



IWU MAINTENANCE DEPARTMENT SAFETY PROGRAM

Revision: 1

SAFETY-RELATED PPE PLAN

Section: 5

STANDARDS

Personal Protective Equipment (PPE), Title 29 Code of Federal Regulations (CFR) Part 1910 Sections 95, 130-138

1.0 INTRODUCTION

- 1.1 Hazards exist in every workplace in many different forms: sharp edges, falling objects, flying sparks, chemicals, noise and a myriad of other potentially dangerous situations. Controlling a hazard at its source is the best way to protect employees. PPE is equipment worn to minimize exposure to a variety of hazards.
- 1.2 This program will outline IWU requirements for the following:
 - 1.2.1 Understand the types of PPE.
 - 1.2.2 know the basics of conducting a “hazard assessment” of the workplace.
 - 1.2.3 Select appropriate PPE for a variety of circumstances.
 - 1.2.4 Understand what kind of training is needed in the proper use and care of PPE.

2.0 TRAINING

- 2.1 Employees must be trained to know at least the following:
 - 2.1.1 When PPE is necessary;
 - 2.1.2 What PPE is necessary;
 - 2.1.3 How to properly put on, take off, adjust and wear the PPE;
 - 2.1.4 The limitations of the PPE;
 - 2.1.5 Proper care, maintenance, useful life and disposal of PPE;
 - 2.1.6 Additional requirements when sharing PPE.
- 2.2 Each employee must **demonstrate** an understanding of the PPE training as well as the ability to properly wear and use PPE **before** they are allowed to perform work requiring the use of PPE. If a previously trained employee does not demonstrate the proper understanding and skill level in the use of PPE, that employee will receive **retraining**. Other situations that require additional or retraining of employees include changes in the workplace or in the type of required PPE that make prior training obsolete.



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2.3 IWU will **document** the training of each employee required to wear or use PPE by preparing a certification containing the name of each employee trained, the date of training and a clear identification of the subject of the certification.

3.0 SHARING PPE

3.1 IWU may choose to provide one pair of protective eyewear for each position rather than individual eyewear for each employee. If this is done, employees will disinfect shared protective eyewear after each use. Protective eyewear with corrective lenses may only be used by the employee for whom the corrective prescription was issued and may not be shared.

4.0 EYE AND FACE PROTECTION

4.1 Employees can be exposed to a large number of hazards that pose danger to their eyes and face. OSHA requires that employees have appropriate eye or face protection if they are exposed to front and/or side impact hazards from:

- 4.1.1** Flying objects and particles;
- 4.1.2** Molten metal;
- 4.1.3** Liquid chemicals;
- 4.1.4** Acids or caustic liquids;
- 4.1.5** Chemical gases or vapors;
- 4.1.6** Potentially infected material;
- 4.1.7** Glare;
- 4.1.8** Injurious radiation;
- 4.1.9** Electrical flash.

4.2 Selection

4.2.1 Selecting the most suitable eye and face protection will take into consideration the following elements:

- 4.2.1.1** Ability to **protect** against specific workplace hazards;
- 4.2.1.2** Should **fit** properly and be reasonably comfortable to wear;
- 4.2.1.3** Should provide **unrestricted** vision and movement;
- 4.2.1.4** Should be **durable** and **cleanable**;



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4.2.1.5 Should **allow** unrestricted functioning of any other required PPE.

4.2.2 The eye and face protection selected for employee use must clearly identify the manufacturer. Any new eye and face protective devices must comply with ANSI Z87.1-1989 or be at least as effective as this standard requires.

4.3 Welding Operations

4.3.1 The intense light associated with welding operations can cause serious and sometimes permanent eye damage if operators do not wear proper eye protection. The intensity of light or radiant energy produced by welding, cutting or brazing operations varies according to a number of factors including the task producing the light, the electrode size and arc current. OSHA Part 33, Table 2 (at the end of this document) shows the minimum protective shades for a variety of welding, cutting and brazing operations in general industry.

