ENERGY & ENVIRONMENT AWARDS

EEA Level 3 End-point Assessment for Heat Network Maintenance Technician
(Distribution; Residential)

Supporting Documents

QAN 610/6335/6
ST1308 V1.0

Supporting Documents for

EEA Level 3 End-point Assessment for Heat Network Maintenance Technician

QAN 610/6335/6

Updates to the supporting documents

Since the first publication of Energy & Environment Awards (EEA) Heat Network Maintenance Technician (HNMT) Supporting Documents, the following updates have been made.

Version	Date first published	Section updated	Page(s)
v1.0	January 2026	First published	All

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 (as part of KSBs) – specific mindsets, attitudes or approaches identified as part of the apprenticeship standard that must be evidenced during end-point assessment

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

Gateway - the stage of the apprenticeship where the apprentice, employer and training provider determine whether the apprentice is ready to undertake end-point assessment

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

Knowledge (as part of KSBs) – specific information, technical detail, and 'know-how' identified as part of the apprenticeship standard that must be evidenced during 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

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. Occupational standards are developed by employers for occupations that meet Skills England's current occupation criteria

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

Appendix B: Gateway Eligibility Form

(Standard Version: ST1308 version 1.0)

Apprentice's name:	Apprentice's job title:
Apprentice's ULN:	
Name of Employer:	Name of Training provider:
Employer representatives present:	Training provider representatives present:
Apprenticeship start date:	Apprenticeship on-programme end date:
Was the apprentice aged 19 or over at the start of the programme?	Y / N
Employer Decision: We require the apprentice to attempt the Level 2 English and Mathematics before they can achieve the apprenticeship	Y / N
Gateway meeting date:	
Has the apprentice taken any part of the end-point assessment for this apprenticeship standard with any other End Point Assessment Organisation?	Y / N
If "Yes" please give details:	

Apprentice's details

Eligibility requirements:

Where applicable, the apprentice must confirm their achievement of the following. Note: If maths and/or English have been attempted but not achieved evidence of the attempt should be submitted.

Eligibility requirement	Achieved by the apprentice? Y / N	Evidence (Scans of certificates or ILR MUST be included)
Achieved an English qualification in line with the apprenticeship funding rules		
Achieved a mathematics qualification in line with the apprenticeship funding rules		

The apprentice must confirm the following:

Eligibility requirement	Achieved by the apprentice? Y / N	Evidence available in ACE360 Y / N
Compiled and submitted an EPA portfolio that meets the specification requirements, for the professional discussion based on an EPA portfolio		

Gateway Eligibility Declaration

The apprentice, the employer and the training provider must sign this form to confirm that they understand and agree to the following:

1. The apprentice has completed the required on-programme elements of the apprenticeship and is ready for end-point assessment with Energy & Environment Awards.
2. Energy & Environment Awards has been informed about any reasonable adjustment and/or special considerations requests.
3. The apprentice will only submit their own work as part of end-point assessment.
4. All parties agree that end-point assessment evidence may be recorded and stored by Energy & Environment Awards for quality assurance purposes.
5. The apprentice has been on-programme for the minimum duration required, in line with Skills England rules.
6. The apprentice is working at or above the occupational standard as a Heat Network Maintenance Technician.
7. The apprentice has the evidence required to pass the gateway and is ready to take the EPA.
8. The apprentice has achieved English and maths in line with apprenticeship funding rules.
9. The apprentice has compiled and submitted a competent EPA portfolio of evidence, on which the Interview will be based.
10. The apprentice, if successful, gives permission for Energy & Environment Awards to request the apprenticeship certificate from the Department of Education who issue the certificate on behalf of the Secretary of State.
11. The apprentice has been directed to Energy & Environment Awards Appeals Policy and Complaints Policy.
12. The employer/training provider has given Energy & Environment Awards at least three months' notice of requesting EPA for this apprentice.
13. If the Gateway Eligibility Report is not completed in full, meeting all requirements, and submitted to Energy & Environment Awards, the end-point assessment cannot take place.

Signed on behalf of the employer (print name):	Signature:	Date:
Signed on behalf of the training provider (print name):	Signature:	Date:
Apprentice's name (print):	Signature:	Date:
Energy & Environment Awards use only:		
Energy & Environment Awards Sign off:		
Comments/actions:		

Appendix C: Practice Multiple-choice Test

Level: 3

Heat Network Maintenance Technician

Supporting Document: Practice Paper

This examination consists of 40 multiple-choice questions.

The Pass mark is 28 correct answers.
A mark of 34 or more is a Distinction.

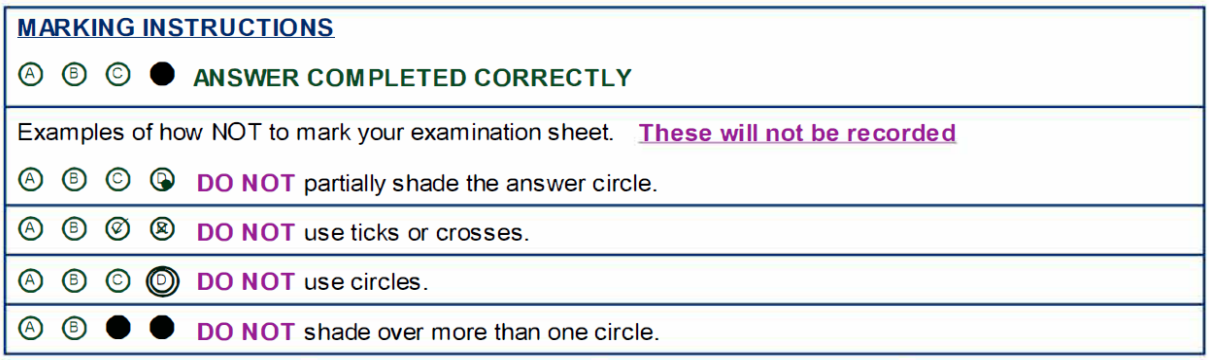
The duration of this examination is 80 minutes.
You must use a **pencil** to complete the answer sheet - pens must NOT be used.
When completed, please leave the examination answer sheet and question paper on the desk.

For this paper:

- the use of a scientific calculator (non-programmable) is permitted
- access to the internet or intranet is NOT allowed

For each question, fill in ONE answer ONLY.
If you make a mistake, ensure you erase it thoroughly.

You must mark your choice of answer by shading in ONE answer circle only. Please mark each choice like this:



You may use this page for rough work. This page must not be removed.

Question 1	
Which ONE of the following is an example of a low-carbon heat source commonly used in heat networks?	
Possible answers	
a)	Diesel-fuelled CHP (combined heat and Power) units
b)	Industrial waste heat recovery
c)	Gas-fired individual boilers
d)	Portable electric heaters

Question 2	
The main reason for using pre-insulated steel components for underground district heating systems is to:	
Possible answers	
a)	improve water circulation
b)	prevent heat loss and corrosion
c)	allow for easier disassembly and reuse
d)	reduce the need for expansion compensation

Question 3	
A university campus installs a central energy centre distributing hot water to all campus buildings. This system is best described as a:	
Possible answers	
a)	city-wide network
b)	district heat network
c)	local domestic system
d)	communal heating system

Question 4	
Which ONE of the following best describes a communal heat network?	
Possible answers	
a)	Small-scale system providing heat to a single building
b)	High-voltage distribution system for power generation
c)	Large-scale system serving multiple city districts
d)	Portable system used for emergency heating

Question 5	
To achieve their objectives, Ofgem operate a statutory framework set by the:	
Possible answers	
a)	Gas and Electricity Markets Authority (GEMA)
b)	Competition and Markets Authority (CMA)
c)	Energy Networks Association (ENA)
d)	UK Government

Question 6	
Which ONE of the following organisations is responsible for policy and oversight of the UK's heat network and energy decarbonisation strategy?	
Possible answers	
a)	Energy Saving Trust
b)	Department for Business and Trade
c)	The Association for Decentralised Energy (ADE)
d)	Department for Energy Security and Net Zero (DESNZ)

Question 7	
The main purpose of the Heat Networks (Metering and Billing) Regulations 2014 is to:	
Possible answers	
a)	ensure continuous and accurate measurement of heat consumption
b)	monitor system energy efficiency and report performance annually
c)	register heat network operators and issue local authority permits
d)	limit boiler capacity and restrict heat output during peak times

Question 8	
A key function of the Building Engineering Services Association (BESA**)** within the heat network sector is to:	
Possible answers	
a)	provide health and safety enforcement on construction sites
b)	develop technical standards and promote best practices
c)	manage customer billing and complaints
d)	certify renewable energy subsidies

Question 9	
Which ONE of the following organisations manages the consumer protection scheme for heat network customers?	
Possible answers	
a)	The Heat Trust
b)	Association of Decentralised Energy (ADE)
c)	Chartered Institution of Building Services Engineers (CIBSE)
d)	Building Services Research and Information Association (BSRIA)

Question 10	
According to the Health and safety at Work Act 1974, who is responsible for ensuring work equipment is maintained and safe to use?	
Possible answers	
a)	Employer
b)	Line manager
c)	Facilities manager
d)	Procurement officer

Question 11	
Identify ONE purpose of PPE (Personal Protective Equipment)?	
Possible answers	
a)	To reduce costs
b)	To enhance comfort
c)	To reduce exposure to hazards
d)	To reduce the need for other safety measures

