

Local Rule: Installation and Use of Local Exhaust Ventilation (LEV)

1. Potential Health Effects

Each year, large groups of workers develop 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.

Work that produces or generates toxic or harmful dusts, fumes, vapours, gases or chemical aerosols, should be carried out using suitable local exhaust ventilation (LEV) such as a fume cupboard in order to eliminate or reduce the risk of exposure to an acceptable and safe level. The Control of Substances Hazardous to Health 2002 (as amended) Regulations (COSHH) requires that a risk assessment is carried out for all work involving such substances which may identify the need for LEV in the workplace. The predominant type of LEV used in the University is the laboratory fume cupboard; however there are a wide range of other systems across the campus and this document sets a management standard for all. There are supporting practical guidance documents for further detail.

2. Key Definitions

Local Exhaust Ventilation (LEV) - System is a means of containing or extracting hazardous dusts/fumes/vapours/aerosols away from the operator to be safely discharged to the atmosphere, or a containment receptacle.

Fixed LEV - Is a system that is integrated into the fabric of the building

Mobile LEV - can be easily transported across the department to be affixed to different processes if required.

Fume Cupboard - A ventilated enclosure for conducting experiments with chemicals that produce or generate harmful vapours which contains the spread of fumes to operators and other personnel. It is ventilated by an induced flow of air through adjustable apertures that dilute the fumes by means of an extract system which provides for the release of fumes¹ remotely and safely. The University follows the British Standards DD CEN/TS 14175-5:2006 and BS.EN 14175-2 2003 with regard to the connection, installation and commissioning of fume cupboards. The University currently has no ductless fume cupboards and their installation is not encouraged advice should be first sought from Safety Services before purchase.

Microbiological Safety Cabinets (MSC) – Are ventilated enclosures which offer protection to the user and environment from the aerosols arising from the handling of potentially hazardous biological material which filtrate the air as it is discharged. Separate University guidance is available in Local Rule; Safe use of Microbiological Safety Cabinets.

¹The word fume encapsulates gases, vapours, aerosols, particulate matter in the air constituting one or more of the following hazards:

- Toxicity
- Flammability
- Chemical Activity
- Radioactivity
- Discomfort, i.e. lachrymosis, objectionable odours

3. Departmental Roles and Responsibilities

3.1 Nominated Co-ordinator(s)

Departments are responsible for the day to day management of all LEV systems and for ensuring these are used appropriately by staff, students and visiting researchers. A member(s) of staff must therefore be identified by the Head of Department who will co-ordinate the arrangements associated with the LEV systems.

This person may also be required to maintain the University's central register for LEV, provide instruction on safe use, cleaning arrangements, safety checks and conduct face velocity tests if required. If a department has purchased fixed or mobile LEV systems (except fume cupboards), the co-ordinator must keep the commissioning documentation, maintain a register of maintenance for this, arrange the statutory thorough examination and test and update the Central Register, in line with this Rule and the HSE Guidance.

3.2 Department of Estates Services

- must ensure that external companies or institutions that occupy space on University premises are advised of the need to meet standards within this Rule for the use and testing of all LEV in their area;
- maintain a University Register of all LEV and this is reviewed annually;
- if fixed LEV has deteriorated and requires to be replaced the Director of Estates Services ensures that support can be provided to departments to manage arrangements which allow the work to be planned accordingly and LEV replaced in an appropriate timescale. Resource allocation for replacement of LEV is managed according to Estates Services' written protocols which covers all LEV; and
- provide advice on selection, quotation/tender documents, installation and commissioning of all LEV.

4. Identifying the Hazards, Assessing the Risks and Selecting LEV

Following a suitable and sufficient COSHH assessment, departments may identify that suitable LEV is required for research or a work activity (University guidance on COSHH is available). If a suitable LEV system is not already available and a new installation is necessary the department will be required to liaise with members of Estates Services (Operations and Maintenance) for advice on the selection and installation of LEV. This includes advice on drawing together an appropriate quotation/tender document.

To prevent repetition the HSE Guidance must be read in conjunction with the following document- Controlling airborne contaminants at work, HSG258 available to download (www.hse.gov.uk/pubns/priced/hsg258.pdf).and should be referred to for the specific guidance criteria for considerations by suppliers, designers and installers for all such work as the desired standard to achieve.

