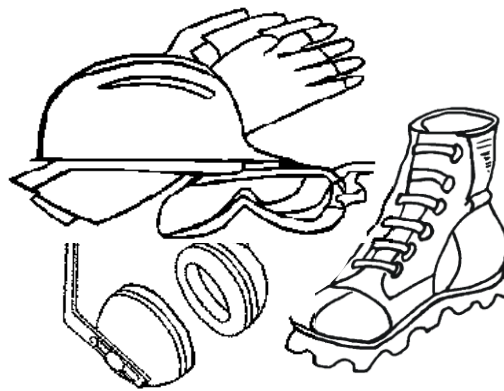


Personal Protective Equipment

For General Industry



Consultation Education and Training (CET) Division
Michigan Occupational Safety and Health Administration (MIOSHA)
Michigan Department of Licensing and Regulatory Affairs (LARA)

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Safety-Related PPE

GI

Introduction

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. When engineering, work practice, and administrative controls can't protect employees, employers must provide PPE to their employees and ensure its use. PPE is equipment worn to minimize exposure to a variety of hazards.

This guide will help both employers and employees do the following:

- Understand the types of PPE.
- Know the basics of conducting a “hazard assessment” of the workplace.
- Select appropriate PPE for a variety of circumstances.
- Understand what kind of training is needed in the proper use and care of PPE.

The information in this guide is general in nature and does not address all workplace hazards or PPE requirements. The information, methods, and procedures are based on the MIOSHA requirements for PPE as set forth in Part 33. PPE and Part 380. Noise Exposure.

The Requirements for PPE – A Checklist

To ensure the greatest possible protection for employees in the workplace, the cooperative efforts of both employers and employees will help in establishing and maintaining a safe and healthy work environment.

In general, employers are responsible for:

- ___ Performing a “hazard assessment” of the workplace to identify and control hazards.
- ___ Certifying, in writing, completion of a hazard assessment.
- ___ Identifying and providing appropriate PPE for employees.
- ___ Training and retraining employees in the use and care of the PPE.
- ___ Maintaining PPE, including replacing worn or damaged PPE.
- ___ Periodically reviewing, updating, and evaluating the effectiveness of the PPE program.

In general, employees should:

- ___ Properly wear PPE.
- ___ Attend training sessions on PPE.
- ___ Care for, clean and maintain PPE.
- ___ Inform a supervisor of the need to repair or replace PPE.

Personal Protective Hazard Assessment And Equipment Selection (3308)

1. **Conduct a workplace survey.** Conduct a walk-through survey to identify sources of hazards to feet, head, eyes, and face of workers. Reassess whenever a new hazard is introduced into the workplace (see [Appendices A, A-1, A-2, and A-3](#)).

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 of the hazards should be provided.

During the walk-through survey, observe:

- a. Sources of *impact/motion*; i.e., machinery or processes where any movement of tools, machine elements, or particles could exist.
 - b. Sources of *high temperatures* that could result in burns, eye injury, or ignition of protective equipment, etc.
 - c. Types of *chemical exposures*.
 - d. Sources of *hazardous atmospheres*.
 - e. Sources of *hazardous radiation*, i.e., welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.
 - f. Sources of *falling objects* or potential for dropping objects.
 - g. Sources of *sharp objects* which might pierce the feet or cut hands.
 - h. Sources of *rolling or pinching objects* which could crush the feet.
 - i. *Layout of the workplace* and *location of co-workers*.
 - j. Any *electrical hazards*.
2. **Organize and analyze data.** When the walk-through is complete, the employer should organize and analyze the data so that it may be efficiently used in determining the proper types of PPE required at the worksite. The employer should become aware of the different types of PPE available and the levels of protection offered.
 3. **Select PPE.** Select PPE which ensures a level of protection greater than the minimum required to protect employees from the hazards. PPE that fits well and is comfortable to wear will encourage employee use.
 4. **Fit the device.** If PPE does not fit properly, it can make the difference between being safely covered or dangerously exposed. It may not provide the level of protection desired and may discourage employee use.
 5. **Reassess hazards.** When new equipment and/or processes introduce hazards that might require revised PPE strategies.

