Strategic Management Board

ACS.CESP1.CMA1.CMA2 LS SAFETY ASSESSMENT CRITERIA INITIAL AND RE-ASSESSMENT EMERGENCY SERVICE PROVIDER AND GAS METER INSTALLER NON-DOMESTIC AND DOMESTIC NATURAL GAS

CESP1; CMA1; CMA2 LS | INITIAL & RE-ASSESSMENT

Introduction

Tests gas safety competence in Core Domestic Limited Scope meter work **(CMA2 LS);** Core domestic and non-domestic emergency service gas work **(CESP1)** and Core domestic and non-domestic gas metering work **(CMA1).**

CMA2 LS is a limited core and pre-requisite to MET3 LS which is the assessment combination for installing domestic gas meters which are sealed off at the meter outlet fitting and labelled; ensuring gas is not left available to the installation pipework and/or appliances.

The assessment criteria have been split into:

Part A: Generic Competencies (CMA1; CESP and CMA2 LS)

1. Gas safety legislation and Standards
2. Gas emergency actions and procedures
5. Installation of pipework and fittings (pipework within meter installation)
6. Tightness testing and purging
7. Checking and/or setting meter regulators
8. Unsafe situations, use of emergency notices and warning labels
9. Operation and positioning of emergency isolation controls and valves.

Part B: Specific Competencies (CMA1 & CESP1 only)

1. Gas safety legislation and Standards
3. Products and characteristics of combustion
4. Ventilation (for domestic and non-domestic appliances)
5. Installation of pipework and fittings (outlet pipework)
12. Chimney Standards
15. Re-establish existing gas supply and re-light appliances.

Part C: Re-assessment of Options.

CBs may adopt Competence and Criteria numbering different to that used in this document.

CB documentation may adopt wording for criteria different to that used in this document, provided the meaning is unaffected.

Range

Primary 'Multi -Core' for gas meter and ESP type work (**CMA2 LS:** not connecting to an outlet supply).

CMA1 & CESP1. All gas fittings.

Pre-requisites

Initial

None. However, CESP1, CMA1 and CMA2 LS, as appropriate, are pre-requisite for all other Natural Gas safety assessments required for the ESP and meter installer.

Re-assessment (CESP1, CMA1 and CMA2 LS)

CESP1, CMA1, CMA2 LS, as appropriate.
Candidates holding CMA1 may undertake CESP1 re-assessment and vice versa.

Re-assessment (Part C)

CESP1 or CMA1 or CMA2 LS, as appropriate. ICPN1; CMET1; CMET2; TPCP1A; TPCP1; ; MET4; REGT1, and REGT2, as appropriate.
MET 1 and MET3LS re-assessment criteria is no longer covered in this document and is found within their respective criteria.

Exclusions

CMA2 LS. Work on altering position of meters, meter exchange, connection of outlet pipework or commissioning on appliances or internal installation pipework other than that required for the meter installation.

CMA1 & CESP1. Work on appliances other than re-lighting after a temporary interruption to gas supply.

References and normative documents

MIs.

All relevant documents as listed in the Legislative, Normative & Informative Document List (LINDL), inc.:

- HSL56
- GIUSP
- BS 6400-1
- IGEM/GM/6 Edition 2
- IGEM/GM/8
- IGE/UP/1B
- IGEM/UP/1B Edition 3
- IGEM/UP/17
- IGEM/UP/10 Edition 3 Amended 2017

ACS.SMB.003.ACDND identifies normative documents that should be held by ACs.

Abbreviations

AC. Assessment Centre
AECV. Additional emergency control valve
AIV. Appliance Isolation Valve
CFS. Communal Flue Systems
CSST. Corrugated stainless steel tube
ECV. Emergency control valve
ESP. Emergency service provider
GT. Gas transporter
I. Initial
IV. Installation volume
LDF. Leak detection fluid
MIs. Manufacturer's/manufacturers' instructions
MIV. Meter inlet valve
MOP. Maximum operating pressure
OP. Operating pressure
OQ. Oral questioning
R. Re-assessment
Ref. Reference.

