

City & Guilds Level 3 Domestic Plumbing and Heating (6189)



Qualification Handbook

www.cityandguilds.com
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1 Qualification at a glance

Subject area	Domestic Plumbing and Heating
City & Guilds number	6189
Age group approved	16+
Entry requirements	Level 2
Assessment	By portfolio and online assessment
Fast track	Not available
Support materials	Centre handbook Assessment pack Candidate logbook
Registration and certification	Consult the City & Guilds website for information

Recognition by Water Safe

All Level 3 6189 qualifications are recognised by Water Safe. Successfully completing this qualification will also enable candidates to prove competence, if they wish to join a competent person scheme in relation to Part G and H of the Building regulations, subject to scheme rules and successful company certification by a recognised Competent Person Scheme Certification Body.

Title and level	City & Guilds number	Accreditation number	QW Approval/De signation No.	GLH	TQT
Level 3 NVQ Diploma in Domestic Plumbing and Heating	6189-31	600/1122/1	C00/0342/3	549	680
*Level 3 NVQ Diploma in Domestic Plumbing and Heating (Gas Fired Warm Air Appliances) (EUSGU0021)	6189-32	600/1124/5	C00/1151/8	No longer available	
Level 3 NVQ Diploma in Domestic Plumbing and Heating (Gas Fired Water and Central Heating Appliances) (EUSGU0022)	6189-33	600/1134/8	C00/0342/2	1034	1460
*Level 3 NVQ Diploma in Domestic Heating	6189-41	600/1473/8	C00/0345/2	Qualifications no longer available	
*Level 3 NVQ Diploma in Domestic Heating (Gas Fired Warm Air Appliances)(EUSGU0021)	6189-42	600/1116/6	C00/0345/0		
*Level 3 NVQ Diploma in Domestic Heating (Gas Fired Water and Central Heating Appliances) (EUSGU0022)	6189-43	600/1117/8	C00/0345/1		

*Qualification no longer available		
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These qualifications allow learners to become competent to industry standards in either plumbing and heating or domestic heating. Learners are required to demonstrate the ability to perform the necessary skills and the knowledge required to be assessed against the National Occupational Standards.

These qualifications form the core element of the apprenticeship for the sector.

Version and date	Change detail	Section
1.2 Oct 2011	Amend Assessment Type – Unit 212	Assessment
1.3 Feb 2012	Additional Assessment Information	Assessment
1.4 May 2012	Update on Gas registration categories	Structure
1.5 May 2012	Updated UAN of unit 212	Structures
	Updated assessment methods	Assessment
1.6 May 2012	Amend assessment criteria numbering – Unit 343	Units
2.0 November 2012	Permitted material amended from CIBSE Domestic Heating Design Guide, published by CIBSE, 2007 to ISBN 1 903287 40 5 CIBSE Domestic Heating Design Guide, revised 2011	Unit 304/024 – permitted materials
3.0	Permitted material list added	Assessment 4.5
4.0 May 2013	Split into two documents, one Qualification Handbook and one Unit Pack. Updated assessment information in the Qualification Handbook.	Assessment
4.1 May 2013	Added City & Guilds qualification numbers to Level 2 NVQ Diplomas in ‘RPL– Additional requirements for achievements of qualification’ table Deleted – ‘learners with a L2 NVQ (6089)’ from ‘RPL– Additional requirements for achievements of qualification’ table	Appendix 3
4.2 September 2013	Added ‘recognition by Water Safe’ statement	Qualification at a glance
5.0 October 2013	Replaced references to BS 6700 with BS EN 806	Assessment
5.1 January 2014	Corrected Unit Accreditation Number for Unit 308	2.1 Structures
5.2 November 2014	Added guidance regarding ACS acceptance as part of a qualification	Assessment
5.3 Nov 14	Added additional wording re BS EN 806	Test Specifications
5.4 Sep 15	Updated Permitted reference materials (IET 2015)	Assessment
5.5 April 16	Updated Oil Assignment information	Assessment
5.6 June 16	QW Designation No. and TQT added	Qualification at a glance Assessment
5.7 February 17	Updated Permitted reference materials for Unit 322 (2013 edition)	Assessment
5.8 October 17	Added TQT and GLH details Deleted QCF	Qualification Structure Throughout
6.0 November 2020	Conflict of Interest statement added	Centre requirements
6.1 August 2021	Relationships to other qualifications information added	Appendix 4
6.2 March 2022	GLH and TQT clarified and Highlighted	Page 2, page 7/8,

	GLH and TQT totals added to table on page 2 Incorrect TQT for 6189-31 on page 7 has been corrected from 549 (which was the GLH) to 680. Changed address on rear and C&G to front cover	front and rear cover
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2 Introduction

This document tells you what you need to do to deliver the qualifications.

Area	Description
Who are the qualifications for?	The Level 3 NVQ Diploma in Plumbing and Domestic Heating is for candidates who want to work within the mechanical engineering services sector and wish to progress as a qualified plumber or heating engineer. Learners are required to demonstrate the ability to perform the necessary skills and the knowledge required to be assessed against the National Occupational Standards.
What do the qualifications cover?	The qualifications cover elements of health and safety, hot and cold water, domestic central heating, and servicing and maintaining plumbing systems. There are optional pathways that learners can choose from these are Gas, Oil, Solid Fuel and Environmental technologies.
Are the qualifications part of a framework or initiative?	The Level 3 qualifications are the core element of the Apprenticeship Framework.
What opportunities for progression are there?	On completion of this qualification candidates may progress into employment or to the following City & Guilds qualifications: <ul style="list-style-type: none">• City & Guilds Level 3 Award in the Installation of Solar Thermal Hot Water Systems 2399-21• City & Guilds Level 3 Award in the Installation and Maintenance of Solar Thermal Hot Water Systems 2399-22• City & Guilds Level 3 Award in the Installation of Heat Pumps Systems (Non-refrigerant Circuits) 2399-31• City & Guilds Level 3 Award in the Installation and Maintenance of Heat Pumps Systems (Non-refrigerant Circuits) 2399-32• City & Guilds Level 3 Award in the Installation of Water Harvesting and Re-use Systems 2399-41• City & Guilds Level 3 Award in the Installation and Maintenance of Water Harvesting and Re-use Systems 2399-42• Level 4 Higher Professional Diploma in Building Services Engineering (4467).

2.1 Structures

Level 3 NVQ Diploma in Domestic Plumbing and Heating (6189-31) (600/1122/1)

To achieve this qualification, learners must achieve 56 credits from the core group mandatory units plus:

- a minimum of 29 credits from the **Oil Firing pathway** (16 credits from the core mandatory units of the Oil Firing pathway plus 13 credits from the Oil Firing Pressure Jet Appliances route or 13 credits from the Oil Firing Vaporising Appliances route)
or
- a minimum of 29 credits from the **Solid Fuel pathway** (16 credits from the core mandatory units of the Solid Fuel Pathway plus 13 credits from the Solid Mineral Fuel route or 15 credits from the Biomass Fuel route)
or
- 12 credits from the **Environmental pathway** (2 credits from the core mandatory unit of the Environmental pathway plus 10 credits from the Solar Thermal route or 10 credits from the Heat Pumps route or 10 credits from the Water Recycling route).

Total qualification time = 680 hours

Core Group

Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
Core group mandatory units				
R/602/2498	301	Understand how to organise resources within BSE	3	26
K/502/8930	302/012	Understand and apply domestic cold water system installation, commissioning, service and maintenance techniques	9	76
K/502/9155	303/023	Understand and apply domestic hot water system installation, commissioning, service and maintenance techniques	9	76
M/502/9156	304/024	Understand and apply domestic central heating system installation, commissioning, service and maintenance techniques	12	98
T/502/9157	305/025	Understand and carry out electrical work on domestic plumbing and heating systems and components	12	102
D/502/9296	344/026	Understand and apply domestic sanitation system installation, commissioning, service and maintenance techniques	8	72
K/502/9298	345	Install, commission, service and maintain domestic plumbing and heating systems	3	4

Pathways

Oil Firing Pathway

Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
Core mandatory units within pathway				
H/502/9557	307	Understand core oil firing safety principles within domestic building services engineering	12	110
L/502/9391	308	Apply core oil firing safety within domestic building services engineering	4	6
Oil firing pressure jet appliances (option within pathway)				
D/502/9394	309	Understand the principles of domestic oil firing pressure jet appliances	7	60
M/502/9402	310	Service and maintain domestic oil firing pressure jet appliances	3	4
Y/502/9393	311	Install, test and commission domestic oil firing pressure jet appliances	3	4
Oil firing vaporising appliances (option within pathway)				
A/502/9404	312	Install, test and commission domestic oil firing vaporising appliances	3	4
F/502/9405	313	Service and maintain domestic oil firing vaporising appliances	3	4
T/502/9403	314	Understand the principles of domestic oil firing vaporising appliances	7	60
Solid Fuel Pathway				
Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
Core mandatory units within pathway				
J/502/9406	315	Understand core solid fuel safety principles within domestic building services engineering	12	110
L/502/9407	316	Apply core solid fuel safety within domestic building services engineering	4	6
Solid Mineral Fuel (option within pathway)				
L/502/9410	317	Service and maintain domestic solid mineral fuel burning appliances	3	4
R/502/9408	318	Understand the principles of domestic solid mineral fuel burning appliances	7	60
Y/502/9409	319	Install, test and commission domestic solid mineral fuel burning appliances	3	4
Biomass Fuel (option within pathway)				
H/502/9414	320	Service and maintain domestic biomass fuel burning appliances	2	3
K/502/9415	321	Install, test and commission domestic biomass fuel burning appliances	3	4

R/502/9411	322	Understand the installation and commissioning principles of biomass fuel burning appliances	7	60
Y/502/9412	323	Understand the service and maintenance principles of biomass fuel burning appliances	3	22
Environmental Pathway				
Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
Core mandatory unit within pathway				
K/602/3138	324	Understand the fundamental principles and requirements of environmental technology systems	2	15
Solar Thermal Route (option within pathway)				
F/602/3100	325	Know the requirements to install, commission and handover solar thermal hot water systems	4	35
L/602/3102	326	Install, commission and handover 'active' solar thermal hot water systems	2	15
Y/602/3104	327	Know the requirements to inspect, service and maintain 'active' solar thermal hot water systems	2	15
K/602/3107	328	Inspect, service and maintain 'active' solar thermal hot water systems	2	15
Heat Pumps Route (option within pathway)				
D/602/3072	329	Install, commission and handover heat pumps non-refrigerant circuits	2	15
F/602/3078	330	Know the requirements to inspect, service and maintain heat pump system installations non-refrigerant circuits	2	15
L/602/3083	331	Inspect, service and maintain heat pump installations non-refrigerant circuits	2	15
Y/602/3054	332	Know the requirements to install, commission and handover heat pump systems non-refrigerant circuits	4	35
Water Recycling Route (option within pathway)				
A/602/3130	333	Inspect, service and maintain rainwater harvesting and greywater reuse systems	2	15
K/602/3110	334	Install, commission and handover rainwater harvesting and greywater reuse systems	2	15
M/602/3111	335	Know the requirements to inspect, service and maintain rainwater harvesting and greywater reuse systems	2	15
T/602/3109	336	Know the requirements to install, commission and handover rainwater harvesting and greywater reuse systems	4	35

Level 3 NVQ Diploma in Domestic Plumbing and Heating (Gas Fired Warm Air Appliances) (EUSGU0021) (6189-32) (600/1124/5)

To achieve this qualification the learner must achieve 135 credits from the mandatory units.

Total qualification time = 1350 hours

Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
Mandatory units				
D/503/8628	212	Tightness test, purge, commission and de-commission gas pipework up to 35mm 1¼ diameter in small natural gas installations	3	16
R/602/2498	301	Understand how to organise resources within BSE	3	26
K/502/8930	302/012	Understand and apply domestic cold water system installation, commissioning, service and maintenance techniques	9	76
K/502/9155	303/023	Understand and apply domestic hot water system installation, commissioning, service and maintenance techniques	9	76
M/502/9156	304/024	Understand and apply domestic central heating system installation, commissioning, service and maintenance techniques	12	98
T/502/9157	305/025	Understand and carry out electrical work on domestic plumbing and heating systems and components	12	102
T/502/8381	337	Install, commission and de-commission gas pipework up to 35mm 1¼ diameter in domestic and small commercial premises	19	115
H/502/8487	338	Specific core installation and maintenance	21	120
J/502/9390	339	Understand core gas safety principles for natural gas within domestic building services engineering	13	120
T/502/8302	340	Maintain gas warm air central heating systems and appliances	11	54
F/502/8299	341	Install domestic gas warm air central heating appliances	12	54
D/502/9296	344/026	Understand and apply domestic sanitation system installation, commissioning, service and maintenance techniques	8	72
K/502/9298	345	Install, commission, service and maintain domestic plumbing and heating systems	3	4

Note: Completion of this qualification combination will provide evidence of competence to Gas Safe Register in the following competence categories: CCN 1, CoNGLP 1PD, CPA 1, MET 1, DAH 1. The

results of successful completion of the qualification will be downloaded to Gas Safe Register by City & Guilds.

Level 3 NVQ Diploma in Domestic Plumbing and Heating (Gas Fired Water and Central Heating Appliances) (6189-33) (600/1134/8)

To achieve this qualification the learner must achieve 146 credits from the mandatory units.

Total qualification time = 1460 hours

Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
Mandatory units				
D/503/8628	212	Tightness test, purge, commission and de-commission gas pipework up to 35mm 1½ diameter in small natural gas installations	3	16
R/602/2498	301	Understand how to organise resources within BSE	3	26
K/502/8930	302/012	Understand and apply domestic cold water system installation, commissioning, service and maintenance techniques	9	76
K/502/9155	303/023	Understand and apply domestic hot water system installation, commissioning, service and maintenance techniques	9	76
M/502/9156	304/024	Understand and apply domestic central heating system installation, commissioning, service and maintenance techniques	12	98
T/502/9157	305/025	Understand and carry out electrical work on domestic plumbing and heating systems and components	12	102
T/502/8381	337	Install, commission and de-commission gas pipework up to 35mm 1½ diameter in domestic and small commercial premises	19	115
H/502/8487	338	Specific core installation and maintenance	21	120
J/502/9390	339	Understand core gas safety principles for natural gas within domestic building services engineering	13	120
T/502/8459	342	Maintain gas water heating and wet central heating appliances	16	75
Y/502/8454	343	Install domestic gas water heaters and wet central heating appliances	18	134
D/502/9296	344/026	Understand and apply domestic sanitation system installation, commissioning, service and maintenance techniques	8	72
K/502/9298	345	Install, commission, service and maintain domestic plumbing and heating systems	3	4

Note: Completion of this qualification combination will provide evidence of competence to Gas Safe Register in the following competence categories: CCN 1, CoNGLP 1PD, CPA 1, MET 1, CENWAT. The results of successful completion of the qualification will be downloaded to Gas Safe Register by City & Guilds.

Level 3 NVQ Diploma in Domestic Heating (6189-41) (600/1473/8)

To achieve this qualification the learner must achieve 48 credits from the mandatory group units units, plus:

- a minimum of 29 credits from the **Oil Firing Fuel pathway** (16 credits from the mandatory Oil Firing pathway units plus 13 credits from the Oil Firing Pressure Jet Appliances route or 13 credits from the Oil Firing Vaporising Appliances route)
or
- a minimum of 29 credits from the **Solid Fuel pathway** (16 credits from the core mandatory Solid Fuel pathway units plus 13 credits from the Solid Mineral Fuel route or 15 credits from the Biomass Fuel route)
or
- 12 credits from the **Environmental pathway** (2 credits from the core mandatory unit in the Environmental pathway plus 10 credits from the Solar Thermal route or 10 credits from the Heat Pumps route or 10 credits from the Water Recycling route).