Question 12	
The Manual Handling Operations Regulations 1992 require employers to:	
Possible answers	
a)	avoid the need for dangerous physical tasks, where possible
b)	clearly mark lifting equipment with its Safe Working Load (SWL)
c)	ensure that all work equipment is suitable for its intended use
d)	report serious workplace accidents to the relevant authorities

Question 13	
The Control of Substances Hazardous to Health (COSHH) Regulations 2002 require:	
Possible answers	
a)	employers to store all substances away from employees who do not use them within the workplace
b)	employers to carry out risk assessment of hazards to health caused by substances used at work
c)	employees to buy their own PPE if PPE issued by their employer become damaged
d)	employees to use the least amount possible of a hazardous chemical

Question 14	
The use of leaning ladders would be considered a suitable option to conduct work at height where:	
Possible answers	
a)	it is the most cost-effective solution
b)	the activity is low risk and short duration
c)	the task will take less than one hour to complete
d)	the work area cannot be reached from a fixed scaffold

Question 15	
Which ONE of the following workplace incidents is **NOT** reportable under Reporting of Injuries, Diseases and Dangerous Occurrences (RIDDOR)?	
Possible answers	
a)	Significant damage to a worker's eye
b)	Accident to a member of the public resulting in an injury
c)	Hypothermia as a result of working in an enclosed space
d)	A cut to an employee's hand requiring medical attention by a site first aider

Question 16	
What is the main focus of the Environmental Protection Act 1990?	
Possible answers	
a)	Control pollution and manage environmental risks, including waste and land contamination
b)	Oversee workplace health and safety, including risk assessments and employee welfare
c)	Manage building construction codes to ensure compliance with structural safety standards
d)	Regulate food and drink safety standards to protect public health and hygiene

Question 17	
Identify ONE key purpose of the Clean Air Act 1993.	
Possible answers	
a)	Manage hazardous waste disposal
b)	Contribute to net-zero carbon targets
c)	Limit emissions of smoke, grit, dust, and fumes
d)	Regulate water pollution from industrial sources

Question 18	
According to the Controlled Waste Regulations, a technician's main responsibility when disposing of chemical waste is to:	
Possible answers	
a)	mix with general waste and store before collection
b)	store all waste together and label with the correct date
c)	dilute with water and discharge down the nearest drain
d)	segregate, document and label before authorised collection

Question 19	
Which ONE of the following ISO standards specifies the requirements for an Environmental Management System (EMS)?	
Possible answers	
a)	ISO 9001
b)	ISO 14001
c)	ISO 45001
d)	ISO 50001

Question 20	
Which ONE of the following gases contributes most significantly to global warming?	
Possible answers	
a)	Argon (Ar)
b)	Carbon dioxide (CO_2)
c)	Oxygen (O_2)
d)	Nitrogen (N_2)

Question 21	
Efficient heat networks help reduce the impact on climate change by:	
Possible answers	
a)	offsetting emissions through uncontrolled venting
b)	reducing carbon emissions per unit of heat delivered
c)	maintaining constant fuel demand regardless of usage
d)	adjusting indoor temperatures to manage system stability

Question 22	
Which ONE of the following best describes the main purpose of asset tagging?	
Possible answers	
a)	Calculate heat tariffs for consumer billing
b)	Track individual components for maintenance
c)	Monitor energy consumption in domestic dwellings
d)	Maintain correct water flow temperature in the network

Question 23	
According to 'ISO 55000 Asset Management, which principle requires regular checks and updates to keep processes effective?	
Possible answers	
a)	Continuous Improvement
b)	Lifecycle Management
c)	Risk Management
d)	Asset Disposal

Question 24	
Which ONE of the following approaches is an example of a planned maintenance strategy?	
Possible answers	
a)	Tracking minor faults until they escalate
b)	Performing repairs when a component fails
c)	Servicing equipment after a drop in performance is noticed
d)	Scheduling routine servicing based on manufacturer recommendations

Question 25	
The unit of measurement used to measure energy in heat networks is:	
Possible answers	
a)	Kelvin (K)
b)	Kilowatt (kW)
c)	Newton (N)
d)	Pascal (Pa)

Question 26	
Which ONE of the following best describes the First Law of Thermodynamics?	
Possible answers	
a)	All systems lose energy over time
b)	Energy can be created and destroyed
c)	Energy cannot be created or destroyed, only transformed
d)	Heat energy transfers spontaneously from one body to another

Question 27	
The formula Q = mcΔT is important in the design of heat network systems because it calculates:	
Possible answers	
a)	thermal losses through conductive materials
b)	pressure differences across system components
c)	the pipe diameter needed to maintain efficient flow rates
d)	thermal energy required for temperature change of a given mass

Question 28	
How does excessive differential pressure affect the efficiency of a heat network system?	
Possible answers	
a)	It enhances heat transfer across the system
b)	It improves flow rate and reduces thermal losses
c)	It increases energy usage and wear on pumps
d)	It has no measurable impact on system performance

Question 29	
In fluid dynamics, the formula Q = V/t is used to calculate:	
Possible answers	
a)	Density (kg/m³)
b)	Flow rate (m³/s)
c)	Velocity (m/s)
d)	Volume (m³)

Question 30	
Which ONE of the following control levels typically manages real-time temperature regulation in a hierarchical control system?	
Possible answers	
a)	Field
b)	Supervisory
c)	Operational
d)	Process optimisation

Question 31	
In heat network systems the mode of control which uses feedback to maintain desired temperature and flow conditions is the:	
Possible answers	
a)	batch control
b)	closed-loop control
c)	open-loop control
d)	manual control

Question 32	
Which ONE of the following tuning methods is commonly used to determine PID (Proportional–Integral–Derivative) parameters by inducing sustained oscillations in a closed-loop system?	
Possible answers	
a)	Cohen–Coon
b)	Trial and error
c)	Ziegler–Nichols
d)	Feedforward control

Question 33	
A technician finds a white, chalky deposit forming on heat exchanger surfaces. The most likely cause is:	
Possible answers	
a)	microbiological contamination
b)	corrosion from dissolved oxygen
c)	scale formation from hard water
d)	fouling caused by the build-up of biofilm

Question 34	
Which ONE of the following treatments can be used in chemical-free systems to control water quality?	
Possible answers	
a)	Use of ion-exchange resins
b)	Dosing with neutralising agents
c)	Manual chlorination and pH adjustment
d)	Side-stream filtration and magnetic separation

Question 35	
Which organisation provides recognised industry standards and guidance on water treatment for building services, including heat networks?	
Possible answers	
a)	Building Services Research and Information Association (BSRIA)
b)	The Association for Decentralised Energy (ADE)
c)	Office of Gas and Electricity Markets (Ofgem)
d)	Department for Energy Security and Net Zero

Question 36	
Which ONE of the following materials is most commonly used for primary district heating pipework due to its strength and heat resistance?	
Possible answers	
a)	Aluminium
b)	Carbon steel
c)	Copper
d)	Plastic (PEX)

Question 37	
The most likely cause of frequent pressure drops in a riser section is:	
Possible answers	
a)	air trapped at high points in the system
b)	oversized strainers causing backflow
c)	incorrect pump rotation direction
d)	pipework expansion due to heat

Question 38	
Using the formula $Q=mc\Delta T$, calculate the heat energy required to raise 300 kg of water from 40°C to 70°C. Assume c=4.18 kJ/kg	
Possible answers	
a)	12,540 kJ
b)	25,080 kJ
c)	37,620 kJ
d)	41,800 kJ

Question 39	
Use the formula below to calculate the required cold fill pressure for a building with a static height of 35 m and a safety margin of 0.5 bar. Cold Fill Pressure (bar) = (System Height in metres ÷ 10) + Safety Margin (bar)	
Possible answers	
a)	3.0 bar
b)	4.0 bar
c)	4.5 bar
d)	5.0 bar

Question 40	
During a maintenance check on a heat network pump, the suction pressure is measured at 1.8 bar and the discharge pressure at 4.3 bar. Using the formula, $\Delta P = P_{discharge} - P_{suction}$, calculate the differential pressure across the pump.	
Possible answers	
a)	2.5 bar
b)	3.1 bar
c)	4.3 bar
d)	6.1 bar

End of Questions.

