

EMAP-28 Local Exhaust Ventilation Systems



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1 General Arrangements

1.1 Purpose

This Management Arrangements and Procedures document (EMAP-28) has been prepared for Queen Mary University of London Estates Department to provide procedures to those persons responsible for Local Extract Ventilation Systems (LEVs) to ensure they are operated and maintained in compliance with the latest edition of the Control of Substances Hazardous to Health Regulations (COSHH) 2002.

1.2 Legislation, Codes of Practice and Guidance

1.2.1 Primary Legislation (available at <http://www.hse.gov.uk/index.htm>)

The following documents provide the primary legislation:

- Health and Safety at Work etc. Act 1974 (HSWA)
- Control of Substances Hazardous to Health Regulations 2002 (COSHH)
- Control of substances Hazardous to Health Approved Code of Practice L5
- The Workplace (Health, Safety and Welfare) Regulations 1992 (WHSWR)

1.2.2 Guidance

The following document and website provide guidance from the Health and safety Executive (HSE) on LEV's:

- Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV) – Second edition 2011 (HSG 258) available at <http://www.hse.gov.uk/pubns/priced/hsg258.pdf>
- HSE LEV micro-website <http://www.hse.gov.uk/lev/>

The LEV framework document for QMUL roles and responsibilities, LEV management, competencies, arrangements and further resources for LEV's and topic guidance is available at the OHSD Connect webpages at <http://www.ohsd.qmul.ac.uk/>

- **QM_OHSD_SE017 Local Exhaust Ventilation (LEV) - College Safety Standard, Guidance and College Arrangements** – available at <http://www.ohsd.qmul.ac.uk/documents/standards/sem/101955.docx>
- Microbiological Safety Cabinets (available within QMUL 'Procedures and Guidance Notes for working with biological agents and materials' QM/H&S/0089) <http://www.ohsd.qmul.ac.uk/documents/standard/sem/old%20guidance/70928.doc> - section B09 (pp41 – 53)

1.2.3 Key Required Duties

Under The Control of Substances Hazardous to Health Regulations 2002 (COSHH)

- Employers must assess the degree of exposure and the risks to their employees, devise and implement adequate control measures, and check and maintain them.
- Employers must ensure that the equipment utilised for the control of substances is maintained in an efficient state, in efficient working order, in good repair and in a clean condition.

- Employees must use these control measures in the way they are intended to be used and as they have been instructed.
- Employers must ensure that thorough examination and testing of the protective LEV is carried out every **12 months** (unless otherwise stipulated)
- Any identified defects should be put right as soon as possible or within a time laid down by the person who carries out the examination.
- The person carrying out the thorough examination and test should provide a record, which needs to be kept by the employer for at least **5 years**, located in the LEV System Logbook.

1.3 Local Exhaust Ventilation System

An LEV (Local Exhaust Ventilation) system is described as an engineering system that uses an extract ventilation to prevent or reduce the level of airborne hazardous substances such as dust, mist, fume, vapour or gas, from being inhaled/absorbed/exposed to, by persons in the workplace. The typical parts include an inlet hood, cleaner/arrester/filter, ducting, air mover and discharger.

This EMAP covers **DUCTED** LEV systems.

NON-DUCTED systems remain the responsibility of the school.

Typical LEV's in use at Queen Mary University of London premises include:

- Fume Extraction cupboards and hoods – laboratories
- Ventilated cages - laboratories
- Welding booths
- Wood Dust extraction units – workshops
- Laboratory and workshop equipment containing integral LEV systems
- Microbiological safety cabinets – laboratories

1.3.1 Microbiological Safety Cabinets

These differ from laboratory fume cupboards in that the extracted air passes through a HEPA-type filter due to the potentially hazardous nature of the particulates in the exhaust air. It is the responsibility of the **Nominated Person** to manage the replacement of the HEPA filters.

Any cost associated with carrying out this work must be met by the relevant laboratory/school.

2 Management Arrangements

2.1 Roles and Responsibilities

2.1.1 Competent Person (at QMUL this is Zurich Insurance)

A person who is independent of the normal work activity who has sufficient training, experience and knowledge of the plant and equipment. Typically, an Engineer Surveyor from a specialist insurance company.

2.1.2 Trained Person/Service Provider (at QMUL this is MITIE)

An appropriately trained and qualified tradesperson, typically an in-house maintenance technician or maintenance contractor.

2.1.3 Nominated Person (Laboratory Managers, Safety Coordinators)

Normally the manager responsible for the equipment who ensures system compliance by regularly monitoring the activity and system documentation and any remedial works. Staff appointed as Nominated Persons must be suitably informed, instructed and trained and their suitability assessed. Regular refresher training must be undertaken and recorded.

