ENERGY & ENVIRONMENT AWARDS

EEA Level 3 End-point Assessment for Building Services Engineering Craftsperson

Supporting Documents

QAN 610/8153/X

ST0062 V1.1

Supporting Documents for

EEA Level 3 End-point Assessment for Building Services Engineering Craftsperson

QAN 610/8153/X

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Updates to the supporting documents

Since the first publication of Energy & Environment Awards Building Services Engineering Craftsperson (BSEC) Supporting Documents, the following updates have been made.

Version	Date first published	Section updated	Page(s)
v1.0	November 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 the 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

Building Services Engineering Craftsperson
(Standard Version: ST0062 version 1.1)

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		
Achieved Level 3 Heating and Ventilating Craftsperson Qualification		

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 Record of Achievement 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 Building Services Engineering Craftsperson.
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 achieved Level 3 Heating and Ventilating Craftsperson Qualification.
10. The apprentice has compiled and submitted a competent EPA Record of Achievement, on which the professional discussion will be based.
11. 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.
12. The apprentice has been directed to the Energy & Environment Awards Appeals Policy and Complaints Policy.
13. The employer/training provider has given Energy & Environment Awards at least three months' notice of requesting this EPA for this apprentice.
14. 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

EEA L3 Building Services Engineering Craftsperson
Multiple-choice Practice Paper

This practice paper reflects the content and style of the live multiple-choice test and covers all assessment criteria. It contains 30 questions, which is half the length of the live test.

The live test contains 60 questions and has a duration of 90 minutes.

This examination consists of 30 multiple-choice questions.

The Pass mark for this practice paper is 18 correct answers.
A mark of 21 to 23 is awarded a Merit.
A mark of 24 or above is awarded a Distinction.

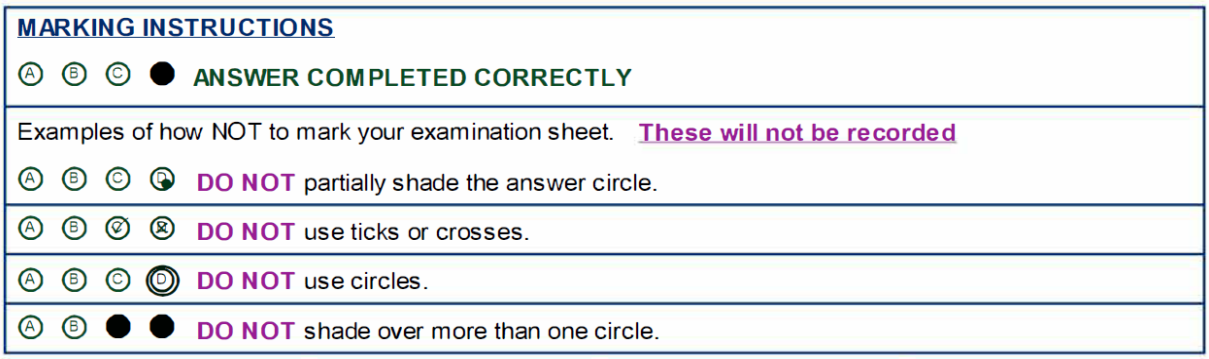
The duration of this examination is 45 minutes.
You must use a **pencil** to complete the answer sheet - pens must NOT be used.
When completed, please leave the examination answer sheet and question paper on the desk.

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	
In accordance with the Control of Substances Hazardous to Health (COSHH) Regulations 2002, employers must:	
Possible answers	
a)	store all substances away from employees who do not use them
b)	carry out risk assessments of hazards to health caused by substances used at work
c)	ensure that employees use the minimum possible quantity of a hazardous chemical
d)	require employees to replace their own personal protective equipment (PPE) if it becomes damaged

Question 2	
A building services engineer is working on a construction site and needs to move a heavy box of fittings from one area to another. According to the Manual Handling Operations Regulations 1992, what should they consider **first** before attempting to lift the box?	
Possible answers	
a)	The weight of the load
b)	The best position to hold the load
c)	Where the load is being moved to
d)	Whether lifting the load can be avoided