*Note: Non-mandatory [Appendix B](#) contains an example of procedures that complies with the requirement for a hazard assessment.

PPE Training (3309)

Employers are required to train each employee who must use PPE. Employees must be trained to know at least the following:

- When PPE is necessary.
- What PPE is necessary.
- How to properly put on, take off, adjust and wear the PPE.
- The limitations of the PPE.
- Proper care, maintenance, useful life and disposal of PPE.
- Additional requirements when sharing PPE.

Employers should make sure that each employee **demonstrates** 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 an employer believes that a previously trained employee is not demonstrating the proper understanding and skill level in the use of PPE, that employee should 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 (see [Appendix C](#), [D](#), and [E](#)).

Sharing PPE

Eye Protectors (3313)

Hair Enclosures (3378)

Safety Shoes/Boots (3385)

Hand Protection (3393)

An employer may choose to provide one pair of protective eyewear for each position rather than individual eyewear for each employee. If this is done, the employer must make sure that employees 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.

Hair enclosures shall not be reissued from one employee to another unless it has been thoroughly sanitized.

Safety shoes and boots which are not worn over shoes and which are worn by more than one employee shall be maintained, cleaned, and sanitized inside and out before being issued to another employee

If more than one employee wears a pair of gloves, the gloves shall be sanitized before re-issuance.

Eye And Face Protection (3311)

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

- Flying objects and particles
- Molten metal
- Liquid chemicals
- Acids or caustic liquids
- Chemical gases or vapors
- Harmful contacts.
- Exposures
- Electrical flash
- Injurious radiation
- Glare
- A combination of these hazards

Selection

Selecting the most suitable eye and face protection for employees should take into consideration the following elements:

- Ability to **protect** against specific workplace hazards.
- Should **fit** properly and be reasonably comfortable to wear.
- Should provide **unrestricted** vision and movement.
- Should be **durable** and **cleanable**.
- Should **allow** unrestricted functioning of any other required PPE.

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.

Filter lenses (3312(a))

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. Table 1 in Part 33. PPE shows the minimum protective shades for a variety of welding, cutting, and brazing operations in GI.

Lenses (3353)

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

- **Clear lenses** which 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.
- **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. PPE.
- **Protective-corrective lenses** which are impact-resisting and either clear or absorptive, as specified for persons requiring visual correction.
- **Filter lenses** that are impact resisting and provide protection against flying objects and narrow-band spectral transmittance of injurious radiation.

Use of Head Protection (3370)

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.

Employers must ensure that their employees wear head protection if they are exposed to any of the following:

- Falling or flying objects.
- Other harmful contacts or exposures.
- Risk of injury from electrical shock.
- Chemicals.
- Temperature extremes.
- Hair entanglement.

Types of protective helmets

- Class G hard hats provide impact and penetration resistance along with limited voltage protection (up to 2,200 volts).
- Class E 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.
- Class C protective hats provide limited voltage protection (fire fighters service helmets with full brim.)

A metallic head device shall not be furnished by an employer or used by an employee for head protection, except where chemicals would deteriorate other types of protective or safety hats or caps.

Hair enclosures; face and head (3378)

Where there is a danger of hair entanglement in moving machinery or equipment, or where there is exposure to means of ignition, a hat, cap, or net shall be used. Hair enclosures shall be reasonably comfortable, completely enclose all loose hair, and be adjustable to accommodate all head sizes. Materials shall be fast dyed, non-irritating to the skin, and capable of withstanding frequent cleaning.

Cleaning and inspection of head protection

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

Foot and Toe Protection (3383)

Employees who face possible foot or toe 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. If an employee's feet may be exposed to electrical hazards, non-conductive footwear should be worn. On the other hand, workplace exposure to static electricity may necessitate the use of conductive footwear.

