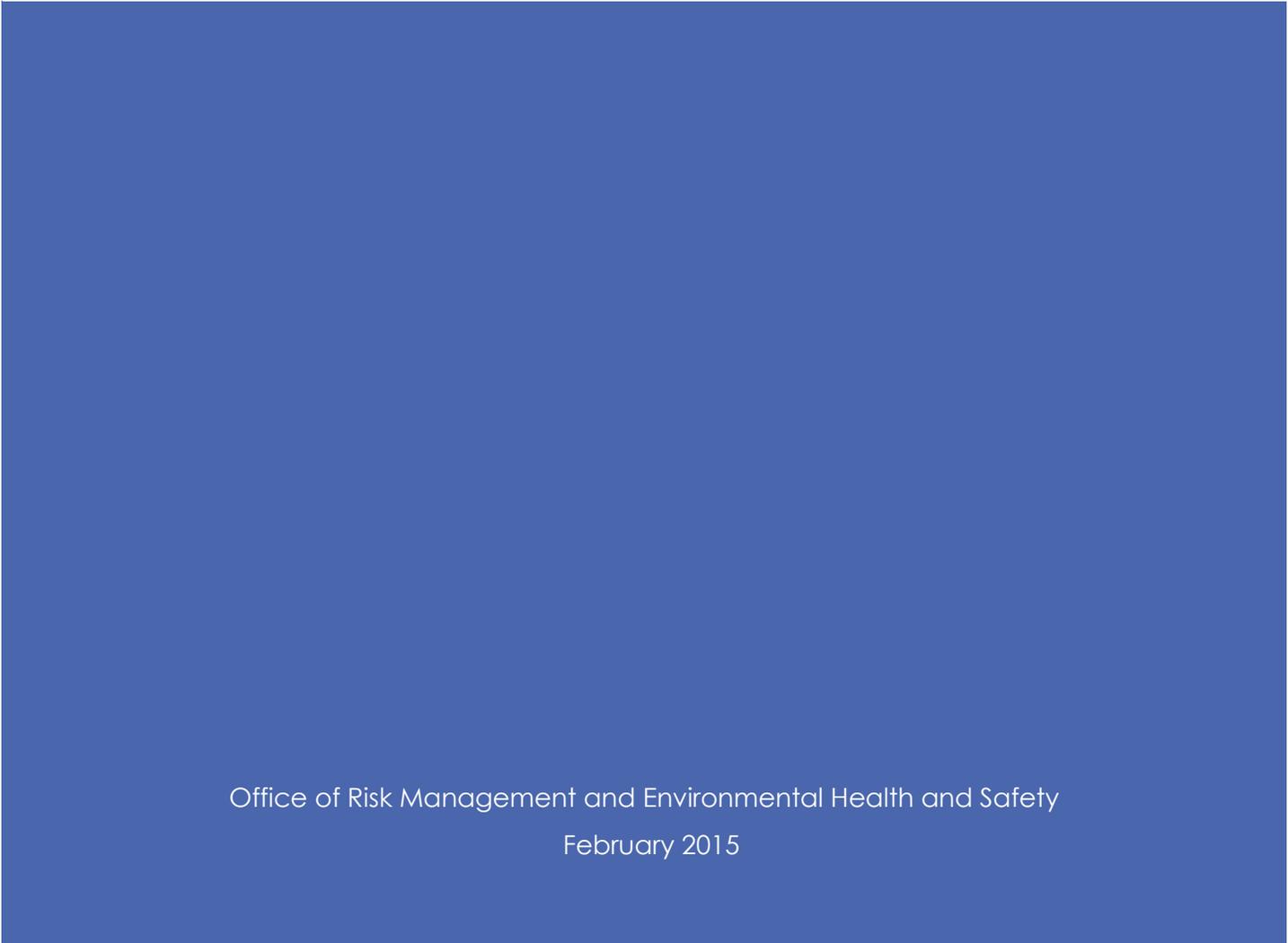




American University  
**PERSONAL PROTECTIVE  
EQUIPMENT GUIDELINES**



Office of Risk Management and Environmental Health and Safety

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## **CHAPTER 1: PURPOSE**

The Purpose of this policy is to provide guidelines on how Personal Protective Equipment (PPE) is assigned and used within Facilities Maintenance operations.