PART A (CMA2 LS; CESP; CMA1)

1. Gas Safety Legislation

KNOWLEDGE & UNDERSTANDING		REF	I	R
1.	**HSL56:**			
(i)	Reg.2 General interpretation and application 2(1), (2), (3), (4), (5)c (iii), (6), (7) (8)		√	
(ii)	Reg.3 Qualification and supervision 3(1), (2), (3), (5), (6), (7) and (8)		√	
(iii)	Reg.4 Duty on employer		√	
(iv)	Reg.5 Materials and workmanship 5(1) to (3)		√	
(v)	Reg.6 General safety precautions 6(1) to (6)		√	
(vi)	Reg.7 Protection against damage 7(1) to (3)		√	
(vii)	Reg.8 Existing gas fittings 8(1) to (3)		√	

2. Gas emergency actions and procedures

KNOWLEDGE & UNDERSTANDING		REF	I	R
1.	**priorities of actions and responsibilities:**			
(i)	action to stop a gas escape downstream of ECV		√	
(ii)	action if gas continues to escape after turning off supply		√	
2.	limits of flammability		√	
3.	specific gravity and its effect in relation to air		√	
4.	hazardous ignition sources and their elimination		√	
5.	methods of preventing/reducing dangerous concentrations of gas in atmosphere		√	
6.	advice to occupants		√	
7.	HSL56: Reg.37 Escape of gas 37(1) to (4)		√	

5. Installation pipework and fittings (pipework within meter installation)

PERFORMANCE CRITERIA		REF	I	R
1.	join threaded pipe using appropriate fittings, methods and agents	BS6891 2015: 7.6	√	
2.	connect threaded joint with washer using appropriate fittings, methods and agents	BS6891 2015: 7.2	√	
3.	use of temporary earth continuity bond	BS6891 2015: 8.3.4	√	√
4.	check installation is gas tight. For re-assessment, Competency 6. can be assessed now		√	√
5.	purge installation pipework of air		√	√
6.	identify installation pipework safety defects		√	√
KNOWLEDGE & UNDERSTANDING		**REF**	**I**	**R**
1.	recognising correct types of outlet connections		√	
2.	threaded fittings		√	
2a	Press end connections ,jointing requirements	BS6891 2015: 7.4 to 7.4.2 and MI's	√	
3.	flexible and rigid connections		√	
4.	jointing agents for threaded and connections with washers		√	
5.	pipe supports, clips and fixing for outside pipework	BS6891 2015:	√	
6.	sleeving and sealing of pipework		√	
7.	Main protective bonding conductor (minimum cross sectional area)	BS6891 2015:	√	√
8.	fixing pipework when connected to a meter not securely restrained	BS6891 2015:	√	√
9.	siting and installation of gas controls and isolation valves		√	
10.	**HSL56:**			
(i)	Reg.10 Maintaining electrical continuity		√	
(ii)	Reg.18 Safe use of pipes 18 (1) and (2)		√	
(iii)	Reg.19 Enclosed pipes 19 (1), & (2 to 6)		√	
(iv)	Reg.20 Protection of buildings		√	
(v)	Reg.22 Testing and purging of pipes 22 (1) to (3)		√	
(vi)	Reg.23 Marking of pipes 23 (1) and (2)		√	
11.	GIUSP. Identify MP installation. Pipework directly enters premises through rear spigot of meter box		√	√

6a. Tightness testing and purging. Total IV ≤ 0.035 m³ (LP)

Up to 1¼ (steel) and/or 35 mm (copper)

