

## **ASSESSMENT PLAN FOR BUILDING SERVICES ENGINEERING TECHNICIAN (LEVEL 4)**

### **Summary of Assessment**

The Level 4 Building Services Engineering Technician Standard is designed to create highly skilled employees who can contribute to the success of complex construction projects by demonstrating skills, knowledge and behaviours in key aspects of the installation of building services equipment, such as mechanical and electrical services and the co-ordination of site activities as well as contributing to wider project objectives.

Building Services Engineering Technicians will be working on construction sites and as well as being able to deliver their own technical responsibilities they will also need to supervise and co-ordinate a workforce involved in the delivery of trades activities and ensure their safety and the safety of others. There will also be some liaison with third parties such as design teams, clients and statutory authorities.

Due to the technical nature of the role it is essential that apprentices are educated and trained to a level and breadth that exceeds that of the trades-based workforce that they are supervising and co-ordinating and that they achieve a level of professional membership with the appropriate professional body to demonstrate their acquisition of the skills, knowledge and behaviour required by the apprenticeship.

Successful completion of the Apprenticeship Standard demonstrates that the apprentice has the skills, knowledge and behaviours to work competently as a Building Services Engineering Technician.

This assessment plan ensures that successful candidates will have satisfied the requirements for registration as an Engineering Technician with the relevant Professional Engineering Institution (PEI) as the first step in their career as an engineer. Engineering Technician (EngTech) is an internationally recognised benchmark of competence.

The duration of the apprenticeship will typically be three years for new entrants. The End-point Assessment (EPA) will be in two stages and typically undertaken in the last three months of the apprenticeship.

The EPA consists of two distinct methods: A presentation and structured interview. There are two stages to the EPA – a preparation and a face to face stage.

Stage 1 – is the preparation for the presentation and structured interview. It will consist of:

- A project which will test the apprentice's ability to integrate the knowledge, skills and behaviours acquired during the apprenticeship by developing a response to a technical brief set by the assessment organisation, with a number of options and a rationale for the choice of one as the optimum solution
- A written report of 1500-1600 words which demonstrates how, in the course of their apprenticeship, the apprentice has integrated the knowledge, skills and behaviours to be

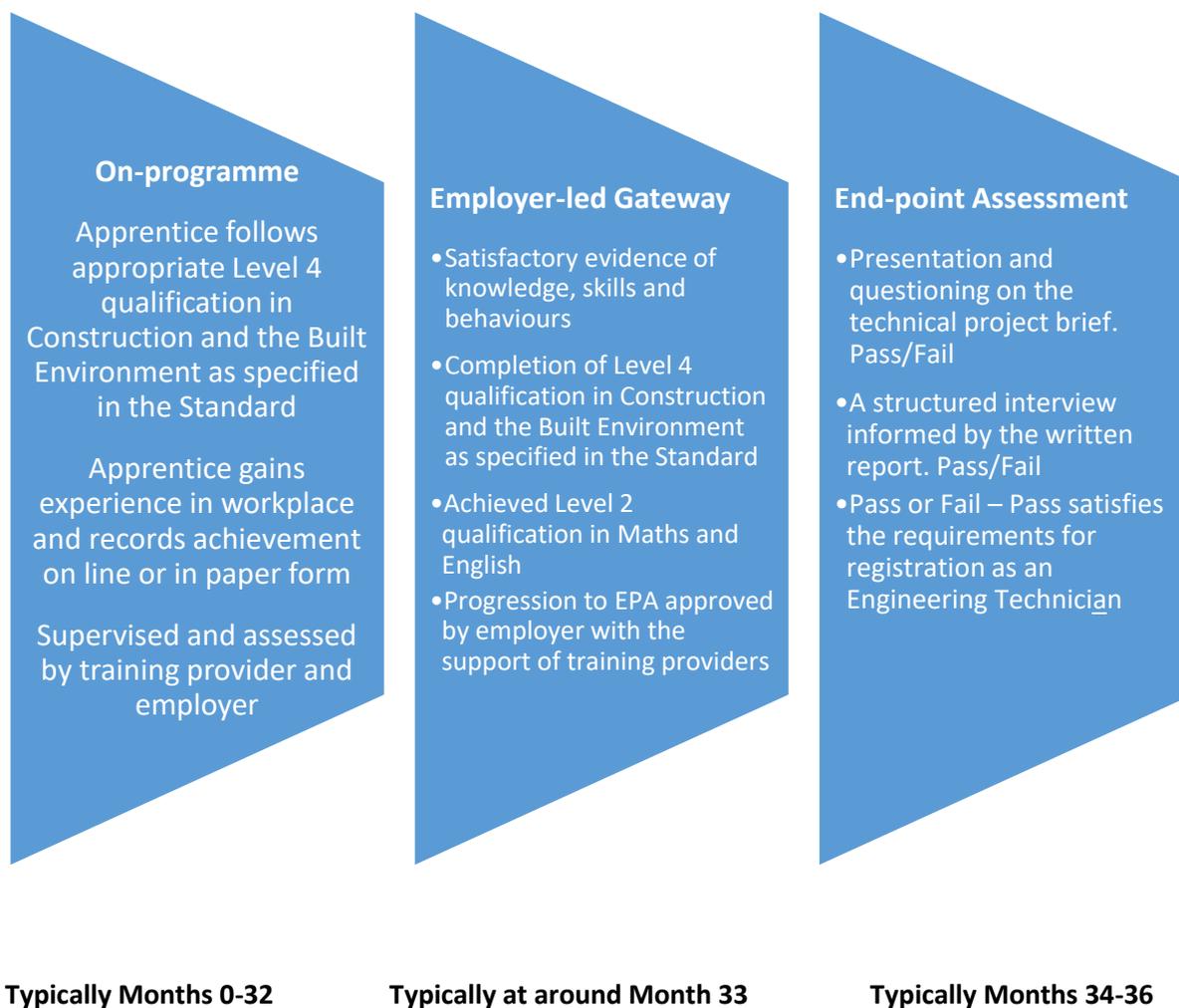
a competent Building Services Engineering Technician. The report is verified by a professionally qualified engineer and will be used to inform the structured interview.

