Washington State Department of
Labor & Industries

Logging Personal Protective Equipment

Hardhats, eye protection, hearing protection and leg protection

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Personal Protective Equipment for Logging

Protection for your:

- Head
- Eyes
- Ears
- Legs

Photo from Elvex.com Elvex Corporation

Head Protection

Head protection is required when in danger of being hit in the head from flying or propelled objects or falling objects or materials. In other words, any time you are in the woods unless you are protected by FOPS, cabs, or canopies that meet DOSH requirements.

These two workers need hardhats

Head Protection must be in “serviceable condition”

- Metal hard hats are not serviceable if:

A. There are dents in any of the ribs
B. The hat is severely dented
C. There are holes drilled in the hat
D. The suspension is bad, or
E. If anything has compromised the structural integrity of the hat.
F. Follow manufacturers guidance for out of service criteria

The owner drilled holes in this old 6-point hat and attached a 4-point liner with aluminum pop rivets, rendering it unserviceable.

Evidence of UV Deterioration

Plastic hats are unserviceable if:

- There are holes drilled in the hat
- The suspension is bad, or
- If anything has compromised the structural integrity of the hat

After too many UV rays:

- There are visible cracks,
- There is discoloration due to ultraviolet light (sun light)
- If squeezing the sides of hardhat causes a popping sound (indicates plastic is breaking down – doesn't have resiliency)

Your Eyes

What can be more precious than your sight?

What if you could no longer see these

There are 300 – 500 eye injuries among loggers each year in Washington State

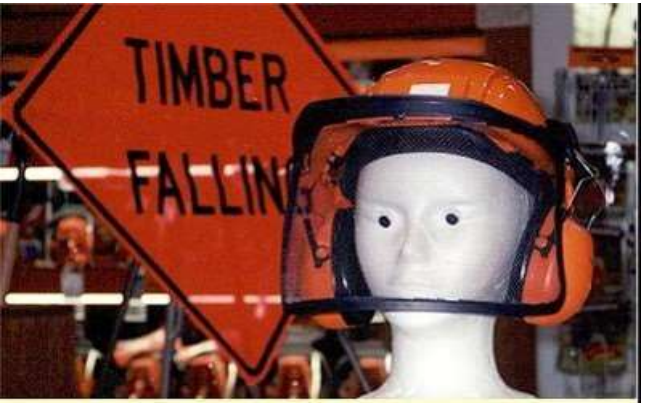
Eye Protection is needed when using:

- Chainsaw
- Metal cut-off saw
- Line cutter
- Grinder
- Compressed air

Or, whenever there is a potential for eye injury from falling or flying objects.

Types of Eye Protection

Safety glasses must meet ANSI Z87.1 Standards for impact resistance (indicated somewhere on the glasses)



Screens

Safety Glasses

Bugz-Eye Goggles

Effects of Noise Exposure

Hearing loss from noise exposure is usually not noticed because it is so gradual.

Usually a person loses the ability to hear higher pitches first.

Often the first noticeable effect is difficulty in hearing speech.

Some people can develop permanent tinnitus (ringing in the ears) when exposed to excessive noise.

Photo from Creative Commons
by Mlke Klrzeszak

Effects of Noise Exposure (continued)

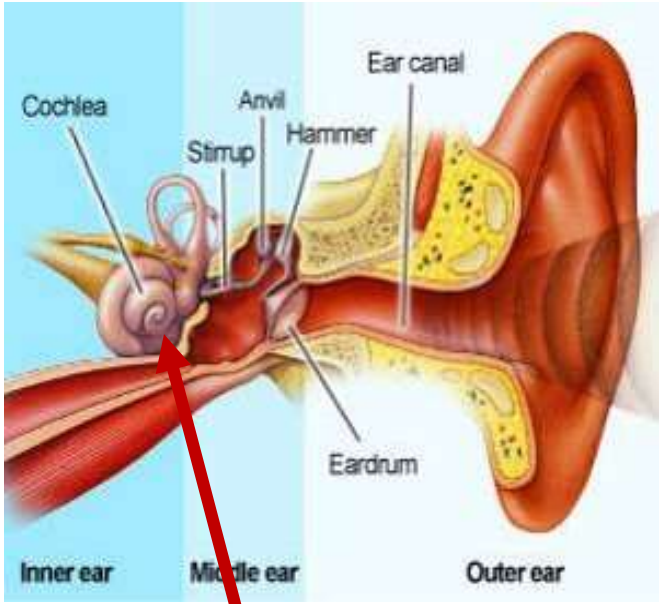
The damage from exposure to noise occurs in the inner ear.

