

NOISE IN THE WORKPLACE

- Not all sound is noise – noise is unwanted or unpleasant sound.
- Noise can cause stress and interfere with concentration.
- Noise can mask or interfere with conversation and may contribute to accidents as warnings may not be heard.
- Noise-induced hearing loss is one of the most common of all workplace prescribed diseases.
- Short-term exposure to excessive noise can cause temporary hearing loss.
- Exposure to noise over longer periods of time can cause permanent hearing loss.

OTHER EFFECTS OF NOISE

- Over a long period, noise decreases worker's co-ordination and concentration contributing to accidents.
- Noise increases stress which contributes to health problems of the heart, stomach (ulcers) and the central nervous system (CNS).
- Workers exposed to high noise levels sometimes have insomnia (have difficulty in sleeping when they get home) and are constantly fatigued.
- High noise levels can reduce job performance and contribute to increased absenteeism.
- Workers with noise-induced hearing loss (NIHL) can show social problems as their "deafness" can leave them out of conversations or require them to have volumes on the radio or TV excessively high.

POINTS TO REMEMBER ABOUT NOISE

- With both temporary and permanent NIHL, it is the perception of high tones that is lost first. The ear can tolerate low tones more easily than high tones, eg the low “thump” of a generator is less damaging than a high pitched whistle.
- A simple rule of thumb –
– If you are unable to speak in a normal tone/volume standing at arm’s length from a workmate, then the noise level in the workplace is too high.

DECIBELS

- Sound usually consists of many tones of different volumes (loudness) and pitches (high or low frequency). The volume is measured in decibels. The pitch is measured in hertz (Hz).
- In most countries, 85 – 90 dBA is considered a so-called “safe level” for an 8 hour working day.
- An increase of 3 dBA ^{M1} (40 > 43 or 90 > 93) means the volume of noise has DOUBLED.

Slide 4

M1

Why use a 3 dB doubling rate here if in the next two slides a 5 dB doubling rate is used to illustrate the maximum times and sound levels. The doubling rates will be different depending on the standard (i.e OSHA-90 or ACGIH-85) being used. If we are thinking of 90 dB as a reference point, then we should use an example of a 5 dBA doubling rate on this slide instead of 3 dBA (or vice versa), to avoid confusion to readers.

Michael, 22/10/2011

Highly injurious 140



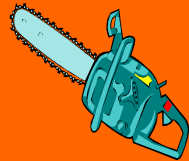
Jet engine

130

Rivet hammer

Injurious

120



Chain saw

90



Heavy Truck

Risk

80



Car

Little risk

70

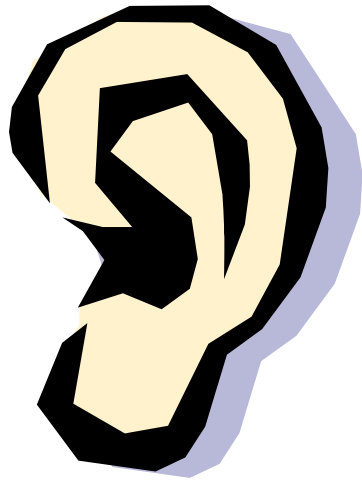
Conversation

30



Whispering

IS THERE A SAFE LEVEL OF NOISE?



- 8 hours > 90 dB M2
- 6 hours > 92 dB
- 4 hours > 95 dB
- 3 hours > 97 dB
- 2 hours > 100 dB
- 1 hour > 105dB

These are maximum times and sound levels.