Estates Services (Project Management/Engineering) must ensure that any fixed installation is managed in line with HSG258 from specification and purchase through to the commissioning tests. It is the responsibility of the Estates' Project Manager to work with the department, along with the appropriate consultant, to consider both the dilution factor and the aerosol factor along with the final exit point of the fume from the University building. **Prior** to the installation of fixed LEV all relevant information must be exchanged and supplied by the department concerned as requested by the designated Project Manager . The efficiency of an LEV and in particular, fume cupboards depends on a number of factors and relies on the proper selection, design and siting. LEV can be very effective in controlling airborne contaminants; however it is essential that there is no possibility of the contaminated air being drawn back into the workplace. Consideration must be given by both Estates Services and the department concerned to the environmental impact of any material being exhausted to the atmosphere and the design of the system.

5. Responsibility for Statutory Thorough Examination, Testing and Record Keeping

All LEV, including fume cupboards, ducts and associated extract equipment must be examined and tested within a 14 month cycle in accordance with the COSHH Regulations. If wear and tear on the LEV system is liable to mean that the system effectiveness will degrade between tests, then thorough examinations and tests should be more frequent.

Fume Cupboards

Both the department and Estates Services must work together to complete the required statutory examination and testing of fume cupboards. Estates Services engineering staff liaise with the nominated departmental co-ordinator to initiate the planned work and ensure it is carried out concurrently. The nominated departmental co-ordinator and LEV Examiner from Estates will therefore need to co-operate to carry out the testing at the same period and to ensure minimal risk for staff that may be affected by the work. A "Fume Cupboard Permit to Work" controlled by Estates Services for fume cupboards must be completed prior to any work by Estates' staff.

Estates Services will undertake the required statutory thorough examination and testing of fume cupboards, except face velocity testing (department responsibility), following the arrangements within HSG258' in the workplace that are applicable. Both parties working together will follow a standard documented procedure and all persons will have received appropriate training.

All Other LEV

Departments are responsible for ensuring all other LEV receives appropriate maintenance and the required statutory examination and test in line with HSG 258. Estates Services can provide advice to departmental staff on this matter and also appropriate companies who can be contacted to conduct this work if required. Departments will keep all commissioning documents to provide to the LEV Examiner. The guidance provided in [Guidance for Departments Engaging External Service Providers](#) must be used for any use of external contractors servicing LEV. It is required that the examination and testing of the whole LEV system is carried out at the same time for completeness.

Recording

All statutory examination and testing should be recorded in a central University Register and clearly displayed near/on the LEV for any operator to see in line with current guidance (pass/fail marking). This register will be readily accessible to designated staff in Estates and Departments. The condition of all LEV will be recorded in the University Register to assist planned maintenance and budget planning for replacement by the University and department as appropriate.

The University Register will indicate the location and identify the status of each LEV system as follows:

Status of LEV	Description
Good	Meeting the current standards.
Fair	Meeting the standards, but with evidence of deterioration in the system.
Poor	Showing signs of significant deterioration; a replacement fume cupboard/ extract system and/or ducting requires to be scheduled.
Fail	Below standard – taken out of use

Heads of Departments should be advised by their nominated co-ordinator of the information held on the Register regarding the condition of LEV in their area. Any required replacement work will be conducted in a reasonable timescale. Safety Services will advise the University's Statutory Advisory Committee on Safety and Occupational Health on an annual basis on the outcome of the review conducted by the University group set up to monitor this.

Suitable records of the examination/testing and any repairs will be kept for at least five years in accordance with the HSE Guide

6. Provision of Information, Instruction and Training

The LEV Examiner, whether in-house or external to the University, needs to know the risks within the system under test and must be provided with:

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

Staff/students require to be provided with instruction on the safe use and cleaning of the LEV provided.

Nominated co-ordinator must be provided with appropriate training to ensure they are competent to carry out their role which will cover use of any equipment for face velocity testing.

The University provides relevant training accessible to both staff and students.

