

Personal Protective Equipment (PPE) Outline

Introduction

This program is for employees who encounter workplace conditions that could be hazardous to health or body. Such hazards could require the use of Personal Protective Equipment (PPE). This program will discuss the means to determine if PPE is needed, who is responsible for the purchase of PPE, OSHA training requirements and various types of PPE.

1. Overview of Program

- a. OSHA Standards
- b. Financial Responsibility for PPE
- c. Hazard Assessment
- d. Training
- e. Eye and Face Protection
- f. Respiratory Protection
- g. Head Protection
- h. Foot Protection
- i. Hand Protection
- j. Body Protection
- k. Hearing Protection
- l. Maintenance and Storage

2. Definitions

- a. PPE - Personal Protective Equipment. Specialized clothing or equipment worn by an employee for protection against a hazard.
- b. Affected Employee - An employee who must use PPE as required by the employer based on the workplace hazard assessment.

3. OSHA Standards

OSHA requires the use of Personal Protective Equipment to reduce employee exposure to hazards when engineering and administrative controls are not feasible or effective in reducing the exposure to acceptable levels. Employers are required to determine if PPE should be used to protect their workers. 29 CFR 1910.132 covers PPE and provides the regulations that employers must follow. Specific PPE, such as eye and face protection, respiratory protection, head protection and others are addressed in separate standards. Many other OSHA standards such as Hazard Communications, Bloodborne Pathogens, Electrical, and Permit-Required Confined Spaces require the use of PPE as it pertains to that particular topic.

All PPE must be used and maintained in a sanitary and reliable condition. The PPE must be of safe design and constructed for the work to be performed. When employees provide their own PPE, the employer is responsible for the adequacy, proper maintenance, and sanitation of the PPE

4. **Financial Responsibility for PPE**

OSHA has mandated that employers must pay for the protective equipment, including personal protective equipment that is used to comply with OSHA standards. Employers are only responsible to provide the minimum level of PPE necessary. If the employer decides to use upgraded PPE to meet the requirements, they must also pay for that PPE. If an employee asks to use a different PPE than that provided by the employer, and the employer decides to allow him/her to do so, the employer is not required to pay for the item. The employee's use of PPE they own must be completely voluntary. There are a few exceptions to this mandatory payment rule:

- a. Employers are not required to pay for ordinary safety-toe footwear and ordinary prescription safety eyewear, as long as the employee is allowed to wear these items off the job site.
- b. Employers are not required to pay for shoes with integrated metatarsal protection as long as they provide and pay for metatarsal guards that attached to the shoes.
- c. Employers are not responsible for paying for logging boots but leave the responsibility for payment open to employer and employee negotiations.
- d. Employers are not required to pay for 'everyday' clothing such as long-sleeve shirts, long pants, street shoes, normal work boots, and other similar types of clothing.

Employers are required to pay for replacement PPE used to comply with OSHA standards.

When an employee has lost or intentionally damaged PPE issued to him/her, an employer is not required to pay for its replacement and may require the employee to pay for such replacement.

5. **Hazard Assessment**

- a. A hazard assessment of each work area must be completed by the employer to determine if hazards exist, or are likely to exist. Certification of the hazard assessment should identify the workplace evaluated, the person certifying that the assessment has been performed and date(s) of the hazard assessment. The certification must be in written form.
- b. Employers must use engineering and work practice controls to eliminate and reduce hazards before using personal protective equipment. PPE is the last level of control. In order to assess the need for PPE the following steps should be taken:
 - i. Company Safety Officer should conduct a walk-through of the areas in question to identify sources of hazards. Dangers should be determined by assessing the tasks involved, the employee performing tasks, and/or group of employees (if all the employees perform identical task). Basic hazard categories that should be considered include but are not limited to:
 1. Impact
 2. Penetration
 3. Compression
 4. Heat
 5. Harmful Dust
 6. Light (Optical) Radiation
 - ii. Sources for hazards should be identified and recorded.
 1. High temperature sources that could result in burns, eye injury, ignition of protective equipment, heat/cold stress, frostbite, etc.,
 2. Sources of Chemical exposure,

3. Sources of hazardous dust or particulates,
 4. Sources of light radiation such as welding, brazing, cutting, heat treating, lasers, growth lights, etc,
 5. Sources of falling objects or potential for falling objects,
 6. Sources of sharp objects which might pierce the feet or cut the hands,
 7. Sources of rolling or pinching objects which could crush the feet,
 8. Sources of any electrical hazards, and
 9. Layout of workplace and location of co-workers.
- iii. Data and information obtained during walk-through should be organized and analyzed to enable proper selection of PPE. Each hazard should be reviewed and a determination made as to the type, level of risk and seriousness of potential injury from each hazard found. The possibility of multiple hazards occurring simultaneously must be considered also.
- c. If hazards exist or are likely to exist, then the employer must:
 - i. Provide PPE that will protect the affected employee from the hazards identified in the assessment;
 - ii. Communicate selection decisions to each affected employee; and
 - iii. Select PPE that properly fits each affected employee and ensure that the employee uses the PPE.

