THE UNIVERSITY OF OKLAHOMA
PERSONAL PROTECTIVE EQUIPMENT PROGRAM

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I. INTRODUCTION

Occupational Safety and Health Administration (OSHA) standard 29 CFR 1910.132 requires employers to assess the workplace to determine whether workplace hazards are present or likely to be present. Where possible, workplace hazards should be eliminated or controlled through engineering controls (e.g., guards, ventilation) and/or administrative controls (e.g., job rotation, work practices). Where engineering and/or administrative controls cannot completely eliminate the hazard, the employer must select and have each affected employee use the types of personal protective equipment (PPE) that will protect against identified hazards. Where PPE is determined to be required, its selection and use must follow the requirements found in 29 CFR 1910.133 through 1910.138.

II. SCOPE

This program applies to the use of PPE by any employee of the University of Oklahoma (OU), except the use of respiratory protection, which is covered by the OU *Respiratory Protection Program* and hearing protection, which is covered by the OU *Hearing Conservation Program*. Information regarding employee use of hearing protection and/or respiratory protection may, however, be included in the hazard assessment and documentation process provided herein.

III. RESPONSIBILITIES

A. The Environmental Health and Safety Office (EHSO) is responsible for:

1. developing hazard assessment tools and guidance documents for departments and supervisors to assist in complying with the requirements of the regulation and this program;

2. conducting appropriate training for University of Oklahoma (OU) employees and/or supervisors; and

3. monitoring and reviewing this OU *Personal Protective Equipment Program* at least annually.

B. Supervisors are responsible for:

1. assessing job functions and activities under their direction for hazards and documenting the assessment on the *Workplace Hazard Assessment/Certification Form* found in Appendix A;

2. eliminating identified hazards where possible through engineering or administrative controls and documenting such controls;

3. where the hazard remains after implementation of engineering and administrative controls, selecting the proper PPE using the personal protective equipment selection guidance and charts in Appendix B;

4. ensuring that employees under their supervision receive information and training on how and when to use the assigned PPE;

5. completing the *Personal Protective Equipment Training Certification* (see Appendix C) for employees who are trained; and

6. ensuring that employees under their supervision properly use assigned PPE and comply with the provisions of this program.

C. Employees are responsible for:

1. being familiar with the operation and the facility to the extent necessary to recognize and report any potential hazards;

2. attending and participating in required training before wearing PPE;

3. wearing, cleaning, storing and maintaining PPE as instructed by their supervisor, manufacturer's recommendations, and/or this program; and

4. reporting hazardous and non-compliance conditions to supervisors.

IV. HAZARD ASSESSMENT

Using the *Workplace Hazard Assessment/Certification Form* to document the hazard assessment, supervisors should initially perform a walk-through survey of all work areas where employees under their direction perform work to identify hazards to which employees may potentially be exposed. Supervisors conducting hazard assessments should obtain information from affected employees and observe work practices tools, equipment, facilities and work practices to determine whether any of the hazards identified in this section are present. Potential hazards or hazardous conditions which should be identified include the following.

A. IMPACT HAZARDS

1. Working with or around sources of motion (e.g., any machinery or processes where any movement of tools, machine components or particles could exist) such as powered tools or machinery

2. Use of powered liquid sprayers, air hammers, compressed air, or working in areas with high air turbulence where particles, fragments or chips may be present

3. Potential for falling objects

B. CUTS/PENETRATION HAZARDS

1. Working with glass, wire, metal, sharp or other materials that can pierce when broken or fragmented

2. Working with or around power tools or equipment

C. PINCH/CRUSH/ROLLOVER HAZARDS

1. Working with or around moving equipment or parts

2. Working with or around rolling equipment

3. Potential for falling objects

D. THERMAL (EXTREME HEAT/COLD) HAZARDS

1. Working with or around sources of high temperatures that could result in burns, eye injury, or ignition of clothing such as ovens/furnaces, steam, etc.

