higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

BUILDING DRAWING N2

(8090012)

22 November 2023 (X-paper)
09:00–13:00

REQUIREMENTS: ONLY ONE A2 DRAWING SHEET

Drawing instruments and nonprogrammable calculators may be used.

This question paper consists of 5 pages.

040Q1E2322

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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. 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 own 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 a house with 2 bedrooms, kitchen, dining room, and living room with a sunken floor. The internal wall between the dining and the living room consists of a one-brick thick foundation wall, which is reduced to half-brick. The foundation wall is 975 mm high and rests on a 500 mm × 220 mm concrete foundation. The living room floor slab is cast 450 mm below the dining room floor slab. All rooms have plastered walls, 75 mm thick floor slabs on 150 mm thick hardcore and all have a 20 mm screed. The kitchen and dining room floors have a 300 mm × 300 mm × 10 mm thick ceramic tile finish, and the bedrooms and living room have 280 mm × 70 mm × 20 mm parquet blocks. All rooms have a 75 mm × 22 mm timber skirting.

Draw to a scale of 1:10, a vertical section through X-X and clearly show the position of the following:

- 500 mm × 220 mm concrete foundation
- One-brick foundation wall
- Half-brick internal wall
- 150 mm hardcore
- 75 mm floor slab
- 20 mm screed
- 19 mm plaster
- 75 mm × 22 mm skirting
- 300 mm × 300 mm × 10 mm ceramic tile
- 280 mm × 70 mm × 22 mm parquet block
- Vertical and horizontal DPM
- Show the concrete foundation dimensions, the height of the dining room floor slab above the concrete foundation, and the height between the dining and living room floor slab.

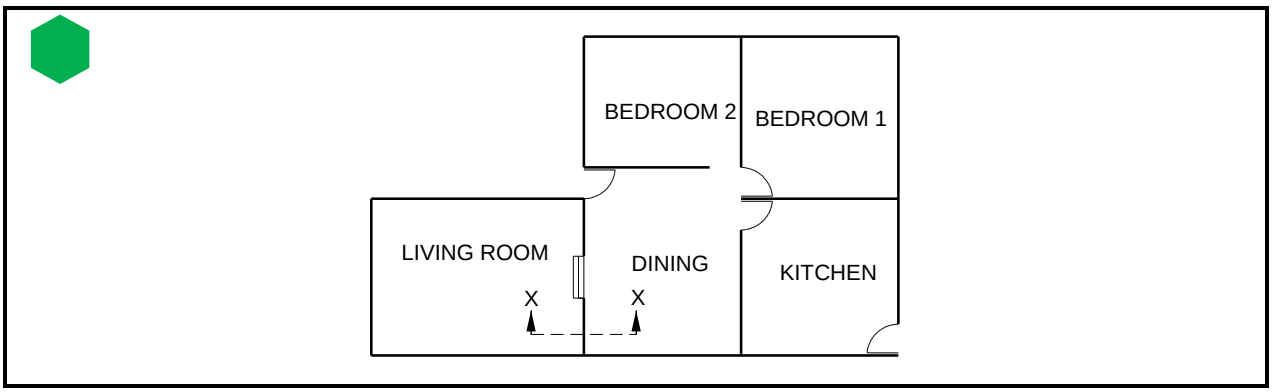

FIGURE 1

[26]

QUESTION 2: BRICKWORK

FIGURE 2, shows a plan view of a brick wall that is to be built for decoration purposes. The wall is built in English bond.

Draw to a scale of 1:10, the alternate plan courses of the wall.

Label only the queen closer and ¾ bat. DO NOT insert dimensions.

