Workplace Safety
ACADEMY

When and How to Select the Proper Hearing Protection

Workers must wear hearing protection when exposed to loud sounds, including earmuffs and earplugs. Find out when and how to select this equipment based on the task at hand.

by Rick Pedley



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Key Highlights

- Conduct noise level assessments using sound meters to determine if hearing protection is necessary when levels reach or exceed 85 decibels over an 8-hour period.
- Choose appropriate hearing protection — earmuffs or earplugs — based on work conditions, comfort, and compatibility with other safety gear, and consider reusable versus disposable options.
- Regularly inspect, clean, and maintain hearing protection equipment, and ensure workers are trained on proper usage and the importance of consistent protection to prevent hearing loss.
- Implement measures to reduce ambient noise, such as using quieter equipment, installing sound barriers, and limiting exposure time, to minimize the need for protective gear.
- Document the hearing conservation program, including noise assessments, equipment used, and employee hearing tests, to ensure compliance and monitor effectiveness.

Construction and maintenance activities can produce loud noises that may harm workers' hearing. Even brief exposure to extremely loud sounds can cause permanent hearing damage. Buzzing, grinding, drilling, and other mechanical equipment can all be a cause for concern.

Electrical contractors and their crews need a hearing protection program when working around loud and excessive noises. This includes testing the work site for noise levels to assess risk, reducing the sound of ambient noise, and providing electricians with hearing protection equipment when noise levels surpass the permissible threshold — but not all hearing protection is created equal.

When to use hearing protection equipment

Companies must implement a hearing protection program when noise exposure reaches or exceeds 85 decibels averaged over eight working hours — or an eight-hour time-weighted average (TWA) — according to OSHA.

Job sites with loud noises require monitoring to assess whether hearing protection equipment is necessary. Monitoring can be done with a sound meter. The sounds

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in the workplace should be recorded throughout the entire shift to calculate the eight-hour TWA. Some sounds may vary in intensity throughout the day, which can affect the TWA. The sound meter should record noise levels in roughly the same spot the workers will be in to increase the accuracy of the findings.

It's also worth considering hearing screening tests for new employees. It can serve as a defensive way to prevent later claims of work-induced hearing loss or tinnitus.

Once the sound levels have been recorded, the electrical contractor can look for ways to reduce ambient sound levels through substitution. For example, use quieter equipment or materials, move the crew further away from the source of the noise, limit the amount of time each crew member can remain on site while these noises are present, and install sound-reducing barriers to reduce exposure. Some sounds happen by accident. The contractor should take safeguards to prevent equipment and materials from falling or banging into each other to prevent these sounds.

The sound levels should be tested again after these changes have been implemented to see if further action is needed.

How to select hearing protection equipment

If workers are still exposed to loud noises at or above the 85-decibel threshold over an eight-hour TWA, everyone must wear hearing protection equipment to reduce exposure.

There are generally two options for hearing protection: earmuffs and earplugs.

Earmuffs are reusable and fit over the person's head. They fit a range of different head sizes and can usually be adjusted to wrap around the person's ears.

Earplugs can be disposable or reusable. The plugs slide into the person's ears to block loud sounds from reaching the eardrum. They are usually made of foam or molded silicone that adheres to the shape of their ear canal. If the plugs are reusable, the material reverts to its original shape and is available for the next shift. Disposable plugs should retain their shape after they've been inserted into the ear canal. It's not recommended to reuse them. They're a good option if you don't want to keep track of your earplugs between shifts.

Choosing between earplugs and earmuffs depends on several factors. Earmuffs can interfere with other types of safety equipment, including hard hats, goggles, and other electrical safety gear. In this situation, earplugs are the best choice because they fit inside the person's ears.

Earplugs are also easier to carry around than earmuffs. They can fit inside a person's pocket or tool bag without weighing them down in the field. This makes it easy for workers to put on their hearing protection equipment as needed throughout the day.

Earmuffs may be more effective if workers need to wear this equipment for the duration of their shift. Some workers also prefer the feel of earmuffs to earplugs because they may be more comfortable. However, they may also feel warm over time.

A contractor must also decide whether to utilize reusable or disposable hearing protection. Disposable earplugs are less expensive upfront and don't have to be maintained over time. However, reusing equipment is more sustainable and can eventually save the company money if workers regularly clean and reuse them.

Inspecting, using, and cleaning hearing protection equipment

Equipment should be inspected and cleaned before and after every use. Earmuffs are typically easier to maintain than earplugs because they don't collect as much earwax. Wearing dirty earplugs can lead to infection. These items should be kept in a clean, airtight container to limit contamination.

All industrial hearing protection equipment will have a noise reduction rating (NRR), which shows by how many decibels the ambient sound will be reduced. Many items come with an NRR of 25 decibels or less. For example, if the noise level is below 100 decibels over an eight-hour TWA, an NRR of 25 decibels would in general be enough to bring the person under the 85-decibel threshold.

However, double hearing protection is required if the noise levels reach or exceed 100 decibels over an eight-hour TWA. This can be done by wearing earplugs underneath the earmuffs. Doubling up on hearing protection increases the NRR by 5 decibels.

The contractor must also train their crews on how and when to use this equipment. If loud noises are always



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present, workers should don this gear at all times. The work site should have signs posted reminding workers to wear their hearing protection equipment. If the noises are infrequent or only occur during certain times of the day, the company should alert the workers when it's time to put on their earplugs or earmuffs.

Contractors should document their hearing conservation program for compliance purposes, including data on noise levels, how or if these sounds have been reduced, the types of equipment used, and information about the people using it. Workers who are regularly around loud sounds should have their hearing tested regularly to see if the program is successful.

Some sounds are unavoidable in the workplace. It's the contractor's responsibility to ensure its workers aren't putting their hearing at risk. These tips are designed to help everyone in the industry protect their hearing. Keep it on hand and in mind when surveying potential hazards

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Rick Pedley, PK Safety's president and CEO, joined the family business in 1979. PK Safety, a supplier of occupational safety and personal protective equipment, has been operating since 1947 and takes OSHA, ANSI, PPE, and CSA work safety equipment seriously. For more information, visit www.pksafety.com.