Question 3	
When selecting Personal Protective Equipment (PPE), it is important to ensure that the equipment is:	
Possible answers	
a)	CE or UKCA marked to ensure it complies with health and safety regulations
b)	checked by the Health and Safety Executive (HSE) inspector before being used
c)	purchased from suppliers within the United Kingdom
d)	checked by the on-site health and safety officer

Question 4	
The SI unit for pressure is:	
Possible answers	
a)	Pascal
b)	Newton
c)	Joule
d)	Watt

Question 5	
A building services engineer installs a new section of copper cold water pipework to a sink. The customer reports that the water pressure is lower than expected, even though the mains supply is fine. What is the most likely cause of the reduced pressure?	
Possible answers	
a)	The boiler is reducing the cold water pressure
b)	The sink is located too close to the water main
c)	A restriction in the pipework, such as a partially closed valve
d)	Cold water loses pressure as it travels through copper pipe

Question 6	
A commercial heating circuit circulates water at a mass flow rate of 0.50 kg/s. The difference between the flow and return temperatures is 10 K. Using a specific heat capacity for water of 4.18 kJ/kg·K, what heat output is being transferred? Use: Heat output = mass flow rate × specific heat capacity × temperature difference	
Possible answers	
a)	19.9 kW
b)	20.4 kW
c)	20.9 kW
d)	21.4 kW

Question 7	
A client wants to reduce the operating costs of an existing heating system without replacing the boiler. Which measure is most likely to improve energy efficiency?	
Possible answers	
a)	Increase the system operating pressure
b)	Increase flow temperatures throughout the building
c)	Balance the heating system and insulate exposed distribution pipework
d)	Remove distribution pipe insulation and use the exposed pipework to heat surrounding spaces

Question 8	
A building services engineer is replacing sections of steel and copper pipework in a commercial plantroom. Once the work has been completed there are several offcuts and fittings left over that cannot be reused. How should they manage this waste in an environmentally responsible way?	
Possible answers	
a)	Place all waste into the general skip to save time
b)	Leave the waste in the plantroom for the next team
c)	Mix metal waste with insulation waste to reduce bin usage
d)	Segregate metals into the correct recycling streams according to site waste procedures

Question 9	
The main purpose of a work programme is to:	
Possible answers	
a)	record subcontractor costs and payment dates
b)	identify staffing levels and overtime requirements
c)	list the tools and equipment required for the work
d)	set out the sequence and timing of work activities

Question 10	
When working on a large construction project, where would a building services engineer find specific technical information about a pipework fitting?	
Possible answers	
a)	Work programmes
b)	Method statements
c)	Building regulations
d)	Manufacturers' data sheets

Question 11	
A four-day installation is halfway through its planned duration. The work programme shows that half the work should have been completed, but only a third has been. What should the person overseeing the team do to address the delay?	
Possible answers	
a)	Record the delay, identify its cause, assess the impact on resources and report the proposed corrective action
b)	Mark the work as 50% complete because half of the planned installation period has passed
c)	Wait until the fourth day before assessing whether the installation will finish on time
d)	Increase the team's working speed without reviewing the cause of the delay

Question 12	
A supplier delivers copper pipe, fittings, and valves to a busy commercial site. The work area is shared with other trades, and there is limited space inside the building. Where is the most appropriate place to store the materials?	
Possible answers	
a)	By the closest emergency exit
b)	In an area designated for those materials
c)	Close to the installation area to reduce handling
d)	With other materials in an area convenient for access

Question 13	
A building services engineer is asked to replace a section of pipework in a busy corridor of an existing building. Staff and visitors regularly move through the area, and the work must be completed during normal operating hours. How should the building services engineer prepare the work area to maintain safe access for building users?	
Possible answers	
a)	Direct building users around the work area as they approach
b)	Place equipment across the corridor to restrict access to the work area
c)	Position tools and equipment so building users can navigate around the work area
d)	Set up barriers and signage while maintaining safe access routes around the work area

Question 14	
The main purpose of pre-installation checks for a building services installation is to confirm that the:	
Possible answers	
a)	work area, materials, tools, access and existing services are ready for the planned work
b)	system will meet the commissioning and handover requirements once complete
c)	installation team will be able to use all materials allocated to the work package
d)	final installation will match the maintenance programme and operating instructions

Question 15	
Which ONE of the following systems is typically operated as a closed, pressurised circuit?	
Possible answers	
a)	Rainwater harvesting
b)	Condensate drainage
c)	Potable water distribution
d)	Heating flow/return circuits

