



Rewarding Learning

General Certificate of Secondary Education
2015

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]

THURSDAY 11 JUNE, MORNING

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, 2, 3, 8 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 **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	

Total Marks	
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- 2 (a) Identify **three** of the main roles that a Building Services Engineer would have in relation to the building shown in the pre-release material.

Building Services Engineer

1. _____

 2. _____

 3. _____

- [3]

- (b) Identify **three** of the main roles that the following craft operatives would have for the project shown in the pre-release material.

Plumber

1. _____

 2. _____

 3. _____

- [3]

Electrician

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 living room.

Length _____ mm Width _____ mm [4]

- (ii) The overall length of the dwelling.

Length _____ mm [2]

- (iii) The length and width of bedroom 1.

Length _____ mm Width _____ mm [4]

- (iv) What is the overall width of the external doors in the living room?

_____ mm [2]

- (b) How many 1200 mm wide windows are in the ground floor of the dwelling?

_____ [2]

Examiner Only	
Marks	Remark

5 Fig. 2 shows a timber flat roof.

Examiner Only	
Marks	Remark

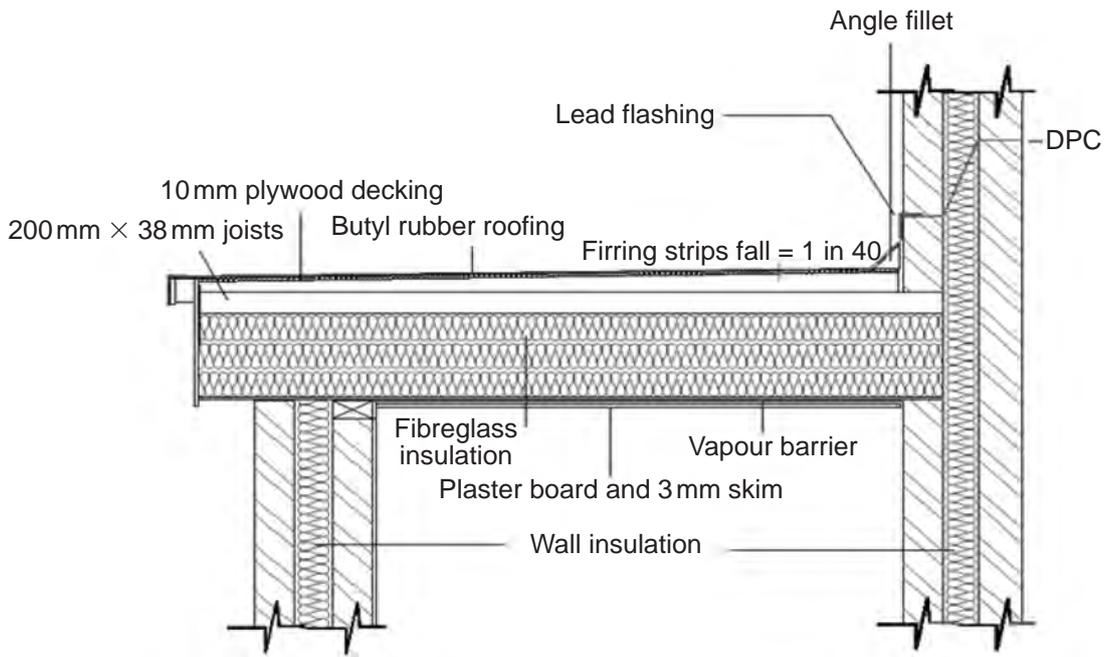


Fig. 2

State below the function of the following elements and the material from which the element in **Fig. 2** is made.

