



## U.S. Department of Labor Occupational Safety & Health Administration

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### Shipyards Employment

## Ship Repair

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### **PPE Selection » Hearing Protection**

Workers exposed to excessive noise must use appropriate PPE including ear plugs, muffs, or both when engineering or administrative controls are not feasible to reduce exposure.

Hearing protection is part of a hearing conservation program, which is required when noise exposure exceed the action level [85 decibels on the A scale (dBA)].

- [Selection and Use of Hearing Protection](#)
- [Hearing Conservation](#)



#### OSHA hierarchy of controls is:

1. Engineering Controls
2. Administration Controls
3. Personal Protective Equipment

#### Selection and Use of Hearing Protection

##### Potential Hazards:

Some operations in the shipyard produce excessive noise, which may lead to hearing loss. Some of the loudest ship repair operations include:

- Abrasive blasting
- Needle gunning
- Scaling
- Grinding
- Metal straightening
- Carbon Arcing/Arc gouging
- Pneumatic pumps
- High-pressure steam or water cleaning
- Ventilation equipment

##### Requirements and Example Solutions:



Fig 1. Grinder with ear muffs

- Develop and implement an effective [Hearing Conservation Program](#) when action level is exceeded. [[1910.95\(c\)](#)]
- Follow hearing protection requirements. [[1910.95\(a\)](#)]
- Hearing protectors are required when noise levels exceed the OSHA permissible exposure limit (PEL) of 90 dBA measured as a time-weighted average (TWA). [[1910.95\(b\)\(1\)](#)]
- Hearing protectors must reduce noise to acceptable levels which may require dual use of ear plugs and muffs. [[1910.95\(i\)](#)]
- Review the Noise Reduction Ratings (NRR) for the specific hearing protection devices. [[1910.95 Appendix B: Methods for estimating the adequacy of hearing protector attenuation](#)]
  - Note: 5 dB can be added to the NRR of the most protective device when using both ear plugs and muffs.



Fig 2. Ear plugs



Fig 3. Ear muffs

#### Additional Resources:

- [Noise Hearing and Conservation](#). OSHA Safety and Health Topics Page.
- Noise Hearing and Conservation. OSHA eTool.
- [Hearing Conservation](#). OSHA Publication 3074 (2002), 160 KB PDF, 32 pages.
- [CPL 2-2.35A - Guidelines for Noise Enforcement: Appendix A](#). OSHA Directive (1983, December 19).
- [Noise and Hearing Conservation](#). OSHA eTool. A chapter of the [OTM](#) developed to assist OSHA staff in evaluating workplace hazards.

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### Hearing Conservation Program

When the worker's noise exposure equals or exceeds an 8-hour time-weighted average of 85 decibels on the A scale (dBA), the employer shall develop and implement a hearing conservation program. [[1910.95\(c\)](#)]

A hearing conservation program consists of the following elements:

- Monitoring noise levels
- Audiometric testing (hearing test)
- Training
- Hearing protection

#### Additional Resources:

- [Hearing Conservation](#). OSHA Publication 3074 (2002), 160 KB PDF, 32 pages.

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