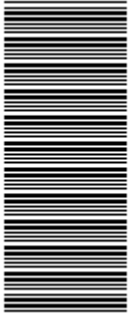


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higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

**T(160)(E)(A5)T
AUGUST EXAMINATION
NATIONAL CERTIFICATE
BUILDING DRAWING N2**

(8090012)

**5 August 2014 (Y-Paper)
13:00–17:00**

REQUIREMENTS: ONE A2 drawing sheet

Candidates may use drawing instruments

This question paper consists of 8 pages.

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA
NATIONAL CERTIFICATE
BUILDING DRAWING N2
TIME: 4 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Answer all the questions.
 2. Read ALL the questions carefully.
 3. Number the answers according to the numbering system used in this question paper.
 4. Marks will be allocated for neat work that is well set out and organised.
 5. Marks will also be allocated for line quality and labelling of drawings.
 6. All work you do not want to be marked must be clearly crossed out.
 7. Write neatly and legibly.
-

QUESTION 1

FIGURE 1 below shows the outline of a one-brick wall.

Using a scale of 1 : 10 and the same dimensions, draw the TWO alternative plan courses in English bond as well as the front elevation SIX courses high as seen from A.

Include stop ends where necessary and clearly label the queen closers in all THREE views.

Make sure all views are drawn directly below one another.

Use standard size bricks: Length 220 mm, width 110 mm and height 75 mm

It is not necessary to include any dimensions.

Provide an appropriate title and scale.

Mark allocation:

CORRECTNESS OF ALL PARTS OF DRAWING		OVERALL IMPRESSION	TITLE	SCALE
Course 1	4			
Course 2	4			
Elevation	3	2	1	1

[15]

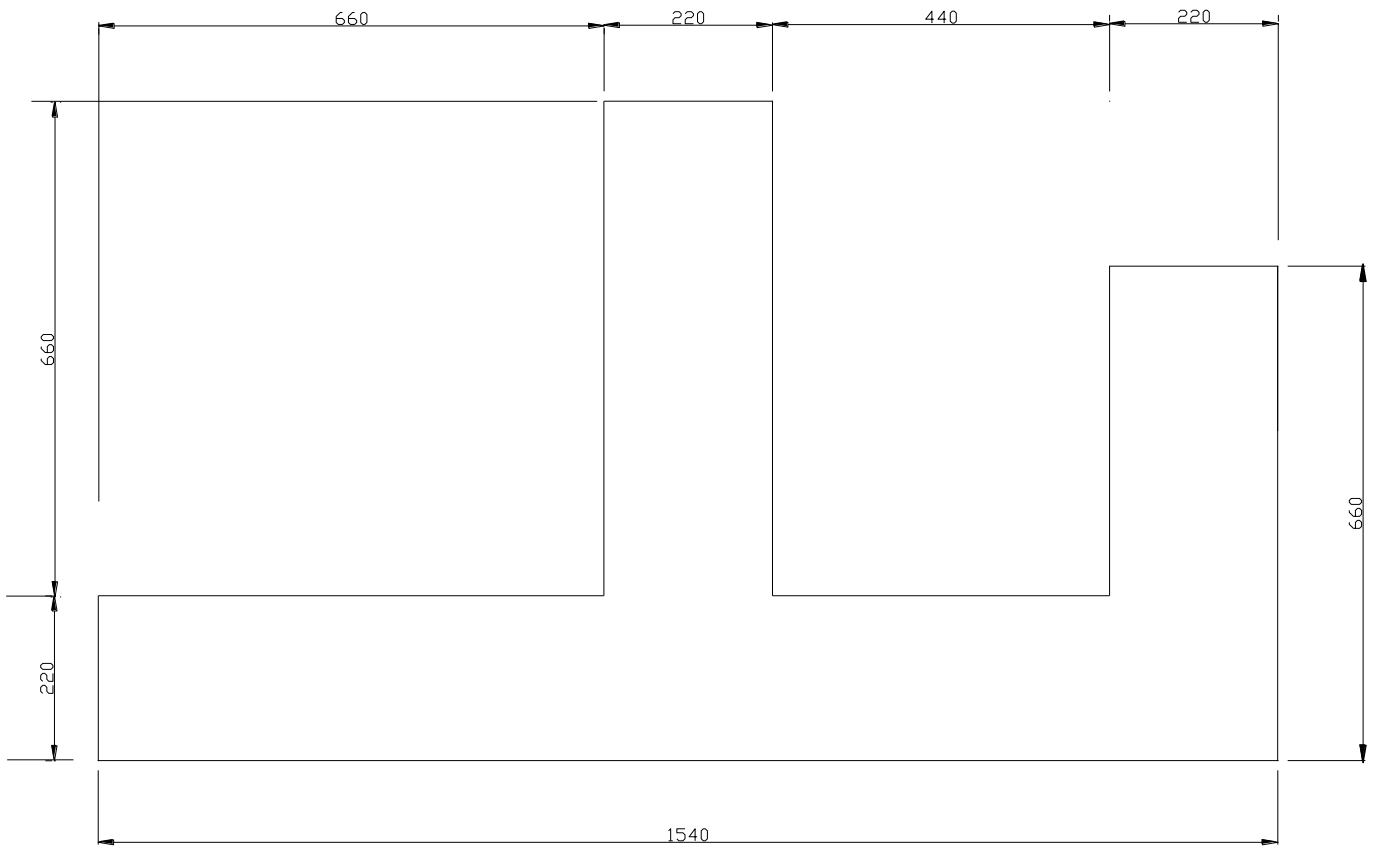
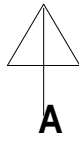


FIG 1



ENGINE

QUESTION 2

Using a scale of 1 : 10, draw the TWO alternate courses of a T-junction in Flemish bond in iso-metric view.

