

GCSE



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

Summer Series 2022

Foreword

This booklet outlines the performance of candidates in all aspects of this specification for the Summer 2022 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.

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GCSE Construction and the Built Environment

Chief Examiner's Report

General Overview

There was a remarkable +32.6 % increase in the number of candidates entering the examination this year when compared with 2019. This is reflective of the continued strength in the Construction Industry which is creating demand for new employees. 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 Diploma in Construction or the CCEA A Level in Environmental Technology.

CCEA have adopted a positive approach to marking in the summer 2022 series across all units. This has resulted in 8% increase in those achieving grade C or above when compared with pre-pandemic outcomes.

Outcome achieved when all four units of this GCSE are combined											
Grade achieved	A*	A	B	C*	C	D	E	F	G	U	
Cum %	9.8	34.3	60.9	76.5	86.9	92.8	95.9	97.6	98.5	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 5 and failed to grasp an understanding of the main categories of safety signage. Question 2 required an element of discussion, which was 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 online resources on the CCEA website.

- Q1** 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 detached house and main roles of the Architectural Technologist. Candidates should state the full title and year: Royal Institute of British Architects, Plan of Work 2013 (2020).

- Q2** This question was very well answered. Marks were lost by a minority of candidates who gave inappropriate responses regarding methods of increasing the structural stability of the frame. Most candidates demonstrated a good analysis of rectangular steel framed construction. Four marks were awarded for the quality of written communication.
- Q3** 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.
- Q4** Some candidates stated inappropriate answers for Part (a) such as bricks or blocks. Part (b) and Part (c) was generally answered with candidates recalling the finish methods. Some candidates did not explain that the finish was/was not inherent in the material.
- Q5** This question was poorly answered. Almost all candidates were inadequately prepared for question five and failed to grasp an understanding of the main categories of safety sign. Most candidates stated specific signage examples and received a mark of zero. The minority of candidates who answered this question correctly achieved full marks. Candidates should be better prepared with a clear and sound knowledge of each safety sign category.
- Q6** This question was answered to a good standard with most candidates achieving high marks. Most candidates demonstrated a good analysis of the benefits of insulating plumbing installations. A minority of candidates explained the benefits of insulating walls and not specifically plumbing installations.

Unit 2 Sustainable Construction

- Q1** This question was generally answered well with many candidates getting full marks in all three parts.
- Q2** Question 2 was generally 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 the landing (d) proved difficult for many candidates. In future please make sure calculators are available if stipulated in the front of the script.
- Q3** Part (a) of this question proved difficult with many pupils not completing the section at all. The six performance criteria required in Part (b) were generally well answered. The main problem was where candidates put in the same answer twice using different word. An example of this would be Appearance and Aesthetics.
- Q4** A cutting list has featured in GCSE construction as part of the revised specification. A positive approach to interpreting answers was taken with follow through marks being allowed where appropriate. Candidates in some cases mixed up length and width and meters and millimeters. Unfortunately candidates completed the table accurately but they did not do the final calculation to obtain the final cost. This process would require most candidates to use a calculator.
- Q5** Part (a) was well answered by most candidates completing the drawing in Fig. 5. The reveals were hatched by a number of candidates which resulted in two marks being lost.
Part (c) 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 provided a description of how timber frames houses are constructed which was good to see. However very few of the answers were truly evaluative and even fewer analysed how heat loss could be reduced through the walls and roof.

- Q7** This question was generally well answered with many candidates achieving good marks. The parts of this question which caused greatest problems was where the candidates proved to have limited understanding of what vertical and horizontal D.P.C. are. Quite a number of candidates did not understand what an Eaves detail is.
- Q8** This question tested the candidate's technical knowledge relating to renewable energy. This technical knowledge was generally fairly good but the communication skills including spelling proved much more difficult. Many candidates do not have an understanding of how to properly evaluate traditional energy sources against renewable sources. Communication skills including spelling also proved difficult.

Note

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.

