

LPG GAS TRAINING SPECIFICATION

UTILISATION SECTOR

This training Specification has been approved by the Strategic Management Board and is effective from 1st January 2021.

It will be published in due course by IGEM as a supplement to IGEM/IG/1 Standards of training in gas work

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1. INTRODUCTION

- 1.1. Standards of training in gas work' (IGEM/IG/1) is one of the outcomes from revision to the Safety in the installation and use of gas systems and appliances L56 Approved Code of Practice and relates specifically to Regulation 3 (1), see paragraphs 81 and 82.
- 1.2. IGEM/IG/1 sets out the requirements for training in gas work for; new entrants to the gas industry working under the scope of the Gas Safety (Installation and Use) Regulations (GS(I&U)R); those persons currently or previously registered seeking re-registration as a 'class of persons' (or have a relevant gas qualification) and; those persons working at premises or on equipment outside the scope of GS(I&U)R.
- 1.3. This LPG training Specification relates to:
 - **new entrants** into the gas industry wishing to become a 'class of persons' will be required to undertake **an industry recognised** training course before being able to take an assessment to include the relevant matters of gas safety criteria to be become Gas Safe registered.

Note: These include the following recognised routes to registration, which are:

 - *Nationally accredited certification scheme for individual gas fitting operatives (ACS)*
 - *Framework qualifications*
 - *Apprenticeship standards*
- 1.4. Industry formed a working group facilitated by the Standard Setting Body to prepare this Specification and it has been contributed to and endorsed by the Liquid Gas UK and agreed by the Standards Consultation Forum (SCF) and ratified by the Strategic Management Board (SMB).
- 1.5. Training courses that have been designed to meet this Specification and have acquired industry recognition will enable those that successfully complete that training to apply to complete an appropriate assessment(s) of competence in line with relevant matters of gas safety criteria (MoGS). Passing such assessment(s) will enable that person to apply to Gas Safe Register to become a 'class of persons' to allow them to work in those premises covered by GSIUR.
- 1.6. This training may equally be appropriate for those persons working at premises or on equipment outside the scope of GSIUR.

2. SCOPE

- 2.1. This training Specification covers training for new entrants wishing to work in the LPG utilisation sector.
- 2.2. The requirements of that training will include knowledge and understanding, performance criteria and on the job work experience that will have to be undergone in a work placement supervised by a Gas Safe registered engineer, as appropriate.
- 2.3. The requirements will include the minimum time spent on each subject along with the job activities that are required to be undertaken and the maximum time spent to complete the training is expected to be two years.

Note: There may be exceptions where apprenticeships have been designed for longer periods.

3. **GOVERNANCE**

This Specification has been facilitated by Standard Setting Body and has been endorsed by Liquid Gas UK, the Specification has also been agreed by the Standards Consultation Forum (SCF) and ratified by the Strategic Management Board (SMB).

4. **SPECIFICATION FOR LPG TRAINING**

4.1. **Introduction**

4.1.1. This specification is designed to provide the criteria for training to be developed for a new entrant to gain an initial overall understanding of the LPG utilisation sector and for training specific to the sector that the candidate will be working in.

4.1.2. It is recognised that due to the different types of LPG installations, the subjects covered in training programmes designed in accordance with this specification will not all be the same. Table 1 defines some likely routes that candidates of the training will follow.

5.1 **General**

5.1.1 The training programme is to consist of knowledge and understanding, performance criteria ('Off the job' training) and a work placement ('On the job' training) to enable the learning to be enhanced in a work environment under the direct supervision of a Gas Safe registered engineer, where appropriate.

5.1.2 'Off the job' training is that which the new entrant is trained in a classroom environment for enhanced knowledge input and practical workshop areas which simulate the practical environment for demonstration and skills practice. The balance between knowledge and practical work will be dependent on the content of the subject. Training organisations will be required to produce a lesson plan against the suggested topic areas to demonstrate how they will meet the scope of the subject.

5.1.3 'On the job' training is to be carried out in the workplace, under the direct supervision of a Gas Safe registered engineer, where appropriate. 'On the job' training is to be adequate to ensure a range and scope of activity that is sufficient to demonstrate evidence of experience has been attained. Record of the work carried out, the method undertaken, and any other relevant information is to be retained to build a portfolio of evidence to be verified by the training organisation and Recogniser of Training or the Authoriser where the Authorisers approves an independent training provider (see Clause 5.2.2.)