2. Working with or around sources of low temperatures that could result in eye injury or frostbite such as refrigerants or cryogenic materials

3. Working in temperature extremes such as steam tunnels, freezers, extended work outdoors or indoors

E. LIGHT (OPTICAL) HAZARDS

1. Working with or around welding, brazing, torch cutting or other similar activities

2. Working with or around lasers

F. CHEMICAL CONTACT OR VAPOR HAZARDS

1. Potential for chemical or vapor exposures to the eyes

2. Potential for chemical or vapor exposures to the skin

3. Potential for chemical or vapor exposures to the remainder of the body

G. BIOLOGICAL HAZARDS

1. Working with or around animals

2. Working with human blood or microorganisms

3. Cleaning biological contamination such as mold or blood spills

H. DUST

1. Working in areas where high levels of dust may be generated

I. ELECTRICAL SHOCK HAZARDS

1. Working in areas where high voltage electrical equipment may be present

V. HAZARD RE-ASSESSMENT

A hazard re-assessment must be conducted whenever:

A. new equipment or processes are introduced to the work area, or

B. a review of occupational injury and illness records indicates an additional need for PPE.

VI. PERSONAL PROTECTIVE EQUIPMENT SELECTION AND USE

A. Where hazards are identified which may not be controlled through engineering or administrative controls, the supervisor should select and provide appropriate PPE. Guidance information and selection charts are provided in Appendix B. Careful consideration should be given to the level of protection required, fit, comfort, and compatibility of the PPE with other hazards that may be present, and care should be taken to verify that the PPE itself does not pose an additional hazard. Assistance may be obtained from the EHSO whenever needed.

B. The following minimum requirements must be met by all protective devices selected. Protectors shall:

1. provide adequate protection against the particular hazards for which they are designed;

2. be of safe design and construction for the work to be performed;

3. be reasonably comfortable when worn under the designated conditions;

4. fit snugly and not unduly interfere with the movements of the wearer;

5. be durable;

6. be capable of being disinfected;

7. be easily cleanable; and

8. be distinctly marked to facilitate identification of the manufacturer.

C. Required PPE should be provided to employees at no cost (cost to be borne by the department), available in appropriate sizes, and maintained and stored properly.

VII. HAZARD ASSESSMENT CERTIFICATION

Verification that the hazard assessment has been performed must be documented through written certification. After surveying work areas and practices, the supervisor should complete a *Workplace Hazard Assessment/Certification Form* (see Appendix A). These forms should be made available to employees and a copy should be submitted to the EHSO.

VIII. TRAINING

A. Supervisors must ensure that their employees receive information and training on how to use the assigned PPE.

B. Training and information to be provided to each PPE user includes:

1. why, when, and what PPE is necessary;

2. how to properly don, doff, adjust, and wear PPE;

3. the selection criteria and limitations of the PPE; and

4. the proper care, inspection, maintenance, useful life and disposal of the PPE.

C. Each employee must demonstrate an understanding of the information provided in training before being allowed to perform work requiring the use of PPE. Methods supervisors may use to verify demonstration of an understanding include:

1. orally questioning the employee,

2. observing the employee using the PPE in real or artificial setting, or

3. administering a written test.

D. A written certification must be completed verifying that each employee using PPE has received and understands the required training. For training provided by the supervisor, the supervisor must complete a *Personal Protective Equipment Training Certification* form (see Appendix C) and forward it to the EHSO. If a written test was administered, a copy of the test should also be forwarded to the EHSO.

E. Employees must be retrained when there have been:

1. changes in the workplace, such as new processes and equipment which render previous training obsolete,

2. changes in the types of PPE render the previous training obsolete,

3. inadequacies in an employee's knowledge or use of assigned PPE indicate that the employee has not retained the understanding or skill.

IX. RECORDKEEPING

A. Completed *Workplace Hazard Assessment/Certification Forms* should be made available to affected employees and a copy should be provided to the EHSO.

B. *Personal Protective Equipment Training Certification* forms should be provided to, and will be retained by, the EHSO for at least 3 years.

