Lesson 4: Personal Protective Equipment Review

Personal Protective Equipment
The cooperation of both employers and employees is essential in establishing and maintaining a safe and healthful work environment. In general, employers are responsible for:

- Performing a hazard assessment of the workplace to identify and control physical and health hazards
- Identifying and providing appropriate PPE for employees
- Maintaining PPE, including replacing worn or damaged PPE
- Periodically reviewing, updating and evaluating the effectiveness of the PPE program

When the walkthrough for the hazard assessment is finished, the employer should organize and analyze the data to be used efficiently when selecting PPE. The workplace should be periodically reassessed for any changes in the conditions, equipment or operating procedures that could affect work hazards. Documentation of the hazard assessment is required through a written certification.

Eye and Face Protection
Selection of 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

Some of the most common types of eye and face protection include:

- **Safety spectacles** – Protective eyeglasses with safety frames.
- **Goggles** – Tight-fitting eye protection that provides protection from impact, dust and splashes.
- **Welding shields** – Shields used to protect eyes from burns caused by infrared or intense radiant light. Also protects both the eyes and face from flying sparks, metal spatter and slag chips produced during welding, brazing, soldering and cutting operations.
• **Laser safety goggles** – Specialty goggles made to protect against intense concentrations of light produced by lasers.

• **Face shields** – Shields used to protect against nuisance dusts and potential splashes or sprays of hazardous liquids but will not provide adequate protection against impact hazards. Face shields used in combination with goggles or safety spectacles will provide additional protection against impact hazards.

### Respiratory Protection

All respirators must be National Institute for Occupational Safety and Health (NIOSH) certified. The employer must identify, evaluate and document the respiratory hazards in the workplace. If the employer cannot identify employee exposure, the atmosphere must be considered IDLH (Immediately dangerous to life or health). Finally, the employer must select a sufficient number of respirators, and then make sure they correctly fit the user.

The employer needs to provide effective training to employees who use respirators. The training must be comprehensive and understandable, as well as occur on a yearly basis. Additionally, training should be conducted before the respirator is in use. Retraining must occur annually and if the employee shows inadequate knowledge, if changes in the equipment make previous training obsolete and any other situation that training is deemed appropriate.

### Head and Body Protection

Specific requirements for hard hat design include an outer shell and shock-absorbing lining with a headband and straps that suspend the shell from 1 to ¼ inches away from the head. However, protective headgear must meet ANSI Standard Z89.1-1986, Protective Headgear for Industrial Workers or provide equal protection. Helmets purchased before July 5, 1994 must comply with an earlier ANSI Standard-Z89.1-1969 or provide equal protection.

Hard hats are divided into three industrial classes: Class A - impact and penetration resistance, Class B - highest level of protection against electrical hazards and Class C - impact protection. There is also a class for bump hats that provide some protection from head bumps and lacerations in low head clearance areas, but it is not ANSI approved.

Employers are required to ensure that their employees wear personal protective equipment for the parts of the body exposed to possible injury. Examples of body protection include laboratory coats, coveralls, vests, jackets, aprons, surgical gowns and full body suits.

Excessive and loud noise exposure can cause hearing damage. OSHA requires employers to provide earplugs or earmuffs for protection from hazardous exposure.
Hand, Arm, Foot and Leg Protection

The variety of potential occupational hand injuries makes selecting the right pair of gloves challenging. Therefore, the following factors should be considered in glove selection for PPE:
- Type 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

Employees can encounter hazardous conditions that require protective foot or legwear including exposure to hot, corrosive or poisonous substances, electrical hazards and falling or rolling objects. In these cases and others proved in a hazard assessment, the employer should provide the proper foot and leg protection.

The following list provides different types of leg and foot protection, and the hazards they are designed to protect against:
- **Leggings** – Used to protect lower legs and feet from heat hazards like molten metal or welding sparks
- **Metatarsal guards** – Used to protect instep area from impact and compression
- **Toe guards** – Used to protect toes from impact and compression hazards
- **Combination foot and shin guards** – Used to protect lower legs and feet, and may be used in combination with toe guards when greater protection is needed
- **Safety shoes** – Used to protect feet against hot work surfaces common in roofing, paving and hot metal industries with impact-resistant toes and heat-resistant soles; the metal insoles of some safety shoes protect against puncture wounds; safety shoes may also be designed to be electrically conductive to prevent the build-up of static electricity in areas with the potential for explosive atmospheres or nonconductive to protect workers from workplace electrical hazards