BOHS
British Occupational Hygiene Society

The Chartered Society for Worker Health Protection

IP601 International Proficiency Qualification:

Thorough Examination and Testing of Local Exhaust Ventilation Systems

Qualification Specification

www.bohs.org

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Section 1

About BOHS

BOHS - the Chartered Society for Worker Health Protection

BOHS is the Chartered Society for Worker Health Protection. Our vision is to create a healthy working environment for everyone by preventing exposure to hazardous substances in the workplace.

Founded in 1953, we have developed over the last 64 years into a highly respected and influential body on workplace health issues, working closely with organisations in the UK and overseas to promote our vision. We are a registered charity, professional society and a member of the International Occupational Hygiene Association which is recognised as a non-government organisation by the International Labour Organisation (ILO) and the World Health Organization (WHO).

We were awarded a Royal Charter in 2013 in recognition of our pre-eminent role in protecting worker health.

BOHS is a membership organisation, open to anyone who has an interest in workplace health issues, and we have over 1700 members in 60 countries.

BOHS qualifications – the quality choice

We are the leading awarding body in our field. Our UK courses and qualifications are recognised and respected by independent agencies such as the Health and Safety Executive (HSE) and the United Kingdom Accreditation Service (UKAS) and further afield by industry and employers worldwide. Over 50,000 people have taken one of our qualifications through our network of training providers which offer engaging, challenging and practical courses.

Our courses and qualifications are overseen by a team of highly experienced professionals who are dedicated to developing the competence and career opportunities for the many thousands of people who play a key role in protecting worker health, in diverse fields such as asbestos, legionella and control technologies.

Information about all our qualifications is available from our website:
www.bohs.org/qualifications-training/bohs-qualifications/

Section 2

IP601 at a glance

What is the objective?

To provide candidates with the theoretical and practical knowledge for testing and examining local exhaust ventilation systems, to ensure that they are functioning efficiently to extract inhalable health hazards.

Who is it for?

Anyone who is responsible for the thorough examination and testing of local exhaust ventilation systems, such as LEV system testers/assessors and occupational hygienists.

What are the entry requirements?

Candidates are required to:

- Have a basic understanding of the measurement instruments, LEV system components and visualisation techniques used for testing LEV equipment (equivalent to UK P600 Foundation course level of learning).
- Have a basic understanding of the maths calculations used in LEV work (e.g. rearranging formulas, square and square roots, area of circle and diameter).

What are the main subject areas?

- Workplace control principles.
- Ventilation systems and their performance evaluation.
- Health and safety during examination and testing of LEV systems.
- Writing workplace reports.

How long does it take?

Normally four days.

What level is it?

Level 4 in the BOHS qualifications framework.

How do candidates pass it?

Candidates must pass four parts within 12 months:

- Formative Practical Assessment.
- Written Theory examination.
- Written Practical examination.
- Two workplace report submissions.

Section 3

Background to the qualification

BOHS aims to protect worker health through promoting the science and practice of occupational hygiene. By identifying and controlling health risks in the workplace, we can reduce the levels of occupational ill health.

Inhalable hazardous substances (e.g. wood dusts) are a big cause of ill health in the workplace, and if not effectively controlled can lead to potentially fatal illnesses such as lung cancer. LEV systems are an efficient method of drawing harmful contaminants out of the air, making it safer to breathe in and potentially saving many lives.

However, in order to work effectively an LEV system must be functioning properly. It is therefore important that an experienced professional carries out regular testing of LEV equipment to ensure that it is working to its full potential.

BOHS' UK LEV Proficiency qualifications give candidates the practical skills and knowledge to design, test, commission and maintain LEV systems. There is now widespread demand for international LEV qualifications, in order to promote good working practice overseas. *IP601 - Thorough Examination and Testing of Local Exhaust Ventilation Systems* gives candidates the practical and theoretical understanding of best control practice for hazardous substances, the role of local exhaust ventilation (LEV) systems in this regard, and how to test and maintain LEV systems to a standard which will protect worker health.