Practice Multiple-choice Test

Answer scheme

Question	Answer	Question	Answer
1	B	21	B
2	B	22	B
3	B	23	A
4	A	24	D
5	D	25	B
6	D	26	C
7	A	27	D
8	B	28	C
9	A	29	B
10	A	30	A
11	C	31	B
12	A	32	C
13	B	33	C
14	B	34	D
15	D	35	A
16	A	36	B
17	C	37	A
18	D	38	C
19	B	39	B
20	B	40	A

Appendix D - Level 3 Heat Network Maintenance Technician Practical Assessment with Questions Planning and Approval Form

Instructions

This form has two purposes:

1. To help you plan a practical assessment with questions for your apprentices
2. To inform Energy & Environment Awards of the proposed task(s) for the live assessment

Task resources and equipment

The employer or training provider must supply a simulated heat network system for the practical assessment. As a minimum, the system should be set up in a double bay and include the following equipment and resources:

- Heat Source: small boiler or simulated heat supply with safe isolation capability
- Heat Interface Unit (HIU): includes plate heat exchanger, integrated valves, and sensors for heat transfer and diagnostic tasks
- Distribution Circuit: two radiators for balancing and flow checks, copper pipework with isolation valves for assembly/disassembly
- Expansion Vessel: for pressure maintenance and safety compliance
- Pump Set: circulating pump to move water from the boiler and demonstrate flow/fault diagnosis
- Pressurisation Unit: for system pressure control.
- Digital Control Panel: thermostat or simple BMS interface for monitoring and configuration
- Instrumentation: pressure gauge, temperature sensors, and flow indicator for performance checks
- Additional Components: sink for discharge and a low-loss header or thermal store to support heat distribution

Important information

- The apprentice is assessed in in a simulated environment, approved by Energy & Environment Awards, which closely relates to the apprentice's natural working environment
- A total of 6 hours + 10% is permitted for the practical assessment with questions
- The practical assessment must cover two tasks which are specific to either Distribution Systems or Residential Systems as well as the core requirements

- The practical assessment is assessed by an EEA approved independent assessor
- The ratio of assessor to apprentice is 1:1
- The employer/provider must provide all equipment and resources, ensuring that tools are in a serviceable condition
- The employer/training provider representative must be present or immediately contactable for the duration of the assessment
- During the assessment, the independent assessor will be asking questions which are part of the assessment

The activities should be designed to assess a broad range of the knowledge, skills and behaviours developed over the period of the apprenticeship. However, as a minimum the practical assessment with questioning must cover the activities and KSBs listed in the relevant planning and approval form for either distribution or residential systems.

Energy & Environment Awards must review the employer/training provider's practical assessment task brief.

Task variations: If you have more than one apprentice being assessed, use the 'Practical Task Variations' section of the form to indicate what the task variations that will be put in place so that apprentices are not asked to complete identical tasks.

Complete the relevant 'Level 3 Heat Network Maintenance Technician with Questions Planning and Approval Form' and submit it to the Service Delivery team via enquiries@energyenvironmentawards.co.uk, for **review at least 1 month before the start** of the end-point assessment.

Further details can be found in the HNMT EPA Specification.

EEA L3 Heat Network Maintenance Technician Practical Assessment with Questions Planning and Approval Form

Distribution Systems

Employers/training providers are recommended to arrange for apprentices to carry out a practice practical assessment prior to end-point assessment. The form below is for the use of the training provider setting up the practical assessment.

Employer name and site address	
Training provider (if applicable)	
Contact details of Employer/training provider representative, email address and contact number overseeing the setup of the practical (documents and site).	

Practical Assessment with Questions Checklist

This checklist will assist the employer and/or training provider with planning and discussing the activity with Energy & Environment Awards. The practical assessment must include the two tasks as well as covering the core and specialist requirements. **Please confirm all required elements are covered**:

Task 1: The apprentice must carry out distribution system planned service to include the following: (Please check the box below to confirm and provide additional information where necessary)	
Planned servicing tasks on a distribution system	☐

Task 2: The apprentice must visually inspect, fault find and carry out unplanned maintenance on a distribution system. The system must have pre-installed faults and the unplanned maintenance must include the following: (Please check the box below to confirm and provide additional information where necessary)	
The taking of flow, pressure and temperature measurements using portable instrumentation	☐

Remote operation of distribution plant equipment through BMS (Building Management system)	☐
Local operation of distribution equipment through the control panel	☐
Operation of E-Stop and safety circuits	☐

Additional information: Box will expand to allow further detail
Brief description of task 1: Box will expand to allow further detail
Brief description of task 2: Box will expand to allow further detail
Provide details of the pre-installed faults placed on the system for Task 2 (minimum of 2 faults required) Box will expand to allow further detail

The following requirements should be covered in the activity:

Health and safety (Core)	Describe where in the activity the independent assessor will observe the requirements
Prioritises health and safety and works in compliance with health and safety regulations and guidance. (S2, B1)	

Engineering representations (Core)	Describe where in the activity the independent assessor will observe the requirements
Interprets and uses engineering representations in line with task requirements. (K18, S12)	

Task and work area organisation (Core)	Describe where in the activity the independent assessor will observe the requirements
Applies site management techniques to prepare and maintain the work area in line with task requirements. (K10, S5)	
Plans and organises tasks including the selection and organisation of resources in line with task requirements. (K5, S1)	

Tools and equipment (Core)	Describe where in the activity the independent assessor will observe the requirements
Checks tools and equipment including calibration prior to use, and uses and then stores tools and equipment, in line with task requirements and operating or manufacturer's instructions. (K34, S25)	

Core maintenance and fault finding (Core)	Describe where in the activity the independent assessor will observe the requirements
Conducts flow, pressure and temperature measurements using portable instrumentation including static	

Core maintenance and fault finding (Core)	Describe where in the activity the independent assessor will observe the requirements
and differential pressure readings in line with task requirements. (K16, S9)	
Conducts visual inspections and applies fault finding techniques in line with task requirements. (K35, K36, S26, S28)	

Distribution systems maintenance (Distribution)	Describe where in the activity the independent assessor will observe the requirements
Performs maintenance on distribution plant equipment in line with manufacturer's or operating instructions and task requirements. (K38, K39, K40, K41, K42, S29)	
Operates plant equipment remotely through BMS, including switch duty of a duty standby pump, changing lead heat source and valve operation in line with task requirements. (K43, S30)	
Operates plant equipment locally through the control panel including pump and heat sources in line with task requirements. (K44, S31)	
Operates E-Stop and safety circuits including returning plant to normal service and fire alarm re-activation in line with task requirements. (K45, S32)	

Practical Task Variations
Describe how you can vary the task(s) to ensure that the task does not become predictable. **Variation 1:** **Variation 2:** **Variation 3:**

Special requirements (for example: authorisations/access arrangements/PPE):

IMPORTANT INFORMATION TO REMEMBER: The specific detail of the task(s) to be undertaken should be **kept confidential from the apprentices.**

Practical task(s): include relevant photographs to illustrate task(s) to be discussed and reviewed

Energy & Environment Awards Office use only

Date received	
Date signed off	

EEA L3 Heat Network Maintenance Technician Practical Assessment with Questions Planning and Approval Form

Residential Systems

Employers/training providers are recommended to arrange for apprentices to carry out a practice practical assessment prior to end-point assessment. The form below is for the use of the training provider setting up the practical assessment.

Employer name and site address	
Training provider (if applicable)	
Contact details of Employer/training provider representative, email address and contact number overseeing the setup of the practical (documents and site).	

Practical Assessment with Questions Checklist

This checklist will assist the employer and/or training provider with planning and discussing the activity with Energy & Environment Awards. The practical assessment must include the two tasks as well as covering the core and specialist requirements. **Please confirm all required elements are covered**:

Task 1: HIU (Heat Interface Unit) and tertiary system (hot water and radiator or underfloor heating) commissioning and subsequent service. The apprentice must commission and service the following: (Please check the boxes below to confirm and provide additional information where necessary)	
A HIU (Heat Interface Unit) *please indicate whether it is electrical or mechanical* ○ electrical ○ mechanical	☐ ☐
A space heating circuit	☐

Task 2: The apprentice must visually inspect, fault find and carry out unplanned maintenance on a residential system. The system must have pre-installed faults and the unplanned maintenance must include the following: (Please check the box below to confirm and provide additional information where necessary)	
Flow and balancing related faults	☐
Conducting HIU energy balance and efficient operations calculations	☐
The taking of flow, pressure and temperature measurements using portable instrumentation	☐

Additional Information: Box will expand to allow further detail
Brief description of task 1: Box will expand to allow further detail
Brief description of task 2: Box will expand to allow further detail
Provide details of the pre-installed faults placed on the system (minimum of 2 faults required) Box will expand to allow further detail

The following requirements should be covered in the activity:

Health and safety (Core)	Describe where in the activity the independent assessor will observe the requirements
Prioritises health and safety and works in compliance with health and safety regulations and guidance. (S2, B1)	

Engineering representations (Core)	Describe where in the activity the independent assessor will observe the requirements
Interprets and uses engineering representations in line with task requirements. (K18, S12)	

Task and work area organisation (Core)	Describe where in the activity the independent assessor will observe the requirements
Applies site management techniques to prepare and maintain the work area in line with task requirements. (K10, S5)	
Plans and organises tasks including the selection and organisation of resources in line with task requirements. (K5, S1)	

Tools and equipment (Core)	Describe where in the activity the independent assessor will observe the requirements
Checks tools and equipment including calibration prior to use, and uses and then stores tools and equipment, in line with task requirements and operating or manufacturer's instructions. (K34, S25)	

Core maintenance and fault finding (Core)	Describe where in the activity the independent assessor will observe the requirements
Conducts flow, pressure and temperature measurements using portable instrumentation including static	

Core maintenance and fault finding (Core)	Describe where in the activity the independent assessor will observe the requirements
and differential pressure readings in line with task requirements. (K16, S9)	
Conducts visual inspections and applies fault finding techniques in line with task requirements. (K35, K36, S26, S28)	

Residential systems maintenance (Residential)	Describe where in the activity the independent assessor will observe the requirements
Performs maintenance on residential heat network systems in line with manufacturer's or operating instructions and task requirements. (K46, K47, K48, K49, S33)	
Performs HIU energy balance and efficient operation calculations and applies flow and balancing optimisation techniques in line with task requirements. (K50, K51, S34, S35)	
Performs commissioning of an electrical or mechanical HIU and a space heating circuit in line with task requirements. (K53, S37)	

Practical Task Variations
Describe how you can vary the task(s) to ensure that the task does not become predictable. **Variation 1:** **Variation 2:** **Variation 3:**

Special requirements (for example: authorisations/access arrangements/PPE):

IMPORTANT INFORMATION TO REMEMBER: The specific detail of the task(s) to be undertaken should be **kept confidential from the apprentices.**

Practical task(s): include relevant photographs to illustrate task(s) to be discussed and reviewed

Energy & Environment Awards Office use only

Date received	
Date signed off	

Appendix E: Practice Practical Assessment with questions Template

Employers/training providers are recommended to arrange for apprentices to carry out a practice Practical Assessment with questions prior to end-point assessment. The form below is for use by the person playing the part of the independent assessor.

