



NOISE AND HEARING CONSERVATION

Measure, Control, Protect and Preserve Hearing

POLICY STANDARD

Noise hazards shall be assessed before and during work. Feasible engineering and administrative controls shall be used first. Pheifer Brothers uses an 85 dBA 8-hour time-weighted average as its company action level for hearing-loss prevention. Employees shall receive properly selected and fitted hearing protection, training, audiometric monitoring and follow-up when covered.

PHEIFER BROTHERS CONSTRUCTION CO., INC.

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REGULATORY DISTINCTION

OSHA's construction standard requires protection and a continuing effective hearing conservation program when exposure exceeds Table D-2, including 90 dBA for 8 hours using OSHA construction criteria. The company's 85 dBA action level is a more protective hearing-loss-prevention requirement based on recognized NIOSH guidance; it does not replace OSHA PEL calculations.

Primary Regulatory References

- 29 CFR 1926.52 - Occupational noise exposure and Table D-2
- 29 CFR 1926.101 - Hearing protection
- 29 CFR 1910.95 provisions adopted as company hearing-conservation practice where appropriate
- 29 CFR 1904.10 - Recording occupational hearing loss
- NIOSH occupational noise recommendations and manufacturer instructions for equipment and hearing protectors

1. Purpose, Scope, Definitions and Responsibilities

Purpose and Scope

- Prevent permanent noise-induced hearing loss, tinnitus, communication failure, fatigue and incidents caused by inability to hear alarms, traffic or instructions during heavy-highway, bridge, marine, shop, yard and support operations.
- Applies to employees, temporary workers and subcontractors exposed to continuous, intermittent or impulse/impact noise from tools, equipment, traffic, demolition, pile driving, blasting, welding/gouging and similar sources.

Key Definitions

- dBA: A-weighted decibel measurement approximating human hearing response. Sound level is logarithmic; small numerical increases can represent large increases in sound energy.
- TWA/dose: combined noise exposure over time. Multiple noisy tasks contribute to total daily dose and must be evaluated together.
- Action level: company threshold of 85 dBA as an 8-hour TWA for program enrollment/protection unless a qualified assessment establishes a more protective requirement.
- PEL: OSHA construction permissible exposure limits in Table D-2, including 90 dBA for 8 hours, 95 dBA for 4 hours, 100 dBA for 2 hours and shorter times at higher levels.
- STS: standard threshold shift, generally an average change of 10 dB or more at 2000, 3000 and 4000 Hz in either ear relative to baseline, subject to professional review.

Management / Program Administrator

- Designate a qualified administrator; provide monitoring, controls, protectors, audiometry, training, medical review, records and resources at no cost to employees.
- Review procurement/design for quieter equipment and coordinate occupational-health providers.

Foreman

- Identify noisy tasks in the JHA, verify controls/protectors/communication, limit access, enforce use and report changed equipment, duration or conditions.

Employees

- Use controls and hearing protectors correctly; attend testing/training; report fit problems, damaged protectors, tinnitus, muffled hearing or communication concerns promptly.

Qualified Noise Assessor / Occupational Provider

- Conduct/interpret representative monitoring and audiometry within professional scope; recommend controls, attenuation and follow-up.

2. Exposure Criteria and Program Enrollment

OSHA Construction Requirements

- When sound exceeds Table D-2, use feasible engineering or administrative controls. If those controls do not reduce exposure within the table, provide and require hearing protection sufficient to reduce exposure.
- When sound levels exceed Table D-2, administer a continuing, effective hearing conservation program. Combine periods at different noise levels when determining daily exposure.
- Exposure to impulsive/impact noise and very high levels requires specific assessment; never assume short duration is harmless.

Company Action Level

- Employees with known or reasonably anticipated exposure at or above 85 dBA 8-hour TWA are enrolled in the company hearing-conservation program and receive monitoring, hearing protection, training and audiometric testing.
- Hearing protection is required in posted/designated high-noise areas, for tasks identified by assessment/manufacture/company rules, or whenever directed by the foreman/program administrator.
- Employees may voluntarily wear company-approved protection below the action level when it does not create communication or other hazards.

