



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

CIVIL TECHNOLOGY: CONSTRUCTION

NOVEMBER 2025

MARKING GUIDELINES

MARKS: 200

These marking guidelines consist of 19 pages.

INSTRUCTIONS FOR MARKERS

1. Markers should:

- Familiarise themselves with the question and answer before evaluating the responses of candidates.
- Always interpret the responses of the candidates within the context of the question.
- Consider any relevant and acceptable answer during pre-marking but should strictly adhere to the answers after finalisation of the marking guideline.
- There are TWO approaches to answering describe and explain type of questions.
 1. If a candidate is required to explain e.g., a process in a prescribed number of steps (e.g. 3 steps), only the first required number of responses should be considered.
 2. However, if for example candidate is required to explain or describe a process, we need to consider that candidates may write a long description, not necessarily well organised. In this case the marker needs to evaluate the complete statement to judge if the candidate explained the required outcome satisfactorily and allocate marks on merit.
- Answering short questions.
 1. Bullet Form Answers: When a candidate provides their answers in bulleted points, each bullet should be treated as a single answer. Award 1 mark for each complete bulleted response.
 2. Paragraph Form Answers: When a candidate provides answers in paragraph form, the response should be evaluated based on the accuracy and completeness of each fact presented. Award marks for each distinct fact or point made, ensuring that each fact is correctly articulated.
- Mark what the candidate wrote and do not interpret or predict responses.
- Indicate the tick or cross right at the position where the mark needs to be awarded or where the candidate made the error.
- Accept the letter corresponding with the correct answer as well as the answer written in full in multiple-choice questions or similar questions.
- Accept incorrect spelling in answers unless the spelling changes the meaning of the answer.
- If a learner writes two or more answers separated by a slash (/) mark only the first response, unless the additional answer/s are different names for the same item, e.g. Yale lock/Night latch. In this case, the answer for the response should be awarded and the slash (/) should NOT be considered as an additional answer.

2. For calculations:

- A mark is only awarded if the correct unit is written next to the answer. If the question states that the answer must be in a specific unit, a mark will be awarded if the answer is indicated without the unit.
- Marks will only be allocated for the correct values if the candidates add instead of multiply. NO marks will be awarded for the calculations and the answer.

- Where an incorrect answer is correctly carried over, the marker must recalculate the values, using the incorrect answer from the first calculation. If correctly used, the candidate should receive the full marks for subsequent calculations.
- Alternative methods of calculations must be considered, provided that the correct answer is obtained.
- For the calculation of quantities marks will be awarded for the correct use of the dimension paper.

3. When marking drawings:

- The member for which the mark should be awarded should be drawn correctly in the correct position to receive a mark.
- A member incorrectly drawn but wrongfully repeated in another position will be awarded the mark for the repeated incorrect member provided that the marking guideline provides for TWO or more marks for that member (positive marking).
- Marks can only be awarded for a label if the label is correctly indicating the correct member. Do not consider labels for members of which the labels were provided on the answer sheet.
- Scale drawings should always be marked using an appropriate mask.
- If the incorrect/wrong drawing was drawn, the candidate can be awarded for only what was provided for on the marking guideline.
- If a line diagram or an orthographic view instead of a pictorial drawing (isometric/oblique/perspective) is drawn, the first assessment criteria for each member will be marked wrong, but marks will be awarded for the subsequent members if TWO or more marks are awarded for the same member.
- If candidates draw/give more information than what is required, mark strictly according to the assessment criteria. However, if the additional information alters or contradicts the correct response, the answer should be marked incorrect.

4. Incorrect numbering of questions:

- If a candidate numbered incorrectly, but the answer is in the correct position according to the sequence of the questions in the question paper, circle the incorrect numbering and mark the response.
- If questions were answered randomly not following the same sequence as in the question paper and the learner numbered incorrectly, the response should NOT be marked.

5. Duplication of responses and questions answered in the correct place:

- If a question is answered twice, mark the first response.
- If a question should be answered on an answer sheet and the candidate answered it on both the answer sheet and in the answer book, mark the response on the answer sheet and cancel the response in the answer book.
- If the question was answered in the answer book instead of on the answer sheet, mark the response in the answer book according to the assessment criteria on the marking guideline.

QUESTION 1: OHSA, MATERIALS, TOOLS, EQUIPMENT AND JOINING (GENERIC)

- | | | | |
|-----|--|---|-----|
| 1.1 | 1.1.1 | 38 mm ✓ | (1) |
| | 1.1.2 | 150 mm ✓ | (1) |
| | 1.1.3 | 320 kg per m ² ✓ | (1) |
| | 1.1.4 | two ✓ | (1) |
| | 1.1.5 | two ✓ | (1) |
| | 1.1.6 | overhead ✓ | (1) |
| | 1.1.7 | two thirds ✓ | (1) |
| | 1.1.8 | unauthorised persons ✓ | (1) |
| | 1.1.9 | 760 x 560 mm ✓ | (1) |
| | 1.1.10 | health and safety ✓ | (1) |
| 1.2 | C ✓ | | (1) |
| 1.3 | Bolts are purchased according to: <ul style="list-style-type: none">• Length of the shank ✓• Diameter ✓• Type of thread• Head size• Type of head• Strength• Material ANY TWO OF THE ABOVE | | (2) |
| 1.4 | 1.4.1 | Process of powder coating:
Applying a plastic finish/coating in powder form, ✓ by using a spray gun. ✓ | (2) |