APPENDIX A

WORKPLACE HAZARD ASSESSMENT/CERTIFICATION FORM

The University of Oklahoma
Workplace Hazard Assessment/Certification Form

Instructions: *Use this form to help identify the Personal Protective Equipment required within each work location. Multiple forms may be used, as needed, to include all work areas or job functions within each Department. See Appendix B for instructions to complete the form.* ***If no apparent hazards exist, check "Other" and write "none".***

Department:	**Job Function/Describe Hazards:**
Shop:	
Work Location(s):	

Hazards Present (check all that apply or check "Other" and write **"none"** if no apparent hazards exist)	**Eng./Admin. Controls Applied** (i.e., shielding, enclosure, barrier tape/ line)	**Personal Protective Equipment Required** (if engineering/administrative controls do not eliminate the hazard, complete appropriate boxes with the specific PPE required e.g., splash goggles, face shields, nitrile gloves, hard hat, etc.)						
		Eye	**Hand**	**Head**	**Clothing**	**Foot**	**Hearing**	**Respirator**
☐ **Impact**								
☐ **Cuts/Penetration**								
☐ **Pinch/Crush/Rollover**								
☐ **Thermal (Hot/Cold)**								
☐ **Light/Optical**								
☐ **Chemical**								
☐ **Biological**								
☐ **Harmful Dust**								
☐ **Electrical**								
☐ **Noise**								
☐ **Other: _____**								

Assessment completed by: _____ Title: _____ Phone: _____

Signature: _____ Date: _____

Provide a copy to employees and a copy to EHSO: Norman - One Partners Place-Room 1800; OKC - ROB-301; Tulsa - Room 1B07

APPENDIX B

PERSONAL PROTECTIVE EQUIPMENT (PPE) SELECTION GUIDELINES AND CHARTS

PERSONAL PROTECTIVE EQUIPMENT (PPE) SELECTION GUIDELINES AND CHARTS

Note: This information only addresses the most frequently encountered hazards and recommended PPE, and therefore the information is not all inclusive. Hazards not listed may be found in your work area and special PPE could be needed. If you require assistance in conducting a hazard assessment or selecting PPE, contact EHSO.

I. EYE/FACE PROTECTION

Eye or face protection is required when potential exposure to hazards exist from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation. Eye and face protective equipment should be routinely considered for occupations such as, but not limited to, carpenters, electricians, machinists, mechanics, plumbers and pipefitters, lathe and milling machine operators, welders, landscape personnel and employees using chemicals. Care should be taken to recognize the possibility of multiple and simultaneous exposure to a variety of hazards. Adequate protection against the highest level of each hazard should be utilized. General eye and face protective equipment selection criteria includes the following.

A. All eye and face protective equipment are required to comply with ANSI Z87.1, 2003, except eye protection designed for laser operations.

B. Laser protective eyewear optical density is dependent on laser wavelength (Contact EHSO for further information).

C. Eye protection that provides side protection is required when there is a hazard from flying objects.

D. Each employee who wears prescription lenses while engaged in operations that involve eye hazards should 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 proper position of the prescription lenses or the protective lenses.

E. Eye and face PPE should be distinctly marked to facilitate identification of the manufacturer.

F. Dusty and/or chemical environments may represent an additional hazard to contact lens wearers. Wearers of contact lenses should also wear appropriate eye and face protection devices in a hazardous environment.

G. Operations involving heat may also produce light radiation. Protection from both hazards is required.

H. Protection from light radiation is directly related to spectacle filter density. Select the darkest shade that allows task performance.

I. The use of metal frame protective devices should be avoided in electrical hazard areas.

J. For most laboratory chemical use situations, safety glasses with side shields are adequate, however, other protective devices should be used in the following situations.

1. Potential splash of hazardous chemical - splash goggle with splash-proof sides.

2. Potential splash of highly corrosive material - face shield and splash goggles.

3. Explosive or highly hazardous chemicals - full-face shield with throat protection and safety glasses with side shields.

EYE AND FACE PROTECTION SELECTION CHART

SOURCE: ACTIVITY EXAMPLE	HAZARD	PROTECTION
IMPACT: Grinding, machining, masonry work, woodworking, sawing, drilling, powered fastening, riveting and sanding	Flying fragments, objects, chips and sand particles	Spectacles with side protection, impact-protection goggles, and/or face-shields
HEAT: Welding, furnace operations, pouring and casting	Hot Sparks Splash from molten metals High temperature exposure	Goggles, spectacles with side protection. For severe exposure use face-shields Face-shields worn over goggles Screen face-shields, reflective face-shields
DUST: Woodworking, buffing, cleaning with compressed air and grain and coal handling.	Dust	Goggles
LIGHT AND/OR RADIATION: Welding – Electric Arc Welding – Gas	 Optical radiation Optical radiation	 Welding helmets or shields, Typical Shades: 10-14 Welding goggles or face-shields. Typical shades: gas welding 4-8, cutting 3-6, brazing 3-4

