higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE

BUILDING DRAWING N1

(8090001)

21 November 2019 (X-Paper)
09:00–13:00

REQUIREMENTS: ONE A2 drawing sheet

Drawing instruments and calculators may be used.

This question paper consists of 4 pages and 1 diagram sheet.

DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
BUILDING DRAWING N1
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. Draw ALL drawings to the required scale.
5. Do ALL drawings, as well as candidate information, in pencil.
6. The drawings must be neat, reasonably large, in proportion and fully labelled in capital letters.
7. ALL drawings must comply with the relevant SANS (SABS) recommended codes.
8. Use your discretion where dimensions are NOT given.
9. A balanced layout is very important and candidates will be penalised for poor planning.
10. Work neatly.

QUESTION 1

1.1 Draw, to scale 1:10, the front elevation of a one-brick wall built in stretcher bond. The bottom course of the wall is SEVEN bricks long and SEVEN courses high. Show raking back on both sides of the wall. (10)

1.2 Draw, to scale 1:10, the front elevation of a one-brick wall built in English bond. The bottom course of the wall is SEVEN bricks long and SEVEN courses high. Show raking back on both sides of the wall. (10)
[20]

QUESTION 2

Draw, to scale 1:10, the front elevation of a flat-gauged arch with skew backs, 300 mm rise and a span of 1 100 mm. The bricks used for the arch are 75 mm and they alternate 100 mm from the intrados and 100 mm from the extrados. The surrounding brickwork is built in stretcher bond with stopped ends on both sides. Show at least FOUR courses of brickwork above the top of the arch and at least THREE courses below the soffit of the arch. Show constructional details of the skew backs in only half of the arch. **[20]**

QUESTION 3

The DIAGRAM SHEET (attached) shows an orthographic drawing of a hard-wood.

Draw, to scale 1:1, the hard-wood showing the following views:

- The top view of the hard-wood as indicated by the direction of the arrow
- The left view of the hard-wood as indicated by the direction of the arrow
- The right view of the hard-wood as indicated by the direction of the arrow **[15]**

QUESTION 4

A house with open eaves is built and rainwater goods are installed to allow water to flow accurately in one direction.

Draw, to scale 1:10, the vertical section through one of the eaves and a one-brick wall of a dwelling to show how the rainwater goods are connected to the eaves.

Specifications:

- Rafter: 114 mm × 38 mm
- Wall plate: 114 mm × 38 mm
- Fascia board: 220 mm × 22 mm
- Overhang: 400 mm
- Gutter: 100 mm × 100 mm
- Downpipe: 80 mm
- Offset pipe: 80 mm
- Shoe: 80 mm
- Holder bats: 20 mm **[15]**

QUESTION 5

What does each of the following abbreviations used in the context of building drawing stand for?

5.1 DPC

5.2 PVC

5.3 T&G

5.4 DPM

5.5 PVA

(5 × 2) **[10]**

QUESTION 6

A wooden casement window opening outwards is built into a one-brick wall built with stock bricks.

Draw, to scale 1:2, a vertical cross section through the bottom part of the window frame showing all parts of the window frame using the specifications below and part of the wall below the window sill.

Specifications:

- Wall: One-brick wall built with stock bricks
- Plaster: 19 mm on both sides
- External sill: 150 mm × 22 mm bullnose
- Frame sill: 135 mm × 72 mm hard-wood
- Internal sill: 130 × 22 mm wooden
- Bottom rail: 70 × 50 mm
- Glass: 3 mm float glass
- Putty: 15 mm thick
- Mortar below bullnose: Cement mortar
- DPC: 375 micron polyethylene sheeting **[20]**

TOTAL: 100

(8090001)

DIAGRAM SHEET