Instructions

This should be read in conjunction with the HNMT Specification.

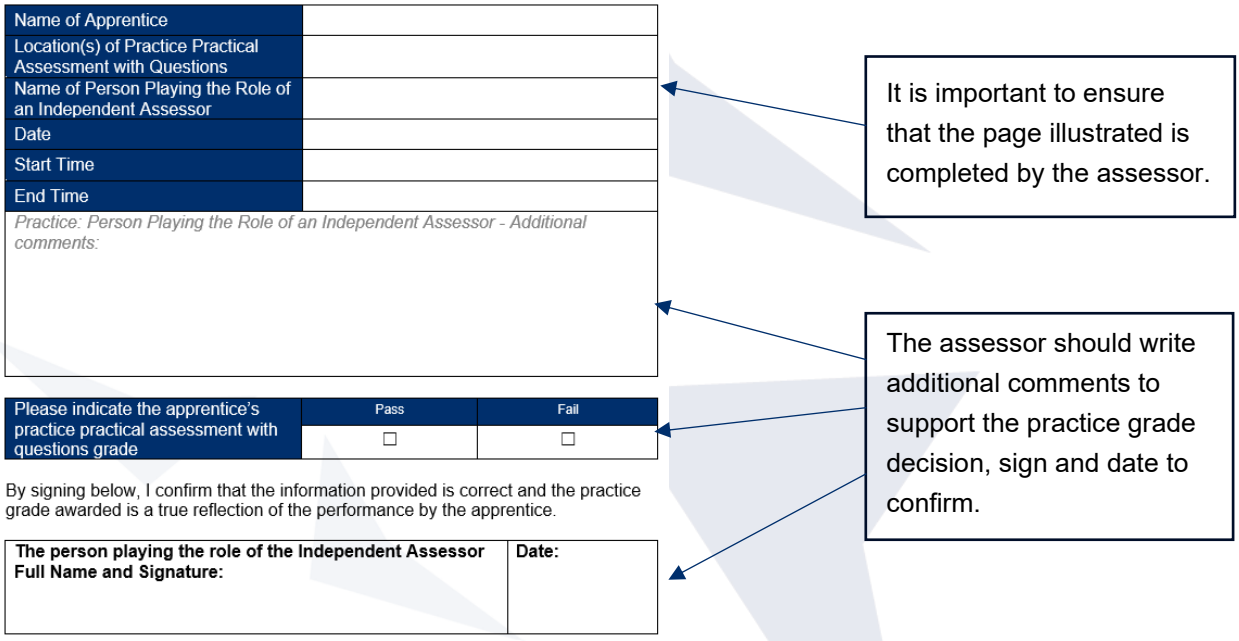
This template has been designed to help the suitable person playing part of the independent assessor and has three purposes:

1. To prepare for a practice practical assessment with questions
2. Designed to holistically assess a broad range of the skills, knowledge and behaviours developed over the period of the apprenticeship by the apprentice
3. To provide feedback to the apprentice in preparation for the live assessment

The assessor should:

- complete the form below to assess the apprentice's Practical Assessment with questions.

Quick Tip – How to complete the form below:



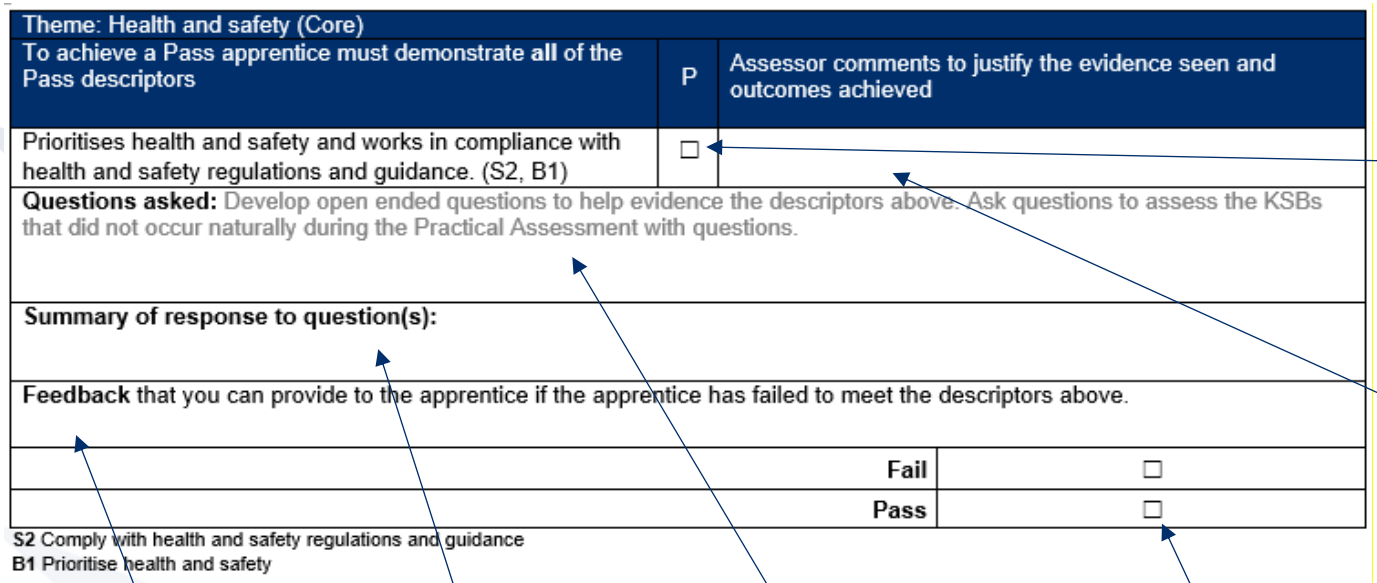
Name of Apprentice	
Location(s) of Practice Practical Assessment with Questions	
Name of Person Playing the Role of an Independent Assessor	
Date	
Start Time	
End Time	

Practice: Person Playing the Role of an Independent Assessor - Additional comments:

Please indicate the apprentice's practice practical assessment with questions grade	Pass	Fail
	☐	☐

By signing below, I confirm that the information provided is correct and the practice grade awarded is a true reflection of the performance by the apprentice.

The person playing the role of the Independent Assessor Full Name and Signature:	**Date:**



Theme: Health and safety (Core)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Prioritises health and safety and works in compliance with health and safety regulations and guidance. (S2, B1)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
Fail	☐	
Pass	☐	

S2 Comply with health and safety regulations and guidance
B1 Prioritise health and safety

EEA L3 Heat Network Maintenance Technician Practice Practical Assessment with Questions Template

Distribution Systems

Name of Apprentice	
Location(s) of Practice Practical Assessment with Questions	
Name of Person Playing the Role of an Independent Assessor	
Date	
Start Time	
End Time	
Practice: Person Playing the Role of an Independent Assessor - Additional comments:	

Please indicate the apprentice's practice practical assessment with questions grade	Pass	Fail
	☐	☐

By signing below, I confirm that the information provided is correct and the practice grade awarded is a true reflection of the performance by the apprentice.

The person playing the role of the Independent Assessor Full Name and Signature:	**Date:**

Please Note:

Fail: the apprentice does not demonstrate the Pass descriptors.

To achieve a Pass, the Apprentice must achieve **all** the Pass descriptors.

Assessor questions: during the live assessment, the assessor must ask at least 3 open questions.

Introduction
At the start of the practical assessment with questions the assessor will: • Introduce themselves • Confirm their role • State the date of the practical assessment with questions • Provide apprentice with information on the format of the practical assessment with questions, including the timescales they will be working to The apprentice will: • Give their full name and date of birth • Give their employer's name • Confirm they are prepared for the practical assessment with questions; and confirm they can continue with the practical The apprentice will be asked to show their identification to the assessor prior to beginning the assessment.
Important points to inform the apprentice
• If at any point during the practical you perform an unsafe act/task which contravenes Health and Safety, I will immediately stop the practical. • Please do not judge anything by me taking notes and you should not infer anything positive or negative from how long the observation lasts. • Ensure that your mobile is turned off or placed somewhere where you will not be interrupted during the practical
Assessor Guidance
Delivery The practical assessment with questions: • must take place in a simulated environment • must take 6 hours. The assessor may increase the time by up to 10% to allow the apprentice to complete a task or respond to a question if necessary You must: • observe apprentices 1:1 ratio

- be as unobtrusive as possible
- explain to the apprentice the format and timescales of the practical before they start
- ask at least 3 questions. Questioning can occur both during and after the practical assessment
- use open-ended questions to suit individual circumstances. Follow-up questions may be asked to clarify answers given by the apprentice
- write down the question to be asked and responses to all questions

The following tasks must be observed:

- **Task 1**: Distribution system planned service
    - The apprentice must carry out planned servicing tasks on a distribution system.
- **Task 2:** Distribution system unplanned maintenance
    - The apprentice must visually inspect, fault find and carry out unplanned maintenance on a distribution system. The system must have faults pre-installed.
    - The range of maintenance tasks must include:
        - the taking of flow, pressure and temperature measurements using portable instrumentation
        - remote operation of distribution plant equipment through BMS (Building Management System)
        - local operation of distribution equipment through the control panel
        - operation of E-Stop and safety circuits

At the end of the practical assessment with questions - Thank the apprentice for their time.

