Hearing protection zone signs

Examples of typical noise levels (in dB[A]) emitted from different sources. (With thanks to the HSE.)
1. INTRODUCTION
   a) The Control of Noise at Work Regulations 2005 came into force on 6th April 2006. They contain the principal legal requirements concerned with the protection of persons against risk arising from work-related exposure to noise. The regulations set the minimum requirements for the protection of workers from noise at work. The Control of Noise at Work Regulations 2005 complements the general requirements to manage risks under the Management of Health and Safety at Work Regulations 1999.

   b) Noise related hearing loss is an irreversible condition that can result in social isolation and have consequent profound psychological effects on those who suffer from it. Hearing loss caused by work is preventable. Damage can cause, not only loss of hearing ability but people may also suffer a permanent sensation of ringing in the ears, known as tinnitus. Hearing loss caused by exposure to noise at work continues to be a significant occupational disease. Approximately 17,000 people in the UK suffer deafness, tinnitus or other ear conditions as a result of exposure to excessive noise at work. This procedure is aimed at reducing the risk for staff and students of the University.

2. SCOPE OF THIS PROCEDURE

   This procedure applies to all Schools, Divisions and Units of the University and to all activities that could give rise to significant risk from noise. The responsibility for ensuring that noise risk assessments are carried out lies with Managers of Schools or Departments. While it may seem that this procedure will apply only to Estates & Buildings, Information Services, the Students’ Association and the Schools of Science & Engineering and Computing, this may not always be the case. Other Schools may carry out work that can give rise to exposure to significant noise levels and the risk arising from noise exposure should be identified during risk assessments, allowing this procedure to be implemented.

3. RESPONSIBILITIES

   Line Managers must ensure that all operations likely to give rise to risk are fully assessed and that control measures are put in place to reduce any significant risks. This includes the risk to staff, students and visitors arising from excessive noise at work.

   Employees and students must follow any procedures and use any control measures provided to reduce the risk from noise exposure, including the proper use of personal hearing protectors provided for this purpose. They must also report any defect in any personal hearing protectors or other control measures to their Line Manager or to Resilience and Safety.

4. PROCEDURE

   a) In order to ensure compliance with this procedure Managers are required to:
      1. Identify any areas or processes (including those likely to be met in entertainment, on field trips or consultancy work) where noise could give rise to a risk to health (advice on estimating noise hazards is given at Appendix 1 and there is additional information and advice on the HSE website);
      2. Seek advice from Resilience and Safety where a potential risk has been identified from Appendix 1 or the HSE webpage above;
3. Have a competent person carry out a risk assessment of any work activities that are likely to exceed one or more of the action values or limit values given in Appendix 3;

4. Provide technical and organisational measures to eliminate or reduce as far as is reasonably practicable the identified risks;

5. Classify places where noise exposure is likely to be above one of the upper exposure action values as Hearing Protection Zones and mark the zones with appropriate signage (see the sample signs immediately under the “contents”, above);

6. Provide information, instruction and training to employees; and

7. Ensure that arrangements put in place make explicit good practices to be followed to control the risk to persons from noise at work.

b) As stated above, Managers are responsible for ensuring that persons are protected from noise within their area of control by eliminating or reducing noise risks. Where elimination of such risks is not reasonably practicable they must reduce risk through minimising and controlling exposure by using good practice and known control and management solutions, including technical and organisational noise-control measures. Whether this area of control is an actual geographical area or a process under the Manager’s control and irrespective of whether the Manager has control of the process or not (e.g. noise intruding into a departmental office from a neighbouring workshop), the Manager still has a duty to ensure the safety of persons within their area of responsibility. In short, Managers are required to identify all noise hazards, assess the risk to persons and act on the findings of the assessment.

c) It is understood that Managers may not have the technical knowledge and competence, either personally or within their staff to carry out such risk assessment to the appropriate standard and may therefore require to contact Resilience and Safety to obtain advice and have a preliminary assessment carried out. Guidance as to whether such a preliminary risk assessment is required is given in Appendix 1.

