



Personal Protective Equipment Resource

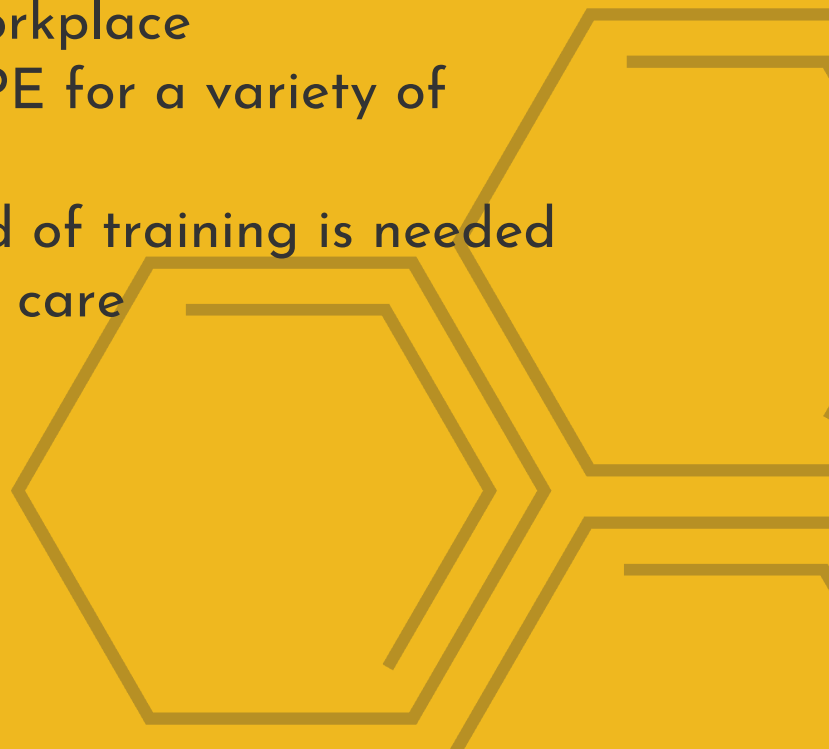


Purpose

When engineering, work practice, and administrative controls are not feasible or do not provide sufficient protection, employers must provide personal protective equipment (PPE) to their employees and ensure its use. Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to a variety of hazards.

Wetherbee Electric, Inc. employees will 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



Requirements for PPE

To ensure the greatest possible protection for employees in the workplace, the cooperative efforts of both Wetherbee Electric, Inc. and its employees will help in establishing and maintaining a safe and healthful work environment.



Company Responsibilities:

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

Employee Responsibilities:

- 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
- Defective or damaged PPE shall NOT be used

Training:

- When and which PPE is necessary
- How to properly wear and adjust PPE
- The limitations of PPE
- Proper care, maintenance, useful life, and disposal of the PPE

Retraining:

When Wetherbee Electric, Inc. will provide employee retraining when:

- Changes in the workplace render previous training obsolete
- Changes in the types of PPE to be used render previous training obsolete
- Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill



Purchase of PPE:

Employees may purchase their own PPE, however, employees' own PPE must meet the applicable standards.



Hazard Assessment

Description:

The first step in a comprehensive safety and health program is to identify physical and health hazards in the workplace. This process is known as a "hazard assessment." Potential hazards may be physical or health-related, and a comprehensive hazard assessment should identify hazards in both. If an assessment has not been done, the following procedures should be followed.



Hazard Assessment

Walk-through:

The hazard assessment should begin with a walk-through survey of the job site to develop a list of potential hazards.

PPE Selection:

When the walk-through is complete, Wetherbee Electric, Inc. organizes and analyzes the information so that it may be efficiently used in determining the proper types of PPE required at the worksite. It is desired to select PPE that will provide a level of protection greater than the minimum required to protect employees from hazards.



Hazard Assessment

Reassessment:

The job site should be periodically reassessed for any changes in conditions, equipment, or operating procedures that could affect occupational hazards. This periodic reassessment should also include a review of injury and illness records to spot any trends or areas of concern, plus any appropriate corrective action. The suitability of existing PPE, including an evaluation of its condition and age, should be included in the reassessment.