Theme: Health and safety (Core)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Prioritises health and safety and works in compliance with health and safety regulations and guidance. (S2, B1)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
Fail	☐	
Pass	☐	

S2 Comply with health and safety regulations and guidance
B1 Prioritise health and safety

Theme: Engineering representations (Core)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Interprets and uses engineering representations in line with task requirements. (K18, S12)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
Fail	☐	
Pass	☐	

K18 Engineering representations: design principles, piping and instrumentation diagrams, single-line electrical diagrams, control panel schematics, circuit and network diagrams
S12 Interpret and use engineering representations

Theme: Task and work area organisation (Core)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Applies site management techniques to prepare and maintain the work area in line with task requirements. (K10, S5)	☐	
Plans and organises tasks including the selection and organisation of resources in line with task requirements. (K5, S1)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
Fail	☐	
Pass	☐	

K5 Planning, organising and time management techniques
K10 Site management: work area preparation and maintenance techniques
S1 Plan and organise tasks including the selection and organisation of resources
S5 Prepare and maintain the work area

Theme: Tools and equipment (Core)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Checks tools and equipment including calibration prior to use, and uses and then stores tools and equipment, in line with task requirements and operating or manufacturer's instructions. (K34, S25)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
	Fail	☐
	Pass	☐

K34 Tools and equipment used in district heat system maintenance. Requirements for cleaning, storage, care, and operational checks
S25 Check tools and equipment including calibration. Use and store tools and equipment

Theme: Core maintenance and fault finding (Core)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Conducts flow, pressure and temperature measurements using portable instrumentation including static and differential pressure readings in line with task requirements. (K16, S9)	☐	
Conducts visual inspections and applies fault finding techniques in line with task requirements. (K35, K36, S26, S28)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
Fail	☐	
Pass	☐	

K16 Flow, pressure and temperature measurement techniques, portable measurement instruments, static pressure and differential pressure reading
K35 Visual inspection techniques
K36 Fault finding techniques
S9 Conduct flow, pressure and temperature measurements using portable instrumentation, including static pressure and differential pressure reading
S26 Conduct visual inspection
S28 Apply fault finding techniques

Theme: Distribution systems maintenance (Distribution)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Performs maintenance on distribution plant equipment in line with manufacturer's or operating instructions and task requirements. (K38, K39, K40, K41, K42, S29)	☐	
Operates plant equipment remotely through BMS, including switch duty of a duty standby pump, changing lead heat source and valve operation in line with task requirements. (K43, S30)	☐	
Operates plant equipment locally through the control panel including pump and heat sources in line with task requirements. (K44, S31)	☐	
Operates E-Stop and safety circuits including returning plant to normal service and fire alarm re-activation in line with task requirements. (K45, S32)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		

Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.	
Fail	☐
Pass	☐

K38 Planned and unplanned maintenance techniques: servicing, repair and replacement
K39 Distribution plant equipment: pumps, inverters, motors, fans, strainers, thermal stores, expansion and vibration bellows and plant heat exchangers
K40 Pressurisation plant equipment: pressurisation unit, expansion vessel, fill and spill unit, break tank and Automatic Air Vents (AAVs)
K41 Water treatment plant equipment: de-gasser, chemical dosing pot, chemical auto dosing equipment, dirt air separator and water softener
K42 Valves and associated actuators: including Pressure Independent Control Valve (PICV), Differential Pressure Control Valve (DPCV), Non-Return Valve (NRV), temperature and pressure release valve (PRV), three port valves and isolation valves
K43 Building Management System (BMS) remote plant operation techniques: fault reset, heat generation asset commercial gas boilers, pumps, valves and pressurisation units
K44 Plant equipment control panels and local operation techniques: pumps and heat source
K45 E-stops and safety circuits: operation and return to normal service techniques
S29 Perform maintenance on distribution plant equipment
S30 Operate plant equipment remotely through BMS using remote plant operation techniques, including switch duty of a duty standby pump, change lead heat source and valve operation
S31 Operate plant equipment locally from control panel, including pump and heat source
S32 Operate e-stop and safety circuits on equipment and return plant to normal service, including fire alarm re-activation

EEA L3 Heat Network Maintenance Technician Practice Practical Assessment with Questions Template

Residential Systems

Name of Apprentice	
Location(s) of Practice Practical Assessment with Questions	
Name of Person Playing the Role of an Independent Assessor	
Date	
Start Time	
End Time	
Practice: Person Playing the Role of an Independent Assessor - Additional comments:	

Please indicate the apprentice's practice practical assessment with questions grade	Pass	Fail
	☐	☐

By signing below, I confirm that the information provided is correct and the practice grade awarded is a true reflection of the performance by the apprentice.

The person playing the role of the Independent Assessor Full Name and Signature:	**Date:**

Please Note:

Fail: the apprentice does not demonstrate the Pass descriptors.

To achieve a Pass, the Apprentice must achieve **all** the Pass descriptors.

Assessor questions: during the live assessment, the assessor must ask at least 3 open questions.

Introduction

At the start of the practical assessment with questions the assessor will:

- Introduce themselves
- Confirm their role
- State the date of the practical assessment with questions
- Provide apprentice with information on the format of the practical assessment with questions, including the timescales they will be working to

The apprentice will:

- Give their full name
- Give their date of birth
- Give their employer's name
- Confirm they are prepared for the practical assessment with questions; and confirm they can continue with the practical

The apprentice will be asked to show their identification to the assessor prior to beginning the assessment.

Important points to inform the apprentice

- If at any point during the practical you perform an unsafe act/task which contravenes Health and Safety, I will immediately stop the practical.
- Please do not judge anything by me taking notes and you should not infer anything positive or negative from how long the observation lasts.
- Ensure that your mobile is turned off or placed somewhere where you will not be interrupted during the practical

Assessor Guidance

Delivery

The practical assessment with questions:

- must take place in a simulated environment
- must take 6 hours. The assessor may increase the time by up to 10% to allow the apprentice to complete a task or respond to a question if necessary

You must:

- observe apprentices 1:1 ratio
- be as unobtrusive as possible
- explain to the apprentice the format and timescales of the practical before they start
- ask at least 3 questions. Questioning can occur both during and after the practical assessment
- use open-ended questions to suit individual circumstances. Follow-up questions may be asked to clarify answers given by the apprentice
- write down the question to be asked

The following tasks must be observed:

- **Task 1:** HIU (Heat Interface Unit) and tertiary system (hot water and radiator or underfloor heating) commissioning and subsequent service
    - The apprentice must commission and service the following:
        - either, an electrical or mechanical HIU
        - a space heating circuit
- **Task 2:** Residential system unplanned maintenance
    - The apprentice must visually inspect, fault find and carry out unplanned maintenance on a residential system. The system must have faults pre-installed by the EPAO.
    - The range of maintenance tasks must include:
        - flow and balancing related faults
        - conducting HIU energy balance and efficient operations calculations
        - the taking of flow, pressure and temperature measurements using portable instrumentation

At the end of the practical assessment with questions - Thank the apprentice for their time.

Theme: Health and safety (Core)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Prioritises health and safety and works in compliance with health and safety regulations and guidance. (S2, B1)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
Fail	☐	
Pass	☐	

S2 Comply with health and safety regulations and guidance
B1 Prioritise health and safety

Theme: Engineering representations (Core)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Interprets and uses engineering representations in line with task requirements. (K18, S12)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
Fail	☐	
Pass	☐	

K18 Engineering representations: design principles, piping and instrumentation diagrams, single-line electrical diagrams, control panel schematics, circuit and network diagrams
S12 Interpret and use engineering representations

Theme: Task and work area organisation (Core)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Applies site management techniques to prepare and maintain the work area in line with task requirements. (K10, S5)	☐	
Plans and organises tasks including the selection and organisation of resources in line with task requirements. (K5, S1)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
Fail	☐	
Pass	☐	

K5 Planning, organising and time management techniques
K10 Site management: work area preparation and maintenance techniques
S1 Plan and organise tasks including the selection and organisation of resources
S5 Prepare and maintain the work area

Theme: Tools and equipment (Core)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Checks tools and equipment including calibration prior to use, and uses and then stores tools and equipment, in line with task requirements and operating or manufacturer's instructions. (K34, S25)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
Fail	☐	
Pass	☐	

K34 Tools and equipment used in district heat system maintenance. Requirements for cleaning, storage, care, and operational checks
S25 Check tools and equipment including calibration. Use and store tools and equipment

