



UNIVERSITY OF CALIFORNIA, BERKELEY

HEARING CONSERVATION PROGRAM

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OFFICE OF ENVIRONMENT, HEALTH & SAFETY

UNIVERSITY HEALTH SERVICES

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TABLE OF CONTENTS

PURPOSE	1
REGULATIONS AND OTHER APPLICABLE STANDARDS	1
RESPONSIBILITIES	1
Department Heads, Managers, Supervisors and Principal Investigators	1
Faculty, Staff, Students, Visitors and Guests	1
Office of Environment, Health & Safety (EH&S)	3
University Health Services (UHS)	3
DEFINITIONS	3
PROGRAM	4
Exposure Monitoring	4
Audiometric Testing.....	4
Hearing Protectors	5
Training	5
Record Keeping	5
Campus Resources	5

**University of California, Berkeley
HEARING CONSERVATION PROGRAM**

PURPOSE

Exposure to excessive noise in the workplace can cause permanent hearing loss. Although the University of California, Berkeley (UC Berkeley) attempts to control noise exposures on campus, certain operations and workstations may expose faculty, staff, or students to significant noise levels. This Hearing Conservation Program has been established to help ensure that members of the campus community do not suffer health effects from exposure to excessive noise while working at UC Berkeley.

REGULATIONS AND OTHER APPLICABLE STANDARDS

Title 8, California Code of Regulations, Article 105, Sections §5095-5100, "Control of Noise Exposure"

ANSI S1.11-1971 "Specification for Octave, Half-Octave, and Third-Octave Band Filter Sets"

ANSI S1.25-1978 "Specification for Personal Noise Dosimeters"

ANSI S1.4-1971 "Specification for Sound Level Meters"

ANSI S3.6-1969 "Specifications for Audiometers"

RESPONSIBILITIES,

Department Heads, Managers, Supervisors, and Principal Investigators:

- Provide work environments that minimize noise to the greatest extent reasonable.
- Request that the Office of Environment, Health & Safety (EH&S) evaluate noisy operations.
- Provide hearing protection devices at no cost for employees where needed, and notify EH&S so that training may be provided on their care and use.
- Ensure that employees exposed to noise over the Action Level are enrolled in the Hearing Conservation Program, given training and provided with audiometric exams and hearing protection devices.
- Provide easy access to hearing protection devices and ensure that employees use such devices where appropriate.
- Post areas known to present noise hazards with signs requiring the use of hearing protectors.

- Make copies of Article 105 (available at <http://www.dir.ca.gov/title8/sb7g15a105.html>) available to employees enrolled in the Hearing Conservation Program or their representatives and post a copy in the workplace. Any informational materials supplied by California Occupational Safety and Health Administration (Cal/OSHA) shall also be provided to affected employees.

Faculty, Staff, Students, Visitors, and Guests:

- Wear approved hearing protection devices in posted noise hazard areas and during tasks identified with potential noise exposure greater than 85 A-weighted decibels (dBA).
- Maintain hearing protectors in sanitary condition and proper working order.
- Report noise hazards and hearing protector problems to the appropriate supervisor.

Office of Environment, Health & Safety (EH&S):

- Monitor worksites for noise levels and inform employees, supervisors, and the Occupational Health Clinic at University Health Services of results.
- Recommend appropriate engineering and administrative noise control measures.
- Assist employees in selection of proper protection devices and provide instruction on their care and use.
- Based on noise monitoring, determine whether employees need to be enrolled in the campus Hearing Conservation Program.
- Provide training to campus departments on the Hearing Conservation Program, upon request.
- Periodically review and update the Hearing Conservation Program to be consistent with changes in protective equipment and work processes.

University Health Services (UHS):

- Provide baseline and annual hearing tests (audiometry).
- Provide complete audiometric evaluations as needed to determine a Standard Threshold Shift.
- Communicate any identified Standard Threshold Shifts to the employee and her/his supervisor.

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- Provide information and training on noise hazards and hearing conservation required under CCR Title 8 §5099.
 - Establish any work restrictions necessary to prevent additional hearing loss.

DEFINITIONS

Action Level:

The level of noise exposure at which:

- A person must be enrolled in the Hearing Conservation Program, and must be provided audiometric testing.
- Representative noise exposure monitoring is required.
- Hearing protectors and training on noise hazards must be provided to the employee.

The current Action Level is 85 A-weighted decibels (dBA) averaged over an eight-hour period.

Audiometric Testing:

Testing conducted for measuring the sensitivity of a person's hearing threshold in decibels.

Decibel (dBA):

The standard unit used to measure sound pressure level. The decibel scale is logarithmic and every five dBA is a doubling of the sound pressure level.