Total qualification time = 480 hours

Mandatory group

Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
Mandatory units				
R/602/2498	301	Understand how to organise resources within BSE	3	26
K/502/8930	302/012	Understand and apply domestic cold water system installation, commissioning, service and maintenance techniques	9	76
K/502/9155	303/023	Understand and apply domestic hot water system installation, commissioning, service and maintenance techniques	9	76
M/502/9156	304/024	Understand and apply domestic central heating system installation, commissioning, service and maintenance techniques	12	98
T/502/9157	305/025	Understand and carry out electrical work on domestic plumbing and heating systems and components	12	102
A/502/8933	306	Install, commission, service and maintain domestic heating systems	3	4

Pathways

Oil Firing Fuel Pathway

Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
Core mandatory units within pathway				
H/502/9557	307	Understand core oil firing safety principles within domestic building services engineering	12	110
L/502/9391	308	Apply core oil firing safety within domestic building services engineering	4	6
Oil firing pressure jet appliances (option within pathway)				
D/502/9394	309	Understand the principles of domestic oil firing pressure jet appliances	7	60
M/502/9402	310	Service and maintain domestic oil firing pressure jet appliances	3	4
Y/502/9393	311	Install, test and commission domestic oil firing pressure jet appliances	3	4
Oil firing vaporising appliances (option within pathway)				
A/502/9404	312	Install, test and commission domestic oil firing vaporising appliances	3	4
F/502/9405	313	Service and maintain domestic oil firing vaporising appliances	3	4
T/502/9403	314	Understand the principles of domestic oil firing vaporising appliances	7	60
Solid Fuel Pathway				
Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
Core mandatory units within pathway				
J/502/9406	315	Understand core solid fuel safety principles within domestic building services engineering	12	110
L/502/9407	316	Apply core solid fuel safety within domestic building services engineering	4	6
Solid Mineral Fuel (option within pathway)				
L/502/9410	317	Service and maintain domestic solid mineral fuel burning appliances	3	4
R/502/9408	318	Understand the principles of domestic solid mineral fuel burning appliances	7	60
Y/502/9409	319	Install, test and commission domestic solid mineral fuel burning appliances	3	4
Biomass Fuel (option within pathway)				
H/502/9414	320	Service and maintain domestic biomass fuel burning appliances	2	3
K/502/9415	321	Install, test and commission domestic biomass fuel	3	4

		burning appliances		
R/502/9411	322	Understand the installation and commissioning principles of biomass fuel burning appliances	7	60
Y/502/9412	323	Understand the service and maintenance principles of biomass fuel burning appliances	3	22

Environmental Pathway

Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
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Core mandatory unit within pathway

K/602/3138	324	Understand the fundamental principles and requirements of environmental technology systems	2	15
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Solar Thermal Route (option within pathway)

F/602/3100	325	Know the requirements to install, commission and handover solar thermal hot water systems	4	35
L/602/3102	326	Install, commission and handover 'active' solar thermal hot water systems	2	15
Y/602/3104	327	Know the requirements to inspect, service and maintain 'active' solar thermal hot water systems	2	15
K/602/3107	328	Inspect, service and maintain 'active' solar thermal hot water systems	2	15

Heat Pumps Route (option within pathway)

D/602/3072	329	Install, commission and handover heat pumps non-refrigerant circuits	2	15
F/602/3078	330	Know the requirements to inspect, service and maintain heat pump system installations non-refrigerant circuits	2	15
L/602/3083	331	Inspect, service and maintain heat pump installations non-refrigerant circuits	2	15
Y/602/3054	332	Know the requirements to install, commission and handover heat pump systems non-refrigerant circuits	4	35

Water Recycling Route (option within pathway)

A/602/3130	333	Inspect, service and maintain rainwater harvesting and greywater reuse systems	2	15
K/602/3110	334	Install, commission and handover rainwater harvesting and greywater reuse systems	2	15
M/602/3111	335	Know the requirements to inspect, service and maintain rainwater harvesting and greywater reuse systems	2	15
T/602/3109	336	Know the requirements to install, commission and handover rainwater harvesting and greywater reuse systems	4	35

Level 3 NVQ Diploma in Domestic Heating (Gas Fired Warm Air Appliances) (EUSGU0021) (6189-42) (600/1116/6)

To achieve this qualification the learner must achieve 127 credits from the mandatory units.

Total qualification time = 1270 hours

Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
Mandatory units				
D/503/8628	212	Tightness test, purge, commission and de-commission gas pipework up to 35mm 1¼ diameter in small natural gas installations	3	16
R/602/2498	301	Understand how to organise resources within BSE	3	26
K/502/8930	302/012	Understand and apply domestic cold water system installation, commissioning, service and maintenance techniques	9	76
K/502/9155	303/023	Understand and apply domestic hot water system installation, commissioning, service and maintenance techniques	9	76
M/502/9156	304/024	Understand and apply domestic central heating system installation, commissioning, service and maintenance techniques	12	98
T/502/9157	305/025	Understand and carry out electrical work on domestic plumbing and heating systems and components	12	102
A/502/8933	306	Install, commission, service and maintain domestic heating systems	3	4
T/502/8381	337	Install, commission and de-commission gas pipework up to 35mm 1¼ diameter in domestic and small commercial premises	19	115
H/502/8487	338	Specific core installation and maintenance	21	120
J/502/9390	339	Understand core gas safety principles for natural gas within domestic building services engineering	13	120
T/502/8302	340	Maintain gas warm air central heating systems and appliances	11	54
F/502/8299	341	Install domestic gas warm air central heating appliances	12	54

Note: Completion of this qualification combination will provide evidence of competence to Gas Safe Register in the following competence categories: CCN 1, CoNGLP 1PD, CPA 1, MET 1, DAH 1. The results of successful completion of the qualification will be downloaded to Gas Safe Register by City & Guilds.

Level 3 NVQ Diploma in Domestic Plumbing and Heating (Gas Fired Water and Central Heating Appliances) (EUSGU0022) (6189-43) (600/1117/8)

To achieve this qualification the learner must achieve 138 credits from the mandatory units.

Total qualification time = 1380 hours

Unit accreditation no.	City & Guilds unit no.	Unit title	Credit value	GLH
Mandatory units				
D/503/8628	212	Tightness test, purge, commission and de-commission gas pipework up to 35mm 1¼ diameter in small natural gas installations	3	16
R/602/2498	301	Understand how to organise resources within BSE	3	26
K/502/8930	302/012	Understand and apply domestic cold water system installation, commissioning, service and maintenance techniques	9	76
K/502/9155	303/023	Understand and apply domestic hot water system installation, commissioning, service and maintenance techniques	9	76
M/502/9156	304/024	Understand and apply domestic central heating system installation, commissioning, service and maintenance techniques	12	98
T/502/9157	305/025	Understand and carry out electrical work on domestic plumbing and heating systems and components	12	102
A/502/8933	306	Install, commission, service and maintain domestic heating systems	3	4
T/502/8381	337	Install, commission and de-commission gas pipework up to 35mm 1¼ diameter in domestic and small commercial premises	19	115
H/502/8487	338	Specific core installation and maintenance	21	120
J/502/9390	339	Understand core gas safety principles for natural gas within domestic building services engineering	13	120
T/502/8459	342	Maintain gas water heating and wet central heating appliances	16	75
Y/502/8454	343	Install domestic gas water heaters and wet central heating appliances	18	134

Note: Completion of this qualification combination will provide evidence of competence to Gas Safe Register in the following competence categories: CCN 1, CoNGLP 1PD, CPA 1, MET 1, CENWAT. The results of successful completion of the qualification will be downloaded to Gas Safe Register by City & Guilds.

Total Qualification Time

Total Qualification Time (TQT) is the total amount of time, in hours, expected to be spent by a Learner to achieve a qualification. It includes both guided learning hours (which are listed separately) and hours spent in preparation, study and assessment.

Title and level	GLH	TQT
Level 3 NVQ Diploma in Domestic Plumbing and Heating	549	680
Level 3 NVQ Diploma in Domestic Plumbing and Heating (Gas Fired Water and Central Heating Appliances)	1034	1460

3 Centre requirements

This section outlines the centre approval processes and any resources that centres will need in place to offer these qualifications, including qualification-specific requirements for centre staff.

3.1 Approval process

To offer this qualification, new centres will need to gain both centre and qualification approval. Please refer to the **Centre Manual - Supporting Customer Excellence** for further information.

Centres that are currently delivering either the 6089 or the 6129 Level 3 schemes, and have been active during the last two years, will be granted automatic approval for registration.

3.2 Physical resources and site agreements

It is acceptable for centres to use specially designated areas within a centre to teach practical skills and to assess the simulated practical assignments within the combination units. The equipment, systems and machinery must meet current industrial standards and be capable of being used under normal working conditions.

3.3 Safety

The need for candidates to wear appropriate clothing whilst in workshops or project areas cannot be over-emphasised. Candidates should wear overalls and safety shoes. Safety hats should be worn when working in any site simulation area; these areas should be designated as hard hat areas and appropriate signs displayed. All other items of Personal Protective Equipment (PPE) shall be provided and worn as appropriate. It is the responsibility of the centre to ensure that PPE is provided and worn.

3.4 Candidate entry requirements

Candidates should not be entered for a qualification of the same type, content and level as that of a qualification they already hold.

There are no formal entry requirements for candidates undertaking these qualifications. However, centres must ensure that candidates have the potential and opportunity to gain the qualifications successfully.

Age restrictions

These qualifications are not approved for use by candidates under the age of 16, and City & Guilds cannot accept any registrations for candidates in this age group.

Other legal considerations

All legal requirements related to the subject matter must be met by candidates and centres.

Note: Centres teaching qualifications/units that contain work on gas fittings, appliances, etc need to comply with the requirements of the Gas Safety (Installation & Use) Regulations 1998. Whilst there are a number of noted exclusions within these regulations for colleges or other training establishments (see Regulation 2 (7)) it should be remembered that they do have to comply with Regulations 3 (1) to (5) and (7).

3.5 Human resources

Staff delivering these qualifications must be able to demonstrate that they meet the following occupational expertise requirements. They should:

- be technically competent in the areas for which they are delivering training and/or have experience of providing training; this knowledge must be at least to the same level as the training being delivered
- hold the appropriate qualifications detailed in this handbook
- have recent relevant experience in the specific area they will be assessing
- be occupationally knowledgeable in the areas of plumbing and heating for which they are delivering training; this knowledge must be at least to the same level as the training being delivered and must include up-to-date knowledge of each industry (for which the assessment is taking place), its settings, legislative and regulatory requirements, codes of practice and guidance
- have credible experience of providing training.

Centre staff may undertake more than one role, eg tutor and assessor or internal quality assurer, but must never internally quality assure their own assessments.

3.6 Assessors and internal quality assurers (Summit Skills units)

Note: The following information applies to Summit Skills units only (Units 301 to 336 inclusive).

Assessors must:

- be working towards or have achieved A1 or A2 Standards and continue to practice to those standards, or
- have achieved D32 or D33 or TQFE/TQSE and possess CPD evidence of practicing to A1 or A2 Standards, or
- have other suitable 'equivalent assessor qualifications' endorsed by Summit Skills, which apply the principles of the A1/A2 Standards.

Assessor occupational competence

Assessors must have verifiable relevant industry experience and current knowledge of industry working practices and techniques relevant to the occupational working area. This verifiable evidence must be **at or above the level being assessed** and include one or more of the following:

- A relevant qualification. Assessors must be able to demonstrate that they are registered and up-to-date with their registration with an appropriate approved industry registration body or have one or more of a relevant occupational qualification to ensure that they can be regarded as occupationally competent in terms of assessing or verifying the relevant qualifications and units therein.
- NVQs/SVQs at Level 3 as a minimum or their equivalents:
 - Plumbing
 - Plumbing (Domestic) (SVQ)
 - Heating and Ventilating Installation (Domestic)

If older forerunner qualifications are held such as the City & Guilds Craft Certificate in Plumbing, then the assessor must have completed CPD updating as outlined under assessor continuing professional development.

Assessment of competence-based units/qualifications for mechanical services occupations will require assessors **to have the relevant qualification** that certifies their competence in key technical areas pertinent to the completion of the unit/qualification.

Assessor continuing professional development

The occupational competence of assessors must be updated on a regular basis and be periodically reconfirmed via Continuing Professional Development (CPD) via the assessment centres and quality assured by City & Guilds.

It is the responsibility of each assessor to identify and make use of opportunities for CPD, such as industry conferences, access to trade journals, and SSC and Professional Body/Trade Association events, at least on an annual basis to enhance and upgrade their professional development and technical knowledge. It is imperative that records are kept of all such CPD opportunities/occasions and that they provide evidence of cascading such technical knowledge and industry intelligence to all relevant colleagues.

Internal quality assurers' role and responsibilities

The Sector Skills Council, Summit Skills considers the main focus of internal quality assurers to be the quality assurance of assessment procedures. The internal quality assurer is also required to have a minimum of occupational experience evidenced by having a building services engineering sector-related qualification or proven sector competence/experience, plus access to relevant 'occupational expertise' to enable them to conduct their role as internal quality assurer appropriately. This evidence and access to 'occupational expertise' is quality assured by City & Guilds.

Internal quality assurers must:

be working towards or have achieved the V1 Standard and continue to practice to that standard, or have achieved D34 and possess CPD evidence of practicing to the V1 Standard, and

- demonstrate an understanding of the assessment process.

Internal Quality Assurers' Continuing Professional Development

The occupational experience of internal quality assurers must be updated on a regular basis and be periodically reconfirmed via Continuing Professional Development (CPD) via the assessment centres and quality assured by City & Guilds.

It is the responsibility of each internal quality assurer to identify and make use of opportunities for CPD, such as industry conferences, access to trade journals, and SSC and Professional Body/Trade Association events, at least on an annual basis to enhance and upgrade their professional development and technical knowledge.

It is imperative that records are kept of all such CPD opportunities/occasions.

Conflict of interests

Assessors involved in providing direct training to a learner, either as part of a group or on a 'one to one' basis should not carry out assessment for any of those trained aspects.

Alternatively, centres must agree effective quality control measures (includes enhanced IQA and data monitoring) with the assessment organisation to ensure that any potential conflicts of interest do not

have an adverse effect on assessment outcomes. Any potential conflict of interest must be documented and available for scrutiny in line with our [Quality Assurance Requirements](#)

For further details of onsite assessments please refer to the '*Gas common assessment strategy*' on our website

Expert witnesses

Where expert witnesses are used in the assessment process identified above they must be sector competent individuals who can attest to the learner's performance in the workplace. It is not necessary for expert witnesses to hold an assessor qualification, as a qualified assessor must assess the performance evidence provided by an expert witness. Evidence from expert witnesses must meet the tests of validity, reliability, authenticity and sufficiency.

Expert witnesses will need to demonstrate that they have:

- relevant current knowledge of industry working practices and techniques
- no conflict of interest in the outcome of their evidence.

3.7 Assessors and internal quality assurers (EU Skills units)

Note: The following information applies to EU Skills units (212, 337, 338, 340, 341, 342, 343) only

Assessors

The centre **must** nominate all assessors to City & Guilds for approval prior to them conducting any assessments. Assessors may be employed by the centre (centre based assessors) or be work based (workplace assessors) who may or may not be from the same organisation as the learner.

Assessors **must** be vocationally and occupationally competent in the areas they are assessing and have a thorough knowledge of the units within the qualification being assessed.

In addition to the qualifications listed below, the assessor must be able to provide appropriate documented evidence that demonstrates they have a minimum of 5 years proven occupational experience in the activities they will be assessing. Particular attention should be paid to providing evidence of occupational experience in the gas safety critical areas being assessed.

Where assessors undertake assessments in the workplace, and are not supported by a suitable gas operative, then they or their employer must be a member of an appropriate Gas Registration Body in accordance with the Gas Safety (Installation and Use) Regulations. In these circumstances they should also hold suitable insurance for this activity.

Qualifications

Assessors must be technically qualified in domestic gas installation / maintenance and hold one of the following qualifications:

- City & Guilds / SQA - S/NVQ in Domestic Natural Gas (Level 3) or
- City & Guilds - 662 Certificate for Service Engineers (Gas) or
- City & Guilds - 598-2 Certificate in Gas Installation Studies or
- City & Guilds - 660 Certificate in Gas Fitting - Final

This list is not considered exhaustive and other 'Mechanical Engineering Services' (MES) or 'Building Engineering Services' (BES) qualifications at Level 3 / SCQF Level 6 or equivalent may be considered acceptable. Centres must submit requests to confirm the acceptability of other qualifications to their qualification consultant. The qualification consultant must keep a record of any such decisions.

In addition to the above qualifications, all assessors must hold a current certificate of gas safety competence in the areas of gas work they will be assessing that is not more than 5 years old (either current ACS Certificates of Gas Safety Competence or a 6012/S/NVQ are acceptable).

Centre based assessors must hold:

- Level 3 Award 'Assessing Vocational Related Achievement – in Centres/Colleges or Training Providers', or
- Level 3 Certificate 'Assessing Vocationally Related Achievement – in Centres/Colleges and The Workplace', or
- A1 or D32 /D33 with an Upgrade to A1 as a minimum*, or
- SQA Accredited Learning and Development Unit L&D 9DI * – Assess workplace competence using direct and indirect methods (replaces Units A1).