Examples of situations in which an employee should wear foot and/or toe protection include:

- When heavy objects such as barrels or tools might roll onto or fall on the employee's feet.
- Working with sharp objects such as nails or spikes that could pierce the soles or uppers of ordinary shoes.
- Exposure to molten metal that might splash on feet or legs (see Parts 42-Forging, 44-Foundries, and 45-Die Casting for specific requirements).
- Working on or around hot, wet or slippery surfaces.
- Working when electrical hazards are present.

Foot and toe protection choices include the following

- **Safety shoes** have impact-resistant toes and heat-resistant soles that protect the feet against hot work surfaces common in roofing, paving, and hot metal industries. The metal insoles of some safety shoes protect against puncture wounds. Safety shoes may also be designed to be electrically conductive to prevent buildup of static electricity or non conductive to protect workers from workplace electrical hazards.
- **Leggings** protect the lower legs and feet from heat hazards such as molten metal or welding sparks.
- **Metatarsal guards** protect the instep from impact and compression.
- **Toe guards** fit over the toes of regular shoes to protect the toes from impact and compression hazards.

Hand And Arm Protection (3392)

Where potential injury to hands and arms cannot be eliminated through engineering and work practice controls, employers must ensure that employees wear appropriate protection. Potential hazards include:

- Skin absorption of harmful substances (look for 'skin' warning on Safety Data Sheets).
- Chemical or thermal burns.
- Electrical dangers.
- Bruises, abrasions, cuts, punctures.

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 for a workplace:

- Types of chemicals handled.
- Nature of contact (total immersion, splash, etc.).
- Duration of contact.
- Area requiring protection (hand only, forearm, arm).
- Grip requirements (dry, wet, oily).
- Thermal protection.
- Size and comfort.
- Abrasion/resistance requirements.

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

- Gloves made of leather, canvas, or metal mesh.
- Fabric and coated fabric gloves.
- Chemical--and liquid--resistant gloves.
- Insulating rubber gloves (see 3385).

Care of Protective Gloves

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

Fall Protection (3390)

An employer shall ensure that each employee whose fall protection is not covered by another MIOSHA safety standard, and the employee's work area is more than 6 feet above the ground, floor, water, or other surface, shall be protected as prescribed in Construction Safety Standard Part 45 "Fall Protection," as referenced in R 408.13301a.

- Guardrail systems.
- Safety net systems.
- Personal fall arrest systems.

See [Appendix F](#) for a sample of a PPE policy.

***Certification of
Safety-Related
PPE
Hazard Assessment***

Employer: _____

Location*: _____

*Or type of work for employees not assigned to a fixed location

***Workplace
Assessed/
Evaluated:*** _____

Date(s): _____

***Name of Person
Assessing/*** _____

***This document certifies that the hazard assessment has been
performed as required by MIOSHA GI Safety Standards, Part 33,
Personal Protective Equipment.***

***Signature of
Person Certifying:*** _____

**PPE
HAZARD ASSESSMENT**

Company Name: _____ **Date of Assessment:** _____

Company Address: _____

Workplace Evaluated: _____

Name of Person Completing Assessment: _____

Job Classification WORKSTATION	HAZARD SOURCE/TYPE	BODY PART AFFECTED	PPE REQUIRED YES/NO	TYPE of PPE REQUIRED

Personal Protective Equipment Hazard Assessment Certification

Area or Job Being Assessed _____

Assessed By _____ Date _____

Position or Title of Assessors _____

Refer to: Table 1 and 2 of the General Industry Safety Standard part 33 on Personal Protective Equipment, and all applicable Occupational Health Standards. for additional hazards and applications. For more information, contact General Industry Safety and Health Division at 517-284-7750.