1.4.2 Advantages of applying powder coating to a metal:

- Strengthen the metal ✓
- Provides stability
- Environmentally friendly
- Thicker coat can be applied
- More durable
- Available in a variety of colours, textures and gloss levels
- Withstand higher levels of heat
- Thermoset powder coatings have a beautiful appearance
- It is cheaper than other methods
- Resists corrosion

ANY ONE OF THE ABOVE

(1)

1.5 Do not use the following to clean a multi detector:

- Cleaning agents ✓
- Solvents/Chemicals
- Moist cloth

ANY ONE OF THE ABOVE

(1)

1.6 Two materials that can be detected:

- Steel ✓
- Copper ✓
- Brass
- Wiring/AC

ANY TWO OF THE ABOVE

(2)

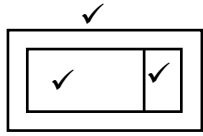
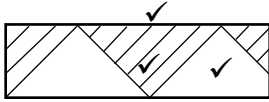
1.7 Plumb bob ✓

(1)

[20]

QUESTION 2: GRAPHICS AS MEANS OF COMMUNICATION (GENERIC)

NO.	QUESTIONS	ANSWERS	MARKS
1.	What elevation is indicated by FIGURE A?	West elevation/West/W ✓	1
2.	Deduce, from the notes column, what type of roof is indicated by number 1.	Hipped roof ✓	1
3.	What energy-generating components are installed on the roof, as indicated by number 2?	Solar Panels ✓	1
4.	Identify number 3.	Fascia board ✓	1
5.	Identify number 4.	Window sill/Sill ✓	1
6.	What material is recommended to be used to manufacture number 5?	Stainless steel ✓	1
7.	Identify number 6.	NGL/Natural ground level ✓	1
8.	Write down the abbreviation for number 7.	FFL ✓	1
9.	Identify the end shape used to manufacture number 8.	Round/Square/Rectangular ✓	1
10.	How many built-in cupboards are there in the building?	One/1 ✓	1
11.	What electrical installation has been omitted in the building?	Socket outlet/Switch socket outlet/Lights/Electrical wiring/ Switch/Distribution board/ Inverter ✓	1
12.	What type of material can be used to manufacture the fascia board in FIGURE A?	Timber/Fibre cement/ uPVC/Aluminium/Stainless steel/Galvanised sheets ✓	1
13.	How should the opening direction of the sliding door be indicated on the floor plan?	By means of an arrow ✓	1
14.	Name ONE material that can be used to manufacture number 9.	Ceramic/PVC/Timber/Steel/ Stainless steel/Porcelain/Clay/ Plastic/Fibre glass/Glass/Concrete/ Stone/Marble/Terrazzo/ Cast iron/Pressed steel/Brass ✓	1

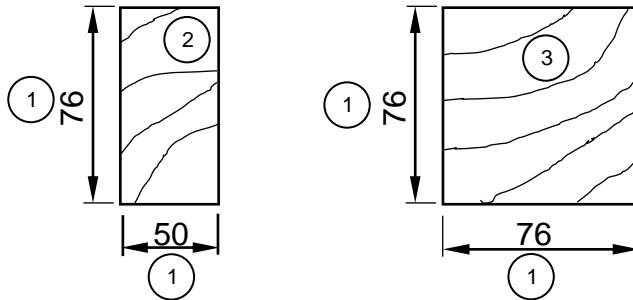
15.	Deduce, from the notes column, what must be installed above every window.	Lintels ✓	1
16.	How many external doors are visible on the southern side of the building?	Two/2 ✓	1
17.	How many water closets are installed in the building?	Four/4 ✓	1
18.	Identify number 10.	One-way switch double pole ✓	1
19.	Deduce the thickness of the internal walls from FIGURE B.	110 mm/110 ✓	1
20.	State the reference code of the proposed building.	QP 5 - 2025 ✓	1
21.	How many 1 200 x 600 mm windows are there in the building?	Five/5 ✓	1
22.	Deduce, from the notes column, the dimensions of the aluminium side panel with windows.	600 ✓ x 2 000 mm ✓	2
23.	Draw the symbol for a grease trap.		3
24.	Draw the symbol for undisturbed earth.		3
25.	What sanitary fitting is installed in the scullery?	Sink unit – double/Double sink ✓	1
26.	Calculate the area of the scullery to be covered with floor tiles. The sink unit must be installed on top of the tiles. Give your answer in m ² .	$5 \checkmark \times 4 \checkmark$ $= 20 \checkmark \text{ m}^2$ OR $= 5\,000 \text{ mm} \times 4\,000 \text{ mm}$ $= 20 \text{ m}^2$	3
27.	Calculate the total length of the wall on the northern side of the building. Show ALL calculations. The length must be indicated in metres.	$220 \checkmark + 5\,000 \checkmark + 110 \checkmark + 5\,000 \checkmark + 220 \checkmark$ $= 10\,550 \checkmark \text{ mm}$ $= 10,55 \checkmark \text{ m}$ OR $0,22 + 5 + 0,11 + 5 + 0,22 = 10,55 \text{ m}$	7
		TOTAL:	40

