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)

18 November 2020 (X-paper)
09:00–13:00

This question paper consists of 4 pages.

013Q1N2018

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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. All drawing work must comply with the relevant SANS (SABS) recommended codes.
6. Take brick sizes as 220 × 110 × 75 mm.
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

Draw, to scale 1:5, on an A3 DRAWING SHEET, a sectional view of a 230 mm cavity wall built on a raft foundation showing a portion of the cavity wall. The steel reinforcing in the strip foundation needs to be indicated.

The drawing must clearly show the following:

Concrete raft foundation 650 mm x 250 mm.

The brick to be used is a 90 mm wide x 114 mm high x 222 mm length narrow clay stock brick.

230 mm cavity wall – 50 mm cavity – with fill concrete below ground level.

50 mm screed.

250 mm concrete slab. (raft under floor)

Show splay of raft 180 mm.

150 mm compacted hard core.

Finished floor level 185 mm above natural ground level.

Damp proof floor membrane (DPM) below slab.

Show weep holes and DPC in cavity wall.

Insert all the above annotations. Print a suitable title and scale beneath the sectional view **[20]**

QUESTION 2: BRICKWORK

2.1 A face brick wall must be built using a stock clay brick of 220 x 75 x 110 mm. Draw, to a scale of 1:10, on A4 DRAWING SHEETS, the alternate isometric plan courses of the following:

2.1.1 The plan views of an English bond one brick corner junction wall. The corner wall has dimensions of 880 mm and 660 mm. (15)

2.1.2 The plan views of a Flemish bond one brick corner junction. (15)

2.1.3 The plan views of a stretcher bond one brick and a half brick T-Junction. (15)

[45]

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QUESTION 3: LINTELS AND ARCHES

3.1 Draw to scale 1:10, on 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 190 x 190 x 290 mm. The span of the opening is 1 740 mm. Insert the dimension of the span (15)



3.2 Draw to scale 1:10 on A4 DRAWING SHEET, the front view of a geometrical semi-circular arch constructed in axed bricks. The arch has a span of 1 489 mm and a rise of 315 mm.

Insert the following labels on the view:

Span

Springer

Key brick

Rise



Intrados

Extrados (20)
[35]

TOTAL: 100

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