

## Hearing Protection Program

### Contact: Director of Risk Management

1. Rogue Community College is committed to the safety of all employees regarding the use of Hearing Protection in the workplace. Rogue Community College is also committed to complying with all applicable federal, state and local health and safety codes and regulations. To ensure that all affected employees are provided with the necessary information and training, the following Hearing Protection Program has been established. All employees of Rogue Community College will participate and comply with all sections of the Hearing Protection Program. The written Hearing Protection Program will be reviewed, updated and maintained by the Rogue Community College Risk Management Department. A printed copy of the program is available at the Risk Management office and online at <https://web.roguecc.edu/risk-management/campus-occupational-safety>.
2. Responsibilities
  - a. Employer
    - i. Rogue Community College will evaluate, develop and implement each area of the Hearing Protection Program as required by [OAR Division 2 Subdivision G rule 1910.95 – Occupational Noise Exposure](#).
  - b. Employee
    - i. All employees of Rogue Community College will comply with each area of the Hearing Protection Program while employed at Rogue Community College.
3. Determine the need for a Hearing Protection Program
  - a. The health effects of noise can be divided into two categories: chronic and acute.
    - i. Chronic effects of noise are health conditions that require long term or continuous treatment such as tinnitus and permanent hearing loss. Tinnitus is characterized by the perception of sound, usually a ringing or buzzing sound, without the presence of an actual noise source. It is sometimes referred to as “ringing in the ears”. Permanent hearing loss is irreversible. Although hearing aids can amplify sounds, hearing aids are not able to lower a person’s hearing threshold to the original level. Thus, a person diagnosed with permanent threshold shift (PTS) has a decreased hearing perception range that is irreversible.
    - ii. Acute health effects associated with overexposure to noise could be acoustic trauma and short-term hearing loss. Short-term hearing loss is reversible, however, the amount of time required to recover hearing varies, as does the degree of lost hearing perception. Acoustic trauma is likely to occur from

impulsive or impact noise, which is noise that occurs in loud short bursts lasting less than one second and the effects are likely permanent.

- b. Communication issues because of hearing impairment may lead to otherwise avoidable safety hazards. For instance, employees that suffer from hearing loss may not be able to hear alarms, radios or other forms of hazard communication, which could increase the risk for an accident.
- c. Rogue Community College Risk Management conducts employee noise exposure monitoring in accordance with OAR Division 2 Subdivision G rule 1910.95 to determine the employee's actual exposure when reasonable information indicates that any employee's exposure may equal or exceed 85 dBA TWA8.
- d. Rogue Community College Risk Management ensures that sampling for noise exposure monitoring identifies:
  - i. All employees whose exposure equals or exceeds the following:
    - B. 85 dBA TWA8 (noise dosimetry, providing an average exposure over an 8-hour time period).
    - C. 115 dBA (slow response sound level meter, identifying short-term noise exposures).
    - D. 140 dBC (fast response sound level meter, identifying almost instantaneous noise exposures).
    - E. Exposure levels for selection of hearing protection.
- e. Rogue Community College Risk Management provides exposed employees and their representatives with an opportunity to observe any measurements of employee noise exposure that are conducted.
- f. Rogue Community College Risk Management notifies each employee whose exposure equals or exceeds 85 dBA TWA8 of the monitoring results within five working days of receiving the results.
- g. Rogue Community College Risk Management conducts additional noise monitoring whenever a change in production, process, equipment or controls, may reasonably be expected to result in:
  - i. Additional employees whose exposure equals or exceeds 85 dBA TWA8.
  - ii. Employees exposed to higher level of noise requiring more effective hearing protection.
  - iii. Conditions that may be expected to increase exposure include:
    - B. Adding machinery to the work area.
    - C. Increasing production rates.
    - D. Removal or deterioration of noise control devices.
    - E. Increased use of noisy equipment.
    - F. Change in work schedule.