QUESTION 3: ROOFS, STAIRCASES AND JOINING (SPECIFIC)

3.1 3.1.1 760 mm ✓ (1)

3.1.2 1 400 mm ✓ (1)

3.2



NO.	ASSESSMENT CRITERIA	MARK
1	Dimensions (TWO on each drawing)	4
2	Drawing rectangular shape	1
3	Drawing square shape	1
TOTAL:		6

(6)

3.3 3.3.1 42 ✓ (1)

3.3.2 14 ✓ (1)

3.3.3 Three/Four ✓ (1)

3.3.4 150 ✓ (1)

3.4

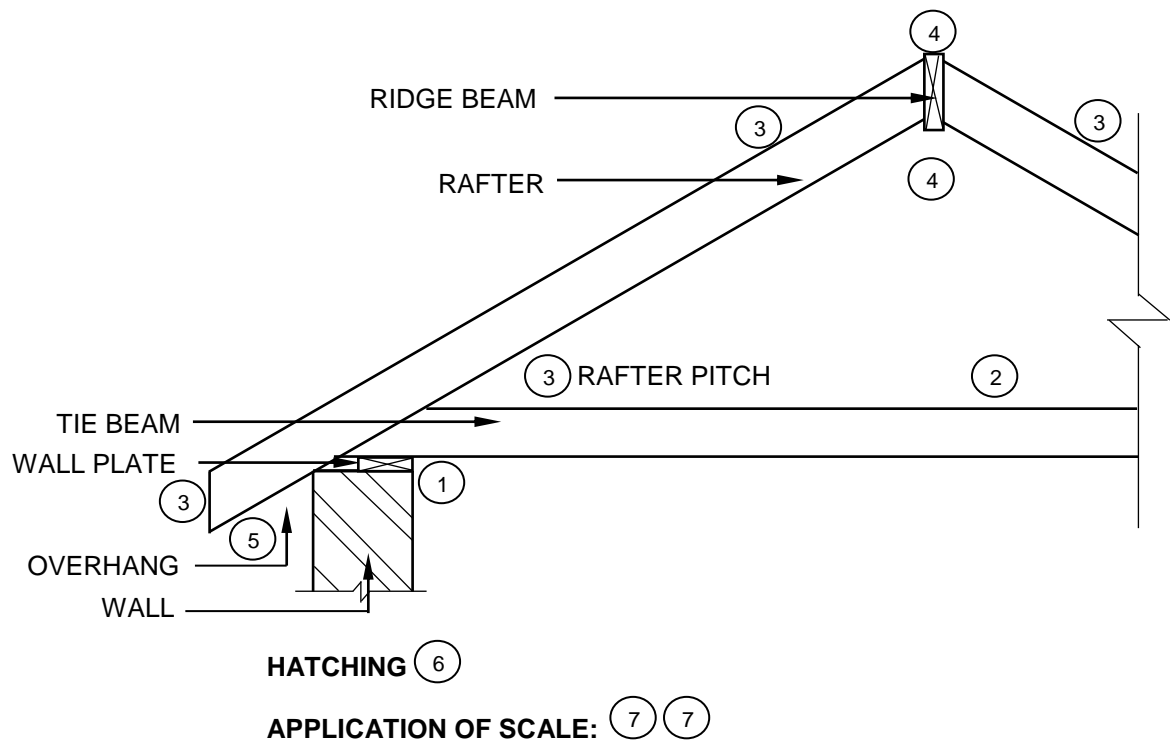
- Rawl bolt ✓
- Sleeve anchor
- Bolt
- Bolt and chemical anchor
- Coach screw and plug

ANY ONE OF THE ABOVE (1)

- 3.5 3.5.1 A – Ridge plate/Ridge capping ✓
B – Purlin ✓
C – Roof covering ✓
D – Rafter/Roof truss ✓ (4)

- 3.5.2 Consequences of not installing a ridge plate:
 • Water damage/leaks can occur when the roof is not covered. ✓
 • Wind can easily lift the roof covering without the ridge plate.
 • Insects, vermin and other objects can enter the roof space.
ANY ONE OF THE ABOVE (1)

3.6



USE A MASK TO MARK THIS QUESTION

NO.	ASSESSMENT CRITERIA	MARK
1	Wall plate	1
2	Tie beam	1
3	Rafters + Pitch of rafter	4
4	Ridge beam (correctly drawn and placed)	2
5	Overhang	1
6	Hatching (any ONE part)	1
7	Application of scale: All correct = 2 ONE incorrect = 1 TWO or more incorrect = 0	2
TOTAL:		12

(12)
[30]

QUESTION 4: EXCAVATIONS, FORMWORK, TOOLS, EQUIPMENT AND MATERIALS (SPECIFIC)

