



# City Safe

A Guide To Assist In Training  
Employees About:

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## Saving Your Senses

Number 12

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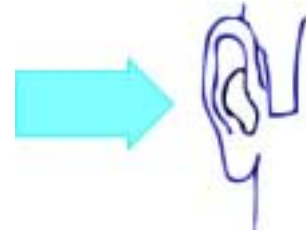
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## “Protect Your Hearing”

Various kinds of hearing protective devices are available for use in the workplace. The selection of the right hearing protection device depends on several factors:

- The noise hazard - what noise levels will you be dealing with?
- Frequency of the noise - will it be continuous or intermittent? (Some earplugs or muffs reduce the force of noise (attenuate) better at lower frequencies.)
- Fit and comfort - the protective devices must fit properly and be comfortable enough to wear as long as they are needed.
- Noise Reduction Rating or NRR - all hearing protectors carry a label indicating the NRR; a higher number on the label means more effectiveness.



### *Types of Hearing Protection*

The first lines of personal defense against excessive noise are engineering and administrative controls.

- Moving noisy machinery to a separate area away from as many workers as possible, or building a sound barrier around it.
- Placing machinery on rubber mounting to reduce vibration.
- Using sound-absorbing acoustical tiles and blankets on floors, walls, and ceilings.
- Arranging work schedules to cut down on the time each worker spends in a noisy area.

Manufacturers have also responded to requests to meet noise specifications at the installation and operation level. Since a variety of machinery and equipment can add noise to the workplace, workers, manufacturers, and plant operators must all cooperate to reduce noise levels in the workplace.

Some equipment, such as saws and punch presses, just can't be made to run any quieter, so it's up to you to protect yourself with the proper hearing protection if you work with that machinery. Don't take a chance with your hearing.

However, if workers are still exposed to hazardous levels of noise after such control have been put in place, employers must provide hearing protective devices.

After taking these measures, determine what types of hearing protection devices (HPDs) will complete your protection from your facility's specific noise hazards. Hearing protectors filter out the loud noise. This means they do not block out sound completely, but they reduce the amount of sound reaching the delicate parts of the ear. By doing so, they offer some protection. With protection, your hearing will not get overloaded by the surrounding noises (glare) that interfere with speech and machinery sounds. Four

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categories of HPDs are available:

- **Enclosure type** hearing protection completely surrounds the head like an astronaut's helmet. This type of protection is not too popular due to its cost and the discomfort factor caused by the size and weight of the helmet.

- **Earplugs**, also known as aurals, fit in the ear canal. They come in three forms:

1. Custom - molded earplugs are made for specific individuals, molded to the exact shape of that person's ear. Silicone rubber or plastic molding compound is placed in each ear and allowed to set; these may then be used directly as earplugs or serve as molds for the final plugs.

2. Molded inserts often called pre-molded, made from soft silicone rubber or plastic, are reusable and should be kept very clean to avoid infection. Use warm, soapy water to clean them after each use, and store them in a carrying case.

3. Formable plugs fits all ears, made of waxed cotton or acoustical fibers, are disposable.

- **Canal caps** (also know as supraural) seal the external edge of the ear canal to reduce sound. The caps are made of a soft, rubber-like substance and are held in place by a headband. This type of ear protection is a good alternative for those who can't use earplugs or for workers who enter and leave high noise areas frequently during the course of their work day.



- **Earmuffs** (also known as circumaural) fit over the whole ear to seal out noise. Earmuffs usually reduce sound levels by 20 to 25 dB. A typical muff is made up of three basic parts - cups, cushions, and headband. The cups are made of molded plastic and are filled with foam or other material. They vary in size and are adjustable. The cushions are covered with plastic and filled with liquid, air, or foam. Liquid or grease-filled cushions give better noise protection than plastic or foam types, but can be prone to leakage. The headband simply holds the cups against the head. It may be worn over the head, behind the neck, or under the chin. There are also specialty earmuffs for different job requirements. Dielectric muffs have no metal parts for those workers exposed to high voltages. Electronic earmuffs reduce hazardous noise but magnify wanted sounds like voices. Folding earmuffs are designed for use in situations where protection isn't required full-

time but must be quickly available when needed. Cap-mounted muffs are attached directly to safety hats.

### *How Effective Are They?*

In general, earplugs can reduce noise reaching the ear by 25 to 30 dB in the higher sound frequencies, generally considered to be the most harmful. Earmuffs can reduce noise 20 to 25 dB. Combinations of the two protectors can give 3 to 5 dB more protection. No matter what type of protection device you consider, remember that **the only effective hearing protector is the one that you wear!**

### *Work at Working Safely*

You are ultimately responsible for protecting you own hearing. You have the most to lose if you suffer hearing loss as a result of on-the-job noise hazards. Let's review a few important reminders about hearing conservation:

1. Disposable earplugs may be more convenient to use than long-term use plugs, but make sure they fit you correctly so that they will be effective.

2. Keep hearing protectors in good operational order with routine maintenance and replacement of defective parts.

3. Don't use homemade hearing protectors such as wadded cotton or paper. They don't work.

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4. Wear ear protection at home for any noisy job like operating a chainsaw or using various kinds of shop equipment. And watch the volume on your stereo headphones or portable radio/tape player headphones.

The sounds of everyday life - nature, music, the voices of family and friends all add pleasure and meaning to our lives. Value them enough to protect your hearing from damage or loss!