EYE HAZARDS
 Part 33 Rule 3312
 flying particles dust & dirt
 chemical splash molten metal
 sparks weld flash electrical
 other _____



HAND HAZARDS
 Part 33 Rule 3392 and 3387
 skin absorption punctures
 severe cut or laceration hazard
 chemical or thermal burns
 other _____



HEAD HAZARDS
 Part 33 Rule 3370
 falling objects flying objects
 electrical hair entanglement
 hot surfaces chemicals
 other _____



FOOT HAZARDS
 Part 33 Rule 3385
 flying objects rolling objects
 powered lawn equipment
 wet process areas logging areas
 other _____



FACE HAZARDS
 Part 33 Rule 3312
 impact hazards chemical heat
 touch cutting welding casting
 high temperature exposures
 other _____



BODY HAZARDS
 Part 33 Rule 3394
 wet process areas chemical
 buffing sand blasting polishing
 hot liquids (water, grease, acids, etc.)
 other _____



HEARING HAZARDS
 Refer to Occupational Health Rules
 loud process and or equipment
 air and electrical impact tools
 forging logging tree trimming
 other _____



BREATHING HAZARDS
 Refer to Occupational Health Rules
 spray finishing fumes vapors
 dust welding foundries
 permit required confined spaces
 other _____

Sample PPE Assessment and Certification Worksheet

(Note) This worksheet, or any other worksheet used to assess the worksite for PPE is not mandatory. However, certification that a PPE assessment has been completed is required by the PPE standard.

Assessment conducted by: _____ Date: _____

Task: _____

Department: _____

Instructions

1. Conduct a Job Safety Analysis (JSA) of the above task.
2. List below the hazards found in the JSA.
3. If engineering or management practices cannot eliminate the hazards or are not feasible, determine the appropriate PPE for each hazard.

Note: If you are not sure about appropriate PPE, consult your OR-OSHA consultant or insurer for assistance.

Summary of Task Hazards and PPE Required

Impact by: _____ materials _____ equipment _____ objects _____ co-worker _____ other (describe) _____

PPE required: (head, eye, foot, etc.) _____

Contact with: _____ Stationary object _____ moving object _____ sharp object _____ other (describe) _____

PPE required: (foot, head, etc.) _____

Fall: _____ from elevation _____ to surface _____ slipping _____ tripping _____ other (describe) _____

PPE required: (fall, restraint systems) _____

Caught in, under, between: _____ running or meshing objects _____ moving object _____ stationary object _____ rolling vehicle _____

collapsing materials/cave-in _____ other (describe) _____

PPE Required: (hand, foot, etc.) _____

Overexposure: _____ noise _____ heat _____ cold _____ temperature variation _____ radiation. List dBA _____ Temp _____ F.

PPE required: (hearing, respiratory, clothing, eye, etc.) _____

Inhalation of: _____ hot _____ cold _____ dust _____ mists _____ vapors _____ smoke _____ gasses _____ fibers _____ biohazards _____ other (describe)

PPE required: (respiratory, face, etc.) _____

Ingestion of: _____ hot _____ cold _____ acids _____ bases _____ caustics _____ poisons _____ dust _____ mists _____ vapors _____ smoke

_____ gases _____ radiation _____ fibers _____ other (describe) _____

PPE Required: (respiratory, face, etc.) _____

Absorption of: _____ acids _____ bases _____ caustics _____ poisons _____ hazardous chemicals _____ other (describe) _____

PPE required: (hand, face, eye, clothing, etc.) _____

Skin contact with: _____ hot liquid _____ molten metal _____ sparks _____ acids _____ bases _____ caustics _____ poison _____ other (describe) _____

PPE required: (hand, foot, face, eye, clothing, etc.) _____

4. Reference the associated SDS for each hazardous chemical used and list the recommended PPE for that chemical.

Chemical:	SDS PPE:
_____	_____
_____	_____
_____	_____

Certification _____

Signature

Date

Sample PPE Walk Through Survey and Certification

Department _____ Task _____ Date _____

Assess each task for hazards using the following criteria: (1) **Type of injury or illness possible**: (2) **Probability** – unlikely, likely, highly likely; and (3) **Severity** – death, serious injury/illness, not serious injury/illness.

