Guidance

Occupational Hygiene Services
CONTENTS

1. Introduction
   1.1 University Policy
   1.2 Aim and Scope of Guidance
   1.3 What is Occupational Hygiene
   1.4. Occupational Hygiene Service

2. Roles and Responsibilities
   2.1 Heads of Departments/Directors of Service
   2.2 Departmental Safety Convener
   2.3 Departmental Safety Committees
   2.4 Laboratory Managers, Supervisors, Principal Investigators, COSHH Assessors etc.
   2.5 Safety Services

3. When to Request Advice & Monitoring

4. How to Request Advice & Monitoring

5. Acting on the Results

6. Liaison with Occupational Health

References and further reading

Appendix 1 Noise Monitoring
Appendix 2 Hand-Arm Vibration Monitoring
Appendix 3 Whole-Body Vibration Monitoring
Appendix 4 Monitoring Airborne Contaminants
Appendix 5 Monitoring Thermal Comfort
Appendix 6 Form to Request Occupational Hygiene Monitoring

Issue Date: 29 September 2010
1. **Introduction**

1.1 **University Policy**

It is the Health and Safety Policy of the University of Strathclyde to ensure, so far as is reasonably practicable, the health, safety and welfare of all its employees at work, of students while they are engaged in activities under the supervision of the University and of members of the general public who have access to University property.

In view of the above mentioned policy, departments have a responsibility to design work/research activities and processes so that agents hazardous to human health are controlled at source, thereby preventing exposure that could cause ill-health. Where such hazards cannot be controlled at source, the resulting risks need to be minimised by selecting appropriate risk control measures and ensuring they remain effective. In many cases, these objectives are achieved on the basis of occupational hygiene monitoring, which is often a legal requirement.

1.2 **Aim and Scope of Guidance**

This guidance outlines the purpose and benefits of occupational hygiene services, along with the procedures for obtaining advice and/or monitoring to ensure that the health issues of a proposed or existing work activity are appropriately managed.

It also outlines the roles and responsibilities of various individuals and groups in relation to managing work activities from which risks to health may arise. Furthermore, Appendices 1 - 5 show the range of agents that may need to be considered for occupational hygiene monitoring within a department.

1.3 **What is Occupational Hygiene?**

Occupational hygiene is concerned with people and their working environments. It uses scientific and engineering techniques to measure workplace exposures to agents harmful to health. The results are then used to determine the effectiveness of existing risk control measures, to evaluate risks to health, and to advise on new measures to control the resulting risks. Harmful agents include chemical vapours, dusts, heat, cold, noise, vibration, plus ergonomic and psychological hazards.

1.4 **Occupational Hygiene Service**

The University’s Occupational Hygiene Service falls within the remit of Safety Services and is provided by an external competent occupational hygienist. Safety Services arrange a scheduled Occupational Hygiene Programme, based on the recurring monitoring needs of departments, plus new requests. The Service provides advice and monitoring on a wide range of agents as indicated in Appendices 1 – 5 and can benefit departments in the following ways:

- advising on the design of new processes or activities that are safe for health;
- enabling departments to comply with legal requirements on the control of various agents harmful to health; and
- providing guidance on environmental conditions such as thermal comfort, general ventilation and conditions following a serious spill incident.
2. Roles and Responsibilities

2.1 Heads of Departments/Heads of Schools/Directors of Service

Heads of Departments (hereafter used to include Heads of School and Directors of Services) are legally responsible for the day-to-day management of health and safety within their departments. Their responsibilities are fully explained in the Health and Safety Policy and with particular reference to occupational hygiene, include the following:

- ensuring Departmental Safety Conveners are given all resources necessary, including appropriate time and training, to allow them to carry out their functions efficiently;
- monitoring that all necessary risk assessments have been carried out and that appropriate control measures are taken by staff;
- paying particular attention to the identification and risk assessment of exceptional hazards and ensuring that all staff involved with a particular risk take all adequate control measures;

Heads of Department may wish to nominate one person within the department, through whom all requests for occupational hygiene monitoring can be channelled to Safety Services to avoid duplication and to ensure a co-ordinated approach.

2.2. Departmental Safety Convenors

One of the main duties of Departmental Safety Convenors (DSC), as outlined in the Health and Safety Policy, is to advise the Head of Department on health and safety matters. This may well include co-ordinating occupational hygiene monitoring, providing advice on the control of risks, procedures to be followed and on training requirements.

