



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE BUILDING AND STRUCTURAL CONSTRUCTION N5

(8060015)

**14 July 2022 (X-paper)
09:00–13:00**

REQUIREMENTS: Answer book (8/13)
A2 drawing paper
Hot-rolled steel sections (BOE 8/2)

Drawing instruments and nonprogrammable calculators may be used.

CLOSED-BOOK EXAMINATION

This question paper consists of 5 pages, 2 diagram sheets, a formula sheet of 1 page,
and 2 annexures.

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING
REPUBLIC OF SOUTH AFRICA
NATIONAL CERTIFICATE
BUILDING AND STRUCTURAL CONSTRUCTION N5
TIME: 4 HOURS
MARKS: 100

INSTRUCTIONS AND INFORMATION

1. Read all the questions carefully.

2. Answer all the questions.

QUESTIONS 1, 6 and 7 must be done on the supplied A2 drawing paper.

QUESTION 4 must be done on the attached annexure.

All the other questions must be done in the ANSWER BOOK.

3. Number the answers according to the numbering system used in this question paper.

4. All drawings must be done in pencil with bold outlines.

5. The drawings must be done in accordance to national standards and be fully labeled with descriptive notes and dimensions (where applicable).

6. All calculations must conform to the relevant SABS/SANS Code of Practice.

7. Write neatly and legibly.

QUESTION 1

FIGURE 1, DIAGRAM SHEET 1 (attached), shows the top view of a reinforced concrete ground beam supporting TWO reinforced concrete columns. Use scale 1:10, and draw the given top view as well as a vertical section through the ground beam and columns to show the arrangement of the reinforcement as indicated by the sectional lines A-A.

Specifications:

Round column	:	Diameter 250 mm
Reinforcement	:	6Y16 main bars evenly spaced R8 helical binder with 150 mm pitch Reinforcement cover 25 mm
Square column	:	250 × 250 mm
Reinforcement	:	4Y16 main bars R8 binders at 200 centres Reinforcement cover 25 mm
Ground beam	:	1 210 × 460 × 600 mm deep
Reinforcement	:	Y20 main bars at 150 centres Y16 compression bars at 150 centres R10 binders at 200 centres Reinforcement cover 65 mm

Show at least 400 mm of the column above the ground beam. Draw the reinforcement using single lines.

[20]**QUESTION 2**

Complete the following paragraph by writing only the missing word or words next to the question number (2.1–2.6) in the ANSWER BOOK.

The purpose of a staircase is to allow people to move (2.1) ... between the floors of a building. A typical staircase consists of a (2.2) ... where one step consists of a (2.3) ... and a (2.4) The resting place in a staircase is called a (2.5) ... and the barrier at the side(s) of a staircase is referred to as the (2.6)

(6 × 1)

[6]