higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

# NATIONAL CERTIFICATE (VOCATIONAL)

## MASONRY
## NQF LEVEL 3

(12020353)

**27 November 2023 (X-paper)**
**09:00–12:00**

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

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

NATIONAL CERTIFICATE (VOCATIONAL)
MASONRY
NQF LEVEL 3
TIME: 3 HOURS
MARKS: 100

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**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 only a black or blue pen.
5. Write neatly and legibly.

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## QUESTION 1: CAVITY WALL CONSTRUCTION

1.1 Indicate whether the following statements are TRUE or FALSE by writing only 'True' or 'False' next to the question number (1.1.1–1.1.10) in the ANSWER BOOK.

1.1.1 The foundation of a cavity wall is made of hollow blocks.

1.1.2 Cavity walls are used in coastal areas where there is a lot of rain, and for insulation.

1.1.3 A ring beam is a beam that consists of concrete built around the perimeter at the top of a wall.

1.1.4 When you build a cavity wall, you must make weepholes in the outer wall to drain the cavity between the two leaves.

1.1.5 The superstructure is the part of the building that is below the finish floor level.

1.1.6 An intersection is where two walls meet or join.

1.1.7 DPC is waterproof material that stops water from rising up through the wall.

1.1.8 Mortar droppings and debris can form moisture bridges in a cavity.

1.1.9 DPC in cavity walls does not need to be inserted on window and doorframes.

1.1.10 Cavity wall foundation brickwork is built with cavities filled with concrete.

(10 × 1) (10)

1.2 During the construction phase of a cavity wall, mortar droppings and other debris fall into the cavity.

State FOUR ways how mortar dropping and debris can be removed. (4)

1.3 Write the abbreviation DPC out in full. (1)

1.4 Draw the alternate plan course of a 290-mm corner cavity wall built in stretcher bond with 190 mm × 90 mm × 90 mm blocks.

Show the wall ties in the drawing.
No stopped ends are required. (20)

**[35]**

## QUESTION 2: BASIC MASONRY WALL CONSTRUCTION WITH HOLLOW UNITS

2.1 Define the following civil terminology as used in Masonry Level 3:

2.1.1 Thumbprint hard (2)

2.1.2 Bed joint reinforcement (2)

2.2 Explain the procedure to measure and correct, if necessary, a foundation footing to ensure that it is truly horizontal and flat. (6)

2.3 Explain how hollow masonry work should be reinforced. (6)

2.4 State the main reason why profiles are gauged and marked at 200-mm intervals when building with 190 mm high blocks. (2)

2.5 List SIX ways of ruling vertical and horizontal joints in a face brick wall. (6)

2.6 Explain the general guidelines that must be followed to keep masonry clean and to get rid of stiffened mortar. (6)

**[30]**

## QUESTION 3: ADVANCED MASONRY WALL CONSTRUCTION

3.1 Choose ONE term from the given list for each of the following descriptions. Write only the term next to the question number (3.1.1–3.1.7) in the ANSWER BOOK.

| |
|---|
| rise; soffit; bed joints; pre-cast concrete; wedges; in situ concrete; arch ring |

3.1.1 The underside of a beam or slab

3.1.2 Horizontal joints

3.1.3 The curved part of an arch

3.1.4 The distance between the highest point of an arch and the spring line

3.1.5 Concrete that is made on the site

3.1.6 Can be used to ensure that the frames of doors and windows are aligned

3.1.7 Concrete that is made off the site.

(7 × 1) (7)

3.2 Show by means of a simple sketch the difference between a *ladder-type* and a *truss-type* brick force. (6)

3.3 Explain the process to place a recessed electrical plug box and conduit into a hollow unit. (7)

3.4 State the guidelines to be adhered to in order to rake out and rule bed joints. (5)

3.5 Explain how to clean hardened mortar droppings off concrete masonry without scratching the units. (5)

3.6 Roof anchors are required to anchor roofs against weather conditions and play an important role in the strengthening phase in the installation of the roof.

State FIVE guidelines to be considered when building roof anchors with hollow units. (5)

**[35]**

**TOTAL: 100**

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