

**Subject:** Personal Protective Equipment Policy

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**Issuing Authority:** Jeffrey Hescock, Executive Director of Environmental Health and Safety and Emergency Management

**Amends or rescinds:** New Policy

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## 1.0 Purpose and Applicability

### 1.1 Purpose

The University of Massachusetts recognizes the presence of hazards in the workplace that cannot be mitigated through engineering controls or other methods. In an effort to protect our employees, personal protective equipment (PPE) shall be used to reduce and/or eliminate the exposure to these hazards.

### 1.2 Applicability

This policy is applicable to University personnel whose work activities expose or have the potential to expose them to health and physical hazards capable of causing illness or injury. This policy is intended to address the requirements for using personal protective equipment at UMass specifically as it relates to, but not limited to:

- Eye and Face Protection
- Head Protection
- Foot and Leg Protection
- Hand and Arm Protection
- Body Protection
- Hearing Protection
- Chemical and biological entry points (eyes and other mucus membranes, lungs, skin, accidental ingestion, etc.)
- Respiratory Protection

Requirements for personal protective equipment in laboratories shall be in accordance with the University's Chemical Hygiene Plan. At a minimum, safety glasses and laboratory coats are required in laboratories that have hazardous chemicals. The UMass Amherst Chemical Hygiene Plan can be found at <http://ehs.umass.edu/laboratory-health-and-safety-manualchemical-hygiene-plan>.

## 2.0 Definitions

**Health Hazard:** A chemical posing hazardous characteristics such as: toxicity; corrosive to skin; potential for eye damage; respiratory or skin sensitization; cell mutagenicity; carcinogenicity; or aspiration hazard. Biological Hazards such as: bloodborne pathogens, tick bites, mold, bird guano. Exposures to asbestos, silica (from sand or rock products), radiation, temperature extremes, noise, vibration, musculoskeletal disorders and dermatitis.

**Personal Protective Equipment (PPE):** Personal protective equipment is worn to minimize exposure to a variety of hazards. Examples of PPE include such items as lab coats, gloves, foot protection (safety-toe shoes), eye protection (safety glasses or goggles), protective hearing devices (earplugs, muffs), hard hats, respirators, fall protection harnesses, etc.

**Personal Protective Equipment Hazard Assessment:** A hazard assessment is conducted to determine what hazards are present, what parts of the body are affected and which Personal Protective Equipment (PPE) will best protect the employees from these hazards. A generic hazard assessment is available in Appendix A of this policy for this purpose or departments may tailor the assessment for their specific needs.

**Physical Hazards:** Physical hazards are identified as substances, equipment, or activities that can threaten physical safety. Physical hazards can include but are not limited to: explosive\flammable\corrosive chemicals, oxidizers, self-heating, self-reactive, corrosive to metals, and pyrophoric chemicals, organic peroxides, gas under pressure, impact (falling objects), fall hazards, extreme pressures, noise, vibration, electrical, light (optical), welding, cutting, and brazing.

### 3.0 Roles and Responsibilities

#### 3.1 The University

The University shall provide PPE to employees whose work activities expose them to health and/or physical hazards that cannot be eliminated through engineering or administrative controls.

#### 3.2 Department Managers

It is each Department Manager's responsibility to ensure appropriate personal protective equipment is provided to their employees. Department Managers shall ensure supervisors take an active role in preparing Personal Protective Equipment Hazard Assessments, monitoring their staff's use of PPE and taking corrective actions if PPE is not worn. Department specific procedures for obtaining PPE are contained in Appendix B of this policy.

#### 3.3 Employees

Employees are responsible for the following requirements of this policy:

- Obtain PPE per Department Protocols contained in Appendix B
- Wear assigned PPE
- Follow the guidance of supervisors and experienced staff on the correct use of PPE
- Attend training for specialized PPE such as respiratory protection
- Keep PPE clean, protected from damage and maintained in accordance with the manufacturers recommendations
- Notify supervisor if PPE is damaged, lost or is no longer providing adequate protection

#### 3.4 Environmental Health and Safety (EHS)

Environmental Health and Safety will maintain this policy and assist Supervisors in preparing Personal Protective Equipment Hazard Assessments as needed to determine the risk and provide appropriate recommendations on PPE use for specific tasks.