5.1.4 Arrangements need to be in place to ensure that the new entrant and the competent person, a registered Gas Safe engineer, as appropriate, who will be mentoring the new entrant knows what is expected of them. A professional discussion is to be conducted with them and the responsible parties to confirm and ensure that everyone understands their role and responsibilities.

5.1.5 Written and practical tests need to be completed at the end of the programme to evaluate the authenticity of the portfolio content and off the job training. The tests need to sample key safety aspects relevant to the utilisation sector. A selection of written and practical tests across the scope of the specific disciplines, are to be available to prevent predictability (see Sub-Section 5.3).

5.2 **Training**

5.2.1 *Minimum 'Off the job' duration*

The training duration shall be commensurate with the topics being covered in the course.

The subjects to be covered for each route and the minimum guided learning hours for each subject are detailed in Table 2.

The training is to cover both the knowledge and practical aspects of the work and this is also detailed in Table 2. The practical aspects would normally be carried out in a workshop but may be carried out in a work environment where appropriate.

5.2.2 *Minimum 'On the job' tasks and duration*

On-the-job training must be complemented by gaining real world experience under the supervision of a qualified Gas Safe registered engineer who will be required to provide witness testimony to the work experience entered into the learner's portfolio of evidence.

It is recognised that gaining real world work experience can be unpredictable and therefore its quality and range could vary greatly from one situation to another. To illustrate this, two examples are highlighted below where work experience has been gained by being supervised by:

- A sole trader offering a limited range of services.
- A number of different engineers working for a national company offering a full range of services.

Therefore, the work experience can be facilitated in the following way:

- The portfolio of documented evidence of work experience must provide evidence representative of a minimum of six months' work experience and must cover the criteria applicable to the route that the new entrant is enrolled in.
- Where the learner cannot gain real work experience in the work place a maximum of **10%** of the portfolio evidence could be covered in an approved simulated environment.

5.3 **Evaluation of training**

- 5.3.1 An evaluation of the learning needs to be undertaken, which supports the training, the new entrant and the trainer.
- 5.3.2 The evaluation is to be a mixture of verbal, written and practical tests that need to be conducted during and at the end of the training.
- 5.3.3 These tests need to include, the portfolio of evidence that the trainee has submitted to establish that they have witnessed and/or undertaken the tasks (under direct supervision), gained knowledge and lessons learnt, all the subjects taught and be in an appropriate format for the subject.
- 5.3.4 The period for this review and the tests shall be commensurate with the topics being covered in the course, in addition to the allotted training days.
- 5.3.5 The marking scheme for the tests needs to be open and transparent to the new entrant and the trainer.
- 5.3.6 Arrangements need to be in place for moderation and an independent review.
- 5.3.7 Pass mark needs to be set at 100% for matters of gas safety and on all others satisfy assessment criteria in line with recognised industry standards.

5.4 Certificate

A certificate is to be presented when the new entrant has successfully completed an industry recognised training course. Detailing, as a minimum the name of the entrant, National Insurance number, the title of the course, date the certificate was awarded and the training organisation.

TABLE 1: TRAINING ROUTES

Route	Core Training Modules	Candidate Profile	Working Towards
Permanent Dwellings (PD)	As per - Table 2	Someone looking to work in dwellings installing, servicing and maintaining appliances. They may also wish to install and maintain LPG vessels and service pipework.	CCLP1PD (and appliances and/or vessels)
Caravan Holiday Home (CHH)		Someone looking to work on holiday parks and/or residential park home sites installing, servicing and maintaining appliances. They may also wish to install and maintain LPG vessels and service pipework.	CCLP1RPH and CCLP1LAV (and appliances and/or vessels)
Leisure (L)		Someone looking to work on road going vehicles (probably for hire) installing, servicing and maintaining appliances.	CCLP1LAV (and appliances)
Marine (M)		Someone looking to work on boats installing, servicing and maintaining appliances.	CCLP1B (and appliances)
Vessels, Pipework & Connections (VPC)		Someone looking to complete work installing and maintaining LPG vessels and service pipework supplying any type of premises. Including repair, purge and re-light.	CCLP1EPC (vessels included as part of EPC)
Vessels & Service Pipework (VESP)		Someone looking to complete work installing LPG vessels and service pipework.	CCLP1EP (vessels included as part of EP)

TABLE 2: OFF THE JOB TRAINING

The performance criteria (PC), knowledge and understanding (K&U) requirements for off-the-job training are structured to be consistent with the core competencies found in the MoGS.

