



General Certificate of Secondary Education  
Summer 2016

Centre Number

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Candidate Number

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# Construction and the Built Environment

Assessment Unit 1  
The Construction Industry for the 21st Century



GCB11

[GCB11]

**MONDAY 13 JUNE, 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 ten** questions.

Questions **1, 2, 3** 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.

You will be provided with a clean copy of the Pre-Release Material.

### 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 **7** and **9**.

**A scale ruler is required.**

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

<b>Total Marks</b>	
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## Section A

Answer **all** questions

Use the Pre-Release Material to assist with answering  
Questions 1, 2, 3 and 9.

- 1 (a) What **type of external wall construction** is used for the house shown in the Pre-Release Material?

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

- (b) The house shown in the Pre-Release Material has been designed using Cellular Construction. List **two** of the main characteristics of Cellular Construction.

(i) \_\_\_\_\_ [1]

(ii) \_\_\_\_\_ [1]

- (c) List below **eight** of the main functional requirements of walls.

(i) \_\_\_\_\_ [1]

(ii) \_\_\_\_\_ [1]

(iii) \_\_\_\_\_ [1]

(iv) \_\_\_\_\_ [1]

(v) \_\_\_\_\_ [1]

(vi) \_\_\_\_\_ [1]

(vii) \_\_\_\_\_ [1]

(viii) \_\_\_\_\_ [1]

Examiner Only

Marks

Remark

- 2 (a) Identify **three** of the main roles that an Architect would have in relation to the design and construction of the house shown in the Pre-Release Material.

Architect

1. \_\_\_\_\_  
\_\_\_\_\_
  2. \_\_\_\_\_  
\_\_\_\_\_
  3. \_\_\_\_\_  
\_\_\_\_\_
- [3]

- (b) Identify **three** of the main roles that the following personnel would have for the project shown in the Pre-Release Material.

Bricklayer

1. \_\_\_\_\_  
\_\_\_\_\_
  2. \_\_\_\_\_  
\_\_\_\_\_
  3. \_\_\_\_\_  
\_\_\_\_\_
- [3]

Plasterer

1. \_\_\_\_\_  
\_\_\_\_\_
  2. \_\_\_\_\_  
\_\_\_\_\_
  3. \_\_\_\_\_  
\_\_\_\_\_
- [3]

Examiner Only	
Marks	Remark

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

Some dimensions may need to be scaled.

- (i) The length and width of the master bedroom.

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

- (ii) The overall width of the house.

Width \_\_\_\_\_ mm [2]

- (iii) The length and width of the hall.

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

- (b) How many **internal doors** are in the complete house shown in the attached Pre-Release Material?

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

- (c) What is the width of the external double doors from the kitchen/dining area?

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

Examiner Only	
Marks	Remark





Fig. 1

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- 5 (a) Give the name for the type of pitched roof construction used on the house shown in Fig. 1.

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

- (b) List **three** common roof coverings used to provide the waterproof covering on the type of roof shown in Fig. 1.

(i) \_\_\_\_\_ [1]

(ii) \_\_\_\_\_ [1]

(iii) \_\_\_\_\_ [1]

- (c) What is the normal spacing of truss rafters for a pitched roof as shown in Fig. 2?

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



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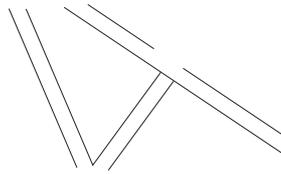
Fig. 2

Examiner Only	
Marks	Remark

(d) Complete the drawing of the truss rafter shown in **Fig. 3**. This truss is to be used on a roof of equal pitch at either side.

You should show the following as part of your drawing:

- Overall span of the truss
- Overhang either end
- Include all struts, rafters and ties
- The likely position of the wall plate on either side.



**Fig. 3**

[8]

Examiner Only	
Marks	Remark



(b) Define the following terms as they relate to the window shown in Fig. 4.

(i) Head \_\_\_\_\_  
\_\_\_\_\_ [1]

(ii) Sill \_\_\_\_\_  
\_\_\_\_\_ [1]

(iii) Stile \_\_\_\_\_  
\_\_\_\_\_ [1]

(iv) Transom \_\_\_\_\_  
\_\_\_\_\_ [1]

(v) Mullion \_\_\_\_\_  
\_\_\_\_\_ [1]

(vi) Fixed Light \_\_\_\_\_  
\_\_\_\_\_ [1]

(vii) Opening casement \_\_\_\_\_  
\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark



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**(Questions continue overleaf)**



Fig. 5

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Examiner Only

Marks Remark

- 8 (a) What is the correct name given to the type of structure shown in Fig. 5? Your answer should include the material from which the frame is made.

