higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

ARCHITECTURAL GRAPHICS AND TECHNOLOGY

(Second paper)

NQF LEVEL 2

(12050622)

12 March 2020 (Y-paper)
13:00–16:00

This question paper consists of 6 pages.

539Q2S2012

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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 section on a new page.
5. Use only a black or blue pen.
6. Write neatly and legibly.

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QUESTION 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 (1.1–1.10) in the ANSWER BOOK.

1.1 The four most common types of bricks used in the building industry:

A Stretcher bond, English bond, Flemish bond, strip bond
B Clay bricks, cement bricks, refractory bricks, ash bricks
C Zimbabwean bond, Celtic bond, American bond, Chinese bond
D Glue bond, cement bond, plastic bond, wood bond

1.2 Which ONE of the following persons is responsible for the architectural drawing of the plans for a proposed building?

A Quantity surveyor
B Structural engineer
C Architect
D Draughtsperson

1.3 Which ONE of the following is a limitation of the 3-4-5 method that is used to determine a right angle on site?

A Can only be set up in sunny weather
B Needs 10 persons to help set up
C Can only be used for small to medium-sized buildings – cannot set large shapes on site
D Drains site resources

1.4 The building-industry terms raft, pad and strip all refer to …

A structural-steel details.
B carpentry.
C walls.
D foundations.

1.5 Term or terms used when looking to reuse building materials from a previously demolished site:

A Competent, tolerance
B Indemnity specification
C Servitude agreement
D Recycling, sustainability, green design

1.6 The abbreviation DPM in a wall stands for …

A drill-paint massing.
B damp-proof membrane.
C drain-pull motor.
D door plain moulding.

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1.7 The rough sets of drawings used to discuss design options with a client at the beginning of an architectural design project:

A Rough sketch proposals
B Detailed working drawings
C Detailed submission to council sets
D Detailed window and door schedules

1.8 It is very important to get a structural engineer to design lintels onsite that are over openings higher than …

A 500 mm.
B 3 000 mm.
C 200 mm.
D 150 mm.

1.9 Which continent shows evidence of the first known brick-building process that archaeologists have uncovered?

A China
B Europe
C Africa
D Australia

1.10 The hollow in certain clay bricks:

A Bull
B Buffalo
C Frog
D Bird

(10 × 2) **[20]**

QUESTION 2: SIMPLE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS

Write each of the following abbreviations in full:

2.1 NGL (3)

2.2 SWP (2)

2.3 CE (2)

2.4 WHB (2)

2.5 RWP (2)

[11]

QUESTION 3: TERMINOLOGY AND COMPONENTS OF THE CONSTRUCTION INDUSTRY

Define each of the following terms used in the construction and building industry:

3.1 Agreement certificate

3.2 Contract document

3.3 Registered home builder

3.4 Green design pillars

(4 × 2) **[8]**

QUESTION 4: MEASURING, SETTING OUT AND LEVELLING

4.1 Explain the concept *setting out* and state its purpose. (5)

4.2 Explain the concept *error of parallax* and give examples of when this error might occur. (10)

4.3 Explain a benefit of using a rigid bar as radius arm when setting out large arcs or arches. (3)

[18]

QUESTION 5: FOUNDATIONS

Explain the working principle of each of the following types of foundations:

5.1 Raft foundation

5.2 Strip foundation

5.3 Pile foundation

5.4 Pad foundation

(4 × 4) **[16]**

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QUESTION 6: BRICKWORK, LINTELS AND ARCHES

6.1 List THREE of the most common brick bonds used in South Africa. (3 × 2) (6)

6.2 Define each of the following arch terms:

6.2.1 Rise

6.2.2 Springing line

6.2.3 Voussoirs

6.2.4 Soffit

6.2.5 Extrados

(5 × 3) (15)

6.3 How would a competent builder construct a rough brick arch? (6)

[27]

TOTAL: 100

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