

Control of Noise at Work

Scope

This document aims to:

- highlight those work activities that have the potential to present a risk to staff, students, contractors, and visitors who may be subject to harmful exposure.
- give information on identifying the level of risk associated with such activities, and
- to suggest ways of reducing any significant risks to an acceptable level.

Application

This document applies to the control of noise levels in the work place to prevent damage to the hearing from noise exposure, by considering the Exposure Action Values and Exposure Limit Values where long term exposure will cause noise induced hearing loss.

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1. Introduction

Noise induced hearing loss is a condition that has the potential to affect any worker who is subjected to excessive noise levels for long periods as a major part of their job.

The risk depends on the loudness of the noise and how long an individual is exposed to it.

2. Potential sources of high noise levels at the University

The following is an indicative list of the types of equipment found in the University that may present a noise hazard:

- Grounds work, e.g. chainsaws, strimmers, mowers, blowers, hedgetrimmers, etc.
- Workshop equipment, e.g. grinding tools, rotary burring tools, powered hammers, concrete breakers, sanders and drills, compressed air powered equipment
- Grinders and other rotary tools

- Timber and wood machining tools
- Percussive metal-working tools
- Percussive tools used in stoneworking, quarrying, construction
- Engines, high speed or high power motors
- Sonicators

3. Exposure Limits

The Exposure Action Values (EAV) are the levels of daily exposure to noise above which certain actions are required to reduce exposure.

The Exposure Limit Value (ELV) is the level of noise above which a person may not be exposed.

The noise level produced by equipment or processes is measured in decibels (dB). For hearing protection purposes this modified by a weighting factor (A) which reflects the hearing sensitivity profile of the human ear.

The regulations have set three Values:

- Lower Action Value (LAV) of 80dB(A) over 8 hours (A8),
- Upper Action Value of 85dB(A) over 8 hours (A8) and
- Exposure Limit Value of 87dB (A) over 8 hours (A8).

It is the aim of the University to minimise the risk of noise induced hearing damage to all who may be affected by keeping exposure to noise as low as is reasonably practicable and where the Upper Action Value is likely to be exceeded, control measures will be put in place to reduce it.

To allow different exposure patterns to be compared they are adjusted or normalised to a standard reference period of 8 hours, similar to the approach taken for vibration levels.

The Control of Noise at Work Regulations 2005 describes how an exposure normalised to 8 hours, A(8), can be calculated. To get a rough estimate of whether a risk assessment is required you could use the simple tests in the table below.

Test	Probable Noise Level	A risk assessment will be needed if the noise is like this for more than:
The noise is intrusive but normal conversation is possible	80dB	6 hours
You have to shout to talk to someone 2m away	85dB	2 hours
You have to shout to talk to someone 1m away	90dB	45 minutes

An increase in noise intensity of 3dB represents a doubling in the noise output and hence halves the exposure time required to reach an exposure limit. This is illustrated below.

Instantaneous Noise Level (dB(A))	80	83	86	89	92	95	98
Time to reach LAV (hrs)	8	4	2	1	½	¼	7.5 mins
Time to reach UAV (in hrs)	24	8	6	3	1½	¾	25 mins
Time to reach ELV (in hrs)	40	20	10	5	2½	1¼	42.5 mins

For example, a hand held blower with a noise level of 97 dB(A) would result in the exposure of the operator to the equivalent of the LAV in just 10 minutes, hence typical use greater than this would require reasonably practicable exposure reduction measures to be taken. If this was used for 40 minutes a day the ELV would be exceeded and no further use would be permitted.

The following table lists some indicative noise levels for typical equipment.

Examples of equipment	Typical noise levels (in dB)
Hedgecutter	100
Flymo mower	90
Chainsaw	100
Blower (hand-held)	97
Kango hammer	80 to 100 (depending on power/size)

Generally at the University, the nature of the work lessens the risk. For instance, work may be seasonal or related to particular projects, exposure is normally not prolonged on a regular basis. University workshops tend not to be operated in the same way as industrial environments so individuals are not continuously carrying out long periods of very noisy tasks on a daily basis, but there is still a need to assess each situation.