Stage 2 – is the face to face stage which will consist of:

- A 10 minute presentation by the apprentice to the Assessor Panel showcasing their response to the project brief, which will be supported by 'hard copy' such as slides and information such as drawings, spreadsheets. This will be followed by 10-15 minutes of questions and discussion. The presentation and questions following this, together with the 'hard copy', will both be marked.
- A 30-40 minute structured interview based on the written report submitted prior to the interview, the purpose being to determine the apprentice's ability to integrate the knowledge, skills and behaviours acquired during the apprenticeship. The written report will not be marked.

To be successful the apprentice must pass the Presentation and Structured Interview. The presentation is supported by a technical project brief which will be graded as part of this assessment method. The structured interview is informed by a written report, which will not be marked as part of this assessment method. The assessment will satisfy the requirements for registration as an Engineering Technician by the Engineering Council. The Assessor Panel will consist of two experienced, qualified and trained Building Services Engineers nominated by the relevant End point assessment (EPA) organisation. Benchmarking the EPA against the Engineering Council UK-SPEC requirements for EngTech means that the assessment outcomes will be consistent and reliable, allowing a fair and proper comparison between apprentices employed across the UK in different types and sizes of organisations.

The standard not only prepares apprentices for key job roles but also provides them with the foundation to be able to move onto the Level 6 Degree Apprenticeships in the key construction management disciplines.

Suggested StructureAssessment Overview (EPA)

Assessment Method	Area Assessed	Assessed by	Grading
Presentation and questioning on technical project brief	Knowledge, skills and behaviours from across the Standard. Details for each method can be found in Annex A.	Assessor Panel appointed by the relevant assessment organisation	Pass/Fail
Structured interview informed by the written report			Pass/Fail