The decision to use PPE should be made after hazard assessments are complete and all other means of controlling the known hazards have exhausted.

This policy was written to ensure compliance with the regulations set forth by OSHA, 29 CFR 1910, Subpart I – Personal Protective Equipment.

## **CHAPTER 2: SCOPE**

Personal Protective Equipment includes anything worn over the eyes, face, head, or extremities to protect the wearer from illness and/or injury. This may include protective clothing, respiratory devices, protective shields and barriers, etc.

This policy is intended to provide guidelines for the assessment, selection, use and maintenance of PPE within all Facilities Maintenance operations.

## **CHAPTER 3: RESPONSIBILITIES**

### **ENVIRONMENTAL HEALTH AND SAFETY**

EH&S will ensure adherence to this policy through periodic performance audits, an annual policy review, setting forth safety training guidelines, and maintenance of all training records and inspections results.

### **FACILITIES TRAINING COORDINATOR**

The Facilities Training Coordinator will assist EH&S in the maintenance of all training records and in setting up any required training for staff.

### **FACILITIES MAINTENANCE SUPERVISORS**

Supervisors are responsible for promoting the safe work practices and procedures of the program, and ensuring compliance by each employee within their department.

Supervisors are expected to serve as liaisons between their employees and EH&S to ensure that task-appropriate PPE is readily available and properly used.

### **ALL FACILITIES MAINTENANCE EMPLOYEES**

All FM employees must utilize suitable Personal Protective Equipment to prevent serious injuries and are responsible for complying with the provisions set forth in this program.

All employees are expected to notify their supervisor when they feel one or more of their work tasks necessitates new or different PPE.

## **CHAPTER 5: SELECTION**

PPE devices alone should not be relied on to provide protection against hazards, but should be used in conjunction with guards, engineering controls, and sound work practices.

All Personal Protective Equipment and clothing must be designed and constructed in conjunction with the scope of work to be performed.

All PPE acquired and/or used must meet National Institute of Occupational Safety and Health (NIOSH) or American National Standards Institute (ANSI) standards.

The following procedures shall be utilized when selecting Personal Protective Equipment:

- Become familiar with the potential hazards and the type of protective equipment that is available, and what protection is provided; i.e., splash protection, impact protection, etc. A Hazard Assessment should be conducted.
- Compare the hazards associated with the environment; i.e., impact velocities, projectile shape, and radiation intensities, with the capabilities of the available protective equipment.
- Select the Personal Protective Equipment, which ensures a level of protection greater than the minimum required to protect employees from the hazards.
- Fit the user with the protective device and give instructions on care and use of the PPE. It is very important that end users be made aware of all warning labels for and limitations of their PPE.

### **FITTING THE DEVICE**

Careful consideration must be given to comfort and fit. PPE that fits poorly will not afford the necessary protection. Continued wearing of the device is more likely if it fits the wearer comfortably. Protective devices are generally available in a variety of sizes. Care should be taken to ensure that the right size is selected.

### **DEVICES WITH ADJUSTABLE FEATURES**

Adjustments should be made on an individual basis for a comfortable fit that will maintain the protective device in the proper position. Some devices require special fit testing for the PPE to be effective.

If available, manufacturer's instructions must be followed.

## CHAPTER 6: TRAINING

Training must be provided for each type of Personal Protective Equipment that is to be utilized by employees. Completed training will be documented, including the names of all employees trained, the date of the training, and the specific subject of the particular training. The following areas will be covered during each training session:

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

Each employee shall be capable of demonstrating an understanding of the training and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE. Certification of training for PPE is required by OSHA and shall be accomplished by using a completed training attendance roster to verify that each affected employee has received the required PPE training. The instructor will evaluate each employee to certify that the employee fully understands the training and has the ability to use PPE properly.

