ENERGY & UTILITY SKILLS

Skills for a greener world

EUIAS Level 3 End-point Assessment Apprentice Guide for

Plumbing and Domestic Heating Technician (Fossil Fuel – Natural Gas; Oil; Solid Fuel; Environmental Technologies)

QAN 610/3505/1

ST0303/AP01

EUIAS Level 3 End-point Assessment Apprentice Guide for

Plumbing and Domestic Heating Technician

QAN 610/3505/1

Updates to this Guide

Since the first publication of the EUIAS Plumbing and Domestic Heating Technician Apprentice Guide, the following updates have been made.

Version	Date first published	Section updated	Page(s)
v2.0	October 2024	Section 1; 2; 3 and Appendix C	8 – 45
v1.0	March 2024	First published	All

At A Glance Component 1: Multiple-choice test

Date(s):	
Time:	
Location:	
Examination Conditions:	Controlled by an invigilator
Additional Requirements:	
Assessed and marked by:	EUIAS

At A Glance Component 2: Design Project

Date(s):	
Time:	
Location:	
Examination Conditions:	Controlled by an invigilator
Additional Requirements:	
Assessed and marked by:	Independent assessor/EUIAS

At A Glance Component 3: Practical Installation Test (PIT)

Date(s):	
Time:	
Location:	
Examination Conditions:	With an EUIAS assessor in your place of work or training environment
Additional Requirements:	
Assessed and marked by:	Independent assessor/EUIAS

At A Glance Component 4: Practical Application Test (PAT)

Date(s):	
Time:	
Location:	
Examination Conditions:	With an EUIAS assessor in your place of work or training environment
Additional Requirements:	
Assessed and marked by:	Independent assessor/EUIAS

At A Glance Component 5: Professional discussion based on the Workplace Logbook of evidence

Professional Discussion Date(s):	
Time:	
Location:	
Examination Conditions:	With an EUIAS Independent assessor at your employer's premises or a suitable venue for example training provider's premises
Additional Requirements:	A mapping document must be submitted with the workplace logbook of evidence
Assessed and marked by:	Independent assessor/EUIAS

Introduction

EUIAS has been selected by your employer to carry out end-point assessment (EPA) and it is our job to ensure that you are assessed fairly.

How This Apprentice Guide Is Organised

- ✓ Section 1:

  What is in the Apprentice Guide?

- ✓ Section 2:

  An Apprentice's End-point Assessment Journey

- ✓ Section 3:

  End-point Assessment Components

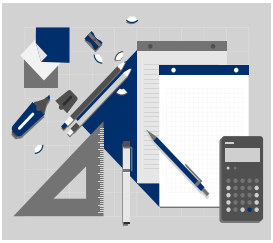
How to Use This Guide

This guide has been split into 3 sections. You can dip into each section that you are working on where you will find useful information, practical advice, tips you need and useful dates to successfully complete your EPA.

Throughout we have used headings and cross referenced to our EPA Plumbing and Domestic Heating Technician (PDHT) Specification which provides details of the EPA components.

Section 1: The Basics

What is an Apprenticeship Standard?



An apprenticeship standard is a description of your apprenticeship and it is based on the Plumbing and Domestic Heating Technician Standard, which was written by employers. It contains the plumbing and domestic heating technician job profile, and describes the knowledge, skills and behaviours (KSBs):

- Knowledge: (as part of KSBs) – specific information, technical detail, and 'know-how' identified as part of the apprenticeship standard that must be evidenced during your end-point assessment
- Skills: (as part of KSBs) – the practical application of knowledge identified as part of the apprenticeship standard that must be evidenced during end-point assessment
- Behaviours (as part of KSBs) – specific mindsets, attitudes or approaches identified as part of the apprenticeship standard that must be evidenced during end-point assessment

The standard can be accessed via the link below:
https://www.instituteforapprenticeships.org/apprenticeship-standards/plumbing-and-domestic-heating-technician-v1-0
Select the occupational standard tab.

What is an Assessment Plan?

An Assessment Plan is also written by employers and provides details of what is required for you to pass your end-point assessment. It includes details of what you will be assessed on, how each assessment will take place, what methods will be used and who will assess you.

EUIAS designed the end-point assessment (EPA) to meet the requirements of the Assessment Plan. The Assessment Plan can be accessed via the link below:
https://www.instituteforapprenticeships.org/media/1476/st0303_plumbing-and-domestic-heating_l3_ap-for-publication_november-2017.pdf
Select the EPA plan tab.

What is an end-point assessment (EPA)?

The end-point assessment is the assessments you take at the end of your apprenticeship. Your apprenticeship will typically take 48 months. You are required to spend a minimum of 12 months on-programme. After this you have a Gateway meeting with your employer or training provider to confirm you are ready for the end-point assessments. The words end-point means that you will be assessed at the end of your on-programme (training) to confirm you have met the standard. Your EPA period typically last 3 months. The end-point assessments consist of 5 components:

- Component 1: Multiple-choice Test
- Component 2: Design Project
- Component 3: Practical Installation Test (PIT)
- Component 4: Practical Application Test (PAT)
- Component 5: Professional Discussion

Each component has a preliminary grade and each grade is carried forward to award a final grade. You must pass all components to pass your apprenticeship.

The final grade can be a Fail, Pass, Merit or Distinction.

What are the Gateway Requirements?