Readability of question paper

In my opinion the readability of the question paper was satisfactory and the language used appropriate.

Comments upon marking scheme

The standardisation meeting proved useful and provided clarity on how the marking scheme is to be applied. A few minor issues were resolved in a clear manner at the standardisation meeting.

There was no evidence that candidates had insufficient time to complete the paper.

Principal Moderators Report

Unit 3

The Construction Craft Project

Option 1

Manufacture of a set of steps or an occasional table.

Option 2

Design a version of one of the Controlled Assessment products, a set of steps or an occasional table.

General

As with past series, the moderators reported a high standard of work during this section of the GCSE Construction specification. As, during past series, the Centre's were delighted with how the course practical content had a motivational influence on their candidates. It was highly evident that the practical tasks are having a positive effect on developing many skills for the candidates. This was evident throughout moderation in the quality of both the design work and the manufactured pieces.

The internal standardisation was carried out in most centres within subject tolerance and the quality of eCRS was excellent and detailed. The standard of portfolio work submitted was excellent.

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

Option 1 **Product accuracy of tolerances**

Option 2 **Accuracy of Materials/Cutting list**

The majority of candidates were able to gain high marks for this section. Excellent photographic evidence was made available within the candidates' portfolios. There were five tolerances that had to be completed for each product and they were executed very well by the majority of the candidates. On a few occasions, candidates did not fully complete the product and this affected the mark that they can achieve in this section.

The accuracy of materials/cutting list was completed very well by the candidates and many of them were rewarded in the top mark band for this section. A few candidates were unable to include measurements in their cutting list and, as a result they lost marks.

Option 1 Product suitability and standard of joints, fixings, components and processes

Option 2 Suitability and standard of joints, fixings, components, processes detailed. Feasibility of ideas. Hand drawn concepts. 3D drawings. Engineering drawing.

The standard of work completed by the majority of candidates in this section was excellent. Both products had either the steps tops or table top to be attached using knock-down fittings. These can be bought in or manufactured by the Centre. There were a small number of candidates who lost marks due to gaps evident between the frames and the fitted table top or fitted step tops and this was included in the Centre's marks that they awarded. On a small number of occasions, the candidates were unable to attach the top section to the table project or the steps and lost marks as a result.

The majority of candidates received high marks for the accuracy of the fitting of all six rails to the table frame and the steps frame.

The four through bridle joints were completed to a good standard by the majority of candidates. A proportion of candidates lost marks due to visible spaces on the joints that was evident in the photographs sent in by the Centres.

The suitability and standard of joints, fixings, components, processes were completed to a very high standard by the majority of candidates. The computer-aided design or hand drawings that the candidates completed were mostly excellent and were rewarded with marks in the top mark band as a result. The drawings of two concept ideas were excellent by the majority of candidates. Using computer-aided design or hand drawing skills, the candidates were able to complete innovative designs and were rewarded as a result. A small number of candidates did not complete the initial two concepts. This may have been a misinterpretation of the brief by the Centre.

The three dimensional drawings completed by the vast majority of candidates were excellent. The engineering drawings were completed to an extremely high standard by many of the candidates. These drawings were either completed using computer-aided design or hand drawings. The candidates were rewarded as a result.

Option 1 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 the majority of portfolio photographs provided by the Centres. Occasionally candidates had completed excellent preparation and applied a finish of a very high and at times to a professional standard. This is achieved by sanding a number of times and applying several coats of finish to the product. A number of 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.

Option 2 Quality of completed drawings

The quality of completed initial sketches of a coffee table or a set of steps was of a very high standard by the vast majority of candidates. Candidates used their computer-aided design skills or hand drawing techniques to complete these drawings and many candidates were rewarded in the top Mark Band as a result.

Option 1 and Option 2 Product evaluation

The evaluations were mostly completed to a very good standard by the candidates and they were able to clearly identify four problem areas. Unfortunately, on a small number of occasions, candidates did not complete or fully complete an evaluation and they lost marks as a result. In general, spelling and grammar were appropriate for most candidates. A few of the candidates also received high marks for their evaluations and it was clear that they had not evaluated four problem areas and suggested improvements that were logical and coherent.

