higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

MASONRY
NQF LEVEL 2

(12020152)

17 November 2022 (Y-paper)
13:00–16:00

This question paper consists of 7 pages.

487Q1N2217

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TIME: 3 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. Start each question on a new page.
5. Use only a blue or black pen.
6. Write neatly and legibly.

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QUESTION 1: GENERAL

1.1 Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'True' or 'False' next to the question number (1.1.1–1.1.5) in the ANSWER BOOK.

1.1.1 An arch support is also called centering.

1.1.2 Most clay bricks have small holes called weep holes.

1.1.3 A pointing trowel is used for gauging, or mixing (in specified proportions) small amounts of quick-set plaster.

1.1.4 When steel rods are used to reinforce returning walls, they must be bent at an angle of 45°.

1.1.5 A tidemark is the line that is made by the highest point water reaches on a surface.

(5 × 1) (5)

1.2 Complete the following sentences by using the words provided in the list below. Write only the word or words next to the question number (1.2.1–1.2.4) in the ANSWER BOOK.

wall tie; lath; ranging rod; stake; weep holes; brick force

1.2.1 A … is a light, welded steel fabric that comprises two hard-drawn wires of not less than 2,8 mm and not greater than 3,55 mm.

1.2.2 A short metal pole with a sharp point that is driven into the ground to mark something is called …

1.2.3 There must be … in the vertical joints at least every 600 mm when you install DPC at lintels in cavity walls.

1.2.4 A … is a long, flat, narrow piece of wood or metal used in a building to support plaster.

(4 × 1) (4)

[9]

QUESTION 2: INTRODUCTION AND BACKGROUND

2.1 What is the length of a standard brick? (1)

2.2 What is the minimum thickness of a structural wall? (1)

2.3 Sketch the following ways of laying courses and show at least FOUR bricks per course:

2.3.1 Header course

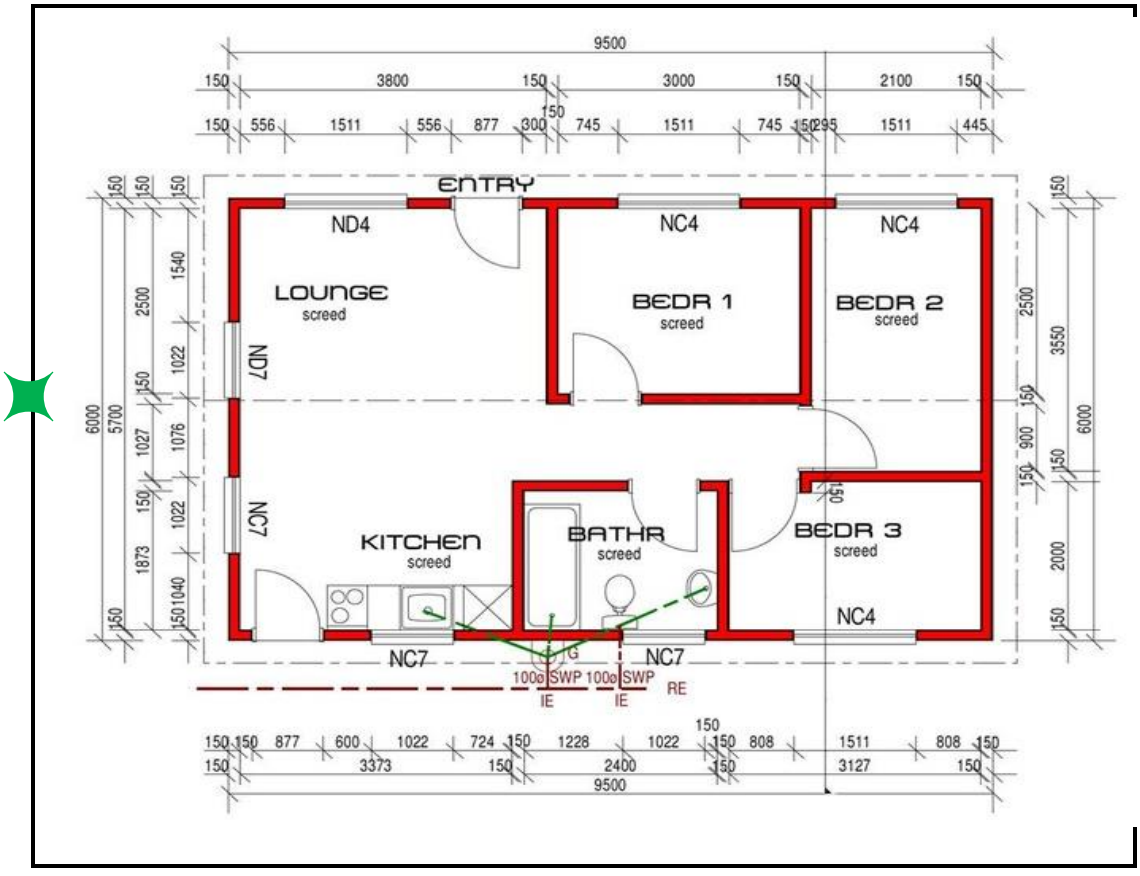
2.3.2 Soldier course

(2 × 3) (6)
[8]

QUESTION 3: SETTING OUT MASONRY WALLS

3.1 What is the difference between a *corner profile* and a *gauge rod*? (2)

3.2 Refer to the structure below and answer the following questions.



Dimensions are all given in millimetre.