G. Change of job duties.

- h. Noise levels under 85 decibels do not require hearing protection and are not covered under the Hearing Protection Program.
4. Records Retention
- a. Rogue Community College Risk Management keeps a record for each affected employee covered under the Hearing Protection Program as described below:
    - i. Noise exposure measurement records shall be retained for 2 years.
    - ii. Audiometric test records shall be retained for the duration of the affected employee's employment.
  - b. Rogue Community College Risk Management includes the following information in the record:
    - i. The make and model of the hearing protectors provided to the employee.
    - ii. The size of the protectors.
    - iii. Average noise exposure of the employee during each assessment.
    - iv. Any problems found with the use of hearing protection.
    - v. Any comments or complaints from the employee regarding the hearing protection.
5. Hearing Protection Controls
- a. Rogue Community College Risk Management will reduce employee noise exposure, using the hierarchy of controls, wherever exposure equals or exceeds 85 dBA TWA8. Once noise exposures are brought below 85 dBA TWA8, no further reduction is required. However, further reduction of noise may reduce the need for other hearing loss prevention requirements.
  - b. Hearing protection provides a barrier to noise and protects employees but is not considered a control of the noise hazard.
  - c. Option 1 - Engineering Controls that eliminate noise at the source or establish a permanent barrier to noise are typically more reliable. For example:
    - a. Replacing noisy equipment with quiet equipment.
    - b. Using silencers and mufflers.
    - c. Installing enclosures.
    - d. Damping noisy equipment and parts.
  - b. Option 2 - Administrative Controls Other controls and work practices may also be useful for reducing noise exposures. Examples include:
    - a. Employee rotation
    - b. Limiting use of noisy equipment

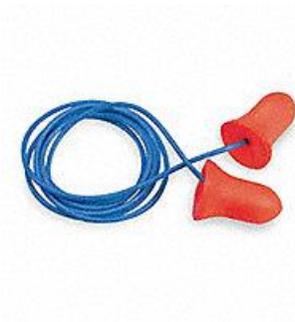
c. Rescheduling work

c. Option 3 - Personal Protective Equipment

- a. Ear Plugs
- b. Ear Muffs
- c. Canal Caps

6. Hearing Protection Selection

- a. Rogue Community College Risk Management provides employees with an appropriate selection of hearing protectors to include the options listed below.
- b. The selection will include at least two distinct types (such as molded earplugs, foam earplugs, custom-molded earplugs, ear caps, or earmuffs) for each exposed employee and must be sufficient to cover:
  - i. Different levels of hearing protection needed in order to reduce all employee exposures to a level below 85 dBA TWA8
  - ii. Different sizes
  - iii. Different working conditions
- c. Rogue Community College Risk Management considers requests of the employees regarding:
  - i. Physical comfort
  - ii. Environmental conditions
  - iii. Medical needs
  - iv. Communication requirements
- d. Expandable foam plugs



These plugs are made of a formable material designed to expand and conform to the shape of each person's ear canal. Roll the expandable plugs into a thin, crease-free cylinder. Whether you roll plugs with thumb and fingers or across your palm does not matter. What is critical is the result—a smooth tube thin enough so that about half the length will fit easily into your ear canal. Some individuals, especially women with small ear canals, have difficulty rolling typical plugs small enough to make them fit. A few manufacturers now offer a small size expandable plug.

e. Pre-molded, reusable plugs



Pre-molded plugs are made from silicone, plastic or rubber and are manufactured as either “one-size-fits-most” or are available in several sizes. Many pre-molded plugs are available in sizes for small, medium or large ear canals.

A critical tip about pre-molded plugs is that a person may need a different size plug for each ear. The plugs should seal the ear canal without being uncomfortable. This takes trial and error of the various sizes. Directions for fitting each model of pre-molded plug may differ slightly depending on how many flanges they have and how the tip is shaped. Insert this type of plug by reaching over your head with one hand to pull up on your ear. Then use your other hand to insert the plug with a gentle rocking motion until you have sealed the ear canal.

Advantages of pre-molded plugs are that they are relatively inexpensive, reusable, washable, convenient to carry, and come in a variety of sizes. Nearly everyone can find a plug that will be comfortable and effective. In dirty or dusty environments, you do not need to handle or roll the tips.

f. Canal caps



Canal caps often resemble earplugs on a flexible plastic or metal band. The earplug tips of a canal cap may be a formable or pre-molded material. Some have headbands that can be worn over the head, behind the neck or under the chin. Newer models have jointed bands increasing the ability to properly seal the earplug.