## Process Summary

Gateway	<p>Satisfactory evidence of knowledge, skills and behaviours as set out in the apprenticeship standard confirmed by the employer</p> <p>Achieved at least a level 2 qualification in Maths and English</p> <p>Achieved the Level 4 qualification in Construction and the Built Environment as specified in the standard</p> <p>Employer confirmation and request for EPA</p>
Technical project brief (to support the Presentation assessment method)	<p>End point assessment organisation issues the technical project brief</p> <p>Apprentice responds to the brief and prepares to deliver a presentation on this. The presentation is the first assessment method.</p>
Written report (to support the Structured Interview assessment method)	<p>Apprentice completes a written report of 1500-1600 words which demonstrates how, in the course of their apprenticeship, they integrated the knowledge, skills and behaviours needed to be a competent Building Services Engineering Technician. This report is verified by a professionally qualified engineer, submitted by the apprentice and will be used to inform the areas to be explored in structured interview. The structured interview is the second assessment method.</p>
Review of written report	<p>Two trained and qualified assessors review the written report and assess it against all of the knowledge, skills and behaviours listed in the apprenticeship standard and agree areas that need to be explored further as part of the interview. The interview questions will focus on 4 main areas in the context of the occupational specialism demonstrated in the written report. The written report is not marked. This is in line with Engineering Council requirements.</p>
Presentation (informed by the technical project brief)	<p>Apprentice makes a 10 minute presentation to the Assessor Panel on their response to the technical project brief followed by 10-15 minutes of questions and discussion. The presentation and questions following this, together with the 'hard copy', will be marked.</p>
Structured Interview (informed by the written report)	<p>This is followed by a 30-40 minute interview informed by the written report. The purpose of the interview is for the Assessor Panel to be confident that the apprentice has acquired and can use all the knowledge, skills and behaviours needed to be a competent Construction Site Engineering Technician.</p>

Decision	The Assessor Panel submits the completed knowledge, skills and behaviours Assessment Form, along with a recommendation as to whether or not the apprentice has successfully passed the EPA and satisfied the requirements for registration as an Engineering Technician, to the relevant PEI.
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### **On-programme Assessment**

The apprentice will demonstrate their progress through achievement of a Level 4 qualification in Construction and the Built Environment as specified in the Standard. The maintenance of an online or paper-based portfolio of evidence which demonstrates how the apprentice has met each of the Knowledge, Skills and Behaviours statements in the Standard is recommended. It is recommended that these should be supervised by in-company mentors and training providers and tested by external assessors and verifiers.

### **Assessment Gateway**

Readiness for the End-point Assessment will be decided by the employer in consultation with the training provider.

The apprentice will need to demonstrate satisfactory completion of all aspects of their apprenticeship before they are able to undertake the EPA, including having achieved Level 2 Maths and English. Specifically, they must have:

1. Achieved the Level 4 qualification in Construction and the Built Environment specified in the standard. The precise requirements for this are outlined in the Employer Occupational Brief (which will be published at [www.goconstruct.org](http://www.goconstruct.org)). Proof of achievement of the appropriate Level 4 qualification may be evidenced by a certificate.
2. Gained the experience required to be recommended for the EPA by demonstrating all the knowledge, skills and behaviours in the Standard to the employer's satisfaction.
3. Passed English and Maths at Level 2.

This will enable the apprentice to be recommended for the End-point Assessment by their employer. It is recommended that the employer recommendation is a senior manager responsible for apprentices or a Director, depending on the size of the company and its structure.

### **End-point Assessment**

#### **What will be assessed?**

The apprentice will be expected to demonstrate through a presentation setting out their response to a technical project brief and a structured interview informed by a written report, that they have acquired the knowledge, skills and behaviours as described by the statements in the Standard and

can, through their integration, competently undertake the role of a Building Services Engineering Technician. See Annex A for a mapping of the Standard against the assessment methods.

### How will it be assessed?

The assessment organisation will ensure their assessment process is aligned to the Engineering Council Engineering Technician review process.

Throughout the End Point Assessment the apprentice will need to include how they have, or would, use Building Information Modelling (BIM) to access and work with data.

The assessment will be in two stages:

**STAGE 1 – is the pre-work necessary to prepare for the presentation and interview.** Completing the project and written report will take 6 weeks in total.

### **Technical Project Brief**

The assessment organisation will provide the apprentice with a technical project brief, which will be assessed as part of the presentation. The apprentice will make a ten minute presentation to the Assessor Panel on their response to the technical project brief, which will be supported by 'hard copy' such as slides and information such as drawings, spreadsheets. The presentation and questions following this, together with the 'hard copy' will be marked.