Slide 6

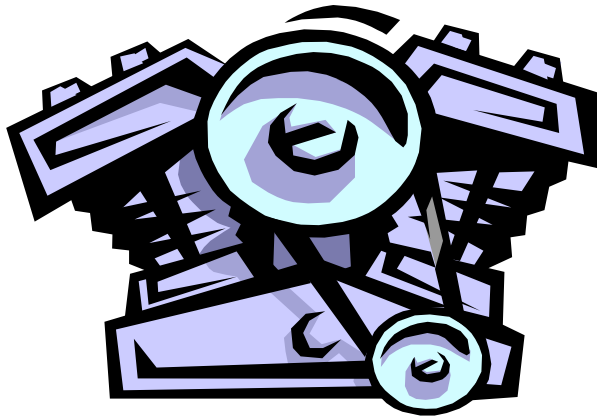
M2

See comment on Slide #4

Michael, 22/10/2011

METHODS OF NOISE CONTROL

SOURCE



PATH

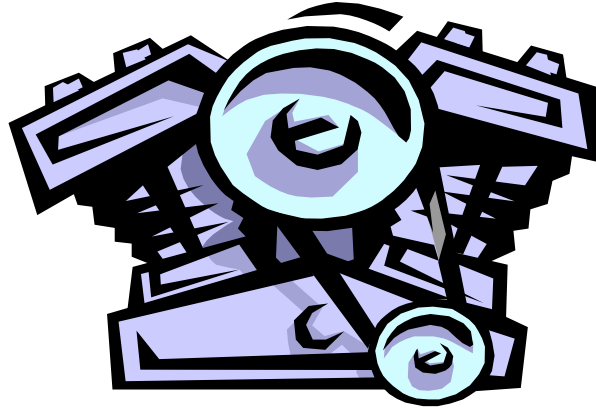


WORKER



The most effective way of controlling noise hazards is at source. However, PPE is often selected as it is the cheapest alternative.

CONTROLLING THE NOISE AT SOURCE

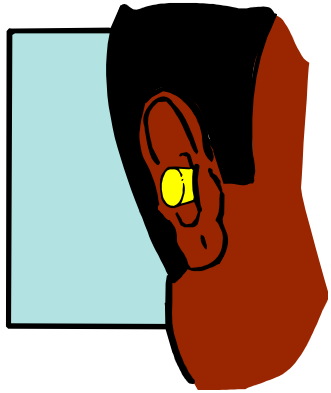


- Purchase “quieter” machines.
- Enclose entire machines or particularly noisy parts of machines with soundproof casing.
- Regularly service and maintain machines.
- Reduce the vibration in component parts and casings.
- Replace metal parts with parts made of sound absorbing materials e.g. plastic or heavy duty rubber.
- Fit mufflers on exhaust outlets.

ALONG THE PATH

- Cover walls and ceilings with sound-absorbing materials.
- Put sound-absorbing screens between the source of the noise and the worker/s.
- Build sound-proof control areas and restrooms.
- If possible, increase the distance between a worker and the source of the noise. For example, a source of 90 dB is reduced to 84 dB at 2 metres and at 4 metres is down to 78dB.