1. **Sources of motion** – machinery, processes, tools, materials, people, etc. _____

Required PPE: _____

2. **Sources of high temperatures** – that could cause burns, ignition, injury to eyes, etc. _____

Required PPE: _____

3. **Sources of chemical exposure** – splash, vapor, spray, immersion, etc. _____

Required PPE: _____

4. **Sources of harmful atmospheres** – dust, fumes, gasses, mists, vapors, fibers, etc. _____

Required PPE: _____

5. **Sources of light radiation** – welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc. _____

Required PPE: _____

6. **Sources of falling objects** – materials, equipment, tools, etc. _____

Required PPE: _____

7. **Sources of sharp objects** – which could pierce the skin – feet, hands, face, etc. _____

Required PPE: _____

8. **Sources of rolling or pinching that could crush** – hands, feet. _____

Required PPE: _____

9. **Layout of workplace and location of co-workers** – adequate space for task. _____

Required PPE: _____

10. **Sources of contact with electricity** – wires, grounding. _____

Required PPE: _____

I certify that I have conducted a workplace survey on the above task to assess the need for PPE. The PPE noted above will be required while performing this task.

Signature

Date

PPE TRAINING CERTIFICATION

Name	Date	Employee Number	Trainer	Trained in PPE						
				Eye & Face	Head	Foot & Leg	Hand & Arm	Body	Electrical	Fall

Sample 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 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

**PPE
ASSIGNMENT, TRAINING, AND FIT-TEST FORM**

All affected employees receive PPE training that includes when PPE is necessary; what PPE is necessary and why; how to wear PPE properly; PPE limitations and capabilities; and PPE care and maintenance. Each affected employee is fitted properly with the assigned PPE.

The following individual has been assigned PPE, has been fit-tested, and has received training.

Employee: _____ **Training Date:** _____

Name of Trainer: _____

The following is a list of PPE assigned to this employee including the manufacturer, model and any identification numbers:

I acknowledge that I have been assigned the above named equipment, have had the opportunity to be properly fitted, and have received training. I also acknowledge that I understand the training that was provided.

(Employee’s Signature)

PPE POLICY FOR

(Name of Company)

PURPOSE

The purpose of this program is to protect the employees of _____ (Insert name of Company) from the occupational hazards within the workplace by providing the proper PPE. It is the goal of the company to use engineering controls as the primary method for protecting employees. However, when additional protection is necessary, appropriate PPE will be worn. The scope of this program includes PPE for eye, face, head, foot, and hand protection. If respirators and/or hearing protection is necessary, their use will be covered by the company's Respiratory Protection Program and the Hearing Conservation Program, respectively.

RESPONSIBILITY

The person responsible for coordinating this program is _____, (insert name or job title of responsible person). This person will ensure that hazard assessments are conducted, appropriate PPE is assigned, and affected employees receive training. The responsible person will also be in charge of maintaining the documentation for this program.

Department supervisors should advise the responsible person of changes in PPE requirements (e.g., new procedures/processes requiring different PPE; omission of a job/task). Additionally, supervisors should consult with the responsible person before purchasing any new PPE.

HAZARD ASSESSMENTS

Each job/task performed will be assessed to determine foot, head, eye, face, and hand hazards present and the proper PPE that should be worn. The assessments will include observation of the following sources of hazards:

1. **Impact:** Flying chips, objects, dirt, particles, collision, and motion hazards.
2. **Penetration:** Falling/dropping objects, sharp objects that cut or pierce.
3. **Compression:** Rollover or pinching.
4. **Chemical:** Splashing, burns, fumes.
5. **Temperature Extremes:** Sparks, splashes from molten materials, burns from high/low temperatures.
6. **Harmful Dust:** Dirt, particles, asbestos, lead.
7. **Light Radiation:** Welding, cutting brazing, lasers, furnaces, lights.

The Hazard Assessment Form will be completed for each job/task and will serve as certification that a hazard assessment has been performed.

The person conducting the hazard assessment will also survey jobs that are non-routine or periodic. In some cases these assessments may not be completed until the jobs are scheduled.

Hazard assessments will be updated/evaluated whenever conditions or procedures change.



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www.michigan.gov/lara

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