2.3. Departmental Safety Committees

One of the main functions of Departmental Safety Committees is to assist the DSC in carrying out their range of functions. Again, committees are well placed to assist with the planning of the department’s occupational hygiene requirements.

2.4 Laboratory Managers, Supervisors, Principal Investigators, COSHH Assessors etc.

All those responsible for designing, assessing and running work/research activities, which utilise or generate agents hazardous to human health, are required to identify occupational hygiene needs. They should then notify the co-ordinating person within the department, so that the necessary arrangements can be made for monitoring through Safety Services. Those responsible should also be vigilant as to the effectiveness of existing risk control measures designed to protect health; any suspicion of fault or ineffectiveness should be reported immediately.

2.5. Safety Services

As indicated above in section 1.4, Safety Services arrange both scheduled and non-scheduled occupational hygiene monitoring. Once reports of monitoring have been received, these will be forwarded by Safety Services to relevant persons within departments, along with any other advice and/or recommendations deemed necessary. Safety Services is committed to promoting a positive health and safety culture throughout the University. It exists to help all departments effectively manage health and safety by providing advice and guidance on a full range of workplace activities, including occupational hygiene services.
3. **When to Request Advice and Monitoring**

Each of the individual Appendices provides some guidance on criteria that may be used to determine if advice and/or occupational hygiene monitoring is required. The following represents the main occasions:

3.1 **The design stage**

Advice should be sought from the Occupational Hygiene Service via Safety Services as early as possible in the design stage of a new process or activity that may impact on staff or students’ health. This can often lead to eliminating or reducing hazards at source, thus avoiding the necessity to retrofit costly control measures at a later stage.

3.2 **When determined by risk assessment**

The process of risk assessment should be used to identify whether particular aspects of the working environment need to be monitored. Valuable sources of information that may help to establish this need will be specific legislation and their Approved Codes of Practice (e.g. Control of Noise at Work, Control of Vibration at Work, Control of Substances Hazardous to Health etc.) manufacturers' handbooks and industry good working practices.

3.3 **When noise is intrusive for most of the day**

These circumstances may indicate that noise monitoring is required, especially if people need to raise their voices to carry out a normal conversation when about 2 metres apart, for at least part of the day.

3.4 **When there is exposure to vibration for most of the day**

These circumstances may indicate that vibration monitoring is required, especially when the use of vibration-producing work equipment is regular and prolonged.

3.5 **When vapours, fumes or dusts are released regularly**

Where there is uncertainty about the levels of airborne contaminants generated by a work activity, or the consequences of exposure are significant, or the need to confirm the effectiveness of the risk control measures utilised, then workplace exposure monitoring should be requested.

3.6 **When there is exposure to extremes of hot or cold environments**

These circumstances may indicate that monitoring and advice are required to ensure appropriate controls are in place.

4. **How to Request Advice and Monitoring**

Where the need for occupational hygiene monitoring is certain, or where there is simply a request for advice on monitoring due to uncertainty, then departments are requested to complete the form at Appendix 6.

- department;
- location including room number where appropriate;
- type of advice or monitoring: Noise, Vibration, Chemical, Environmental, Design;
- detail equipment, chemical or process to be monitored or advice to be provided;
- detail existing control measures e.g. local exhaust ventilation, sound enclosure;
- detail dates when the equipment or process will be available to be monitored; and
- contact details of the person who Safety Services should liaise with to organise the advice or monitoring,
5. **What happens during the monitoring process**

Upon receipt of the request form, Safety Services will contact the Occupational Hygienist and Department to arrange a suitable date to visit the work location to undertake monitoring. Normally the appointment will be within a couple of weeks of the request form being submitted.

When monitoring is conducted departments must ensure that the equipment, chemical or process generating the hazard is readily available for operation. Any staff involved in the process or operating equipment must also be available. Depending on the hazard being monitored, a member of staff may require to wear a personnel monitoring device in order to measure exposure as close to the person as is possible. The device is usually attached to a collar or lapel and should not interfere with work being carried out or present a risk to the member of staff. The member of staff will have to wear the personnel monitor for a sufficient amount of time in order to gain a representative sample of typical exposure to the hazard. Depending on the work activity this will vary from a few minutes to half an hour or longer in some situations.

