



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE BUILDING AND CIVIL TECHNOLOGY N3

3 AUGUST 2018

This marking guideline consists of 7 pages.

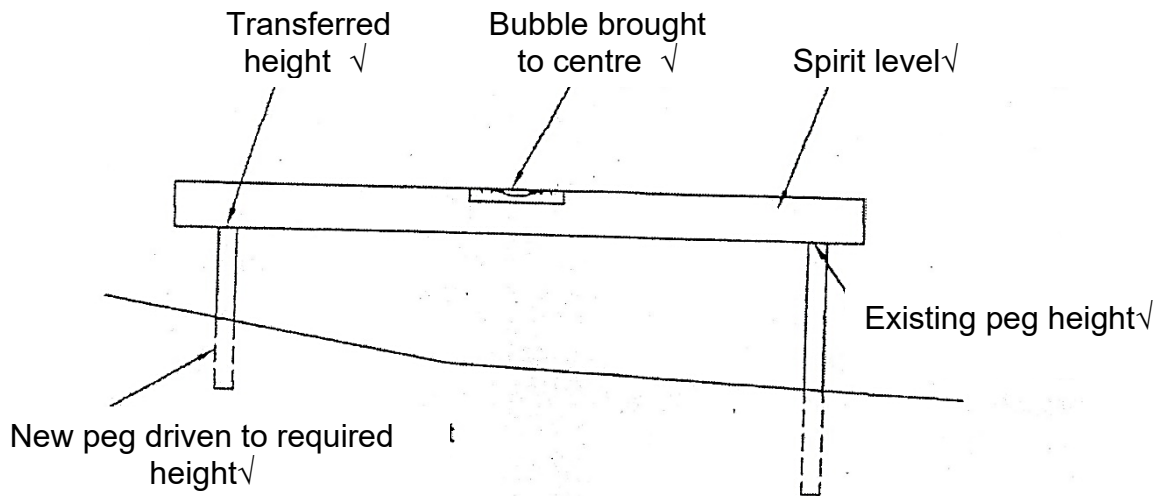
QUESTION 1

- 1.1 1.1.1 True
 1.1.2 True
 1.1.3 False
 1.1.4 True
 1.1.5 True
 1.1.6 False
 1.1.7 False
- (7 × 1) (7)
- 1.2 • Checks all contract documents
 • Examines all materials delivered to the site
 • Checks the quality of workmanship as the job progresses
 • Ensures that poor quality work is rectified
 • Keeps records of all deviations that occur
 • Submits weekly report to the architect
 • Keeps a daily diary and instruction book
 • Records all day-to-day on happenings site
- (Any 3 × 1) (3)
- 1.3 • Maintain good working conditions.
 • Treat all workers as individuals.
 • Encourage teamwork.
 • Develop harmony by consultation.
 • Develop co-operation by providing job security.
 • Develop loyalty by always being fair.
- (6)

[16]

QUESTION 2

2.1

**MARK ALLOCATION**

Correctness	2
Labelling	2 (any 2x1)
Neatness	1
Total	5

(5)

2.2

- Main bars
- Starter bars
- Weak concrete blinding
- Reinforced concrete foundation
- Pad or isolated foundation
- Ground-floor position
- 75 mm kicker
- RC Foundation
- Reinforced stirrups
- Reinforced bars in column
- Blinding coat

(Any 7 × 1)

(7)

2.3

- Soil that cannot support its own weight
- Weakening trench embankments caused by rain, forest, et cetera
- Vibration in the soil caused by heavy traffic
- Placing of heavy loads of soil too near the side of an excavation
- Type of soil (sand pockets)
- Excavating in previously disturbed soil
- Heavy objects impacting on the sides of the excavation

(Any 4 × 1)

(4)

[16]

