

OSHA Personal Protective Equipment Standard

Annual Training

This program was developed by:

Environmental Health & Safety
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Overview

Purpose

This self-learning packet can be used to complete the annual refresher training for the use and care of Personal Protective Equipment (PPE). If you have any questions about the materials or require additional information please contact Environmental Services at 998-1450. The packet requires completion of a **post-test**, which will be reviewed by your supervisor.

Objectives

Personnel who complete this packet in conjunction with training from their supervisor in specific department Personal Protective Equipment (PPE) use will be familiar with:

- The OSHA Personal Protective Equipment Standard;
- What PPE is necessary;
- When PPE is necessary;
- NYU's PPE Policy;
- How to properly don, doff, adjust, and wear PPE
- The limitations of the PPE; and
- The proper care, maintenance, useful life, and disposal of the PPE.

Instructions

1. Review the Purpose and Objectives (above).
2. Review the reference materials, which are included in this packet.
3. Complete the post-test and return the completed post-test to your supervisor.

Protect Yourself with PPE

PPE Is:

Hard hats, goggles, face shields, earplugs, steel-toed shoes, respirators. What do all these items have in common? They are all various forms of personal protective equipment, designed to protect workers from injury and illness.

Yet, data from the Bureau of Labor Statistics show:

- Hard hats were worn by only 16% of those workers who sustained head injuries, although two-fifths were required to wear them for certain tasks at specific locations;
- Only 1% of approximately 770 workers suffering face injuries were wearing face protection;
- Only 23% of the workers with foot injuries wore safety shoes or boots;
- About 40% of the workers with eye injuries wore eye protective equipment.

A majority of these workers were injured while performing their normal jobs at regular worksites.

Head Protection

Cuts or bruises to the scalp and forehead occurred in 85% of the cases, concussions in 26%. Over a third of the cases resulted from falling objects striking the head. Protective hats for head protection against impact blows must be able to withstand penetration and absorb the shock of a blow. In some cases hats should also protect against electric shock.

Foot And Leg Protection

Sixty-six percent of injured workers were wearing safety shoes, protective footwear, heavy-duty shoes or boots, and 33% were wearing regular street shoes. Of those wearing safety shoes, 85% were injured because the object hit an unprotected part of the shoe or boot.

For protection against falling or rolling objects, sharp objects, molten metal, hot surfaces and wet, slippery surfaces, workers should use appropriate foot guards, safety shoes or boots and leggings. Safety shoes should be sturdy and have an impact-resistant toe. Shoes must meet American National Standards Institute (ANSI) standards. ANSI ensures that certain products meet a quality standard through research and testing.

Eye And Face Protection

Injured workers surveyed indicated that eye and face protection normally was not used or practiced in their work areas, or it was not required for the type of work performed at the time of the accident. Almost one-third of face injuries were caused by metal objects, most often blunt and weighing one pound or more. Accidents resulted in cuts, lacerations, or punctures in 48% of the total, and fractures made up 27% of the total.

Ear Protection

Exposure to high noise levels can cause irreversible hearing loss or impairment. It can also create physical and psychological stress. A professional should individually fit pre-formed or molded earplugs. Waxed cotton, foam or fiberglass wool earplugs are self-forming. Generally, self-forming earplugs are sufficient.

Arm And Hand Protection

Burns, cuts, electrical shock, amputation and absorption of chemicals are examples of hazards associated with arm and hand injuries. A wide assortment of gloves, hand pads, sleeves and wristlets for protection from these hazards is available. The devices should be selected to fit the specific task. Glove manufacturers should be consulted to determine which of their products is suitable for the chemical or hazard that is being handled. Environmental Services can also be contacted to make appropriate glove choices.

Torso Protection

Many hazards can threaten the torso: heat, splashes from hot metals and liquids, impacts, cuts, acids, and radiation. A variety of protective clothing is available: vests, jackets, aprons, coveralls, and full body suits. Fire retardant wool and specially treated cotton clothing items are comfortable, and they adapt well to a variety of workplace temperatures. Other types of protection include leather, rubberized fabrics, and disposable suits.

REMEMBER

Using personal protective equipment requires hazard awareness and training on the part of the user. Employees must be aware that the equipment alone does not eliminate the hazard. If the equipment fails, injury may occur.

Eye Protection In The Workplace

Every day an estimated 1,000 eye injuries occur in American workplaces. The financial cost of these injuries is enormous--more than \$300 million per year in lost production time, medical expenses, and workers' compensation. No dollar figure can adequately reflect the personal toll these accidents take on the injured workers.

Take a moment to think about the possible eye hazards at your workplace. A 1980 survey by the Labor Department's Bureau of Labor Statistics (BLS) of about 1,000 minor eye injuries reveals how and why many on-the-job accidents occur.

What Contributes To Eye Injuries At Work?

Not wearing eye protection

BLS reports that nearly three out of every five workers injured were not wearing eye protection at the time of the accident.

Wearing the wrong kind of eye protection for the job

About 40 of the injured workers were wearing some form of eye protection when the accident occurred. These workers were most likely to be wearing eyeglasses with no side shields, though injuries among employees wearing full-cup or flat-fold side shields occurred, as well.

What Causes Eye Injuries?

Flying particles

BLS found that almost 70% of the accidents studied resulted from flying or falling objects or sparks striking the eye. Injured workers estimated that nearly three-fifths of the objects were smaller than a pin head. Most of the particles were said to be traveling faster than a hand- thrown object when the accident occurred.

Contact with chemicals

The survey showed that contact with chemicals caused one-fifth of the injuries. Other accidents were caused by objects swinging from a fixed or attached position, like tree limbs, ropes, chains, or tools which were pulled into the eye while the worker was using them.

Where Do Accidents Occur Most Often?

Craft work; industrial equipment operation. Potential eye hazards can be found in nearly every industry, but BLS reported that more than 40% of injuries studies occurred among craft workers, like mechanics, repairers, carpenters, and plumbers. Over a third of the injured workers were operatives, such as assemblers, sanders, and grinding machine operators.

Laborers suffered about one-fifth of the eye injuries. Almost half the injured workers were employed in manufacturing; slightly more than 20% were in construction.

How Can Eye Injuries Be Prevented?

Always wear effective eye protection. OSHA standards require that employers provide workers with suitable eye protection. To be effective, the eyewear must be of the appropriate type for the hazard encountered and properly fitted. For example, the BLS survey showed that 94% of the injuries to workers wearing eye protection resulted from objects or chemicals going around or under the protector. Eye protective devices should allow for air to circulate between the eye and the lens. Only 13 workers injured while wearing eye protection reported breakage.

Nearly one-fifth of the injured workers with eye protection wore face shields or welding helmets. However, only six percent of the workers injured while wearing eye protection wore goggles, which generally offer better protection for the eyes. Best protection is afforded when goggles are worn with face shields.

Better training and education. BLS reported that most workers were hurt while doing their regular jobs. Workers injured while not wearing protective eyewear most often said they believe it was not required by the situation. Even though the vast majority of employers furnished eye protection at no cost to employees, about 40% of the workers received no information on where and what kind of eyewear should be used.

Protectors shall meet the following minimum requirements:

- They shall provide adequate protection against the particular hazards for which they are designed.
- They shall be reasonably comfortable when worn under the designated conditions.
- They shall fit snugly and shall not unduly interfere with the movements of the wearer.
- They shall be durable.
- They shall be capable of being disinfected.
- Protectors should be kept clean and in good repair.

Persons whose vision requires the use of corrective lenses in spectacles, and who are required by this standard to wear eye protection, shall wear goggles or spectacles of one of the following types:

- Spectacles whose protective lenses provide optical correction.

- Goggles that can be worn over corrective spectacles without disturbing the adjustment of the spectacles.
- Goggles that incorporate corrective lenses mounted behind the protective lenses.

Every protector shall be distinctly marked to facilitate identification only of the manufacturer.

When limitations or precautions are indicated by the manufacturer, they shall be transmitted to the user and care taken to see that such limitations and precautions are strictly observed.

Design, construction, testing, and use of devices for eye and face protection shall be in accordance with American National Standard for Occupational and Educational Eye and Face Protection, Z87.1-1968.

Size and Style

Protective eyewear is available in several sizes and may be either single or double lens. Fit of the eyewear is very important. The closer the eyewear fits to the person's face, the less chance of an object getting in around the edge of the eyewear and striking the eye. A good fit is also important because if the eyewear is uncomfortable, workers will be less likely to wear it.

Frame and Lens Markings

Eye and face protection, such as glasses, goggles and face shields, that is in compliance with ANSI Z87.1-1989 (the standard OSHA refers to in their regulation 1910.133) shall be marked as illustrated to the right:

Safety eyewear is available in a wide variety of styles and colors to fit almost anyone's taste. Allowing workers to choose eyewear they like will increase their acceptance and wear time. And if your workers wear their eye protection regularly, they'll be less likely to suffer an eye injury.

EYE PROTECTION WORKS!

BLS reported that more than 50% of workers injured while wearing eye protection thought the eyewear had minimized their injuries. But nearly half the workers also felt that another type of protection could have better prevented or reduced the injuries they suffered.

It is estimated that 90% of eye injuries can be prevented through the use of proper protective eyewear. This is our goal and, by working together, OSHA, employers, workers, and health organizations can make it happen.

Are You at Risk for Hearing Loss?

How Can You Tell That You Have A Hearing Problem?

You may have to strain to hear normal conversation. Background noise at a social gathering, from a motor vehicle, or from machinery will interfere with your ability to hear more than it will with that of people who have normal hearing. You may find yourself turning up the volume of the television or radio so loud that others complain. Your hearing can be tested in the office of your physician or by an audiologist in order to confirm that there is a problem. This will help determine the cause. A visit to a physician who is an otolaryngologist (ear, nose and throat specialist) may be recommended. Contact Environmental Services if you feel that there is a potential noise problem in an employee work area. Environmental Services will measure the noise levels and determine if employees need to be included in the University's Hearing protection Program.

What Causes Hearing Loss?

