

# X227/12/01

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NATIONAL  
QUALIFICATIONS  
2014

FRIDAY, 6 JUNE  
9.00 AM – 11.00 AM

BUILDING  
CONSTRUCTION  
HIGHER

100 marks are allocated to this paper.

Attempt **all** questions in Section A (40 marks).

Attempt any **two** questions in Section B (30 marks each).

Worksheets are provided for Questions 6, 7(c), 8(a) and 8(c). Hand these in with your answer book.



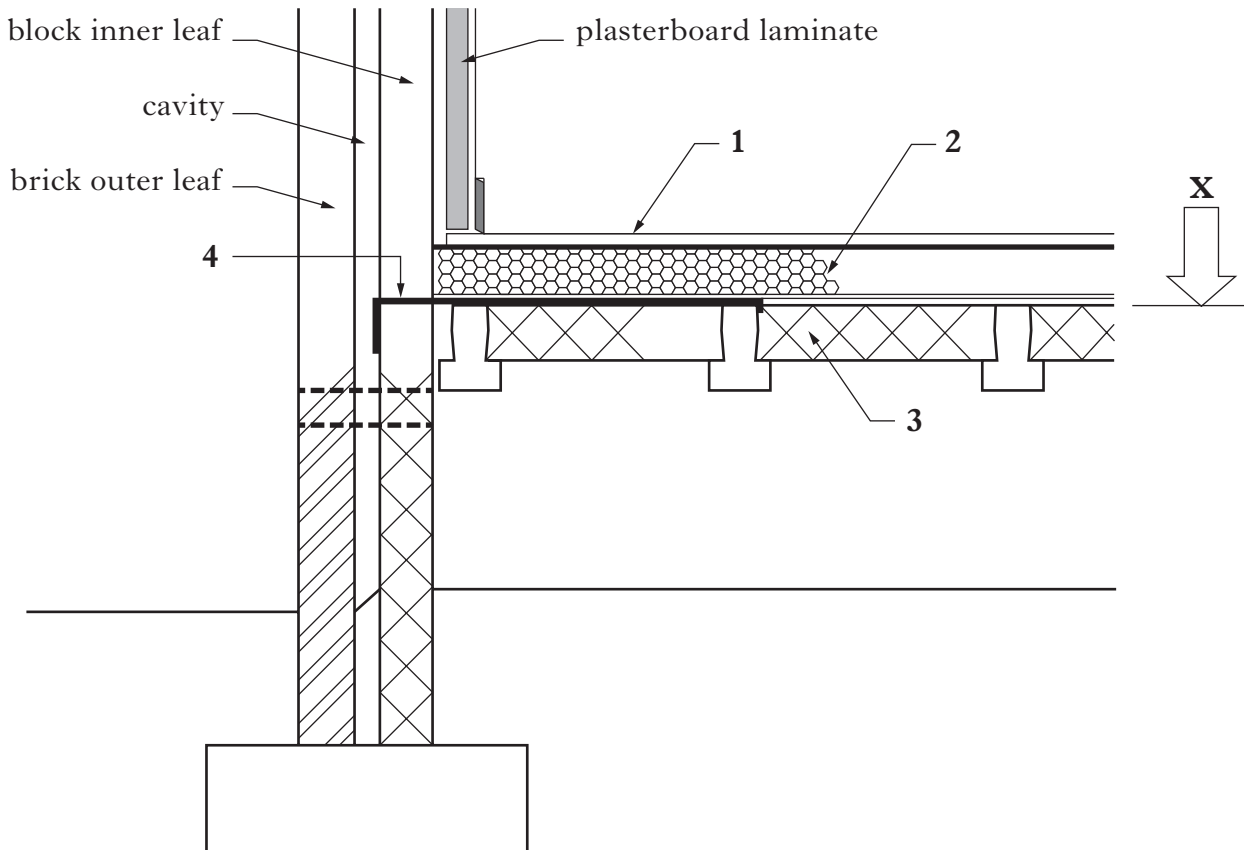
## SECTION A

**Attempt all the questions in this Section (total 40 marks)**

1. (a) A *desk study* is the first stage of a site investigation process to assess the suitability of a site.  
List **four** sources of information that may be used in a *desk study*. 4
- (b) Briefly describe the formation of a 3 metre deep *trial pit* for a ground investigation and state **two** items of information which may be obtained from it. 4
2. (a) State **two** reasons why top soil/vegetation soil is removed to spoil heaps prior to foundation work commencing on site. 2
- (b) State **two** factors which must be taken into consideration when deciding on the depth of a concrete *strip foundation* below finished ground level. 2
- (c) Prepare an annotated sketch to show a typical vertical cross section through **each** of the following foundation types: 4
- deep strip foundation;
  - raft foundation.

