

G406

COSHH Essentials:
General guidance

New and existing engineering control systems: Local exhaust ventilation

Control approach 4: Special

The Control of Substances Hazardous to Health Regulations 2002 (COSHH) require employers to ensure that exposure is prevented or, where this is not reasonably practicable, adequately controlled. This guidance gives practical advice on how this can be achieved by applying the principles of good practice for the control of exposure to substances hazardous to health, as required by COSHH.

It is aimed at people whose responsibilities include the management of substances hazardous to health at work (eg occupational health specialists, anyone undertaking COSHH assessments and supervisors). It is also useful for trade union and employee safety representatives. It will help you carry out COSHH assessments, review existing assessments, deliver training and supervise activities involving substances hazardous to health.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance, you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance. See Essential information near the end of the sheet.

Introduction

- Engineering controls are designed to reduce the exposure of workers to airborne contaminants. Whilst they vary in their design, the most common type of engineering control is local exhaust ventilation (LEV). Therefore, this document focusses on LEV controls.
- LEV controls range from small solder fume tip extractors through dust hoods, fume cupboards, glove boxes and spray booths, to large-scale industrial installations. It should be noted that respiratory protective equipment (RPE) is not an engineering control.
- All LEV controls have the same requirements:
 - to collect or contain the contaminant;
 - to reliably conduct it away from the worker; and
 - to keep exposures below any relevant exposure limits.
- Where possible, use a reputable supplier of LEV systems.
- Ventilation engineers you invite to bid for a contract should be able to demonstrate their experience of this type of work.

Caution: Poorly designed engineering controls that interfere with the worker doing the job must not be used.

LEV engineering controls

- ✓ The designer will need to have information on the process being undertaken and the properties of the airborne contaminant (whether a dust, fume, smoke, mist, vapour or a gas), together with how and where it is produced, and what exposure limits apply.
- ✓ The LEV must be well made, resilient, fit for purpose and easy to maintain. Normally, it will have the following elements:
 - a hood to collect and contain the contaminant as close as possible to its source;
 - a simple airflow indicator, such as a pressure gauge fitted near the inlet, to show the system is performing adequately;
 - ducting, to remove the contaminant away from the source;
 - a filter or other air-cleaning device normally located between the hood and the fan;
 - a fan or other air mover, to provide airflow; and
 - more ducting to discharge cleaned air to a safe place outside, although sometimes, thoroughly cleaned air can be returned to the workroom.

Installation and Commissioning

- ✓ The installer needs to show that the system can perform to its design specification and may need to carry out air sampling to prove that the controls work. See sheet G409 in essential information.

- ✓ You should request a user manual, showing:
 - how to operate and use the system;
 - technical performance, eg hood face velocities and pressure readings;
 - the layout of the system;
 - acceptable airflow indicator readings; and
 - a checking and maintenance guide.
- ✓ Make sure you can get consumable parts (eg replacement filter bags) easily.
- ✓ You should also have an LEV logbook, containing schedules and forms to keep records showing regular checking, maintenance and repair.

Using LEV engineering controls

- ✓ Follow the instructions in the manual. Every day look for signs of damage to the ducting, fan and air filter. Noisy or vibrating fans can indicate a problem. Repair any damage straight away.
- ✓ Always confirm that the LEV is turned on and working at the start of work. Check the airflow indicator.
- ✓ Simple practical tests to check that the LEV is working include:
 - Using a dust lamp (the dust source should be between a powerful lamp with a parallel light beam and the observer); or
 - visual observation of airflow using smoke (inexpensive smoke pencils and generators are readily available).
- ✓ Follow the instructions in the user manual. Daily pre-use checks and visual inspections of the condition of the ducting, fan and filter will ensure any damage is identified early and repaired straight away.
- ✓ Check that workers are properly trained in how to use the LEV and can recognize when it is not working correctly. Check regularly that they use the controls correctly.
- ✓ Keep records. Are there failure patterns that make planning maintenance easier?

Caution: If you need to change any part of the system, or what you use it for, you may then need to recommission the whole system.

Statutory thorough examination and test

- ✓ At least once every 14 months (or more frequently for some types of process or contaminant), get a competent ventilation engineer to conduct a thorough examination and test of the LEV system.
- ✓ Keep all records for at least five years.

Essential information

G409 - Exposure measurement: Air sampling www.hse.gov.uk/pubns/guidance/g409.pdf

Further information

The Building Engineering Services Association (BESA) can be found at www.thebesa.com

For the Institute of Local Exhaust Ventilation Engineers (ILEVE), go to www.cibse.org/institute-of-local-exhaust-ventilation-engineers

British Occupational Hygiene Society (BOHS)
Directory of Occupational Hygiene Services
<https://www.bohs.org/information-guidance/>

Controlling airborne contaminants at work: A guide to local exhaust ventilation (LEV) HSG258 HSE 2017
www.hse.gov.uk/pubns/books/hsg258.htm

For information about health and safety visit <https://books.hse.gov.uk>
or <http://www.hse.gov.uk>

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