- | | | | |
|-----|-------|---|-----|
| 4.1 | 4.1.1 | Lead ✓ | (1) |
| | 4.1.2 | Ductile cast iron ✓ | (1) |
| | 4.1.3 | Medium carbon steel ✓ | (1) |
| | 4.1.4 | Brass ✓ | (1) |
| | 4.1.5 | Galvanised sheet metal ✓ | (1) |
| 4.2 | 4.2.1 | C ✓ | (1) |
| | 4.2.2 | F ✓ | (1) |
| | 4.2.3 | A ✓ | (1) |
| | 4.2.4 | I ✓ | (1) |
| | 4.2.5 | E ✓ | (1) |
| | 4.2.6 | B ✓ | (1) |
| 4.3 | | <ul style="list-style-type: none"> • Depth ✓ • Width/Length/Breadth/Dimensions/Size ✓ • Services (plumbing and electrical) ANY TWO OF THE ABOVE | (2) |
| 4.4 | | By machine/excavator/T.L.B/mechanically ✓ | (1) |
| 4.5 | | Shuttering for firm soil ✓ | (1) |
| 4.6 | | Cutting ✓ and filling ✓ | (2) |
| 4.7 | 4.7.1 | Machines that can be used: <ul style="list-style-type: none"> • Plate compactor ✓ • Tamping rammer ANY ONE OF THE ABOVE | (1) |
| | 4.7.2 | Care after using the machines: <ul style="list-style-type: none"> • Clean after use ✓ • Service the plate compactor ✓ • Remove loose dirt and soil ANY TWO OF THE ABOVE | (2) |
| | 4.7.3 | <ul style="list-style-type: none"> • Ear muffs/Ear plugs ✓ • Loss of hearing ✓ | (2) |

4.8

4.8.1

The test is performed:

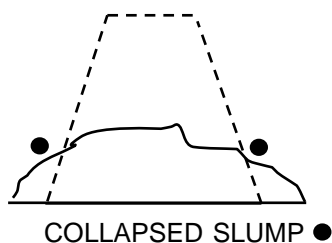
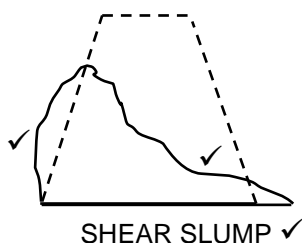
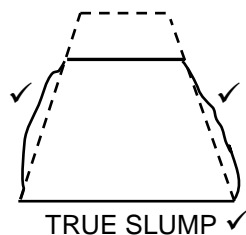
- To test the density of concrete before it is placed by determining the amount of water it contains. ✓
- To determine the workability. ✓
- To determine the consistency of the batches that are mixed.
- To determine the slump of the mixture.

ANY TWO OF THE ABOVE

(2)

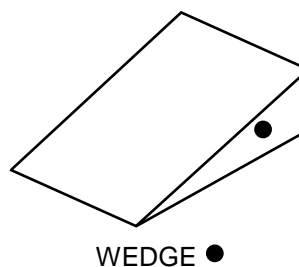
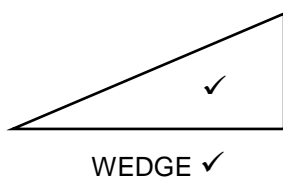
4.8.2

Outcomes of the slump test:

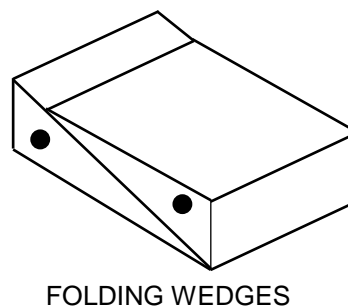
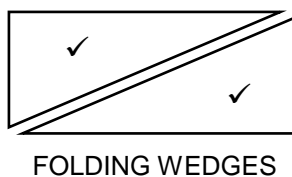
**ANY TWO OF THE ABOVE**

(6)