Question 16	
A building services engineer is installing prefabricated pipe modules in a commercial plantroom. The modules do not align with the on-site pipe centres. The most appropriate action for them to take is to:	
Possible answers	
a)	ignore the misalignment
b)	force the pipework into position
c)	cut out sections of the module to adjust alignment
d)	verify dimensions before modifying any components

Question 17	
During an inspection of a newly installed hot-water distribution pipe, a building services engineer notices the pipe is rigidly fixed at every support, and no allowance has been made for thermal movement. What action should they take?	
Possible answers	
a)	Leave the supports unchanged to prevent all pipe movement
b)	Add more rigid supports to distribute the thermal movement evenly
c)	Check the approved design and report any installation errors
d)	Loosen every support so the pipe can move freely in all directions

Question 18	
What action should be taken if the flux coating on a welding electrode is chipped or damaged?	
Possible answers	
a)	Continue welding as long as possible
b)	Only use it on the down hand position
c)	Gradually increase the amperage
d)	Stop and replace it with a new one

Question 19	
When used in welding processes, the acronym MMA stands for:	
Possible answers	
a)	Metal Material Arc
b)	Manual Metal Arc
c)	Mechanised Material Access
d)	Mixed Metal Applications

Question 20	
The primary function of an expansion vessel in a heating system is to:	
Possible answers	
a)	remove dissolved air from the system
b)	store additional heated water for circulation
c)	increase system pressure during peak demand
d)	accommodate thermal expansion and maintain stable pressure

Question 21	
An existing commercial heating circuit must be removed while the adjacent building systems remain operational. What must be done before cutting into the pipework?	
Possible answers	
a)	Confirm the correct circuit and confirm it is securely isolate, cooled and drained in line with the approved procedure
b)	Close the nearest control valve, open an air vent and start cutting when the pressure gauge falls
c)	Drain the lowest terminal unit and assume that all higher pipework is empty and depressurised
d)	Switch off the local pump and cut into the return pipe because it will be at the lower temperature

Question 22	
A building services engineer is preparing to decommission a commercial gas-fired heating system that was recently operational. Which ONE of the following is the most important initial action?	
Possible answers	
a)	Isolate and secure all energy sources, and confirm isolation before work begins
b)	Remove all warning signs to prevent confusion among building occupants
c)	Drain the heating system and remove the boiler immediately
d)	Disconnect the flue system to improve access to the boiler

Question 23	
During commissioning of a 2-pipe heating system, several radiators on the far end of the circuit remain lukewarm. What is the most appropriate corrective action?	
Possible answers	
a)	Increase the boiler flow temperature by 20°C
b)	Close all thermostatic radiator valves (TRVs) fully to reset the system
c)	Reduce the system pressure to encourage circulation
d)	Balance the system by adjusting lockshield valves

Question 24	
A biomass boiler is producing excessive ash and the flue gas temperature is unusually high. The most likely cause is the:	
Possible answers	
a)	boiler is too small for the building
b)	fuel hopper is overfilled
c)	water temperature is too low
d)	fuel moisture content is too high

Question 25	
During commissioning of a commercial gas burner, a yellow, lazy flame is observed. What is the most likely cause?	
Possible answers	
a)	Excessive gas pressure
b)	Burner nozzle is too large
c)	Flue temperature is too low
d)	Insufficient primary air

Question 26	
Which of the following fuels can be used in a biomass boiler?	
Possible answers	
a)	Wood pellets or logs
b)	Petrol or diesel
c)	Natural gas
d)	Coal

Question 27	
A building services engineer becomes aware of changes to industry guidance relevant to their work. What action should they take?	
Possible answers	
a)	Complete the scheduled mandatory company training in three months' time
b)	Ask a colleague to review how the changes affect their work
c)	Continue using their existing working methods until their next formal qualification
d)	Review the changes and amend their working practices as necessary

Question 28	
Recognising the limits of their own competence helps a building services engineer to:	
Possible answers	
a)	identify when further training or support may be needed
b)	decide which work should be completed as a priority
c)	determine how long a task would take
d)	decide how to complete unfamiliar tasks efficiently

Question 29	
A building services engineer realises they have made a mistake that means the completed work does not comply with relevant regulations. What should they do?	
Possible answers	
a)	Wait until the work is next inspected before taking action
b)	Monitor the work to see if the mistake causes a problem
c)	Report the mistake and take appropriate action to address it
d)	Ask a colleague to decide if the mistake is important

Question 30	
Which ONE of the following **best** describes working ethically?	
Possible answers	
a)	Acting honestly and with integrity
b)	Working independently whenever possible
c)	Completing work within agreed timescales
d)	Working quickly and efficiently

End of Questions.

Practice Multiple-choice Test

Answer scheme

Question	Answer	Question	Answer
1	B	16	D
2	D	17	C
3	A	18	D
4	A	19	B
5	C	20	D
6	C	21	A
7	C	22	A
8	D	23	D
9	D	24	D
10	D	25	D
11	A	26	A
12	B	27	D
13	D	28	A
14	A	29	C
15	D	30	A

Appendix D: Practice Skills Test Template

Employers/training providers are recommended to arrange for apprentices to carry out a Skills Test prior to end-point assessment. The Skills Test comprises two parts:

Part 1: Preliminary activities

- Apprentices will design a pipework fabrication and installation based on a system brief

Part 2: Practical activities

- Apprentices will install and commission the systems they have designed in Part 1

Note: The design created in Part 1 is reviewed and amended by the person playing the role of the independent assessor before Part 2 of the Skills Test takes place.

The forms below are for use by the person playing the part of the independent assessor.

Instructions

This should be read in conjunction with the BSEC Specification.

These templates have been designed to help the suitable person playing the part of the independent assessor and have three purposes:

1. To prepare for a practice Skills Test
2. To holistically assess a broad range of the skills 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 forms below for Part 1 and Part 2 of the practice Skills Test.

Quick Tip – How to complete the form below:

Name of Apprentice	

Part 1: Preliminary Activities (3hrs)				
Name of invigilator				
Date		Start Time		End Time

Part 2: Practical Activities (10 hours over 2 days)				
Name of person playing the role of an Independent Assessor				
Date		Start Time		End Time

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

Please indicate the grade achieved in the practice professional discussion	Distinction	Merit	Pass	Fail
	15	10	5	0
	☐	☐	☐	☐

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:**

It is important to ensure that the relevant parts of the page illustrated is completed by the Invigilator and assessor.

The person playing the role of the assessor should indicate the grade achieved in the practice Skills Test .

The person playing the role of the assessor should write additional comments to support the practice grade decision, sign and date to confirm.

Part 1: Preliminary Activities		**Achieved**	**Not Achieved**
Pass	Produced a drawing which is labelled showing components	☐	☐
	Selected suitable components for the fabrication that are to the brief that has been provided	☐	☐
Merit	Produced a drawing which is clearly labelled showing components in the correct position relative to the fabrication they intend to install with minimal feedback or recommendations	☐	☐
Distinction	Produced a drawing which is clearly labelled showing components in the correct position relative to the fabrication they intend to install without any feedback or recommendations	☐	☐
	Presented the work completed in the preliminary activities in a highly professional format (technically accurate, grammatically correct, clear and logically structured)	☐	☐
Assessor comments *(include why criteria were achieved or not achieved, and merit or distinction justification, as applicable)*			

Provide feedback for the apprentice to show where they could improve their skills.

Check the box for each descriptor the apprentice achieves.

Level 3 Building Services Engineering Craftsperson

Practice Skills Test

Name of Apprentice	

Part 1: Preliminary Activities (3hrs)					
Name of invigilator					
Date		Start Time		End Time	

Part 2: Practical Activities (10 hours over 2 days)					
Name of person playing the role of an Independent Assessor					
Date		Start Time		End Time	

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

Please indicate the grade achieved in the practice Skills Test	Distinction	Merit	Pass	Fail
	15	10	5	0
	☐	☐	☐	☐

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:

- Pass: the apprentice must demonstrate all KSB's to the required pass standard
- Merit: the apprentice must meet all Pass requirements and all Merit Criteria
- Distinction: the apprentice must meet all Pass and Merit requirements and all Distinction Criteria
- Fail: the apprentice does not demonstrate the Pass descriptors.

Introduction

The Skills Test comprises of two parts:

Part 1: Preliminary activities

- Apprentices will design a pipework fabrication and installation based on a system brief

Part 2: Practical activities

- Apprentices will install the and commission the systems they have designed in Part 1

Part 1: Preliminary Activities

Part 1: Preliminary Activities assesses the apprentice's ability to design a pipework fabrication and installation from a system brief. Activities to be included are:

- Designing pipe installation from a brief including expansion
- Producing an isometric sketch
- Selecting materials, valves, brackets and fixings from a specification
- Completion of risk assessment and method statement
- Listing tools, equipment and materials

Part 1: Delivery

At the start of Part 1 of the Skills Test the person playing the role of the invigilator will:

- Introduce themselves and confirm their role
- State the date of Part 1 of the Skills Test
- Provide the apprentice with information on the format of Part 1 of the Skills Test, 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 Part 1 of the Skills Test and confirm they can continue with the assessment

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

Part 1: Invigilator Guidance

Delivery

Part 1: Preliminary activities:

- must take 3 hours
- the apprentice must be given a system brief, which they will use to:
  - produce an isometric sketch showing their pipe installation designs
  - produce a materials list for the installations including valves, brackets and fixings
  - list the tools required for the installations
  - complete a risk assessment and method statement covering the manual handling required for the installations

You must:

- ensure the apprentice completes their work under exam conditions
- be as unobtrusive as possible
- explain to the apprentice the format and timescales of the assessment before they start

Part 1: Assessor Guidance

The person playing the role of the independent assessor must review the apprentice's completed pipe installation design against the assessment criteria, recording the outcome on the template provided.

Where corrections are needed:

- annotate the design clearly to show the changes required before it is used in Part 2: Practical activities
- ensure the apprentice's original work remains visible and any assessor corrections are clearly distinguishable

Note: Assessment judgements must be based on the apprentice's original submission, **not** the corrected design.

Part 2: Practical Activities
Part 2: Practical Activities assesses the apprentice's ability to install, commission, test and decommission the pipework fabrication design from Part 1. Activities to be observed are: • Installing pipework to a brief • Filling and testing the system • Commissioning the system • Communicating effectively • Working effectively and efficiently • Taking responsibility • Managing tasks
Part 2: Delivery
At the start of Part 2 of the Skills Test the person playing the role of the invigilator will: • Introduce themselves and confirm their role • State the date of Part 2 of the Skills Test • Provide the apprentice with information on the format of Part 2 of the Skills Test, 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 Part 2 of the Skills Test; and confirm they can continue with the assessment • 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 Skills Test you perform an unsafe act/task which contravenes Health and Safety, I will immediately stop the assessment • Please do not judge anything by me taking notes and you should not infer anything positive or negative from how long the Skills Test lasts

- Ensure that your mobile is turned off or placed somewhere where you will not be interrupted during the Skills Test

Part 2: Assessor Guidance

Delivery

Part 2 of the Skills Test:

- must take 10 hours. The time is split over two days
- apprentices will install, commission, test and decommission the pipework installations they designed in Part 1 of the Skills Test
- They **must** have access to the reviewed and marked design from Part 1

You must:

- observe the apprentice carrying out the task in a simulated environment
- observe apprentices at a ratio of one assessor to four apprentices
- be as unobtrusive as possible
- explain to the apprentice the format and timescales of the Skills Test before they start
- ask questions to understand what the apprentice is doing, without prompting, coaching or directing their work. Questions **must** not be used as a substitute for observing the apprentice demonstrating the required skills.

Part 1: Preliminary Activities		Achieved	Not Achieved
Pass	Produced a drawing which is labelled showing components	☐	☐
	Selected suitable components for the fabrication that are to the brief that has been provided	☐	☐
Merit	Produced a drawing which is clearly labelled showing components in the correct position relative to the fabrication they intend to install with minimal feedback or recommendations	☐	☐
Distinction	Produced a drawing which is clearly labelled showing components in the correct position relative to the fabrication they intend to install without any feedback or recommendations	☐	☐
	Presented the work completed in the preliminary activities in a highly professional format (technically accurate, grammatically correct, clear and logically structured)	☐	☐
Assessor comments *(include why criteria were achieved or not achieved, and merit or distinction justification, as applicable)*			