1. Roof joist _____
 _____ [2]
2. Waterproof sheet _____
 _____ [2]
3. Decking _____
 _____ [2]
4. Furring pieces _____
 _____ [2]
5. Flashing _____
 _____ [2]

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(Questions continue overleaf)

6 Fig. 3 shows the foundation plan for a rectangular framed structure.

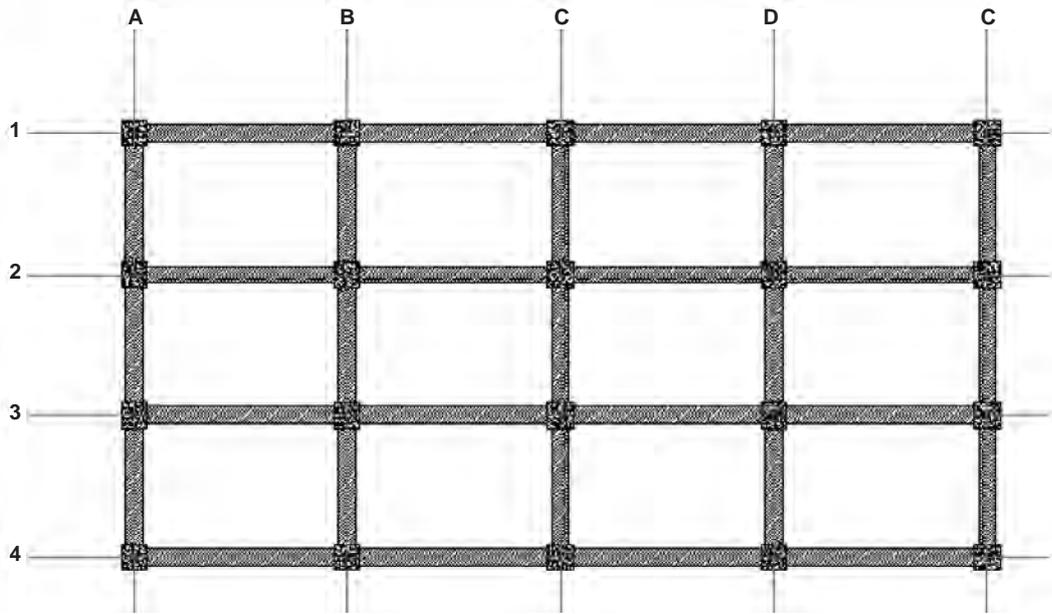


Fig. 3

(a) What are the **two** most common materials from which to make a rectangular framed structure?

1. _____ [1]

2. _____ [1]

(b) What is the correct name given to the horizontal members and vertical members used to construct a rectangular framed structure?

Horizontal members are called _____ [1]

Vertical members are called _____ [1]

(c) List **six** advantages of a steel rectangular framed structure.

1. _____ [1]

2. _____ [1]

Examiner Only	
Marks	Remark

9 Fig. 5 below shows an incomplete detail of a foundation / floor / rear wall of the dwelling similar to the one shown in the pre-release material.

(a) Complete the drawing.

(b) Add the annotations from the list below.

You will need to insert some additional arrows.

Outer skin of block work

Cavity Insulation

Inner skin of block work

100 mm floor screed

100 mm floor insulation

D.P.M.

Existing Ground Level

D.P.C.

100 mm concrete subfloor

Hardcore

Wet dash

Internal Plaster

[10]