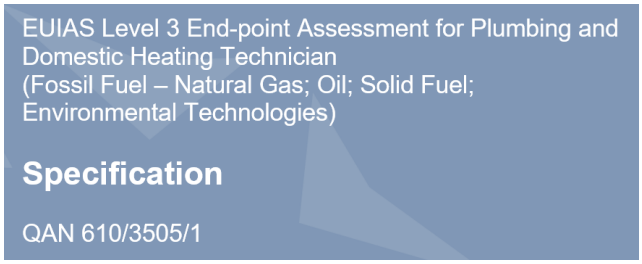
Gateway is a meeting where your employer, training provider and you ensure that you are confident that you can demonstrate all the KSBs defined in the apprenticeship standard and you are ready for EPA. After the meeting, your training provider will confirm the outcomes of the Gateway meeting by sending a signed document to EUIAS. The document confirms that you have met the following Gateway requirements:

- achieved English and maths in line with the apprenticeship funding rules
- achieved Level 3 Plumbing and Domestic Heating Qualification
- compiled and submitted a Workplace Logbook of evidence, with a mapping document, which the professional discussion will be based on**. This must be completed by you during the EPA period, with at least 8 weeks to complete, after Gateway**

Your training provider will send copies of these documents to EUIAS.

What is the EPA Specification?

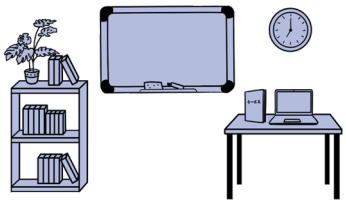
The end-point assessment specification provides details of the assessment methods used in your EPA, which:



- KSBs that are covered by each Assessment
- KSBs amplification and guidance

The Specification can be accessed via this link.

Section 2: Apprentice EPA Journey



Let us Begin Your EPA Journey.

Find a quiet place and read on….

Plumbing and Domestic Heating Technician is a core and optional apprenticeship standard. You must be trained and assessed against the core and one of the following specialisms:

- Fossil Fuel – Natural Gas
- Fossil Fuel – Oil
- Fossil Fuel – Solid Fuel
- Environmental Technologies: Solar thermal, heat pumps and water recycling systems

Your EPA journey consists of 3 elements:

- A training programme with on the job, off the job elements, typically 45 months
- Gateway meeting window
- End-point Assessment (EPA) typically 3 months

Your journey begins with the training program. Your employer and training provider are responsible for this part. This is where you will gain the required Knowledge, Skills and Behaviours (KSBs).

How will you be assessed in the end-point assessment?

You will be assessed on the following components (components 1, 2, 3 and 4 must be completed before component 5.):

1. **Multiple-choice test**
2. **Design project**
3. **Practical installation test (PIT)**
4. **Practical application test (PAT)**
5. **Professional discussion based on your Workplace Logbook**

It is important for you to keep a record of when your 5 components are scheduled. We suggest you use the ‘At a Glance’ tables on pages 5 and 6.

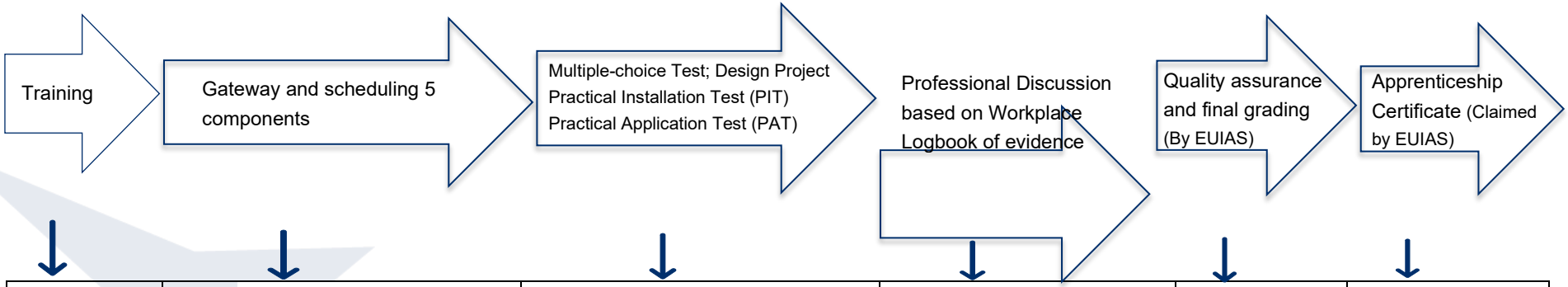
You must pass all 5 components to achieve this qualification. For further guidance refer to Section 3 End-point Assessment Components.

Reasonable adjustments

A reasonable adjustment is any action that helps to reduce the effect of a disability or difficulty that places you at a substantial disadvantage during assessments. If this applies to you make sure you tell your training provider who can make an application for a reasonable adjustment to EUIAS on your behalf.

Your EPA Journey in a Diagram

The diagram below illustrates the order of your EPA **journey** from the day you register to your final certification:



Typically, 45 months	You have: Been informed by your employer/training provider that you have successfully completed Gateway requirements and can start the EPA. Achieved a minimum level 2 English and maths. Level 3 Plumbing and Domestic Heating Qualification. Compiled and submitted a	4 components **Multiple-choice Test:** 90 minutes. 50 questions. Under examination conditions supervised by an invigilator. Face to face. Closed book. **Design Project:** 7 hours (may be split over 2 days). There will be 2 parts to the design project with four tasks in total. Under examination	**The professional discussion**: Must last 30 minutes. Based on the Workplace Logbook. Under examination conditions. Face to face or remote as agreed and recorded using relevant technology.	Awarded Final Grading: Distinction, Merit, Pass or Fail.	Your certificate will be sent to your training provider or employer. Contact your training provider or employer if you do not receive your

	Workplace Logbook of evidence with a mapping document, which the professional discussion will be based on. This must be completed by you during the EPA period, with at least 8 weeks to complete after Gateway.	conditions supervised by an invigilator. Face to face. **Practical Installation Test** 6 hours. 6 tasks. Under examination conditions. Face to face with an independent assessor. **Practical Application Test:** 3 hours. Task to inspect a pre-installed unvented cylinder, functioning with electrical components and controls. Under examination conditions. Face to face with an independent assessor. For further details *see below	For further details *see below.		certificate.