### 3.5 Supervisors

Supervisors are responsible for the following requirements of this policy:

- Prepare Personal Protective Equipment Hazard Assessments,
- Ensure employees know how and where to obtain PPE.
- Ensure employees wear the appropriate PPE
- Ensure employees are trained on the proper use and maintenance of the PPE they are issued
- Address instances where current PPE is not providing adequate protection
- Take appropriate measures in instances where employees failed or refused to wear PPE or are not maintaining their PPE in accordance with this policy
- Contact Environmental Health and Safety when new work practices warrant the need for the evaluation and selection of PPE

### 4.0 Procedure

PPE will only be used as a last resort, when engineering and/or administrative controls are not capable of protecting employees from hazards associated with their work. If PPE must be removed for whatever reason, do so outside the area containing the hazards

#### 4.1 Personal Protective Equipment Hazard Assessment

A hazard assessment must be completed by the employee's supervisor in order to determine whether PPE is needed for a particular work activity. The hazard assessment requires the supervisor to evaluate all of the work processes and identify tasks where employees are exposed to Physical and Health Hazards. The Appendix A "Personal Protective Equipment Hazard Assessment" and Chemical Safety Data Sheets can be used to assist the supervisor in completing the hazard assessment.

Supervisors are required to document the hazard assessments. At a minimum the hazards assessment must include the following information:

- Date of assessment
- Description of the work
- Recognized hazards
- Required PPE
- Supervisor's Signature

PPE Assessment forms shall be kept on file according to department protocols.

##### 4.1.1 Physical Hazard

Examples of physical hazards include:

- Explosive, flammable, reactive or corrosive chemicals
- Electrical hazards
- Fire hazards
- Machinery, tools and moving parts
- Objects such as tools, equipment, debris, vehicles etc. that may strike the employee
- High levels of noise

- High exposure to sunlight/ultraviolet rays, heat or cold
- Substances under pressure – steam, water, compressed gases, etc.
- Lasers
- Animal handling

#### 4.1.2 Health Hazards

Examples of health hazards include:

- Chemicals
- Dust
- Asbestos
- Blood or other body fluids
- Fungi
- Bacteria and viruses
- Poisonous Plants
- Insect/Animal bites
- Animal and bird droppings
- Vibration
- Noise

#### 4.2 Personal Protective Equipment Selection

Supervisors will select the appropriate Personal Protective Equipment (PPE) based on the above hazard assessment. The PPE must meet all regulatory requirements, including but not limited to:

- The Occupational Health and Safety Administration (OSHA)
- The American National Standards Institute (ANSI)
- The National Institute for Occupational Safety and Health (NIOSH)
- NFPA 70E Standard for Electrical Safety in the Workplace
- Nationally recognized testing facilities

The Environmental Health and Safety staff will be available to assist supervisors with selecting PPE for their staff.

#### 4.3 Distribution of Personal Protective Equipment

Supervisors are required to ensure employees know how and where to obtain Personal Protective Equipment (PPE) determined necessary by the Personal Protective Equipment Hazard Assessment. Refer to Section 4.1

Once the assessment is complete, employees may obtain the PPE using the procedures contained in Appendix B. Department Managers must have a procedure in place to ensure an adequate supply of common PPE is maintained.

#### 4.4 Employee Owned

Employees may use their own Personal Protective Equipment (PPE) if the equipment complies with applicable regulations and standards listed in Sections 4.2 and 4.6 of this policy and it is approved by their supervisor. Employees must present their PPE to their supervisors who will verify that the equipment meets the requirements. Supervisors must verify that the equipment is in good condition, has not expired and has been properly maintained.

Employee owned PPE that does not meet the requirements of Sections 4.2 and 4.6 shall not to be used.

#### 4.5 Exempt Personal Protective Equipment

OSHA does not require employers to provide the following types of Personal Protective Equipment, however, department managers will provide these items when required by union contract or Labor Management agreements due to the nature of the work to be performed:

Everyday clothing, such as:

- Long-sleeve shirts
- Long pants
- Street shoes
- Normal work or steel toe boots

Items used solely for protection from weather, such as:

- Winter coats
- Jackets
- Gloves
- Parkas
- Rubber boots
- Hats
- Raincoats
- Ordinary sunglasses
- Sunscreen

#### 4.6 Requirements for Specific Types of Personal Protective Equipment

##### 4.6.1 Eye Protection

Eye protection must be worn when employees are exposed to the following hazards:

- Flying particles
- Molten metal
- Liquid chemicals, acids or caustic liquids
- Chemical gases or vapors
- Potentially injurious light radiation
- Hand and Portable Power Tools Work

All eye protection must be in compliance with ANSI Z87.1. Only eye protection labeled with a Z87.1 stamp will be permitted for employee use. If the Z87.1 stamp is not located on the equipment the eye protection must be removed from service.