3. (a) **Figure Q3** shows a vertical cross section through a concrete precast suspended ground floor of a dwelling house.

- (i) State the name of the component parts numbered 1 – 4. 4
- (ii) Explain the purpose of component number 4. 2



**Figure Q3**

(b) Briefly describe an alternative solution to finishing the floor above the level marked **X** in **Figure Q3**.

3

**[Turn over**

4. (a) Briefly describe the operation of a *tilt and turn* window. 4
- (b) Prepare an annotated sketch to show a horizontal cross section through a window jamb in a timber framed cavity wall. Include all wall finishes. 5
5. Briefly describe, with the aid of annotated sketches, how the following roof finishes would be applied to the structure of the building:
- natural slates;
  - concrete interlocking tiles. 6
- (40)**

## SECTION B

Attempt any **TWO** questions in this Section (total 60 marks)

6. **Worksheet Q6** shows the site plan for two proposed new dwelling houses.
- (a) Briefly explain **two** important points to consider in selecting an appropriate location for each of the following:
- site access;
  - storage of materials;
  - temporary accommodation. 6
- (b) On the **Worksheet Q6**, sketch a suitable location for **each** of the following:
- site access;
  - storage of materials;
  - temporary accommodation. 3
- (c) Briefly describe how the following materials should be correctly stored on site:
- trussed rafters;
  - concrete blocks;
  - uPVC windows. 6
- (d) Briefly describe, with the aid of annotated sketches, **two** methods by which the contractor may prevent the public from entering the site along the *South* and *East* boundaries. 4
- (e) A trench 2.0 metres deep requires to be excavated to accommodate the new sewer which is to be connected to the existing sewer running within the existing main distributor road.
- Briefly describe the trench support arrangements during the excavation and placing of the new sewer. 4
- (f) (i) Briefly explain how a contractor would obtain a supply of concrete for the ground floor slabs. 3
- (ii) Briefly describe a common method of placing the concrete in the correct position. 3
- (g) State the name given to a common type of reinforcement suitable for the concrete ground floor slabs. 1
- (30)**

[Turn over

7. (a) Site investigation is to be carried out on a site using *light percussion boring* (shell and auger).  
Briefly describe, with the aid of an annotated sketch, this exploration technique. 6
- (b) State a *laboratory test* carried out on a soil sample. 2
- (c) **Worksheet Q7(c)** shows an incomplete detail drawing of a foundation and *in-situ* concrete ground supported floor slab to a dwelling house.  
On the **Worksheet Q7(c)**, complete the drawing, in proportion, to show the following:  
  - support for the concrete slab;
  - how moisture is prevented from entering the building;
  - finished ground level;
  - insulation;
  - floor finish. 10
- (d) Briefly describe, with the aid of an annotated sketch, how the following floor finishes should be applied to the *in-situ* concrete ground floor slab:  
  - laminated floor;
  - sheet vinyl. 6
- (e) A partition wall is to be constructed of concrete block and finished on either side with plasterboard (wallboard).  
Briefly describe **two** ways the plasterboard may be fixed to the blockwork. 6
- (30)**

8. (a) **Worksheet Q8(a)** shows an incomplete detail drawing for a foundation and a suspended timber ground floor to a dwelling house.

On the **Worksheet Q8(a)**, complete the drawing to an appropriate scale to show the following:

- support for the suspended timber ground floor;
- how moisture is prevented from entering the building;
- solum treatment;
- insulation;
- ventilation;
- floor finish;
- two critical dimensions.

10

- (b) Prepare annotated sketches to illustrate the following terms relating to a stair:

- (i) half landing;
- (ii) tread.

2

- (c) **Worksheet Q8(c)** shows an architect's detail of a new private stair which rises to an attic conversion comprising two bedrooms and a bathroom.

- (i) On **Worksheet Q8(c)**, state the names of the component parts of the stair lettered A to F.

6

- (ii) Using the information given on the **Worksheet Q8(c)**, state the minimum permitted dimension for each of the following:

- height of handrail;
- going at points **X** and **Y**;
- width of stair.

3

- (iii) Using the dimensions given on the **Worksheet Q8(c)**, calculate the *rise*, *going* and *pitch* of the stair and state whether or not the stair complies with the recommendations given in current standards.

