ENERGY & UTILITY SKILLS

Skills for a greener world

EUIAS Level 3 End-point Assessment for Plumbing and Domestic Heating Technician
(Fossil Fuel – Natural Gas; Oil; Solid Fuel; Environmental Technologies)

Specification

QAN 610/3505/1
ST0303/AP01

Specification for

EUIAS Level 3 End-point Assessment for Plumbing and Domestic Heating Technician

(Fossil Fuel – Natural Gas; Oil; Solid Fuel and Environmental Technologies)

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Updates to this specification

Since the first publication of the EUIAS Plumbing and Domestic Heating Technician Specification (PDHT) Fossil Fuel - Natural Gas; Oil; Solid Fuel and Environmental Technologies, the following updates have been made.

Version	Date first published	Section updated	Page(s)
V2.0	October 2024	Section 2; 3 and 5	11 - 95
V1.0	March 2024	First published	All

Section 1: At a Glance EPA Summary

Qualification name	EUIAS Level 3 End-point Assessment for Plumbing and Domestic Heating Technician
Ofqual qualification number	610/3505/1
Standard reference	ST0303
Assessment plan	AP01
Standard title	Plumbing and Domestic Heating Technician
Pathways	Fossil Fuel – Natural Gas Fossil Fuel – Oil Fossil Fuel – Solid Fuel Environmental Technologies
Level	3
On-programme duration	Typically 45 months
Gateway readiness	Mandatory requirements: • Apprentice must achieve a minimum of Level 2 English and maths • Level 3 Plumbing and Domestic Heating Qualification • Compile and submit a workplace logbook of evidence, on which the professional discussion will be based To confirm the Apprentice has met all Gateway pre-requisites, employer must complete, sign and submit the Gateway Eligibility Form (GER) to EUIAS. See Appendix B, Plumbing and Domestic Heating Technician (PDHT) Supporting Documents 'Gateway Eligibility Form.'

End-point assessment duration	Typically 3 months after the Gateway
End-point assessment methods and their order	• Multiple-choice Test • Design Project • Practical Installation Test • Practical Application Test • Professional Discussion
End-point assessment methods and component grading	Multiple-choice Test: Fail; Pass; Merit or Distinction Design Project: Fail or Pass Practical Installation Test: Fail; Pass; Merit or Distinction Practical Application Test: Fail or Pass Professional Discussion based on the workplace logbook: Fail or Pass
Overall Grading	Fail; Pass; Merit or Distinction
Certification	EUIAS request Apprenticeship completion certificates from the ESFA
Glossary of Terms	Appendix A, PDHT Supporting Documents

Objective

The purpose of the Plumbing and Domestic Heating Technician (PDHT) end-point assessment (EPA) is to confirm that an apprentice is fully capable of doing their job before they receive their apprenticeship certificate. It also helps to demonstrate that what an apprentice has learned can be applied in the real world.

Once the apprentice has completed the PDHT end-point assessment requirements successfully and has been certified they could take on the following job roles:

- Plumber
- Domestic Heating Engineer Domestic Heating Installer
- Plumbing and Domestic Heating Installer
- Plumbing and Domestic Heating Engineer

Professional recognition

The apprenticeship standard meets the professional standards of the Engineering Council for registration as Engineering Technician (Eng Tech) through 'The Chartered Institute of Plumbing and Heating Engineering (CIPHE) and or 'The Chartered Institute of Building Services Engineers (CIBSE).

On completion of the health and safety assessment, as determined by the assessment plan the apprentice will have satisfied the requirements to obtain a Construction Skills Certification Scheme (CSCS) Card through the Industry Board for Plumbing and Mechanical Engineering Service (JIIB-PMES) at the appropriate grade.

Gateway Readiness

Gateway takes place before the EPA can start. The employer and training provider will review apprentice's' knowledge, skills and behaviours to see if they have met the minimum requirements of the apprenticeship set out in the apprenticeship standard and are ready to take the assessment. Only apprentices who complete gateway successfully can start the EPA. Gateway pre-requisites are listed in the summary table above. The Gateway Eligibility Form must be completed see Appendix B, PDHT Supporting Documents 'Gateway Eligibility Form.'

Recognition of prior learning (RPL)

EUIAS does not recognise any apprentice prior learning (RPL) or prior achievement (RPA) for the purpose of amending the assessment requirements of any end-point assessments.

Please refer to the EUIAS RPL and RPA policy at www.euias.co.uk/end-point-assessment/policies-and-fees

In order for EUIAS to award an end-point assessment qualification, the apprentice must successfully complete all required assessment components with EUIAS. This means that:

- each of the EPA components must be completed in full with EUIAS
- where an apprentice transfers to EUIAS from another EPAO they have to undertake the entire EPA with EUIAS
- components of the EPA cannot be certificated in isolation
- evidence produced for the portfolio must be related to the time the apprentice is on their apprenticeship programme to demonstrate current practice
- examples used by the apprentice, during the interview, must relate to the time they were on their apprenticeship programme

This does not affect the Gateway requirements which must be met in order for an apprentice to be eligible for end-point assessment.

This does not affect any reasonable adjustments that may be granted.

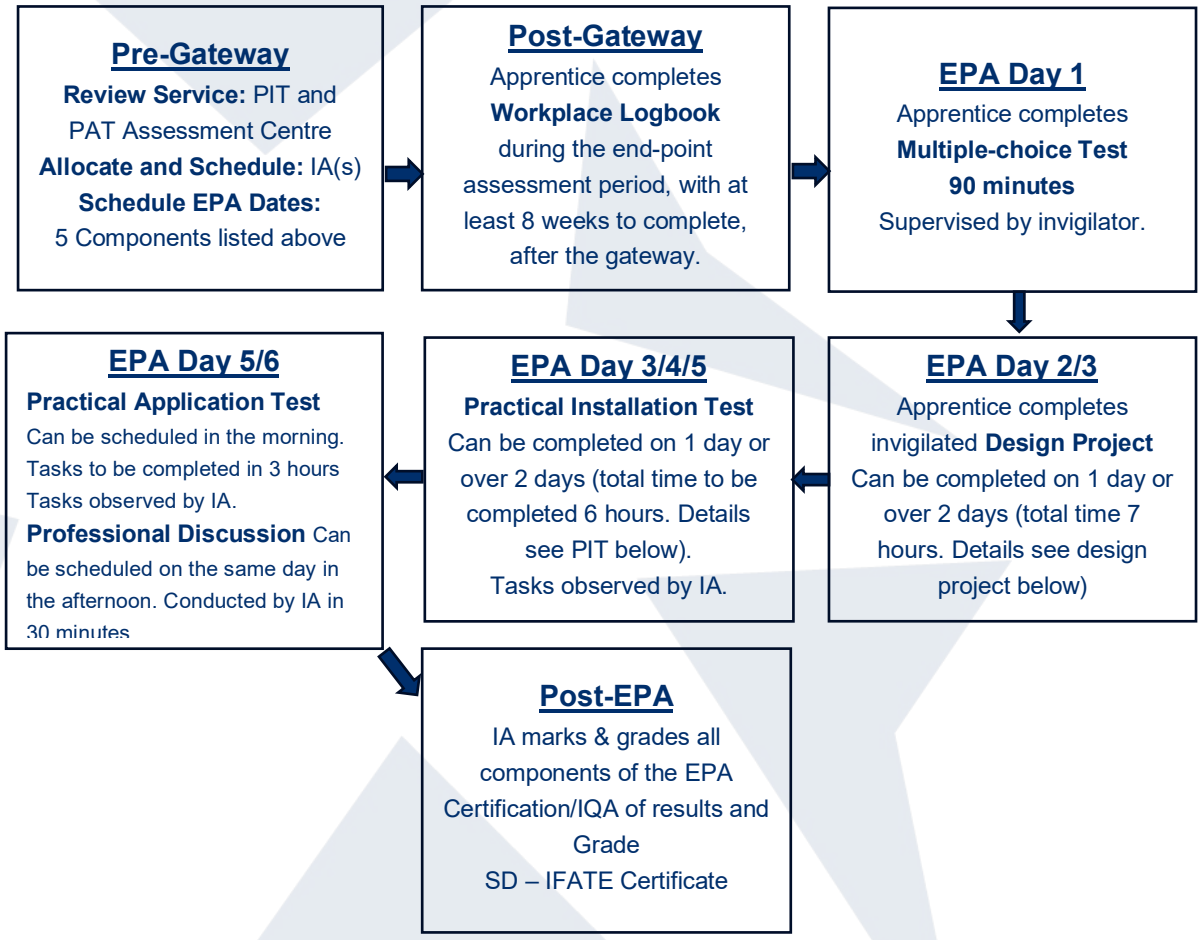
Section 2: End-point Assessment Components

There are **5 EPA components:**

1. Multiple-choice Test; taken first, several days before Design Project
2. Design Project; usually taken over one or two days, several days before PIT and PAT
3. Practical Installation Test (PIT)
4. Practical Application Test (PAT); PIT and PAT typically scheduled to take place in the same time period
5. Professional Discussion underpinned by the Workplace Logbook

All the assessments are conducted under controlled conditions. The Multiple-choice test and Design Project are both invigilated. There are two practical tests: Practical Installation Test (PIT) and Practical Application Test (PAT). Components 1; 2; 3 and 4 must be completed before component 5.

The 5 EPA components must be scheduled in with our Service Delivery team. Here is an example of a typical EPA delivery schedule:



Component 1: Multiple-choice Test

Overview

The multiple-choice test is a computer-based test which consists of 50 multiple-choice questions. Paper-based tests are available on request.

Apprentices have 90 minutes to complete the test. The multiple-choice questions will have four possible answers of which one will be correct.

The Pass mark is 25 correct answers.
The Merit mark is 38 correct answers.
The Distinction mark is 45 correct answers.

For this paper:

- a (scientific) calculator is required
- access to the internet or intranet is NOT allowed
- apprentices cannot refer to any reference books or materials

Apprentices must take the test in a quiet space, free from distractions and influence, in the presence of an EUIAS-approved invigilator.

Multiple-choice Test Coverage

The multiple-choice test consists of 50 core knowledge questions.

The table below lists each of the knowledge elements and area, assessed in the multiple-choice test. Amplification and Guidance can be found in the table above.

