

# Now Hear This...

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## NOISE LEVELS IN CONSTRUCTION INDUSTRY UNREGULATED

The National Hearing Conservation Association reports that 15-20 million workers employed in unregulated industries, in particular those in construction, agriculture, service and trade industries are exposed to potentially hazardous noise. The Occupational Safety and Health Administration (OSHA) requires hearing conservation programs for factory workers, however, OSHA does not have similar program requirements for construction workers. The components of a hearing conservation program for construction workers have never been specified. Their work, by nature, is hard on hearing. Continuous exposure to buzzing power saws, bulldozers, nail guns and other tools of the trade have resulted in hearing loss among construction workers, a group which until recently, hasn't been the focus of research in hearing loss.

"We know that general noise in the construction industry is hazardous to hearing. We know it is a high enough noise level that it is harmful and will have an impact on hearing," said Dr. Sally L. Lusk, one of the nation's eminent researchers in occupational health specializing in the prevention of noise-induced hearing loss. Lusk's 1998 study found that construction workers wear ear protection 36-61% of the time that they are exposed to hazardous noise (1,2). Between 55 and 75% of the construction workers surveyed reported that they believed they have developed occupational noise induced

hearing loss. Lusk reports that her data shows a need for significant improvement in the consistent use of ear protection among construction workers and a need to design hearing conservation programs for the construction industry.

Despite the lack of OSHA regulations in the construction industry, measurement from various job sites and job classifications have been conducted by the British Columbia Workers Compensation Board. The measurements clearly illustrate risk factors in different job classifications.

The following chart depicts noise levels experienced by a variety of construction workers. The 1997 British Columbia study found that all construction job classifications exceed OSHA action levels for an 8 hour time weighted average (TWA) of 85dBA. Hearing protection devices were mandatory for all but two jobs.

**Chart 1. Construction Sound Levels**

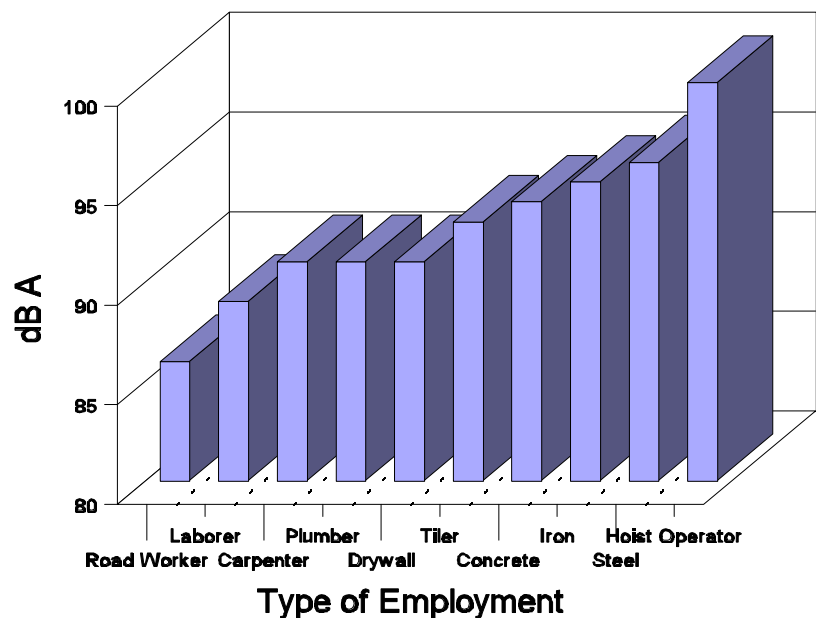
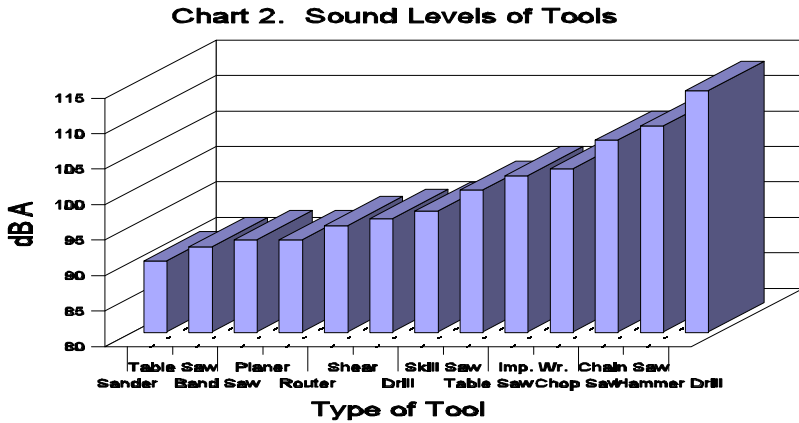
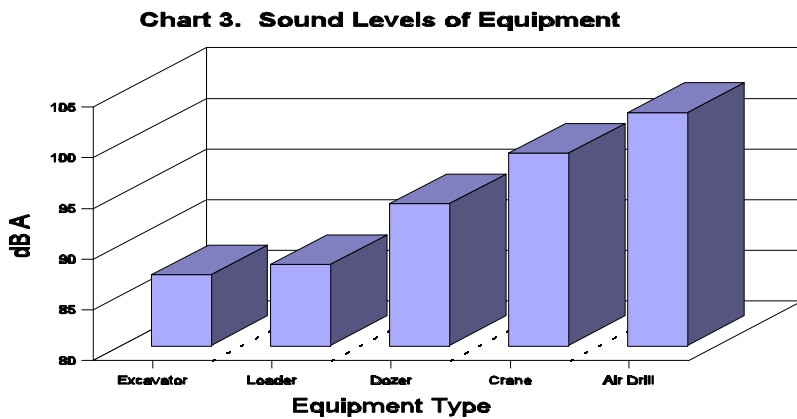


