OSHA mandates that students spend a specific amount of time in each module of this course. In order to comply with OSHA’s requirement, additional resources related to this module’s content are provided below. You should also consider reviewing the Fact Sheet for this module, which is located at the end of this resource list.

When the minimum required time for this module has elapsed, you will be allowed to proceed to the next module.

**CAUTION:** When closing resource links, take care to not close your course browser window, as that will stop the module timer.

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Module 6: Personal Protective and Life-Saving Equipment

In this module, we cover information that will enable workers to recognize hazardous work conditions that require PPE and determine what type of PPE should be used.

Module Objectives

Terminal Objective
Given current OSHA and industry information regarding construction worksite illnesses, injuries, and/or fatalities, the student will be able to select personal protective and life-saving equipment that provides appropriate protection for common construction industry hazards.

Enabling Objectives
Specifically, the student will be able to:

1. Specify the two primary means of protecting employees from workplace hazards, prior to considering personal protective equipment (PPE).
2. Identify at least four of the seven training topics for employees who are required to use PPE.
3. Identify at least three elements of an appropriate PPE program.
4. Identify types of PPE used to protect eyes, face, head, feet, hands and arms, bodies, and hearing.
5. Match the PPE described in this lesson to at least one hazard for which it is appropriate protection.

What Are The Primary Means Of Protecting Employees From Hazards?
OSHA requires that employers protect their employees from workplace hazards such as falling objects, harmful substances, and noise exposures. The primary means of protecting employees from hazards are:

- Engineering controls – change the physical environment using controls, such as substitution, isolation, ventilation, and equipment modification, to prevent exposure to hazards.
- Administrative controls – use procedure that significantly limits daily exposure by controlling or changing the work schedule or the way work is performed. Examples of fundamental and easily implemented work practice controls include:
  - Following proper procedures that minimize exposures while operating production and control equipment;
  - Inspecting and maintaining process and control equipment on a regular basis;
  - Implementing good housekeeping procedures;
  - Providing good supervision; and
  - Prohibiting eating, drinking, smoking, chewing tobacco or gum, and applying cosmetics in regulated areas.

Employers must use all feasible engineering and administrative controls (including work practice controls) to eliminate or reduce hazards. When these controls are not feasible or do not provide sufficient protection, the use of PPE is required.

What Training Must Be Provided To Employees Who Are Required To Use PPE?
If an employee is required to use PPE on the job, they must (at least) receive the following training:

- Why PPE is necessary
- How PPE will protect employee
- What PPE can and cannot do (PPE limitations)
- When and how to wear PPE
- How to identify signs of wear and tear
- How to clean and disinfect PPE
- When PPE is worn out (useful life) and how to properly dispose of PPE

What Are The Elements of A PPE Program?
If employees use PPE, employers must establish a PPE program which details general PPE procedures, such as:

- Procedures for selecting, providing, and using PPE;
- Methods for enforcing proper use of PPE;
• Plans for how and when to re-evaluate the program; and
• Training on how to use and maintain PPE.

What Types Of PPE Should Be Used?
The type(s) of PPE required for a workplace is dependent on the types of hazards to which workers may be exposed. These exposures may include chemical, radiological, physical, electrical, mechanical, or other workplace hazards. In general, PPE requirements may include head protection, hearing protection, protective clothing, eye and face protection, respiratory protection, hand and arm protection, and foot protection.

Head Protection
When a work area has hazards that could potentially cause head injury, such as those from impact, falling or flying objects, or electrical shock and burns, the employee must be protected by protective helmets. Electrical insulation rating is indicated by one of three industrial classes of hardhats:

• Class G – resist impact and penetration, and have limited voltage protection (up to 2,200 volts)
• Class E – highest level of protection against electrical hazards (up to 20,000 volts); protection from impact and penetration by flying/falling objects
• Class C – lightweight comfort and impact protection, but no protection from electrical hazards

Always replace a hard hat if it sustains an impact, even if damage is not noticeable.

Eye and Face Protection
There is a variety of different types of protection for the eyes and face. Safety glasses or goggles are used to protect against flying particles like metal shavings or sawdust; goggles should always be worn if dust or liquid is present. Welding hoods and face shields further protect the face when exposed to hazards like chipped slag or liquids, but face shields are not a stand-alone primary protection—use glasses or safety goggles with them.

Hearing Protection
There is a variety of Hearing Protection Devices (HPD), including earmuffs, earplugs, and canal caps. The selection of proper hearing protection should be based on individual fit and the amount of protection the HPD will provide. The HPD should be evaluated on noise reduction and effectiveness for the specific workplace noise.

Respiratory Protection
The type of respirator selected should be selected based on the type and amount of hazardous exposure, physical configuration of the jobsite, medical condition of the worker, and comfort of the worker. The following list contains the types of respiratory protection available:

• Air-purifying respirators – remove contaminants from the air by passing ambient air through an air-purifying elements (filters); includes particulate respirators, gas and vapor respirators, and combination particulate and gas/vapor respirators
• Atmosphere-supplying respirators – provide a clean supply of air to the user; includes air-supplied respirators, self-contained breathing apparatus, and combination respirators

Hand and Arm Protection
Hand and arm protection is provided by wearing appropriate gloves. The following is a list of glove types and what they protect against:

• Metal mesh, leather, or canvas gloves – cuts, burns, or heat
• Fabric/coated fabric gloves – dirt and abrasion
• Chemical and liquid resistant gloves – burns, irritation, and dermatitis
• Rubber gloves – cuts, lacerations, and abrasions

Foot and Leg Protection
Protective footwear should be worn by any employee exposed to hazards such as falling or rolling objects, or crushing or penetrating materials. Foot and leg protection includes the following types:

• Leggings – provides protection from heat hazards for the lower legs and feet
• Metatarsal guards – protect the instep of the foot
• Toe guards – protect the toes
• Combination foot and shin guards – provides protection to both the feet and lower legs
• Safety shoes – have impact-resistant toes and heat-resistant soles; some are designed to prevent buildup of static electricity

Protective clothing
Different materials will protect against different types of chemical and physical hazards. For intense heat, cooling vests are a good option. Full-body suits provide good protection from possible exposure to chemical splashes. Aprons and long sleeves can protect the body from a variety of potential hazards.