



**NOISE ON THE JOB
can damage your hearing**

**E
L
E
C
T
R
I
C
I
A
N
S**

Our Web site

<http://depts.washington.edu/ocnoise>

Or contact us at 206-543-9711 or by e-mail at *cnstsafe@u.washington.edu*.

**Similar pamphlets are available for the following trades
at the above Web site**

Bricklayers, Carpenters, Cement Masons, Insulation Workers, Ironworkers, Laborers,
Masonry Restoration Workers, Operating Engineers, Sheet Metal Workers, Tilersetters

WISHA noise Web site

<http://www.lni.wa.gov/Safety/Topics/AtoZ/NoiseHearing/default.asp>

OSHA noise Web site

<http://www.osha.gov/SLTC/constructionnoise/>

This study and these brochures are funded by
National Institute for Occupational Safety and Health
Washington state Medical Aid and Accident Funds

Photos: Rick Neitzel, Sebrina Somers; Illustrations: ©2004 www.clipart.com

UNION BUG



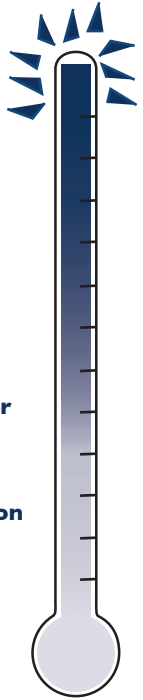
University of Washington
School of Public Health
and Community Medicine

Department of Environmental and Occupational Health Sciences
Box 357234, Seattle WA 98195-7234

protect your hearing

Decibel (dB) levels of familiar sounds

dB	Sound
140	Gunshot
110	Chainsaw
90	Lawnmower
60	Normal Conversation
30	Whisper



Like many construction workers, you may not hear as well as you once did, and that may worry you. Your concerns are real—by retirement, many construction workers have a noticeable hearing loss. You and your employer need to take steps to protect your hearing, and this pamphlet will help you do so.

What is noise?

Noise is unwanted sound. It is measured on a decibel scale. Noise levels for some familiar sounds are shown at left.

What if you are exposed to too much noise?

Noise exposures that are loud enough and last long enough can damage nerves in your inner ear. This causes *permanent and irreversible* hearing loss.

Hearing loss makes it hard to:

- talk with family, friends, and coworkers.
- hear warning signals
- enjoy music, nature, voices, and other good sounds.

Once you have a hearing loss, it *cannot* be reversed by using hearing aids. Hearing aids can make sounds louder, but they can't make the sounds clearer.

Safe noise levels

The legal limit for construction workers in Washington is an 8-hour (full-shift) average noise exposure of 85 decibels. This limit is enforced by WISHA. Construction workers in most other states have an 8-hour limit of 90 decibels enforced by OSHA.

If you must raise your voice to talk to someone an arm's length away, the noise level is probably over 85 decibels. Workers with an average noise exposure above 85 decibels need to wear hearing protectors—either earplugs or earmuffs—and be in a hearing loss prevention program. You should wear hearing protectors *any* time noise levels are over 85 decibels.

Noise exposure levels for electricians

University of Washington researchers have been measuring the noise exposures of construction workers. Among electricians, we found:

- the average level was 80 decibels across a full work shift
- one-fifth of work shifts were above the 8-hour limit of 85 decibels
- more than one-third of work shifts had short periods of extremely high levels (above 115 decibels)

HIGH HAZARD

Potentially harmful after short-term exposure (95 decibels and above)

CAUTION ZONE

Harmful after long-term exposure (85-95 decibels)

LOW HAZARD

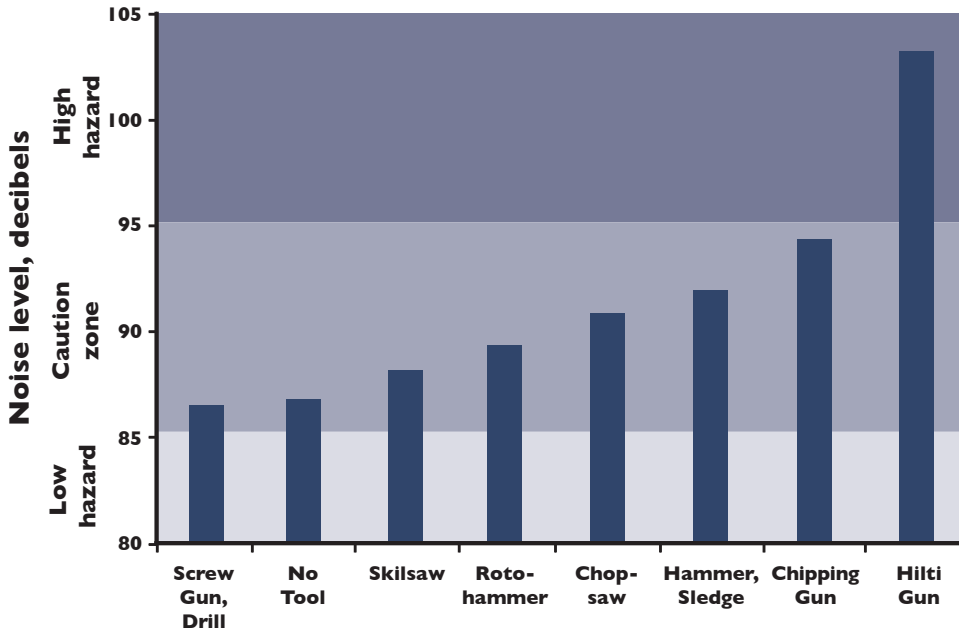
Noise below 85 decibels

Noise levels of tools

We measured the noise levels of various tools. We found that:

