

# **T Level Technical Qualification in Building Services Engineering for Construction**

**8710-353 Electrotechnical  
Engineering Occupational  
Specialism Report (Summer 2023)**

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# Foreword

## Summer 2023 Results

The occupational specialism qualification is made up of one component, which needs to be successfully achieved to attain the T Level Electrotechnical Engineering Occupational Specialism.

We discussed the approach to standard setting/maintaining with Ofqual and the other awarding organisations before awarding this year. We have agreed to take account of the newness of qualifications in how we award this year to recognise that students and teachers are less familiar with the assessments ([Vocational and technical qualifications grading in 2023 – Ofqual blog](#)), whilst also recognising the standards required for these qualifications.

## Introduction

This document has been prepared to be used as a feedback tool for providers in order to support and enhance teaching and preparation for assessment. It is advised that this document is referred to when planning delivery and when preparing candidates for the T Level Technical Qualification (TQ) in Building Services Engineering for Construction **Occupational Specialisms**.

This report provides general commentary on candidate performance in the occupational specialism assignment. It highlights common themes in relation to the technical aspects explored within the assessment, giving areas of strengths and weakness demonstrated by the cohort of candidates who sat assessments in the summer 2023 assessment series.

The grade boundaries that were used to determine candidate's final summer 2023 results are also provided. **For summer 2023, as per Ofqual guidance, the approach to grading recognises that these are new qualifications.**

# 8710-353 Electrotechnical Engineering Occupational Specialism

This is the first sitting of this occupational specialism.

The majority of candidates completed all tasks within the occupational specialism. Whilst there were some inconsistencies across the entire cohort these were generally consistent within each provider which suggested that the candidates were following provider guidance or expectations.

When considering the electrical design, the majority of candidates completed the task with minor omissions or errors. However, there was often a lack of evidence to support the electrical design process and decisions made by the candidate. A number of candidates applied a systematic approach towards the design and did not consider information within the scenario or failed to show understanding when their design did not meet the requirements of BS 7671.

The vast majority of the candidates were able to complete the installation, commissioning and decommissioning of the practical installation demonstrating a good level of practical skills, clearly demonstrating threshold competence. During the fault finding most candidates were successful in interpreting the fault symptoms presented to find and rectify all of the faults presented, however a number of candidates failed to provide sufficient detail within their fault reports to allow their understanding to be clearly demonstrated.

Provider evidence did not always fully support the candidate performance across the tasks with some providers not fully following the guidance provided within the Assessor Pack. Across a number of candidates there was a lack of individualised detail recorded on PO Forms and CRFs that clearly described the candidate's approach and application of skills to support the awarding of marks.

## Task 1

Risk assessments did not always consider the full range of hazards within the installation, with a number of candidates not considering the fundamental hazard of electric shock. Risk mitigation was considered by most candidates, however the majority of candidates did not show an understanding of the risk probability with some hazards still considered medium or high risk after the controls were put in place.

The majority of candidates did not support their design grid with clear calculations. Where present, these were often incomplete with lack of referencing to BS 7671 or IET Onsite Guide and lacked justifications showing the requirements of BS7671 were being met. A minority of candidates provided clear evidence to support their cable lengths.

Materials lists were often simplistic and only considered the items shown on the drawing with few candidates considering the wiring systems or cabling.

A number of candidates did not provide justifications or referencing to BS 7671 or IET Onsite Guide when completing the earth fault loop impedance calculations and did not consider that circuit 1 was a ring final circuit.

PO Forms for this task added little value to the evidence presented with a number of providers giving a summary of the evidence rather than describing the candidate

performance during the planning and design, such as how fluent they were referencing BS 7671.

## **Task 2**

The vast majority of candidates completed the installation to a good standard and within the expected timescale. Commissioning was mostly accurate and supported by the Electrical Installation Certificate and associated schedules. All candidates demonstrated a good approach to decommissioning and waste management.

Some providers failed to follow the guidance given in the Occupational Specialism Assessor Pack and did not pre-fix the items in red as required which resulted in the candidates not having to work to any tolerance. It was unclear if providers set dimensions to the installation as the photographic evidence from some providers showed a variation in distances between accessories across the cohort.

Candidates from a number of providers incorrectly installed the SWA cable as a radial power circuit rather than as the distribution supply to the consumer unit as required.

Some providers did not follow the guidance regarding safe isolation with some candidates showing potentially unsafe working practice carrying out testing without the installation being safely isolated from the supply. Several candidates did not apply the requirements of Guidance Note 3 when carrying out the  $Z_{db}$  test and taking the approach of a  $Z_e$  test instead. When this occurred, this practice was seen to be consistent across all candidates within the cohort.

A small number of candidates included calculations to verify the test results obtained.

Photographic evidence was generally good with most providers following the guidance; however, a number of providers included additional photographic evidence or did not fully follow guidance by including the candidate in the photographs, not taken from face on or only including sections of the installation.

A minority of providers used dated versions of BS 7671 model forms.

PO Forms often lacked descriptive detail with the majority of providers providing little detail of how the candidate performed during the task and the approach taken. PO Form comments from some providers were made up of generic statements that were very similar across all candidates that were a list of activities completed. In a small number of cases the PO form comments were contradicted by the photographic evidence showing an inconsistent approach to health and safety not recorded on the PO form.

Whilst the use of the language and terminology within the marking grids is encouraged, some providers took a cut and paste approach to this when completing the PO Forms and CRF.

There was often limited detail provided to describe the candidates approach to decommissioning or handover which resulted in the provider marks to be accepted for the associated AT's.

### **Task 3**

The majority of candidates were successful in this task, finding all of the faults presented.

The written reports often lacked details such as results of tests carried out, or the results of all tests completed such as values for all continuity on all relevant conductors.

The majority of candidates showed an understanding of the fault symptoms and carried out appropriate tests, however only a small number of candidates went on to identify the location of the fault within the circuit where this was an option.

Most candidates used appropriate terminology when completing the reports.

Fault rectification was often limited in detail with a number of candidates giving simplistic responses such as replace the cable.

The PO Forms from a number of providers provided limited detail on the candidate's approach to the task and did not describe the candidate performance in detail. The majority of providers gave no detail of how the candidate communicated the fault rectification to the client.

# Best practice and guidance to providers on potential areas for improving performance in assessment

It is recommended that providers utilise and deliver the sample assessments as formative assessment to support candidates in preparation for summative assessment.

## Task 1 Planning the installation:

Candidates should be encouraged to provide written calculations to support their design of the electrical installation and clearly reference BS 7671 or IET Onsite Guide. A list of reasonable assumptions should be included to support any decisions taken by the candidate where there was no clear guidance given in the scenario.

Where risk assessments are required, the candidate should apply this to the full scenario and consider the wider range of hazards. A number of candidates showed limited understanding of the probability factors and risk ratings within their risk assessment.

When producing materials lists candidates should consider the wider range of materials required for the scenario such as cabling and wiring systems and not provide a simplistic list based upon only the items contained within the installation drawing.

PO Forms should be used to capture the candidate's approach to the electrical design. How fluent they were in the use of BS 7671 and other reference materials that are not captured within the evidence produced by the candidate.

## Task 2 Installation, commissioning and decommissioning:

The provider should ensure that the guidance provided in the Occupational Specialism Assessor Pack is read fully and applied. The items marked in red must be pre-fixed by the provider prior to the candidate beginning their installation.

Candidates across a number of providers incorrectly installed the Steel Wired Armoured cable as a radial power circuit rather than as the distribution cable supplying the consumer unit as stated in the guidance.

Providers are to follow the guidance given in the Assessor Pack to ensure that all evidence is collected in a timely manner and as specified in the guidance for each task. Photographic evidence should be of a good resolution and taken from face on capturing the full installation. To ensure that the photographs can be clearly linked to the candidate it is recommended signage with the candidate details are included in the assessment bay.

When completing the initial verification candidates at some providers incorrectly performed a  $Z_e$  test rather than  $Z_{db}$  as required by the guidance given in the Occupational Specialism pack.

Providers are to ensure that all resources required to complete the practical installation are available to the candidate and it is recommended that the candidates are given the autonomy to select their materials from a range of options rather than being provided with all the materials within their assessment bay.

Where candidates carry out calculations to verify their test results, these should be included alongside the other documentation completed during the initial verification.

PO Forms for this task should clearly capture the approach that the candidate took to complete the task, providing descriptive and differentiating detail that allows a third party to gain a clear understanding of the candidates' strengths and weaknesses throughout the task. Details of aspects of the task which are not able to be verified within other evidence such as handover and decommissioning should be clearly recorded to support the candidate performance.

### **Task 3 Carrying out maintenance:**

During the preparation period providers should encourage the candidate to provide clear written detail of all tests completed as well as the results obtained for each test when identifying the fault. Candidates should be encouraged to apply a logical approach and identify the location of the fault within the circuit wherever possible.

Candidates should clearly consider the fault rectification process and wherever possible use industrial terminology within their written reports.

PO forms for this task should clearly capture the approach that the candidate took to complete the task, providing descriptive and differentiating detail that allows a third party to gain a clear understanding of the candidates' strengths and weaknesses throughout the task. A number of providers failed to provide any detail on the candidates' communications with the client during the assessment.

# Grade boundaries

The table below shows the grade mark ranges for the Occupational Specialism **for the summer 2023 series.**

<b>Grade</b>	<b>Mark range</b>
Distinction	67-90
Merit	51-66
Pass	35-50
Unclassified (U)	0-34

## Get in touch

The City & Guilds Quality team are here to answer any queries you may have regarding your T Level Technical Qualification delivery.

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