Theme: Core maintenance and fault finding (Core)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Conducts flow, pressure and temperature measurements using portable instrumentation including static and differential pressure readings in line with task requirements. (K16, S9)	☐	
Conducts visual inspections and applies fault finding techniques in line with task requirements. (K35, K36, S26, S28)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
Fail	☐	
Pass	☐	

K16 Flow, pressure and temperature measurement techniques, portable measurement instruments, static pressure and differential pressure reading
K35 Visual inspection techniques
K36 Fault finding techniques
S9 Conduct flow, pressure and temperature measurements using portable instrumentation, including static pressure and differential pressure reading
S26 Conduct visual inspection
S28 Apply fault finding techniques

Theme: Residential systems maintenance (Residential)		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Performs maintenance on residential heat network systems in line with manufacturer's or operating instructions and task requirements. (K46, K47, K48, K49, S33)	☐	
Performs HIU energy balance and efficient operation calculations and applies flow and balancing optimisation techniques in line with task requirements. (K50, K51, S34, S35)	☐	
Performs commissioning of an electrical or mechanical HIU and a space heating circuit in line with task requirements. (K53, S37)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above. Ask questions to assess the KSBs that did not occur naturally during the Practical Assessment with questions.		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		
Fail	☐	
Pass	☐	

K46 Planned and unplanned maintenance techniques: servicing, repair and replacement

K47 Heat Interface Unit (HIU): single plate (direct or indirect heating system), twin Plate, electrical and mechanical. Cooling Interface Unit (CIU), Hot Water Cylinders and Fan Coil Units (FCU)
K48 Tertiary system assets: radiator, Thermostatic Radiator Valves (TRVs), heating control units, under floor heating systems, automatic air valves, lock shield, dynamic balancing valve, Direct Hot Water (DWH) systems and trace heating
K49 Tertiary system wiring, controls and metering: pre and post pay systems, 2 and 3 port (S and Y plan), valves, programmers, thermostats, heating circuit pumps, heating circuit and zone control
K50 Applied calculation techniques: HIU energy balance and efficient operation
K51 Balancing and flow optimisation techniques: radiators and underfloor heating
K53 Electrical, mechanical Heat Interface Unit (HIU) and space heating circuit commissioning techniques
S33 Perform maintenance on residential heat network systems
S34 Conduct HIU energy balance and efficient operations calculations
S35 Apply balancing and flow optimisation techniques
S37 Perform commissioning of electrical HIU and mechanical HIU and a space heating circuit

Appendix F: Practice Interview Based on an EPA Portfolio Template

Employers/training providers are recommended to arrange for apprentices to carry out a practice interview based on an EPA portfolio prior to end-point assessment.

Instructions

This should be read in conjunction with the HNMT Specification.

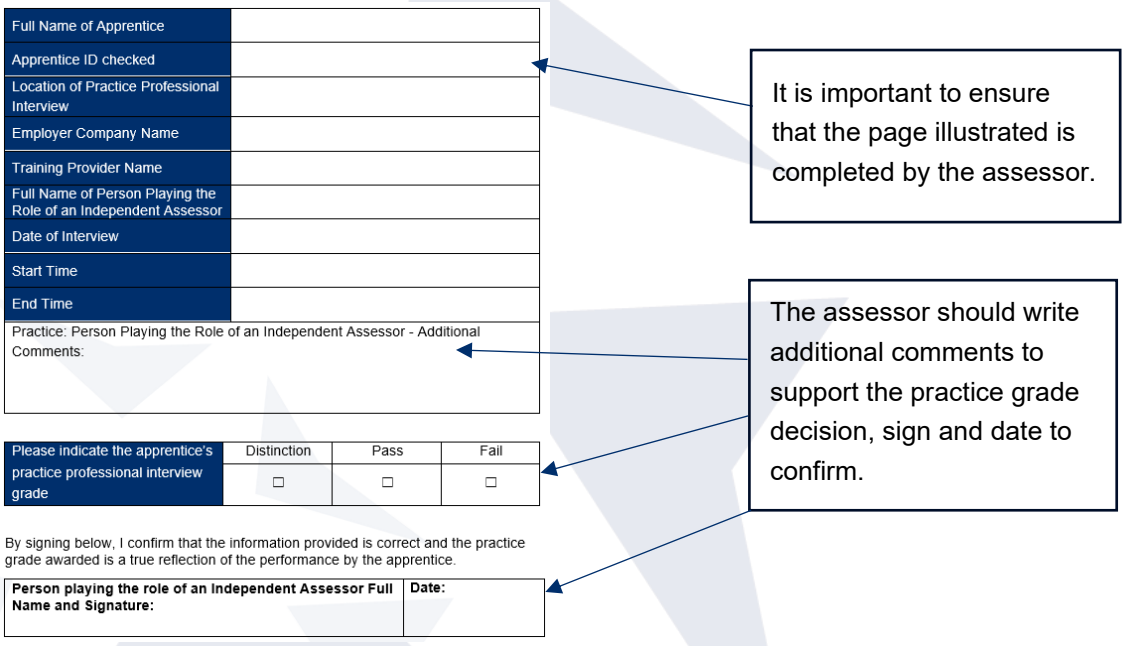
This template has been designed to help the suitable person playing part of the independent assessor and has three purposes:

1. To prepare for a practice assessment
2. Designed to holistically assess a broad range of the skills, knowledge and behaviours developed over the period of the apprenticeship by the apprentice
3. To provide feedback to the apprentice in preparation for the live assessment

The assessor should:

- complete the form below which has two parts to assess the apprentice's Interview.
- review the apprentice's portfolio of evidence before the practice assessment

Quick Tip – How to complete the form below:



Full Name of Apprentice	
Apprentice ID checked	
Location of Practice Professional Interview	
Employer Company Name	
Training Provider Name	
Full Name of Person Playing the Role of an Independent Assessor	
Date of Interview	
Start Time	
End Time	

Practice: Person Playing the Role of an Independent Assessor - Additional Comments:

Please indicate the apprentice's practice professional interview grade	Distinction	Pass	Fail
	☐	☐	☐

By signing below, I confirm that the information provided is correct and the practice grade awarded is a true reflection of the performance by the apprentice.

Person playing the role of an Independent Assessor Full Name and Signature:	Date:

Theme: Environment and sustainability		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors To achieve a Distinction apprentice must demonstrate **all** of the Pass descriptors and **all** of the Distinction descriptors	P/D	Assessor comments to justify the evidence seen and outcomes achieved
Pass: Describes how they consider the impact on the environment and comply with environmental and sustainability regulations including, when disposing of waste, re-cycling or re-using materials, and using resources efficiently. (S3, B2)	☐	
Distinction: Justifies the actions they have taken to comply with environmental and sustainability regulations. (S3)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above.		
Write down the follow up questions asked:		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		

Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐
		Distinction	☐

Check the box for each descriptor the apprentice achieves.

Person playing the Independent Assessor to provide comments to justify the evidence seen.

Check the fail, pass or distinction box to confirm the grade for this group.

Include the page number(s) of where in the EPA portfolio template the evidence has been seen that meets the descriptor.

Develop some open ended questions in relation to the KSBs.

If follow up questions are asked include them here.

Record the time the question is asked.

Heat Network Maintenance Technician Interview

Distribution Systems

Full Name of Apprentice	
Apprentice ID checked	
Location of Practice Interview	
Employer Company Name	
Training Provider Name	
Full Name of Person Playing the Role of an Independent Assessor	
Date of Interview	
Start Time	
End Time	
Practice: Person Playing the Role of an Independent Assessor - Additional Comments:	

Please indicate the apprentice's practice Interview grade	Distinction	Pass	Fail
	☐	☐	☐

By signing below, I confirm that the information provided is correct and the practice grade awarded is a true reflection of the performance by the apprentice.

Person playing the role of an Independent Assessor Full Name and Signature:	**Date:**

Please Note:

To achieve a Pass, the Apprentice must achieve **all** of the Pass descriptors.

To achieve a Distinction the Apprentice must achieve **all** of the Pass and Distinction descriptors.

Fail: The apprentice does not demonstrate the Pass descriptors.

Introduction
At the start of the interview the assessor will: • introduce themselves • state their role • request and confirm ID from the apprentice prior to beginning the assessment • provide the apprentice with information on the format of the interview, including the timescales they will be working to The apprentice will: • confirm their full name and date of birth • give their employer's name • confirm no one else is present in the room, if remote the apprentice should pan camera 360 • confirm they are prepared for the interview; and confirm they can continue with the interview • Confirm that the evidence within the portfolio relates to the KSB's that will be assessed during the interview
Important points to inform the apprentice
• Please do not judge anything by the notes being taken, nor infer anything positive or negative from how long the interview lasts • Please do not consider me rude if I tell you that we need to move onto the next question. This will ensure that you get the opportunity to fully demonstrate your competencies within the time allowed • Please ensure that your mobile is switched off or placed somewhere where you will not be interrupted during the interview • Confirm that a sign is placed on the door of the assessment room: 'Assessment in progress - Do not disturb' Note: The live interview will be fully recorded for the purpose of audit and quality assurance
Assessor Guidance
Delivery • The interview **must last 75 minutes**. An additional 10% is allowed for the apprentice to complete their last answer • The person playing the role of the independent assessor **must ask a minimum of six questions**. • Questions should be adapted to the apprentice's circumstances following a review of their EPA portfolio evidence • Additional follow-up questions are allowed to seek clarification and to make a judgement against each grading descriptor

- Please work through the sections in the order they appear within this document
- All questions and responses must be recorded on this document
- Supply brief written notes where each descriptor has been met
- If the apprentice does not achieve a descriptor, provide written notes that you can feed back to the apprentice to help the apprentice prepare for the live assessment

At the end of the interview - Thank the apprentice for their time

Theme: Environment and sustainability		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors To achieve a Distinction apprentice must demonstrate **all** of the Pass descriptors and **all** of the Distinction descriptors	P/D	Assessor comments to justify the evidence seen and outcomes achieved
Pass: Describes how they consider the impact on the environment and comply with environmental and sustainability regulations including, when disposing of waste, re-cycling or re-using materials, and using resources efficiently. (S3, B2)	☐	
Distinction: Justifies the actions they have taken to comply with environmental and sustainability regulations. (S3)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above.		
Write down the follow up questions asked:		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		

Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐
		Distinction	☐

S3: Comply with environmental and sustainability regulations and requirements, including safe disposal of waste, re-cycling or re-use of materials, and efficient use of resources.
B2: Consider the impact on the environment when using resources and carrying out work.