The purpose of the brief is to set the apprentice a task which will assess their ability to integrate a range of knowledge, skills and understanding they have acquired during their apprenticeship. For detail on areas covered see Annex A.

A bank of technical project briefs will be developed and maintained securely by the assessment organisation (using the expertise of the members of the assessment organisation's register of assessors). The bank will be reviewed and refreshed every two years to ensure alignment with technical and legislative updates. Each project brief will comply with the knowledge, skills and behaviours in the standard and meet the demand for consistent content, depth and breadth.

### **Criteria for the Project Brief**

The bank of project briefs will need to cover the range of building services engineering specialisms and employment sectors that apprentices may be employed in. Each project brief will be a maximum of 500 words and designed to take 25-30 hours to complete. Generically responding to the project brief will require research and preparing material for the presentation and include a requirement for:

A project plan summarising the actions needed to complete the task, with a timeline

Calculations and drawings appropriate for Level 4

Reference to:

- Relevant scientific and engineering principles
- Relevant legislation and standards
- Health and safety considerations
- Any environmental sustainability concerns

At least two options proposed with a rationale for the chosen option

A reflective evaluation as to how the apprentice went about the process of producing the response to the project brief – what worked, what didn't work, obstacles that needed to be overcome and how this was achieved and what they would do differently next time

**Written Report (1500-1600 words)** – the apprentice will submit a reflective account which gives:

- A minimum of two and a maximum of four examples of tasks undertaken in the course of their apprenticeship to demonstrate where the Apprentice solved a technical problem, explaining their role and how they selected the appropriate techniques, procedures and methods used. The report prepared by the Apprentice would explain any scientific, technical or engineering principles used, how the findings/recommendations were made, what they did for their employer or other people involved, such as clients or suppliers and include anything they did to ensure the safety of people, equipment or data.
- A minimum of two and a maximum of four examples to demonstrate how they identified, planned and organised the resources needed to effectively complete a project or task, explaining how the Apprentice took into consideration cost, quality, safety and any environmental impact. The report should make reference to what equipment was used, how data was gathered and analysed and how the Apprentice initiated the project to produce the desired outcome
- A minimum of two and a maximum of four examples to demonstrate how the Apprentice has complied with the PEI's Code of Conduct, how the Apprentice keeps in touch with developments in their technical area and how the Apprentice intends to continue to develop their knowledge and skills

A registered member of a PEI (IEng or CEng) who works with the Apprentice will verify that the work submitted in the written report has been carried out by the Apprentice. The apprentice will have six weeks to complete the written report and will submit it electronically to the assessment organisation at least three weeks ahead of the date of the presentation and structured interview.

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Two trained and qualified assessors will review the written report against the knowledge, skills and behaviours listed in the Apprenticeship Standard, record their findings against the relevant knowledge, skill and/or behaviour and agree areas that need to be explored further as part of the interview. The written report will not be marked.

**STAGE 2 – is the Presentation and Structured Interview.** It is anticipated that the time from submission of the written report to interview will be 3-4 weeks.

The Assessor Panel of two qualified and trained and independent assessors will assess both elements of the EPA.

**Presentation** – The Apprentice will have nine weeks to prepare for the presentation (six weeks alongside completing the written report and a further three weeks after submission of the written report) to prepare their presentation. They will give a ten minute presentation showcasing their response to the technical project brief. The Assessor Panel will be made aware of the content of the project brief three weeks in advance of the presentation. The presentation must be supported by 'hard copy' such as slides, drawings, spreadsheets. There should be a maximum of 20 slides and 20 pieces of information. The apprentice will have prepared the 'hard copy' beforehand and it will be made available at the start of the presentation. The presentation will be followed by 10-15 minutes of question and discussion. The presentation and subsequent questions and discussion will, together with the 'hard copy' be used to determine the apprentice's ability to undertake the project. The presentation and discussion will be marked on the documentation provided by the End-point Assessment organisation according to the grading criteria set out in this Assessment Plan and awarded a mark of Pass or Fail. The presentation will take place in a quiet room free from distractions and influence with electronic projector and screen set up in advance of the presentation.

**Structured Interview** – This is then followed by a 30-40 minute structured interview with members of the Assessor Panel. The purpose of the interview is so that the Assessor Panel members can assure themselves that the Apprentice has the competence to work as a Building Services Engineering Technician.