Clearly label the $\frac{3}{4}$ bats or queen closers in the top course.

Use standard size bricks : Length 220 mm, width 110 mm and height 75 mm

It is not necessary to include any stop ends and dimensions.

Provide an appropriate title and scale.

CORRECTNESS OF ALL PARTS OF DRAWING	OVERALL IMPRESSION	TITLE	SCALE
9	1	1	1

[12]

QUESTION 3

A house is to be provided with an external one-brick wall. The wall is built on a one-and-a-half brick foundation wall which is supported by a strip foundation. The wall is built flush with the foundation wall on the outside. The foundation wall is reduced from 330 mm to 220 mm after six courses to allow for a wall plate and floor joist on the side of the bedroom. The bedroom has a tongue and groove wooden floor which is supported by a honeycomb sleeper wall and pier.

Using a scale of 1 : 10, draw a vertical cross section of the foundation, foundation wall, external wall, honeycomb sleeper wall as well as the pier. Draw the wooden bedroom floor on the right hand side of the external wall including all the specifications below. Clearly show the position of the DPM

SPECIFICATIONS:

1. Concrete strip foundations

Foundation for foundation wall: 600 mm x 300 mm

Foundation for honeycomb sleeper wall: 250 mm x 150 mm

Foundation for pier: 350 mm x 150 mm

2. Foundation wall

Built with standard size bricks 75 mm x 110 mm x 220 mm six courses high

3. Walls built to support the wooden floor

Sleeper wall: 110 mm wide, built with standard size bricks 75 mm x 110 mm x 220 mm six courses high

Pier wall: 220 mm wide built with standard size bricks 75 mm x 110 mm x 220 mm four courses high

4. External wall

Built with standard size bricks 75 mm x 110 mm x 220 mm
(Show only eight courses)

5. Bedroom floor

22 mm x 140 mm T&G floor boards
38 mm x 114 mm floor joist
38 mm x 114 mm wall plate (supported on top of the sixth course of bricks of
foundation wall and on top of sleeper wall)
150 mm x 75 mm sleeper beam to support the floor joist.
140 mm x 21 mm skirting

6. Air brick: 230 mm x 150 mm x 50 mm

7. Air vent: 170 mm x 150 mm

8. Ant proofing: Two courses below all timber.

9. Plaster: 19 mm plaster interior only

10. Sand: Poisoned sand layer 150 mm thick

11. DPM: 375 micron

12. NGL: 150 above top of foundation

CORRECTNESS OF ALL PARTS OF DRAWING	OVERALL IMPRESSION	TITLE	SCALE
21	3	1	1

[26]

QUESTION 4

A chimney 600 mm x 600 mm is to be provided for a house. A 38 X 114 mm timber member is nailed horizontally to the upper part of the rafter to support the flashing boarding and the flashing above the chimney.

Using a scale of 1 : 10, draw a vertical section through the one-brick chimney stack with a flue one brick wide. The chimney stack projects through a 35° big six corrugated fibre cement roof.

SPECIFICATIONS

Exterior chimney wall 220 mm

Plaster: 19 mm external

Flue: 220 mm

Roof covering: Big six corrugated fibre cement sheeting.

Pitch: 35°

Rafter: 38 mm x 114 mm

Flashing boarding: 21 mm shutter ply.

Purlins: 50mm x 75 mm

Flashing: 1mm thick galvanized mild steel sheeting.

CORRECTNESS OF ALL PARTS OF DRAWING	OVERALL IMPRESSION	TITLE	SCALE
11	2	1	1

[15]

QUESTION 5

A roof covered with concrete roof tiles with a pitch of 30 degrees is supported by a one-brick external parapet wall. Rainwater is collected by a box gutter and then flows through a void in the parapet wall into a gutter head.

Using a scale of 1 : 20, draw a vertical section through part of the roof truss, the gutter box, the parapet wall and the rain water goods and include the specifications below.

SPECIFICATIONS

- One-brick parapet wall : 220 mm
- Coping: : Splayed back
- Roof pitch : 30°
- Roof tiles : 600 mm x 300 mm concrete (show at least FOUR)
- Battens : 38 mm x 38 mm
- All roof truss members : 114 mm x 38 mm
- Flashing : 1mm galvanized mild steel.
- Box gutter : 220 mm deep and 300 mm wide 1mm thick galvanized mild steel sheeting.
- Box gutter support: : 21 mm shutter ply nailed to the top of the tie beam.

Water head : 280 mm deep and 230 mm width
 Down pipe : 75 mm diameter

CORRECTNESS OF ALL PARTS OF DRAWING	OVERALL IMPRESSION	TITLE	SCALE
17	3	1	1

[22]

QUESTION 6

Using a scale 1 : 10 and the specifications below draw a vertical section through a flat sole valley gutter of a roof which is clad with big six fibre cement sheeting.

SPECIFICATIONS:

Roof pitch : 30°
 Valley rafter : 152 mm x 50 mm
 Jack rafters : 114 mm x 38 mm
 Valley board : 21 mm shutter ply
 Valley gutter : 1mm galvanized mild steel.
 Purlins : 75 mm x 50 mm
 Roof cover : Big six corrugated fibre cement sheeting.

CORRECTNESS OF ALL PARTS OF DRAWING	OVERALL IMPRESSION	TITLE	SCALE
7	1	1	1

[10]

TOTAL: 100