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

- (b) What is the correct name given to the horizontal members in this type of structure?

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

- (c) What is the correct name given to the vertical members in this type of structure?

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

- (d) How are connections made to structural elements prior to the structure arriving on site?

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

- (e) How are connections made between structural elements when they arrive on site?

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



Fig. 6

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- (f) Fig. 6 shows an alternative material in use to make a structure. Give the name of the material being used to make the frame.

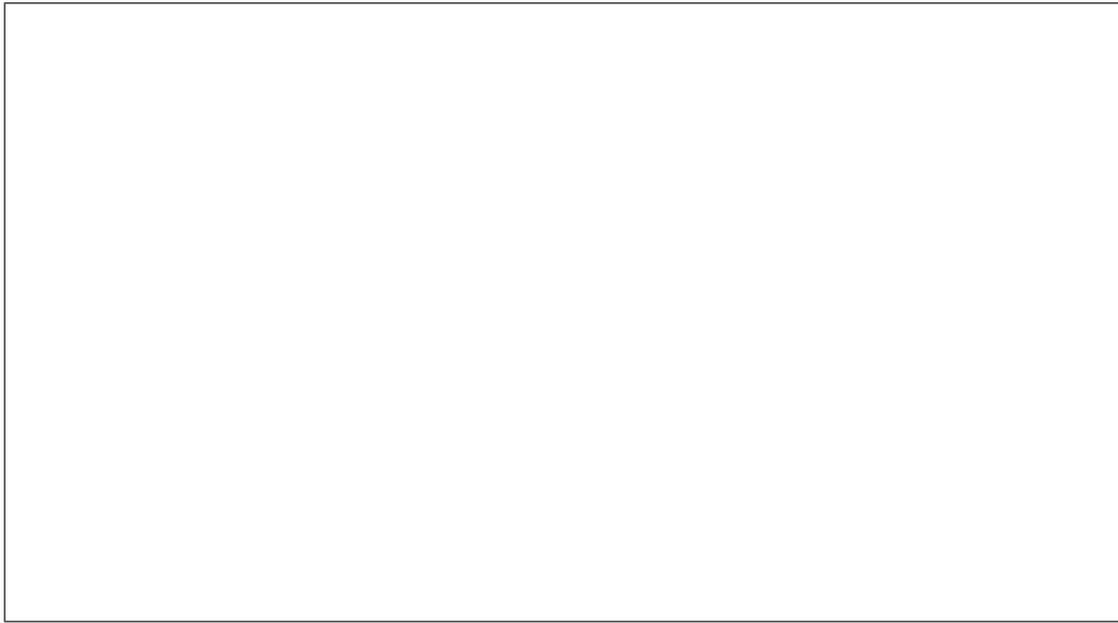
\_\_\_\_\_ [2]

- (g) Make a sketch in the box below to show how the material used in Fig. 5 can be joined to a concrete pad foundation.

[6]

Examiner Only	
Marks	Remark

(h) Make a sketch in the box below to show how the horizontal and vertical members of the material used in **Fig. 5** can be joined together on site.



[6]

Examiner Only	
Marks	Remark





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

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## Construction and the Built Environment

Pre-Release Material  
EXAMINATION COPY

Assessment Unit 1  
The Construction Industry for the 21st Century

[GCB11]

**MONDAY 13 JUNE, AFTERNOON**

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GCB11

You must use **this** clean copy of the Pre-Release Material in the examination and **not** your own annotated copy.