We all experience a decrease in hearing with aging, which usually becomes apparent after age 50. Ear infections, seen most often in small children, can lead to hearing loss. If the noise is loud enough to prevent a conversation, it may be damaging your hearing.

- Exposure to noise from machinery is an important cause for hearing loss.
- Tractors, grinders, augers, and other machinery contribute to this problem.
- The noise from lawn mowers and chain saws can be harmful.
- Episodic, very loud sounds such as those generated by guns can damage hearing.
- Listening to loud music may also be a factor.
- Having the ear canal obstructed by ear wax can temporarily decrease hearing.
- A head injury may damage hearing.
- Rare causes of hearing loss include tumors, exposure to toxic medicines and inherited conditions.

What Treatment Is Available For Noise-Induced Hearing Loss?

Hearing aids can improve the hearing of those suffering from noise induced hearing loss. However, preventing the problem is the best approach to take.

How Can Noise-Induced Hearing Loss Be Prevented?

Wearing hearing protectors, consisting of earplugs or muffs, helps preserve hearing.

Selecting Hearing Protection

A wad of cotton won't protect the ears from a day of exposure to hazardous noise levels.

In fact, putting cotton in ears to soften loud noises provides very little protection, and a dangerous false sense of security. It helps to know how to select the right kind of hearing protection for the farm task at hand. Here are some considerations:

- Select the right style. The two most common types of protection are muffs worn over the ears, and plugs worn in the ears. Muffs are comfortable for longer wearing times but are not effective when obstructed by eyeglasses or hats.
- Hearing plugs are less noticeable than muffs and their small size makes them convenient to put in a pocket.
- Check the noise reduction rating (NRR). All hearing protection devices are rated according to how much noise (in decibels) they will reduce for the wearer. For general use, look for NRR of 25 or greater. Actual noise reduction will probably be about half of the manufacturer's NRR, because ratings were obtained under perfect lab conditions.
- Consider cost. Disposable ear plugs are available for about \$1; muffs, about \$15. Disposable plugs are popular for short wearing periods but can be expensive if protection is needed on a regular basis. Reusable plugs or muffs may be a better choice for frequent wearers.
- Use clean items. Disposable plugs cannot be washed or used again. Use warm, soapy water to wash reusable devices; thoroughly rinse and dry them, and store in a clean, covered container.

Protecting Your Feet

Use protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, or where you are exposed to electrical hazards.

Personal Protective Equipment Check

- Protective footwear must meet ANSI Standard Z41-1991
- Check your footwear every day for damage
- Consider using replaceable cushioned insoles for added comfort
- Select footwear with good ankle support
- Use electrically rated footwear for electrical work
- Keep socks & footwear dry - change if wet
- Wear Rubber boots in wet areas
- Wear chemical resistant shoes if handling chemicals
- Select footwear with non-skid soles

Work Area Safety Check

Avoid slips and falls by:

- Watching for loose material in floor or ground
- Walking around material, not over it
- Not stepping in liquid spills

Avoid Rollover Injuries by:

- Keeping feet away from rolling equipment
- Staying out of Forklift Traffic Lanes

Avoid Foot Punctures by:

- Using footwear with steel shanks
- Keeping sharp objects out of walkways

Pre-Use Safety Check:

- Good tread on soles
- Laces not worn, frayed or too long
- Don't wear wet or damp footwear
- No separation between sole and upper
- No holes or tears

Protect Your Head

Use protective headgear when working in areas where there is a potential for injury to the head from falling objects or in areas where you could bump your head on objects.

Personal Protective Equipment Check

- Protective head gear must meet ANSI Z89.1-1986
- When near exposed electrical conductors which could contact the head use electrically rated head gear.
- Class A - protection against impact and penetration
- Class B - protection when working with electricity -no metal parts
- Class C - aluminum - not for use in electrical work
- Class D - worn by for firefighters - fire-resistant & nonconductive

Work Area Safety Check:

- Avoid working directly underneath workers above
- Use tool lanyards when working above someone
- Secure your tools when not using them
- Never work under a load
- Be aware of low overhead clearances

Pre-Use Safety Check:

- Check daily for cracks, breaks, deformities - replace if damaged
- Check head harness for proper adjustment
- Wear hard hats square on your head, not pushed back
- Simply dropping your hard hat can cause unseen damage
- Replace your head gear if it receives a sharp blow

Post Test

Name: _____ Date: _____

Department _____ Job Title: _____

_____ Bldg/Rm: _____

1. List the type(s) of PPE required for your task.
2. What are the hazards you are being protected against for each type of PPE used in your job?
3. Describe procedures for the use and care of the PPE you are using.
4. What should you look for to determine the PPE you are using is in good working order?
5. What actions do you take when your PPE becomes defective?

I have supplied _____ with the PPE Self Training Packet. I certify that he/she has completed the post test and I have reviewed the answers.

Supervisor's Signature

Date

I have been adequately trained on the use and care of PPE to be used by me. My supervisor has answered all questions to my satisfaction and I understand he/she will be available for follow-up training if needed.

Employee's Signature

Date