Workplace assessors must hold:

- Level 3 Award 'Assessing Competence in the Workplace Environment'

or

- Level 3 Certificate 'Assessing Vocationally Related Achievement – in Centres/Colleges and the Workplace'

or

- A2 or D32 with an upgrade to A2 as a minimum*

or

- SQA Accredited Learning and Development Unit L&D 9D - Assess workplace competence using direct methods.

* The Teaching Qualification for Secondary Education (TQSE) and the Teaching Qualification for Further Education (TQFE) (which is recognised in Scotland) are acceptable providing they are the versions that are recognised as equivalents to the A1 award plus appropriate CPD.

Assessors holding D units must have evidence of Continuing Professional Development (CPD) to demonstrate compliance with the A units.

A qualified assessor must supervise 'candidate assessors' who are working towards their assessor qualifications. A clear action plan should be in place for achieving the assessor qualification(s).

A 'candidate assessor's' approval will be withdrawn if the qualification/units have not been attained within the approved period (18 months).

Evidence of CPD will be sought by the qualification consultant for all assessors approved to assess for the centre.

Internal quality assurance

The centre **must** nominate all internal quality assurers to City & Guilds for approval prior to them conducting any verification activities. Internal quality assurers can be employed by the centre or be work based, who may or may not be from the same organisation as the learners.

Internal Quality Assurers **must** be vocationally and occupationally competent in the areas they are verifying and have a thorough knowledge of the units within the qualification they are verifying.

In addition to the qualifications listed below, the Internal Quality Assurers must be able to provide appropriate documented evidence that demonstrates they have a minimum of five years proven occupational experience in the activities they will be verifying. Particular attention should be paid to providing evidence of occupational experience in the gas safety critical areas being verified.

Qualifications

Internal Quality Assurers must be technically qualified in domestic gas installation/maintenance and hold one of the following qualifications:

- City & Guilds / SQA - S/NVQ in Domestic Natural Gas (Level 3) or
- City & Guilds - 662 Certificate for Service Engineers (Gas) or
- City & Guilds - 598-2 Certificate in Gas Installation Studies or
- City & Guilds - 660 Certificate in Gas Fitting – Final.

This list is not considered exhaustive and other 'Mechanical Engineering Services' (MES) or 'Building Engineering Services' (BES) qualifications at Level 3 / SCQF Level 6 or equivalent may be considered acceptable. Centres must submit requests to confirm the acceptability of other qualifications to their qualification consultant. The qualification consultant must keep a record of any such decisions.

In addition to the above, the internal quality assurer must hold a current certificate of gas safety competence in the areas of gas work they will be internally verifying that is not more than 5 years old (either current ACS Certificates of Gas Safety Competence or a 6012 Domestic Natural Gas S/NVQ are acceptable).

Where the internal quality assurers themselves do not hold a suitable technical qualification they must have access to technical expertise from qualified personnel, who hold the relevant qualifications, to support them where the quality assurance requires technical support and interpretation.

Internal quality assurers must hold the following:

- Level 3 Certificate 'Assessing Vocationally Related Achievement – in Centres/Colleges and The Workplace' or
- A1 or D32 /D33 with an Upgrade to A1 as a minimum* or
- SQA Accredited Learning and Development Unit L&D 9DI *– Assess workplace competence using direct and indirect methods (replaces Units A1)

and

- Level 4 Award 'Internal Quality assurance of assessment processes and practice' or
- Level 4 Certificate 'leading the Internal Quality assurance of assessment processes and practice' or
- V1 or D34 with an upgrade to V1 as a minimum* or
- SQA Accredited Learning and Development Unit L&D 11 'Internally monitor and maintain the quality of workplace assessment'.

It is recommended that 'candidate internal quality assurers' have a clear action plan for achieving the internal quality assurer qualification(s).

Internal quality assurer (IQA) approval for the candidate, will be withdrawn if they have not attained the IQA qualification/units within the approved period (18 months).

- * The Teaching Qualification for Secondary Education (TQSE) or the Teaching Qualification for Further Education (TQFE) (which is recognised in Scotland) are acceptable providing they are the versions that are recognised as equivalents to the A1 award plus appropriate CPD.

Internal quality assurers holding D units must have evidence of Continuing Professional Development (CPD) to demonstrate compliance with the A and V units.

4 Course design and delivery

4.1 Initial assessment and induction

Centres will need to make an initial assessment of each candidate prior to the start of their programme to ensure they are entered for an appropriate type and level of qualification. The initial assessment should identify any:

- specific training needs the candidate has, and the support and guidance they may require when working towards their qualifications (this is sometimes referred to as diagnostic testing)
- units the candidate has already completed, or credit they have accumulated which is relevant to the qualification they are about to begin.

City & Guilds recommends that centres provide an induction programme to ensure the candidate fully understands:

- the requirements of the qualification they will work towards
- their responsibilities as a candidate
- the responsibilities of the centre.

It may be helpful to record the information on a learning contract.

4.2 Recommended delivery strategies

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualification(s) before designing a course programme.

The SSCs (Summit Skills and EU Skills) expect knowledge only and combination units to be completed before performance only units are undertaken by the candidate.

Centres may design course programmes of study in any way which:

- best meets the needs and capabilities of their candidates
- satisfies the requirements of the qualifications.

When designing and delivering the course programme, centres might wish to incorporate other teaching and learning that is not assessed as part of the qualifications. This might include the following:

- literacy, language and/or numeracy
- personal learning and thinking
- personal and social development
- employability.

Where applicable, this could involve enabling the candidate to access relevant qualifications covering these skills.

For further information to assist with the planning and development of the programme, please refer to the City & Guilds log books.

5 Assessment

5.1 Summary of assessment methods

There are four types of units within these qualifications:

Knowledge Unit (K)	A unit that gives the learner the opportunity to demonstrate their knowledge and understanding of identified topics and subject areas.
Performance Unit (P)	A unit that gives the learner the opportunity to demonstrate they have the practical skills that are in keeping with the relevant National Occupational Standards for identified activities.
Combination Unit (C)	A unit that gives the learner the opportunity to demonstrate their understanding and application of specific knowledge, and is assessed in simulated conditions using particularly identified 'relevant practical activities'.
Gas Unit (G)	A unit that gives the learner the opportunity to demonstrate their knowledge, understanding and practical skills of gas work in accordance with the National Occupational Standards for identified activities. These units are assessed in accordance with EU Skills Assessment Strategy and the additional requirements laid out in this document. These units will be assessed via gas specific question papers, assignments, Independent Summative Assessments (ISA) and the completion of the gas unit specific logbooks (as appropriate).

For these units/qualifications, candidates will be required to complete the following assessments:

Unit No.	Title	Assessment Method	Unit type	Where to obtain assessment materials
212	Tightness test, purge, commission and de-commission gas pipework up to 35mm 1¼ diameter in small natural gas installations	This unit will be assessed via gas question papers, gas assignment, Independent Summative Assessments (ISA) and the development of a portfolio using the gas unit logbooks and will be assessed to the assessment criteria set out in the unit.	G	<p>All assessment materials and logbooks can be found on the City & Guilds website.</p> <p>Relevant question papers and ISA's for specific qualifications are listed on the appropriate 'Quick Guide' on the 6189 webpage.</p> <p>Passwords for the gas question papers and ISA's are available from our partner Blue Flame Associates using the application form, which is also available on the 6189 page of the City & Guilds website.</p> <p>Passwords for the gas unit logbook and assignment are available on the Walled Garden.</p>
301	Understand how to organise resources within BSE	<p>City & Guilds on-line multiple choice test.</p> <p>The test covers the all of the knowledge in the unit.</p>	K	Examination provided on e-assessment.
302/ 012	Understand and apply domestic cold water system installation, commissioning, service and maintenance techniques	<p>City & Guilds on-line multiple choice test.</p> <p>Externally set knowledge and practical assignments, locally marked and externally verified. Assignment (6189-302).</p> <p>The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.</p>	C	<p>Examination provided on e-assessment.</p> <p>The assignments can be found on the City & Guilds website.</p> <p>Passwords for the assignments are available on the Walled Garden.</p>
303/ 023	Understand and apply domestic hot water system installation, commissioning, service and maintenance techniques	<p>City & Guilds on-line multiple choice test.</p> <p>Externally set knowledge and practical assignments, locally marked and externally verified. Assignment (6189-303).</p> <p>The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.</p>	C	<p>Examination provided on e-assessment.</p> <p>The assignments can be found on the City & Guilds website.</p> <p>Passwords for the assignments are available on the Walled Garden.</p>

304/ 024	Understand and apply domestic central heating system installation, commissioning, service and maintenance techniques	<p>City & Guilds on-line multiple choice test.</p> <p>Externally set knowledge and practical assignments, locally marked and externally verified. Assignment (6189-304).</p> <p>The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.</p>	C	<p>Examination provided on e-assessment.</p> <p>The assignments can be found on the City & Guilds website.</p> <p>Passwords for the assignments are available on the Walled Garden.</p>
305/ 025	Understand and carry out electrical work on domestic plumbing and heating systems and components	<p>City & Guilds on-line multiple choice test.</p> <p>Externally set assignment, locally marked and externally verified. Assignment (6189-305).</p> <p>The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.</p>	C	<p>Examination provided on e-assessment.</p> <p>The assignments can be found on the City & Guilds website.</p> <p>Passwords for the assignments are available on the Walled Garden.</p>
306	Install, commission, service and maintain domestic heating systems	<p>This unit will be assessed via observation and the development of a portfolio in a working environment and will be assessed to the assessment criteria set out in the unit.</p>	P	<p>The plumbing unit logbooks can be found on the City & Guilds website.</p> <p>Passwords for the plumbing unit logbooks are available on the Walled Garden.</p> <p>Alternatively, centres may wish to use approved e-portfolios, more details are available on the Learning Assistant section of the City & Guilds website.</p>
307/ 107/ 507	Understand core oil firing safety principles within domestic building services engineering	<p>There are two options to complete the assessment for this unit.</p> <p>City & Guilds on-line multiple choice test. 307</p> <p>Or</p> <p>City & Guilds on-line multiple choice test 107 and externally set assignment, locally marked and externally verified. Assignment (6189-507).</p>	K	<p>Examination provided on e-assessment.</p> <p>The assignments can be found on the City & Guilds website.</p> <p>Passwords for the assignments are available on the Walled Garden.</p>

308	Apply core oil firing safety within domestic building services engineering	This unit will be assessed via observation and the development of a portfolio in a working environment and will be assessed to the assessment criteria set out in the unit.	P	<p>The plumbing unit logbooks can be found on the City & Guilds website.</p> <p>Passwords for the plumbing unit logbooks are available on the Walled Garden.</p> <p>Alternatively, centres may wish to use approved e-portfolios, more details are available on the Learning Assistant section of the City & Guilds website.</p>
309	Understand the principles of domestic oil firing pressure jet appliances	<p>City & Guilds on-line multiple choice test.</p> <p>The test covers the all of the knowledge in the unit.</p>	K	Examination provided on e-assessment.
310	Service and maintain domestic oil firing pressure jet appliances	This unit will be assessed via observation and the development of a portfolio in a working environment and will be assessed to the assessment criteria set out in the unit.	P	<p>The plumbing unit logbooks can be found on the City & Guilds website.</p> <p>Passwords for the plumbing unit logbooks are available on the Walled Garden.</p> <p>Alternatively, centres may wish to use approved e-portfolios, more details are available on the Learning Assistant section of the City & Guilds website.</p>
311	Install, test and commission domestic oil firing pressure jet appliances	This unit will be assessed via observation and the development of a portfolio in a working environment and will be assessed to the assessment criteria set out in the unit.	P	<p>The plumbing unit logbooks can be found on the City & Guilds website.</p> <p>Passwords for the plumbing unit logbooks are available on the Walled Garden.</p> <p>Alternatively, centres may wish to use approved e-portfolios, more details are available on the Learning Assistant section of the City & Guilds website.</p>
312	Install, test and commission domestic oil firing vaporising appliances	This unit will be assessed via observation and the development of a portfolio in a working environment and will be assessed to the assessment criteria set out in the unit.	P	<p>The plumbing unit logbooks can be found on the City & Guilds website.</p> <p>Passwords for the plumbing unit logbooks are available on the Walled Garden.</p> <p>Alternatively, centres may wish to use approved e-portfolios, more details are available on the Learning Assistant section of the City & Guilds website.</p>

313	Service and maintain domestic oil firing vaporising appliances	This unit will be assessed via observation and the development of a portfolio in a working environment and will be assessed to the assessment criteria set out in the unit.	P	<p>The plumbing unit logbooks can be found on the City & Guilds website.</p> <p>Passwords for the plumbing unit logbooks are available on the Walled Garden.</p> <p>Alternatively, centres may wish to use approved e-portfolios, more details are available on the Learning Assistant section of the City & Guilds website.</p>
314	Understand the principles of domestic oil firing vaporising appliances	<p>City & Guilds on-line multiple choice test.</p> <p>The test covers the all of the knowledge in the unit.</p>	K	Examination provided on e-assessment.
315	Understand core solid fuel safety principles within domestic building services engineering	<p>City & Guilds on-line multiple choice test.</p> <p>The test covers the all of the knowledge in the unit.</p>	K	Examination provided on e-assessment.
316	Apply core solid fuel safety within domestic building services engineering	This unit will be assessed via observation and the development of a portfolio in a working environment and will be assessed to the assessment criteria set out in the unit.	P	<p>The plumbing unit logbooks can be found on the City & Guilds website.</p> <p>Passwords for the plumbing unit logbooks are available on the Walled Garden.</p> <p>Alternatively, centres may wish to use approved e-portfolios, more details are available on the Learning Assistant section of the City & Guilds website.</p>
317	Service and maintain domestic solid mineral fuel burning appliances	This unit will be assessed via observation and the development of a portfolio in a working environment and will be assessed to the assessment criteria set out in the unit.	P	<p>The plumbing unit logbooks can be found on the City & Guilds website.</p> <p>Passwords for the plumbing unit logbooks are available on the Walled Garden.</p> <p>Alternatively, centres may wish to use approved e-portfolios, more details are available on the Learning Assistant section of the City & Guilds website.</p>
318	Understand the principles of domestic solid mineral fuel burning appliances	<p>City & Guilds on-line multiple choice test.</p> <p>The test covers the all of the knowledge in the unit.</p>	K	Examination provided on e-assessment.

319	Install, test and commission domestic solid mineral fuel burning appliances	This unit will be assessed via observation and the development of a portfolio in a working environment and will be assessed to the assessment criteria set out in the unit.	P	<p>The plumbing unit logbooks can be found on the City & Guilds website.</p> <p>Passwords for the plumbing unit logbooks are available on the Walled Garden.</p> <p>Alternatively, centres may wish to use approved e-portfolios, more details are available on the Learning Assistant section of the City & Guilds website.</p>
320	Service and maintain domestic biomass fuel burning appliances	Externally set assignment, locally marked and externally verified. Assignment (6189-320). The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.	C	<p>The assignment can be found on the City & Guilds website.</p> <p>The password for the assignment is available on the Walled Garden.</p>
321	Install, test and commission domestic biomass fuel burning appliances	Externally set assignment, locally marked and externally verified. Assignment (6189-321). The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.	C	<p>The assignment can be found on the City & Guilds website.</p> <p>The password for the assignment is available on the Walled Garden.</p>
322	Understand the installation and commissioning principles of biomass fuel burning appliances	City & Guilds on-line multiple choice test. The test covers the all of the knowledge in the unit.	K	Examination provided on e-assessment.
323	Understand the service and maintenance principles of biomass fuel burning appliances	City & Guilds on-line multiple choice test. The test covers the all of the knowledge in the unit.	K	Examination provided on e-assessment.
324	Understand the fundamental principles and requirements of environmental technology systems	City & Guilds on-line multiple choice test. The test covers the all of the knowledge in the unit.	K	Examination provided on e-assessment.

325	Know the requirements to install, commission and handover solar thermal hot water systems	City & Guilds on-line multiple choice test. The test covers the all of the knowledge in the unit.	K	Examination provided on e-assessment.
326	Install, commission and handover 'active' solar thermal hot water systems	Externally set assignment, locally marked and externally verified. Assignment (6189-326). The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.	C	The assignment can be found on the City & Guilds website . The password for the assignment is available on the Walled Garden.
327	Know the requirements to inspect, service and maintain 'active' solar thermal hot water systems	City & Guilds on-line multiple choice test. The test covers the all of the knowledge in the unit.	K	Examination provided on e-assessment.
328	Inspect, service and maintain 'active' solar thermal hot water systems	Externally set assignment, locally marked and externally verified. Assignment (6189-328). The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.	C	The assignment can be found on the City & Guilds website . The password for the assignment is available on the Walled Garden.
329	Install, commission and handover heat pumps non-refrigerant circuits	Externally set assignment, locally marked and externally verified. Assignment (6189-329). The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.	C	The assignment can be found on the City & Guilds website . The password for the assignment is available on the Walled Garden.
330	Know the requirements to inspect, service and maintain heat pump system installations non-refrigerant circuits	City & Guilds on-line multiple choice test. The test covers the all of the knowledge in the unit.	K	Examination provided on e-assessment.

331	Inspect, service and maintain heat pump installations non-refrigerant circuits	Externally set assignment, locally marked and externally verified. Assignment (6189-331). The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.	C	The assignment can be found on the City & Guilds website . The password for the assignment is available on the Walled Garden.
332	Know the requirements to install, commission and handover heat pump systems non-refrigerant circuits	City & Guilds on-line multiple choice test. The test covers the all of the knowledge in the unit.	K	Examination provided on e-assessment.
333	Inspect, service and maintain rainwater harvesting and greywater reuse systems	Externally set assignment, locally marked and externally verified. Assignment (6189-333). The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.	C	The assignment can be found on the City & Guilds website . The password for the assignment is available on the Walled Garden.
334	Install, commission and handover rainwater harvesting and greywater reuse systems	Externally set assignment, locally marked and externally verified. Assignment (6189-334). The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.	C	The assignment can be found on the City & Guilds website . The password for the assignment is available on the Walled Garden.
335	Know the requirements to inspect, service and maintain rainwater harvesting and greywater reuse systems	City & Guilds on-line multiple choice test. The test covers the all of the knowledge in the unit.	K	Examination provided on e-assessment.
336	Know the requirements to install, commission and handover rainwater harvesting and greywater reuse systems	City & Guilds on-line multiple choice test. The test covers the all of the knowledge in the unit.	K	Examination provided on e-assessment.

337	Install, commission and de-commission gas pipework up to 35mm 1¼ diameter in domestic and small commercial premises	This unit will be assessed via gas question papers, gas assignment, Independent Summative Assessments (ISA) and the development of a portfolio using the gas unit logbooks and will be assessed to the assessment criteria set out in the unit.	G	<p>All assessment materials and logbooks can be found on the City & Guilds website.</p> <p>Relevant question papers and ISA's for specific qualifications are listed on the appropriate 'Quick Guide' on the 6189 webpage.</p> <p>Passwords for the gas question papers and ISA's are available from our partner Blue Flame Associates using the application form, which is also available on the 6189 page of the City & Guilds website.</p> <p>Passwords for the gas unit logbook and assignment are available on the Walled Garden.</p>
338	Specific core installation & maintenance	This unit will be assessed via gas question papers and Independent Summative Assessments (ISA)	G	<p>All assessment materials and logbooks can be found on the City & Guilds website.</p> <p>Relevant question papers and ISA's for specific qualifications are listed on the appropriate 'Quick Guide' on the 6189 webpage.</p> <p>Passwords for the gas question papers and ISA's are available from our partner Blue Flame Associates using the application form, which is also available on the 6189 page of the City & Guilds website.</p>
339	Understand core gas safety principles for natural gas within domestic building services engineering	This unit will be assessed via gas question papers and Independent Summative Assessments (ISA)	G	<p>All assessment materials and logbooks can be found on the City & Guilds website.</p> <p>Relevant question papers and ISA's for specific qualifications are listed on the appropriate 'Quick Guide' on the 6189 webpage.</p> <p>Passwords for the gas question papers and ISA's are available from our partner Blue Flame Associates using the application form, which is also available on the 6189 page of the City & Guilds website.</p>

340	Maintain gas warm air central heating systems and appliances	This unit will be assessed via gas question papers, gas assignment, Independent Summative Assessments (ISA) and the development of a portfolio using the gas unit logbooks and will be assessed to the assessment criteria set out in the unit.	G	<p>All assessment materials and logbooks can be found on the City & Guilds website.</p> <p>Relevant question papers and ISA's for specific qualifications are listed on the appropriate 'Quick Guide' on the 6189 webpage.</p> <p>Passwords for the gas question papers and ISA's are available from our partner Blue Flame Associates using the application form, which is also available on the 6189 page of the City & Guilds website.</p> <p>Passwords for the gas unit logbook and assignment are available on the Walled Garden.</p>
341	Install domestic gas warm air central heating appliances	This unit will be assessed via gas question papers, gas assignment, Independent Summative Assessments (ISA) and the development of a portfolio using the gas unit logbooks and will be assessed to the assessment criteria set out in the unit.	G	<p>All assessment materials and logbooks can be found on the City & Guilds website.</p> <p>Relevant question papers and ISA's for specific qualifications are listed on the appropriate 'Quick Guide' on the 6189 webpage.</p> <p>Passwords for the gas question papers and ISA's are available from our partner Blue Flame Associates using the application form, which is also available on the 6189 page of the City & Guilds website.</p> <p>Passwords for the gas unit logbook and assignment are available on the Walled Garden.</p>
342	Maintain gas water heating and wet central heating appliances	This unit will be assessed via gas question papers, gas assignment, Independent Summative Assessments (ISA) and the development of a portfolio using the gas unit logbooks and will be assessed to the assessment criteria set out in the unit.	G	<p>All assessment materials and logbooks can be found on the City & Guilds website.</p> <p>Relevant question papers and ISA's for specific qualifications are listed on the appropriate 'Quick Guide' on the 6189 webpage.</p> <p>Passwords for the gas question papers and ISA's are available from our partner Blue Flame Associates using the application form, which is also available on the 6189 page of the City & Guilds website.</p> <p>Passwords for the gas unit logbook and assignment are available on the Walled Garden.</p>

343	Install domestic gas water heaters and wet central heating appliances	This unit will be assessed via gas question papers, gas assignment, Independent Summative Assessments (ISA) and the development of a portfolio using the gas unit logbooks and will be assessed to the assessment criteria set out in the unit.	G	<p>All assessment materials and logbooks can be found on the City & Guilds website.</p> <p>Relevant question papers and ISA's for specific qualifications are listed on the appropriate 'Quick Guide' on the 6189 webpage.</p> <p>Passwords for the gas question papers and ISA's are available from our partner Blue Flame Associates using the application form, which is also available on the 6189 page of the City & Guilds website.</p> <p>Passwords for the gas unit logbook and assignment are available on the Walled Garden.</p>
344/ 026	Understand and apply domestic sanitation system installation, commissioning, service and maintenance techniques	<p>City & Guilds on-line multiple choice test.</p> <p>Externally set knowledge and practical assignments, locally marked and externally verified. Assignment (6189-344).</p> <p>The assessment covers the knowledge requirement of the unit and assesses all learning outcomes to verify coverage of the unit.</p>	C	<p>Examination provided on e-assessment.</p> <p>The assignments can be found on the City & Guilds website.</p> <p>Passwords for the assignments are available on the Walled Garden.</p>
345	Install, commission, service and maintain domestic plumbing and heating systems	This unit will be assessed via observation and the development of a portfolio in a working environment and will be assessed to the assessment criteria set out in the unit.	P	<p>The plumbing unit logbooks can be found on the City & Guilds website.</p> <p>Passwords for the plumbing unit logbooks are available on the Walled Garden.</p> <p>Alternatively, centres may wish to use approved e-portfolios, more details are available on the Learning Assistant section of the City & Guilds website.</p>

5.2 Principles of Assessment (Summit Skills Units)

Note: The following information applies to Summit Skills units only (Units 301 to 336 inclusive).

Evidence requirements

The evidence requirements and City & Guilds Assessment Strategy for these qualifications has been designed within the confines of the SSC Summit Skills 'Consolidated Assessment Strategy for Units and Qualifications of 'Occupational Competence' in the Qualifications and Credit Framework (England, Northern Ireland and Wales) for the Building Services Engineering Sector' (April 2010 v2.1a 06.10)'.

Knowledge units must be undertaken in line with the City & Guilds Assessment Strategy for each unit as detailed in this Handbook. All knowledge only units for the qualifications are assessed by online multiple choice tests.

Evidence that is sourced from the real working environment for **performance units** must be naturally occurring and can be generated by:

- direct observation of performance in the workplace by a qualified assessor and/or testimony from an expert witness subject to the activity being assessed; this will be the primary source of evidence
- candidate's reflective account of performance
- work plans and work based products, eg diagrams, drawings, specifications, customer testimony, authorised and authenticated photographs/images and audiovisual records of work completed
- evidence from prior achievements that demonstrably match the requirements of the performance unit
- witness testimony.

Meeting the assessment requirements of **performance units** will need initial discussions and assessment planning between the learner and assessor, as an essential activity to identify opportunities to assess real working environment evidence, gaps that need to be filled or opportunities to recognise the prior achievement of the learner.

Competence must be demonstrated **consistently over a period of time and on more than one occasion**. Unless specifically stated otherwise within the unit, there is no stipulation of what that period of time might be as this is a decision for the assessor. Based on their own professional judgement assessors must be capable of identifying when competence has been demonstrated by the learner.

Simulation and simulated conditions (performance units)

Permissible

Simulation can take place in those rare circumstances where the opportunities to collect naturally occurring evidence are limited or absent and the learner lacks evidence for completion of the unit. However, this scenario is anticipated to be rare in relation to the qualifications and the units to which this strategy applies given the inherent flexibility of the evidence-gathering process.

Mandatory

Simulation **must** take place for industry-identified key safety critical aspects of the qualifications as listed below:

- activities relating to F Gas installations/service and maintenance
- pressure testing
- handling of refrigerants (ODS, Ammonia, HC and CO₂)
- thermal pipe joining methods:
 - welding
 - brazing
 - soldering activities
- limited scope electrical work
- as relevant, the installation, connection and servicing/maintenance of fuel systems and equipment:
 - gas
 - oil
 - solid fuel
- as relevant, the installation, connection and servicing/maintenance of hot/cold water systems and equipment:
 - unvented water
 - backflow prevention.

The activities that will be undertaken demonstrating competence in these areas are contained within each industries '**Assessment of Occupational Competence**' arrangement and this must not be undertaken before the learner has demonstrated sufficient technical expertise, knowledge, skill and maturity.

Where simulation does take place it must be in a realistic working environment and/or an independent assessment structure.

Industry arrangements for the assessment of occupational competence

This is an independent part of the assessment process. Each industry will have its own arrangements which will be compliant with the following requirements:

- activities relating to limited scope electrical work
- assessment in the following competence areas must meet the minimum standards laid down by the following bodies and be capable of facilitating separate operative registration (without further assessment and training) with industry recognised bodies approved to register operatives in the listed competence area:
 - Water Regulations – DEFRA (WRAS)
 - Unvented hot water – Building Regulations/Standards
 - Energy efficiency – Building Regulations/Standards (Part L1 of the Building Regulations in England & Wales)
 - Gas – gas registration provider
 - Oil – OFTEC
 - Solid fuel – HETAS
 - Electrical – defined scope Part P electrics
 - Emerging technologies – MTC proposals (Competent Persons Schemes).

Additional delivery and assessment requirements

MES Electrical Unit: 305/025 Understand and carry out electrical work on domestic plumbing and heating systems and components (T/502/9157).

In relation to the delivery and assessment of the above unit, the two statements below **must** be prominently included in any learner and assessor / assessment support and guidance documentation for the unit and/or the qualification the unit is a component of:

- A learner who completes this unit is **not** competent to inspect and test a complete electrical installation. The competencies identified in the unit and demonstrated by the learner are only applicable to **electrically operated mechanical services components and controls** up to 230V single phase supply.
- Individuals responsible for the delivery and / or assessment of this unit must provide auditable evidence that, as a minimum, they have the competencies that equate with the **Learning Outcomes and Assessment Criteria** of the unit.

5.3 Principles of Assessment (EU Skills Units)

Note: The following information applies to EU Skills units only
(All EU Skills units 212, 337, 338, 340, 341, 342, 343)

Requirements for Assessment

The EU Skills gas utilisation units are assessed through a combination of:

- workplace assessment (observed assessment)
- Realistic Working Environment (RWE) assessment (including Independent Summative Assessments (ISAs))
- assessment of experience (evidence of an appropriate number of workplace and RWE activities)
- knowledge assessment (through multiple choice question papers and assignment).

The assessment requirements set out in this document must be met in full.

In accordance with good practice and Ofqual requirements regarding Conflict of Interest in Assessment (Condition A4 in General Conditions of Regulation – Ofqual 2011) assessors involved in providing direct training to a learner, either as part of a group or on a 'one to one' basis should not carry out assessments for any of those trained aspects. Alternatively the centre may put in place effective quality control measures to ensure that any potential conflicts of interest do not have an adverse effect on assessment outcomes, this will be audited during the centre's quality assurance visits.

Unless specified otherwise in the assessment documentation, assessors must assess utilising the requirements of the most current industry normative documents (for example: British Standards, Institution of Gas Engineers and Managers Standards, etc)

Practical Evidence (Workplace assessment, RWE assessment & assessment of experience)

Learners must demonstrate competence in each unit through assessment in line with the **Evidence and Assessment Requirement Tables** contained on the following pages.

The gas industry is highly regulated regarding safety requirements and this is reflected in these qualifications. Certain gas safety related assessments must only be carried out under simulated conditions. Gas safety critical activities within the units will normally be assessed in an RWE and where necessary these requirements are incorporated in the following tables.

Learners must demonstrate competence in the workplace during the performance of genuine work activities, by carrying out the tasks and duties that would be reasonably expected of them as a competent operative.

Learners will be expected to have demonstrated competence in the assessed tasks over a period of time under normal working conditions to generate a sufficiency of practical evidence. In addition to the specified observed workplace assessment(s), the assessment of experience must include evidence gathered directly from the workplace, as required for each unit in the following tables. Where the minimum numbers of occasions have been completed in the workplace, but the full range has not been covered, this additional range may be additionally covered in the RWE.

Each activity that forms part of the practical evidence will need to be signed off by an assessor or a technically and occupationally competent witness, as appropriate. Technically and occupationally competent witnesses will need to be approved by the centre prior to accepting them to authenticate evidence. This should be done using the proforma **Technically and Occupationally Competent Witness Information & Approval Form** on the City & Guilds website.

Evidence and assessment requirement tables

6189 Unit 212 <i>(EUS DSG 3.6)</i>		Gas tightness testing and direct purging (IGEM/UP/1B)	
UNIT ASSESSMENT REQUIREMENTS: <ul style="list-style-type: none"> Assessments must be carried out as documented in this table Learners must demonstrate sufficient evidence of competence through experience of satisfactorily undertaking the work activities documented across the full range. This shall be evidenced via the Learner's Portfolio and be assessed as meeting the minimum documented requirements. 			
3.6.1 Tightness testing and purging gas installations			
RANGE	RWE ASSESSMENT	ASSESSMENT OF EXPERIENCE	WORKPLACE ASSESSMENT
Primary Range: <ul style="list-style-type: none"> Natural Gas Installations LPG Installations Secondary Range: <ul style="list-style-type: none"> Purge Natural Gas Installation with Volume $\leq 0.02 \text{ m}^3$ Purge Natural Gas Installation with Volume $> 0.02 \text{ m}^3 \leq 0.035 \text{ m}^3$ Including a Meter New Installation Existing Installation 	<p>One Successful Assessment <i>(ISA 1 & ISA 12)</i></p>	<p>Evidence of experience undertaking the satisfactory tightness testing and purging is required across the documented ranges.</p> <p>At least 5 ¹ separate installation occasions must occur with the Learner demonstrating experience across the Assessment Criteria on each occasion.</p> <p>At least 3 ¹ of the installation occasions must be from the workplace.</p>	<p>One Successful Assessment ²</p>
Table Notes: <p>¹ The documented numbers required to be evidenced do include the assessment occasions.</p> <p>² The assessment must be of a different 'Primary Range' type than that the one utilised as part of the RWE Assessment.</p>			

6189 Unit 337 (EUS DSG 3.6)		Install gas pipework (35 mm)	
UNIT ASSESSMENT REQUIREMENTS: <ul style="list-style-type: none"> Assessments must be carried out as documented in this table Learners must demonstrate sufficient evidence of competence through experience of satisfactorily undertaking the work activities documented across the full range. This shall be evidenced via the Learner's Portfolio and be assessed as meeting the minimum documented requirements. 			
3.5.1 Install gas pipework			
RANGE	RWE ASSESSMENT	ASSESSMENT OF EXPERIENCE	WORKPLACE ASSESSMENT
Primary Range: <ul style="list-style-type: none"> Copper Tube Steel Tube Corrugated Stainless Steel Tube (CSST) Polyethylene Tube (pe) Secondary Range: <ul style="list-style-type: none"> Through Walls Under Wooden Floors Surface Mounted Capillary Joints Compression Joints CSST Joints Screwed Joints Formed Bends 	One Successful Assessment <i>(ISA 1)</i>	Evidence of experience undertaking the satisfactory tightness testing and purging is required across the documented ranges. At least 5 ¹ separate installation occasions must occur with the Learner demonstrating experience across the Assessment Criteria on each occasion. At least 3 ¹ of the installation occasions must be from the workplace.	One Successful Assessment
Table Notes: ¹ The documented numbers required to be evidenced do include the assessment occasions.			

6189 Unit 340 <i>(EUS DSG 3.11)</i>		Maintain gas warm air central heating systems and appliances	
UNIT ASSESSMENT REQUIREMENTS:			
<ul style="list-style-type: none"> Assessments must be carried out as documented in this table Learners must demonstrate sufficient evidence of competence through experience of satisfactorily undertaking the work activities documented across the full range. This shall be evidenced via the Learner's Portfolio and be assessed as meeting the minimum documented requirements. 			
3.11.1 Routine full service of a gas fired ducted air heater			
RANGE	RWE ASSESSMENT	ASSESSMENT OF EXPERIENCE	WORKPLACE ASSESSMENT
Primary Range: <ul style="list-style-type: none"> Ducted Air Heater ¹ Secondary Range: <ul style="list-style-type: none"> Open-Flued Natural Draught Appliance <i>(Appliance Type B₁₁ or B₂₁)</i> Room Sealed Fanned Draught Appliance <i>(Appliance Type C₁₂ or C₁₃ or C₃₂ or C₃₃)</i> Compartment Installation Positive Return Air Duct 	One Successful Assessment <i>(ISA 7)</i>	Evidence of experience undertaking the satisfactory full servicing of gas fired ducted air heating appliances is required across the documented ranges. At least 5 ² separate servicing occasions must occur with the Learner demonstrating experience across the Assessment Criteria on each occasion At least 3 ² of the servicing occasions must be from the workplace.	One Successful Assessment
3.11.2 Identify and repair faults on gas fired ducted air heaters			
RANGE	RWE ASSESSMENT	ASSESSMENT OF EXPERIENCE	WORKPLACE ASSESSMENT
Primary Range: <ul style="list-style-type: none"> Ducted Air Heater ¹ Secondary Range: <ul style="list-style-type: none"> Open-Flued Natural Draught Appliance <i>(Appliance Type B₁₁ or B₂₁)</i> Room Sealed Fanned Draught Appliance <i>(Appliance Type C₁₂ or C₁₃ or C₃₂ or C₃₃)</i> Gas Safety Control Defect Electrical Control Defect 	One Successful Assessment <i>(ISA 7)</i>	Evidence of experience undertaking the identification and repairing of faults on gas fired ducted air heating appliances is required across the documented ranges. At least 5 ² separate fault rectification occasions must occur with the Learner demonstrating experience across of the Assessment Criteria on each occasion. At least 2 ² of the fault rectification occasions must be from the workplace.	N/A
Table Notes:			
¹ A 'Ducted Air Heater' for the purpose of this document is deemed to be a flued warm air heating appliance that uses ducting to distribute the heating air around a premise.			
² The documented numbers required to be evidenced do include the assessment occasions			

UNIT ASSESSMENT REQUIREMENTS:

- Assessments must be carried out as documented in this table
- Learners must demonstrate sufficient evidence of competence through experience of satisfactorily undertaking the work activities documented across the full range. This shall be evidenced via the Learner's Portfolio and be assessed as meeting the minimum documented requirements.

3.10.1 Installation of a gas fired ducted air heater

RANGE	RWE ASSESSMENT	ASSESSMENT OF EXPERIENCE	WORKPLACE ASSESSMENT
<p>Primary Range:</p> <ul style="list-style-type: none"> • Ducted Air Heater ¹ <p>Secondary Range:</p> <ul style="list-style-type: none"> • Open-Flued Natural Draught Appliance (Appliance Type B₁₁ or B₂₁) • Room Sealed Fanned Draught Appliance (Appliance Type C₁₂ or C₁₃ or C₃₂ or C₃₃) • Compartment Installation • Positive Return Air Duct • Installation Exchange 	<p>One Successful Assessment (ISA 7)</p>	<p>Evidence of experience undertaking the satisfactory installation of gas fired ducted air heating appliances is required across the documented ranges.</p> <p>At least 5 ² separate installation occasions must occur with the Learner demonstrating experience across the Assessment Criteria on each occasion.</p> <p>At least 3 ² of the installation occasions must be from the workplace.</p>	<p>One Successful Assessment</p>

Table Notes:

¹ A 'Ducted Air Heater' for the purpose of this document is deemed to be a flued warm air heating appliance that uses ducting to distribute the heating air around a premise.

² The documented numbers required to be evidenced do include the assessment occasions.

6189 Unit 342 <i>(EUS DSG 3.4)</i>		Maintain gas water heating and wet central heating appliances	
UNIT ASSESSMENT REQUIREMENTS: <ul style="list-style-type: none"> Assessments must be carried out as documented in this table Learners must demonstrate sufficient evidence of competence through experience of satisfactorily undertaking the work activities documented across the full range. This shall be evidenced via the Learner's Portfolio and be assessed as meeting the minimum documented requirements. 			
3.4.1 Routine full service of a gas fired boiler			
RANGE	RWE ASSESSMENT	ASSESSMENT OF EXPERIENCE	WORKPLACE ASSESSMENT
Primary Range: <ul style="list-style-type: none"> Traditional Boiler ¹ System Boiler ² Combination Boiler ³ Gas Fire & Back Boiler ⁴ Secondary Range: <ul style="list-style-type: none"> Open-Flued Natural Draught Appliance (incl. Draught Diverter) <i>(Appliance Type B₁₁)</i> Room Sealed Natural Draught Appliance <i>(Appliance Type C₁₁)</i> Room Sealed Fanned Draught Appliance <i>(Appliance Type C₁₂ or C₁₃ or C₃₂ or C₃₃ or C₅₂ or C₅₃)</i> Condensing Appliance Non-Condensing Appliance 	One Successful Assessment (ISA 5)	Evidence of experience undertaking the satisfactory full servicing of gas fired boilers is required across the documented ranges. At least 5 ⁵ separate servicing occasions must occur with the Learner demonstrating experience across the Assessment Criteria on each occasion At least 3 ⁵ of the servicing occasions must be from the workplace.	One Successful Assessment ⁶
3.4.2 Routine full service of a gas fired instantaneous water heater			
RANGE	RWE ASSESSMENT	ASSESSMENT OF EXPERIENCE	WORKPLACE ASSESSMENT
Primary Range: <ul style="list-style-type: none"> Multipoint Water Heater 	One Successful Assessment	N/A	N/A
TABLE CONTINUED OVER THE PAGE			

3.4.3 Identify and repair faults on gas fired boilers and instantaneous water heaters

RANGE	RWE ASSESSMENT	ASSESSMENT OF EXPERIENCE	WORKPLACE ASSESSMENT
<p>Primary Range:</p> <ul style="list-style-type: none"> • Traditional Boiler ¹ • System Boiler ² • Combination Boiler ³ • Multipoint Water Heater <p>Secondary Range:</p> <ul style="list-style-type: none"> • Open-Flued or Room Sealed Natural Draught Appliance (Appliance Type B₁₁ or C₁₁) • Open-Flued or Room Sealed Fanned Draught Appliance (Appliance Type B₁₂ or B₁₃ or B₁₄ or C₁₂ or C₁₃ or C₃₂ or C₃₃) • Gas Safety Control Defect ⁷ • Electrical Control Defect ⁷ • Water Control Defect ⁷ 	<p>One Successful Assessment (ISA 5)</p>	<p>Evidence of experience undertaking the identification and repairing of faults on gas fired boilers and instantaneous water heaters is required across the documented ranges.</p> <p>At least 4 ⁵ separate fault rectification occasions must occur with the Learner demonstrating experience the Assessment Criteria on each occasion.</p> <p>At least 2 ⁵ of the fault rectification occasions must be from the workplace.</p>	<p>N/A</p>

Table Notes:

- ¹ A 'Traditional Boiler' for the purpose of this document is deemed to be a boiler where the central heating system controls such as the pump, zone valves and other auxiliary controls are external to the appliance casing as supplied by the manufacturer.
- ² A 'System Boiler' for the purpose of this document is deemed to be a boiler where one or more of the central heating system controls such as the pump, zone valves and other auxiliary controls are internal to the appliance casing as supplied by the manufacturer.
- ³ A 'Combination Boiler' for the purpose of this document is deemed to be a boiler that provides instantaneous hot water to single or multiple hot water outlets, such as taps, with no water storage capacity (other than small quantities that may, by manufacturers design, be stored internally to prevent any delay in hot water delivery).
- ⁴ A 'Gas Fire & Boiler' for the purpose of this document is deemed to be a boiler, not a back circulator, that is connected to a flexible flue liner and has a gas fire connected to the front of the appliance.
- ⁵ The documented numbers required to be evidenced do include the assessment occasions.
- ⁶ The appliance must be of a different 'Primary Range' type than that the one utilised as part of the RWE Assessment.
- ⁷ The defects listed are 'Appliance Defects' and relate to controls within the appliance casing and do not refer to defects on controls on the heating or hot water systems.

UNIT ASSESSMENT REQUIREMENTS:

- Assessments must be carried out as documented in this table
- Learners must demonstrate sufficient evidence of competence through experience of satisfactorily undertaking the work activities documented across the full range. This shall be evidenced via the Learner's Portfolio and be assessed as meeting the minimum documented requirements.

3.3.1 Installation of a gas fired boiler

RANGE	RWE ASSESSMENT	ASSESSMENT OF EXPERIENCE	WORKPLACE ASSESSMENT
<p>Primary Range:</p> <ul style="list-style-type: none"> • Traditional Boiler ¹ • System Boiler ² • Combination Boiler ³ <p>Secondary Range:</p> <ul style="list-style-type: none"> • Room Sealed Fanned Draught Appliance (Horizontal Chimney) (Appliance Type C₁₂ or C₁₃) • Room Sealed Fanned Draught Appliance (Vertical Chimney) (Appliance Type C₃₂ or C₃₃) • Condensing Appliance • New Installation • Installation Exchange 	<p>One Successful Assessment (ISA 5)</p>	<p>Evidence of experience undertaking the satisfactory installation of gas fired boilers is required across the documented ranges.</p> <p>At least 5 ⁴ separate installation occasions must occur with the Learner demonstrating experience across the Assessment Criteria on each occasion.</p> <p>At least 3 ⁴ of the installation occasions must be from the workplace.</p>	<p>One Successful Assessment ⁵</p>

Table Notes:

- ¹ A 'Traditional Boiler' for the purpose of this document is deemed to be a boiler where the central heating system controls such as the pump, zone valves and other auxiliary controls are external to the appliance casing as supplied by the manufacturer.
- ² A 'System Boiler' for the purpose of this document is deemed to be a boiler where one or more of the central heating system controls such as the pump, zone valves and other auxiliary controls are internal to the appliance casing as supplied by the manufacturer.
- ³ A 'Combination Boiler' for the purpose of this document is deemed to be a boiler that provides instantaneous hot water to single or multiple hot water outlets, such as taps, with no water storage capacity (other than small quantities that may, by manufacturers design, be stored internally to prevent any delay in hot water delivery).
- ⁴ The documented numbers required to be evidenced do include the assessment occasions.
- ⁵ The appliance must be of a different 'Primary Range' type than that the one utilised as part of the RWE Assessment.

Realistic Working Environment (RWE)

These assessments / activities will normally be undertaken in a workshop area. These areas are considered to be a 'managed' environment because there is a degree of control over the conditions under which the activity is undertaken. The simulation activities and bays will normally contain:

- real time pressures
- a range of appliances, applicable to the assessment types
- a variety of flue types, eg Type 'B', Type 'C', natural & fanned draught with a range of construction methods
- a range of potential hazards that could realistically be found in a domestic dwelling, eg combustible surfaces, openable windows, doors, fans, curtains etc. (Please note these hazards may be simulated)
- a range of installation conditions, eg surface installation, under floor installation, through wall installation etc
- a range of building material types, eg brick walls, block walls, plaster board and timber walls.

The RWE must take account of health and safety requirements for risk assessments, gas safety related issues and against other activities where generating evidence is limited.

Independent Summative Assessments (ISAs)

The gas units use 'Independent Summative Assessment' (ISA) as part of the RWE Assessment requirements. The assessment process for the ISAs involves assessment of the learner's performance by realistic simulation in a managed assessment environment. The centre assessor will observe assessments of the learner's competence against a specified set of gas safety related performance criteria contained in the ISA Assessors Marking Sheets.

Several ISAs have been developed and can be found in the separate 'Quick Guide to ISA's' document. The 'Quick Guide' is periodically updated and the latest version can be found on the City and Guilds Website and must always be used.

Note: It is important to recognise that the introduction of the ISA's does **not** remove the requirement for the specified 'Workplace Assessment' and this is still seen as the primary source of evidence for making judgements of competence.

ISA assessment process

To ensure a consistent approach is taken to delivering and implementing the ISAs, the following requirements have been laid down.

- The ISAs can be undertaken at a convenient point in the learning programme, such at the end of a relevant block of learning.
- The assessor for the ISAs should be 'independent' (see 4.3 Requirements for Assessment).
- The 'Assessment Area' that is used to assess the ISAs should be 'Independent', ie the learners should not have been trained or coached on specific items of equipment / appliance / scenarios that could be found in the ISA assessment area over and above such training / coaching they may have normally received whilst working towards their Diploma. The area should have sufficient equipment/appliances to allow a selection of 'Learners Routes' to be planned to reduce assessment predictability and maintain the robustness of the assessment process.
- All ISA assessment documentation (Assessors Marking Sheets, Learners Job Sheets, Practical Assessment Workbooks, etc) must remain within the centre. Learners must not be allowed to remove these from the centre, even when they have completed their Diploma and are entitled to retain their portfolio (as with the Knowledge & Understanding Paperwork).

ISA Assessment Marking

Initial assessment

- Learners that achieve 100% pass the ISA assessment.
- Where a learner has failed to attain 100% (following any oral questioning asked as part of the assessment) at the assessors discretion, the learners may be re-assessed by oral questioning and / or observing the practical performance of the learner against those performance criteria on which competence was not demonstrated during the initial assessment.
- Following the second attempt described above, learners that achieve 100% pass the ISA assessment. Learners attaining less than 100% will be deemed to have referred on the ISA assessment / task undertaken and will require further training before undertaking a Partial Re-Take Assessment of the complete ISA/task, as required.

Note: Due to the requirement for further training, the re-sitting of the entire ISA / Task should not take place for at least 48 hours after the initial assessment on which the learner was referred.