In some cases background monitoring will also be conducted whereby a device will be sited within the work location to measure general levels of the airborne contaminant, temperature etc.

When monitoring on site is concluded, the Occupational Hygienist will provide a verbal report back on the initial findings to the members of staff who have participated in the monitoring and their supervisor or line manager. This will then be followed up with a written report once the results have been analysed.

Where monitoring indicates that exposure levels are at or above acceptable limits the Occupational Hygienist will advise Safety Services immediately. Safety Services will liaise with the Department to take immediate corrective action. This may mean the work activity has to stop until additional controls are implemented or suitable personal protective equipment is provided or until the hazard can be controlled by more suitable control measures.

6. **Acting on the Results**

A copy of the monitoring report produced by the Occupational Hygienist will be sent to the person who originated the request, usually the DSC. Where appropriate it will make recommendations on what action needs to be taken to ensure harm to health is eliminated or at least reduced to as low a level as possible. Upon receipt of the report departments must:

- implement the recommendations made in the report as soon as possible. This can be aided by the creation of an action plan detailing action required, persons responsible and timescale for completion. Where further advice is required about the control measures Safety Services can be contacted;
- communicated the monitoring results to those involved in the work activity so that they are aware of the risks to their health and how to risks can be reduced. This could be conducted at a staff briefing session;
- where health surveillance is recommended, discuss arrangements with the Occupational Health Adviser. See Section 7 below. Generally health surveillance will be required where monitoring reveals levels of exposure are above specified limits, and
- ensure the monitoring report and progress with implementation of the recommendations is discussed at the Departmental Safety Committee.
- keep Safety Services advised of progress with implementation.
Where significant changes to the work activity are planned e.g. relocating the work activity to a new location or introducing a new item of equipment, then further monitoring will be required to ensure the change does not have a negative impact on health.

7. **Liaison with Occupational Health Service**

Health surveillance is about systematically watching out for early signs of work-related ill health in staff exposed to certain health risks. Information obtained from health surveillance can help to confirm that the control measures used are effective or where further action may be required. In essence health surveillance is preventative.

Through discussion with the Occupational Health Adviser, departments can find out about the health surveillance required for the specific workplace risk. Departments will need to identify workers involved and allow time for them to complete necessary questionnaires and attend the Occupational Health Service within work time. Prior to health surveillance taking place the Occupational Health Service can deliver a staff briefing or tool box talk to those members of staff about to participate in health surveillance.

Individual results will be discussed with each member of staff at the time of their appointment. Where there are concerns about a member of staff’s health, more frequent health surveillance or assessment may be required either by an Occupational Health Nurse or Physician. All individual health records are treated as confidential and stored confidently by the Occupational Health Service.

When the programme of health surveillance is completed, the Occupational Health Service will provide the department with an anonymised report of the results advising whether there are any health issues emerging.
Sources of information and further reading:

Control of Substances Hazardous to Health Regulations 2002 (as amended) Approved Code of Practice and Guidance - Regulation 11. Free to download from HSE website or HSE Books ISBN 9780717629817

Control of Noise at Work Regulations 2005 - Guidance on the Control of Noise at Work Regulations 2005 – Regulation 5. Free to download from HSE website or HSE Books ISBN 0 7176 6164 4

Control of Vibration at Work Regulations 2005 - Guidance on the Regulations – Regulation 5 - Free to download from HSE website or HSE Books ISBN 978 0 7176 6125 1

Workplace (Health, Safety and Welfare) Regulations 1992 Approved Code of Practice - Regulation 7 Free to download from HSE website or HSE Books ISBN 978 0 7176 0413 5

Health Surveillance at Work (HSG 61) Free to download from HSE website or HSE Books ISBN 978 07176 1705 0

HSE micro site on Temperature

HSE micro site on classification and labelling of chemicals.

Occupational health webpage
Appendix 1 – Noise Monitoring

Hazards
Noise generated by items of work equipment, for example
- grass cutting equipment
- abrasive wheels
- metal cutting equipment
- woodworking machines
- musical instruments
- noise generated by a combination of sources e.g. background noise in a workshop

Impact on Health
Noise can damage the hearing of those exposed to it. This damage can be of a temporary nature lasting from a few minutes to a few days. Regular exposure to excessive noise can cause the destruction of certain inner ear structures, which results in a loss of hearing, which is permanent and irreversible.

