

ACS.CDGA1 SAFETY ASSESSMENT CRITERIA INITIAL NON-DOMESTIC NATURAL GAS & LPG DIRECT FIRED HEATING APPLIANCES AND EQUIPMENT

CDGA1 INITIAL

Introduction

Tests the gas safety competence of an operative in the work of install, commission, service, repair and break down of direct gas fired heating appliances and equipment.

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

All direct fired forced convection non-domestic heating equipment with either 100% fresh air supply or re-circulated air with forced draught or atmospheric burners.

Many of the criteria contained in this assessment will be valid for operatives wishing to work on kilns in non-domestic establishments (notably educational establishments) that are covered by GSIUR. While there are no criteria specific to kilns (as they are out of scope as given in the first paragraph) operatives wishing to carry out such work should be are of IGEM/UP/11 which contains specific requirements for ventilation and CO detection system.

These assessments do not include tightness testing or purging (see TPCP1A and TPCP1).

Pre-requisites

COCN1 or CCN1 + CoDNCO1 or CCLP1 + CoDNCO1 or QCF or S/NVQ + ICPN1 if pipework diameter > 50 mm.

Exclusions

Electrical or building, use of any mechanical lifting aids to position appliance, design of system requirements, installation and design of any ductwork for hot air transmission or ventilation and penetration of any structures for flueing, pipework etc.

References and normative documents

MIs.

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

- HSL56
- GIUSP
- BS 6230
- BS 5990
- BS 5440 1 & 2
- BS 7967-5
- HSEH40
- IGEM/UP/10 Edition 4.

ACS.SMB.003.ACDND identifies Normative Documents that should be held by ACs.

Abbreviations

AC. Assessment Centre
CB. Certification Body
FSD. Flame supervision device
GSIUR. Gas Safety (Installation and Use) Regulations
I. Initial
OP. Operating pressure
R. Re-assessment
Ref. Reference.

