higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

ARCHITECTURAL GRAPHICS AND TECHNOLOGY

(Second paper)

NQF LEVEL 2

8 December 2020

This marking guideline consists of 5 pages.

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QUESTION 1

1.1
1.1.1 A
1.1.2 D
1.1.3 C
1.1.4 D
1.1.5 C
(5 × 1) (5)

1.2
1.2.1 True
1.2.2 True
1.2.3 False
1.2.4 True
1.2.5 True
(5 × 1) (5)

1.3
1.3.1 compaction
1.3.2 wythes
1.3.3 straight edge
1.3.4 Flemish
1.3.5 Egyptians
(5 × 1) (5)
[15]

QUESTION 2: SIMPLE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS

2.1
- Street name
- Site boundaries
- Points of access
- Location of the building on the site
- Drainage layout
- Municipal services
- Connection points (Any 5 × 1) (5)

2.2
2.2.1 Natural ground level
2.2.2 Finished floor level
2.2.3 Airbrick
2.2.4 Outside diameter
2.2.5 Not to scale
2.2.6 Foam inlet
(6 × 1) (6)

2.3
- Working drawings
- Specifications
- Contract conditions
- List of finishes
- Memorandum of agreement (5)

[16]

QUESTION 3: TERMINOLOGY AND COMPONENTS OF THE CONSTRUCTION INDUSTRY

3.1 National Building Regulations (1)

3.2 A servitude represents a title deed or SG diagram restriction on a particular site.✓ It could be for services or for right-of-way driveways connecting various sites to the road.✓ Servitudes cannot be built over.✓ (3)

3.3 Grey water is waste water generated from daily domestic activities✓ such as laundry, dishwashing, showering or bathing.✓ Black water contains human waste✓ or waste designated as sewage.✓ (2 + 2) (4)

3.4
- Conventional housing
- Informal housing
- Incremental housing (3)

[11]

QUESTION 4: MEASURING, SETTING OUT AND LEVELLING

4.1 A – Vernier callipers
B – Measuring wheel
C – Tape measure
D – Outside micrometer (4 × 1) (4)

4.2 This method is restricted to laying out 90° angles.✓ It works for angles set out on a flat and level surface.✓ If any measurement is taken along a ground surface that is not flat and level, it will be longer than the true measurement.✓ (3)

4.3
- Kinks in the pipe could cause incorrect levelling.
- Air leaks could cause water level-fluctuations.
- The water could leak out due to poor connections and result in inaccurate levels.
- It is easy to spill out water by raising the one side too high or the other side too low.
- Surface tensions can also cause problems when reading the water level.

(Any 4 × 1) (4)

4.4
- Wrap up the string after use.
- Always wipe it clean after use.
- Store it in a toolbox after use. (3)

4.5
- Do not use when it will be exposed to extreme temperatures.
- Do not use when there are overhead electrical wires.
- Do not use during very windy conditions. (3)

[17]

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QUESTION 5: FOUNDATIONS

5.1
- Evenly distributes load that carries to the soil that supports the foundation
- Safely sustains and transmits the combined dead, imposed and wind loads to the ground on which the foundation rests
- Provides a level surface on which work can start
- Provides a hard-clean surface on which work can start
- Provides a material to which the mortar for the brickwork can adhere
- Anchors the structure built on the foundation in firm ground (Any 5 × 1) (5)

5.2
- Peat
- Silts
- Soft alluvial soil
- Filled ground (4)

5.3 Rock is generally the strongest material✓ on which to place a foundation and usually has a safe bearing capacity.✓ However, some rock, such as chalk, behaves more like weak soil when the moisture content is high.✓ (3)

5.4
- To make a foundation, trenches are normally dug in the ground until the subsoil or a rock bed,✓ which is more solid than the topsoil,✓ is reached.
- To establish the thickness of concrete that must be poured, steel pegs are driven into the trench to the required concrete thickness✓ and the level of each peg is transferred to the required points.✓ (2 × 2) (4)

[16]

QUESTION 6: BRICKWORK LINTELS AND ARCHES

6.1
- 90 mm
- 100 mm
- 140 mm
- 190 mm
- 230 mm (5)

6.2 In the past, builders used terminology such as a load-bearing wall,✓ non-load-bearing wall,✓ half-brick wall✓ and one-brick wall✓ to describe different types of walls. According to the South African National Building Standards, this terminology is outdated because it was not precise✓ and misleading.✓ (6)

6.3 It provides support✓ to the top part of a wall opening✓ preventing the wall above the opening from collapsing.✓ (3)

6.4
- Reinforced concrete lintel
- Precast commercial lintel
- Brick-on-edge lintel
- Soldier course lintel in conjunction with reinforced concrete (4)

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6.5 A – Springer
B – Voussoirs
C – Key brick
D – Extrados
E – Skewback
F – Intrados
G – Springing line (7)
[25]

TOTAL: 100

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