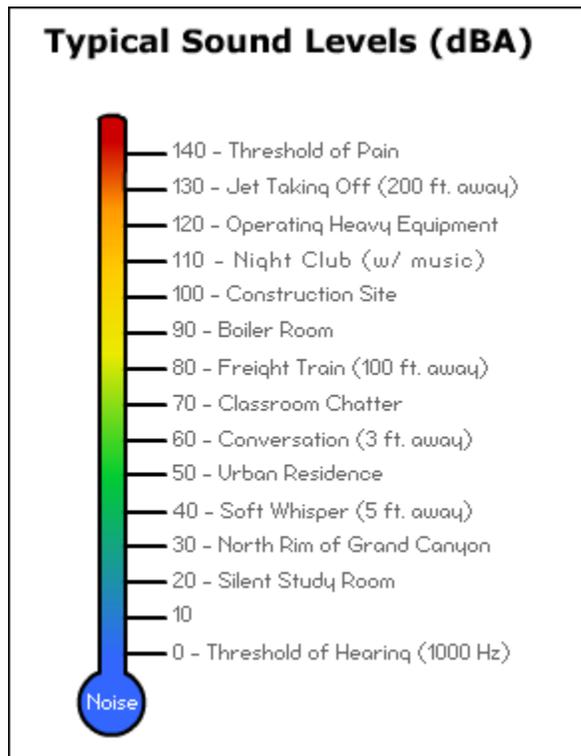


How loud is too loud?



A wide variety of noise sources may exist in the workplace. The NIOSH Noise Meter provides examples of some common sources and their expected noise levels.

A more detailed explanation of common terms, good program elements, and implementation steps can be found in NIOSH Document: Preventing Occupational Hearing Loss - A Practical Guide, Publication No. 96-110, (1996, October).

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.

OSHA sets legal limits on noise exposure in the workplace. These limits are based on a worker's time weighted average over an 8 hour day. With noise, OSHA's permissible exposure limit (PEL) is 90 dBA for all workers for an 8 hour day. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half.

The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH has found that significant noise-induced hearing loss occurs at the

exposure levels equivalent to the OSHA PEL based on updated information obtained from literature reviews. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time.

Here's an example: OSHA allows 8 hours of exposure to 90 dBA but only 2 hours of exposure to 100 dBA sound levels. NIOSH would recommend limiting the 8 hour exposure to less than 85 dBA. At 100 dBA, NIOSH recommends less than 15 minutes of exposure per day.

In 1981, OSHA implemented new requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where **workers are exposed to a time weighted average noise level of 85 dBA** or higher over an 8 hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA.