



# higher education & training

Department:  
Higher Education and Training  
**REPUBLIC OF SOUTH AFRICA**

T210(E)(M22)T

## **NATIONAL CERTIFICATE BUILDING DRAWING N2**

(8090012)

**22 March 2018 (X-Paper)  
09:00–13:00**

**REQUIREMENTS: ONE A2 drawing sheet**

**Calculators and drawing instruments may be used.**

**This question paper consists of 4 pages.**

**DEPARTMENT OF HIGHER EDUCATION AND TRAINING**  
**REPUBLIC OF SOUTH AFRICA**  
NATIONAL CERTIFICATE  
BUILDING DRAWING N2  
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. Use both sides of the DRAWING SHEET.
  6. ALL drawings, including candidates' information, must be done in pencil.
  7. Ink pens are NOT allowed.
  8. ALL drawing work must comply with the relevant SANS (SABS) recommended codes.
  9. Use your own discretion where dimensions are not given.
  10. ALL abbreviations and symbols must comply with the latest National Building Regulations and ALL relevant SANS (SABS) codes.
  11. A balanced layout is very important and candidates will be penalised for poor planning.
  12. Sketches and/or diagrams must be neat, reasonably large, in proportion and fully labelled.
  13. ALL labelling must be in capital letters.
  14. Give an appropriate title and scale to ALL drawings.
  15. Write neatly and legibly.
-

**QUESTION 1: BRICKWORK**

A one-brick wall built in stretcher bond is four courses high and six bricks long. One end is stopped and the other end toothed.

Draw, to scale 1 : 10, the front view and alternate plan courses of a one-brick wall built in stretcher bond.

The drawings must be aligned below each other, labelled and dimensioned.

The following labels must be indicated on the front view: stretcher, header, toothed end and stopped end.

**[16]****QUESTION 2: FOUNDATIONS AND FLOORS**

The external walls of a dwelling are one brick thick, with the exterior faced and the interior plastered. The foundation wall is one brick thick and built with face bricks.

Draw, to scale 1:10, a vertical section through the foundation, floor and external wall to show the construction details. Label ALL components and show the necessary dimensions.

Specifications:

- 700 mm x 250 mm concrete foundation
- 220 mm foundation wall
- 100 mm floor slab six courses above the concrete foundation
- 150 mm hard core
- 20 mm screed
- 300 mm x 300 mm x 10 mm ceramic floor tiles
- 76 mm x 22 mm skirting
- Ground level 350 mm above the concrete foundation

**[22]****QUESTION 3: DOORFRAME**

A solid doorframe with a one-panel door that opens outward is to be built flush with the exterior surface of a one-brick external wall which is plastered both sides. The plywood panel for the door is held in position by means of a planted mould.

Draw, to scale 1 : 2, the horizontal section through the wall, frame jamb, door stile and part of the plywood panel.

Label all component as per given specifications.

Specifications:

- 220 mm wall
- 100 mm x 75 mm frame jamb
- 110 mm x 44 mm door stile
- 19 mm plaster both sides
- 22 mm quadrant
- 10 mm plywood
- Planted mould

**[15]**

**QUESTION 4: JOINERY**

A half-glass door, 2 030 mm high, 820 mm wide and 44 mm thick with middle lock rail, is constructed with a 110 mm wide arch shaped top rail. The lock rail and bottom rail are each 220 mm wide. The upper portion of the door is glazed with a single pane of obscured glass fixed with glazing beads. The bottom part of the door is divided into three equal vertical panels, where each panel is separated by a 75 mm wide muntin.

Draw, to scale 1 : 10, the front elevation of the half-glass door. Label all components as per given detail.

**[14]****QUESTION 5: ROOFS**

A couple roof with a pitch of 30° and an overhang of 270 mm is supported by a one-brick external wall and covered with corrugated fibre cement sheets. The external wall is faced externally and plastered internally. The interior is finished off with ceilings, constructed of 6 mm Rhino board fixed to 38 mm × 38 mm brandering, which are nailed directly onto the rafters.

Draw, to scale 1 : 10, a vertical section through the eaves and part of the ceiling to show construction details.

The drawing must include the following specifications with labels:

Specifications:

- One-brick wall
- 19 mm internal plaster
- 114 mm × 38 mm wall plate
- 114 mm × 38 mm rafter
- Corrugated fibre cement sheet
- 230 mm × 32 mm fascia board
- 75 mm × 50 mm purlin
- 100 mm square gutter
- 38 mm × 38 mm brandering spaced at 400 mm centres
- 6 mm Rhino board ceiling
- 10 mm fibre cement board (nailed directly to the underside of the eave rafters)
- 75 mm × 19 mm timber cornice
- Dimension of the overhang

**[23]****QUESTION 6: MASONRY**

Make a neat, labelled drawing to show the construction of a squared-rubble wall built to course.

The drawing must show the following with labels:

- Coping
- Riser
- Leveller through
- Bonder

**[10]****TOTAL: 100**