Hertz (Hz):

The unit of measure for noise frequency in cycles per second. (1 cycle/ second= 1Hz)

Permissible Exposure Limit (PEL):

The maximum allowable noise exposure, established by Cal/OSHA as a legal limit. The current PEL for noise is 90 dBA averaged over an eight-hour period.

Noise Reduction Rating (NRR):

A measure of the amount of noise reduction provided by a given hearing protection device.

Standard Threshold Shift (STS):

A change in hearing threshold relative to the baseline audiogram of an average of 10 dBA or more at 2000, 3000, and 4000 Hz in either ear.

PROCEDURES

Exposure Monitoring

EH&S performs noise exposure monitoring of faculty, staff, and students who may be exposed to noise over Cal/OSHA's 85 dBA Action Level on an eight-hour time-weighted average basis.

Personal or area noise monitoring is conducted to identify employees and students for inclusion in the Hearing Conservation Program and to enable the proper selection of hearing protectors. Area noise monitoring is also used to identify campus locations or specific equipment and activities where average noise levels exceed Cal/OSHA's 85 dBA Action Limit (AL). These are areas where hearing protection should always be worn and signs should be posted to alert employees, students, and visitors to the required use of hearing protectors.

Employees or their supervisors should contact EH&S to schedule noise monitoring if they suspect exposures to excessive noise on the job, or if previously monitored noise levels may have changed due to modifications to equipment or processes. EH&S should also be contacted to schedule monitoring if the hearing protectors in use are suspected of being inadequate. If desired, employees or their representatives may observe the noise monitoring procedure by arranging with EH&S prior to the date of the monitoring.

Persons whose noise exposures have been monitored will receive written notification of their exposure monitoring results from EH&S. Persons whose eight-hour time-weighted average noise exposure exceeds the Action Level will be enrolled in the campus Hearing Conservation Program. These individuals should receive audiometric testing, will have hearing protectors made available to them by their supervisors, and will be provided training on the fitting, use, and care of these devices.

Persons whose eight-hour time-weighted average noise exposure is less than 85 dBA will not be enrolled in the campus Hearing Conservation Program, and generally do not require audiometric testing, training, or the use of hearing protectors. Additional monitoring of their personal noise exposures should not be required unless a significant change is perceived in the workplace noise level.

Audiometric Testing

UHS performs annual audiometric testing on all persons enrolled in the Hearing Conservation Program. The cost of the test must be covered by the employee's department and be provided free to the employee. Prior to significant work-related noise exposure, employees will establish a "baseline audiogram." Subsequent audiograms will be compared against this baseline. If it is determined that an employee has a Standard Threshold Shift, as defined above, he or she will be notified in writing within 21 days of STS determination. Such individuals will be retrained on the hazards and precautions of working in noisy environments and will be issued hearing protection devices if determined appropriate by EH&S and UHS. Other modifications to the workplace may also be needed to reduce noise exposures to prevent additional hearing loss.

Hearing Protectors

Campus departments must provide hearing protectors (earplugs or earmuffs) to each of their employees exposed at or above the 85 dBA Action Level. Hearing protectors must be provided free of cost to the wearer, and must be replaced when broken, defective, or unsanitary. At least two brands or types of hearing protectors must be made available for selection by the wearer.

At UC Berkeley, the use of hearing protectors is required:

- For all personnel who are exposed above the 85 dBA Action Level.

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- In all areas posted or otherwise designated as requiring hearing protection.

A hearing protector's ability to reduce noise is measured as its Noise Reduction Rating (NRR). The greater the NRR, the better the noise attenuation. The NRR is usually listed on the hearing protector's box. EH&S can help determine appropriate types of hearing protectors for specific situations, and can provide training on the proper use of hearing protectors.

It is the responsibility of Managers, Principal Investigators, and Supervisors to ensure that those personnel under their supervision wear proper hearing protectors wherever required. Managers, Principal Investigators, and Supervisors must also ensure that areas where noise levels are known to exceed the 85 dBA Action Limit are posted as requiring the use of hearing protectors.

Training

UHS provides annual training for all persons enrolled in the Hearing Conservation Program. This training covers:

- 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 of hearing protectors,
- The purpose of audiometric testing and an explanation of audiometric test procedures.

Additional training on noise hazards and their control is available upon request from EH&S.

Record Keeping

EH&S maintains records of all personal exposure monitoring and the UHS Occupational Health Clinic maintains all audiometric testing records for persons enrolled in the Hearing Conservation Program. Exposure monitoring records are maintained for a minimum of two years, and audiometric test results are maintained for at least thirty years after the employee's last test. These records are available upon request to employees or designated employee representatives.

Campus Resources

For additional information on noise hazards, hearing protection, or the Campus Hearing Conservation Program, contact EH&S at 642-3073, or the UHS Occupational Health Clinic at 642-6891.