Theme: Health and Safety		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors To achieve a Distinction apprentice must demonstrate **all** of the Pass descriptors and **all** of the Distinction descriptors	P/D	Assessor comments to justify the evidence seen and outcomes achieved
Pass: Describes how they identify and document hazards and risks in the workplace and how they apply control measures in line with organisational procedures. (K8, S4)	☐	
Pass: Explains the procedure for the recording and reporting of incidents in the workplace. (K8, S4)	☐	
Distinction: Explains how chosen control measures have the potential to minimise risks or hazards. (K8, S4)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above.		
Write down the follow up questions asked:		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		

Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐
		Distinction	☐

K8: Hazard identification techniques, control measures, risk assessment method statements (RAMs), risk management and the recording and reporting of incidents and accidents.
S4: Identify and document hazards and risks in the workplace and apply control measures.

Theme: Communication and working with others		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors To achieve a Distinction apprentice must demonstrate **all** of the Pass descriptors and **all** of the Distinction descriptors	P/D	Assessor comments to justify the evidence seen and outcomes achieved
Communication and documentation		
Pass: Describes how they record or enter information for work tasks in line with organisational procedures: paper-based or electronic. (K24, S15)	☐	
Pass: Describes how they communicate in written form in the workplace using techniques suitable for the context. (K31, S21)	☐	
Pass: Describes how they use verbal communication techniques suitable for the context, adapting style to suit the audience. (K33, S22)	☐	
Information Technology		
Pass: Describes how they use information technology and information systems and comply with GDPR and cyber security to support work tasks. (K37, S23)	☐	
Team working, ethical practices and equity, diversity and inclusion		
Pass: Explains how they apply ethical principles and support an equitable, diverse and inclusive culture in the workplace. (K30, S20, B5, B6)	☐	
Pass: Describes how they apply team working principles to meet their team's work goals. (K29, S19)	☐	
Distinction: Explains how their team focus supports wider teams to meet their goals. (K29, S19)	☐	

Questions asked: Develop open ended questions to help evidence the descriptors above.			
Write down the follow up questions asked:			
Summary of response to question(s):			
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.			
Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐
		Distinction	☐

K24: Documentation: methods and requirements - electronic and paper.
K29: Team working principles.
K30: Equity, diversity and inclusion requirements in the workplace.
K31: Written communication techniques. Plain English principles. Engineering terminology. Report writing.
K33: Verbal communication techniques. Giving and receiving information. Matching style to audience.
K37: Information technology: Management Information Systems (MIS), spreadsheets, presentation, word processing, email, virtual communication and learning platforms. General Data Protection Regulation (GDPR). Cyber security.
S15: Record or enter information - paper based or electronic. For example, energy usage, job sheets and task list, risk assessments, equipment service records, test results, handover documents and manufacturer's documentation, asset management records, work sheets, checklists and waste environmental records.
S19: Apply team working principles.
S20: Apply ethical principles.
S21: Communicate in writing. For example, with colleagues and stakeholders.
S22: Communicate with others verbally, for example, colleagues and stakeholders.
S23: Use information and digital technology. Comply with GDPR and cyber security regulations and policies.
B5: Act ethically.
B6: Support an equitable, diverse and inclusive culture.

Theme: Quality assurance, continual professional development and continuous improvement		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors To achieve a Distinction apprentice must demonstrate **all** of the Pass descriptors and **all** of the Distinction descriptors	P/D	Assessor comments to justify the evidence seen and outcomes achieved
Quality Assurance		
Pass: Describes how they take responsibility for the quality of their work by applying quality assurance procedures and monitoring processes in line with organisational procedures. (K26, S16, B3)	☐	
Distinction: Describes the importance of quality assurance procedures and monitoring processes to the task outcome and the business. (K26, S16)	☐	
Continual professional development and continuous improvement		
Pass: Explains how they have applied continuous improvement techniques to provide a suggestion for improvement to an issue or process in their own work. (K28, S18)	☐	
Distinction: Explains how continuous improvement suggestions they have devised have contributed to the business or the process. (K28, S18)	☐	
Pass: Outlines planned and unplanned learning they have completed and recorded to support competence in their role, showing a commitment to future CPD. (S24, B7)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above.		
Write down the follow up questions asked:		

Summary of response to question(s):			
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.			
Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐
		Distinction	☐

K26: Quality assurance requirements and monitoring processes.
K28: Continuous improvement techniques: lean, 6-sigma, KAIZEN, 5 S (Sort, set, shine, standardise and sustain).
S16: Apply quality assurance procedures and monitoring processes.
S18: Apply continuous improvement techniques. Devise suggestions for improvement.
S24: Carry out and record planned and unplanned learning and development activities.
B3: Take responsibility for the quality of their own work.
B7: Committed to continued professional development (CPD) to maintain and enhance competence in their own area of practice.

Theme: Core maintenance techniques and problem solving		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Core maintenance techniques		
Pass: Explains the end to end process through a heat network upon a customer demanding heat (hot water or heating) within a property with indirect HIU. (K32)	☐	
Pass: Describes how they apply maintenance practices and standards in line with statutory inspection requirements and industry standard SFG20, adapting to work demands and situations. (K12, S6, B8)	☐	
Pass: Describes how they perform remote diagnostics considering the supply system crossover impact, in line with manufacturer's or operating instructions and task requirements. (K27, S17)	☐	
Pass: Describes how they apply techniques to maintain the water network system and repair or replace pipework in line with organisational procedures and task requirements. (K21, K23, S13, S14)	☐	
Pass: Describes how they apply principles and techniques to install and certify electrical wiring to a three phase pump, including testing for live and dead, in line with regulatory standards and guidance and task requirements. (K17, S10, S11)	☐	

Problem solving			
Pass: Describes how they act professionally and apply problem solving techniques when solving problems in line with task requirements. (K25, S27, B4)	☐		
Questions asked: Develop open ended questions to help evidence the descriptors above.			
Write down the follow up questions asked:			
Summary of response to question(s):			
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.			
Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐

K25: Problem solving techniques: diagnostics, root cause analysis, DMAIC (Define, Measure, Analyse, Improve, Control), PDCA (Plan Do Check Act), 5 Whys', Fishbone and Ishikawa.
K32: End to end process through a heat network upon a customer demanding heat (hot water or heating) within a property with indirect HIU (Heat Interface Unit).
S6: Apply maintenance practices and standards.
S10: Test electrical system for live and dead.
S11: Install and certify electrical wiring to three phase pump.
S13: Maintain water network systems, for example cleaning of strainer baskets and heat network water sampling ready for analysis.
S14: Repair or replace pipework.
S17: Perform remote performance diagnostics.
S27: Apply problem solving techniques.
B4: Act professionally.
B8: Respond and adapt to work demands and situations.

Heat Network Maintenance Technician Interview

Residential Systems

Full Name of Apprentice	
Apprentice ID checked	
Location of Practice Interview	
Employer Company Name	
Training Provider Name	
Full Name of Person Playing the Role of an Independent Assessor	
Date of Interview	
Start Time	
End Time	
Practice: Person Playing the Role of an Independent Assessor - Additional Comments:	

Please indicate the apprentice's practice Interview grade	Distinction	Pass	Fail
	☐	☐	☐

By signing below, I confirm that the information provided is correct and the practice grade awarded is a true reflection of the performance by the apprentice.

Person playing the role of an Independent Assessor Full Name and Signature:	**Date:**

Please Note:

To achieve a Pass, the Apprentice must achieve **all** of the Pass descriptors.

To achieve a Distinction the Apprentice must achieve **all** of the Pass and Distinction descriptors.

Fail: The apprentice does not demonstrate the Pass descriptors.

