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)

**11 November 2022 (Y-paper)**
**13:00–17:00**

**REQUIREMENTS: A3 or A2 drawing sheets.**

**Drawing instruments may be used.**

**This question paper consists of 5 pages.**

257Q1N2211

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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. Use both sides of the drawing sheet.
5. All drawing work must comply with the relevant SANS (SABS) recommended codes.
6. Brick sizes should be taken as 220 × 110 × 75 mm.
7. All the 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. All drawings, including candidate information, must be done in pencil.
10. All drawings must be done on the A3 or A2 drawing sheets.
11. Write neatly and legibly.

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## QUESTION 1

Draw to a scale of 1:10 a sectional view of a strip foundation and a portion of a one-brick wall.

The drawing must clearly show the following:

1.1 Concrete foundation

1.2 Brick footings

1.3 Damp-proof course (DPC)

1.4 Screed

1.5 Concrete slab

1.6 Compacted hardcore

1.7 Ground level

1.8 Damp-proof membrane (DPM)

Insert all the descriptions.

Dimension the minimum damp-proof course (DPC) distance from the NGL.

Insert a suitable title and scale beneath the drawing.

**[20]**

## QUESTION 2

2.1 Draw to a scale of 1:10 a detail drawing of the alternate top view courses in stretcher bond of the following:

2.1.1 a one-brick T-junction (7)

2.1.2 a one-brick corner (7)

*Note: For the purpose of this cavity, use brick size as: 220 × 110 × 75.*

Insert a suitable title and scale beneath the drawing.

2.2 Draw to a scale of 1:10 the isometric view of the alternate top-view courses of a T-junction between two one-brick walls built in English bond.

Insert a suitable title and scale beneath the drawing. (11)

**[25]**

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## QUESTION 3

3.1 Draw to a scale of 1:10 the front view of a reinforced-concrete lintel with the steel in position. The span is 1 600 mm.

Insert a suitable title and scale beneath the drawing. (15)

3.2 Draw to a scale of 1:10 the front view of a segmental arch constructed in axed bricks. It has a span of 1 000 mm and a rise of 200 mm.

Insert the following terms on the view:

3.2.1 Span

3.2.2 Key brick

3.2.3 Rise

3.2.4 Springer

3.2.5 Skewback

3.2.6 Voussoirs

3.2.7 Extrados

3.2.8 Intrados

(15)

Insert a suitable title and scale beneath the drawing.

**[30]**

## QUESTION 4

Copy the given floor plan (below) on the drawing sheet using a scale of 1:100.

Insert the following terms in the section view:

4.1 Windows

4.2 Doors

4.3 Different types of dimensions

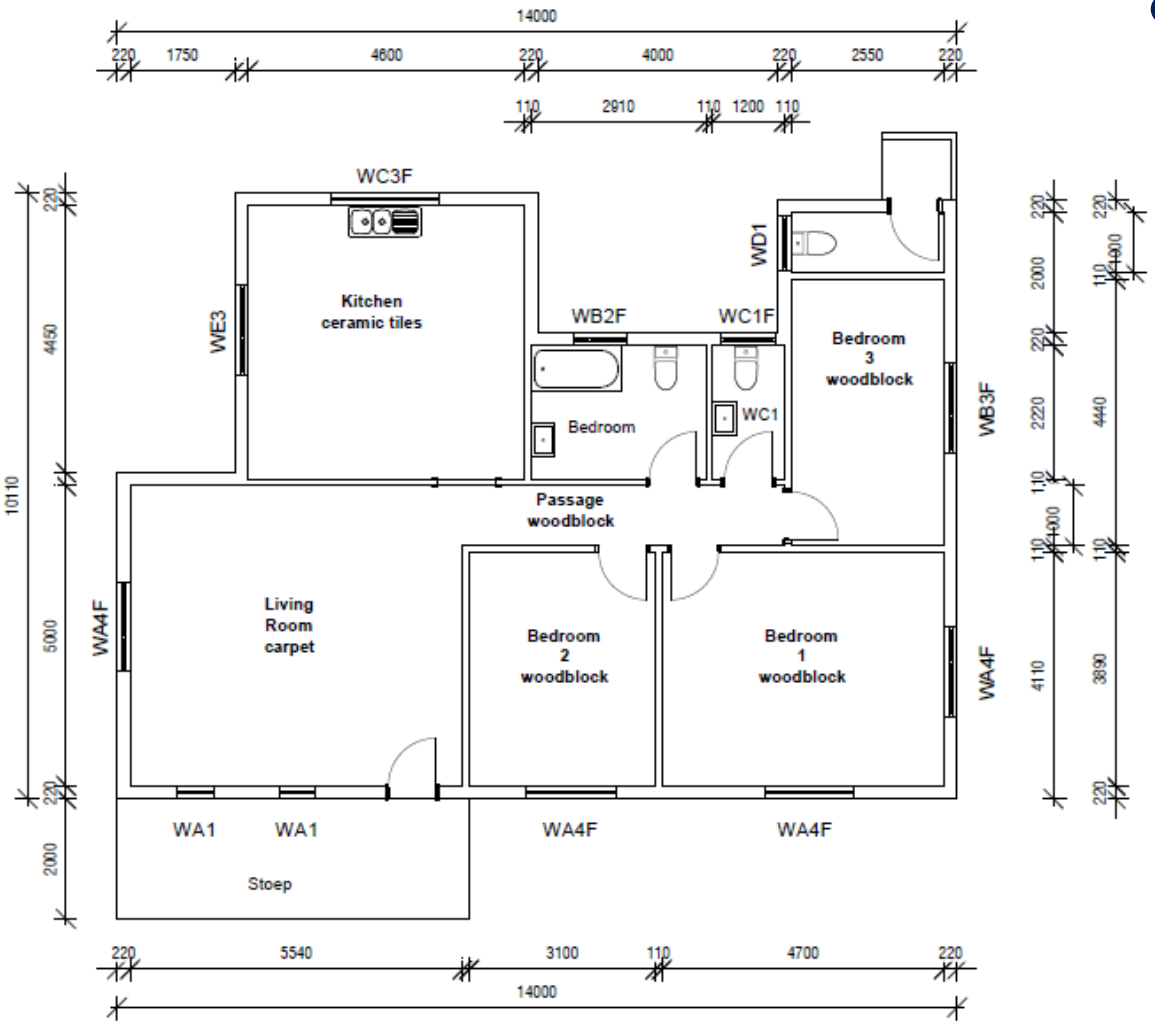
4.4 Wall thicknesses

4.5 North indicator

Insert a suitable title and scale beneath the drawing.

**[20]**

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## QUESTION 5

Using the 3-4-5 method, draw a triangle of which one side represents 4 meters, and the adjacent side 9 meters. Use the theorem of Pythagoras' to determine the long side of the triangle.

Apply a scale of 1:50. All calculations should be shown next to the triangle. **[5]**

**TOTAL: 100**

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