6. Training

- a. OSHA regulation 29 CFR 1910.132 (f) requires the employer to provide training for each employee who performs tasks that require PPE.
- b.** Before performing task that require the use of PPE, employees must understand:
 - i. When PPE is necessary;
 - ii. What PPE is necessary;
 - iii. The limitations of the PPE;
 - iv. How to properly put on, take off, adjust, wear and inspect PPE; and
 - v. The proper care, maintenance, useful life and disposal of PPE.
- c. Each affected employee must demonstrate an understanding of the training and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.
- d. The employer is required to retrain employees when:
 - i. changes in the workplace render previous training obsolete;
 - ii. changes in the types of PPE to be used render previous training obsolete; or
 - iii. Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.
- e. The employer must verify that each affected employee has received and understood the required training via written certification. The certificate should contain the name of each employee trained, date of training, and subject of training.

7. Eye and Face Protection

- a. Employers must provide eye and face protection for employees who work in areas that contain the risk of eye injury.

- b. Employees who wear prescription lenses must wear protective devices that incorporate the prescription in its design or wear eye protection designed to be worn over the prescription eye wear.
- c. Eye protection is provided in many forms for better protection from the different hazards.
 - i. Safety spectacles are made with either metal or plastic frames and are used for moderate impact from particles produced from carpentry, grinding, scaling, etc. Most tasks require the spectacles to have a side guard.
 - ii. Goggles protect eyes and the surrounding facial area from impact, dust and splashes. Some goggles fit over corrective lenses.
 - iii. Welding shields protect the eyes from burns caused by infrared or intense radiant light. The shield also protects the face and eyes from flying sparks, metal spatter and slag chips produced during welding, brazing, soldering and cutting.
 - iv. Face shields do not protect employees from impact hazards. However, hazardous liquids, nuisance dusts and potential splashes are kept away from the face.

8. Respiratory Protection

- a. Respiratory protection is an important part of PPE. Respirators protect the lungs from atmospheres contaminated with harmful dust, fogs, fumes, mists, gases, smokes, sprays or vapors.
- b. Contaminated atmospheres should always be first prevented by engineering control measures before the use of respirators. PPE should always be the last resort.
- c. The employer must provide the respiratory protection gear required for the atmosphere.
 - i. APR or air-purifying respirators contain a purifying filter, cartridge or canister that removes specific contaminants by passing ambient air through the air-purifying element.
 - ii. Atmosphere-supplying respirators (ASR) have an independent source of air supplied to the respirator.
 - 1. Supplied Air Respirator (SAR)- air source is a distance away from the employee, and is supplied by a hose. User is limited by the length of the hose. The air tanks usually last longer than a Self-Contained Breathing Apparatus.
 - 2. Self-Contained Breathing Apparatus (SCBA)-The SCBA is a mobile unit that is designed to be carried by the user. Air tanks must contain a minimum of 30 minutes of air.
 - iii. Dust mask (Filter Face piece) are negative pressure particulate respirators with a filter as an integral part of the face piece or the entire face piece is composed of the filtering medium.
- d. Respirators should be fit tested before each use. The face piece should seal around the jaw and face. Any facial hair that prevents a tight seal must be shaved. A tight seal prevents contaminated air from entering the mask and being inhaled by the employee.
- e. Employees must be aware of the limitations of a respirator, why it is necessary, how to use a respirator properly, procedures for maintenance and storage, and how to recognize medical signs and symptoms that may limit or prevent effective use before being allowed to work with respiratory protection.

9. Head Protection

- a. Each affected employee must wear a protective helmet when working in areas where there is a potential for injury to the head from falling objects. The employer is responsible for providing the necessary hard hat for the tasks.
- b. Hard hats provide features that protect the head from impact.
 - i. The shell resists and deflects objects hitting the head
 - ii. The suspension system inside the hat acts as a shock absorber against falling objects.
 - iii. Some hard hats insulate against electrical shock.
 - iv. Hard hats shield your scalp, face, neck and shoulders against falling fluids.
 - v. Some can be modified by adding face shields, goggles, hoods or hearing protection.
- c. Head protection is divided into three classes, Class C,E and G.
 - i. Class G hard hats (formerly Class A) are for general service such as mining, building construction, lumbering and manufacturing.
 1. This class provides good impact protection but limited voltage protection (only up to 2,200volts).
 - ii. Class E hard hats (formerly Class B) are manufactured for tasks around high voltage lines.
 1. The class E hard hat will protect against falling objects, electrical shock and burns.
 2. It provides voltage protection for the wearer up to 20,000 volts.
 3. Class C hard hats are designed for comfort and limited protection against bumps, but not falling objects.
- d. It is the employer's responsibility to ensure hard hats provide sufficient protection. Hard hats should be removed from service if the suspension system shows signs of wear or no longer holds the shell away from the head.
 - i. Inspect the hard hat for cracks or deformations in the brim or shell.
 - ii. Limit use of paints or stickers on shell, which can hide signs of deterioration.
 - iii. Some cleaning agents and paints can compromise the integrity of the shell as well as eliminate electrical resistance.