SOURCE: ACTIVITY EXAMPLE	HAZARD	PROTECTION
CHEMICALS: Laboratory research, chemical handling and transferring, custodial, landscape activities, construction and maintenance operations. See safety data sheet for additional information regarding appropriate eye and face protection.	Potential splash of low hazard chemical	Safety glasses with side-shields
	Potential splash of hazardous chemical	Splash goggle with splash-proof sides
	Potential splash of highly corrosive material	Face shield and splash goggles
	Explosive or highly hazardous chemical	Full-face shield with throat protection and safety glasses with side shields
	Vapor or gas exposures	Non-ventilated goggles
INFECTIOUS AGENTS	Potential splash or aerosol	Safety glasses and surgical mask or N-95 respirator

II. FOOT PROTECTION

Protective footwear is required when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, or where such employee's feet are exposed to electrical hazards. Foot protective equipment should be routinely considered for occupations such as, but not limited to carpenters, electricians, machinists, mechanics, plumbers and pipefitters, dry wallers, welders, landscape personnel, shipping and receiving clerks, warehouse workers, and employees using chemicals.

FOOT PROTECTION SELECTION CHART

SOURCE: ACTIVITY EXAMPLE	HAZARD	PROTECTION
IMPACT: Routinely carrying or handling materials such as packages, parts, or heavy tools.	Falling objects	Safety shoes or boots complying with ANSI Z41-1999
COMPRESSION: Manual and powered material handling equipment, bulk rolls and heavy tools	Rolling or pinching equipment and objects	Safety shoes or boots complying with ANSI Z41-1999
PUNCTURE: Construction and demolition activities	Stepping on nails, tacks, screws, large staples, scrap metal or broken glass	Safety shoes or boots with puncture resistant soles

SOURCE: ACTIVITY EXAMPLE	HAZARD	PROTECTION
ELECTRICAL: Construction and maintenance of electrical equipment/service	Electrical shock and electrocution	Electrical insulating safety shoes
CHEMICAL: Laboratory research, chemical handling and transferring, custodial, construction and maintenance operations	Splash – skin burns and absorption toxicity	For small quantities of chemicals, at a minimum, no sandals, open-toed, or perforated shoes should be worn. Choose sturdy shoes that cover the foot. Avoid fabric or mesh shoes which can absorb liquids readily. For large quantities of chemicals, use impervious rubber boot or bootie covering the shoe, and pant leg or lab coat should pass over top of boot/shoe to prevent chemical from entering.

III. HEAD PROTECTION

Protective helmets should be worn when working in areas where there is a potential for injury to the head from falling objects. When work is performed where exposed electrical conductors could contact the head, a protective helmet designed to reduce electrical shock hazard should be worn. When hair may become entangled in moving equipment or contact chemicals, where pulling the hair back does not completely remove the hazard, protective caps should be worn. Head protective equipment should be routinely considered for occupations such as, but not limited to, carpenters, electricians, machinists, mechanics, plumbers and pipefitters, dry wallers, welders, grounds-keepers, shipping and receiving clerks and warehouse workers. When worn, protective helmets are required to comply with ANSI Z89.1–2003. Head protective equipment selection criteria includes the following.

HEAD PROTECTION SELECTION CHART

SOURCE: ACTIVITY EXAMPLE	HAZARD	PROTECTION
IMPACT/PENETRATION: Construction, repair, demolition and tree trimming	Overhead hazards, falling objects.	Type I, II Protective Helmet

SOURCE: ACTIVITY EXAMPLE	HAZARD	PROTECTION
ELECTRICAL: Electrical utility installation and repair	Electrical shock and electrocution - up to 2,200 volts Electrical shock and electrocution - up to 20,000 volts	Class G Protective Helmets - impact/penetration protection and proof tested to 2,200 volts Class E Protective Helmets - impact/penetration protection and proof tested to 20,000 volts
ENTANGLEMENT: Rotating machinery	Hair becoming entangled in moving parts	Caps or other protective hair coverings

IV. HAND PROTECTION

Hand protection is required when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes. There is no single glove that provides protection against all potential hand hazards; therefore, it is important to select the most appropriate glove for a particular application, to determine how often and long it can be worn, and whether it can be reused. Work activities should be evaluated to determine the degree of dexterity required, the duration, frequency, and degree of exposure, and the physical stresses that will be applied. Physical and chemical hand protection equipment selection criteria include the following.

