



CS CoP004 - Code of Practice for the safe management of local exhaust ventilation (LEV) systems

Section 1 Introduction

Local exhaust ventilation (LEV) is an engineering control system to reduce exposures to airborne contaminants such as dust, mist, fume, vapour or gas in a workplace.

All work which is liable to expose anyone to any substance hazardous to health must be suitably risk assessed and control measures put in place to control this exposure under the **Control of Substances Hazardous to Health Regulations 2002 (COSHH)**. LEV may be one of the outcomes of this risk assessment and this Code of Practice (CoP) details the health and safety responsibilities of those who manage or use this equipment.

The [Health and Safety Executive \(HSE\)](#) has produced a large volume of information regarding [LEV](#), with a specific guidance document covering the installation, use and testing of LEV systems called '[Controlling airborne contaminants at work: A guide to local exhaust ventilation \(LEV\)](#)' HSG258.

This document provides guidance on the responsibilities for the management of LEV alongside essential information which allows all stakeholders to implement suitable arrangements.

1.1 Potential health effects

Exposure to harmful substances can cause a number of health effects, including occupational asthma and other lung diseases. Many people develop these diseases because they have been exposed to harmful airborne contaminants that have not been adequately controlled.

We have published specific guidance, or links to guidance, for a number of substances or types of substances, as follows:

- [Chemical substances](#)
- [Biological substances](#)
- [Radioactive substances](#)
- [Other substances, such as wood dust or welding fumes](#)

The specific guidance notes should be used in conjunction with this CoP to identify the most appropriate control measure for the substances you are working with.

1.2 Workplace exposure limits (WEL)

Many such substances have a 'Workplace Exposure Limit', published within the '[EH40/2005 Workplace exposure limits](#)' document by the Health and Safety Executive. This document lists all substances with a WEL and what those limits are, which are legal limits that those working with the substances can be exposed to, although under COSHH exposure should be reduced to as low as reasonably practicable in most cases.

However, there are also a number of substances which do not have a WEL but where exposure



must also be controlled and reduced to as low as reasonable practicable. Examples include animal allergens or mutagens. Your risk assessment, see section 2.4, should highlight if there is a WEL or if the substances fall within the non-WEL category.

1.3 Types of LEV

Typical examples include fume cupboards, glove boxes, microbiological safety cabinets, 'elephants' trunk extraction systems or on equipment extraction. The installation and management responsibility of these depends on which type of system it is.

Fixed LEV systems

These systems typically encase the process/capture the substance (e.g. non-recirculating fume cupboards) or extract at source (e.g. on equipment extraction) which then vent into ducting with the contaminant being taken away and expelled into the outside atmosphere, usually by means of a fan toward the end of the system. Some systems also incorporate a scrubber/cleaning element to remove hazardous elements prior to expelling or collect the substance in a hopper collection system. These systems are generally not movable or only slightly mobile (extraction arm only).

Mobile LEV systems

These systems are usually standalone units with an inbuilt filter which 'clean' the contaminated air of the hazardous system or process prior to releasing the air back into the room (e.g. recirculating fume cabinet or mobile filter units with a collection unit, similar to a vacuum, or exhaust systems on soldering irons). These are typically mobile units which can be moved between rooms or labs.

Specific guidance has been produced on the most appropriate use of the typical systems found at the University:

- [Chemical substances](#)
- [Biological substances](#)
- [Radioactive substances](#)

1.4 Installation and design

Details of the [design requirements for a basic fume cupboard for installation](#) in this University can be found online within the [Estates design guidelines webpages](#).

Cognisance should also be taken of the [Laboratory ventilation policy and guidance](#) developed by the Sustainable Labs Steering Group.

Any new design or design change must be discussed with Estates Department.

Following installation, a user manual must be supplied by the installation company to the end users to ensure all users are aware of the technical requirement for safe usage, checks and maintenance. This user manual may be in two parts, with the basic user instructions kept by the School/Department and the technical document kept by Estates Department for fixed LEV, or the School/Department for mobile LEV.



1.5 Statutory testing

All LEV, including fume cupboards, ducts and associated extract equipment must be examined and tested within a 14 month cycle under Regulation 9 of the COSHH Regulations. Some specialist equipment, such as microbiological safety cabinets in category 3 or derogated category 3 labs, require to be tested every 6 months, see the individual guidance notes published by the Health and Safety Department for details, see section 1.3.