The questions should focus on four main areas in the context of the occupational specialism in the written report. At least one question must be asked for each of the four areas.

Technology and problem-solving – questions about the use of software tools in design, data collection, engineering, planning and quality control; awareness of the range of factors affecting the choice of engineering solutions; choices of systems and components; health and safety; environmental impact and sustainability; whole-life costing.

Management – questions about working to quality, time and budget; planning workload; the importance of technical standards and procedures; keeping proper records.

Communication – questions exploring examples of technical and non-technical presentations and reports, working as part of a team

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Commitment and ethics – questions about client confidentiality, the importance of safe systems of work, the need for sustainable solutions and professional development.

The structured interview will be marked according to the grading criteria set out in this Assessment Plan and awarded a mark of Pass or Fail.

To achieve an overall Pass for the EPA the Apprentice must gain a pass grade for both the presentation and the structured interview.

The presentation and structured interview can be either face-to-face or remotely via a video link. It will be the same process whichever meeting style is used. The EPAO must ensure that the apprentice is not disadvantaged if the video link option is chosen. The presentation and interview will both take place on the same day. These will be recorded for training and quality assurance purposes.

### **What will the Apprentice have to do?**

Prepare and present a response to a technical project brief including any handouts and/or slides

Submit a written report on the knowledge, skills and behaviours acquired during the apprenticeship

Attend an interview

- Make a ten minute presentation showcasing their response to the project brief, answer questions and take part in a discussion based on the presentation
- Take part in a structured interview

### **Where will the assessment take place?**

The presentation and interview will be set up by the assessment organisation in a suitable venue to minimise travel wherever possible by the Apprentice and the assessors. In exceptional circumstances, for example if the Apprentice is working in a remote location, the option of an interview by the use of video conference facilities may be used. These would be recorded for quality and training purposes.

### **Who will carry out the assessment and who will be on the Register?**

The EPA will be carried out by an Assessor Panel of two assessors appointed by the relevant assessment organisation which has the ability to assess applicants as Building Services Engineering Technicians and award the status of EngTech.

Following receipt of the application for EPA the assessment organisation will check that all is in order and then select two assessors at least one of whom is matched to the Apprentice's area of specialism.

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The assessment organisation will be on the Register of End Point Assessment Organisations (RoEPAO).

### **Minimum requirements for assessors**

The members of the Assessor Panel are required to be professionally qualified members of a PEI and must have been trained to carry out their role as assessors. Applicants must either be working in the industry or, if not currently working in the industry or recently retired (up to two years), will need to demonstrate that they have maintained links with the industry and current practices. Each application to become an assessor will be evaluated on its own merits. The evaluation process will consider all relevant factors such as a minimum of three years' industry experience, professionally qualified to at least EngTech and having post-professional qualification experience. Once appointed, the assessor will undertake training as required by the assessment organisation and be subject to the assessment organisation's quality assurance process including maintaining and submitting CPD records on request. This training includes how to undertake assessments, marking standardisation, questioning techniques and observing interview and is a tried and tested process within the PEIs which are licensed by the Engineering Council, the UK regulatory body for the engineering profession.

### **How will the panel work and who will have the casting vote?**

The Assessor Panel will be appointed by the assessment organisation.

The Written Report and evidence from the Gateway submitted by the Apprentice will be checked by the assessment organisation's staff to ensure that all is in order before they are passed on to the Assessor Panel members for them to study ahead of the interview. The Assessor Panel members will consider the written report against the knowledge, skills and behaviours from the Standard, along with the grading criteria and decide on the questions to be asked to ensure full coverage of the knowledge, skills and behaviours.. See Annex A for a mapping of the Standard against the assessment methods. The assessors will record their findings for both the presentation and the structured interview on the documentation provided by the End-point Assessment organisation. The assessors will mark each component as pass or fail, backing their decision from the evidence from the various elements of the EPA. To be successful the Apprentice must demonstrate that they have met all of the knowledge, skills and behaviours in the Standard and have obtained a pass grade for both the presentation and structured interview elements of the EPA.

The completed form with the Panel's recommendation will then be submitted to the assessment organisation for audit and approval.

