

General Ventilation Arrangement

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1.0 Statement of purpose/objectives

This arrangement will assist in meeting Shropshire Council's objective to care for staff and also meet the legislative requirements. The main requirements are to create a good working environment by ensuring effective workplace ventilation that is of suitable quality and quantity.

2.0 Scope

This arrangement applies to all Shropshire Council workplaces.

3.0 General ventilation requirements

Effective and suitable provision shall be made to ensure that every enclosed workplace is ventilated by a sufficient quantity of fresh or purified air. Shropshire Council will ensure that enclosed workplaces are sufficiently well ventilated so that stale air, and air which is hot or humid because of the processes or equipment in the workplace, is replaced at a reasonable rate.

The air, which is introduced will, as far as possible, be free of any impurity which is likely to be offensive or cause ill health. Air which is taken from the outside can normally be considered to be 'fresh'. However, air inlets for ventilation systems should not be sited where they may draw in contaminated air (for example close to a flue, an exhaust ventilation system outlet, or an area in which vehicles manoeuvre). Where necessary, the inlet air should be filtered to remove particulates.

This will be achieved by the use of natural and or mechanical general ventilation to provide a supply of fresh air.

4.0 Standards of ventilation

- All workplaces need an adequate supply of fresh air
- This can be natural ventilation, from doors, windows etc. or controlled, where air is supplied and/or removed by a powered fan.
- If you work in an office, natural ventilation will normally be enough to control dusts and vapours from cleaning materials etc.

- Sometimes planned, powered general ventilation is an integral part of a set of control measures, e.g. the welding of large fabrications in a workshop.

All workplaces will be provided with effective ventilation. This will be achieved by the use of natural and or mechanical general ventilation to provide a supply of fresh air.

5.0 Use of Natural Ventilation

In many cases, windows or other openings will provide sufficient ventilation in some or all parts of the workplace. Where necessary, mechanical ventilation systems will be provided for parts of the workplace where natural ventilation alone is not effective.

Please note: there are two main methods of ventilating workplaces, natural (by opening windows, doors etc.) and mechanical ventilation.

6.0 Local Exhaust Ventilation (LEV)

Local exhaust ventilation (LEV), is an engineering control solution to reduce exposures to dust, mist, fume, vapour or gas in a workplace, e.g. welding fume or wood dust from a circular saw.

The use of LEV is designed and provided to intercept the contaminants at source directing them via ducting and extraction fan, away from the workplace. Please refer to our Local Exhaust Ventilation arrangement for further information.

7.0 Information, instruction and training

Shropshire Council has a duty to provide adequate information, instruction and training for employees to ensure the correct operation of ventilation systems within their workplace.

8.0 Implementation of the General Ventilation Arrangement

Management guidance in the form of Frequently Asked Questions will be provided and updated to support the implementation of the General Ventilation arrangement.

9.0 Compliance

This arrangement will enable Shropshire Council to conform to statutory requirements and best current practice. Further references are provided in appendix 1

10.0 Review of Arrangement

This arrangement will be reviewed every three years or if legislative changes occur.

This will be carried out by the Human Resources and Development Occupational Health & Safety Team, in consultation with recognised trades unions.

Approving Body

Consultation	Health, Safety & Welfare Group – October 2008
Approval	Health & Safety Forum – March 2009
Revised	Health and Safety Team – May 2020

General Ventilation Arrangements Frequently Asked Questions

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1.0 Roles and responsibilities/Who does what?

Shropshire Council as a local authority employer, through its elected members, has ultimate responsibility for compliance with health & safety legislation.

1.2 The Chief Executive and Corporate Management Team are responsible for ensuring:

- 1) The implementation of this arrangement across all Directorates to ensure consistency of approach.
- 2) The allocation of suitable and sufficient resources.
- 3) Ensuring that the control and management of ventilation systems is appropriate

1.3 Assistant Directors/Heads of Service in consultation with Property Services Group are responsible for ensuring:

- 1) The implementation of the general ventilation arrangement and that all employees are familiar with the contents of the arrangement insofar as it is relevant to their role and responsibilities.
- 2) That sufficient resources are available for maintenance of systems if appropriate

1.4 Line Managers/Supervisors are responsible for:

- 1) Identifying employees and workplaces that may require specific ventilation needs.
- 2) Ensuring that all employees receive information, instruction, training and supervision on the safe use of natural or mechanical ventilation systems that is relevant to their role and responsibilities in the workplace.
- 3) Reporting any health and safety issues or concerns to Occupational Health and Safety Team.

1.5 Occupational Health and Safety Team is responsible for:

- 1) Providing advice and guidance to managers on the effective use and control of ventilation systems in the workplace.
- 2) Providing advice and guidance to managers on specific training available.

1.6 All employees of Shropshire Council are responsible for:

- 1) Complying with the requirements of this arrangement.
- 2) Reporting any concerns to their line manager as soon as possible, including issues of work practices or system failures, in order that remedial actions can be taken.

2. What is Local Exhaust Ventilation (LEV)?

LEV is a specific engineering control system to reduce exposures to airborne contaminants such as dust, mist, fume, vapour or gas in a workplace for a particular work activity, such as; welding fume or wood dust from a circular saw.

Most systems, but not all, have the following:

- Hood: This is where the air carrying the contaminant enters the LEV.
- Ducting: This conducts the air and the contaminant from the hood to the discharge point.
- Air cleaner or arrestor; this filters or cleans the extracted air. Not all systems need air cleaning.
- Air mover: The 'engine' that powers the extraction system, usually a fan.
- Discharge: This releases the extracted air to a safe place.

3. Why is fresh air required in the workplace?

Fresh air is required to provide oxygen for breathing in and to remove carbon dioxide from breathing out; remove excess heat or, if air conditioned, provide or remove heat e.g. in winter and keep a comfortable temperature in summer; in the case of mechanical ventilation systems which recirculate air, including air-conditioning systems, recirculated air should be adequately filtered to remove impurities. To avoid air becoming unhealthy, purified air should have some fresh air added to it before being recirculated.

4. What are the principles of natural ventilation?

Natural ventilation relies on air pressure and temperature differences to move fresh air through a building and is usually not fully controllable, as air warms up it rises, if ventilators are provided at high level the warm air will escape allowing cooler air to enter the building at lower levels to provide natural circulation and ventilation.

5. When do I need to provide mechanical ventilation?

To ensure a well-ventilated workplace, mechanical ventilation may need to be provided to remove stale, contaminated, or hot and humid air. There may be a benefit in supplementing natural ventilation with mechanical powered fans to assist the circulation of fresh air.

6. Can air be re-circulated?

It is not unusual to re-circulate air to conserve energy costs. Many types of air conditioning units are able to re-circulate, heat/cool and filter the air to provide comfortable working conditions.

7. What are the standards for ventilation?

All enclosed workplaces must be ventilated by a sufficient quantity of fresh or purified air. The fresh-air supply rate should not normally fall below 5 to 8 litres per second, per occupant. Depending on working conditions, i.e. is the work strenuous?

8. What does the law require us to do?

The law requires Shropshire Council to provide suitably designed and installed systems that are inspected, maintained and cleaned in the working environment and are, so far as is reasonably practicable, safe and without risk to health. There is also a requirement to provide adequate information, instruction and training.

9. Should mechanical ventilation systems be maintained?

Yes, mechanical ventilation systems used for providing general ventilation must be maintained (including cleaning as appropriate) in an efficient state, in efficient working order and in good repair. In addition to this the Control of Substances Hazardous to Health (COSHH) requires that *“where engineering controls are provided to meet the requirements of regulation 7, the employer shall ensure that thorough examination and testing of those controls is carried out; (a) in the case of local exhaust ventilation plant, at least once every 14 months, or for local exhaust ventilation plant used in conjunction with a process specified in Column 1 of Schedule 4, at not more than the interval specified in the corresponding entry in Column 2 of that Schedule; or (b) in any other case, at suitable intervals”*.

Additional maintenance controls will apply where an Evaporative Cooling System is installed in a building to control the development of Legionella bacteria. Please note; all evaporative cooling systems need to be registered with the local authority.

10. What supporting guidance is available?

The Health & Safety Executive (HSE) website provides a good source of information relating to ventilation this may be found at www.hse.gov.uk

11. Who do I report ventilation problems to?

In the first instance, the premise manager should be informed so they can carry out a preliminary investigation and report made to Property Services Group where necessary.