Supervisors are responsible to retrain any employee when:

- An employee does not understand the proper use of Personal Protective Equipment.
- Previous training is obsolete
- There is a change in the type of Personal Protective Equipment being used
- An employee has not retained the understanding or skill necessary for using the specific Personal Protective Equipment

## **CHAPTER 7: EYE AND FACE PROTECTION**

The majority of occupational eye injuries can be prevented by the use of suitable/approved safety spectacles, goggles, or shields. Approved eye and face protection shall be worn when there is a reasonable possibility of personal injury.

Each employee shall use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.

Each employee shall use eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors are acceptable.

Each employee who wears prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that incorporates the prescription in its design, or shall wear eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.

Eye and face Personal Protective Equipment shall be distinctly marked to facilitate identification of the manufacturer.

Each employee shall use equipment with filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation.

Typical hazards that can cause eye and face injury include:

- Splashes of toxic or corrosives chemicals, hot liquids, and molten metals.
- Flying objects, such as chips of metal, wood, and other materials that can produce dangerous flying objects when cut, drilled, hammered, or worked with in another similar manner.
- Fumes, gases, and mists of toxic or corrosive chemicals.
- Aerosols and biological substances.

Prevention of eye injuries requires that all persons who may be in eye hazard areas wear protective eyewear. This includes employees, visitors, contractors, or others passing through an identified eye hazard area. To provide protection for these personnel, supervisors shall ensure that a sufficient quantity of heavy-duty goggles and/or plastic eye protectors that afford the maximum amount of protection possible is available. If these personnel wear personal glasses, they shall be provided with a suitable eye protector to wear over them.

### **CRITERIA FOR EYE AND FACE PROTECTION**

Eye and face protectors used by employees, contractors and visitors must conform to the following design and performance criteria:

- Provide adequate protection against the particular hazards for which they are designed.
- Fit properly and offer the least possible resistance to movement causing minimal discomfort while in use.

- Be durable.
- Be easily cleaned and/or disinfected by the wearer.
- Be clearly marked to identify the manufacturer.

Persons who require corrective lenses for normal vision, and who are required to wear eye protection, must wear goggles or spectacles of one of the following types:

- Spectacles with protective lenses, which provide optical correction.
- Goggles that can be worn over spectacles without disturbing the adjustment of the spectacles.
- Goggles that incorporate corrective lenses mounted behind the protective lenses.

### **SAFETY SPECTACLES**

Protective eye glasses are made with safety frames, tempered glass or plastic lenses, temples and side shields which provide eye protection from moderate impact and particles encountered in job tasks such as carpentry, woodworking, grinding, chipping, etc.

### **SINGLE LENS GOGGLES**

Vinyl framed goggles of soft pliable body design provide adequate eye protection from many hazards. These goggles are available with clear or tinted lenses, perforated, port vented, or non-vented frames. Single lens goggles provide similar protection to spectacles and may be worn in combination with spectacles or corrective lenses to ensure protection along with proper vision.

### **FACE SHIELDS**

These normally consist of an adjustable headgear and face shield of tinted/transparent acetate or polycarbonate materials, or wire screen. Face shields are available in various sizes, tensile strength, impact/heat resistance and light ray filtering capacity. Face shields will be used in operations when the entire face needs protection and should be worn to protect eyes and face against flying particles, metal sparks, and chemical/ biological splash. Face shields must be worn in addition to safety glasses.

### Selection Chart for Eye and Face Protection

General guidance for the proper selection of eye and face protection against hazards associated with the listed hazard "source"

Source	Hazard	Protection
Impact – chipping, grinding, masonry work, woodworking, sawing, drilling, chiseling, powered fastening, riveting, sanding	Flying fragments, objects, chips, particles, sand, dirt, etc.	Spectacles with side shield protection, goggles, face shield. For severe exposure, use face shield with safety glasses or goggles.
Heat – boiler operation and arc welding	Hot sparks	Face shield, spectacles with side shields.
Chemicals – pesticides, acid and chemical handling, degreasing, cleaning solvents	Splash	Chemical splash goggles

### WELDER'S GOGGLES

These goggles are available in rigid and soft frames to accommodate single or two eyepiece lenses.

Welder's goggles provide protection from sparking, scaling or splashing metals and harmful light rays. Lenses are impact-resistant and are available in graduated shades of filtration.

