IMPERIAL

Noise Code of Practice

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1.0 Purpose

This Code of Practice (CoP) describes the way the College ensures compliance with the Control of Noise at Work Regulations 2005.

The Control of Noise at Work Regulations 2005 (CNWR) are based on a European Union Directive requiring similar basic laws throughout the Union on protecting workers from the risks caused by noise. The UK legislation remains unchanged following the UK leaving the European Union.

2.0 Scope

This CoP applies to all academic staff and students, and their visitors, where they are or may be exposed to noise. They do not apply to members of the public exposed to noise from their non-work activities or those making an informed choice to go to noisy places.

3.0 Responsibilities

Head of Department: Ultimately responsible for ensuring risk assessment and controls are in place.

User: responsible for ensuring that work is done in compliance with risk assessment and using the controls identified in the risk assessment.

Health and safety technical officer: Responsible for carrying out noise assessment surveys and reports.

4.0 Definitions

Standard Operating Procedures (SOPs): Detailed written instructions to achieve uniformity in the performance of a specific function or process.

Code of Practice (CoP): Detailed document containing the minimum set of safety and operational standards expected from relevant work streams, equipment, etc.

Attenuation: The damping of sound, an interruption that diminishes the volume and quality of the sound wave.

Daily personal noise exposure: The level of daily personal noise exposure of an employee as ascertained in accordance with Schedule 1 Part 1 The Control of Noise at Work Regulations 2005, taking account of the level of noise and the duration of exposure and covering all noise.

Decibel: A unit for measuring the loudness of sound (dB) Decibels are not a standard unit, they are formed from a logarithmic scale. A 1 dB change is barely perceptible to a listener with very good hearing. However, the ear does not respond linearly to changes in sound level. For example, a 3dB difference would be just perceptible to the average listener, a 5dB change is clearly noticeable, and a 10 dB increase would typically be perceived as twice as loud.

Exposure limit value: The level of daily or weekly personal noise exposure or of peak sound pressure set out in Regulation 4 which must not be exceeded.

Health surveillance: Assessment of the state of health of an employee, as related to exposure to noise.

HPD: Hearing Protection Device.

Lower exposure action value: The lower of the two levels of daily or weekly personal noise exposure or of peak sound pressure set out in Regulation 4 which, if reached or exceeded, requires specified action to be taken to reduce risk.

Noise: Any audible sound.

Peak sound pressure (C-Weighted): The maximum sound pressure to which an employee is exposed, determined in accordance with Schedule 2.

Risk assessment: The assessment of risk required by Regulation 5.

Upper exposure action value: The higher of the two levels of daily or weekly personal noise exposure or of peak sound pressure set out in Regulation 4 which, if reached or exceeded, require specified action to be taken to reduce risk.

Weekly personal noise exposure: The level of weekly personal noise exposure as ascertained in accordance with Schedule 1 Part 2, taking account of the level of noise and the duration of exposure and covering all noise.

Working day: A daily working period (Typically an 8-hour period), irrespective of the time of day when it begins or ends, and of whether it begins or ends on the same calendar day.

A-weighting: The most common weighting used is A-Weighting. This effectively cuts off the lower and higher frequencies that the average person cannot hear.

C-weighting: The response of the human ear to noise varies with the sound level. At 100 dB and above, the ear's response is flatter, so c-weighting is used for peak noise measurements.

5.0 Exposure limit & action values

Exposure limits and action values are calculated to an 8-hour working day and are in place to allow employers to take action to prevent ill health from exposure to noise. By applying controls at the required levels this should mitigate ill health.

Exposure limit values and action values

- 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).

- The upper exposure action values are –
  (a) A daily or weekly personal noise exposure of 85 dB (A-weighted)
  (b) A peak sound pressure of 137 dB (C-weighted). Guidance 3 Regulation 4 Controlling noise at work Page 11 of 130 Health and Safety Executive

- The exposure limit values are –
  (a) A daily or weekly personal noise exposure of 87 dB (A-weighted)
  (b) A peak sound pressure of 140 dB (C-weighted).

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

- If the upper exposure limit is breached immediate action must be taken, this may mean that work must stop until additional controls are implemented. Noise-induced hearing loss is irreversible damage to the ears caused by exposure to high levels of noise.

