

## Chapter 12 HEARING CONSERVATION PROGRAM

### INTRODUCTION

The purpose of the hearing conservation program is to minimize employee exposure to noise encountered in the work place through employee education and training, audiometric testing and hearing conservation controls. It is the intent of the program to identify and administer precautionary measures that will protect hearing of all employees while carrying out their assigned duties. Implementation of a program is required under OSHA where employees have a potential exposure to noise equal to or in excess of 85 dBA as an 8-hour time weighted average (TWA).

### GOALS

The Objectives of this program are to provide a mechanism which will function to:

1. Minimize employee exposure to occupational noise;
2. Minimize employee hearing loss by proper selection and use of hearing protectors;
3. Measure personal exposure to high noise levels and educate employees as to the precautions necessary to conserve hearing;
4. Monitor high sources and identify controls to reduce noise generation;
5. Provide an effective audiometric testing program, and;
6. Assure compliance with all applicable rules, regulation and standards mandated by OSHA with regard to employee exposure to noise.

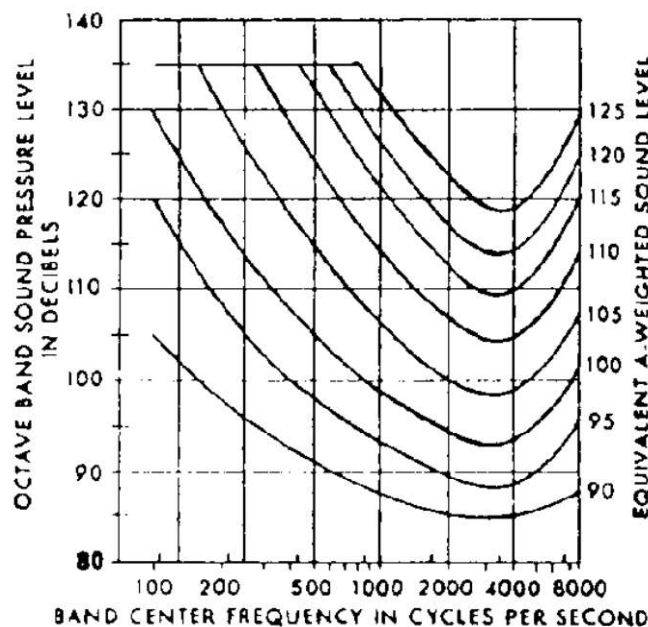


FIGURE G-9

### Exposure Limits

Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in table to the left when measured on the A scale of a standard sound level meter at slow response. When noise levels are determined by octave band analysis, the equivalent A-weighted sound level may be determined as follows:

Equivalent sound level contours. Octave band sound pressure levels may be converted to the equivalent A-weighted sound level by plotting them on this graph and noting the A-weighted sound level corresponding to the point of highest penetration into the sound level contours.

This equivalent A-weighted sound level, which may differ from the actual A-weighted sound level of the noise, is used to determine exposure limits from the table.

When employees are subjected to sound exceeding those listed in the table, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.

**Permissible Noise Exposures**

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

**Monitoring**

When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the employee shall be enrolled in a monitoring program. Monitoring shall be repeated whenever a change in production, process, equipment or controls increases noise exposures to the extent that:

1. Additional employees may be exposed at or above the action level; or
2. The attenuation provided by hearing protectors being used by employees may be rendered inadequate to attenuate the noise exposure to less than an 8-hour time-weighted average of 85 decibels

**Employee Notification** - Sign Designs, Inc. will notify each employee exposed at or above an 8-hour time-weighted average of 85 decibels of the results of the monitoring. The affected employees or their representatives may observe any noise measurements conducted.

**Audiometric testing program** Sign Designs, Inc. shall maintain an audiometric testing program by making audiometric testing available to all employees whose exposures equal or exceed an 8-hour time-weighted average of 85 decibels. The program shall be provided at no cost to employees.

Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing

Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometers does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.

**Baseline audiogram.** Within 6 months of an employee's first exposure at or above the action level, the Sign Designs shall establish a valid baseline audiogram against which subsequent audiograms can be compared. Where mobile test vans are used to meet the audiometric testing obligation, Sign Designs, Inc. will obtain a valid baseline audiogram within 1 year of an employee's first exposure at or above the action level. 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. Sign Designs, Inc. will notify employees of the need to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination.

