higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

BUILDING DRAWING N2

(8090012)

16 November 2022 (X-paper)
09:00–13:00

REQUIREMENTS: 1 sheet of A2 drawing paper

Drawing instruments and nonprogrammable calculators may be used.

This question paper consists of 6 pages.

044Q1E2216

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
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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. Use both sides of the drawing paper.
5. All the drawings are to be fully dimensioned and neatly finished off with descriptive titles and notes to conform with the SANS Recommended Practice for Building Drawings.
6. A balanced layout must be maintained.
7. Use your discretion where dimensions are not given.
8. All the drawings must be drawn to the required scale.
9. All work you do not want to be marked must be clearly crossed out.
10. Write neatly and legibly.

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QUESTION 1: FOUNDATION AND FLOORS

FIGURE 1 shows a plan view of an existing four-roomed house, which has one-brick external walls and one-brick foundation walls resting on a 600 mm × 220 mm concrete foundation. The external walls and foundation walls are built with face brick externally and the external walls are plastered internally. All the rooms have a suspended floor. The floor joists are supported by a 75 mm × 75 mm wall plate resting on steel corbels. The bottom of each joist is 800 mm above the concrete foundation which is 225 mm below ground level.

Draw to scale 1:10 a vertical section through A–A and clearly show the position of the following:

- 600 mm × 220 mm concrete foundation
- One-brick foundation wall
- One-brick external wall
- 75 mm × 75 mm wall plate
- 114 mm × 38 mm floor joist
- 100 mm × 22 mm tongue-and-groove floor boards
- 19 mm plaster
- 76 mm × 22 mm skirting
- 19 mm quadrant
- Ant guard

Show the concrete foundation dimensions, width of the wall, height from the concrete foundation to the bottom of the floor joist and the depth of the top of the concrete foundation from the ground level.

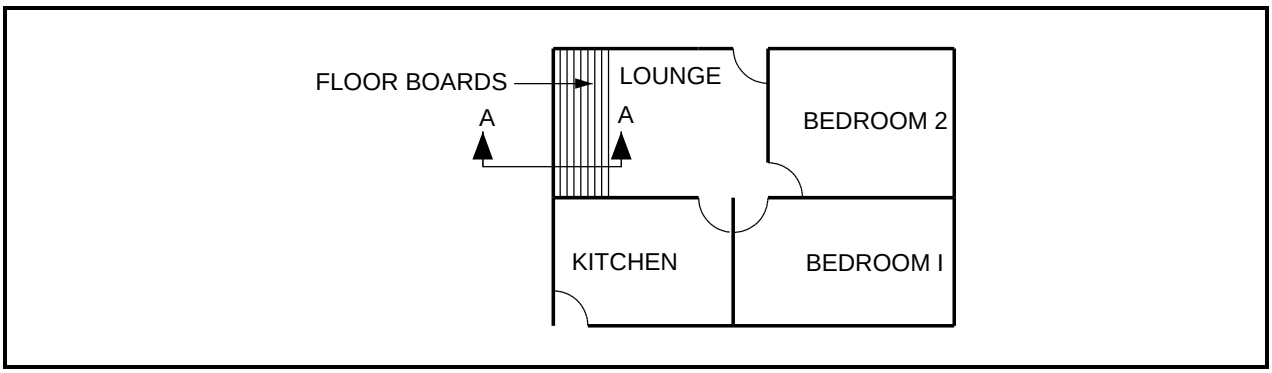

FIGURE 1

[25]

QUESTION 2: BRICKWORK

FIGURE 2 shows the plan of a T-junction formed by one-brick walls built in Flemish bond.

Draw to scale 1:10 the alternate isometric view of the T-junction.

Label only the queen closer. DO NOT insert dimensions.