d) Risk Assessment

Should a risk assessment be considered necessary, Managers must arrange for a preliminary noise risk assessment to be carried out. Resilience and Safety will normally carry out the preliminary risk assessment arrange for or agree to a specialist conducting this. Any costs arising from the use of specialists will be borne by the School or Department involved.

e) Essentially, the preliminary risk assessment will be a snapshot of the area in question to determine whether or not noise level samples indicate that there is the potential for a breach of the Control of Noise at Work Regulations 2005. The Manager who has control of the area or process will be given a report (blank sample at Appendix 4) arising out of the preliminary assessment. This report will give, as appropriate, the following information:

1. A plan of the area sampled with the points at which noise samples were taken
2. marked on it;
3. The equipment or processes in use at the time of sampling;
4. The noise levels measured at each of the sample points;
5. Recommendations or instructions based on the measurements made and linked to legal requirements.
f) The recommendations or instructions section will indicate one of the following courses of action:

1. That there is no identified risk to individuals from exposure to noise under the conditions during which measurements were made, no control action is required at this time and a further preliminary risk assessment should be made if any circumstances change or;

2. That there is no identified risk from exposure to noise under the conditions during which measurements were made, however certain control actions should be taken to eliminate or reduce noise exposure to as low as reasonably practicable;

3. That there is the necessity to take steps to eliminate or reduce noise exposure and risk to persons exposed and:
   a. Certain engineering controls should be put in place prior to reassessment to validate their efficacy, and/or
   b. Certain administrative controls should be put in place to reduce exposure of at-risk individuals (e.g. work pattern changes), or
   c. A full formal noise risk assessment must be carried out by a competent noise risk assessor and the assessor’s recommendations implemented and;

4. Persons at risk of exposure should be given information, instruction and training as detailed at Section 9, below or;

5. That the Manager is instructed that there is the urgent necessity to prevent injury to individuals and/or breach of legislation by immediately stopping all use of the equipment or process giving rise to noise exposure above the exposure limit value (see Appendix 3 for the Exposure Action Values and Limit Values). This instruction will also require the Manager to take steps to prevent the equipment or process from being put back into use, prior to a full formal noise risk assessment being carried out by a competent noise risk assessor and recommendations being made and acted on to eliminate or reduce noise exposure.

The preliminary risk assessment may give other requirements such as the need for health surveillance or information, instruction and training.

g) A copy of the written instruction to stop use of equipment or a process to prevent injury or a breach of legislation will be passed to the University Secretary at the same time that it is issued to the Line Manager and Health, Safety and Wellbeing Champion. This action will be the formalisation in writing of the verbal instruction by Resilience and Safety Staff, given at the time of measurement of noise levels (or shortly thereafter) and acting with the authority of the University Secretary and University Court, to stop all use of or prevent access to the equipment or process giving rise to noise exposure above the exposure limit value. This verbal instruction and the written confirmation are given to prevent serious and immediate danger to persons at risk and must be complied with by all managers, staff and students (as well as other relevant persons, e.g. contractors). Failure to comply will result in a further report to the University Secretary with a recommendation that disciplinary action be considered.

h) The above actions will allow Managers to comply with the requirement of the Regulations that a suitable and sufficient assessment must be carried out with respect to the risks to health and safety from work which is liable to expose employees to noise at or above the lower exposure action value (see Appendix 3
for the Exposure Action Values and Limit Values) and control the risk arising from
this. Managers must assist by providing Resilience and Safety or other assessors
with such information and support as is necessary to carry out the assessment.
Managers must ensure that any preventive and protective measures recommended
in the assessment to control exposure to noise are implemented and must keep the
assessment under review. The risk assessment must be reviewed annually.

i) If any of the circumstances under which the assessment was carried out are subject
to change (e.g. new or additional equipment, alteration to equipment layout or
process, change of materials in use, results of health surveillance or knowledge of
hearing damage in exposed person, etc) Resilience and Safety Services must be
informed immediately to determine if a review is required.

