higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

T200**(E)**(J20)T

# NATIONAL CERTIFICATE

# BUILDING DRAWING N1

(8090001)

**20 July 2018 (X-Paper)**
**09:00–13:00**

**REQUIREMENTS: ONE A2 drawing sheet**

**Drawing instruments and a calculator may be used.**

**This question paper consists of 5 pages and 1 diagram sheet.**

# DEPARTMENT OF HIGHER EDUCATION AND TRAINING
# REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE
BUILDING DRAWING N1
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. ALL drawings must be drawn to the required scale.
5. ALL drawings, as well as candidate information, must be done in pencil.
6. Drawings must be neat, reasonably large, in proportion and fully labelled in capital letters.
7. A balanced layout is very important and candidates will be penalised for poor planning.
8. ALL drawings must comply with the relevant SANS (SABS) recommended codes.
9. Use your own discretion where dimensions are NOT given.
10. Write neatly and legibly.

---

## QUESTION 1

Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–C) next to the question number (1.1–1.10) in the ANSWER BOOK.

1.1 Can be regarded as a corner or as the space between two straight lines (stated in degrees) which meet at a point called the vertex:

A Angle
B Bisect
C Line segment

1.2 To divide an angle or line into two equal parts:

A Angle
B Bisect
C Line segment

1.3 The shortest distance between two points:

A Rise
B Span
C Line segment

1.4 The same distance apart throughout their length:

A Line segment
B Parallel lines
C Straight line

1.5 Deals with two-dimensional objects which have length and breadth but no thickness:

A Straight line
B Plane geometry
C Parallel lines

1.6 At right angles to a given line or surface:

A Parallel lines
B Perpendicular
C Straight line

1.7 A straight line starting at a fixed point stretching out limitlessly in one direction:

A Perpendicular
B Radius
C Straight line

1.8 Deals with three-dimensional objects which have length, breadth and thickness:

A Solid geometry
B Bisect
C Plane geometry

1.9 Stretches out in both directions and has no definite length:

A Straight line
B Bisecting line
C Radius

1.10 Comes into existence through the movement of the geometrical point:

A Angle
B Geometrical line
C Bisecting line

(10 × 1) **[10]**

## QUESTION 2

The external walls of a house are built with one-brick walls that have 330 mm and 440 mm footings which rest on a 600 mm × 230 mm strip foundation. The ground conditions are very wet and DPM should be placed to prevent moisture from passing through the house.

Draw, to scale 1 : 10, a vertical section through the external wall of the house, plastered internally only and clearly show the following:

- One-brick foundation wall built with stock bricks
- One-brick external wall built with face brick externally and stock brick internally
- 440 mm footing built with stock bricks (one course high)
- 330 mm footing built with stock bricks (one course high)
- 600 mm × 230 mm strip foundation
- Ground level, 300 mm above top of strip foundation (indicate different types of soil)
- 150 mm hard core
- 75 mm floor slab 225 mm above ground level
- 20 mm screed
- 19 mm plaster
- Damp-proof membrane **[20]**

## QUESTION 3

Draw, to scale 1 : 1, an octagon polygon with eight equal sides of 50 mm long. **[10]**

## QUESTION 4

The FIGURE on the DIAGRAM SHEET (attached) shows the outline of a one-brick external corner.

Use the same dimensions and draw, to scale 1 : 10, TWO alternate plan courses in English bond. Make sure that the views are drawn directly below each other. Label cut bricks in ALL views. **[20]**

## QUESTION 5

Draw, to scale 1 : 10, a vertical section through a galvanised sheet ridging.

Use the following specifications:

| | |
|---|---|
| Roof pitch | 30° |
| Rafters | 114 mm × 38 mm |
| King post | 114 mm × 38 mm |
| Galvanised sheet ridge | 1 mm galvanised steel |
| Purlins | 75 mm × 50 mm (centred at 1 200 mm) |
| Roof cover | Galvanised corrugated sheeting |

**NOTE:** Apply the 456 mm method to find the centre of the ridge. **[20]**

## QUESTION 6

An external raised and fielded panel door is 2 030 mm high, 820 mm wide and 44 mm thick with a high-lock rail. The upper portion of the door and the bottom part of the door consists of single raised and fielded panels.

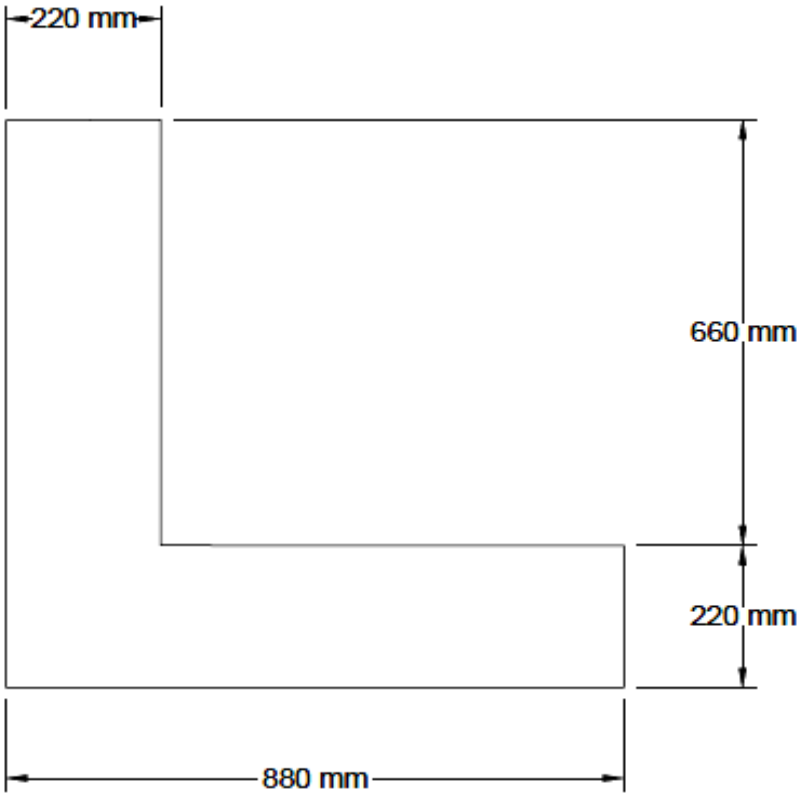
Draw, to scale 1 : 10, the outside view of the external door using the following specifications:

| | |
|---|---|
| Top rail | 110 mm × 44 mm |
| High lock rail | 220 mm × 44 mm (1 300 mm from floor to top of lock rail) |
| Bottom rail | 220 mm × 44 mm |
| Stiles | 110 mm × 44 mm |
| Raised and fielded panel | 50 mm thick |

**NOTE:** Include dimension lines. **[20]**

**TOTAL: 100**

## DIAGRAM SHEET




**FIGURE**