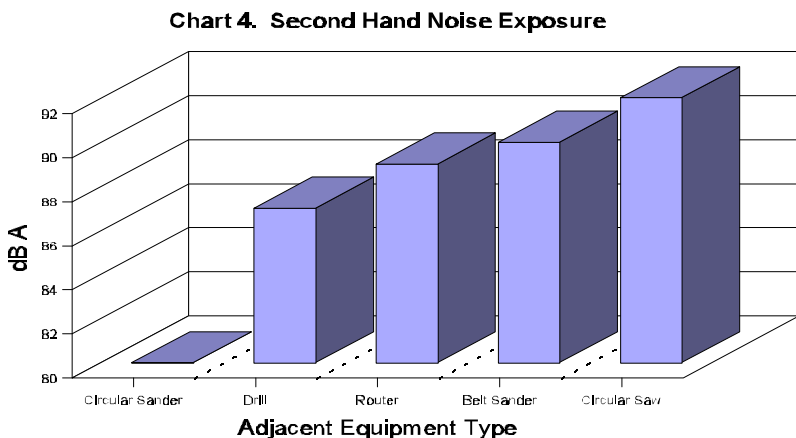
Chart 2 displays the sound level measurements of tools used by construction workers. All of the tools for which noise measurements were made are routinely used in construction work. Every tool exceeded 90dBA, which indicated the need for the consistent use of hearing protection devices.



Noise measurements of equipment used by construction workers were also assessed and displayed in Chart 3. All equipment



displayed noise levels above 85dBA. The 1997 British Columbia study also evaluated second-hand noise exposure experienced by workers performing jobs adjacent to the actual source of the noise. Chart 4 illustrates that four of the five tools assessed produced noise levels in excess of 85dBA when



measured from adjacent work sites. It is clear that many construction jobs routinely exceed OSHA action levels of 85dBA for an eight hour time weighted average and that these construction jobs should require use of hearing protection devices. The British Columbia study determined that many construction tools generate high noise levels which are extremely hazardous to hearing and summarily reported that construction workers are at risk for noise induced hearing loss.

The Center to Protect Worker’s Rights, the research arm of the Building and Construction Trade Dept of the AFL-CIO, has developed a series of guidelines to protect employees in unregulated industries. You can share these recommendations with individuals employed in the construction industry.

1. *Make the workplace quieter.* Ask contractors to buy quieter equipment when they purchase new or replacement equipment.
2. *Cut the amount of time spent around loud noise.* Put noisy equipment farther away from where the majority of people work, or rotate workers from noisy jobs to quieter jobs if possible.
3. *Take rest breaks away from noisy spots.*
4. *Wear ear protection.*
5. *Have your hearing checked annually.*
6. *Measure noise levels on the work site.* Local unions may buy low-cost sound level meters to obtain noise measurements.

**Your diligence in educating construction workers about the harmful effects of noise and appropriate use of ear protection will reduce the harmful effects of noise and maintain healthy ears. Since construction companies are not required by OSHA to perform audiometric testing on their employees we depend on the private practitioners in the state to identify and report their patients with hearing loss who are current or former construction workers.**

## REFERENCES

1. Lusk SL, Ronis DL and Hogan MM. Test of the health promotion model as a causal model of construction workers' use of hearing protection. Res Nurs Health 1997 June; 20(3): 183-194.
2. Lusk, SL. Noise exposures. Effects on hearing and prevention of noise induced hearing loss. AAOHN J 1997 Aug; 45 (8): 397-408.