PERFORMANCE CRITERIA		REF	I	R
1.	**testing new or existing installations with gas or air:**			
(i)	visually inspect the installation to ensure joints made correctly and no open ends		√	√
(ii)	check appliances and ensure AIVs are open		√	√
(iii)	turn off the gas installation at the appropriate valve		√	√
(iv)	connect the pressure gauge to a suitable pressure test point on the installation or, if testing with air, branch of test T-piece		√	√
(v)	if using gas, carry out a let-by test of the closed supply control valve		√	√
(vi)	adjust the pressure to between 7 and 10 mbar.		√	√
(vii)	close the valve and note the gauge reading		√	√
(viii)	test for 1 minute. If pressure rises by more than 0.25 mbar, let-by may be occurring		√	√
(ix)	if pressure rise is observed, check valve by disconnecting its outlet union and applying LDF to valve barrel (OQ)		√	√
(x)	on satisfactory completion of let-by test, slowly raise the pressure in the installation to between 20 and 21 mbar		√	√
(xi)	turn off gas or air supply		√	√
(xii)	allow 1 minute stabilisation; if necessary re-adjust pressure to between 20 and 21 mbar		√	√
(xiii)	check for any perceptible movement (fall) of the gauge over the next 2 minute period		√	√
(xiv)	for new installations, or existing installations with no appliances connected check there is no pressure drop		√	√
(xv)	for existing installations, check any pressure drop is within permissible values and there is no smell of gas		√	√
(xvi)	if installation fails test, trace and repair escape and re-test installation		√	√
(xvii)	if tightness test is successful, remove pressure gauge and re-seal test point		√	√
(xviii)	when connected to gas, test pressure test point; ECV/AECV outlet connection; regulator connections and, where appropriate, MIV connections with LDF		√	√
(xix)	purge installation		√	√
(xx)	record test results		√	√
2.	locate and repair a gas escape		√	√
KNOWLEDGE & UNDERSTANDING		**REF**	**I**	**R**
1.	selection and reading of pressure gauges		√	√
2.	Not CMA2 LS allowed pressure drops for existing installations related to meter size/type, pipe diameter and IV with appliances connected to gas supply and not isolated inc. E6, U6/G4, U16/G10 and where no meter is fitted		√	√
3.	identify no perceptible movement on gauge (0·25 mbar water gauge and 0·2 mbar electronic gauge reading to 1 decimal place)		√	√
4.	Not CMA2 LS allowed pressure drop for existing installation, inc. ECV but no meter is installed e.g. flat where supply is not individually metered		√	√
5.	electronic token meter tamper devices and their effect on tightness testing		√	√
6.	dealing with ECV/AECV/MIV that is letting by		√	√
7.	actions when smell of gas persists (a) after completion of satisfactory tightness test (b) when ECV/AECV/MIV is turned off, or a leaking installation cannot be repaired		√	√
8.	Not CMA2 LS testing pipework of diameter > 35 mm or total IV > 0.035 m³		√	√
9.	Not CMA2 LS testing prior to alteration or extension to existing installations		√	√
10.	acronyms and symbols		√	√
11.	Not CMA2 LS calculating IV and PV exercise for E6, U6 and G4 meters connected to 35 mm diameter pipework and U16 meters connected to any pipework of diameter ≤ 35 mm		√	√
12.	Not CMA2 LS purging installations of IV ≤ 0.02 m³ and those of IV > 0.02 m³		√	√
13.				

6b. Tightness testing and purging. Total IV ≤ 0.035 m³ (MP)

Up to 1¼ (steel) and/or 35 mm (copper)

PERFORMANCE CRITERIA	REF	I	R
Tightness testing existing NG installations for 75mbar <MOP ≤ 2bar without a MIV (IGE/UP/1B Edition 3 Appendix 4 A4.3)			
1. turn off the gas installation at the ECV		√	√
2. connect the pressure gauge to a suitable pressure test point on the installation		√	√

3. carry out a let-by test of the closed ECV as follows:		√	√
(i) adjust the pressure to between 7 and 10 mbar		√	√
(ii) operate the UPSO or excess flow valve reset to balance the pressures either side of the device, then allow it to re-shut		√	√
(iii) close the ECV and note the gauge reading		√	√
(iv) check for any perceptible movement (rise) of the gauge reading (>0.25 mbar) over the next 1 minute period		√	√
(v) if ECV is letting-by the test is suspended, installation made safe and the appropriate Gas Emergency Service Call Centre immediately notified (OQ)		√	√
4. Slowly raise the pressure in the installation to between 18 and 19 mbar by opening the ECV then turn off the valve		√	√
5. Allow 1minute for temperature and pressure stabilisation, if necessary re-adjust the pressure to between 18 and 19 mbar (the test shall not proceed until a stable reading is obtained)		√	√
6. Continue test as from 6a) 1 (xiii) to (xx)		√	√