Part 2: Practical Activities		Achieved	Not Achieved
Pass	Completed the task of planning and producing a fabrication of pipework that is tested and drained within the provided time frame	☐	☐
	Fixed the fabrication securely with suitable use of brackets	☐	☐
	Produced a fabrication that passes a soundness test to industry standards	☐	☐

	Produced a fabrication without damage to fittings and components or tool marks present	☐	☐
	Produced a fabrication with 60% of measurements within the defined tolerance (±2 mm), plumb and level	☐	☐
	Worked safely in accordance with health and safety procedures	☐	☐
	Maintained a safe and clear working environment for the duration of the task	☐	☐
Merit	Completed the task without requesting further materials due to errors or miscalculations	☐	☐
	Avoided damage to fittings and components, avoided tool marks and damage to building fabric and surfaces	☐	☐
	Produced with 70% of measurements within the defined tolerance (±2 mm), plumb and level	☐	☐
Distinction	Completed the task in at least 10% less than the time frame given	☐	☐
	Produced with 80% of measurements within the defined tolerance (±2 mm), plumb and level	☐	☐
	Produced a fabrication which is watertight upon the first soundness test	☐	☐
Questions asked and responses *(if asked)*			
Assessor comments *(include why criteria were achieved or <u>not</u> achieved, and merit or distinction justification, as applicable)*			

Appendix E: Practice Professional Discussion Template

Employers/training providers are recommended to arrange for apprentices to carry out a practice professional discussion prior to end-point assessment.

Instructions

This should be read in conjunction with the BSEC V1.1 Specification.

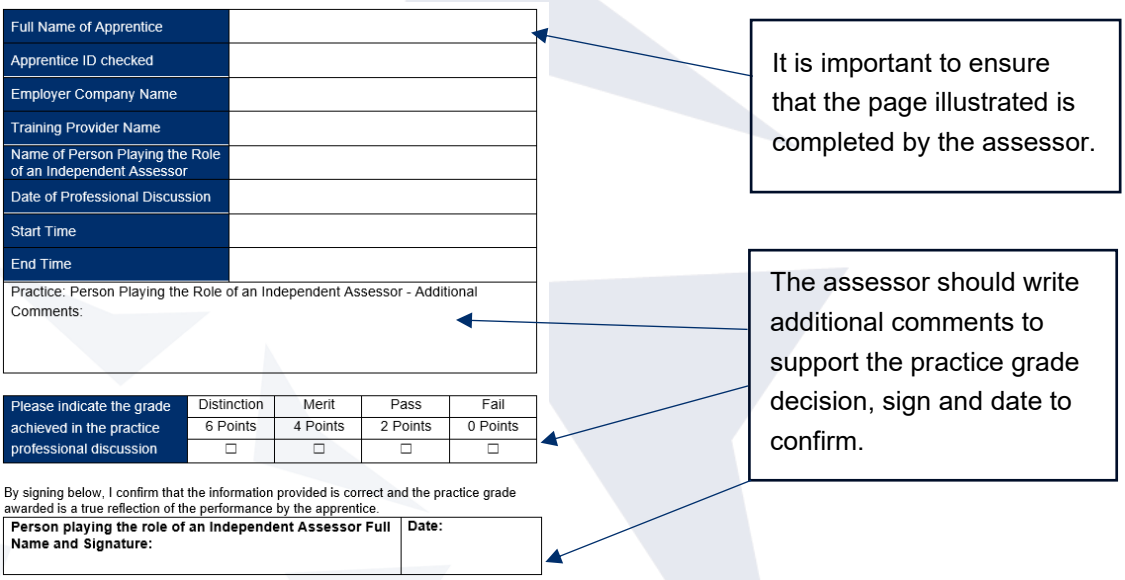
This template has been designed to help the suitable person playing the part of the independent assessor and has three purposes:

1. To prepare for a practice professional discussion
2. 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 three parts to assess the apprentice's professional discussion.
- review the apprentice's record of achievement before the practice professional discussion

Quick Tip – How to complete the form below:



Working Safely		Achieved	Not Achieved
KSB			
S1	**Working safely** Apply relevant safety legislation, codes of practice and safe working practices to self and others in building services engineering working environments	☐	☐
B4	**Taking responsibility** Accept responsibility for the work of self and others under their control	☐	☐

Questions *(tailor to apprentice's record of achievement)*		**Response**
S1		
B4		

Assessor comments *(include clear reasons why the KSBs were achieved or not achieved. Record evidence relevant to Merit or Distinction criteria where applicable)*	Section start time *(from transcript)*

Check the box for each KSB the apprentice achieves.

