

A look at hearing loss prevention & component manufacturing

Can You Hear Me Now?

by Molly E. Butz

In a component manufacturing facility, it's easy to focus on the injuries and illnesses that are the most apparent. Splinters, lacerations and smashed thumbs are simple to spot and often require little more than general first aid. Sprains and strains can be more difficult to treat, but are also fairly obvious to diagnose. Unfortunately, one of the most common work-related illnesses, occupational hearing loss, is completely invisible and often happens so gradually that it's easily overlooked. The good news? Careful planning and a comprehensive Hearing Conservation Program can help lessen the chances of your employees experiencing hearing loss.

Component manufacturing plants can be very noisy. In fact, a recent SBC Industry One Minute Poll (OMP) revealed that more than 60 percent of the respondents had conducted testing that indicated noise levels in their facilities required them to implement a Hearing Conservation Program. On a broader spectrum, the National Institute for Occupational Safety and Health (NIOSH) estimates that there are between five and 30 million workers in the U.S. who are exposed to noise levels at work that put them at risk of hearing loss.

Although there are no visible symptoms or pain, the Occupational Safety & Health Administration (OSHA) says occupational hearing loss causes a "progressive loss of communication, socialization and responsiveness to the environment." This initially affects a person's ability to understand human speech and can eventually lead to poor job performance, stress-related illness, accidents and ultimately, extremely limited hearing. Sadly, these effects also seriously impact an employee's personal life, too.

Continued on page 44

at a glance

- ❑ OSHA says occupational hearing loss causes a "progressive loss of communication, socialization and responsiveness to the environment."
- ❑ Effective January 1, 2004, OSHA added a "hearing loss" section in the Log of Work-Related Injuries and Illnesses (Form 300).
- ❑ If noise exposures tests in your plant exceed an 8-hour TWA of 85dB, administer a Hearing Conservation Program per OSHA regulation.

WHY SETTLE FOR AUTOMATED JIGGING THAT'S LESS THAN FULLY FEATURED?

- **Side-by-side puck design**
- **Adjusts for table inaccuracies**
- **Automatic puck position optimization**

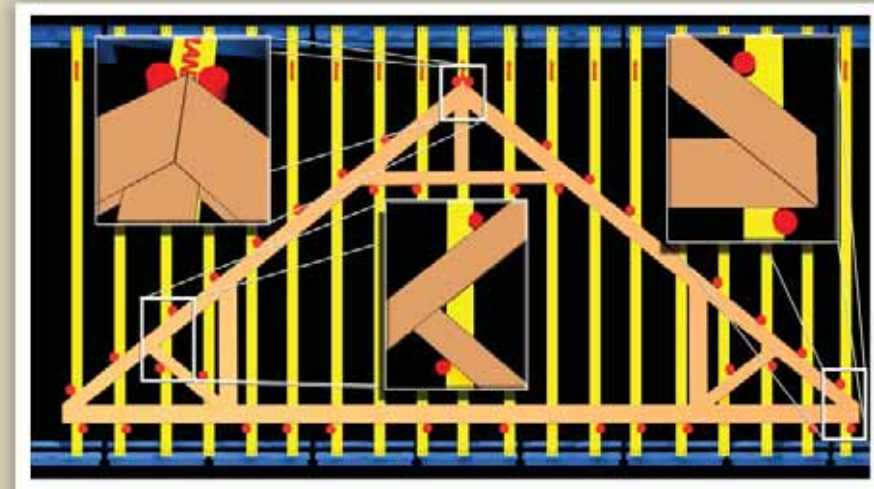
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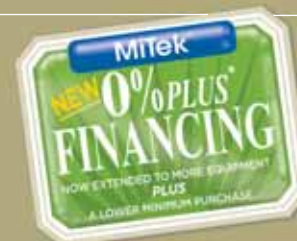


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Can You Hear Me Now?

Continued from page 42

Despite years of research and regulations, occupational hearing loss continues to be a problem. In an effort to combat this persistent issue, effective January 1, 2004, OSHA added a new "hearing loss" column to the Log of Work-Related Injuries and Illnesses (Form 300). The new column requires employers to "record work-related hearing loss cases when an employee's hearing test shows a marked decrease in overall hearing." Recording this information provides more thorough, useful information to both the employers and to OSHA, and in the end should help reduce the instances occupational hearing loss.

