higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

CARPENTRY AND ROOFING THEORY N2

24 November 2022

This marking guideline consists of 8 pages.

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QUESTION 1

1.1 Dumpy level:✓ Is used to transfer and obtain levels of various points in relation to the horizontal line, over long distances.✓

1.2 Water level:✓ Is used to transfer levels from one level point to another point that cannot be measured or observed on the same height e.g. another room. ✓

1.3 Measuring rod:✓ Is used to measure lengths and survey areas of various sizes physically.✓

1.4 Spirit level:✓ Is used to check the level and plumb of horizontal and vertical surfaces.✓

1.5 Plumb bob:✓ Is used to check if structures are vertically level or plumb.✓

(Any relevant 5 × 2) **[10]**

QUESTION 2

2.1 2.1.1 False✓
Nail plate connectors are used to assemble off-site manufactured roof trusses.✓ (2)

2.1.2 True ✓ (1)

2.1.3 False✓
The king post is the main support member in a Howe roof truss construction. ✓ (2)

2.1.4 False✓
Tilting battens are bigger than the other battens in order to support the first row of tiles.✓ (2)

2.1.5 True✓ (1)

2.2 2.2.1 Half truss
2.2.2 Hip end
2.2.3 Hip rafter
2.2.4 Valley or valley rafter
2.2.5 Eaves/overhang
2.2.6 Full trusses/main trusses
2.2.7 Barge board
2.2.8 Gable wall
2.2.9 Wall plate
2.2.10 Ridge
2.2.11 Flying hip
2.2.12 Jack rafter

(12 × 1) (12)
[20]

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QUESTION 3

3.1 Characteristics:
- Is an oil-based paint
- Always stays tacky and flexible
- It remains soft in the middle (Any relevant 2 × 1) (2)

Application:
- To protect metal against rust, especially irregular shapes.
(Any relevant 1 × 1) (1)

3.2 Characteristics:
- It is a water-based liquid which makes it a flexible material.
- It can be brushed onto the surface together with the water- proofing membrane.
- The sun makes it brittle over a long period of time. (Any relevant 2 × 1) (2)

Application:
- Used as a sealant of flashings around chimneys and parapet walls.
(Any relevant 1 × 1) (1)

3.3 Characteristics:
- Is light, soft and flexible.
- It can take the shape of any mould or area when applied.
- It has an extreme resistance to tearing (Any relevant 2 × 1) (2)

Application:
- Used as an underlay in roof construction work.
- Used in brick work (DPC) as a water proofing method.
(Any relevant 1 × 1) (1)

3.4 Characteristics:
- Is a combination of tar, special additives and petroleum solvents.
- It is black and can be applied by brush, roller or spray gun.
(Any relevant 2 × 1) (2)

Application:
- Is used for waterproofing especially for flat concrete roofs and tanking in underground buildings. (Any relevant 1 × 1) (1)

3.5 Characteristics:
- It can take the shape of the member or area it is applied to.
- It is applied with a brush or cloth. (Any relevant 2 × 1) (2)

Application:
- Is used to serve as a waterproofing sealant. (Any relevant 1 × 1) (1)

[15]

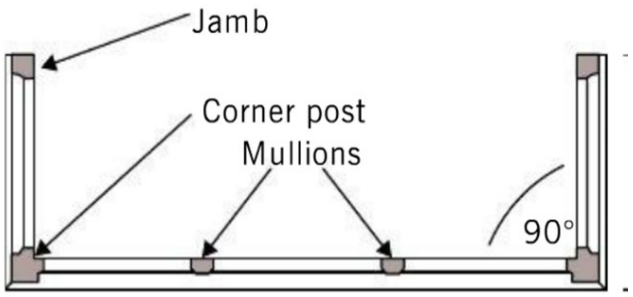
QUESTION 4

- Create a datum mark and set out the position for the corner brandering and fix it to the tie beam.
- Mark out the position for the rest of the brandering spaces on the two end tie beams.
- Transfer all the marks onto the remaining tie beams with a chalkline and fix the brandering to the tie beams.
- With a spacer block, check and align the brandering where required.
- Position and fix intermediate brandering to accommodate the width of the ceiling board.
- Fit and fix the ceiling boards with cloud nails.
- Fit and fix the cornice to cover the joint between the ceiling and wall.
- Fit and fix a cover strip to cover the joint between the ceiling boards.

Any relevant 8 × 1) **[8]**

QUESTION 5

5.1 5.1.1

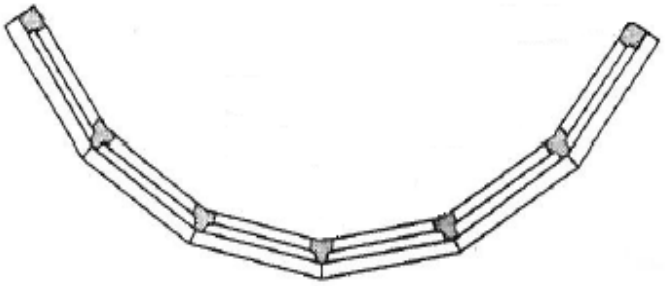


5.1.1 Square bay

Sketch:	2
Name:	1
Total:	3

(3)

