



General Certificate of Secondary Education  
January 2014

Centre Number

71

Candidate Number

## Construction and the Built Environment

### Unit 1: The Construction Industry for the 21st Century

[GCB11]



WEDNESDAY 8 JANUARY, AFTERNOON

#### TIME

1 hour 30 minutes.

#### INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.  
Write your answers in the spaces provided in this question paper.  
Answer **all eleven** questions.  
Questions **1, 3, 5, 6** and **9** should be answered in relation to the enclosed house drawings and specifications previously issued as Pre-Release Material. You should **not** bring any of the material previously issued into this examination.

#### INFORMATION FOR CANDIDATES

The total mark for this paper is 120.  
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.  
Quality of written communication will be assessed in Questions **8** and **10**.

**A scale ruler is required.**

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

<b>Total Marks</b>	
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**Section A**  
Answer **all** questions

**Use the Pre-Release Material to assist with answering  
Questions 1, 3, 5, 6 and 9.**

- 1 (a)** What is the name given to the type of roof construction used in the houses shown in the Pre-Release Material?  
\_\_\_\_\_ [1]
- (b)** What is the name given to the structural elements used to support the roof load?  
\_\_\_\_\_ [1]
- (c)** What is the correct pitch of the roof?  
\_\_\_\_\_ [1]
- (d)** What is the correct spacing of the Structural Roof Supports?  
\_\_\_\_\_ mm [2]
- (e)** How far is it from the outside of the external wall to the outside of the fascia board?  
\_\_\_\_\_ mm [2]
- (f)** What is the width and thickness of the wall plate?  
Width \_\_\_\_\_ mm      thickness \_\_\_\_\_ mm [2]

Examiner Only	
Marks	Remark

- 2 Identify each of the types of building/structure shown, and state the distinguishing characteristics of each.

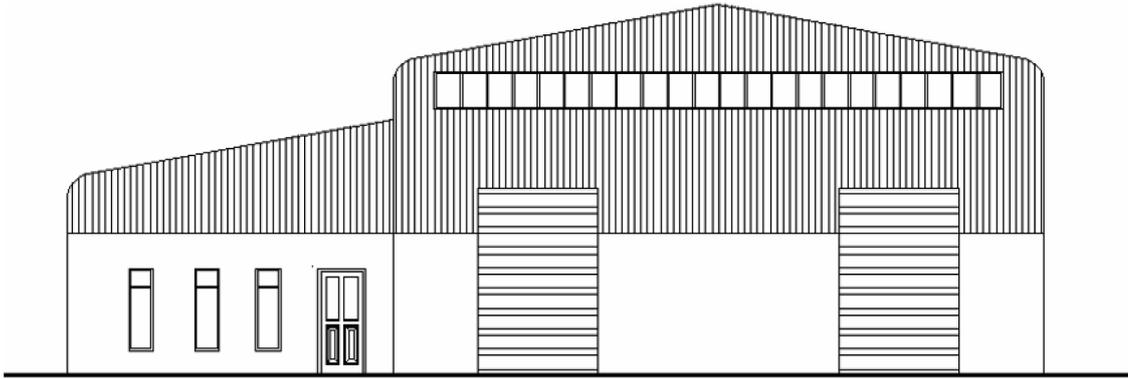


Fig. 1

- (a) (i) The type of building shown in Fig. 1 is a

\_\_\_\_\_ [1]

- (ii) The distinguishing characteristics of this type of building are:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_ [2]

Examiner Only

Marks Remark



Fig. 2

(b) (i) The type of building shown in Fig. 2 is a

\_\_\_\_\_ [1]

(ii) The distinguishing characteristics of this type of building are:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [2]

Examiner Only	
Marks	Remark



Fig. 3

(c) (i) The type of building shown in Fig. 3 is a

\_\_\_\_\_ [1]

(ii) The distinguishing characteristics of this type of building are:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_ [2]

Examiner Only	
Marks	Remark



Fig. 4

(d) (i) The type of structure shown in Fig. 4 is a

\_\_\_\_\_ [1]

(ii) The distinguishing characteristics of this type of structure are:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [2]

Examiner Only	
Marks	Remark

3 Using the attached Pre-Release Material give the following internal room dimensions in **millimetres**.

Some dimensions may need to be scaled.

