

# Hearing Conservation Plan

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Eastern Illinois University—University Safety Manual Chapter 16

## Summary

This plan is designed to protect the university's employees from noise exposures. All employees whose work requires them to be exposed to noise level above 85 d BA or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or equivalently a dose of fifty percent. For purposes of the hearing conservation program and without regard to any attenuation provided by the use of personal protective equipment.

## Plan Description

The Hearing Conservation Plan is to prevent injuries from a high level of noise in the work place.

### *Employee notification*

The employer shall notify each employee exposed at or above an 8-hour time-weighted average of 85 decibels of the results of the monitoring.

## Scope

This program applies to all work operations at Eastern Illinois University which expose the worker to noise level above 85 d BA for an eight hour period. This Hearing Conservation Plan requires the employee exposed to excessive noise to wear hearing protection during the noise exposure.

## Definitions

**Administrative Controls** - Efforts to limit workers' noise exposure by modifying work schedules or location, or by modifying the operating schedule of noisy machinery.

**Audiometric test requirements**--Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 Hz. Tests at each frequency shall be taken separately for each ear.

**Baseline Audiogram** – A valid audiogram against which subsequent audiograms are compared to determine if hearing thresholds have changed. The baseline audiogram is preceded by a quiet period so as to obtain the best estimate of the person's hearing at that time.

**Code of the Federal Register (CFR)**—is the Federal Government requirements for an employee to work in a safe work place. The CFR have been adopted by the State of Illinois Department of Labor.

**Competent Person**- An OSHA "competent person" is defined as "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them"[\[29 CFR 1926.32\(f\)\]](#). By way of training and/or experience, a competent person is knowledgeable of applicable standards, is capable of identifying workplace hazards relating to the specific operation, and has the authority to correct them. The employee's supervisor is a competent Person.

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**Engineering Controls** – Refers to any use of engineering methods to reduce or control the sound level of a noise source by modifying or replacing equipment, making any physical changes at the noise sources or along the transmission path (with the exception of hearing protectors).

**Environmental Health and Safety (EHS)** -- Department that supports the University's commitment to providing a safe and healthful workplace; including evaluating workplace noise exposures and taking action to prevent noise-induced hearing loss.

**Hearing protectors**--Employers shall make hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater at no cost to the employees. Hearing protectors shall be replaced as necessary.

**Occupational Health and Safety (OSHA)** – Federal agency assigned to monitor and set standards for a safe work place.

**Permissible Exposure Limit (PEL)** – The OSHA permissible limits are presently 90 d BA. This is a timeweighted average exposure that must not be exceeded during any 8-hour work shift of a 40-hour work week.

**Standard threshold shift**--As used in this section, a standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

**TWA (Time Weighted Average)** – A value expressed in dBA which is computed so that the resulting average would be equivalent to an exposure resulting from a constant noise level over an 8-hour period.

## Responsibilities

The goal of the hearing protection plan is to ensure that all employees understand the hazards associated with noise and noisy areas, and what hearing protection that is required to reduce the noise exposure to an allowable limit to allow the employee to perform the necessary steps to protect themselves and their coworkers.

Primary responsibilities include:

Employees

- Are aware of noise safety issues
- Comply with safe operating procedures when working with or around noisy equipment and areas
- Attend appropriate safety training.
- Report safety concerns
- Employees Exposed to TWA Noise Exposures at or Over 85 dBA shall:
  - Wear and maintain hearing protective devices as instructed,
  - Participate in annual training,
  - Participate in annual audiometric testing,
  - Use only those brands/types of hearing protection devices which are appropriate for the noise exposure, and for which the employees have been trained and fitted
  - Report to their supervisor any changing conditions that may impact employee noise exposures.

Supervisors, Managers, Deans and Directors

- Ensure that all authorized or qualified persons have received appropriate levels of training and medical surveillance
- Ensure appropriate Personal Protective Equipment is provided to authorized or qualified staff who work in high noise environments
- Conduct periodic hazard analysis of work areas
- Provide for the reduction of noise level associated to the work place

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- Serve as a Competent Person in the work place
- Correct identified safety hazards to provide a safe work place
- Notify EHS Department of any changes in the workplace which results in a change in the noise level above 85 dBA TWA. This may include addition, removal, or replacement of equipment; or changes in work processes or locations
- Notify EHS representatives of new hires, retirements, transfers, terminations, etc. that may affect the list of employees in the Hearing Conservation Program

### EH&S

- Provide assistance in identifying noise exposure safety issues when requested by the supervisor
- Provide hearing protection training for campus staff
- Employees or supervisors who have occupational noise exposure complaints may contact EHS for evaluation of the work area and potential inclusion in the Hearing Conservation Plan.

## Audiometric testing program

The employer shall establish and maintain an audiometric testing program as provided in this paragraph by making audiometric testing available to all employees whose exposures equal or exceed an 8-hour time-weighted average of 85 decibels.

### *Baseline audiogram*

Within 6 months of an employee's first exposure at or above the action level, the employer shall establish a valid baseline audiogram against which subsequent audiograms can be compared. Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise.

### *Annual audiogram*

At least annually after obtaining the baseline audiogram, the employer shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels.

## Employer Corrective action

Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the employer shall ensure that the following steps are taken when a standard threshold shift occurs:

Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.

Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.

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University Safety Manual requires the following: Chapter 4-11.10 Hearing Protection

4-11.101 Approved hearing protective equipment shall be worn by all personnel:

- At all times in area of exposure to a noise level greater than 100 dBA.
- At all times while exposed to noise levels of 96 dBA inclusive, after they have had accumulative two-hour exposure to noise levels in that range without such protection in any 24 hour period.
- At all times while exposed to noise level of 90 dBA to 95 dBA inclusive, after they have had a cumulative four-hour exposure to noise levels in that range without such protection in any 24 hour period.

### Signage

Signs are to be posted at access points to noise hazard areas to inform employees of the need or recommendation for use of hearing protection. Two types of signage will be utilized:

1. Locations where dosimeter measurements indicate employee 8-hour TWA noise exposures meet or exceed 85 dBA will be posted with signage with dimensions of at least 10" X 14" identifying the space as a noise hazard designating the use of appropriate hearing protection. Signs should textually or graphically include:

#### Warning

#### Noise Area

#### Hearing Hazard

Use of Hearing Protectors Required

2. Locations that are infrequently occupied where operating mechanical equipment produces noise levels at or over 85 dBA (e.g., mechanical rooms) will be posted with the following sign:



## Training program

The employer shall train each employee who is exposed to noise at or above an 8-hour time weighted average of 85 decibels in accordance with the requirements of 29 CFR 1910.95. The employer shall institute a training program and ensure employee participation in the program.

The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.

The employer shall ensure that each employee is informed of the following:

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The effects of noise on hearing;

The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and the purpose of audiometric testing, and an explanation of the test procedures.

## Recordkeeping

### *Exposure measurements*

The employer shall maintain an accurate record of all employee exposure measurements required by 29 CFR 1910.95

### *Audiometric tests*

The employer shall retain all employee audiometric test records obtained. This record shall include:

- Name and job classification of the employee
- Date of the audiogram
- The examiner's name
- Date of the last acoustic or exhaustive calibration of the audiometer
- Employee's most recent noise exposure assessment

The employer shall maintain accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

### *Record retention*

The employer shall retain records required in this paragraph for at least the following periods.

- Noise exposure measurement records shall be retained for two years.
- EHS shall retain employee audiometric test records for the duration of employment plus ten years.
- Noise exposure assessments shall be kept for a minimum of two years.

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## Reference Information

29 CFR 1910.95 TABLE G-16 - PERMISSIBLE NOISE EXPOSURES (1)

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| Duration per day, hours | Sound level dBA slow response |
|-------------------------|-------------------------------|
| 8.....                  | 90                            |
| 6.....                  | 92                            |
| 4.....                  | 95                            |
| 3.....                  | 97                            |
| 2.....                  | 100                           |
| 1 1/2 .....             | 102                           |
| 1.....                  | 105                           |
| 1/2 .....               | 110                           |
| 1/4 or less.....        | 115                           |

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( Footnote 1) When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions:  $C(1)/T(1) + C(2)/T(2) + \dots + C(n)/T(n)$  exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

### Noise Exposure Areas may include but not limited to:

- Lawn mowing
- Chain Saws
- Wood Chip machines
- Steam Plan machinery
- Jack Hammer
- Emergency power generators – maintenance
- Gas powered hand tools
- Rehearsal Halls, studios
- Confine Space which concentrates the noise level above TWA