Knowledge (Learning outcome)	Amplification and Guidance
Area: Health and Safety Systems (6 questions in the test) **Core knowledge:** Health and Safety **K1** Understand health and safety legislation, codes of practice and safe working practices	
Know health and safety legislation that applies to the building services industry	1.1 Identify health and safety legislation in protecting the workforce and members of the public 1.2 Define responsibilities of members of the construction team 1.3 Describe the legal status of health and safety guidance materials 1.4 State the control measures of inspectors

Knowledge (Learning outcome)	Amplification and Guidance
Understand hazardous situations working in the building services industry	1.5 Identify types of site hazards that may be encountered while at work or my members of the public 1.6 Define strategies used to prevent accidents during work activities 1.7 Identify classes of hazardous substances as outlined in legislation 1.8 Describe how to deal with commonly encountered substances 1.9 Identify common building materials and services components that may contain asbestos such as calcite 1.10 Identify types of asbestos that may be encountered in the workplace 1.11 State procedures that must be used to safely work with asbestos cement based materials
Understand how to respond to accidents	1.12 State requirements for first aid provision in the workplace 1.13 Describe actions that should be taken when an accident or emergency is discovered 1.14 Identify procedures for dealing with minor injuries 1.15 Identify procedures for dealing with major injuries 1.16 State recording procedures for accidents and near misses at work

Knowledge (Learning outcome)	Amplification and Guidance
Understand how to work safely with heat producing equipment	1.17 Identify several types of gases used in pipe and sheet jointing processes 1.18 Describe how bottled gases and equipment should be safely transported and stored 1.19 Identify several types of heat producing equipment and how to check them for safety 1.20 Describe how gas heating equipment is safely assembled and used 1.21 Identify the three elements of the fire triangle and how combustion takes place 1.22 Identify the dangers of working with heat producing equipment and how to prevent fires occurring 1.23 Describe the method for fighting small, localised fires that can occur in the workplace
Safely use access equipment	1.24 Identify situations where it may be necessary to work at height 1.25 State how to select appropriate access equipment to permit work at heights 1.26 Define safety checks to be carried out on access equipment 1.27 Use access equipment

Knowledge (Learning outcome)	Amplification and Guidance
Understand working safely in excavations and confined spaces	1.28 Identify situations where it may be necessary to work in excavations and confined spaces 1.29 Identify safe working in excavations and confined spaces 1.30 State dangers associated with excavations and confined spaces 1.31 State safety measures when working in excavations and confined spaces

Knowledge (Learning outcome)	Amplification and Guidance
Area: Cold Water Systems (5 questions in the test) **Core Knowledge:** Core plumbing systems **K2** Understand selection, planning, installation, testing, commissioning and de-commissioning, service, maintenance, fault diagnosis and repair techniques on cold water, hot water, central heating, above ground drainage and rainwater systems	
Understand cold water supply route to dwellings	2.1 State the key stages in the rainwater cycle 2.2 Identify the various sources of water and the typical properties of water from those sources 2.3 Describe the two main types of water supply to dwellings and how these are regulated 2.4 Identify fluid categories of water and uses of water supplied to dwellings 2.5 Describe the mains water treatment process and typical mains water distribution system from treatment works to property 2.6 Identify mains water service to the property and isolation points 2.7 Define the requirements to provide water whilst preventing waste, undue consumption, misuse or contamination

Knowledge (Learning outcome)	Amplification and Guidance
Install cold water systems	2.8 Identify types and layout features of cold water systems 2.9 State advantages and disadvantages of cold water systems 2.10 Describe working principles of cold water systems, positioning fixing, connection and operation of components 2.11 Describe layout and installation requirements for protected plastic storage cisterns 2.12 Describe insulation requirements, system frost protection and prevention of undue warming of cold water systems 2.13 Identify sources of information required when undertaking work on cold water systems 2.14 Explain backflow risk and required methods of prevention
Perform a soundness test and commission cold water systems and components	2.15 Identify information sources required to complete testing and commissioning 2.16 Describe how to fill and vent CWS 2.17 Describe a visual inspection of a cold-water system to confirm that it is ready to be soundness tested 2.18 Describe a soundness test to industry requirements on cold water

Knowledge (Learning outcome)	Amplification and Guidance
	systems pipework and components 2.19 State the flushing requirements including the use of system additives for new and existing cold water systems
Carry out service and maintenance of cold water systems	2.20 Identify how to use manufacturer instructions and job maintenance schedules to establish the periodic servicing requirements of system components 2.21 Describe routine checks required on cold water system components and pipework as part of a periodic maintenance programme 2.22 Identify types of information to be provided on a maintenance record for CWS 2.23 Identify requirements for Legionella and bacterial growth control measures

Knowledge (Learning outcome)	Amplification and Guidance
Area: Hot Water Services (3 questions in the test) **Core Knowledge:** Core plumbing systems **K2** Understand selection, planning, installation, testing, commissioning and de-commissioning, service, maintenance, fault diagnosis and repair techniques on cold water, hot water, central heating, above ground drainage and rainwater systems	
Install hot water systems	2.24 Identify types and layout features of hot water systems 2.25 State advantages and disadvantages of hot water systems 2.26 Identify types and typical pipe sizes used in hot water systems within dwellings 2.27 Describe working principles of hot water systems, positioning fixing, connection and operation of components 2.28 Describe insulation requirements and system frost protection 2.29 Explain expansion and contraction in hot water systems and negative effects 2.30 Describe secondary circulation and how trace heating can be used 2.31 Explain backflow risk and required methods of prevention

Knowledge (Learning outcome)	Amplification and Guidance
Perform a soundness test and commission hot water systems and components	2.32 Identify information sources required to complete testing and commissioning 2.33 Describe how to fill and vent hot water systems 2.34 Describe a visual inspection of a hot water system to confirm that it is ready to be soundness tested 2.35 Describe a soundness test to industry requirements on hot water systems pipework and components 2.36 State the flushing requirements including the use of system additives for new and existing hot water systems
Carry out service and maintenance of hot water systems	2.37 Identify how to use manufacturer instructions and job maintenance schedules to establish the periodic servicing requirements of system components 2.38 Describe routine checks required on hot water components and pipework as part of a periodic maintenance programme 2.39 Identify types of information to be provided on a maintenance record for hot water systems 2.40 Identify requirements for Legionella and bacterial growth control measures

Knowledge (Learning outcome)	Amplification and Guidance
Area: Central Heating Systems (3 questions in the test) **Core Knowledge:** Core plumbing systems **K2** Understand selection, planning, installation, testing, commissioning and de-commissioning, service, maintenance, fault diagnosis and repair techniques on cold water, hot water, central heating, above ground drainage and rainwater systems	
Install central heating systems	2.41 Identify types and layout features of heating systems 2.42 State advantages and disadvantages types and layout features of heating systems 2.43 Identify typical pipe sizes used in central heating systems types within dwellings 2.44 Describe working principles of central heating systems types, positioning fixing, connection and operation of components 2.45 Explain the importance of pump positioning 2.46 Identify operating principles for system control 2.47 Define zoning and control requirements of central heating systems in accordance with statutory legislation 2.48 Describe insulation requirements and system frost protection 2.49 Explain expansion and contraction in central heating systems and negative effects

Knowledge (Learning outcome)	Amplification and Guidance
	2.50 Describe procedures for filling and venting system types 2.51 State the operating principles of heat producing appliances
Perform soundness test and commission central heating systems and components	2.52 Identify information sources required to complete testing and commissioning 2.53 Describe how to fill and vent central heating systems 2.54 Describe a visual inspection of a central heating system to confirm that it is ready to be soundness tested 2.55 Describe a soundness test to industry requirements on central heating system pipework and components 2.56 State the flushing requirements including the use of system additives for new and existing central heating systems
Carry out service and maintenance of central heating systems	2.57 Identify how to use manufacturer instructions and job maintenance schedules to establish the periodic servicing requirements of system components 2.58 Describe routine checks required on central heating components and pipework as part of a periodic maintenance programme 2.59 Identify types of information to be provided on a maintenance record for central heating systems

Knowledge (Learning outcome)	Amplification and Guidance
Area: Rainwater Systems (3 questions in the test) **Core Knowledge:** Core plumbing systems **K2** Understand selection, planning, installation, testing, commissioning and de-commissioning, service, maintenance, fault diagnosis and repair techniques on cold water, hot water, central heating, above ground drainage and rainwater systems	
Install rainwater and gutter system installation and layout requirements	2.60 Identify types and layout features of rainwater and gutter systems 2.61 State advantages and disadvantages of rainwater and gutter systems 2.62 Describe working principles of rainwater and gutter systems, positioning fixing, connection and operation of components 2.63 Explain expansion and contraction in rainwater and gutter systems and negative effects 2.64 Explain factors affecting gutter bracket selection and fixing for buildings 2.65 Identify sources of information required when undertaking work on rainwater and gutter systems 2.66 Explain working principles of rainwater recycling systems
Perform a soundness test and commission rainwater, gutter systems and components	2.67 Describe a visual inspection of a rainwater, gutter system to confirm that it is ready to be soundness tested

Knowledge (Learning outcome)	Amplification and Guidance
	2.68 Describe a soundness test to industry requirements on rainwater, gutter systems pipework and components 2.69 Describe operational checks required during commissioning
Perform fault diagnosis and rectification procedures on rainwater and gutter systems	2.70 Carry out diagnostic checks for a range of faults 2.71 Carry out repair and rectification procedures to deal with a range of faults

Knowledge (Learning outcome)	Amplification and Guidance
Area: Sanitation Systems (3 questions in the test) **Core Knowledge:** Core plumbing systems **K2** Understand selection, planning, installation, testing, commissioning and de-commissioning, service, maintenance, fault diagnosis and repair techniques on cold water, hot water, central heating, above ground drainage and rainwater systems	
Install sanitary appliances and pipework systems	2.72 Identify types and layout features of sanitary appliances pipework systems 2.73 State advantages and disadvantages of sanitary appliances pipework systems 2.74 Describe working principles of sanitary appliances pipework systems, positioning fixing, connection and operation of components 2.75 Explain expansion and contraction in sanitary appliances pipework systems and negative effects 2.76 Identify sources of information required when undertaking work on sanitary appliances pipework systems 2.77 Identify different types of sanitary appliances and components used in dwellings 2.78 Identify factors that lead to trap seal loss in sanitary pipework systems 2.79 Outline the suitability of below ground drainage systems to receive waste water 2.80 Explain working principles of greywater recycling systems