*For further details refer to Section 3 in this Apprentice Guide or Section 2 of the Specification.

Section 3: End-point Assessment Components

Now let us continue your journey through EPA. There are 5 components that you must pass to be awarded a certificate.

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 scheduled to take place in the same time period
5. Professional Discussion underpinned by the Workplace Logbook

The knowledge element of the EPA has two components: Multiple-choice test and design project which are both written tests and are 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.

Component 1: Multiple-choice Test

Overview

The multiple-choice test may be a computer-based or paper-based test. You will have 90 minutes to complete the test. The test consists of 50 questions.

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:

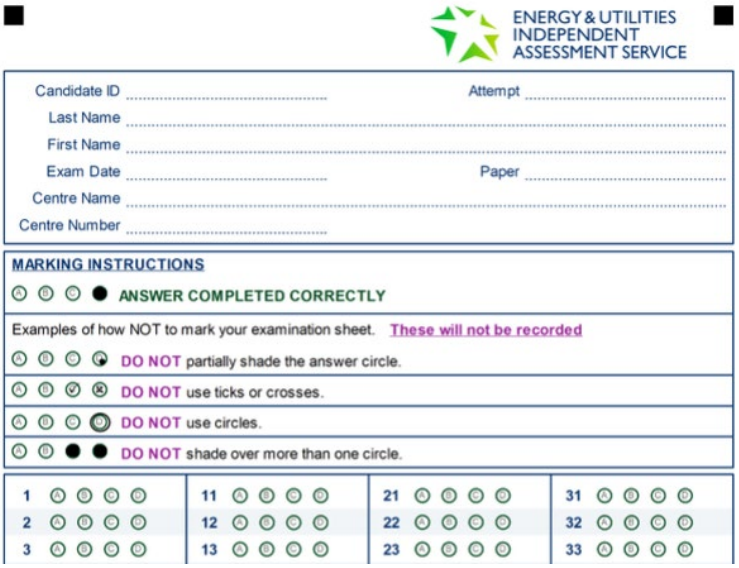
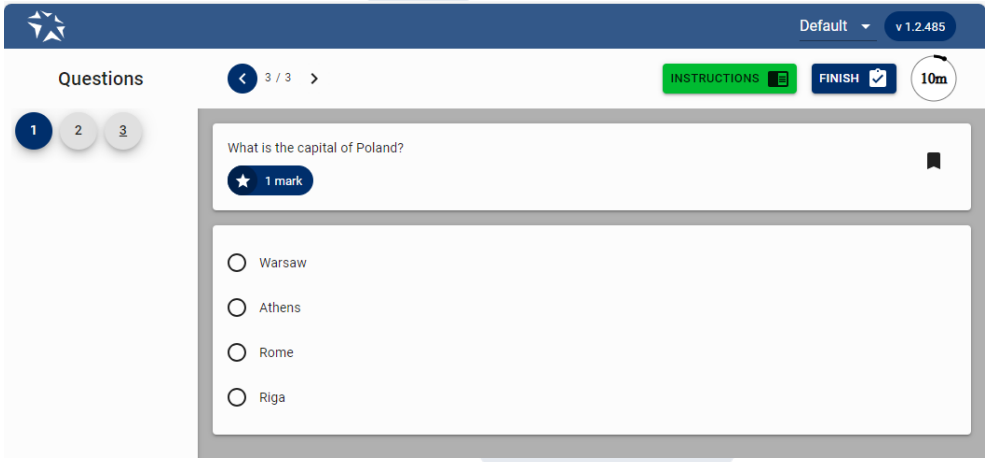
a (scientific) calculator is required
access to the internet or intranet is NOT allowed
apprentices cannot refer to any reference books or materials

You will take the test in a quiet space, free from distractions and influence, in the presence of an invigilator.

The following table outlines the procedure for conducting multiple-choice tests:

<table>
<tr><td>Who will start and finish the multiple-choice test ?</td><td>You will sit your multiple-choice test in the presence of an invigilator.</td></tr>
<tr><td>Ho will the question appear in a paper-based test?</td><td>The test may be paper-based or taken online. Your training provider will let you know what the format of your test is.

All other aspects of the test are exactly the same, including:
content
timings
question types
scoring
<table>
<tr><th colspan="2">Question 1</th></tr>
<tr><td colspan="2">In a workplace, who is responsible for maintaining health and safety?</td></tr>
<tr><th colspan="2">Possible answers</th></tr>
<tr><td>a)</td><td>Employers</td></tr>
<tr><td>b)</td><td>Safety managers</td></tr>
<tr><td>c)</td><td>Most senior person on-site</td></tr>
<tr><td>d)</td><td>Everyone</td></tr>
</table></td></tr>
</table>

	You must **select one answer** that you think is correct. You will be provided with an answer sheet where you will be expected to shade in the answer you have selected. Here is an example:  ENERGY & UTILITIES INDEPENDENT ASSESSMENT SERVICE Candidate ID ..... Attempt ..... Last Name ..... First Name ..... Exam Date ..... Paper ..... Centre Name ..... Centre Number ..... MARKING INSTRUCTIONS ANSWER COMPLETED CORRECTLY Examples of how NOT to mark your examination sheet. These will not be recorded DO NOT partially shade the answer circle. DO NOT use ticks or crosses. DO NOT use circles. DO NOT shade over more than one circle. 1 2 3 11 12 13 21 22 23 31 32 33 **Always have a go even if you are not sure that it is the correct answer.**
How will the question appear in an online test?	Here is an example of how the question will appear in an online version of the test:  Default v 1.2.485 Questions 3 / 3 INSTRUCTIONS FINISH 10m 1 2 3 What is the capital of Poland? 1 mark Warsaw Athens Rome Riga You must **select one answer** that you think is correct.
Can I take any resources into the	The test is closed book which means that you cannot refer to reference books or any other materials. You will be provided with stationery on the day. You can take into the exam a scientific non-programmable calculator.