3.2.1 What are the dimensions of BEDROOM 2 in metres? (1)

3.2.2 According to SANS 10400, what is this drawing called? (1)

3.2.3 Name the consultant in charge of producing this drawing. (1)

3.2.4 To mark the building on the ground, you need setting-out tools.

Name FOUR of them. (4)

3.3 The golden rule of building states that the structure must be square, plumbed and level.

3.3.1 In good proportion, produce a sketch to illustrate how the 3:4:5 method is performed. (3)

3.3.2 Define a *profile* and the role it plays in ensuring the plumbness of the building. (3)

3.3.3 When concrete on footings has been cast, it may not be level. The NHBRC gives guidelines on how to check for levelness.

Explain FIVE of guidelines. (5)

3.4 Explain in brief details why it is necessary to mark and set out masonry units. (3)

[23]

QUESTION 4: BASIC CONSTRUCTION OF MASONRY WALLS

4.1 Your neighbour is building a house and it is three courses high above slab level. Upon arrival, you notice that the builder has not installed a DPC.

4.1.1 What would be your advice to the builder? Back your advice with an explanation of what the DPC is and its use. (3)

4.1.2 In good proportion, make a drawing showing a wall with a DPC sandwiched between mortar. (3)

4.1.3 State the main reason for sandwiching DPC in mortar. (2)

4.2 Discuss FOUR reasons why a DPC should never be used in free-standing walls. (4)

4.3 What is the purpose of a brick force? (2)

4.4 There are various types of brick forces.

Name TWO types of brick forces. (2)

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4.5 Illustrate by means of neat sketches the difference between the TWO types of brick forces mentioned in QUESTION 4.4. (6)

4.6 List any THREE types of mortar joints. (3)

4.7 Give THREE circumstances when clay bricks and precast masonry units can be mixed. (3)

[28]

QUESTION 5: ADVANCED CONSTRUCTION OF MASONRY WALLS

5.1 Various options are given as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (5.1.1–5.1.5) in the ANSWER BOOK.

5.1.1 A wall that intersects another wall is a …

A returning wall.
B cross wall.
C garden wall.
D boundary wall.

5.1.2 … is the process during which concrete is allowed to gain strength.

A Curing
B Thumb print
C Hydration
D Retarder

5.1.3 A/An … is a structure built over an opening; it supports the structure above it.

A cavity wall
B column
C arch
D beam filling

5.1.4 When return corners are reinforced with steel rods, they must be bent at an angle of ...

A 60°
B 75°
C 90°
D 40°

5.1.5 … is weak under compression

A Steel
B Concrete
C A brick
D A slab

(5 × 1) (5)

5.2 By means of neat sketches, show the difference between *raking back* and *toothing.* (7)

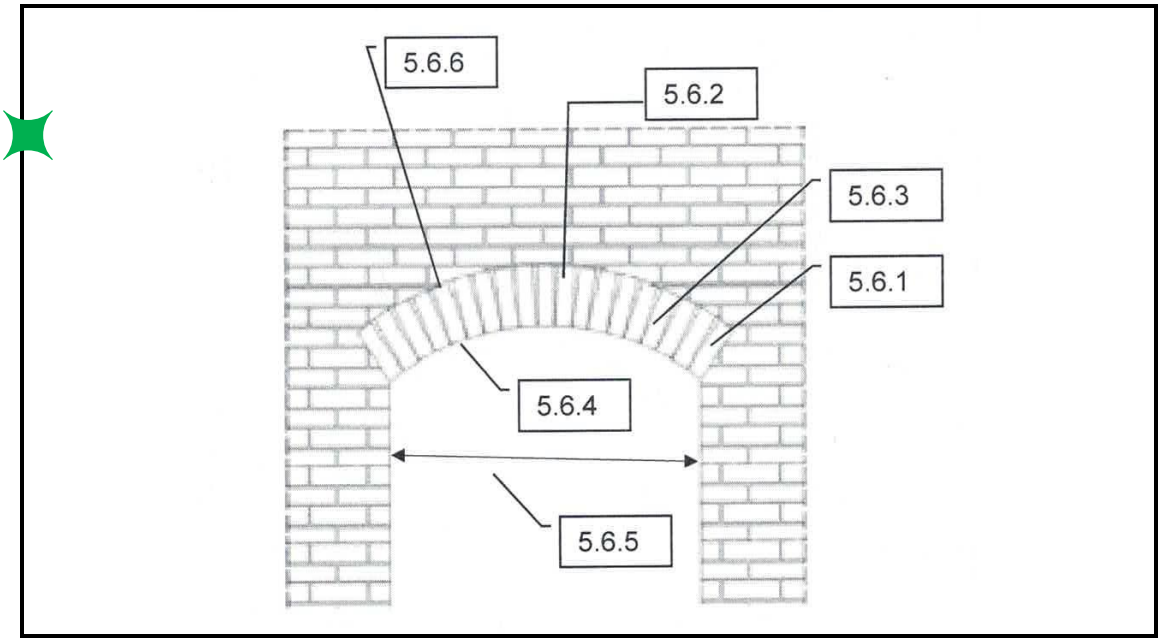
5.3 According to SANS 2001:CM1, explain the idea of reinforcing across control joints.

Illustrate by means of a neat drawing, showing an existing wall and a new wall with a dowel. (5)

5.4 What are the THREE different kinds of roof ties? (3)

5.5 Briefly discuss the FIVE steps to be followed when installing a door frame. (5)

5.6 Label the following FIGURE of the masonry arch by giving the arch terminology. Write only the answer next to the question number (5.6.1–5.6.6) in the ANSWER BOOK.



(6)

5.7 What is an arch soffit support called? (1)

[32]

TOTAL: 100

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