



# Building Services Design Technician Apprenticeship

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END POINT ASSESSMENT GUIDANCE – ST0063

CIBSE

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## Introduction

During your apprenticeship you have undertaken many tests and assessments. To complete your apprenticeship, you need to be finally assessed by an external panel, unconnected with your employer. This assessment involves a technical project and an structured interview. Your apprenticeship should have equipped you with the knowledge, skills and understanding to easily satisfy this. The process is known as an **End Point Assessment**.

This Guide explains how to apply for and complete your End Point Assessment. Success in the Assessment will also enable you, if you wish, to become a registered Engineering Technician and to become a Licentiate member of the Chartered Institution of Building Services Engineers (CIBSE). Membership provides many benefits, including ways to demonstrate and maintain your professional standing nationally and internationally. In addition, membership gives access to networks for professional support and development.

If you have any questions please contact CIBSE on +44(0)208772 3650 or email [membership@cibse.org](mailto:membership@cibse.org)

## Applying for an End Point Assessment

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

You and your employer will need to apply for the *End Point Assessment* using the application form at [www.cibse.org/epa](http://www.cibse.org/epa). You the applicant should complete **Section 1 – The Gateway Review**, which confirms who you are and invites you to apply for Engtech registration. Certificates demonstrating that you have achieved Maths and English to at least level 2 must accompany the form. The application form will also need to include evidence that you have successfully completed the relevant qualification for this apprenticeship.

**Section 2a** Should be completed by your Sponsor/Employer

**Section 2b** Should be completed by your Training provider

**Section 3** Should be completed by you the Applicant

Acceptance of the application depends on receipt by CIBSE of the necessary *End Point Assessment* fee from your Training Provider.

See the flow chart in Annex A which summarises the process for completion.

## What happens next

Following receipt of the application form, CIBSE will first check and confirm whether you satisfy the requirements to enter the *Gateway*. Within 2 weeks of this *Gateway* application

you will receive notification of the date and venue for your *End Point Assessment* interview, together with the technical project you must prepare for the interview.

## What you will need to prepare:

### 1. Technical Project Brief

The technical project brief will be designed to enable your assessors to evaluate whether you are able to demonstrate that you can use the knowledge, skills and behaviours you have learnt during your apprenticeship. It will be related to your technical specialism which you are required to state on your application form.

Your response to the technical project brief will be in the form of a 10-minute presentation which you will give on the day of your End Point Assessment. We estimate that you will need to devote 25 to 30 hours to develop your thinking and preparing of your presentation.

When preparing your response and undertaking your research you will need to propose at least 2 options and provide a rationale for the chosen option. You should also include:

- A project plan summarising the actions needed to complete the task with a timeline
- Appropriate calculations and drawings
- Reference to
  - relevant scientific and engineering principles
  - relevant legislation and standards
  - health and safety considerations
  - any environmental sustainability concerns
- A reflective evaluation as to how you went about the process of producing the response to the project brief explaining:
  - what worked
  - what didn't work
  - obstacles that needed to be overcome and how this was achieved
  - what you would do differently next time.

This should be **entirely your own work**, although you are permitted to seek advice from your employer or Training Provider.

You should prepare a 10-minute presentation. Please bring 3 hard copies of your presentation & laptop, or tablet with you on the interview day – CIBSE do not provide a presentation device.

### 2. The Written Report

You will also need to submit a separate written report of between 1500 – 2000 words in which you demonstrate how, in the course of your apprenticeship, you attained the knowledge, skills and behaviours expected of a competent building services design technician.

It should consist of a reflective account which gives:

- 3 examples of tasks undertaken in the course of your apprenticeship where you solved a technical problem, explaining your role and how you selected the appropriate techniques, procedures and methods used, including explanations of any

scientific, technical or engineering principles used, how the findings/recommendations were made, how they were used by your employer or other people involved such as clients or suppliers and include anything you did to ensure the safety of people, equipment or data.

