

PERSONAL PROTECTIVE EQUIPMENT PROGRAM

UNIVERSITY OF NEBRASKA AT OMAHA

Introduction

- 1.01 Personal protective equipment (PPE) includes all types of equipment used to increase individual safety while performing potentially hazardous tasks. This may include safety glasses, hard hats, foot protection, gloves, ear plugs or ear muffs, disposable coveralls, respirators, or any equipment used to protect against injury or illness.
- 1.02 The Nebraska Department of Labor (NDOL) requires PPE to be provided, used and maintained in a sanitary and reliable condition wherever hazards of processes or environment, chemical hazards, radiological hazards, or mechanical hazards are encountered in a manner capable of causing injury or illness through absorption, inhalation or physical contact. NDOL enforces Occupational Safety and Health Administration (OSHA) standards at public and private institutions. This program helps meet the requirements of the OSHA standard 29 CFR 1910.132. A copy of this standard is available from Environmental Health and Safety (EHS) or on the EHS website.

Program Description

- 2.01 Engineering controls that eliminate the hazards at the source and do not rely on employee's behavior for effectiveness offer the best and most reliable means of protection. Therefore, engineering controls are the first choice for eliminating workplace hazards. Whenever engineering controls are not feasible or are not fully capable of providing protection, employees must wear personal protective equipment.

Hazard Assessment and Equipment Selection

- 2.02 Departments will assess their workplace environment to identify hazards requiring the use of PPE. PPE should be selected to provide protection against the hazards identified during the assessment. The hazard assessment must be certified in writing (See Appendix A). Assistance in performing PPE hazard assessment is available through EHS. EHS will review and approve all PPE hazard assessments for accuracy and uniformity prior to implementation. Copies of the hazard assessments will be sent to EHS.

Head Protection

- 2.03 A protective helmet (hard hat) will be worn when working in areas where there is the potential for injury from falling objects, contact with a fixed object, or exposed energized electrical conductors that could contact the head.

Eye and Face Protection

- 2.04 Appropriate eye and face protection, such as safety glasses, goggles, and face shields, will be used to protect against the hazards associated with flying particles, molten metal, liquid chemicals, biohazards, acids and caustic liquids, chemical gases and vapors, or light radiation.

Hand Protection

- 2.05 Hand protection will be worn to protect against the hazards of skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, biohazards, or hot and cold temperature extremes.

Foot Protection

- 2.06 Protective footwear must be worn where there is the potential for foot injuries from falling or rolling objects, from objects piercing the sole, or from exposed energized electrical conductors that could contact the feet.

Hearing Conservation

- 2.07 Continued exposure to noise of sufficient intensity can result in permanent hearing impairment. If an individual must shout to communicate with another close by because of noise, it is likely that the level of this noise is of a sufficient amplitude to cause a temporary or permanent hearing loss(threshold shift). For exposures of 85 dBA or greater, controls must be instituted to lower the noise levels to below 85 dBA TWA for an eight-hour day. If controls cannot be instituted to accomplish this reduction, hearing protection must be worn which will reduce the exposures to an acceptable level until the noise can be reduced. Environmental Health and Safety can provide a noise level assessment, calculate eight-hour exposure levels and make recommendations upon request.

Respiratory Protection

- 2.08 Respiratory Protection may be used to protect against inhalation hazards when engineering and administrative controls are not feasible or adequate. See the Respiratory Protection Program for further information.

Full Body Protection

- 2.09 There may be occasions when full body coverage is required. Disposable coveralls and “booties” (shoe covers) along with respirators and gloves may be required to prevent contamination of clothing and exposed body parts. Cleaning up animal or human waste from sewer backups or changing air filters on large HVAC systems are tasks where disposable clothing may be required. These hazards and recommended PPE can be listed in Appendix A under “Other Safety and Health Hazards”.

Training

- 3.01 Each department will have department-selected personnel attend training provided by EHS in hazard assessment, PPE selection, and implementation of the PPE Program. The department is responsible for seeing that employees receive training in a timely manner.
- 3.02 Each employee required to use PPE will receive training in the following:
- How to obtain approved PPE.
 - How to properly wear PPE.
 - What types of PPE provide protection against the hazards identified during the assessment.
 - Limitations of PPE.
 - When PPE must be used, and the proper care and useful life of PPE.
 - Proper handling of damaged PPE.

Training records will be maintained by EHS.