If, after discussion, one or more of the assessors are of the opinion that the required standard has not been achieved then the outcome is a Fail.

### **End-point Assessment – final judgement**

The two assessors will make the final judgement on whether the Apprentice has passed the End-point Assessment. This will be subject to moderation as part of the end-point assessment organisation's internal quality assurance and the Apprentice will be notified within 6 weeks of

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attending the End Point Assessment. To be successful the apprentice must pass the Presentation and Structured Interview. If they pass, then they will be able to apply to register as EngTech with no further assessment process

The relevant assessment organisation will be registered and listed on the Register of End Point Assessment Organisations (RoEPAO).

If the Apprentice has been unsuccessful the employer will have to apply for them to resit/retake the EPA, taking into account assessor feedback on areas where they did not demonstrate competence as evidenced in the summary report on the Assessment Form. A resit does not require further learning, whereas a re-take does.

The feedback will be provided in writing at the same time as the Apprentice is informed that they have failed the EPA. The feedback should provide guidance on what the apprentice failed on but not how to address it. If the Apprentice passes the presentation element they only have to resit/retake the structured interview. The resit/retake must include a structured interview even if it was passed first time round. The resit/retake must be taken within 6 months of the original EPA.

If the apprentice is required to retake the presentation element, then they will need to be issued with a new technical project brief. As they are required to retake the structured interview in any event they will need to re-submit a new written report.

## **Independence**

### **Who is providing the independent EPA?**

The assessment organisation will co-ordinate the entire EPA process and not be involved in any aspect of the delivery of the on-programme assessment and be independent of the employer. The assessment organisation must have systems in place to ensure that if assessors know the apprentice or has links to the training provider or employer they would not be able to take part in the assessment process.

### **How is this deliverable for all employers?**

The interview will be set up by the assessment organisation in a suitable venue to minimise travel wherever possible by the Apprentice and the assessors. In exceptional circumstances, for example if the Apprentice is working in a remote location, the option of an interview by the use of video conference facilities may be used. The EPAO must ensure that the apprentice is not disadvantaged or advantaged whichever style is used. The assessment organisation must ensure that the apprentice is interviewed in a venue that reflects the same level of comfort as for a face to face interview. The recording of the video will ensure that this equivalence can be checked in the light of any issues highlighted by the apprentice or assessors.

**End-point – Grading**

The table below outlines the scoring criteria that will be applied to each assessment method.

EPA method	Pass criteria	Fail criteria
Presentation (based on response to technical project brief. The presentation and questions following this, together with the 'hard copy' will be marked)	Using Annex A provides evidence of knowledge, skills and behaviours required to: <ul style="list-style-type: none"> <li>- Review and select appropriate techniques, procedures and methods to undertake tasks (K3, K5, S3, S5, B7)</li> <li>- Use appropriate scientific, technical or engineering principles (K3, S3, B7)</li> <li>- Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions (K3, K4, K6, S2, S3, S6, B7)</li> <li>- Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact (K4, K5, K6, S4, S5, S6, B6)</li> <li>- Work reliably and effectively without close supervision, to the appropriate codes of practice (K1, K6, S1, S6, B1, B2)</li> <li>- Accept responsibility for work of self or others (K4, K5, S4, S5, B1, B6)</li> <li>- Accept, allocate and supervise technical and other tasks (K4, K5, S4, S5, B5)</li> <li>- Use oral, written and electronic methods for the communication in English of technical and other information (K4, K5, S3, S4, S5, B5, B6)</li> <li>- Work effectively with colleagues, clients, suppliers or the public, and be aware of the needs and concerns of others, especially where related to diversity and equality (K4, S4, B4, B6)</li> </ul>	Fails to provide evidence to meet knowledge, skills and behaviours as required in Annex A for this assessment method