6.0 Procedures - risk assessment and noise surveys

Identify noise hazard in risk assessment:

Where an employee or contractor undertakes work likely to expose themselves or others to noise above or near the action and exposure limits, a risk assessment must be conducted to establish if controls are required, and what they might be**. If you need to raise your voice significantly in an area to be heard, this could be an indication that the area requires a noise survey.**

When carrying out the risk assessment for an area with regard to noise, these are the factors that must be considered:

- The level at which departments must make a worker's risk assessment and provide information and training is **80 decibels**
- There is a ceiling of 87 decibels (considering hearing protection) above which workers must not be exposed.
- Equipment used should have a noise level in dB set by the manufacturer in factory conditions and this should be supplied with the equipment. If this is above the lower exposure action levels or the information does not exist, it will require a noise survey to be carried out for the equipment under normal working conditions.

- If the noise source is outside of your control an initial noise survey is required. For example, temporary building works.
- Have previous noise surveys been carried out in this area? This should provide some historical background
- Is the noise obvious in the environment?
- If any of the above apply, contact your Faculty Safety Advisor

Initial survey:

The Health and Safety Technical Officer will carry out an initial survey of the area or activity that is requiring assessment. Initial spot measurements will be conducted to see if a follow up in-depth survey is required. Pictures will be taken of potential noise sources and included within the report. The assessor will talk to users to understand the activity and where and when exposure might happen. The results of the survey will be provided to the department on the format outlined in appendix 1.

Follow up survey:

If required because of the breach of daily or weekly exposure limits, the assessor will carry out a follow up survey. Depending on the type of noise a full day or week-long survey will be carried out using either personal noise dosimeters, fixed position monitoring, noise mapping of the area or a combination of these. The results of the survey will be provided to the department on the format outlined in appendix 1.

Implementation of recommendations:

From the evidence given in the report, additional control measures may be needed to reduce the amount of exposure to noise that the employee is experiencing. The hierarchy of control (detailed in section 6.3) must be used to effectively control the issue.

Return survey:

After the controls have been implemented, a return survey must be carried out to ensure noise exposure has been reduced effectively below actionable levels. The surveys should be carried out every two years to ensure that controls are still in place and are working correctly. Please contact the Health and Safety Technical officer if a return survey is required.

Health surveillance

If the risk assessment indicates that there is a risk to the health of employees who are, **or are liable to be,** exposed to noise above 85 dB, the College shall ensure that such employees are placed under suitable health surveillance, which shall include testing of their hearing. Information on health surveillance can be found here https://www.imperial.ac.uk/occupational-health/health-surveillance/. Audiometric testing ensures that the implemented controls are working as designed.

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Control of noise

Hierarchy of Control:

The **hierarchy of control** provides a consistent approach to managing safety in the workplace by providing a structure to select the most effective **control measures** to eliminate or reduce the risk of **hazards** that have been identified during the risk assessment process.

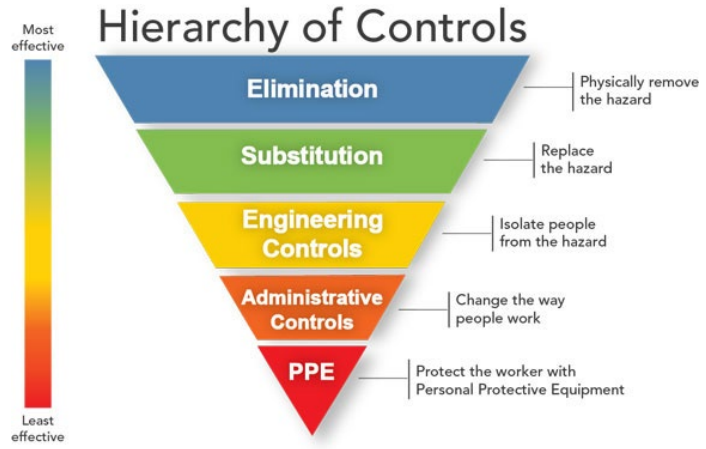

Figure 1. The hierarchy of controls.

If the noise assessment indicated that noise levels are above acceptable limits, then the following control measures should be considered.

Types of control measures:

Elimination/Substitution

The most effective control is elimination of the noise source itself as it removes the risk of exposure completely. If the source cannot be eliminated, it may be possible to substitute for a low noise emitting alternative. If the risk of noise exposure is not controlled by either eliminating or substituting the noise source, then look at using the engineering controls detailed below.