4.9

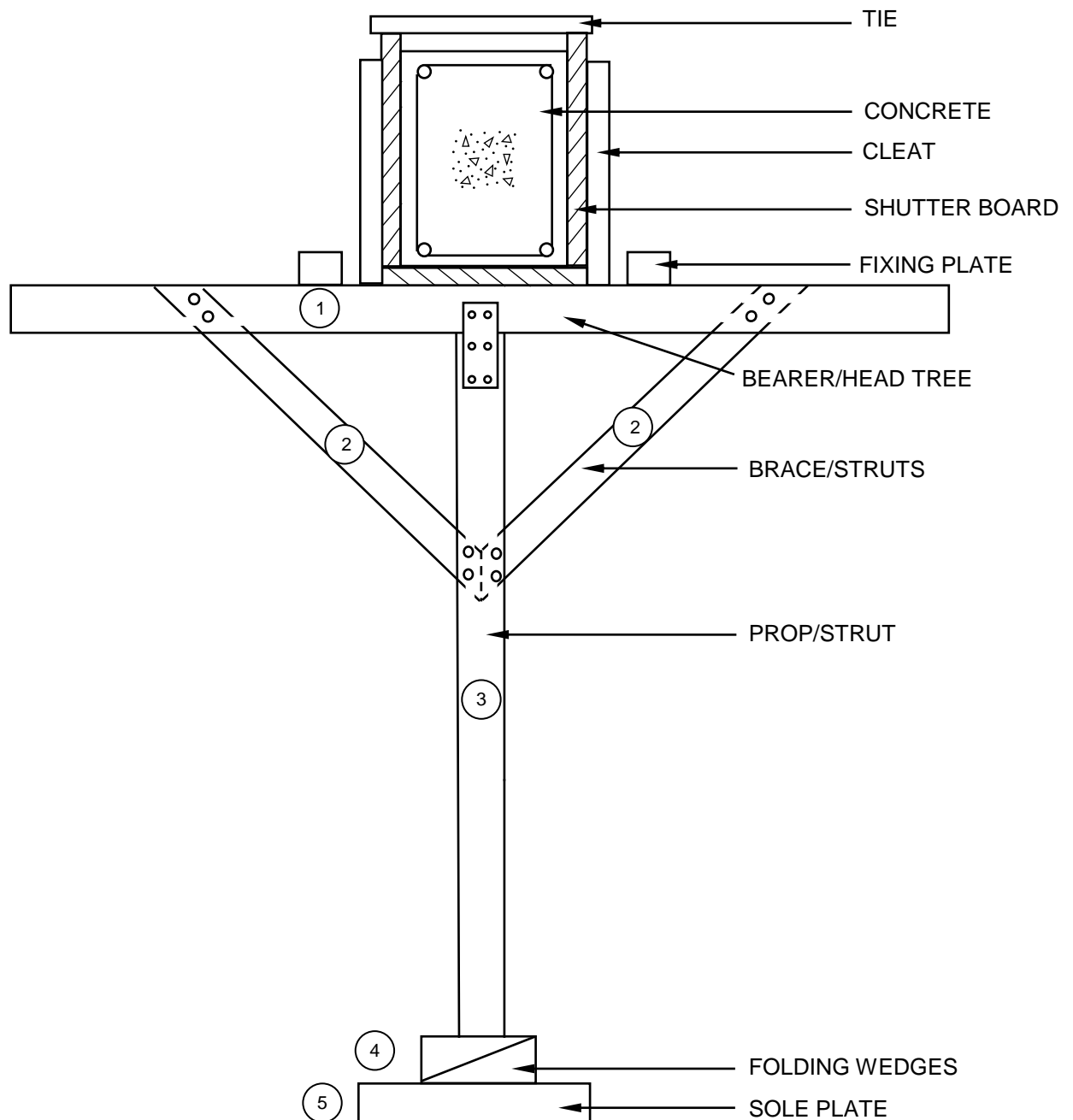


OR



(4)

4.10



NO.	ASSESSMENT CRITERIA	MARK
1	Bearer/Head tree	1
2	Braces/Struts	2
3	Prop/Strut	1
4	Folding wedges	1
5	Soleplate	1
TOTAL:		6

(6)
[40]

QUESTION 5: PLASTER AND SCREED, BRICKWORK AND GRAPHICS AS MEANS OF COMMUNICATION (SPECIFIC)

5.1 5.1.1 Plastering ✓ (1)

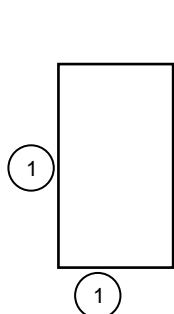
5.1.2 Hand hawk ✓
Plastering trowel ✓ (2)

5.1.3 Builders lime/Lime ✓ (1)

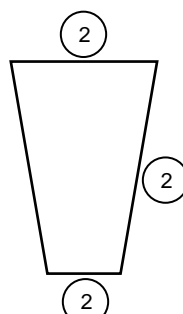
5.2 5.2.1 Types of screeds:
 • Dry screeds ✓
 • Monolithic screeds ✓
 • Bonded screeds
ANY TWO OF THE ABOVE (2)

5.2.2 Testing the absorptiveness of concrete to receive screed:
 • Pour a cup of water onto the surface the day before laying the screed. ✓
 • If the water is absorbed within five minutes, the surface suction is good. ✓
 • The surface should be kept moist/wet for four hours. ✓ (3)