Legal Requirements
The aim of the Control of Noise at Work Regulations (CNAWR) is to ensure that workers’ hearing is protected from excessive noise at their place of work and requires employers to prevent or reduce risks to health and safety from noise.

There are specified limits which require action to be taken and others that must not be exceeded. These limits are based on a combination of level of continuous noise and duration of exposure in one day. This is referred to as the daily personal exposure and is measured in decibels, dB. The first level at which action is required to prevent damage to hearing is 80dB and the second which requires further action is 85dB. These are referred to as the lower and upper exposure action values. A level of 87dB must not be exceeded and this is referred to as the exposure limit value.

When is Noise Monitoring Appropriate?
As a simple guide to identifying potential noise problems in the workplace, if you answer ‘yes’ to any of the following questions a detailed noise assessment will be required:
- do staff have to raise their voice to carry out a normal conversation when about 2 metres away for at least part of the day;
- do staff use noisy tools or machinery for more than half an hour a day; and
- is noise generated due to impacts or explosive sources e.g. pneumatic impact tools, cartridge operated tools etc?
- are members of staff experiencing symptoms which may indicate a risk of exposure e.g. ringing in their ears, difficulty in hearing in a social setting etc

Departmental Duties
The University has a duty to assess the risks from noise to staff’s health and safety, where daily personal exposure is at or above the lower exposure action value or at the exposure limit value. To this end departments are required to:
- identify work activities and working environments where noise is intrusive for most of the day;
- arrange for occupational noise monitoring through Safety Services;
- assess the risks to employees from noise at work, using the monitoring results;
- take action to reduce the noise exposure that produces those risks;
- provide employees with hearing protection if noise exposure cannot be reduced sufficiently by using other methods;
- where hearing protection is required, provide suitable storage and regular checks and maintenance of the protection
• supervise the wearing of hearing protection, where necessary;
• ensure the legal limits on noise exposure are not exceeded;
• provide employees with information, instruction and training.; and
• arrange hearing surveillance, through the Occupational Health Service, where there is a risk to hearing. Consideration should be given to providing staff with information about health surveillance in advance of participating in such a programme. Occupational Health can provide suitable staff briefings or tool box talks if required.

Benefits to Departments of Noise Monitoring

• it provides accurate measurements of noise emitted from work equipment and the working environment to establish personal and background exposures;
• it evaluates the risks to hearing and makes recommendations for reducing exposure;
• it determines whether health surveillance is required;
• it determines the effectiveness of existing noise control measures;
• it determines the effectiveness of hearing protection in the particular working environment;
• it helps protect the health of University staff;
• it enables departments to fulfil their legal obligations; and
• it demonstrates the department’s commitment to preventing injury and ill health.
Appendix 2 – Hand-Arm Vibration Monitoring

Hazards
Vibration to hands or arms generated from work equipment, for example

- grass cutting equipment
- hand-held power tools
- pedestal grinders
- chainsaws etc.

Impact on Health
Regular and prolonged exposure of hands and arms to vibration can lead to permanent ill health effects. These include any combination of tingling and numbness in the fingers; loss of strength in the hands; fingers going white (blanching) and becoming red and painful on recovery.

Legal Requirements
The aim of the Control of Vibration at Work Regulations is to ensure that workers are protected from excessive vibration at their place of work and requires employers to prevent or control exposure to prevent ill health conditions.

There are specified limits which require action to be taken and others that must not be exceeded. These limits are based on a combination of the amount of mechanical vibration and duration of exposure in one day. This is referred to as the daily personal exposure and is measured in metres per second squared, m/s². The first level at which action is required to prevent damage is 2.5m/s². This is referred to as the exposure action value. A level of 5m/s² must not be exceeded and this is referred to as the exposure limit value.

When is Vibration Monitoring Appropriate?
Manufacturers’ handbooks will provide an indication of the vibration levels emitted from a particular item of equipment. However, in order to determine the actual amount of vibration generated in the workplace, measurements can be carried out by the Occupational Hygiene Service. This will determine if the exposure action value or exposure limit value have been exceeded.