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

**Evaluation of audiogram.** Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. This comparison may be done by a technician. If the annual audiogram shows that an employee has suffered a standard threshold shift, Sign Designs, Inc. may obtain a retest within 30 days and consider the results of the retest as the annual audiogram. The audiologist, otolaryngologist, or physician shall review problem audiograms and shall determine whether there is a need for further evaluation. The employer shall provide to the person performing this evaluation the following information:

1. A copy of the requirements for hearing conservation.
2. The baseline audiogram and most recent audiogram of the employee to be evaluated.
3. Measurements of background sound pressure levels in the audiometric test room.
4. Records of audiometer calibrations.

**Follow-up procedures.** If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift has occurred, the employee shall be informed of this fact in writing, within 21 days of the determination. Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, Sign Designs, Inc. will take the following steps:

1. Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.
2. 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.

3. The employee shall be referred for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if the employer suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.
4. The employee will be informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA of 90 decibels indicates that a standard threshold shift is not persistent, Sign Designs, Inc.:

1. Will inform the employee of the new audiometric interpretation.
2. May discontinue the required use of hearing protectors for that employee.

**Revised baseline.** An annual audiogram may be substituted for the baseline audiogram when, in the judgment of the audiologist, otolaryngologist or physician who is evaluating the audiogram:

3. The standard threshold shift revealed by the audiogram is persistent; or
4. The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

**Standard threshold shift.** 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. In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram.

**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. Audiometric tests shall be conducted with audiometers (including microprocessor audiometers) that meet the specifications of, and are maintained and used in accordance with, American National Standard Specification for Audiometers, S3.6-1969.

**Audiometer calibration.** The functional operation of the audiometer shall be checked before each day's use by testing a person with known, stable hearing thresholds, and by listening to the audiometer's output to make sure that the output is free from distorted or unwanted sounds. Deviations of 10 decibels or greater require an acoustic calibration. Audiometer calibration shall be checked acoustically at least annually. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this check. Deviations of 15 decibels or greater require an exhaustive calibration. An exhaustive calibration shall be performed at least every two years. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this calibration.

**Hearing protectors.** Sign Designs will 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.

The following employees are required to wear hearing protectors, and are subject to disciplinary action if violating this section:

1. An employee who is required by this section to wear personal protective equipment; and
2. Any employee who is exposed to an 8-hour time-weighted average of 85 decibels or greater, and who:
  - A. Has not yet had a baseline audiogram established; or
  - B. Has experienced a standard threshold shift.

Employees shall be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by Sign Designs, Inc. Training in the use and care of all hearing protectors will be provided to employees. Sign Designs, Inc. will ensure proper initial fitting and supervise the correct use of all hearing protectors.

**Hearing protector attenuation.** Sign Designs, Inc. will evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. Hearing protectors must attenuate employee exposure at least to an 8-hour time-weighted average of 90 decibels. For employees who have experienced a standard threshold shift, hearing protectors must attenuate exposure to an 8-hour time-weighted average of 85 decibels or below. The adequacy of hearing protector attenuation will be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. Sign Designs, Inc. will provide more effective hearing protectors where necessary.

**Training program.** Sign Designs, Inc. will institute a training program for all employees who are exposed to noise at or above an 8-hour time-weighted average of 85 decibels and shall ensure employee participation in such 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.

Each employee will receive information on the following:

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

**Access to information and training materials.** Sign Designs, Inc. will make available to affected employees or their representatives copies of this standard and shall also post a copy in the workplace. Affected employees will receive any informational materials pertaining to the standard that are supplied to the employer by the Assistant Secretary. Sign Designs, Inc. will provide, upon request, all materials related to the employer's training and education program pertaining to this standard to the Assistant Secretary and the Director.

## **RECORDKEEPING**

**Exposure measurements.** Sign Designs, Inc. will maintain an accurate record of all employee exposure measurements, and will retain all employee audiometric test records obtained. This record shall include:

1. Name and job classification of the employee.
2. Date of the audiogram.
3. The examiner's name.
4. Date of the last acoustic or exhaustive calibration of the audiometer.
5. Employee's most recent noise exposure assessment.

Sign Designs, Inc. will maintain accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

**Record retention.** Sign Designs, Inc. will retain records required for at least the following periods:

1. Noise exposure measurement records shall be retained for two years.
2. Audiometric test records shall be retained for the duration of the affected employee's employment.

All records required by this section shall be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary. If the Sign Designs, Inc. ceases to do business, the records will be transferred to the successor employer, and the successor employer shall retain them for the remainder of the period.