Specific locations at UMass where eye protection is routinely required include:

- Central Heating Plant
- Machine & Carpentry Shops
- Construction Sites
- Academic Laboratories
- Landscaping Activities

Types of acceptable eye protection include:

### **Safety Glasses**

Safety glasses are the most common form of eye protection found in the workplace. Safety glasses are effective in protecting the employee's eyes from flying particles. In addition, these glasses can be designed with different shades to protect the employee from Ultra Violet (UV) light, lasers and Radiant energy from hot work. Safety glasses can be specially designed to incorporate prescription lenses.

### **Goggles**

Safety goggles provide a seal around the eye to provide an elevated level of protection. Safety goggles are effective in protecting employees from liquid chemical splashes, chemical gases or vapors and flying particles, or in other situations where particles can by-pass safety glasses (e.g. looking upwards for "overhead" work)

### **Face Shields**

Face shields are effective in protecting employees who are exposed to liquid chemical splashes and flying particles. Face shield must be used with goggles when a chemical splash hazard is present or safety glasses if a flying particle hazard is present.

### **Welding Mask**

Welding masks protect employees' eyes from flying particles, molten metal and radiant light created when welding. Welding mask lenses are available in different shades to protect employees from radiant light. See Appendix C to determine which lenses are appropriate for the work the employee will be performing.

### **Full Faced Respirators**

Most full faced respirators incorporate eye protection to protect employees from flying particles, liquid chemical splashes and chemical gases or vapors. It is important to review the manufacturer's recommendations to determine the level of protection the respirator will provide.

## **4.6.2 Head Protection**

Head protection must be worn by employees who work in areas where there is a potential for injury to the head from falling objects, electrical shock, impact, or flying objects.

Specific locations at UMass where head protection is routinely required include:

- Central Heating Plant
- Permit and non-permit required confined spaces
- Construction Sites.



All head protection must be in compliance with ANSI Z89.1-Only head protection labeled with a Z89.1 stamp will be permitted for employee use. If the Z89.1 stamp is not located on the equipment the head protection must be removed from service.

Types of head protection include:

#### Class C Protective Caps (Hard Hats)

Class C (Conductive) Hard Hats provide protection from falling equipment. They are not intended to provide protection from electrical hazards. Class C is not tested for electrical resistance.

#### Class G Protective Caps (Hard Hats)

Class G (General) helmets are intended to reduce the danger of exposure to low voltage electrical conductors. These helmets are rated for 2,200 volts for 1 minute, with 3 milliamps of maximum leakage.

#### Class E Protective Caps (Hard Hats)

Class E (Electrical) helmets are intended to reduce the danger of exposure to high voltage electrical conductors. These helmets are rated for force transmission first, then tested at 20,000 volts for 3 minutes, with 9 milliamps maximum current leakage; then tested at 30,000 volts, with no burn-through permitted.

### **4.6.3 Foot Protection**

Foot protection must be worn when employees are exposed to the following hazards:

- Falling or rolling objects
- Objects that are capable of piercing the sole of the foot
- Electrical hazards
- Slipping Hazards

Specific locations at UMass where foot protection is routinely required include:

- Central Heating Plant
- Chilled Water Plant
- Permit required and non-permit required confined spaces
- Construction and renovation sites
- Snow removal (Ice Cleats)

All foot protection must be in compliance with ANSI Z41.1. Only foot protection labeled with a Z41.1 stamp will be permitted for employee use. If the Z41.1 stamp is not located on the equipment the foot protection must be removed from service.

Types of foot protection include:

#### Work Boots

Standard boots (typically leather) with good treading for general maintenance and construction work. These boots protect against light impacts, cuts and abrasions.

#### Safety Toed Boots

Similar to work boots, this type of foot protection is equipped with a safety toe that adds additional protection from falling or rolling object hazards.

#### Slip-Resistant Shoes

Slip-resistant shoes are effective in protecting employees from wet, oily and greasy walking surfaces. (Z41 PT 99 I/75 C/75).

#### Anti-slip Shoe Accessories

These Devices help prevent falls when stripping floors.(Example Paws Vinyl Stripping Shoes)

#### Ice and Snow Traction Cleats

These devices attach to your boots and are ideal when working in snow and icy conditions. Take care to remove before entering a building with tile floors

#### Metatarsal Guards/Steel Shoe Coverings

Metatarsal Guards/steel shoe coverings are effective at protecting employees from falling objects, forestry work, and jack hammer operations. Metatarsal Guards/steel shoe coverings must be used in conjunction with safety toed boots.

#### Rubber Boots

Rubber boots are effective at protecting the employees from standing water, slips and contaminated soil hazards. (Z41 PT 99 MI/75). Supervisors must follow the manufacturer's recommendations when using rubber or synthetic boots for the protection against chemical exposure.

#### Boot/Shoe Covers

These one-time use covers are typically used to protect shoes and boots when cleaning small chemical and biological spills.