CONTROLLING THE NOISE NEAR THE WORKER



Ear plugs

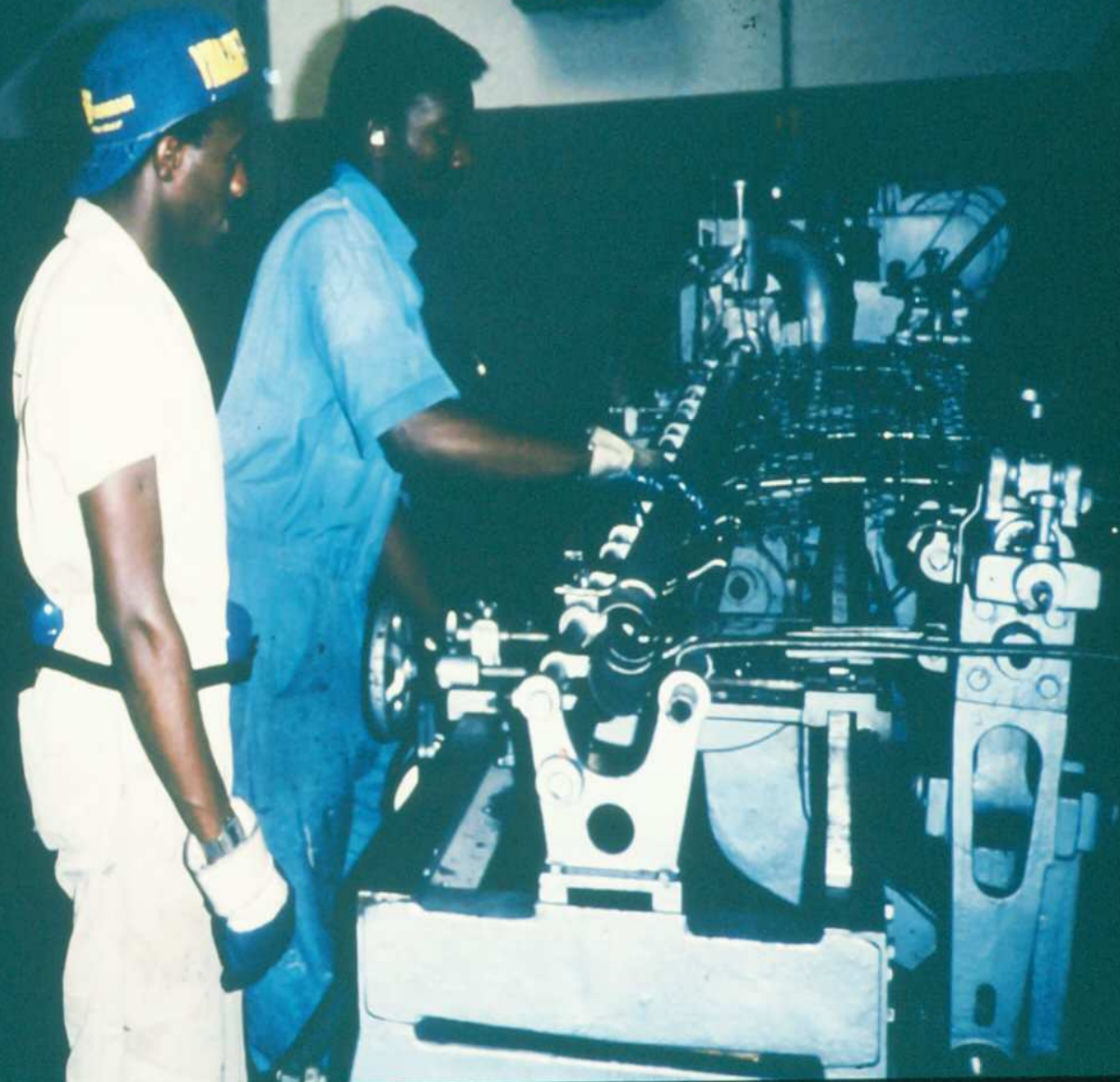



Ear muffs

REMEMBER:

- The noise is still present – it has not been reduced.
- In hot, humid conditions, most workers do not like wearing PPE. Rotate workers using PPE.
- PPE must be worn correctly and maintained.

LOOK CAREFULLY AT
THIS PICTURE. ONE
WORKER HAS EAR
PLUGS AND THE OTHER
IS WEARING EAR
MUFFS – BUT IN THE
WRONG PLACE!



A close-up photograph of a man with dark skin and short hair, wearing a blue collared shirt. He is looking slightly to the left of the camera. His right hand is raised to his right ear, holding a small, white, cylindrical earplug between his thumb and index finger, as if about to insert it. The background is dark and out of focus.

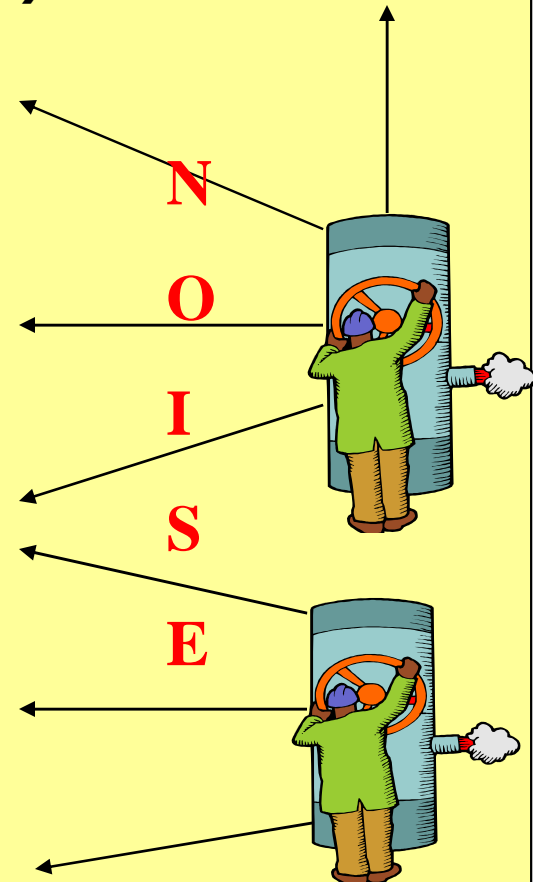
MAKE SURE
YOU FIT EAR
PLUGS OR EAR
MUFFS
CORRECTLY

**MAKE SURE YOU FIT EAR PLUGS OR EAR MUFFS
CORRECTLY**



Case Study – Nail Factory

1. 2 Nail machines in corner > 93dB;
2. 28 workers of which 2 working with nail machines full-time;
3. Management made it a **Condition of Employment** that all workers wear ear muffs for 8 hours per day.



Q. Can you think of a better solution/s to the problem?