Knowledge (Learning outcome)	Amplification and Guidance
Perform a soundness test and commission sanitary appliances, pipework systems and components	2.81 Describe a visual inspection of sanitary appliances, pipework systems to confirm that it is ready to be soundness tested 2.82 Describe a soundness test to industry requirements on sanitary appliances, pipework systems and components 2.83 Describe operational checks required during commissioning 2.84 Identify actions that must be taken when commissioning reveals defects
Carry out service and maintenance of sanitary appliances and pipework systems	2.85 Identify how to use manufacturer instructions and job maintenance schedules to establish the periodic servicing requirements of system components 2.86 Describe routine checks required on sanitary appliances and pipework systems as part of a periodic maintenance programme 2.87 Identify types of information to be provided on a maintenance record for sanitary appliances and pipework

Knowledge (Learning outcome)	Amplification and Guidance
Area: Electrical Work on Plumbing and Domestic Heating Systems (3 questions in the test) **Core Knowledge:** Electrical components and control systems **K3** Understand installation and testing techniques for electrical components and control systems on plumbing and domestic heating systems	
Perform pre-installation activity prior to undertaking electrical work on plumbing and domestic heating systems	3.1 State the limitations of your responsibility when carrying out work on electrical supplies and/or circuits for the control of plumbing and domestic heating systems 3.2 Identify the applications, advantages and limitations of electrical supplies 3.3 Identify the applications, advantages and limitations of different electrical equipment, cables/wiring and components in relation to the working environment 3.4 State the appropriate industry standards and regulations relevant to carrying out work on electrical supplies and/or circuits for the control of plumbing and domestic heating systems 3.5 State how to verify that job information and documentation is current and relevant and that the plant, instruments, access equipment and tools are fit for purpose
Apply industry standard safe isolation procedures	3.6 Identify the correct means of electrical isolation prior to commencing work 3.7 Carry out the safe-isolation of electrical equipment and components associated with the electrical supply of the plumbing and domestic heating system

Knowledge (Learning outcome)	Amplification and Guidance
Carry out the identification of faults and safe repair of electrical work	3.8 Identify and rectify electrical faults and deficiencies on plumbing and domestic heating systems in accordance with industry recognised methods and procedures 3.9 Identify and rectify electrical faults and deficiencies on plumbing and domestic heating systems in accordance with manufactures' instructions

Knowledge (Learning outcome)	Amplification and Guidance
Area: Common Processes and Techniques (3 questions in the test) **Core Knowledge:** Plumbing science and processes **K4** Understand scientific plumbing, domestic heating and mechanical principles	
Use hand and power tools in domestic plumbing and heating work	4.1 Identify the purpose of hand tools and power tools 4.2 Use and maintain hand and power tools
Know types of domestic plumbing and heating pipework and their jointing principles	4.3 Identify pipework materials and sizes used in dwellings 4.4 State methods of jointing new hot and cold-water pipe to existing lead pipework 4.5 Identify fitting types used in dwellings 4.6 Describe methods of jointing pipework used in dwellings 4.7 Describe methods of bending pipework used in dwellings
Use clips and brackets to support domestic plumbing and heating pipework and components	4.8 Describe how to measure and mark out for fixings to pipework and plumbing and heating components 4.9 Identify types of fixing devices 4.10 Identify clip and bracket types

Knowledge (Learning outcome)	Amplification and Guidance
	4.11 Select and fix clips and brackets appropriate to the system pipework and the industry recommended spacing

Knowledge (Learning outcome)	Amplification and Guidance
Area: Scientific Principles (8 questions in the test) **Core Knowledge:** Plumbing science and processes **K4** Understand scientific plumbing, domestic heating and mechanical principles	
Understand units of measurement used in the plumbing and heating industry	4.12 Identify internationally recognised (SI) units of measurement 4.13 State the use of SI derived units 4.14 Describe the use of conversion tables for non-SI units
Understand properties of materials	4.15 Compare relative densities of common materials 4.16 Identify properties and applications of solid materials 4.17 Explain reasons why solid materials breakdown 4.18 Outline methods of preventing corrosion 4.19 Identify applications of liquids and gasses

Knowledge (Learning outcome)	Amplification and Guidance
	4.20 Describe basic properties of liquids 4.21 Describe basic properties of gases
Understand the relationship between energy, heat and power	4.22 Identify the relationship between the Celsius and Kelvin temperature scales 4.23 Describe the principles associated with a change of state 4.24 Identify the terms latent and sensible heat as they apply to liquids and gases 4.25 Define methods of heat transfer 4.26 Distinguish how units of energy and heat are related and derived 4.27 Carry out heat, energy and power calculations
Understand principles of force and pressure and their application in the plumbing and heating industry	4.28 State how units of force and pressure as derived from SI units 4.29 Identify pressure and flow rate units of measurements 4.30 Describe the application of pressure and flow rate measurements 4.31 Carry out simple force and pressure calculations 4.32 Explain the relationship between velocity, pressure and flow rate in systems 4.33 Identify how restrictions in the pipework effects the flow of liquids and gases

Knowledge (Learning outcome)	Amplification and Guidance
	4.34 Describe the principles of a siphon
Understand mechanical principles in the plumbing and heating industry	4.35 Outline principles of simple machines 4.36 Outline principles of basic mechanics
Understand principles of electricity in the plumbing and heating industry	4.37 Identify basic principles of electron flow theory 4.38 Describe the purpose and application of simple units of electrical measurement 4.39 Carry out simple electrical calculations 4.40 Identify the requirements for earthing of electrical circuits

Knowledge (Learning outcome)	Amplification and Guidance
Area: Environmental Technology Systems (2 questions in the test) **Core Knowledge:** Principles of environmental technology systems **K5** Understand the principles of domestic mechanical environmental technology systems	
Know the basic operating principles of micro renewable energy and water conservation technologies.	5.1 Describe the basic operating principles of heat producing micro renewable energy technologies 5.2 Describe the basic operating principles of heat-led micro combined heat and power 5.3 Describe the basic operating principles of water conservation technologies
Understand requirements to install micro-renewable energy and water conservation systems to existing systems	5.4 Explain the suitability of building location and features when installing micro-renewable energy and water conservation systems 5.5 Identify regulations affecting installation of micro-renewable energy and water conservation systems 5.6 Describe what would be typically classified as 'permitted development' under town and country planning regulations in relation to the deployment of technologies 5.7 State which parts of the regulations apply in relation to the installation of environmental technologies 5.8 State typical advantages and disadvantages associated with environmental technologies

Knowledge (Learning outcome)	Amplification and Guidance
Area: Fuel Systems (6 questions in the test) **Core Knowledge:** Principles of Fossil Fuels **K6** Understand the principles of fuel combustion, ventilation and fluing arrangements within a domestic environment	
Understand factors affecting fuel selection.	6.1 Identify the types of fuels used in appliances 6.2 Describe the factors which affect the selection of fuels 6.3 State sources of information for fuel supply installation 6.4 Define the regulatory type bodies which govern the installation of various fuel types 6.5 Specify the storage requirements for fuels 6.6 Compare factors which could affect storage requirements for fuels
Know combustion processes of fuel supply systems.	6.7 Describe the combustion process 6.8 Identify the main constituents of complete and incomplete combustion 6.9 Identify causes of incomplete combustion 6.10 Identify signs of incomplete combustion 6.11 Describe the symptoms of co poisoning

Knowledge (Learning outcome)	Amplification and Guidance
	6.12 Describe the purpose of co detectors 6.13 Explain the requirements for ventilation 6.14 Identify the different types of ventilation 6.15 Explain installation practices for ventilation
Know principles of chimney/flue systems.	6.16 Explain the operating principles of chimney/flue systems 6.17 Identify types of chimney/flue systems 6.18 Explain the effects of layout on chimney/flue systems 6.19 State the layout and features of chimney and flue construction 6.20 Reference termination requirements for chimney/flue systems from relevant documents 6.21 List basic inspection and testing procedures for chimney/flue systems

Knowledge (Learning outcome)	Amplification and Guidance
Area: Planning and Supervision (5 questions in the paper) **Core Knowledge:** Customer Service and Communication **K7** Understand the principles of high quality customer service and establishing the needs of others (colleagues, customers and other stakeholders). Respect the working environment including customer's properties **K8** Understand different communication methods, how to communicate in a clear, articulate and appropriate manner and how to adapt communication style to suit different situations	
Know the role of the construction team within the plumbing and heating industry	7.1 Identify key roles of the site management team 7.2 Identify key roles of the site operatives 7.3 Identify common site visitors
Understand responsibilities of relevant people in the building services industry	7.4 Identify diverse types of client 7.5 Identify what may be communicated to the client through the progress of a job 7.6 Define duties and methods for supervising staff
Produce a work programme for tasks in the plumbing and heating industry	7.7 Identify types of projects 7.8 State factors to consider when planning activities to job specifications 7.9 Describe the impact when materials are not delivered on time against the work programme

Knowledge (Learning outcome)	Amplification and Guidance
	7.10 Identify factors which affect working time allocation to work activities
Produce risk assessments and method statements for the plumbing and heating industry	7.11 Identify different hazards 7.12 Identify levels of risk
Know how to communicate with others	8.1 Identify methods for effective communication with individual's needs 8.2 Identify suitable communication methods 8.3 Identify appropriate actions to deal with conflicting parties 8.4 Explain the effects of poor communication with individuals

Multiple-choice Test Roles and Responsibilities

Role	Responsibility
Invigilator	Is typically provided by the employer or training provider. Attend induction training as directed by EUIAS. Must not invigilate an assessment, solely, if they have delivered the assessed content to the apprentice. Invigilate and supervise the apprentice during tests and in breaks during assessment methods to prevent malpractice in line with the EUIAS' invigilation procedures.
Employer/Training Provider	Ensure that the multiple-choice test is scheduled with EUIAS for a date and time which allow the apprentice to be well prepared. Follow EUIAS guidance in setting up and confirming IT provision for the on-screen test.
EUIAS	Arrange for the multiple-choice test to take place, in consultation with the employer/training provider. Mark multiple-choice test answers accurately according to the mark scheme and procedures.