**NOTE: Students will require the use of a scale ruler during the examination.**

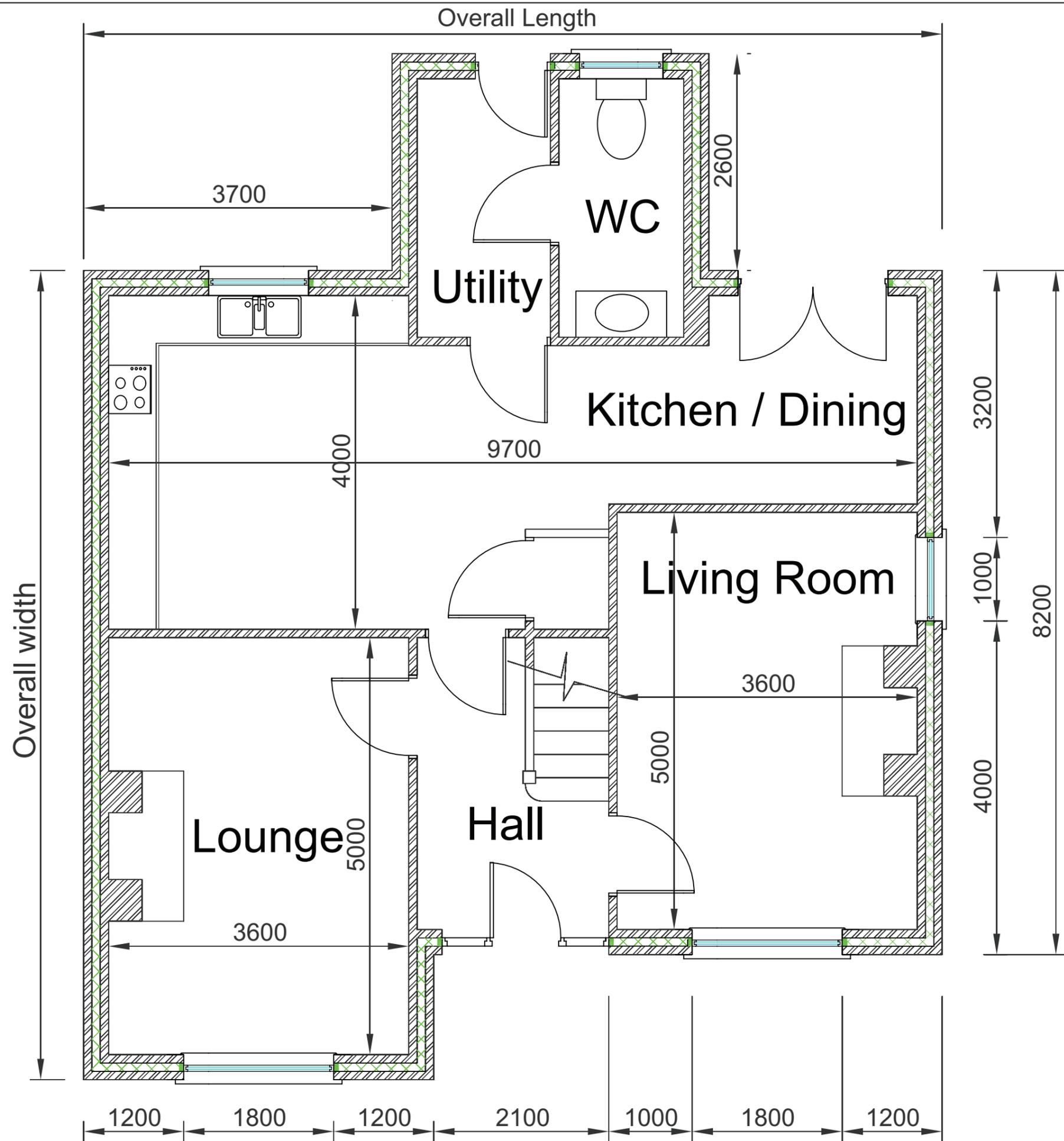
## Construction and the Built Environment

### Introduction

A copy of the Pre-Release Material for this examination is included in this paper and three associated drawings.

The materials contain drawings and specifications relating to a house which is to be constructed locally. This house forms part of a mixed use development constructed from facing brickwork. The site currently employs 25 people.