A. For chemicals, read the label, SDS, or literature provided by glove manufacturer including compatibility and breakthrough time to choose the proper glove. For mixtures and formulated products (unless specific test data are available), gloves should be selected on the basis of the component that will breakthrough the glove material in the shortest time. In general, for concentrated acids and alkalis or organic solvents, natural rubber, neoprene, or nitrile gloves are recommended.

B. For handling hot objects, gloves made of heat-resistant materials should be available and kept near the vicinity of ovens or muffle furnaces. Hot objects should never be picked up with rubber, plastic, or asbestos gloves.

C. For handling very cold objects such as liquid nitrogen (N_2) or carbon dioxide (CO_2), special insulated gloves should be worn. These gloves should fit loosely and be able to be slipped off easily in the event the liquid contacts the glove material.

D. For handling infectious or potentially infectious materials, nitrile or powder-free latex gloves which have been certified as a Class I medical device should be used.

E. When handling animals where the potential for a bite exists, wear leather or other puncture-resistant gloves.

F. For protection against high voltage electrical hazards, rubber insulating gloves should be used which meet the American Society for Testing and Materials (ASTM D 120-09), "Specification for Rubber Insulating Gloves". These gloves should either be subject to electrical testing every 6 months or disposed after 6 months and replaced with new.

HAND PROTECTION SELECTION CHART

SOURCE: ACTIVITY EXAMPLE	HAZARD	PROTECTION
SHARP TOOLS/MATERIALS: Cutting, dissecting, dicing, butchering, handling sharp or ragged objects.	Lacerations from blades, knives, glass, sheet metal; splinters from rough lumber; severe abrasions	Leather, wire mesh, or stitch gloves, cut resistant rubber gloves
THERMAL HEAT: Cooking, welding, soldering, brazing, foundry work, steam line/furnace repair, autoclaves	Thermal heat/burns	Leather gloves, flame-retardant gauntlet gloves, chemical treated cloth gloves
EXTREME COLD: Handling cold materials, cryogenic research	Frostbite	Loose fitting impermeable or impervious non-insulated gloves
ELECTRICAL: Electrical utility installation and repair	Electrical shock and electrocution	Rubber insulated voltage rated gloves, other gloves rated for electrical work
CHEMICAL: Laboratory research, chemical handling and transferring, custodial, construction and maintenance operations	Chemical hazard	Gloves composed of chemically resistant material - refer to safety data sheet, manufacturer glove selection Chart or contact EHSO
BIOLOGICAL: Contact with infectious materials in healthcare, emergency response, housekeeping, or animal handling	Infectious agents	Nitrile or powder-free latex gloves which have been certified as a Class I medical device
PUNCTURE: Handling sharp objects or animals	Infectious agents or animal bites	Leather or puncture-resistant gloves

APPENDIX C

PERSONAL PROTECTIVE EQUIPMENT TRAINING CERTIFICATION FORM

PERSONAL PROTECTIVE EQUIPMENT TRAINING CERTIFICATION

Employee(s) Name:

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The employees listed have been assigned and trained to use the following personal protective equipment when working in areas and/or performing tasks identified below:

Area/Task	PPE Required - √ Applicable Boxes	PPE Selected
	☐ Eye/Face Protection ☐ Head Protection ☐ Foot Protection ☐ Hand Protection ☐ Hearing Protection ☐ Respiratory Protection ☐ Other: _____	

Area/Task	PPE Required - √ Applicable Boxes	PPE Selected
	☐ Eye/Face Protection ☐ Head Protection ☐ Foot Protection ☐ Hand Protection ☐ Hearing Protection ☐ Respiratory Protection ☐ Other: _____	

The employees listed have received and understood the training on the PPE listed above. This training included the areas, tasks and hazards requiring PPE; how to properly put on, wear and take off the PPE; PPE selection criteria, and the proper care, inspection, maintenance, useful life and disposal of the PPE.

Supervisor: Date(s) of Training: