

Hearing Safety

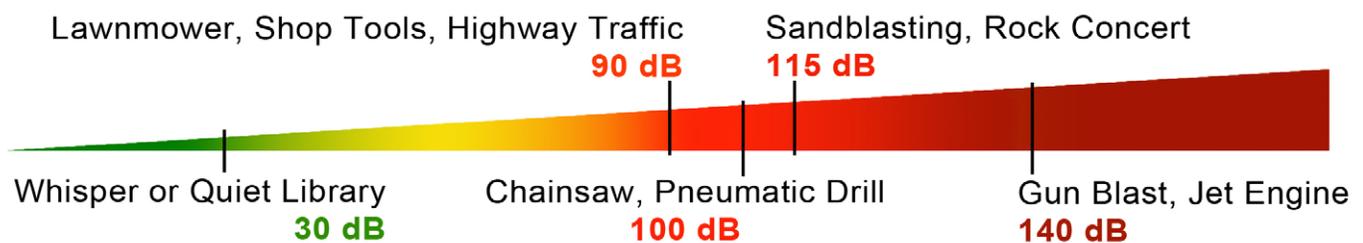
Aaron Reeves, Loss Control Representative/Biosystems Engineer, AMIC/MWCF

People differ in their sensitivity to noise. As a general rule, noise may damage your hearing if you have to shout over background noise to make yourself heard; the noise hurts your ears; it makes your ears ring; or you have difficulty hearing for several hours after exposure to the noise.

Sound can be scientifically measured in two ways. Intensity, or loudness of sound, is measured in decibels. Pitch is measured in frequency of sound vibrations per second. A low pitch, such as a deep voice or a tuba, makes fewer vibrations per second than a high voice or violin.

Intensity of sound is measured in decibels (dB). The scale runs from the faintest sound the human ear can detect, which is labeled 0 dB, to over 180 dB, the noise at a rocket pad during launch. Many experts agree that continual exposure to more than 85 dB is dangerous.

Common Examples of Decibel Levels:



Types of Hearing Protection:

1. Disposable earplugs: These are the most common type of hearing protection. Disposable earplugs are compressed or rolled down prior to insertion, and then they slowly re-expand to fill the ear canal. This type of earplug is intended for single use. Disposable earplugs are not intended to be cleaned or reused.

2. Reusable earplugs: Made of flexible material, such as silicone, and tapered to fit the ear canal. These are intended to be reused and can be cleaned using soap and water. While these are more durable than disposable earplugs, they typically have a lower Noise Reduction Rating (NRR).

3. Hearing bands: Consist of a pair of earplugs connected to a flexible band, which can be worn in a number of positions (over the head, under the chin or behind the neck). The NRR of these bands is similar to most earplugs.

4. Earmuffs: Rigid cups with soft cushions seal around the ears to block noise. Typically an earmuff with a higher NRR tends to be bulkier (larger cups with more sound-reducing insulation) than an earmuff with a lower NRR.

5. Electronic earmuffs: These provide the same hearing protection as standard earmuffs but also offer other features, such as AM/FM radio reception, two-way radio reception or amplification of low sound levels.



Sources: <http://ehstoday.com/ppe/hearing-protection>
https://www.osha.gov/SLTC/etools/shipyard/standard/ppe/general_ppe/hearing_protection.html
<http://www.tdi.texas.gov/pubs/videoresource/fsnoise.pdf>