

Personal Protective Equipment (PPE)

Individual clothing and personal protective equipment (PPE) requirements are determined by a hazard assessment of the job tasks being performed and workplace environment, review of applicable safety data sheets, facility signage, and other suitable information.

PPE is to be used for protection only after instituting all feasible engineering and work practice controls to eliminate and reduce hazards.

Before starting work, check that your PPE is suitable for the purpose, in good condition, worn correctly, and does not impede movement. Avoid loose-fitting jackets, scarfs, neckties, jewelry, flared or cuffed pants, unconfined long hair or anything that could become entangled with machinery or caught on objects.

PPE and clothing exposed to infectious materials, designated for animal areas, or contaminated with any other harmful substance must not be worn in public areas or taken home.

For effective PPE use, ensure employees are told and understand ...

- Which specific PPE is required for their job task.
- Where to obtain PPE – initial and replacement.
- How to inspect PPE for damage and identify when replacement is necessary.
- How to clean/disinfect as necessary and store PPE.
- How to wear, adjust, and use PPE for proper fitment and protection.
- Limitations of that particular PPE.

To help ensure employee usage of PPE ..

- Maintain an easily accessible supply -keep PPE close by in the shop, office, lab or work truck.
- Let your employees have a choice on comfort, fit, & style if there are options.

The following pages contain information that is grouped by body part.

It is not all inclusive, but intended to highlight areas of importance related to personal protective equipment.

Proper PPE selection, fitting, and training is necessary before use; always ask for safety professional guidance if unsure about anything.

Note: This information does not include PPE required for electric power and high voltage workers.

Eye / Face Protection

Employee uses appropriate eye or face protection when exposed to eye or face hazards from impact or contact with flying particles, molten metal, liquid splashes, or potentially injurious light radiation.

All eye/face protection (safety glasses, goggles, face shields) should meet ANSI (American National Standards Institute) requirements of ANSI Z87.1. These will be indicated by the Z87.1 marking on inside of the lens, shield or ear piece. Prescription glasses or sunglasses without the ANSI markings are not to be used in place of safety glasses.

Ensure compatibility with prescription eyewear – Some employees need corrective lens prescriptions. The eye/face protection of these employees must be compatible with the prescription eyewear with two options:

- Incorporate the employee's prescription into the lens of the eye protection equipment or,
- Supply eye protection equipment to be worn over the prescription eyewear – if this is the case, ensure that the prescription lenses are compatible and do not obstruct the positioning or functioning of the other.

Safety glasses /Goggles - Primary protectors for the eyes.

Face shields - Secondary protectors for the eyes and intended to protect the entire face against exposure to impact hazards. Always wear safety glasses under the face shield because the bottom and sides of face shields typically have gaps; liquid or debris passing through these gaps can contact your eyes, potentially causing an injury.

Verify that filtered lenses have the appropriate shade number - Certain operations, such as welding/cutting, require the use of filtered lenses to shield the eyes against potentially harmful light radiation. These filters are defined by shade numbers. The higher the number the darker the shading and more filtering.

Several common operation and the shade lens needed (*reference [29 CFR 1926.102](#) for a complete list*):

- Stick welding: 1/16 to 5/32" electrode – shade 10; 3/16 to 1/4" electrode – shade 12
- MIG/TIG welding: 1/16 to 5/32" electrode (nonferrous/aluminum) shade 11, (ferrous) shade 12.
- Soldering – shade 2
- Cutting – shade 5

Head Protection

Head protection (hard hat, bump cap) is needed for employees if objects might fall from above and strike them on the head, if they might bump their heads against fixed objects, such as exposed pipes or beams, or if they work near exposed electrical conductors. A cap or hard hat with a full brim is advantageous for sun protection or deflecting rain/snow.

Hard hats are designed with high quality, wear-resistant materials but it will not last forever. The protective properties of the helmet will be degraded by exposure to many common work environments, such as temperature extremes, chemical exposure, sunlight and normal daily wear and tear. In general, it is recommended to replace a hard hat suspension every 12 months and the entire hard hat after no more than 5 years; or service life as recommended by the manufacture. Earlier replacement is necessary when damaged or if has withstood impact or penetration.

Bump caps are designed to protect the wearer from minor head bumps and lacerations, but are not intended to protect from falling or flying objects. Bump caps should be used when there is a risk of impact between the head and stationary objects - like low ceilings, overhead piping, or hanging items. When there's a risk of impact with moving objects of any type, a hard hat must be used.

Hands / Arms

Protective gloves are the primary means of protecting hands. When the risk of injury includes the arm, protective sleeves, often attached to the gloves, may be appropriate too.