2.1.4 Senior Duty Holder (Director of Estates & Facilities)

The person who has overall control of the maintenance of the plant and equipment. The Senior Duty Holder is responsible for ensuring compliance with the procedures contained within this EMAP, that adequate resources are available to perform maintenance of plant and equipment and to carry out an external audit of this EMAP every 3 years. The Senior Duty Holder can delegate duties to the nominated Responsible Person whilst retaining responsibility.

2.1.5 Responsible Person (Campus Maintenance Manager)

The Responsible Person shall report to the Senior Duty Holder and have day to day management responsibility for ensuring that LEVs remain effective and are being operated, maintained and tested in accordance with COSHH regulations and these procedures.

2.2 Competence

Those persons who appoint LEV Service Providers should satisfy themselves that the Service Provider possesses the necessary skills, knowledge and experience for the appointed tasks.

Possession of the BOHS P601/602/604 certificates as appropriate or the UKAS Certificates may demonstrate a level of competency in Initial Appraisal and Thorough Examination & Testing of Local Exhaust Ventilation (LEV) Systems. (See section 5 of QM OHSD SE017 Local Exhaust Ventilation (LEV) – College Safety Standard, Guidance and College Arrangements).

2.3 Procedure to provide an LEV System

Where an activity may cause atmospheric contaminant hazards, consideration must be given to other control options and using them where appropriate before utilising Local Exhaust Ventilation. Other control options include:

- Eliminate the source
- Substitution of the material
- Reduce size of the contaminant source
- Modify the process to reduce the frequency/duration of emission

Where it becomes necessary to use a Local Exhaust Ventilation system, the Nominated Person shall involve the services of specialist suppliers in the correct design, selection and procurement of LEV systems that are fit for purpose. (see QMUL and HSE websites and Industry authoritative topic guidance and consult QMUL OHSD, E&F and authoritative industry companies or associations).

2.4 Procedure to maintain an effective LEV

Faulty and indifferent maintenance is a major cause of failure of local ventilation systems. Regular inspection and maintenance is a requirement of COSHH Regulations. The performance of such systems should also be checked against design specifications as part of this maintenance schedule.

Maintenance is managed by MITIE and carried out by a Specialist Contractor, in accordance with the manufacturer's recommendations. In addition, LEV plant within the laboratory space should be inspected weekly by the **Nominated Person** for signs of leaks and damage, in accordance with QMUL guidance. (see QMUL and HSE guidance for further details).

To ensure that the Local Exhaust Ventilation system remains effective at contaminant removal, the Nominated Person must ensure that a Thorough Examination and Testing of the LEV is carried out at least every **12 months** (unless otherwise stipulated) – e.g. for microbiological safety cabinets used at Containment Level 3, the stipulated testing regime is every 6 months).

MITIE, as the competent Service Providers/Examiners have been appointed to undertake the thorough examination and testing of the LEV. The relevant QMUL Campus Maintenance Manager shall assist the Service Provider with locating a ducted LEV system and gaining access to the ventilation equipment.

The Service Provider shall advise the Responsible Person and Nominated Persons of any remedial actions arising from the inspection/test procedures for ducted LEV systems, and shall implement a programme of any remedial actions.

For non-ducted LEV systems, the **Nominated Person** needs to appoint a Service Provider to undertake the thorough examination and testing of the non-ducted LEV.

For both ducted and non-ducted systems, the Trained Person/Service Provider shall complete a copy of the test certificate and attach to every ducted LEV system examined and tested (as per HSG 258 and QMUL LEV H&S Standard Section 10 and appendix 2).

Where the control system has failed and requires remedy or repair, the examiner should instead attach a 'fail' label to the hood advising not-to-use the LEV system (as per HSG 258 and QMUL LEV H&S Standard appendix 2) and for ducted systems, notify the relevant QMUL Campus Maintenance Manager and Laboratory Manager immediately that the unit has failed.

The **Nominated Person**, shall ensure record details of the Inspection/Testing are updated. Written records shall be kept for at least **five years**.

See Appendix 1 below for a flow chart of actions.

3 Operational Arrangements

3.1 Procedure for Pre-Use Checks

Before using the Local Exhaust Ventilation system, the Nominated Person/operator must carry out the following;

- Ensure that the LEV has been designed / installed for the proposed usage.
- Check that the LEV has been inspected and examined within the previous 12 month period (or other stipulated period). A label/test certificate affixed to the LEV shall indicate the date of the last inspection.

- Shall check the LEV system within the laboratory space for detectable damage, misuse or faults that may prevent the correct operation of the LEV. Any defects shall be reported immediately to their immediate Line-Manager.
- Ensure that they are familiar with the LEV system and have received appropriate training in the correct use of the LEV from their Line-Managers and as per training needs analysis, QMUL/externally provided training.

3.2 Procedure for During-Use Checks

The Nominated Person/operator shall monitor system operation lamps / indicators / alarms for change in operation conditions

Whilst using the LEV, the end-user operator should be aware of the surrounding working atmosphere.

Should conditions deteriorate, such that the performance of the LEV reduces and its effectiveness of removing emissions is reduced, or there are signs that the LEV is not working properly, like smells or dust settling on surrounding surfaces, the operator should cease using the LEV and report the issue to the Nominated Person, who should then report this to the relevant Senior Duty Holder for ducted systems.

4 Record Keeping

4.1 LEV Management Plan

The LEV Management Plan (template at appendix 1 of QM OHSD SE017 Local Exhaust Ventilation (LEV) – College Safety Standard, Guidance and College Arrangements) is the responsibility of the **Nominated Person**. The Plan should contain the following information and be easily accessible for QMUL, Regulatory Authority and other external Inspections:

- LEV system location.
- LEV type.
- Make/model and serial/asset number.
- Identification of hazardous substances and/or contaminants handled/used in LEV.
- Dates of statutory testing - past and forthcoming.
- Location of commissioning records, log book and user manual.
- Records of statutory tests, repairs and maintenance.
- Records of User local training records.

4.2 LEV User Manual

As and when Local Exhaust Ventilation systems are installed, a comprehensive User Manual shall be provided by the Supplier as part of the design, installation and commissioning process.

The purpose of the User Manual is to describe what the LEV is designed to control and how control is achieved.

The User Manual shall be in two parts. Part A includes simple getting started instructions; Part B includes detailed technical information on the system components as information to be provided to maintenance/repair engineers.

The Guidance Document HSG258 provides detailed information on what information should be included within a User Manual.

4.3 LEV System Logbook

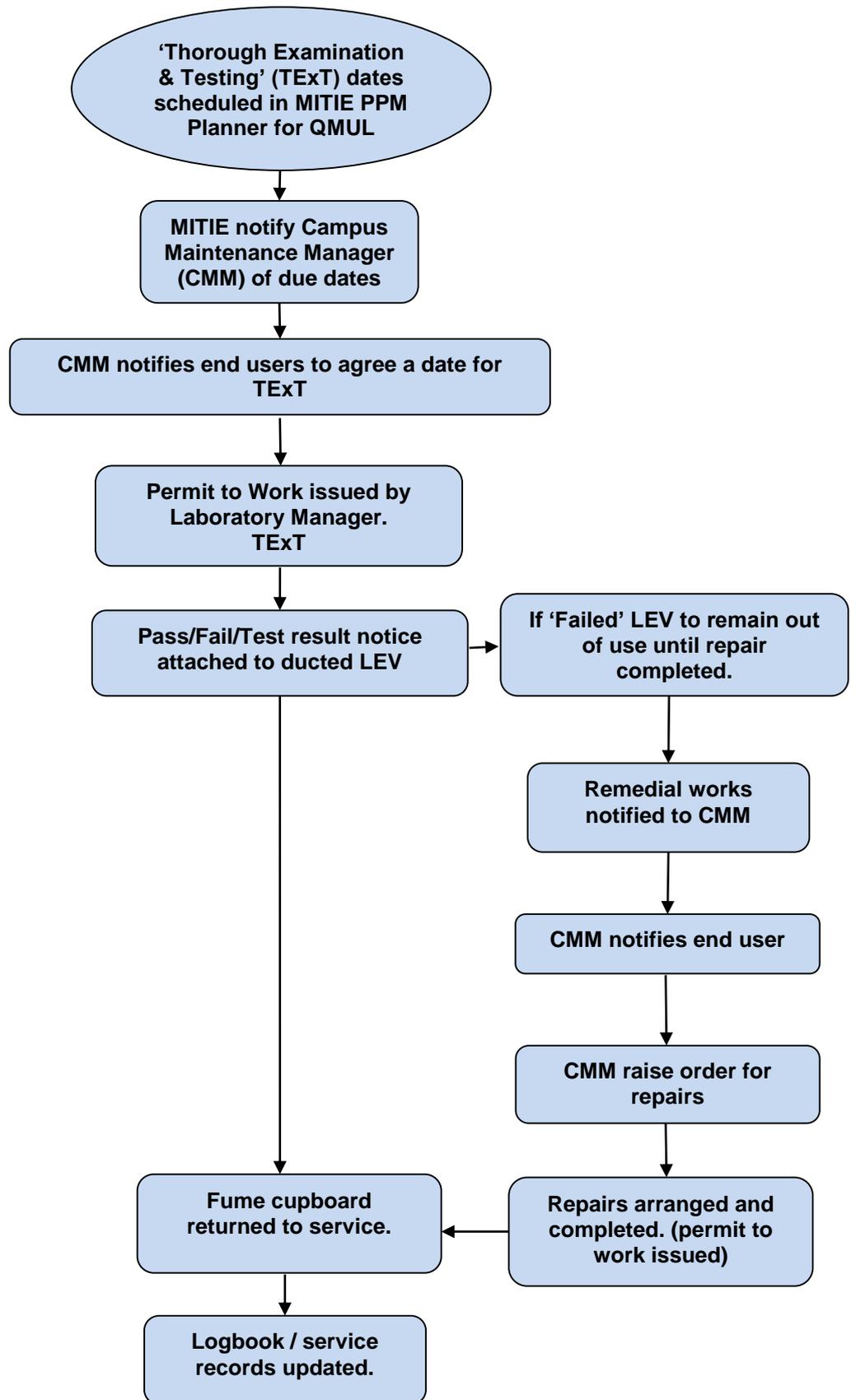
A logbook shall be available with the Responsible Person that will provide a schedule of ducted LEV systems and their maintenance inspections and examinations for each site.