There are tiny hair cells in this part of the ear that are flattened out when exposed to noise.

If the exposure is short, the hair cells can raise back up. If the exposure is long or extremely loud, the hair cells don't recover and hearing ability is reduced.

When all the hair cells are damaged, complete deafness occurs.

People who say they are "used to the noise" have usually already lost some of their hearing.



Damage occurs in this part of the ear

Types of Hearing Protection

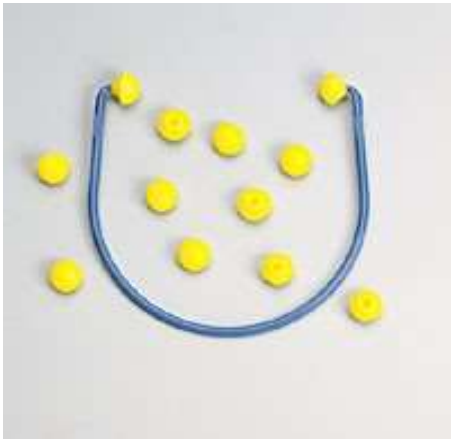
The DOSH noise regulations require that employees have at least three types of hearing protection to choose from.

There are three types of hearing protection – ear muffs, earplugs and ear caps.

“Hearing protection is assigned a Noise Reduction Rating (NRR). Check the packaging to find the NRR for your hearing protection. Talk with your employer to make sure your hearing protection is adequate.”

Earmuffs

Eaplugs



Ear Caps

Types of Hearing Protectors

All hearing protectors are designed to reduce the intensity (loudness) of noise to the inner ear.

They work much better than wads of cotton or bits of cloth stuffed in the ear.

The three types have advantages and disadvantages and people vary on which they prefer to use.

Cotton doesn’t work!!

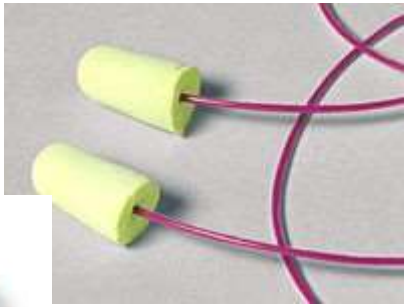
Ear Plugs

Earplugs are made of foam, rubber or plastic and are either one-size-fits-all or in sizes small, medium and large.

Some are disposable, some are reusable.

They are lightweight, and require no maintenance.

They are inserted into the ear canal.



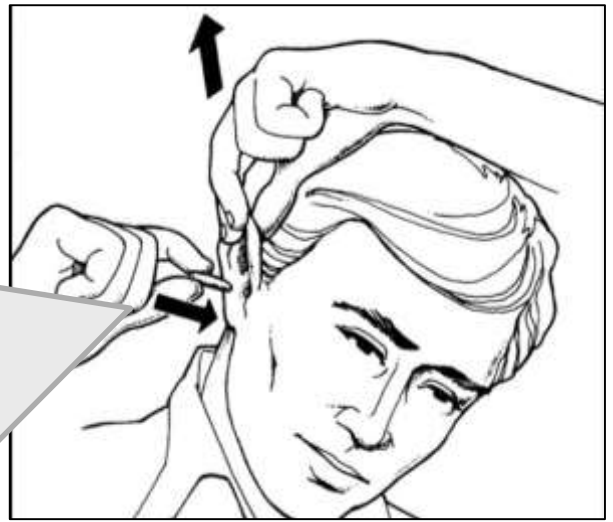
Some earplugs have little “handles” for use in dirty environments.

Inserting Foam Earplugs

Foam type earplugs are one-size-fits-all and must be inserted properly into the ear.