7. Checking and/or setting meter regulators

PERFORMANCE CRITERIA		REF	I	R
1. Not CMA2 LS. Turn all appliances off			√	√
2. zero pressure gauge and connect to meter test point			√	√
3. observe and record standing pressure at test point			√	√
For CMA1 & CESP1	**For CMA2 LS**	**REF**	**I**	**R**
4a. turn on gas appliances and, dependent on appliances available, operate as follows: • boiler - full rate • space heater - full rate • cooker - 3 hotplate burners on full rate • other appliances - full rate	4b. Install meter regulator test device and re-establish gas supply		√	√
5. read and record OP on gauge (21 mbar) Note: supplementary oral question/s on:			√	√
(i) effects of pressure absorption across primary meter installation			√	√
(ii) effects of low and high flow rates on regulator outlet pressures (19 – 23 mbar)			√	√
6. **if reading is incorrect:**				
(i) notify GT where pressures are outside 19 – 23 mbar range		TB071	√	√
(ii) apply procedure for an ~~O~~AMI for re-setting and sealing meter regulator			√	√
7. remove gauge; re-seal test point and test for gas tightness			√	√
KNOWLEDGE AND UNDERSTANDING		**REF**	**I**	**R**
1. reading pressure gauges			√	
2. operation of a gas meter regulator			√	
3. HSL56: Reg.14 Regulators 14(1), (5), (6), (7)			√	

8. Unsafe situations, use of emergency notices and warning labels

PERFORMANCE CRITERIA Not CMA2 LS.	REF	I	R
1. identify unsafe situations as ID & AR		√	√
2. identify and label defective installation(s)		√	√
3. identify what and when to report under RIDDOR		√	√
4.			
KNOWLEDGE AND UNDERSTANDING Not CMA2 LS.	**REF**	**I**	**R**
1. explain dealing with ID	Fig 1 & 6.1 GIUSP Edition 7.1	√	√
2. explain dealing with AR	Fig 1 & 6.2 GIUSP Edition 7.1	√	√
2a explain dealing with AR installations/appliances when turning off does not remove the risk	Fig 1 & 6.2.2 GIUSP Edition 7.1	√	√
3 explain dealing with situations that do not meet current standards but are not unsafe	Foreword GIUSP Edition 7.1	√	√
4.			
5.			
6. **identify correct notices and labels to be used:**			
(i) MP supply		√	

(ii)	warning notice forms		√	
(iii)	advisory notices - NCS installation, RIDDOR, electrical bonding		√	
7.	situations reportable under RIDDOR: explain reporting to HSE		√	√
8.	HSL56: Reg.15 Meters – emergency notices 15 (1) to (2)		√	
9.	**GIUSP:**			
(i)				
(ii)	overall scope		√	√
(iii)	gas incidents		√	√
(iv)	non-domestic installations		√	√

9. Operation and positioning of ECV/isolation controls and valves

PERFORMANCE CRITERIA		**REF**	**I**	**R**
1.	identify incorrectly positioned valves			√
2.	identify correctly positioned valves			√
3.	demonstrate dealing with incorrectly positioned valves			√
4.	identify correct labels and attach to valves			√
KNOWLEDGE AND UNDERSTANDING		**REF**	**I**	**R**
1.	inside meter positions		√	
2.	outside meter positions		√	
3.	multi-occupancy installations-external risers		√	
4.	multi-occupancy installation-internal risers		√	
5.	multi-occupancy installation-remote meters		√	
6.	types of isolation valves used in multi-occupancy meter installations (AECVs etc.)		√	√
7.	HSL56: Reg.9 (1) to (4) inclusive		√	

PART B (for CESP1 and/or CMA1)

1. Gas safety legislation and Standards

KNOWLEDGE AND UNDERSTANDING		**REF**	**I**	**R**
1.	**HSL56:**			
(i)	Reg.25 Interpretation of Part E.		√	
(ii)	Reg.26 Gas appliances - safety precautions 26(1) to (10)		√	
(iii)	Reg.36 Duties of Landlords 36(1) to (12)		√	