7. University Record of Use of LEV and Register

The University, through the Register, will maintain a record of the types of chemicals/materials used in all fixed LEV systems and location to enable risk assessments for work at roof level, on the plant and for any removal of the plant and ducting in the future. It is necessary to record the incidence and use of significant hazardous substances used throughout the lifetime of the LEV. This will be achieved through the capture of information on the permit form used to initiate the testing and examination on an annual basis. There is a current legal requirement for radioactive material released within a fume cupboard and dispersed to atmosphere to be recorded and it is deemed sensible in order for Estates Services to safely dispose of all parts of the LEV when it, or possibly the building in which it is housed, comes to the end of its life cycle, to record other hazardous material.

* Log books content will be introduced for all new installations and for all others this will be in place by 2016 through a rolling programme. The University will continue to maintain information as required and gradually replace over the period indicated.

8. Monitoring

Occupational Hygienist Services

The effective use of LEV systems for controlling airborne contaminants can be validated by the services of the University's Occupational Hygienist engaged through Safety Services. Different methods can be used to sample air, detect substances and analyse performance of the extract system. All departments have access to this service which carries no charge. Safety Services can also provide specialist advice on selection of containment and control measures in association with COSHH assessments.

LEV condition and replacement

The University Register for LEV is independently reviewed annually by the Head of Chemistry, the Head of Safety Services, and the Faculty Representatives for Science and Engineering and a report submitted to the University's Safety Committee.

9. Further Information

- Controlling Airborne Contaminants at Work: A Guide to LEV (HSG258)
www.hse.gov.uk
- Safety Services [Webpages](http://www.strath.ac.uk/safetyservices/) - <http://www.strath.ac.uk/safetyservices/>
- University Local Rules on [Control of Substances Hazardous to Health](http://www.strath.ac.uk/safetyservices/localrules/)
<http://www.strath.ac.uk/safetyservices/localrules/>
- University Local Rule [DSEAR](http://www.strath.ac.uk/safetyservices/localrules/) information
<http://www.strath.ac.uk/safetyservices/localrules/>
- University Hazardous Waste Service
- University [Training](http://www.strath.ac.uk/safetyservices/healthandsafetytrainingnew/) Information
www.strath.ac.uk/safetyservices/healthandsafetytrainingnew/
- Health & Safety Executive - www.hse.gov.uk
- Scottish Environment Protection Agency - www.sepa.org.uk

The following summarises how departments can effectively implement this Local Rule and integrate it into its management systems. These processes will be monitored as part of Safety Services' Audit Programme, and where departments are able to demonstrate fulfilment of key actions, this is likely to provide strong evidence of good practice.

		Key Management Actions
1.	Departmental Roles	<ul style="list-style-type: none"> • Estates Services will maintain a central register for all LEV. • Estates Services will carry out statutory thorough examination and testing for fume cupboards except face velocity testing and advice on/manage all installation of fixed LEV. • Estates services will keep private companies on site apprised of this Local Rule where relevant. • Heads of Department will appoint suitable nominated co-ordinators to ensure all LEV is suitably tested and staff and students are trained appropriately on operating LEV. The nominated co-ordinator may be responsible for carrying out face velocity tests for LEV. •
2.	Identifying Hazards and Assessing Risks	<ul style="list-style-type: none"> • All Heads of Department will ensure that arrangements are in place so that all work activities and processes are appropriately risk assessed and where LEV is an identified control used properly. •
3.	Implementing Control Measures – Responsibility Design and Safety Installation and Use	<ul style="list-style-type: none"> • All design and installation work in the University for fixed LEV will be co-ordinated/managed by a project manager from Estates Services and be in line as far as reasonably practicable with the HSE Guidance HSG258. • Departments who wish to change or install new LEV will consult Estates Services Engineering section. • The University will maintain, through Estates Services, a Register accessible to departments to facilitate planned maintenance and replacement in a safe manner. •
4.	Recording of Thorough Examination and Testing	<ul style="list-style-type: none"> • All LEV will receive a statutory thorough examination and test in every 14 month period. • All such tests will be recorded appropriately and will as far as is practicable follow the HSE Guidance HSG258. Log book content will be provided for all new installations and all existing installations by 2016.
5.	Providing Information, Instruction and Training	<ul style="list-style-type: none"> • All staff, students and visiting researchers will be given adequate training to ensure they are familiar with the LEV system and understand its safe use. • The nominated co-ordinator will be provided with adequate training to undertake their role. • Estates Services' LEV examiners will be trained in accordance with HSG258.