The minimum guided learning hours assigned to each subject are detailed below:

Core Competencies	Minimum Guided Learning Hours					
	D	CHH	L	M	VPC	VESP
Safety, Legislation and Standards	35	21	21	21	21	21
Gas Emergency Actions and Procedures	14	7	7	7	12	12
Characteristics of LPG	14	12	12	12	12	12
Products and Characteristics of Combustion	14	14	14	14	4	0
Supply pressures, operation and positioning of emergency isolation, flow control and valves for bulk vessels and cylinders.	11	14	14	14	21	21
Cylinder location safety requirements	7	7	7	7	7	7
Ventilation for Gas Burning Appliances	21	14	14	14	21	0
Installation of Pipework and Fittings	35	14	14	14	28	28
Tightness/soundness testing and purging in accordance with the relevant standard	7	7	7	7	7	0
Tightness/soundness testing and purging in accordance with Liquid Gas UK CoP 22 for installations > 0.035 m ³ IV.	0	0	0	0	12	12
Checking and/or Setting Regulators	7	7	7	7	7	7
Unsafe Situations, Emergency Notices and Warning Labels	21	12	12	12	12	12
Checking and Setting Appliance Burner Pressures and Gas Rates	7	7	7	7	0	0
Operation and Checking of Appliance Gas Safety Devices and Controls	21	7	7	7	14	0
Chimney Standards	14	12	7	7	12	0
Chimney Installation, Inspection and Testing	21	7	7	7	7	0
Re-establish Existing Gas Supply and Re-light Appliances	14	7	7	7	7	0
Commercial Ventilation, Chimney and Safety Devices	0	0	0	0	28	0
Installation of LPG vessels	0	0	0	0	0	35
Total:	263	169	164	164	242	167

Safety, Legislation and Standards

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to electrical supplies, tools and components you will need to be able to:						
P1	Prove safe electrical isolation before working on gas appliances, systems and components.	✓	✓	✓	✓		
P2	Measure voltage and resistance values using appropriate test instruments.	✓	✓	✓	✓		
P3	Visually inspect electrical power tools for safe condition before use.	✓	✓	✓	✓	✓	✓
Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to working on downstream domestic gas installations you will need to know and understand:						
K1	Application of the Gas Safety Installation and Use Regulations.	✓	✓	✓	✓	✓	✓
K2	Asbestos related hazards and application of adequate safety measures.	✓	✓	✓	✓	✓	✓
K3	Safety precautions when other hazardous materials are encountered whilst working in the downstream gas industry.	✓	✓	✓	✓	✓	✓
K4	Your responsibilities regarding health, safety and the environment.	✓	✓	✓	✓	✓	✓
K5	Use of personal protective equipment.	✓	✓	✓	✓	✓	✓
K6	Information available to Gas Safe registered operatives: <ul style="list-style-type: none"> • Legislative Normative and Informative Document List. • Industry Standard Updates. • Safety Alerts. • Technical Bulletins 	✓	✓	✓	✓	✓	✓

Gas Emergency Actions and Procedures

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to emergency actions, you will need to know and understand:						
K1	Priorities and actions when dealing with a gas escape.	✓	✓	✓	✓	✓	✓
K2	Properties of LPG.	✓	✓	✓	✓	✓	✓

Characteristics of LPG

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
K1	The properties and characteristics of LPG (Propane and Butane) vapour	✓	✓	✓	✓	✓	✓
K2	The properties and characteristics of LPG (Propane and Butane) liquid	✓	✓	✓	✓	✓	✓

Properties and Characteristics of Combustion

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to complete and incomplete combustion, you will need to be able to:						
P1	Identify correct and incorrect flame pictures.	✓	✓	✓	✓	✓	
P2	Identify signs of incomplete combustion within and in the locality of an appliance installation.	✓	✓	✓	✓	✓	
	In relation to carbon monoxide (CO) detectors and indicators, you will need to be able to:						
P3	Identify, install and commission different types of CO detector.	✓	✓	✓	✓		
	In relation to combustion performance analysis, you will need to be able to:						
P4	Undertake combustion performance analysis on a range of appliances.	✓	✓	✓	✓		

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to complete and incomplete combustion, you will need to know and understand:						
K1	Combustion equations for complete and incomplete combustion.	✓	✓	✓	✓	✓	
K2	Air requirements for complete combustion.	✓	✓	✓	✓	✓	
K3	Causes of incomplete combustion.	✓	✓	✓	✓	✓	
	In relation to carbon monoxide (CO) detectors and indicators, you will need to know and understand:						
K4	CO poisoning and detection.	✓	✓	✓	✓	✓	
	In relation to combustion performance analysis, you will need to know and understand:						
K5	Actions to take when undertaking combustion performance analysis.	✓	✓	✓	✓		

