higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

ARCHITECTURAL GRAPHICS AND TECHNOLOGY

(First paper)

NQF LEVEL 2

(12050622)

9 March 2020 (Y-paper)
13:00–17:00

REQUIREMENTS: **A3 drawing sheet**
A4 drawing sheets

This question paper consists of 4 pages.

299Q1S2009

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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. Do all drawing work, including candidate information, in pencil.
5. Take brick sizes as 220 mm × 110 mm × 75 mm.
6. All drawing work must comply with the relevant SANS (SABS) recommended codes.
7. All abbreviations and symbols must comply with the latest National Building Regulations and all relevant SANS (SABS) codes.
8. A balanced layout is very important and candidates will be penalised for poor planning.
9. Work neatly.

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QUESTION 1: WALLS AND FOUNDATIONS

Draw, to scale 1:5 on an A3 DRAWING SHEET, a sectional view of a 240 mm cavity wall on a strip foundation.

Clearly show the following:

- Concrete strip foundation: 650 mm × 200 mm
- Block to be used: 90 mm wide × 190 mm high × 290 mm long concrete masonry cavity wall
- 240 mm cavity wall with 50 mm cavity with fill concrete below ground
- 40 mm screed
- 100 mm concrete slab
- 150 mm compact hard core
- Finished floor level: 185 mm above natural ground level
- Height from top of concrete foundation to NGL: 605 mm
- Weep holes and DPC
- Damp-proof floor membrane
- All given annotations
- A suitable title and scale beneath the sectional view **[20]**

QUESTION 2: BRICKWORK

A face-brick wall must be built using a stock clay brick of 220 mm × 110 mm × 75 mm.

Draw, to scale 1:10 on an A4 DRAWING SHEET, the alternate isometric plan courses of each of the following:

2.1 The plan views of a one-brick stretcher-bond corner-junction wall (15)

2.2 The plan views of a one-brick stretcher-bond T-junction wall (15)

2.3 The plan views of a one-brick stretcher-bond corner-junction cavity wall (15)
[45]

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QUESTION 3: LINTELS AND ARCHES

3.1 Draw, to scale 1:10 on an A4 DRAWING SHEET, the front and cross-sectional views of a reinforced concrete lintel with the steel in position built on an opening of a concrete masonry block wall. The dimensions of the concrete masonry are 290 mm × 190 mm × 190 mm. The span of the opening is 1 450 mm. Insert the dimension of the span. (15)

3.2 Draw, to scale 1:10 on an A4 DRAWING SHEET, the front view of a geometrical semicircular arch constructed in axed bricks. The arch has a span of 1 312 mm and a rise of 412 mm.

Insert the following labels on the view:

- Span
- Springer
- Key brick
- Rise
- Extrados
- Intrados

(20)
[35]

TOTAL: 100

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