1. check gas supply is of adequate size 2. check also appliance to Mis and, if wall mounted, correctly supported 3. check appliance assembly is complete and fit for use and purpose 4. check appliance assembly is complete and fit for use and purpose 5. isolate gas and electrical supply prior to work 6. secure appliance correctly to ductwork (if appliable) 7. re-establish gas and electrical supplies 8. check work carried out is gas tight 8. check work carried out is gas tight 9. dismantle and clean appliance operational gas safety components, using appropriate cleaning methods and agents e.g., isolation valves, gas regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches 10. commission appliance: (i) purge appliance of air (ii) check DP at appliance to MIS (adjust regulator, if required) (iii) check burner flame picture, stability, ignition are correct (iv) check wertitation for both appliance and building are to MIS (v) check user controls are operating correctly (vi) check user controls are operating correctly (vii) check thermostats are operating correctly (viii) check thermostats are operation correctly (viii) check thermostats are operation correctly (viii) check thermostats are operation correctly 1. denoting the decision of the properation of t	DEDE	ORMANCE CRITERIA	REF	I
2. check site appliance to MIs and, if wall mounted, correctly supported 4. check gas pipework, fittings and isolation valve for appliance connection conform 5. isolate gas and electrical supply prior to work 6. secure appliance correctly to ductwork (if applicable) 7. re-establish gas and electrical supplies 9. dismantle and clean appliance operational gas safety components, using appropriate cleaning methods and agents e.g. isolation valves, gas regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches 10. commission appliance: (ii) pure appliance to MIs (adjust regulator, if required) (iii) check OP at appliance to MIs (adjust regulator, if required) (iii) check Up and the products of combustion chambers are correct. (iv) check ventilation for both appliance and building are to MIs (vi) sample products of combustion. Demonstrate a CO ₂ atmosphere test (vii) check user control series are operating correctly (viii) check user control series are operating correctly (viii) check user control series are operating correctly (vii) check user control series are operating correctly (vii) check user control series as feety components 12. explain safe operation and use of appliances 13. Measure CO ₁ in ambient air: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (v) leaks/damage (d) take CO ₂ reading outdoors (v) leaks flat to approx. those outdoors (v) leaks flat to approx. those outdoors (v) single sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (v) leaks flat to approx. those outdoors (v) leaks flat to paprox those outdoors (v) leaks flat to paprox those outdoors (v) leaks of correcting and leakers (v) restrictions			REI	
3. check appliance assembly is complete and fit for use and purpose 4. check appliance assembly is complete and fit for use and purpose 4. check app sipework, fittings and isolation valve for appliance connection 5. isolate gas and electrical supply prior to work 6. secure appliance correctly to ductwork (if applicable) 7. re-establish gas and electrical supplies 8. check work carried out is gas tight 9. dismantle and clean appliance operational gas safety components, using appropriate cleaning methods and agents e.g. isolation valves, gas regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches 10. commission appliance: (i) purge appliance of air (ii) check OP at appliance to MIs (adjust regulator, if required) (iii) check OP at appliance to MIs (adjust regulator, if required) (iv) check user controls are correct of the combustion of the products of combustion. Demonstrate a CO2 atmosphere test (iv) check user controls are operating correctly (iv) check user controls are operating correctly (ivi) check user controls are operating correctly (ivii) check thermostats are operating correctly of the composition of the comp	-			
4. check gas pipework, fittings and isolation valve for appliance connection conform 5. isolate gas and electrical supply prior to work 6. secure appliance correctly to ductwork (if applicable) 7. re-establish gas and electrical supplies 8. check work carried out is gas tight 9. dismantle and clean appliance operational gas safety components, using appropriate cleaning methods and agents e.g. isolation valves, gas regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches 10. commission appliance: (ii) check OP at appliance to MIs (adjust regulator, if required) (iii) check burner flame picture, stability, ignition are correct (iv) check ventilation for both appliance and building are to MIs (v) sample products of combustion. Demonstrate a CO ₂ atmosphere test (vi) check safety control devices are operating correctly (vii) check user controls are operating correctly (viii) check and operating correctly, inc. high limit and fan thermostats 11. identify defects on gas safety components 12. explain safe operation and use of appliances 13. Measure CO ₂ in ambient air: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (d) take CO ₃ reading outdoors (e) with frule burning appliances turned off, ventilate enclosed area until CO ₂ (e) with fuel burning appliances and carry out a CO ₂ build up test (i) smooth of the control of the problem of the				
conform 5. isolate gas and electrical supply prior to work 6. secure appliance correctly to ductwork (if applicable) 7. re-establish gas and electrical supples 8. check work carried out is gas tight 9. dismantle and clean appliance operational gas safety components, using appropriate cleaning methods and agents e.g., isolation valves, gas regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches 10. commission appliance: (ii) purge appliance of air (iii) check OP at appliance to MIs (adjust requiator, if required) (iii) check DP at appliance to MIs (adjust requiator, if required) (iv) check wentilation for both appliance and building are to MIs (v) sample products of combustion. Demonstrate a CO ₂ atmosphere test (v) check user controls are operating correctly (vii) check serty controls are operating correctly (viii) check thermostats are operating correctly 12. explain safe operation and use of appliances 13. Measure CO ₂ in ambient air: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (f) close external doors, windows and customer – adjustable ventilation (g) tevels fall to approx. those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect fall to approx. those outdoors (g) inspect fall to approx. those outdoors (g) inspect for preading or at least 15 minutes (v) sample CO ₂ readings or at least 15 minutes (v) service of increasing levels of CO ₂ on appliances combustion (v) service of increasing levels of CO ₂ on appliance combustion (v) indicator of a preadings: (v) indicator of appliances and isolation (v) evacuation of preadings in the states (v) indicator	-			
5. isolate gas and electrical supply prior to work 6. secure appliance correctly to ductwork (if applicable) 7. re-establish gas and electrical supplies 8. check work carried out is gas tight 9. dismantle and clean appliance operational gas safety components, using appropriate cleaning methods and agents e.g. isolation valves, as regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches 10. commission appliance: (ii) pure appliance to MIs (adjust regulator, if required) (iii) check OP at appliance to MIs (adjust regulator, if required) (iii) check UP at appliance to MIs (adjust regulator, if required) (iv) check ventilation for both appliance and building are to MIs (v) sample products of combustion. Demonstrate a CO ₂ atmosphere test (vi) check safety control devices are operating correctly (vii) check user controls are operating correctly (viii) check user controls are operating correctly (viii) check user controls are operating correctly (viii) check user controls are operating correctly, inc. high limit and fan thermostats 11. identify defects on gas safety components 12. explain safe operation and use of appliances 13. Measure CO ₂ in ambient air: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leak/damage (d) take CO ₂ reading outdoors (c) existent plants are considered and considered area until CO ₂ (e) with fuel burning appliances to Mis, outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₂ sample at centre of area (d) take CO ₂ reading outdoors (ii) check appliances of outdoors (iii) check in the proper outdoors (iv) eventilation for direct fired in heaters (v) and of direct fired in heaters (v) entilation for direct heating appliances where it is likely to be inhaled (v) and cleaning outdoors (v) eventilation or mechanical and elec	4.			V
6. secure appliance correctly to ductwork (if applicable) 7. re-establish gas and electrical supplies 9. dismartle and clean appliance operational gas safety components, using appropriate cleaning methods and agents e.g. isolation valves, gas regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches 10. commission appliance: (ii) check DP at appliance of air (iii) check DP at appliance to MIs (adjust regulator, if required) (iii) check DP at appliance to MIs (adjust regulator, if required) (iii) check veritation for both appliance and building are to MIs (iv) check veritation for both appliance and building are to MIs (v) check veritation for both appliance and building are to MIs (v) check safety control devices are operating correctly (vi) check user controls are operating correctly, inc. high limit and fan thermostats 11. identify defects on gas safety components 12. explain safe operation and use of appliances 13. Measure CO ₂ in ambient air: 14. check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaky-damage (d) take CO ₂ reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO ₂ (e) with fuel burning appliances turned off, ventilate enclosed area until CO ₃ (e) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obtous defects, Take a CO ₂ sample at centre of area (h) turn on one test appliance and carry out a CO ₂ build up test (l) reacord results (v) enclosed appliances for obtous defects, Take a CO ₂ sample at centre of area (l) two the burning appliance and carry out a CO ₂ build up test (l) record results (l) record results (l) record results (l) record results (l) ventilation for direct heast 15 minutes (l) resultation for direct heast 25 minutes (l) ventilation of mechanical and electrical system and gas safety control devices (l) eleve				- /
7. re-establish gas and electrical supplies V S. check work carried out is gas tight V 9. dismantle and clean appliance operational gas safety components, using appropriate cleaning methods and agents e.g. isolation valves, gas regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches V V V V V V V V V				
8. check work carried out is gas tight 9. dismantle and clean appliance operational gas safety components, using appropriate cleaning methods and agents e.g. isolation valves, gas regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches 10. commission appliance: (i) purge appliance of air (ii) check OP at appliance to MIs (adjust regulator, if required) (iii) check oP at appliance to MIs (adjust regulator, if required) (iv) check ventilation for both appliance and building are to MIs (v) check ventilation for both appliance and building are to MIs (v) check safety control devices are operating correctly (vi) check safety control devices are operating correctly (vii) check user controls are operating correctly (viii) check thermostats is suitable, correctly assembled and calibrated (BS 8494 (vi)) check analyser is suitable, correctly assembled and calibrated (BS 8494 (vi)) check analyser is suitable, correctly assembled and calibrated (BS 8494 (vi)) check analyser is suitable, correctly assembled and calibrated (BS 8494 (vi)) check analyser is suitable, correctly assembled and calibrated (BS 8494 (vi)) check analyser is suitable, correctly assembled and calibrated (BS 8494 (vi)) check analyser is suitable, correctly assembled and calibrated (BS 8494 (vi)) check analyser is suitable, correctly assembled and calibrated (BS 8494 (vi)) according analysers to MIs, outdoors (vi) zero of purge analysers to MIs, out	-			