Supply pressures, operation and positioning of emergency isolation, flow control and valves for bulk vessels and cylinders

Performance Criteria		D	CHH	L	M	VPC	VESP
P1	Identify LPG installation safety devices and controls	✓	✓	✓	✓	✓	✓
P2	Check safety devices and controls for correct operation and carry out any corrective action where necessary	✓	✓	✓	✓	✓	✓
P3	Explain the operation of LPG installation devices and controls	✓	✓	✓	✓	✓	✓
P4	Checking standing and working pressure of LPG regulators	✓	✓	✓	✓	✓	✓
P5	Identify correctly positioned emergency isolation controls and valves.	✓	✓	✓	✓	✓	✓
P6	Demonstrate dealing with incorrectly positioned emergency isolation controls and valves.	✓	✓	✓	✓	✓	✓
P7	Identify the correct labels to attached emergency isolation controls and valves.	✓	✓	✓	✓	✓	✓

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
K1	LPG vessels controls and valves .					✓	✓
K2	LPG cylinder controls and valves.	✓	✓	✓	✓	✓	✓
K3	Types of LPG regulators.	✓	✓	✓	✓	✓	✓
K4	Typical LPG regulator operating pressures.	✓	✓	✓	✓	✓	✓
K5	Positioning of emergency control valves.	✓	✓	✓	✓	✓	✓
K6	Positioning of automatic changeover valves.	✓	✓	✓	✓	✓	✓
K7	Positioning of LPG regulators.	✓	✓	✓	✓	✓	✓
K8	Identifying causes of overpressure situations.	✓	✓	✓	✓	✓	✓
K9	Emergency isolation of multi-occupancy buildings.	✓				✓	✓
K10	Setting and resealing LPG regulators					✓	✓

Cylinder location safety requirements

Performance Criteria		D	CHH	L	M	VPC	VESP
P1	Identify suitable locations for LPG cylinders.	✓	✓	✓	✓	✓	

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
K1	Types, sizes and marking of LPG cylinders.	✓	✓	✓	✓	✓	
K2	Siting requirements for LPG cylinders.	✓	✓	✓	✓	✓	

Ventilation for Gas Burning Appliances

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to providing ventilation for domestic gas burning appliances, you will need to be able to:						
P1	Measure the free area of a range of different types of ventilation air vents and grilles.	✓	✓	✓	✓	✓	
P2	Identify correct and incorrect ventilation provision.	✓	✓	✓	✓	✓	

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to providing ventilation for domestic gas burning appliances, you will need to know and understand:						
K1	Factors affecting ventilation.	✓	✓	✓	✓	✓	
K2	Design and types of ventilation provision.	✓	✓	✓	✓	✓	
K3	Calculating ventilation requirements.	✓	✓	✓	✓	✓	
K4	Ventilation labels and notices.	✓	✓	✓	✓	✓	

Installation of pipework and fittings

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to the installation of domestic pipework and fittings, you will need to be able to:						
P1	Joint pipework using soldered, threaded, washer, union and compression fittings.	✓	✓	✓	✓	✓	✓
P2	De-commission metered gas installations, tee into existing copper pipework and re-commission installation on completion.	✓	✓	✓	✓	✓	✓
P3	Demonstrate correct use of temporary continuity bond.	✓	✓	✓	✓	✓	✓
P4	Identify a range of installation pipework safety defects.	✓	✓	✓	✓	✓	✓
P5	Identify a range of service pipework safety defects.					✓	✓

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to the installation of pipework and fittings, you will need to know and understand:						
K1	Factors to consider when installing gas installation pipework.	✓	✓	✓	✓	✓	✓
K2	Copper and mild steel pipe and fittings standards, suitability and use.	✓	✓	✓	✓	✓	✓
K3	Jointing and cleaning agents for jointing copper and threaded pipework fittings.	✓	✓	✓	✓	✓	✓
K4	Restrictions on use of union and compression fittings.	✓	✓	✓	✓	✓	✓
K5	Requirements for supporting and clipping gas installation pipework.	✓	✓	✓	✓	✓	✓
K6	Pipework protection, sleeving and sheathing requirements.	✓	✓	✓	✓	✓	✓

K7	Pipe sizing.	✓	✓		✓	✓	✓
K8	Medium pressure gas supplies.	✓	✓			✓	✓

Tightness testing and purging in accordance with the relevant standard for installations ≤ 0.035 m³ IV.