- 3.03 Determining Employee Understanding
Each employee must demonstrate an understanding of the training elements before being allowed to perform work requiring the use of personal protective equipment.
Acceptable methods of determining employee understanding include:
- Orally questioning the employee.
 - Observing the employee using the personal protective equipment in an artificial/real setting.
 - Administering a written test
- 3.04 Retraining
An employee must be retrained when there has been:
- A change in the workplace, such as new equipment or processes, which render the previous training obsolete.
 - A change in the type of personal protective equipment being used, requiring additional training.

- The written test or oral questioning indicates inadequate employee knowledge.
- The use of assigned personal protective equipment indicates the employee has not retained understanding or skill.

Roles and Responsibilities

4.01 Departmental Chair/Manager

- Select departmental personnel to attend EHS training on the PPE Program.
- Ensure trained personnel complete workplace hazard assessment by the timeline agreed to with EHS.
- Forward copies of hazard assessment documentation to EHS.
- Select PPE appropriate to the hazards identified during the assessment.
(PPE selections will be purchased by the department. EHS will provide assistance with vendor/PPE selection.)
- Monitor PPE use by departmental personnel.
- Establish department procedure for replacing worn or damaged PPE.
- Reassess the workplace hazard situation as necessary, by identifying and evaluating new equipment and processes, reviewing accident records, and reevaluating the suitability of previously selected PPE.

4.02 Supervisors

- Ensure employees understand training on PPE.
- Ensure employees use PPE when required.

4.03 EHS

- Approve all PPE used on Campus.
- Provide training to selected departmental personnel in hazard assessment, PPE selection and implementation of the PPE Program.
- Provide assistance in conducting workplace hazard assessment.
- Review and approve all departmental hazards assessments.
- Provide assistance and recommendations in PPE selection.
- Conduct audits of PPE Program.
- Maintain training files.

4.04 Individual Employees

- Attend training.
- Use PPE when necessary.
- Direct questions concerning the PPE Program to their supervisor.

Replacement of PPE

5.03 University provided items damaged or worn out in the performance of duties may be repaired or replaced by the University.

5.04 University provided items lost or damaged due to employee negligence may be replaced at the employee's expense. (Department discretion)

Appendix A

Hazard Assessment Certification Form

Date:	Dept:
Assessment Conducted By: (print)	
Specific Tasks Performed:	

Hazard Assessment and Selection of Personal Protective Equipment

I. Overhead Hazards-

Hazards to consider include:

- Suspended loads that could fall
- Overhead beams or loads that could be struck
- Energized wires or equipment that could be contacted
- Employees work at elevated site who could drop objects on others below
- Sharp objects or corners at head level

Hazards Identified:

Head Protection

Hard Hat:	Yes	No
If yes, type:		
<ul style="list-style-type: none">○ Type A (impact and penetration resistant, plus low-voltage electrical insulation)○ Type B (impact and penetration resistant, plus high-voltage electrical insulation)○ Type C (impact and penetration resistant)		

II. Eye and Face Hazards –

Date:	Dept:
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Hazards to consider include:

- Chemical splashes
- Dust
- Smoke and fumes
- Welding operations (See Welding Hazard)
- Lasers/optical radiation
- Bio-aerosols, biohazards
- Projectiles

Hazards Identified:

Eye Protection

Safety glasses or goggles	Yes	No
Face Shield	Yes	No
Welding Helmet (If yes, see Welding Hazard)	Yes	No

III. Hand Hazards -

Hazards to consider include:

- Chemicals, biohazards
- Sharp edges, splinters, etc.
- Temperature extremes
- Biological agents
- Exposed electrical wires
- Sharp tools, machine parts, etc.
- Material Handling

Hazards Identified:

Hand Protection

Gloves	Yes	No
○ Chemical resistant	Yes <input type="checkbox"/>	No <input type="checkbox"/>
○ Temperature resistant	Yes <input type="checkbox"/>	No <input type="checkbox"/>
○ Abrasion resistant	Yes <input type="checkbox"/>	No <input type="checkbox"/>
○ Other (Explain)		

IV. Foot Hazards-

Date:	Dept:
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Hazards to consider include:

- Heavy materials handled by employees
- Sharp edges or points (puncture risk)
- Exposed electrical wires
- Unusually slippery conditions
- Wet conditions
- Construction/demolition

Hazards Identified

Foot Protection

Safety shoes	Yes	No
Types:		
○ Toe Protection	Yes <input type="checkbox"/>	No <input type="checkbox"/>
○ Metatarsal protection	Yes <input type="checkbox"/>	No <input type="checkbox"/>
○ Puncture resistant	Yes <input type="checkbox"/>	No <input type="checkbox"/>
○ Electrical insulation	Yes <input type="checkbox"/>	No <input type="checkbox"/>
○ Other (Explain)		