<table>
<tr><td>exam room?</td><td></td></tr>
<tr><td>Can I have access to the internet?</td><td>No access to the internet is allowed and this means you must not take your SMART watch into the exam room.</td></tr>
<tr><td>How will the multiple-choice test be organised for me?</td><td>Locations: Your multiple-choice test will take place at your employer's or training provider's premises or a suitable venue.
You will take the test in a quiet space and in the presence of an invigilator
Your test will be scheduled by your employer or training provider with the EUIAS
If you fail a multiple-choice test, you can re-sit or re-take the failed test at your employer's discretion. There are no limits to the number of re-sits or re-takes you can take but it is important to revise and ensure that you are confident with the knowledge you are being tested on</td></tr>
<tr><td>What criteria will I have to learn?

AND

How many questions will be asked on each criterion?</td><td>The multiple-choice test questions are knowledge based and sample the 8 core knowledge criteria. Below is a list of the knowledge criteria, assessed in the knowledge assessment along with the range of questions that will be allocated to a knowledge assessment paper:<table><tr><th>Number of Questions</th><th>Knowledge</th></tr><tr><td>6</td><td>K1: Understand health and safety legislation, codes of practice and safe working practices</td></tr><tr><td>17</td><td>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</td></tr><tr><td>3</td><td>K3: Understand installation and testing techniques for electrical components and control systems on plumbing and domestic heating systems</td></tr><tr><td>11</td><td>K4: Understand scientific plumbing, domestic heating and mechanical principles</td></tr></table></td></tr>
</table>

	2	**K5:** Understand the principles of domestic mechanical environmental technology systems
	6	**K6** Understand the principles of fuel combustion, ventilation and fluing arrangements within a domestic environment
	5	**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
		Remember the questions have been written to reflect the plumbing and domestic heating technician role as a whole and are not focussed on specific plant, machinery, or employer-specific processes. For amplification and guidance refer to Section 2 of the PDHT Specification.
What should I do to prepare for the multiple-choice test?		**You should be prepared to**: • revise the knowledge criteria listed above • ask your employer or training provider for additional questions that they have prepared to support you • attend the multiple-choice test which will last 90 minutes While on-programme, the employer or training provider must ensure you are: • familiar with all areas assessed by the multiple-choice test as listed above • supported in completing a practice test and provide you with constructive feedback to enable you to identify areas you need to carry out further revision in

Practice Component 1: Multiple-choice test

You should have an opportunity to have a practice multiple-choice test which mirrors the real assessment. The practice multiple-choice test would be set up using the structure in the table above by your employer or training provider. The feedback provided will assist you with preparing for the actual multiple-choice test.

Component 2: Design Project

Overview

The design project will be set by EUIAS and you will take the test under examination conditions in an assessment centre. You will be required to complete 2 workbooks. You must demonstrate the application for the relevant core knowledge.

Step-by-Step Guide

The table below provides a step-by-step guide on how the design project will be carried out:

Design project structure	Total time allowed is 7 hours and in this time, you will complete 2 workbooks: • Part 1 will cover tasks 1 and 2 • Part 2 will cover tasks 3 and 4 Your employer/training provider may decide that you sit all 4 tasks on one day or they may split them over 2 days. You will be given one workbook with 2 tasks to complete at any one time. Once you have completed a workbook it will be collected in by the invigilator and a new workbook will be issued to all apprentices at the same time. You will sit all 4 tasks under examination conditions. **Refer to pages 61 - 64 in the EUIAS PDHT Specification for knowledge coverage, see grading criteria in Section 3 for Design Project coverage of the standard.** Your design project will be managed by an EUIAS invigilator . Your design project will be marked out of 116. The Pass mark is 58. Scoring less than 58 in total, OR 0 marks for one or more of the task is a Fail. In order to Pass, you must obtain 50% of the total marks and also earn some marks in each individual task. An independent assessor will mark your design projects. There may be breaks after a task is completed to allow you to have a meal/comfort break, which will 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?	Your design project must be conducted: • in an assessment centre (classroom based) • in a suitable area (quite room, good lighting, space and privacy) provided you can work unhindered and without gaining advantage from others. You must not be disturbed throughout the assessment
What knowledge (KSBs) do I have to demonstrate during the design project?	**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 **Customer service - 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 **Communication - 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 **For further guidance refer to EUIAS PDHT Specification grading criteria in Section 3 for Design Project coverage of the Standard.** https://www.euias.co.uk/wp-content/uploads/2024/10/EUIAS-L3-PDHT-EPA-Specification-v2.0.pdf
What tasks will I have to cover?	The tasks will allow you to undertake the activities required for the design project. There will be a total of 4 tasks. For further details: **For further guidance refer to EUIAS PDHT Specification grading criteria in Section 3 for Design Project coverage of the Standard.** https://www.euias.co.uk/wp-content/uploads/2024/10/EUIAS-L3-PDHT-EPA-Specification-v2.0.pdf

What resources can I use?	The resources needed for the design project will be provided by your employer or training provider: • Independent assessment centre (classroom) • Building Standards and regulations • Scientific calculator • Writing materials • Stationery • Materials required to complete all tasks effectively EUIAS will provide the PDHT Design Project Resource Book, which will contain: ○ A floor plan of the property including the ground floor garage ○ Radiator sizing chart ○ Guttering sizing chart ○ Pipe sizing Internal copper pipes ○ Price list of plumbing materials ○ Technical data sheet Your employer/training provider will provide the following normative documents: ○ CIBSE Domestic heating design guide ○ CIBSE Underfloor heating design and installation guide ○ Domestic building services compliance guide ○ WRAS Water regulations guide ○ Building regulations (Parts G, H, L, M) ○ BS 8558 ○ BS 806 Parts 1-5 ○ BS 12056 Parts 1-3 ○ Manufacturers' technical documents EUIAS will provide your invigilator with workbooks for design project part 1 and 2 for you to work in, which will require short answers and some calculations.