#### Electric Hazard Safety Footwear

Electrical Hazard shoes are designed to impede (reduce significantly) the flow of electricity through the shoe and to ground, thereby reducing the possibility of electrocution. Electrical Hazard Safety Shoes will have an "EH" clearly visible on the ASTM label sewn inside the safety shoes. (ASTM F2413-05 Sec. 7.1.5.2) Only safety shoes can have the Electrical Hazard designation. (ASTM F2413-05 Sec. 5.5.1),

#### Electrostatic boots or straps

Static Dissipating Safety Shoes and Soft-Toe shoes are designed to dissipate (reduce) the amount of static electricity build-up on your body. Unlike Electrical Hazard Safety Shoes, Static Dissipating Shoes can be either safety toe or non-safety (or soft-toe). Static Dissipating shoes actually conduct static electricity through the linings and insole, cement, and outsole and into ground. Static Dissipating Safety Shoes and non-Safety Shoes have a "SD" clearly visible on the ASTM label sewn inside the safety shoes. (ASTM F2413-05 Sec. 7.1.5.3),

### **4.6.4 Hearing Protection**

Hearing protection must be worn when noise exposure equals or exceeds 85 decibels averaged over an 8 hour period. Continuous, intermittent and impulsive exposures from

80 to 130 decibels must be included in determining employee's exposure. Refer to Appendix D for exposure duration limits for sound levels greater than 85 dB.

If an employee's exposure may equal or exceed 85 decibels averaged over an 8 hour period, they must be enrolled in the University's hearing conservation program. For additional information about the UMass Hearing Conservation Program or to request a noise assessment, please visit the following link:

<https://ehs.umass.edu/hearing-conservation-program>

Specific locations at UMass where hearing protection is routinely required include:

- Central Heating Plant
- Landscape Activities
- Machine and carpentry shops

Types of hearing protection include:

#### Ear plugs

Ear plugs are inserted to block the ear canal. They may be pre-molded (preformed) or moldable (foam ear plugs). Ear plugs are sold as disposable products or reusable plugs. Custom molded ear plugs are also available.

#### Semi-insert ear plugs

Semi-insert ear plugs consist of two ear plugs held over the ends of the ear canal by a rigid headband.

#### Ear muffs

Ear muffs consist of sound-attenuating material and soft ear cushions that fit around the ear and hard outer cups. They are held together by a headband.

### **Noise Reduction Rating**

Each type of hearing protection has a "Noise Reduction Rating." The noise reduction rating is the reduction of noise levels in decibels that a particular hearing protection product has been determined to have when used properly and in good condition. For example, if the background noise that the employee is exposed to is 100 dB and the noise reduction rating for the hearing protection is 23 dB ideally the hearing protection would reduce the employee's exposure to 77 decibels. However, it is best to consult with Environmental Health and Safety to ensure that the proper hearing protection is selected for the work environment.

## **4.6.5 Hand Protection**

Hand protection must be worn when employees are exposed to the following hazards:

- Harmful substances
- Severe cuts or lacerations
- Severe abrasions
- Electricity
- Punctures
- Chemical burns
- Thermal burns and other harmful temperature extremes

Supervisors must select and distribute the appropriate type of hand protection for the hazards that the employees will be exposed to. Environmental Health and Safety is available to assist in determining which gloves are appropriate for various exposures. Types of hand protection include:

#### Chemical Resistant Gloves (Light Duty/Heavy Duty)

Chemical resistant gloves are designed to protect employees from a wide range of chemicals including solvents and corrosives. Light duty and heavy duty gloves come in different materials, thicknesses and lengths to suit different chemicals and operations. Chemical resistant gloves are made from several different types of materials including:

- Neoprene
- Polyvinyl chloride
- Butyl Rubber
- Nitrile Rubber
- Teflon
- Polyethylene

It is important to note that not all glove materials are compatible with all chemicals and that there may be limits for the amount of time that a glove may be used with a particular chemical. Supervisors must ensure that the gloves are made from the appropriate material for the chemicals the employee will be handling and ensure the time limits for the chemical they are handling is not exceeded. Review the Safety Data Sheet for the specific chemical or glove specifications. Please contact Environmental Health and Safety for assistance in determining the appropriate glove for a particular product if needed. Latex gloves will not protect you for most chemicals.

#### Leather/Fabric Work Gloves

Leather and fabric work gloves are designed to protect employees from flying chips and debris, light abrasions and dusts. These types of gloves will also protect the employee from blisters and other skin irritations caused by excessive vibration and repetitive motions.

#### Biological Resistant Gloves

Biological resistant gloves are designed to protect employees from blood and other bodily fluids capable of carrying bacteria and viruses. The gloves are typically made of latex and non-latex (latex substitute) materials. These types of gloves are commonly found in medical offices and biological research laboratories.