The main advantage canal caps offer is convenience. When it is quiet, employees can leave the band hanging around their necks. They can quickly insert the plug tips when hazardous noise starts again. Some people find the pressure from the bands uncomfortable. Not all canal caps have tips that adequately block all types of noise. Generally, the canal caps tips that resemble stand-alone earplugs seem to block the most noise.

g. Earmuffs



Earmuffs come in many models designed to fit most people. They work to block out noise by completely covering the outer ear. Muffs can be "low profile" with small ear cups or large to hold extra materials for use in extreme noise. Some muffs also include electronic components to help users communicate or to block impulsive noises.

Workers who have heavy beards or sideburns or who wear glasses may find it difficult to get good protection from earmuffs. The hair and the temples of the glasses break the seal that the earmuff cushions make around the ear. For these workers, earplugs are best. Other potential drawbacks of earmuffs are that some people feel they can be hot and heavy in some environments.

- h. Still, the best hearing protector is the one that is comfortable and convenient and that you will wear every time you are in an environment with hazardous noise.

## 7. Equipment Selection for Hearing Tests

- a. Rogue Community College Risk Management ensured that noise dosimetry equipment meets the following specifications:
  - i. Dosimeters must be equipment class 2AS-90/80-5 of the American National Rule Specification for Personal Noise Dosimeters, ANSI S1.25-1991.
  - ii. Such dosimeters are normally marked "Type 2."
  - iii. Note: Make sure any dosimeter you use is Type 2 equipment that:
    - B. Uses slow integration and A-weighting of sound levels.
    - C. Has the criterion level set to 90 dB, so the dosimeter will report a constant 8-hour exposure at 90 dBA as a 100% dose.
    - D. Has the threshold level set at 80 dB, so the dosimeter will register all noise above 80 dB.
    - E. Uses a 5-dB exchange rate for averaging of noise levels over the sample period.
- b. Rogue Community College Risk Management makes sure that sound level meters meet these specifications:
  - i. American National Standard Specification for Sound Level Meters, S1.4-1984, Type 2 requirements for sound level meters.
  - ii. Such sound level meters are normally marked "Type 2."
    - B. For continuous noise measurements, the meter must be capable of measuring A-weighted sound levels with slow response.

- C. For impulse or impact noise measurements, the meter must be capable of indicating maximum C-weighted sound level measurements with fast response.
- D. Calibrate dosimeters and sound level meters used to monitor employee noise exposure:
- E. Before and after each day's use; and
- F. Following the instrument manufacturer's calibration instructions.
  - a. Note:
    - i. You may conduct dosimetry using an exchange rate less than 5 dB and compare the results directly to the noise evaluation criteria in Table 1.
    - ii. For measuring impulse and impact noise, you may also use a sound level meter set to measure maximum impulse C-weighted sound levels or peak C-weighted sound levels.

## 8. Hearing Exam

- a. Audiometric Testing Summary
  - i. Rogue Community College Risk Management conducts audiometric testing of employees exposed to noise to make sure that their hearing protection is effective.
  - ii. Rogue Community College Risk Management provides audiometric testing at no cost to employees through an agreement with Asante Occupational Health Services in Medford, Oregon and in Grants Pass, Oregon.
  - iii. Rogue Community College Risk Management establishes a baseline audiogram for each exposed employee.
  - iv. Rogue Community College Risk Management makes sure a record is kept of audiometric tests.
  - v. Rogue Community College Risk Management makes sure audiometric testing equipment meets these requirements under OAR Division 2 Subdivision G rule 1910.95.
  - vi. Rogue Community College Risk Management conducts a baseline audiogram when an employee is first assigned to work involving noise exposures that equal or exceed 85 dBA TWA8.
  - vii. Rogue Community College Risk Management makes sure this audiogram is completed no more than 180 days after the employee's first exposure at or above the action level.
  - viii. Rogue Community College Risk Management makes sure employees are not exposed to workplace noise at least 14 hours before testing to establish a baseline audiogram. Hearing protectors may be used to accomplish this.
  - ix. Rogue Community College Risk Management notifies employees of the need to avoid high levels of non-occupational noise exposure (such as loud music,

headphones, guns, power tools, motorcycles, etc.) during the 14-hour period immediately preceding the baseline audiometric examination.