**NOTE Students will require the use of a scale ruler during the examination.**

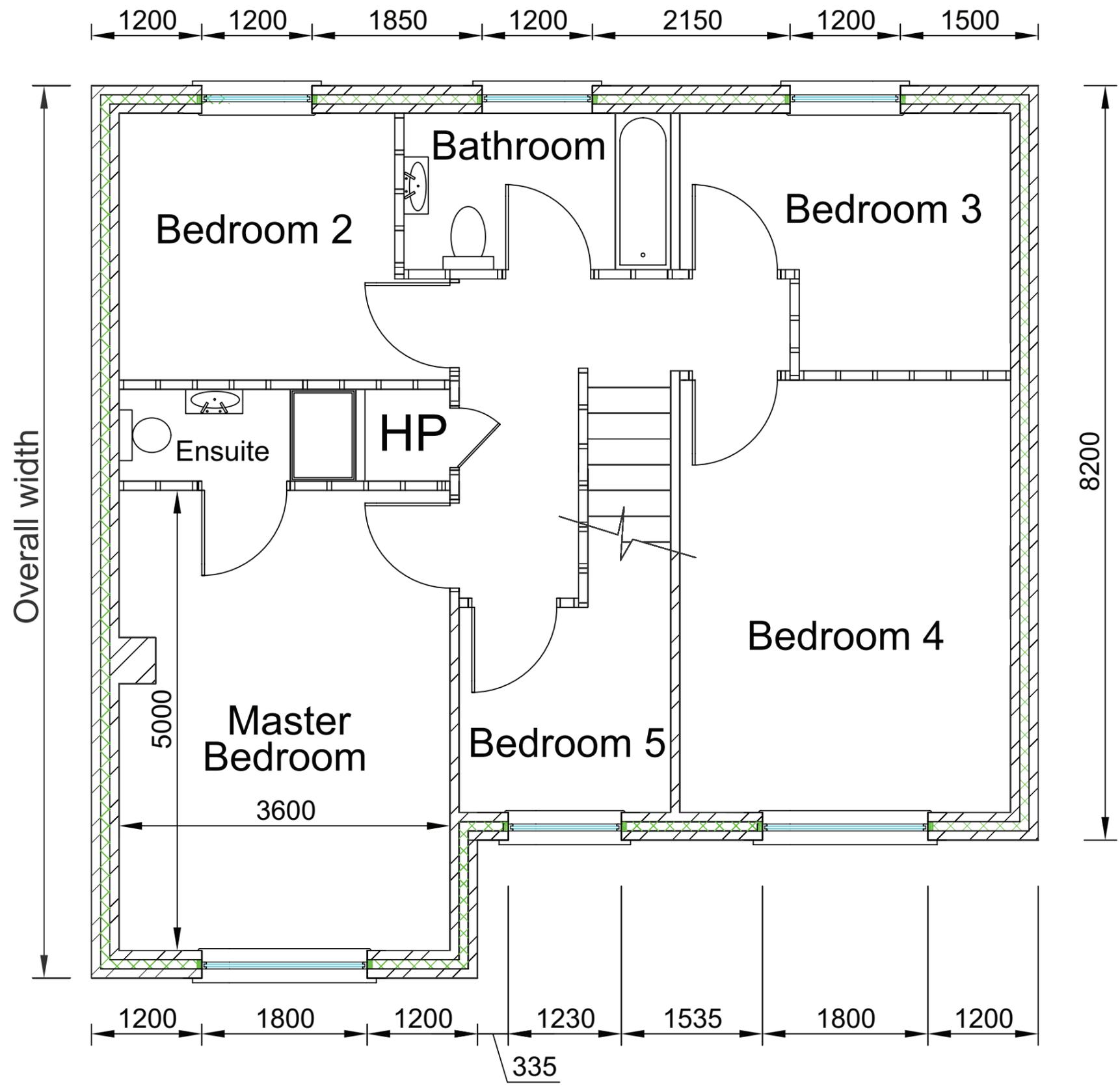


**GCSE Construction and the Built Environment**

Ground Floor Plan View Drawing No 1

**Unit 1**  
**Pre-release material**  
**January 2016 - Summer 2016**  
**SCALE: 1: 50**





# GCSE Construction and the Built Environment

First Floor Plan View Drawing No 2

**Unit 1**

Pre-release material

January 2016 - Summer 2016

**SCALE: 1: 50**





## Specification

**Grey concrete interlocking roof tiles.  
White powder coated aluminium  
gutter.**

**White uPVC fascia and barge board.  
White uPVC windows and front door.  
Precast concrete window sills.  
Precast concrete chimney coping.**

## GCSE Construction and the Built Environment

Front Elevation Drawing No 3

**Unit 1**

**Pre-release material**

**January 2016 - Summer 2016**

**SCALE: 1: 50**