4.4 Lenses

Lenses intended for use in eye protectors are of 4 basic types.

4.4.1 Clear lenses that are impact-resisting and provide protection against flying objects. The use of tinted lenses for cosmetic purposes is not acceptable. Clear lenses must transmit not less than 89% of visible radiation. To wear a tinted lens that transmits less than 89%, a medical statement should be provided.

4.4.2 Absorptive lenses of shades 1.7 through 3.0 which are impact-resisting and provide protection against flying objects and glare or which are impact-resisting and provide protection against flying objects, and narrowband spectral transmittance of injurious radiation. Shaded lenses greater than 3.0 should be worn when employees are exposed to injurious radiation as defined in the employer's hazard assessment and Table 2 of Part 33. Personal Protective Equipment.



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4.4.3 Protective-corrective lenses which are impact resisting and either clear or absorptive, as specified for persons requiring visual correction.

4.4.4 Filter lenses that are impact resisting and provide protection against flying objects and narrow-band spectral transmittance of injurious radiation.

5.0 HEAD PROTECTION

5.1 A head injury can impair an employee for life or can be fatal. Protecting employees from potential head injuries by wearing a safety helmet or hardhat is one of the easiest ways to protect an employee's head from injury.

5.2 Employees must wear head protection if they are exposed to any of the following:

- 5.2.1** Falling or flying objects;
- 5.2.2** Other harmful contacts or exposures;
- 5.2.3** Risk of injury from electrical shock;
- 5.2.4** Chemicals;
- 5.2.5** Temperature extremes;
- 5.2.6** Hair entanglement.

5.3 Types of Hard Hats:

- 5.3.1** Class A hard hats provide impact and penetration resistance along with limited voltage protection (up to 2,200 volts).
- 5.3.2** Class B hard hats provide the highest level of protection against electrical hazards, with high-voltage shock and burn protection (up to 20,000 volts). They also provide protection from impact and penetration hazards by flying/falling objects.
- 5.3.3** Class D protective hats provide limited voltage protection (fire fighters service helmets with full brim.)
- 5.3.4** A **Class C** helmet or any metallic head device shall **not** be used by an employee for head protection, except where chemicals would deteriorate other types of protective or safety hats or caps.

5.4 Cleaning and Inspection of Head Protection



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- 5.4.1 **Inspect** daily – shell, suspension headgear, accessories for holes, cracks, tears, anything that compromises the protective value of the hat
- 5.4.2 **Consult** manufacturer for proper cleaning procedures
- 5.4.3 **Store** away from direct sunlight
- 5.4.4 **Never** drill holes, paint, or apply labels, may **reduce** integrity of protection.
- 5.4.5 **Remove and replace** if visible perforations, cracking or deformity of brim or shell. Loss of surface gloss, chalking or flaking.
- 5.4.6 **Remove** if it sustains an impact, even if damage is not noticeable.

6.0 FOOT PROTECTION

- 6.1 Employees who face possible foot or leg injuries from falling or rolling objects or from crushing or penetrating materials should wear protective footwear. Also, employees whose work involves exposure to hot substances, corrosive, or poisonous materials must have protective gear to cover exposed body parts, including legs and feet.
- 6.2 Examples of situations in which an employee should wear foot protection include:
 - 6.2.1 When heavy objects such as barrels or tools might roll onto or fall on the employee's feet;
 - 6.2.2 Working with sharp objects such as nails or spikes that could pierce the soles or uppers of ordinary shoes;
 - 6.2.3 Working on or around hot, wet or slippery surfaces; and
 - 6.2.4 Working when electrical hazards are present.
- 6.3 Foot protection includes the following:
 - 6.3.1 **Safety shoes** have impact-resistant toes and non-skid soles
 - 6.3.2 **Leather work shoes** are adequate for most situations and provide adequate arc protection

7.0 HAND AND PROTECTION

- 7.1 Where potential injury to hands exists, employees shall wear appropriate protection. Potential hazards include:



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- 7.1.1 Skin absorption of harmful substances (look for 'skin' warning on SDS);
- 7.1.2 Chemical or thermal burns;
- 7.1.3 Electrical dangers; and
- 7.1.4 Bruises, abrasions, cuts, puncture.