Practical Warning Signs

- Noise is potentially hazardous when employees must raise their voices to communicate at arm's length, experience ringing/muffled hearing afterward, cannot hear alarms/radios, or a tool/equipment manufacturer recommends protection.
- These indicators trigger protection and evaluation but do not replace dosimetry/sound-level measurement.

Enrollment / Removal

- Enrollment is based on representative worst-case task/duration and individual exposure. Similar exposure groups may be used when valid.
- An employee remains enrolled until documented reassessment shows exposure reliably below the company action level and the program administrator approves removal, considering audiometric history and foreseeable tasks.
- Temporary, seasonal and subcontractor employees require equivalent protection; each employer remains responsible for its program duties.

Extended Shifts

- Evaluate full work patterns and highest relevant exposure. OSHA has specific construction measurement conventions; the company may apply more protective criteria for long shifts based on professional assessment.

3. Hazard Identification and Noise Monitoring

When Monitoring Is Required

- Before or during new/changed noisy work; when exposure is uncertain; after equipment, attachment, enclosure, material, distance, crew size, duration, maintenance or work-sequence changes; after complaints or threshold shifts.
- Prior data may be used only when equipment, task, condition, duration and controls are demonstrably representative and documented.

Assessment Methods

- Use calibrated Type 2 or better sound-level meters for area/task screening and noise dosimeters for personal daily exposure. Configure instruments for the criterion being evaluated.
- Measure continuous, intermittent and impulse components as appropriate. Record equipment ID, task, employee/group, distances, controls, PPE, shift duration, weather/environment and calibration.
- Calibrate before and after sampling per instrument/manufacture procedure; investigate significant drift.

Representative Sampling

- Monitor employees expected to have the highest exposures and each distinct similar-exposure group. Include non-routine phases, start/stop, maintenance, refueling, cleanup and adjacent sources.
- Position personal microphone in the hearing zone without interfering with work/PPE. Do not intentionally shield or expose the microphone.
- Employees may observe monitoring when it does not disrupt work or create hazards; explain results and required controls.

Noise Map / Task Inventory

- Maintain a current inventory of noisy tools, equipment and tasks with typical measured range, required controls, hearing protection and access limits.
- Post high-noise zones or communicate boundaries when feasible. Conditions and actual measurements govern; posted signs are not a substitute for reassessment.

Uncertain / Changed Conditions

- Use protective controls immediately while exposure is evaluated. Stop if suitable protection, monitoring or safe communication cannot be established.
- Phone apps may raise awareness but are not accepted as the sole compliance measurement unless validated and used by a qualified assessor.

4. Engineering and Administrative Controls

Hierarchy of Controls

- Eliminate the noisy step or substitute a quieter method/equipment; isolate/enclose the source; add barriers/damping/silencers; increase distance; maintain equipment; then limit time/schedule exposure. Hearing protection is the final layer.
- Evaluate controls for new purchases, bids, work plans and equipment modifications, not only after overexposure.

Engineering Controls

- Select lower-noise saws, breakers, compressors, generators and attachments; use hydraulic rather than impact methods where feasible.
- Maintain mufflers, bearings, cutting edges, vibration isolators, seals and lubrication. Abnormal noise can indicate a defect; remove equipment until evaluated.
- Use acoustic barriers/enclosures, lined chutes, damping, isolation mounts, remote controls, sound-absorbing material and quieter compressed-air nozzles where compatible.
- Locate generators/compressors/pumps away from crews and reflective surfaces; orient exhaust/openings away. Preserve ventilation, fire, exhaust and access requirements.

Administrative Controls

- Schedule noisy work when fewer people are exposed; establish exclusion zones; rotate only when rotation truly lowers individual dose and does not expose additional untrained workers.
- Plan task duration and breaks in quieter areas. Time away from one source does not help if the alternate task is also noisy.
- Coordinate simultaneous operations so pile driving, chipping, cutting, grinding and traffic do not create unassessed combined exposures.