There is a large variety of glove/sleeve materials, protective features, and sizes available. Selections should be based on the nature of the hazard.

Disposable, single use gloves may be necessary to avoid cross contaminations or protection from biohazard materials. In these cases, special precautions must be taken to avoid bare skin contact with the contaminants during glove/sleeve removal when the job task is finished. Specific waste disposal regulations may apply.

Feet / Legs

Good footing is most important in any work area. Proper footwear may include steel toes, chemical resistance, cold protection or variety of other features to prevent injury from the hazards present. Proper footwear can also help eliminate slips, trips, and falls, as well as fatigue.

There are very few to no laboratory, animal facilities or labor-type work areas where sandals or open toed/ slip-on type shoes are permissible. Wear disposable shoe covers whenever working with an infected animals, their waste, or other infectious hazards to prevent cross contamination.

Some of the potential hazards that would require feet/leg protection include:

- Heavy objects that might roll onto or fall onto employees' feet
- Sharp objects such as nails or fish fins that might pierce the soles or uppers of ordinary shoes
- Chemicals or molten metal that might splash on feet or legs
- Laceration from chainsaw operation
- Legs struck by objects thrown during weed trimmer/edger operation
- Falls from slipping on wet or unexpected surfaces

Body – Skin / Whole Body

Hazards to your body/skin can vary from physical hazards found in a laboratory (chemical splashes), a shop (hot work sparks), or a kitchen (hot grease); but can also come from extreme weather when working outdoors. Proper body/skin protection can help prevent everything from sunburn and frost bite to heat stroke and hypothermia.

In animal facilities and laboratories, wear dedicated work clothes or outer protective clothing (e.g., lab coat, scrubs, gown, Tyvek suit), especially when in contact with infected animals, their waste or bodily fluids, and infectious or chemical hazard.

High Visibility Clothing – necessary when working along roadways, construction areas, or where heavy equipment is in operation. All highly visible clothing whether it's a vest, jacket or shirt should be bright fluorescent orange or lime/yellow and have visible reflective material when working at night. Keep in mind that this clothing can fade over time from sun exposure and the washing machine; get new when this happens.

Life Jackets (or Personal Flotation Device -PFD) – necessary when working near water. The selection of life jacket design should be based on the work, boating activity and water conditions that will be encountered for the specific job task. Each PFD has its own maximum buoyancy, performance level, and limitations. Life jackets must be Coast Guard-approved, in serviceable condition and the appropriate size for the intended user.

Fall Arrest/Restraints

Precautions need to be taken whenever there are elevated surfaces over 4 feet in general workplaces or over 6 feet high in construction (heights vary depending on the job task).

Fall protection can include hand rails, safety nets, stair railings, personal fall arrest harness and restraint systems to name a few. Each component of the fall protection must meet strength/weight criteria based on the work conditions, environment, and individual using it. End users must be trained so that they understand the limitations and proper use of their equipment. If there is a job task where you need a personal fall arrest system, having the correct and compatible components is critical, ask for professional guidance before making these purchases and for training.

Lungs / Respiratory

When employees must work with harmful dusts, fogs, smokes, mists, fumes, gases, vapors, sprays or insufficient oxygen, work practice and engineering controls should be implemented first to create a nonhazardous atmosphere. When measures such as enclosing or confining the contaminant-producing operation, exhausting the contaminant, or substituting with less toxic materials does not eliminate the hazard completely or reduce it to below the permissible exposure limits, the employee will need a respirator.

A respirator guards the wearer against hazardous atmospheres by covering the nose and mouth or the entire face or head. Respirators have their limitations; different hazards require different respirators and specific components. When the hazard results from a known chemical or substance, the safety data sheet is a reliable source for information to help with respirator selection.

If there is a specific job task where a respirator is necessary, ask for safety professional guidance to ensure proper selection, training, fit testing, and medical evaluation forms, before use.

Ears / Hearing

Hearing protection is usually in the form of ear plugs or ear muffs. It is necessary, by regulatory definition, when the employee's noise exposure exceeds an 8-hour time-weighted average sound level (TWA) of 90 dBA (dose of 100 percent). However, even short-term exposure to loud noise can hurt. After just 15 minutes, you're potentially damaging your hearing. Exposure to the sound of just one gunshot without ear protection can permanently damage your hearing. So take precaution and wear hearing protection.

Do not allow ear plugs & muffs to become dirty to avoid ear infection. Ear plugs are disposable & should be replaced often as needed. Ear muffs may become soiled from sweat and should be properly cleaned & foam/cushions replaced if necessary.