	<ul style="list-style-type: none"> <li>- Comply with the Code of Conduct of the PEI (K1, S1, B2)</li> <li>- Manage and apply safe systems of work (K1, S1, B1, B7)</li> <li>- Undertake engineering work in a way that contributes to sustainable development (K2, S2, B1, B7)</li> <li>- Carry out and record Continuing Professional Development (CPD) necessary to maintain and advance competence in own area of practice (B3)</li> <li>- Exercise responsibilities in an ethical manner (K1, K2, S1, S2, B1, B2)</li> <li>- Show how they have, or would, use Building Information Modelling (BIM) to access and work with data (K3, K5, S3, S5, B5, B6, B7)</li> </ul> <p>To pass the Apprentice must demonstrate achievement of all these grading criteria.</p>	
<p>Structured interview (informed by a written report. The written report will not be marked)</p>	<p>Using Annex A provides evidence of knowledge, skills and behaviours required to:</p> <ul style="list-style-type: none"> <li>- Review and select appropriate techniques, procedures and methods to undertake tasks (K3, K5, S3, S5, B7)</li> <li>- Use appropriate scientific, technical or engineering principles (K3, S3, B7,)</li> <li>- Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions (K3, K4, K6, S2, S3, S6, B7)</li> <li>- Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact (K4, K5, K6, S4, S5, S6, B6)</li> </ul>	<p>Fails to provide evidence to meet knowledge, skills and behaviours as required in Annex A for this assessment method</p>

	<ul style="list-style-type: none"> <li>- Work reliably and effectively without close supervision, to the appropriate codes of practice (K1, K6, S1, S6, B1, B2)</li> <li>- Accept responsibility for work of self or others (K4, K5, S4, S5, B1, B6)</li> <li>- Accept, allocate and supervise technical and other tasks (K4, K5, S4, S5, B5)</li> <li>- Use oral, written and electronic methods for the communication in English of technical and other information (K4, K5, S3, S4, S5, B5, B6)</li> <li>- Work effectively with colleagues, clients, suppliers or the public, and be aware of the needs and concerns of others, especially related to diversity and equality (K4, S4, B4, B6)</li> <li>- Comply with the Code of Conduct of the PEI (K1, S1, B2)</li> <li>- Manage and apply safe systems of work (K1, S1, B1, B7)</li> <li>- Undertake engineering work in a way that contributes to sustainable development (K2, S2, B1, B7)</li> <li>- Carry out and record Continuing Professional Development (CPD) necessary to maintain and advance competence in own area of practice (B3)</li> <li>- Exercise responsibilities in an ethical manner (K1, K2, S1, S2, B1, B2)</li> <li>- Show how they have, or would, use Building Information Modelling (BIM) to access and work with data (K3, K5, S3, S5, B5, B6, B7)</li> </ul> <p>To pass the Apprentice must demonstrate achievement of all these grading criteria.</p>	
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**End-point – Summary of roles and responsibilities**

<b>Assessor</b>	<b>Role</b>
Employer	To ensure that the apprentice is given the correct experience in their job role and act as the final approver in the Gateway process for going forward to the EPA.
Assessment Organisation	Act as the independent Assessment Organisation for the EPA by:  Recruiting, training and monitoring assessors  Administering the EPA  Conducting the EPA  Quality control of the assessment process  Informing the Apprentice of the outcome of the EPA  Arranging resits/retakes  Dealing with any issues or appeals that arise  Applying for the Apprenticeship Completion Certificate

**Quality Assurance – internal**

The assessment organisation will have its own internal quality assurance procedures to ensure that the End-point Assessment is valid and reliable. Where the assessment organisation is a PEI, these procedures are in accordance with the Engineering Council requirements from whom its gets its license in the first place.

The EPA will be conducted by assessors who are trained, approved and reviewed by the relevant assessment organisation.

The assessment organisation will sample all failures and 10% of the passes of the EPA results for consistency and reliability i.e. moderation. Regular meetings with assessors will be held at least annually to provide standardisation as well as an update and feedback on the assessment process.

The assessment organisation will have an appeals process if an Apprentice wishes to challenge the outcome of the EPA.

**Quality Assurance – external**

The employer led approach has been chosen as the EQA model, with the employers working in partnership with the Construction Industry Training Board (CITB).

**Affordability**

The cost of the End Point Assessment (EPA) will be no more than 20% of the overall apprenticeship. The funding band is awaiting confirmation.

The assessment organisation costs will include:

- Logging applications for the EPA and issuing the technical project brief
- Setting up the interview and appointment of assessors
- Venue costs
- Assessor travelling and subsistence expenses
- Internal quality assurance
- External quality assurance
- General administration of the process.