5

- (d) Briefly describe, with the aid of annotated sketches, how ceramic wall tiles would be applied to the plasterboard finish of the bathroom walls.

4

**(30)**

[END OF QUESTION PAPER]

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**BUILDING  
CONSTRUCTION  
HIGHER**

Worksheets for Questions 6,  
7(c), 8(a) and 8(c)

**Fill in these boxes and read what is printed below.**

Full name of centre

Town

Forename(s)

Surname

Date of birth

Day    Month    Year

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Scottish candidate number

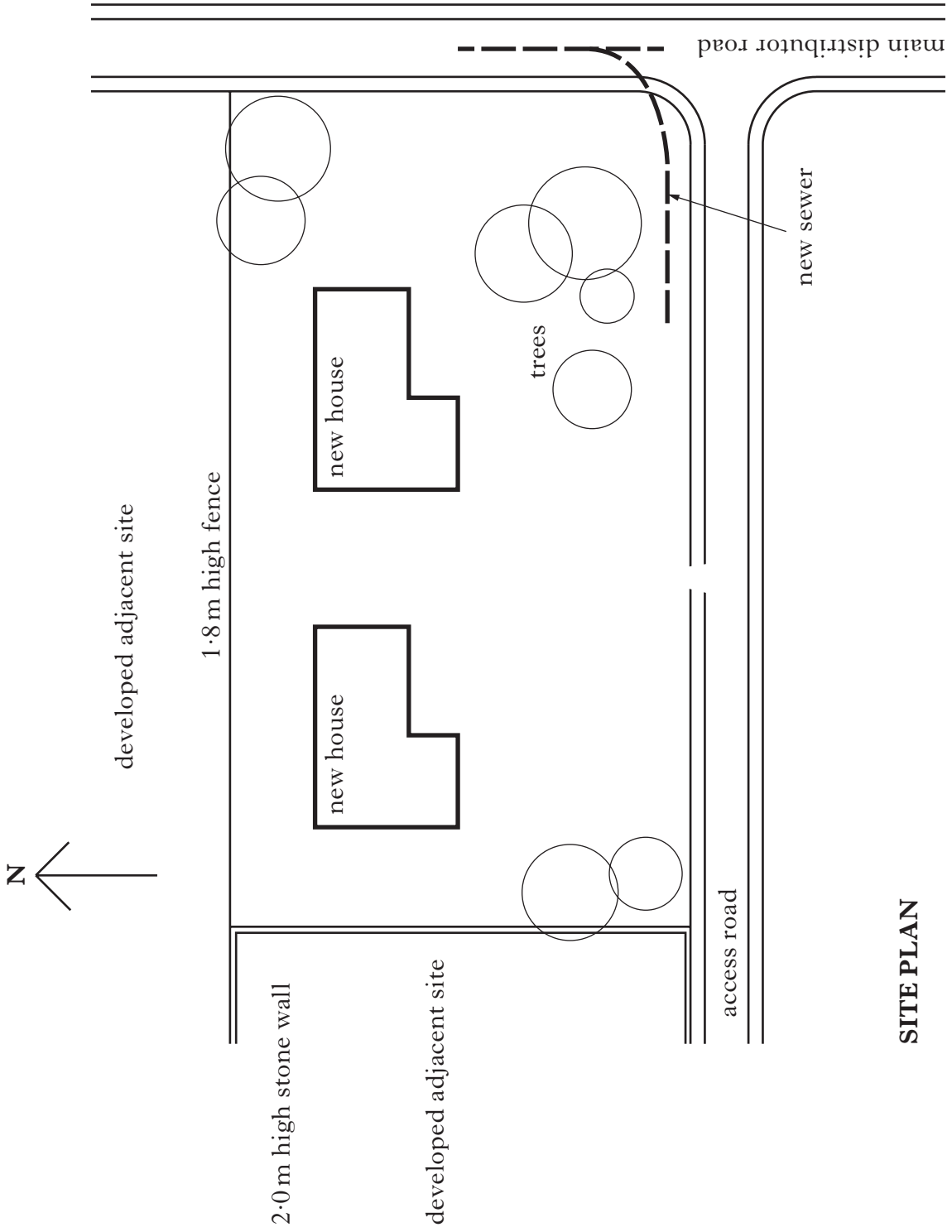
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Number of seat

To be inserted inside the front cover of the candidate's answer book and returned with it.