Who will set the tasks?	EUIAS will set your tasks based on the guidance provided in the PDHT Specification. Before the assessment begins you will: • be provided with both written and verbal instructions by the invigilator to understand the 2 workbooks that you have to complete for the design project • understand the maximum time allowed for the 2 workbooks • be told the timings to start, stop and how to hand in your workbook • sign the front sheet of each design workbook • be informed of the reference materials required for each workbook • be informed to write all answers in the workbook provided • show all markings out where required in the workbook The tasks will provide you the opportunity to achieve all the knowledge assessed in the design project.
Who will assess me?	An independent assessor, appointed by EUIAS.
Preliminary Grading	The independent assessor will award a preliminary grade.
Overall grading for this component	Fail or Pass

Practice Component 2: Design Project

You should have an opportunity to have a practice design project which mirrors the real assessment. A practice design project would be set up for you using the structure in the table above by your employer or training provider.

Component 3: Practical Installation Test (PIT)

Overview

A PIT involves an independent assessor, appointed by EUIAS observing and questioning you in an independent assessment centre in a simulated environment (simulated test area in a workshop). You will complete 5 tasks, specific details such as pipe lengths and heights will be provided on the day, details of the tasks are provided in the table below. The independent assessor will ask you questions during or after the practical installation test.

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

Structure of your PIT	The total assessment time is 6 hours. • You will carry out your work in a secure bay expected to apply your skills in an integrated way with minimum supervision • You will be provided with a written brief detailing the tasks that must be completed • Breaks may be taken during the PIT to allow you to move from one location to another and for meal/comfort breaks. The clock will be stopped. The assessment time is not reduced
Where will the assessment take place?	Your assessment will take place: • in an independent assessment centre with a simulated test area (workshop) that reflects the real working environment and realistic work situation provided you can work unhindered

What knowledge, skills and behaviours (KSBs) do I have to demonstrate during the PIT?	**Core Knowledge:** **K1** Understand health and safety legislation, codes of practice and safe working practices **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 **K4** Understand scientific plumbing, domestic heating and mechanical principles **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 **Core Skills**: **S1** Operate in a safe working manner by adhering to health and safety legislation, codes of practice and applying safe working practices **S2** Apply 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 **S3** Apply installation and testing techniques for electrical components and control systems on plumbing and domestic heating systems **S4** Take responsibility for own work and safety and welfare of others. Oversee and organise the programme of work and work environment Carry out work and manage resources in an environmentally friendly manner **Core Behaviours**: **B2** Show conscientiousness through being punctual, reliable and professional. Take responsibility for own judgements and actions. Aware of the limits of their own competence **B4** Be quality focussed on work and in personal standards

	B6 Work effectively and collaborate with colleagues, other trades, clients, suppliers and the public **B7** Give consideration to appropriate use of resources and own actions taking into account the impact on environmental, social and economic factors  For further details refer to the EUIAS PDHT Specification - PIT coverage of the standard listed in the PIT grading criteria in Section 3**.** https://www.euias.co.uk/wp-content/uploads/2024/10/EUIAS-L3-PDHT-EPA-Specification-v2.0.pdf
What tasks will I have to cover?	You will have to: • 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 You must demonstrate the following KSBs throughout the above tasks: K1; K8; S1; S2; S3; S4; B2; B4; B6 and B7.  For further details refer to the EUIAS PDHT Specification - PIT coverage of the standard listed in the PIT grading criteria in Section 3**.** https://www.euias.co.uk/wp-content/uploads/2024/10/EUIAS-L3-PDHT-EPA-Specification-v2.0.pdf
What resources can I use?	Equipment and resources needed for the PAT must be provided by your employer or training provider and include: • a suitable premises • the plant, machinery, equipment and PPE required for the job, which must be in good and safe working condition Relevant work instructions/manuals must be available for you to use in hard copy or electronically.

How many questions will I 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 questions to follow in order to seek clarification from you
Who will assess me?	An independent assessor, appointed by EUIAS.
Preliminary Grading	The independent assessor will award a preliminary grade.
Overall grading for this component	Fail, Pass, Merit or Distinction.

Practice Component 3: PIT

You should have an opportunity to have a practice PIT which mirrors the real assessment. A practice PIT would be set up for you using the structure in the table above by your employer or training provider.

Component 4: Practical Application Test (PAT)

Overview

A PAT involves an independent assessor, appointed by EUIAS observing and questioning you in an independent assessment centre in a simulated environment (simulated test area in a workshop) in a secure bay. The simulated environment will closely relate to your natural working environment. You will inspect a pre-installed unvented cylinder, functioning with electrical components and controls. The apprentice will demonstrate the application of the relevant core knowledge, skills and behaviours (KSBs).

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

Structure of your PAT	The total assessment time is 3 hours. • You will carry out your work in a secure bay expected to apply your knowledge and skills in an integrated way with minimum supervision • You will be provided with a written brief detailing the tasks that must be completed • Breaks may be taken during the PAT to allow you to move from one location to another and for meal/comfort breaks. The clock will be stopped. The assessment time is not reduced
Where will the assessment take place?	Your PAT will be conducted: • in an independent assessment centre within a secure bay with a simulated test area that reflects your real working environment and realistic work situation • you must be able to work unhindered and without gaining advantage from others

What knowledge, skills and behaviours (KSBs) do I have to demonstrate during the PIT?	**Core Knowledge:** **K1** Understand health and safety legislation, codes of practice and safe working practices **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 **K3** Understand installation and testing techniques for electrical components and control systems on plumbing and domestic heating systems **K4** Understand scientific plumbing, domestic heating and mechanical principles **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 **Core Skills**: **S1** Operate in a safe working manner by adhering to health and safety legislation, codes of practice and applying safe working practices **S2** Apply 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 **S3** Apply installation and testing techniques for electrical components and control systems on plumbing and domestic heating systems **S4** Take responsibility for own work and safety and welfare of others. Oversee and organise the programme of work and work

	environment Carry out work and manage resources in an environmentally friendly manner **For further details refer to the PDHT Specification.** https://www.euias.co.uk/wp-content/uploads/2024/10/EUIAS-L3-PDHT-EPA-Specification-v2.0.pdf
What tasks will I have to cover?	You will have to inspect a pre-installed unvented cylinder, functioning with electrical components and controls. The independent assessor will make alterations to the system to create faults on various components within the system for you. You will be given 2 hours to identify the faults, repair them and then re-commission the system. Finally, you 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 PDHT Specification 'PAT coverage of the standard listed in the PAT grading criteria in section 3 pages 70 - 76.** https://www.euias.co.uk/wp-content/uploads/2024/10/EUIAS-L3-PDHT-EPA-Specification-v2.0.pdf
What resources can I use?	Equipment and resources needed for the PAT must be provided by your employer or training provider and include: • a suitable premises • the plant, machinery, equipment and PPE required for the job, which must be in good and safe working condition Relevant work instructions/manuals must be available for you to use in hard copy or electronically.
How many questions will I 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 questions to follow in order to seek clarification from you

Who will assess me?	An independent assessor, appointed by EUIAS
Preliminary Grading	The independent assessor will award a preliminary grade
Overall grading for this component	Fail or Pass

Practice Component 4: PAT

You should have an opportunity to have a practice PAT which mirrors the real assessment. A practice PAT would be set up for you using the structure in the table above by your employer or training provider.

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

Overview

The purpose of the professional discussion is based on your workplace logbook of evidence. It is to allow you to demonstrate how you have met the KSBs in order to carry out your occupational role as a Plumbing and Domestic Heating Technician effectively and safely.

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

Who will assess me?	1 independent assessor, approved by EUIAS.
How will the professional discussion be organised?	**Locations:** Your professional discussion will take place at your employer's premises or a suitable venue. **Time:** Your professional discussion will last 30 minutes. **Your professional discussion will be:** • between you and the independent assessor • face to face or remote, as agreed • assessed and outcomes will be recorded by the assessor on official EUIAS professional discussion documents • recorded using the relevant technology such as Microsoft Teams or an audio recording device
What topics will the questions cover?	You must demonstrate core knowledge and optional pathway specific KSBs for your chosen pathway: Fossil Fuel – Natural Gas; Fossil Fuel – Oil; Fossil Fuel – Solid Fuel or Environmental Technologies (solar thermal, heat pumps and water recycling systems) in an integrated way for your pathway. The professional discussion will be based on your workplace logbook. You will be expected to discuss the six sections listed below with the independent assessor:

	• Section 1: Planning and selecting • Section 2: Pipework and installation • Section 3; Testing and fault finding • Section 4: Commissioning • Section 5: Service and maintenance • Section 6: Behaviours For further details refer to the knowledge, skills and behaviours (KSBs) listed in the grading criteria in Section 3 of the specification pages 76 – 77. https://www.euias.co.uk/wp-content/uploads/2024/10/EUIAS-L3-PDHT-EPA-Specification-v2.0.pdf
How many questions will I be asked?	The independent assessor: • will ask a set of questions to explore your 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 • may ask follow-up questions in order to seek clarification from you • you may refer to your workplace logbook of evidence for examples during the professional discussion
Preliminary Grading	The independent assessor will award a preliminary grade. You must pass **ALL** the pass criteria in order to achieve a pass.
Overall grading for this component	Fail or Pass

Workplace Logbook of Evidence Requirements

The requirements are as follows:

Workplace Logbook Mapping Document You must map your workplace logbook of evidence to the KSBs covered by the professional discussion. You must include a mapping document at the front of your

workplace logbook that clearly references the location of the evidence in your workplace logbook.

For further guidance on **how to set up and map your workplace logbook** refer to:

- Section below 'How do I organise my workplace logbook of evidence and map it to the mapping document?'
- PDHT Specification Section 5: Guidance on workplace logbook of evidence and apprentice mapping
- Appendix B: Guidelines on how to set up a workplace logbook
- Appendix C: Workplace Logbook Mapping Document

How do I organise my workplace logbook of evidence and map it to the mapping document?

Step-by-Step Guide

You must include a workplace logbook mapping document and place it at the front of your workplace logbook, see table above for guidance and where to locate the workplace logbook mapping document.

Your workplace logbook is not assessed. It serves two purposes:

- The independent assessor reviews your workplace logbook before the professional discussion to help focus and contextualise their questions
- You should carefully prepare, index and map your workplace logbook as this will further support you during your professional discussion. Your organised workplace logbook will allow you with ease to refer to examples and discuss the evidence with the independent assessor

What should I include in my workplace logbook?

Quality vs quantity

You should be supported in selecting and mapping evidence for your workplace logbook by your employer or training provider.