5.3



BRICK FOR ROUGH ARCH

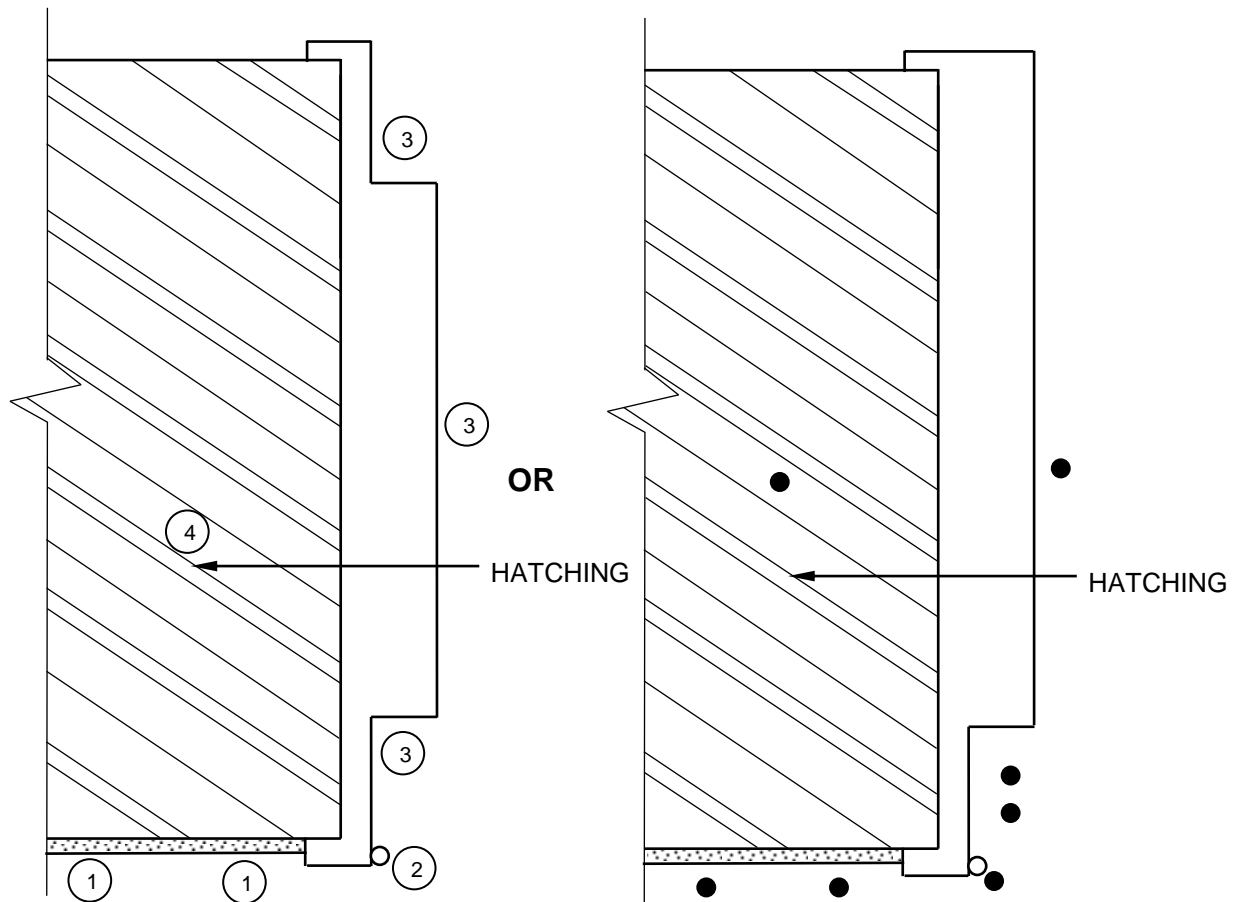


BRICK FOR GAUGED ARCH

NO.	ASSESSMENT CRITERIA	MARK
1	Brick for rough arch	2
2	Brick for gauged arch	3
TOTAL:		5

(5)