The *IP601* syllabus differs from the *P601* syllabus in that it doesn't focus on legislation. Instead, it focuses on teaching candidates the best practice methods for testing and examining ventilation systems, based on guidance documents created by internationally- recognised organisations such as ACGIH and HSE.

Section 4

Key features of the qualification

Objective

To provide candidates with the theoretical and practical knowledge for testing and examining local exhaust ventilation systems, to a standard which reduces occupational ill health.

Target audience

This qualification is suitable for anyone who is responsible for testing and maintaining LEV systems. This includes:

- LEV testers.
- LEV design engineers.
- LEV commissioning engineers.
- Building services engineers and technicians.
- Occupational hygienists.
- Health and safety practitioners and managers.
- Consultants.

It may also be suitable for those who wish to progress into these job roles.

Entry requirements

Candidates are required to have a basic understanding of:

- The measurement instruments and visualisation techniques used for testing LEV systems.
- The essential components of ventilation systems and their functions.
- A basic understanding of maths equations used in LEV work (e.g. rearranging formulas, square (^{2}) and square root (√), circle diameter and area formulas).

If candidates do not have this prior knowledge, it is recommended that they sit UK Proficiency Module *P600 - Methods for Testing the Performance of Local Exhaust Ventilation Systems* (or equivalent) before taking IP601.

Level

The level of a qualification indicates the relative complexity and depth of knowledge and skills required to attain the qualification.

This qualification is set at level 4 in the BOHS qualifications framework.

Different countries use different levels but this qualification is comparable to level 4 in the Regulated Qualifications Framework in England and level 5 in the European Qualifications Framework.

Fees

The examination fee for each candidate is published on the BOHS website: www.bohs.org/qualifications-training/examination-fees/

Section 5

Delivering the qualification

Teaching and learning time

The IP601 course is normally conducted over four days, which comprises a minimum of 28 hours of learning time*. This includes 22 hours teaching time and 6 hours independent study (in the candidate's own time).

The course can be delivered more flexibly, such as one day per week, but should still include 22 hours of teaching time.

**This is 4 hours additional teaching time than the UK P601 course; this extra time is not necessary for more experienced candidates.*

Tutors

The course should be taught by tutors who are experienced and qualified/certified LEV system testers or occupational hygienists. As a guide, tutors will typically have:

- At least three years' current experience in testing and examining LEV systems;
- A recognised LEV qualification or a professional occupational hygiene qualification/certification such as:
  - BOHS Certificate of Competence (Control).
  - BOHS Certificate of Operational Competence (CertOH).
  - BOHS Diploma of Professional Competence (DipOH).
  - BOHS P601 or P604 Proficiency Qualification.

This list is not necessarily exhaustive or definitive.

Teaching resources

Training providers must have the following facilities and equipment:

- Ventilation systems with suitable measurement points.
- Captor hoods of various types.
- Pitot tubes with micromanometer, vane and thermal anemometers for practical sessions.
- Smoke tubes or smoke generator.
- Dust lamp.
- Worked example case studies of ventilation systems, with suitable photographs and safety checklists for the facilities.

Support for teaching and learning

BOHS provides:

- Report submission guidance for candidates.
- Examination guidance for tutors, including sample examination questions.

Language

The examinations are provided in English only, so candidates should have a good understanding of the English language before booking onto the course.

Where English is not the native language of the candidate, extra time may be given in exceptional circumstances by putting a request in writing to BOHS.

Section 6

Syllabus

The qualification is structured into five sections, each with an indicative time allocation:

Section	Syllabus section	Time allocation
1	Workplace control principles	20%
2	Ventilation systems and their performance evaluation	45%
3	Health and safety during examination and testing of LEV systems	5%
4	Practical	25%
5	Reporting and documentation	5%

1 Workplace control principles (20%)

Educational objectives
The student should:

- Gain a practical, theoretical and technical understanding of the complex nature of exposures in the workplace.
- Fully appreciate the basic principles of workplace control.
- Understand the type of approach that is required for successful implementation of a control programme.
- Be able to relate the outcome of a risk assessment to selection of control options.