Component 2: Design Project

Overview

The design project will be set by EUIAS and will be carried at an assessment centre. An independent assessor, appointed by EUIAS will mark the design project. The apprentice must demonstrate the application of the relevant core knowledge.

The apprentice will require materials to complete all tasks which are outlined in the step-by-step guide below. The assessment must be conducted in a controlled environment supervised by an invigilator who must remain unobtrusive as possible.

The following table outlines the procedure for conducting the design project:

Assessors	1 independent assessor, approved by EUIAS.
Design project structure	The apprentice will be asked to complete a rain water, heating, hot water and cold water design capable of meeting the job specification. There will be 2 parts to the design project with 4 tasks: • Part 1 will cover tasks 1 and 2 to be completed in 3 hours • Part 2 will cover tasks 3 and 4 to be completed in 4 hours The total time allowed is 7 hours, in an assessment centre (classroom based) and invigilated by an EUIAS-approved invigilator from the centre. The tasks can be sat on one day or split over two days. The employer or training provider must ensure the apprentice(s): • is clear on the expectations (for 1 or 2 days) and prepared to complete the 2 parts that cover the 4 tasks • only sees one part at a time. Once one part has been completed by the apprentice(s) it must be collected in by the invigilator and the second part issued to all together under examination conditions Apprentices are assessed to confirm that they can apply their knowledge. **See pages 61- 64 for the list of knowledge to be covered in the design project.** The design project will be:

	• managed by an invigilator • marked by an independent assessor • marked out of 116 There may be breaks after a task is completed to allow the apprentice to have a meal/comfort break, which must be supervised. During these breaks, the clock will be stopped and then restarted to ensure that the assessment duration is not reduced.
Where will the assessment take place?	The design project must be conducted: • in an assessment centre (classroom based) • in a suitable area (quite room, good lighting, space and privacy) provided the apprentice can work unhindered and without gaining advantage from others. The apprentice must not be disturbed throughout the assessment
What will the apprentice have to produce?	The apprentice will be asked to complete a rain-water, heating, hot water and cold water design capable of meeting the job specification. The apprentice will then produce: • Design criteria • Complete fabric heat loss • Heating pipework sizing • Hot and cold water sizing • Final layout plans • Materials list • Merchant order The assessment tasks set by EUIAS will allow the apprentice to undertake the above activities. **For further details refer to 'Knowledge Coverage' below pages 61 – 64.**
What resources can the apprentice use?	The following equipment and resources needed for the design project **must be provided by the employer or training provider**: • Building Standards and regulations • Scientific calculator • Writing materials • Stationary EUIAS will provide:

	• the PDHT Design Project Resource Book • the apprentice with workbooks for design project part 1 and 2 to work in, which will require short answers and some calculations • building plans with a job specification
Who sets the task(s)?	EUIAS will set the tasks based on the guidance provided in this Specification. The tasks will provide apprentices the opportunity to achieve all the knowledge assessed in the design project.
How many tasks will the apprentice have to complete?	In the design project there will be 4 tasks to complete. **See pages 61 – 64 below 'Design Project Knowledge Coverage'.**
Grading	Fail or Pass

Design Project Knowledge Coverage

See grading criteria in Section 3 for Design Project coverage of the standard.

Design Project Roles and Responsibilities

Role	Responsibility
Invigilator	Is typically provided by the employer or training provider. Attend induction training as directed by EUIAS. Must not invigilate an assessment, solely, if they have delivered the assessed content to the apprentice. Provide written and verbal instructions for the design project. Invigilate and supervise the apprentice during tests and in breaks throughout the design project assessment to prevent malpractice in line with the EUIAS' invigilation procedures. Before the assessment begins the invigilator must ensure the apprentice: • is provided with both written and verbal instructions to understand the tasks to be performed within the assessment • understand the maximum time allowed overall and for each workbook • be told the timings to start, stop and hand in each workbook • sign the front sheet of each design project workbook • be informed of the reference materials required to complete each part • be informed to write all answers in the workbook provided

Role	Responsibility
	• show all markings out where required in the workbook • submits Part 1 (booklet) to the invigilator prior to starting Part 2, instructions will be provided by the invigilator • hands in the resource book at the end of Part 2
Employer/Training Provider	The training provider must liaise effectively with the employer to ensure the apprentice is prepared for the design project. Provide an assessment centre where the design project assessment will be conducted, which must be suitably equipped to allow the apprentice to attempt all aspects of the design project: • Provide all necessary British Standards and regulations • Provide manufacturer's information and data Ensure the apprentice has access to resources stated earlier in the step-by-step guide for the design project.
EUIAS	Arrange for the design project to take place, in consultation with the employer/training provider and independent assessor. Approve invigilator(s)

Component 3: Practical Installation Test

Overview

In a practical installation test, an independent assessor, appointed by EUIAS, observes an apprentice completing a practical activity in an independent assessment centre in a simulated environment (simulated test area in a workshop). The simulated environment must closely relate to their natural working environment. The apprentice will complete 5 tasks, details of the tasks are provided in the step-by-step guide below. The apprentice will demonstrate the application of the relevant core knowledge, skills and behaviours (KSBs).

The independent assessor will ask questions before or during the practical installation test. To remain as unobtrusive as possible, the independent assessor will ask questions during natural breaks between tasks and after completion of work rather than disrupting the apprentice's flow.

Centres unfamiliar with this standard are strongly recommended to use the EUIAS Practical Installation and Application Test Review service to help ensure the practical simulated test area in the independent assessment centre is suitable for end-point assessment.

The following table outlines the procedure for conducting the practical installation test:

Assessors	1 independent assessor, appointed by EUIAS.
Practical Installation Test Review Process	The practical installation test (PIT): • will be designed by EUIAS to meet the requirements of the Plumbing and Domestic Heating standard • must take place in an independent assessment centre with a simulated test areas which must be planned by the employer/training provider and reviewed by EUIAS. To do this complete the 'Plumbing and Domestic Heating Practical Installation and Application Test Planning Form,' see PDHT Supporting Documents Appendix E • 'Plumbing and Domestic Heating Practical Installation and Application Test Planning Form', must be submitted to EUIAS 1 month before the assessments are planned to take place. EUIAS will review your completed form to ensure the independent assessment centre with the simulated environment reflects the real working environment is a suitable area for the assessment tasks to be conducted
Practical installation test structure	This assessment should be completed within 6 hours. Apprentices are assessed to confirm that they can apply their skills in an integrated way with minimum supervision. 1 - 4 apprentices may be assessed at one time depending on number and layout of EPA bays. Bays will need to be independent, and the apprentice must not have had any exposure to the bay whilst on-programme. To confirm photographs of the bays must be submitted to EUIAS with the 'Plumbing and Domestic Heating Practical Installation and Application Test Planning Form,' see PDHT Supporting Documents Appendix E. Apprentices will be provided with a written brief detailing the task(s) they must complete.

	The independent assessor may ask open questions, with follow up questions as appropriate, to confirm their understanding of the rationale for actions taken and the choices made to complete the tasks. There may be breaks during the practical installation test to allow the apprentice to move from one location to another and for meal/comfort breaks. During these breaks, the clock will be stopped and then restarted to ensure that the assessment duration is not reduced. The practical installation test will be managed and assessed by an independent assessor. The Centre must ensure that a responsible member of staff is available at all times during the PIT. **See pages 65 - 69 for the full list of knowledge, skills and behaviours to be covered in the practical installation test.**
Where will the assessment take place?	The practical installation test (PIT) must be conducted: • in an independent assessment centre with a simulated test area (workshop) that reflects the real working environment • the apprentice must be able to work unhindered and without gaining advantage from others

What are the tasks that will be covered?	The apprentice will:
	• produce a method statement (manual handling)
	• demonstrate manual handling techniques
	• install a radiator and piping system, and test
	• install a basin with a hot and cold supply, and test
	• install the waste trap and pipe to the basin and test
	• install and test a guttering system
	The apprentice must be able to demonstrate and apply:
	• K1 Health and Safety
	• K2 Core Plumbing Systems:
	  ○ Central Heating System
	  ○ Rainwater systems
	  ○ Hot and cold water
	  ○ Sanitation

	• K4 Plumbing Science and Processes as well as carry out manual handling throughout the following tasks: The apprentice must also demonstrate the following KSBs throughout the above tasks: K1; K8; S1; S2; S3; S4; B2; B4; B6 and B7. **For further details refer to 'Knowledge, Skills and Behaviours Coverage' below pages 65 - 69.**
Who sets the task(s)?	EUIAS will set the tasks based on the guidance provided in this Specification and information requested from the employer and/or training provider. EUIAS will work with the employer and/or training provider to: • get information on facilities available on site and any site-specific requirements such as access arrangements, safety inductions and PPE The Centre will ensure that sufficient test bays are prepared for each apprentice carrying out the assessment, clear of any markings or fittings except those required by EUIAS to prepare for the practical assessment. Before the assessment begins the apprentice must: • be briefed by the employer and/or training provider at the start of the practical installation test • be provided with both written and verbal instructions by the independent assessor to understand the number of tasks to be performed within the assessment • understand the maximum time allowed • be told the timings for each individual task The tasks will provide apprentices the opportunity to achieve all the knowledge, skills and behaviours assessed in the practical installation test.
What resources can the	The equipment and resources needed for the practical installation test must be provided by the employer or training provider and include: • a suitable premises

apprentice use?	• the plant, machinery, equipment and PPE required for the job, which must be in good, safe working condition Relevant work instructions/manuals must be available in hard copy or electronically.
How many questions will the apprentice be asked?	The independent assessor: • will ask open questions to assess the related underpinning skill. There are no stipulated number of questions that will be asked • may ask follow-up questions in order to seek clarification
What will the questions focus on?	Underpinning skills where an opportunity to observe them has not occurred.
Grading	Fail, Pass, Merit or Distinction.

Practical Installation Test (PIT) Knowledge, Skills and Behaviours Coverage

The PIT coverage of the standard is listed in the PIT grading criteria in Section 3.