- every tool used by electricians exceeded 85 decibels
- the highest average noise levels came from Hilti guns, chipping guns, and hammers
- noise levels were usually above 85 decibels even when *no* tool was used

Average noise level by tool

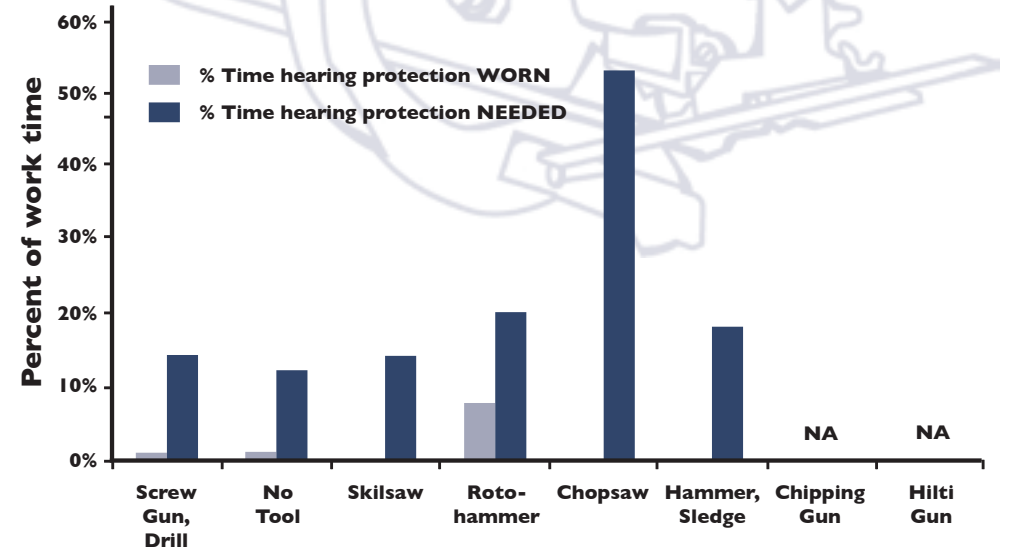


Hearing protection use

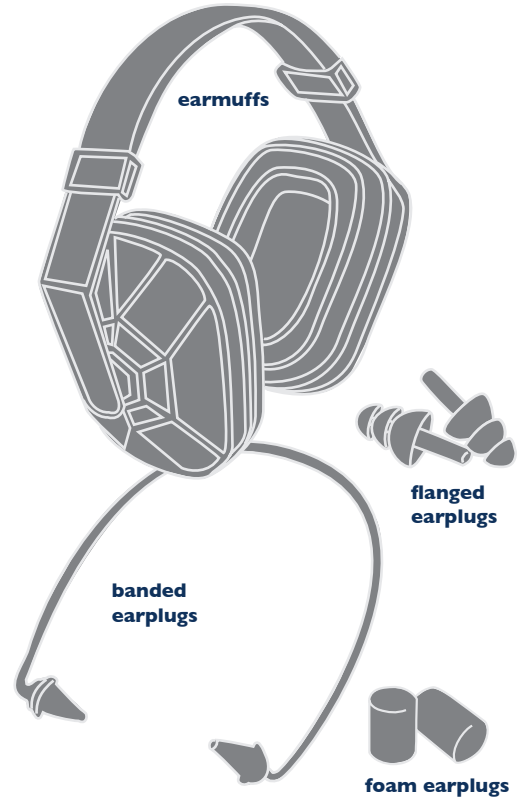
We looked at whether electricians used hearing protectors when their noise levels were above the limit of 85 decibels. We found that hearing protection was:

- used less than 20% of the time it was needed overall
- needed most with rotohammers and chopsaws
- worn most often with rotohammers
- almost *never* worn with most other tools

Hearing protection use by tool



the best protector is the one you'll wear



How you can stop hearing loss

Our research shows electricians are often exposed to too much noise, and need to be in a hearing loss prevention program. This program should include noise monitoring, training, efforts to reduce noise, and use of hearing protectors.

The basics of hearing protection

- Consider noise sources around you—not just your own tasks—when deciding when to wear hearing protectors.
- If your noise exposure is intermittent, try banded earplugs or earmuffs. They are easy to put on and take off.
- All hearing protectors are labeled with a Noise Reduction Rating (NRR) in decibels. The NRR is usually about *twice* as high as the protection you will actually get.
- Keep your protectors with you so you have them when you need them.

How much hearing protection do I need?

Based on our measurements, most electricians will get enough protection if they wear a hearing protector with an NRR of 12 decibels. For most activities, an NRR higher than 12 decibels will block *too much* sound and may interfere with communication, including warning signals. Electricians with very high noise exposures need an NRR between 12 and 33 decibels.

Finding a hearing protector that works for you

Hearing protectors are like shoes: one style will not work for all workers and all exposure levels. You may have to try several styles before you find one that is comfortable and works for you. It may take several weeks before you get used to wearing hearing protectors. Your employer should train you on how to wear hearing protectors properly.



Also keep in mind

Your employer may be able to reduce your exposure by using quieter equipment, blocking noise with shields, or moving noisy equipment away from you. All electricians should be enrolled in a hearing loss prevention program—find out if your employer has one.