1.1 Principles of good control practice

1.1.1 How hazards and risks are identified in the workplace.
1.1.2 The range, reliability and effectiveness of control options: including work procedures, process engineering controls, ventilation and PPE.
1.1.3 Practicable programmes for control, which may involve a combination of measures.
1.1.4 Practical application of a combination of control measures, including a stepwise approach to their implementation.
1.1.5 The identification of effective control strategies as they relate to reasonable practicability.
1.1.6 The control of emissions as they relate to the control of exposure.

1.2 Achieving control

1.2.1 The meaning of 'adequate control', including reference to Work Exposure Limits (WELs) and other published or in-house standards. (Reference can also be made to good practice and legislation in place for the country the course is being taught in).

1.3 The role of risk assessment

1.3.1 Identifying exposures.
1.3.2 Confirming compliance.
1.3.3 Achieving adequate control at the design stage, in existing facilities from normal operations and during non-routine or maintenance activities.

2 Ventilation systems and their performance evaluation (45%)

Educational objectives
The student should:

- Gain a theoretical and practical understanding of the principles of the design of ventilation systems.
- Understand the differences between general and local exhaust ventilation systems in terms of application and performance.
- Be able to identify (and adapt where appropriate) the measurements to check the effectiveness of the ventilation system.
- Be able to identify when air sampling is required to determine whether adequate control is being achieved.
- Carry out appropriate measurements to assess the effectiveness of an existing system which has not been commissioned properly, and be fully responsible for documenting the results.

2.1 Types of system

2.1.1 Ventilation systems in the workplace.
2.1.2 Local exhaust ventilation.

2.2 Principles of ventilation systems and their components

2.2.1 Basic design principles of the system itself and of its components; including hood designs (enclosures, captor hoods, booths, partial enclosures and receptor hoods); ducts; fans; air cleaners and discharge arrangements. This also covers special types of ventilation system, including push-pull systems, High Velocity Low Volume (HVLV) systems etc.
2.2.2 Application of hoods, slots, enclosures to industrial situations. Definition of capture velocity and face velocity.
2.2.3 The importance of air distribution across the face of a large extract hood.
2.2.4 Ducts and transport velocities, duct size, configuration and materials.
2.2.5 Define different fan types (e.g. centrifugal and axial), their application, and common failure modes. Describe the effects of direction of rotation, along with an overview of their performance characteristics.
2.2.6 Air cleaners, treatment systems and filtration standards (types and their performance; for example gravity and centrifugal collectors, dry fabric, electrostatic, wet methods, dampers, absorption etc.)
2.2.7 Facilities required for maintenance, examination and testing.
2.2.8 Basic understanding of balancing of air flows, both within systems and the immediate environment.
2.2.9 Outline the nature of flammable dusts and vapours, and the need for explosion prevention and explosion relief in relation to LEV systems.
2.2.10 Discharge arrangements and the risk of re-circulation of contaminated air, including inadvertent contamination of air intakes by discharged air.
2.2.11 The provision of replacement air, especially if the workroom is either relatively small or relatively well-sealed.
2.2.12 Awareness of the Fletcher and Garrison methods of predicting air flows, velocity contours and effects of flanges on inlets.

2.2.13 The filtration standards that are required if the air that contains contaminants is to be re-circulated into the workroom.

2.3 General ventilation systems

Overview of:

2.3.1 Use of general ventilation systems as a means of controlling exposures.
2.3.2 Principles of natural ventilation and infiltration.
2.3.3 Mechanical ventilation, dilution or displacement, including methods of delivery and distribution.
2.3.4 How hot plumes behave.
2.3.5 Determination and calculation of ventilation requirements.
2.3.6 Application and limitations of general ventilation.