3. Products and characteristics of combustion

PERFORMANCE CRITERIA		**REF**	**I**	**R**
1.	**inspect flame pictures of a selection of burners visually to identify those:**			
(i)	indicating complete combustion		√	√
(ii)	indicating incomplete combustion		√	√
2.	**identify incomplete combustion:**			
(i)	around appliance location		√	√
(ii)	in appliance		√	√
3.	**CO detectors and indicators:**			
(i)	identification of detectors and indicators		√	√
(ii)	installation– locations		√	√
(iii)	commissioning and maintenance of detectors (audible, readable, visual)		√	√
KNOWLEDGE AND UNDERSTANDING		**REF**	**I**	**R**
1.	main constituents of complete and incomplete combustion		√	√
2.	air required for complete combustion		√	√
3.	**causes of appliance incomplete combustion at:**			
(i)	burner		√	√
(ii)	combustion space		√	√
(iii)	heat exchanger		√	√
(iv)	flue		√	√
4.	symptoms of CO poisoning		√	√
5.	advice to a person who describes symptoms of being affected by products of combustion or when indicator/detector has activated		√	√
6.	other sources of CO & CO_2 in dwellings		√	√
7.	ambient levels of CO in atmosphere		√	√
8.	levels of CO within dwellings and effect on electronic detectors		√	
9.	causes of activation of CO detectors and indicators		√	√

10.	ambient levels of CO_2 in atmosphere		√	√
11.	critical levels of CO_2 that could cause vitiation affecting combustion process		√	√
12.	movement of products of combustion within properties and its effects		√	√
13.	advice to be given when a CO detector has activated	BS7967 2015 7.2	√	√
14.				
15.	manufacturing standards for electronic CO detectors (alarms)		√	√
16.	identification of unsafe situation: combustion products that could enter premises.		√	√

4. Ventilation

PERFORMANCE CRITERIA		REF	I	R
1.	calculate free area of selection of air bricks (inc. terracotta types) and air vents		√	√
2.	identify correct and incorrect types of air vents and grilles e.g. fly screens		√	√
3.	identify inadequate ventilation for domestic and non-domestic. Inputs ≤ 70 kW		√	√
4.	recognise suitable overhead canopy extraction		√	√
5.	**calculate ventilation for:**			
a)	**domestic appliances/installation**			
(i)	combustion of domestic open flue appliances (≤ 70 kW input)			√
(ii)	compartments (domestic open, balanced and fan flue appliances ≤ 70 kW input)			√
(iii)	multi-appliance installations (multiple open flue and flueless appliances within same room/space)			√
(iv)	flueless appliance ventilation inc. cooking, water heating, and space heating			√
(v)	single and multiple DFE space heater installation, inc. flued and flueless			√
b)	**non-domestic appliances/installation**			
(i)	calculate natural ventilation at high and low level direct to outside air for Type B boilers in plant rooms/heated spaces			√
(ii)	calculate natural ventilation at high and low level direct to outside air for Type B boilers in enclosures			√
6.	calculate individual ventilation for non-domestic laundry applications			√
7.	calculate multi-equipment ventilation for non-domestic laundry applications			√
8.	identify correct and incorrect labels and notices			√
KNOWLEDGE AND UNDERSTANDING		**REF**	**I**	**R**
1.	requirements for ventilation		√	
2.	siting of ventilation (wall, window, floor, ceiling and ducted) direct to outside air, series air vents		√	
3.	restrictions to ventilator/grille locations			
4.	installation of ventilation grilles and vents		√	
5.	types of grilles and vents		√	
6.	adventitious air supplies		√	
7.	sizing of grilles and vents (free area availability)		√	
8.	calculating natural ventilation at high and low level direct to outside air for Type B boilers in plant rooms and heated spaces		√	
9.	calculating natural ventilation at high and low level direct to outside air for Type B boilers in enclosures		√	
10.	calculating combustion ventilation for air domestic open flue appliances		√	
11.	calculating ventilation for compartments (domestic, open, balanced and flued appliances of heat input ≤ 70 kW)		√	
12.	calculating ventilation for multi–appliance installations (multiple open flue and flueless appliances within same room/space)		√	
13.	ventilation for flueless appliances (inc. cooking, water heating and space heating)			
14.	ventilator location for single and multiple DFE space heater installations (inc. flued and flueless)		√	
15.	additional ventilation e.g. extractor fans, cooker hoods, driers etc.		√	
16.	recommendations and restrictions to ventilator/grille locations for non-domestic heating appliances		√	√
17.	safety interlocks between ventilation fans and gas appliances		√	√
18.	mechanical ventilation installations for non-domestic heating appliances/plant of heat input ≤ 1.8 MW net	IGEM UP10 Ed4 7.3.1. Table	√	√
19.	labels and notices		√	
20.	calculating individual ventilation for non-domestic laundry applications		√	
21.	calculating multi-equipment ventilation for non-domestic laundry applications		√	
22.	identify installation of adequate and inadequate non-domestic heating ventilation			√
23.	recognise mechanical ventilation requirements of Type B2 boilers (inlet and extract)			√