Verification

- Measure or otherwise verify that controls reduce exposure as intended. Inspect barriers/enclosures for gaps and maintain them.
- Controls shall not create visibility, traffic, fire, ventilation, ergonomic, struck-by, fall or emergency-communication hazards.

PPE Does Not Replace Feasible Controls

- Use hearing protection while controls are implemented and for residual exposure. Production pressure or convenience is not a reason to skip feasible controls.

5. Hearing Protection Selection and Required Use

Employer-Provided Selection

- Provide suitable plugs, earmuffs or other approved devices at no cost, in multiple sizes/types so employees can obtain comfortable and effective fit.
- Select for measured exposure, task, duration, helmet/eyewear/respirator compatibility, heat/cold, hygiene, communication and medical limitations.
- Plain cotton, music earbuds, consumer noise-canceling headphones and unapproved devices are not hearing protection.

Attenuation

- A qualified person evaluates manufacturer Noise Reduction Rating and real-world fit using accepted OSHA/NIOSH methods. Label ratings are not assumed to equal protection achieved in the field.
- Target enough attenuation to protect hearing while maintaining awareness; excessive attenuation can hinder alarms, traffic and communication.
- Use individual fit testing where available, especially for high exposure, employees with threshold shifts or when fit is uncertain.

Company Use Rules

- At or above the company 85 dBA action level or in designated areas: correctly worn company-approved hearing protection is required unless exposure assessment specifies otherwise.
- At 100 dBA or greater, for significant impulse/impact noise, or when the assessor directs: use dual protection (properly fitted plugs plus muffs) and implement access/time/engineering controls.
- For exposures near or above 115 dBA, peak/impulse hazards or unknown extreme noise: stop and obtain qualified assessment and task-specific controls before proceeding.

Special Situations

- Hearing aids are not hearing protectors unless specifically designed/rated and approved for the exposure. Coordinate with occupational provider; do not remove needed devices without medical guidance.
- Radio-communication headsets must be hearing-protective, level-limited and compatible with required attenuation. A radio in a standard muff can defeat the seal/rating.
- Employees with ear infection, drainage, pain, skin reaction or inability to wear a selected device receive an alternate protector and medical evaluation as appropriate.

Visitors / Short Tasks

- Brief visitors and provide/fitted protection before entry. Short exposure can still be hazardous, especially at high levels.

6. Fitting, Care, Compatibility and Communication

Earplug Fit

- Insert plugs with clean hands using manufacturer technique. For foam plugs: roll to a small crease-free cylinder, reach over to pull ear up/back, insert deeply and hold while expanding.
- A properly fitted plug is mostly within the ear canal, feels secure and provides similar sound reduction in both ears. Refit when loose, contaminated or disturbed.
- Inserted devices shall be individually fitted or their fit determined by a competent person as required by 1926.101.

Earmuff Fit

- Cushions must fully seal around the ear. Hair, hat bands, eyewear temples, respirator straps, hood fabric, jewelry and damaged cushions can break the seal.
- Use manufacturer-compatible hard-hat-mounted muffs and correct positions. Replace stiff/cracked cushions and damaged headbands.

Care and Storage

- Follow reuse/disposal instructions. Keep plugs and muffs clean/dry in a protected container; do not share reusable inserts without approved sanitation.
- Inspect before each use. Replace hardened, torn, deformed, contaminated, loose or modified components. Do not drill, cut or add electronics to protectors.

PPE Compatibility

- Foreman verifies compatibility with hard-hat chin straps, safety glasses, welding helmets, respirators and cold-weather gear. Never compromise another protective system.
- When simultaneous PPE prevents an adequate seal/fit, stop and select a compatible system or alternative control.