**Project SENSOR would like to acknowledge and thank Dr. Michael Stewart of Central Michigan University and Dr. Sally Lusk of the University of Michigan for generously sharing their expertise on noise induced hearing loss among construction workers.**

## REPORTS OF OCCUPATIONAL NIHL

In 1972, if you had asked employers about the importance of occupational hearing loss, the response would have likely been uncontrolled laughter. Hearing loss claims against companies were nearly non-existent, with compensation for the injury averaging \$70. Now, 26 years later, the majority of large industries with excessive work place noise levels have taken appropriate precautions to prevent noise-induced hearing loss. In Michigan, Project SENSOR has initiated various outreach efforts to familiarize hearing health care providers with occupational safety and health laws and assist in setting up systems to report cases of known or suspected hearing loss. Reports by audiologists and otolaryngologists have led to many inspections of noisy work environments in both large and small industries. Below is a sample of the types of reports received and the actions taken to correct hearing health hazards for Michigan's workers.

**Report 1:** A company that does fabrication welding and sanding with pneumatic equipment was identified as a potentially hazardous work setting through reporting. An inspection by an industrial hygienist identified noise levels of up to 117dBA. Hearing protection was not consistently utilized by employees, nor was there a hearing conservation program in place. The implementation of a hearing conservation program in this company has helped to preserve hearing for 35 other employees.

**Report 2:** Audiologists' reports can also lead to the discovery of hearing hazards in the most unlikely work environments. Who would consciously expect the pastoral settings of a golf course to produce hearing

hazards? In fact, after receiving a report of an employee displaying a noise induced hearing loss, an inspection of the facility found that the trim mower, rough mower and weed whipper had noise levels of 90-95dBA. Ear protection was not used by employees and there was no hearing conservation program in place.

These examples and numerous others reveal that a simple report filed by a health care provider can identify occupational hazards. While reporting does not restore hearing, it does prevent further occupational injury from occurring and does afford a level of safety and protection from the life long effects of permanent hearing loss for other employees.

We have a long way to go to alleviate occupational noise induced hearing loss in Michigan. However, our initial efforts are compelling in their scope. One report arrested hearing loss in 25 co-workers. One report identified 50 more at risk for life long hearing loss. As we move into the next stage of the surveillance project, efforts are underway to further educate health care providers on the importance of routine reporting. Workers exposed to occupational noise hazards gradually lose their ability to hear the world around them. By reporting cases of known or suspected hearing loss, you are taking an active role in preserving the precious gift of sound.

## OSHA REGULATIONS

The current law which regulates allowable noise levels in the workplace can be found in the Federal Register, Volume 48, Number 46, Tuesday, March 8, 1983, "OSHA Regulation 29 CFR 1910, Occupational Noise Exposure, Hearing Conservation Amendment, Final Rule". The information contained in the document encompasses requirements for hearing conservation programs, noise exposure computations, estimation of hearing protection audiograms. Copies of the official document may be obtained by contacting the US Department of Labor, 200 Constitution Avenue NW, Washington DC 20210. The web site is: [www.osha.gov](http://www.osha.gov).

**Connie Spak is also available to assist you in developing a mechanism to easily and efficiently report Occupational Noise Induced Hearing Loss. Please contact the SENSOR office at 800-446-7805 for more information.**

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## Michigan Law Requires the Reporting of Known or Suspected Occupational NIHL

Reporting can be done by:

**FAX** (517) 432-3606

**Telephone** 1-800-446-7805

**E-Mail** [Rosenman@pilot.msu.edu](mailto:Rosenman@pilot.msu.edu)

**Mail** MDCIS, Occ. Health Div.

P.O. Box 30649

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### Suggested Criteria for Reporting Occupational NIHL

1. A history of significant exposure to noise at work; AND
2. A STS of 10dB or more in either ear at an average of 2000, 3000 & 4000 Hz.  
OR
3. A fixed loss.\*

\*Suggested definitions: a 25dB or greater loss in either ear at an average of: 500, 1000, & 2000 Hz; or 1000, 2000 & 3000 Hz; or 3000, 4000 & 6000 Hz; or a 15dB or greater loss in either ear at an average of 3000 & 4000 Hz

***Errata*** In the Fall 1998 issue of *Now Hear This (Volume 1, No. 3)*, we apologize for neglecting to credit Mark R. Stephenson, PhD, Research Audiologist in the Bioacoustics and Ocular Vibration Section, Division of Biomedical and Behavioral Sciences at NIOSH, for using his data for Charts 2 and 4 of the Fall 1998 issue. Dr. Stephenson conducted the original research for the sound levels of the tools and second hand noise exposure measurements presented in those charts. We appreciate the opportunity to present his work.

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