j) Risk Assessment Records

Line Managers shall keep a record of all risk assessments made by the assessor and
of all subsequent reviews of the assessment. These records must be made available
to all staff who may be at risk. Health and Safety Executive Inspectors, Resilience
and Safety Staff and Union Health and Safety Representatives are entitled to have
access to these records.

k) Elimination or Control of Exposure to Noise

Managers must ensure that the risk from noise exposure is either eliminated or
reduced to as low a level as is reasonably practicable. It is not permitted to expose
any person to noise levels above the exposure limit value. Where this noise level is
exceeded the activity must be stopped and immediate action taken by Managers to
reduce exposure. Whenever a person’s exposure to noise is likely to exceed the
upper exposure action value, then the exposure must be reduced by the Manager to
as low a level as is reasonably practicable using appropriate control measures,
excluding the provision of personal hearing protectors. See Appendix 2 for guidance
on adopting noise control measures and Appendix 3 for the Exposure Action Values
and Exposure Limit Values.

l) Ear Protection

Depending on the noise exposure level, there may be a legal requirement to provide
ear protection. Managers are responsible for the provision of such ear protection
when required. The following action is required with regard to ear protection:

1. Where the assessment shows noise exposure levels at or above a lower
exposure value [80dB(A) daily or weekly exposure, or a peak sound pressure
of 135dB(C)], the person must be advised that there may be a risk to
hearing, and hearing protection must made available to the person at his/her
request;

2. Where the assessment shows noise exposure at or above an upper
exposure action value [85dB(A) daily or weekly exposure, or a peak sound
pressure of 137dB(C)], the person must be advised there is a risk of hearing
damage and that the wearing of hearing protection is mandatory. Managers
are responsible for enforcing the use of hearing protection where it is
mandatory;

3. Advice on the selection of suitable hearing protection can be obtained from
Resilience and Safety or a competent noise assessor. Hearing protection
must be suitable for the person’s working environment and be compatible
with other protective equipment used by the person.
m) **Hearing Protection Zones**

If there is an area where a person is likely to be exposed to noise at or above the upper action level (85dB(A) daily or weekly exposure, or peak sound pressure of 137dB(C)), the area must be designated by the Manager as a Hearing Protection Zone. Managers must advise persons that a hearing protection zone is in operation, and ensure that the area is demarcated and identified by the use of approved warning signs (see inside front cover of this Procedure document for examples).

n) **Maintenance and Use of Equipment**

Managers must ensure, so far as is practicable, that any noise-control equipment put in place is fully and properly used. Such equipment must also be properly maintained. Managers should ensure that all personnel are made aware of the purpose of such equipment and the importance of it being correctly used. In the case of reusable hearing protectors, Managers must have arrangements for the inspection and repair/replacement of them, and have provision for their proper storage and their cleaning as required. In the case where disposable ear protectors are used, Managers must ensure that supplies of these are continuously available. Managers should ensure their staff are aware that they must report any damaged, defective or lost protectors. Managers must ensure, so far as is reasonably practicable that any employee who enters a hearing protection zone is wearing personal hearing protection.

o) **Provision of Information, Instruction and Training to Employees**

Where an employee is exposed to noise at or above the lower exposure action Value, Managers must give information, instruction and training on the following:

1. The likely noise exposure to individuals and the risk to hearing the noise creates;
2. The measures that have been put in place to control noise exposure;
3. Details of the legal exposure values and limits;
4. The findings of relevant noise risk assessments;
5. Where and how they can obtain hearing protectors;
6. How to use noise control measures and hearing protectors;
7. How to report defects in hearing protectors and noise control equipment;
8. The employee’s duties under the Noise Regulations;
9. What symptoms of hearing damage employees should look out for and how to report such symptoms; and
10. What health surveillance arrangements have been put in place.
11. Managers should obtain the support of Resilience and Safety Services who can arrange training sessions covering the above points.