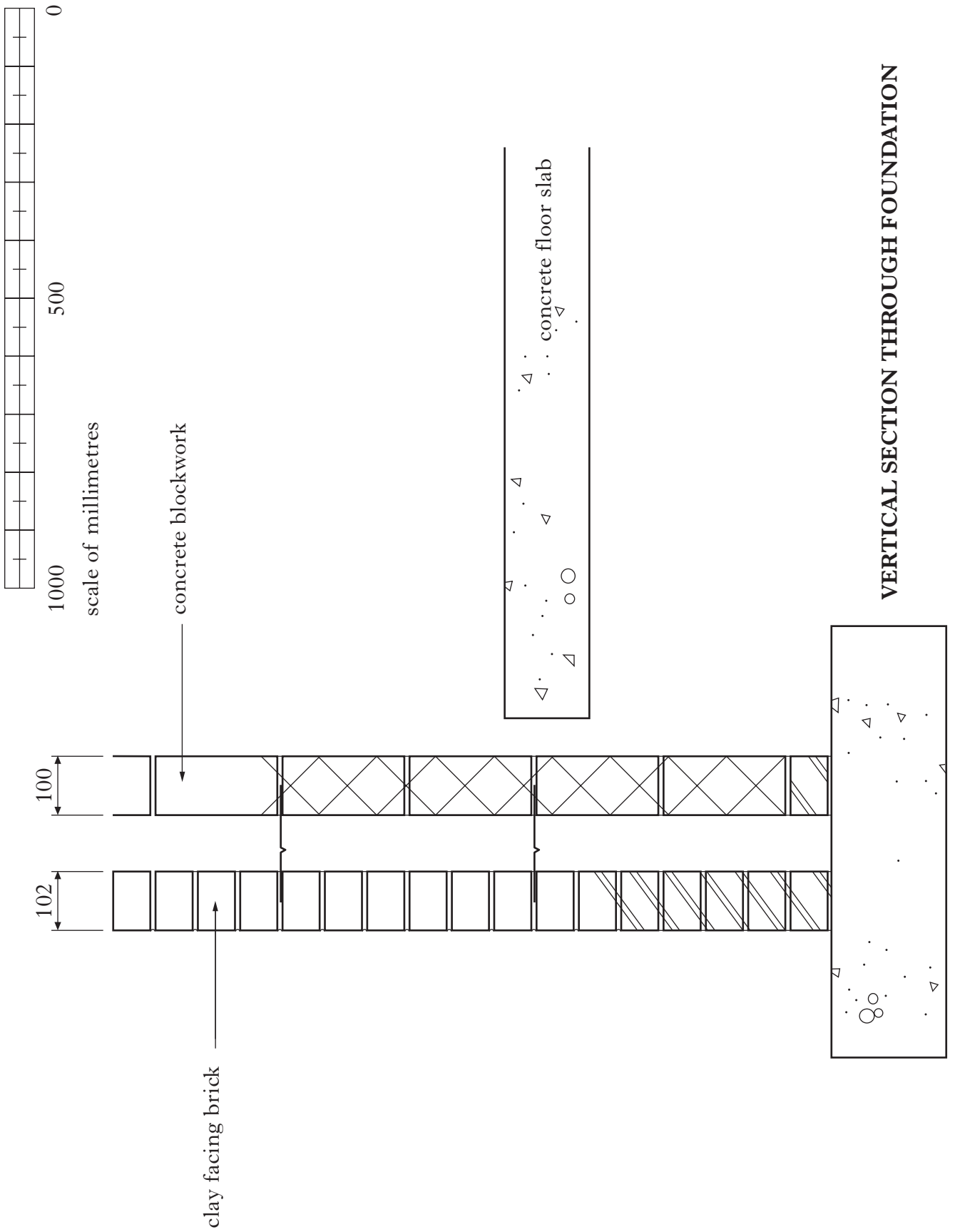


WORKSHEET Q6

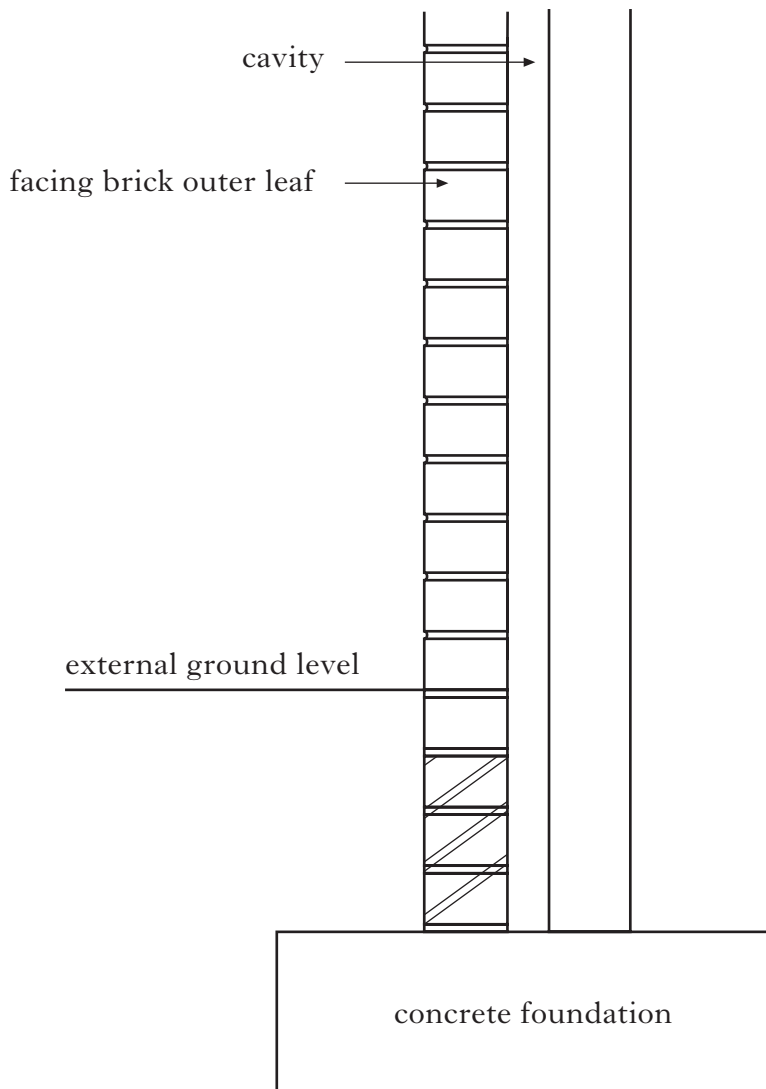


**SITE PLAN**

WORKSHEET Q7(c)

