higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

# NATIONAL CERTIFICATE (VOCATIONAL)

## MASONRY
## NQF LEVEL 3

(12020353)

**9 March 2018 (X-Paper)**
**09:00–12:00**

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

NCV

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**TIME: 3 HOURS**
**MARKS: 150**

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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. Write neatly and legibly.

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NC(V)

## QUESTION 1: GENERAL

Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'true' or 'false' next to the question number (1.1–1.10) in the ANSWER BOOK.

1.1 The shutter is a solid piece of material, made of natural or processed wood or metal that we use to support concrete or mortar while it sets and hardens.

1.2 In situ is the solid layer of concrete, bricks or stones that is put under a building to support it.

1.3 Cavity wall is a continuous vertical section of a wall, one unit wide.

1.4 Span is the distance between the spring line and the highest point of the arch.

1.5 Beam filling closes the gap between the roof and the wall structure so that no rain, wind, dust or animals can get in there.

1.6 Weep holes are small openings left in the outer walls of masonry construction as an outlet for water inside a building to move outside the wall and evaporate.

1.7 A damp-proof layer is usually a thick plastic sheet placed under the floor slab and used to prevent moisture under the floor.

1.8 Masonry is a structure built of stones or bricks.

1.9 Wall tie connects leaves of masonry together for mutual support.

1.10 Intrados is the last brick built into the position at the crown of the arch.

(10 × 1) **[10]**

## QUESTION 2: CONSTRUCT CAVITY WALLS

2.1 State FIVE advantages of a cavity wall. (5)

2.2 Name SIX materials which are used as damp proof course for an ordinary house. (6)

2.3 Explain by means of neat sketches the following types of wall ties:

2.3.1 Butterfly wall tie (3)

2.3.2 Single-wire wall tie (3)

2.3.3 Double triangle wall tie (3)

2.4 Give FIVE places where D.P.C can be placed when building cavity walls. (5)

**[25]**

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## QUESTION 3: WALLS USING HOLLOW MASONRY UNITS

3.1 Why do we not use a quarry tile when we build will blocks? (2)

3.2 Draw to a good proportional scale a vertical section through a window and clearly show the following:

- Concrete filled lintel blocks
- Reinforcement inside lintel blocks
- Adjustable props
- Window frame
- Quarry tile
- Sill block
- D.P.C below the window (10)

3.3 SANS recommends that we use steel mesh when tying a non-structural wall with another.

3.3.1 How long should the mesh be? (1)

3.3.2 How often do we have to lay the mesh? (1)

3.3.3 How thick should the mesh be? (1)

3.4 List any FIVE types of foundations that you know that are used in building industry. (5)
**[20]**

## QUESTION 4: HOLLOW MASONRY UNITS

4.1 Illustrate by means of neat sketches THREE types of hollow units' bricks. (9)

4.2 Briefly, discuss methods used to tie intersecting walls into the structural walls. (5)

4.3 Roof anchors are required to anchor roofs against wind uplift. They are still required whether you install lintels or not.

List FIVE of the guidelines for building in roof anchors when you build with hollow units. (5)

4.4 What is the purpose of shell bedding when constructing walls with hollow masonry units? (1)
**[20]**

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## QUESTION 5: MASONRY STRUCTURES IN FACE BRICK

5.1 Make a neat drawing of a segmental arch, to a good proportional scale, and clearly indicate the following terms:

- Skewback
- Span
- Voussoirs
- Key brick
- Abutment
- Rise (15)

5.2 Briefly, discuss how to clean hardened mortar droppings and smears of exposed clay brick masonry, without scratching the bricks. (6)

5.3 List FOUR tools that are needed to construct arch in face brick. (4)
**[25]**

**TOTAL: 100**

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