Members of staff experiencing health symptoms may indicate a risk of exposure that requires further investigation into vibration levels.

Departmental Duties
The University has a duty to assess the risks from vibration to staff’s health and safety, where daily personal exposure is at or above the exposure action value or the exposure limit value. To this end departments are required to:

- identify work activities which generate vibration;
- arrange for occupational vibration monitoring through Safety Services;
- assess the risks to employees from vibration at work, using the monitoring results;
- take action to reduce the vibration exposure that produces those risks;
- ensure the legal limits on vibration exposure are not exceeded;
- provide employees with information, instruction and training; and
- arrange health surveillance, through the Occupational Health Service, where symptoms are experienced. Consideration should be given to providing staff with information about health surveillance in advance of participating in such a programme. Occupational Health can provide suitable staff briefings or tool box talks if required.
Benefits to Departments of Vibration Monitoring

- it provides accurate measurements of vibration emitted from work equipment to establish personal exposures;
- it evaluates the risks to health and makes recommendations for reducing exposure;
- it determines whether health surveillance is required;
- it determines the effectiveness of existing vibration control measures;
- it helps protect the health of University staff;
- it enables departments to fulfil their legal obligations; and
- it demonstrates the department’s commitment to preventing injury and ill health.
Hazards
Vibration transmitted through the feet or seat of work equipment, for example
- ride on grass cutting machines
- tractors

Impact on Health
Whole-body vibration (WBV) is transmitted through the seat or feet of employees who drive mobile machines, or other work vehicles, over rough and uneven surfaces as a main part of their job. Large shocks and jolts may cause health risks including back-pain. Those more at risk from harm are older and younger members of staff, staff with pre-existing back or neck problems and pregnant workers.

Legal Requirements
The aim of the Control of Vibration at Work Regulations is to ensure that workers are protected from excessive vibration at their place of work and requires employers to prevent or control exposure to prevent ill health conditions.

There are specified limits which require action to be taken and others that must not be exceeded. These limits are based on a combination of the amount of mechanical vibration and duration of exposure in one day. This is referred to as the daily personal exposure and is measured in metres per second squared, m/s\(^2\). The first level at which action is required to prevent damage is 0.5m/s\(^2\). This is referred to as the exposure action value. A level of 1.15m/s\(^2\) must not be exceeded and this is referred to as the exposure limit value.

When is Vibration Monitoring Appropriate
Manufacturers’ handbooks will provide an indication of the vibration levels emitted from a particular item of equipment. However, in order to determine the actual amount of vibration generated in the workplace, measurements can be carried out by the Occupational Hygiene Service. This will determine if the exposure action value or exposure limit value have been exceeded.

Members of staff experiencing health symptoms may indicate a risk of exposure that requires further investigation into vibration levels.

Departmental Duties
The University has a duty to assess the risks from vibration to staff’s health and safety, where daily personal exposure is at or above the exposure action value or the exposure limit value. To this end departments are required to:
- identify work activities which generate vibration through the feet or seat;
- arrange for occupational vibration monitoring through Safety Services;
- assess the risks to employees from vibration at work, using the monitoring results;
- take action to reduce the vibration exposure that produces those risks;
- ensure the legal limits on vibration exposure are not exceeded;
- provide employees with information, instruction and training; and
- arrange health surveillance, through the Occupational Health Service, where symptoms are experienced. Consideration should be given to providing staff with information about health surveillance in advance of participating in such a programme. Occupational Health can provide suitable staff briefings or tool box talks if required.
Benefits to Departments of Vibration Monitoring

- it provides accurate measurements of vibration emitted from work equipment to establish personal and background exposures;
- it evaluates the risks to health and makes recommendations for reducing exposure;
- it determines whether health surveillance is required;
- it determines the effectiveness of existing vibration control measures;
- it helps protect the health of University staff;
- it enables departments to fulfil their legal obligations; and
- it demonstrates the department’s commitment to preventing injury and ill health.
Hazards
Dusts, fumes and vapours for example