Examples:

- Air conditioning not operating correctly – inform line/premise manager
- Poor ventilation causing the workplace to become very hot/cold - inform premise manager.

12. Can I open windows in air-conditioned buildings?

No, windows of air-conditioned buildings should not be opened whilst the air conditioning is running. Opening windows will cause the air conditioning system to become unbalanced and the circulation will break down resulting in poor air quality in other areas of the building.

13. Who is responsible for maintaining ventilation systems?

Property Services Group are responsible for SC buildings, other buildings (i.e. some schools and academies who don't buy in to Property Services Group and PFI buildings may have separate arrangements)

14. What are air-borne contaminates?

Air-borne contaminates are particles, gasses or vapours or combinations of these. 'Particles' include dusts, fumes, mists and fibres. For example; wood dust, paint spray, asbestos, carbon monoxide.

Note where flammable or corrosive substances are used additional precautions may be required.

15. Who carries out the thorough examination and test of ventilation systems?

The thorough examination and test must be carried out by a competent person

and the results recorded. Records should be maintained for at least 5 years. Property Services Group are responsible for ensuring competent people carry out the thorough examination and testing of ventilation systems in SC premises, other buildings (i.e. some Schools, Academy's & PFI's may have separate arrangements).

16. What is the frequency of the thorough examination and test?

The frequency may be subject to requirements by the supplier/installer to ensure effective and efficient operation of the system. Ventilation systems should be examined and tested against its performance specification. COSHH requires ventilation systems to be thoroughly examined and tested every 14 months, *refer also to 9 above*. More frequent specific tests will be required for evaporative cooling systems. Please refer to the HSE's Legionnaires' disease: Technical Guidance HSG274.

17. Why use Local Exhaust Ventilation (LEV)?

LEV is an *engineering control* that takes dusts, mists, gases, vapour or fumes out of the air so they cannot be breathed in at the workplace. A properly designed LEV will:

- Collect the air that contains the contaminants
- Make sure they are contained and taken away from the workplace
- Clean the air (if necessary) and get rid of the contaminants safely.

18. What are the health effects of insufficient fresh air?

Insufficient fresh air may lead to tiredness, lethargy, headaches, dry or itchy skin and eye irritation. These symptoms may also be produced whilst working in poorly designed buildings or offices where there may be unsatisfactory working conditions. The symptoms are generally worse in buildings where there is not enough fresh air. These conditions may lead to Sick Building Syndrome (SBS).

19. Is there a requirement to provide ventilation in underground car parks?

There is a requirement to provide ventilation in confined areas including underground car parks.

To ensure carbon-monoxide concentrations do not exceed 200ppm - short term exposure limit – 15-minute reference period. (30ppm long term exposure limit (8-hour TWA – time-weighted average)) air changes should be between 5 and 10 per hour. The ventilation system must be properly maintained and tested in accordance with the Control of Substances Hazardous to Health (COSHH) Regulations.

20. What is the maximum/minimum temperature in the workplace?

The Workplace (Health, Safety and Welfare) Regulations 1992 regulation 7 deals specifically with the temperature in indoor workplaces which should normally be at least 16°C where people work sitting down. Where a reasonably comfortable temperature cannot be achieved local heating or cooling should be provided.

The recommended temperature for offices where there is display screen equipment is 19 – 23 °C.

Appendix 1

Glossary of Terms

LEV	Local Exhaust Ventilation
COSHH	Control of Substances Hazardous to Health
SBS	Sick Building Syndrome
PFI	Public Finance Initiative
HSE	Health & Safety Executive
HSC	Health & Safety Commission
ppm	Parts per million

Link to further information and references

- HSE website www.hse.gov.uk
- The Health and Safety at Work etc Act 1974
- The Workplace (Health, Safety and Welfare) Regulations 1992, (as amended).
- The Management of Health and Safety at Work Regulations 1999
- The Control of Substances Hazardous to Health Regulations 2002 (as amended).
- HSG258 Controlling Airborne Contaminants
- HSG274 Legionnaires' disease: Technical Guidance.
- HSE Ventilation of Kitchens in Catering Establishments Catering Sheet 10
- INDG408 Clearing the air (guide to buying and using LEV)
- INDG409 Workers pocket guide to LEV
- Building Regulations – Part F, section 2.21 (ventilation of underground car parks).