

Noise Control

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Noise is defined as unwanted sound that can damage your hearing. It is one of the most widespread hazards facing New Zealand workers. Hearing loss caused by noise is insidious and permanent, causing isolation both at home and socially, and can decrease efficiency at work.

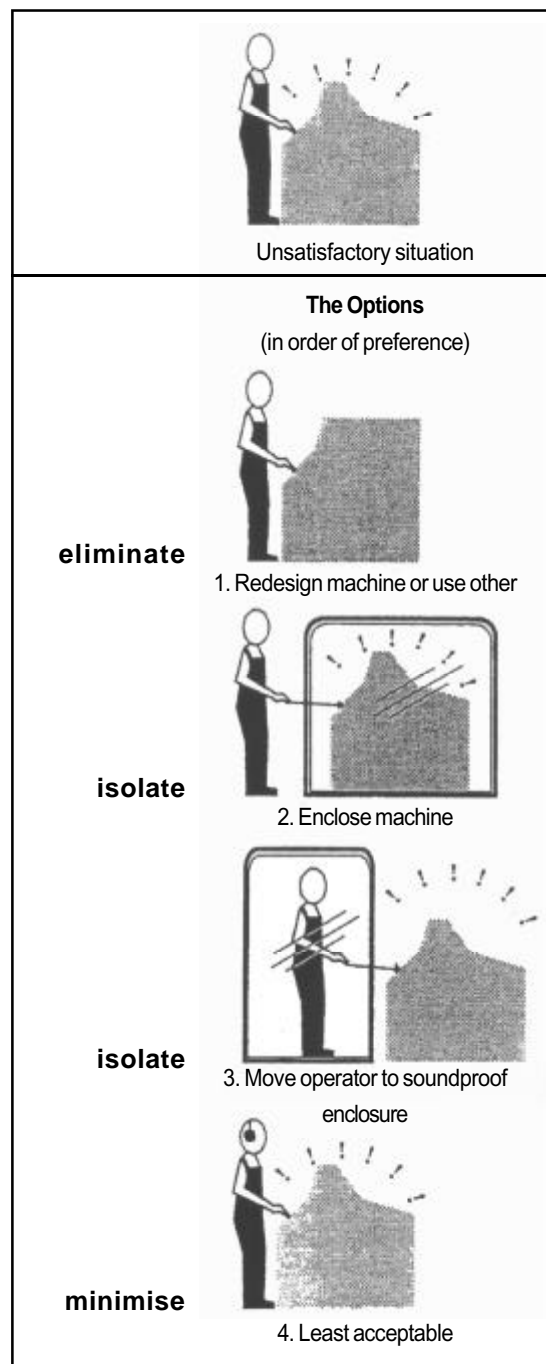
The Health and Safety in Employment Act 1992 (HSE Act) requires employers to identify any hazards in the workplace, such as noise, and to manage the hazard, as far as practicable, using the hierarchy of control – elimination, isolation, minimisation. Practicability depends on severity of hazards or risk, state of knowledge about eliminating or reducing the hazard or risk, availability and suitability of appropriate techniques, and cost.

The Noise Survey

The extent and magnitude of the noise should be determined through a noise survey. A noise survey details the levels present, the items causing the most noise and the people affected by the noise. Thus, priorities for noise control can be worked out.

The most effective way to reduce noise in the workplace is to change the noise source or engineer it out. This can be done by:

- Replacing outdated noisy machinery.
 - Check the noise levels of new machinery before buying it.
 - Substituting machines, e.g. presses for hammers.



- Ensuring machinery is maintained according to the manufacturer’s intentions.
- Using quieter materials and equipment, particularly where objects drop from the machine. Examples of this include:
 - Replacing metal gears with fibre or nylon gears.
 - Replacing roller conveyors with belt-like conveyors.
 - Fitting receiving bins with rubber flaps to break the fall of items falling into them.
 - Substituting metal parts for plastic/non-metal parts.
 - Fitting silencers or mufflers.
- Modifying the machinery to reduce sound generation or amplification. Some common strategies include:
 - Standing the machine on vibration isolation mountings.
 - Damping of panels by increasing stiffness or using rubber/plastic bumpers/cushions.

If the noise cannot be stopped, then try to isolate the noise so that it doesn’t reach the workers.

This may be done by:

- Moving a noisy machine or process to remote areas of the workplace (e.g. behind the storage racks of product);
- Enclosing noisy machinery with sound absorbent material;
- Fitting flexible fixed screens or curtains of sound absorbent material around the machinery; or
- Building soundproof booths for operators of noisy equipment.

Where the high noise levels cannot be reduced, the next step is to minimise the exposure to the noise. This could mean:

- Fitting sound-absorbent materials to ceilings and walls (to absorb and reduce reflected sound).
- Reducing the number of people in the vicinity of the noise and reducing the period for which those people are exposed. Examples of this include:
 - Scheduling the noisy work for times when few workers as possible are present.
 - Using job rotation where practicable to alternate noisy tasks with quiet ones and reduce the overall noise experienced.

Hearing protectors should not be used as a substitute when engineering noise control or limiting exposure times is practicable. However, in situations where all measures have been undertaken but the reduced noise exposures are still not satisfactory, hearing protectors should also be supplied.

It is important that hearing protection should be chosen for their noise reduction characteristics, i.e. the most appropriate grade of hearing protector should be selected; their comfort, which is a matter of personal preference; and suitability for the job, e.g. if a person is required to wear other protective equipment, such as protective eyewear, the hearing protector should be compatible with the other protective equipment.

Staff must also be trained in the fitting and wearing of earplugs and earmuffs. Routine maintenance and replacement procedures are also needed.

The hearing protection must be worn at all times. In high noise levels, removing the hearing protection for very short periods of time can drastically reduce the overall protection received. For example, if a worker is in an environment where the noise level is over 112 dB(A), and the worker removes the hearing protection for more than 1 minute, the worker will permanently damage his or her hearing.

Duration per day	Sound Level dB(A)
8 hours	85
4 hours	88
2 hours	91
1 hour	94
30 min	97
15 min	100
8 min	103
4 min	106
2 min	109
1 min	112
30 seconds	115

Table: Maximum time unprotected ears should be exposed to various levels of sound.