Practical Installation Test Roles and Responsibilities

Role	Responsibility
Independent Assessor	Provide written and verbal instructions for the practical installation test. Record and report assessment outcome decisions for each apprentice, following instructions and using assessment recording documentation provided by EUIAS.
Employer/Training Provider	In advance of the assessment, the employer is responsible for: • liaising with the training provider to ensure the EUIAS Practical Installation and Application Test Planning Review Service has been carried out to ensure the assessment centre (simulated area) is fit for purpose for the assessment centre • liaising with the training provider to ensure that the apprentice is prepared for the PIT • providing the venue and task suitable for the apprentice to achieve all elements of the assessment • providing the apprentice with all required tools, equipment, PPE and all other resources that may be required to complete the task; apprentices may use their own tools if approved by the provider • advising EUIAS in advance to allow arrangements for the PIT to take place • advising EUIAS of facilities available on site and any site-specific requirements such as access arrangements, safety inductions and PPE
EUIAS	Arrange for the practical installation test to take place, in consultation with the employer/training provider and independent assessor.

Component 4: Practical Application Test

Overview

In a practical application test, an independent assessor, appointed by EUIAS, observes an apprentice completing a practical activity in an independent assessment centre in a simulated environment (simulated test area in a workshop) in a secure bay. The simulated environment must closely relate to their natural working environment. The apprentice will inspect a pre-installed unvented cylinder, functioning with electrical components and controls. They will carry out fault finding and rectification, and commissioning. The apprentice will demonstrate the application of the relevant core knowledge, skills and behaviours (KSBs).

The independent assessor will ask questions before or during the practical application test. To remain as unobtrusive as possible, the independent assessor will ask questions during natural breaks between tasks and after completion of work rather than disrupting the apprentice's flow.

Centres unfamiliar with this standard are strongly recommended to use the EUIAS Practical Installation and Application Test Review service to help ensure the practical secure bay at the independent assessment centre is suitable for end-point assessment.

The following table outlines the procedure for conducting the practical application test:

Assessors	1 independent assessor, approved by EUIAS.
Practical Application Test Review Process	The practical application test (PAT): • will be designed by EUIAS to meet the requirements of the Plumbing and Domestic Heating standard • must take place in an independent assessment centre with a simulated test area must be planned by the employer/training provider and reviewed by EUIAS. To do this complete the 'Plumbing and Domestic Heating Practical Installation and Application Test Planning Form,' see PDHT Supporting Documents Appendix E • 'Plumbing and Domestic Heating Practical Installation and Application Test Planning Form', must be submitted to EUIAS 1 month before the assessments are planned to take place. EUIAS will review your completed form to ensure the independent assessment centre with the simulated environment reflects the real working environment is a secure bay for the assessment tasks to be conducted
Practical Application Test structure	This assessment should be completed within 3 hours. Apprentices are assessed to confirm that they can apply their knowledge and skills in an integrated way with minimum supervision. The maximum ratio for assessor to apprentice is 1:4 so long as each apprentice has their own installation to work on and can do so without interfering or gaining advantage from another apprentice. Also each apprentice must be in sight of the assessor. The secure bays must be independent. To confirm photographs of the bays must be submitted to EUIAS with the 'Plumbing and Domestic Heating Practical Installation and Application Test Planning Form,' see PDHT Supporting Documents Appendix E.

	Apprentice will be provided with a written brief detailing the task(s) they must complete. The independent assessor will ask open questions, with follow up questions as appropriate, to confirm their understanding of the rationale for actions taken and the choices made to complete the tasks. There may be breaks during the practical application test to allow the apprentice to move from one location to another and for meal/comfort breaks. During these breaks, the clock will be stopped and then restarted to ensure that the assessment duration is not reduced. The practical application test will be managed and marked by an independent assessor. **See pages 70 - 76 for the full list of knowledge, skills and behaviours to be covered in the practical application test.**
Where will the assessment take place?	The practical application test (PAT) must be conducted: • in an independent assessment centre within a secure bay with a simulated test area that reflects the real working environment and realistic work situation. • the apprentice must be able to work unhindered and without gaining advantage from others
What are the tasks that will be covered?	The assessment task must allow the apprentice to inspect a pre-installed unvented cylinder, functioning with electrical components and controls. The assessor will make alterations to the system to create faults on various components within the system. The apprentice is then given 2 hours to identify the faults and repair then re-commission the system. Finally, the apprentice will complete a service on the unvented system, according to manufacturer's instructions, this will be undertaken within 1 hour.

	For further details refer to 'The PAT coverage of the standard listed in the PAT grading criteria in section 3, pages 70 - 76.
Who sets the task(s)?	EUIAS will set the tasks based on the guidance provided in this Specification and information requested from the employer and/or training provider. EUIAS will work with the employer and/or training provider to: • get information on facilities available on site and any site-specific requirements such as access arrangements, safety inductions and PPE Before the assessment begins the apprentice must: • be briefed by the employer/training provider at the start of the practical application test • be provided with both written and verbal instructions by the independent assessor to understand the number of tasks to be performed within the assessment • understand the maximum time allowed • be told the timings for each individual task The tasks will provide apprentices the opportunity to achieve all the knowledge, skills and behaviours assessed in the practical application test.
What resources can the apprentice use?	The equipment and resources needed for the practical application test must be provided by the employer or training provider and include: • a suitable premises • the plant, machinery, equipment and PPE required for the job, which must be in good, safe working condition; apprentices may use their own tools if approved by the provider • the cylinder manufacturer's instructions
How many questions will the	The independent assessor: • will ask open questions to assess the related underpinning skill. There are no stipulated number of questions that will be asked

apprentice be asked?	• may ask follow-up questions in order to seek clarification
What will the questions focus on?	Underpinning skills where an opportunity to observe them has not occurred.
Grading	Fail or Pass

Practical Application Test (PAT) Knowledge, Skills and Behaviours Coverage

The PAT coverage of the standard is listed in the PAT Grading Criteria in section 3.

Practical Application Test Roles and Responsibilities

Role	Responsibility
Independent Assessor	Provide written and verbal instructions for the practical application test. Record and report assessment outcome decisions for each apprentice, following instructions and using assessment recording documentation provided by EUIAS.
Employer/ Training Provider	In advance of the assessment, the employer is responsible for: • liaising with the training provider to ensure the EUIAS Practical Installation and Application Test Planning Review Service has been carried out to ensure the assessment centre (simulated area) is fit for purpose for the assessment centre • liaising with the training provider to ensure that the apprentice is prepared for the PAT • providing the independent centre which must include secure bays for the PAT to take place and must be suitably equipped to allow the apprentice to attempt all elements of the PAT. The apprentice must not have had any exposure to the secure bays whilst on-programme • providing the apprentice with all required tools, equipment, PPE and all other resources that may be required to complete the task • advising EUIAS in advance to allow arrangements for the PAT to take place • advising EUIAS of facilities available on site and any site-specific requirements such as access arrangements, safety inductions and PPE

Role	Responsibility
EUIAS	Arrange for the practical application test to take place, in consultation with the employer/training provider and independent assessor.

Component 5: Professional Discussion (based on the workplace logbook of evidence)

Overview

The purpose of the professional discussion is to allow the apprentice to showcase to the independent assessor how they carried out their role based on the optional pathways by focussing on the knowledge, skills and behaviours listed in the step-by-step guide below. Apprentice may draw on their workplace logbook of evidence to support them during the professional discussion. **The workplace logbook of evidence must be compiled throughout the apprenticeship and completed during the end-point assessment period, with at least 8 weeks to complete, after the gateway and must be submitted to EUIAS.**

The following table outlines the procedure for conducting the professional discussion based on the workplace logbook of evidence:

Assessors	1 independent assessor, approved by EUIAS.
Professional discussion (based on the workplace logbook) structure	**Types of questions:** • The assessor will ask a set of questions to explore the apprentice's level of knowledge, skills and behaviours in their optional pathways • Standardised open questions will be asked based on the contents of the evidence in the workplace logbook • Additional follow up questions are allowed, to seek clarification **Location:** Employer's premises or a suitable venue for example a training provider's premises. **Time:** The professional discussion must last 30 minutes. **The professional discussion will be:** • conducted by 1 independent assessor • face to face or remote, as agreed • recorded in writing using the professional discussion record template provided by EUIAS • video recorded using relevant technology such as Microsoft Teams or an audio recording device

	• conducted under examination conditions The apprentice will have access to their workplace logbook of evidence throughout the professional discussion. **Workplace logbook**: • The Centre will typically support the development of the evidence workplace logbook • See below 'Workplace Logbook of Evidence Requirements' guidance below on the content of evidence and how to set up the workplace logbook • The workplace logbook must contain sufficient quality evidence relating to each element of the standard covered by the professional discussion. Typically, this will be contained in small number of job write-ups produced towards the end of the training periods
What topics will be covered?	Optional pathway and behaviours will be assessed through the professional discussion. For further details refer to the knowledge, skills and behaviours (KSBs) listed in the grading criteria in Section 3 of this Specification pages 76 - 77.
What will be assessed?	Optional pathways and behaviours will be assessed through the professional discussion and supported by the production of a workplace logbook. **Note:** the workplace logbook of evidence is not directly assessed.
When will the workplace logbook of evidence be referred to?	The workplace logbook of evidence: • will be reviewed by the independent assessor before the professional discussion • can be referred to by the apprentice to illustrate their answers
Grading	Fail or Pass

Workplace Logbook of Evidence Requirements

The requirements are as follows:

How to set up a workplace logbook

The apprentice must include evidence of work:

- carried out over a period of time
- **that is produced and completed by the apprentice during the end-point assessment period, with at least 8 weeks to complete, after the gateway,** see Appendix I, PDHT Supporting documents 'Guidelines on how to set up a workplace logbook.'
- of which a minimum of 1 and no more than 3 quality jobs carried out by the apprentice that demonstrate the KSBs for further information see Section 5 of this Specification 'What to include in the workplace logbook?.'

Workplace Logbook Mapping Document

The apprentice must map their workplace logbook of evidence to the KSBs as this evidence will be used by the independent assessor to assess the apprentice during the professional discussion. The workplace logbook mapping document must be clearly referenced and included at the front of the workplace logbook.