We would advise you to choose the best pieces of evidence and map them to each KSB which will be covered during your professional discussion. To be confident of

meeting the KSB, you should aim to have two/three pieces of evidence mapped to each KSB. **This evidence must be produced and completed by you during the end-point assessment period, with at least 8 weeks to complete, after gateway.**

Examples of acceptable evidence that is mapped against the relevant KSBs:

- demonstrations and **evidence of work carried out**, **produced and completed by you during the end-point assessment period, with at least 8 weeks to complete, after gateway**
    - photographs
    - images
    - diagrams
    - video clips (maximum duration 5 minutes) and you must be in view and identifiable
    - 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
    - workplace documentation and records
    - workplace policies and procedures

The above is not a definitive list. You can include other relevant evidence sources.

Further guidance: A minimum of 2 and no more than 3 activities accrued by you that demonstrates the higher order knowledge, skills and behaviours. You will typically include 10 discrete quality pieces of evidence.

You **must not** include in your workplace logbook any methods of self-assessment.

Evidence must be:

- produced by you (authentic)
- relevant to the standard (K, S or B) that it is mapped to
- produced during the time you were carrying out your on-programme training

What can I do to prepare for the professional discussion?

You should:

- be familiar with the structure of your workplace logbook
- know the KSBs covered by the professional discussion
- know where you have mapped your KSBs by referring to your workplace logbook mapping document
- ensure there is quality evidence to cover every KSB in the professional discussion
- practise mapping evidence and completing the evidence mapping grid
- know how you will be graded

The role of your employer or training provider

Employers or training providers are expected to support you in preparing your workplace logbook by:

- clarifying responsibility for supporting you in selecting and mapping evidence for your workplace logbook, including the role of employer coaches/mentors where applicable
- advising you on which pieces of evidence you should select to ensure that when it is looked at as a whole, your evidence provides coverage of all the required elements of the standard (KSBs) assessed in the professional discussion
- supporting the mapping of your evidence and production of your mapping document
- authenticating evidence you provide is valid
- signing off your workplace logbook
- submitting your workplace logbook to EUIAS as part of Gateway

Practice Component 5: Professional Discussion based on your workplace logbook of Evidence

You should have an opportunity to have a practice professional discussion which mirrors the real assessment. The practice professional discussion based on your workplace logbook of evidence would be set up using the structure in the table above by your employer or training provider.

Overall grading

Your apprenticeship will be graded distinction, merit, pass or fail. 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.

Grades from individual assessment components will be combined in the following way to determine your overall EPA grade as a whole. If you fail any component of the end-point assessment, you will receive an overall grade of fail.

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 the PDHT Specification.

Section 4: Resits and retakes

If you fail one or more EPA components, you can re-sit or a re-take the failed component at your employer's discretion. Your 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. You should have a supportive action plan to prepare for your re-sit or re-take.

Your employer and EUIAS will agree the timescale for your re-sit or re-take. Failed re-sit is typically taken within 14 days of the EPA outcome notification. The timescale for a re-take is dependent on how much re-training you will require and is typically taken within 12 weeks of the EPA outcome notification. Failed EPA components must be re-sat or re-taken within the 3 month end-point assessment period, otherwise the EPA will need to be re-sat or re-taken in full.

If you re-sit or re-take either component, the maximum overall grade that you can achieve is a Pass.

If you are unsuccessful, your employer will decide if you should re-apply for the EPA once additional training has taken place.

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

Section 5: Appendices

Appendix A: Glossary

Appendix B: Guidelines on how to set up a workplace logbook

Appendix C: Workplace Logbook Mapping Document

Appendix A: Glossary

Amplification – provides more detail on how individual knowledge, skills or behaviours statements should be interpreted. Where the KSB statements, themselves are deemed self-explanatory, no amplification is provided. Assessment may include questions on anything identified in the amplification

Behaviours –mindsets, attitudes or approaches needed for competence. Whilst these can be innate or instinctive, they can also be learnt. Behaviours tend to be very transferable. They may be more similar across occupations than knowledge and skills. For example, team worker, adaptable and professional

Elements – are the knowledge, skills and behaviours and what is needed to competently undertake the duties required for an occupational standard

Guidance – is only provided where it is required to support interpretation of the KSB statements

Gateway – the stage of the apprenticeship where the apprentice, employer and trainer determine whether the apprentice is ready to undertake the End-Point Assessment

Independent Assessor – Will holistically assess the knowledge, skills and behaviours (KSBs) that you have been taught throughout the apprenticeship. Their role as an Independent Assessor would involve assessing 2 components (practical skills observation and professional discussion based on your portfolio of evidence)

Knowledge – the information, technical detail, and 'know-how' that someone needs to have and understand to successfully carry out the duties. Some knowledge will be occupation-specific, whereas some may be more generic

Options / Pathways – a specialist route within an occupational standard that builds on the occupational competence for a new entrant to the occupation

Skills – the practical application of knowledge needed to successfully undertake the duties. They are learnt through on and/or off-the-job training or experience

Standard – An occupational standard is a description of an occupation. It contains occupational profile, and describes KSBs needed for someone to be competent in the occupation's duties. The occupational standards are developed by employers for occupations that meet the Institute for Apprenticeships & Technical Education current criteria. For further details refer to: https://www.instituteforapprenticeships.org/apprenticeship-standards/plumbing-and-domestic-heating-technician-in-revision

Topic - is a collection of elements grouped into a theme e.g., Health and Safety

Appendix B: Guidelines on how to set up a workplace logbook

The workplace logbook template has been designed and developed by EUIAS. It aligns with the knowledge and skills of the optional pathways along with the behaviours. The KSBs will be assessed through the Professional Discussion and supported by the production of a workplace logbook which **must be completed by you during the end-point assessment period, with at least 8 weeks to complete, after the gateway.**

Step-by-step guide on how to set up the Workplace Logbook

Step 1

Complete the table below and include at the front of the workplace logbook:

Full Name of Apprentice	
Apprentice signature: Declaration confirming authenticity of their workplace logbook	
Employer details	
Training provider details	
Manager/mentor/ trainer/supervisor or add job title including full name of person signing off the workplace logbook to confirm authenticity of the workplace logbook	
Standard	Plumbing and Domestic Heating
Option	
Level	3

Step 2:

The workplace logbook will be produced by you using a selection of quality work from your chosen option (pathway):

- 1: Fossil Fuel – Natural Gas
- 2: Fossil Fuel – Oil
- 3: Fossil Fuel – Solid Fuel
- 4: Environmental Technologies

Step 3:

You must develop your workplace logbook by including the following sections:

- create a contents page by completing the table below and including it at the front of your workplace logbook
- Sections 1- 6: Select and include one quality job with supporting evidence chosen for your option to demonstrate relevant knowledge, skills and behaviours that must be mapped in the mapping document.
- Sections 1- 6: Write the title of the quality job in the table below and include page number(s)

Provide quality examples to demonstrate evidence listed in the contents page below which must be mapped in the mapping document and included in this section.

Step 4:

Prepare for the professional discussion by:

- selecting one of the following sections (1 - 6) to discuss during your professional discussion, this selected job must be selected by you to show the best job that demonstrates the knowledge, skills and behaviours relevant to that section

Workplace Logbook Contents		
Option: [Add chosen option from list above on page 91]		
Section	Evidence (within the chosen option)	Page (s)
Place at the front of the Workplace Logbook	Workplace Mapping Document	
1	**Planning and selecting:** Principles of planning and selecting components for pipework systems and appliances This section must also include evidence of the apprentice's understanding of fuel combustion, ventilation and fluing arrangements (domestic).	
2	**Pipework and installation** Principles and practice of **pipework and installation** of pipework systems and appliances	
3	**Testing and fault finding** Principles of and carries out **testing and fault finding** on pipework systems and appliances	
4	**Commissioning** Principles of, and carries out **commissioning** of pipework systems and appliances	
5	**Service and maintenance** Principles of, and carries out **service and maintenance** of pipework systems and appliances	
6	**Behaviours** Demonstrates the **behaviours** of honesty and integrity; dependable and responsible; enthusiasm and positive attitude; quality focus; willingness to learn; working with others, sustainable working	

Appendix C: Workplace Logbook Mapping Document

Introduction

Throughout the on-programme part of the apprenticeship, you will need to compile a workplace logbook of evidence to support the requirements of the professional discussion. The evidence within the workplace logbook will need to be mapped by you to the KSB requirements using the mapping document below.

The independent assessor will use the mapping document to review the evidence in your workplace logbook in preparation for the professional discussion. The independent assessor will not assess your workplace logbook.

The workplace logbook mapping document below consists of the core requirements.

Your next steps

1. Complete all the details on the first page and include employer details of where relevant competencies from your experience at work was gained
2. Ensure each piece of evidence is signed off by your tutor/supervisor/mentor and lead provider (employer or training provider). You can use a number of different types of evidence to demonstrate your competence as described in Section 5 of the Specification – 'What to include in the workplace logbook?'. For further guidance, you must seek advice from your tutor/supervisor/mentor and lead provider
3. Map evidence to the criteria in the following pages using a referencing system indicating where the evidence for the criteria is located in your workplace logbook e.g., work based evidence Job 1 (J1) page 5 paragraph 2. This will allow the independent assessor to locate the section or specific piece of evidence being discussed with you during the professional discussion
4. Place the workplace logbook mapping document at the front of the workplace logbook of evidence
5. Your lead provider must make arrangements for EUIAS to have access to your workplace logbook including the workplace logbook mapping document at Gateway

Workplace Logbook Mapping Document

1.1 Mapping Sign off on Workplace Logbook Completion:

Place this workplace logbook mapping document at the front of your workplace logbook of evidence.

Apprentice Full Name (Print)	Apprentice Signature	Training Provider (Company)	Training Provider Signatory	Date of Sign Off

Section 1: Planning and selecting	Workplace Logbook EVIDENCE REFERENCE (Apprentice Input)		
	1	2	3
Understand the principles of, and carries out **planning and selecting** components for pipework systems and appliances. This section must also include evidence of the apprentice's understanding of fuel combustion, ventilation and fluing arrangements (domestic).			

Section 2: Pipework and installation	Workplace Logbook EVIDENCE REFERENCE (Apprentice Input)		
	1	2	3
Understand the principles of, and carries out **pipework and installation** of pipework systems and appliances			

Section 3: Testing and fault finding	Workplace Logbook EVIDENCE REFERENCE (Apprentice Input)		
	1	2	3
Understand the principles of, and carries out **testing and fault finding** on pipework systems and appliances			

Section 4: Commissioning	Workplace Logbook EVIDENCE REFERENCE (Apprentice Input)		
	1	2	3
Section 4: Understand the principles of, and carries out **commissioning** of pipework systems and appliances			

Section 5: Service and maintenance	Workplace Logbook EVIDENCE REFERENCE (Apprentice Input)		
	1	2	3
Understand the principles of, and carries out **service and maintenance** of pipework systems and appliances			

Section 6: Behaviours	Workplace Logbook EVIDENCE REFERENCE (Apprentice Input)		
	1	2	3
Demonstrates the **behaviours** of honesty & integrity; dependable and responsible; enthusiasm and positive attitude; quality focus; willingness to learn; working with others, sustainable working			