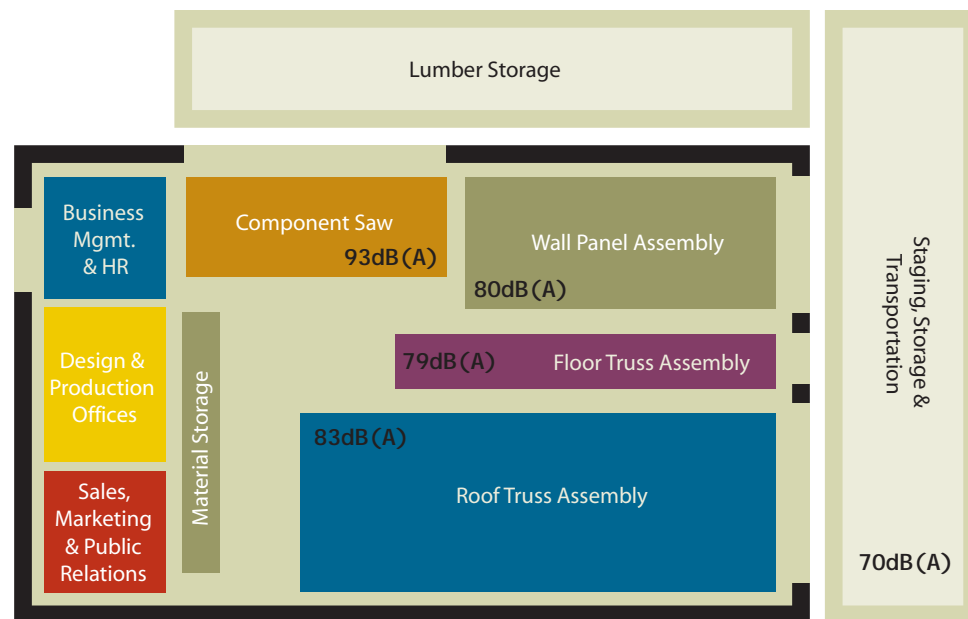


Figure 1.

Do I Need a Hearing Conservation Program?

First things first: know your manufacturing facility. The amount of noise, combined with the length of time an employee is exposed determines the potential for hearing loss. The technical term for this amount/exposure is **time-weighted average**, or **TWA**. As an employer, OSHA requires a Hearing Conservation Program when any of your employees are exposed to "noise at or above 85 decibels (dB) averaged over 8 working hours, or an 8-hour TWA." It's probably time to start a formal testing process if you notice any of the following:

- Your employees need to raise their voices to hear each other.
- You can't hear someone standing less than two feet away without shouting.
- Your employees need to stand very close to each other to hear anything at all.

If you're concerned that the noise levels in your plant may be unacceptable, it's probably time to begin the preliminary testing process to decide if you need to implement a Hearing Conservation Program. The good news is occupational hearing loss is completely preventable. Read on to learn more about implementing the five key elements for your Hearing Conservation Program.

Evaluating Noise Exposure

The preliminary process begins with a noise survey; the procedure is rather simple. Using a sound level meter and a paper copy of the floor plan of your plant, take a sample reading at each area of concern. Mark the sound level on your diagram and estimate the "exposure time" by identifying which employees work in each area and how long during their shift that they are there. (See Figure 1)

If the results of your initial plant walk-through and metering indicate that there are areas in your facility where exposures are at dangerous levels, the next step is more precise monitoring using a device called a dosimeter. Similar to the sound level meter, the dosimeter is worn by the employee during their shift to determine specific noise exposure. This will provide you with accurate data on noise measurements in your facility. In addition, you'll need to remember to repeat the monitoring process any time there is a change in your production process that can affect noise exposure. This includes changes such as adding or subtracting equipment or changing the layout of the facility.

Keep in mind that simply going through this testing process does not require you to implement a Hearing Conservation Program. However, if your test results show noise exposures that equal or exceed an 8-hour TWA of 85dB, OSHA does require you to "administer a continuing, effective Hearing Conservation Program." And if OSHA ever drops by for an inspection, they will test for noise levels, so it's good to be prepared if you think there are potential noise hazards in your facility.