Introduction
At the start of the interview the assessor will: • introduce themselves • state their role • request and confirm ID from the apprentice prior to beginning the assessment • provide the apprentice with information on the format of the interview, including the timescales they will be working to The apprentice will: • confirm their full name and date of birth • give their employer's name • confirm no one else is present in the room, if remote the apprentice should pan camera 360 • confirm they are prepared for the interview; and confirm they can continue with the interview • Confirm that the evidence within the portfolio relates to the KSB's that will be assessed during the interview
Important points to inform the apprentice
• Please do not judge anything by the notes being taken, nor infer anything positive or negative from how long the interview lasts • Please do not consider me rude if I tell you that we need to move onto the next question. This will ensure that you get the opportunity to fully demonstrate your competencies within the time allowed • Please ensure that your mobile is switched off or placed somewhere where you will not be interrupted during the interview • Confirm that a sign is placed on the door of the professional discussion room. Professional discussion in progress 'Do not disturb' Note: The live professional discussion will be fully recorded for the purpose of audit and quality assurance
Assessor Guidance
Delivery • The interview **must last 75 minutes**. An additional 10% is allowed for the apprentice to complete their last answer • The person playing the role of the independent assessor **must ask a minimum of six questions**. • Questions should be adapted to the apprentice's circumstances following a review of their EPA portfolio evidence

- Additional follow-up questions are allowed to seek clarification and to make a judgement against grading descriptor
- Please work through the sections in the order they appear within this document
- All questions and responses must be recorded on this document
- Supply brief written notes where each descriptor has been met
- If the apprentice does not achieve a descriptor, provide written notes that you can feed back to the apprentice to help the apprentice prepare for the live assessment

At the end of the interview - Thank the apprentice for their time

Theme: Environment and sustainability		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors To achieve a Distinction apprentice must demonstrate **all** of the Pass descriptors and **all** of the Distinction descriptors	P/D	Assessor comments to justify the evidence seen and outcomes achieved
Pass: Describes how they consider the impact on the environment and comply with environmental and sustainability regulations including, when disposing of waste, re-cycling or re-using materials, and using resources efficiently. (S3, B2)	☐	
Distinction: Justifies the actions they have taken to comply with environmental and sustainability regulations. (S3)	☐	

Questions asked: Develop open ended questions to help evidence the descriptors above.			
Write down the follow up questions asked:			
Summary of response to question(s):			
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.			
Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐
		Distinction	☐

S3: Comply with environmental and sustainability regulations and requirements, including safe disposal of waste, re-cycling or re-use of materials, and efficient use of resources.
B2: Consider the impact on the environment when using resources and carrying out work.

Theme: Health and Safety		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors To achieve a Distinction apprentice must demonstrate **all** of the Pass descriptors and **all** of the Distinction descriptors	P/D	Assessor comments to justify the evidence seen and outcomes achieved
Pass: Describes how they identify and document hazards and risks in the workplace and how they apply control measures in line with organisational procedures. (K8, S4)	☐	
Pass: Explains the procedure for the recording and reporting of incidents in the workplace. (K8, S4)	☐	
Distinction: Explains how chosen control measures have the potential to minimise risks or hazards. (K8, S4)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above.		
Write down the follow up questions asked:		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		

Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐
		Distinction	☐

K8: Hazard identification techniques, control measures, risk assessment method statements (RAMs), risk management and the recording and reporting of incidents and accidents.
S4: Identify and document hazards and risks in the workplace and apply control measures.

Theme: Communication and working with others		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors To achieve a Distinction apprentice must demonstrate **all** of the Pass descriptors and **all** of the Distinction descriptors	P/D	Assessor comments to justify the evidence seen and outcomes achieved
Communication and documentation		
Pass: Describes how they record or enter information for work tasks in line with organisational procedures: paper-based or electronic. (K24, S15)	☐	
Pass: Describes how they communicate in written form in the workplace using techniques suitable for the context. (K31, S21)	☐	
Pass: Describes how they use verbal communication techniques suitable for the context, adapting style to suit the audience. (K33, S22)	☐	
Information Technology		
Pass: Describes how they use information technology and information systems and comply with GDPR and cyber security to support work tasks. (K37, S23)	☐	
Team working, ethical practices and equity, diversity and inclusion		
Pass: Explains how they apply ethical principles and support an equitable, diverse and inclusive culture in the workplace. (K30, S20, B5, B6)	☐	
Pass: Describes how they apply team working principles to meet their team's work goals. (K29, S19)	☐	
Distinction: Explains how their team focus supports wider teams to meet their goals. (K29, S19)	☐	

Questions asked: Develop open ended questions to help evidence the descriptors above.			
Write down the follow up questions asked:			
Summary of response to question(s):			
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.			
Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐
		Distinction	☐

K24: Documentation: methods and requirements - electronic and paper.
K29: Team working principles.
K30: Equity, diversity and inclusion requirements in the workplace.
K31: Written communication techniques. Plain English principles. Engineering terminology. Report writing.
K33: Verbal communication techniques. Giving and receiving information. Matching style to audience.
K37: Information technology: Management Information Systems (MIS), spreadsheets, presentation, word processing, email, virtual communication and learning platforms. General Data Protection Regulation (GDPR). Cyber security.
S15: Record or enter information - paper based or electronic. For example, energy usage, job sheets and task list, risk assessments, equipment service records, test results, handover documents and manufacturer's documentation, asset management records, work sheets, checklists and waste environmental records.
S19: Apply team working principles.
S20: Apply ethical principles.
S21: Communicate in writing. For example, with colleagues and stakeholders.
S22: Communicate with others verbally, for example, colleagues and stakeholders.
S23: Use information and digital technology. Comply with GDPR and cyber security regulations and policies.
B5: Act ethically.
B6: Support an equitable, diverse and inclusive culture.

Theme: Quality assurance, continual professional development and continuous improvement		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors To achieve a Distinction apprentice must demonstrate **all** of the Pass descriptors and **all** of the Distinction descriptors	P/D	Assessor comments to justify the evidence seen and outcomes achieved
Quality Assurance		
Pass: Describes how they take responsibility for the quality of their work by applying quality assurance procedures and monitoring processes in line with organisational procedures. (K26, S16, B3)	☐	
Distinction: Describes the importance of quality assurance procedures and monitoring processes to the task outcome and the business. (K26, S16)	☐	
Continual professional development and continuous improvement		
Pass: Explains how they have applied continuous improvement techniques to provide a suggestion for improvement to an issue or process in their own work. (K28, S18)	☐	
Distinction: Explains how continuous improvement suggestions they have devised have contributed to the business or the process. (K28, S18)	☐	
Pass: Outlines planned and unplanned learning they have completed and recorded to support competence in their role, showing a commitment to future CPD. (S24, B7)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above.		
Write down the follow up questions asked:		

Summary of response to question(s):			
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.			
Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐
		Distinction	☐

K26: Quality assurance requirements and monitoring processes.
K28: Continuous improvement techniques: lean, 6-sigma, KAIZEN, 5 S (Sort, set, shine, standardise and sustain).
S16: Apply quality assurance procedures and monitoring processes.
S18: Apply continuous improvement techniques. Devise suggestions for improvement.
S24: Carry out and record planned and unplanned learning and development activities.
B3: Take responsibility for the quality of their own work.
B7: Committed to continued professional development (CPD) to maintain and enhance competence in their own area of practice.

Theme: Core maintenance techniques and problem solving		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Core maintenance techniques		
Pass: Explains the end to end process through a heat network upon a customer demanding heat (hot water or heating) within a property with indirect HIU. (K32)	☐	
Pass: Describes how they apply maintenance practices and standards in line with statutory inspection requirements and industry standard SFG20, adapting to work demands and situations. (K12, S6, B8)	☐	
Pass: Describes how they perform remote diagnostics considering the supply system crossover impact, in line with manufacturer's or operating instructions and task requirements. (K27, S17)	☐	
Pass: Describes how they apply techniques to maintain the water network system and repair or replace pipework in line with organisational procedures and task requirements. (K21, K23, S13, S14)	☐	
Pass: Describes how they apply principles and techniques to install and certify electrical wiring to a three phase pump, including testing for live and dead, in line with regulatory standards and guidance and task requirements. (K17, S10, S11)	☒	

Problem solving		
Pass: Describes how they act professionally and apply problem solving techniques when solving problems in line with task requirements. (K25, S27, B4)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above.		
Write down the follow up questions asked:		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		

Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐

K25: Problem solving techniques: diagnostics, root cause analysis, DMAIC (Define, Measure, Analyse, Improve, Control), PDCA (Plan Do Check Act), 5 Whys', Fishbone and Ishikawa.
K32: End to end process through a heat network upon a customer demanding heat (hot water or heating) within a property with indirect HIU (Heat Interface Unit).
S6: Apply maintenance practices and standards.
S10: Test electrical system for live and dead.
S11: Install and certify electrical wiring to three phase pump.
S13: Maintain water network systems, for example cleaning of strainer baskets and heat network water sampling ready for analysis.
S14: Repair or replace pipework.
S17: Perform remote performance diagnostics.
S27: Apply problem solving techniques.
B4: Act professionally.
B8: Respond and adapt to work demands and situations.

Theme: Heat meters and network communications		
To achieve a Pass apprentice must demonstrate **all** of the Pass descriptors	P	Assessor comments to justify the evidence seen and outcomes achieved
Pass: Describes how they remove, install and configure residential heat meters, including the setting of network communications in line with manufacturer's or operating instructions and task requirements. (K52, S36)	☐	
Questions asked: Develop open ended questions to help evidence the descriptors above.		
Write down the follow up questions asked:		
Summary of response to question(s):		
Feedback that you can provide to the apprentice if the apprentice has failed to meet the descriptors above.		

Portfolio reference		**Time of question(s)**	
		Fail	☐
		Pass	☐

K52: Residential heat meters: removal and installation techniques, network communication and configuration.
S36: Apply techniques to remove, install, configure and set network communications for residential heat meters.