Alarms and Communication

- Plan radios, visual signals, hand signals, spotters, warning lights and equipment separation so protected employees receive essential warnings.
- Test communication under actual noise/PPE conditions before work. Do not remove one protector inside a high-noise zone to hear instructions.
- Music/headphone use is prohibited where it interferes with hazard recognition and never substitutes for approved protection.

Fit Problems

- Report pressure, pain, looseness, blocked communication or inadequate attenuation. The company will provide refitting, retraining or alternatives.

7. Audiometric Testing Program

Covered Employees

- Employees enrolled at/above the company action level receive baseline and annual audiometric testing at no cost. Testing is performed by qualified personnel under professional supervision using compliant equipment/rooms/procedures.
- Testing does not replace exposure controls or hearing protection.

Baseline Audiogram

- Obtain as soon as practicable and normally within 6 months of first covered exposure. If a permitted mobile-test exception is used, obtain within one year and require protection for exposures at/above the action level until baseline is completed.
- Baseline testing is preceded by at least 14 hours without workplace noise; suitable hearing protection may be used to meet this requirement. Inform employee to avoid high non-occupational noise before testing.
- Record relevant occupational/non-occupational noise history, protector use, ear symptoms and factors needed by the provider without unnecessary medical disclosure.

Annual Audiogram

- Provide at least annually after baseline for covered employees and compare to baseline using qualified review.
- Schedule promptly after missed test, significant exposure change, employee complaint or provider recommendation.

Test Environment / Quality

- Audiometers, sound rooms, calibration and test frequencies meet applicable specifications. An employee with temporary ear condition may be referred or rescheduled by the provider.
- Give understandable instructions and ensure the employee can respond reliably. Do not coach toward a desired result.

Employee Information

- Provide employee access to their results/explanations and required notifications. Maintain confidentiality and protect medical records.
- Employees report tinnitus, muffled hearing, sudden change, ear pain/drainage or difficulty understanding speech without waiting for the annual test.

Transfer / Separation

- Obtain/update testing and exposure records as required; preserve continuity when employees change assignments or providers.

8. Standard Threshold Shifts and Medical Follow-Up

STS Review

- A potential STS is reviewed by the audiometric provider. A retest may be obtained within 30 days and may be used as the annual audiogram when appropriate.
- Age correction, baseline revision and persistence decisions are made only as allowed by the governing procedure and professional reviewer; never adjust records to hide deterioration.

Notification

- Inform the employee in writing within 21 days after final determination of an STS under the adopted program procedure.
- Explain the result, required protection/control changes, follow-up and recordkeeping determination in understandable terms while preserving privacy.

Required Response

- Refit and retrain the employee; verify protector effectiveness and provide greater attenuation or a different type when necessary.
- Reevaluate individual exposure, tasks, controls, protector use/fit, training and similar-exposure groups. Correct program failures promptly.
- Refer for clinical audiological/otological evaluation when indicated by the provider, a possible medical pathology, asymmetry, sudden loss or inability to use protection.

Recordability

- Management determines OSHA recordability under 29 CFR 1904.10. A work-related STS is recordable when it also meets the applicable 25 dB hearing-level criterion at 2000, 3000 and 4000 Hz in the same ear.
- Recordability, workers' compensation and medical diagnosis are separate decisions. Do not delay care or controls while determining them.

Sudden Hearing Change

- Sudden hearing loss, severe ear pain, acoustic trauma, dizziness or drainage requires prompt medical evaluation; report immediately as an injury/illness.
- For explosion/impact event, stop work, secure the scene and evaluate others exposed. Preserve exposure/task information.

Persistent / Nonpersistent Shift

- Follow provider direction on baseline revision and program status. Continue protection unless formally changed by the administrator.

9. Task-Specific Heavy-Highway and Bridge Controls

Common High-Noise Tasks

- Pile driving/extraction, hoe-ram/jackhammering, concrete sawing/coring/chipping, abrasive blasting, needle scaling, grinding, arc gouging, welding support, impact wrenches, generators/compressors, vacuum trucks, demolition and steel erection.
- Traffic, backup alarms, multiple machines, reflective bridge surfaces, cofferdams, enclosures and long shifts can increase combined exposure.