The vast majority of candidates were able to evaluate their concept designs and justify the suitability of the joints, fixings and other components detailed. One Centre did not complete the initial two design concepts of either the occasional table or the steps and then could not fully complete the evaluation.

The majority were able to justify their final selection of the chosen concept. The spelling, punctuation and grammar were very good by the candidates.

Unit 4 Computer Aided Design

General

The vast majority of candidates' work was printed to an excellent standard.

The majority of the candidate's evidence was in the correct order and speeded up the moderation process.

Drawing 1

Annotated and sectioned parapet detail. (20 marks)

Generally, the majority of candidates achieved high marks for completing the parapet detail. Most candidates were able to add the required amount of annotation to their drawing. All candidates were able to add a border and a title block. 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. As a result, they were rewarded in the top mark bracket. The drawings were all completed to scale by the candidates and they received maximum marks as a result.

The hatching completed by the candidates was appropriate for the drawing and overall the sectional drawings were of a high standard.

Drawing 2

Four building components scaled 1:50. (10 marks awarded in Drawing 4 and 6)

The drawing components were completed to a high standard and the majority of candidates received high marks for this section in their plan and elevation drawings. The components inserted into the plans and front elevation must match the components drawn for this section to achieve full marks. These drawings were completed very well and the components were inserted into the working drawing correctly.

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. All candidates completed the correct drawing and were able to add a border and title block. No noticeable issues with scale were recorded by the moderators.

Drawing 4

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

And

Drawing 5

Completed first floor plan showing the components inserted correctly at 1:50 scale. (19 marks)

The ground floor and first floor plans were excellent by the candidates who completed them. All candidates completed the correct drawings. There was some evidence on a few occasions that candidates had not the correct dimensions inserted. 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)

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.

Candidates were successful at adding the required annotation and levels. The hatching was appropriate by the candidates, who added it to their drawing with only a small amount of hatching completed not to an appropriate scale.

All 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 without the client's amendments were of an excellent standard and most candidates were able to score marks in the top mark bracket as a result. All candidates completed the drawing with a border and title block and were rewarded as a result. There were no issues with the scale of the engineering drawing and candidates gained full marks as a result.

The drawing included 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 majority of candidates completed this to an extremely high standard. Only a small number of candidates were unable to complete this drawing.

Drawing 8

A completed side elevation showing the clients' amendments at 1:50 scale. (10 marks)

The majority of candidates produced an excellent output for this section showing the clients' amendments very clearly. The majority of candidates who completed the drawing were able to draw the elevation to the required scale. The drawings were completed with the required annotation and levels were present in most of them. All the drawings showed amendments that were aesthetically pleasing.

Drawing 9

A completed ground floor plan showing the clients' amendments at 1:50 scale. (10 marks)

The majority of ground floor plans showing the clients' amendments were of a very high standard. Quite a few candidates were rewarded with full marks as a result. A small number of candidates were unable to complete this drawing or had missing areas evident. A small minority of candidates struggled to complete the wall junctions correctly. Dimensions were mostly completed to a very high standard by 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 majority of candidates were able to complete the final working drawing including the amendments to satisfy the clients' brief. The candidates were able to complete this drawing to the required 1:100 scale and print it A3 successfully. The drawings were completed with a border and title block and each drawing aligned successfully with each other. To satisfy the marking for the correct drawing there must be dimensions and annotation present and this was completed very well by 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 Microsite to receive up-to-date information and support material.

Contact details

The following information provides contact details for key staff members:

- **Specification Support Officer: Nuala Tierney**
(telephone: (028) 9026 1200, extension: 2292, email: ntierney@ccea.org.uk)
- **Officer with Subject Responsibility: Crea McCormick**
(telephone: (028) 9026 1200, extension: 2239, email: cmccormick@ccea.org.uk)



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