Develop some open ended questions in relation to the KSBs.

Provide comments to justify the evidence seen.

Record the time the question is asked.

Grading Summary				
	With an emphasis on:	Criteria	Achieved	Not Achieved
Pass	• health and safety • compliance with company procedures • task management • behaviours	Demonstrates an accurate knowledge and ability to apply the relevant skills and behaviours, to the range of systems and their installation requirements	☐	☐
		Is able to answer questions accurately, giving limited explanation or expansion when answering	☐	☐
		Is able to draw on limited examples of their experience to	☐	☐

Check the box for each descriptor the apprentice achieves

Building Services Engineering Craftsperson

Practice Professional Discussion Template

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

Please indicate the grade achieved in the practice professional discussion	Distinction	Merit	Pass	Fail
	6 Points	4 Points	2 Points	0 Points
	☐	☐	☐	☐

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 demonstrate all KSB's to the required pass standard
To achieve a Merit, the apprentice must meet all Pass requirements and all Merit Criteria
To achieve a Distinction, the apprentice must meet all Pass and Merit requirements and all Distinction Criteria
Fail: The apprentice does not demonstrate the Pass descriptors.

Introduction

At the start of the professional discussion the assessor will:

- Introduce themselves
- State their role
- State the date of the professional discussion
- Request and confirm ID from the apprentice prior to beginning the assessment
- Provide apprentice with information on the format of the with questions, 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 their location and that no one else is present in the room, if remote apprentice to pan camera 360°
- Confirm they are prepared for the professional discussion; and confirm they can continue with the professional discussion
- Confirm that the evidence within the portfolio relates to the KSB's that will be assessed during the professional discussion

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 professional discussion 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 professional discussion
- Confirm that a sign is placed on the door of the assessment room. 'Assessment in progress - Do not disturb'

Note: The live professional discussion will be fully recorded for the purpose of audit and quality assurance

Independent Assessor Guidance
Delivery • The professional discussion must last 60 minutes • Questions should be adapted to the apprentice's circumstances following a review of their record of achievement 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 • Answers to questions must be recorded. Timeline each question to the recording. Only log the time for the start of each question asked • 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 professional discussion - Thank the apprentice for their time

Working Safely		Achieved	Not Achieved
KSB			
S1	**Working safely** Apply relevant safety legislation, codes of practice and safe working practices to self and others in building services engineering working environments	☐	☐
B4	**Taking responsibility** Accept responsibility for the work of self and others under their control	☐	☐

Questions *(tailor to apprentice's record of achievement)*		**Response**
S1		
B4		

Assessor comments *(include clear reasons why the KSBs were achieved or not achieved. Record evidence relevant to Merit or Distinction criteria where applicable)*	Section start time *(from transcript)*

Planning, Preparing and Working Sustainably		Achieved	Not Achieved
KSB			
K4	**Planning** Understand how to utilise resources effectively within building services engineering including the roles and responsibilities of relevant people, how to oversee work; how to produce risk assessments and method statements and how to plan work programmes for self and small teams installing industrial and commercial systems	☐	☐

S2	**Planning** Plan, organise and undertake the installation of industrial and commercial systems in ways which use resources effectively to complete work, with consideration for cost, quality, safety, security and environmental impact, within relevant legislative requirements, codes of practice and industry recognised practices	☐	☐
K5	**Preparation** Understand the preparation requirements for work areas in new and existing building services engineering sites	☐	☐
S3	**Preparation** Prepare work areas in new and existing sites to undertake building services engineering industrial and commercial systems installation	☐	☐
B5	**Managing tasks** Accept, allocate and supervise technical and other tasks	☐	☐

Questions *(tailor to apprentice's record of achievement)*		**Response**
K4		
S2		
K5		
S3		
B5		

Assessor comments *(include clear reasons why the KSBs were achieved or not achieved. Record evidence relevant to Merit or Distinction criteria where applicable)*	Section start time *(from transcript)*