Hazard Assessment

Documentation:

Documentation of the hazard assessment is required and includes the following information:

- Identification of the workplace evaluation
- Name of the person conducting the assessment
- Date of the assessment
- Identification of the document certifying completion of the hazard assessment



Selection of PPE

Fit:

PPE that fits well and is comfortable to wear will encourage employee use. Most protective devices are available in multiple sizes and care should be taken to select the proper size for each employee. If several different types of PPE are worn together, make sure they are compatible. If PPE does not fit properly, it can make the difference between being safely covered or dangerously exposed.



Selection of PPE

Standard Requirements:

OSHA requires that many categories of PPE meet or exceed the standards developed by the American National Standards Institute (ANSI). Existing PPE stocks must meet the ANSI standard in effect at the time of its manufacture or provide protection equivalent to PPE manufactured to the ANSI criteria. Employees may provide their own PPE, but that PPE is subject to the approval of Wetherbee Electric, Inc. to ensure that it conforms to the employer's criteria, based on the hazard assessment, OSHA requirements, and ANSI standards.



Selection of PPE

Hand Protection:

For hand protection, OSHA recommends selecting PPE based upon the tasks to be performed and the performance and construction characteristics of the glove material. For protection against chemicals, glove selection must be based on the chemicals encountered, the chemical resistance, and the physical properties of the glove material.



Eye and Face Protection

Selection and Use:

Many occupational eye injuries occur because workers are not wearing any eye protection, or are wearing improper or poorly fitting eye protection. Wetherbee Electric, Inc. requires that their employees wear appropriate eye and face protection and that the selected protection is appropriate to the work being performed and properly fits each worker.



Eye and Face Protection

Prescription Lenses:

Everyday use of prescription corrective lenses will not provide adequate protection against most occupational eye and face hazards, so Wetherbee Electric, Inc. makes sure that employees with corrective lenses either wear eye protection that incorporates the prescription into the design or wear additional eye protection over their prescription lenses. Also, employees who wear contact lenses must wear eye or face PPE when working in hazardous conditions.



Eye and Face Protection

Hazard Assessment:

OSHA suggests that eye protection be routinely considered for use by carpenters, electricians, machinists, mechanics, millwrights, plumbers and pipefitters, sheet metal workers and tinsmiths, assemblers, sanders, grinding machine operators, sawyers, welders, laborers, chemical process operators and handlers, and timber cutting and logging workers. Wetherbee Electric, Inc. will decide whether there is a need for eye and face PPE through a hazard assessment.



Eye and Face Protection

Potential Injuries:

- Dust, dirt, metal or wood chips entering the eye from activities such as chipping, grinding, sawing, hammering, the use of power tools or even strong wind forces
- Chemical splashes from corrosive substances, hot liquids, solvents or other hazardous solutions
- Objects swinging into the eye or face, such as tree limbs, chains, tools or ropes
- Radiant energy from welding, harmful rays from the use of lasers or other radiant light (as well as heat, glare, sparks, splash and flying particles)



Eye and Face Protection

Type Selection:

- 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

Each type of protective eyewear is designed to protect against specific hazards. Wetherbee Electric, Inc. will identify the specific workplace hazards that threaten employees' eyes and faces by completing a hazard assessment as outlined in the earlier section.



Eye and Face Protection

Procurement:

Wetherbee Electric, Inc. may choose to provide one pair of protective eyewear for each position rather than individual eyewear for each employee. If this is done, Wetherbee Electric, Inc. will 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 among employees.

Types of Protection

Safety Spectacles:

These protective eyeglasses have safety frames constructed of metal or plastic and impact-resistant lenses. Many clients require side shields.

Goggles:

These are tight-fitting eye protection that completely covers the eyes, eye sockets, and the facial area immediately surrounding the eyes and provides protection from impact, dust, and splashes.

Types of Protection

Welding Shields:

Constructed of vulcanized fiber or fiberglass and fitted with a filtered lens, welding shields protect eyes from burns caused by infrared or intense radiant light; they also protect both the eyes and face from flying sparks, metal spatter, and slag chips produced during welding, brazing, soldering, and cutting operations.

Types of Protection

Laser Safety Goggles:

These specialty goggles protect against intense concentrations of light produced by lasers. The type of safety goggles chosen will depend upon the equipment and operating conditions in the workplace.

Types of Protection

Face Shields:

These transparent sheets of plastic extend from the eyebrows to below the chin and across the entire width of the employee's head. Some are polarized for glare protection. Face shields 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.