7.2 Types of Protective Gloves

There are many types of gloves available today to protect against a wide variety of hazards. Following are examples of some factors that may influence the selection of protective gloves in our Department:

- 7.2.1 Types of chemicals handled;
- 7.2.2 Nature of contact (total immersion, splash, etc.);
- 7.2.3 Duration of contact;
- 7.2.4 Area requiring protection (hand only, forearm, arm);
- 7.2.5 Grip requirements (dry, wet, oily);
- 7.2.6 Thermal protection;
- 7.2.7 Size and comfort;
- 7.2.8 Abrasion/resistance requirements.

7.3 Gloves made from a wide variety of materials are designed for many types of workplace hazards. In general, gloves fall into four groups:

- 7.3.1 Gloves made of leather, canvas, or metal mesh;
- 7.3.2 Fabric and coated fabric gloves;
- 7.3.3 Chemical--and liquid--resistant gloves;
- 7.3.4 Insulating rubber gloves.

7.4 Care of Protective Gloves

- 7.4.1 Inspect before each use (tears, punctures, anything making gloves ineffective, discoloration, stiffness);
- 7.4.2 Discard if protective ability is impaired.

8.0 HEARING PROTECTION

8.1 IWU shall ensure that no employee is subjected to noise that produces sound levels in excess of those established by the Occupational Safety and Health Administration (OSHA) without approved hearing protection.

8.2 Authority and Responsibility



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8.2.1 The Supervisor shall be responsible for:

- 8.2.1.1 Contacting the Director regarding any potential overexposures;
- 8.2.1.2 Implementing engineering and/or administrative controls as deemed necessary;
- 8.2.1.3 Arranging audiometric evaluations for employees;
- 8.2.1.4 Maintaining all audiometric test records;
- 8.2.1.5 Providing hearing protection to employees; and
- 8.2.1.6 Supervising and ensuring the correct use of hearing protection devices.
- 8.2.1.7 Conducting all personal and/or area noise monitoring;
- 8.2.1.8 Notifying all employees exposed at or above an 8-hour time weighted average (TWA) of 85 decibels (dB) of the monitoring results;
- 8.2.1.9 Ensuring proper initial fitting of all hearing protection devices;
- 8.2.1.10 Conducting annual training for employees
- 8.2.1.11 Maintaining all exposure measurement records.

8.2.2 Employees shall be responsible for:

- 8.2.2.1 Using hearing protection as required;
- 8.2.2.2 Participating in annual training;
- 8.2.2.3 Inspecting and maintaining hearing protection devices; and
- 8.2.2.4 Seeking replacement or repair of hearing protection devices when necessary.

8.3 Sound Surveys and Exposure Monitoring

- 8.3.1 Employee and/or area monitoring shall be performed when exposure is suspect of being at or above the action level of an 8-hour TWA of 85 dB.
- 8.3.2 Factors which suggest that noise exposures in the workplace may be at or above 85 dB include employee complaints about the loudness of noise, indications that employees are



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losing their hearing or noisy conditions which make normal conversation difficult.

- 8.3.3** All continuous, intermittent and impulsive/impact sound levels from 80 dB to 130 dB shall be incorporated into the noise measurement survey
- 8.3.4** The degree of noise reduction required shall be determined by comparing the measured levels with acceptable noise levels as presented in Table 1
- 8.3.5** Monitoring shall be repeated whenever a change in processes, production, equipment or controls increases noise exposure to the extent that additional employees may be exposed at or above the action level or the attenuation provided by hearing protection devices being used by employees may be rendered inadequate.
- 8.3.6** Affected employees shall be provided an opportunity to observe any noise measurements.

Table 1: Permissible Noise Exposures

<u>Duration (hours)</u>	<u>Sound Level dBA (Slow Response)</u>
8	90
6	92
4	95
3	97
2	100
1-1/2	102
1	105
1/2	110
1/4 OR LESS	115

Note: Exposures to impulsive/impact noise shall not exceed 140 dB peak sound pressure level.