The schedule shall contain:

- Location reference of the individual LEV systems.
- End User /Owner of the LEV System.
- Dates of previous Inspection and/or test.
- Names of the individuals / service providers who undertook the tests.
- Reference and archive location of Written Inspection Records.

Original design and/or performance Information from the logbook shall be made available to examiners prior to undertaking and inspection or examination of the LEV.

Appendix 1 – QMUL Ducted LEV Systems – Thorough Examination & Testing (TEt)



Appendix 2 - Contact details:

Senior Duty Holders

Stephen Wells

Director of Estates & Facilities
Email: stephen.wells@qmul.ac.uk
Tel: 0207 882 8901

Mike Sheppard

Assistant Director of Estates & Facilities (Infrastructure & Maintenance)
Email: mike.sheppard@qmul.ac.uk
Tel: 0207 882 8383

Responsible Persons

QMUL Campus Maintenance Managers

Charterhouse Square: Ron Hodgson

Email: r.hodgson@qmul.ac.uk

Mobile: 0790 968 8404
Tel: 0207 882 8381

Mile End: Neil Florey

Email: n.florey@qmul.ac.uk

Mobile: 0790 968 8403
Tel: 0207 882 8388

Whitechapel: Anil Gooneratne

Email: a.j.gooneratne@qmul.ac.uk

Mobile: 0790 171 6009
Tel: 0207 882 7231

Head of Maintenance: Steve Metcalfe

Email: s.metcalfe@qmul.ac.uk

Mobile: 0790 171 6010
Tel: 0207 882 8892

Nominated Persons

Laboratory Managers/Safety Coordinators

Mile End					
Engineering Building			Ext.		Fume Hood locations
Chris English			6994	c.english@qmul.ac.uk	G20, 1 st flr biofluids, 232 cell & tissue culture, 2 nd flr biochemistry, 2 nd flr molecular biology, 337 stem cell lab.
Chris Mole	SEMS	Engineering & Material Sciences	7665	c.f.mole@qmul.ac.uk	
Geography					
Michelle Day	Geography Lab		2715	michelle.day@qmul.ac.uk	2 nd floor Bancroft Building
Francis Bancroft Building					
Geraldine Hansen	BSU		2265	g.hansen@qmul.ac.uk	
GE Fogg Building					
Ruth Rose	SBCS	Biological & Chemical Sciences	4620	r.s.rose@qmul.ac.uk	101, 2.06, 3.01, 3.04, 4.07, 4.26, 4.30, 4.33, 5.02, 5.04, 5.13, 6.09, 6.22
Joseph Priestley Building					
Sam Court	SBCS	Biological & Chemical Sciences	6339	s.j.court@qmul.ac.uk	Main laboratory
G O Jones Building					
John Dennis	Physics & Astronomy		3412	j.dennis@qmul.ac.uk	Lab 125, Lab 302,

CHARTERHOUSE SQUARE					
John Vane Science Centre					
Basement			Ext.		Fume Hood locations
Vipul Bhakta	BCI	Molecular Oncology	2109	v.bhakta@qmul.ac.uk	LG58, LG60, 62 & 63, G22D, G22A (class1 hood)
Ground Floor					
Debbie Buckle	BCI	Tumour Biology	3568	d.buckle@qmul.ac.uk	G19, G32
1st Floor					
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Sven van Eijl	WHRI	Vasc Pharm	5720	t.vaneijl@qmul.ac.uk	(South side of JVSC) 2.17 (also extract in 2.14)
Becki Hands	WHRI	EMR	8194	r.e.hands@qmul.ac.uk	(North Side of JVSC) 205
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Matthew Golding	WHRI	Microvascular	8239	m.golding@qmul.ac.uk	405
BCI Core Facilities					
George Elia	BCI	Pathology	3555	g.elia@qmul.ac.uk	G02 (FH & Class1 hood)

Whitechapel					
Jeff Maskell	Hoi Laboratory Management	Molecular Pathology, Infection & Immunity	2324	j.p.maskell@qmul.ac.uk	All laboratories