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UNIVERSITY OF BATH HEALTH AND SAFETY STANDARD

Safe Use of Local Exhaust Ventilation (LEV)

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Aims	The University is committed to ensuring the health, safety and welfare of all staff, students and visitors. In order to achieve this, control measures to prevent and minimise exposure to hazardous substances to as low as reasonably practicable, must be implemented as identified by risk assessment. One of the most common and effective control measures employed in University facilities is Local Exhaust Ventilation (LEV). This standard aims to provide the necessary information to use them safely and effectively.				
Scope	This standard applies to work tasks, including teaching activities, carried out using local exhaust ventilation as a control measure as defined below. This includes fume cupboards, microbiological safety cabinets, laminar flow cabinets, gloveboxes and LEV hood systems used in workshop type environments e.g., for removal of dusts, welding fumes etc. **This Standard supersedes the Safe Use of Fume Cupboards Standard**.				
Relevant Legislation	• Health & Safety at Work etc. Act 1974 (HASWA) • The Management of Health & Safety at Work Regulations 1999 (MHSWR) • Control of Substances Hazardous to Health Regulations 2002 (COSHH) • COSHH Approved Code of Practice and guidance • HSE HSG258 A Guide to Local Exhaust Ventilation (LEV) • HSE Guide to LEV				
Definitions	Users Any person who uses an LEV system, including staff member, postgraduate, undergraduate student				
	Local Exhaust Ventilation (LEV) An engineering control system used to reduce exposure to airborne hazardous substances such as dust, mist, fume, vapour or gas in a workplace by capturing and extracting the hazardous substance at the source of the emission.				
	Fume Cupboard (Also known as fume hoods, fume cabinets or chemical hoods) A type of local ventilation device that is typically a large piece of equipment enclosing five sides of a work area with a moveable sash window, the bottom of which is most commonly located at a standing work height. They can be ducted or recirculating (ductless). For both types air is drawn in from the front (open) side of the cupboard, and either expelled outside the building (ducted) or made safe through filtration and fed back into the room (ductless). It functions by maintaining a relatively negative pressure in the interior of the fume cupboard to prevent any contaminant from escaping while drawing air in through the hood opening at a consistent rate. Fume cupboards shall comply with relevant safety requirements specified in BS EN 14175-2:2003				

	Face Velocity The speed at which air is drawn into the fume cupboard or microbiological safety cabinet. This defined for fume cupboards as 0.5m/s for hazardous substances. *(CoSHH Control Guidance Sheet 201 Fume Cabinets)*. For Class II microbiological safety cabinets (most common type at the University) this is 0.4m/s.
	Efflux Velocity The speed at which fume exits from the roof stack at the point of discharge. This efflux velocity should not normally be less than 7 m/s however a design figure of 10 m/s is preferable *(Fume Cupboards Part 2: Safety and Performance requirements BSEN14175-2:2003)*
	Operational Sash Opening Also known as the sash working height. Its maximum position should be 500 mm in the direction of sash movement and shall not exceed 600 mm *(Fume Cupboards Part 2: Safety and Performance requirements BSEN14175-2:2003)*
	Diversity Factor In some departments a diversity factor is a design aspect of the fume cupboard extract system. Only 68% of Fume Cupboards can be fully open at one time. In laboratories containing 6 Fume Cupboards, this means only 3 can be fully open at the same time. If the diversity alarm sounds, Fume Cupboards should be checked, and sashes lowered if this factor is exceeded.
	Microbiological safety cabinet Enclosed, ventilated laboratory cabinets designed to protect the user and surrounding environment from pathogens. Exhaust air is HEPA filtered to remove hazardous agents such as viruses and bacteria. They are divided into three classes: I, II and III offering different levels of protection. Microbiological safety cabinets shall comply with relevant safety requirements specified in BSEN12469:2000
Responsibility for implementation	Heads of Departments Supervisors/Managers Technical/Teaching Staff
Training availability:	Area/Department Induction training Guidance documents readily available on SHEW website

Standard to meet:		**Accountability**	**Reference documents and more information**
	Justification of Use and Choice of LEV		
1.	Carry out a COSHH assessment to justify the use of LEV to control the hazard. The COSHH Assessment should identify the correct type of LEV for the task.	User	HSE COSHH http://www.hse.gov.uk/coshh/index.htm SHEW Hazardous Substances Policy
	Training and Safe Use		
2.	Ensure users are trained in correct safe operating procedures. This includes set-up of LEV, good safe working practice and what to do in an emergency. Maintain records of training.	Supervisors/ Managers	

3.	Use the LEV in accordance with the manufacturer's instructions and the training provided. Carry out required routine checks prior to use and record in user log. Do not use LEV that is operating outside safe parameters (i.e., for fume cupboards when face velocity <0.5 m/s). After use, the LEV system should be left in a clean, tidy state.	Users	Suppliers should provide logbooks. If not, then templates to be used (or similar) provided in supporting documents: Guidance Documents for fume cupboards, safety cabinets and general LEV to be produced
4.	Only use the LEV system for its intended purpose. For example, the following practices in a fume cupboard or microbiological safety cabinet are not advocated unless justified by risk/COSHH assessment: • As a means of venting equipment from the laboratory area • For boiling large (> 100ml) quantities of solvents or acids, e.g., for waste disposal purposes • Obscuring visibility through sash window e.g., by writing/drawing. If considered necessary as no other reasonable alternative, writing must be removed immediately once task completed	Users	
5.	Report any defects/alarms promptly to Area/Department Safety Co-ordinator. Make safe and take out of service. Loss of containment should be reported as a Health and Safety Incident via SHEW reporting procedures.	Users	
	Examination and Maintenance		
6.	Ensure all applicable LEV systems are registered with Campus Infrastructure for statutory examination and testing as required by COSHH Regulations 2002.	Technical Services Managers	"applicable LEV systems" are those under control of Campus Infrastructure
7	Ensure required routine checks are carried out and recorded to show LEV systems are working correctly. Carry out Monthly checks on airflow e.g., using an anemometer where appropriate	Users/ Technical Services Managers	See supporting guidance document for requirements for each type of LEV
8	Maintain a record/schedule of all LEV systems on campus for areas of control.	Heads of Department/ Technical Services Managers/ Campus Infrastructure	
9.	Arrange for and maintain a record of all maintenance and inspections of LEV under area of control. This includes Thorough Test and Examination required under COSHH	Heads of Department/ Technical Services	

	Regulations 2002. For Campus Infrastructure managed systems; Inform Departments if remedial work is required and if an LEV system fails its inspection.	Managers/ Campus Infrastructure	
10.	Arrange for remedial work to be carried out on LEV systems under area of control or decommission if no longer required. Defects should be put right as soon as possible or within a time laid down by the person who carries out the examination.	Heads of Department/ Campus Infrastructure	
11	Ensure LEV systems are made safe prior to full examination and test and any maintenance or remedial work. This will include: • Providing information on hazards that may be present and precautions to be taken • Removal of items that could cause a hazard or affect ability to carry out work • Cleaning of work area	Users/ Technical Services Managers	
12.	Notify Campus Infrastructure when new LEV systems are to be installed for agreement, sizing, airflow balancing and inclusion on maintenance schedule, where applicable.	Technical Services Managers	