Pile Driving / Demolition

- Establish exclusion zones and remote positions; maintain mufflers/isolation; limit simultaneous impact tasks; use dual protection or other assessed protection for high/impulse levels.
- Coordinate signals/radios/visual warnings. Protection cannot make crane, equipment or emergency communication unreliable.

Concrete / Silica Tasks

- Use quieter blades/equipment, water/dust controls, maintained cutting systems and distance/barriers. Noise and silica controls must work together.
- Enclosures used for dust control can increase noise; assess inside and outside before occupancy.

Abrasive Blasting / Coating Removal

- Assess compressor, nozzle, blast impact, ventilation and containment. Select hearing protection compatible with blast hood/respirator; prevent seal interference.
- Monitor workers inside containment and attendants/nearby crews. Follow blasting, lead and respiratory programs.

Equipment / Traffic

- Use closed cabs and maintained seals where effective; keep windows/doors closed when relied upon; inspect alarms/communication.
- Do not block necessary vehicle warnings. Separate workers rather than relying only on hearing protectors near equipment/live traffic.

Marine / Cofferdam / Enclosed Areas

- Reflective surfaces and limited escape can amplify noise. Evaluate communication, ventilation, rescue alarms and multi-employer exposure.
- Protective headsets/radios require assessed attenuation and intrinsically safe equipment where applicable.

10. Training, Inspections, Records and Program Review

Training

- Train covered employees before exposure and annually on hearing effects, common tasks, controls, company action level/OSHA limits, protector purpose/selection/fit/care, audiometry and reporting symptoms.
- Provide retraining after exposure/task/equipment change, STS, failed fit, improper use, incident or knowledge deficiency. Use language/vocabulary employees understand.
- Toolbox talks reinforce but do not replace required annual and hands-on fit training.

Foreman / Daily Verification

- Confirm noise plan/JHA, controls installed, zones communicated, protectors available/fitted, communication tested and adjacent crews protected.
- Observe use throughout task; inspect after breaks/PPE changes. Stop for missing protection, broken seals, changed noise, malfunction or failed communication.

Program Inspections

- Administrator periodically audits monitoring inventory, control effectiveness, protector selection/fit, audiometric completion, STS response, training and subcontractor coordination.
- Investigate recurring high exposure, protector nonuse, tinnitus complaints, abnormal equipment noise and missed tests.

Records

- Maintain exposure measurements and calibration; task/noise inventory; control evaluations; protector selection/fit testing; training; audiometric/medical records; STS notices/follow-up; incidents and corrective actions.
- Retain exposure/audiometric records for durations required by applicable regulations and company medical-record procedures; provide employee access as required.
- Medical records remain confidential and separate. Supervisors receive only information necessary for restrictions/controls.

Program Review

- Review at least annually and after overexposure, STS trend, new process/equipment, regulatory change or control failure. Use exposure and audiometric trends to prioritize quieter equipment and engineering.
- Printed copies are uncontrolled unless formally issued. More protective owner/project or professional requirements govern.

Enforcement

- Entering a designated zone without protection, defeating controls, falsifying monitoring/testing or directing work past a stop condition is subject to corrective action.

11. Noise-Control and Emergency Communication Planning

Pre-Task Noise Plan

- List each source/task, expected level/duration, employees/adjacent groups, data source, engineering controls, administrative limits, protector type/fit and monitoring need.
- Account for combined sources and changing phases. Identify the person authorized to modify boundaries or stop work.

High-Noise Zone

- Define boundary using measurements/qualified estimate; post or brief; limit access; provide protection before entry; prevent bystander/public exposure.
- Boundary moves with mobile sources. Reassess when wind, barriers, equipment orientation or simultaneous work changes.