Roll earplug into small cylinder first, then insert in ear.

The technique for inserting earplugs is to first, roll the earplug into a small cylinder, pull the ear up and back, this opens the ear canal. Push the ear plug into the ear canal and hold there for a few seconds until it expands and fills the ear canal. This will provide the tightest fit and greatest protection.



Inserting Foam Earplugs

The left picture shows plugs only partially inserted into the ear canal – a common mistake.

Earplug incorrectly inserted

Earplug correctly inserted

Facts About Earcaps

They typically don’t have lower noise reduction as earplugs or ear muffs because they don’t penetrate the ear canal and the seal is not as tight as earplugs

More expensive than earplugs and replaceable tips are not as readily available

People tend to use when dirty like the ones in the photo

Generally not the best choice for the logging environment

Earmuffs

Some muffs are attached to hardhats or goggles and maybe somewhat less protective than stand alone earmuffs.

Some high-tech muffs can filter out certain frequencies or have radios inside for communication in high noise areas.

Earplugs can be worn under earmuffs for really loud noise levels.

Hearing Protection – when Is it required?

DOSH regulations specify when hearing protection is required depending on measured noise levels. However, a good rule of thumb is that hearing protection should be used if you have to shout at someone standing 3 feet away from you to be heard over the noise.

The two common problems L&I encounters are people not wearing the hearing protection when it is required or not wearing it correctly.

When is Hearing Protection Required?

What the DOSH Rule WAC 296-817-20015* Requires

Hearing Protection--The employer must provide hearing protection for all employees that have an eight hour time weighted exposure of 85 decibels (dBA) or above, who have any continuous exposure at 115 decibels (dBA) or above, or who have an exposure to any impulse noise levels at 140 decibels (dBC).

*Applies to all industries and workplaces including logging

dBA are A-weighted decibels and dBC are C-weighted decibels

Daily Allowable Exposure Times to Noise

The table below shows noise levels and how long a person can be exposed without hearing protection before there is damage to the ear.

Noise Level	**Allowable Exposure Time**
85 decibels	8 hours
90 decibels	4 hours
100 decibels	1 hour
105 decibels	30 minutes
110 decibels	15 minutes
115 decibels	0 minutes

Measured Noise Levels in Logging

Cutters

- 11 Monitored
- Ranged from 90.3 up to 96.8 decibels (dBA)
- Saws were Stihl and Husky

Measured Noise Levels in Logging (continued)

Chasers

- 21 Monitored
- Noise levels ranged from 87.8 up to 95.7 decibels (dBA)
- Wide range of equipment configurations
  - Yarder
  - Shovel
  - Power saw

Measured Noise Levels in Logging (continued)

Operators

- 8 Monitored
- Skidders, Shovels and Yarders were all in the 90 decibel range (88.0 – 92.0 decibels dBA)

Noise levels can vary greatly depending on whether the doors & windows are open or closed on the machines.

Leg Protection .... Why It's Needed

Recent data released from the Bureau of Labor Statistics:

Average chainsaw cut = 110 stitches

Medical Costs = $350 million a year (nationally)

Leg Protection is required any time an employee operates a chainsaw

If you're running a saw, you need to have leg protection, unless you're working in a tree and supported by belt and spurs. It must be made of cut resistant material that covers the full length of the leg to the top of the boot. Inserts, chaps or cut resistant pants are all acceptable.

Reference: WAC 296-54-511160

When Do You Need To Replace Your Chaps?

Nicks or small cuts in the outside material aren't an issue, but once the protective material has been cut it is time to replace them. THEY'VE DONE THEIR JOB.

These chaps are unserviceable

Summary

Personal Protective Equipment (PPE) does not eliminate hazards. If the equipment fails or is improperly used, exposure can occur.

Although PPE when used correctly can reduce the seriousness of injuries, is not intended to allow workers to commit unsafe acts or violate safety rules or regulations

Other Resources:

- Logging Topic Page
- Logger Safety Initiative
- Chainsaw Leg Protection
- Hearing Protection Online Employee Training Course

For additional assistance, you can:
Call one of our consultants.
Find L&I office locations