2.4 Measurement and testing of LEV systems

2.4.1 Performance considerations:

- The measurement of performance.
- Its relation to the attainment of control of exposure, including limitations of measurement equipment and the need for calibration.
- Determining whether all of the significant sources of exposure are capable of being controlled adequately.

2.4.2 Qualitative assessment of systems: the visualisation of air flows and their effective capture of contaminant(s) into the ventilation system. This includes the use of dust lamps, smoke generators and/or smoke tubes.
2.4.3 The operation of pressure and flow measurement instrumentation, including Pitot tubes and micro-manometers, thermal and vane anemometers to provide quantitative data on ventilation systems. This should also include appropriate locations of test points to take such measurements.
2.4.4 Full understanding of all calculations for volume flows from pressure and velocity measurements.
2.4.5 The requirements and frequency set by the country of learning's regulators for maintenance, examination and test: periodic checks and inspections; thorough examinations; statutory examinations and testing. A suitable reporting scheme for results is also required.
Where an examination frequency period has not been set by the country's regulators, it is good practice to carry out thorough examinations on an annual basis, or at an interval set by LEV engineers, installers or occupational hygienists based on their risk assessment.
2.4.6 The requirements for commissioning an existing system that does not have any suitable commissioning documentation.
2.4.7 The specification of suitable measurable performance criteria for an LEV system.
2.4.8 The effects of partial or total blockages in a section of duct; the effects of filter blinding; holes in filter bags; air bypassing the filters etc.
2.4.9 Test procedures and standards of air re-circulation systems.
2.4.10 Practicability of the system for use and limitations of LEV.
2.4.11 Outline the examination requirements for specialised facilities. This includes

explosion vents, earth bonding (especially on filters), packing and filling machine enclosures, etc.

3 Health and safety during examination and testing of LEV systems (5%)

Educational objectives
The student must be able to make an assessment of all relevant risks to their own safety, and how their actions might possibly affect the safety of others in relation to ventilation systems.

3.0.1 Understand the basic requirements for personal protection, including respiratory protective equipment for individual protection during evaluation of operating ventilation systems.
3.0.2 Compliance with site requirements: permit to work systems, lock-out procedures, use of qualified people for alterations (e.g. electricians), safety aspects of working at heights, use of ladders, cherry-picker (avoidance of dropping things on people below them) etc.
3.0.3 The effect of a hot plume of contaminated air (if the extract to be tested is high up).
3.0.4 The risks and potential effect of testing on the discharge side of the fan (where contaminated air is blowing out under a positive pressure).
3.0.5 The potential consequences of any actions taken to correct the performance of a system (e.g. the effect that changing the positions of dampers in the system might have on other parts of the system.)
3.0.6 Awareness of the potential for a dust explosion or the ignition of flammable vapours.

4 Practical work (25%)

Educational objectives
The student should:

- Have a practical, theoretical and technical understanding of the principles behind the operation of ventilation systems.
- Understand how to use testing equipment (such as smoke detectors and dust lamps) to achieve results.
- Be able to carry out measurements and interpret the results to check the effectiveness of each individual system.
- Be able to produce technically useful data.
- Understand the limitations of this approach to controlling hazardous substances, and of the crucial importance of the design element at the interface with the worker.

4.1. *Visual assessments (5%)*

Appropriate techniques to visualise air flows as a means to test control, using:

4.1.1 Smoke generators and/or smoke tubes
4.1.2 Dust lamps.

4.2 *Physical measurements (30%)*

4.2.1 Common pressure and velocity measuring instruments.

4.2.2 Understanding of which test equipment to use for which measurements.

4.2.3 Where to undertake the measurements in relation to each extract point (e.g. face velocity or capture velocity).

4.2.4 Principle of operation of a Pitot tube/manometer combination.

4.2.5 How to undertake a Pitot tube traverse.

4.2.6 How to calculate an average transport velocity from a Pitot tube traverse.

4.2.7 Where to undertake duct measurements to get meaningful results.

4.3 *Assessment of acceptable performance (40%)*

4.3.1 Understanding of the numbers produced by the tests (e.g. what is an acceptable capture velocity for the application).