9. dismantle and clean appliance operational gas safety components, using appropriate cleaning methods and agents e.g., isolation valves, gas regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches 10. commission appliance: (i) purge appliance of air: (ii) check OP at appliance to MIS (adjust regulator, if required) (iii) check burner flame picture, stability, ignition are correct (iv) check burner flame picture, stability, ignition are correct (iv) check ventilation for both appliance and building are to MIS (v) check safety control devices are operating correctly (vi) check user controls are operating correctly (vii) check user controls are operating correctly (viii) check thermostats are operating correctly, inc. high limit and fan thermostats 11. identify defects on gas safety components 12. explain safe operation and use of appliances 13. Measure CO ₂ in ambient air: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIS, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO ₂ levels fall to approx, those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₂ sample at centre of area (h) turn on one test appliance for obvious defects. Take a CO ₂ sample at centre of area (v) sample CO ₂ readings for at least 15 minutes (v) semble CO ₂ readings for at least 15 minutes (v) semble CO ₂ readings for a least 15 minutes (v) semble CO ₂ readings of combustible materials (v) record results (v) eventiation for direct freed air heaters (v) semble CO ₂ readings: (v) directions on use of high and low temperature direct fired fixed air heaters (v) directions on use of ordination of direct freed irred heaters (v) directions on use of ordination of combustible materials (v) inclusions of				
appropriate cleaning methods and agents e.g. isolation valves, gas regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches 10. commission appliance: (ii) check OP at appliance to MIs (adjust regulator, if required) (iii) check OP at appliance to MIs (adjust regulator, if required) (iv) check ventilation for both appliance and building are to MIs (iv) check ventilation for both appliance and building are to MIs (v) sample products of combustion. Demonstrate a CO ₂ atmosphere test (vi) check safety control devices are operating correctly (vii) check user controls are operating correctly (viii) check thermostats are operating correctly, inc. high limit and fan thermostats 11. identify defects on gas safety components 12. explain safe operation and use of appliances 13. Measure CO ₂ in ambient air: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO ₂ levels fall to approx, those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₂ sample at centre of area (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₃ sample at centre of area (f) sample CO ₂ readings for at least 15 minutes (g) sample CO ₂ readings for at least 15 minutes (g) sample CO ₂ readings for at least 15 minutes (g) sample CO ₂ readings for at least 15 minutes (g) sample CO ₃ readings for at least 15 minutes (g) section of mechanical and electrical system and gas safety control devices (g) diagnosis of gas safety faults (g) expectat			 	
regulators, FSDs, combustion chambers, thermostats, solenoids, filters and fan flow switches 10. commission appliance: (i) purge appliance of air (ii) check OP at appliance to MIs (adjust regulator, if required) (iii) check burner flame picture, stability, ignition are correct (iv) check ventilation for both appliance and building are to MIs (v) sample products of combustion. Demonstrate a CO ₂ atmosphere test (v) check safety control devices are operating correctly (vi) check user controls are operating correctly (viii) check thermostats are operating correctly, inc. high limit and fan thermostats 11. identify defects on gas safety components 12. explain safe operation and use of appliances 13. Measure CO ₂ in ambient air: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO ₂ levels fall to approx. those outdoors (g) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₂ sample at centre of area (i) sample CO ₂ readings for at least 15 minutes (i) record results XNOWLEDGE & UNDERSTANDING 11. sitting of direct fired air heaters 2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of high and low temperature direct fired fixed air heaters 5. restrictions on use of high and low temperature direct fired fixed heaters 4. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. welliation when vapours/gases present in air degrade to potentially harmful gases 12. ventilation of personnel from test area 13. ventilation of personnel from test area 14. ventilation of personnel from test area 15. cup of appliances on coupants 16. ventilation	9.			√
fan flow switches 10. commission appliance: (ii) check OP at appliance to MIs (adjust regulator, if required) (iii) check OP at appliance to MIs (adjust regulator, if required) (iv) check ventilation for both appliance and building are to MIs (iv) check ventilation for both appliance and building are to MIs (v) sample products of combustion. Demonstrate a CO ₂ atmosphere test (vi) check safety control devices are operating correctly (vii) check user controls are operating correctly (vii) check user controls are operating correctly (viii) check user controls are operating correctly user for controls are operating controls are operating controls are operating controls. (vi) check user controls are operating controls are operat				1
10 commission appliance:				
(ii) check OP at appliance to MIs (adjust regulator, if required) (iii) check OP at appliance to MIs (adjust regulator, if required) (iv) check ventilation for both appliance and building are to MIs (v) sample products of combustion. Demonstrate a CO ₂ atmosphere test (v) check safety control devices are operating correctly (vii) check user controls are operating correctly (viii) check user controls are operating correctly, inc. high limit and fan thermostats 11. identify defects on gas safety components 12. explain safe operation and use of appliances 13. Measure CO ₂ in ambient air: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO ₂ levels fall to approx, those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₂ sample at centre of area (h) turn on one test appliance and carry out a CO ₂ build up test (v) sample CO ₂ readings for at least 15 minutes (v) record results KNOWLEDGE & UNDERSTANDING 1. siting of direct fired air heaters 2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of high and low temperature direct fired fixed air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapou				
(iii) check OP at appliance to MIs (adjust regulator, if required) (iii) check burner flame picture, stability, Ignition are correct (iv) check ventilation for both appliance and building are to MIs (v) check safety control devices are operating correctly (vi) check safety control devices are operating correctly (viii) check user controls are operating correctly, inc. high limit and fan thermostats 11. identify defects on gas safety components 12. explain safe operation and use of appliances 13. Measure CO2 in ambient air: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO2 reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO2				L,
(iii) check burner flame picture, stability, ignition are correct (iv) check ventilation for both appliance and building are to MIS (V) sample products of combustion. Demonstrate a CO2 atmosphere test (V) (vi) check safety control devices are operating correctly (Vii) check user controls are operating correctly (Viii) check user controls are operating correctly, inc. high limit and fan themostats are operating correctly, inc. high limit and fan themostats are operating correctly, inc. high limit and fan themostats (V) check thermostats are operating correctly, inc. high limit and fan themostats (V) and the most of appliances (V) (Viii) (Viiii) (Viiiii) (Viiii) (Viiii) (Viiii) (Viiii) (Viiii) (Viiii) (Viiiii) (Viiiii) (Viiiii) (Viiii) (Viiiii)				
(iv) check ventilation for both appliance and building are to MIS (v) sample products of combustion. Demonstrate a CO ₂ atmosphere test (v) check safety control devices are operating correctly (vii) check user controls are operating correctly (viii) check thermostats are operating correctly, inc. high limit and fan thermostats 11. identify defects on gas safety components 12. explain safe operation and use of appliances 13. Measure CO ₂ in amblent affi: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO ₂ levels fall to approx. those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₂ sample at centre of area (h) turn on one test appliance and carry out a CO ₂ build up test (y) sample CO ₂ readings for at least 15 minutes (y) sample CO ₃ readings for at least 15 minutes (y) sitting of direct fired air heaters (y) sitting of direct fired air heaters (x) ventilation for direct heating appliances where it is likely to be inhaled (y) air changes for buildings fitted with direct fired air heaters (y) restrictions on use of high and low temperature direct fired fixed air heaters (y) explaints of proving the proving and proving asses (v) explaints of the control of direct fired air heaters (v) peration of mechanical and electrical system and gas safety control devices (v) explaints of proving the proving fixed with direct fired air heaters (v) disposs of gas safety faults (v) explaints of proving fixed for the safety and the proving fixed for the proving fixed of the proving fixed of the control devices (v) explaints of proving fixed of CO ₂ on appliance combustion (v) executation of personnel from test area (v) judging acceptability of ambient CO ₂ readings (v				
v) sample products of combustion. Demonstrate a CO ₂ atmosphere test V check safety control devices are operating correctly V check user controls are operating correctly V vii) check user controls are operating correctly, inc. high limit and fan themostats are operating correctly, inc. high limit and fan themostats are operating correctly, inc. high limit and fan themostats are operating correctly, inc. high limit and fan themostats are operating correctly, inc. high limit and fan themostats are operating and use of appliances V viii viiii viiiii viiiii viiiii viiiii viiiii viiiii viiiii viiiiii viiiiii viiiiiii viiiiiiii				
vi) check safety control devices are operating correctly vii) check user controls are operating correctly viii) check thermostats are operating correctly, inc. high limit and fan vi thermostats viiii thermostats viiii viiiii viiii viiii viiii viiii viiii viiii viiii viiiii viiii viiii viiiii viiiiii viiiiii viiiiiiii	(iv)	check ventilation for both appliance and building are to MIs		
viii) check user controls are operating correctly, (viii) check thermostats viiii viiiii viiii viiii viiii viiii viiii viiii viiii viiiii viiiii viiiii viiiii viiiii viiiii viiiii viiiiii viiiii viiiii viiiii viiiiii viiiiii viiiiii viiiiii viiiiiiii				
Civil Check thermostats are operating correctly, inc. high limit and fan thermostats Thermosta	(vi)			
Vithermostats are operating correctly, inc. high limit and fan thermostats	(vii)	check user controls are operating correctly		
thermostats 11. identify defects on gas safety components 12. explain safe operation and use of appliances 13. Measure CO ₂ in ambient air: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO ₂ levels fall to approx. those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₂ sample at centre of area (h) turn on one test appliance and carry out a CO ₂ build up test (j) sample CO ₂ readings for at least 15 minutes (j) record results KNOWLEDGE & UNDERSTANDING 1. siting of direct fired air heaters V erstrictions on use of direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters V erstrictions on use of high and low temperature direct fired fixed air heaters V diagnosis of gas safety faults V, appraisance - proximity of combustible materials V diagnosis of gas safety faults V, appraisance - proximity of combustible materials V, diagnosis of gas safety faults V, diagnosis of gas safety fau	(viii)	check thermostats are operating correctly, inc. high limit and fan		
12. explain safe operation and use of appliances (a) Measure CO ₂ in ambient air: (b) Zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO ₂ levels fall to approx. those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₂ sample at centre of area (h) turn on one test appliance and carry out a CO ₂ build up test (i) sample CO ₂ readings for at least 15 minutes (v) record results KNOWLEDGE & UNDERSTANDING 1. sitting of direct fired air heaters (v) ventilation for direct theating appliances where it is likely to be inhaled (v) air changes for buildings fitted with direct fired air heaters (v) restrictions on use of high and low temperature direct fired fixed air heaters (v) restrictions on use of high and low temperature direct fired fixed air heaters (v) diagnosis of gas safety faults (v) diagnosis of gas safety faults (v) effect of increasing levels of CO ₂ on appliance combustion (vi) effect of increasing levels of CO ₂ on appliance combustion (vi) evacuation of personnel from test area (v) udging acceptability of ambient CO ₂ readings (v) evacuation of personnel from test area (v) indiging acceptability of ambient CO ₂ readings (v) evacuation of personnel from test area (v) indiging acceptability of ambient CO ₂ readings (v) evacuation of personnel from test area (v) indiging acceptability of ambient CO ₂ readings (v) evacuation of occupants (v) evacuatio		thermostats		1