#### Cut Resistant Gloves

Cut resistant gloves are designed to protect employees from sharp, non-powered hand tools such as box cutters and knives. Note: Cut resistant gloves do not provide protection from punctures or mechanical cutting equipment.

### **4.6.6 Skin/Body Protection**

Skin/Body protection must be worn when employees are exposed to the following hazards:

- Chemicals
- Biological
- Lead (Abatement)
- Falls
- Asbestos (Abatement)
- Mold (Abatement)
- PCB (Abatement)
- Traffic

Specific locations at UMass where skin/body protection is routinely required include:

- Academic Laboratories (Lab Coats)
- Construction sites with earthmoving equipment (High Visibility Clothing)
- Work activities that take place near a roadway (High Visibility Clothing)
- Working at heights
- Work in the vicinity of live electrical components

Types of skin/body protection include:

#### Chemical Suits

Chemical and biological splash resistant. Typically made out of polypropylene or fabric with a polypropylene coating. Each suit has its own protection rating which lists the suit's limitations for specific types of chemicals.

#### Paper or Fabric Suits

Paper and fabric suits protect against dust and other hazardous particles. Most commonly used in clean rooms, laboratories and during minor spill cleanups or abatement activities.

#### Fire Resistant

Fire resistant clothing protects against sparks, flying embers, and other heat sources. These types of suits are typically worn in machine shops, welding areas and forges. Each suit has its own protection rating which lists the suit's limitations for specific types of temperatures.

#### High Visibility Clothing

High visibility clothing is worn when working near roadways, in construction sites or any other location where vehicle traffic is near or in the same area where employees are performing work activities.

#### Fall Protection

Fall protection systems consist of a full body harness, lanyard and appropriate anchor point.

### **4.6.7 Respiratory Protection**

Respiratory protection is a separate policy managed by the Environmental Health & Safety. This includes dust masks, half and full faced respirators, powered air purifying respirators, SCBA For a copy of the current Respiratory Protection Standard, please visit the following link:

<https://ehs.umass.edu/respiratory-protection-program>

#### **4.6.8 Electrical Personal Protection Equipment**

Electrical personal protective equipment protects against shock and arc flash\blast hazards and shall be in compliance with the requirements prescribed in The National Fire Protection Agency's 70E Standard for Electrical Safety in the Workplace. This equipment is only used when verifying the equipment to be properly deenergized, and when it is not feasible to shut down the equipment, for example, voltage testing, trouble shooting and in cases where it is infeasible to shut down the equipment due to increased hazard, or with power generating and transmission equipment.

#### **4.6.9 Laboratory Personal Protective Equipment**

Requirements for personal protective equipment in laboratories is will be in accordance with the University's Chemical Hygiene Plan. At a minimum, safety glasses and laboratory coats are required in laboratories that have hazardous chemicals. For a copy of the current Chemical Hygiene Plan please visit the following link:

<https://ehs.umass.edu/laboratory-health-and-safety-manualchemical-hygiene-plan>

#### **4.7 Training**

Employees shall be trained on the proper use and care of personal protective equipment. It is the responsibility of the supervisor to provide training whenever personal protective equipment is issued. EHS will assist with specialized equipment such as respirators, fall protection, etc.

At a minimum the training must include:

1. When to use Personal Protective Equipment
2. Personal Protective Equipment limitations
3. Cleaning
4. Storage practices

#### **5.0 References**

UMass Amherst Chemical Hygiene Plan  
The Occupational Health and Safety Administration (OSHA)  
29 CFR 1910 (General Industry) and  
29 CFR 1926 (Construction Industry)  
The American National Standards Institute (ANSI)  
The National Institute for Occupational Safety and Health (NIOSH)  
NFPA 70E Standard for Electrical Safety in the Workplace  
American Society for Testing Materials (ASTM)

#### **6.0 Policy Review Cycle**

This Policy and the Attachments will be reviewed and revised as needed.