Engineering controls

These controls are the most effective way of preventing noise induced hearing loss, where elimination and substitution are not possible. Engineering controls are designed to reduce overall exposure by isolating the noise source and receiver from one another. Implementing engineering controls at the source, between the source and receiver, or at the receiver are most effective and some examples are as follows:

- Acoustic lagging of pumps/fans/motors
- Improved maintenance schedule which can be achieved by arranging periodical preventive maintenance (PPM)
- Vibration damping/isolation
- Silencers
- Sound absorption barriers
- Acoustic enclosures

Administrative Controls

Administrative noise controls involve management decisions that affect worker noise exposure in a positive manner. These decisions may involve one or more of the following examples:

- Scheduling shifts to minimise exposure times.
- Reallocation of noisy tasks to more controllable areas.
- Keeping workers away from the noisy areas whenever possible including acoustic havens.
- The use of noise havens free from exposure or hearing protection zones (HPZ).
- Publication and dissemination of local rules.
- Signage indicated which areas require hearing protection to access (see Appendix 2).

PPE – Hearing protection devices (HPDs)

How it works:

Hearing Protection Devices (HPDs) consist of earplugs, ear defenders/muffs or a combination of these and are used to reduce the level of sound reaching the inner ear. HPDs are only effective when they are worn at all times when in a noisy environment. Due to the exponential increase in hazard from a small decibel increase in noise exposure, removal for only short periods will significantly degrade their effective performance.

CNWR requires that hearing protection is selected to eliminate the risk to hearing or reduce the risk to the lowest level reasonably practicable and that the selection process takes account of consultation with employees or their representatives. You must aim to provide protection that at least reduces the A-weighted sound pressure level at the wearer's ear to below 85 dB.

PPE should be selected so it is in accordance with the college code of practice for the selection and use of personal protective equipment – Appendix 7. It must be taken into consideration that when selecting combinations of PPE such as glasses, hard hats and earmuffs that they must all be compatible and not jeopardise the effectiveness of any item when used together.

7.0 User Duties

The user has a duty of care for themselves and others working around them so this must be taken into consideration when conducting noisy activities and should form part of the risk assessment.

The user is responsible for the correct selection and fitting of HPDs. The Safety Department can help specify correct HPDs – please contact safetydept@imperial.ac.uk.

The user must ensure that the activity has been risk assessed and the hierarchy of control has been applied. If you're unsure if a risk assessment has been done you must contact your Faculty Safety Advisor, local departmental safety staff or the Safety Department.

In mandatory hearing protection areas, an employee must never enter or work in there without HPDs fitted to the wearer.

The user should always try to reduce the amount of noise they are exposed to by performing their work in line with training and any applicable Standard Operating Procedures.

8.0 References

Controlling noise at work - The Control of Noise at Work Regulations 2005

CoP – Selection and use of personal protective equipment

9 Appendices

Appendix 1: Report form

Imperial College London

Safety Department
Noise Survey
(sound level meter survey)

1 Date: (DDMMYYYY)				**2 Survey Type:** (enter code) 1 Initial survey. 2 Follow up Survey. 3 re-survey ____			
2.a Survey Location: Slough Data Centre – Data Hall 4							
3 Sound Level Meter		**Sound Level Meter**		**Sound Level Meter**		**4 Calibrator**	
Manufacturer Casella		**Manufacturer**		**Manufacturer**		**Manufacturer** Casella	
Model	**Serial No.**	**Model**	**Serial No.**	**Model**	**Serial No.**	**Model**	**Serial No.**
Last Calibration Date:		**Last Calibration Date:**		**Last Calibration Date:**		**Last Calibration Date:**	
5 Windscreen Yes:___X_____ No:_____				**6 Measurements taken:** Inside:__X____ Outside:_____			

7 Description of areas/duties where noise survey conducted. (illustrate on separate sheet)	**8 Primary source of noise** **9 Secondary source of noise** Room resonance.

10 Sound level data — **11 Protection required** (re: dBA level)

Location	Meter Action	LCpk	LAeq	Risk Assessment code	None (less than 85db)	Plug or muff (85-108db)	Plug + Muff (108-118db)	Plug + muff + time limit (118db+)

NOTES: Range of levels noted by at operator stations, measured at ear level. Meter Action: F for fast meter action and S for slow meter action.

12 Remarks (i.e. area and equipment posted, hearing protection is use, etc.)

13 More detailed noise evaluation required: Yes _____ No __X___ If Yes state why.

14 Name(s) of person(s) identified for audiometric monitoring *(Use additional sheet if more space is needed and attach to form)*

15 Supervisor of noise – hazardous area or operation.

Name:	**Telephone number:**	**Organisation:** Imperial College London

Survey Performed by: Email: Mb: 07 . Tel: 0207	Safety Dept, 4th floor Sherfield Building, Exhibition Rd, South Kensington, London, SW7 2AZ.

Appendix 2: Signage

Mandatory hearing protection area