p) **Employees’ Duties**

All employees have legal duties to comply with and use the measures the University provides under the Control of Noise at Work Regulations 2005. These duties include:

1. Using noise-control measures in accordance with instructions given;
2. Wearing hearing protection in accordance with instructions given when they are exposed at or above the upper exposure action value, and at all times in areas
b. marked as hearing protection zones;

3. Taking care of hearing protectors and noise-control equipment they need to use Reporting any defect found in the hearing protectors or other protective measures or any difficulties using them; and

4. Attending the University’s Occupational Health Service or external occupational health consultants for health surveillance.

In the context of this Procedure, the requirement to comply with “employees’ duties” is extended to students while in the University or involved in University activities such as field trips.

q) Health Surveillance

The protocol for hearing health surveillance (audiometry) may be found at Appendix 5, below.

Where the noise assessment shows that there is a risk to the hearing of an employee or student who is regularly exposed above the upper exposure value (without taking account of any reduction in noise exposure obtained through hearing protection) then the person will be subject to a health surveillance programme for noise-induced hearing loss. Where information comes to light that an individual may be particularly sensitive to noise-induced hearing loss, or indicates a family history of becoming deaf early on in life, and the person is exposed to noise levels between the lower and upper exposure action values, or is occasionally exposed above the upper exposure action value, then he/she too will be subject to health surveillance.

The health surveillance programme will be organised by the Occupational Health Service. All employees will be allowed full access to their health surveillance record. Strict medical confidentiality will be maintained at all times.

r) Low-Noise Purchasing

Purchasing or hiring low-noise equipment and machinery is seen as an important measure in reducing noise in the workplace. Managers who are authorising the purchase or hire of equipment must therefore, during the selection process prior to purchase or hire, give full consideration to the effects of noise emissions from the equipment or machinery. To inform their decision, Managers should obtain information from the proposed supplier or manufacturer about the likely noise levels under the particular conditions in which the equipment will operate, as well as under standard test conditions. Information regarding the reduction of noise through purchasing is available on the HSE’s “Buy Quiet” page. Where specialist advice is required the Manager should consult with Resilience and Safety.

4 APPENDICES

Appendix 1: Estimating the Noise Hazard
Appendix 2: Noise Exposure Control Measures
Appendix 3: Exposure Limit Values and Action Values
Appendix 4 Noise at Work Preliminary Risk Assessment
Appendix 5: Audiometry Protocol

<table>
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<tr>
<th>Procedure Author – Resilience and Safety</th>
<th>Procedure Owner – Resilience and Safety</th>
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<td>Parent Policy Statement - Health, Safety and Wellbeing Policy</td>
<td>Public Access or Staff Only Access - Staff</td>
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A risk assessment is required if the person is likely to be exposed to noise at or above the lower exposure action values, which are:

- daily or weekly exposure of 80dB (A-weighted)
- peak sound pressure of 135dB (C-weighted)

If the workplace is intrinsically noisy, i.e. significantly noisier than you would expect from the sounds of everyday life, it is possible that the noise levels will exceed 80dB. This is comparable to the noise level of a busy street, a typical vacuum cleaner or a crowded restaurant - you will be able to hold a conversation, but the noise will intrusive. Working in an environment of 80dB for eight hours will result in exposure at the lower exposure action value. Further information and advice is available from the HSE.
Appendix 2

Noise Exposure Control Measures

HSE gives the following broad guidance regarding the control of noise. Greater detail on how to control the risk from noise is provided from the HSE.

There are many ways of reducing noise and noise exposure – often a combination of methods works best. As with other health and safety legislation, there is a hierarchy of control measures that can be followed. In order of priority, these are:

a. Elimination of noise sources,
b. Control of noise at source,
c. Collective control measures through work organisation and workplace layout,
d. Personal protective equipment.