QUESTION 3

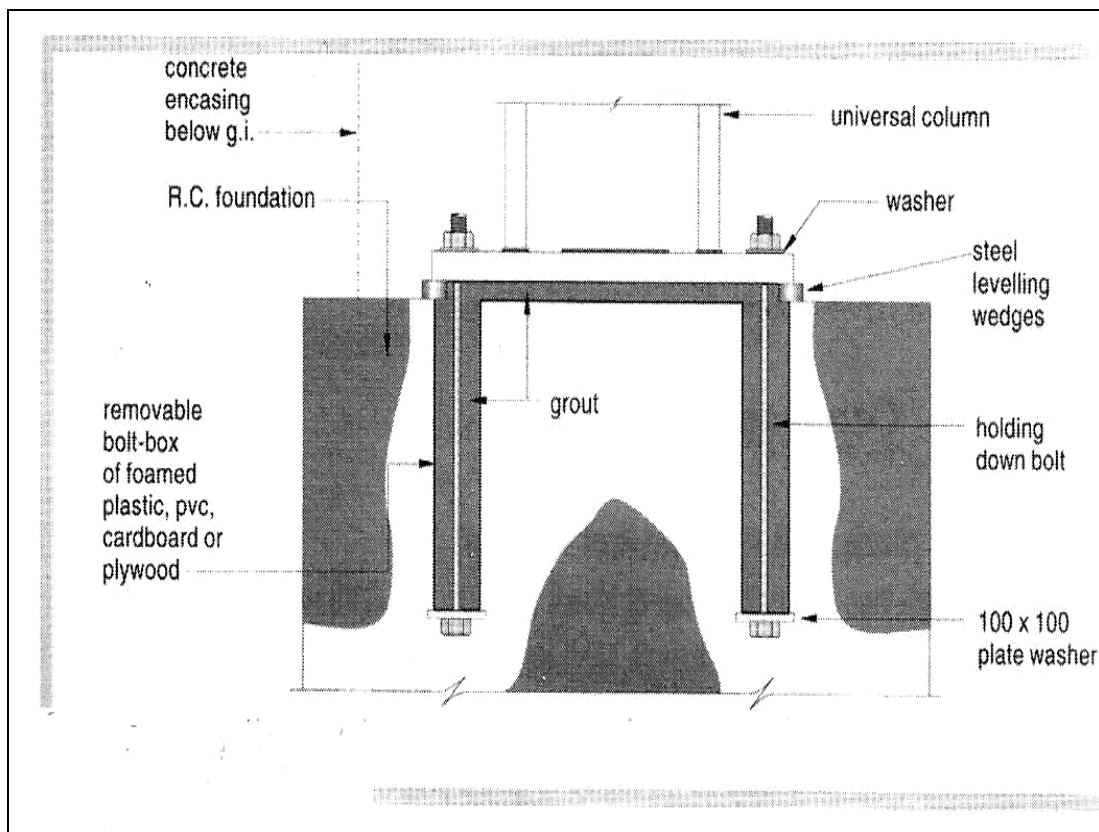
- 3.1 Artificial cement is ordinary or normal cement, rapid-hardening cement, white cement, blast-furnace cement, waterproof cement and sulphate-resisting cement. (2)
- 3.2
- Low degree of strength (it is not strong)
 - Cheap
 - Light in weight
 - Allows no capillary action (does not allow water to rise)
 - Provides excellent thermal insulation
 - Shrinks very little when it dries
 - Expects low pressure on form work during placing
 - Does not easily strip from work
 - Highly permeable
 - Does not permit reinforcement to be protected unless the surfaces are plastered
 - Dries rapidly (Any 5 × 1) (5)
- 3.3
- Prevents penetration of water through outer skin
 - Isolates sound/sound insulation
 - Isolates temperature/Thermal insulation/Keeps building warm in winter and cool in summer
 - Diverts mass of building to foundation when built below ground level (4)
- 3.4
- 3.4.1 Testing the concrete strength after it has set
- 3.4.2 Testing the workability of the concrete (2 × 1) (2)
- 3.5
- Poker vibrator
 - Vibration tamper
 - Clap vibrator (3)
- [16]**

QUESTION 4

4.1 Storm water is the term used for natural running water from surfaces such as fields, paved areas and roofs.

(2)

4.2

**MARK ALLOCATION**

Correctness	3
Labeling	5
Neatness	2
Total	10

(10)

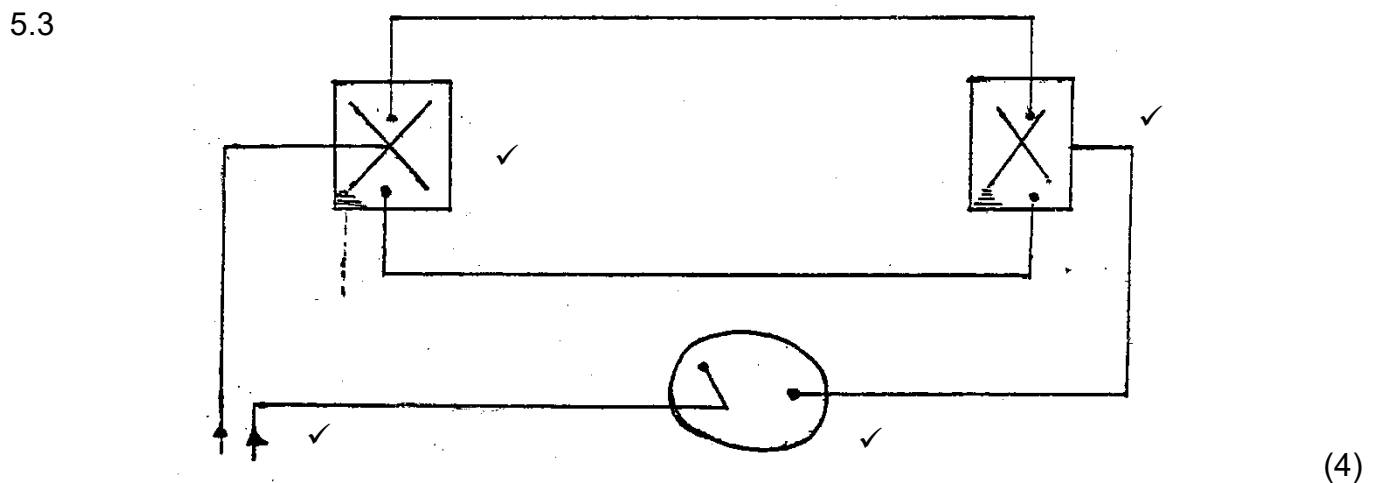
- 4.3
- 4.3.1 Storm water drain
 - 4.3.2 Wash basin
 - 4.3.3 Waste pipe
 - 4.3.4 Gully

(4 × 1)

(4)
[16]

QUESTION 5

- 5.1 5.1.1 Protects against rust in steel and protection against decay in timber
- 5.1.2 Protects the prime coat and serves as a grip for final coat
- 5.1.3 Gives the required decorative finish to the work and also hardens to protect wood or other surfaces
- (3 × 2) (6)
- 5.2 5.2.1 Used for large factory floors where heavy loads are stored (1)
- 5.2.2 Popular in school buildings, hospitals, public buildings and offices (2)
- 5.2.3 Used in areas with no grease and oil such as offices and schools (1)



- 5.4 5.4.1 Emergency light
- 5.4.2 Distribution board
- (2 × 1) (2)
- [16]**

QUESTION 6

- 6.1 A floor that has been raised off the ground so that there is empty space between the ground and the floor (2)
- 6.2 6.2.1 Perimeter of the building
- $$2 \times 3\,000 = 6\,000$$
- $$2 \times 4\,000 = 8\,000$$
- $$= 14\,000$$
- $$\text{Less } 4 \times 220 = 880$$
- $$= 13\,120 \quad (2)$$
- 6.2.2 The total depth of trench:
- $$600 + 250 = 850$$
- $$= 850 - 250$$
- $$= 600$$
- Volume of excavated material:
- $$L \times b \times h$$
- $$= 13,120 \times 0,65 \times 0,600$$
- $$= 5,12 \text{ m}^3$$
- Quantity of concrete:
- $$L \times b \times h$$
- $$= 13\,120 \times 0,650 \times 0,250$$
- $$= 2,132 \text{ m}^3$$
- Cost of concrete:
- $$2,132 \times R300$$
- $$= R639,60 \quad (6)$$
- 6.2.3 Height of foundation brickwork:
- $$(250 + 600 - 250) = 600$$
- $$= (600 \times 13\,120)$$
- $$= 7,872 \text{ m}^2$$
- Cost of bricks:
- $$7,872 \times 110 \text{ bricks}$$
- $$= 865,92 \times \frac{R400}{1\,000}$$
- $$= 346,37 \quad (4)$$
- 6.2.4 Cost of labour:
- $$346,37 \times R\,200$$
- $$= R69,274 \quad (1)$$
- 6.3
- Oil paints (with gloss or matt finishes)
 - Emulsion (PVA) paints
 - Synthetic paints
 - Cellulose paints
 - Water paints
 - Hard Gloss paint
 - Different primers and under layers
 - Stains
 - Varnishes
 - Whitewash and distempers

(5)
[20]**TOTAL: 100**