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to testing and purging domestic LPG installations, you will need to be able to demonstrate:						
P1	Test domestic LPG gas installations for tightness using air.	✓	✓	✓	✓	✓	✓
P2	Test domestic LPG gas installations for tightness using gas.	✓	✓	✓	✓	✓	✓
P3	Purge domestic LPG installations.	✓	✓	✓	✓	✓	
P4	Trace and repair a gas escape.	✓	✓	✓	✓	✓	✓
P5	Test existing domestic LPG installations for tightness with a medium pressure gas supply without a meter inlet valve.	✓	✓			✓	
P6	Test existing domestic LPG installations for tightness with a medium pressure gas supply with a meter inlet valve.	✓	✓			✓	

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to testing and purging domestic LPG installations, you will need to know and understand:						
K1	Types of pressure gauge and perceptible movement	✓	✓	✓	✓	✓	✓
K2	Application of permissible pressure drops	✓	✓	✓	✓	✓	
K3	Dealing with let by	✓	✓	✓	✓	✓	✓
K4	Actions to take when a smell of gas persists after a satisfactory test or after the ECV has been turned off	✓	✓	✓	✓	✓	✓
K5	Calculating installation and purge volumes	✓	✓			✓	
K6	Testing before working on an installation	✓	✓	✓	✓	✓	

**Tightness/soundness testing and purging in accordance with
Liquid Gas UK CoP 22 for installations > 0.035 m³ IV.**

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to testing and purging LPG installations, you will need to be able to demonstrate:						
P1	Test domestic LPG gas installations for tightness using air.					✓	✓
P2	Test domestic LPG gas installations for tightness using gas.					✓	✓
P3	Purge domestic LPG installations.					✓	✓
P4	Trace and repair a gas escape.					✓	✓
P5	Test existing LPG installations for tightness with a medium pressure gas supply without a meter inlet valve.					✓	✓
P6	Test existing LPG installations for tightness with a medium pressure gas supply with a meter inlet valve.					✓	✓

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to testing and purging domestic LPG installations, you will need to know and understand:						
K1	Types of pressure gauge and perceptible movement					✓	✓
K2	Application of permissible pressure drops					✓	✓
K3	Dealing with let by					✓	✓
K4	Actions to take when a smell of gas persists after a satisfactory test or after the ECV has been turned off					✓	✓
K5	Determine installation and purge volumes					✓	✓
K6	Testing pipework of a total IV > 0.035 m ³					✓	✓
K7	Testing before working on an installation					✓	✓

Checking and/or setting regulators

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to checking and/or setting domestic regulators on LPG installations, you will need to be able to demonstrate:						
P1	Measure and record the installation standing pressure	✓	✓	✓	✓	✓	✓
P2	Measure and record the installation working pressure	✓	✓	✓	✓	✓	
P3	Determine if the installation working pressure is correct or incorrect	✓	✓	✓	✓	✓	
P4	State the actions to take if the working pressure is incorrect	✓	✓	✓	✓	✓	

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to checking and/or setting domestic regulators on LPG installations, you will need to know and understand:						
K1	The effects of low and high flow rates on a regulator	✓	✓	✓	✓	✓	✓
K2	The effects of pressure absorption across primary meter installation	✓	✓	✓		✓	✓
K3	The operation of a gas regulator	✓	✓	✓	✓	✓	✓
K4	Identifying a medium pressure meter/regulator installation	✓	✓	✓		✓	✓
K5	How a UPSO works	✓	✓	✓		✓	✓
K6	How a OPSO works	✓	✓	✓	✓	✓	✓
K7	Limited Relief Operation	✓	✓	✓	✓	✓	✓

Unsafe situations, emergency notices and warning labels

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to unsafe situations, emergency notices and warning labels, you will need to be able to:						
P1	Identify and classify different categories of unsafe situations.	✓	✓	✓	✓	✓	✓
P2	Demonstrate the procedure to follow for each classification of unsafe situation.	✓	✓	✓	✓	✓	✓
P3	Complete, explain and issue appropriate warning/advisory notices.	✓	✓	✓	✓	✓	✓