Communication Plan

- Choose radio/headset, visual, hand-signal and spotter methods compatible with protectors. Establish emergency stop signal understood by everyone.
- Conduct a pre-start communication check from actual positions with equipment operating under controlled conditions. Stop immediately if warnings cannot be received.
- Design alarms with visual/vibration backup when needed; do not simply increase alarm volume without evaluating added exposure.

Emergency / Incident

- For sudden hearing change, explosion, equipment failure or inability to hear critical warnings: stop work, move to safe area, notify foreman and obtain medical/emergency assistance as indicated.
- Do not remove protection until outside the high-noise zone. Preserve equipment/settings and monitoring information for investigation.

Multi-Employer Coordination

- Share noise sources, schedules, monitoring results, boundaries and controls with the controlling contractor and affected employers.
- Do not assume another employer's protection covers Pheifer Brothers employees. Verify equivalent controls and communication.

Restart

- Resume only after source/controls/protection/communication are corrected, exposure is reassessed as needed and crew is rebriefed.

12. Field Noise Assessment Checklist

VERIFY	EXPECTATION
Task / source	Equipment ID, attachments, material, duration, location and simultaneous sources identified
Prior data	Representative monitoring/manufacture data reviewed; changed conditions noted
Monitoring	SLM/dosimeter method, criterion, calibration and highest-exposure employee/group established
Engineering	Quieter method/equipment, maintenance, enclosure/barrier/damping/distance evaluated
Administrative	Schedule, zone, access, duration and quiet-break controls defined without shifting risk
Protection	Plug/muff type, attenuation, individual fit, dual-protection need and PPE compatibility verified
Communication	Radio/visual/hand signals, alarms, spotter and emergency stop tested with protection worn
Adjacent crews	Traffic, public, subcontractors and other Pheifer crews notified/protected
Program	85 dBA action-level enrollment, audiogram and training status confirmed
Changes / stop	Noise increase, failed control/protector, abnormal equipment or lost communication triggers understood
Follow-up	Results communicated; data filed; corrective action and reassessment assigned

PROJECT / LOCATION:	DATE / SHIFT:
TASK / EQUIPMENT ID:	FOREMAN / ASSESSOR:
MEASUREMENT / DURATION:	CONTROLS / BOUNDARY:
HEARING PROTECTION / FIT:	COMMUNICATION / ALARMS:
CHANGES / CORRECTIVE ACTION:	RESULTS / FOLLOW-UP:

13. Test Your Knowledge

Circle the best answer. Review missed questions with your foreman.

1. What is the company noise action level? A. 75 dBA B. 85 dBA as an 8-hour TWA C. 100 dBA only	2. What is OSHA construction Table D-2's 8-hour level? A. 90 dBA B. 85 dBA C. 115 dBA
3. Which control should be considered before relying only on earplugs? A. Louder alarms B. Longer shifts C. Feasible engineering and administrative controls	4. What may replace approved hearing protection? A. Cotton B. Nothing; music/noise-canceling earbuds are not substitutes C. A hood
5. When is dual protection required by company policy? A. At 100 dBA or greater, significant impulse noise, or assessor direction B. Only below 80 dBA C. Never	6. What should happen if earmuff cushions cannot seal around other PPE? A. Press them harder B. Remove the hard hat C. Stop and select a compatible system/control
7. What is the purpose of audiometric testing? A. Replace noise monitoring B. Establish/track hearing and trigger follow-up C. Determine job performance	8. What should happen after loss of spotter/radio communication in a high-noise task? A. Stop immediately B. Remove one earplug C. Continue by watching others
9. What does ringing or muffled hearing after work mean? A. Protection worked B. It is normal C. Report it; exposure/protection may be inadequate	10. Who may give an emergency stop signal? A. Only the foreman B. Anyone recognizing danger C. Only the operator

EMPLOYEE: _____

DATE: _____

ANSWER KEY: 1-B | 2-A | 3-C | 4-B | 5-A | 6-C | 7-B | 8-A | 9-C | 10-B