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dusts</td>
<td>Generated from individual items of equipment such as:</td>
</tr>
<tr>
<td></td>
<td>- Woodworking machines</td>
</tr>
<tr>
<td></td>
<td>Generated from processes such as:</td>
</tr>
<tr>
<td></td>
<td>- Commercial baking,</td>
</tr>
<tr>
<td></td>
<td>- Mixing plaster cast powder</td>
</tr>
<tr>
<td></td>
<td>- Grinding plant material</td>
</tr>
<tr>
<td>Fumes</td>
<td>Solder Fumes</td>
</tr>
<tr>
<td></td>
<td>Welding Fumes</td>
</tr>
<tr>
<td>Vapours</td>
<td>Solvent Vapours such as:</td>
</tr>
<tr>
<td></td>
<td>- Paints</td>
</tr>
<tr>
<td></td>
<td>- varnishes</td>
</tr>
<tr>
<td></td>
<td>- adhesives</td>
</tr>
<tr>
<td></td>
<td>- degreasers</td>
</tr>
<tr>
<td>Chemicals</td>
<td>Other chemicals not mentioned above that are classified as presenting a risk to health through inhalation and carries a risk phrase such as:</td>
</tr>
<tr>
<td></td>
<td>- R20 – Harmful by inhalation</td>
</tr>
<tr>
<td></td>
<td>- R23 – Toxic by inhalation</td>
</tr>
<tr>
<td></td>
<td>- R26 – Very toxic by inhalation</td>
</tr>
<tr>
<td></td>
<td>- R37 – Irritating to respiratory system</td>
</tr>
<tr>
<td></td>
<td>- R42 - May cause sensitisation by inhalation</td>
</tr>
<tr>
<td></td>
<td>- R49 - May cause cancer by inhalation</td>
</tr>
</tbody>
</table>

Please note a new global system for classification and labelling of chemicals is being phased in and is due to be completed by 2015. Therefore the existing risk phrases will be phased out and replaced by new hazard statements such as H331 – Toxic if Inhaled, H332- Harmful if Inhaled, H335 -May Cause Respiratory Irritation.

Impact on Health
Equipment and processes that generate dusts, fumes and vapours could be inhaled and potentially lead to respiratory problems including occupational asthma. In addition fumes may cause irritation to the eyes, nose and throat. Some solvents can also cause headaches, nausea and dizziness. In very high concentrations solvents can lead to unconsciousness and death.
Legal Requirements
The aim of the Control of Substances Hazardous to Health Regulations is to ensure that workers are prevented from being exposed to hazardous substances or where this is not possible to that is adequately controlled.

Exposure to airborne contaminants is measured against established Workplace Exposure Limits (WEL’s). A list of WEL’s is published and updated by the Health and Safety Executive in a document called EH40 available on the HSE’s website.

When is Air Monitoring Appropriate?
The risk assessment process may have identified the presence of an airborne contaminant but it is uncertain whether the level of contaminant is likely to cause ill health or whether it exceeds the WEL recommended by the HSE. Air monitoring would be able to confirm if the quantities generated are likely to cause ill health.

Where suitable controls are installed e.g. local exhaust ventilation, to eliminate or reduce exposure it is necessary to:

a) conduct initial monitoring to confirm controls are appropriate for the level of contaminant produced; and
b) conduct regular monitoring to ensure the controls remain effective through

Members of staff experiencing health symptoms may indicate a risk of exposure that requires further investigation into levels of airborne contaminants.

Departmental Duties
The University has a duty to assess the risks from airborne contaminants to staff’s health and safety and ensure the workplace exposure limits are not being exceeded. To this end departments are required to:

- identify work activities which generate airborne contaminants;
- arrange for air monitoring through Safety Services;
- assess the risks to staff from hazardous substances, using the monitoring results;
- take action to reduce the exposure that produces those risks;
- provide employees with information, instruction and training; and
- arrange health surveillance, through the Occupational Health Service, where symptoms are experienced. Consideration should be given to providing staff with information about health surveillance in advance of participating in such a programme. Occupational Health can provide suitable staff briefings or tool box talks if required.

Benefits to Departments of Air Monitoring
- it provides accurate measurements of airborne contaminants encountered in the workplace to establish personal exposures;
- it evaluates the risks to health and makes recommendations for reducing exposure;
- it determines whether health surveillance is required;
- it determines the effectiveness of existing control measures;
- it helps protect the health of staff of the University;
- it enables departments to fulfil their legal obligations;
- it demonstrates the department’s commitment to preventing injury and ill health.
Hazards
Working in extreme temperatures; hot or cold. Example:

- Glass blowing workshop
- Cold store

Impact on Health
The term ‘thermal comfort’ describes a person’s psychological state of mind and is usually referred to in terms of whether someone is feeling too hot or too cold. Because thermal comfort is psychological, it may affect overall morale. However exposure to extreme temperatures can result in physical as well as psychological symptoms.