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to unsafe situations, emergency notices and warning labels, you will need to know and understand:						
K1	Gas Industry Unsafe Situation Procedure (GIUSR).	✓	✓	✓	✓	✓	✓
K2	Situations reportable under RIDDOR.	✓	✓	✓	✓	✓	✓
K3	Correct use of notices and labels.	✓	✓	✓	✓	✓	✓

Checking and setting appliance burner pressures and gas rates

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to checking and setting appliance burner pressures and gas rates, you will need to be able to:						
P1	Measure appliance operating pressure.	✓	✓	✓	✓		
P2	Measure appliance gas rate.	✓		✓	✓		

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to checking and setting appliance burner pressures and gas rates, you will need to know and understand:						
K1	Requirements for range rated appliances.	✓	✓	✓	✓		
K2	Causes and effects of pressure loss.	✓	✓	✓	✓	✓	
K3	Use of electronic pressure gauge.	✓	✓	✓	✓	✓	

Operation and checking of appliance gas safety devices and controls

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to gas safety devices and controls you will need to be able to:						
P1	Identify gas safety devices and controls.	✓	✓	✓	✓		
P2	Check gas safety devices and controls for correct operation and carry out any corrective action where necessary.	✓	✓	✓	✓		
P3	Explain the operation of gas safety devices and controls.	✓	✓	✓	✓		

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to gas safety devices and controls you will need to know and understand:						
K1	The principles of operation of gas safety devices and controls.	✓	✓	✓	✓		
K2	The sequence of operation of gas safety devices and controls.	✓	✓	✓	✓		
K3	Information required for spare part identification.	✓	✓	✓	✓		

Chimney Standards

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
K1	Existing solid fuel chimney.	✓	✓			✓	
K2	Pre-cast flue.	✓				✓	
K3	Individual natural draft open flue.	✓	✓	✓	✓	✓	
K4	Fanned draft open flue.	✓				✓	
K5	Shared open flue.	✓	✓	✓	✓	✓	
K6	Room sealed natural draft.	✓	✓	✓	✓	✓	
K7	Room sealed fanned draft.	✓	✓	✓	✓	✓	
K8	Balanced compartments for open flue appliances.	✓				✓	
K9	Shared room sealed flue.	✓				✓	
K10	Flue systems for condensing appliances.	✓	✓		✓	✓	
K11	Vertex flue systems.	✓	✓	✓	✓	✓	

Chimney installation, inspection and testing

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to chimney testing you will need to be able to:						
P1	Visually inspect chimney systems to confirm correct and incorrect installation.	✓	✓	✓	✓	✓	
P2	Perform a flue flow test on an open flue system.	✓	✓	✓	✓		
P3	Perform a spillage test on an appliance connected to an open flue system.	✓	✓	✓	✓		
P4	Perform a spillage test on a room sealed fan assisted positive pressure appliance.	✓	✓				
P5	Inspect a concealed fanned flue installation.	✓	✓				

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to chimney installation inspection and testing you will need to know and understand:						
K1	Causes of leakage of combustion products from room sealed positive combustion chamber pressure appliances.	✓	✓				
K2	Installation and testing appliances when MIs are not available.	✓	✓	✓	✓		
K3	Actions to take when inspection hatches are not available for flues in voids.	✓	✓			✓	

Re-establish existing gas supply and re-light appliances

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to re-establishing an existing domestic gas supply and re-lighting the appliances, you will need to be able to:						
P1	Check the installation is gas tight.	✓	✓	✓	✓	✓	
P2	Purge the installation and appliances of air.	✓	✓	✓	✓	✓	
P3	Establish a stable flame on each appliance.	✓	✓	✓	✓	✓	
P4	Visually inspect each appliance and identify any unsafe situations.	✓	✓	✓	✓	✓	
P5	Confirm satisfactory operation of user controls.	✓	✓	✓	✓	✓	

Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to re-establishing an existing domestic gas supply and re-lighting the appliances, you will need to know and understand:						
K1	Actions to take when an un-commissioned appliance is identified.	✓	✓	✓	✓	✓	
K2	Actions to take if pipework and appliance(s) are not tested (commissioned) when the gas supply is re-established.	✓	✓	✓	✓	✓	