Types of Protection

Welding Operations:

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 the arc current.



Head Protection

Duty To Have Protection:

- Objects might fall from above and strike them on the head
- They might bump their heads against fixed objects, such as exposed pipes or beams
- There is a possibility of accidental head contact with electrical hazards
- The client requires head protection



Head Protection

General Features:

- Resist penetration by objects
- Absorb the shock of a blow
- Be water-resistant and slow burning
- Have clear instructions explaining proper adjustment and replacement of the suspension and headband



Head Protection

Types of Hard Hats:

There are two types of hard hats based on the impact protection they provide:

Type I:

Conventional hard hats that are designed to reduce the force of impact to the top of the head, neck, and spine.

Type II:

Designs that offer additional impact protection to the front, sides, and back, as well as the top of the head.



Head Protection

Types of Hard Hats:

Bump Caps:

These are recommended for areas where protection is needed from head bumps and lacerations. These are not designed to protect against falling or flying objects and are not ANSI approved. It is essential to check the type of hard hat employees are using to ensure that the equipment provides appropriate protection.



Head Protection

Types of Hard Hats:

Sizing:

Head protection that is either too large or too small is inappropriate for use, even if it meets all other requirements. Protective headgear must fit appropriately on the body and for the head size of each individual. Most protective headgear comes in a variety of sizes with adjustable headbands to ensure a proper fit. A proper fit allows sufficient clearance between the shell and the suspension system for ventilation and distribution of an impact.



Head Protection

Types of Hard Hats:

Accessories:

Some protective headgear allows for the use of various accessories to help employees deal with changing environmental conditions, such as slots for earmuffs, safety glasses, face shields, and mounted lights. Optional brims may provide additional protection from the sun and some hats have channels that guide rainwater away from the face. Protective headgear accessories must not compromise the safety elements of the equipment.



Head Protection

Types of Hard Hats:

Cleaning and Inspection:

Periodic cleaning and inspection will extend the useful life of protective headgear. A daily inspection of the hard hat shell, suspension system and other accessories for holes, cracks, tears, or other damage that might compromise the protective value of the hat is essential.

Paints, paint thinners, and some cleaning agents can weaken the shells of hard hats and may eliminate electrical resistance. Never drill holes, paint, or apply labels to protective headgear as this may reduce the integrity of the protection. Do not store protective headgear in direct sunlight, such as on the rear window shelf of a car, since sunlight and extreme heat can damage them.



Head Protection

Types of Hard Hats:

Impacts:

Always replace a hard hat if it sustains an impact, even if damage is not visible. Suspension systems are offered as replacement parts and should be replaced when damaged or when excessive wear is noticed.



Foot and Leg Protection

Duty To Have Protection:

Employees who could possibly get foot or leg injuries from falling, 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.



Foot and Leg Protection

Types of Protection:

- **Leggings:** protect the lower legs and feet from heat hazards such as molten metal or welding sparks. Safety snaps allow leggings to be removed quickly.
- **Metatarsal Guards:** protect the instep area from impact and compression. Made of aluminum, steel, fiber, or plastic, these guards may be strapped to the outside of shoes.
- **Toe Guards:** fit over the toes of regular shoes to protect the toes from impact and compression hazards. They may be made of steel, aluminum, or plastic.



Foot and Leg Protection

Types of Protection:

- **Combination Foot and Shin Guards:** protect the lower legs and feet, and may be used in combination with toe guards when greater protection is needed.
- **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 the buildup of static electricity in areas with the potential for explosive atmospheres or nonconductive to protect workers from workplace electrical hazards.



Foot and Leg Protection

Special Purpose Shoes:

Electrically conductive shoes provide protection against the buildup of static electricity. Employees working in explosive and hazardous locations such as explosives manufacturing facilities or grain elevators must wear conductive shoes to reduce the risk of static electricity buildup on the body that could produce a spark and cause an explosion or fire. Foot powder should not be used in conjunction with protective conductive footwear because it provides insulation, reducing the conductive ability of the shoes.



Foot and Leg Protection

Nonconductive Shoes:

Electrical hazard, safety-toe shoes are nonconductive and will prevent the wearers' feet from completing an electrical circuit to the ground. These shoes can protect against open circuits of up to 600 volts in dry conditions and should be used in conjunction with other insulating equipment and additional precautions to reduce the risk of a worker becoming a path for hazardous electrical energy.