For further guidance on mapping refer to:

- Section 5 Practice Guidance on workplace logbook of evidence and apprentice mapping
- Appendix J, PDHT Supporting Documents 'Workplace Logbook Mapping Document.'

How will the training provider submit the apprentice's Workplace Logbook to EUIAS?

As part of the pre-requisite gateway requirements the apprentice must have compiled and submitted a workplace logbook of evidence that includes a workplace logbook mapping document (placed at the front of the workplace logbook), which the professional discussion will be based on.

Professional Discussion based on workplace logbook knowledge, skills and behaviours (KSBs) coverage

The professional discussion coverage of the standard is listed in the Grading Criteria in Section 3.

Professional Discussion Roles and Responsibilities

Role	Responsibility
Independent Assessor	Record and report assessment outcome decisions for each apprentice, following instructions and using assessment recording documentation provided by EUIAS.
Employer/Training Provider	Workplace logbook must be completed by the apprentice during the end point assessment period, with at least 8 weeks to complete, after the gateway. The professional discussion must be scheduled with EUIAS for a date and time which allow the apprentice to be well prepared. Ensure the apprentice has access to their workplace logbook before and on the day of the professional discussion.
EUIAS	Arrange for the professional discussion to take place, in consultation with the employer/training provider and independent assessor.

Section 3: Grading and Grading Criteria

Component 1: Multiple-choice Test

The following grade boundaries apply to the multiple-choice assessment:

Grade	Minimum mark	Maximum mark
Fail	0	24
Pass	25	37
Merit	38	44
Distinction	45	50

Component 2: Design Project

The apprentice must demonstrate core KSBs in an integrated way.

To Pass, the apprentice must not score zero in any of the four tasks, plus they must score a minimum of 58 marks overall.

Once all of the elements have been marked the Independent Assessor will recommend a preliminary grade for the independent examiner.

Design Project – Core Knowledge	Area	To achieve a Pass the apprentice must achieve **ALL** of the following:
K2 Understand selection, planning, installation, testing, commissioning and de-commissioning, service, maintenance, fault diagnosis and repair techniques on cold water, hot water, central heating, above ground drainage and rainwater systems	Core plumbing systems – Cold Water Systems (CWS)	Chooses and uses: • correct appliances selected • correct components, system design and fittings selected • describing water supplies • identifying types and typical pipe sizes • knowing the advantages and disadvantages of domestic systems • sufficient materials selected for the project's completion • recognition of components and correct placement • show calculations and understandings on how to install cold water services

Design Project – Core Knowledge	Area	To achieve a Pass the apprentice must achieve **ALL** of the following:
	Core plumbing systems – Hot Water Systems (HWS)	Chooses and uses: • to recognise unvented system components • to understand what documentation is required for installing unvented systems • to understand what contributing factors need to be followed in order to correctly sizing on unvented system for a dwelling • reference information on selecting suitable components for unvented system, including design temperatures, and other important factors • to understand predetermined data and calculations on how components affect hot water systems • to recognise key factors with unvented hot water systems when quoting for work
	Core Plumbing Systems – Central Heating Systems	Chooses and uses: • following manufacturers instructions • contributing factors on selecting central heating systems • reference documentation on correctly, sizing heating systems and their components

Design Project – Core Knowledge	Area	To achieve a Pass the apprentice must achieve **ALL** of the following:
		• to understand the principles of heat loss, and how to factor these affects into heating requirements • appropriate components in accordance with predetermined data • key factors with central heating systems when quoting for work
	Core Plumbing Systems – Rainwater Systems	Chooses and uses: • factors that affect choosing rainwater systems • appropriate documentation for the selection of rainwater, gutter systems and components • work out rainwater and gutter system requirements for domestic dwelling • key factors with rainwater systems when quoting for work
	Core Plumbing Systems – Sanitation Systems	Chooses and uses: • factors that affect choosing sanitation systems • appropriate documentation for the selection of sanitation systems and components • work out sanitation system requirements for domestic dwelling

Design Project – Core Knowledge	Area	To achieve a Pass the apprentice must achieve **ALL** of the following:
		• key factors with sanitation systems when quoting for work
K7 Understand the principles of high-quality customer service and establishing the needs of others (colleagues, customers and other stakeholders). Respect the working environment including customer's properties **And** **K8** Understand different communication methods, how to communicate in a clear, articulate and appropriate manner and how to adapt communication style to suit different situations	Customer Service and Communication	Chooses and uses: • to understand safe, working practices on site and in domestic dwellings • to understand the importance of following company procedures and policies • to produce relevant documentation and schedules for completing works with other trades

Component 3: Practical Installation Test (PIT)

The apprentice must demonstrate core KSBs in an integrated way.

To gain a **Pass**, an apprentice must:	• **Only have up to and including 5 errors** in the selection of materials, development of the pipework frame to include: operating safely, measuring, marking, (planning) bending, cutting, jointing, bracketing (installing) and water tightness (testing) across the pipework materials.
To gain a **Merit**, an apprentice must:	• **Only have up to and including 3 errors** in the selection of pipework materials, development of the pipework frame to include operating safely, measuring, marking, (planning) bending, cutting, jointing, bracketing (installing) and water tightness (testing) across the pipework materials.
To gain a **Distinction**, an apprentice must:	• **Have no more than one error** in the selection of materials, development of the pipework frame to include operating safely, measuring, marking, (planning) bending, cutting, jointing, bracketing (installing) and water tightness (testing) across the pipework materials.

The assessor will also be assessing the behaviours of:

- **Taking responsibility** for the work environment and the health and safety of others
- **Demonstrated each of the behaviours mapped** against this assessment method as described below:
    - **Dependable and responsible** - Demonstrates the ability to take on responsibility for delivery of the assessment task, turning up at the required time, with the correct clothing and personal equipment, expected to undertake the task
    - **Quality focus** – Demonstrates work carried out to the required standards, within the timescales and quality standards identified above.
    - **Work with others** - the ability to work with others to maintain the progress completion of the assessment task

- **Sustainable working** - Undertakes work in the most efficient sequences, selects and uses materials and techniques which minimise environmental impact

Once all of the elements have been observed and the marks awarded the Independent Assessor will recommend a preliminary grade for the independent examiner.

Practical Installation Test Grouped KSBs	Area	To achieve a Pass, Merit or Distinction will be based on total errors across all elements of the practical installation assessment.
K1; K8; S1; S2; S4; B2; B4 and B7	Health and Safety	Demonstrate how they: • explain the purpose of personal protective equipment (PPE) • use personal protective equipment (PPE) • define procedures for manual handling • carry out correct manual handling • use mechanical lifting aids
K2; K4; S1 and B7	Common processes, and technique – Plumbing science and processes	Demonstrate how they: • select correct tools, pipework, fittings and jointing materials • correctly measure, mark and cut materials for installation within given tolerances • mechanically bend pipework to clear up, schools and step over installed pipework to tolerance • fix pipework and materials to surfaces correctly using appropriate fixings within tolerance

Practical Installation Test Grouped KSBs	Area	To achieve a Pass, Merit or Distinction will be based on total errors across all elements of the practical installation assessment.
K2; S1; S2; S4; B2; B4 and B7	Core plumbing systems – Sanitation systems	Demonstrate how they: • use correct pipe size to carry out practical installation • use appropriate clips to secure pipework following building regulations • refer to correct documentation for the installation of disability appliances • use the correct jointing methods to complete sanitation pipework • conduct a satisfactory performance test on sanitation pipework
K2; K8; S1; S2; S4; B2; B4; B7	Core plumbing systems – cold water services	Demonstrate how they: • measure, mark and cut cold water pipework to tolerances, and install to predetermined schematic • install hot water appliances to manufacturers specifications • carry out a successful soundness test to building regulations • safely drain down appliances • decommission cold water pipework and sort recyclable products
K2; K8; S1; S2; S4; B2; B4; B7	Core plumbing systems – hot water services	Demonstrate how they: • measure, mark and cut cold water pipework to tolerances, and install to predetermined schematic • install hot water appliances to manufacturers specifications • carry out a successful soundness test to building regulations

Practical Installation Test Grouped KSBs	Area	To achieve a Pass, Merit or Distinction will be based on total errors across all elements of the practical installation assessment.
		• safely drain down appliances • decommission hot water pipework and sort recyclable products
K2; K8; S1; S2; S4; B2; B4; B7	Core plumbing systems – central heating systems	Demonstrate how they: • measure, mark and cut cold water pipework to tolerances, and install to predetermined schematic • install hot water appliances to manufacturers specifications • carry out a successful soundness test to building regulations • safely drain down appliances • decommission central heating pipework and sort recyclable products
K2; S1; S2; S4; B2; B4; B7	Core plumbing systems – rainwater systems	Demonstrate how they: • understand the differences between various types of guttering and rainwater systems • replace predetermined section of guttering, following manufacturers instructions • install predetermined section of rainwater system successfully

Practical Installation Test Grouped KSBs	Area	To achieve a Pass, Merit or Distinction will be based on total errors across all elements of the practical installation assessment.
S4	Customer Service - Supervisory Skills	Demonstrate how they: • apply the use of sufficient PPE • produce suitable risk assessment ensuring the safety of all stakeholders • confirm the status of the electrical supplies and installation • conduct work in a safe and competent manner, including safe isolation
B2; B4; B6 and B7	Behaviours	Demonstrate how they: • show conscientiousness through Being punctual, reliable and professional. • take responsibility for own judgements and actions. • are aware of the limits of your own competence • drive and energy in for filling requirements of your role • are quality focused in work and in personal standards • identify own development needs and take actions to meet those needs • keep up to date with best practice, maintain and enhance competence • work, effectively, and collaborate with colleagues, other trades, clients, suppliers, and the public • give consideration to appropriate use of resources and own actions, take into account the impact on environmental, social and economic factors

Component 4: Practical Application Test (PAT)

The apprentice must demonstrate core KSBs in an integrated way.

To gain a **Pass**, an apprentice must:	• identify and repair faults correctly • carry out service to manufacturer's instructions • demonstrate safe working practices • take responsibility for the work environment and the health and safety of others

Once all of the elements have been observed and the marks awarded the Independent Assessor will recommend a preliminary grade for the independent examiner.