Commercial Ventilation, Chimney and Safety Devices

Performance Criteria		⌀	CHH	L	M	VPC	VESP
	In relation to Commercial Ventilation, Chimney and Safety Devices, you will be able to demonstrate:						
P1	When/how to carry out atmosphere test in non-domestic establishments					✓	
P2	Ventilation requirements for make-up and extract air for catering and other non-domestic appliances					✓	
P3	Installation of pipework and fittings in catering and other non-domestic establishments					✓	
Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to Commercial Ventilation, Chimney and Safety Devices, you will need to know and understand:						
K1	Chimney requirements, types and methods for non-domestic applications including fan diluted, natural draft, room sealed and balanced compartments					✓	
K2	Mechanical ventilation requirements for non-domestic appliances					✓	
K3	Chimney requirements, types and methods for non-domestic applications including heating, catering and laundry appliances					✓	
K4	Natural ventilation requirements for non-domestic appliances					✓	
K5	Chimney and flue construction for non-domestic appliances					✓	
K6	Chimney and flue system termination for non-domestic appliances					✓	

Installation of LPG vessels

Performance Criteria		D	CHH	L	M	VPC	VESP
	In relation to the installation of LPG Vessels, you will be able to demonstrate:						
P1	Installation of Pipework and Fittings					✓	✓
P2	Multi-distribution Supplies – Pipework Design and Installation Requirements					✓	✓
P3	Commissioning and Decommissioning Vessels and Pipework					✓	✓
P4	Gas Meters – Installation, exchange, relocation and removal					✓	✓
Knowledge and Understanding		D	CHH	L	M	VPC	VESP
	In relation to the installation of LPG Vessels, you will need to know and understand:						
K1	Vessel design and controls					✓	✓
K2	Vessel safety requirements, above and Below Ground					✓	✓
K3	Vessel sizing/location requirements, above and Below Ground					✓	✓
K4	Cylinder safety and sizing and siting/location requirements					✓	✓
K5	Unsafe Situations, Emergency Notices and Warning Labels					✓	✓

APPENDIX 2 - SPECIFIC TRAINING FOR APPLIANCE TYPES

The performance criteria (PC), knowledge and understanding (K&U) requirements for off-the-job training are structured to be consistent with the appliance type competencies found in the MoGS. The minimum guided learning hours assigned to each subject are detailed below:

Appliance Competencies (At least one appliance must be selected)	Minimum Guided Learning Hours
Central Heating Boilers (Wet)	8
Optional Elements for Central Heating Boilers, Systems and Controls	21
Water Heaters	4
Fires and Wall Heaters	4
Cookers	4

LPG Appliances Sector Specific	Minimum Guided Learning Hours
Closed Flue Fire e.g. Widney leisure range	4
Cabinet Heater	4
Caravan Space Heater	4
Caravan Water Heater	4
Ducted warm air	4
Refrigerators	4
Leisure e.g. greenhouse heaters, BBQ, Gas lights, Flambeau and patio heaters	4

Appliances

Performance Criteria

In relation to gas appliances, for each appliance you will need to be able to:

- P1 Install the appliance to a prepared point.
- P2 Commission the appliance to MIs.
- P3 Service the appliance to MIs.
- P4 Identify gas related safety defects.
- P5 Undertake combustion performance analysis (where applicable).

For appliance categories that can incorporate an air/gas ratio valve you will need to be able to:

- P6 Check the air/gas ratio valve is set correctly at high and low limits in accordance with manufacturer's instructions and adjust if necessary.

Knowledge and Understanding

In relation to domestic gas appliances, for each appliance you will need to know and understand:

- K1 How to identify and diagnose gas safety faults.
- K2 Suitable and unsuitable room/space locations.
- K3 Clearances– proximity of combustible materials – fire proofing of compartments.
- K4 Operation of gas safety control devices
- K5 Condensate removal and disposal (where applicable)
- K6 When to carry out combustion performance analysis

For appliance categories that can incorporate an air/gas ratio valve you will need to know and understand:

- K7 The principle of adjustment of air/gas ratio valves.

Optional for Central Heating Boilers, Systems and Controls

Performance Criteria

In relation to central heating controls, you will need to be able to:

- P1 Measure and interpret resistance readings to ensure that it is safe to establish/re-establish the electrical supply:
- P2 Measure and interpret voltage readings to ensure safe electrical operation.
- P3 Wire the electrical components of a:
 - Y plan control system.
 - S plan control system.
- P4 Wire a programmable room thermostat to a combi boiler

Knowledge and Understanding

In relation to central heating system design, you will need to know and understand:

- K1 The component parts of an open vented system.
- K2 The component parts of a sealed system.
- K3 System plans including S Plan and Y Plan.
- K4 Energy efficiency requirements.

In relation to central heating controls, you will need to know and understand:

- K5 Basic electrical principles:
 - Voltage.
 - Current.
 - Resistance.
 - Ohm's law.