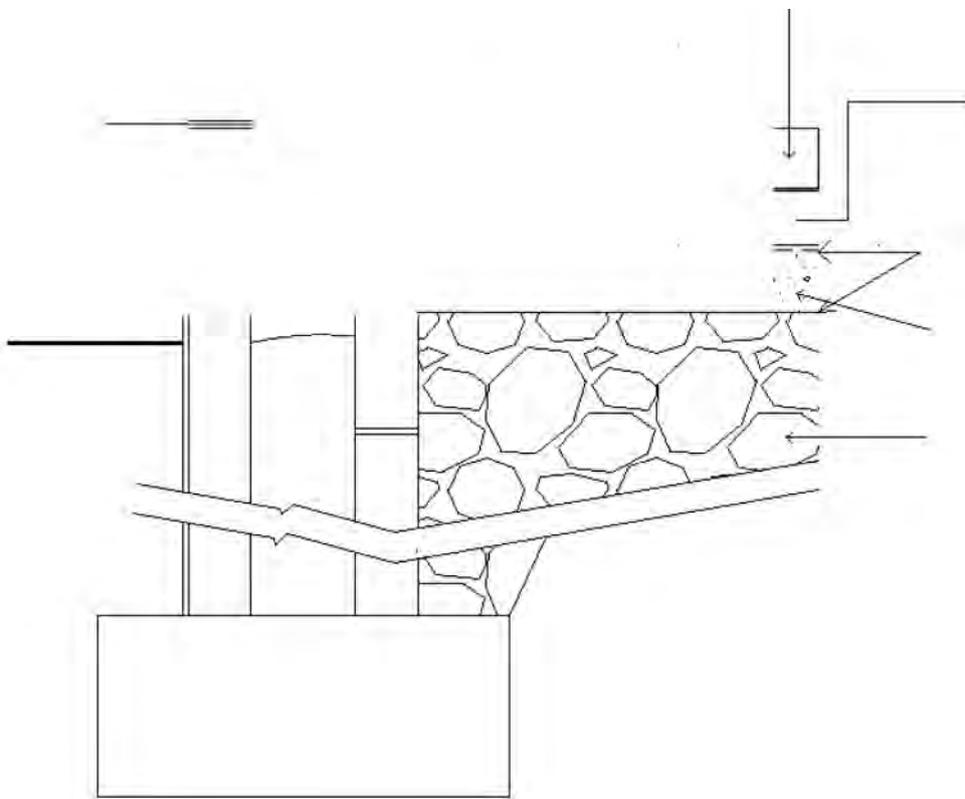


Fig. 5

[10]

Examiner Only	
Marks	Remark

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will be happy to rectify any omissions of acknowledgement in future if notified.

Introduction

A copy of the Pre-Release Material is included in the following pages.

The Pre-Release Material contains an A3 drawing, photographs and specifications relating to a dwelling. Photographs 1–5 relate to the floor plan included (Drawing 1). This dwelling has been constructed close to a scenic mountain range on the edge of a small village.



Photograph 1

The landowner is a private client who has employed the following people to oversee the design of his development:

- Architect
- Building Services Engineer
- Quantity Surveyor
- Contractor

The Contractor will employ the following team:

- Site Engineer/Manager
- Plasterers
- Joiners
- Electricians
- Plumbers

Your client has strict planning guidelines with which he must comply, including a maximum ridge height, and external wall finishes.

Specification

Cavity Wall construction

Outer leaf: 100 mm concrete block, 150 mm cavity, 150 mm insulation held in position using stainless steel insulation retaining wall ties to BS 1243.

Inner leaf: 100 mm concrete block work. Provide sand/cement plaster and carlite finish to inner face. Wall ties to be spaced at 750 mm horizontally, 450 mm vertically and un-bonded jamb ties to be spaced 300 mm vertically. 25 mm insulation to all jambs, between lintels and behind sill. D.P.C. in front of insulation in each case.

External Finishes walls

The front elevation is to be faced with a 200 mm skin of natural stone sourced from the local area, in keeping with surrounding rock types.

Remaining external walls to be wet dash, painted white.

External finishes roofs

Natural slate in standard sizes.

Dark brown plastic fascia board.

Dark brown 100 mm half round gutter.

Photograph 2



Window

Dark brown plastic windows.

Dormer window structure sheeted with white plastic cladding.