5.4

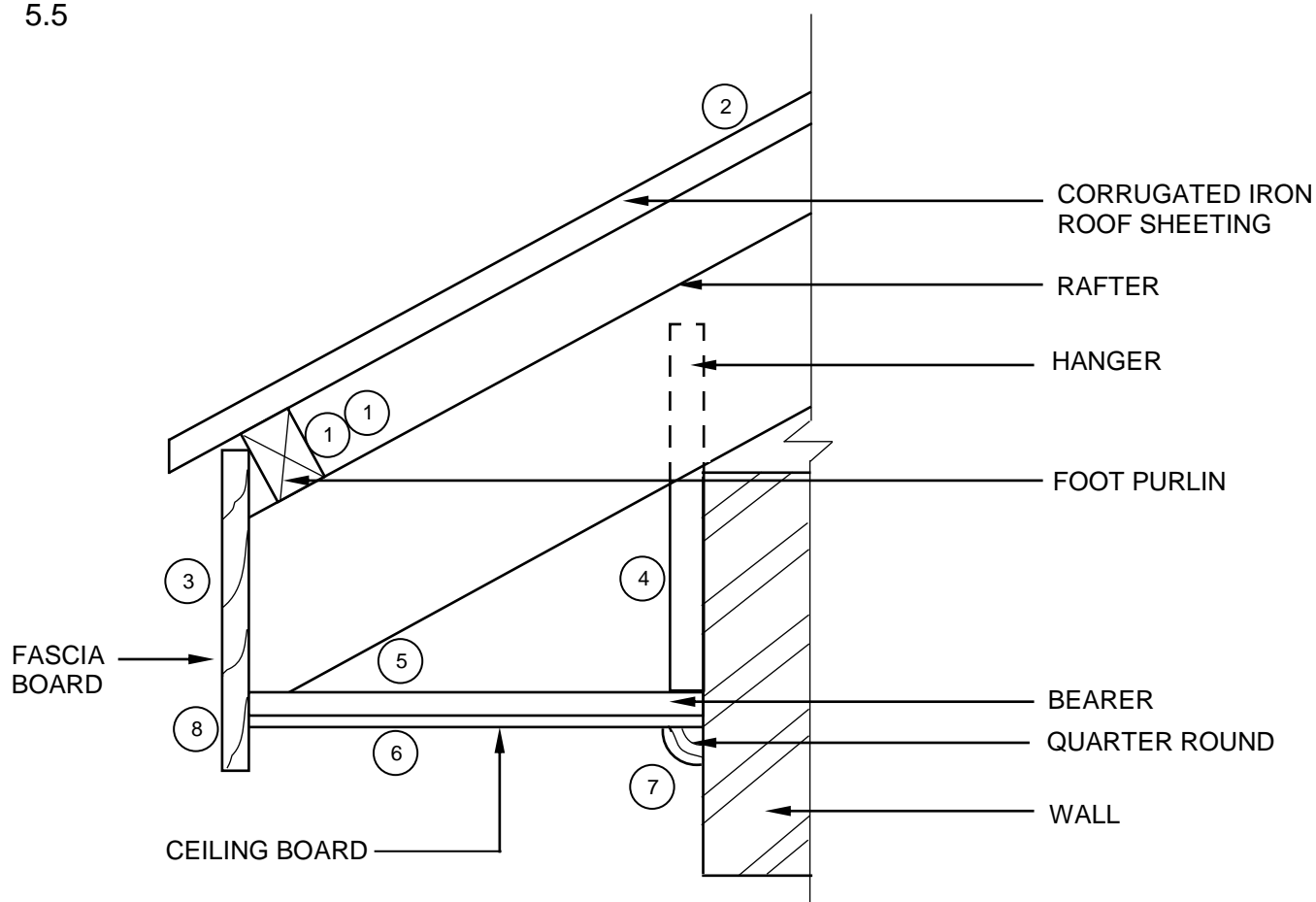


**NOTE: PLASTER CAN BE INDICATED ON ANY ONE SIDE OF THE WALL
DEPENDING ON THE SIDE OF THE HINGE**

NO.	ASSESSMENT CRITERIA	MARK
1	Symbol for plaster	2
2	Hinge	1
3	Steel door frame	3
4	Hatching of wall	1
TOTAL:		7

(7)

5.5



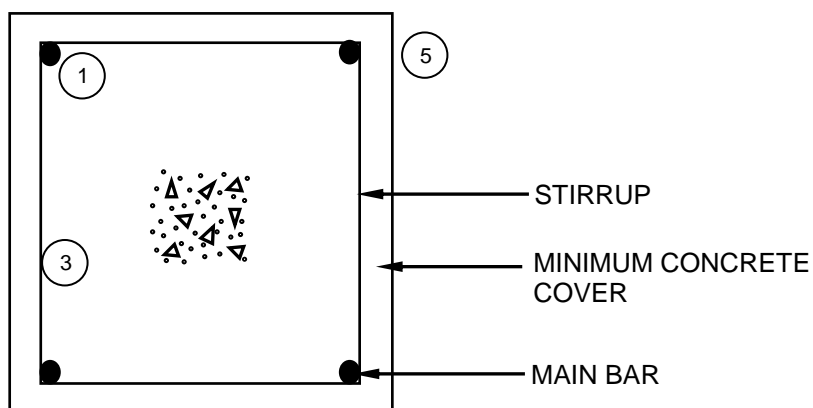
NO.	ASSESSMENT CRITERIA	MARK
1	Foot purlin (1 = Purlin + 1 = Placement)	2
2	Roof covering	1
3	Fascia board	1
4	Hanger (no hidden detail)	1
5	Bearer	1
6	Ceiling board	1
7	Quarter round	1
8	Hatching (any ONE part)	1
TOTAL:		9

(9)
[30]

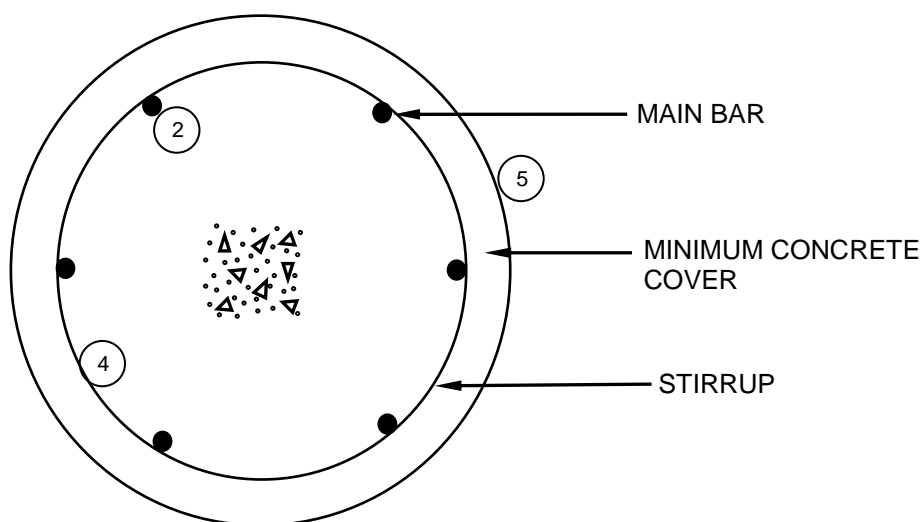
QUESTION 6: REINFORCEMENT IN CONCRETE, FOUNDATIONS, CONCRETE FLOORS AND QUANTITIES (SPECIFIC)

- | | | | |
|-----|---|-----|-----|
| 6.1 | 6.1.1 | B ✓ | (1) |
| | 6.1.2 | C ✓ | (1) |
| | 6.1.3 | B ✓ | (1) |
| | 6.1.4 | D ✓ | (1) |
| | 6.1.5 | C ✓ | (1) |
| 6.2 | Types of pile foundations: <ul style="list-style-type: none">• Steel tube caisson piles ✓• Precast concrete piles ✓• Driven in-situ piles• Short-bored (auger) piles ANY TWO OF THE ABOVE | | (2) |
| 6.3 | Cantilever beam ✓ | | (1) |

6.4



4 MAIN BARS CORRECTLY PLACED



6 MAIN BARS CORRECTLY PLACED

NO.	ASSESSMENT CRITERIA	MARK
1	Main bars – square (four)	1
2	Main bars - round (six)	1
3	Stirrup – square	1
4	Stirrup – round	1
5	Minimum concrete cover	2
	TOTAL:	6