Excessive heat can lead to:

- poor concentration
- muscle cramps
- heat rash
- severe thirst - a late symptom of heat stress
- fainting
- heat exhaustion - fatigue, giddiness, nausea, headache, moist skin and
- heat stroke - hot dry skin, confusion, convulsions and eventual loss of consciousness.

Excessive cold temperatures can lead to:

- shivering
- fatigue
- loss of co-ordination, and
- loss of dexterity.

Legal Requirements
Management of Health and Safety at Work Regulations 1999 require a suitable and sufficient risk assessment to be conducted of the risks staff will encounter in their work activity.

The Workplace (Health, Safety & Welfare) Regulations 1992 require temperatures within workrooms to be reasonable and where this is impracticable because of hot or cold processes, measures should be taken to provide a reasonably comfortable temperature. The guidance to the regulations provides a range of 13-16 degrees Celsius.

The most commonly used indicator of thermal comfort is air temperature. But although it is an important indicator to take into account, air temperature alone is neither a valid nor an accurate indicator of thermal comfort or thermal stress. Air temperature should always be considered in relation to other environmental (air temperature, radiant temperature, air velocity and humidity) and personal factors (clothing insulation, metabolic rate).
When is Environmental Monitoring Appropriate?
When the risk assessment identifies that a work activity is conducted in an environment where the temperature is excessively above or below the recommended workroom temperatures.

Members of staff experiencing health symptoms may indicate a risk of exposure that requires further investigation into temperature, air velocity and humidity.

Occupational Health may require detailed environmental information about a work location when undertaking an assessment for fitness for work in extreme temperatures. This information can be used in conjunction with individual member of staff's health condition, medication and physical characteristics and details of the work activity e.g. work rate and duration of exposure to assess their suitability to work in such an environment.

Departmental Duties
The University has a duty to assess the risks from extremes of temperature to staff’s health and safety. To this end departments are required to:

- identify work activities where employees are exposed to extremes of temperature;
- arrange for thermal comfort monitoring through Safety Services;
- assess the risks to staff, using the monitoring results;
- take action to reduce exposure that produces those risks through implementation of administrative or engineering controls; and
- provide employees with information, instruction and training;

Benefits to Departments of Environmental Monitoring
- it provides accurate measurements of temperature and humidity in the workplace;
- it evaluates the risks to health and safety and makes recommendations for reducing exposure;
- it determines the effectiveness of existing control measures;
- it helps protect the health of staff of the University;
- it enables departments to fulfil their legal obligations; and
- it demonstrates the department’s commitment to preventing injury and ill health.
1. Department: ..........................................................................................................................................

2. Type of monitoring required:

<table>
<thead>
<tr>
<th>Noise</th>
<th>Vibration</th>
<th>Chemical</th>
<th>Environmental</th>
</tr>
</thead>
</table>

3. Type of advice required:

<table>
<thead>
<tr>
<th>Noise</th>
<th>Vibration</th>
<th>Chemical</th>
<th>Environmental</th>
</tr>
</thead>
</table>

4. Please provide details of the equipment, chemical and or process and any relevant information about the hazard e.g. vibration levels contained within manufactures’ handbook, quantities of chemical used etc

............................................................................................................................................................
............................................................................................................................................................
............................................................................................................................................................
............................................................................................................................................................

5. Please provide details of any existing control measures e.g. local exhaust ventilation, PPE.

............................................................................................................................................................
............................................................................................................................................................
............................................................................................................................................................
............................................................................................................................................................

6. Location where the equipment is used or process takes place:

............................................................................................................................................................

7. Dates when the equipment or process and personnel who operate the equipment/process will be available for monitoring/advice:

............................................................................................................................................................

8. Contact details of the person who Safety Services should liaise with to organise the advice or monitoring:

Name: .............................................   Job Title ....................................................... ............

Telephone number: ....................................

9. Details of person completing the form:

Name: .............................................   Job Title ....................................................... ............

Telephone number: ...............................