

OHS INFORMATION SHEET No. 35: OCCUPATIONAL NOISE EXPOSURE AND CONTROL

September 2009

The purpose of this information sheet is to provide guidance on the hazards associated with occupational noise and control measures to be implemented in order to minimise their impact on health.

Noise is defined as unwanted sound, is one of the most common Occupational Health and Safety (OHS) hazards and is found in many different environments. Prolonged exposure to excessive noise can result in irreversible damage to a person's hearing and a reduction in their quality of life.

DEFINITIONS

- dB** Decibels, a logarithmic unit of measurement for the loudness of sound.
- dB(A)** 'A' weighted Decibels, which approximates how the human ear responds to noise at moderate levels.
- dB(C)** 'C' weighted Decibels, which approximates how the human ear responds to noise at very high levels.
- SLC80** Is a standard that hearing protection is measured against. An SLC80 rating indicates that the hearing protection will provide at least the listed attenuation to at least 80% of users.

Nuisance Noise

Nuisance noise is noise that does not cause hearing loss, but may have a psychological effect and impact on performance. The causes of nuisance noise are wide ranging and can be quite difficult to control. Due to its effect on employees it should be minimised where possible and should be managed at a local level.

Regulations

Under the Occupational Health and Safety Regulations 2007 Monash University must ensure that its employees are not exposed to noise greater than the noise exposure standard, which is an average of 85 dB(A) for 8 hours, or to any instantaneous noise in excess of 140 dB(C). Note that noise exposure approximately doubles with every 3 dB. For example the noise exposure standard is exceeded after 4 hours at 88 dB(A) or 15 minutes at 100 dB(A).

Assessment

A noise assessment must be conducted when there is uncertainty about whether or not employees are being exposed to excessive occupational noise. A noise assessment involves measuring noise levels generated by machinery and processes, as well as the levels received by the worker's ears. Additionally, noise assessments can provide valuable information for controlling noise. A noise assessment can be arranged by contacting Occupational Health and Safety on x51016.

Primary Controls

Legislation requires that noise exposure must be controlled in a systematic way, and must start with an effort to remove the source of noise from the work environment or to reduce the amount of noise that is generated.

Controlling the noise at the source through a process of elimination or engineering measures can be done in a variety of ways and is often easier in the long term than

Area or Equipment	Typical Noise Levels dB(A)
Library	38-48
Typical Office	50-60
Typical Lab	55-65
Photocopier	59-71
Vacuum Cleaner	68-74
Typical Factory	76-82
Noisy Lawn Mower	87-94
Belt Sander	90-97
Hand Drill	95-101
High Pressure Spray Painting	98-103
Angle grinder	95-107
Chainsaw	106-115

a personal protective equipment program. Often rethinking how a task can be done can greatly reduce the amount of noise. For example, bending a strip of metal using a hammer generates a great deal of noise, changing techniques and bending it with a pair of pliers is a much better alternative.

Some effective and practical methods for reducing the amount of noise employees are exposed to include purchasing quieter equipment, installing springs and rubber strips to reducing the amount of vibration and resonance of the equipment, enclosing noisy equipment with noise absorbing/reflecting material and moving the source of noise away from where people work. Additionally, well serviced equipment is often quieter, so ensure equipment is in good working order.

Secondary Controls

Administration controls such as training, signage, limiting duration of exposure via work rotations and having 'no-go' areas, while not as good as eliminating noise at the source, are also effective ways of reducing noise exposure. If both primary & secondary measures do not reduce the noise exposure to an acceptable level, personal protective equipment will be required.

Personal Protective Equipment (PPE)

Personal protective equipment can be used if all other controls do not reduce the noise levels to an acceptable level. However, it should be stressed that hearing protection is the last resort and should not be sought as a quick and easy solution.

To ensure the highest level of protection, the university recommends Class 5 ear muffs. These will provide at least 26 dB(A) of attenuation for 80% of people when in good condition and worn correctly. However, over time hearing protection degrades as the head band stretches, seals become hard and foam wears out, therefore a maintenance program must be developed to ensure that hearing protection is working effectively.

Ear plugs are often used as an alternative to ear muffs. These can often be more convenient, but generally do not offer the same level of protection. The most common reason for the reduction in protection is due to improper fitting of the plug. Those using earplugs must receive training on how to fit them correctly and must follow these instructions or else the risk of permanent hearing loss may be increased. As a rule of thumb, ear plugs should be far enough in the ear so that they are not visible or are just visible when the person is viewed standing front on.

Buy Quiet Policy

With a proactive purchasing policy, a number of noise hazards may be eliminated before they enter the workplace. The purpose of a 'Buy Quiet' policy is to look at controlling noise at the earliest stages of planning and design which aims to encourage the minimisation of noise generation by purchasing inherently quieter equipment. Most suppliers and manufacturers of noisy equipment are required by law to provide information on the amount of noise generated by their products, so you can make an informed decision on which piece of equipment to purchase.

Quieter equipment can be more expensive in terms of its upfront cost, but this is usually off-set by a higher quality product lasting longer and performing better. Additionally no noise reducing retro-fitting will be required and it will decrease the reliance on PPE programs. All university departments are encouraged to adopt a "Buy Quite" policy where staff and students have the potential to be exposed to excessive levels of noise.

Audiometry

Any employee who is required to wear hearing protection must also have an audiometric test every two years. The Occupational Health and Safety branch co-ordinate this testing as part of its health surveillance program. Additionally, audiometric testing may be conducted pre-employment for at risk groups to establish base line hearing levels.

For further information, contact Occupational Health & Safety on 990 51016 or by email (ohsehelpline@adm.monash.edu.au).

References:

OHS Regulations 2007

AS/NZS 1269:2005: Occupational noise management

AS/NZS 1270:2002: Acoustics - Hearing protectors

Health surveillance at Monash University

OHS Information Sheet No. 34: The use of headphones/earphones/earbuds in the workplace