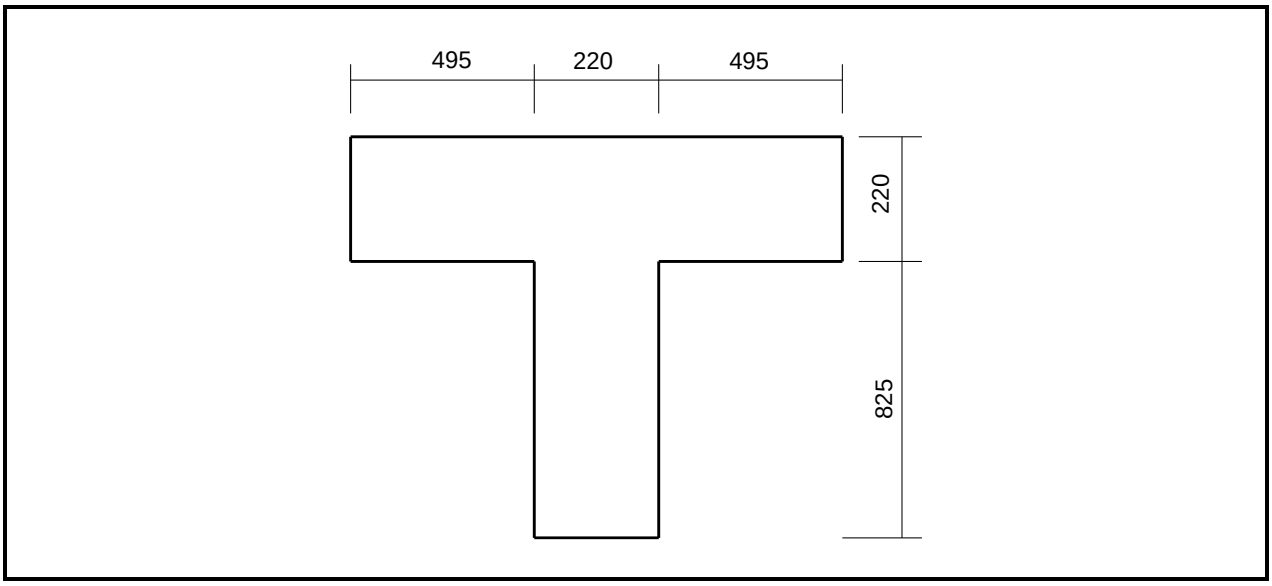

FIGURE 2

[16]

QUESTION 3: JOINERY

A hardwood casement window is built in the centre of a one-brick wall. The wall is plastered on the inside. The construction consists of a hardwood window board internally and quarry tile sill externally.

Draw to scale 1:2 a vertical section through the sill of the window frame, the bottom rail and the glazing bar and show the following:

- 95 mm × 60 mm window frame sill
- 60 mm × 35 mm bottom rail
- 35 mm × 25 mm glazing bar
- One-brick wall
- 19 mm plaster
- 3 mm glass
- DPC

[18]

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QUESTION 4: ROOF AND ROOF COVERING

Draw to scale 1:10 a vertical section through a 660 mm × 660 mm chimney stack having a flue of 220 mm × 220 mm. The chimney stack projects through a corrugated fibre cement covering.

Show the position of the following:

- Chimney stack
- Flue
- Parging
- Corrugated fibre cement sheets
- Fillet
- 114 mm × 38 mm rafters
- 75 mm × 50 mm purlin
- Cover flashing
- Apron flashing
- Gutter
- Pitch

[18]

QUESTION 5: PLUMBING

Draw to a scale 1:5 a vertical section through a copper-lined valley gutter of a roof covered with slates, and show the following:

- 114 mm × 38 mm jack rafters
- 220 mm × 38 mm valley rafter
- 38 mm × 38 mm battens
- 150 mm × 22 valley boards
- Copper lining
- Slates

[13]

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QUESTION 6: GENERAL

Choose a term from COLUMN B that matches a description in COLUMN A. Write only the letter (A–K) next to the question number (6.1–6.10) in the ANSWER BOOK.

COLUMN A		COLUMN B	
6.1	Wooden floor covering of hardwood blocks in a geometrical pattern	A	wall plates
6.2	Horizontal structural timber laid to span a gap between walls to support the floor boards	B	ant guard
6.3	Horizontal timber laid on the walls to support the rafters	C	fascia board
6.4	A flat sheet of iron, bent and built into the wall below the wall plate level to prevent ants from entering the floor	D	trimmer joists
6.5	Joists parallel to common joists and carry one end of the trimmer joists	E	eaves
6.6	Joists that receive the end of a header in the floor which spans an opening	F	parquet blocks
6.7	A half-brick wall built in stretcher bond with gaps in between	G	sill
6.8	A ledge that forms the bottom part of a window frame	H	trimming joists
6.9	Edges of the roof that overhang the face of a wall and project beyond the side of a building	I	sleeper wall
6.10	It runs along the lower edge of the roof and is fixed to the ends of roof trusses	J	floor joists
		K	trimmed joist

(10 × 1) **[10]**

TOTAL: 100

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