8.4 Control Measures

- 8.4.1** When employees are subjected to sound exceeding those levels listed in Table 1, feasible engineering and



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administrative controls shall be utilized as the first step in noise control. If these controls fail to reduce sound to acceptable levels, hearing protection devices shall be used. During the implementation of administrative and/or engineering controls, affected employees shall be provided with hearing protection devices and trained in accordance with this program.

- 8.4.2** Administrative Controls: Administrative controls normally involve a change in work schedules or operations that reduce noise exposures. Examples include operating a noisy machine on the second or third shift when fewer people are exposed or shifting an employee to a less noisy job once a hazardous daily noise dose has been reached.
- 8.4.3** Engineering Controls: Engineering controls shall be used when any modification or replacement of equipment, or related physical change at the noise source or along the transmission path can be altered which reduces the noise level to the employee's ear.
- 8.4.4** Typical engineering controls may involve the following:
 - 8.4.4.1** Reducing noise at the source;
 - 8.4.4.2** Interrupting the noise path;
 - 8.4.4.3** Reducing reverberation;
 - 8.4.4.4** Reducing structure-borne vibration;
 - 8.4.4.5** Employee/equipment isolation; and
 - 8.4.4.6** Equipment/process substitution.
 - 8.4.4.7** Hearing Protection Devices
- 8.4.5** Hearing protection devices shall be made available to all employees exposed to an 8-hour TWA of 85 dB or greater at no cost to the employees. Hearing protection devices shall be replaced as necessary.
- 8.4.6** Hearing protection devices shall be worn by employees required to wear personal protective equipment and by any employee who is exposed to an 8-hour TWA of 85 dB or greater, and who has not yet had a baseline audiogram or has experienced a standard threshold shift.

8.5 Audiometric Evaluations



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8.5.1 Audiometric evaluations shall be made available at no cost to all Maintenance employees whose exposure equals or exceeds an 8-hour TWA of 85 dB.

8.5.2 Baseline Audiograms

8.5.2.1 Baseline audiograms shall be performed within six months of an employee's first measured exposure at or above the action level to compare subsequent audiograms.

8.5.2.2 Exception: Where mobile test vans are used to meet the audiometric testing obligation, the employer shall obtain a valid baseline audiogram within one year of an employee's first exposure at or above the action level. Where baseline audiograms are obtained more than six months after the employee's first exposure at or above the action level, employees shall wear hearing protection devices for any period exceeding six months after first exposure until the baseline audiogram is obtained.

8.5.2.3 Prior to the audiogram, employees shall be informed to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination.

8.5.3 Annual Audiograms

8.5.3.1 Audiograms shall be performed at least annually after obtaining the baseline audiogram for each employee exposed at or above the 8-hour TWA of 85 dB. Each employee's annual audiogram shall be compared to his/her baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If the annual audiogram shows that an employee has suffered a standard threshold shift, the employee may obtain a retest within 30 days and the retest results may be considered the annual audiogram. If a comparison of the annual audiogram to the baseline indicates a standard threshold shift, the employee shall be informed of this in writing within 21 days of the determination.



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8.5.3.2 All audiometric tests and equipment calibration shall be performed in accordance with the criteria established by "OSHA's Occupational Noise Exposure" Standard 29 CFR 1910.95.

8.6 Information and Training

8.6.1 Employees who are exposed to noise at or above an 8-hour TWA of 85 dB shall receive training on the following:

- 8.6.1.1** Effects of noise on hearing;
- 8.6.1.2** Purpose of hearing protection devices;
- 8.6.1.3** Advantages and disadvantages of hearing protection devices;
- 8.6.1.4** Attenuation of various types of hearing protection devices;
- 8.6.1.5** Instructions on selection, fitting, use and care of hearing protection devices; and
- 8.6.1.6** The purpose of audiometric testing including an explanation of the test procedure.