## **Appendix A - Personal Protective Equipment Hazard Assessment**





**Head Protection**

Type of Hazard	Source of Hazard	Description of Tasks, Engineering & Admin. Controls In Place	PPE Required
<b>Falling Objects</b>	<b>Working Under:</b> <input type="checkbox"/> Other workers using tools and materials that could fall. <input type="checkbox"/> Machinery or processes which might cause materials or objects to fall. <input type="checkbox"/> Warehouse racking where loose material loads are handled or stored. <input type="checkbox"/> Other:		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Overhead Object Interference</b>	<b>Working Under or Near:</b> <input type="checkbox"/> Conveyor belts carrying material <input type="checkbox"/> Vertical lifts and other elevating work platforms <input type="checkbox"/> Other:		<input type="checkbox"/> Yes <input type="checkbox"/> No

**Foot Protection**

Type of Hazard	Source of Hazard	Description of Tasks, Engineering & Admin. Controls In Place	PPE Required
<b>Impact Hazards</b> Routine activities where objects heavier than 5 lb. could fall on feet.	<b>Working With:</b> <input type="checkbox"/> Heavy Packages <input type="checkbox"/> Heavy Equip. <input type="checkbox"/> Heavy Tools <input type="checkbox"/> Heavy Objects <input type="checkbox"/> Other:		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Compression Hazards</b> Roll-over hazards.	<b>Working With:</b> <input type="checkbox"/> High use of carts or pallet trucks <input type="checkbox"/> Handling heavy pipes or logs <input type="checkbox"/> Drum Handling <input type="checkbox"/> Other:		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Puncture Protection</b> Puncture to shoe soles.	<b>Working Where There Is:</b> <input type="checkbox"/> Nails <input type="checkbox"/> Scrap Metal <input type="checkbox"/> Wire <input type="checkbox"/> Screws <input type="checkbox"/> Tacks <input type="checkbox"/> Sharp Objects <input type="checkbox"/> Glass <input type="checkbox"/> Other: <input type="checkbox"/> Large Staples		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Electrical Hazards</b> Electric shock or burns.	<b>Working With or Near:</b> <input type="checkbox"/> Exposed Electrical Conductors <input type="checkbox"/> Energized Parts <input type="checkbox"/> Electrical Switch Gear <input type="checkbox"/> Other:		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Chemical Hazards</b> Irritation or burns.	<b>Working With, Near or Around:</b> <input type="checkbox"/> Splash Hazards- hot or corrosive liquids		<input type="checkbox"/> Yes <input type="checkbox"/> No

**Hand Protection**

Type of Hazard	Source of Hazard	Description of Tasks, Engineering & Admin. Controls In Place	PPE Required
<b>Chemical Hazards</b> Chemical irritation or burns.	<b>Working With or Handling:</b> <input type="checkbox"/> Solvents <input type="checkbox"/> Toxic Materials <input type="checkbox"/> Corrosives <input type="checkbox"/> Other: _____ <input type="checkbox"/> Skin Irritants		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Physical Hazards</b> Cuts, punctures, abrasions, rubbing/friction or lacerations.	<b>Working With or Handling:</b> <input type="checkbox"/> Sharp Objects <input type="checkbox"/> Sharp Tools <input type="checkbox"/> Knives <input type="checkbox"/> Jagged Objects <input type="checkbox"/> Glass <input type="checkbox"/> Using, cleaning or dismantling equipment with sharp points or edges <input type="checkbox"/> Abrasive Materials (e.g. sanders) <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Thermal Hazards</b> Burns.	<b>Working With or Handling:</b> <input type="checkbox"/> Hot Material <input type="checkbox"/> Molten Metal <input type="checkbox"/> Hot pipes, Steam, or Liquids    Welding <input type="checkbox"/> Hot Work Activities <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Cryogenic Hazards</b> Frostbite.	<b>Working With or In:</b> <input type="checkbox"/> Cold Materials <input type="checkbox"/> Cold Weather <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Biohazards</b> Exposure to infectious material.	<b>Contact During:</b> <input type="checkbox"/> First aid/emergency care <input type="checkbox"/> Custodial (Biological Response) <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Electrical Hazards</b> Electric shock or burn.	<b>Working On or Near:</b> <input type="checkbox"/> Energized Circuits of High Voltage (>50v) <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No

**Respiratory Protection**

Type of Hazard	Source of Hazard	Description of Tasks, Engineering & Admin. Controls In Place	PPE Required
<b>Inhalation Hazards</b>	<b>Working With or Near:</b> <input type="checkbox"/> Nuisance Dusts (Chemicals, Wood) <input type="checkbox"/> Fibers (Asbestos, etc.) <input type="checkbox"/> Mists (Oils, Acids, etc.) <input type="checkbox"/> Vapors (Solvents, Gases, etc.) <input type="checkbox"/> Fumes (Hot Work) <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No

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Appendix A: Personal Protective Equipment Hazard Assessment

Type of Hazard	Source of Hazard	Description of Tasks, Engineering & Admin. Controls In Place	PPE Required
<b>Atmospheric Hazards</b>	<b>Working In or Near:</b> <input type="checkbox"/> Toxic Atmospheres <input type="checkbox"/> Oxygen-deficient Areas (Below 19.5% Oxygen) <input type="checkbox"/> Immediately Dangerous to Life or Health (IDLH) <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No

