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Personal Protective Equipment

PFI Personal Protective Equipment Best Practice

In the fabrication industry, employees are exposed to flying particles, falling objects, sharp edges, heat, cold, light and other potentially hazardous situations, which require special personal protective equipment. Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact. In general, employers provide all personal protective equipment except prescription safety glasses, boots and work clothing.

Generally Required Protective Equipment

- Employees are trained prior to wearing personal protective equipment. Training should occur at initial job placement and when there are changes to the work or equipment or when employee demonstrates improper use or understanding. Training documentation should include the employees name and date of training. Training should include the following topics:
    - When PPE is necessary / what PPE is necessary
    - How to put on, take off, adjust and wear PPE
    - The limitations of PPE
    - The proper care, maintenance, useful life and disposal of PPE

- Written hazard assessments should be performed for all tasks involving the use of PPE. Hazard assessments are performed by field supervision and or the safety department and are documented and signed as part of the assessment or job hazard analysis.
- All PPE should be properly fitted to each affected employee to allow for proper donning, doffing, cleaning and maintenance.
- Because of the diversity in fabrication shops, hard hats are generally not required in designated fabrication shop areas unless an assessment of overhead work deems it necessary. In most cases field operations require employees to wear hard hats. The hard hat should be in good condition with the suspension system intact. It's important to keep in mind that hard hats have an expiration date and should be inspected as any other piece of personal protective equipment
- All employees, subcontractors and visitors should wear safety glasses that conform to the ANSI Z87.1 standard. Prescription safety glasses should also conform to the ANSI Z87.1 standard and be equipped with hard side shields. Additional types of eye protection will be worn while performing the following tasks:

    - Welding, burning or cutting with a torch will require a welding shield or appropriately shaded burning glasses.
    - Using abrasive wheels and portable grinders will require a full-face shield with safety glasses.
    - Working with splashing chemicals requires a full-face shield with safety glasses.

- All employees, subcontractors and visitors should wear steel toed boots/shoes while on a jobsite project or shop location. Check with your supervisor or the site location to verify the requirement and plan accordingly.
- All employees, subcontractors and visitors should wear long pants and a shirt with at least 4" of sleeve. Cut-off pants/shirts or tank tops should not be permitted. Employee's performing work in designated fabrication shop areas and in the field will be required to wear long sleeve cotton or denim shirts.
- Due to the substantial amounts of hot work, frayed or torn clothing will not be acceptable.
- All employees, subcontractors and visitors should wear clothing necessary to protect against the current weather conditions.
- All personal protective equipment will be kept as clean as possible and will be replaced when there is damage, or a defect is present. Defective or damaged personal protective equipment should not be used.
- All employee-owned equipment must be approved for use by the project supervisor, foreman or a member of the safety department and must conform to the same standards as company issued equipment.

Gloves

When there is a chance that an employee could receive cuts, abrasions, exposures to high and low temperatures, exposures to chemicals, and exposures to vibration, hand protection will be made available. If a task or job site hazard exists that may cause hand injuries protective gloves will be mandatory. Selection of the hand protection will be based on the tasks to be performed, and the conditions present.

The following outlines the types of gloves typically worn for mechanical work exposures.

1. **Leather** – Leather gloves protect against abrasion and offer a minimal level of cut-resistance.
2. **Cut-resistant** – These gloves can be made from a variety of materials including natural and synthetic fibers and can prevent against cuts, lacerations and in some cases punctures.

3. **Chemical-resistant** – Chemical-resistant glove materials also vary and include things like latex, nitrile and other rubbers and synthetic materials. These gloves can help prevent dermatitis and chemical burns.
4. **Insulated** – These gloves contain extra layers of protection to keep the hands safe in cold or hot environments (or when touching cold or hot objects).
5. **Anti-vibration** – While vibration is not specifically a skin issue, vibrating tools can cause nerve damage in the hands, and this type of glove can help alleviate that problem.

Exemption: When operating moving machinery such as drills presses, table saws, pedestal grinders, sheet metal rolls or other rotating and moving equipment, gloves **SHOULD NOT** be worn, as the equipment could catch the glove and pull the employee's hand into the hazardous areas.

Voluntary use of Repiratory Equipment

When voluntarily using a dust mask style (N95) respirator ensure that you discard the respirator if it becomes difficult to breathe through or if it becomes damaged, and make sure you follow these additional guidelines for fitting and checking the fit of the dust mask style respirator:

1. Cup the respirator in your hand allowing the head straps to hang freely
2. Hold the respirator under your chin with the nosepiece facing outwards
3. Place the lower head strap around your neck below your ears
4. Hold the respirator against your face with one hand, and place the top head strap above the ears, around the crown of the head
5. Place hands on each side of the respirator and adjust the fit of the respirator

In addition, fit-check the respirator as follows:

1. Place both hands over the respirator without disturbing fit
2. If respirator is not fitted with an exhalation valve, exhale sharply and you should feel a positive pressure inside the respirator
3. If respirator is fitted with and exhalation valve, inhale sharply and you should feel a negative pressure inside the respirator
4. If you detect air leaks, readjust the respirator and repeat these steps

- It is important to remember that dust mask style (N95) respirators have the following limitations. Do not use this style respirator;

1. If atmosphere contains less than 19.5 % oxygen
2. If atmosphere contains oil aerosols
3. If protection from gases and vapors is needed
4. If concentrations are unknown, immediately dangerous to life and health, or exceed maximum use concentrations as published by federal, state or local regulatory agencies
5. If facial hair interferes with direct contact between your face and the seal of the respirator

If your job requires use of respiratory protection over and above the use of a dust mask style respirator you will need to be fitted with the respirator you will be wearing and medically cleared to wear one.

Hearing Protection

Hearing protection should be worn by employees, subcontractors and visitors who are exposed to a sound level of greater than 85 decibels over an 8 hr. time weighted average (TWA). Supervisors should be aware of operations that produce this sound level. Employees may choose the type of hearing protection that best suits their assignment and personal preference. Each employee required to wear hearing protection is responsible for carrying hearing protection on his/her person. Hearing protection is furnished at no cost to employees and may be distributed to the employee as either ear plugs or ear muffs.

Real World Attenuation

To compute the actual hearing protection level of the PPE, subtract 7dB(A) from the Noise Reduction Rating (NRR) found on the specific hearing PPE, divide the number by 2, and subtract the remainder from the measured noise level dB(A).

For example: NRR of 29 -7 = 22 dB(A)
22 dB(A) ÷ 2 = 11 dB(A)
Noise level of 95 dB(A) – 11 = 84 dB(A)
Therefore, this device offers an approximate protection level of 11 dB(A)