10. Foot Protection

- a. Employers are responsible for ensuring that employees wear foot protection when working in areas that contain potential for foot injury due to falling, rolling or piercing objects.
- b. Foot protection must comply with ANSI Z41-1991.
- c. Some of the features of safety shoes include, but are not limited to:
 - i. Impact-resistant toes and heat-resistant soles that protect against falling objects and hot surfaces
 - ii. Metal insoles to protect against puncture wounds; and
 - iii. Protection against electrical conduction hazards.

11. Hand Protection

- a. There are many injuries that can happen to the hands. OSHA requires the employer to provide hand protection appropriate for the task.

- b. Some injuries to guard against include: burns, bruises, abrasions, punctures, fractures and chemical exposure.
- c. Different gloves protect the hands from different hazards.
 - i. Cotton gloves offer protection against dirt, grease and paint while letting the hands breathe. Some are dipped in pvc to allow better grip on objects.
 - ii. Leather gloves are made from a variety of different hides. They offer varying levels of protection from abrasions, flexibility and better grip.
 - iii. Plastic gloves, such as latex, neoprene, nitrile and PVC protect the hands from chemicals, fluids and cuts, as well as providing flexibility and durability.
- d. Gloves should be inspected before each use for cuts, cracks, holes and tears. If any of these exist, the gloves should be thrown away and replaced.

12. Body Protection

- a. Body Protection is designed to avert physical and health hazards from the body. There are many types of body protection.
 - i. Laboratory coats
 - ii. Aprons
 - iii. Coveralls
 - iv. Body suits
 - v. Vests
- b. Body protection provides resistance to:
 - i. Cuts;
 - ii. Splashes of hot metal or liquids;
 - iii. Impact from tools, materials and machinery;
 - iv. Hazardous chemicals; and
 - v. Radiation.
- c. Heat Stress is a major concern for employers whose employees wear body protection especially when worn in hot environments. Employees suffering from heat stress should be given plenty of rest and liquids.
- d. Body protection can sometimes have loose parts that can get caught in machinery. It is important to keep those parts of the PPE away from moving machinery.

13. Hearing Protection

- a. Exposure to excessive noise can depend on several factors.
 - i. How loud is the noise as measured in decibels (dB)?
 - ii. What is the duration of exposure to the noise?
 - iii. Is noise generated from multiple sources or a single source?
- b. The general rule is that the louder the noise, the shorter the exposure time before hearing protection must be provided. OSHA requires hearing protection if employees are exposed to 85 dB or greater.
- c. Earmuff, earplugs and canal caps are some examples of hearing protection.
 - i. Earmuffs fit over both ears and reduce noise 15-30 dB depending on how they are manufactured and fit.
 - ii. Earplugs are inserted into the ear and completely block the canal. Earplugs reduce the noise 15-30 dB depending on manufacture and fit. Cotton is not an acceptable protection device.

14. Maintenance and Storage

- a. PPE must be inspected before each use by the affected employee. Regular cleaning, maintenance, repairs (unless disposable) and replacement of PPE must follow manufacturer's directions. Maintenance records should be kept for each article of PPE.
- b. Store PPE in appropriate storage devices, such as specially marked cabinets or closets, when not in use.
 - i. Proper storage procedures will prevent damage to PPE due to dust, moisture, sunlight, damaging chemicals, extreme temperature and impact.
 - ii. All PPE should be stored separately from street clothes to avoid contamination.
 - iii. Potentially contaminated PPE should be stored in a well ventilated space with plenty of breathing room around each item.
 - iv. Different levels of PPE should be stored separately to prevent issuing the wrong items by mistake.

15. Conclusion

Personal Protective Equipment (PPE) is designed to protect employees from workplace hazards that can cause injury or illness. OSHA requires the employer to implement a written hazard assessment program. Written certification of the hazard assessment should identify the workplace evaluated, the person certifying that the assessment has been performed and date(s) of the hazard assessment. The employer is then required to provide and maintain PPE for the employees to protect against hazards or potential hazards that have been found.

OSHA regulation 29 CFR 1910.132 (f) requires the employer to provide training for each employee who performs tasks that entail PPE. Protection can include head, face, eye, hand, feet, respiratory and body. PPE should only be used as a last resort after engineering and administrative controls have been applied.

PPE must be inspected before each use by the affected employee. Regular cleaning, maintenance, repairs (unless disposable) and replacement of PPE must follow manufacturer's directions. Maintenance records should be kept for each article of PPE. When not in use, store PPE in appropriate storage devices, such as specially marked cabinets or closets.