- x. Rogue Community College Risk Management conducts annual audiograms for all affected employees as long as they continue to be exposed to noise that equals or exceeds 85 dBA TWA8.
  - xi. Rogue Community College Risk Management reviews audiograms that indicate a standard threshold shift.
- b. Annual audiometric testing may be conducted at any time during the work shift. By conducting the annual audiogram during the work shift with the employee exposed to typical noise for their job, the test may record a temporary threshold shift.
- c. This makes the test more sensitive to potential hearing loss and may help you improve employee protection before a permanent threshold shift occurs. A suspected temporary shift is one reason an employer may choose to retest employee hearing.
- d. Rogue Community College Risk Management makes sure each employee is informed of the results of his or her audiometric test. Include whether or not there has been a hearing level decrease or improvement since their previous test.
- e. Rogue Community College Risk Management makes sure each employee's annual audiogram is compared to his or her baseline audiogram by an audiologist, otolaryngologist, another qualified physician, or the technician conducting the test to determine if a standard threshold shift has occurred. If the annual audiogram indicates that an employee has suffered a standard threshold shift, you may obtain a retest within 30 days and consider the results of the retest as the annual audiogram.
- f. Rogue Community College Risk Management makes sure that an audiologist, otolaryngologist, or other qualified physician sees any annual audiogram that indicates a standard threshold shift.
- g. Rogue Community College Risk Management makes sure the health care professional supervising audiograms has:
- i. A copy of this chapter
  - ii. The baseline audiogram and most recent audiogram of the employee to be evaluated
  - iii. Background noise level records for the testing room
  - iv. Calibration records for the audiometer.
- h. Rogue Community College Risk Management will obtain an opinion from the health care professional supervising audiograms as to whether the audiograms indicate possible occupational hearing loss and any recommendations for changes in hearing protection.

- i. Rogue Community College will pay for any clinical audio logical evaluation or ontological examination required by the reviewer, if:
  - i. Additional review is necessary to evaluate the cause of hearing loss; or
  - ii. If there is indication of a medical condition of the ear caused or aggravated by the wearing of hearing protectors.
  
- j. Rogue Community College Risk Management will inform the employee in writing of the existence of a standard threshold shift within 21 calendar days of the determination.
  
- k. Rogue Community College Risk Management will arrange for the reviewer to communicate to the employee any suspected medical conditions that are found unrelated to your workplace. This information is confidential and must be handled appropriately.
  
- l. Rogue Community College Risk Management will keep the baseline audiogram without revision, unless annual audiograms indicate a persistent threshold shift or a significant improvement in hearing. Rogue Community College will keep the baseline audiogram without revision, unless a qualified reviewer determines:
  - i. The standard threshold shift revealed by the audiogram is persistent; or
  - ii. The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.
  - iii. Make sure a record is kept of audiometric tests. You must retain a legible copy of all employee audiograms conducted under this chapter. Make sure the record includes:
    - B. Name and job classification of the employee
    - C. Date of the audiogram
    - D. The examiner's name
    - E. Date of the last acoustic or exhaustive calibration of the audiometer
    - F. Employee's most recent noise exposure assessment
    - G. The background sound pressure levels in audiometric test rooms
    - H. Make sure audiometric testing equipment meets these requirements:
      - a. You must use pure tone, air conduction, hearing threshold examinations, with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 Hz.
      - b. Tests at each frequency must be taken separately for each ear.
      - c. Supra-aural headphones must be used.
      - d. Rogue Community College will conduct audiometric tests with audiometers (including microprocessor audiometers) that meet the specifications of, and are maintained and used according to, American National Standard Specification for Audiometers, S3.6-1996.

## 9. Training

- a. Rogue Community College will train each employee whose noise exposure equals or exceeds 85 dBA TWA8 on the requirements outlined in the Hearing Protection Program utilizing a combination of online training modules and hands on training taught by the Risk Management Department or otherwise competent and qualified instructor.
- b. Rogue Community College Risk Management provides training when an employee is first assigned to a position involving noise exposure that equals or exceeds 85 dBA TWA8 and at least annually after that.
- c. Rogue Community College Risk Management updates information provided in the training program to be consistent with changes in controls, hearing protectors and work processes.
- d. Rogue Community College Risk Management makes sure noise and hearing protection training includes:
  - i. The effects of noise on hearing (including both occupational and non-occupational exposures).
  - ii. Noise controls used in the workplace.
  - iii. The purpose of hearing protectors: The advantages, disadvantages, and attenuation of various types.
  - iv. Instructions about selecting, fitting, using, and caring for hearing protection.
  - v. The employees' right to access records kept by the employer.
- e. Rogue Community College Risk Management maintains a written program describing initial and refresher training.