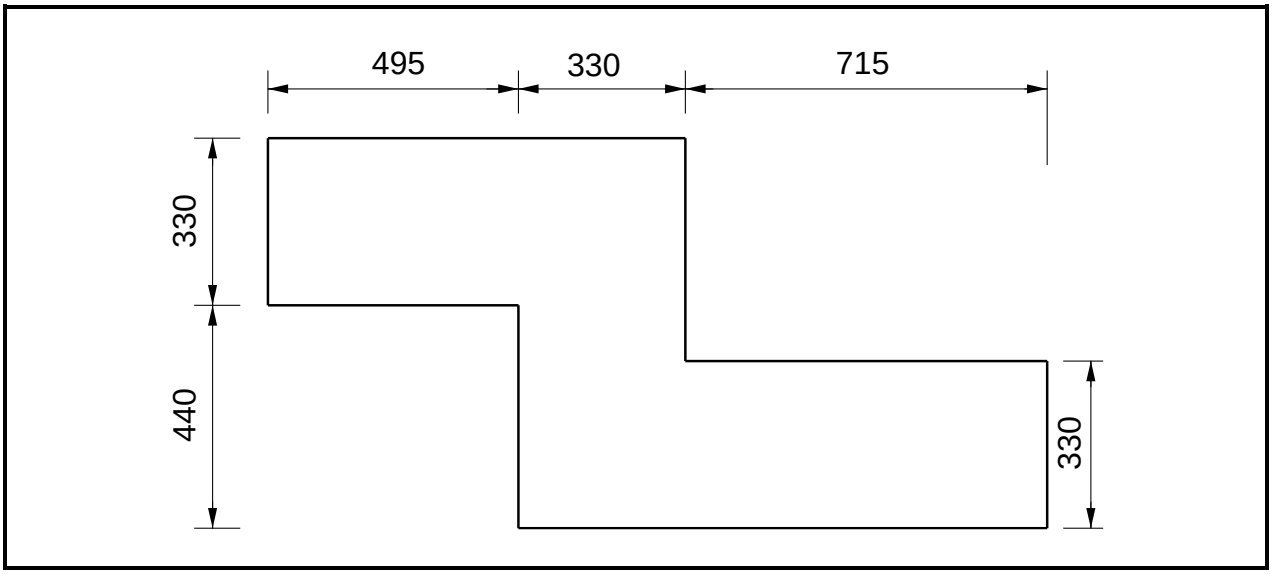

FIGURE 2

[17]

QUESTION 3: JOINERY

A hardwood casement window is built 40 mm from the inside edge of a 190 mm concrete block wall. The wall is plastered internally and externally. The construction consists of a quarry tile external sill and a hardwood internal sill. One course of the 190 mm concrete block wall is used below the window to facilitate damp-proofing.

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

- 75 mm × 60 mm window frame sill
- 60 mm × 35 mm bottom rail
- 35 mm × 25 mm glazing bar
- 150 mm × 150 mm × 20 mm thick quarry tile external sill
- 80 mm wide × 22 mm thick hardwood internal sill
- 190 mm block wall
- 19 mm plaster
- 3 mm glass
- DPC

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QUESTION 4: MASONRY

Draw, not to scale but in good proportion, the isometric view of the following masonry joints, to illustrate the difference of the following:

- Rebated joint with joggle
- V-joggle
- Tabling joint with slate joggle

(5 × 3) **[15]**

QUESTION 5: ROOF AND ROOF COVERINGS

The roof of a building consists of laminated trusses supported by two walls, 6 760 mm apart. The trusses rest on 600 mm × 220 mm × 150 mm stone pads and are secured to the pads by means of steel angle cleats. The roof is covered with fibre cement sheeting, nailed on 125 mm × 75 mm purlins. The pitch of the roof is 30°.

Draw to a scale of 1:20 a vertical section through the roof of the building.

The drawing MUST show the following:

- Approximately 3 900 mm of the span (do NOT insert the dimension)
- 330 mm brick wall
- 150 mm × 50 mm tie beam
- 150 mm × 50 mm rafters
- 150 mm × 50 mm boards nailed between the rafters and the tie beams
- 600 mm × 220 mm × 150 mm stone pad
- Steel angle cleat
- 100 mm × 50 mm cleats to support purlins
- 114 mm × 38 mm collar cleats
- 125 mm × 75 mm purlins at 1 000 mm centres
- 114 mm × 50 mm struts
- Ridge cap
- Corrugated fibre cement sheet
- 230 mm × 32 mm fascia board fixed to the wall

[24]

TOTAL: 100

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