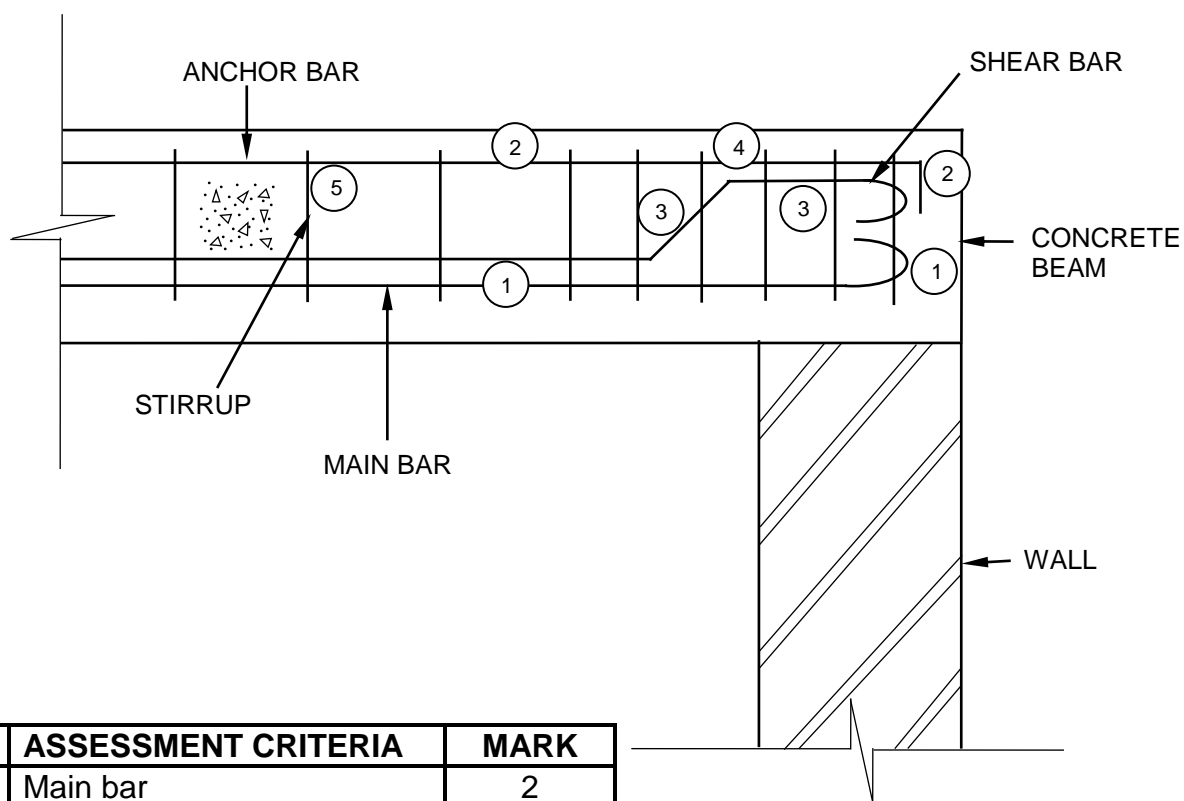
(6)

6.5

- A – Reinforcing mesh/Wire/Steel mesh/Welded wire mesh ✓
- B – Hollow-core concrete block ✓
- C – Conduit pipe ✓
- D – Reinforcing in rib/Reinforcing ✓
- E – Precast concrete rib/Rib ✓

(5)

6.6



NO.	ASSESSMENT CRITERIA	MARK
1	Main bar	2
2	Anchor bar	2
3	Shear bar	2
4	Stirrups (close spacing)	1
5	Stirrups (further spacing)	1
	TOTAL:	8

(8)

6.7
6.7.1

A	B	C	D
			Length of wall plate needed:
2/ ✓	12,06 ✓		$12\,500\text{ mm} - 2/220\text{ ✓} = 12\,060\text{ mm}$
		24,12 m ✓	24,12 m wall plate needed

(4)

6.7.2

A	B	C	D
			Number of trusses needed:
			$\frac{\text{Internal dimension}}{\text{Distance between centres} + 1 \text{ roof truss}}$
			$= \frac{12,06\text{ ✓}}{1,2 + 1\text{ ✓}}$
			$10,05 + 1$
			$11 + 1\text{ ✓}$
			12 roof trusses needed ✓

(4)

6.7.3

A	B	C	D
			Number of purlins needed:
			Number of purlins = $\frac{\text{Length of rafter}}{\text{Distance between purlins}}$
			$= \frac{4,92\text{ ✓}}{1,13\text{ ✓}}$
			$= 4,35 = 5$
			$= 5 \times 2\text{ ✓} = 10\text{ purlins ✓}$
			OR
			Number of purlins needed:
			Number of purlins = $\frac{\text{Length of rafter}}{\text{Distance between purlins}} + 1$
			$= \frac{4,92}{1,13} + 1$
			$= 4,35 + 1$
			$= 5 + 1$
			$= 6 \times 2 = 12\text{ purlins}$
			Correct use of dimension paper ✓

(4)

(1)

[40]**TOTAL: 200**