Audiometric Testing

Far more complicated than a grade school health screening (think beep, raise right hand; beep, raise left hand), audiograms are hearing tests that show how well a person can perceive different sound frequencies. The audiometric testing portion of your program will need to include baseline audiograms and annual audiograms. Here's why:

In order for you to keep track of potential hearing loss, you'll need a record of your employees' hearing before exposure. For this reason, you'll need to provide a baseline audiogram within six months of a new employee's "first exposure," an exposure at or above a TWA of 85dB. (This dangerous exposure level is also called the "action level.") And, if you're just

Continued on page 46



sensible

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Hearing Protector FAQ

(Excerpts from NIOSH Safety and Health Topic: Noise and Hearing Loss Prevention FAQ)

Q: Our component manufacturing facility can be dusty and dirty; can our ears get infected by using earplugs?

A: Using earplugs will not cause an infection. But common sense is important. Be sure you have clean hands when using earplugs that need to be rolled or formed with your fingers in order for you to insert them.

Q: Will we still be able to hear horns, warning beeps and important sounds our machinery/equipment make while wearing ear protectors?

A: In most cases, using hearing protectors will bring both the background noise and the warning/equipment sounds down equally. Under some circumstances, certain hearing protectors may block out important noises. When this is the case, the solution may be as simple as choosing a different hearing protector. There are also noise-activated hearing protectors that allow normal sounds to pass through the ear and only "turn-on" when the noise reaches hazardous levels.

Q: Will we be able to hear each other talk when wearing hearing protectors?

A: Some people find they can wear hearing protectors and still understand speech while others will have trouble hearing speech while wearing hearing protectors. The goal is to find a hearing protector that reduces the sound enough to be safe without reducing the sound too much to hear speech at a comfortably loud level.

Q: How long does it take to get used to hearing protectors?

A: It's similar to buying a new pair of shoes. Some shoes take no time to get used to, others can take awhile.

Can You Hear Me Now?

Continued from page 44

starting your program, all employees that are at risk for exposure at or above the action level must be given a baseline audiogram.

After logging baseline audiograms, you'll need to provide them annually. The comparison of these two tests will identify any deterioration in the employee's hearing ability. Keep in mind that each of these tests needs to be performed and reviewed by a professional trained in the field.

Hearing Protection Devices

The most common hearing protection devices (HPDs) are ear plugs (moldable or pre-molded) and ear muffs. As part of your Hearing Conservation Program, OSHA requires that employers provide HPDs to any employee "exposed at or above the action level." Responses to the **SBC** poll indicated that both the cutting/saw and assembly areas are zones in component manufacturing facilities that are often at or above the action level. (See Figure 2)

To ensure the HPDs are used, a selection should be provided and all HPDs need to be supplied and replaced at no cost to the employee. More than half (54 percent) of the component manufacturers surveyed in the **SBC** OMP favor ear plugs to ear muffs, but 43 percent responded that they readily use both in their facilities. Most importantly, the HPDs you choose to provide need to appropriately reduce the noise level for each employee in their particular area.

Employee Training

Training is a critical component in any safety and health program and this case is no different. Asking your employees to wear HPDs may get the job done, but you'll be in much better shape if they understand how to use the devices and why. Here's a checklist on the information OSHA requires you to include:

- The effects of noise on hearing
- The purpose of hearing protectors
- Advantages and disadvantages
- The noise reducing abilities of various types of HPDs
- Instructions on selection, fitting, use, and care
- The purpose of audiometric testing and an explanation of test procedures

Recordkeeping

It's probably pretty clear at this point why you'll need to keep good records, especially regarding the audiometric testing. But beyond the obvious need to compare audiograms, the records you keep for your Hearing Conservation Program will also help you, as the employer, track and correct issues within your workplace. OSHA requires two sets of records, they are: employee exposure measurements and audiometric test records. Outside of the Hearing Conservation Program, be sure to keep a record of your training sessions to go along with your safety program.

Hear Today, Gone Tomorrow

Let's be realistic: all of that cutting and hammering is loud and preventing that noise can be challenging, if feasible at all. Rest assured that with the right HPDs and training in place, you can greatly decrease your employees' exposure and eliminate occupational hearing loss. Hey, some days a little peace and quiet might sound like a good thing, just make sure the "quiet" doesn't last forever. **SBC**

Hearing protection required in:

Cutting/Saw Area	65%
Assembly Area	29%
Entire Facility	18%

Figure 2.

Isn't It About Time?

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