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## **“Eye Injuries Are Often Permanent”**

An eye injury resulting in blindness cannot be cured. Excuses like “I don’t wear my goggles because my hair gets messed up” or “I look silly in safety glasses” seem unimportant when compared with the value of a pair of healthy eyes. Proper eye protection reduces your chances of injury and reduces the severity of injury if an accident does occur.

### ***What Are the Hazards?***

Most workers who have had eye injuries were not wearing eye protection. They said that eye protection was not normally used or they felt it wasn’t needed.

Eye injuries can be avoided by following safety precautions and wearing proper protective equipment. Here are some of the causes of eye injuries in detail, and some workplace operations where they are often found.

- **Injurious gases, vapors, and liquids.** Workers handling acids or caustics, and doing welding are subject to these hazards.
- **Dusts or powders, fumes, and mists.** Some sources are scaling, light grinding, spot welding, and wood-working; they can also include very small flying particles.
- **Flying objects or particles.** Some sources including caulking, chiseling, grinding, hammering, and metal working. These hazards cause the majority of eye injuries.
- **Splashing metal.** Some sources are babbitting, casting of hot metal, and dripping in hot metal baths.
- **Thermal and radiation hazards such as heat, glare, ultraviolet, and infrared rays.** Sample sources are welding, metal cutting, and furnace tending.
- **Lasers.** A recent addition to the list of eye hazards, laser beams can present dangerous and unusual exposure. Different kinds of laser beams require different methods of eye protection.
- **Electrical hazards.** Sample sources are arcing and sparks.

### ***How Can You Protect Your Eyes?***

The first steps to prevent eye injuries are to reduce the occurrence of foreign objects, install equipment guards, and provide PPE.

### ***Equipment Guards***

Plant equipment and machinery are sources of many eye injuries. Be sure to use guards, screens, and shields that are attached to equipment. Make sure guards are always in place and used along with additional eye protection.

Movable screens are available for work settings like machine shops. The screens can be used to separate workers at one lathe from those at nearby work stations. Portable welding screens can be positioned around welding areas to protect other workers from particles and radiation.

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## *Ventilation and Lighting*

It is also important that work areas have good lighting and ventilation. Proper lighting reduces glare and eye strain and enables you to see your work clearly. A good ventilation system will carry away flying debris that might be hazardous to the eyes if it remains in the atmosphere.

## *Eyewash Facilities Are Important*

No one can predict when and where an accident will occur. Therefore, you should be familiar with the location and operation of emergency eyewash facilities. These can include eyewash fountains, drench showers, hand-held drench hoses and emergency bottles. Very simply, they all use large amounts of water to flush away eye contaminants.

## *What to Do*

Flush the eye with water until the foreign object has been rinsed out. Don't rub your eye, this can scratch the eye or embed the object. If you can't rinse out the object, bandage your eye loosely and get additional medical attention.

Be familiar with the chemicals with which you work. Some chemicals are water-reactive and become toxic or corrosive when mixed with water. If, however, a non-water reactive chemical splashes in your eye, move quickly to an emergency shower or eyewash. Look directly into the stream of water and hold your eye open with your fingers. Flush your eye for at least 15 minutes and then get first aid.



## *Practice Makes Perfect*

It's a good idea to practice using the eyewash and to become familiar with how it works. You might even practice holding your eyes open in a stream of water. It's a natural reaction to squeeze the eyes closed tightly when you get something in them. This reaction might prevent you from washing out your eyes quickly in case of emergency.

## *Personal Protective Equipment*

A wide variety of safety equipment is available to keep you safe and injury free. The safety devices and procedures listed below are all ways to ensure eye protection and continued eye health.

**Safety Glasses:** The most common type of protective equipment for the eyes is safety glasses. They may look like normal street-wear glasses; they are made of glass, plastic, or polycarbonate. But, they are made much stronger than street-wear lenses, are impact resistant, and come in prescription or nonprescription (plano) forms.

**Goggles:** Goggles are very similar to safety glasses but fit closer to the eyes. They can provide additional protection in hazardous situations involving liquid splashed, fumes, vapor, and dust. Some models can be worn over prescription glasses and others are made with fabric eye cups to provide better ventilation. You should maintain and clean your safety glasses and goggles regularly. Dirty, scratched, or cracked lenses reduce vision and seriously reduce protection. Replace damaged glasses immediately.



**Face Shields:** Full-face protection is often required to guard against molten metal and chemical splashes. Face shields are available to fit over a hard hat or to wear directly on the head. A face shield should always be used with other eye protection such as goggles or glasses.

### *Work at Working Safely*

To sum up, you are ultimately responsible for the protection of your eyes. Realistically speaking, you have the most to lose if your don't follow good eye safety practices. Let's review the following important rules about eye safety:

1. Match safety equipment to degree of hazard present.
2. Know what protective devices are available on the job and how they can protect you.
3. Make sure equipment guards are in place on machinery and that they are used with additional eye protection.
4. Know location and operation of emergency eyewashes.
5. Inspect eyewashes and showers frequently to make sure they work effectively and that the water is potable.
6. Faceshields should not be used alone, but always with other eye protection such as goggles or glasses.
7. Street-wear eyeglasses are not designed to be safety glasses and should never be used as such.
8. Make sure any safety device you use fits properly.
9. Safety equipment should be maintained in good condition and replaced when defective.
10. Have your eyes tested regularly. If you need corrective lenses, get them and use them!

The goal of eye safety is to protect two of your most valuable possessions - your eyes. The pair you were born with are the eyes that have to last you a lifetime. Protect them!

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