(a) The length and width of the dining/kitchen for **house A**.

Length \_\_\_\_\_ mm      Width \_\_\_\_\_ mm      [4]

(b) The length and width of the largest living room in these dwellings.

Length \_\_\_\_\_ mm      Width \_\_\_\_\_ mm      [4]

(c) The overall length of **house E**.

Length \_\_\_\_\_ mm      [2]

(d) How many chimneys are required for the **houses A–E** as shown in the Pre-Release Material?

\_\_\_\_\_ [2]

(e) How many 400 mm wide windows are in the front elevation of the five houses shown in the Pre-Release Material?

\_\_\_\_\_ [2]

Examiner Only	
Marks	Remark

- 4 Building structures start to decay after they are exposed to normal weather conditions over a number of years.



Fig. 5

- (a) What are the two main defects that have occurred in the brick arch shown in Fig. 5?

\_\_\_\_\_ [1]

\_\_\_\_\_ [1]

- (b) Give two alternative ways other than a brick arch to support brick or blockwork over a window or door opening.

\_\_\_\_\_ [1]

\_\_\_\_\_ [1]

- (c) What is the function of a DPC?

\_\_\_\_\_  
\_\_\_\_\_ [1]

- (d) What is the function of a DPM?

\_\_\_\_\_  
\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark



- 6 List **five** different materials used in the construction of the walls shown in the Pre-Release Material.

Give one example of where each material would be found and the function of the material.

**Material 1** \_\_\_\_\_

Where is it found?

\_\_\_\_\_

What is its function?

\_\_\_\_\_ [3]

**Material 2** \_\_\_\_\_

Where is it found?

\_\_\_\_\_

What is its function?

\_\_\_\_\_ [3]

**Material 3** \_\_\_\_\_

Where is it found?

\_\_\_\_\_

What is its function?

\_\_\_\_\_ [3]

**Material 4** \_\_\_\_\_

Where is it found?

\_\_\_\_\_

What is its function?

\_\_\_\_\_ [3]

Examiner Only	
Marks	Remark

**Material 5** \_\_\_\_\_

Where is it found?

\_\_\_\_\_

What is its function?

\_\_\_\_\_ [3]

Examiner Only	
Marks	Remark

7



Fig. 6

- (a) Give the name of the material used to make a watertight joint between the roof and the wall shown in **Fig. 6**

\_\_\_\_\_ [1]

- (b) List the names of **four** other materials used to construct the building shown in **Fig. 6**

\_\_\_\_\_ [1]

\_\_\_\_\_ [1]

\_\_\_\_\_ [1]

\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

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9 Fig. 7 below shows an incomplete head detail with a 200 mm wide inner skin which is to be used for the house shown in the Pre-Release Material.

Complete the drawing and include all labels from the list below:

Outer skin of blockwork  
 Damp Proof Course  
 Mortar joint  
 Internal plaster  
 Double Glazing

Inner skin of blockwork  
 Cavity Insulation  
 Sand and Cement external render  
 Window frame  
 Concrete head

10 marks for labels and 10 for drawings.