First think about how to remove the loud noise altogether. If that is not possible, do all you can to control the noise at source such as:

a. Use a different, quieter process or quieter equipment, e.g.
   1. can you do the work in some other quiet way?
   2. can you replace whatever is causing the noise with something less noisy?
   3. introduce a low-noise purchasing strategy for machinery and equipment. Ask suppliers about likely noise levels and only purchase/hire from suppliers who can demonstrate a low noise design.

b. Introduce engineering controls:
   1. avoid metal-on-metal impacts;
   2. vibrating machine panels can be a source of noise - add material to reduce vibration (‘damping’);
   3. isolate vibrating machinery or components from their surroundings, e.g. with anti-vibration mounts or flexible couplings;
   1. fit silencers to air exhausts and blowing nozzles;
   2. modify the path by which the noise travels through the air to the people exposed, e.g. erect enclosures around machines to reduce the amount of noise emitted into the workplace or environment;
   3. use barriers and screens to block the direct path of sound;
   4. position noise sources further away from workers.

c. Design and lay out the workplace for low noise emission, e.g.;
   1. use absorptive materials within the building to reduce reflected sound, e.g. open cell foam or mineral wool;
   2. keep noisy machinery and processes away from quieter areas;
   3. design the workflow to keep noisy machinery out of areas where people spend most of their time.

d. Limit the time spent in noisy areas - every halving of the time spent in a noisy area will reduce noise exposure by 3dB.

Note: Proper and regular maintenance of machinery and equipment is essential as they will deteriorate with age and can become noisier – it may be time to replace worn or faulty parts.
Appendix 3

**Exposure Limit Values and Action Values** (from Control of Noise at Work Regulations 2005)

1. **The lower exposure action values are;**
   (a) A daily or weekly personal noise exposure of 80 dB (A-weighted); and
   (b) A peak sound pressure of 135 dB (C-weighted).

2. **The upper exposure action values are;**
   (a) A daily or weekly personal noise exposure of 85 dB (A-weighted); and
   (b) A peak sound pressure of 137 dB (C-weighted).

3. **The exposure limit values are;**
   (a) A daily or weekly personal noise exposure of 87 dB (A-weighted); and
   (b) A peak sound pressure of 137 dB (C-weighted).

Where the exposure of an employee to noise varies markedly from day to day, an employer may use weekly personal noise exposure in place of daily personal noise exposure for the purpose of compliance with these Regulations.

In applying the exposure limit values in paragraph (3), but not in applying the lower and upper exposure action values in paragraphs (1) and (2), account shall be taken of the protection given to the employee by any personal hearing protectors provided by the employer in accordance with Regulation 7(2).
Appendix 4

Noise at Work Preliminary Risk Assessment
This preliminary risk assessment is intended to give recommendations or instructions to Health & Safety Managers. These are given at Section 2 and must be acted on.

Section 1 – Administrative details

School/Division/Unit………………………… Date………………………………
Areas/Processes/Equipment Assessed…………………………………………………
Assessors……………………………………………………………………………………
No. of Assessment sheets..................... No. of attached floor plans…………………
Equipment used………………………………………………………………………………

Section 2 - Measurements

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<th>Room/area Floor plan</th>
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<th>Location code on plan</th>
<th>Noise level measured</th>
<th>Equipment or process in use</th>
<th>Comments</th>
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Section 3 – Recommendations or instructions

Signed ……………………………………………………………
Appendix 5

AUDIOMETRY PROTOCOL

1 Health Surveillance:

The Control of Noise at Work Regulations 2005 require that if the risk assessment indicates that there is a risk to health of any employees from exposure to noise, they must be placed under suitable health surveillance.

Health Surveillance is a programme of systematic health checks to identify early signs and symptoms of work-related ill-health and to allow action to be taken to prevent its progression.

Employers must provide health surveillance, in the form of audiometric testing (hearing tests) for all employees, who are likely to be regularly exposed above the upper exposure action values, or are at risk for any reason: e.g. they already suffer from hearing loss or are particularly sensitive to damage. The Risk Assessment process will assist in identifying where employees are at significant risk of developing Noise Induced Hearing Loss (NIHL).