**Hearing Protection**

Type of Hazard	Source of Hazard	Description of Tasks, Engineering & Admin. Controls In Place	PPE Required
<b>Loud Noises</b>  Hearing loss.	<b>Working in Area Exceeding 85 dBA:</b> <input type="checkbox"/> Noise Level From Most Recent Noise Survey: <input type="checkbox"/> Continuous Noise <input type="checkbox"/> Impact Noise <input type="checkbox"/> Intermittent Noise <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No

**Body Protection**

Type of Hazard	Source of Hazard	Description of Tasks, Engineering & Admin. Controls In Place	PPE Required
<b>Chemical Hazards</b>  Chemical splash exposure.	<b>Working With or Handling:</b> <input type="checkbox"/> Solvents <input type="checkbox"/> Toxic by Skin <input type="checkbox"/> Corrosives <input type="checkbox"/> Absorption <input type="checkbox"/> Irritants <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Electrical Hazards</b>  Electric shock or burns.	<b>Working With or Around:</b> <input type="checkbox"/> High Voltage (>600v) <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Fire Exposure</b>  Burns.	<b>Working With or Around:</b> <input type="checkbox"/> Fires <input type="checkbox"/> Open Flames <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>Fall Protection</b>	<input type="checkbox"/> Working from unprotected heights greater than 4 feet  <input type="checkbox"/> Other: _____		<input type="checkbox"/> Yes <input type="checkbox"/> No

**Personal Protective Equipment – Hazard Assessment Summary**

<b>Task:</b>	<b>Location:</b>
<b>Occupation:</b>	<b>Department:</b>
<b>Evaluation Completed By:</b>	<b>Date:</b>

PPE Category	PPE Required for this Department			
Eye and Face Protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Safety Glasses w/ Side Shields <input type="checkbox"/> Chemical Goggles	<input type="checkbox"/> Face Shield <input type="checkbox"/> Welders Face Shield <input type="checkbox"/> Welding Shields	<input type="checkbox"/> Filtered Lenses <input type="checkbox"/> Impact Goggles <input type="checkbox"/> Other: _____
Head Protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Hard Hat-Class G (Proof Tested to 2,200 Volts) <input type="checkbox"/> Hard Hat-Class E (Proof Tested to 20,000 Volts) <input type="checkbox"/> Hard Hat-Class C (No Electrical Protection) <input type="checkbox"/> Other: _____		
Foot Protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Safety Shoes <input type="checkbox"/> Boots <input type="checkbox"/> Metatarsal Guards <input type="checkbox"/> Boot Cover	<b>Electrical Hazard Soles:</b> <input type="checkbox"/> Leather <input type="checkbox"/> Rubber <input type="checkbox"/> Other: _____	<b>Material:</b> <input type="checkbox"/> Neoprene <input type="checkbox"/> PVC <input type="checkbox"/> Poly/Nylon
Hand Protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Gloves:</b> <input type="checkbox"/> Wrist Length <input type="checkbox"/> Elbow Length <input type="checkbox"/> Shoulder Length <input type="checkbox"/> Chemical Resistant <input type="checkbox"/> Butyl <input type="checkbox"/> Neoprene	<input type="checkbox"/> PVC <input type="checkbox"/> Nitrile <input type="checkbox"/> PVA <input type="checkbox"/> Latex <input type="checkbox"/> Abrasion Resistant <input type="checkbox"/> Cut Resistant <input type="checkbox"/> Puncture Resistant	<input type="checkbox"/> Heat Resistant <input type="checkbox"/> Welding <input type="checkbox"/> Cold Resistant <input type="checkbox"/> Electrical Resistant <input type="checkbox"/> Anti-Static <input type="checkbox"/> Other: _____
Respiratory Protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Air Purifying <input type="checkbox"/> Dust <input type="checkbox"/> Mist <input type="checkbox"/> Fume	<input type="checkbox"/> Airline <input type="checkbox"/> PAPR <input type="checkbox"/> SCBA <input type="checkbox"/> Half-Face	<input type="checkbox"/> Full-Face <input type="checkbox"/> Canister <input type="checkbox"/> Cartridge <input type="checkbox"/> Other: _____
Hearing Protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Earmuffs <input type="checkbox"/> Earplugs	<input type="checkbox"/> Min. Noise Reduction Rating <input type="checkbox"/> Other: _____	
Body Protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Apron <input type="checkbox"/> Jacket/Coat <input type="checkbox"/> Long Sleeves	<input type="checkbox"/> Coveralls <input type="checkbox"/> Insulating Blankets	<input type="checkbox"/> Insulating Covers <input type="checkbox"/> Other: _____
Fall Protection	<input type="checkbox"/> Yes <input type="checkbox"/> No			

**Comments:**\_\_\_\_\_  
**Supervisor**\_\_\_\_\_  
**Date**\_\_\_\_\_  
**Safety Officer Date**

## Appendix B - Department Specific Procedures for Obtaining Personal Protective Equipment

### B-1 Physical Plant

All Physical Plant workers (except Custodial) obtain PPE through Physical Plant Central Stores, located on the ground floor of Physical Plant (hours 7am-10pm).