V. Noise Hazards-

Hazards to consider include:

- Machining
- Grinding
- Sanding
- Pneumatic equipment
- Generators
- Ventilation fans, motors
- Landscape equipment: mowers, weed eaters

Hazards Identified:

Hearing Conservation

Recommended Hearing Protection	Yes	No
Types:		
○ Disposable earplugs	Yes <input type="checkbox"/>	No <input type="checkbox"/>
○ Earmuffs	Yes <input type="checkbox"/>	No <input type="checkbox"/>
○ Combination earmuffs ○ And disposable earplugs	Yes <input type="checkbox"/>	No <input type="checkbox"/>
○ Combination earmuff/hardhat	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Any employee having particular needs or experiencing difficulty with wearing hearing protection should discuss the matter with their supervisor.

VI. Welding Hazards-

The intensity of visible light and radiant energy produced by welding operations varies depending on the task, the electrode size, and the arc current. Employees involved in welding, cutting, and brazing operations must use appropriate welding protection depending on specific welding operations.

General Work Practices

This following list of work practices is not an exhaustive list. It contains a few basic guidelines to be followed while conducting welding operations.

- Employee will wear protective clothing.
- Employee will use welding helmets. Hand held screens shall be prohibited during welding.
- Employee will not conduct welding on materials that may produce toxic or combustion products.
- Employee will follow all fire precautions.
- Whenever possible, the material being worked on should be positioned to minimize worker exposure to molten metal, sparks and fumes.
- Minimize emissions by using the lowest acceptable amperage.

Clothing

Shirts with sleeves and pants of sufficient length to protect the arms and legs from heat, ultraviolet radiation and sparks. Denim, wool or cotton materials are the preferred type for clothing. Synthetics are not acceptable.

- Fire-resistant aprons, coveralls and leggings or high boots.
- Fire-resistant shoulder covers (e.g. capes), head covers (e.g. skull caps), and ear covers for workers doing overhead work.

Eye and Face Protection

Welding Helmets

Welding Helmets with approved UV radiation filter plates or safety spectacles with side-shields or goggles for all workers exposed to arc welding or cutting processes. EHS can provide a chart detailing the appropriate choice of filter plates.

Goggles or similar eye protectors with filter lenses for workers exposed to oxyfuel gas welding, brazing or cutting.

Goggles or similar eye protectors with transparent lenses will be used for employees exposed to resistance welding or to mechanical cleaning or chipping operations.

Eye and face protectors shall be maintained and periodically inspected. Any piece of equipment found to be defective will be either repaired using replacement parts approved by the manufacturer or disposed of and replaced with an approved replacement.

Respiratory Protection

Engineering controls and good work practices are the preferred method for controlling exposure of the worker to airborne contaminants. However, should a situation arise such that these methods will not prevent the worker from being potentially exposed to harmful levels of air contaminants, respiratory protection shall be used by the worker.

Hearing Protection

Normally welding operations are not associated with noise level problems with two exceptions: Plasma arc welding and air carbon arc cutting. If either of these two operations are to be performed then hearing protectors must be worn. There may be other occasions which would require hearing protection to be worn, such as chipping and grinding.

Hazards Identified:

Recommended Protection:

Date:	Dept:
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VII. Other Identified Safety and/or Health Hazards-

Hazards Identified:

Recommended Protection:

I certify that the above inspection was performed to the best of my knowledge and ability, based on the hazards present on _____.

(Signature) Title, Department

Reviewed and approved by Environmental Health and Safety, UNO. _____ (Date)

_____ (EHS Staff Signature)

Appendix B

Filter Lenses for Protection Against Radiant Energy – OSHA 1910.133 Eye and Face Protection Chart

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 Arc cutting	(Light)	Less than 500	10
	(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

Filter Lenses for Protection Against Radiant Energy

Operations	Plate thickness-inches	Plate thickness-mm	Minimum(*) Protective Shade
Gas Welding:			
Light	Under 1/8	Under 3.2	4
Medium	1/8 to 1/2	3.2 to 12.7	5
Heavy	Over 1/2	Over 12.7	6

Oxygen cutting:

Light	Under 1	Under 25	3
Medium	1 to 6	25 to 150	4
Heavy	Over 6	Over 150	5

Footnote(*)

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 oxyfuel 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.

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