- 3 examples of how you identified, planned, and organised the resources needed to effectively complete a project or task, explaining how you took into consideration cost, quality, safety and any environmental impact. The report should make reference as to what equipment was used, how data was gathered and analysed and how you initiated the project to produce the desired outcome.
- 3 examples of how you complied with the CIBSE Code of Conduct ([www.cibse.org/code](http://www.cibse.org/code)), how you keep in touch with developments in your technical area and how you intend to continue to develop your knowledge and skills.

See Annex B for details of the criteria you have to satisfy through your Written Report and Interview.

Remember to: include a title page for your Report, which states your word count. Clearly state your role and responsibilities; use the first person – *I, me, my* – to show the assessors your personal contribution.

Your report will need to be certified/signed by an Engineering Council registrant – a chartered engineer, or incorporated engineer - and preferably a member of CIBSE.

If you are applying for Licentiate membership of CIBSE and Engineering Technician Registration you are also required to submit the following documents with your written report:

**A copy of your Written Report must be submitted 3 weeks prior to your EPA interview date and will be used to inform your structured interview on the day.**

### **Development Action Plan**

Provide a statement of how you intend to continue with your personal and professional development. It is required that all engineers show commitment to keeping up to date with developments and with maintaining their skills and expertise. You should identify your short (1-3 years), medium (3-7 years) and long term (7-10+) goals and indicate how you propose to meet them. Examples are available online at [www.cibse.org/applicanthelp](http://www.cibse.org/applicanthelp)

### **Organisational Chart**

Submit a departmental organisation chart which clearly indicates your position within your department/company and who you report to.

**If applying for CIBSE Licentiate Membership and Engtech Registration, your development action plan and organisational chart will need to be received by CIBSE when you submit your Gateway application.**

## Your End Point Assessment Interview

You will need to bring an original item of identification, which must include your photograph, to your interview (passport or driving licence). Your interview will be conducted by two trained and experienced CIBSE-appointed assessors. There may on occasion be an observer present, but they will not be there to assess you.

Your End Point Assessment Interview will consist of:

- A presentation
- A structured interview

After introductions you will be invited to present your response to the technical project brief. Your 10 minute presentation will be across the desk from your assessors. You can use a tablet or laptop to deliver your presentation and you must bring this with you to your interview. CIBSE will not provide any electronic devices for your presentation.

Your presentation can be supported by other hard copy material such as slides, drawings and spreadsheets. These should be made available to the assessors at the start of the presentation.

Following your presentation, you will have a 30-40 minute structured interview where the assessors will look to assure themselves that you have the competencies to work as a building services design technician.

The questions will focus on 4 main areas in the context of the occupational specialism demonstrated in your written report.

At least one question will be asked for each of the 4 areas,

- Technology and problem solving – questions about the use of software tools in design and data collection, awareness of the range of factors affecting 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.
- Commitment and ethics – questions about client confidentiality, the importance of safe systems of work, the need for sustainable solutions, professional development,

The structured interview will be marked according to the grading criteria set out in the Assessment Plan and awarded a mark of Pass or Fail. To achieve an overall pass for the End Point Assessment the apprentice must gain a pass grade for both the presentation and the structured interview.

The full assessment plan for this apprenticeship standard can be found here:

[www.instituteforapprenticeships.org/media/1222/building\\_services\\_design\\_technician.pdf](http://www.instituteforapprenticeships.org/media/1222/building_services_design_technician.pdf)

### **Success in completing your *End Point Assessment***

You, your employer and your Training Provider will receive confirmation of the result of your *End Point Assessment* following review and approval by CIBSE, normally within 8 weeks of your interview. CIBSE will apply for your apprenticeship completion certificate and forward it to you and your employer.

If you have successfully completed your *End Point Assessment*, you will have met the standards for registration as an Engineering Technician and Licentiate Member of CIBSE. Hence, notification will be accompanied by an invitation to apply for membership of CIBSE. This will enable you to register with the Engineering Council as an Engineering Technician. Membership and registration both require you to undertake to meet the ethical requirements for practice as a professional Engineering Technician, which include undertaking continuing professional development, to maintain your skills and knowledge. There is also an annual fee to retain your membership and registration.

## Things you need to bear in mind

### Location of your Assessment

Most *End Point Assessment* interviews will be conducted at CIBSE's HQ in south west London. The venue is easily accessible by train and underground from Victoria, Waterloo and London Bridge stations, generally within 30 minutes of embarkation.

CIBSE will endeavour to arrange interviews in other parts of the country where there is sufficient demand, subject to availability of suitable premises and local assessors.

### Problems in undertaking the *End Point Assessment*

If you are unable to complete the project in time you need to notify CIBSE as soon as possible. Where there are mitigating circumstances (health, bereavement, redeployment, etc) a delay may be allowed, but this is entirely at the discretion of CIBSE. An additional fee may be charged, depending on circumstances. Otherwise you will need to reapply and a different technical project will be assigned.

While you are permitted to seek advice from your employer and learning provider, in no circumstances should you seek external assistance in completing your written report or your technical project response. If CIBSE detects that you have employed outside assistance, this will not only mean that you may not complete your apprenticeship, but you may be unable to apply for CIBSE membership or Engineering Council registration at any time in the future.

### Unsuccessful Applications

If you are unsuccessful in your *End Point Assessment* CIBSE will provide feedback to you and your employer on the reasons for this. You will have to apply to retake the *End Point Assessment* taking into account assessor feedback on areas where you did not demonstrate competence. If you pass the presentation element you only have to retake the structured interview. The retake will include a structured interview even if it was passed first time round. The retake must be taken within 6 months of the original *End Point Assessment*.

Otherwise you are permitted to reapply within 12 months, provided you are still in employment, but an additional fee will be payable.

### Appeals

CIBSE operates an appeals process for applicants who wish to challenge the outcome of their application. Details can be found here: [www.cibse.org/Membership/Help-for-Applicants/CIBSE%E2%80%99s-Appeal-Procedure](http://www.cibse.org/Membership/Help-for-Applicants/CIBSE%E2%80%99s-Appeal-Procedure)

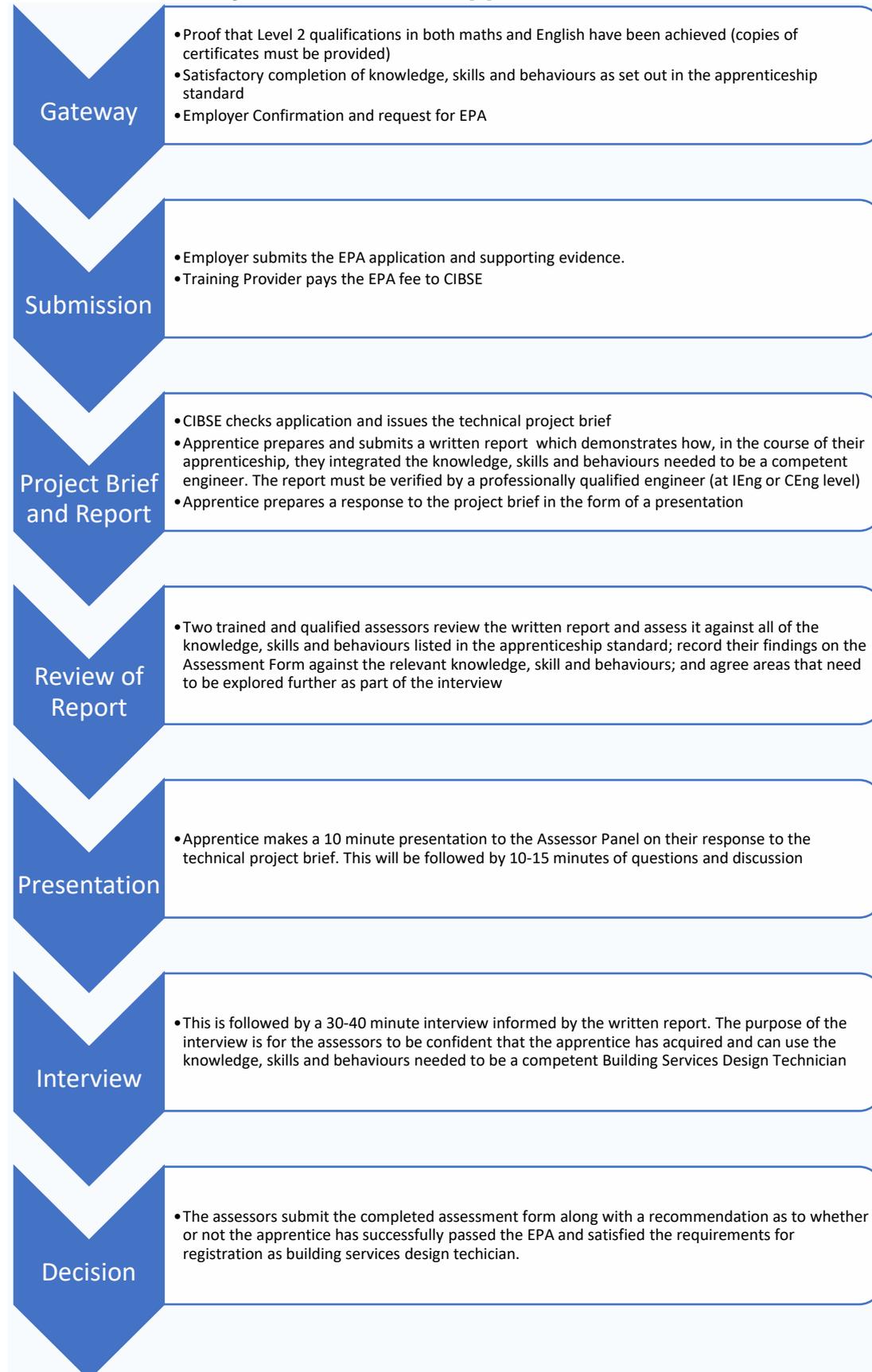
### Fair Access

CIBSE will ensure that disability, as defined by the Equality Act 2010, does not prevent you from completing your *End Point Assessment*, so long as the equity, validity and reliability of the assessments can be assured. A copy of our detailed policy statement may be found at [www.cibse.org/epa](http://www.cibse.org/epa)

### Fees

Details of the fees for membership of CIBSE and Engineering Council Registration may be found at [www.cibse.org/fees](http://www.cibse.org/fees)

## Process summary for CIBSE and Apprentices



### Criteria for success

To pass the EPA you must demonstrate achievement of all the following criteria.

(References K1,S2, etc refer to Annex A of the Standard ST0063 -

[https://www.instituteforapprenticeships.org/media/1222/building\\_services\\_design\\_technician.pdf](https://www.instituteforapprenticeships.org/media/1222/building_services_design_technician.pdf)).

End point assessment method	Pass criteria
Presentation	<p>Provide 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 (K1, S1)</li>   <li>• Use appropriate scientific, technical or engineering principles (K2, S2)</li>   <li>• Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions (S2, B6)</li>   <li>• Identify, organize and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact (K3, S2, S3)</li>   <li>• Work reliably and effectively without close supervision to the appropriate codes of practice (K3, S3, B2, B4, B5)</li>   <li>• Use oral, written and electronic methods for the communication in English of technical and other information (K4, S4, B7)</li>   <li>• Manage and apply safe systems of work (K6, S5, B1)</li>   <li>• Undertake engineering work in a way that contributes to sustainable development (K7)</li> </ul>

End point assessment method	Pass criteria
Structured interview	<p>Provide 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 (K1, S1)</li> <li>• Use appropriate scientific, technical or engineering principles (K2, S2)</li> <li>• Identify problems and apply appropriate methods to identify causes and achieve satisfactory solutions (S2, B6)</li> <li>• Identify, organize and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact (K3, S2, S3)</li> <li>• Work reliably and effectively without close supervision to the appropriate codes of practice (K3, S3, B2, B4, B5)</li> <li>• Accept responsibility for work of self and others (S3, B2, B4)</li> <li>• Accept, allocate and supervise technical and other tasks (S3)</li> <li>• Use oral, written and electronic methods for the communication in English of technical and other information (K4, S4, B7)</li> <li>• Work effectively with colleagues, clients, suppliers or the public, and be aware of the needs and concerns of others especially when related to diversity and equality (K3, S3)</li> <li>• Comply with CIBSE Code of Conduct (K5)</li> <li>• Manage and apply safe systems of work (K6, S5, B1)</li> <li>• Undertake engineering work in a way that contributes to sustainable development (K7)</li> <li>• Carry out and record Continuing Professional Development (CPD) necessary to maintain and enhance competence in own area of practice (K8, S6, B2, B3)</li> <li>• Exercise responsibilities in an ethical manner (K5)</li> </ul>

**Knowledge, Skills & Behaviours Criteria against which candidates are assessed.**

Ref	Core <u>knowledge</u> to be assessed	Presentation <sup>1</sup>	Structured Interview <sup>2</sup>
K1	<b>The different techniques and methods used to design building engineering services projects.</b> This includes an understanding of how technologies, components and requirements are converted into building engineering systems designs including use of relevant standards.	✓	✓
K2	<b>The appropriate scientific, technical and engineering principles relating to the design of building engineering services projects.</b> This includes an understanding of the mathematical, scientific and engineering techniques required to support the design and construction processes	✓	✓
K3	<b>How to work effectively and contribute to engineering solutions by the correct use of resources and time.</b> This includes an understanding of project management systems, tools and techniques as they are applied to the design and construction process	✓	✓
K4	<b>How to communicate effectively using a range of techniques.</b> This includes an understanding of different communication methods and when to use them; how to write technical reports, technical drawing conventions and engineering terminology; collaboration and effective team working.	✓	✓
K5	<b>The code of conduct of relevant professional bodies and institutions including ethics and their application in design and delivery of projects.</b> Understanding the protection of client confidentiality, the need to adhere to corporate and institutional policies on ethics and diversity and the professional obligation to make a contribution to society		✓
K6	<b>Safe working practices and how to comply with them.</b> Understanding of regulations such as Construction, Design and Management (CDM), hazard identification, and risk mitigation.	✓	✓
K7	<b>Sustainable development and their own contribution to economic, environmental and social wellbeing.</b> Understanding of legislative, company and client sustainability and environmental policies and their effect on the design and construction of buildings.	✓	✓
K8	<b>Sources of and approaches to Continuing Professional Development (CPD).</b> Understanding of appraisal schemes, CPD obligations and competency requirements relating to self and others.		✓

Ref	Core <u>skills</u> to be assessed	Presentation	Structured Interview
S1	<b>Select and use appropriate scientific, technical and engineering principles, techniques and methods to contribute to the design and delivery of building engineering services projects.</b> Ability to produce and self-check; calculations, models and drawings; use appropriate software systems and other tools for data gathering, CAD, BIM, Revit, project management; and assist with site surveys and inspections	✓	✓
S2	<b>Work with others to contribute to produce integrated engineering solutions by the correct use of resources and time.</b> This includes the ability to contribute to developing and evolving solutions to engineering problems whilst working to programme and within budget.		✓
S3	<b>Manage and maintain the quality of their work and that of others.</b> Assess the task to be done, plan/schedule work and manage time; decide when to allocate work to other people; maintain the flow of information; follow technical procedures, check work at an appropriate level and against appropriate standards and specifications. Keep well organised personal records of work undertaken		✓
S4	<b>Communicate effectively and appropriately with others using a range of techniques</b> including verbal communication, written reports, models and drawings.	✓	✓
S5	<b>Keep themselves and others safe by adhering to safe working practices.</b> Ability to identify hazards and assess risks, follow safe systems of work and adhere to all company safety policies.	✓	✓
S6	<b>Maintain their skills base and learning.</b> Ability to assess their own competence against training objectives and identify development needs and training action plans.		✓

Ref	Core <u>behaviours</u> to be assessed	Presentation	Structured Interview
B1	Take a responsible approach to health and safety	✓	✓
B2	Be professional, proactive and receptive to constructive advice and guidance		✓
B3	Be willing to learn new skills and to adapt in the light of experience		✓
B4	Know one's limitations and when to ask for help or escalate		✓
B5	Work independently when appropriate and take responsibility for and pride in their work	✓	✓
B6	Demonstrate a positive approach to problem solving	✓	✓
B7	Show an ability to contribute to discussions as part of a team	✓	✓

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