
Hearing Protection Fit Testing Standard Operating Procedure

1.0 Objective & Intent

The objective of this SOP is to establish a standardized procedure for fit testing hearing protection devices (HPDs) to ensure each worker achieves adequate noise attenuation in accordance with WorkSafeBC OHS Regulation Part 7 (Noise Exposure). In cabinet and millwork manufacturing, workers are routinely exposed to noise levels exceeding 85 dBA from machinery such as CNC routers, edgebanders, panel saws, and dust collection systems. Inadequate fit of hearing protection can reduce attenuation by 10-20 dB, leaving workers at risk of noise-induced hearing loss. This SOP mitigates that risk by verifying proper fit and seal for each individual.

2.0 Operational Scope

This procedure applies to all employees who are required to wear hearing protection in areas where noise levels exceed 85 dBA time-weighted average (TWA) or where noise exposure is intermittent but hazardous. This includes production operators, maintenance personnel, material handlers, and any visitors or contractors entering designated high-noise zones. Fit testing must be conducted upon initial assignment of hearing protection, annually thereafter, and whenever a new type or model of HPD is introduced. The procedure is to be performed in a quiet room or designated area free from background noise interference.

3.0 Hazard Identification & Mandatory PPE

- Noise Exposure: Continuous or impact noise from machinery can cause permanent hearing loss if HPDs are not properly fitted.
- Incorrect Fit: Poor seal due to facial hair, glasses, or improper insertion reduces attenuation.
- Skin Irritation: Prolonged contact with unclean or ill-fitting earplugs or earmuffs can cause dermatitis or ear infections.
- Mandatory PPE: Hearing protection device (earplugs or earmuffs) to be fit tested.
- Mandatory PPE: Clean, dry hands for handling earplugs.
- Mandatory PPE: Safety glasses (if worn) must be adjusted to avoid breaking the seal of earmuffs.

4.0 Required Safety Equipment & Tools

- Hearing protection fit testing system (e.g., E-A-Rfit Dual-Ear Validation System or 3M E-A-Rfit) with calibrated speakers and probe microphone.
- Assortment of hearing protection devices (different sizes and models of earplugs and earmuffs) for selection.
- Disposable earplug insertion verification tool (if applicable).
- Cleaning wipes and alcohol swabs for sanitizing HPDs between tests.
- Quiet room or sound-attenuated booth with ambient noise below 50 dBA.
- Personal protective equipment for the tester: hearing protection, safety glasses, and closed-toe shoes.

5.0 Step-by-Step Safety Procedure

1. Verify that the fit testing equipment is calibrated and functioning according to manufacturer instructions. Ensure the testing area is quiet (ambient noise <50 dBA) and free from distractions.
2. Instruct the worker to remove any existing hearing protection and inspect their ears for visible wax buildup or irritation. If present, refer to first aid before proceeding.
3. Select a hearing protection device appropriate for the worker's ear canal size and the noise environment. Provide the worker with a clean, unused pair of earplugs or earmuffs.
4. Demonstrate proper insertion technique for earplugs: roll the plug into a thin crease-free cylinder, pull the outer ear up and back to straighten the ear canal, insert the plug, and hold it in place for 20-30 seconds until it expands. For earmuffs, adjust the headband to ensure a snug fit over both ears with no hair or glasses frames breaking the seal.
5. Have the worker insert the HPD themselves while you observe. Correct any errors in technique immediately. Do not proceed until the device is properly seated.
6. Position the fit testing system's probe microphone near the worker's ear (outside the HPD) and the reference microphone near the ear canal (inside the HPD if applicable). Follow the system's specific placement instructions.
7. Run the fit test according to the system's protocol. Typically, this involves playing a series of test tones at varying frequencies and measuring the attenuation. The system will calculate the Personal Attenuation Rating (PAR) or Noise Reduction Rating (NRR) achieved.
8. Review the test results. If the PAR is below the required minimum (e.g., 15 dB for earplugs or 20 dB for earmuffs in a 95 dBA environment), identify the cause (e.g., poor insertion, wrong size, facial hair) and repeat the test with a different HPD or after correcting the issue. Document the final result.
9. Record the fit test results on the worker's hearing protection training record, including the date, HPD model and size, PAR achieved, and any corrective actions taken. Provide the worker with a copy of their results.
10. Clean the fit testing equipment and any reusable HPDs with alcohol wipes. Store all devices in a clean, dry location. Ensure the worker understands that they must use only the HPD model and size that passed the fit test in all noise hazard areas.

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