The insulating protection of electrical hazard, safety-toe shoes may be compromised if the shoes become wet, the soles are worn through, metal particles become embedded in the sole or heel, or workers touch conductive, grounded items. Nonconductive footwear must not be used in explosive or hazardous locations.



Foot and Leg Protection

Foundry Shoes:

In addition to insulating the feet from the extreme heat of molten metal, foundry shoes keep hot metal from lodging in shoe eyelets, tongues or other shoe parts. These snug-fitting leather or leather-substitute shoes have leather or rubber soles and rubber heels. All foundry shoes must have built-in safety toes.



Foot and Leg Protection

Care:

Safety footwear should be inspected prior to each use. This includes looking for cracks or holes, separation of materials, and broken buckles or laces. The soles of shoes should be checked for pieces of metal or other embedded items that could present electrical or tripping hazards. Employees should follow the manufacturers' recommendations for cleaning and maintenance of protective footwear.

A decorative graphic in the top right corner consisting of several overlapping yellow hexagons of varying sizes and orientations, creating a geometric pattern.

Hand and Arm Protection

Duty to Have Protection:

If a workplace hazard assessment reveals that employees face potential injury to hands and arms that cannot be eliminated through engineering and work practice controls, Wetherbee Electric, Inc. requires that employees wear appropriate protection. Potential hazards include skin absorption of harmful substances, chemical or thermal burns, electrical dangers, bruises, abrasions, cuts, punctures, fractures, and amputations. Protective equipment includes gloves, finger guards, and arm coverings or elbow-length gloves. In some cases, clients require fire retardant clothing, such as Nomex. Such garments typically must have long sleeves.

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Hand and Arm Protection

Engineering and Work Practice Controls:

Wetherbee Electric, Inc. explores possible engineering and work practice controls to eliminate hazards and use PPE to provide additional protection against hazards that cannot be completely eliminated through other means. For example, machine guards may eliminate a hazard. Installing a barrier to prevent workers from placing their hands at the point of contact between a table-saw blade and an item being cut is another method.



Hand and Arm Protection

Selection of Gloves:

There are many types of gloves available to protect against a variety of hazards. The nature of the hazard and the operation involved will affect the selection of gloves. The variety of potential occupational hand injuries makes selecting the right pair of gloves challenging. It is essential that employees use gloves specifically designed for the hazards and tasks found in their workplace because gloves designed for one function may not protect against a different function even though they may appear to be an appropriate protective device.



Hand and Arm Protection

Selection of Gloves:

The following are factors that may influence the selection of protective gloves for a workplace:

- Type of chemicals to be 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



Categories of Gloves

Leather, Canvas, and Metal Mesh Gloves:

Sturdy gloves made from metal mesh, leather, or canvas provide protection against cuts and burns. Leather or canvas gloves also protect against sustained heat. Leather gloves protect against sparks, moderate heat, blows, chips, and rough objects.



Categories of Gloves

Aluminized Gloves:

Provide reflective and insulating protection against heat and require an insert made of synthetic materials to protect against heat and cold.

Aramid Fiber Gloves:

Protect against heat and cold, are cut and abrasive resistant and wear well.



Categories of Gloves

Synthetic Gloves of Various Materials:

Offer protection against heat and cold are cut and abrasive resistant and may withstand some diluted acids. These materials do not stand up against alkalis and solvents.

Fabric and Coated Fabric Gloves:

Are made of cotton or other fabric to provide varying degrees of protection. Fabric gloves protect against dirt, slivers, chafing, and abrasions. They do not provide sufficient protection for use with rough, sharp, or heavy materials. Adding a plastic coating will strengthen some fabric gloves. Coated fabric gloves are normally made from cotton flannel with napping on one side.



Categories of Gloves

Chemical and Liquid Resistant Gloves:

Chemical resistant gloves are made with different kinds of rubber: natural, butyl, neoprene, nitrile, and fluorocarbon (viton); or various kinds of plastic: polyvinyl chloride (PVC), polyvinyl alcohol, and polyethylene. These materials can be blended or laminated for better performance. As a general rule, the thicker the glove material, the greater the chemical resistance, but thick gloves may impair grip and dexterity, having a negative impact on safety.