Practical Application Test Grouped KSBs	Area	To achieve a Pass the apprentice must demonstrate ALL the Pass Descriptors
K1; K3 and S1	Health and Safety	Evidence including: • Identify common electrical dangers encountered on construction sites and in private dwellings • State methods of safe supply for electrical tools and equipment on site • State the procedure that should be applied for tools and equipment that fail safety checks • Identify safe isolation procedure when replacing attachments to power tools

Practical Application Test Grouped KSBs	Area	To achieve a Pass the apprentice must demonstrate ALL the Pass Descriptors
		• Conduct a visual inspection of a power tool for safe condition before use • Use temporary continuity bonding when working on pipework components
K2; S1; S2 and S4	Core plumbing systems – Cold water systems	Evidence including: • Carry out a soundness test • Describe operational checks required during commissioning • Identify the range of information that would be detailed on commissioning documentation • Identify actions that must be taken when commissioning reveals defects • Describe the procedure for handing over to the end user • Carry out commissioning procedures for cold water systems • Describe methods of obtaining information on system faults • Carry out diagnostic checks for faults • Carry out repair and rectification procedures to deal with a range of faults • Carry out routine checks of Cold Water System (CWS)
K2; S1; S2 and S4	Core plumbing systems – Hot water systems	Evidence including: • Carry out procedures for decommissioning systems • Carry out decommissioning procedures • Carry out a soundness test

Practical Application Test Grouped KSBs	Area	To achieve a Pass the apprentice must demonstrate ALL the Pass Descriptors
		• Describe operational checks required during commissioning • Identify the range of information that would be detailed on commissioning documentation • Identify actions that must be taken when commissioning reveals defects • Describe the procedure for handing over to the end user • Carry out commissioning procedures for hot water systems • Describe methods of obtaining information on system faults • Carry out diagnostic checks for faults • Carry out repair and rectification procedures to deal with a range of faults • Carry out service and maintenance of systems
K2; S1; S2 and S4	Core plumbing systems – Central Heating systems	Evidence including: • Carry out a soundness test • Describe operational checks required during commissioning • Identify the range of information that would be detailed on commissioning documentation • Identify actions that must be taken when commissioning reveals defects • Describe the procedure for handing over to the end user • Carry out commissioning procedures for central heating systems

Practical Application Test Grouped KSBs	Area	To achieve a Pass the apprentice must demonstrate ALL the Pass Descriptors
		• and describe methods of obtaining information on system faults • how they carry out diagnostic checks for faults • how they carry out repair and rectification procedures to deal with a range of faults • how they carry out service and maintenance of systems and controls
K2; S1; S2 and S4	Core plumbing systems – Rainwater water systems	Evidence including: • Explain procedures for decommissioning systems • Carry out decommissioning procedures • Identify actions that must be taken when commissioning reveals defects • Describe the procedure for handing over to the end user • Carry out soundness testing and commissioning procedures • Describe methods of obtaining information on system faults
K2; S1; S2 and S4	Core plumbing systems – Sanitation systems	Evidence including: • Explain procedures for decommissioning systems • Carry out decommissioning procedures • Describe the procedure for handing over to the end user • Carry out soundness testing and commissioning procedures • Describe methods of obtaining information on system faults

Practical Application Test Grouped KSBs	Area	To achieve a Pass the apprentice must demonstrate ALL the Pass Descriptors
		• Carry out diagnostic checks for a range of faults • Carry out repair and rectification procedures to deal with a range of faults • Carry out routine checks of sanitary appliances and pipework systems
K1; K2; K3; K7; K8; S1 and S3	Electrical components and control systems	Evidence including: • Produce a risk assessment and method statement for the work to be carried out, in accordance with: a) the plumbing and domestic heating system's design b) the conditions of the working environment c) organisational procedures • Apply and use personal protective equipment (PPE) • Confirm the status of the electrical supply • Confirm, as necessary, that the electrical supply is suitable for the plumbing and domestic heating systems • Select, as required, electrical equipment, cables/wiring and components and confirm that they are: a) of the right type and size

Practical Application Test Grouped KSBs	Area	To achieve a Pass the apprentice must demonstrate ALL the Pass Descriptors
		b) fit for purpose in accordance with the plumbing and domestic heating systems design • Carry out work on electrical equipment, cables/wiring and components associated with the electrical supply and control of the plumbing and domestic heating system in accordance with the requirements of: a) industry recognised methods and procedures b) Manufacturers instructions • Identify that the electrical equipment, cables/wiring and components are in accordance with the requirements of the plumbing and domestic heating system • Check that the electrical equipment, cables/wiring and components are of proper construction in accordance with the requirements of the plumbing and domestic heating system. • Undertake functional testing of the electrical equipment and components associated with the electrical supply and control of the plumbing and domestic heating system in accordance with:

Practical Application Test Grouped KSBs	Area	To achieve a Pass the apprentice must demonstrate ALL the Pass Descriptors
		a) industry recognised methods and procedures b) manufacturers' instructions
K4 and S4	Plumbing science and processes	Evidence including: • State work methods for preparing and protecting the building for installation work • Identify the pre-existing damage checks to the building fabric or customer property before the work commences • Describe the methods of safe storing of tools, equipment • Identify sources of information for carrying out preparatory work
K7 and K8	Customer service and communication	Evidence including: • Identify different hazards • Identify levels of risk • Produce a risk assessment for a task • Produce a method statement for a task

Component 5: Professional Discussion based on the workplace logbook of evidence

The apprentice must demonstrate core knowledge and optional pathway specific KSBs for either Fossil Fuel – Natural Gas; Fossil Fuel – Oil; Fossil Fuel – Solid Fuel or Environmental Technologies in an integrated way for their pathway.

The professional discussion will be based on the apprentice's workplace logbook. The apprentice will be expected to discuss the six sections listed in the table below with the independent assessor:

To achieve a Pass the apprentice must achieve 12/20 overall.	Maximum Mark
Section 1: Planning and selecting Understand the principles of, and carries out **planning and selecting** components for natural gas pipework systems and appliances. This section must also include evidence of the apprentice's understanding of fuel combustion, ventilation and fluing arrangements (domestic).	3
Section 2: Pipework and installation Understand the principles of, and carries out **pipework and installation** of natural gas pipework systems and appliances	3
Section 3: Testing and fault finding Understand the principles of, and carries out **testing and fault finding** on natural gas pipework systems and appliances	3
Section 4: Commissioning	3

To achieve a Pass the apprentice must achieve 12/20 overall.	Maximum Mark
Understand the principles of, and carries out **commissioning** of natural gas pipework systems and appliances	
Section 5: Service and maintenance Understand the principles of, and carries out **service and maintenance** of natural gas pipework systems and appliances	3
Section 6: Behaviours Demonstrates the **behaviours** of honesty & integrity; dependable and responsible; enthusiasm and positive attitude; quality focus; willingness to learn; working with others, sustainable working	5
The professional discussion is marked out 20 and a score of 12 is required for a Pass	20

Once all of the elements have been discussed and the marks awarded the Independent Assessor will recommend a preliminary grade for the independent examiner.

Overall grading

The apprenticeship will be graded fail, pass, merit or distinction. The final grade will be determined by collective performance in the five assessment components.

The multiple-choice test, design project, practical installation test, practical application test and professional discussion are all marked separately.

The multiple-choice test and design project are based on the percentage score achieved. The grade and mark for the practical installation test, practical application test and professional discussion is based on the number and level of criteria achieved.

The overall grade for the PDHT Standard is based on the grades in individual components as follows:

End-point Assessment Final Grade	Multiple-choice Test	Practical Installation Test	Design Project	Practical Application Test	Professional Discussion
Pass	Pass	Pass	Pass	Pass	Pass
Pass	Merit	Pass	Pass	Pass	Pass
Pass	Pass	Merit	Pass	Pass	Pass
Merit	Distinction	Pass	Pass	Pass	Pass
Merit	Pass	Distinction	Pass	Pass	Pass
Merit	Merit	Merit	Pass	Pass	Pass
Merit	Distinction	Merit	Pass	Pass	Pass
Merit	Merit	Distinction	Pass	Pass	Pass
Distinction	Distinction	Distinction	Pass	Pass	Pass

The scoring criteria that will be applied for each assessment criteria along with additional details can be found in Section 3 of this Specification.

The overall grading for the PDHT standard is based on the grades in the individual components as follows:

- Distinction:
    - If a Distinction is awarded in 2 components (multiple-choice test and the practical installation test)

- Merit:
    - If a combination of a Merit or Distinction is awarded in either the multiple-choice test and the practical installation test
    - If a Merit is awarded in 2 components (multiple-choice test and the practical installation test)
    - If a combination of a Pass or Merit is awarded in either the multiple-choice test and the practical installation test
- Pass:
    - If a combination of a Pass or Merit is awarded in either the multiple-choice test and the practical installation test
    - If a Pass is awarded in all 5 components
- Fail:
    - if a Fail is awarded for at least one of the components

Section 4: Resits and retakes

Apprentices who fail one or more EPA components can re-sit or re-take the failed component at the employer's discretion. The apprentice's employer needs to agree that a re-sit or re-take is appropriate. A re-sit does not need further learning, but a re-take does. Apprentices should have a supportive action plan to prepare for a re-sit or a re-take.

Where an apprentice fails any component of the End-point Assessment they are permitted to re-sit the assessment component within 14 days.

Should an apprentice fail the assessment component re-sit then further training is deemed necessary. In this case a re-take can be arranged with the agreement of the employer, but not less than 12 weeks after the previous end-point assessment component attempt.

An apprentice having to undertake a re-sit or re-take must have their final grading capped to a Pass, unless the independent end-point assessment organisation confirms there are extenuating circumstances

Re-sits and re-takes are not offered to apprentices wishing to move from pass to a higher grade.

An apprentice will get a maximum EPA grade of pass for a re-sit or re-take.

The EUIAS resit and re-take policy can be found at:
https://www.euias.co.uk/end-point-assessment/policies-and-fees/

Section 5: Practical Guidance

EUIAS recommend that apprentices have a practice or 'mock' assessment covering all components of the EPA in the weeks running up to the live EPA. EUIAS also recommends that employers/training providers use the EUIAS Practical Installation and Application Test Review Service to help ensure the independent centres and secure bays are appropriate, correctly set-up and prepared for the live practical assessments.