Chippers/grinders goggles provide eye protection from flying particles. The dual protective eyecups house impact resistant clear lenses with individual cover plates.

### WELDING SHIELDS

These shield assemblies consist of vulcanized fiber or glass fiber body, a ratchet/button type adjustable headgear or cap attachment and a filter and cover plate holder.

These shields will be provided to protect workers' eyes and face from infrared or radiant light burns, flying sparks, metal spatter and slag chips encountered during welding, brazing, soldering, resistance welding, bare or shielded electric arc welding and oxyacetylene welding and cutting operations.

Employees who are required to utilize welding and cutting equipment will select the proper lens shade by starting with a shade that is too dark to see the weld and/or work zone. Then go to a lighter shade that gives sufficient view of the weld and/or work zone without going below the minimum.

<b>Welding &amp; Cutting Filter Lenses for Protection Against Radiant Energy</b>			
<b>Operation</b>	<b>Electrode Size 1/32 in.</b>	<b>Arc Current</b>	<b>Protective Shade</b>
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
Torch Brazing			3
Torch Soldering			2

## **CHAPTER 8: HEAD PROTECTION**

Head protection will be furnished to, and used by, all employees engaged in construction and other miscellaneous work in areas where overhead hazards are present. Engineers, Inspectors, Contractors and Visitors will be required to wear head protection at work sites.

### **HARD HATS**

Hard hats have been designed and manufactured to provide workers protection from impact, heat, electrical and fire hazards. These protective devices for the head consist of the shell and the suspension, which are combined as a single protective system. Safety hard hats and bump caps used by University employees will be of nonconductive, fire and water-resistant materials. Bump caps or skull guards are constructed of lightweight materials and are designed to provide minimal protection against hazards when working in congested areas.

Class A helmets, in addition to impact and penetration resistance; provide electrical protection from low-voltage conductors (they are proof tested to 2,200 volts).

Class B helmets, in addition to impact and penetration resistance; provide electrical protection from high-voltage conductors (they are proof tested to 20,000 volts).

Class C helmets provide impact and penetration resistance (they are usually made of aluminum which conducts electricity), and should not be used around electrical hazards.

Hard hats must be worn where falling object hazards are present. Some examples include:

- Working below other workers who are using tools and materials which could fall;
- Working below machinery or processes which might cause material or objects to fall; and
- Working on exposed energized conductors.

### **BUMP CAPS**

Bump caps/skull guards will be issued to and worn for protection against scalp lacerations from contact with sharp objects. They may not be worn as a substitute for hard hats because they do not afford protection from high impact forces or penetration by falling objects.

### **SELECTION GUIDELINES FOR HEAD PROTECTION**

Supervisors are responsible to ensure that the employees wear appropriate head protection as designated by the Hazard Assessment (see paragraph 4.8). Head protection is also available which provides protection from electric shock and burn.

When selecting head protection, knowledge of potential electrical hazards is important.

## **CHAPTER 9: FOOT PROTECTION**

All Physical Plant employees who have been identified to wear reinforced foot protection by the job hazard assessment are required to wear reinforced foot protection at all times.

The minimum required protective footwear is leather (or equivalent) work type boot with ankle support.

Impact resistant toe and puncture resistant soles are required at all times. All employees' Protective footwear shall comply with ANSI Z41, "American National Standard for Personal Protection-Protective Footwear".

### **SELECTION GUIDELINES FOR FOOT PROTECTION**

Safety shoes and boots provide both impact and compression protection. Where necessary, safety shoes can be obtained which provide puncture protection.

In some work situations, metatarsal protection shall be required, and in other special situations electrical conductive or insulating safety shoes shall be required.

Safety shoes or boots with impact protection are required for carrying or handling materials such as packages, objects, parts or heavy tools, which could be dropped; and, for other activities where objects might fall onto the feet.

Safety shoes or boots with compression protection are required for work activities involving skid trucks (manual material handling carts) around bulk materials and containers (such as 55 gallon drums) and around heavy pipes, all of which could potentially roll over an employee's feet.