## 10. Location of Hearing Protection

- a. Individual Hearing Protection will be provided by the employee's department supervisor in consultation with the Risk Management Department.
- b. Disposable single use Hearing Protection is also available from the following departments at Rogue Community College:
  - i.           TBD

## 11. Impacted Departments and Programs

- a. Based On Occupational Exposure, the following positions are determined to have exposure to noise levels that exceed the recommended levels established by OAR Division 2 Subdivision G rule 1910.95 and are hereby included in the Hearing Protection Program:

i. TBD

- b. Areas identified as high noise areas as a result of noise surveys, will also be marked with signage stating that the area is a Noise Hazard and or Hearing Protection Required area. Stationary sources such as table saws, that are at or above 85 decibels when activated, will be marked with signs indicating a noise hazard and the need for hearing protection.

## 12. Definitions

- a. **A-weighted.** An adjustment to sound level measurements that reflects the sensitivity of the human ear. Used for evaluating continuous or average noise levels.
- b. **Audiogram.** A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.
- c. **Audiologist.** A professional, specializing in the study and rehabilitation of hearing, who is certified by the American Speech, Hearing, and Language Association, or the American Academy of Audiology, and is licensed by the state board of examiners.
- d. **Baseline audiogram.** The audiogram against which future audiograms are compared. The baseline audiogram is collected when an employee is first assigned to work with noise exposure. The baseline audiogram may be revised if persistent standard threshold shift (STS) of improvement is found.
- e. **Continuous noise.** Noise with peaks spaced no more than one second apart. Continuous noise is measured using sound level meters and noise dosimeters with the slow response setting.
- f. **Criterion sound level.** A sound level of 90 decibels. An 8-hour exposure to constant 90 dBA noise is a 100% noise dose exposure.
- g. **C-weighted.** An adjustment to sound level measurements that evenly represents frequencies within the range of human hearing. Used for evaluating impact or impulse noise.
- h. **Decibel (dB).** Unit of measurement of sound level. A-weighting, adjusting for the sensitivity of the human ear, is indicated as “dBA.”
- i. C-weighting, an even reading across the frequencies of human hearing, is indicated as “dBC.”
- j. **Fast response.** A setting for a sound level meter that will allow the meter to respond to noise events of less than one second. Used for evaluating impulse and impact noise levels.

- k. **Hertz (Hz).** Unit of measurement of frequency, numerically equal to cycles per second. Impulsive or impact noise. Noise levels which involve maxima at intervals greater than one second. Impulse and impact noise are measured using the fast response setting on a sound level meter.
- l. **Noise dose.** The total noise exposure received by an employee during their shift. It can be expressed as a percentage indicating the ratio of exposure received to the noise exposure received in an 8-hour exposure to constant noise at 90 dBA. It may also be expressed as the sound level that would produce the equivalent exposure during an 8-hour period (TWA8).
- m. **Noise dosimeter.** An instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.
- n. **Occupational hearing loss.** A reduction in the ability of an individual to hear either caused or contributed to by exposure in the work environment.
- o. **Otolaryngologist.** A physician specializing in diagnosis and treatment of disorders of the ear, nose, and throat.
- p. **Permanent threshold shift.** A hearing level change that has become persistent and is not expected to improve.
- q. **Qualified reviewer.** An audiologist, otolaryngologist, or other qualified physician who has experience and training in evaluating occupational audiograms.
- r. **Slow response.** A setting for sound level meters and dosimeters in which the meter does not register events of less than about one second. Used for evaluating continuous and average noise levels.
- s. **Sound level.** The intensity of noise as indicated by a sound level meter. Sound level meter. An instrument that measures sound levels.
- t. **Standard threshold shift (STS).** A hearing level change, relative to the baseline audiogram, of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.
- u. **Temporary threshold shift.** A hearing level change that improves. A temporary threshold shift may occur with exposure to noise and hearing will return to normal within a few days. Temporary threshold shifts can be indicators of exposures that lead to permanent hearing loss.

- v. **TWA8** - Equivalent eight-hour time-weighted average sound level. That sound level, which if constant over an 8-hour period, would result in the same noise dose measured in an environment where the noise level varies.