24.	**HSE - ventilation of kitchens in catering establishments:**	IGEM/UP1 9		
(i)	replacement air		√	
(ii)	canopies' performance		√	
(iii)	dealing with interlocks fitted with overrides		√	
(iv)	recognition of when canopy performance tests are to be carried out		√	
25.	effects of oil or solid fuel appliances on ventilation for DFEs		√	√
26.	identification and installation of in tumescent air vents		√	√
27.	operation of passive stack ventilation		√	√
28.	ventilation for internal kitchens		√	√

5. Installation of pipework and fittings.

Range of pipe sizes: CMA1 up to 50 mm; CESP1 up to 100 mm

Part A Generic competencies 1 & 2 may be packaged with these assessment criteria

PERFORMANCE CRITERIA		REF	I	R
1.	join steel pipe using flanges and appropriate jointing material (not CMA1)		√	√
2.	join copper tube using appropriate capillary end feed fittings, methods and agents	BS9891 2015: 7.2	√	
3.	join copper tube using appropriate mechanical (compression) fittings, methods and agents	BS9891 2015: 7.3	√	
4.	check work carried out is gas tight (method at CC discretion)		√	√
5.	purge pipework of air and apply protective coating (supplementary oral questions will satisfy this PC)		√	√
6.	identify pipework safety defects		√	√
7.	join CSST		√	√
8.	join stainless steel pipe/copper pipe with appropriate pressed joints and tools		√	√
9.	test supply for gas tightness, isolate, attach temporary earth continuity bond			√
10.	disconnect meter, cap and make safe			√
11.	cap or plug all open ends and take all general safety precautions, prior to work			√
12.	install copper capillary fitting adjacent to meter, using appropriate methods and agents			√
13.	re-connect meter and remove temporary earth continuity bond			√
KNOWLEDGE AND UNDERSTANDING		**REF**	**I**	**R**
1.	copper pipe and fittings, Standards, suitability and use	BS9891 2015: 6.4, 7.2, 7.3	√	
2.	mild steel pipe and fittings	BS9891 2015: 6.2	√	
4.	micro-points (leisure points)		√	
5	jointing and cleaning agents for steel, copper and PE pipe and fittings used in non-domestic applications		√	
6.	**Requirements for pipework:**			
(i)	laid in joisted floors & roof spaces	BS6891 2015: 8.9.1/2/3/4/5	√	√
(ii)	notching and drilling solid timber floor joists	BS6891 2015: 8.9. to 8.9.9	√	√
(iii)	installed in solid floors	BS6891 2015: 8.10 to 8.10.3	√	√
(iv)	installed behind dry lined walls	BS6891 2015: 8.11.3	√	√
(v)	within timber/light steel frame walls	BS6891 2015: 8.11.4	√	√
(vi)	passing through a timber/light steel frame/masonry wall - accommodating movement	BS6891 2015: 8.11.4 and 8.20	√	√
7.	external surface mounted installation pipework	BS6891 2015: 8.12	√	√
8.	precautions when using an exposed flame for soldering joints on pipework previously containing gas and/or when a gas meter is already fitted	BS6891 2015: 8.3.5a/b/c/d/e	√	
9.	restrictions on use of mechanical joints	BS6891 2015: 7.3	√	
11.	requirements for ducts specifically designed to contain gas pipes		√	
12.	**HSL56:**			
(i)	Reg.19 Enclosed pipes 19 (4) & (6)		√	
(ii)	Reg.21 Clogging precautions		√	
13.	ventilation size for pipework installed within ducts		√	√

14.	fire stopping in buildings containing flats or maisonettes		√	√
15.	installing pipework inside a protected area	BS6891 2015: 8.19	√	√
17.	pipework for multi-occupancy dwellings		√	√
18.	minimum depth/identification of pipework buried below ground	BS6891 2015: 8.13.12 Table 5 + 8.14	√	√
19.	pipework installed under the base of a wall or foundations	BS6891 2015: 8.13.21	√	√
20.	use of PE pipework	BS6891 2015: 6.5 + 7.8 + 8.15	√	√
21.	limitations on use of pressed joints - stainless steel or copper non-domestic pipework		√	√