2 The aim of the health surveillance is to:

a. Safeguard the worker - warn when employees might be suffering from early signs of hearing damage;
b. Give early opportunity to prevent damage getting worse - identify and protect individuals at risk
c. Check that controls of noise measures are working – by checking the long-term effectiveness of the measures to control risks to health

3 Audiometric (Hearing) Testing

Testing will be carried out:

a. On all members of staff exposed to noise levels above 85dB(A)137dB(C):
b. Pre-employment - before commencement of work in a noise hazardous environment (including those who already work in such an environment but are not yet receiving health surveillance e.g. transfers).
c. One year after commencing employment or commencing on audio programme and three yearly thereafter, unless the employee has concerns regarding their hearing, or the hearing test results determine otherwise.
d. Employees should also undergo a leaving hearing test prior to retiring or moving to another employer.

Employees will be required to complete the area of the Occupational Health surveillance booklet which is applicable to their post. It is important that employees understand that the aim of health surveillance is to protect their hearing, and co-operate with the health surveillance programme for it to be effective.

4 The Test

Health surveillance for hearing damage means:

a. Regular hearing checks in controlled conditions
b. Informing the employee about the results of their hearing checks
c. Keeping confidential health records
d. Ensuring employees are referred to their GP where hearing loss is identified to allow further referral to an ear, nose and throat (ENT) consultant when appropriate.
5 The Tester

The hearing checks must be carried out by someone who is deemed to be a competent person, having undergone the appropriate training. The whole health surveillance programme needs to be under the control of an occupational health professional; an occupational health adviser for example, with appropriate training and experience.

In addition the tester should be familiar with work processes and types of hearing protection worn.

The Tester should be able to discuss proper fitting and use of PPE, cleaning, maintenance and the importance of wearing it at all times in all designated area of noise.

Employers should use the results of health surveillance to ensure their employees’ hearing is being protected by:
   a. Keeping records of health surveillance and fitness-for-work advice
   b. Making employees records available to them
   c. Acting upon any recommendations made by Occupational Health following health surveillance, and about employees continued exposure to noise
   d. Reviewing and if necessary revising risk assessments

6 The Results

The audiogram and questionnaire will be stored in the individual’s Medical File for a minimum of 40 years.

The results will be explained to the individual employee including:
   a. the condition of the hearing
   b. the significance of hearing damage
   c. the importance of following noise control and hearing protection programmes
   d. reason for referral if appropriate
   e. how to use, care and maintain their PPE.

Line Management will require a report from the health professional doing the test on the fitness of the individual to work in noise hazardous environments, including the requirement of any specialist hearing protection, if required.

7 Equipment

   a. Otoscope
   b. Calibrated audiometer-subjected to regular checks and maintenance
   c. Headphones calibrated to audiometer
   d. Audiometry and Audiometry Follow-Up Questionnaires
   e. HSE Categorisations

8 Procedure

   a. Prior to the test an appointment should be made and the individual advised:
   b. Free from noise for 16 hours or must wear hearing protection prior to the test
   c. Bring hearing protection to the test
   d. Noise free for 15 minutes prior to the test
   e. Discuss and complete questionnaire (initial or follow-up)
   f. Ensure client is relaxed and seated comfortably
   g. Client should not be able to see control panel
   h. Client should remove hat, scarf, earrings or glasses
   i. If hearing aid worn to remove after instructions given
   j. Perform otoscopic examination and record findings
k. Explain audiometry procedure
l. Ensure instructions have been understood
m. Carry out a familiarisation run through
n. Carry out test

9 After the Test

a. Show the employee the audiogram and explain the result
b. Formally notify, in writing if Category 2, (warning level) and refer as appropriate
c. Indicate when the next test will be carried out
d. Discuss how noise can damage hearing and the care and use of PPE
e. Provide information leaflet