Safety shoes or boots with puncture protection will be required where sharp objects such as nails, wire, tacks, screws, large staples, scrap metal etc., could be stepped on by employees causing a foot injury.

## CHAPTER 10: HAND PROTECTION

Hand protection is required when employees' hands are exposed to hazards such as skin absorption of harmful substances; cuts or lacerations; abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

Skin contact is a potential source of exposure to toxic materials; it is important that the proper steps be taken to prevent such contact. Gloves should be selected on the basis of the material being handled, the particular hazard involved, and their suitability for the operation being conducted. One type of glove will not work in all situations.

Most accidents involving hands and arms can be classified under four main hazard categories: hazardous chemical contact, abrasions, cuts, and burns. There are gloves available that can protect workers from any of these individual hazards or combination of hazards.

Gloves should be replaced periodically, depending on frequency of use and permeability to the substances handled. Gloves should also be worn whenever it is necessary to handle rough or sharp-edged objects, and very hot or very cold materials. The types of glove materials to be used in these situations include leather, welder's gloves, aluminum-backed gloves, and other types of insulated glove materials.

Careful attention must be given to protecting your hands when working with tools and machinery. Power tools and machinery must have guards installed or incorporated into their design that prevent the hands from contacting the point of operation, power train, or other moving parts. To protect the hands from injury due to contact with moving parts, it is important to:

- Ensure that guards are always in place and utilized.
- Always lock out machines or tools and disconnect the power before making repairs.
- Treat a machine without a guard as inoperative.
- Do not wear gloves around moving machinery, such as drill presses, mills, lathes, and grinders.

### SELECTION GUIDELINES FOR HAND PROTECTION

Selection of PPE for the hands shall be based on an evaluation of the performance characteristics of the hand protection relative to the tasks being performed, conditions present, duration of use, and the hazards and potential hazards identified.

Gloves are often relied upon to prevent cuts, abrasions, burns, and skin contact with chemicals that are capable of causing local or systemic effects following dermal exposure. There is no glove that provides protection against all potential hand hazards, and commonly available glove materials provide only limited protection against many chemicals. Therefore, it is important to select the most appropriate glove for a particular application and to determine how long it can be worn, and whether it can be reused.

It is also important to know the performance characteristics of gloves relative to the specific hazard anticipated; i.e., chemical hazards, cut hazards, flame hazards, etc. The supervisor will review all purchase orders to ensure that gloves meet the appropriate test standards for the hazards anticipated.

### **SELECTION OF GLOVES FOR CHEMICAL HAZARDS**

The first consideration in the selection of gloves for use against chemicals is to determine the exact nature of the substances to be encountered. Read instructions and warnings on chemical container labels and SDS before working with any chemical.

Recommended glove types are often listed in the Personal Protective Equipment section.

Chemicals eventually permeate all glove materials. However, they can be used safely for limited time periods if specific use and glove characteristics (i.e., thickness and permeation rate and time) are known.

Considerations for glove selection include:

- The toxic properties of the chemical(s) must be determined; 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.
- Generally, any "chemical resistant" glove can be used for dry powders;
- For mixtures and (unless specific test data are available), a glove should be selected on the basis of the chemical component with the shortest breakthrough time, since it is possible for solvents to carry active ingredients through polymeric materials.
- Employees must be able to remove the gloves in such a manner as to prevent skin contamination.

### **OTHER SELECTION FACTORS**

As long as the performance characteristics are acceptable, in certain circumstances, it may be more cost effective to regularly change cheaper gloves than to reuse more expensive types.

The work activities of the employee should be studied to determine the degree of dexterity required, the duration, frequency, and degree of exposure of the hazard, and the physical stresses that will be applied.

## **CHAPTER 11: HEARING, RESPIRATORY AND FALL PROTECTION**

Guidelines for all hearing protection, respiratory protection, and fall protection can be found in the University's Hearing Conservation Program, Respiratory Protection Program, and Fall Protection Program respectively.