If there are reasons to suspect that usage of the LEV system is liable to mean that the system effectiveness will degrade between tests, for example if highly acidic substances are used in the fume cupboard which could corrode the ducting, then thorough examinations and tests should be more frequent. If this is the case, the School etc. must notify Estates Department for fixed LEV, or arrange this locally for mobile LEV. The risk assessment for the process should highlight if this is a potential issue.

The Health and Safety Executive guidance document called [Controlling airborne contaminants at work: A guide to local exhaust ventilation \(LEV\) HSG258](#) is the industry standard for these tests.

Fixed LEV systems

Estates Department manage the central contract for testing of all fixed LEV, which includes not only the worker interface but also any ducting and fans.

Mobile LEV systems

Schools/Departments must arrange their own testing programme for any mobile LEV equipment.

The following is normally required to be provided for this statutory testing:

- the commissioning report;
- user manual which should cover details of any thorough examination and testing work;
- the log book recording checks and maintenance activities;
- full access to the system and cooperation of relevant staff;
- information about the health risks, from residues within the systems by the School; and
- information about the safety risks from mechanical parts of the LEV, work at height, electricity, manual handling and moving vehicles.

If a user manual is not available, Schools must liaise with Estates Department to arrange for the production of these documents for fixed LEV systems, and with the manufacturer directly for mobile LEV systems.

If a log book is not currently used or held by Schools, this must be implemented and held with the equipment.

LEV testers, whether managed by Estates or Schools, must be met locally and supervised as appropriate during their visit. They must be informed of any local hazards that may impact them on site and given a short introduction to the site. Appendix 3 shows an example induction form which should be amended to suit local situations.



Section 2 Organisation and management responsibilities

2.1 Estates Department

2.1.1 Director of Estates Operations

The Director of Estates Operations is responsible for the contract for the statutory testing for all fixed LEV systems.

Estates Department is responsible for any and all parts of the fixed LEV system once it enters the wall of a building and until it leaves that building. This includes the maintenance and replacement of ducting and fans. Estates Department are also responsible for the extract or intake vents which are usually on the side of the building or on roof spaces. As above, collection systems, such as the regular emptying and routine maintenance of hoppers, are the responsibility of the school, even if these are sited outwith buildings.

Appendix 1 shows some typical schematics for fixed ventilation systems indicating Estates and School responsibility divisions.

Specific tasks undertaken are detailed in the [Estates Engineering design guide no 3 mechanical engineering services 2020](#).

2.1.2 Head of Building Services

The Head of Building Services manages the contract for the above mentioned scheduled statutory testing regime for fixed LEV systems, section 1.5.

This includes:

- ensuring a system is in place with the testing companies on a suitable process for access, reporting and remedial actions required following any testing.
- maintain a register of fixed LEV systems to support the testing regime, on SharePoint
- have a process in place to highlight to Schools if there are any failures or remedial actions which necessitate immediate actions, or plan any longer term remedial actions, in conjunction with the School.
- manage the regular replacement of filters in fixed LEV systems, if the responsibility of Estates Department, through their PPM system
- manage the contract in liaison with Procurement Office

2.1.3 Building Services Engineer (BSE)

Manages the day to day contact with the contracted LEV testing companies. All outcomes of statutory testing will be supplied by the contractor to the BSE who will liaise with the School/Department on repairs, putting equipment out of use, manage any other outcomes of the testing as appropriate.

Should more extensive repairs or a replacement programme be required, the BSE will act as liaison between the School/Department and Estates Department.



2.1.4 Replacement of fixed LEV infrastructure

Estates are in the process of investigating how an end-of-life replacement programme for all fixed installation LEV will be implemented, including the maintenance of a register, as above, which will inform this replacement programme. Whilst this programme is being developed, any replacements due to end of life or use change must be discussed with Estates in the first instance.

2.2 School/Deanery

2.2.1 Head of School/Deanery (or equivalent)

The Head of School/Deanery is responsible for the health and safety of the staff and students in their area (University Health and Safety Policy and Framework). They must ensure that suitable arrangements are in place to implement this Code of Practice and that there is suitable monitoring arrangements to advise them that appropriate control measures are in place to fulfil their responsibilities.

2.2.2 School/Departmental responsibilities

Schools/Departments (henceforth referred to as schools in this CoP) have responsibilities for the safe management and use of both fixed and mobile LEV. The arrangements in place locally of these responsibilities (for example devolved to Building or Facility Managers, or Laboratory Managers) must be detailed in local processes or guides.

For all types of LEV systems, local safety checks as appropriate, such as face velocity testing, Magnahelix gauges or KI discuss testing, must be undertaken. If the LEV is being used in a novel or unusual way, and this could result in the requirement for more frequent testing, the School must ensure this testing is put in place, in conjunction with Estates Department for fixed LEV or directly with the testing company for mobile LEV.

Schools should also have in place a replacement programme for the timely replacement of older or broken mobile LEV equipment. Any consequences of these replacements for infrastructure must be discussed in advance with Estates Department, prior to the replacement programme being implemented.

A replacement programme for fixed LEV is managed by Estates Department in conjunction with schools, see Estates section 2.1.4.

Responsibilities include:

Fixed LEV systems

- ensure that any new installations are agreed with Estates Department, see Design guides in section 1.4
- responsible for any ongoing maintenance or replacement of the capture element of the LEV system via the usual route of reporting to the Estates Helpline
- ensure that no significant changes are made to the system which may impact the ventilation system of the laboratory/building without the agreement of the Estates Department
- keep a log book of user checks, dates of these checks and by whom, types of usage –



example log book at appendix 2

- ensure any information on the LEV system is held securely and available for inspection and use by those who require it, for example for statutory testing of the system, see section 1.5, or when repairs are required
- ensure staff are available to support the contractors undertaking the LEV testing, including undertaking a short induction session
- arrange for suitable filter replacement, if required, usually via Estates Helpdesk
- ensure that any faults are reported via the correct channels (Building /Facility Manager, Estates Helpdesk etc.)
- for a safety critical failures, equipment must be put out of use immediately (this will include if the continued use would put users at risk of exposure)
- ensure equipment is available for regular inspection and testing and that usage information is given to the tester

Mobile LEV systems

- ensure that any mobile unit does not interfere with the general ventilation of the space, liaison with Estates Department may be required
- keeping a log book of user checks, dates of these checks and by whom, types of usage – example log book at appendix 2
- ensure any statutory testing is arranged and undertaken. The information listed in 1.5 must be available for any statutory testing
- ensure staff are available to support the contractors undertaking the LEV testing, including undertaking a short induction session
- arrange for suitable filter replacement
- maintain a register of all school equipment, both for statutory testing management as well as insurance and replacement
- ensure that any faults are reported via the correct channels and equipment put out of use if required (this will include if the continued use would put users at risk of exposure)
- ensure that the equipment is not altered locally with the effect of reducing its efficiency

2.2.2 PI/Supervisor

It is the responsibility of this position (henceforth, the title of ‘Supervisor’ includes any managerial position for the purposes of this CoP) to ensure the health and safety of staff or students under their supervision.

- ensure that suitable and sufficient risk assessments (RA) are in place for all work which is liable to expose anyone to any substance hazardous to health
- ensure all those possibly affected are aware of the outcome of this RA
- ensure that the appropriate LEV is identified and sourced, in conjunction with Building/Facility manager and Estates Department (if appropriate) following suitable procurement routes and installation guidelines
- ensure that any equipment that is faulty is put out of use and reported following local process
- ensure sufficient supervision of staff/students in the use of LEV equipment



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- provide or ensure that training in the correct use of the LEV equipment is provided in a timely manner
- Represent the School as a user at any Estates and School liaison meetings following any major faults or system shut downs following statutory testing, if required

2.2.3 Staff

Staff have specific responsibilities as follows:

- read and understand the outcome of the risk assessment and any associated School protocols for the work
- undertake training provided on working safely with the LEV equipment
- use the equipment as trained including completing the user checks and recording these in the log book
- report to supervisor any issues with the equipment, for example if alarms are sounding which cannot be fixed and turned off at source
- follow all other safety protocols provided, such as not using any equipment marked up as out of use or unsafe to use

2.2.4 School Safety Adviser/Manager

School Safety Advisers/Managers have the same core responsibilities as set out in the Health and Safety Policy and Framework but may have additional responsibilities within their areas, but listed are the minimum:

- support and provide advice to PI/Supervisor/staff on risk assessment process and best available control measures
- ensure that a suitable audit system is in place to be used to monitor the implementation of the Code of Practice and provide a review to the Head of School at suitable intervals
- provide or assist in providing local training as required following risk assessment
- raise any concerns and act as a link between Health and Safety Department and School/Department
- assist in the investigation of any suspected or confirmed cases of ill-health attributed to exposure to substances hazardous to health
- Represent the School at any Estates and School liaison meetings following any major faults or system shut downs following statutory testing, if required

2.3 Corporate Health and Safety Department

2.3.1 Occupational Hygiene Unit

- Provide guidance and advice on control measures for staff using substances hazardous to health except for biological or GM substances, or radioactive substances, see below
- Assist with organising exposure monitoring measurements, if applicable
- Assist the School Safety Adviser/Manager in investigating suspected or confirmed cases of ill-health if required



- Represent the Health and Safety Department as an external adviser at any Estates and School liaison meetings following any major faults or system shut downs following statutory testing, if required

2.3.2 BioSafety Unit

- Provide guidance and advice on control measures for staff using biological or GM substances
- Assist with organising exposure monitoring measurements, if applicable
- Assist the School Safety Adviser/Manager in investigating suspected or confirmed cases of ill-health if required
- Represent the Health and Safety Department as an external adviser at any Estates and School liaison meetings following any major faults or system shut downs following statutory testing, if required

2.3.3 Radiation Protection Unit

- Provide guidance and advice on control measures for staff using radioactive substances
- Assist with organising exposure monitoring measurements, if applicable
- Assist the School Safety Adviser/Manager in investigating suspected or confirmed cases of ill-health if required
- Represent the Health and Safety Department as an external adviser at any Estates and School liaison meetings following any major faults or system shut downs following statutory testing, if required

2.4 Risk assessment

A COSHH risk assessment must be undertaken to assess the risks of substances hazardous to health.

This can be incorporated into other risk assessments for a process, or be a standalone risk assessment, depending upon the circumstances.

Guidance on COSHH and COSHH risk assessments can be found at

- [General COSHH](#)
- [Biological agents](#)
- [Ionising radiation](#)
- [Non-ionising radiation](#)

depending upon the hazardous substance.

Bear in mind that in some processes, more than one type of hazardous substance, for example chemical and radiation, may need to be assessed and controlled.

This [risk assessment should follow the hierarchy of control](#), and identify which, if any, LEV system is most appropriate for the tasks to be undertaken.



2.4 Training and Supervision

2.4.1 Training

All staff/students must be trained appropriately in how to safely undertake their jobs. This includes how to correctly use the equipment to adequately control exposure to substances hazardous to health.

Staff/Students affected must be informed of the outcome of the risk assessment, the controls which have been put in place to reduce the risk and then trained in the use of the LEV systems/equipment in use. Training should include what any warning signals from the equipment mean and what to do in those situations.

2.4.2 Supervision

PI/Supervisors must monitor their staff and students for compliance in the use of control measures and meeting training requirements.

The level of supervision must also be appropriate, based on the competence level of the staff or student.

3.0 Summary of key requirements

Role	Responsibility
Estates Department	Manage the contract for statutory testing of fixed LEV systems
Estates Building Services	Liaise with school on repairs/replacements following statutory testing
	Keep a register of LEV systems and manage the replacement programme
Head of School	Implement this CoP
	Identify and appoint suitable person to manage the safe use and maintenance of LEV systems, both fixed and mobile
School representative	Liaise with Estates Department on LEV testing contract for fixed installations



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	Ensure contract is in place for the statutory testing of mobile LEV
	Ensure a log book is kept for all LEV under their management and this is made available for statutory LEV testing
	Ensure any LEV systems deemed as unsafe is taken out of use and repairs made
PI/Supervisor	Ensure a risk assessment is undertaken and, if LEV is identified as a suitable control measure, that all under their supervision are trained in the safe use and management of that LEV
	Liaise with School representative to ensure any LEV systems deemed as unsafe is taken out of use and repairs made
Staff	Follow all instructions on using, or not using, LEV systems
School Safety Adviser/Manager	Support the school in undertaking suitable risk assessments and training as required
	Ensure a suitable audit system is in place to monitor the implementation of this CoP

Document version

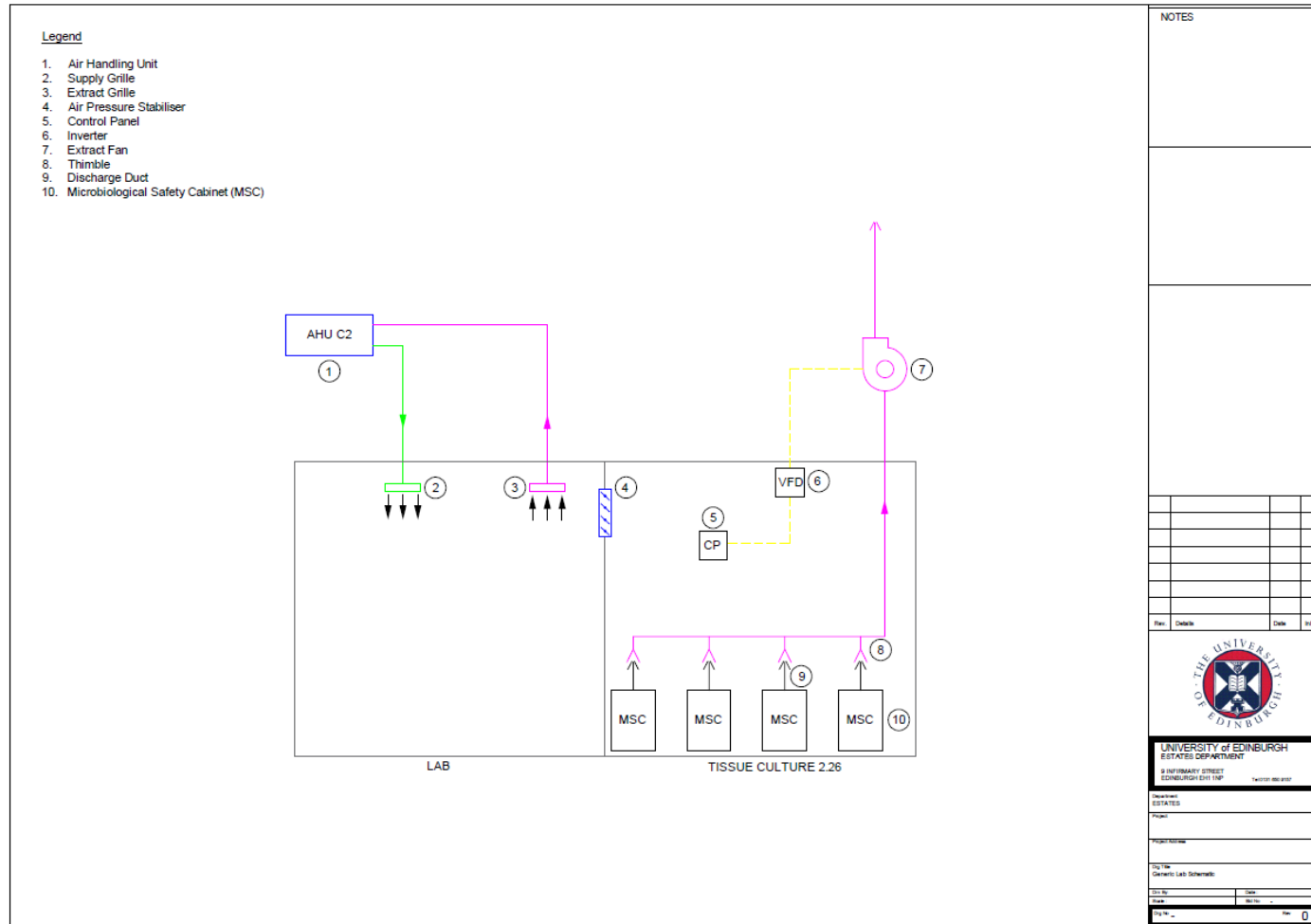
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Appendix 1 – schematics showing division of responsibility

Typical Lab system:



- Position 10: by the school / lab;
- 1- 9: school / lab users: day to day visual checks and fault reporting;
- 1- 9: maintenance: Estates operations.



Appendix 2 – example log book

User LEV logbook example – not all checks will be required for all types of LEV

ID no and description of LEV system						
Type of check	Frequency of checks	Date checked	By whom	Outcome	Remedial actions and by whom	Date actioned
Hood integrity – no cracks or other faults	<i>At each use but a more thorough check should be undertaken regularly and recorded on this form</i>					
Airflow indicators operational and at correct level for LEV	<i>At each use but a more thorough check should be undertaken regularly and recorded on this form</i>					
Sash operational and in good repair	<i>At each use but a more thorough check should be undertaken regularly and recorded on this form</i>					
Filters in date	<i>At each use but a more thorough check should be undertaken regularly and recorded on this form</i>					
Filters correct for contaminant	<i>Must be checked if a new or different process is begun using the LEV equipment</i>					
Fan noise appears consistent (not	<i>At each use but a more thorough check should be</i>					



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louder or quieter than normal which could indicate a fault)	<i>undertaken regularly and recorded on this form</i>					
Movable hood – capture zone clearly identified	<i>At each use but a more thorough check should be undertaken regularly and recorded on this form</i>					
Thorough examination and testing undertaken	<i>Managed by Estates Department for fixed LEV and by the School for mobile LEV – must be undertaken at least every 14 months. Local check would be checking the date on the sticker affixed to the LEV. If the test is more than 14 months ago, LEV to be put out of use and reported and testing arranged</i>					

More guidance on good practice and use can be found at:

- Chemical substances at <https://www.ed.ac.uk/health-safety/policy-cop/cop/cop-cs>
- Biological substances at <https://www.ed.ac.uk/health-safety/biosafety/policy/guidance/containment-and-controls>
- Radioactive substances at <https://www.ed.ac.uk/health-safety/radiation-protection/codes-of-practice-and-guidance/guidance-notes>

Thorough checks include a more formal look over the items detailed with a record of that check recorded on this form. The more thorough user check may be undertaken by an identified staff member, such as a Technical Manager, Laboratory Supervisor etc. as opposed to daily users.



Appendix 3

Sample induction form for contractors on site, amend as required for local situation. A copy should be given to the contractor once completed with a copy held locally.

A.	Policy	Yes
	If appropriate, highlight the relevant local Health and Safety Policy	
	[enter URL of local Health and Safety Policy]	
B.	Procedures	
	The local emergency procedures, relevant to the school/buildings the contractor will be frequenting	
	[enter local procedures here]	
C.	Accidents and Incidents	
	The local system for reporting and recording accidents, incidents, near-misses and instances of occupational ill-health	
	<ul style="list-style-type: none"> • Online at https://www.edweb.ed.ac.uk/health-safety/accident-reporting • specify the relevant school contact. 	
D.	School Health and Safety Contacts	
	The names and details of health and safety contacts within the School	
	<ul style="list-style-type: none"> • SSA (<i>Specify</i>) • BSO (<i>Specify where applicable</i>) • RPA (<i>Specify where applicable</i>) • Fire Stewards (<i>Specify</i>) • First Aiders (<i>Specify</i>). 	
E.	Risk Assessment and control measures	
	The findings of relevant risk assessments – ensure contractors are informed of any hazards or risks they may encounter, for example, exposure to animal allergens, electricity, confined spaces etc. and what control measures they must follow. Add lines to this form to detail those hazards – the following are simple examples	
	- Animal allergens – do not enter rooms with animal out of cages, contact [enter contact details] for assistance, symptoms include itchy or runny nose after exposure, or an allergic reaction. Report to your own employer if you experience any of these symptoms after attending an animal facility	
	- Electricity – do not enter room XXX without supervision	
	- Confined space – undercroft is classed as a confined space, must not enter unsupervised	



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F.	Safe Systems	
	Inform contractor if there are specific Safe Systems or Work or Safe Operating Procedure they must follow, for example Permit to Work, Hot Works Permit etc.	
G.	Information and Advice	
	Who to contact in case of emergency, general support required whilst on site or to raise a health and safety concern – please provide a contact number, preferably a mobile number, to obtain assistance or report an issue or concern [enter name and contact number – this could be more than one person]	
H.	Additional Information as required, please detail	
	Anything else pertinent to the site visit	
Name of staff member undertaking induction:		
Job Title:		
Date of site visit:		
Name and signature/s of contractor:		
Company name:		