5.1.2

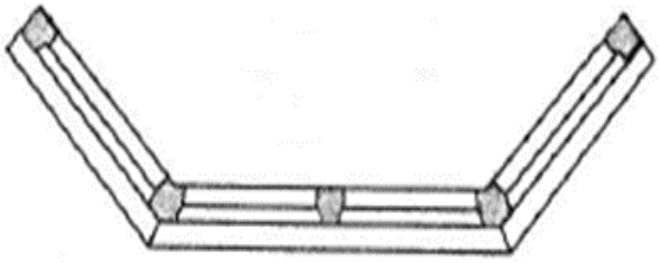


5.1.2 Circular bay

Sketch:	2
Name:	1
Total:	3

(3)

5.1.3



5.1.1 Splay or Cant bay

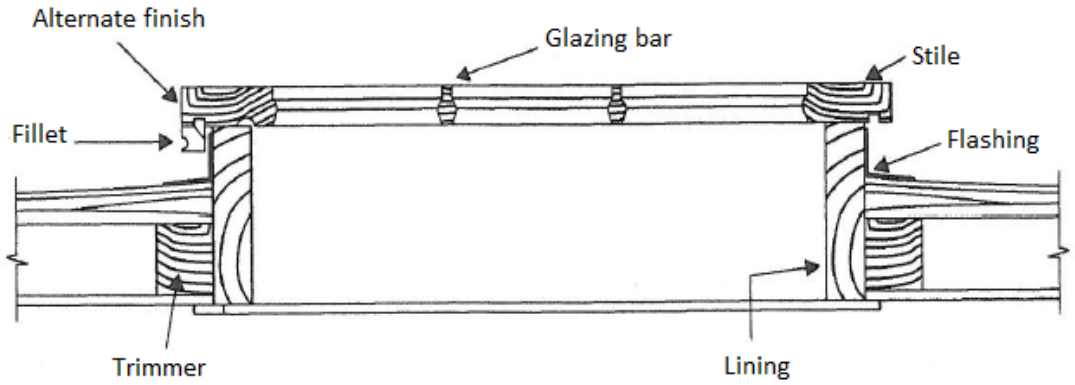
Sketch:	2
Name:	1
Total:	3

(3)

5.2
- To provide daylight to an attic room
- To provide ventilation
- Add additional space to the room
- It will enhance the exterior appearance of the building (4)

5.3 A bay window is a protruding round or three-sided window with side lights that projects in front of the external wall with its own independent roof structure.
(Any relevant 2 × 1) (2)
[15]

QUESTION 6



Sketch:	5
Labels: max	6
Correctness:	1
Total:	12

[12]

QUESTION 7: CARPENTRY CANDIDATES ONLY

7.1 7.1.1 The steel props or timber support must be able to keep the formwork stable in the required position and the formwork must be able to support the wet concrete until it is cured.

7.1.2 The construction must be strong enough to carry the dead load of the wet concrete imposed on it without the danger of collapsing or leaking.

7.1.3 All the joints must be closed and must be a tight fit at the joints to prevent any grout loss or leakage during the placing and curing process.

7.1.4 The formwork must be accurate and consistent, assembled according to the specifications and must remain stable during the placement process with no deviations of measurements.

7.1.5 The formwork structures must be constructed in such a way that it can easily be constructed, moved leveled and re-used.

(5 × 2) (10)

7.2
- Head plate
- Sole plate
- Wall stud – and intermediate studs
- Noggins

(4)

7.3 Shoring is a form of temporary support✓ to building structures which is defective and likely to collapse when alterations are being made.✓ (2)

7.4
- To support structures which shows signs of weakness due to ground subsidence or foundation sagging.
- Structures which have become defective and most probably going to collapse.
- To support the walls of structures which tend to become bulgy and full of cracks.
- To support an adjacent structure or building where extensive alterations being made are in process.
- To provide the required precaution and safety to prevent damage to any person or property from collapsing of a building structure.
- To give support to an adjacent structure or building where demolition works are in operation.

(Any relevant 4 × 1) (4)

[20]

QUESTION 8: ROOFING CANDIDATES ONLY

8.1

8.1.1
- Welding
- Soldering
- Grooved joint
- Riveting

8.1.2
- Lap joint
- Riveted
- Brazing
- Welding
- Grooved joint

8.1.3
- Riveting
- Rolled and grooved joint
- Brazing
- Welding.

8.1.4
- Groove seam joint
- Hard soldering
- Brazing
- Welding.

8.1.5
- Soft soldering

8.1.6
- Rolled and groove seam joint
- Soft soldering.

(Any relevant 6 × 1) (6)

8.2 Vent pipe flashing, usually lead and galvanized iron, is a waterproofing method which is cut in a pattern and fitted around a vent pipe to prevent rainwater from entering a building through the roof structure. (2)

8.3
8.3.1 Gutter
8.3.2 Outlet
8.3.3 Offset, elbow or swan's neck
8.3.4 Holderbat
8.3.5 Down-pipe
8.3.6 Shoe

(6 × 1) (6)

8.4 Waterproofing is to seal off joints and openings so that no rainwater can seep through into a building, it also includes the application of damp proof course (DPC). (2)

8.5
8.5.1 C
8.5.2 D
8.5.3 A
8.5.4 B

(4 × 1) (4)
[20]

TOTAL: 100

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