12. Chimney Standards

KNOWLEDGE AND UNDERSTANDING	REF	I	R
Where solid fuel chimneys can be visually inspected without removal of an appliance:			
1. operation of dampers and restrictor plates		√	
2. catchment spaces and standard dimensions / volumes		√	
3. effects of other fuels on chimneys and need for cleaning		√	
4. fitting bird guards to chimneys		√	
5. suitable and unsuitable terminals for space heaters inc. radiant, inset and DFE		√	
Chimneys for individual open flue natural draught appliances:			
1. construction and operation of a chimney		√	√
2. types of chimney material – cement based and metallic		√	
3. methods of jointing chimney components		√	
4. termination positions for chimney outlets		√	√
5. ridge terminal positions		√	
6. restrictions to siting bends and lengths of chimney run to avoid condensation		√	
7. sealed compartments for open flue appliances		√	√
8. additional safety requirements when fans are installed in secondary flues		√	√
9. flueing systems for non-domestic catering equipment		√	
10 passive stack ventilation systems in houses, where open flue natural draught appliances are fitted		√	√
Condensing flues:			
1. condensate disposal position and termination for appliances of heat input ≤ 4 kW		√	√
2 plume management kits		√	√
Pre-cast flue systems:			
1. pre-cast flue design		√	
2. adapters for connecting open flues into pre-cast flues		√	
3. termination procedures for pre-cast flues		√	
4. flueing through loft spaces		√	
Room sealed natural draught and fanned draught chimney configurations for appliances:			
1. balanced flue systems natural and fanned draught		√	
2. balanced flue natural and fan assisted terminal positions, restrictions for chimney outlet positions inc. horizontal and vertical configurations		√	√
3. restrictions on lengths, bends etc. for fanned draught room sealed flue appliances		√	
4.			
5. enclosing chimneys		√	√
6. proximity of flue duct outlets to boundaries		√	√
7. identify unsafe situation 'A room sealed flue system installed within and enclosure without the means of an inspection facility'		√	√
8. shared flue systems, SE ducts and U ducts: construction and operation of SE–ducts, U–ducts and CFS		√	√
9. **HSL56:**			
(i) Reg.27 Flues (1) to (4)		√	
(ii) Reg.30 Room-sealed appliances (1) to (3)		√	
(iii) Reg.32 Flue dampers (2) and (3)		√	
Non-domestic heating appliance chimney requirements:			
1. terminal types and positions for Type B open/natural draught chimneys	IGEM UP10 Ed4	√	√

2.	**fan diluted flues;**			
(i)	dilution air intakes	IGEM/UP10 Ed4	√	√
(ii)	discharge points		√	√
3.	flueing for balanced compartments		√	√
4.	common flue /chimney construction requirements - suitable materials for large chimneys		√	√
5.	flue dampers and stabilisers		√	√
5a.	testing procedures for natural draught flues			√
6.	flueing systems for non-domestic catering equipment	IGEM UP19	√	
Laundry exhaust duct requirements:				
1.	calculating individual exhaust duct requirements		√	
2.	siting exhaust ducts and preferred termination procedures		√	
3.	calculating individual ventilation			√
4.	calculating multi-equipment ventilation			√

15. Re-establish existing gas supply and re-light appliances/plant

Candidates who will install/test pipework of diameter > 35 mm will require ICPN1 and TPCP1A or TPCP1.

PERFORMANCE CRITERIA		**REF**	**I**	**R**
1.	re-establish gas supply		√	√
2.	check installation is gas tight		√	√
3.	**check appliance(s)/plant visually and re-light inc.:**			
(i)	purge system and appliances/plant of air		√	√
(ii)	light appliance(s)/plant		√	√
(iii)	confirm satisfactory operation of user controls		√	√
(iv)	visually inspect appliance/plant installation(s) for unsafe situations		√	√
KNOWLEDGE AND UNDERSTANDING		**REF**	**I**	**R**
1.	describe action when an un-commissioned appliance/plant is identified		√	
2.	confirm actions if pipework and appliance(s) /plant are not tested (commissioned) when gas supply is re-established		√	
3.	HSL56: Reg.33 Testing of appliances 33(1) to (3)		√	