Custodial supervisors request PPE for their staff through Custodial Central Stores, located on the ground floor of the Physical Plant/Facilities building (hours 7am-3pm); Custodial Central Stores delivers requested orders to each custodial service area, where they are distributed by the supervisor.

Each Central Stores maintains their own inventory of supplies.

### B-2 Residential Life

Personal protective equipment will be available to Residential Life staff by zone in designated locations as follows:

**West:** PPEs are available to staff using the supply requested using the supply protocol for West operation. See supervisors.

**Central Services:** [Cabinet is located in Room 114 at 160 Tillson Farm Road.](#)

**East OH/C:** A closet located in room 021 of Baker. This closet will be managed by Supervisors.

**East North Village:** A closet located in room C2. This closet will be managed by Supervisors.

**East NESN:** A closet located in room 020 of Lewis. This closet will be managed by Supervisors.

At a minimum, these closets will be equipped with the following PPE:

- Nitrile Gloves – For general cleaning and protection from mild chemicals
- Rubber Gloves – Arm's length, reusable, for cleaning bathrooms
- Safety Glasses – Standard Z87
- Others? TBD

A sign out sheet will be available. All employees must sign out the personal protective equipment they are taking. In the event that PPE is needed after hours, supervisors will have access to the storage locations within their zone and will be responsible for issuing it to their employees.

### B-3 Auxiliary Services

TBD

**Appendix C - Filter Lenses for Protection against Radiant Energy**

Excerpt from 1910.133 Maintenance Activities

Operations	Electrode Size (1/32 in.)	Arc Current	Minimum* Protective Shade
Shielded Metal Arc Welding	Less than 3	Less than 60	7
	3-5	60-160	8
	5-8	160-250	10
	More than 8	250-550	11
Gas Metal Arc Welding and Flux Cored Arc Welding		Less than 60	7
		60-160	10
		160-250	10
		250-500	10
Gas Tungsten Arc Welding		Less than 50	8
		50-150	8
		150-500	10
Air Carbon	(Light)	Less than 500	10
Arc Cutting	(Heavy)	500-1000	11
Plasma Arc Welding		Less than 20	6
		20-100	8
		100-400	10
		400-800	11
Plasma Arc Cutting	(light)**	Less than 300	8
	(medium)**	300-400	9
	(heavy)**	400-800	10
Torch Brazing			3
Torch Soldering			2
Carbon Arc Welding			14

(\*) As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxygen fueled gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

(\*\*) These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workpiece.

**Filter Lenses for Protection against Radiant Energy**

Excerpt from 1910.133 Maintenance Activities

<b>Operations</b>	<b>Plate Thickness (inches)</b>	<b>Plate Thickness (mm)</b>	<b>Minimum Protective Shade</b>
<b>Gas Welding</b>			
Light	Under 1/8	Under 3.2	4
Medium	1/8 to 1/2	3.2-12.7	5
Heavy	Over 1/2	Over 12.7	6
<b>Oxygen cutting:</b>			
Light	Under 1	Under 25	3
Medium	1 to 6	25 to 150	4
Heavy	Over 6	Over 150	5

(\*) As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxygen fueled gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.

(\*\*) These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workpiece.

**Filter Lens Shade Numbers for Protection against Radiant Energy**

Excerpt from 1926.102(b)(1) Construction Activities

<b>Welding operation</b>	<b>Shade number</b>
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

*Selection of shade numbers for welding filter.* Table E-1 shall be used as a guide for the selection of the proper shade numbers of filter lenses or plates used in welding. Shades more dense than those listed may be used to suit the individual's needs.



**Appendix D - Permissible Noise Exposures**

Excerpt from 29 CFR 1910.95 table G-16 and 1926.52 Table D-2


<b>Permissible Noise Exposures</b>	
<b>Duration per day (hours)</b>	<b>Sound level dBA slow response</b>
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115

UMass Amherst Environmental Health & Safety  
Signatories

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Jeff Hescoc, Executive Director  
Environmental Health and Safety

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 3/5/2021  
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Brian Harrington, Director  
Labor Relations

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Lee Ann Robinson, President  
AFSCME Local 1776

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Kim Sylvia, AFSCME Council 93  
Higher Education Coordinator