4.3.2 Significance of transport velocity and avoidance of settling within a duct.

4.4 *Diagnosis of failures (20%)*

4.4.1 Likely causes of static pressure readings varying significantly between tests.

4.4.2 Duct blockages or component failure effects.

4.5 *Safety requirements (5%)*

4.5.1 Personal protection requirements.

4.5.2 Permit to work schemes (and similar).

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5 Reporting and documentation (5%)

Educational objectives
The candidate should have the practical and theoretical understanding of the requirements to formally report the measurement and assessment findings of a thorough examination and testing of local exhaust ventilation systems.

5.1 Reporting requirements

5.1.1 The essential elements of a report

The report must be properly structured and would normally be expected to include most or all of the sections below:

- A title page, including a title and/or number by which the report can be identified.
- The date of the examination and test, and the date of the last such test.

- The identification and location of the LEV system, and the process at which it is installed.
- The hazard and/or hazardous substance(s) the LEV is designed to control.
- The conditions at the time of the test and whether this was normal production or special conditions.
- A simple diagram of the LEV layout and location, test points and where appropriate, photographs.
- The general condition of the LEV system, including hood serial numbers.
- The methods used to make a judgement of performance.
- The tester's conclusions of whether the LEV system was capable of adequately controlling the substance(s), and details of any actions required to be taken by the employer to improve performance.
- The name, job title and signature of the person carrying out the examination and test.

Section 7

References and further reading

1	ACGIH (2007), Industrial Ventilation: A Manual of Recommended Practice for Operation and Maintenance
2	ACGIH (2016), Industrial Ventilation: A Manual of Recommended Practice for Design (29th Edition)
3	HSE COSHH Essentials e-tool: http://www.hse.gov.uk/coshh/essentials/
4	HSG258 (2017), Controlling Airborne Contaminants at Work: A guide to local exhaust ventilation (LEV) 3rd edition, HSE
5	INDG408 (2008), Clearing the air: A simple guide to buying and using local exhaust ventilation (LEV), HSE
6	L132 (2002), Control of Lead at Work Regulations 2002. Approved Code of Practice and guidance, HSE
7	L143 (2013), Managing and working with asbestos - Control of Asbestos Regulations 2012. Approved Code of Practice and guidance, HSE
8	L5 (2013), The Control of Substances Hazardous to Health Regulations 2002. Approved Code of Practice and guidance, HSE
9	MDHS82/2 (2015), The dust lamp: A simple tool for observing the presence of airborne particles, HSE
10	Worksafe New Zealand (2017), Local Exhaust Ventilation - quick guide

Note: Guidance and legislative documents from the candidate's country of work should also be referred to. The documents listed above are recommended as good practice guidance.

HSE guidance is reviewed and revised periodically. Training providers should check that the publications listed above are the current versions.

Useful websites

All the Health and Safety Executive (HSE) publications listed above are available as free downloads from the HSE website: www.hse.gov.uk/lev.

Section 8

Achieving the qualification

Candidates are required to pass four mandatory components to be awarded the qualification as follows:

- Formative practical assessment.
- Written Theory examination.
- Written Practical examination.
- Two workplace reports.

Formative practical assessment

It is important that candidates demonstrate that they have the skills to thoroughly test, maintain and examine LEV systems, to a standard which ensures that the systems are working properly and are effectively extracting airborne contaminants.

The formative practical assessment requires candidates to complete a number of practical tasks in line with BOHS guidelines. All candidates must undertake the tasks at an appropriate time during the course under the supervision of the course tutor. The tutor may be assisted by other appropriately qualified and experienced people if necessary.