# APPENDIX A: PPE HAZARD ASSESSMENT

<b>EYES/FACE</b> <input type="checkbox"/> Negligible Hazard <span style="float: right;">Can hazard be eliminated without the use of PPE? Yes <input type="checkbox"/> No <input type="checkbox"/></span>		
<b>Work-related exposure to:</b> <input type="checkbox"/> airborne dust <input type="checkbox"/> flying particles <input type="checkbox"/> hazardous liquids/chemicals <input type="checkbox"/> intense light <input type="checkbox"/> blood splashes <input type="checkbox"/> other: _____	<b>PPE required to manage hazard:</b> <input type="checkbox"/> Safety glasses <input type="checkbox"/> Safety goggles <input type="checkbox"/> Face Shield <input type="checkbox"/> Shading/Filter (# _____) <input type="checkbox"/> Welding shield <input type="checkbox"/> Other: _____	<b>Comments:</b>  
<b>HEAD</b> <input type="checkbox"/> Negligible Hazard <span style="float: right;">Can hazard be eliminated without the use of PPE? Yes <input type="checkbox"/> No <input type="checkbox"/></span>		
<b>Work-related exposure to:</b> <input type="checkbox"/> beams <input type="checkbox"/> pipes <input type="checkbox"/> falling objects <input type="checkbox"/> exposed electrical wiring or components <input type="checkbox"/> machine parts <input type="checkbox"/> other: _____	<b>PPE required to manage hazard:</b> <input type="checkbox"/> Protective Helmet <input type="checkbox"/> Type A (low voltage) <input type="checkbox"/> Type B (high voltage) <input type="checkbox"/> Type C <input type="checkbox"/> Hair net or soft cap <input type="checkbox"/> Other: _____	<b>Comments:</b>  
<b>HANDS/ARMS</b> <input type="checkbox"/> Negligible Hazard <span style="float: right;">Can hazard be eliminated without the use of PPE? Yes <input type="checkbox"/> No <input type="checkbox"/></span>		
<b>Work-related exposure to:</b> <input type="checkbox"/> hazardous liquids/chemicals <input type="checkbox"/> scrapes, bruise, or cut <input type="checkbox"/> injuries from tools <input type="checkbox"/> extreme heat/cold <input type="checkbox"/> blood (OPIM) <input type="checkbox"/> other: _____	<b>PPE required to manage hazard:</b> <input type="checkbox"/> Gloves <input type="checkbox"/> Chemical resistance <input type="checkbox"/> Temperature resistance <input type="checkbox"/> Gauntlet or long necked <input type="checkbox"/> Chemical Protective sleeves <input type="checkbox"/> Long sleeves <input type="checkbox"/> Other: _____	<b>Comments:</b>  
<b>FEET/LEGS</b> <input type="checkbox"/> Negligible Hazard <span style="float: right;">Can hazard be eliminated without the use of PPE? Yes <input type="checkbox"/> No <input type="checkbox"/></span>		
<b>Work-related exposure to:</b> <input type="checkbox"/> hazardous liquids/chemicals <input type="checkbox"/> heavy falling/rolling objects <input type="checkbox"/> heavy equipment <input type="checkbox"/> exposed electrical wiring or components <input type="checkbox"/> slippery surfaces <input type="checkbox"/> explosive atmospheres <input type="checkbox"/> tools <input type="checkbox"/> other: _____	<b>PPE required to manage hazard:</b> <input type="checkbox"/> closed shoes (e.g. no opened toes or sandals) <input type="checkbox"/> long pants <input type="checkbox"/> Safety shoes or boots <input type="checkbox"/> Toe protection <input type="checkbox"/> Electrical protection <input type="checkbox"/> Anti-slip soles <input type="checkbox"/> Leggings or chaps <input type="checkbox"/> Foot-Leg guards <input type="checkbox"/> Other: _____	<b>Comments:</b>  
<b>BODY/SKIN</b> <input type="checkbox"/> Negligible Hazard <span style="float: right;">Can hazard be eliminated without the use of PPE? Yes <input type="checkbox"/> No <input type="checkbox"/></span>		
<b>Work-related exposure to:</b> <input type="checkbox"/> hazardous liquids/chemicals <input type="checkbox"/> sharp or rough edges <input type="checkbox"/> extreme heat/cold <input type="checkbox"/> other: _____	<b>PPE required to manage hazard:</b> <input type="checkbox"/> Lab Coat <input type="checkbox"/> Coveralls, Body suit <input type="checkbox"/> Welding leathers <input type="checkbox"/> Other: _____	<b>Comments:</b>  
<b>BODY/WHOLE</b> <input type="checkbox"/> Negligible Hazard <span style="float: right;">Can hazard be eliminated without the use of PPE? Yes <input type="checkbox"/> No <input type="checkbox"/></span>		
<b>Work-related exposure to:</b> <input type="checkbox"/> working from heights of 4 feet or more <input type="checkbox"/> working near water <input type="checkbox"/> other: _____	<b>PPE required to manage hazard:</b> <input type="checkbox"/> Fall Arrest/Restraint: Type: _____ <input type="checkbox"/> PFD: Type: _____ <input type="checkbox"/> Other: _____	<b>Comments:</b>  
<b>LUNGS/EARS</b> <input type="checkbox"/> Negligible Hazard <span style="float: right;">Can hazard be eliminated without the use of PPE? Yes <input type="checkbox"/> No <input type="checkbox"/></span>		
<b>Work-related exposure to:</b> <input type="checkbox"/> irritating dust or particulate <input type="checkbox"/> irritating or toxic gas/vapor <input type="checkbox"/> loud work environment <input type="checkbox"/> noisy machines/tools <input type="checkbox"/> other: _____	<b>PPE required to manage hazard:</b> <input type="checkbox"/> Respirator (Cartridge type: _____) <input type="checkbox"/> Particulate Mask <input type="checkbox"/> Hearing Protection	<b>Comments:</b>  