Preparing for the Multiple-choice Test

While on-programme, the employer and/or training provider should brief the apprentice on the areas to be assessed by the multiple-choice test, as detailed in Section 2 in this specification. It is good practice to identify the areas within the learning programme where the relevant knowledge is delivered, ensuring that apprentices are aware that elements of these might come up in the test.

The multiple-choice test is aligned to the standard rather than a specific job role that the apprentice may be doing. The questions have been written to reflect the Plumbing and Domestic Heating Technician role as a whole and not focussed on specific plant, machinery, or employer-specific processes.

In readiness for end-point assessment, the apprentice should complete a practice multiple-choice test. This should be undertaken in advance of the live multiple-choice test with enough time to mark the test and provide feedback to the apprentices. See Appendix C, PDHT Supporting Documents 'Practice Multiple-choice Test.' For maximum effect, ensure the test is taken in exam conditions similar to those that will be experienced in a live test.

Practical Installation and Application Tests Review Service

Preparing for the Plumbing and Domestic Heating Practical Installation and Application Tests.

Purpose

EUIAS provide a review service of the independent assessment centre with the simulated area and secure bay to assist with planning for all employers/training providers with apprentices registered on this standard. To access the service, see Appendix E, PDHT Supporting Documents 'Plumbing and Domestic Heating Practical Installation and Application Test Planning Form.'

The purpose of the review service is to provide support in ensuring that the practical secure bay, test facilities, necessary equipment, tools and examination conditions are in place to allow the practical task(s) to take place. The review helps ensure the proposed practical task is sufficiently complex to allow the apprentice to demonstrate the required knowledge, skills and behaviours. Details of the relevant elements being assessed are included in Section 2 of the Specification.

Practical installation and application test must be conducted in an independent assessment centre with a secure bay which simulates the real working environments. The employer/training provider must ensure:

- the assessment centre secure bay enables the assessment of core and specific knowledge, skills and behaviours in a simulated working environment
- it makes use of existing test facilities, which will be familiar to the apprentice and therefore allow them to perform at their best
- the equipment, tools and materials are available

The employer/training provider must ensure that the independent assessment centre secure bay is set up to allow the independent assessor to observe the apprentice synoptically demonstrate core and specific KSBs.

Submitting the form to EUIAS

The employer/training provider should complete and submit the 'Level 3 PDHT Practical Installation and Application Planning Form' to the EUIAS Service Delivery Team for approval 1 month before the Practical Installation and Practical Application Tests. The form should be accompanied by photographs and/or video(s) of the secure bay which reflects the simulated real working environment, plant, machinery, equipment areas which the apprentice will be working on.

EUIAS Review Process

Once the approval form has been received the review process will be conducted by EUIAS. The outcomes will be shared with the employer/training provider no later than 5 working days following the review.

Please be aware:

- No health and safety risk assessment has been carried out by EUIAS
- EUIAS review does not remove any of the training provider obligations to ensure full coverage of the standard, and full compliance with relevant legislation
- EUIAS review is based only on information supplied and is not a guarantee that the selected plant/machinery/equipment on the day of the practical will be sufficient for an EPA practical tasks
- The information provided in this Level 3 PDHT Practical Installation and Application Planning Form must not be shared with the apprentice

Preparing for the Design Project; Practical Installation and Practical Application Test

Where possible, the employer/training provider should provide the apprentice with the opportunity to carry out a practice design project, practical installation and practical application test as close to the real assessment described in Section 2 of the specification (Components 2, 3 and 4). Practice tests are available for EUIAS registered customers, please contact the Service Delivery Team via enquiries@euias.co.uk

The employer/training provider should prepare a practice design project, practical installation and practical application test to test the apprentice. A suitable person should be chosen to play the part of the assessor for the practical installation and application test.

Templates are provided to help ensure that the activities assessed during the design project, practical installation and practical application tests give complete coverage of the standard. See Appendix D, PDHT Supporting Documents 'Practice Design Project Template.' See Appendix F, PDHT Supporting Documents 'Practice Practical Installation Test Template.' See Appendix G, PDHT Supporting Documents 'Practice Practical Application Test Template.'

Preparing for the Professional Discussion

A practice professional discussion should take place between the apprentice and the person acting the role of an assessor. The apprentice should draw on evidence from their workplace logbook during the discussion.

Guidance on Workplace Logbook of Evidence

The workplace logbook is not assessed. It serves the following purpose:

- Provides the opportunity to demonstrate the core and specific KSBs required across the standard
- The assessor reviews the workplace logbook before the professional discussion to help focus and contextualise their questions
- A carefully prepared mapped workplace logbook supports the apprentice during the professional discussion

Quality vs Quantity

The apprentice should be supported in selecting and mapping evidence for their workplace logbook in the mapping document. They must gather evidence on the full range of KSBs required by the standard and be assessed on particular tasks or procedures or items of equipment during their practical's.

The workplace logbook must be sufficient to evidence the apprentice can apply the KSBs required in a variety of tasks.

In theory one comprehensive job-write up could cover all the required KSBs. In practice, this is more likely to be in several job write-ups plus a few smaller pieces of evidence targeting specific elements of the standard.

Choose the best pieces of evidence that have been mapped for each KSB covered by the professional discussion based on the workplace logbook. An independent assessor will look for one suitable piece of evidence for each KSB. To be confident of meeting the standard, apprentices should aim to have a minimum of two pieces of evidence, and no more than three, mapped to each KSB. This should ensure that the apprentice has quality evidence to draw on in the professional discussion. Progress review documents should also be included.

What to include in the Workplace Logbook?

The workplace logbook evidence:

- must be based on **one** of the following optional pathways along with all the behaviours:
  - Option (pathway) 1: Fossil Fuel – Natural Gas
  - Option (pathway) 2: Fossil Fuel – Oil
  - Option (pathway) 3: Fossil Fuel – Solid Fuel
  - Option (pathway) 4: Environmental Technologies
- must be produced by the apprentice for further details on how to develop the workplace logbook see Appendix I, PDHT Supporting Documents ‘Guidelines on how to set up a workplace logbook’
- must contain a mapping document where evidence is mapped against the KSBs. A template has been produced to help the apprentices with collecting and mapping their evidence. A copy of the template is included. See Appendix J, PDHT Supporting Documents ‘Workplace Logbook Mapping Document.’
- must contain **at least one quality job quality with supporting documents relating to each KSB**. This piece of quality evidence must demonstrate the KSBs as outlined in Section 2 of this Specification which will be assessed by the Professional Discussion based on the workplace logbook
- should be supplemented with:
  - employer testimonies
  - performance appraisals
  - timely endorsements of competence from line managers

- will contain quality pieces of evidence
- will be available, during the professional discussion, allowing the apprentice to refer to it
- must contain demonstrations of work carried out over a period of time and must include evidence of work carried out within the last three months of the on programme period
- must contain a minimum of 2 and no more than 3 activities carried out by the apprentice that demonstrates the higher order knowledge, skills and behaviours
- where practicable this should include:
    - photographs
    - images
    - diagrams
    - job descriptions and witness evidence/testimony
    - situations that have been difficult and challenging, and how these have been overcome e.g. equipment breakdown which has results in a change in working practice while still adhering to company procedures
    - any employer contributions must focus on direct observation of evidence (e.g. review/witness statements) of competence rather than opinions

The above is not a definitive list. The apprentice can include other relevant evidence sources. The work log must not contain any methods of self-assessment.

Evidence must be:

- typographically correct
- produced by the apprentice (authentic)
- relevant to the standard (K, S or B) that it is mapped to
- produced during the time the apprentice is carrying out their on-programme training

What can the apprentice do?

The apprentice should:

- be familiar with the structure of their workplace logbook
- know the KSBs covered by the professional discussion
- know the grading criteria
- ensure there is evidence to cover every KSB in the professional discussion
- practise mapping evidence and completing the evidence mapping grid

The role of the employer/training provider

Employer/training providers are expected to support the apprentice in preparing their workplace logbook by:

- clarifying responsibility for supporting the apprentice to select and map evidence for the workplace logbook, including employer coaches/mentors where applicable
- advising on which pieces of evidence to select to ensure that when looked at as a whole, they provide coverage of all the required elements of the standard assessed in the professional discussion
- supporting the mapping of evidence and production of a mapping document
- authenticating evidence as valid
- signing off the workplace logbook
- submitting the work log to EUIAS as part of Gateway

What to expect in the practice professional discussion?

The practice professional discussion will be based on the workplace logbook which will provide the apprentice with the opportunity to practice discussing their KSBs gained throughout their on-programme and by referring to the evidence from their workplace logbook using the workplace logbook mapping document. A suitable person should be chosen to play the part of the assessor.

A practice professional based on the workplace logbook template is provided for use to prepare the appropriate questions to ask and to record the apprentices' performance. See Appendix H, PDHT Supporting Documents 'Practice Professional Discussion Template.'
As part of the practice exercise, apprentices should have access to their workplace logbook to support their responses.

Section 6: Authenticity and security of apprentice work

The apprentices must be advised by their training provider and employer that copying of any work (whether it is from another apprentice or from internal, external documents or source) and presenting it as their own will be deemed as malpractice and will lead to their work being disqualified. Apprentices must not share their work or allow any person to copy their work as this is not allowed and would also be deemed as malpractice.

In signing off the portfolio, training providers and employers must be satisfied that the evidence in the portfolio is:

- **adequate**: evidence must cover all relevant KSBs within the assessment plan. Adequate does not mean a large quantity of evidence. The evidence should focus on quality rather than quantity
- **authentic**: apprentices must be able to confirm and talk about the evidence that they submit with the independent assessor, appointed by the EUIAS. It is vitally important apprentices only submit evidence relating to them
- **appropriate**: all evidence must be relevant to the KSBs assessed during the technical interview
- **recent and up to date**: all evidence must be linked to KSBs must be recent and current which demonstrate the apprentice's competence. The independent assessors, appointed by the EUIAS will assess current competencies, and the apprentice must map the evidence to demonstrate the relevant work to the KSB. Apprentices must gather the evidence during their on-programme training