[10]

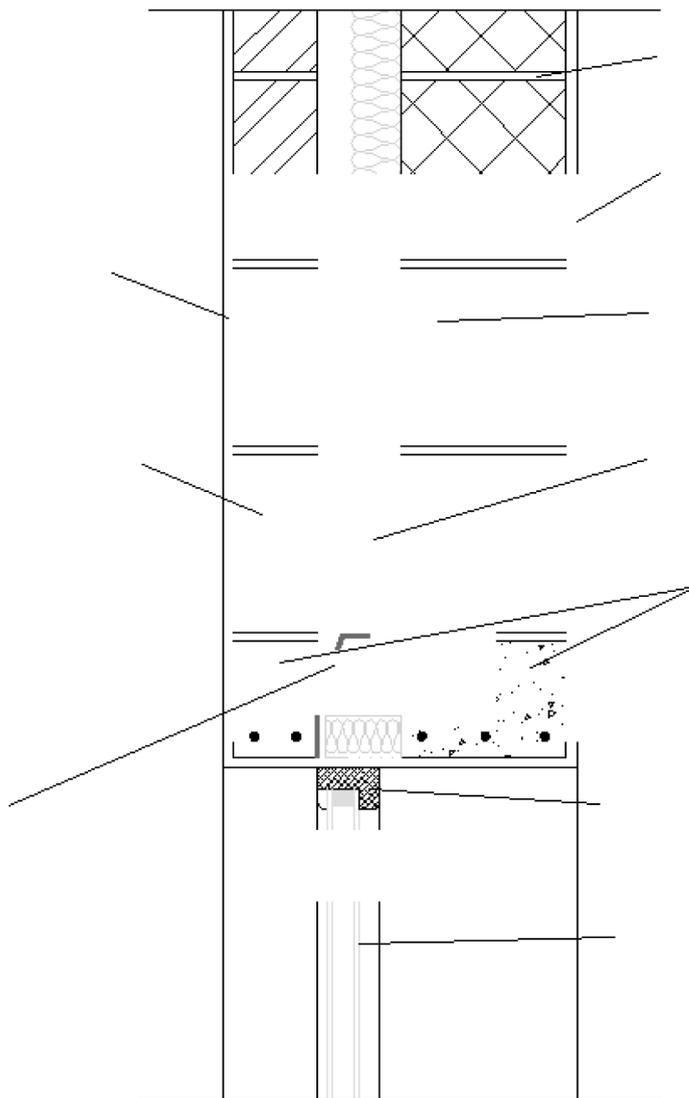


Fig. 7

[10]

Examiner Only	
Marks	Remark

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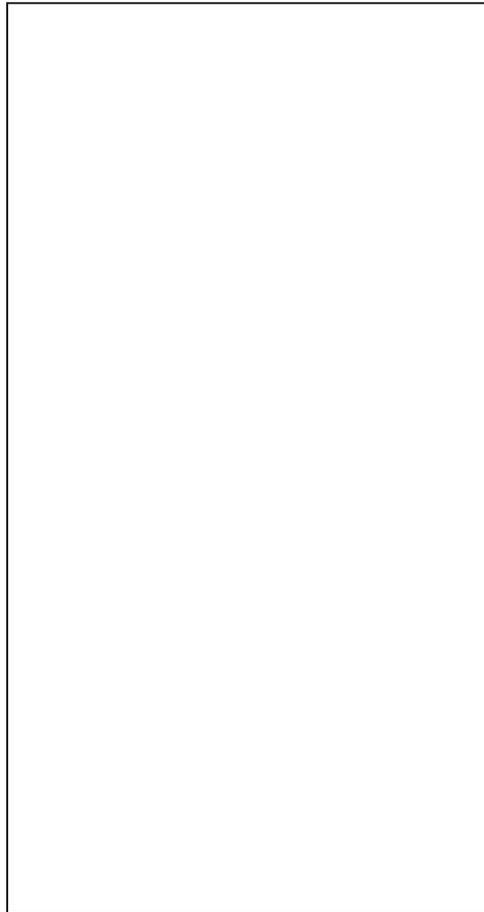




11 (a) Draw a timber door in the box below which would fulfil the following specifications:

- The top half of the door is glazed
- Two solid timber panels in the bottom half
- Show the position of three hinges

[5]



(b) Add the following labels to your drawing:

- Timber stiles
- Top Rail
- Muntin
- Bottom Rail
- Glass

[5]

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**THIS IS THE END OF THE QUESTION PAPER**

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Examiner Only	
Marks	Remark







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