4. Duties of Employers

If the Lower Action Value (LAV) is exceeded

- Risk Assessment
- Plan of Action- and action
- Hearing protection to be provided
- Information and training

If the Upper Action Value (UAV) is exceeded

- Technical/organisational measures to reduce exposure
- Marking, restricting, limiting access
- Mandatory use of hearing protectors
- Health surveillance

NB. What the regulations previously required to be done at 90dB(A) now has to be done at 85dB(A).

The Exposure Limit Value (ELV)

- The limit for personal exposure, taking into account hearing protection when all other methods have been used to reduce the noise level to a minimum but cannot reduce it below 87dB(A).

5. Responsibility for Risk Assessment and Risk Reduction

It is the responsibility of Schools and Departments to identify activities where the hazard of noise is a problem and include it in risk assessments. Ways to establish whether there is a problem and how to reduce it are as follows:

To identify the extent of the problem:

- Identify the equipment or processes that are noisy and find out about the levels of noise. - information on equipment should be available from suppliers or manufacturers (they have a duty to supply it). Staff are likely to have a subjective opinion from using equipment or being involved in processes. Consider noise monitoring.
- Rank equipment or processes in terms of hazard contribution, i.e. the level of noise and how long they are used or involved.
- Discuss with staff whether they have noticed any particular problems with certain types of equipment, individual machines or processes.
- Check the workload of individuals who may be exposed to noise and at least estimate the exposure they may be receiving.

To reduce the risk:

- Check whether it is necessary to use the current type of equipment or whether a process may be achieved a different way.
- Minimise the need for operations and tools that expose workers to noise.
- Consider the maintenance of the equipment and whether there is likely to be deterioration in noise levels. Ageing and/or poorly maintained equipment is likely to give worse levels of noise.
- Reduce exposure times, e.g. by breaking up activities to minimise prolonged exposure.

Further suggestions on how risk reduction may be achieved are given in the publications listed on page 5.

6. Noise Monitoring of Existing Equipment

It is possible to monitor noise levels of equipment or processes. This can be carried out by the Safety Office. Please contact the Safety Office for further information. The results of monitoring can be compared with the manufacturer's information and this might show the effect of age or poor maintenance or that there is something wrong with a particular item of equipment.

The results can be used in conjunction with estimates of time spent using each type of equipment or on a process. This will give an approximate exposure.

Equipment with high levels of noise

If it is found that there are items of equipment with high noise levels.

The solution may be purchase of different/new equipment, improved maintenance/servicing, using the equipment for shorter periods of time and information to staff on how to minimise the risks.

7. Purchasing of new equipment

Whenever new equipment is to be purchased, the supplier's noise information should be checked in advance and every effort made to ensure that equipment with the lowest noise levels is obtained. Any second-hand equipment should also be assessed before being put into use.

8. Maintenance of equipment

In order to minimise the deterioration of equipment, items should be inspected and serviced on a regular basis. Advice from the suppliers/manufacturers should be taken into account. There may be certain routine checks that lead to early identification of problems or accessory replacements, in which case these should be carried out at a set frequency.

Individual users must be made aware that if at any point they feel a machine performance has deteriorated in terms of noise, they must report it at the earliest opportunity so that further investigations can be made.

9. Health Surveillance

If there is a significant risk of noise induce hearing damage, i.e. where an individual's noise exposure exceeds 85dB(A), then a health surveillance programme via the University's Occupational Health provider must be arranged. The aim of this is to identify at an early stage any member of staff who may be showing medical signs of developing noise induced hearing damage. If at any time between the routine checks, a member of staff notices any of the signs of hearing problems, they should report it to their line manager in order that referral to Occupational Health can be organised and investigation of the equipment carried out by the School/Department.

10. Training and Information for those at risk

Members of a School/Department at risk of noise induced hearing damage must be provided with adequate information. This should include the following:

1. information on noise levels relevant to the equipment or processes they are to use, particularly identifying pieces of equipment that are known to have higher noise level,
2. the need to interrupt work using noisy equipment or working on a noisy process on a regular basis with other tasks and or to divide such work with other colleagues,
3. who to report problems to.

There is an HSE leaflet on Noise which is a good general source of information. Reference [INDG362](#) (rev1) Noise at work: Guidance for employers on the Control of Noise at Work Regulations 2005.

11. Publications held by the Safety Office

L108 The Control of Noise at Work Regulations 2005

HSG138 Sound Solutions – Techniques to reduce noise at work.