## APPENDIX B: PPE REQUIREMENTS BY JOB TASK

### ASBESTOS

	Safety Glasses/Goggles	Disposable coveralls	Hearing Protection	Filtering Respirator	Work Gloves	Safety/Chemical Shoes
Work in regulated area (abatement/releases)	X	X	X	X		X
Collecting asbestos samples	X	X	X	X	X	

### CAPITAL RENEWAL

	Safety Glasses/Goggles	Hearing Protection	Hard Hat	Safety/Chemical Shoes
Work in construction areas	X	X	X	X
Monitoring roof repairs	X		X	X
Work around heavy equipment	X	X	X	X
Work in mechanical rooms	X	X	X	X
Work around running compressors and generators		X		

### FACILITIES MAINTENANCE TECHNICIANS

	Safety Glasses/Goggles	Face Shield	Disposable coveralls	Hearing Protection	Filtering Respirator	Work/Chemical Gloves	Hard Hat	Safety/Chemical Shoes
Adjusting dampers	X							X
Air venting	X							X
Bench work – shop fabrication	X				X	X		X
Filing, hacksawing, wire brushing	X				X	X		X
Drill press	X							X
Grinding	X				X			X
Cleaning/servicing cooling towers	X					X		X
Changing filters	X							X
Hoisting and rigging	X					X	X	X
Maintain water treatment distribution systems	X	X	X			X		X
Performing water chemistry tests	X	X	X			X		X
Repairing fume hood assemblies	X				X	X		X
Repairing/rebuilding pumps	X							X
Replacing/tightening fan belts	X							X
Replacing/tightening pulleys, sheaves, shafts	X							X
Servicing fan coil units	X					X		X
Servicing/cleaning condensate pans	X							X

Servicing/cleaning intake grills	X					X		X
Servicing/cleaning plenums	X					X		X
Servicing/cleaning steam generators and heat exchangers	X					X		X
Strainer flushing/replacement	X							X
Trap servicing/replacement	X							X
Working around chillers, compressors, generators	X			X				X
Winterizing coils (pumping glycol)	X					X		X