K6 The basic operating principles and wiring connections of:

- Motorised valves.
- Room thermostats.
- Time controls.
- Time and temperature controls.
- Pump over-run requirements.

K7 Energy efficiency requirements.

APPENDIX 3: FURTHER GUIDANCE

Guidance for the new entrant, the training organisation and the recogniser of training is to be provided and as a minimum shall include:

- Education requirements for new entrants
Applicants will normally have gained a minimum of 2 GCSEs (grade C) or equivalent, preferably English, mathematics or relevant/appropriate experience or an entry assessment
- Information for the new entrant about the opportunities in the industry following successful completion of the training
- Responsibilities of the training organisation
- Responsibilities of the new entrant
- Transfer of training to other recognised training organisations
In the event of the training organisation being unable to provide the remaining training or new entrant advocates to use another training organisation part way through the course, for example has relocated to another part of the UK the transfer of training is allowed. The successful completion of training under Part 1 may be taken and used as evidence to another training organisation to allow training to continue.

APPENDIX 4: REFERENCES, GLOSSARY, ACRONYMS AND DEFINITIONS

REFERENCES

L56 Safety in the Installation and Use of Gas Systems and Appliances - Approved Code of Practice
IGEM/IG/1 Standards of training in gas work.

GLOSSARY AND ACRONYMS

ACS	Nationally Accredited Certification Scheme for Individual Gas Fitting Operatives
CO	carbon monoxide
CO ₂	carbon dioxide
IGEM	Institution of Gas Engineers and Managers
LPG	Liquefied Petroleum Gas
MoGS	Matters of Gas Safety criteria
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
SCF	Standards Consultation Forum
SMB	Strategic Management Board
UKLPG	UK LPG Trade Association.

DEFINITIONS

class of persons	all gas engineering businesses, including self-employed gas engineers, are (subject to the limited exceptions in regulation 3(4)) required to be in membership of a class of persons approved by HSE, whether they carry out such work as their main or part activity. Gas engineers who are employed by a member of an approved class of persons but who do separate work on their own behalf need to be in membership of such class of persons, e.g. Gas Safe registered, in their own right. This definition is an extract from GS(I&U)R.
competence	is a combination of practical skill, training, knowledge and experience to carry out the job in hand safely, and ensuring the installation is left in a safe condition for use.
industry recognised	the Standards Setting Body is required to recognise all training for developers/providers wishing to provide training for new entrants working under the GS(I&U)R and for training providers wishing to become recognised to offer training for those working outside the scope of GS(I&U)R.
learner	a person learning a subject or skill
mentor	a person with the appropriate knowledge and experience to support a new entrant to the gas industry during their training.
mentoring	a person(s) with the appropriate knowledge and experience supporting the new entrant in their training.
new entrant	a person wishing to achieve a recognised industry qualification to become eligible to sit accredited assessments required by Gas Safe Register, see IGEM/IG/1.
LPG sector	those premises containing gas installations which are downstream of the Natural Gas Network or LPG installation emergency control valve other than non-domestic premises.
`Off the job' training	training that is undertaken in a classroom or workshop (which may be indoor or outdoor).
`On the job' training	training that is undertaken in a workplace such as an industrial or commercial premise (it may be simulated in a workshop under certain limited conditions).
portfolio	a collection of records which will be written, copies of documents, reports or test papers and photographs that is evidence of the work experience and/or work that the new entrant has undertaken.

Standards Consultation Forum	ensures that employers and stakeholders allied to the gas industry are appropriately consulted as an integral part of the process of competence standard setting arising from proposals to amend or introduce new assessment mechanisms and associated aspects for businesses seeking registration on the Gas Safe Register. For membership details contact Energy and Utility Skills Ltd.
Strategic Management Board	ensures that the mechanisms and processes established for the production, maintenance and implementation of competence criteria and associated assessment specifications, operate in an effective and efficient manner to align fully with the Legislative requirements of the Gas Safety (Installation and Use) Regulations 1998 and subsequent registration requirements for consumer safety. For details, contact Energy and Utility Skills Ltd.
supervised	in the context of this document means ‘the work experienced by the new entrant is either being carried out by the competent person/Gas Safe registered engineer and watched by the new entrant but being explained and coached or when appropriate being undertaken by the new entrant whilst overseen and checked by the supervisor. The supervisor being responsible and in control of the work at all times’.
workplace	an industrial or commercial premise or a simulated premise within a training establishment.

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