12. explain safe operation and use of appliances (a) Measure CO ₂ in ambient air: (b) Zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO ₂ reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO ₂ levels fall to approx. those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₂ sample at centre of area (h) turn on one test appliance and carry out a CO ₂ build up test (i) sample CO ₂ readings for at least 15 minutes (v) record results KNOWLEDGE & UNDERSTANDING 1. sitting of direct fired air heaters (v) ventilation for direct theating appliances where it is likely to be inhaled (v) air changes for buildings fitted with direct fired air heaters (v) restrictions on use of high and low temperature direct fired fixed air heaters (v) restrictions on use of high and low temperature direct fired fixed air heaters (v) diagnosis of gas safety faults (v) diagnosis of gas safety faults (v) effect of increasing levels of CO ₂ on appliance combustion (vi) effect of increasing levels of CO ₂ on appliance combustion (vi) evacuation of personnel from test area (v) udging acceptability of ambient CO ₂ readings (v) evacuation of personnel from test area (v) indiging acceptability of ambient CO ₂ readings (v) evacuation of personnel from test area (v) indiging acceptability of ambient CO ₂ readings (v) evacuation of personnel from test area (v) indiging acceptability of ambient CO ₂ readings (v) evacuation of occupants (v) evacuatio	11.	identify defects on gas safety components		√
13. Measure CQ ₂ in ambient air: (a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CQ ₂ reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO ₂ levels fall to approx. those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₂ sample at centre of area (h) turn on one test appliance and carry out a CO ₂ build up test (j) sample CO ₂ readings for at least 15 minutes (j) record results KNOWLEDGE & UNDERSTANDING 1. siting of direct fired air heaters 2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of direct fired air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO ₂ readings: (ii) causes of increasing levels of CO ₂ on appliance combustion (iii) causes of increasing levels of CO ₂ on appliance combustion (iv) usuaging acceptability of ambient CO ₂ readings 1. ventilation of personnel from test area (v) judging acceptability of ambient CO ₂ readings 1. visk assessment 1. virial of appliances and isolation 1. evacuation of occupants 2. opening windows etc. 2. advising responsible person 3. GIUSP 11 (vii) re-entry to area under test	12.			√
(a) check analyser is suitable, correctly assembled and calibrated (BS 8494 analyser) (b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO2 reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO2 levels fall to approx. those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO2 sample at centre of area (h) turn on one test appliance and carry out a CO2 build up test (i) sample CO2 readings for at least 15 minutes (j) record results (KNOWLEDGE & UNDERSTANDING 1. siting of direct fired air heaters 2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of direct fired air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion (v) judging acceptability of ambient CO2 readings (v) judging acceptability of ambient CO2 readings (v) iudging acceptability of ambient CO3 readings (vi) actions when ambient CO3 le	13.			
analyser)	(a)			√
(b) zero and purge analysers to MIs, outdoors (c) assemble sample lines and probes and ensure all are free from leaks/damage (d) take CO2 reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO2 levels fall to approx. those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO2 sample at centre of area (h) turn on one test appliance and carry out a CO2 build up test (i) sample CO2 readings for at least 15 minutes (j) record results KNOWLEDGE & UNDERSTANDING 1. siting of direct fired air heaters V air changes for buildings fitted with direct fired air heaters V air changes for buildings fitted with direct fired air heaters V arestrictions on use of direct fired air heaters V arestrictions on use of high and low temperature direct fired fixed air heaters V acreation of mechanical and electrical system and gas safety control devices clearances – proximity of combustible materials diagnosis of gas safety faults V entilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion V indige acceptability of ambient CO2 readings V indige acceptability of ambient CO3 readings V indige acceptability of ambien	(-)			
CC assemble sample lines and probes and ensure all are free from leaks/damage V leaks/damage V leaks/damage V leaks/damage V With fuel burning appliances turned off, ventilate enclosed area until CO2 V levels fall to approx. those outdoors V levels fall to approx. those outdoors V levels fall to approx. those outdoors V V Levels fall to approx. those outdoors V V V V V V V V V	(b)			√
leaks/damage (d) take CO2 reading outdoors V (e) with fuel burning appliances turned off, ventilate enclosed area until CO2 levels fall to approx. those outdoors V (e) with fuel burning appliances turned off, ventilate enclosed area until CO2 v levels fall to approx. those outdoors V (f) close external doors, windows and customer – adjustable ventilation V (g) inspect appliances for obvious defects. Take a CO2 sample at centre of area V (h) turn on one test appliance and carry out a CO2 build up test V (i) sample CO2 readings for at least 15 minutes V (i) record results V (ii) sample CO2 readings for at least 15 minutes V (ii) record results V (iii) restrictions of direct fired air heaters V (iii) restrictions on use of direct fired air heaters V (iii) restrictions on use of direct fired air heaters V (iv) restrictions on use of high and low temperature direct fired fixed air heaters V (iv) restrictions on use of high and low temperature direct fired fixed air heaters V (iv) restrictions on use of high and low temperature direct fired fixed air heaters V (iv) restrictions on use of high and low temperature direct fired fixed air heaters V (iv) ventilation of mechanical and electrical system and gas safety control devices V (iv) ventilation when vapours/gases present in air degrade to potentially harmful V (iv) ventilation when vapours/gases present in air degrade to potentially harmful V (iv) ventilation when vapours/gases present in air degrade to potentially harmful V (iv) ventilation when vapours/gases present in air degrade to potentially harmful V (iv) ventilation when vapours/gases present in air degrade to potentially harmful (iv) ventilation when vapours/gases present in air degrade to potenti				$\sqrt{}$
(d) take CO2 reading outdoors (e) with fuel burning appliances turned off, ventilate enclosed area until CO2 levels fall to approx. those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO2 sample at centre of area (h) turn on one test appliance and carry out a CO2 build up test (i) sample CO2 readings for at least 15 minutes (j) record results (j) record results (j) record results (j) resultable for understanding appliances where it is likely to be inhaled 1. siting of direct fired air heaters 2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of direct fired air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 6 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion (ii) causes of increasing levels of CO2 on appliance combustion (v) judging acceptability of ambient CO2 readings (v) judging acceptability of ambient CO2 readings (vi) judging acceptability of ambient CO2 readings 1. turning off appliances and isolation 2. evacuation of occupants 3. opening windows etc. 4. advising responsible person 6. GIUSP 11 (vii) re-entry to area under test	(0)	·		
(e) with fuel burning appliances turned off, ventilate enclosed area until CO2 levels fall to approx. those outdoors (f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO2 sample at centre of area (h) turn on one test appliance and carry out a CO2 build up test (i) sample CO2 readings for at least 15 minutes (j) record results KNOWLEDGE & UNDERSTANDING 1. siting of direct fired air heaters 2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of direct fired air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion (ii) causes of increasing levels of CO2 on appliance combustion (v) judging acceptability of ambient CO2 readings (v) judging acceptability of ambient CO2 readings (v) judging acceptability of ambient CO2 readings (vi) erisk assessment	(d)			1/
levels fall to approx. those outdoors (f) close external doors, windows and customer – adjustable ventilation √ (g) inspect appliances for obvious defects. Take a CO₂ sample at centre of area √ √ (h) turn on one test appliance and carry out a CO₂ build up test √ √ √ √ √ √ √ √ √				
(f) close external doors, windows and customer – adjustable ventilation (g) inspect appliances for obvious defects. Take a CO ₂ sample at centre of area (h) turn on one test appliance and carry out a CO ₂ build up test (i) sample CO ₂ readings for at least 15 minutes (j) record results (kNOWLEDGE & UNDERSTANDING 1. siting of direct fired air heaters 2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of direct fired air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO ₂ readings: (i) effect of increasing levels of CO ₂ on appliance combustion (ii) causes of increasing levels of CO ₂ (v) judging acceptability of ambient CO ₂ readings (v) evacuation of personnel from test area (v) judging acceptability of ambient CO ₂ readings • visk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test	(0)			v
(g) inspect appliances for obvious defects. Take a CO₂ sample at centre of area (h) turn on one test appliance and carry out a CO₂ build up test (i) sample CO₂ readings for at least 15 minutes √ (j) record results ★ KNOWLEDGE & UNDERSTANDING 1. siting of direct fired air heaters 2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters √ 4. restrictions on use of direct fired air heaters √ 5. restrictions on use of high and low temperature direct fired fixed air heaters √ 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials √ 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO₂ readings: (i) effect of increasing levels of CO₂ on appliance combustion √ (ii) causes of increasing levels of CO₂ on appliance combustion √ (iii) where to take CO₂ readings √ (iv) evacuation of personnel from test area √ (v) judging acceptability of ambient CO₂ readings √ (vi) actions when ambient CO₂ levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test	(f)			٦/
(i) turn on one test appliance and carry out a CO ₂ build up test (i) sample CO ₂ readings for at least 15 minutes (j) record results KNOWLEDGE & UNDERSTANDING 1. siting of direct fired air heaters 2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of direct fired air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO ₂ readings: (i) effect of increasing levels of CO ₂ on appliance combustion (ii) causes of increasing levels of CO ₂ (iii) where to take CO ₂ readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO ₂ readings (v) actions when ambient CO ₂ levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
(i) sample CO2 readings for at least 15 minutes (j) record results KNOWLEDGE & UNDERSTANDING 1. siting of direct fired air heaters 2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of direct fired air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion (ii) causes of increasing levels of CO2 (iii) where to take CO2 readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO2 readings (vi) actions when ambient CO2 levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
(i) effect of increasing levels of CO ₂ on appliance combustion (ii) causes of increasing levels of CO ₂ (iii) where to take CO ₂ readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO ₂ readings (vi) actions when ambient CO ₂ levels are excessive: • resk acsos midding resonance and acidation evacuation of cocupants • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
KNOWLEDGE & UNDERSTANDING 1. siting of direct fired air heaters				
1. siting of direct fired air heaters 2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of direct fired air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion (ii) causes of increasing levels of CO2 (iii) where to take CO2 readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO2 readings (vi) actions when ambient CO2 levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
2. ventilation for direct heating appliances where it is likely to be inhaled 3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of direct fired air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion (ii) causes of increasing levels of CO2 (iii) where to take CO2 readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO2 readings (vi) actions when ambient CO2 levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				/
3. air changes for buildings fitted with direct fired air heaters 4. restrictions on use of direct fired air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion (ii) causes of increasing levels of CO2 (iii) where to take CO2 readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO2 readings (vi) actions when ambient CO2 levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
4. restrictions on use of direct fired air heaters 5. restrictions on use of high and low temperature direct fired fixed air heaters 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion (ii) causes of increasing levels of CO2 (iii) where to take CO2 readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO2 readings (vi) actions when ambient CO2 levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
5. restrictions on use of high and low temperature direct fired fixed air heaters 6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO₂ readings: (i) effect of increasing levels of CO₂ on appliance combustion (ii) causes of increasing levels of CO₂ (iii) where to take CO₂ readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO₂ readings (vi) actions when ambient CO₂ levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
6. 7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion (ii) causes of increasing levels of CO2 (iii) where to take CO2 readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO2 readings (vi) actions when ambient CO2 levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
7. operation of mechanical and electrical system and gas safety control devices 8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion (ii) causes of increasing levels of CO2 (iii) where to take CO2 readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO2 readings (vi) actions when ambient CO2 levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test		restrictions on use of high and low temperature direct fired fixed air heaters		
8. clearances - proximity of combustible materials 9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO2 readings: (i) effect of increasing levels of CO2 on appliance combustion (ii) causes of increasing levels of CO2 (iii) where to take CO2 readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO2 readings (vi) actions when ambient CO2 levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test		an austing of graph giral and district systems and the first state of the state of		,
9. diagnosis of gas safety faults 10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO₂ readings: (i) effect of increasing levels of CO₂ on appliance combustion (ii) causes of increasing levels of CO₂ (iii) where to take CO₂ readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO₂ readings (vi) actions when ambient CO₂ levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
10. ventilation when vapours/gases present in air degrade to potentially harmful gases 11. ambient CO₂ readings: (i) effect of increasing levels of CO₂ on appliance combustion (ii) causes of increasing levels of CO₂ (iii) where to take CO₂ readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO₂ readings (vi) actions when ambient CO₂ levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
gases 11. ambient CO₂ readings: (i) effect of increasing levels of CO₂ on appliance combustion (ii) causes of increasing levels of CO₂ (iii) where to take CO₂ readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO₂ readings (vi) actions when ambient CO₂ levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
11. ambient CO₂ readings: (i) effect of increasing levels of CO₂ on appliance combustion (ii) causes of increasing levels of CO₂ (iii) where to take CO₂ readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO₂ readings (vi) actions when ambient CO₂ levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test	10.			√
(i) effect of increasing levels of CO₂ on appliance combustion (ii) causes of increasing levels of CO₂ (iii) where to take CO₂ readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO₂ readings (vi) actions when ambient CO₂ levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test	<u></u>	5		
(ii) causes of increasing levels of CO₂				
(iii) where to take CO₂ readings (iv) evacuation of personnel from test area (v) judging acceptability of ambient CO₂ readings (vi) actions when ambient CO₂ levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				√
(iv) evacuation of personnel from test area √ (v) judging acceptability of ambient CO₂ readings √ (vi) actions when ambient CO₂ levels are excessive: √ • risk assessment √ • turning off appliances and isolation evacuation of occupants • opening windows etc. eadvising responsible person • GIUSP 11 √ (vii) re-entry to area under test				
(v) judging acceptability of ambient CO₂ readings √ (vi) actions when ambient CO₂ levels are excessive: √ • risk assessment √ • turning off appliances and isolation evacuation of occupants • opening windows etc. eadvising responsible person • GIUSP 11 √ (vii) re-entry to area under test	(iii)			
(vi) actions when ambient CO₂ levels are excessive: • risk assessment • turning off appliances and isolation • evacuation of occupants • opening windows etc. • advising responsible person • GIUSP 11 (vii) re-entry to area under test				
 risk assessment turning off appliances and isolation evacuation of occupants opening windows etc. advising responsible person GIUSP 11 (vii) re-entry to area under test 	(v)			
 turning off appliances and isolation evacuation of occupants opening windows etc. advising responsible person GIUSP 11 (vii) re-entry to area under test 	(vi)	actions when ambient CO ₂ levels are excessive:		
 evacuation of occupants opening windows etc. advising responsible person GIUSP 11 (vii) re-entry to area under test 				
 opening windows etc. advising responsible person GIUSP 11 (vii) re-entry to area under test 		turning off appliances and isolation		ı
 advising responsible person GIUSP 11 (vii) re-entry to area under test 				1
				ı
				1
		GIUSP 11		
	(vii)			
	12.	ambient CO readings:		

ACS.SMB.004.AC.TABLE 4.CDGA1.INITIAL

AGOIGI BIOCH MACHINEE HOS GAILMATTAE					
	Differences compared to CO ₂ sampling;		√		
	- toxicity				
	- excessive CO levels				