The formative practical assessment enables candidates to demonstrate that they are able to carry out the following tasks:

- Visualisation of air flows as a means of testing control (smoke tubes, smoke generators and dust lamps).
- Duct measurements using a Pitot tube traverse.
- Calculation of average transport velocity from a Pitot tube traverse.
- Static pressure measurements at different points in a ventilation system.
- Measurements in relation to a variety of extract points (e.g. face velocity or capture velocity) using thermal and/or vane anemometers.

The assessment is open-book. Candidates are permitted to access written reference materials and written procedures during the tasks, but not electronic databases.

The course tutor is permitted to support candidates who are experiencing difficulties in carrying out one or more of the tasks, for example by providing verbal feedback or by demonstrating correct techniques. However, to complete the assessment, candidates must demonstrate a satisfactory level of proficiency in all tasks independently and without support.

The practical tasks
The following four tasks must be included in the formative practical assessment:

Task 1: Visualisation of air flows
Candidates must carry out visualisation of air flows as a means of testing control on at least two typical ventilation systems. To do this, they should demonstrate use of:

- Smoke tubes and/or smoke generators.
- Dust lamps.

Task 2: Duct measurements of pressure and velocity
Candidates are required to carry out duct measurements using a Pitot tube traverse, and calculation of average transport velocity from a Pitot tube traverse. This involves:

- Use of the Pitot tube in conjunction with a micromanometer and/or inclined manometer.
- Conduction of a Pitot tube traverse of a ventilation duct.
- Calculation of average duct velocity from Pitot tube measurements.

Task 3: Static pressure measurements
Candidates should take static pressure measurements at different points in a ventilation system, to illustrate the typical variation in static pressure across the system and the impact of faults in the system (e.g. if the filters are overloaded, holed or missing, or a duct is blocked etc.) This should include:

- Measurements behind an intake hood, midway along a duct and before and after the filter in the system.
- Calculation of the effect on static pressure of a duct blockage.
- Calculation of the effect on static pressure of the filter being blinded or removed.

Task 4: Extraction inlet flow measurements
Candidates should take measurements in relation to a variety of extract points (e.g. face velocity or capture velocity) using thermal and/or vane anemometers. They should interpret these measurements in terms of the effectiveness of the system's control. This includes:

- Use of a vane anemometer to measure the face velocity of an intake hood.
- Use of a hot wire anemometer to measure the intake velocity of a hood or slot.
- Calculation of average face/intake velocity.
- Appraisal of the ventilation system in terms of capture velocities for typical contaminant sources.

Marking and reporting
The course tutor that assesses the candidates must complete a Formative Practical Assessment Report Form for each candidate (see Appendix 1). The report must clearly show whether each candidate has achieved a satisfactory or unsatisfactory level of proficiency for each assessment element, and should include other comments about the candidate's performance, such as weaknesses that were corrected and key points to take into LEV testing practice.

Candidates are required to achieve a satisfactory level of proficiency for each element to complete the assessment. A copy of the relevant report form should be given to the candidate.

Results
The course tutor must send the results for each candidate must be sent to BOHS within five working days of the end of the course.

Re-sits
The formative practical assessment is not time-constrained, and it is expected that candidates who meet the entry requirements for the qualification will pass the assessment during the course. However, candidates are permitted to re-sit the assessment at a later date if required.

Candidates who do not complete the tasks are permitted to take the written and practical examinations and submit their reports, but will not be awarded the qualification module until they complete the formative practical assessment.

Written examinations

There are two written examinations that candidates are required to pass: a written theory and a written practical examination.

Written Theory examination
The written theory examination enables candidates to demonstrate that they have attained the breadth and depth of knowledge of how to test and measure the performance of LEV systems, to ensure they are functioning properly.