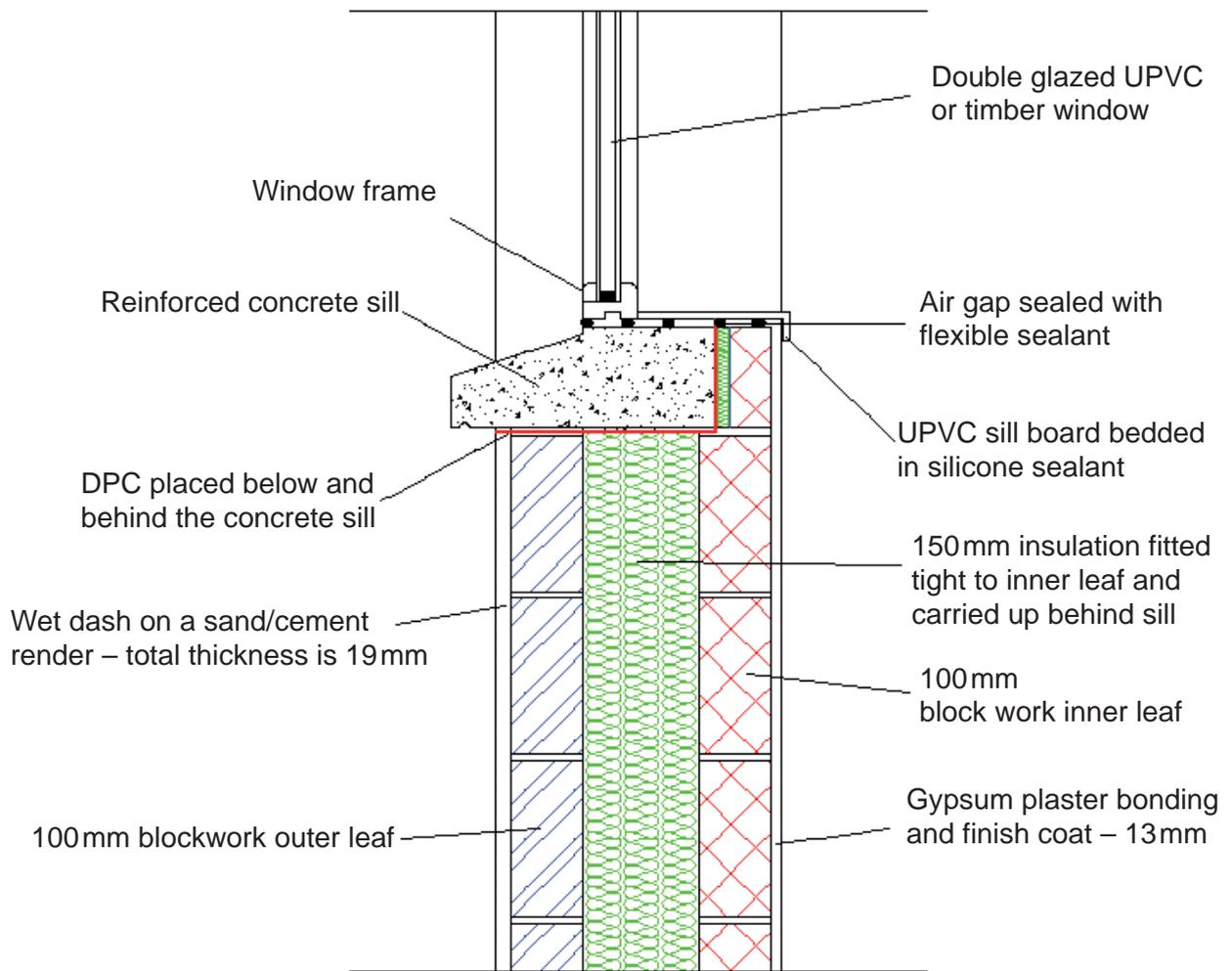
Photograph 3



Solid floor construction

Seal all floors with two coats of penetrating liquid dust proofer, 100 mm fine aggregate screed, 100 mm high density floor insulation. Visqueen 1200 grade D.P.M., 100 mm concrete sub-floor, 150 mm consolidated hard core.

Sill Detail for Living Room window A



Damp proof course

Vertical D.P.C.'s to all window and external door jambs, horizontal D.P.C. behind and under sills and stepped lintels. Wall D.P.C.'s to external skin, layers at 150mm minimum above finished ground levels.

D.P.C.'s to internal walls to overlap and be bonded to floor D.P.M. by a minimum of 215mm.

Foundations

600mm x 300mm foundations to 300mm walls.

450mm x 300mm foundations to 100mm walls.

The above to be concrete strip foundations. The size and depth of foundations shown to be determined and agreed with Building Control when sub/soil bearing pressures are known.

Cavity fill to external walls to stop a minimum of 150mm below D.P.C.

Photograph of a window as constructed on site for the external elevation



Photograph 4

Photograph of Window B as constructed on site for the internal elevation



Photograph 5



Photograph 6

Dry stone wall used to construct the boundary fence around the garden.

Excavation to reduce levels in preparation for construction of the dwelling.

Photograph 7





General Certificate of Secondary Education

Construction and the Built Environment

Pre-Release Material

Examination Copy

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

[GCB11]

JANUARY 2015 AND SUMMER 2015



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.