Installing pipework		**Achieved**	**Not Achieved**
KSB			
K6	**Pipework** Understand pipework fabrication and jointing techniques for industrial and commercial systems, including prefabricated And or modularised components and distribution systems	☐	☐
S4	**Pipework** Apply pipework fabrication and jointing techniques for industrial and commercial systems, including prefabricated and or modularised components and distribution systems and natural gas distribution pipework	☐	☐

Questions *(tailor to apprentice's record of achievement)*	**Response**
K6	
S4	

Assessor comments *(include clear reasons why the KSBs were achieved or not achieved. Record evidence relevant to Merit or Distinction criteria where applicable)*	Section start time *(from transcript)*

Installing systems		**Achieved**	**Not Achieved**
KSB			
K8	**Water and heating systems** Understand the design principles, layout, and operating principles, installation, testing, pre-commissioning, commissioning and decommissioning techniques for new and existing industrial and commercial cold water systems, hot water systems, heating systems, chilled water systems, compressed air systems and steam systems	☐	☐
S5	**Installing systems** Apply installation, testing, pre-commissioning, commissioning and decommissioning techniques for industrial and commercial; cold water systems; hot water systems, heating systems, chilled water systems	☐	☐
K9	**Fuel Systems** Understand the principles and requirements of industrial and commercial gas, oil and solid fuel systems and mechanical sustainable energy systems	☐	☐
B3	**Problem Solving** Solve problems within their own scope of responsibility, by applying technical and behavioural skills and knowledge to define the problem, identify, evaluate and select alternatives and implement solutions	☐	☐
Questions *(tailor to apprentice's record of achievement)*	**Response**		

K8		
S5		
K9		
B3		

Assessor comments *(include clear reasons why the KSBs were achieved or not achieved. Record evidence relevant to Merit or Distinction criteria where applicable)*	Section start time *(from transcript)*

Communicating and working with others		**Achieved**	**Not Achieved**
KSB			
B1	**Communicating effectively** Use oral, written and electronic methods to communicate technical and other information effectively with work colleagues, other tradespeople, clients representatives, supervisors, and other members of the building services engineering and wider construction team	☐	☐
B2	**Work effectively** Work reliably and effectively without supervision, to the appropriate codes of practice and be aware of the needs and concerns of others, especially where related to diversity and equality	☐	☐
B6	**Working with others** Work effectively with colleagues, the public, other tradespeople, clients representatives, supervisors, and other members of the building services engineering and wider construction team	☐	☐

B7	**Learning and development** Support the learning and development of others through activities such as mentoring, and sharing professional expertise and knowledge	☐	☐
B8	**CPD** Maintain and enhance competence in own area	☐	☐
B9	**Working ethically** Exercise responsibilities in an ethical manner	☐	☐

Questions *(tailor to apprentice's record of achievement)*		**Response**
B1		
B2		
B6		
B7		
B8		
B9		

Assessor comments *(include clear reasons why the KSBs were achieved or not achieved. Record evidence relevant to Merit or Distinction criteria where applicable)*	Section start time *(from transcript)*

	Grading Summary			
	With an emphasis on:	Criteria	Achieved	Not Achieved
Pass	• health and safety • compliance with company procedures • task management • behaviours	Demonstrates an accurate knowledge and ability to apply the relevant skills and behaviours, to the range of systems and their installation requirements	☐	☐
		Is able to answer questions accurately, giving limited explanation or expansion when answering	☐	☐
		Is able to draw on limited examples of their experience to answer questions	☐	☐
		Show a basic but accurate understanding of relevant knowledge, skills and behaviours	☐	☐
Merit	• communication and working with others • time management and attendance	Demonstrates a comprehensive knowledge and ability to apply skills and behaviours	☐	☐
		Is able to answer questions comprehensively and provide supporting explanations	☐	☐
		Is able to draw on a wide range of examples and experience to answer questions	☐	☐
		Consistently shows attention to detail	☐	☐
Distinction Criteria	• working independently and taking responsibility • management of site personnel or task allocation • problem solving	Demonstrates an exceptional knowledge and ability to apply skills and behaviours	☐	☐
		Is able to provide expansive detailed answers to the questions	☐	☐
		Is able to draw on an extensive range of examples experiences, giving considered answer that show in-depth understanding	☐	☐

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