Partial re-take assessment

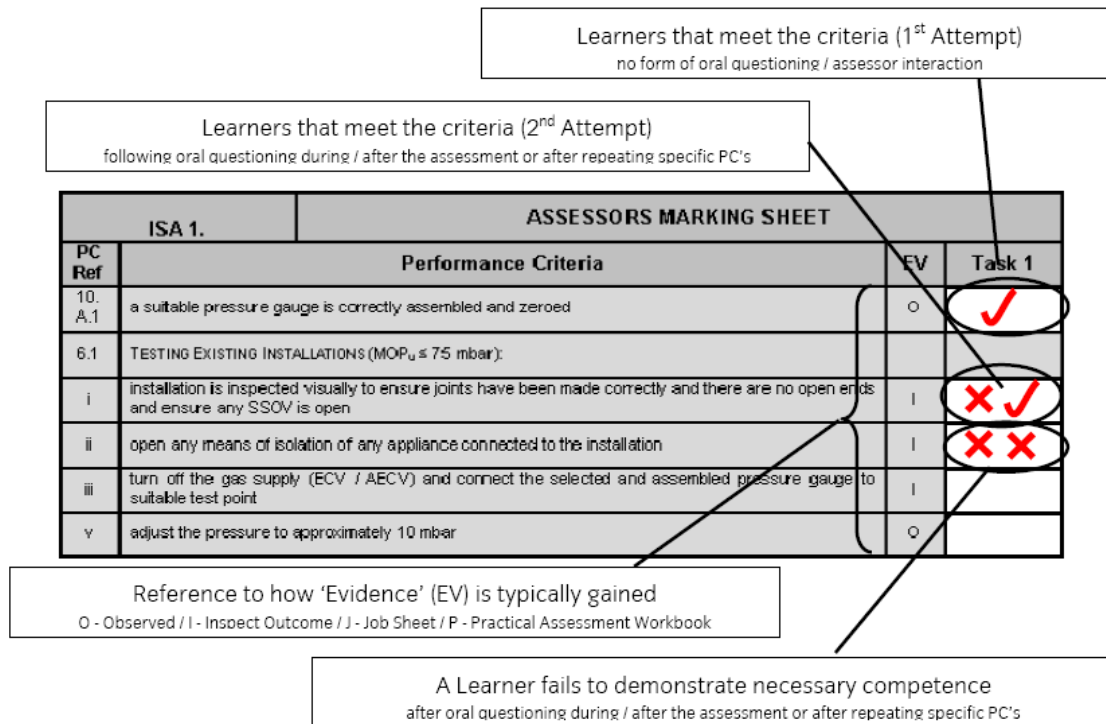
- The learner may undertake a Partial Re-Take Assessment of the entire ISA / or the full task of the ISA referred.
- Following the Partial Re-Take Assessment described in above, learners that achieve 100% pass the ISA assessment. Where a learner has failed to attain 100% (following any oral questioning asked as part of the assessment) at the assessors discretion, the learners may be re-assessed by oral questioning and / or observing the practical performance of the learner against those performance criteria on which competence was not demonstrated during the Partial Re-Take Assessment.
- After undertaking a second attempt on a Partial Re-Take Assessment described above, learners that achieve 100% pass the ISA assessment.
- Learners attaining less than 100% on a second attempt on a Partial Re-Take Assessment will be deemed to have failed to demonstrate a satisfactory competence level for the specific assessment.
- Where a learner has failed to demonstrate a satisfactory competence level at this summative assessment stage in completing their Diploma, an interview should be set up between the learner, the learner's assessor(s) and the internal quality assurer (and employer if required) to review the learner's performance. Following this interview the decision should be made as to what action the learner needs to take before re-attempting the entire ISA assessment (including all tasks and practical assessment workbook scenarios).

Note: Due to the requirement for further actions, the re-sitting of the entire ISA should not take place for at least 14 days after the Partial Re-Take Assessment on which the learner was referred.

Completion of ISA Assessor Marking Sheets

Initial Assessment

The Assessors Marking Sheets must be completed as indicated in the following diagram



Partial Re-take Assessment

Assessors undertaking Partial Re-Take Assessment of learners should use a 'Blank' Assessor Marking Sheet to mark the learner's performance against the task or tasks they are being asked to repeat. Learners should also be provided with a 'Blank' Candidates Job Sheet to complete during the assessment.

Note: It may be beneficial to ease identification of Partial Re-Take Assessment documentation by using a different colour paper to that used for Initial Assessment.

The Partial Re-Take Assessment should be marked on the paperwork as for Initial Assessment, but the assessor should indicate in the appropriate box on the Assessor Marking Sheet that a Partial Retake Assessment has taken place (see example below).

Task Decision:	Pass (P), Refer (R) or Fail (F)	P
Partial Re-Take Assessment of Task:	Yes (Y) or Not Applicable (N/A)	Y

Practical Task / Activity	Initial Assessment Recommendation	Partial Re-Take Assessment Recommendation	Overall Task / Activity Recommendation ¹	Internally Verified ²
Task 1	PASS / REFER *	PASS / FAIL *	PASS / FAIL *	Yes / No *
Task 2	PASS / REFER *	PASS / FAIL *	PASS / FAIL *	Yes / No *
Task 3	PASS / REFER *	PASS / FAIL *	PASS / FAIL *	Yes / No *
PAW <small>Result from Candidates Job Sheet</small>	PASS / REFER *	PASS / FAIL *	PASS / FAIL *	Yes / No *
PRACTICAL ASSESSMENT RECOMMENDATION:			PASS / FAIL *	<small>* Delete as required</small>

ISA Route Plans

Each ISA contains a 'Route Plan' that enables centres to document their approach to assessment. Each plan contains at least two variations that enable the centre to vary the assessment to reduce the predictability of the assessment occasion.

Centres should complete and retain copies of these to allow the internal and qualification consultants to monitor the assessment process and make objective decisions on a learner's performance during an assessment. The qualification consultants will audit learner's records against these 'Route Plans' on their monitoring visits.

Each Route plan has a 'Used From' date, this clearly indicates the date the plan was used from. Where equipment, setups are modified etc. the Route Plan should be amended and a new one created with the appropriate revised 'Used From' date. Out of date 'Route Plans' should be retained by the centre for use by internal and qualification consultants.

Each ISA Assessment contains a 'Route Plan Example'; these are designed to give centres guidance in developing routes. These examples show green and red text, the green text indicates areas that will be 'blank' on the normal 'Route Plan' and this gives the centre a great deal of latitude to vary routes and utilise existing equipment. The red text remains on the normal 'Route Plan', this should not normally be altered as they are either requirements of the assessment process or are figures, etc. that are fixed for other reasons (eg a statutory requirement).

ISA Practical Provisions

It is important to ensure that when ISA Assessments are carried out that suitable 'Practical Provisions' are available to allow the satisfactory completion of the assessment.

Logbooks

The City & Guilds Gas Unit Logbooks allow a straightforward and consistent approach to presenting evidence for the appropriate gas units. They are used to record:

- workplace assessment (observed assessment)
 - RWE assessments (including Independent Summative Assessments (ISAS))
- and
- evidence of experience (evidence of an appropriate number of workplace and RWE activities)

The Gas Unit Logbooks allow the learner to record which assessment criteria they have covered on the various activities undertaken, at the specified addresses/locations listed, to enable the assessor(s) to undertake an assessment of their experience. Each activity **must** be supported by suitable documents that record the results of any specific checks or tests the learner has undertaken, along with any supporting documentation and photographic evidence they wish to include. The supporting documents can take the form of industry standard documents, such as a Home Owner / Landlord Gas Safety Record or Inspection Form, or can be an employer's specific documents.

An illustration of how to complete the logbooks is given below

Learner / Centre Determined Reference
(for ease to tracking evidence)

Address / Location Evidence Obtained
(for ease to tracking evidence)

UNIT 6014 : 311 / 6189 : 343 *		INSTALL GAS WATER HEATING AND WET CENTRAL HEATING APPLIANCES	
LOGBOOK RECORD - EVIDENCE OF EXPERIENCE THROUGH ASSESSMENT			
Learner Details:		Print Name: <i>A Learner</i>	This logbook allows you to record which assessment criteria they have covered on the various activities undertaken, at the specified addresses/locations listed below to enable the assessor(s) to undertake an assessment of their experience. Each activity must be supported by suitable documents that record the results of any specific checks or tests the learner has undertaken, along with any supporting documentation and photographic evidence they wish to include. The supporting documents can take the form of industry standard documents, such as a Home Owner / Landlord Gas Safety Record or Inspection Form, or can be an employer's specific documents.
		Enrolment Number: <i>EXY123456</i>	
WORKPLACE / RWE ACTIVITIES	Reference: 1	Reference: 2	Reference: 3
	Address / Location: <i>Bay 12</i>	Address / Location: <i>54 Chatsworth Road</i>	Address / Location: <i>16 Kimberley Drive</i>
	<i>Gas / Plumbing Workshop</i>		
	Assessor/Witness Verification: Signature: <i>A Assessor</i>	Assessor/Witness Verification: Signature: <i>A Witness</i>	Assessor/Witness Verification: Signature: <i>A Witness</i>

UNIT 6014 : 311 / 6189 : 343 *		INSTALL GAS WATER HEATING AND WET CENTRAL HEATING APPLIANCES	
Learner Details:		Print Name: <i>A Learner</i>	
		Enrolment Number: <i>EXY123456</i>	
WORKPLACE / RWE ACTIVITIES	Reference: 1	Date: <i>15/11/2011</i>	Brief Description of Activities Carried Out: <i>Complete boiler installation and commission in accordance with m</i>
	2	<i>11/12/2011</i>	<i>Install new condensing boiler and commission in accordance with i</i>
	3	<i>17/01/2012</i>	<i>Convert existing back boiler installation to wall mounted condens</i>
	4	<i>21/02/2012</i>	<i>Install new condensing boiler and commission in accordance with i</i>
	5	<i>15/04/2012</i>	<i>Boiler installation (Onsite Assessment)</i>

UNIT 6014 : 311 / 6189 : 343 * INSTALL GAS WATER HEATING AND WET CENTRAL HEATING APPLIANCES		WORKPLACE / RWE ACTIVITIES REFERENCE					* Delete as required			
ASSESSMENT CRITERIA		1	2	3	4	5				
TYPE OF EVIDENCE W = Workplace / R = RWE / A1 = Assessment (Workplace) / A2 = Assessment (RWE) / I = ISA		I	W	W	W	A1				
EVIDENCE RANGE										
a	Traditional Boiler	✓				N/A				
b	System Boiler		✓			N/A				
c	Combination Boiler			✓		✓				
d	Room Sealed Fanned Draught Appliance (Horizontal Chimney) <small>(Appliance Type C₁₂ or C₁₄)</small>	✓		✓		N/A				
e	Room Sealed Fanned Draught Appliance (Vertical Chimney) <small>(Appliance Type C₁₂ or C₁₄)</small>		✓			N/A				
f	Condensing Appliance	✓	✓	✓	✓	✓				
g	New Installation	✓	✓		✓	✓				
	Installation Exchange			✓		N/A				
DESIGN AND PLANNING										
1	Discuss and agree the requirements of the job with the customer	✓	✓	✓	✓	✓				
2	Survey the work site and ensure the structure is satisfactory, adequate services are available and the appliance can be installed and sited in accordance with manufacturer's instructions and appropriate standards	✓				N/A				
3	Check that any existing chimney is suitable, check any existing ventilation and check that the proposed condensate disposal is in accordance with the manufacturer's instructions and appropriate standards			✓		N/A				
4	Inform the customer of any damage that exists on the appliance and / or surroundings before commencing work	✓			✓	N/A				
5	Check electrical supply and installation pipework is suitably sized, correctly installed, correctly positioned, protected and the correct materials have been used up to the point of connection	✓	✓	✓	✓	✓				
6	Check existing installation for unsafe situations and where necessary apply industry unsafe situations procedures correctly	✓				N/A				

Assessment Criteria
(revised wording for ease of use)

Cross reference for criteria covered in another unit - insert unit number
(only applicable if box unshaded)

When an ISA is being recorded on a logbook, it should be completed by the learner. The evidence marked must be verified by the assessor. If this is done at an early stage in the evidence gathering process it serves to evidence which assessment criteria have been covered during the assessment (over and above those in the ISA Assessors Marking Sheet), and gives an indication to the assessor that the learner understands the assessment criteria and the process of completing the logbook.

Where the logbook is used to record and mark other **observed assessments** (such as the A1 Assessment illustrated above) it must be completed by the assessor. It is recommended that a N/A is inserted in the boxes where criteria have not been covered to prevent the results being easily tampered with in the future. The assessor should initial any changes they make to the logbook during the assessment.

The last page of the logbook (not illustrated) allows for the individual unit that the logbook covered to be signed off.

Witness Testimony

'Witness Testimony' may be used as supporting evidence to cover the range of activities not covered by observed Workplace Assessment or RWE Assessment. 'Witness Testimony' cannot be accepted as a primary source of evidence for all work activities.

'Witness Testimony' evidence can only be accepted if the testimony is completed by a 'Technically and Occupationally Competent Witness' This evidence will normally be via the details of the relevant activity being recorded on the Gas Unit Logbook and signed by a 'Technically and Occupationally Competent Witness' with other supporting evidence (eg company or employer job sheets, photographic evidence).

The centre's qualification consultant will be able to give further advice on the use of witness testimony.

The evidence provided by 'Witness Testimony' and other non-observed sources must be substantiated by an assessor (eg by confirming the suitability of the witness and by professional discussion).

Underpinning knowledge questions assessment process

All written question papers will be centre delivered and centre assessed (within an approved 6189 centre).

The instructions for invigilating, marking and using the underpinning knowledge question papers for the gas units are outlined below. These instructions must be followed in their entirety for each question paper.

Trial or 'Mock' question papers must not be used or allowed into the assessment area, this includes any question papers that may have been used as a 'Learning Aid' during the course of any training programme.

A copy of the answers completed on the 'Learners Answer Sheet' must not be made.

Marking criteria:

Learners **must** achieve 100% by answering **all** questions correctly. To achieve this, learners shall go through the following stages:

1st Sitting (time allowed: as documented on the front cover)

Learners that achieve 100% pass this paper.

Learners that achieve **less than 100%** are referred and may undergo a 2nd sitting of the individual questions answered incorrectly, using a **blank** 'Learners Answer Sheet' with the relevant questions that were answered incorrectly highlighted.

2nd Sitting (time allowed: 2 minutes per question to be answered)

Learners that achieve 100% pass this paper.

Learners attaining an overall result **between 80% and 99%** for all questions answered on the 1st and 2nd sittings on this paper are referred, but may undergo a 3rd sitting of the individual questions answered incorrectly, via oral questioning.

Learners attaining an overall result of **less than 80%** for all questions answered on the 1st and 2nd sittings on this paper are referred and will require more training before sitting the **entire** question paper again.*

3rd Sitting (oral questioning)

Note: The questions answered incorrectly on the 2nd sitting shall be rephrased when asked as an oral question on this sitting, ensuring the required knowledge & understanding criteria is still covered. All questions asked and the learner's associated answer(s) must be recorded on the reverse of the relevant 'Learners Answer Sheets'. Multiple choice questions shall not be used.

Learners that achieve 100% pass this paper.

Learners attaining an overall result of **less than 100%** for all questions answered on this paper at this stage are referred and will require more training before sitting the **entire** question paper again.*

* Due to the requirement for further training, the re-sitting of the entire paper should not take place for at least 48 hours after the sitting on which the learner was referred.

Written & Oral Questioning

Assessors should use questioning where they consider it is appropriate to fully cover the subject area being assessed and to allow the learner to evidence their full understanding.

When using oral questions, the assessor should be mindful of the effect their behaviour can have on the learner's performance. Questions should be asked in the spirit of gaining information rather than pressurising a learner by creating the atmosphere of an assessment.

All oral questions must be relevant to the assessment criteria and the assessor must not coach or lead the learner towards providing correct answers. The assessor must not ask the learner any 'leading' or 'closed' questions. Assessors should take care to ask clear questions.

All questions and the learner's responses should be recorded on the appropriate assessment documentation.

Gathering evidence

In order to achieve a qualification, learners **must** produce sufficient evidence of competence through a portfolio of evidence.

Using the City & Guilds Gas Unit Logbooks helps ensure that evidence of competence is gathered, organised and recorded in a uniform manner across all centres.

The learner's portfolio

The learner's portfolio documents the evidence which will demonstrate learner progress. It records their assessment achievement, development and work experience leading to the attainment of their chosen qualification.

The 'Learner's Portfolio' could be made up of a combination of the following:

- Curriculum Vitae
- Evidence of Prior Learning (RPL Evidence)
- Summary of the results from Knowledge & Understanding Question Papers
- Summary of the results from Independent Summative Assessments
- Recognition of Prior Learning
- Assessor Assessment Plans
- City & Guilds Gas Unit Logbooks documenting:
 - Assessments (RWE/ISA /Workplace)
 - Workplace Experience Evidence
 - Witness Statements
 - Feedback
- Company or employer job sheets and specifications
- Photographic Evidence
- Work Method Statements
- Learner specific questions together with a record of the answers given (oral or written)

The portfolio should be made available to the learner for duplication so that they can be presented to any person who has a legitimate interest in the information contained within them (for example prospective employers, Gas Registration Body, etc).

Once a learner has been certificated, it is good practice that the centre holds back the portfolio until the next sampling activity by the External Quality Assurer (EQA). Alternatively, the centre could make arrangements with learners to call portfolios back to the centre if they are required for scrutiny by the EQA.

During the process of completing their qualifications learners should be made aware that they can collect their portfolios after this time. The centre should write to the learners last known address on at least two occasions to give the learner every opportunity to collect their portfolio, indicating that if the portfolio is not collected it will be destroyed. If the portfolio has not been collected within six months of the date the learner was first entitled to collect it, it may be destroyed, taking into account any data protection legislation that affects personal details contained within the portfolio.

Centres are expected to keep the following documents for a minimum of **three** years:

- assessment plans, action plans and feedback reports
- learner interview records
- IQA sampling plans, records and feedback reports
- record of achievement/tracking documents.

The centre portfolio

To ensure the security of assessment documentation the following evidence must be retained and stored in secure centre files.

- Knowledge & Understanding Question Paper Answer Sheets.
- Independent Summative Assessment Assessor and Learner Documentation.

This evidence must be retained by the centre for a period of not less than **six** years from the date of certification.

All papers must be securely stored so that access is allowed by authorised personnel only. Qualification consultants will require see that centres are operating this process.

Recognition of Prior Learning (RPL)

Recognition of Prior Learning (RPL) evidence is an acceptable source of evidence for the gas units. All evidence shall be sufficient, valid, reliable, authentic and current (within the last three years).

For evidence of gas safety competence the following constraints shall apply:

- Certificates covering the competence criteria specified by Gas Safe Register are acceptable as RPL evidence. However, as these do not attest to competence in the other essential aspects of gas installation and maintenance, all unit requirements must still be satisfied in full to achieve the qualification. All evidence of current gas safety competence **must** be demonstrated throughout the qualification being undertaken.

ACS acceptance as part of a qualification

ACS evidence can be accepted against RWE assessments and relevant knowledge and understanding criteria contained in the Matters of Gas Safety criteria. The requirements are as follows:

- a. ACS obtained prior to registration.

Where ACS is obtained prior to registration all assessments of experience and workplace assessment requirements tabulated in this document **must still** be adhered to.

- b. ACS obtained whilst undertaking the qualification.

Where ACS is obtained whilst undertaking a qualification, all the assessment of experience and work place evidence requirements tabulated within this document must be achieved **prior** to the completion of the ACS.

Note: The relevant ACS assessments, must have at least 36 months remaining until the individual assessments expire at the time of claiming the full qualification.

All RPL evidence must be approved by the centre's RPL Advisor. The RPL Advisor shall hold D36 or equivalent. Due consideration needs to be given the risks involved in accepting third party certificated evidence, not least the consideration that the third party certificate may be withdrawn at any time without the knowledge of the centre who have accepted it as evidence.

Feedback

Learners shall be given feedback at appropriate times during the completion of their qualification, as determined suitable by the assessor, employer, mentor, etc. This would normally be associated with an assessment activity, with assessor involvement, and should be given as soon as practical after the completion of the activity.

It is important that a copy of all feedback and oral questioning sessions with learners are kept for inclusion in the Learner's Portfolio.

Notes from feedback and oral questioning sessions might not include a precise record of the feedback, questions and answers to every question, but a summary of the feedback, questions and answers must be recorded with reference to specific criteria as necessary.

5.4 Test specifications

The way the knowledge is covered by each test is laid out in the tables below:

Unit	Outcome	Number of questions	%
301	Know the responsibilities of relevant people in the building services industry	7	35
	Know how to oversee building services work	3	15
	Know how to produce risk assessments and method statements for the building services industry	4	20
	Know how to plan work programmes for work tasks in the building services industry	6	30
Total		20	100

Unit	Outcome	Number of questions	%
302	Know the legislation relating to the installation and maintenance of cold water supplied for domestic purposes	3	6
	Know the types of cold water system layout used in multi-storey dwellings	6	12
	Know the types of cold water system layout used with single occupancy dwellings fed by private water supplies	6	12
	Know the requirements for backflow protection in plumbing systems	7	14
	Know the uses of specialist components in cold water systems	3	6
	Know the design techniques for cold water systems	4	8
	Know the fault diagnosis and rectification procedures for cold water systems and components	10	20
	Know the commissioning requirements of cold water systems and components	11	22
Total		50	100

Unit	Outcome	Number of questions	%
303	Know the types of hot water system and their layout requirements	14	26
	Know the uses of specialist components in hot water systems	3	5
	Know the design techniques for hot water systems	7	13
	Know the installation requirements of hot water systems and components	10	18
	Know the fault diagnosis and rectification procedures for hot water systems and components	10	18
	Know the commissioning requirements of hot water systems and components	11	20
Total		55	100

Unit	Outcome	Number of questions	%
304	Know the types of central heating system and their layout requirements	11	22
	Know the design techniques for central heating systems	14	28
	Know the installation requirements of central heating systems and components	5	10
	Know the fault diagnosis and rectification procedures for central heating systems and components	9	18
	Know the commissioning requirements of central heating systems and components	11	22
	Total	50	100

Unit	Outcome	Number of questions	%
305	Know the electrical standards that apply to the mechanical services industry	2	5
	Know the principles of electricity supply to buildings	2	5
	Know the layout features of electrical circuits in buildings	9	25
	Understand the electrical industry safe isolation procedure	2	5
	Know the site preparation techniques for the electrical connection of mechanical services components	4	10
	Understand the installation and connection requirements of electrically operated mechanical services components	5	15
	Know the inspection and testing requirements of electrically operated mechanical services components	5	15
	Know the procedures for safely diagnosing and rectifying faults in electrically operated mechanical services components	7	20
	Total	36	100

Unit	Outcome	Number of questions	%
307	Know the oil supply legislation that applies to work in dwellings	6	7
	Know the types of oil storage tank, associated fittings and installation requirements in dwellings	9	11
	Know the positioning requirements of oil storage tanks in dwellings	8	9
	Know the installation requirements of oil supply pipelines in dwellings	14	16
	Know the sizing requirements of oil storage and supply systems in dwellings	3	4
	Know how to test oil pipework for soundness	2	2
	Know the fault diagnosis and rectification procedures for oil supply systems in dwellings	4	5
	Know the decommissioning requirements of oil storage tanks	3	4

	Know the combustion process and the types of burners used in oil fired appliances in dwellings	9	10
	Know the ventilation requirements of oil fired appliances installed in dwellings	8	9
	Know the standards of chimneys and flue systems to be used with oil fired appliances in dwellings	13	15
	Know how to test oil fired appliance flue systems in dwellings for effective operation	5	6
	Know how to identify and respond to unsafe situations relating to oil systems and appliances in dwellings	2	2
	Total	86	100

Unit	Outcome	Number of questions	%
107	Know the oil supply legislation that applies to work in dwellings	6	11
	Know how to test oil pipework for soundness	2	5
	Know the fault diagnosis and rectification procedures for oil supply systems in dwellings	4	8
	Know the decommissioning requirements of oil storage tanks	2	4
	Know the combustion process and the types of burners used in oil fired appliances in dwellings	9	17
	Know the ventilation requirements of oil fired appliances installed in dwellings	8	15
	Know the standards of chimneys and flue systems to be used with oil fired appliances in dwellings	13	25
	Know how to test oil fired appliance flue systems in dwellings for effective operation	5	10
	Know how to identify and respond to unsafe situations relating to oil systems and appliances in dwellings	2	5
	Total	51	100

Unit	Outcome	Number of questions	%
309	Know the types of pressure jet oil fired appliance and their operating principles	3	6
	Know the condensate disposal requirements of condensing oil fired appliances	3	6
	Know the energy efficiency legislation applicable to pressure jet oil fired appliances	3	6
	Know the factors to be considered when selecting pressure jet oil fired appliances to meet customers needs	6	12
	Know the installation requirements of pressure jet oil fired appliances	3	6
	Know the fault diagnosis and rectification procedures for pressure jet oil fired appliances	10	20
	Know the range of equipment used to commission pressure jet oil	4	8

	fired appliances		
	Know the commissioning requirements of pressure jet oil fired appliances	12	24
	Know the decommissioning requirements of pressure jet oil fired appliances	6	12
	Total	50	100

Unit	Outcome	Number of questions	%
314	Know the types of vaporising oil fired appliance and their operating principles	5	11
	Know the energy efficiency legislation applicable to vaporising oil fired appliances	2	4
	Know the factors to be considered when selecting vaporising oil fired appliances to meet customers needs	4	8
	Know the installation requirements of vaporising oil fired appliances	3	7
	Know the fault diagnosis and rectification procedures for vaporising oil fired appliances	9	20
	Know the range of equipment used to commission vaporising oil fired appliances	4	8
	Know the commissioning requirements of vaporising oil fired appliances	13	29
	Know the decommissioning requirements of vaporising oil fired appliances	6	13
	Total	46	100

Unit	Outcome	Number of questions	%
315	Know the solid fuel legislation that applies to work in dwellings	6	9
	Know the types of solid fuels and the factors affecting fuel selection	4	6
	Know the basic operating principles of solid fuel appliances	5	8
	Know the factors which affect the selection of solid fuel appliances	5	8
	Know the combustion process and the principles of safe combustion of solid fuels	7	11
	Know the ventilation requirements of solid fuel appliances installed in dwellings	6	9
	Know the standards of chimneys and flue systems to be used with solid fuel appliances in dwellings	14	21
	Know the methods of diagnosing problems with flue/chimney performance	4	6
	Know the requirements for hearths and fireplace surrounds to solid fuel appliances	5	8
	Know how to test solid fuel appliances and associated flue systems in dwellings for effective operation	7	11
	Know how to identify and respond to unsafe situations relating to solid	2	3

fuel flue systems and appliances in dwellings			
		Total	65 100
Unit	Outcome	Number of questions	%
318	Know the types of solid mineral fuel appliance and their operating principles	6	13
	Know the energy efficiency legislation applicable to solid mineral fuel appliances	3	6
	Know the factors to be considered when selecting solid mineral fuel appliances to meet customers needs	6	13
	Know the installation requirements of solid mineral fuel appliances	3	6
	Know the fault diagnosis and rectification procedures for solid mineral fuel appliances	9	19
	Know the range of equipment used to commission solid mineral fuel appliances	2	4
	Know the commissioning requirements of solid mineral fuel appliances	12	26
	Know the decommissioning requirements of solid mineral fuel appliances	6	13
		Total	47 100

Unit	Outcome	Number of questions	%
322	Know the types of biomass appliance and their operating principles	5	15
	Know the energy efficiency legislation applicable to biomass appliances	3	8
	Know the factors to be considered when selecting biomass appliances to meet customers' needs	5	15
	Know the installation requirements of biomass appliances	2	5
	Know the range of equipment used to commission biomass appliances	3	8
	Know the commissioning requirements of biomass appliances	12	33
	Know the decommissioning requirements of biomass appliances	6	16
	Total	36	100

Unit	Outcome	Number of questions	%
323	Know the requirements for the routine service of biomass appliances	4	34
	Know the how to diagnose faults in biomass appliances	4	33
	Know how to rectify faults in biomass appliances	4	33
	Total	12	100

Unit	Outcome	Number of questions	%
324	Know the fundamental working principles of micro-renewable energy and water conservation technologies	10	36
	Know the fundamental requirements of building location/building features for the potential to install micro-renewable energy and water conservation systems to exist	9	32
	Know the fundamental regulatory requirements relating to micro-renewable energy and water conservation technologies	4	16
	Know the typical advantages and disadvantages associated with micro-renewable energy and water conservation technologies	4	16
	Total	27	100

Unit	Outcome	Number of questions	%
325	Know the health and safety risks and safe systems of work associated with solar thermal hot water system installation work	3	5
	Know the requirements of relevant regulations/standards relating to practical installation, testing and commissioning activities for solar thermal hot water system installation work	3	5
	Know the types and layouts of solar thermal hot water system	3	5
	Know the purpose of components used within solar thermal hot water system installations	2	4
	Know the types and key operating principles of solar collectors	3	5
	Know the information requirements to enable system component selection and sizing	3	5
	Know the fundamental techniques used to select, size and position components for solar thermal hot water systems	10	20
	Know how the performance of solar hot water systems is measured	2	4
	Know the preparatory work required for solar thermal hot water system installation work	3	5
	Know the requirements for connecting solar thermal hot water system collector circuits to combination boiler domestic hot water circuits	2	4
	Know the requirements for installing solar collector arrays	5	9
	Know the requirements for installing for solar thermal hot water system pipework	6	11
	Know the requirements to test and commission solar thermal hot water system installations	8	14
	Know the requirements to handover solar thermal hot water systems	2	4
	Total	55	100

Unit	Outcome	Number of questions	%
327	Know the requirements for the routine service and maintenance of 'active' solar thermal hot water systems	6	40
	Know how to diagnose faults in 'active' solar thermal hot water system installations	5	33
	Know how to rectify faults in 'active' solar thermal hot water systems	4	27
	Total	15	100

Unit	Outcome	Number of questions	%
330	Know the requirements for the non-refrigerant circuit routine service and maintenance of heat pump system installations	5	50
	Know how to diagnose faults in heat pump system installations	3	30

	Know how to rectify non-refrigerant circuit faults in heat pump system installations	2	20
	Total	10	100
Unit	Outcome	Number of questions	%
332	Know the health and safety risks and safe systems of work associated with heat pump system installation work (non-refrigerant circuits)	2	2
	Know the requirements of relevant regulations/standards relating to practical installation, testing and commissioning activities for heat pump installation work	4	5
	Know the purpose and operational characteristics of heat pump unit and heat pump system components	5	6
	Know the different types of heat pump units and system arrangements for hydraulic emitter circuits	6	8
	Know the fundamental principles of heat pump selection and system design that are common to both air and ground source heat pumps	24	32
	Know the fundamental design principles for ground source 'closed loop' heat pump collector circuit design, component sizing and installation	15	20
	Know the layouts of 'open loop' water filled heat pump collector circuits	1	1
	Know the fundamental design considerations and principles that are specific to air source heat pumps	3	4
	Know the preparatory work required for heat pump installation work	3	4
	Know the requirements to install and test heat pump systems (non-refrigerant circuits)	6	8
	Understand the requirements to commission heat pump system installations (non-refrigerant circuits)	4	5
	Understand the requirements to handover heat pump system installations	4	5
	Total	77	100
Unit	Outcome	Number of questions	%
335	Know the requirements for the routine service and maintenance of rainwater harvesting and reuse systems	7	58
	Know how to diagnose faults in rainwater harvesting and greywater reuse systems	3	25
	Know how to rectify faults in rainwater harvesting and greywater reuse systems	2	17
	Total	12	100

Unit	Outcome	Number of questions	%
336	Know the health and safety risks and safe systems of work associated with rainwater harvesting and greywater reuse system installation work	2	5
	Know the requirements of relevant regulations/standards relating to practical installation, testing and commissioning activities for solar thermal hot water system installation work	3	6
	Know the types and layouts of rainwater harvesting and greywater reuse system used for single premises installations	4	8
	Know the purpose of components used within rainwater harvesting and greywater reuse systems	2	5
	Know the information requirements to enable rainwater harvesting and greywater reuse system component selection and sizing	3	6
	Know the fundamental techniques used to select, size and position components for rainwater harvesting and greywater reuse systems	12	25
	Know options and requirements for the treatment of water in biological, physical, biomechanical and hybrid rainwater harvesting/greywater recycling systems	4	8
	Know the preparatory work required for rainwater harvesting and greywater recycling system installation work	3	6
	Know the requirements for installing rainwater harvesting and greywater reuse storage tanks	2	5
	Know the requirements for installing for rainwater harvesting and greywater recycling system pipework	3	6
	Know the requirements to test and commission rainwater harvesting and greywater re-use system installations	7	15
	Know the requirements to handover rainwater harvesting and greywater recycling systems	2	5
	Total	47	100

Unit	Outcome	Number of questions	%
344	Know the types of sanitation system and their layout requirements	6	15
	Know the design techniques for sanitation and rainwater systems	11	28
	Understand the installation requirements of sanitation system components	7	17
	Know the fault diagnosis and rectification procedures for sanitary pipework systems and components	7	17
	Know the commissioning requirements of sanitary pipework systems and components	9	23
	Total	40	100

All questions reflect BS EN 806 with the exception of those relating to pressure testing which are in relation to Water Regulations.

