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)

19 November 2019 (Y-Paper)
13:00–17:00

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

Calculators and drawing instruments may be used.

This question paper consists of 4 pages.

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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 × 110 × 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: FOUNDATIONS

Draw, to scale 1:5, a sectional view of a 280 mm cavity wall on a typical raft foundation showing a portion of the cavity wall on an A3 DRAWING SHEET. The engineer will determine the steel reinforcing later.

Clearly show the following:

1.1	Concrete raft foundation	(3)
1.2	Mass concrete edge beam 750 mm × 250 mm	(3)
1.3	25 mm screed	(3)
1.4	150 mm compacted hard core	(3)
1.5	Finished floor level – FFL is 250 mm higher than the NGL	(2)
1.6	Mass concrete edge beam splay of 230 mm	(2)
1.7	Weep holes and DPC	(2)
1.8	Damp-proof floor membrane (DPM)	(2)

Insert ALL the annotations above. Dimension a 200 mm distance from NGL to FFL. Print a suitable title and scale beneath the sectional view. **[20]**

QUESTION 2: BRICKWORK

A face-brick wall must be built.

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

2.1 Stretcher-bond one-brick T-junction

2.2 Stretcher-bond half-brick and one-brick T-junction

2.3 Stretcher-bond half-brick T-junction

(15 × 3) **[45]**

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QUESTION 3: LINTELS AND ARCHES

3.1 Draw, to scale 1:10, the front and cross-sectional views of a reinforced concrete lintel with the steel in position on an A4 DRAWING SHEET. The span is 1 210 mm. Insert the dimension of the span. (15)

3.2 Draw, to scale 1:10, the front view of a geometric semicircular arch constructed in axed bricks on an A4 DRAWING SHEET. The arch has a span of 1 090 mm and a rise of 556 mm.

Insert the following terms on the view:

- Span
- Templet
- Key brick
- Rise
- Extrados
- Intrados

(20)
[35]

TOTAL: 100

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