8.6.2 Copies of OSHA's "Occupational Noise Exposure" Standard 29 CFR 1910.95 are available upon request by contacting your Supervisor.

8.7 Recordkeeping

8.7.1 Exposure Measurements: The Managers shall maintain an accurate record of all employee exposure measurements for a period of two years.

8.7.2 Audiometric Tests: Records of all employee audiometric tests shall be retained for the duration of the affected employee's employment and thirty years from the date of termination. These records shall include:

- 8.7.2.1** Name and job classification of the employee;
- 8.7.2.2** Date of the audiogram;
- 8.7.2.3** The examiner's name;
- 8.7.2.4** Date of last acoustic or exhaustive calibration of the audiometer;



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8.7.2.5 Employee's most recent noise exposure assessment; and

8.7.2.6 Background sound pressure level measurements in audiometric test rooms.

8.7.3 All records shall be made available upon written request to the employee or designee at any time without regard to employment status.



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Appendix A

Personal Protective Equipment Types

Face and Eye Protection	Welding Helmets	Head Protection
<p>Spectacles w/ No side shield Half side shield Full side shield Detachable side shield Non-removable lens Lift front Headband temple</p> <p>Cover goggles w/ No ventilation Indirect ventilation Direct ventilation</p> <p>Cut goggles w/ Direct ventilation Indirect ventilation</p> <p>Face Shield</p> <p>(See MIOSHA, General Industry Safety Standard Part 33, Personal Protective Equipment, Table 1)</p>	<p>Burning Goggles</p> <p>Welding Helmets w/ Stationary window Lift front window Hand held</p>	<p>Helmets by Type: Type 1: Full brim 1.25" side Type 2: No brim, forward peak</p> <p>Helmets by Class:</p> <p>Class A – General service w/limited voltage protection</p> <p>Class B – Utility service w/high voltage protection</p> <p>Class C – Special service No voltage protection</p> <p>Class D – Fire fighters full brim w/ear flaps and chin strap</p> <p>Hair enclosures</p>
Foot and Leg	Electrical Protection*	Fall Protection
<p>Safety shoes/boots w/ Impact resistant toe Metal insoles Metatarsal guards Chemical Resistant Electrical protection Wet slippery surfaces Cold weather protection</p>	<p>Insulating Blankets Matting Covers Line Hose Gloves Sleeves Hot Stick</p>	<p>Safety Belts*</p> <p>Safety harnesses</p> <p>Lifelines</p> <p>Lanyards</p>



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<p>Leggings Molten metal and welding</p>	<p>*Must be capable of withstanding imposed voltage</p>	<p>*No safety belts for fall protection after 1-1-98.</p>
<p>Arm and Hand Protection</p>	<p>Body Protection</p>	<p>Hearing Protection</p>
<p>Types Gloves Hand Pads Sleeves Wristlets</p>	<p>Types Vests Jackets Aprons Coveralls Full Body Suits</p>	<p>Types Ear Plugs Ear Muffs</p>



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APPENDIX B

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Appendix C

Sample Personal Protective Equipment (PPE) Test

(Supervisors should give this test after training the employee on the proper use and care of PPE. The supervisor should review the test and discuss any areas requiring additional training. When the supervisor is confident that the employee has an adequate knowledge and ability to properly use PPE associated with the job, the supervisor should certify training.)

1. List the type(s) of PPE required for your task.
2. What are the hazards you are being protected against for each type of PPE used in your job?
3. Describe procedures for the use and care of the PPE you are using.
4. What should you look for to determine if the PPE you are using is in good working order?
5. What actions do you take when your PPE becomes defective?

Certification

I have personally trained _____ and answered all questions pertaining to the proper use and care Of PPE. I certify that he/she



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has adequate knowledge and ability to proper use and care for the PPE associated with his/her job.

Supervisor's Signature

Date

I have been adequately trained on the use and care of PPE to be used by me. My supervisor has answered all questions to my satisfaction and I understand he/she will be available for follow-up training if needed.

Employee's Signature

Date