The examination comprises 35 short-answer questions to be answered in 1 hour 45 minutes. Short-answer questions require candidates to give brief answers, sometimes as bullet points or calculations. All questions are worth 4 marks and candidates may be awarded between 0 and 4 marks per question. Candidates should attempt all questions as no marks are deducted for incorrect answers. The pass mark is 50%.

The examination covers sections 1 to 3 of the syllabus in proportion to the time allocation given for each section. This gives a question allocation as follows:

Section		Number of questions
1	Workplace control principles	11
2	Ventilation systems and their performance evaluation	22
3	Health and safety during examination and testing of LEV systems	2

The sections are clearly marked in the examination paper.

The written theory examination is a closed-book examination, which means that candidates are not permitted to have access to any external materials or text books.

Written practical examination
The written practical examination enables candidates to show that they understand how to apply their knowledge to real life situations.

The examination comprises up to 30 questions, to be answered in two hours. Many of the questions are based on photographs, diagrams or extracts from documents and can be answered as bullet points. The questions do not require candidates to write large quantities of text. Candidates should attempt all questions as no marks are deducted for incorrect answers.

The questions are worth different numbers of marks, up to a maximum of 10 marks. The number of marks is clearly shown after each question to help candidates understand the expected length of a full answer to the question. Candidates may be awarded between 0 marks up to the maximum number of marks per question. The pass mark is 60%.

The examination covers section 4 of the syllabus in proportion to the percentages shown in the sub-sections. This gives a mark allocation as follows:

Sections		% of marks
4.1	Visual assessments	5% (8)
4.2	Physical measurements	30% (48)
4.3	Assessment of acceptable performance	40% (64)
4.4	Diagnosis of failures	20% (32)
4.5	Safety requirements	5% (8)

The sub-sections 4.1, 4.2, 4.3, 4.4 and 4.5 are clearly marked in the examination paper.

The written practical examination is an open-book examination. Candidates are permitted to have access to relevant reference material, but not electronic devices.

Invigilation
The written examinations are carried out in controlled conditions, to help ensure that all candidates demonstrate their true level of attainment.

The training provider must appoint a competent invigilator to ensure that the examinations are conducted properly and fairly. Full details about the examination procedure are provided in the *BOHS Instructions for Conducting Written Examinations.*

Marking and results
All examination papers are marked by BOHS. Borderline fail results are automatically re- marked by a second marker.

Candidates receive their results in writing from BOHS. The results are reported as pass or fail, including a percentage pass mark for each section of the examination. Training providers are sent a list of results for all candidates on a course.

Feedback
Candidates receive feedback on their examination performance for both examinations. For example, the feedback for a written theory examination in which a candidate scored 69% would be shown as follows:

Syllabus area		Result	
1	Workplace control principles	22/44	(50%)
2	Ventilation systems and their performance evaluation	66/88	(75%)
3	Health and safety during examination and testing of LEV systems	8/8	(100%)
Total		96/140	(69%)

Training providers receive feedback on the performance of all candidates. For example, the feedback for a course with six candidates would be as follows:

Written Exam Performance against syllabus		Number of candidates in each scoring band		
		0-49%	50-75%	76-100%
Written Theory	1. Workplace control principles	1	4	1
Written Theory	2. Ventilation systems and their performance evaluation	0	3	3
Written Theory	3. Health and safety during examination and testing of LEV systems	2	4	0
		0-59%	60-75%	76-100%
Written Practical	4.1: Visual assessments	1	4	1
Written Practical	4.2: Physical measurements	1	4	1
Written Practical	4.3: Assessment of acceptable performance	0	6	0
Written Practical	4.4: Diagnosis of failures	2	3	1
Written Practical	4.5: Safety requirements	2	3	1

Resits

Candidates may re-sit one or both of the examinations; but both examinations must be passed within 12 months of the original sitting.

Workplace report submissions

Candidates must demonstrate that they have carried out thorough testing of two different local exhaust ventilation systems, by completing and submitting two workplace reports. The reports should involve the appraisal, thorough examination and testing of each local exhaust ventilation system.

