

Occupational Noise

Twenty-two million workers are exposed to potentially damaging noise at work each year. Last year, U.S. business paid more than \$1.5 million in penalties for not protecting workers from noise.

While it's impossible to put a number to the human toll of hearing loss, an estimated \$242 million is spent annually on workers' compensation for hearing loss disability.

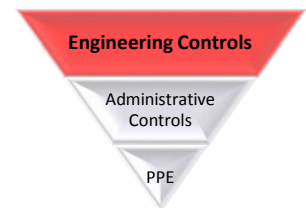
Exposure to Noise is measured in units of sound pressure levels called decibels, named after Alexander Graham Bell, using A-weighted sound levels (dBA). The A-weighted sound levels closely match the perception of loudness by the human ear. Decibels are measured on a logarithmic scale which means that a small change in the number of decibels results in a huge change in the amount of noise and the potential damage to a person's hearing. There are several ways to control and reduce worker exposure to noise in a workplace where exposure has been shown to be excessive.

Engineering Controls

Engineering controls involve modifying or replacing equipment, or making related physical changes at the noise source or along the transmission path to reduce the noise level at the worker's ear.

Examples of inexpensive, effective engineering controls include some of the following:

- Choose low-noise tools and machinery
- Maintain and lubricate machinery and equipment (e.g. oil bearings)
- Place a barrier between the noise source and employee (e.g. sound walls or curtains)
- Enclose or isolate the noise source

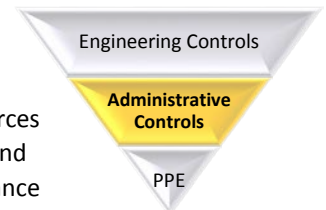


Administrative Controls

Administrative controls are changes in the workplace or schedule that reduce or eliminate the worker exposure to noise.

Examples include:

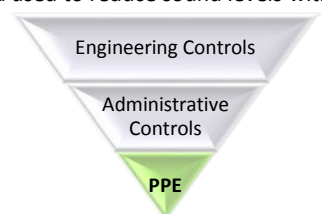
- Operating noisy machines during shifts when fewer people are exposed
- Limiting the amount of time a person spends at a noise source
- Providing quiet areas where workers can gain relief from hazardous noise sources
- Controlling noise exposure through distance is often an effective, yet simple and inexpensive administrative control. Specifically, for every doubling of the distance between the source of noise and the worker, the noise is decreased by 6 dBA.



OSHA's Permissible Noise Exposures

Duration per day (hours)	Sound level (dBA, slow response)	Dose (%)
16	85	50
8	90	100
6	92	130
4	95	200
3	97	260
2	100	400
1.5	102	530
1	105	800
0.5	110	1600
<0.25	115	3200

If administrative and engineering controls fail to reduce sound levels within the limits of this table, then personal protective equipment will be provided and used to reduce sound levels within these limits.



For questions contact Risk Management, Gwen Butler at gwen.butler@northwestern.edu or 847.491.4936.