## HVAC MECHANICS AND WATER TREATMENT SPECIALISTS

	Safety Glasses/ Goggles	Face Shield	Disposable coveralls	Hearing Protection	Filtering Respirator	Work Gloves	Hard Hat	Safety/ Chemical Shoes
Acid cleaning coils	X	X	X		X	X		X
Adjusting dampers	X							X
Air venting	X							X
Benchwork – shop fabrication	X					X		X
Charging/reclaiming refrigeration units	X							X
Cleaning/servicing cooling towers	X					X		X
Electrical troubleshooting: relays, starters, limit controls	X							X
Fastening (hand) nailing, anchors, toggle bolts	X							X
Fastening (hilti)	X	X		X				X
Filing, drill pressing, using a vise	X							X
Filter changing	X							X
Hanger installation	X					X		X
Hoisting and rigging	X					X	X	X
Installation of gaskets	X							X
Maintain water treatment distribution systems	X	X	X			X		X
Performing water chemistry tests	X	X	X			X		X
Pipe cutting	X					X		X
Pipe repair or replacement (sweat)	X	X				X		X
Pipe repair or replacement (threaded)	X					X		X
Pipe sweating	X					X		X
Pipe threading (electric or hand)	X					X		X
Punching condenser tubes	X							X

Repair/replace flanged assembly	X					X		X
Repair/replace PVC pipe	X							X
Repair/replace burst coils	X					X		X
Repair exhaust fan assemblies	X					X		X
Repair fume hood assemblies	X				X	X		X
Replacing/tightening fan belts	X							X
Replacing/tightening pulleys, sheaves, shafts	X							X
Servicing fan coil units	X					X		X
Servicing/cleaning condensate pans	X							X
Servicing/cleaning plenums	X					X		X
Servicing/cleaning steam generators and heat exchangers	X					X		X
Servicing/installing window w/AC units	X					X		X
Strainer flushing/replacement	X							X
Toggle-bolting	X							X
Trap cleaning/changing	X							X
Valve repair/replacement	X					X		X
Welding and torch cutting	X					X		X

## IT AND TELECOMMUNICATIONS

	Safety Glasses/ Goggles	Hearing Protection	Work Gloves	Hard Hat	Safety/ Chemical Shoes
Working in active construction areas	X		X	X	X
Working with power tools	X	X	X		
Working overhead	X				
Confined space activities	X		X	X	
Digging trenches with mechanized equipment	X	X	X		X

## SUPPORT SERVICES

	Safety Glasses/ Goggles	Hearing Protection	Work Gloves	Hard Hat	Safety Shoes
Moving furniture and other heavy objects			X		X
Work in construction areas	X	X	X	X	X
Use of power tools	X				

## PERFORMING ARTS

	Safety Glasses/ Goggles	Face Shield	Disposable coveralls	Hearing Protection	Filtering Respirator	Work Gloves	Hard Hat	Safety/ Chemical Shoes
Working with power saws	X			X	X	X		X
Working in scene shop when power saw in use	X			X				X
Working with pneumatic tools	X			X				X
Working with power tools	X			X		X		X
Working beneath ladders and scaffolding							X	X
Applying solvent-based adhesives, paints, and thinners	X				X	X		X
Working with corrosive chemicals such as muriatic acid or sodium silicate	X	X	X					X
Moving heavy equipment and rolling scenery						X	X	X

## PUBLIC SAFETY

	Safety Glasses/ Goggles	Face Mask	Hard Hat	Hearing Protection	Nitrile Gloves	Work Gloves	Bike Helmet	Closed-Toe Shoes
Bike patrol						X	X	X
Rendering first aid	X	X			X			
Patrol on active construction sites			X	X				X
Loud special events				X				
Maintenance and repair of security systems	X		X			X		X

## SHUTTLE OPERATORS

	Safety Glasses/ Goggles
Under the hood inspections with engine running	X

## UNIVERSITY ARCHITECT

	Safety Glasses/ Goggles	Hearing Protection	Hard Hat	Safety/ Chemical Shoes
Activities on active construction site	X	X	X	X
Activities around chillers, compressors, other loud equipment		X		
Activities in mechanical rooms	X	X	X	X

## STUDENT HEALTH

	Safety Glasses/ Goggles	Disposable coveralls	Work Gloves
Giving injections			X
Collecting blood or other bodily fluids			X
Examining open wounds/body cavities	X	X	X
Cleaning blood		X	X