Report contents

The submitted reports must be the candidate's own work. The workplace reports should include a thorough inspection and/or test of the system fan, treatment system (where fitted) and discharge. Without these items, the work carried out will not considered to be a thorough examination and test of the system. Where these parts of the system cannot be safely accessed, comments on this must be included in the report.

The reports should include the following sections:

- Measurements of system performance.
- Interpretation of results.
- An assessment of the functionality and adequacy of the LEV system for its intended purpose.
- Any other relevant recommendations.

More detailed guidance on writing and submitting reports is provided in the *IP601 Report Submission Guidance* document.

Submitting the report

Candidates must submit their reports to BOHS within three months of the date they sit the IP601 Written Theory and Written Practical examinations. Reports should be submitted electronically by one of the following options:

Option 1: For files less than 10MB in size, email directly to reports@bohs.org
Option 2: For files more than 10MB in size, request a Dropbox link by emailing reports@bohs.org

Candidates must also complete Part 1 - Certificate of Authorship section of the Report Submission Form, and submit the whole form to BOHS with each report (there should be one form per report). This can be downloaded from the BOHS website: www.bohs.org/qualifications-training/bohs-qualifications/lev-qualifications under the IP601 qualification header. Any reports received without a Certificate of Authorship form completed will be automatically rejected.

Marking and results

Candidates will receive their results either in writing or by email from BOHS. The result is given as a pass or fail.

If a report has not passed, the Report Submission Form will be returned to the candidate with details in Part 2 of why it has failed and further information that is required. A report will generally be rejected when it contains misleading, inaccurate or inconsistent

information; is not a thorough examination and test; or there is information missing (e.g. results of measurements etc.)

For re-submissions, candidates should fill in Part 3 of the Report Submission Form, to summarise which sections they have changed and the specific amendments made. The marker will then review the report to confirm if it is now complete. If it is still incomplete, the marker will provide further feedback in Part 2 of the Report Submission Form.

Candidates are allowed up to two re-submission attempts. If a candidate has not passed after two re-submissions, they will need to start the assessment again, testing two new LEV systems. Candidates will also be required to demonstrate further learning before they can attempt the assessment again; this could be through sitting the P601 training course again or through a one-to-one training session with a course tutor.

Certification

Candidates who pass all four assessments within 12 months will be awarded an International Proficiency Certificate in *IP601 - Thorough Examination and Testing of Local Exhaust Ventilation*.

Section 9

Quality assurance

Internal quality assurance

Training providers must operate an internal quality assurance system which evaluates and improves the delivery of the qualification.

External quality assurance

BOHS undertakes desk-based reviews of documents, including teaching materials, and conducts surveys of candidates. We also may inspect training providers.

Section 10

Offering the qualification

Approved training providers

Please complete and return the 'Application to Offer Additional Qualifications' form to qualifications@bohs.org. The form is available on the BOHS website.

New training providers

Please send an email to qualifications@bohs.org expressing your interest in offering the IP601 qualification and we will advise you about the approvals process. More information on the application process can be found on the BOHS website: www.bohs.org/qualifications-training/become-a-bohs-approved-training-provider

Section 11

Other courses and qualifications

For more details of BOHS courses and qualifications, please visit our website:
www.bohs.org/qualifications-training/bohs-qualifications/

Appendix 1

IP601 Formative practical assessment report

Training provider			
Course start date		Course end date	
Location of course			
Name of candidate		Date of birth	
Date of assessment			

Assessment element		Tutor comment on level of proficiency (Satisfactory/Unsatisfactory)
1	Visualisation of air flows	
2	Duct measurements of pressure and velocity	
3	Static pressure measurements	
4	Extraction inlet flow measurements	

I certify that the above candidate has been assessed in accordance with BOHS requirements and has achieved the level of proficiency for each element as shown.

Name of tutor		Signature of tutor	