



OSHA's Hearing Conservation Program: Beyond Disposable Earplugs

In 2001, the National Institute for Occupational Safety and Health (NIOSH) estimated that U.S. employers spent \$242 million (\$457 million equivalent today) annually on occupational hearing loss claims. The same study found that 23% of U.S. employees have significant occupational hearing loss and that 22 million workers are exposed to potentially damaging noise each year. Occupational hearing loss develops slowly; many individuals are unaware until it is too late. Permanent hearing loss cannot be restored through medical or surgical treatment.

OSHA's standard 1910.95 sets legal limits on workplace noise exposure for employers outside the construction industry, while 1926.52 and 1926.101 regulate noise and hearing protection in the construction industry. We will focus on the general industry standards and explain how hearing loss occurs, ways to protect employees, and resources to help employers develop and administer a hearing conservation program.

When sound waves (noise) enter the outer ear, the resulting vibrations affect the eardrum and are transmitted to the inner ear. The inner ear is filled with fluid and lined with extremely fine hair cells. Exposure to loud noise can destroy these hair cells, resulting in hearing loss.

Noise exposure exceeding 85 decibels (dBA) can damage employees' hearing. The louder the noise (sound waves), the shorter the exposure period required before hearing loss occurs. The industry rule of thumb is that if it is necessary to raise one's voice during a conversation with someone three feet away, the noise level may exceed 85 decibels (dBA). A somewhat more reliable method for determining noise levels is the NIOSH phone application (1), which can be used to screen sound levels in the workplace.

Permissible Noise Exposures

Duration per day, in hours	Sound level dBA in slow response
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

Most individuals are familiar with OSHA's 90 dBA standard; however, OSHA's Action Level is 85 dBA, at which point employers must implement an effective hearing conservation program. This program requires employers to measure noise levels; provide hearing examinations, hearing protection, and training at no cost to employees; and evaluate the adequacy of the hearing protection provided. Before issuing hearing protection, an employer must take several steps. Under the standard, employers are required to pursue engineering or administrative controls to reduce employees' exposure to noise or isolate them from excessive noise levels.



Engineering controls modify the work environment, whereas administrative controls modify work practices. Examples of engineering controls include the use of low-noise tools, equipment maintenance, the installation of sound barriers, the addition of vibration dampers, and the enclosure of noisy equipment. Administrative measures include restricting access to noisy areas, rotating job assignments, and training employees to minimize exposure. If these controls reduce noise levels to below 85 dBA, a hearing conservation program is no longer required.

A hearing conservation program encompasses more than providing disposable earplugs. Employers must assess the work environment through noise monitoring to determine the appropriate level of hearing protection and the required Noise Reduction Rating (NRR). Employees may choose earplugs or earmuffs with an adequate NRR. A worksite that requires hearing protection must provide employees with audiometric testing (hearing tests) at no cost. In addition, employers must provide annual training on the effects of noise; the purpose, advantages, and disadvantages of various types of hearing protectors; and the selection, proper fit, and care of such protectors.

Developing and administering an effective hearing conservation program can be daunting and costly for small businesses. The Illinois Department of Labor's free On-Site Consultation Program can help by providing sample written programs, jobsite noise monitoring, hearing-protector selection, employee training, air sampling, on-site visits, and safety-program reviews. Consultants can identify hazards, recommend a hierarchy of controls, and help establish lasting safety and health practices—potentially reducing workers' compensation costs. Visit <https://worksafe.illinois.gov/> or contact Harry (Hap) Hileman at 217-993-2111 for more information.



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