**Professional body recognition**

A Pass grade means that the Apprentice have have met the standards required to achieve Technician status with the Chartered Institution of Building Services Engineers (EngTech LCIBSE). On completion of the End-point assessment process for this Apprenticeship is eligible to apply for the designatory letters EngTech LCIBSE and the status of Engineering Technician.

If the employer has chosen a PEI as the assessment organisation, apprentices are recommended to keep a diary of further learning activities that they undertake outside their apprenticeship as they may be required to produce a portfolio of CPD to submit to the PEI to enable registration as EngTech MCIBSE.

**Consistency**

Benchmarking the EPA against the Engineering Council UK-SPEC requirements for EngTech and the internal and external quality assurance processes mean that the assessment outcomes will be consistent and reliable, allowing a fair and proper comparison between Apprentices employed in different types and sizes of organisations and at different geographical locations.

**Volumes**

It is anticipated that there will be the following volumes of Apprentices following this standard:

- 2018-19 Academic Year: 70
- 2019-20 Academic Year: 100

The colleges and universities in the provider consortium who have indicated interest in delivering this new standard already deliver part-time academic qualifications for the industry and so there are no issues with capacity and scalability. Similarly, the PEIs consulted already deliver their assessment processes and have infrastructure in place. In the longer term this new standard should lead to an increase in new starters and the providers are able to cope with the gradual increases expected.

**Annex A****MAPPING OF EPA METHODOLOGY TO STANDARD**

<b>Knowledge reference</b>	<b>Knowledge category</b>	<b>Core knowledge to be assessed</b>	<b>Presentation Based on response to technical project brief</b>	<b>Structured interview Informed by a written report</b>
K1	Health and Safety	Understand the principles and responsibilities imposed by law and other regulations in a building services environment	Y	Y
K2	Sustainability	Understand the sustainability issues in projects across economic, social and environmental aspects	Y	Y
K3	Engineering Principles	Understand engineering techniques, procedures and methods and the principles of design	Y	Y
K4	Construction Management	Understand management principles and the project management lifecycle and the contractual conditions on a project	Y	Y
K5	Planning and Organising Work	Understand the importance of project planning and resourcing and be able to analyse different techniques	Y	Y
K6	Monitor Quality	Able to define the quality required and the commissioning process on a finished Building services project	Y	Y

<b>Skills reference</b>	<b>Skills category</b>	<b>Core skills to be assessed</b>	<b>Presentation Based on response to technical project brief</b>	<b>Structured interview Informed by a written report</b>
S1	Health and Safety	Identify risk of activities and encourage all employees to demonstrate safety-conscious behaviours	Y	Y
S2	Sustainability	Assess, identify and record the environmental impact of projects	Y	Y
S3	Engineering Solutions	Assist in the implementation of the most appropriate solutions for building services projects	Y	Y
S4	Construction Management	Use effective management principles and be able to supervise building services workers, ensuring adherence to contractual conditions	Y	Y
S5	Planning and Organising Work	Understand overall plan for project and measure and record progress against plan	Y	Y
S6	Monitor Quality	Assess and report on quality standards and assist in commissioning of finished building services projects	Y	Y

<b>Behaviours reference</b>	<b>Behaviours category</b>	<b>Core behaviours to be assessed</b>	<b>Presentation Based on response to technical project brief</b>	<b>Structured interview Informed by a written report</b>
B1	Professional Judgement	Be able to work within own level of competence and know when to seek advice from others	Y	Y
B2	Commitment to Code of Ethics	Work within Rules and Regulations of Professional Competence and Conduct for the relevant PEI	Y	Y
B3	Continuing Professional Development	Identify own development needs and take action to meet those needs. Use own knowledge and expertise to help others when requested.		Y
B4	Commitment to Equality and Diversity	Understand the importance of equality and diversity and demonstrate these attributes so as to meet the requirements of fairness at work.		Y
B5	Communicate Effectively	Be able to contribute effectively to meetings and present information in a variety of ways including oral and written.	Y	Y
B6	Work in Teams	Be able to work with others in a collaborative and non-confrontational way.	Y	Y
B7	Demonstrate Innovation	Be able to identify areas for improvement and suggest innovative solutions.	Y	Y