet ANSI Z87.1-1989 (OSHA Standard Number: 1910.133, 1910 Subpart I App B, 1910.252) and be equipped with side protection.

Table 1

Welding operation	Shade number
Shielded metal-arc welding 1/16-, 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	14
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

#### 4.6.3 Hearing Protection

More information on the use of hearing protection devices (HPD), exposure monitoring, audiometric testing, and engineering and administrative controls are outlined in the Hearing Conservation Program which can be found on the on the UVA FM-OHS website under “programs.”

#### 4.6.4 Hand Protection

- a) Each employee shall wear the appropriate hand protection when exposed to hazards such as those from skin absorption of harmful substances, cuts, abrasions, punctures, chemical burns, thermal burns, and any other identified hazard.
- b) The selection of the appropriate hand protection will be based on an evaluation of the performance characteristics of the hand protection relative to the following:
  - Task to be performed
  - Dexterity required
  - Conditions present
  - Duration and frequency of use
  - Physical stress that will be applied
- c) Always consult the manufacturer's information when selecting the appropriate chemical resistant glove, and consider the following factors:
  - The toxic properties of the chemical, in particular the ability of the chemical to cause local effects on the skin and/or to pass through the skin and cause systemic effects
  - The chemical component with the shortest breakthrough time shall be considered
  - The employee's ability to remove the glove without skin contamination
- d) Gloves are manufactured to varying degrees of cut-resistance as measured by the ANSI/ISEA 105 standard. The 2016 version of this standard now has nine cut levels and significantly reduces the gaps between each level and better defines protection levels for gloves. The following information has been included as a reference.
  - Level A1: Nuisance cuts such as paper cuts and other minor hazards
  - Level A2: Low cut hazards, such as material handling, small parts assembly with sharp edges, and/or general purpose applications
  - Level A3: Light to moderate cut hazards including light glass handling, forestry, and packaging
  - Level A4: Medium cut hazards such as appliance manufacturing, glass handling, and canning applications
  - Level A5: Medium to heavy cut hazards like food prep and meat processing
  - Level A6: High cut hazards such as pulp and paper (changing slitter blades), dry walling, and electrical
  - Level A7: High cut hazards like glass and window manufacturing and recycling plant/sorting applications
  - Level A8: High cut hazards including metal recycling and aerospace applications
  - Level A9: Extreme cut hazards such as metal fabrication, automotive, and sharp metal stamping applications

#### 4.6.5 Foot Protection

- a) Employees must wear protective footwear when working in areas where there is the potential for foot injuries. These injuries could be the result of falling or rolling objects, objects piercing the sole of the foot, or work in those locations where an employee may be exposed to electrical hazards or where there is a recognized slip hazard.
- b) Specific requirements:



- For employees who spend more than ten percent of their time on maintenance, construction or renovation projects, the wearing of approved safety shoes meeting the minimum requirements is mandatory.
  - Roofing personnel are not required to wear safety-toed shoes; however, they must wear appropriate work shoes.
  - Housekeeping employees are required to wear slip-resistant footwear. Impervious tops are required footwear for housekeeping employees. Canvas tops are not acceptable.
- c) All protective footwear used shall comply with 29 CFR 1910.135 as well as ASTM F2412-05, *Standard Test Methods for Foot Protection*, and ASTM F2413-05, *Standard Specification for Performance Requirements for Protective Footwear*.

#### **4.6.6 Body Protection**

- a) Supervisors shall ensure that each affected employee wears the appropriate body protection when exposed to hazards such as those from molten metal, liquid chemicals, caustic liquids, potentially infectious materials, or temperature extremes. The type of body protection used will be dependent on the hazard(s) present as identified in the workplace hazard assessment. If designed for protection against a specific hazard, issued clothing shall be considered a form of PPE.
- b) Note that long pants are a required component of the University-issued uniform for all Trades and Custodial workers.
- c) More information on cold-weather clothing can be found in the Temperature Extremes Program on the UVA FM-OHS website under “programs.”

#### **4.6.7 Electrical Protection Equipment**

Some electrical-related tasks may require the use of arc flash and/or shock protection PPE. More information on Electrical Protection Equipment can be found in the Electrical Safety Program on the UVA FM-OHS website under “programs.”

#### **4.6.8 Respiratory Protection**

More information on Respiratory Protection Equipment can be found in the Respiratory Protection Program on the UVA FM-OHS website under “programs.”

#### **4.6.9 Fall Protection**

More information on fall protection PPE and training can be found in the Fall Protection Program on the UVA FM-OHS website under “programs.”

### **5. Review and Recordkeeping**

#### **5.1 Program Review**

This Personal Protective Equipment Program shall be reviewed and updated at least annually and whenever necessary to reflect new or modified policies or procedures to protect participating workers from hazards.

#### **5.2 PPE Records**

- a) Workplace hazard assessments shall be retained by supervisors
- b) Employee training records and certifications shall be retained by the supervisor for the duration of employment or per OSHA regulatory standards, as applicable

### 5.3 Program Recordkeeping

Records of the Personal Protective Equipment Program will be considered obsolete when the new version is issued. Obsolete versions will be destroyed after three years.

## Appendix A: Definitions

**Administrative Controls** (or work practice controls) means changes in work procedures such as written safety policies, rules, supervision, schedules, and training with the goal of reducing the duration, frequency, and severity of exposure to hazardous chemicals or situations.

**American National Standards Institute (ANSI)** means the primary organization for fostering the development of technology standards in the United States.

**American Society for Testing and Materials (ASTM)** means an international standards organization that develops and publishes voluntary consensus technical standards for a wide range of materials, products, systems, and services.

**Engineering Controls** means physical modification to a process or process equipment, or the installation of further equipment with the goal of preventing injury.

**Hazard** means dangerous condition, potential or inherent, that can interrupt or interfere with the expected orderly progress of an activity.

**Job Hazard Analysis (JHA)** means a technique that focuses on **job** tasks as a way to identify **hazards** before they occur. It focuses on the relationship between the worker, the task, the tools, and the work environment.

**National Fire Protection Association (NFPA)** means a trade association that creates and maintains private, copyrighted standards and codes for usage and adoption by local governments, related to Fire protection. The NFPA also publishes the National Electric Code (NEC)

**National Electric Code (NEC)** means a set of standards published by the National Fire Protection Association (NFPA) for the safe installation of electrical wiring and optical fiber and equipment on the premises, as well as the personal protective equipment required for electrical work.

**National Institute for Occupational Safety and Health (NIOSH)** means a federal agency within the U.S. Department of Health and Human Services responsible for conducting research and making recommendations for the prevention of work-related disease and injury.

**Occupational Safety and Health Administration (OSHA)** means a federal agency within the U.S. Department of Labor responsible for establishing and enforcing standards regarding the exposure of worker to safety hazards or harmful materials that they may encounter in the work environment, as well as other matters that may affect the safety and health of workers. (Regulatory)

**Personal Protective Equipment (PPE)** means items such as gloves, goggles, respirators, and protective clothing.

**Appendix B: Acronyms**

ANSI:	American National Standards Institute
FM:	Facilities Management
HPD:	Hearing Protection Devices
JHA:	Job Hazard Analysis
NFPA:	National Fire Protection Association
NIOSH:	National Institute for Occupational Safety and Health
OHS:	Occupational Health and Safety
PPE:	Personal Protective Equipment
UVA:	University of Virginia