5.5 Permitted open book reference materials

Reference materials permitted for:

- Unit 325 Know the requirements to install, commission and handover solar thermal hot water systems
- Unit 327 Know the requirements to inspect, service and maintain 'active' solar thermal hot water systems

Publication	Edition/ Version	Author/ Publisher	ISBN:
Solar Heating Design and Installation Guide	2007	CIBSE	9781903287842
CE 131 Solar water heating systems – guidance for professionals, conventional indirect models	March 2006	Energy Saving Trust	
Water Regulations Guide: including the Water Byelaws 2000 (Scotland)	2001	WRAS	9780953970803
BS 5918 Solar Heating systems for domestic hot water	1989	BSI	0 580 16616 3

Reference materials permitted for:

- Unit 330 Know the requirements to inspect, service and maintain heat pump system installations non-refrigerant circuits
- Unit 332 Know the requirements to install, commission and handover heat pump systems non-refrigerant circuits

Publication	Edition/ Version	Author /Publisher	ISBN:
BS EN 15450: 2007 Heating systems in buildings: Design of heat pump heating systems		BSI	9780580563850
TR/30 – Guide to Good Practice Heat Pumps	2007	HVCA	0903783584
CE 82 Domestic Ground Source Heat Pumps: Design and installation of closed-loop systems	2007	Energy Saving Trust	
Water Regulations Guide: including the Water Byelaws 2000 (Scotland)	2001	WRAS	9780953970803

Reference materials permitted for:

- Unit 335 Know the requirements to inspect, service and maintain rainwater harvesting and greywater reuse systems
- Unit 336 Know the requirements to install, commission and handover rainwater harvesting and greywater reuse systems

Publication	Edition/ Version	Author /Publisher	ISBN:
BS8515: 2009 Rainwater harvesting systems – Code of Practice		BSI	9780580604904
BS8525 – 1:2010 Greywater systems – Part 1: Code of Practice			9780580634758
Rainwater Harvesting Design & Installation Guide	2010	CIBSE	9781906846084

Water Regulations Guide: including the Water Byelaws 2000 (Scotland)	2001	WRAS	9780953970803
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Reference materials permitted for:

- Unit 302/012 Understand and apply domestic cold water system installation, commissioning, service and maintenance techniques

Publication
Water Regulations Guide by Laurie Young & Graham May, published by WRAS, 2000
BS EN 806- Specification for installations inside buildings conveying water for human consumption (parts 1-5)
BS 8558- Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages – Complementary guidance to BS EN 806
Building Regulations Approved Document G (P in Northern Ireland), freely downloaded at www.planningportal.gov.uk (www.dfpni.gov.uk in Northern Ireland)
OFWAT guaranteed standards scheme paper freely downloaded from www.ofwat.gov.uk
The Water Supply (Water Fittings) Regulations freely downloaded from www.legislation.gov.uk

Reference materials permitted for:

- Unit 303/023 Understand and apply domestic hot water system installation, commissioning, service and maintenance techniques

Publication
Water Regulations Guide by Laurie Young & Graham May, published by WRAS, 2000
BS EN 806- Specification for installations inside buildings conveying water for human consumption (parts 1-5)
BS 8558- Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages – Complementary guidance to BS EN 806
Building Regulations Approved Document G (P in Northern Ireland), freely downloaded at www.planningportal.gov.uk (www.dfpni.gov.uk in Northern Ireland)
Domestic Building Services Compliance Guide, freely downloaded at www.planningportal.gov.uk
The Water Supply (Water Fittings) Regulations freely downloaded from www.legislation.gov.uk

Reference materials permitted for:

- Unit 304/024 Understand and apply domestic central heating system installation, commissioning, service and maintenance techniques

Publication
Water Regulations Guide by Laurie Young & Graham May, published by WRAS, 2000
ISBN 1 903287 40 5 CIBSE Domestic Heating Design Guide, revised 2011
Domestic Building Services Compliance Guide, freely downloaded at: www.planningportal.gov.uk

Reference materials permitted for:

- Unit 305/025 Understand and carry out electrical work on domestic plumbing and heating systems and components

Publication
IET On-Site Guide (BS 7671:2008 Wiring Regulations, incorporating Amendment 3:2015)

Reference materials permitted for:

- Unit 322 Understand the installation and commissioning principles of biomass fuel burning appliances

Publication
Domestic Building Services Compliance Guide 2010 or 2013 edition

Reference materials permitted for:

- Unit 344/026 Understand and apply domestic sanitation system installation, commissioning, service and maintenance techniques

Publication
BS 6465 part 2 - Code of practice for space requirements for sanitary appliances
BS EN 12056 part 2 - BS EN 12056: 2 - Gravity drainage systems inside buildings. Sanitary pipework, layout and calculation
Building Regulations Approved Document H (N in Northern Ireland), freely downloaded at www.planningportal.gov.uk (www.dfpni.gov.uk in Northern Ireland)

5.6 Recognition of Prior Learning (RPL)

Recognition of prior learning means using a person's previous experience or qualifications already achieved to contribute to a new qualification. If learners have completed the 6129 or the 6089, see Appendix 3 for RPL guidance.

Appendix 1 Sources of general Information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the **Centres and Training Providers homepage** on www.cityandguilds.com.

Centre Manual - Supporting Customer Excellence contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve 'approved centre' status, or to offer a particular qualification, as well as updates and good practice exemplars for City & Guilds assessment and policy issues. Specifically, the document includes sections on:

- The centre and qualification approval process
- Assessment, internal quality assurance and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Management systems
- Maintaining records
- Assessment
- Internal quality assurance
- External quality assurance

Our Quality Assurance Requirements encompasses all of the relevant requirements of key regulatory documents such as:

- SQA Awarding Body Criteria (2007)
- NVQ Code of Practice (2006)

and sets out the criteria that centres should adhere to pre and post centre and qualification approval.

Access to Assessment & Qualifications provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **centre homepage** section of the City & Guilds website also contains useful information such on such things as:

- **Walled Garden:** how to register and certificate candidates on line
- **Events:** dates and information on the latest centre events
- **Online assessment:** information on how to register for e-assessments.

Appendix 2 Glossary of terms

Summit Skills Assessment Strategy

Terminology	Explanation/Definition
Assessment of Occupational Competence	<p>A term specifically relating to a means of assessment of the safety-critical and technically critical aspects for the units and qualifications that are the subject of this assessment strategy. It is an independent holistic assessment of the learner's occupational competence via an assessment process as determined by the industry and endorsed by Summit Skills and the Awarding Organisation(s).</p> <p>In order to undertake this stage of the qualification's assessment procedure/requirements, evidence of a learner's involvement, relevant experience and progressive development of occupational competence must be available before an 'Assessment of Occupational Competence' is undertaken.</p>
RoC	Rules of Combination – a combination of units, determined by SummitSkills, that are required for a learner to be awarded an identified qualification.
Knowledge Unit	A unit that gives the learner the opportunity to demonstrate their knowledge and understanding of identified topics and subject areas.
Performance Unit	A unit that gives the learner the opportunity to demonstrate they have the practical skills that are in keeping with the relevant National Occupational Standards for identified activities.
Combination Unit	A unit that gives the learner the opportunity to demonstrate their understanding and application of specific knowledge, and is assessed in simulated conditions using particularly identified 'relevant practical activities'.
Simulation and Simulated Conditions	An environment in which simulated activities take place involving the replication of a real working environment. The criteria for which must be to supply fit-for-purpose tools, equipment, full-size components, realistic deadlines and other commercial requirements.
Independent Assessment Structure	The independent assessment structure must not be a part of the learner's working or training environment and will provide facilities for assessment in keeping with the industry arrangements (See Annex 3). Therefore, the learner will be independently assessed by an independent assessor in keeping with an industry determined specification.
Key safety-critical aspects	Any 'technical' activity with the potential to harm/damage personnel/property if carried out incorrectly (See section 4).

Technically critical

Any activity that is fundamental to the safe and efficient operation of equipment, components and systems.

EU Skills Assessment Strategy

Terminology	Explanation/Definition
Approved Centre	An organisation inspected by the Awarding Body and deemed to have the trained staff and resources to make assessment arrangements for particular qualifications.
Assessor	Person accountable to the qualification consultant (through the Internal Quality Assurer) who is both experienced and qualified/or working towards qualifications in assessing learners. Assessor skills include observation, evaluation, making judgements about individual performance. Assessors may be based in the workplace, in an approved centre such as a college, or be peripatetic, visiting learners in a variety of situations.
Assessment Plan	Between assessor and learner a structured approach is used to specify how, where and when evidence will be generated and what method of assessment will be used. This information is recorded, dated and signed by assessor and learner and is used as the basis for review meetings between learner and assessor.
Awarding Organisation	An organisation recognised by Ofqual for the purpose of awarding qualifications.
Learner	Employee or student / trainee who wishes to be assessed in order to gain a qualification (formerly referred to as a candidate).
Competence	An assessment based on the learner's ability to perform a task to a defined standard specified in the national occupational standards.
Evidence	The means by which a qualification consultant can be satisfied that an individual has been properly assessed, usually a combination of completed/endorsed witness statements, and assessments by a qualified assessor with additional documentation collected in a portfolio of evidence.
Qualification Consultant	(Previously known as the External Verifier.) Person accountable to the Awarding Body who by monitoring and advising Internal Quality Assurers and assessors effects quality assurance.
Internal Quality Assurer	(Previously known as the Internal Verifier.) Person accountable to the qualification consultant and the Awarding Body who is based in the approved centre and who co-ordinates assessment arrangements and monitors assessor standards.
National Standard of Work (Performance Criteria)	Required from learners to demonstrate their capability.
National Vocational Qualification	A qualification recognised by UKCES as being relevant to the need of industry.

Portfolio	A structured collection of evidence from several sources gathered together and referenced to the national occupational standards, in which a learner's achievements are recorded.
Real Work	Where the provision of the product or service by the learner, if not carried out, would require an organisation to employ someone else to do it.
Realistic Working Environment (RWE)	<p>An environment within which learners are producing performance evidence subject to the following conditions:</p> <ul style="list-style-type: none"> • real work pressures (eg working hours, timescales, accountability, establishing priorities) • real work problems • real tools to do the job (eg real information, industry standard equipment) • a real client or customer.
RPL	The Recognition of Prior Learning- the facility for an individual to receive credit for previously acquired (and still current) competence.
Technically & Occupationally Competent Witness	A gas operative who holds a current certificate of competence in the area of work for which they are providing witness testimony (these operatives must be a 'member of a class of persons' as outlined in Regulation 3(3) of the Gas Safety (Installation and Use) Regulations).

Appendix 3

RPL– Additional requirements for achievements of qualification

NQF qualification already achieved	APL additional requirements for achievement of qualification
<p>Level 3 VRQ (6129-33 and 36)</p>	<p>6189-71- Level 3 NVQ Diploma in Domestic Plumbing and Heating APL route</p> <ul style="list-style-type: none"> • Certificate in water supply (water fittings) water regulations 1999 • Certificate covering the latest requirements of Part G (Building regulations) • All the units within the chosen pathway: <ul style="list-style-type: none"> Oil firing pressure jet appliances (345, 307, 308, 309, 310, 311) Oil firing vaporising appliances (345, 307, 308, 312, 313, 314) Solid mineral fuel (345, 315, 316, 317, 318, 319) Biomass fuel (345, 315, 316, 320, 321, 322, 323) Solar thermal (345, 324, 325, 326, 327, 328) Heat pumps (345, 324, 329, 330, 331, 332) Water recycling (345, 324, 333, 334, 335, 336) <p>* Achieve Level 3 6189-31- Level 3 NVQ Diploma in Domestic Plumbing and Heating (600/1122/1)*</p> <p>6189-72 - Level 3 NVQ Diploma in Domestic Plumbing and Heating (Gas Fired Warm Air Appliances) APL route</p> <ul style="list-style-type: none"> • Certificate in water supply (water fittings) water regulations 1999 • Certificate covering the latest requirements of Part G (Building regulations) • Complete units (212, 337, 338, 339, 340, 341, 345) <p>* Achieve Level 3 6189-62 - Level 3 NVQ Diploma in Domestic Plumbing and Heating (Gas Fired Warm Air Appliances) (600/1124/5)*</p> <p>6189-73- Level 3 NVQ Diploma in Domestic Plumbing and Heating (Gas Fired Water and Central Heating Appliances) APL route</p> <ul style="list-style-type: none"> • Certificate in water supply (water fittings) water regulations 1999 • Certificate covering the latest requirements of Part G (Building regulations) • Complete units (212, 337, 338, 339, 342, 343, 345) <p>* Achieve Level 3 6189-33 - Level 3 NVQ Diploma in Domestic Plumbing and Heating (Gas Fired Water and Central Heating Appliances) (600/1134/8)*</p> <p>6189-81 - Level 3 NVQ Diploma in Domestic Heating APL route</p> <ul style="list-style-type: none"> • Certificate in water supply (water fittings) water regulations 1999 • Certificate covering the latest requirements of Part G (Building regulations)

	<ul style="list-style-type: none"> • All the units within the chosen pathway: Oil firing pressure jet appliances (306, 307, 308, 309, 310, 311) Oil firing vaporising appliances (306, 307, 308, 312, 313, 314) Solid mineral fuel (306, 315, 316, 317, 318, 319) Biomass fuel (306, 315, 316, 320, 321, 322, 323) Solar thermal (306, 324, 325, 326, 327, 328) Heat pumps (306, 324, 329, 330, 331, 332) Water recycling (306, 324, 333, 334, 335, 336) <p>* Achieve Level 3 Level 3 NVQ Diploma in Domestic Heating (600/1473/8)</p> <p>6189-82 - Level 3 NVQ Diploma in Domestic Heating (Gas Fired Warm Air Appliances)</p> <ul style="list-style-type: none"> • Certificate in water supply (water fittings) water regulations 1999 • Certificate covering the latest requirements of Part G (Building regulations) • Complete units (212, 306, 337, 338, 339, 339, 340, 341) <p>* Achieve Level 3 NVQ Diploma in Domestic Heating (Gas Fired Warm Air Appliances) (600/1116/6)*</p> <p>6189-83 - Level 3 NVQ Diploma in Domestic Heating (Gas Fired Water and Central Heating Appliances) (600/1117/8)</p> <ul style="list-style-type: none"> • Certificate in water supply (water fittings) water regulations 1999 • Certificate covering the latest requirements of Part G (Building regulations) • Complete units (212, 306, 337, 338, 339, 342, 343) <p>* Achieve Level 3 Diploma in Domestic Heating (Gas Fired Water and Central Heating Appliances) (600/1117/8)*</p>
<p>Learners with L2 VRQ (6129-22 AND 26)</p>	<p>6189-74 Level 2 NVQ Diploma in Plumbing and Heating (APL)</p> <ul style="list-style-type: none"> • Complete 019, 020. <p>6189-75 Level 2 NVQ Diploma in Installing and Maintaining Domestic Heating Systems</p> <ul style="list-style-type: none"> • Complete 019, 022.

Appendix 4 Relationships to other qualifications

Links to other qualifications

City & Guilds offers a series of qualifications within the Plumbing & Heating industries for qualified learners to progress onto upon completion of this qualification.

This qualification has connections to the following within the Plumbing & Heating suite offered by City & Guilds:

- 3345-21 Level 3 Award in Water Supply (Water Fittings) Regulations and Water Byelaws in the UK
- 3345-31 Level 3 Award in the Installation, Commissioning and Safety Aspects of Hot Water Systems for Domestic Use in Accordance With UK Building Regulations

3345 Water Regulations & Unvented Hot Water Systems

3345-21

To gain certification for the Level 3 Award in Water Supply (Water Fittings) Regulations and Water Byelaws in the UK candidates must have achieved a full certificate within the Level 3 6189 or 9189 suite of qualifications.

Centres can then register the learners on 3345-21 and claim the certification module 3345-820 which will then generate this certificate.

3345-31

To gain certification for the Level 3 Award in the Installation, Commissioning and Safety Aspects of Hot Water Systems for Domestic Use in Accordance With UK Building Regulations candidates must have achieved a full certificate within the Level 3 6189 or 9189 suite of qualifications.

Centres can then register the learners on 3345-31 and claim the certification module 3345-830 which will then generate this certificate.

Appendix 5 Useful contacts

UK learners General qualification information	T: +44 (0)844 543 0033 E: learnersupport@cityandguilds.com
International learners General qualification information	T: +44 (0)844 543 0033 F: +44 (0)20 7294 2413 E: intcg@cityandguilds.com
Centres Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: centresupport@cityandguilds.com
Single subject qualifications Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 F: +44 (0)20 7294 2404 (BB forms) E: singlesubjects@cityandguilds.com
International awards Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: intops@cityandguilds.com
Walled Garden Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413 E: walledgarden@cityandguilds.com
Employer Employer solutions, Mapping, Accreditation, Development Skills, Consultancy	T: +44 (0)121 503 8993 E: business@cityandguilds.com
Publications Logbooks, centre documents, forms, free literature	T: +44 (0)844 543 0000 F: +44 (0)20 7294 2413

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City & Guilds Group

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