Categories of Gloves

Chemical and Liquid Resistant Gloves:

Butyl gloves are made of a synthetic rubber and protect against a wide variety of chemicals, such as peroxide, rocket fuels, highly corrosive acids (nitric acid, sulfuric acid, hydrofluoric acid and red-fuming nitric acid), strong bases, alcohols, aldehydes, ketones, esters, and nitro-compounds. Butyl gloves also resist oxidation, ozone corrosion, and abrasion, and remain flexible at low temperatures. Butyl rubber does not perform well with aliphatic and aromatic hydrocarbons and halogenated solvents.



Categories of Gloves

Chemical and Liquid Resistant Gloves:

Natural (latex) rubber gloves are comfortable to wear, which makes them a popular general-purpose glove. They feature outstanding tensile strength, elasticity, and temperature resistance. In addition to resisting abrasions caused by grinding and polishing, these gloves protect workers' hands from most water solutions of acids, alkalis, salts, and ketones. Latex gloves have caused allergic reactions in some individuals and may not be appropriate for all employees. Hypoallergenic gloves, glove liners, and powderless gloves are possible alternatives for workers who are allergic to latex gloves.



Categories of Gloves

Chemical and Liquid Resistant Gloves:

Neoprene gloves are made of synthetic rubber and offer good pliability, finger dexterity, high density, and tear resistance. They protect against hydraulic fluids, gasoline, alcohols, organic acids, and alkalis. They generally have chemical and wear resistance properties superior to those made of natural rubber.



Categories of Gloves

Chemical and Liquid Resistant Gloves:

Nitrile gloves are made of a copolymer and provide protection from chlorinated solvents such as trichloroethylene and perchloroethylene.

Although intended for jobs requiring dexterity and sensitivity, nitrile gloves stand up to heavy use even after prolonged exposure to substances that cause other gloves to deteriorate. They offer protection when working with oils, greases, acids, caustics, and alcohols but are generally not recommended for use with strong oxidizing agents, aromatic solvents, ketones, and acetates.



Categories of Gloves

Care:

Protective gloves should be inspected before each use to ensure that they are not torn, punctured, or made ineffective in any way. A visual inspection will help detect cuts or tears, and filling the gloves with water and tightly rolling the cuff towards the fingers will help reveal any pinhole leaks. Gloves that are discolored or stiff may also indicate deficiencies caused by excessive use or degradation from chemical exposure.



Categories of Gloves

Removal from Service:

Any gloves with impaired protective ability should be discarded and replaced. Reuse of chemical-resistant gloves should be evaluated carefully, taking into consideration the absorptive qualities of the gloves. A decision to reuse chemically-exposed gloves should take into consideration the toxicity of the chemicals involved and factors such as duration of exposure, storage and temperature.



Body Protection

Duty to Have Protection:

Employees who face possible bodily injury of any kind that cannot be eliminated through engineering, work practice or administrative controls, must wear appropriate body protection while performing their jobs.



Body Protection

Full Body Protection:

If a hazard assessment indicates a need for full body protection against toxic substances or harmful physical agents, the clothing should be carefully inspected before each use. It must fit each worker properly, and it must function properly and for the purpose for which it is intended. Refineries and chemical plants typically require Nomex fire retardant clothing.



Body Protection

Materials:

Protective clothing comes in a variety of materials, each effective against particular hazards, such as:

- Nomex fire retardant clothing to protect against accidental fires and flames
- Paper-like fiber used for disposable suits provide protection against dust and splashes
- Treated wool and cotton adapts well to changing temperatures, is comfortable and fire-resistant and protects against dust, abrasions, and rough and irritating surfaces



Body Protection

Materials:

- Duck is a closely woven cotton fabric that protects against cuts and bruises when handling heavy, sharp, or rough materials
- Leather is often used to protect against dry heat and flames
- Rubber, rubberized fabrics, neoprene and plastics protect against certain chemical and physical hazards. When chemical or physical hazards are present, check with the clothing manufacturer to ensure that the material selected will provide protection against the specific hazard.



We are your single source integrator for parking access, security, and electrical projects.

Wetherbee Electric, Inc. was established in Oklahoma in 1899. For over 120 years, our company has been shaped by a tradition of excellence. Wetherbee Electric has cultivated strong relationships inside Oklahoma and out.

Our construction projects have ranged from Montana to Texas, and California to Maine. We even have offshore experience in Puerto Rico and the Isle of Trinidad.

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If you have any questions, please feel free to contact us via phone or email: