

GCSE



**Chief Examiner's and Principal  
Moderator's Report**  
**Construction and the  
Built Environment**

Summer Series 2023





## Foreword

This booklet outlines the performance of candidates in all aspects of this specification for the Summer 2023 series.

CCEA hopes that the Chief Examiner's and/or Principal Moderator's report(s) will be viewed as a helpful and constructive medium to further support teachers and the learning process.

This booklet forms part of the suite of support materials for the specification. Further materials are available from the specification's microsite on our website at [www.ccea.org.uk](http://www.ccea.org.uk).



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# GCSE CONSTRUCTION AND THE BUILT ENVIRONMENT

## Chief Examiner's and Principal Moderator's Report

### Subject Overview

Despite the disruption experienced during recent years, this year's papers provide evidence of moving back towards the normality prior to 2020. It is clear that teachers and pupils have been working hard in preparation for GCSE Construction and were generally well prepared for the summer series of exams. The papers proved a good test for the candidates with an acceptable incline of difficulty which allowed nearly all candidates to make meaningful attempts at questions throughout the papers, while providing opportunities for the more able to distinguish themselves and gain the higher grades available. The standard of answering was in general good, with some outstanding performances in each paper.

The applied vocational nature of the qualification continues to be very popular with candidates. The craft project unit is particularly applicable to those who wish to progress to apprenticeship in a range of construction skills. The unit in construction drawing (CAD) is as applicable to those following a craft apprenticeship as to those candidates who wish to progress to a professional Level 3 qualification such as the BTEC Extended Certificate in Construction or the CCEA A Level in Environmental Technology.

CCEA have adopted a positive approach to marking in the summer 2023 series across all units. This has resulted in the data shown in the following table.

Outcome achieved when all four units of this GCSE are combined										
Grade achieved	A*/A	B	C*	C	D	E	F	G	U	
Cum %	30.4%	57.5%	70.8%	82.9%	91.9%	96.2%	98.8%	99.4%	100	100

### Assessment Unit 1

### Introduction to the Built Environment

The examination paper was structured in a way that provided stretch and challenge opportunities for all candidates. The stronger candidates excelled and demonstrated their advanced knowledge of the subject, accompanied with a high level of spelling, punctuation and grammar. The standard of answers varied with the candidate's ability. The level of language used in papers was deemed to be appropriate by the examiners. Unfortunately, most candidates were inadequately prepared for question three and failed to grasp an understanding of timber frame terminology and cladding. Questions, three-part C and six required an element of discussion, which were reasonably well answered with candidates gaining marks for spelling, punctuation, and grammar. The variety of questions and progression within the examination paper allowed for differentiation between pupils of different abilities. The layout of the paper was appropriate with a good range of recall, description, discussion, and evaluative questions. The mark scheme was positive and accepted alternative and innovative answers to all questions. Centres should continue to use the revised GCSE textbook which covers the majority of unit one specification, accompanied with the resources on the GCSE Construction Microsite.

- Q1** This question was very well answered. Most candidates demonstrated a good analysis of cellular construction. Marks were lost by a minority of candidates who gave inappropriate responses regarding methods of increasing the structural stability. Most candidates demonstrated good knowledge of roles of the BIM Coordinator.
- Q2** All parts of this question were well answered with most candidates achieving full marks. Candidates demonstrated a good knowledge of the RIBA POW 2013, characteristics of a townhouse and main roles of the Architect. Candidates should state the full title and year: Royal Institute of British Architects, Plan of Work 2013 (2020)
- Q3** The first two Parts (a) and (b) of this question were poorly answered. Almost all candidates were inadequately prepared for question three and failed to grasp an understanding of timber frame cladding, fixing and terminology. The minority of candidates who answered this question correctly achieved full marks. Candidates should be better prepared with a clear and sound knowledge of timber frame terminology.
- Part (c) was well answered. Candidates discussed the advantages and disadvantages of Timber frame construction. Four marks were awarded for the quality of written communication.
- Q4** Most candidates achieved full marks. Candidates were well prepared regarding resource considerations, with a range of other appropriate responses accepted. Some candidates did not state an example of each and therefore marks were deducted.
- Q5** This question relating to Health and Safety was generally very well answered. Candidates demonstrated sound knowledge and understanding of the relevant legislation, duties of the

## Assessment Unit 2

## Sustainable Construction

The examination paper was structured in a way that provided stretch and challenge opportunities for all candidates. The stronger candidates excelled and demonstrated their advanced knowledge of the subject, accompanied with a high level of spelling, punctuation and grammar. The standard of answers varied with the candidate's ability. The level of language used in papers was deemed to be appropriate by the examiners. Unfortunately, many candidates were inadequately prepared for Question 3 Part (d) and failed to label the eaves detail correctly. Question 8 Part (d) which asked for an evaluation on Design, Scale and Massing was not well answered by many candidates.

The variety of questions and progression within the examination paper allowed for differentiation between pupils of different abilities. The layout of the paper was appropriate with a good range of recall, description, discussion, and evaluative questions. The mark scheme was positive and accepted alternative and innovative answers to all questions. Centres should continue to use the revised GCSE textbook which covers the majority of the specification, accompanied with the online resources on the CCEA website.

- Q1** This question was generally answered well with many candidates getting full marks for the first two parts. Part (c) was not as well answered with many candidates demonstrating no understanding of what an architrave is.
- Q2** Question two was well answered with candidates scaling the drawings correctly. A few candidates did not answer the question using the correct units (mm) as stipulated in the question. Calculating floor area of bedroom Question 3 Part (b) proved difficult for many candidates. In future please make sure calculators are available if stipulated on the front of the script. Two marks were awarded for process of Part (b) although the final overall answer may not have been correct.



- Q3** Part (a) of this question was generally well answered as was Part (c). In Part (b) a large percentage of candidates showed limited understanding of how roof and floor loads were distributed to the foundations.
- Unfortunately, many candidates were inadequately prepared for Part (d) and failed to label the eaves detail correctly.
- Q4** This question was generally well answered by most candidates.
- Q5** Part (a) was well answered by most candidates completing the drawing in Fig. 5, apart from showing the splay for the steel lintel.
- Part (b) was generally well answered although a few candidates mixed up the outside with the inside of the sectional structure provided by CCEA.
- Q6** Many candidates answered Part (a) and Part (c) of this question well. Few candidates demonstrated any understanding of what a transom and a mullion are.
- Q7** This question asked candidates to evaluate the advantages and disadvantages of three different types of renewable energy resources. Most candidates identified at least two types of renewable energy resource but less than 30 % of candidates carried out an evaluation. In general candidates seem to find evaluations difficult.
- Communication skills including spelling also proved difficult for many candidates.
- Q8** Parts (a) to (c) of this question were fairly well answered with candidates demonstrating an understanding of what a Green Belt and a Conservation area are.
- Question 8 Part (d) which asked for an evaluation on Design, Scale and Massing was not well answered by many candidates. The candidates did not relate their answer to an extension of a former bank building as requested to do so in the question.
- Q9** Question 9 was quite poorly answered. Only a few candidates cited pile foundations. The higher order skill of analysing the Site Plan was not evident in most papers. Communication skills including spelling also proved difficult.

### **Supervising Examiner Comments**

It would be to the candidate's advantage if they used pencil to complete sketches, rather than pen. Many candidates decided to change a sketch part of the way through with an untidy scribble which is less than professional.

The readability of the question paper was satisfactory and the language used appropriate.

## Assessment Unit 3

## The Construction Craft Project

Over the course of this year's moderation process, the moderators reported a high level of work completed by the candidates. This indicated the level of skills that the candidates are obtaining during this section of the GCSE Construction course. In this series, the Centres are informing the moderators of the highly motivational impact of the controlled assessment tasks on candidates. It was substantially evident that the practical tasks are having an encouraging effect on developing many skills for the candidates, which will benefit them in future construction careers.

The internal standardisation was carried out in most centres within subject tolerance and the quality of eCRS was excellent and detailed. The standard of evaluation work alongside the manufactured piece was high most of the time.

Centres should record in detail on the e-Candidates Record Sheets (CRS) where marks are awarded and deducted. This will speed up the moderation process and clearly identifies marks awarded for each section.

### Product accuracy of tolerances

Most of the candidates were able to gain top marks for this section by achieving 5 tolerances. The tolerances were executed to a very high standard by many candidates, as a result of which they were rewarded in the top mark band.

Five tolerances had to be completed for each product and they were executed very well by the majority of candidates. On a few occasions, candidates did not fully complete the product, and this affected the mark they could achieve in this section.

A small number of candidates were unable to manufacture the product in its entirety and many tolerances were not achieved. As a result, the candidates lost marks.

### Product suitability and standard of joints, fixings, components, and processes

This section of the controlled assessment tasks was completed to a very high standard by many candidates. Therefore, they gained marks in the top section of the marking scheme.

Many of the candidates during the manufacture of one of the two projects, the steps, or the table, added knock-down fittings and these were applied to a very high standard. These can be purchased or manufactured by the Centre.

On several occasions, centres awarded candidates full marks when it was evident that there were gaps in the fitting of the step section to the main frame or the tabletop to the main frame. In the marking detail there are 4 marks awarded for this and it was clear that centres were not using this to determine the mark.

On a small number of occasions, the candidates were unable to attach the top section to the table project or the steps. They lost marks as a result.

Most of the tops of the table project were symmetrical and therefore candidates were rewarded as a result.

The four through bridle joints were completed to an acceptable standard by the majority of candidates. A proportion of candidates lost marks due to visible spaces in the joints that were evident on inspection of them. Several centres were not removing marks for gaps in the through-bridle joints. The remaining joints completed by the candidates, which were at the centre and candidates' discretion, also showed gaps. These gaps need to be taken into consideration when applying a mark to this section of the controlled assessment task.

Most of the projects seen by the moderators were square or within the 2mm tolerance.

It was evident the processes completed by the candidates from using hand saws, chisels, CNC technology, clamping and gluing, making out, to name a few, were executed mostly to a significantly high standard.

Centres should note that a project that is not fully assembled will lose up to 14 marks.

There were some nice variations in the fitting of the bottom rails of the table, and indeed, the majority of the times they were spaced perfectly.

## **Quality of product finish**

To receive marks in the top mark band the moderators would be expecting to see excellent preparation and an excellent finish applied and this was evident in many craft projects examined. Occasionally candidates had completed excellent preparation and applied a finish of a very high standard, and at times to a professional standard. We expect this to be achieved by sanding several times and applying several coats of finish to the product. Several times candidates were gaining marks in the top mark band when it was clear that a finish had not been applied to the product. They lost marks as a result.

It was reported that several candidates had sanded the product to an extremely high standard but did not apply a finish. It is worth noting that 10 marks are for preparation and 10 marks are for applying the finish. During the moderation visits when this was the case, candidates lost 10 marks as a result.

Many candidates were receiving full marks by the Centre; however, it was clear that there were pencil marks, sanding scratches and varnish runs.

## **Product evaluation**

The overwhelming majority of evaluations completed by the candidates were very detailed and of a high standard. Many of the candidates were able to clearly identify four problem areas they encountered during the manufacturing process. They visibly evaluated how they dealt with these problems by using photographs, sketches, and text in a logical and coherent way. On a few occasions candidates did not produce an evaluation and lost marks as a result.

The spelling, grammar and punctuation were mainly very good by the vast majority of candidates.

Unfortunately, a number of centres were awarding full marks for evaluations that did not contain four evaluated manufacturing issues they experienced.

## Assessment Unit 4

## Computer Aided Design

### General

The vast majority of candidates' work was printed to an excellent standard. Only one centre did not print the folders and presented an external memory device with folders saved on it. It has to be noted that part of the presentation of candidate's work is to print to scale their drawings.

The majority of the candidate's evidence was in the correct order and speeded up the moderation process. Drawings need to be numbered 1-10 for moderation.

### Drawing 1

Annotated and sectioned parapet detail.

(20 marks)

The substantial majority of parapet drawings were executed to an extremely high standard, and this reflected the skills that are being acquired by the candidates. Most of the candidates added the required annotation, the title block, and the border. Many of the candidates were able to complete the correct drawing to include the details such as the position of the roof lead covering, the complete roof structure, the 150mm wall installation and the 125mm roof insulation, the weep hole, the position of the DPC, the cavity tray and the external brickwork. On a few occasions candidates completed a similar parapet design to an excellent standard. On many of the drawing's candidates were able to successfully hatch the required areas to the appropriate standard. Almost all candidates printed the drawings to scale and presented them in the correct order.

### Drawing 2

Four building components scaled 1:50.

(10 marks awarded in drawing 4 and 6)

On almost every occasion the moderators reported that the components were drawn to an extremely high standard and inserted in the plan and elevation drawings successfully.

The components inserted into the plans and front elevation must match the components drawn for this section to achieve full marks.

It is important to note that the components need to be drawn; two from the plan and two from the elevation and inserted into the plan and front elevation.

Where these drawings were completed successfully, the components were inserted into the working drawing correctly and candidates were rewarded accordingly.

### Drawing 3

Completed ground or first floor plan with accurate openings for insertion of components at 1:50 scale.

(6 marks)

The ground or first floor plan option was completed very well by the candidates. The majority of candidates completed the correct drawing and were able to add a border and title block.

## **Drawing 4**

Completed ground floor plan showing the components inserted correctly at 1:50 scale.

## **Drawing 5**

Completed first floor plan showing the components inserted correctly at 1:50 scale.

(19 marks)

The ground or first floor plan option was completed very well by the candidates. The majority of candidates completed the correct drawing and were able to add a border and title block. On a number of occasions, no measurements or annotation was completed by candidates, and they lost marks as a result. No obvious issues with scale were recorded by the moderators.

There was a small number of candidates that provided drawings with trimming issues, and lost marks as a result.

## **Drawing 6**

Completed front elevation of the specified building supplied by CCEA at 1:50 scale.

(25 marks)

As with previous years the majority of candidates achieved extremely high marks for this specified drawing due to the high standard of drawings they completed. All candidates were able to complete the correct drawing supplied by CCEA.

All candidates were able to present the drawing with a border and title block, the correct components inserted, including the solar panels, chimneys scaled correctly, and lead flashing added and guttering, and downpipes mostly completed in the correct position and completed with no trimming issues. The vast majority also inserted the components they had drawn very successfully into the elevation.

Most of the candidates were successful in adding the required annotation and levels, however a few candidates did not complete these and lost marks as a result.

On nearly all occasions it was reported that the hatching completed by the candidates was appropriate. On a few occasions the hatching was completed, however the scale was inappropriate.

Most of the windows and the front door were inserted correctly and matched what they had drawn previously (drawing 2).

## **Drawing 7**

Completed working drawing without the client's amendments at 1:100 scale.

(5 marks)

The working drawings that were completed were of an extremely high standard. The vast majority were positioned and aligned correctly. All completed working drawings had a border and title block. On nearly all occasions there were no concerns with the scale of the engineering drawing and candidates gained full marks as a result.

The drawing contained the correct ground and first floor plans. As it is a working drawing, dimensions are expected with annotation to satisfy marks under "correct drawing". The vast majority of candidates achieved this to an exceptionally high standard. Only a small number of candidates were unable to complete this drawing.

## **Drawing 8**

A completed rear elevation showing the clients' amendments at 1:50 scale.

(10 marks)

It was a delight to see how the candidates interpreted the client's brief. The standard of output that they achieved was on the most part excellent. The clients' amendments were clearly defined on the vast majority of drawings completed. Nearly all drawings completed by the candidates had the mandatory annotation with levels present. The drawings were aligned to the plan except on a very few drawings. The interpretation of the clients' amendments was on the most part aesthetically pleasing.

## **Drawing 9**

A completed ground floor plan showing the clients' amendments at 1:50 scale.

(10 marks)

This drawing was completed to an extremely high standard by the vast majority of candidates. On a small number of occasions room names were missing or wall junctions were inappropriate. On the amended plan the measurements were successfully completed by many of the candidates.

The plan drawings completed by the candidates were aligned to the elevation they completed.

## **Drawing 10**

A working drawing showing the clients' amendments at 1:100 scale.

(5 marks)

The standard of working drawings was excellent by most of the candidates. The associated views were mostly aligned in the majority of candidates drawings. The candidates were able to print this drawing to the required scale of 1:100 on an A3 page. All the drawings that were completed had a border and a title block included as detailed in the marking scheme. To fulfil the marking for the correct drawing section, there must be dimensions and annotation present in the drawing, and this was completed to a high standard by the vast majority of the candidates.

In general, the standard of the work completed by the candidates in the majority of instances was excellent and it was clear throughout moderation that the candidates are gaining excellent computer-aided design skills as a result.

I strongly recommend that each Centre regularly log-on to the CCEA Construction micro-site and CCEA training to receive up-to-date information, support material and agreement trial information.

## Contact details

The following information provides contact details for key staff members:

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