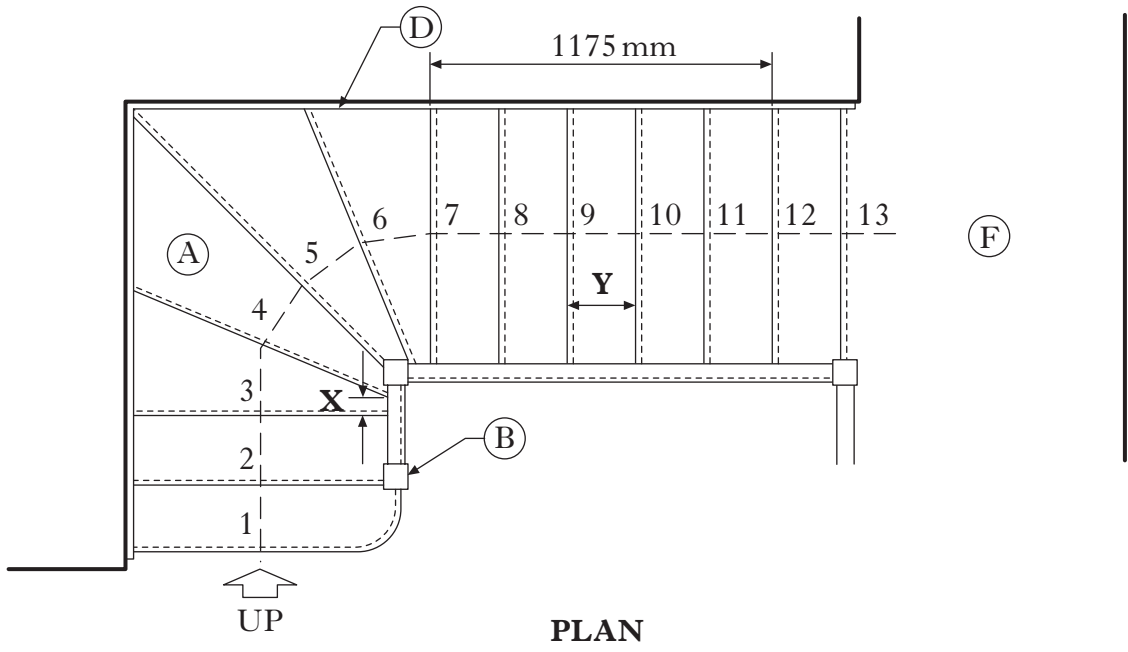


**WORKSHEET Q8(a)**



**VERTICAL SECTION THROUGH FOUNDATION**

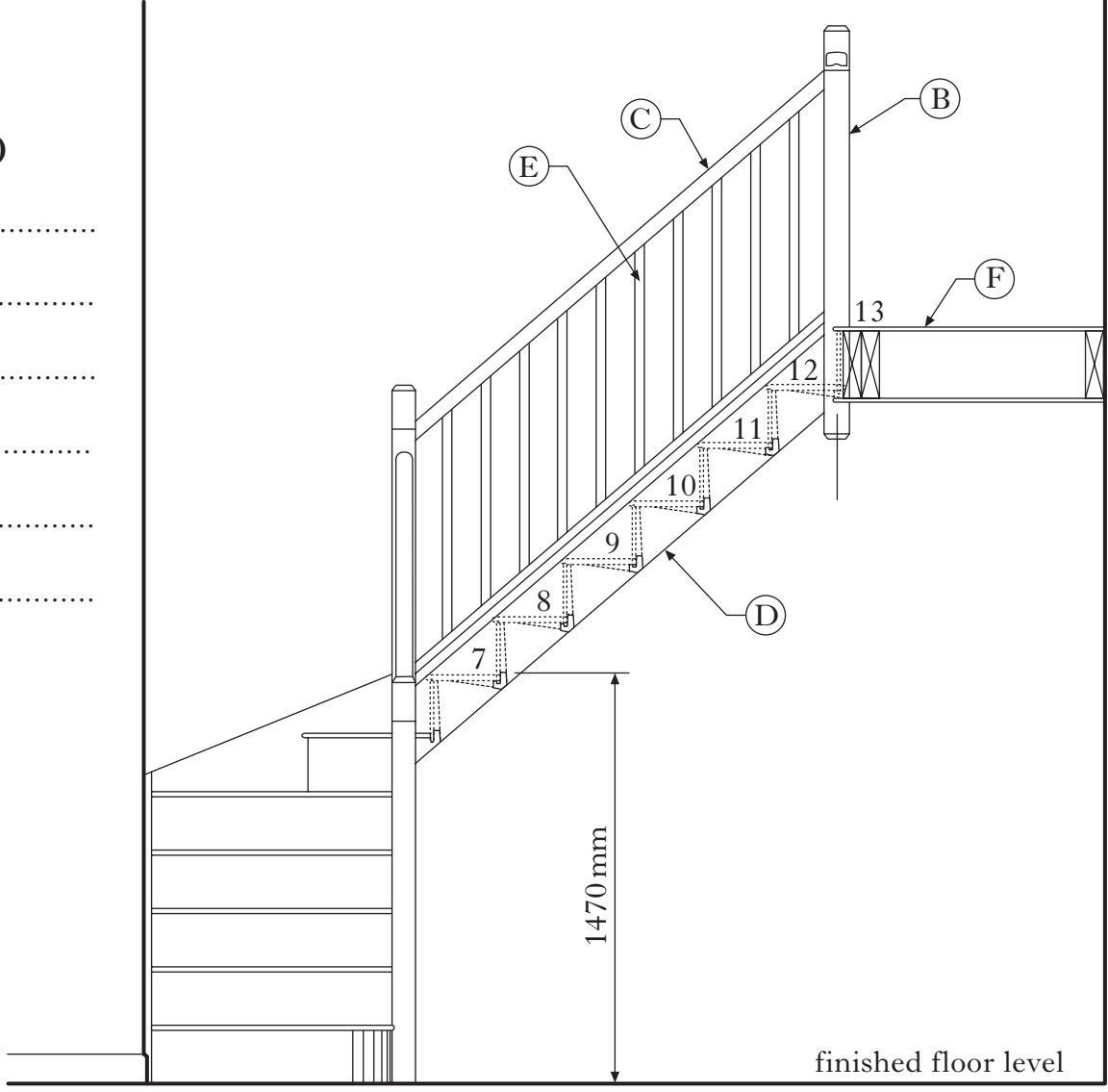
**WORKSHEET Q8(c)**



**PLAN**

**Question 8(c)(i)**

- A .....
- B .....
- C .....
- D .....
- E .....
- F .....



**ELEVATION**

[END OF WORKSHEETS]

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